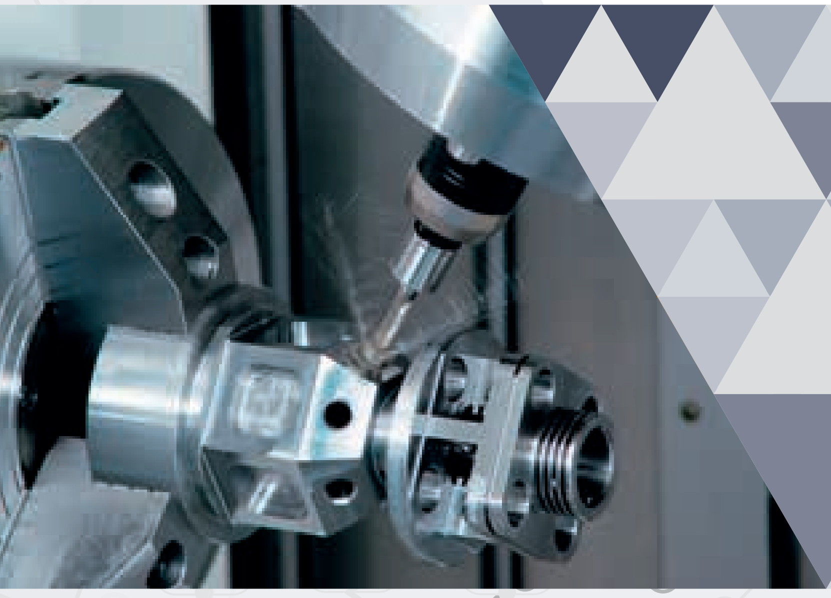
Brammer
Buck &
Hickman

Powered by
RUBIX

CATALOGUE

# MACHINING 2018/19



GISS
CUTLINE

GISS

# CUTLINE 2018/19

## Welcome to Cutline 2018/19

### Cutline is a range of high-performance rotary cutting tools designed to serve all your production needs.

It has been specially developed using customer feedback, in-depth field research and through close collaboration with leading industrial manufacturers.

Made to our exact specifications, every tool in the Cutline range has been expertly produced and tested, ensuring an exceptional level of quality across our comprehensive range.

**CUTLINE** is more than just an outstanding range of tools – our support is second-to-none too. We have a team of tooling experts ready to work alongside your business, answer your questions, and provide advice and technical solutions for all your machining needs.

**Excellent tools backed by excellent service is what makes Cutline truly stand out.**

This catalogue has been designed to give you a quick overview of the **CUTLINE** range and is supported by detailed technical tables and charts to help you make a precise product selection for your particular application. For further advice, please don't hesitate to contact the **CUTLINE** team.

**Choose Cutline – tools designed to help you achieve exceptional results.**

# contents 2018/19



# DRILLS

## HSS DRILLS



## HSS DRILL SETS



## CARBIDE DRILLS



## CENTRE DRILLS

## SPOTTING DRILLS



Pages **2** to **55**

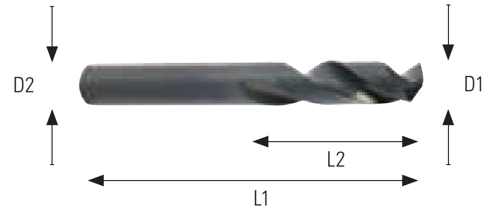
## DRILL - HSS - STUB DRILL

| Material | Vc [m/min] | Table of advances (f in rpm) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Ø 1 | Ø 2 | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 | Ø 20 |
| Steel <500 N/mm² (<150 HB) | 25-30 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 | 0,18 | 0,25 |
| Steel <700 N/mm² (<205 HB) | 25-30 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 | 0,18 | 0,25 |
| Steel <850 N/mm² (<265 HB) | 25-30 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 | 0,18 | 0,25 |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | | | | | |
| Fonte <180HB | 30-35 | 0,05 | 0,06 | 0,09 | 0,10 | 0,12 | 0,15 | 0,18 | 0,21 | 0,25 | 0,30 | 0,36 |
| Malleable cast iron >180HB | 25-30 | 0,04 | 0,05 | 0,07 | 0,08 | 0,10 | 0,12 | 0,14 | 0,17 | 0,20 | 0,24 | 0,28 |
| Cast iron with graphite >180HB | 25-30 | 0,04 | 0,05 | 0,07 | 0,08 | 0,10 | 0,12 | 0,14 | 0,17 | 0,20 | 0,24 | 0,28 |
| Aluminium | 60-80 | 0,07 | 0,08 | 0,11 | 0,13 | 0,15 | 0,19 | 0,22 | 0,26 | 0,32 | 0,38 | 0,45 |
| Aluminium >8% Si | 60-80 | 0,07 | 0,08 | 0,11 | 0,13 | 0,15 | 0,19 | 0,22 | 0,26 | 0,32 | 0,38 | 0,45 |
| Copper - Bronze - Brass | | | | | | | | | | | | |
| TITANIUM | | | | | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | | | | | |

# DRILL - HSS - STUB DRILL

DIN 1897N | 30° | 135°

A | F | A-C




| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 1 | 26 | 6 | 10 | 861211 | £ 1,12 |
| 1.5 | 1.5 | 32 | 9 | 10 | 861212 | £ 1,01 |
| 1.6 | 1.6 | 34 | 10 | 10 | 861213 | £ 1,12 |
| 1.8 | 1.8 | 38 | 12 | 10 | 861214 | £ 1,12 |
| 2 | 2 | 38 | 12 | 10 | 861215 | £ 0,99 |
| 2.1 | 2.1 | 40 | 13 | 10 | 861216 | £ 1,12 |
| 2.2 | 2.2 | 40 | 13 | 10 | 861217 | £ 1,12 |
| 2.3 | 2.3 | 40 | 13 | 10 | 861218 | £ 1,12 |
| 2.4 | 2.4 | 43 | 14 | 10 | 861219 | £ 1,12 |
| 2.5 | 2.5 | 43 | 14 | 10 | 861220 | £ 0,90 |
| 2.6 | 2.6 | 43 | 14 | 10 | 861221 | £ 1,05 |
| 2.7 | 2.7 | 46 | 16 | 10 | 861222 | £ 1,05 |
| 2.8 | 2.8 | 46 | 16 | 10 | 861223 | £ 1,05 |
| 2.9 | 2.9 | 46 | 16 | 10 | 861224 | £ 1,05 |
| 3 | 3 | 46 | 16 | 10 | 861225 | £ 0,94 |
| 3.1 | 3.1 | 49 | 18 | 10 | 861226 | £ 1,01 |
| 3.2 | 3.2 | 49 | 18 | 10 | 861227 | £ 1,01 |
| 3.3 | 3.3 | 49 | 18 | 10 | 861228 | £ 1,01 |
| 3.4 | 3.4 | 52 | 20 | 10 | 861229 | £ 1,12 |
| 3.5 | 3.5 | 52 | 20 | 10 | 861230 | £ 1,01 |
| 3.6 | 3.6 | 52 | 20 | 10 | 861231 | £ 1,26 |
| 3.7 | 3.7 | 52 | 20 | 10 | 861232 | £ 1,26 |
| 3.8 | 3.8 | 55 | 22 | 10 | 861233 | £ 1,26 |
| 3.9 | 3.9 | 55 | 22 | 10 | 861234 | £ 1,26 |
| 4 | 4 | 55 | 22 | 10 | 861235 | £ 1,10 |
| 4.1 | 4.1 | 55 | 22 | 10 | 861236 | £ 1,28 |
| 4.2 | 4.2 | 55 | 22 | 10 | 861237 | £ 1,28 |
| 4.3 | 4.3 | 58 | 24 | 10 | 861238 | £ 1,46 |
| 4.4 | 4.4 | 58 | 24 | 10 | 861239 | £ 1,46 |
| 4.5 | 4.5 | 58 | 24 | 10 | 861240 | £ 1,28 |
| 4.6 | 4.6 | 58 | 24 | 10 | 861241 | £ 1,64 |
| 4.7 | 4.7 | 58 | 24 | 10 | 861242 | £ 1,64 |
| 4.8 | 4.8 | 62 | 26 | 10 | 861243 | £ 1,64 |
| 4.9 | 4.9 | 62 | 26 | 10 | 861244 | £ 1,64 |
| 5 | 5 | 62 | 26 | 10 | 861245 | £ 1,41 |
| 5.1 | 5.1 | 62 | 26 | 10 | 861246 | £ 1,79 |
| 5.2 | 5.2 | 62 | 26 | 10 | 861247 | £ 1,79 |
| 5.3 | 5.3 | 62 | 26 | 10 | 861248 | £ 1,79 |
| 5.4 | 5.4 | 66 | 28 | 10 | 861249 | £ 1,79 |
| 5.5 | 5.5 | 66 | 28 | 10 | 861250 | £ 1,55 |
| 5.6 | 5.6 | 66 | 28 | 10 | 861251 | £ 2,06 |
| 5.7 | 5.7 | 66 | 28 | 10 | 861252 | £ 2,06 |
| 5.8 | 5.8 | 66 | 28 | 10 | 861253 | £ 2,06 |
| 5.9 | 5.9 | 66 | 28 | 10 | 861254 | £ 2,06 |
| 6 | 6 | 66 | 28 | 10 | 861255 | £ 1,77 |
| 6.1 | 6.1 | 70 | 31 | 10 | 861256 | £ 2,44 |
| 6.2 | 6.2 | 70 | 31 | 10 | 861257 | £ 2,44 |
| 6.3 | 6.3 | 70 | 31 | 10 | 861258 | £ 2,44 |
| 6.4 | 6.4 | 70 | 31 | 10 | 861259 | £ 2,44 |
| 6.5 | 6.5 | 70 | 31 | 10 | 861260 | £ 2,11 |
| 6.6 | 6.6 | 70 | 31 | 10 | 861261 | £ 2,80 |
| 6.7 | 6.7 | 70 | 31 | 10 | 861262 | £ 2,80 |
| 6.8 | 6.8 | 74 | 34 | 10 | 861263 | £ 2,47 |
| 7 | 7 | 74 | 34 | 10 | 861264 | £ 2,47 |
| 7.2 | 7.2 | 74 | 34 | 10 | 861265 | £ 3,14 |
| 7.4 | 7.4 | 74 | 34 | 10 | 861266 | £ 3,03 |
| 7.5 | 7.5 | 74 | 34 | 10 | 861267 | £ 2,76 |
| 7.8 | 7.8 | 79 | 37 | 10 | 861268 | £ 3,45 |
| 8 | 8 | 79 | 37 | 10 | 861269 | £ 3,03 |
| 8.5 | 8.5 | 79 | 37 | 10 | 861270 | £ 3,59 |
| 9 | 9 | 84 | 40 | 10 | 861271 | £ 3,95 |
| 9.1 | 9.1 | 84 | 40 | 10 | 861272 | £ 4,91 |
| 9.5 | 9.5 | 84 | 40 | 10 | 861273 | £ 4,42 |
| 10 | 10 | 89 | 43 | 10 | 861274 | £ 4,91 |
| 10.2 | 10.2 | 89 | 43 | 5 | 861275 | £ 5,58 |
| 10.5 | 10.5 | 89 | 43 | 5 | 861276 | £ 5,58 |
| 11 | 11 | 95 | 47 | 5 | 861277 | £ 6,14 |
| 11.5 | 11.5 | 95 | 47 | 5 | 861278 | £ 6,82 |
| 12 | 12 | 102 | 51 | 5 | 861279 | £ 7,24 |
| 12.5 | 12.5 | 102 | 51 | 5 | 861280 | £ 8,12 |
| 12.7 | 12.7 | 102 | 51 | 5 | 861281 | £ 8,57 |
| 13 | 13 | 102 | 51 | 5 | 861282 | £ 8,88 |
| 13.5 | 13.5 | 107 | 54 | 1 | 861283 | £ 11,26 |
| 14 | 14 | 107 | 54 | 1 | 861284 | £ 12,18 |
| 14.5 | 14.5 | 111 | 56 | 1 | 861285 | £ 13,88 |
| 15 | 15 | 111 | 56 | 1 | 861286 | £ 15,88 |
| 15.5 | 15.5 | 115 | 58 | 1 | 861287 | £ 19,13 |
| 16 | 16 | 115 | 58 | 1 | 861288 | £ 19,13 |
| 16.5 | 16.5 | 119 | 60 | 1 | 861289 | £ 22,49 |
| 17 | 17 | 119 | 60 | 1 | 861290 | £ 22,49 |
| 17.5 | 17.5 | 123 | 62 | 1 | 861291 | £ 25,05 |
| 18 | 18 | 123 | 62 | 1 | 861292 | £ 25,05 |
| 18.5 | 18.5 | 127 | 64 | 1 | 861293 | £ 27,90 |
| 19 | 19 | 127 | 64 | 1 | 861294 | £ 27,90 |
| 19.5 | 19.5 | 131 | 66 | 1 | 861295 | £ 33,44 |
| 20 | 20 | 131 | 66 | 1 | 861296 | £ 33,44 |

## DRILL - HSS - JOBBER DRILL

| Material | Vc [m/min] | Table of advances (f in rpm) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Ø 1 | Ø 2 | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 | Ø 20 |
| Steel <500 N/mm² (<150 HB) | 25-30 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 | 0,18 | 0,25 |
| Steel <700 N/mm² (<205 HB) | 25-30 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 | 0,18 | 0,25 |
| Steel <850 N/mm² (<265 HB) | 25-30 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 | 0,18 | 0,25 |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | | | | | |
| Fonte <180HB | 30-35 | 0,05 | 0,06 | 0,09 | 0,10 | 0,12 | 0,15 | 0,18 | 0,21 | 0,25 | 0,30 | 0,36 |
| Malleable cast iron >180HB | 25-30 | 0,04 | 0,05 | 0,07 | 0,08 | 0,10 | 0,12 | 0,14 | 0,17 | 0,20 | 0,24 | 0,28 |
| Cast iron with graphite >180HB | 25-30 | 0,04 | 0,05 | 0,07 | 0,08 | 0,10 | 0,12 | 0,14 | 0,17 | 0,20 | 0,24 | 0,28 |
| Aluminium | 60-80 | 0,07 | 0,08 | 0,11 | 0,13 | 0,15 | 0,19 | 0,22 | 0,26 | 0,32 | 0,38 | 0,45 |
| Aluminium >8% Si | 60-80 | 0,07 | 0,08 | 0,11 | 0,13 | 0,15 | 0,19 | 0,22 | 0,26 | 0,32 | 0,38 | 0,45 |
| Copper - Bronze - Brass | | | | | | | | | | | | |
| TITANIUM | | | | | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | | | | | |

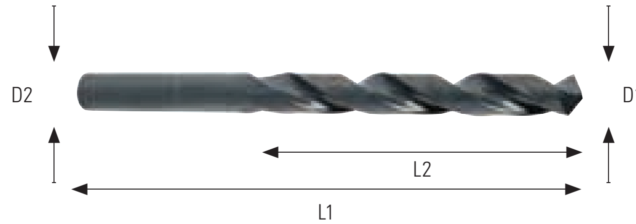
See p.30

Set of HSS drills
Ref. 845946

## DRILL - HSS - JOBBER DRILL

DIN 338N | 30° | 118°

A | F | A-C




| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 1 | 34 | 12 | 10 | 845744 | £ 0,99 |
| 1.1 | 1.1 | 36 | 14 | 10 | 845745 | £ 1,10 |
| 1.2 | 1.2 | 38 | 16 | 10 | 845746 | £ 1,10 |
| 1.3 | 1.3 | 38 | 16 | 10 | 845747 | £ 0,99 |
| 1.4 | 1.4 | 40 | 18 | 10 | 845748 | £ 0,99 |
| 1.5 | 1.5 | 40 | 18 | 10 | 845749 | £ 0,76 |
| 1.6 | 1.6 | 43 | 20 | 10 | 845750 | £ 0,94 |
| 1.7 | 1.7 | 43 | 20 | 10 | 845751 | £ 0,94 |
| 1.8 | 1.8 | 46 | 22 | 10 | 845752 | £ 0,87 |
| 1.9 | 1.9 | 46 | 22 | 10 | 845753 | £ 0,87 |
| 2 | 2 | 49 | 24 | 10 | 845754 | £ 0,70 |
| 2.1 | 2.1 | 49 | 24 | 10 | 845755 | £ 0,78 |
| 2.2 | 2.2 | 53 | 27 | 10 | 845756 | £ 0,78 |
| 2.3 | 2.3 | 53 | 27 | 10 | 845757 | £ 0,96 |
| 2.4 | 2.4 | 57 | 30 | 10 | 845758 | £ 0,96 |
| 2.5 | 2.5 | 57 | 30 | 10 | 845759 | £ 0,74 |
| 2.6 | 2.6 | 57 | 30 | 10 | 845760 | £ 0,99 |
| 2.7 | 2.7 | 61 | 33 | 10 | 845761 | £ 0,99 |
| 2.8 | 2.8 | 61 | 33 | 10 | 845762 | £ 0,99 |
| 2.9 | 2.9 | 61 | 33 | 10 | 845763 | £ 0,99 |
| 3 | 3 | 61 | 33 | 10 | 845764 | £ 0,67 |
| 3.1 | 3.1 | 65 | 36 | 10 | 845767 | £ 0,87 |
| 3.2 | 3.2 | 65 | 36 | 10 | 845765 | £ 0,76 |
| 3.3 | 3.3 | 65 | 36 | 10 | 845766 | £ 0,76 |
| 3.4 | 3.4 | 70 | 39 | 10 | 845768 | £ 1,08 |
| 3.5 | 3.5 | 70 | 39 | 10 | 845769 | £ 0,76 |
| 3.6 | 3.6 | 70 | 39 | 10 | 845770 | £ 1,12 |
| 3.7 | 3.7 | 70 | 39 | 10 | 845771 | £ 1,12 |
| 3.8 | 3.8 | 75 | 43 | 10 | 845772 | £ 1,12 |
| 3.9 | 3.9 | 75 | 43 | 10 | 845773 | £ 1,12 |
| 4 | 4 | 75 | 43 | 10 | 845774 | £ 0,90 |
| 4.1 | 4.1 | 75 | 43 | 10 | 845775 | £ 1,03 |
| 4.2 | 4.2 | 75 | 43 | 10 | 845776 | £ 1,01 |
| 4.3 | 4.3 | 80 | 47 | 10 | 845777 | £ 1,35 |
| 4.4 | 4.4 | 80 | 47 | 10 | 845778 | £ 1,35 |
| 4.5 | 4.5 | 80 | 47 | 10 | 845779 | £ 1,03 |
| 4.6 | 4.6 | 80 | 47 | 10 | 845780 | £ 1,37 |
| 4.7 | 4.7 | 80 | 47 | 10 | 845781 | £ 1,37 |
| 4.8 | 4.8 | 86 | 52 | 10 | 845782 | £ 1,48 |
| 4.9 | 4.9 | 86 | 52 | 10 | 845783 | £ 1,46 |
| 5 | 5 | 86 | 52 | 10 | 845784 | £ 1,08 |
| 5.1 | 5.1 | 86 | 52 | 10 | 845785 | £ 1,50 |
| 5.2 | 5.2 | 86 | 52 | 10 | 845786 | £ 1,50 |
| 5.3 | 5.3 | 86 | 52 | 10 | 845787 | £ 1,86 |
| 5.4 | 5.4 | 93 | 57 | 10 | 845788 | £ 1,86 |
| 5.5 | 5.5 | 93 | 57 | 10 | 845789 | £ 1,41 |
| 5.6 | 5.6 | 93 | 57 | 10 | 845790 | £ 1,95 |
| 5.7 | 5.7 | 93 | 57 | 10 | 845791 | £ 1,95 |
| 5.8 | 5.8 | 93 | 57 | 10 | 845792 | £ 1,86 |
| 5.9 | 5.9 | 93 | 57 | 10 | 845793 | £ 1,86 |
| 6 | 6 | 93 | 57 | 10 | 845794 | £ 1,46 |

| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 6.1 | 6.1 | 101 | 63 | 10 | 845795 | £ 2,15 |
| 6.2 | 6.2 | 101 | 63 | 10 | 845796 | £ 2,15 |
| 6.3 | 6.3 | 101 | 63 | 10 | 845797 | £ 2,24 |
| 6.4 | 6.4 | 101 | 63 | 10 | 845798 | £ 2,29 |
| 6.5 | 6.5 | 101 | 63 | 10 | 845799 | £ 1,73 |
| 6.6 | 6.6 | 101 | 63 | 10 | 845800 | £ 2,80 |
| 6.7 | 6.7 | 101 | 63 | 10 | 845801 | £ 2,80 |
| 6.8 | 6.8 | 109 | 69 | 10 | 845802 | £ 2,04 |
| 6.9 | 6.9 | 109 | 69 | 10 | 845803 | £ 3,07 |
| 7 | 7 | 109 | 69 | 10 | 845804 | £ 2,04 |
| 7.1 | 7.1 | 109 | 69 | 10 | 845805 | £ 3,30 |
| 7.2 | 7.2 | 109 | 69 | 10 | 845806 | £ 3,30 |
| 7.3 | 7.3 | 109 | 69 | 10 | 845807 | £ 3,30 |
| 7.4 | 7.4 | 109 | 69 | 10 | 845808 | £ 3,30 |
| 7.5 | 7.5 | 109 | 69 | 10 | 845809 | £ 2,15 |
| 7.6 | 7.6 | 117 | 75 | 10 | 845810 | £ 3,70 |
| 7.7 | 7.7 | 117 | 75 | 10 | 845811 | £ 3,88 |
| 7.8 | 7.8 | 117 | 75 | 10 | 845812 | £ 3,92 |
| 7.9 | 7.9 | 117 | 75 | 10 | 845813 | £ 3,92 |
| 8 | 8 | 117 | 75 | 10 | 845814 | £ 2,49 |
| 8.1 | 8.1 | 117 | 75 | 10 | 845815 | £ 4,04 |
| 8.2 | 8.2 | 117 | 75 | 10 | 845816 | £ 4,04 |
| 8.3 | 8.3 | 117 | 75 | 10 | 845817 | £ 4,17 |
| 8.4 | 8.4 | 117 | 75 | 10 | 845818 | £ 4,17 |
| 8.5 | 8.5 | 117 | 75 | 10 | 845819 | £ 2,76 |
| 8.6 | 8.6 | 125 | 81 | 10 | 845820 | £ 5,16 |
| 8.7 | 8.7 | 125 | 81 | 10 | 845821 | £ 5,16 |
| 8.8 | 8.8 | 125 | 81 | 10 | 845822 | £ 5,05 |
| 8.9 | 8.9 | 125 | 81 | 10 | 845823 | £ 5,05 |
| 9 | 9 | 125 | 81 | 10 | 845824 | £ 3,36 |
| 9.1 | 9.1 | 125 | 81 | 10 | 845825 | £ 5,27 |
| 9.2 | 9.2 | 125 | 81 | 10 | 845826 | £ 5,27 |
| 9.3 | 9.3 | 125 | 81 | 10 | 845827 | £ 4,96 |
| 9.4 | 9.4 | 125 | 81 | 10 | 845828 | £ 4,96 |
| 9.5 | 9.5 | 125 | 81 | 10 | 845829 | £ 3,63 |
| 9.6 | 9.6 | 133 | 87 | 10 | 845830 | £ 5,54 |
| 9.7 | 9.7 | 133 | 87 | 10 | 845831 | £ 5,54 |
| 9.8 | 9.8 | 133 | 87 | 10 | 845832 | £ 6,10 |
| 9.9 | 9.9 | 133 | 87 | 10 | 845833 | £ 6,10 |
| 10 | 10 | 133 | 87 | 10 | 845834 | £ 4,06 |
| 10.1 | 10.1 | 133 | 87 | 5 | 845835 | £ 5,27 |
| 10.2 | 10.2 | 133 | 87 | 5 | 845836 | £ 4,91 |
| 10.3 | 10.3 | 133 | 87 | 5 | 845837 | £ 6,17 |
| 10.4 | 10.4 | 133 | 87 | 5 | 845838 | £ 6,17 |
| 10.5 | 10.5 | 133 | 87 | 5 | 845839 | £ 4,91 |
| 11 | 11 | 142 | 94 | 5 | 845840 | £ 5,74 |
| 11.5 | 11.5 | 142 | 94 | 5 | 845841 | £ 6,10 |
| 12 | 12 | 151 | 101 | 5 | 845842 | £ 6,77 |
| 12.5 | 12.5 | 151 | 101 | 5 | 845843 | £ 7,45 |
| 13 | 13 | 151 | 101 | 5 | 845844 | £ 7,71 |

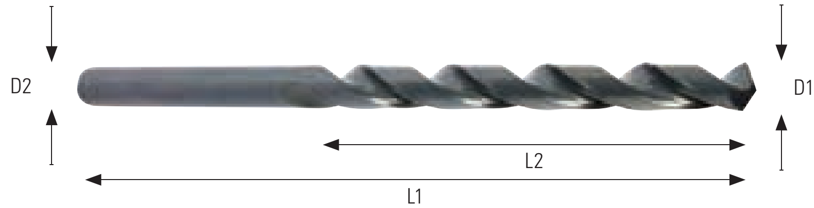
## DRILL - HSS - LONG SERIES DRILL

| Material | Vc [m/min] | Table of advances (f in rpm) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Ø 1 | Ø 2 | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 | Ø 20 |
| Steel <500 N/mm² (<150 HB) | 25-30 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 | 0,18 | 0,25 |
| Steel <700 N/mm² (<205 HB) | 25-30 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 | 0,18 | 0,25 |
| Steel <850 N/mm² (<265 HB) | 25-30 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 | 0,18 | 0,25 |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | | | | | |
| Fonte <180HB | 30-35 | 0,05 | 0,06 | 0,09 | 0,10 | 0,12 | 0,15 | 0,18 | 0,21 | 0,25 | 0,30 | 0,36 |
| Malleable cast iron >180HB | 25-30 | 0,04 | 0,05 | 0,07 | 0,08 | 0,10 | 0,12 | 0,14 | 0,17 | 0,20 | 0,24 | 0,28 |
| Cast iron with graphite >180HB | 25-30 | 0,04 | 0,05 | 0,07 | 0,08 | 0,10 | 0,12 | 0,14 | 0,17 | 0,20 | 0,24 | 0,28 |
| Aluminium | 60-80 | 0,07 | 0,08 | 0,11 | 0,13 | 0,15 | 0,19 | 0,22 | 0,26 | 0,32 | 0,38 | 0,45 |
| Aluminium >8% Si | 60-80 | 0,07 | 0,08 | 0,11 | 0,13 | 0,15 | 0,19 | 0,22 | 0,26 | 0,32 | 0,38 | 0,45 |
| Copper - Bronze - Brass | | | | | | | | | | | | |
| TITANIUM | | | | | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | | | | | |

# DRILL - HSS - LONG SERIES DRILL

DIN 340N | 30° | 118°

A | F | A-C




| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1,0 | 1,0 | 56 | 33 | 10 | 861298 | £ 3,86 |
| 1,1 | 1,1 | 60 | 37 | 10 | 861299 | £ 3,72 |
| 1,2 | 1,2 | 65 | 41 | 10 | 861300 | £ 3,72 |
| 1,3 | 1,3 | 65 | 41 | 10 | 861301 | £ 3,10 |
| 1,4 | 1,4 | 70 | 45 | 10 | 861302 | £ 3,38 |
| 1,5 | 1,5 | 70 | 45 | 10 | 861303 | £ 3,30 |
| 1,6 | 1,6 | 76 | 50 | 10 | 861304 | £ 3,38 |
| 1,7 | 1,7 | 76 | 50 | 10 | 861305 | £ 3,04 |
| 1,8 | 1,8 | 80 | 53 | 10 | 861306 | £ 2,77 |
| 1,9 | 1,9 | 80 | 53 | 10 | 861307 | £ 3,41 |
| 2,0 | 2,0 | 85 | 56 | 10 | 861308 | £ 2,26 |
| 2,1 | 2,1 | 85 | 56 | 10 | 861309 | £ 2,98 |
| 2,2 | 2,2 | 90 | 59 | 10 | 861310 | £ 2,98 |
| 2,3 | 2,3 | 90 | 59 | 10 | 861311 | £ 3,13 |
| 2,4 | 2,4 | 95 | 62 | 10 | 861312 | £ 3,51 |
| 2,5 | 2,5 | 95 | 62 | 10 | 861313 | £ 2,49 |
| 2,6 | 2,6 | 95 | 62 | 10 | 861314 | £ 3,31 |
| 2,7 | 2,7 | 100 | 66 | 10 | 861315 | £ 2,89 |
| 2,8 | 2,8 | 100 | 66 | 10 | 861316 | £ 2,89 |
| 2,9 | 2,9 | 100 | 66 | 10 | 861317 | £ 2,89 |
| 3,0 | 3,0 | 100 | 66 | 10 | 861318 | £ 2,33 |
| 3,1 | 3,1 | 106 | 69 | 10 | 861319 | £ 2,56 |
| 3,2 | 3,2 | 106 | 69 | 10 | 861320 | £ 2,56 |
| 3,3 | 3,3 | 106 | 69 | 10 | 861321 | £ 2,56 |
| 3,4 | 3,4 | 112 | 73 | 10 | 861322 | £ 2,89 |
| 3,5 | 3,5 | 112 | 73 | 10 | 861323 | £ 2,43 |
| 3,6 | 3,6 | 112 | 73 | 10 | 861324 | £ 2,89 |
| 3,7 | 3,7 | 112 | 73 | 10 | 861325 | £ 2,89 |
| 3,8 | 3,8 | 119 | 78 | 10 | 861326 | £ 3,59 |
| 3,9 | 3,9 | 119 | 78 | 10 | 861327 | £ 3,42 |
| 4,0 | 4,0 | 119 | 78 | 10 | 861328 | £ 2,61 |
| 4,1 | 4,1 | 119 | 78 | 10 | 861329 | £ 3,00 |
| 4,2 | 4,2 | 119 | 78 | 10 | 861330 | £ 3,00 |
| 4,3 | 4,3 | 126 | 82 | 10 | 861331 | £ 3,88 |
| 4,4 | 4,4 | 126 | 82 | 10 | 861332 | £ 3,88 |
| 4,5 | 4,5 | 126 | 82 | 10 | 861333 | £ 2,76 |
| 4,6 | 4,6 | 126 | 82 | 10 | 861334 | £ 3,88 |
| 4,7 | 4,7 | 126 | 82 | 10 | 861335 | £ 3,88 |
| 4,8 | 4,8 | 132 | 87 | 10 | 861336 | £ 4,51 |
| 4,9 | 4,9 | 132 | 87 | 10 | 861337 | £ 4,51 |
| 5,0 | 5,0 | 132 | 87 | 10 | 861338 | £ 2,94 |
| 5,1 | 5,1 | 132 | 87 | 10 | 861339 | £ 4,51 |
| 5,2 | 5,2 | 132 | 87 | 10 | 861340 | £ 4,51 |
| 5,3 | 5,3 | 132 | 87 | 10 | 861341 | £ 4,91 |
| 5,4 | 5,4 | 139 | 91 | 10 | 861342 | £ 4,91 |
| 5,5 | 5,5 | 139 | 91 | 10 | 861343 | £ 3,88 |
| 5,6 | 5,6 | 139 | 91 | 10 | 861344 | £ 4,91 |
| 5,7 | 5,7 | 139 | 91 | 10 | 861345 | £ 4,91 |
| 5,8 | 5,8 | 139 | 91 | 10 | 861346 | £ 5,36 |
| 5,9 | 5,9 | 139 | 91 | 10 | 861347 | £ 5,36 |
| 6,0 | 6,0 | 139 | 91 | 10 | 861348 | £ 3,59 |
| 6,1 | 6,1 | 148 | 97 | 10 | 861349 | £ 5,36 |
| 6,2 | 6,2 | 148 | 97 | 10 | 861350 | £ 5,36 |
| 6,3 | 6,3 | 148 | 97 | 10 | 861351 | £ 5,40 |
| 6,4 | 6,4 | 148 | 97 | 10 | 861352 | £ 5,40 |
| 6,5 | 6,5 | 148 | 97 | 10 | 861353 | £ 4,60 |
| 6,6 | 6,6 | 148 | 97 | 5 | 861354 | £ 5,40 |
| 6,7 | 6,7 | 148 | 97 | 5 | 861355 | £ 5,40 |
| 6,8 | 6,8 | 156 | 102 | 5 | 861356 | £ 5,65 |
| 6,9 | 6,9 | 156 | 102 | 5 | 861357 | £ 5,76 |
| 7,0 | 7,0 | 156 | 102 | 5 | 861358 | £ 5,34 |
| 7,1 | 7,1 | 156 | 102 | 5 | 861359 | £ 5,76 |
| 7,2 | 7,2 | 156 | 102 | 5 | 861360 | £ 5,76 |
| 7,3 | 7,3 | 156 | 102 | 5 | 861361 | £ 5,88 |
| 7,4 | 7,4 | 156 | 102 | 5 | 861362 | £ 5,88 |

| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 7,5 | 7,5 | 156 | 102 | 5 | 861363 | £ 5,72 |
| 7,6 | 7,6 | 165 | 109 | 5 | 861364 | £ 5,88 |
| 7,7 | 7,7 | 165 | 109 | 5 | 861365 | £ 5,88 |
| 7,8 | 7,8 | 165 | 109 | 5 | 861366 | £ 6,57 |
| 7,9 | 7,9 | 165 | 109 | 5 | 861367 | £ 6,57 |
| 8,0 | 8,0 | 165 | 109 | 5 | 861368 | £ 6,37 |
| 8,1 | 8,1 | 165 | 109 | 5 | 861369 | £ 6,57 |
| 8,2 | 8,2 | 165 | 109 | 5 | 861370 | £ 6,57 |
| 8,3 | 8,3 | 165 | 109 | 5 | 861371 | £ 10,07 |
| 8,4 | 8,4 | 165 | 109 | 5 | 861372 | £ 10,07 |
| 8,5 | 8,5 | 165 | 109 | 5 | 861373 | £ 7,04 |
| 8,6 | 8,6 | 175 | 115 | 5 | 861374 | £ 10,07 |
| 8,7 | 8,7 | 175 | 115 | 5 | 861375 | £ 10,07 |
| 8,8 | 8,8 | 175 | 115 | 5 | 861376 | £ 10,34 |
| 8,9 | 8,9 | 175 | 115 | 5 | 861377 | £ 10,34 |
| 9,0 | 9,0 | 175 | 115 | 5 | 861378 | £ 7,69 |
| 9,1 | 9,1 | 175 | 115 | 5 | 861379 | £ 10,34 |
| 9,2 | 9,2 | 175 | 115 | 5 | 861380 | £ 10,34 |
| 9,3 | 9,3 | 175 | 115 | 5 | 861381 | £ 11,12 |
| 9,4 | 9,4 | 175 | 115 | 5 | 861382 | £ 11,12 |
| 9,5 | 9,5 | 175 | 115 | 5 | 861383 | £ 7,76 |
| 9,6 | 9,6 | 184 | 121 | 5 | 861384 | £ 11,12 |
| 9,7 | 9,7 | 184 | 121 | 5 | 861385 | £ 11,12 |
| 9,8 | 9,8 | 184 | 121 | 5 | 861386 | £ 11,12 |
| 9,9 | 9,9 | 184 | 121 | 5 | 861387 | £ 11,12 |
| 10,0 | 10,0 | 184 | 121 | 5 | 861388 | £ 8,41 |
| 10,2 | 10,2 | 184 | 121 | 5 | 861389 | £ 11,35 |
| 10,25 | 10,25 | 184 | 121 | 1 | 861390 | £ 10,49 |
| 10,5 | 10,5 | 184 | 121 | 1 | 861391 | £ 11,35 |
| 10,75 | 10,75 | 195 | 128 | 1 | 861392 | £ 11,53 |
| 10,8 | 10,8 | 195 | 128 | 1 | 861393 | £ 14,40 |
| 11,0 | 11,0 | 195 | 128 | 1 | 861394 | £ 12,60 |
| 11,25 | 11,25 | 195 | 128 | 1 | 861395 | £ 15,00 |
| 11,5 | 11,5 | 195 | 128 | 1 | 861396 | £ 12,85 |
| 11,75 | 11,75 | 195 | 128 | 1 | 861397 | £ 16,84 |
| 12,0 | 12,0 | 205 | 134 | 1 | 861398 | £ 14,35 |
| 12,25 | 12,25 | 205 | 134 | 1 | 861399 | £ 16,26 |
| 12,5 | 12,5 | 205 | 134 | 1 | 861400 | £ 15,14 |
| 12,75 | 12,75 | 205 | 134 | 1 | 861401 | £ 19,91 |
| 13,0 | 13,0 | 205 | 134 | 1 | 861402 | £ 17,16 |
| 13,25 | 13,25 | 214 | 140 | 1 | 861403 | £ 19,91 |
| 13.5 | 13.5 | 214 | 140 | 1 | 861404 | £ 19,15 |
| 13.75 | 13.75 | 214 | 140 | 1 | 861405 | £ 19,98 |
| 14,0 | 14,0 | 214 | 140 | 1 | 861406 | £ 20,65 |
| 14,25 | 14,25 | 220 | 144 | 1 | 861407 | £ 37,18 |
| 14.5 | 14.5 | 220 | 144 | 1 | 861408 | £ 24,17 |
| 14.75 | 14.75 | 220 | 144 | 1 | 861409 | £ 37,18 |
| 15,0 | 15,0 | 220 | 144 | 1 | 861410 | £ 23,41 |
| 15,25 | 15,25 | 227 | 149 | 1 | 861411 | £ 42,00 |
| 15.5 | 15.5 | 227 | 149 | 1 | 861412 | £ 34,71 |
| 15.75 | 15.75 | 227 | 149 | 1 | 861413 | £ 42,00 |
| 16,0 | 16,0 | 227 | 149 | 1 | 861414 | £ 27,25 |
| 16,25 | 16,25 | 235 | 154 | 1 | 861415 | £ 46,31 |
| 16.5 | 16.5 | 235 | 154 | 1 | 861416 | £ 32,18 |
| 16.75 | 16.75 | 235 | 154 | 1 | 861417 | £ 46,31 |
| 17,0 | 17,0 | 235 | 154 | 1 | 861418 | £ 32,36 |
| 17,25 | 17,25 | 241 | 158 | 1 | 861419 | £ 53,28 |
| 17.5 | 17.5 | 241 | 158 | 1 | 861420 | £ 47,79 |
| 17.75 | 17.75 | 241 | 158 | 1 | 861421 | £ 62,07 |
| 18,0 | 18,0 | 241 | 158 | 1 | 861422 | £ 33,68 |
| 18,25 | 18,25 | 241 | 158 | 1 | 861423 | £ 73,15 |
| 18.5 | 18.5 | 247 | 162 | 1 | 861424 | £ 52,18 |
| 19,0 | 19,0 | 247 | 162 | 1 | 861425 | £ 42,27 |
| 19,5 | 19,5 | 254 | 166 | 1 | 861426 | £ 81,25 |
| 20,0 | 20,0 | 254 | 166 | 1 | 861427 | £ 47,43 |

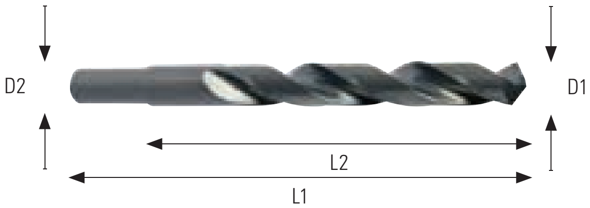
## DRILL - HSS - REDUCED SHANK DRILL - BLACKSMITHS

| Material | Vc [m/min] | Table of advances (f in rpm) | | | | |
|---|---|---|---|---|---|---|
| | | Ø 10 | Ø 12 | Ø 16 | Ø 20 | Ø 25 |
| Steel <500 N/mm² (<150 HB) | 25-30 | 0,14 | 0,16 | 0,18 | 0,25 | 0,43 |
| Steel <700 N/mm² (<205 HB) | 25-30 | 0,14 | 0,16 | 0,18 | 0,25 | 0,43 |
| Steel <850 N/mm² (<265 HB) | 25-30 | 0,14 | 0,16 | 0,18 | 0,25 | 0,43 |
| Steel <1000 N/mm² (<30 HRC) | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | |
| Steel (60 / 65 HRC) | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | |
| Fonte <180HB | 30-35 | 0,20 | 0,25 | 0,30 | 0,36 | 0,36 |
| Malleable cast iron >180HB | 25-30 | 0,15 | 0,20 | 0,24 | 0,29 | 0,34 |
| Cast iron with graphite >180HB | 25-30 | 0,15 | 0,20 | 0,24 | 0,29 | 0,34 |
| Aluminium | 60-80 | 0,30 | 0,32 | 0,38 | 0,45 | 0,54 |
| Aluminium >8% Si | 60-80 | 0,30 | 0,32 | 0,38 | 0,45 | 0,54 |
| Copper - Bronze - Brass | | | | | | |
| TITANIUM | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | |

# DRILL - HSS - REDUCED SHANK DRILL - BLACKSMITHS

DIN 338N | 30° | 118°

A | F | A-C




| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 10.5 | 10 | 133 | 87 | 1 | 861150 | £ 6,90 |
| 11 | 10 | 142 | 94 | 1 | 861151 | £ 7,81 |
| 11.5 | 10 | 142 | 94 | 1 | 861152 | £ 8,25 |
| 12 | 10 | 151 | 101 | 1 | 861153 | £ 8,99 |
| 12.5 | 10 | 151 | 101 | 1 | 861154 | £ 9,75 |
| 13 | 10 | 151 | 101 | 1 | 861155 | £ 10,01 |
| 13.5 | 12.7 | 160 | 108 | 1 | 861156 | £ 13,55 |
| 14 | 12.7 | 160 | 108 | 1 | 861157 | £ 14,37 |
| 14.5 | 12.7 | 169 | 114 | 1 | 861158 | £ 15,35 |
| 15 | 12.7 | 169 | 114 | 1 | 861159 | £ 15,51 |
| 15.5 | 12.7 | 178 | 120 | 1 | 861160 | £ 17,88 |
| 16 | 12.7 | 178 | 120 | 1 | 861161 | £ 18,52 |
| 16.5 | 12.7 | 184 | 125 | 1 | 861162 | £ 20,81 |
| 17 | 12.7 | 184 | 125 | 1 | 861163 | £ 20,81 |
| 17.5 | 12.7 | 191 | 130 | 1 | 861164 | £ 23,66 |
| 18 | 12.7 | 191 | 130 | 1 | 861165 | £ 24,92 |
| 18.5 | 12.7 | 198 | 135 | 1 | 861166 | £ 27,47 |
| 19 | 12.7 | 198 | 135 | 1 | 861167 | £ 27,47 |
| 19.5 | 12.7 | 205 | 140 | 1 | 861168 | £ 29,90 |
| 20 | 12.7 | 205 | 140 | 1 | 861169 | £ 34,48 |
| 21 | 12.7 | 205 | 145 | 1 | 861170 | £ 36,44 |
| 22 | 12.7 | 210 | 150 | 1 | 861171 | £ 40,21 |
| 23 | 12.7 | 210 | 150 | 1 | 861172 | £ 43,97 |
| 24 | 12.7 | 220 | 160 | 1 | 861173 | £ 48,52 |
| 25 | 12.7 | 220 | 160 | 1 | 861174 | £ 52,90 |

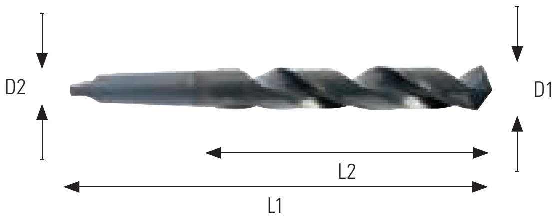
## DRILL - HSS - MORSE TAPER SHANK DRILL

| Material | Vc [m/min] | Table of advances (f in rpm) | | | | |
|---|---|---|---|---|---|---|
| | | Ø 12 | Ø 16 | Ø 20 | Ø 25 | Ø 32 |
| Steel <500 N/mm² (<150 HB) | 25-30 | 0,16 | 0,18 | 0,25 | 0,30 | 0,31 |
| Steel <700 N/mm² (<205 HB) | 25-30 | 0,16 | 0,18 | 0,25 | 0,30 | 0,31 |
| Steel <850 N/mm² (<265 HB) | 25-30 | 0,16 | 0,18 | 0,25 | 0,30 | 0,31 |
| Steel <1000 N/mm² (<30 HRC) | 15-20 | 0,13 | 0,16 | 0,20 | 0,25 | 0,26 |
| Steel <1400 N/mm² (<44 HRC) | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | |
| Steel (60 / 65 HRC) | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | |
| Fonte <180HB | 30-35 | 0,25 | 0,30 | 0,36 | 0,43 | 0,51 |
| Malleable cast iron >180HB | 25-30 | 0,25 | 0,30 | 0,36 | 0,43 | 0,51 |
| Cast iron with graphite >180HB | 25-30 | 0,20 | 0,24 | 0,28 | 0,34 | 0,41 |
| Aluminium | | | | | | |
| Aluminium >8% Si | | | | | | |
| Copper - Bronze - Brass | 30-40 | 0,20 | 0,24 | 0,28 | 0,34 | 0,41 |
| TITANIUM | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | |

## DRILL - HSS - MORSE TAPER SHANK DRILL

DIN 345N | 30° | 118°

A | F | A-C




| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 10 | MT1 | 168 | 87 | 1 | 863888 | £ 13,16 |
| 10,5 | MT1 | 168 | 87 | 1 | 863889 | £ 13,51 |
| 11 | MT1 | 175 | 94 | 1 | 863890 | £ 14,11 |
| 11,5 | MT1 | 175 | 94 | 1 | 863891 | £ 14,29 |
| 12 | MT1 | 182 | 101 | 1 | 863892 | £ 14,47 |
| 12,5 | MT1 | 182 | 101 | 1 | 863893 | £ 14,77 |
| 13 | MT1 | 182 | 101 | 1 | 863894 | £ 18,96 |
| 13,5 | MT1 | 189 | 108 | 1 | 863895 | £ 18,96 |
| 14 | MT1 | 189 | 108 | 1 | 863896 | £ 22,16 |
| 14,5 | MT2 | 212 | 114 | 1 | 863897 | £ 22,16 |
| 15 | MT2 | 212 | 114 | 1 | 863898 | £ 24,70 |
| 15,5 | MT2 | 218 | 120 | 1 | 863899 | £ 25,39 |
| 16 | MT2 | 218 | 120 | 1 | 863900 | £ 25,53 |
| 16,5 | MT2 | 223 | 125 | 1 | 863901 | £ 26,34 |
| 17 | MT2 | 223 | 125 | 1 | 863902 | £ 28,23 |
| 17,5 | MT2 | 228 | 130 | 1 | 863903 | £ 28,23 |
| 18 | MT2 | 228 | 130 | 1 | 863904 | £ 29,99 |
| 18,5 | MT2 | 233 | 135 | 1 | 863905 | £ 29,99 |
| 19 | MT2 | 233 | 135 | 1 | 863906 | £ 32,11 |
| 19,5 | MT2 | 238 | 140 | 1 | 863907 | £ 33,37 |
| 20 | MT2 | 238 | 140 | 1 | 863908 | £ 35,97 |
| 21 | MT2 | 243 | 145 | 1 | 863909 | £ 40,45 |
| 22 | MT2 | 248 | 150 | 1 | 863910 | £ 42,37 |
| 23 | MT2 | 253 | 155 | 1 | 863911 | £ 50,05 |
| 24 | MT3 | 281 | 160 | 1 | 863912 | £ 54,21 |
| 25 | MT3 | 286 | 165 | 1 | 863913 | £ 57,11 |
| 26 | MT3 | 286 | 165 | 1 | 863914 | £ 52,95 |
| 27 | MT3 | 291 | 170 | 1 | 863915 | £ 53,88 |
| 28 | MT3 | 291 | 170 | 1 | 863916 | £ 60,82 |
| 29 | MT3 | 296 | 175 | 1 | 863917 | £ 70,59 |
| 30 | MT3 | 296 | 175 | 1 | 863918 | £ 73,76 |
| 31 | MT3 | 301 | 180 | 1 | 863919 | £ 75,74 |
| 32 | MT4 | 334 | 185 | 1 | 863920 | £ 77,65 |

## DRILL - HSS - JOBBER TIN COATED DRILL

| Material | Vc [m/min] | Table of advances (f in rpm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Ø 1 | Ø 2 | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 |
| Steel <500 N/mm² (<150 HB) | 33-40 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 |
| Steel <700 N/mm² (<205 HB) | 33-40 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 |
| Steel <850 N/mm² (<265 HB) | 33-40 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | | | |
| Fonte <180HB | 40-45 | 0,05 | 0,06 | 0,09 | 0,10 | 0,12 | 0,15 | 0,18 | 0,21 | 0,25 |
| Malleable cast iron >180HB | 33-40 | 0,04 | 0,05 | 0,07 | 0,08 | 0,10 | 0,12 | 0,14 | 0,17 | 0,20 |
| Cast iron with graphite >180HB | 33-40 | 0,04 | 0,05 | 0,07 | 0,08 | 0,10 | 0,12 | 0,14 | 0,17 | 0,20 |
| Aluminium | 80-105 | 0,07 | 0,08 | 0,11 | 0,13 | 0,15 | 0,19 | 0,22 | 0,26 | 0,32 |
| Aluminium >8% Si | 80-105 | 0,07 | 0,08 | 0,11 | 0,13 | 0,15 | 0,19 | 0,22 | 0,26 | 0,32 |
| Copper - Bronze - Brass | | | | | | | | | | |
| TITANIUM | | | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | | | |

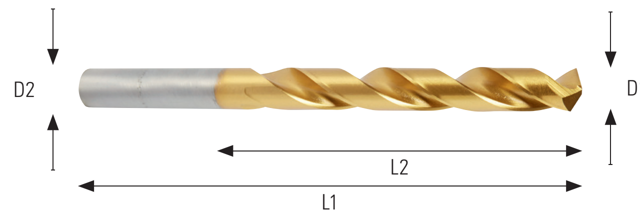

See p.30


Set of HSS drills
TIN coated
Ref. 860896

# DRILL - HSS - JOBBER TIN COATED DRILL

DIN 338N | 30° | 130° | TiN

A | F | A-C




| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 1 | 34 | 12 | 10 | 860774 | £ 1,67 |
| 1.1 | 1.1 | 36 | 14 | 10 | 860775 | £ 1,97 |
| 1.2 | 1.2 | 38 | 16 | 10 | 860776 | £ 1,97 |
| 1.3 | 1.3 | 38 | 16 | 10 | 860777 | £ 1,97 |
| 1.4 | 1.4 | 40 | 18 | 10 | 860778 | £ 1,97 |
| 1.5 | 1.5 | 40 | 18 | 10 | 860779 | £ 1,67 |
| 1.6 | 1.6 | 43 | 20 | 10 | 860780 | £ 1,72 |
| 1.7 | 1.7 | 43 | 20 | 10 | 860781 | £ 1,72 |
| 1.8 | 1.8 | 46 | 22 | 10 | 860782 | £ 1,72 |
| 1.9 | 1.9 | 46 | 22 | 10 | 860783 | £ 1,72 |
| 2 | 2 | 49 | 24 | 10 | 860784 | £ 1,64 |
| 2.1 | 2.1 | 49 | 24 | 10 | 860785 | £ 1,74 |
| 2.2 | 2.2 | 53 | 27 | 10 | 860786 | £ 1,74 |
| 2.3 | 2.3 | 53 | 27 | 10 | 860787 | £ 1,74 |
| 2.4 | 2.4 | 57 | 30 | 10 | 860788 | £ 1,74 |
| 2.5 | 2.5 | 57 | 30 | 10 | 860789 | £ 1,44 |
| 2.6 | 2.6 | 57 | 30 | 10 | 860790 | £ 1,74 |
| 2.7 | 2.7 | 61 | 33 | 10 | 860791 | £ 1,74 |
| 2.8 | 2.8 | 61 | 33 | 10 | 860792 | £ 1,74 |
| 2.9 | 2.9 | 61 | 33 | 10 | 860793 | £ 1,74 |
| 3 | 3 | 61 | 33 | 10 | 860794 | £ 1,44 |
| 3.1 | 3.1 | 65 | 36 | 10 | 860795 | £ 1,77 |
| 3.2 | 3.2 | 65 | 36 | 10 | 860796 | £ 1,77 |
| 3.3 | 3.3 | 65 | 36 | 10 | 860797 | £ 1,59 |
| 3.4 | 3.4 | 70 | 39 | 10 | 860798 | £ 1,77 |
| 3.5 | 3.5 | 70 | 39 | 10 | 860799 | £ 1,51 |
| 3.6 | 3.6 | 70 | 39 | 10 | 860800 | £ 1,95 |
| 3.7 | 3.7 | 70 | 39 | 10 | 860801 | £ 1,95 |
| 3.8 | 3.8 | 75 | 43 | 10 | 860802 | £ 1,95 |
| 3.9 | 3.9 | 75 | 43 | 10 | 860803 | £ 1,95 |
| 4 | 4 | 75 | 43 | 10 | 860804 | £ 1,77 |
| 4.1 | 4.1 | 75 | 43 | 10 | 860805 | £ 2,05 |
| 4.2 | 4.2 | 75 | 43 | 10 | 860806 | £ 1,97 |
| 4.3 | 4.3 | 80 | 47 | 10 | 860807 | £ 2,05 |
| 4.4 | 4.4 | 80 | 47 | 10 | 860808 | £ 2,05 |
| 4.5 | 4.5 | 80 | 47 | 10 | 860809 | £ 1,97 |
| 4.6 | 4.6 | 80 | 47 | 10 | 860810 | £ 2,28 |
| 4.7 | 4.7 | 80 | 47 | 10 | 860811 | £ 2,28 |
| 4.8 | 4.8 | 86 | 52 | 10 | 860812 | £ 2,28 |
| 4.9 | 4.9 | 86 | 52 | 10 | 860813 | £ 2,28 |
| 5 | 5 | 86 | 52 | 10 | 860814 | £ 2,10 |
| 5.1 | 5.1 | 86 | 52 | 10 | 860815 | £ 2,77 |
| 5.2 | 5.2 | 86 | 52 | 10 | 860816 | £ 2,77 |
| 5.3 | 5.3 | 86 | 52 | 10 | 860817 | £ 2,77 |
| 5.4 | 5.4 | 93 | 57 | 10 | 860818 | £ 2,77 |
| 5.5 | 5.5 | 93 | 57 | 10 | 860819 | £ 2,61 |
| 5.6 | 5.6 | 93 | 57 | 10 | 860820 | £ 3,10 |
| 5.7 | 5.7 | 93 | 57 | 10 | 860821 | £ 3,10 |
| 5.8 | 5.8 | 93 | 57 | 10 | 860822 | £ 3,10 |
| 5.9 | 5.9 | 93 | 57 | 10 | 860823 | £ 3,10 |
| 6 | 6 | 93 | 57 | 10 | 860824 | £ 3,28 |
| 6.1 | 6.1 | 101 | 63 | 10 | 860825 | £ 3,66 |
| 6.2 | 6.2 | 101 | 63 | 10 | 860826 | £ 3,66 |
| 6.3 | 6.3 | 101 | 63 | 10 | 860827 | £ 3,66 |
| 6.4 | 6.4 | 101 | 63 | 10 | 860828 | £ 3,66 |
| 6.5 | 6.5 | 101 | 63 | 10 | 860829 | £ 3,38 |
| 6.6 | 6.6 | 101 | 63 | 10 | 860830 | £ 3,77 |
| 6.7 | 6.7 | 101 | 63 | 10 | 860831 | £ 3,77 |
| 6.8 | 6.8 | 109 | 69 | 10 | 860832 | £ 3,77 |
| 6.9 | 6.9 | 109 | 69 | 10 | 860833 | £ 3,77 |
| 7 | 7 | 109 | 69 | 10 | 860834 | £ 3,66 |

| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 7.1 | 7.1 | 109 | 69 | 10 | 860835 | £ 4,05 |
| 7.2 | 7.2 | 109 | 69 | 10 | 860836 | £ 4,05 |
| 7.3 | 7.3 | 109 | 69 | 10 | 860837 | £ 4,05 |
| 7.4 | 7.4 | 109 | 69 | 10 | 860838 | £ 4,05 |
| 7.5 | 7.5 | 109 | 69 | 10 | 860839 | £ 4,05 |
| 7.6 | 7.6 | 117 | 75 | 10 | 860840 | £ 4,05 |
| 7.7 | 7.7 | 117 | 75 | 10 | 860841 | £ 4,05 |
| 7.8 | 7.8 | 117 | 75 | 10 | 860842 | £ 4,05 |
| 7.9 | 7.9 | 117 | 75 | 10 | 860843 | £ 4,05 |
| 8 | 8 | 117 | 75 | 10 | 860844 | £ 3,90 |
| 8.1 | 8.1 | 117 | 75 | 10 | 860845 | £ 4,41 |
| 8.2 | 8.2 | 117 | 75 | 10 | 860846 | £ 4,41 |
| 8.3 | 8.3 | 117 | 75 | 10 | 860847 | £ 4,41 |
| 8.4 | 8.4 | 117 | 75 | 10 | 860848 | £ 4,41 |
| 8.5 | 8.5 | 117 | 75 | 10 | 860849 | £ 4,05 |
| 8.6 | 8.6 | 125 | 81 | 10 | 860850 | £ 5,23 |
| 8.7 | 8.7 | 125 | 81 | 10 | 860851 | £ 5,23 |
| 8.8 | 8.8 | 125 | 81 | 10 | 860852 | £ 5,23 |
| 8.9 | 8.9 | 125 | 81 | 10 | 860853 | £ 5,23 |
| 9 | 9 | 125 | 81 | 10 | 860854 | £ 5,00 |
| 9.1 | 9.1 | 125 | 81 | 10 | 860855 | £ 5,92 |
| 9.2 | 9.2 | 125 | 81 | 10 | 860856 | £ 5,92 |
| 9.3 | 9.3 | 125 | 81 | 10 | 860857 | £ 5,92 |
| 9.4 | 9.4 | 125 | 81 | 10 | 860858 | £ 5,92 |
| 9.5 | 9.5 | 125 | 81 | 10 | 860859 | £ 6,82 |
| 9.6 | 9.6 | 133 | 87 | 10 | 860860 | £ 6,66 |
| 9.7 | 9.7 | 133 | 87 | 10 | 860861 | £ 6,66 |
| 9.8 | 9.8 | 133 | 87 | 10 | 860862 | £ 6,66 |
| 9.9 | 9.9 | 133 | 87 | 10 | 860863 | £ 6,66 |
| 10 | 10 | 133 | 87 | 10 | 860864 | £ 6,02 |
| 10.1 | 10.1 | 133 | 87 | 5 | 860865 | £ 6,66 |
| 10.2 | 10.2 | 133 | 87 | 5 | 860866 | £ 9,10 |
| 10.3 | 10.3 | 133 | 87 | 5 | 860867 | £ 9,10 |
| 10.4 | 10.4 | 133 | 87 | 5 | 860868 | £ 9,10 |
| 10.5 | 10.5 | 133 | 87 | 5 | 860869 | £ 9,10 |
| 10.6 | 10.6 | 133 | 87 | 5 | 860870 | £ 9,82 |
| 10.7 | 10.7 | 142 | 94 | 5 | 860871 | £ 9,82 |
| 10.8 | 10.8 | 142 | 94 | 5 | 860872 | £ 9,82 |
| 10.9 | 10.9 | 142 | 94 | 5 | 860873 | £ 9,82 |
| 11 | 11 | 142 | 94 | 5 | 860874 | £ 9,46 |
| 11.1 | 11.1 | 142 | 94 | 5 | 860875 | £ 10,61 |
| 11.2 | 11.2 | 142 | 94 | 5 | 860876 | £ 10,61 |
| 11.3 | 11.3 | 142 | 94 | 5 | 860877 | £ 10,61 |
| 11.4 | 11.4 | 142 | 94 | 5 | 860878 | £ 10,61 |
| 11.5 | 11.5 | 142 | 94 | 5 | 860879 | £ 11,28 |
| 11.6 | 11.6 | 142 | 94 | 5 | 860880 | £ 11,46 |
| 11.7 | 11.7 | 142 | 94 | 5 | 860881 | £ 11,46 |
| 11.8 | 11.8 | 142 | 94 | 5 | 860882 | £ 11,46 |
| 11.9 | 11.9 | 151 | 101 | 5 | 860883 | £ 11,46 |
| 12 | 12 | 151 | 101 | 5 | 860884 | £ 12,05 |
| 12.1 | 12.1 | 151 | 101 | 5 | 860885 | £ 12,58 |
| 12.2 | 12.2 | 151 | 101 | 5 | 860886 | £ 12,58 |
| 12.3 | 12.3 | 151 | 101 | 5 | 860887 | £ 12,58 |
| 12.4 | 12.4 | 151 | 101 | 5 | 860888 | £ 12,58 |
| 12.5 | 12.5 | 151 | 101 | 5 | 860889 | £ 12,79 |
| 12.6 | 12.6 | 151 | 101 | 5 | 860890 | £ 12,71 |
| 12.7 | 12.7 | 151 | 101 | 5 | 860891 | £ 12,71 |
| 12.8 | 12.8 | 151 | 101 | 5 | 860892 | £ 12,71 |
| 12.9 | 12.9 | 151 | 101 | 5 | 860893 | £ 12,71 |
| 13 | 13 | 151 | 101 | 5 | 860894 | £ 12,79 |

## DRILL - HSS - JOBBER TIN TIP COATED DRILL

| Material | Vc [m/min] | Table of advances (f in rpm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Ø 1 | Ø 2 | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 |
| Steel <500 N/mm² (<150 HB) | 33-40 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 |
| Steel <700 N/mm² (<205 HB) | 33-40 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 |
| Steel <850 N/mm² (<265 HB) | 33-40 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | | | |
| Fonte <180HB | 40-45 | 0,05 | 0,06 | 0,09 | 0,10 | 0,12 | 0,15 | 0,18 | 0,21 | 0,25 |
| Malleable cast iron >180HB | 33-40 | 0,04 | 0,05 | 0,07 | 0,08 | 0,10 | 0,12 | 0,14 | 0,17 | 0,20 |
| Cast iron with graphite >180HB | 33-40 | 0,04 | 0,05 | 0,07 | 0,08 | 0,10 | 0,12 | 0,14 | 0,17 | 0,20 |
| Aluminium | 80-105 | 0,07 | 0,08 | 0,11 | 0,13 | 0,15 | 0,19 | 0,22 | 0,26 | 0,32 |
| Aluminium >8% Si | 80-105 | 0,07 | 0,08 | 0,11 | 0,13 | 0,15 | 0,19 | 0,22 | 0,26 | 0,32 |
| Copper - Bronze - Brass | | | | | | | | | | |
| TITANIUM | | | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | | | |

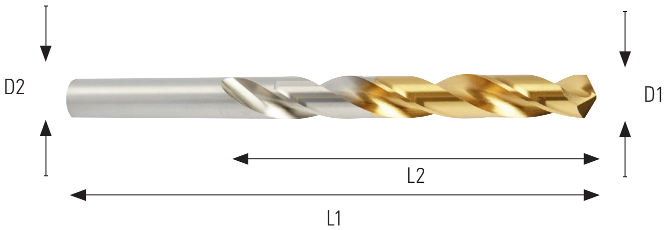
See p.30

Set of HSS drills
TIN tip coated
Ref. 860771

## DRILL - HSS - JOBBER TIN TIP COATED DRILL

DIN 338N | 30° | 130° | TiNBD

A | F | A-C




| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | Pack | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 1 | 34 | 12 | 10 | 860649 | £ 1,46 |
| 1.1 | 1.1 | 36 | 14 | 10 | 860650 | £ 1,73 |
| 1.2 | 1.2 | 38 | 16 | 10 | 860651 | £ 1,73 |
| 1.3 | 1.3 | 38 | 16 | 10 | 860652 | £ 1,73 |
| 1.4 | 1.4 | 40 | 18 | 10 | 860653 | £ 1,73 |
| 1.5 | 1.5 | 40 | 18 | 10 | 860654 | £ 1,46 |
| 1.6 | 1.6 | 43 | 20 | 10 | 860655 | £ 1,50 |
| 1.7 | 1.7 | 43 | 20 | 10 | 860656 | £ 1,50 |
| 1.8 | 1.8 | 46 | 22 | 10 | 860657 | £ 1,50 |
| 1.9 | 1.9 | 46 | 22 | 10 | 860658 | £ 1,50 |
| 2 | 2 | 49 | 24 | 10 | 860659 | £ 1,04 |
| 2.1 | 2.1 | 49 | 24 | 10 | 860660 | £ 1,52 |
| 2.2 | 2.2 | 53 | 27 | 10 | 860661 | £ 1,52 |
| 2.3 | 2.3 | 53 | 27 | 10 | 860662 | £ 1,52 |
| 2.4 | 2.4 | 57 | 30 | 10 | 860663 | £ 1,52 |
| 2.5 | 2.5 | 57 | 30 | 10 | 860664 | £ 1,17 |
| 2.6 | 2.6 | 57 | 30 | 10 | 860665 | £ 1,52 |
| 2.7 | 2.7 | 61 | 33 | 10 | 860666 | £ 1,52 |
| 2.8 | 2.8 | 61 | 33 | 10 | 860667 | £ 1,52 |
| 2.9 | 2.9 | 61 | 33 | 10 | 860668 | £ 1,52 |
| 3 | 3 | 61 | 33 | 10 | 860669 | £ 1,17 |
| 3.1 | 3.1 | 65 | 36 | 10 | 860670 | £ 1,35 |
| 3.2 | 3.2 | 65 | 36 | 10 | 860671 | £ 1,35 |
| 3.3 | 3.3 | 65 | 36 | 10 | 860672 | £ 1,21 |
| 3.4 | 3.4 | 70 | 39 | 10 | 860673 | £ 1,38 |
| 3.5 | 3.5 | 70 | 39 | 10 | 860674 | £ 1,43 |
| 3.6 | 3.6 | 70 | 39 | 10 | 860675 | £ 1,48 |
| 3.7 | 3.7 | 70 | 39 | 10 | 860676 | £ 1,42 |
| 3.8 | 3.8 | 75 | 43 | 10 | 860677 | £ 1,66 |
| 3.9 | 3.9 | 75 | 43 | 10 | 860678 | £ 1,66 |
| 4 | 4 | 75 | 43 | 10 | 860679 | £ 1,51 |
| 4.1 | 4.1 | 75 | 43 | 10 | 860680 | £ 1,67 |
| 4.2 | 4.2 | 75 | 43 | 10 | 860681 | £ 1,57 |
| 4.3 | 4.3 | 80 | 47 | 10 | 860682 | £ 1,84 |
| 4.4 | 4.4 | 80 | 47 | 10 | 860683 | £ 1,79 |
| 4.5 | 4.5 | 80 | 47 | 10 | 860684 | £ 1,77 |
| 4.6 | 4.6 | 80 | 47 | 10 | 860685 | £ 1,86 |
| 4.7 | 4.7 | 80 | 47 | 10 | 860686 | £ 1,86 |
| 4.8 | 4.8 | 86 | 52 | 10 | 860687 | £ 1,95 |
| 4.9 | 4.9 | 86 | 52 | 10 | 860688 | £ 1,90 |
| 5 | 5 | 86 | 52 | 10 | 860689 | £ 1,84 |
| 5.1 | 5.1 | 86 | 52 | 10 | 860690 | £ 2,11 |
| 5.2 | 5.2 | 86 | 52 | 10 | 860691 | £ 2,15 |
| 5.3 | 5.3 | 86 | 52 | 10 | 860692 | £ 2,15 |
| 5.4 | 5.4 | 93 | 57 | 10 | 860693 | £ 2,36 |
| 5.5 | 5.5 | 93 | 57 | 10 | 860694 | £ 2,41 |
| 5.6 | 5.6 | 93 | 57 | 10 | 860695 | £ 2,58 |
| 5.7 | 5.7 | 93 | 57 | 10 | 860696 | £ 2,65 |
| 5.8 | 5.8 | 93 | 57 | 10 | 860697 | £ 2,65 |
| 5.9 | 5.9 | 93 | 57 | 10 | 860698 | £ 2,65 |
| 6 | 6 | 93 | 57 | 10 | 860699 | £ 2,39 |
| 6.1 | 6.1 | 101 | 63 | 10 | 860700 | £ 2,79 |
| 6.2 | 6.2 | 101 | 63 | 10 | 860701 | £ 2,79 |
| 6.3 | 6.3 | 101 | 63 | 10 | 860702 | £ 2,79 |
| 6.4 | 6.4 | 101 | 63 | 10 | 860703 | £ 2,85 |
| 6.5 | 6.5 | 101 | 63 | 10 | 860704 | £ 2,96 |
| 6.6 | 6.6 | 101 | 63 | 10 | 860705 | £ 3,14 |
| 6.7 | 6.7 | 101 | 63 | 10 | 860706 | £ 3,22 |
| 6.8 | 6.8 | 109 | 69 | 10 | 860707 | £ 3,22 |
| 6.9 | 6.9 | 109 | 69 | 10 | 860708 | £ 3,56 |
| 7 | 7 | 109 | 69 | 10 | 860709 | £ 3,47 |

| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | Pack | Ref. | Price each |
|---|---|---|---|---|---|---|
| 7.1 | 7.1 | 109 | 69 | 10 | 860710 | £ 3,73 |
| 7.2 | 7.2 | 109 | 69 | 10 | 860711 | £ 3,54 |
| 7.3 | 7.3 | 109 | 69 | 10 | 860712 | £ 3,54 |
| 7.4 | 7.4 | 109 | 69 | 10 | 860713 | £ 3,94 |
| 7.5 | 7.5 | 109 | 69 | 10 | 860714 | £ 3,54 |
| 7.6 | 7.6 | 117 | 75 | 10 | 860715 | £ 4,05 |
| 7.7 | 7.7 | 117 | 75 | 10 | 860716 | £ 4,05 |
| 7.8 | 7.8 | 117 | 75 | 10 | 860717 | £ 4,17 |
| 7.9 | 7.9 | 117 | 75 | 10 | 860718 | £ 4,29 |
| 8 | 8 | 117 | 75 | 10 | 860719 | £ 3,94 |
| 8.1 | 8.1 | 117 | 75 | 10 | 860720 | £ 4,61 |
| 8.2 | 8.2 | 117 | 75 | 10 | 860721 | £ 4,25 |
| 8.3 | 8.3 | 117 | 75 | 10 | 860722 | £ 4,36 |
| 8.4 | 8.4 | 117 | 75 | 10 | 860723 | £ 4,36 |
| 8.5 | 8.5 | 117 | 75 | 10 | 860724 | £ 4,36 |
| 8.6 | 8.6 | 125 | 81 | 10 | 860725 | £ 5,08 |
| 8.7 | 8.7 | 125 | 81 | 10 | 860726 | £ 5,23 |
| 8.8 | 8.8 | 125 | 81 | 10 | 860727 | £ 5,23 |
| 8.9 | 8.9 | 125 | 81 | 10 | 860728 | £ 5,23 |
| 9 | 9 | 125 | 81 | 10 | 860729 | £ 5,23 |
| 9.1 | 9.1 | 125 | 81 | 10 | 860730 | £ 5,76 |
| 9.2 | 9.2 | 125 | 81 | 10 | 860731 | £ 5,92 |
| 9.3 | 9.3 | 125 | 81 | 10 | 860732 | £ 5,92 |
| 9.4 | 9.4 | 125 | 81 | 10 | 860733 | £ 5,92 |
| 9.5 | 9.5 | 125 | 81 | 10 | 860734 | £ 5,82 |
| 9.6 | 9.6 | 133 | 87 | 10 | 860735 | £ 6,30 |
| 9.7 | 9.7 | 133 | 87 | 10 | 860736 | £ 6,48 |
| 9.8 | 9.8 | 133 | 87 | 10 | 860737 | £ 6,48 |
| 9.9 | 9.9 | 133 | 87 | 10 | 860738 | £ 6,66 |
| 10 | 10 | 133 | 87 | 10 | 860739 | £ 6,14 |
| 10.1 | 10.1 | 133 | 87 | 5 | 860740 | £ 7,77 |
| 10.2 | 10.2 | 133 | 87 | 5 | 860741 | £ 7,96 |
| 10.3 | 10.3 | 133 | 87 | 5 | 860742 | £ 8,17 |
| 10.4 | 10.4 | 133 | 87 | 5 | 860743 | £ 8,85 |
| 10.5 | 10.5 | 133 | 87 | 5 | 860744 | £ 7,96 |
| 10.6 | 10.6 | 133 | 87 | 5 | 860745 | £ 9,04 |
| 10.7 | 10.7 | 142 | 94 | 5 | 860746 | £ 10,10 |
| 10.8 | 10.8 | 142 | 94 | 5 | 860747 | £ 10,10 |
| 10.9 | 10.9 | 142 | 94 | 5 | 860748 | £ 9,54 |
| 11 | 11 | 142 | 94 | 5 | 860749 | £ 9,19 |
| 11.1 | 11.1 | 142 | 94 | 5 | 860750 | £ 10,61 |
| 11.2 | 11.2 | 142 | 94 | 5 | 860751 | £ 10,61 |
| 11.3 | 11.3 | 142 | 94 | 5 | 860752 | £ 10,92 |
| 11.4 | 11.4 | 142 | 94 | 5 | 860753 | £ 9,28 |
| 11.5 | 11.5 | 142 | 94 | 5 | 860754 | £ 9,87 |
| 11.6 | 11.6 | 142 | 94 | 5 | 860755 | £ 11,79 |
| 11.7 | 11.7 | 142 | 94 | 5 | 860756 | £ 10,84 |
| 11.8 | 11.8 | 142 | 94 | 5 | 860757 | £ 12,15 |
| 11.9 | 11.9 | 151 | 101 | 5 | 860758 | £ 12,53 |
| 12 | 12 | 151 | 101 | 5 | 860759 | £ 10,54 |
| 12.1 | 12.1 | 151 | 101 | 5 | 860760 | £ 14,68 |
| 12.2 | 12.2 | 151 | 101 | 5 | 860761 | £ 14,68 |
| 12.3 | 12.3 | 151 | 101 | 5 | 860762 | £ 14,68 |
| 12.4 | 12.4 | 151 | 101 | 5 | 860763 | £ 14,68 |
| 12.5 | 12.5 | 151 | 101 | 5 | 860764 | £ 11,78 |
| 12.6 | 12.6 | 151 | 101 | 5 | 860765 | £ 14,83 |
| 12.7 | 12.7 | 151 | 101 | 5 | 860766 | £ 12,36 |
| 12.8 | 12.8 | 151 | 101 | 5 | 860767 | £ 14,83 |
| 12.9 | 12.9 | 151 | 101 | 5 | 860768 | £ 14,83 |
| 13 | 13 | 151 | 101 | 5 | 860769 | £ 12,43 |

## DRILL - HSS - JOBBER ZIRKO COATED DRILL

| Material | Vc [m/min] | Table of advances (f in rpm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Ø 1 | Ø 2 | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 |
| Steel <500 N/mm² (<150 HB) | 33-40 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 |
| Steel <700 N/mm² (<205 HB) | 33-40 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 |
| Steel <850 N/mm² (<265 HB) | 33-40 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 8-12 | 0,03 | 0,03 | 0,04 | 0,05 | 0,06 | 0,07 | 0,09 | 0,10 | 0,12 |
| Stainless steel >700 N/mm² (>205 HB) | 8-10 | 0,03 | 0,03 | 0,04 | 0,05 | 0,06 | 0,07 | 0,09 | 0,10 | 0,12 |
| Fonte <180HB | 40-45 | 0,05 | 0,06 | 0,09 | 0,10 | 0,12 | 0,15 | 0,18 | 0,21 | 0,25 |
| Malleable cast iron >180HB | 33-40 | 0,04 | 0,05 | 0,07 | 0,08 | 0,10 | 0,12 | 0,14 | 0,17 | 0,20 |
| Cast iron with graphite >180HB | 33-40 | 0,04 | 0,05 | 0,07 | 0,08 | 0,10 | 0,12 | 0,14 | 0,17 | 0,20 |
| Aluminium | 80-105 | 0,07 | 0,08 | 0,11 | 0,13 | 0,15 | 0,19 | 0,22 | 0,26 | 0,32 |
| Aluminium >8% Si | 80-105 | 0,07 | 0,08 | 0,11 | 0,13 | 0,15 | 0,19 | 0,22 | 0,26 | 0,32 |
| Copper - Bronze - Brass | | | | | | | | | | |
| TITANIUM | | | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | | | |

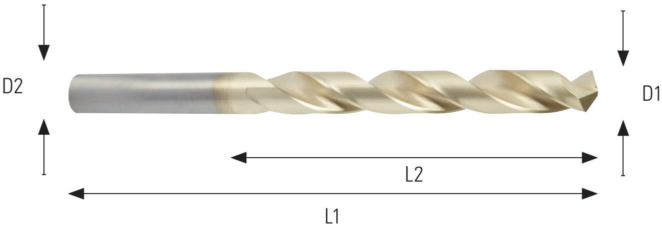
See p.31

Set of HSS drills
zirco coated
Ref. 861146

## DRILL - HSS - JOBBER ZIRKO COATED DRILL

DIN 338N | 30° | 130° | ZIRKO

A | I | F | A-C




| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 1 | 34 | 12 | 10 | 861024 | £ 1,69 |
| 1.1 | 1.1 | 36 | 14 | 10 | 861025 | £ 2,00 |
| 1.2 | 1.2 | 38 | 16 | 10 | 861026 | £ 2,00 |
| 1.3 | 1.3 | 38 | 16 | 10 | 861027 | £ 2,00 |
| 1.4 | 1.4 | 40 | 18 | 10 | 861028 | £ 2,00 |
| 1.5 | 1.5 | 40 | 18 | 10 | 861029 | £ 1,69 |
| 1.6 | 1.6 | 43 | 20 | 10 | 861030 | £ 1,74 |
| 1.7 | 1.7 | 43 | 20 | 10 | 861031 | £ 1,74 |
| 1.8 | 1.8 | 46 | 22 | 10 | 861032 | £ 1,74 |
| 1.9 | 1.9 | 46 | 22 | 10 | 861033 | £ 1,74 |
| 2 | 2 | 49 | 24 | 10 | 861034 | £ 1,67 |
| 2.1 | 2.1 | 49 | 24 | 10 | 861035 | £ 1,77 |
| 2.2 | 2.2 | 53 | 27 | 10 | 861036 | £ 1,77 |
| 2.3 | 2.3 | 53 | 27 | 10 | 861037 | £ 1,77 |
| 2.4 | 2.4 | 57 | 30 | 10 | 861038 | £ 1,77 |
| 2.5 | 2.5 | 57 | 30 | 10 | 861039 | £ 1,46 |
| 2.6 | 2.6 | 57 | 30 | 10 | 861040 | £ 1,77 |
| 2.7 | 2.7 | 61 | 33 | 10 | 861041 | £ 1,77 |
| 2.8 | 2.8 | 61 | 33 | 10 | 861042 | £ 1,77 |
| 2.9 | 2.9 | 61 | 33 | 10 | 861043 | £ 1,77 |
| 3 | 3 | 61 | 33 | 10 | 861044 | £ 1,46 |
| 3.1 | 3.1 | 65 | 36 | 10 | 861045 | £ 1,82 |
| 3.2 | 3.2 | 65 | 36 | 10 | 861046 | £ 1,82 |
| 3.3 | 3.3 | 65 | 36 | 10 | 861047 | £ 1,61 |
| 3.4 | 3.4 | 70 | 39 | 10 | 861048 | £ 1,82 |
| 3.5 | 3.5 | 70 | 39 | 10 | 861049 | £ 1,54 |
| 3.6 | 3.6 | 70 | 39 | 10 | 861050 | £ 1,97 |
| 3.7 | 3.7 | 70 | 39 | 10 | 861051 | £ 1,97 |
| 3.8 | 3.8 | 75 | 43 | 10 | 861052 | £ 1,97 |
| 3.9 | 3.9 | 75 | 43 | 10 | 861053 | £ 1,97 |
| 4 | 4 | 75 | 43 | 10 | 861054 | £ 1,82 |
| 4.1 | 4.1 | 75 | 43 | 10 | 861055 | £ 2,10 |
| 4.2 | 4.2 | 75 | 43 | 10 | 861056 | £ 2,00 |
| 4.3 | 4.3 | 80 | 47 | 10 | 861057 | £ 2,10 |
| 4.4 | 4.4 | 80 | 47 | 10 | 861058 | £ 2,10 |
| 4.5 | 4.5 | 80 | 47 | 10 | 861059 | £ 2,00 |
| 4.6 | 4.6 | 80 | 47 | 10 | 861060 | £ 2,33 |
| 4.7 | 4.7 | 80 | 47 | 10 | 861061 | £ 2,33 |
| 4.8 | 4.8 | 86 | 52 | 10 | 861062 | £ 2,33 |
| 4.9 | 4.9 | 86 | 52 | 10 | 861063 | £ 2,33 |
| 5 | 5 | 86 | 52 | 10 | 861064 | £ 2,15 |
| 5.1 | 5.1 | 86 | 52 | 10 | 861065 | £ 2,82 |
| 5.2 | 5.2 | 86 | 52 | 10 | 861066 | £ 2,82 |
| 5.3 | 5.3 | 86 | 52 | 10 | 861067 | £ 2,82 |
| 5.4 | 5.4 | 93 | 57 | 10 | 861068 | £ 2,82 |
| 5.5 | 5.5 | 93 | 57 | 10 | 861069 | £ 2,67 |
| 5.6 | 5.6 | 93 | 57 | 10 | 861070 | £ 3,15 |
| 5.7 | 5.7 | 93 | 57 | 10 | 861071 | £ 3,15 |
| 5.8 | 5.8 | 93 | 57 | 10 | 861072 | £ 3,15 |
| 5.9 | 5.9 | 93 | 57 | 10 | 861073 | £ 3,15 |
| 6 | 6 | 93 | 57 | 10 | 861074 | £ 3,33 |
| 6.1 | 6.1 | 101 | 63 | 10 | 861075 | £ 3,74 |
| 6.2 | 6.2 | 101 | 63 | 10 | 861076 | £ 3,74 |
| 6.3 | 6.3 | 101 | 63 | 10 | 861077 | £ 3,74 |
| 6.4 | 6.4 | 101 | 63 | 10 | 861078 | £ 3,74 |
| 6.5 | 6.5 | 101 | 63 | 10 | 861079 | £ 3,46 |
| 6.6 | 6.6 | 101 | 63 | 10 | 861080 | £ 3,77 |
| 6.7 | 6.7 | 101 | 63 | 10 | 861081 | £ 3,77 |
| 6.8 | 6.8 | 109 | 69 | 10 | 861082 | £ 3,82 |
| 6.9 | 6.9 | 109 | 69 | 10 | 861083 | £ 3,82 |
| 7 | 7 | 109 | 69 | 10 | 861084 | £ 3,72 |

| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 7.1 | 7.1 | 109 | 69 | 10 | 861085 | £ 4,10 |
| 7.2 | 7.2 | 109 | 69 | 10 | 861086 | £ 4,10 |
| 7.3 | 7.3 | 109 | 69 | 10 | 861087 | £ 4,10 |
| 7.4 | 7.4 | 109 | 69 | 10 | 861088 | £ 4,10 |
| 7.5 | 7.5 | 109 | 69 | 10 | 861089 | £ 4,10 |
| 7.6 | 7.6 | 117 | 75 | 10 | 861090 | £ 4,10 |
| 7.7 | 7.7 | 117 | 75 | 10 | 861091 | £ 4,10 |
| 7.8 | 7.8 | 117 | 75 | 10 | 861092 | £ 4,10 |
| 7.9 | 7.9 | 117 | 75 | 10 | 861093 | £ 4,10 |
| 8 | 8 | 117 | 75 | 10 | 861094 | £ 3,95 |
| 8.1 | 8.1 | 117 | 75 | 10 | 861095 | £ 4,49 |
| 8.2 | 8.2 | 117 | 75 | 10 | 861096 | £ 4,49 |
| 8.3 | 8.3 | 117 | 75 | 10 | 861097 | £ 4,49 |
| 8.4 | 8.4 | 117 | 75 | 10 | 861098 | £ 4,49 |
| 8.5 | 8.5 | 117 | 75 | 10 | 861099 | £ 4,10 |
| 8.6 | 8.6 | 125 | 81 | 10 | 861100 | £ 5,31 |
| 8.7 | 8.7 | 125 | 81 | 10 | 861101 | £ 5,31 |
| 8.8 | 8.8 | 125 | 81 | 10 | 861102 | £ 5,31 |
| 8.9 | 8.9 | 125 | 81 | 10 | 861103 | £ 5,31 |
| 9 | 9 | 125 | 81 | 10 | 861104 | £ 5,07 |
| 9.1 | 9.1 | 125 | 81 | 10 | 861105 | £ 6,00 |
| 9.2 | 9.2 | 125 | 81 | 10 | 861106 | £ 6,00 |
| 9.3 | 9.3 | 125 | 81 | 10 | 861107 | £ 6,00 |
| 9.4 | 9.4 | 125 | 81 | 10 | 861108 | £ 6,00 |
| 9.5 | 9.5 | 125 | 81 | 10 | 861109 | £ 6,92 |
| 9.6 | 9.6 | 133 | 87 | 10 | 861110 | £ 6,77 |
| 9.7 | 9.7 | 133 | 87 | 10 | 861111 | £ 6,77 |
| 9.8 | 9.8 | 133 | 87 | 10 | 861112 | £ 6,77 |
| 9.9 | 9.9 | 133 | 87 | 10 | 861113 | £ 6,77 |
| 10 | 10 | 133 | 87 | 10 | 861114 | £ 6,10 |
| 10.1 | 10.1 | 133 | 87 | 5 | 861115 | £ 6,77 |
| 10.2 | 10.2 | 133 | 87 | 5 | 861116 | £ 9,23 |
| 10.3 | 10.3 | 133 | 87 | 5 | 861117 | £ 9,23 |
| 10.4 | 10.4 | 133 | 87 | 5 | 861118 | £ 9,23 |
| 10.5 | 10.5 | 133 | 87 | 5 | 861119 | £ 9,23 |
| 10.6 | 10.6 | 133 | 87 | 5 | 861120 | £ 9,97 |
| 10.7 | 10.7 | 142 | 94 | 5 | 861121 | £ 9,97 |
| 10.8 | 10.8 | 142 | 94 | 5 | 861122 | £ 9,97 |
| 10.9 | 10.9 | 142 | 94 | 5 | 861123 | £ 9,97 |
| 11 | 11 | 142 | 94 | 5 | 861124 | £ 9,59 |
| 11.1 | 11.1 | 142 | 94 | 5 | 861125 | £ 10,79 |
| 11.2 | 11.2 | 142 | 94 | 5 | 861126 | £ 10,79 |
| 11.3 | 11.3 | 142 | 94 | 5 | 861127 | £ 10,79 |
| 11.4 | 11.4 | 142 | 94 | 5 | 861128 | £ 10,79 |
| 11.5 | 11.5 | 142 | 94 | 5 | 861129 | £ 11,43 |
| 11.6 | 11.6 | 142 | 94 | 5 | 861130 | £ 11,64 |
| 11.7 | 11.7 | 142 | 94 | 5 | 861131 | £ 11,64 |
| 11.8 | 11.8 | 142 | 94 | 5 | 861132 | £ 11,64 |
| 11.9 | 11.9 | 151 | 101 | 5 | 861133 | £ 11,64 |
| 12 | 12 | 151 | 101 | 5 | 861134 | £ 12,22 |
| 12.1 | 12.1 | 151 | 101 | 5 | 861135 | £ 12,76 |
| 12.2 | 12.2 | 151 | 101 | 5 | 861136 | £ 12,76 |
| 12.3 | 12.3 | 151 | 101 | 5 | 861137 | £ 12,76 |
| 12.4 | 12.4 | 151 | 101 | 5 | 861138 | £ 12,76 |
| 12.5 | 12.5 | 151 | 101 | 5 | 861139 | £ 12,99 |
| 12.6 | 12.6 | 151 | 101 | 5 | 861140 | £ 12,89 |
| 12.7 | 12.7 | 151 | 101 | 5 | 861141 | £ 12,89 |
| 12.8 | 12.8 | 151 | 101 | 5 | 861142 | £ 12,89 |
| 12.9 | 12.9 | 151 | 101 | 5 | 861143 | £ 12,89 |
| 13 | 13 | 151 | 101 | 5 | 861144 | £ 12,99 |

## DRILL - HSS - JOBBER ZIRKO TIP COATED DRILL

| Material | Vc [m/min] | Table of advances (f in rpm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Ø 1 | Ø 2 | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 |
| Steel <500 N/mm² (<150 HB) | 33-40 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 |
| Steel <700 N/mm² (<205 HB) | 33-40 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 |
| Steel <850 N/mm² (<265 HB) | 33-40 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 8-12 | 0,03 | 0,03 | 0,04 | 0,05 | 0,06 | 0,07 | 0,09 | 0,10 | 0,12 |
| Stainless steel >700 N/mm² (>205 HB) | 8-10 | 0,03 | 0,03 | 0,04 | 0,05 | 0,06 | 0,07 | 0,09 | 0,10 | 0,12 |
| Fonte <180HB | 40-45 | 0,05 | 0,06 | 0,09 | 0,10 | 0,12 | 0,15 | 0,18 | 0,21 | 0,25 |
| Malleable cast iron >180HB | 33-40 | 0,04 | 0,05 | 0,07 | 0,08 | 0,10 | 0,12 | 0,14 | 0,17 | 0,20 |
| Cast iron with graphite >180HB | 33-40 | 0,04 | 0,05 | 0,07 | 0,08 | 0,10 | 0,12 | 0,14 | 0,17 | 0,20 |
| Aluminium | 80-105 | 0,07 | 0,08 | 0,11 | 0,13 | 0,15 | 0,19 | 0,22 | 0,26 | 0,32 |
| Aluminium >8% Si | 80-105 | 0,07 | 0,08 | 0,11 | 0,13 | 0,15 | 0,19 | 0,22 | 0,26 | 0,32 |
| Copper - Bronze - Brass | | | | | | | | | | |
| TITANIUM | | | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | | | |

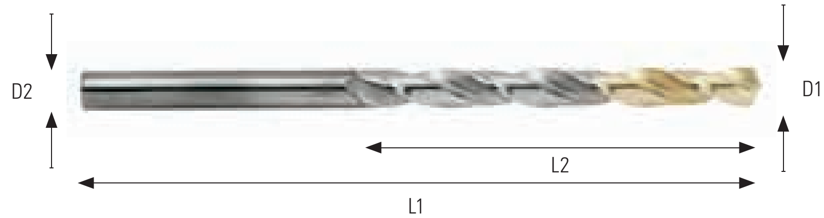
See p.31

Set of HSS drills
zirco tip coated
Ref. 861021

## DRILL - HSS - JOBBER ZIRKO TIP COATED DRILL

DIN 338N | 30° | 130° | ZIRKO BB

A | I | F | A-C



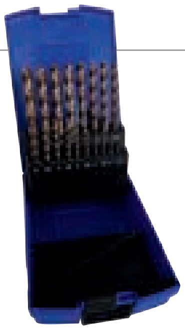

| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 1 | 34 | 12 | 10 | 860899 | £ 1,46 |
| 1.1 | 1.1 | 36 | 14 | 10 | 860900 | £ 1,73 |
| 1.2 | 1.2 | 38 | 16 | 10 | 860901 | £ 1,73 |
| 1.3 | 1.3 | 38 | 16 | 10 | 860902 | £ 1,73 |
| 1.4 | 1.4 | 40 | 18 | 10 | 860903 | £ 1,73 |
| 1.5 | 1.5 | 40 | 18 | 10 | 860904 | £ 1,46 |
| 1.6 | 1.6 | 43 | 20 | 10 | 860905 | £ 1,50 |
| 1.7 | 1.7 | 43 | 20 | 10 | 860906 | £ 1,50 |
| 1.8 | 1.8 | 46 | 22 | 10 | 860907 | £ 1,50 |
| 1.9 | 1.9 | 46 | 22 | 10 | 860908 | £ 1,50 |
| 2 | 2 | 49 | 24 | 10 | 860909 | £ 1,44 |
| 2.1 | 2.1 | 49 | 24 | 10 | 860910 | £ 1,52 |
| 2.2 | 2.2 | 53 | 27 | 10 | 860911 | £ 1,52 |
| 2.3 | 2.3 | 53 | 27 | 10 | 860912 | £ 1,52 |
| 2.4 | 2.4 | 57 | 30 | 10 | 860913 | £ 1,52 |
| 2.5 | 2.5 | 57 | 30 | 10 | 860914 | £ 1,26 |
| 2.6 | 2.6 | 57 | 30 | 10 | 860915 | £ 1,52 |
| 2.7 | 2.7 | 61 | 33 | 10 | 860916 | £ 1,52 |
| 2.8 | 2.8 | 61 | 33 | 10 | 860917 | £ 1,52 |
| 2.9 | 2.9 | 61 | 33 | 10 | 860918 | £ 1,52 |
| 3 | 3 | 61 | 33 | 10 | 860919 | £ 1,26 |
| 3.1 | 3.1 | 65 | 36 | 10 | 860920 | £ 1,55 |
| 3.2 | 3.2 | 65 | 36 | 10 | 860921 | £ 1,55 |
| 3.3 | 3.3 | 65 | 36 | 10 | 860922 | £ 1,39 |
| 3.4 | 3.4 | 70 | 39 | 10 | 860923 | £ 1,55 |
| 3.5 | 3.5 | 70 | 39 | 10 | 860924 | £ 1,32 |
| 3.6 | 3.6 | 70 | 39 | 10 | 860925 | £ 1,70 |
| 3.7 | 3.7 | 70 | 39 | 10 | 860926 | £ 1,70 |
| 3.8 | 3.8 | 75 | 43 | 10 | 860927 | £ 1,70 |
| 3.9 | 3.9 | 75 | 43 | 10 | 860928 | £ 1,70 |
| 4 | 4 | 75 | 43 | 10 | 860929 | £ 1,55 |
| 4.1 | 4.1 | 75 | 43 | 10 | 860930 | £ 1,79 |
| 4.2 | 4.2 | 75 | 43 | 10 | 860931 | £ 1,73 |
| 4.3 | 4.3 | 80 | 47 | 10 | 860932 | £ 1,79 |
| 4.4 | 4.4 | 80 | 47 | 10 | 860933 | £ 1,79 |
| 4.5 | 4.5 | 80 | 47 | 10 | 860934 | £ 1,73 |
| 4.6 | 4.6 | 80 | 47 | 10 | 860935 | £ 2,00 |
| 4.7 | 4.7 | 80 | 47 | 10 | 860936 | £ 2,00 |
| 4.8 | 4.8 | 86 | 52 | 10 | 860937 | £ 2,00 |
| 4.9 | 4.9 | 86 | 52 | 10 | 860938 | £ 2,00 |
| 5 | 5 | 86 | 52 | 10 | 860939 | £ 1,84 |
| 5.1 | 5.1 | 86 | 52 | 10 | 860940 | £ 2,42 |
| 5.2 | 5.2 | 86 | 52 | 10 | 860941 | £ 2,42 |
| 5.3 | 5.3 | 86 | 52 | 10 | 860942 | £ 2,42 |
| 5.4 | 5.4 | 93 | 57 | 10 | 860943 | £ 2,42 |
| 5.5 | 5.5 | 93 | 57 | 10 | 860944 | £ 2,29 |
| 5.6 | 5.6 | 93 | 57 | 10 | 860945 | £ 2,71 |
| 5.7 | 5.7 | 93 | 57 | 10 | 860946 | £ 2,71 |
| 5.8 | 5.8 | 93 | 57 | 10 | 860947 | £ 2,71 |
| 5.9 | 5.9 | 93 | 57 | 10 | 860948 | £ 2,71 |
| 6 | 6 | 93 | 57 | 10 | 860949 | £ 2,87 |
| 6.1 | 6.1 | 101 | 63 | 10 | 860950 | £ 3,21 |
| 6.2 | 6.2 | 101 | 63 | 10 | 860951 | £ 3,21 |
| 6.3 | 6.3 | 101 | 63 | 10 | 860952 | £ 3,21 |
| 6.4 | 6.4 | 101 | 63 | 10 | 860953 | £ 3,21 |
| 6.5 | 6.5 | 101 | 63 | 10 | 860954 | £ 2,96 |
| 6.6 | 6.6 | 101 | 63 | 10 | 860955 | £ 3,30 |
| 6.7 | 6.7 | 101 | 63 | 10 | 860956 | £ 3,30 |
| 6.8 | 6.8 | 109 | 69 | 10 | 860957 | £ 3,30 |
| 6.9 | 6.9 | 109 | 69 | 10 | 860958 | £ 3,30 |
| 7 | 7 | 109 | 69 | 10 | 860959 | £ 3,21 |

| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 7.1 | 7.1 | 109 | 69 | 10 | 860960 | £ 3,54 |
| 7.2 | 7.2 | 109 | 69 | 10 | 860961 | £ 3,54 |
| 7.3 | 7.3 | 109 | 69 | 10 | 860962 | £ 3,54 |
| 7.4 | 7.4 | 109 | 69 | 10 | 860963 | £ 3,54 |
| 7.5 | 7.5 | 109 | 69 | 10 | 860964 | £ 3,54 |
| 7.6 | 7.6 | 117 | 75 | 10 | 860965 | £ 3,54 |
| 7.7 | 7.7 | 117 | 75 | 10 | 860966 | £ 3,54 |
| 7.8 | 7.8 | 117 | 75 | 10 | 860967 | £ 3,54 |
| 7.9 | 7.9 | 117 | 75 | 10 | 860968 | £ 3,54 |
| 8 | 8 | 117 | 75 | 10 | 860969 | £ 3,41 |
| 8.1 | 8.1 | 117 | 75 | 10 | 860970 | £ 3,86 |
| 8.2 | 8.2 | 117 | 75 | 10 | 860971 | £ 3,86 |
| 8.3 | 8.3 | 117 | 75 | 10 | 860972 | £ 3,86 |
| 8.4 | 8.4 | 117 | 75 | 10 | 860973 | £ 3,86 |
| 8.5 | 8.5 | 117 | 75 | 10 | 860974 | £ 3,54 |
| 8.6 | 8.6 | 125 | 81 | 10 | 860975 | £ 4,57 |
| 8.7 | 8.7 | 125 | 81 | 10 | 860976 | £ 4,57 |
| 8.8 | 8.8 | 125 | 81 | 10 | 860977 | £ 4,57 |
| 8.9 | 8.9 | 125 | 81 | 10 | 860978 | £ 4,57 |
| 9 | 9 | 125 | 81 | 10 | 860979 | £ 4,37 |
| 9.1 | 9.1 | 125 | 81 | 10 | 860980 | £ 5,18 |
| 9.2 | 9.2 | 125 | 81 | 10 | 860981 | £ 5,18 |
| 9.3 | 9.3 | 125 | 81 | 10 | 860982 | £ 5,18 |
| 9.4 | 9.4 | 125 | 81 | 10 | 860983 | £ 5,18 |
| 9.5 | 9.5 | 125 | 81 | 10 | 860984 | £ 5,97 |
| 9.6 | 9.6 | 133 | 87 | 10 | 860985 | £ 5,83 |
| 9.7 | 9.7 | 133 | 87 | 10 | 860986 | £ 5,83 |
| 9.8 | 9.8 | 133 | 87 | 10 | 860987 | £ 5,83 |
| 9.9 | 9.9 | 133 | 87 | 10 | 860988 | £ 5,83 |
| 10 | 10 | 133 | 87 | 10 | 860989 | £ 5,27 |
| 10.1 | 10.1 | 133 | 87 | 5 | 860990 | £ 5,83 |
| 10.2 | 10.2 | 133 | 87 | 5 | 860991 | £ 7,96 |
| 10.3 | 10.3 | 133 | 87 | 5 | 860992 | £ 7,96 |
| 10.4 | 10.4 | 133 | 87 | 5 | 860993 | £ 7,96 |
| 10.5 | 10.5 | 133 | 87 | 5 | 860994 | £ 7,96 |
| 10.6 | 10.6 | 133 | 87 | 5 | 860995 | £ 8,59 |
| 10.7 | 10.7 | 142 | 94 | 5 | 860996 | £ 8,59 |
| 10.8 | 10.8 | 142 | 94 | 5 | 860997 | £ 8,59 |
| 10.9 | 10.9 | 142 | 94 | 5 | 860998 | £ 8,59 |
| 11 | 11 | 142 | 94 | 5 | 860999 | £ 8,27 |
| 11.1 | 11.1 | 142 | 94 | 5 | 861000 | £ 9,28 |
| 11.2 | 11.2 | 142 | 94 | 5 | 861001 | £ 9,28 |
| 11.3 | 11.3 | 142 | 94 | 5 | 861002 | £ 9,28 |
| 11.4 | 11.4 | 142 | 94 | 5 | 861003 | £ 9,28 |
| 11.5 | 11.5 | 142 | 94 | 5 | 861004 | £ 9,87 |
| 11.6 | 11.6 | 142 | 94 | 5 | 861005 | £ 10,02 |
| 11.7 | 11.7 | 142 | 94 | 5 | 861006 | £ 10,02 |
| 11.8 | 11.8 | 142 | 94 | 5 | 861007 | £ 10,02 |
| 11.9 | 11.9 | 151 | 101 | 5 | 861008 | £ 10,02 |
| 12 | 12 | 151 | 101 | 5 | 861009 | £ 10,54 |
| 12.1 | 12.1 | 151 | 101 | 5 | 861010 | £ 11,01 |
| 12.2 | 12.2 | 151 | 101 | 5 | 861011 | £ 11,01 |
| 12.3 | 12.3 | 151 | 101 | 5 | 861012 | £ 11,01 |
| 12.4 | 12.4 | 151 | 101 | 5 | 861013 | £ 11,01 |
| 12.5 | 12.5 | 151 | 101 | 5 | 861014 | £ 11,19 |
| 12.6 | 12.6 | 151 | 101 | 5 | 861015 | £ 11,12 |
| 12.7 | 12.7 | 151 | 101 | 5 | 861016 | £ 11,12 |
| 12.8 | 12.8 | 151 | 101 | 5 | 861017 | £ 11,12 |
| 12.9 | 12.9 | 151 | 101 | 5 | 861018 | £ 11,12 |
| 13 | 13 | 151 | 101 | 5 | 861019 | £ 11,19 |

## DRILL - HSS CO5% - JOBBER - SHANK WITH FLATS - GOLD COATED DRILL

| Material | Vc [m/min] | Table of advances (f in rpm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Ø 1 | Ø 2 | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 |
| Steel <500 N/mm² (<150 HB) | 30-35 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 |
| Steel <700 N/mm² (<205 HB) | 30-35 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 |
| Steel <850 N/mm² (<265 HB) | 30-35 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 | 0,12 | 0,15 | 0,16 |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 6-12 | 0,03 | 0,03 | 0,04 | 0,05 | 0,06 | 0,07 | 0,09 | 0,10 | 0,12 |
| Stainless steel >700 N/mm² (>205 HB) | 8-12 | 0,03 | 0,03 | 0,04 | 0,05 | 0,06 | 0,07 | 0,09 | 0,10 | 0,12 |
| Fonte <180HB | | | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | | | |
| Aluminium | 60-80 | 0,07 | 0,08 | 0,11 | 0,13 | 0,15 | 0,19 | 0,22 | 0,26 | 0,32 |
| Aluminium >8% Si | 60-80 | 0,07 | 0,08 | 0,11 | 0,13 | 0,15 | 0,19 | 0,22 | 0,26 | 0,32 |
| Copper - Bronze - Brass | 30-40 | 0,04 | 0,05 | 0,07 | 0,08 | 0,10 | 0,12 | 0,14 | 0,17 | 0,20 |
| TITANIUM | | | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | | | |

See p.31

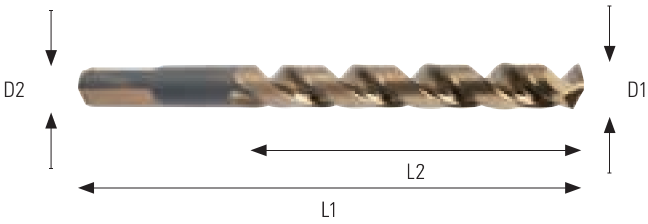


Set of HSS Co5% drills
flat shank
Ref. 861208

## DRILL - HSS CO5% - JOBBER - SHANK WITH FLATS - GOLD COATED DRILL

DIN 338W | 40° | 135° | GOLD

A | I | A-C




| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 1 | 34 | 12 | 10 | 861176 | £ 2,51 |
| 1.5 | 1.5 | 40 | 18 | 10 | 861177 | £ 1,93 |
| 2 | 2 | 49 | 24 | 10 | 861178 | £ 1,66 |
| 2.5 | 2.5 | 57 | 30 | 10 | 861179 | £ 1,66 |
| 3 | 3 | 61 | 33 | 10 | 861180 | £ 1,59 |
| 3.2 | 3.2 | 65 | 36 | 10 | 861181 | £ 1,95 |
| 3.3 | 3.3 | 65 | 36 | 10 | 861182 | £ 1,95 |
| 3.5 | 3.5 | 70 | 39 | 10 | 861183 | £ 1,91 |
| 4 | 4 | 75 | 43 | 10 | 861184 | £ 2,09 |
| 4.2 | FLATS | 75 | 43 | 10 | 861185 | £ 2,29 |
| 4.5 | FLATS | 80 | 47 | 10 | 861186 | £ 2,29 |
| 5 | FLATS | 86 | 52 | 10 | 861187 | £ 2,49 |
| 5.2 | FLATS | 86 | 52 | 10 | 861188 | £ 2,89 |
| 5.5 | FLATS | 93 | 57 | 10 | 861189 | £ 3,09 |
| 6 | FLATS | 93 | 57 | 10 | 861190 | £ 3,32 |
| 6.5 | FLATS | 101 | 63 | 10 | 861191 | £ 3,86 |
| 6.8 | FLATS | 109 | 69 | 10 | 861192 | £ 4,53 |
| 7 | FLATS | 109 | 69 | 10 | 861193 | £ 4,24 |
| 7.5 | FLATS | 109 | 69 | 10 | 861194 | £ 4,51 |
| 8 | FLATS | 117 | 75 | 10 | 861195 | £ 5,25 |
| 8.5 | FLATS | 117 | 75 | 10 | 861196 | £ 5,47 |
| 9 | FLATS | 125 | 81 | 10 | 861197 | £ 6,93 |
| 9.5 | FLATS | 125 | 81 | 10 | 861198 | £ 7,22 |
| 10 | FLATS | 133 | 87 | 10 | 861199 | £ 7,98 |
| 10.2 | FLATS | 133 | 87 | 5 | 861200 | £ 10,72 |
| 10.5 | FLATS | 133 | 87 | 5 | 861201 | £ 10,72 |
| 11 | FLATS | 142 | 94 | 5 | 861202 | £ 11,84 |
| 11.5 | FLATS | 142 | 94 | 5 | 861203 | £ 13,61 |
| 12 | FLATS | 151 | 101 | 5 | 861204 | £ 14,58 |
| 12.5 | FLATS | 151 | 101 | 5 | 861205 | £ 16,21 |
| 13 | FLATS | 151 | 101 | 5 | 861206 | £ 16,46 |

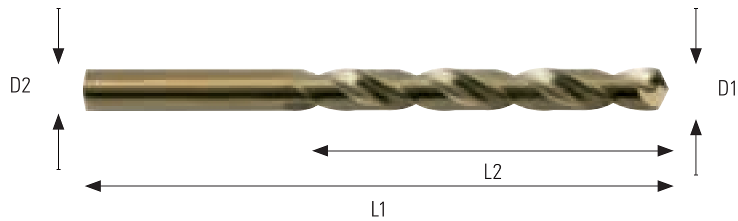
## DRILL - HSS CO5% - JOBBER DRILL

| Material | Vc [m/min] | Table of advances (f in rpm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Ø 1 | Ø 2 | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 |
| Steel <500 N/mm² (<150 HB) | | | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | 8-15 | 0,15 | 0,02 | 0,04 | 0,05 | 0,05 | 0,06 | 0,07 | 0,09 | 0,10 |
| Steel <1000 N/mm² (<30 HRC) | 8-15 | 0,15 | 0,02 | 0,04 | 0,05 | 0,05 | 0,06 | 0,07 | 0,09 | 0,10 |
| Steel <1400 N/mm² (<44 HRC) | 8-15 | 0,15 | 0,02 | 0,04 | 0,05 | 0,05 | 0,06 | 0,07 | 0,09 | 0,10 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 8-12 | 0,03 | 0,03 | 0,04 | 0,05 | 0,06 | 0,07 | 0,09 | 0,10 | 0,12 |
| Stainless steel >700 N/mm² (>205 HB) | 8-12 | 0,03 | 0,03 | 0,04 | 0,05 | 0,06 | 0,07 | 0,09 | 0,10 | 0,12 |
| Fonte <180HB | | | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | | | |
| Aluminium | | | | | | | | | | |
| Aluminium >8% Si | | | | | | | | | | |
| Copper - Bronze - Brass | | | | | | | | | | |
| TITANIUM | 10-15 | 0,02 | 0,02 | 0,03 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | | | |

## DRILL - HSS CO5% - JOBBER DRILL

DIN 338N | 33° | 135°

A | I | Ti




| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 1 | 34 | 12 | 10 | 845846 | £ 1,58 |
| 1.1 | 1.1 | 36 | 14 | 10 | 845847 | £ 1,97 |
| 1.2 | 1.2 | 38 | 16 | 10 | 845848 | £ 1,97 |
| 1.3 | 1.3 | 38 | 16 | 10 | 845849 | £ 1,97 |
| 1.4 | 1.4 | 40 | 18 | 10 | 845850 | £ 1,97 |
| 1.5 | 1.5 | 40 | 18 | 10 | 845851 | £ 1,52 |
| 1.6 | 1.6 | 43 | 20 | 10 | 845852 | £ 1,97 |
| 1.7 | 1.7 | 43 | 20 | 10 | 845853 | £ 1,97 |
| 1.8 | 1.8 | 46 | 22 | 10 | 845854 | £ 1,97 |
| 1.9 | 1.9 | 46 | 22 | 10 | 845855 | £ 1,97 |
| 2 | 2 | 49 | 24 | 10 | 845856 | £ 1,58 |
| 2.1 | 2.1 | 49 | 24 | 10 | 845857 | £ 2,03 |
| 2.2 | 2.2 | 53 | 27 | 10 | 845858 | £ 2,03 |
| 2.3 | 2.3 | 53 | 27 | 10 | 845859 | £ 2,03 |
| 2.4 | 2.4 | 57 | 30 | 10 | 845860 | £ 2,03 |
| 2.5 | 2.5 | 57 | 30 | 10 | 845861 | £ 1,58 |
| 2.6 | 2.6 | 57 | 30 | 10 | 845862 | £ 2,00 |
| 2.7 | 2.7 | 61 | 33 | 10 | 845863 | £ 2,00 |
| 2.8 | 2.8 | 61 | 33 | 10 | 845864 | £ 2,00 |
| 2.9 | 2.9 | 61 | 33 | 10 | 845865 | £ 2,00 |
| 3 | 3 | 61 | 33 | 10 | 845866 | £ 1,55 |
| 3.1 | 3.1 | 65 | 36 | 10 | 845867 | £ 1,91 |
| 3.2 | 3.2 | 65 | 36 | 10 | 845868 | £ 1,88 |
| 3.3 | 3.3 | 65 | 36 | 10 | 845869 | £ 1,88 |
| 3.4 | 3.4 | 70 | 39 | 10 | 845870 | £ 2,00 |
| 3.5 | 3.5 | 70 | 39 | 10 | 845871 | £ 1,39 |
| 3.6 | 3.6 | 70 | 39 | 10 | 845872 | £ 2,42 |
| 3.7 | 3.7 | 70 | 39 | 10 | 845873 | £ 2,42 |
| 3.8 | 3.8 | 75 | 43 | 10 | 845874 | £ 2,42 |
| 3.9 | 3.9 | 75 | 43 | 10 | 845875 | £ 2,42 |
| 4 | 4 | 75 | 43 | 10 | 845876 | £ 1,97 |
| 4.1 | 4.1 | 75 | 43 | 10 | 845877 | £ 2,27 |
| 4.2 | 4.2 | 75 | 43 | 10 | 845878 | £ 2,24 |
| 4.3 | 4.3 | 80 | 47 | 10 | 845879 | £ 2,42 |
| 4.4 | 4.4 | 80 | 47 | 10 | 845880 | £ 2,42 |
| 4.5 | 4.5 | 80 | 47 | 10 | 845881 | £ 2,30 |
| 4.6 | 4.6 | 80 | 47 | 10 | 845882 | £ 2,63 |
| 4.7 | 4.7 | 80 | 47 | 10 | 845883 | £ 2,63 |
| 4.8 | 4.8 | 86 | 52 | 10 | 845884 | £ 2,63 |
| 4.9 | 4.9 | 86 | 52 | 10 | 845885 | £ 2,63 |
| 5 | 5 | 86 | 52 | 10 | 845886 | £ 2,39 |
| 5.1 | 5.1 | 86 | 52 | 10 | 845887 | £ 2,84 |
| 5.2 | 5.2 | 86 | 52 | 10 | 845888 | £ 2,84 |
| 5.3 | 5.3 | 86 | 52 | 10 | 845889 | £ 2,84 |
| 5.4 | 5.4 | 93 | 57 | 10 | 845890 | £ 2,84 |
| 5.5 | 5.5 | 93 | 57 | 10 | 845891 | £ 2,96 |
| 5.6 | 5.6 | 93 | 57 | 10 | 845892 | £ 3,65 |
| 5.7 | 5.7 | 93 | 57 | 10 | 845893 | £ 3,65 |
| 5.8 | 5.8 | 93 | 57 | 10 | 845894 | £ 3,65 |

| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 5.9 | 5.9 | 93 | 57 | 10 | 845895 | £ 3,65 |
| 6 | 6 | 93 | 57 | 10 | 845896 | £ 3,26 |
| 6.1 | 6.1 | 101 | 63 | 10 | 845897 | £ 4,01 |
| 6.2 | 6.2 | 101 | 63 | 10 | 845898 | £ 4,01 |
| 6.3 | 6.3 | 101 | 63 | 10 | 845899 | £ 4,01 |
| 6.4 | 6.4 | 101 | 63 | 10 | 845900 | £ 4,01 |
| 6.5 | 6.5 | 101 | 63 | 10 | 845901 | £ 3,83 |
| 6.6 | 6.6 | 101 | 63 | 10 | 845902 | £ 4,78 |
| 6.7 | 6.7 | 101 | 63 | 10 | 845903 | £ 4,78 |
| 6.8 | 6.8 | 109 | 69 | 10 | 845904 | £ 4,43 |
| 6.9 | 6.9 | 109 | 69 | 10 | 845905 | £ 4,78 |
| 7 | 7 | 109 | 69 | 10 | 845906 | £ 4,13 |
| 7.1 | 7.1 | 109 | 69 | 10 | 845907 | £ 6,13 |
| 7.2 | 7.2 | 109 | 69 | 10 | 845908 | £ 6,13 |
| 7.3 | 7.3 | 109 | 69 | 10 | 845909 | £ 6,13 |
| 7.4 | 7.4 | 109 | 69 | 10 | 845910 | £ 6,13 |
| 7.5 | 7.5 | 109 | 69 | 10 | 845911 | £ 4,43 |
| 7.6 | 7.6 | 117 | 75 | 10 | 845912 | £ 7,36 |
| 7.7 | 7.7 | 117 | 75 | 10 | 845913 | £ 7,36 |
| 7.8 | 7.8 | 117 | 75 | 10 | 845914 | £ 7,36 |
| 7.9 | 7.9 | 117 | 75 | 10 | 845915 | £ 7,36 |
| 8 | 8 | 117 | 75 | 10 | 845916 | £ 5,17 |
| 8.1 | 8.1 | 117 | 75 | 10 | 845917 | £ 7,03 |
| 8.2 | 8.2 | 117 | 75 | 10 | 845918 | £ 7,03 |
| 8.3 | 8.3 | 117 | 75 | 10 | 845919 | £ 7,03 |
| 8.4 | 8.4 | 117 | 75 | 10 | 845920 | £ 7,03 |
| 8.5 | 8.5 | 117 | 75 | 10 | 845921 | £ 5,53 |
| 8.6 | 8.6 | 125 | 81 | 10 | 845922 | £ 8,88 |
| 8.7 | 8.7 | 125 | 81 | 10 | 845923 | £ 8,88 |
| 8.8 | 8.8 | 125 | 81 | 10 | 845924 | £ 8,88 |
| 8.9 | 8.9 | 125 | 81 | 10 | 845925 | £ 8,88 |
| 9 | 9 | 125 | 81 | 10 | 845926 | £ 7,03 |
| 9.1 | 9.1 | 125 | 81 | 10 | 845927 | £ 9,90 |
| 9.2 | 9.2 | 125 | 81 | 10 | 845928 | £ 9,90 |
| 9.3 | 9.3 | 125 | 81 | 10 | 845929 | £ 9,90 |
| 9.4 | 9.4 | 125 | 81 | 10 | 845930 | £ 9,90 |
| 9.5 | 9.5 | 125 | 81 | 10 | 845931 | £ 7,24 |
| 9.6 | 9.6 | 133 | 87 | 10 | 845932 | £ 11,69 |
| 9.7 | 9.7 | 133 | 87 | 10 | 845933 | £ 11,69 |
| 9.8 | 9.8 | 133 | 87 | 10 | 845934 | £ 11,69 |
| 9.9 | 9.9 | 133 | 87 | 10 | 845935 | £ 11,69 |
| 10 | 10 | 133 | 87 | 10 | 845936 | £ 8,01 |
| 10.2 | 10.2 | 133 | 87 | 5 | 845937 | £ 11,30 |
| 10.5 | 10.5 | 133 | 87 | 5 | 845938 | £ 11,30 |
| 11 | 11 | 142 | 94 | 5 | 845939 | £ 12,41 |
| 11.5 | 11.5 | 142 | 94 | 5 | 855283 | £ 13,07 |
| 12 | 12 | 151 | 101 | 5 | 845940 | £ 15,97 |
| 12.5 | 12.5 | 151 | 101 | 5 | 845941 | £ 19,49 |
| 13 | 13 | 151 | 101 | 5 | 845942 | £ 19,88 |

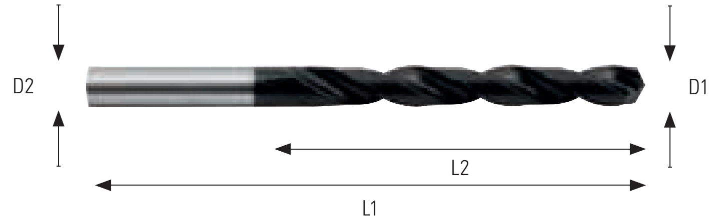
## DRILL - HSS CO5% - JOBBER OZMD COATED DRILL

| Material | Vc [m/min] | Table of advances (f in rpm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Ø 1 | Ø 2 | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 |
| Steel <500 N/mm² (<150 HB) | | | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | 12-20 | 0,15 | 0,02 | 0,04 | 0,05 | 0,05 | 0,06 | 0,07 | 0,09 | 0,10 |
| Steel <1000 N/mm² (<30 HRC) | 12-20 | 0,15 | 0,02 | 0,04 | 0,05 | 0,05 | 0,06 | 0,07 | 0,09 | 0,10 |
| Steel <1400 N/mm² (<44 HRC) | 12-20 | 0,15 | 0,02 | 0,04 | 0,05 | 0,05 | 0,06 | 0,07 | 0,09 | 0,10 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 12-17 | 0,03 | 0,03 | 0,04 | 0,05 | 0,06 | 0,07 | 0,09 | 0,10 | 0,12 |
| Stainless steel >700 N/mm² (>205 HB) | 12-17 | 0,03 | 0,03 | 0,04 | 0,05 | 0,06 | 0,07 | 0,09 | 0,10 | 0,12 |
| Fonte <180HB | | | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | | | |
| Aluminium | | | | | | | | | | |
| Aluminium >8% Si | | | | | | | | | | |
| Copper - Bronze - Brass | | | | | | | | | | |
| TITANIUM | 14-20 | 0,02 | 0,02 | 0,03 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | | | |

## DRILL - HSS CO5% - JOBBER OZMD COATED DRILL

DIN 338N | 33° | 135° | OZMD

A | I | Ti




| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 1 | 34 | 12 | 10 | 862113 | £ 2,20 |
| 1.1 | 1.1 | 36 | 14 | 10 | 862114 | £ 2,51 |
| 1.2 | 1.2 | 38 | 16 | 10 | 862115 | £ 2,47 |
| 1.3 | 1.3 | 38 | 16 | 10 | 862116 | £ 2,47 |
| 1.4 | 1.4 | 40 | 18 | 10 | 862117 | £ 2,42 |
| 1.5 | 1.5 | 40 | 18 | 10 | 862118 | £ 2,13 |
| 1.6 | 1.6 | 43 | 20 | 10 | 862119 | £ 2,44 |
| 1.7 | 1.7 | 43 | 20 | 10 | 862120 | £ 2,42 |
| 1.8 | 1.8 | 46 | 22 | 10 | 862121 | £ 2,42 |
| 1.9 | 1.9 | 46 | 22 | 10 | 862122 | £ 2,44 |
| 2 | 2 | 49 | 24 | 10 | 862123 | £ 2,20 |
| 2.1 | 2.1 | 49 | 24 | 10 | 862124 | £ 2,49 |
| 2.2 | 2.2 | 53 | 27 | 10 | 862125 | £ 2,49 |
| 2.3 | 2.3 | 53 | 27 | 10 | 862126 | £ 2,51 |
| 2.4 | 2.4 | 57 | 30 | 10 | 862127 | £ 2,20 |
| 2.5 | 2.5 | 57 | 30 | 10 | 862128 | £ 2,47 |
| 2.6 | 2.6 | 57 | 30 | 10 | 862129 | £ 2,47 |
| 2.7 | 2.7 | 61 | 33 | 10 | 862130 | £ 2,47 |
| 2.8 | 2.8 | 61 | 33 | 10 | 862131 | £ 2,47 |
| 2.9 | 2.9 | 61 | 33 | 10 | 862132 | £ 2,47 |
| 3 | 3 | 61 | 33 | 10 | 862133 | £ 2,18 |
| 3.1 | 3.1 | 65 | 36 | 10 | 862134 | £ 2,71 |
| 3.2 | 3.2 | 65 | 36 | 10 | 862135 | £ 2,71 |
| 3.3 | 3.3 | 65 | 36 | 10 | 862136 | £ 2,71 |
| 3.4 | 3.4 | 70 | 39 | 10 | 862137 | £ 2,83 |
| 3.5 | 3.5 | 70 | 39 | 10 | 862138 | £ 2,71 |
| 3.6 | 3.6 | 70 | 39 | 10 | 862139 | £ 3,03 |
| 3.7 | 3.7 | 70 | 39 | 10 | 862140 | £ 3,03 |
| 3.8 | 3.8 | 75 | 43 | 10 | 862141 | £ 3,03 |
| 3.9 | 3.9 | 75 | 43 | 10 | 862142 | £ 3,03 |
| 4 | 4 | 75 | 43 | 10 | 862143 | £ 2,80 |
| 4.1 | 4.1 | 75 | 43 | 10 | 862144 | £ 2,94 |
| 4.2 | 4.2 | 75 | 43 | 10 | 862145 | £ 2,94 |
| 4.3 | 4.3 | 80 | 47 | 10 | 862146 | £ 2,96 |
| 4.4 | 4.4 | 80 | 47 | 10 | 862147 | £ 2,96 |
| 4.5 | 4.5 | 80 | 47 | 10 | 862148 | £ 2,96 |
| 4.6 | 4.6 | 80 | 47 | 10 | 862149 | £ 3,21 |
| 4.7 | 4.7 | 80 | 47 | 10 | 862150 | £ 3,21 |
| 4.8 | 4.8 | 86 | 52 | 10 | 862151 | £ 3,21 |
| 4.9 | 4.9 | 86 | 52 | 10 | 862152 | £ 3,21 |
| 5 | 5 | 86 | 52 | 10 | 862153 | £ 3,03 |
| 5.1 | 5.1 | 86 | 52 | 10 | 862154 | £ 3,27 |
| 5.2 | 5.2 | 86 | 52 | 10 | 862155 | £ 3,32 |
| 5.3 | 5.3 | 86 | 52 | 10 | 862156 | £ 3,32 |
| 5.4 | 5.4 | 93 | 57 | 10 | 862157 | £ 3,32 |
| 5.5 | 5.5 | 93 | 57 | 10 | 862158 | £ 3,43 |
| 5.6 | 5.6 | 93 | 57 | 10 | 862159 | £ 3,81 |
| 5.7 | 5.7 | 93 | 57 | 10 | 862160 | £ 3,81 |
| 5.8 | 5.8 | 93 | 57 | 10 | 862161 | £ 3,81 |
| 5.9 | 5.9 | 93 | 57 | 10 | 862162 | £ 3,81 |
| 6 | 6 | 93 | 57 | 10 | 862163 | £ 3,57 |
| 6.1 | 6.1 | 101 | 63 | 10 | 862164 | £ 6,77 |
| 6.2 | 6.2 | 101 | 63 | 10 | 862165 | £ 6,77 |
| 6.3 | 6.3 | 101 | 63 | 10 | 862166 | £ 6,77 |
| 6.4 | 6.4 | 101 | 63 | 10 | 862167 | £ 6,77 |
| 6.5 | 6.5 | 101 | 63 | 10 | 862168 | £ 6,55 |
| 6.6 | 6.6 | 101 | 63 | 10 | 862169 | £ 6,91 |
| 6.7 | 6.7 | 101 | 63 | 10 | 862170 | £ 6,91 |
| 6.8 | 6.8 | 109 | 69 | 10 | 862171 | £ 6,91 |
| 6.9 | 6.9 | 109 | 69 | 10 | 862172 | £ 7,29 |
| 7 | 7 | 109 | 69 | 10 | 862173 | £ 6,91 |
| 7.1 | 7.1 | 109 | 69 | 10 | 862174 | £ 7,42 |
| 7.2 | 7.2 | 109 | 69 | 10 | 862175 | £ 7,42 |
| 7.3 | 7.3 | 109 | 69 | 10 | 862176 | £ 7,42 |
| 7.4 | 7.4 | 109 | 69 | 10 | 862177 | £ 7,42 |
| 7.5 | 7.5 | 109 | 69 | 10 | 862178 | £ 7,11 |
| 7.6 | 7.6 | 117 | 75 | 10 | 862179 | £ 8,93 |
| 7.7 | 7.7 | 117 | 75 | 10 | 862180 | £ 8,93 |
| 7.8 | 7.8 | 117 | 75 | 10 | 862181 | £ 8,93 |
| 7.9 | 7.9 | 117 | 75 | 10 | 862182 | £ 8,93 |
| 8 | 8 | 117 | 75 | 10 | 862183 | £ 7,58 |
| 8.1 | 8.1 | 117 | 75 | 10 | 862184 | £ 8,70 |
| 8.2 | 8.2 | 117 | 75 | 10 | 862185 | £ 8,70 |
| 8.3 | 8.3 | 117 | 75 | 10 | 862186 | £ 8,70 |
| 8.4 | 8.4 | 117 | 75 | 10 | 862187 | £ 8,70 |
| 8.5 | 8.5 | 117 | 75 | 10 | 862188 | £ 8,43 |
| 8.6 | 8.6 | 125 | 81 | 10 | 862189 | £ 10,58 |
| 8.7 | 8.7 | 125 | 81 | 10 | 862190 | £ 10,58 |
| 8.8 | 8.8 | 125 | 81 | 10 | 862191 | £ 10,58 |
| 8.9 | 8.9 | 125 | 81 | 10 | 862192 | £ 10,58 |
| 9 | 9 | 125 | 81 | 10 | 862193 | £ 9,31 |
| 9.1 | 9.1 | 125 | 81 | 10 | 862194 | £ 11,19 |
| 9.2 | 9.2 | 125 | 81 | 10 | 862195 | £ 11,19 |
| 9.3 | 9.3 | 125 | 81 | 10 | 862196 | £ 11,19 |
| 9.4 | 9.4 | 125 | 81 | 10 | 862197 | £ 11,19 |
| 9.5 | 9.5 | 125 | 81 | 10 | 862198 | £ 9,51 |
| 9.6 | 9.6 | 133 | 87 | 10 | 862199 | £ 12,31 |
| 9.7 | 9.7 | 133 | 87 | 10 | 862200 | £ 12,31 |
| 9.8 | 9.8 | 133 | 87 | 10 | 862201 | £ 12,31 |
| 9.9 | 9.9 | 133 | 87 | 10 | 862202 | £ 12,31 |
| 10 | 10 | 133 | 87 | 10 | 862203 | £ 9,96 |
| 10.1 | 10.1 | 133 | 87 | 5 | 862204 | £ 17,16 |
| 10.2 | 10.2 | 133 | 87 | 5 | 862205 | £ 17,16 |
| 10.3 | 10.3 | 133 | 87 | 5 | 862206 | £ 18,43 |
| 10.4 | 10.4 | 133 | 87 | 5 | 862207 | £ 18,43 |
| 10.5 | 10.5 | 133 | 87 | 5 | 862208 | £ 17,16 |
| 10.6 | 10.6 | 133 | 87 | 5 | 862209 | £ 19,76 |
| 10.7 | 10.7 | 142 | 94 | 5 | 862210 | £ 19,76 |
| 10.8 | 10.8 | 142 | 94 | 5 | 862211 | £ 19,76 |
| 10.9 | 10.9 | 142 | 94 | 5 | 862212 | £ 19,76 |
| 11 | 11 | 142 | 94 | 5 | 862213 | £ 17,87 |
| 11.1 | 11.1 | 142 | 94 | 5 | 862214 | £ 21,19 |
| 11.2 | 11.2 | 142 | 94 | 5 | 862215 | £ 21,19 |
| 11.3 | 11.3 | 142 | 94 | 5 | 862216 | £ 21,19 |
| 11.4 | 11.4 | 142 | 94 | 5 | 862217 | £ 21,19 |
| 11.5 | 11.5 | 142 | 94 | 5 | 862218 | £ 18,95 |
| 11.6 | 11.6 | 142 | 94 | 5 | 862219 | £ 20,20 |
| 11.7 | 11.7 | 142 | 94 | 5 | 862220 | £ 20,20 |
| 11.8 | 11.8 | 142 | 94 | 5 | 862221 | £ 20,20 |
| 11.9 | 11.9 | 151 | 101 | 5 | 862222 | £ 20,20 |
| 12 | 12 | 151 | 101 | 5 | 862223 | £ 19,60 |
| 12.1 | 12.1 | 151 | 101 | 5 | 862224 | £ 22,92 |
| 12.2 | 12.2 | 151 | 101 | 5 | 862225 | £ 22,92 |
| 12.3 | 12.3 | 151 | 101 | 5 | 862226 | £ 22,92 |
| 12.4 | 12.4 | 151 | 101 | 5 | 862227 | £ 22,92 |
| 12.5 | 12.5 | 151 | 101 | 5 | 862228 | £ 25,05 |
| 12.6 | 12.6 | 151 | 101 | 5 | 862229 | £ 25,05 |
| 12.7 | 12.7 | 151 | 101 | 5 | 862230 | £ 25,05 |
| 12.8 | 12.8 | 151 | 101 | 5 | 862231 | £ 25,05 |
| 12.9 | 12.9 | 151 | 101 | 5 | 862232 | £ 25,05 |
| 13 | 13 | 151 | 101 | 1 | 862233 | £ 24,60 |
| 13.5 | 13.5 | 160 | 108 | 1 | 862234 | £ 25,81 |
| 14 | 14 | 160 | 108 | 1 | 862235 | £ 25,70 |
| 14.5 | 14.5 | 169 | 114 | 1 | 862236 | £ 31,13 |
| 15 | 15 | 169 | 114 | 1 | 862237 | £ 31,51 |
| 15.5 | 15.5 | 178 | 120 | 1 | 862238 | £ 31,98 |
| 16 | 16 | 178 | 120 | 1 | 862239 | £ 33,30 |

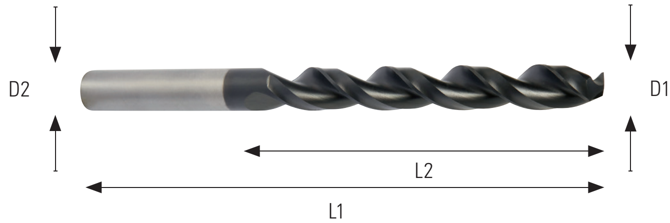
## DRILL - HSS CO5% - UFL FLUTE - OZMD COATED DRILL

| Material | Vc [m/min] | Table of advances (f in rpm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Ø 1 | Ø 2 | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 |
| Steel <500 N/mm² (<150 HB) | 28-35 | 0,02 | 0,04 | 0,05 | 0,05 | 0,06 | 0,08 | 0,10 | 0,12 | 0,13 |
| Steel <700 N/mm² (<205 HB) | 28-35 | 0,02 | 0,04 | 0,05 | 0,05 | 0,06 | 0,08 | 0,10 | 0,12 | 0,13 |
| Steel <850 N/mm² (<265 HB) | 12-20 | 0,15 | 0,02 | 0,04 | 0,05 | 0,05 | 0,06 | 0,07 | 0,09 | 0,10 |
| Steel <1000 N/mm² (<30 HRC) | 12-20 | 0,15 | 0,02 | 0,04 | 0,05 | 0,05 | 0,06 | 0,07 | 0,09 | 0,10 |
| Steel <1400 N/mm² (<44 HRC) | 12-20 | 0,15 | 0,02 | 0,04 | 0,05 | 0,05 | 0,06 | 0,07 | 0,09 | 0,10 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 12-17 | 0,03 | 0,03 | 0,04 | 0,05 | 0,06 | 0,07 | 0,09 | 0,10 | 0,12 |
| Stainless steel >700 N/mm² (>205 HB) | 12-17 | 0,03 | 0,03 | 0,04 | 0,05 | 0,06 | 0,07 | 0,09 | 0,10 | 0,12 |
| Fonte <180HB | 36-42 | 0,05 | 0,06 | 0,09 | 0,10 | 0,12 | 0,15 | 0,18 | 0,21 | 0,25 |
| Malleable cast iron >180HB | 30-36 | 0,04 | 0,05 | 0,07 | 0,08 | 0,10 | 0,12 | 0,14 | 0,17 | 0,20 |
| Cast iron with graphite >180HB | 30-36 | 0,04 | 0,05 | 0,07 | 0,08 | 0,10 | 0,12 | 0,14 | 0,17 | 0,20 |
| Aluminium | | | | | | | | | | |
| Aluminium >8% Si | 56-70 | 0,05 | 0,06 | 0,09 | 0,10 | 0,12 | 0,15 | 0,18 | 0,21 | 0,25 |
| Copper - Bronze - Brass | | | | | | | | | | |
| TITANIUM | 14-20 | 0,02 | 0,02 | 0,03 | 0,04 | 0,05 | 0,06 | 0,07 | 0,08 | 0,10 |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | | | |

# DRILL - HSS CO5% - UFL FLUTE - OZMD COATED DRILL

DIN 338TS | 40° | 135° | OZMD

A | I | F | Ti | A-C




| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 2 | 2 | 49 | 24 | 10 | 861729 | £ 4,18 |
| 2.1 | 2.1 | 49 | 24 | 10 | 861730 | £ 4,74 |
| 2.2 | 2.2 | 53 | 27 | 10 | 861731 | £ 6,02 |
| 2.3 | 2.3 | 53 | 27 | 10 | 861732 | £ 4,74 |
| 2.4 | 2.4 | 57 | 30 | 10 | 861733 | £ 6,02 |
| 2.5 | 2.5 | 57 | 30 | 10 | 861734 | £ 4,18 |
| 2.6 | 2.6 | 57 | 30 | 10 | 861735 | £ 6,02 |
| 2.7 | 2.7 | 61 | 33 | 10 | 861736 | £ 4,69 |
| 2.8 | 2.8 | 61 | 33 | 10 | 861737 | £ 6,02 |
| 2.9 | 2.9 | 61 | 33 | 10 | 861738 | £ 6,02 |
| 3 | 3 | 61 | 33 | 10 | 861739 | £ 4,13 |
| 3.1 | 3.1 | 65 | 36 | 10 | 861740 | £ 5,13 |
| 3.2 | 3.2 | 65 | 36 | 10 | 861741 | £ 5,13 |
| 3.3 | 3.3 | 65 | 36 | 10 | 861742 | £ 5,13 |
| 3.4 | 3.4 | 70 | 39 | 10 | 861743 | £ 5,74 |
| 3.5 | 3.5 | 70 | 39 | 10 | 861744 | £ 5,10 |
| 3.6 | 3.6 | 70 | 39 | 10 | 861745 | £ 5,64 |
| 3.7 | 3.7 | 70 | 39 | 10 | 861746 | £ 5,64 |
| 3.8 | 3.8 | 75 | 43 | 10 | 861747 | £ 6,56 |
| 3.9 | 3.9 | 75 | 43 | 10 | 861748 | £ 5,97 |
| 4 | 4 | 75 | 43 | 10 | 861749 | £ 5,33 |
| 4.1 | 4.1 | 75 | 43 | 10 | 861750 | £ 5,72 |
| 4.2 | 4.2 | 75 | 43 | 10 | 861751 | £ 5,72 |
| 4.3 | 4.3 | 80 | 47 | 10 | 861752 | £ 6,13 |
| 4.4 | 4.4 | 80 | 47 | 10 | 861753 | £ 6,00 |
| 4.5 | 4.5 | 80 | 47 | 10 | 861754 | £ 5,82 |
| 4.6 | 4.6 | 80 | 47 | 10 | 861755 | £ 6,18 |
| 4.7 | 4.7 | 80 | 47 | 10 | 861756 | £ 6,48 |
| 4.8 | 4.8 | 86 | 52 | 10 | 861757 | £ 6,48 |
| 4.9 | 4.9 | 86 | 52 | 10 | 861758 | £ 7,05 |
| 5 | 5 | 86 | 52 | 10 | 861759 | £ 6,02 |
| 5.1 | 5.1 | 86 | 52 | 10 | 861760 | £ 6,77 |
| 5.2 | 5.2 | 86 | 52 | 10 | 861761 | £ 6,87 |
| 5.3 | 5.3 | 86 | 52 | 10 | 861762 | £ 6,87 |
| 5.4 | 5.4 | 93 | 57 | 10 | 861763 | £ 7,46 |
| 5.5 | 5.5 | 93 | 57 | 10 | 861764 | £ 7,18 |
| 5.6 | 5.6 | 93 | 57 | 10 | 861765 | £ 8,23 |
| 5.7 | 5.7 | 93 | 57 | 10 | 861766 | £ 8,48 |
| 5.8 | 5.8 | 93 | 57 | 10 | 861767 | £ 8,23 |
| 5.9 | 5.9 | 93 | 57 | 10 | 861768 | £ 8,23 |
| 6 | 6 | 93 | 57 | 10 | 861769 | £ 7,51 |
| 6.1 | 6.1 | 101 | 63 | 5 | 861770 | £ 12,51 |
| 6.2 | 6.2 | 101 | 63 | 5 | 861771 | £ 11,81 |
| 6.3 | 6.3 | 101 | 63 | 5 | 861772 | £ 12,51 |
| 6.4 | 6.4 | 101 | 63 | 5 | 861773 | £ 12,51 |
| 6.5 | 6.5 | 101 | 63 | 5 | 861774 | £ 11,58 |
| 6.6 | 6.6 | 101 | 63 | 5 | 861775 | £ 13,17 |
| 6.7 | 6.7 | 101 | 63 | 5 | 861776 | £ 13,17 |
| 6.8 | 6.8 | 109 | 69 | 5 | 861777 | £ 12,71 |
| 6.9 | 6.9 | 109 | 69 | 5 | 861778 | £ 13,17 |
| 7 | 7 | 109 | 69 | 5 | 861779 | £ 12,38 |
| 7.1 | 7.1 | 109 | 69 | 5 | 861780 | £ 15,58 |
| 7.2 | 7.2 | 109 | 69 | 5 | 861781 | £ 15,51 |
| 7.3 | 7.3 | 109 | 69 | 5 | 861782 | £ 15,58 |
| 7.4 | 7.4 | 109 | 69 | 5 | 861783 | £ 15,58 |
| 7.5 | 7.5 | 109 | 69 | 5 | 861784 | £ 12,89 |

| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 7.6 | 7.6 | 117 | 75 | 5 | 861785 | £ 15,58 |
| 7.7 | 7.7 | 117 | 75 | 5 | 861786 | £ 15,58 |
| 7.8 | 7.8 | 117 | 75 | 5 | 861787 | £ 15,58 |
| 7.9 | 7.9 | 117 | 75 | 5 | 861788 | £ 15,58 |
| 8 | 8 | 117 | 75 | 5 | 861789 | £ 14,28 |
| 8.1 | 8.1 | 117 | 75 | 5 | 861790 | £ 18,35 |
| 8.2 | 8.2 | 117 | 75 | 5 | 861791 | £ 18,35 |
| 8.3 | 8.3 | 117 | 75 | 5 | 861792 | £ 18,35 |
| 8.4 | 8.4 | 117 | 75 | 5 | 861793 | £ 18,35 |
| 8.5 | 8.5 | 117 | 75 | 5 | 861794 | £ 15,45 |
| 8.6 | 8.6 | 125 | 81 | 5 | 861795 | £ 21,35 |
| 8.7 | 8.7 | 125 | 81 | 5 | 861796 | £ 21,35 |
| 8.8 | 8.8 | 125 | 81 | 5 | 861797 | £ 21,35 |
| 8.9 | 8.9 | 125 | 81 | 5 | 861798 | £ 21,35 |
| 9 | 9 | 125 | 81 | 5 | 861799 | £ 18,17 |
| 9.1 | 9.1 | 125 | 81 | 5 | 861800 | £ 25,30 |
| 9.2 | 9.2 | 125 | 81 | 5 | 861801 | £ 25,30 |
| 9.3 | 9.3 | 125 | 81 | 5 | 861802 | £ 25,30 |
| 9.4 | 9.4 | 125 | 81 | 5 | 861803 | £ 25,30 |
| 9.5 | 9.5 | 125 | 81 | 5 | 861804 | £ 18,61 |
| 9.6 | 9.6 | 133 | 87 | 5 | 861805 | £ 25,30 |
| 9.7 | 9.7 | 133 | 87 | 5 | 861806 | £ 25,30 |
| 9.8 | 9.8 | 133 | 87 | 5 | 861807 | £ 25,30 |
| 9.9 | 9.9 | 133 | 87 | 5 | 861808 | £ 25,30 |
| 10 | 10 | 133 | 87 | 5 | 861809 | £ 19,89 |
| 10.1 | 10.1 | 133 | 87 | 1 | 861810 | £ 32,70 |
| 10.2 | 10.2 | 133 | 87 | 1 | 861811 | £ 32,70 |
| 10.3 | 10.3 | 133 | 87 | 1 | 861812 | £ 32,70 |
| 10.4 | 10.4 | 133 | 87 | 1 | 861813 | £ 32,70 |
| 10.5 | 10.5 | 133 | 87 | 1 | 861814 | £ 31,57 |
| 10.6 | 10.6 | 133 | 87 | 1 | 861815 | £ 33,93 |
| 10.7 | 10.7 | 142 | 94 | 1 | 861816 | £ 33,93 |
| 10.8 | 10.8 | 142 | 94 | 1 | 861817 | £ 33,93 |
| 10.9 | 10.9 | 142 | 94 | 1 | 861818 | £ 33,93 |
| 11 | 11 | 142 | 94 | 1 | 861819 | £ 33,68 |
| 11.1 | 11.1 | 142 | 94 | 1 | 861820 | £ 39,54 |
| 11.2 | 11.2 | 142 | 94 | 1 | 861821 | £ 39,54 |
| 11.3 | 11.3 | 142 | 94 | 1 | 861822 | £ 39,54 |
| 11.4 | 11.4 | 142 | 94 | 1 | 861823 | £ 39,54 |
| 11.5 | 11.5 | 142 | 94 | 1 | 861824 | £ 37,60 |
| 11.6 | 11.6 | 142 | 94 | 1 | 861825 | £ 39,29 |
| 11.7 | 11.7 | 142 | 94 | 1 | 861826 | £ 39,29 |
| 11.8 | 11.8 | 142 | 94 | 1 | 861827 | £ 39,29 |
| 11.9 | 11.9 | 151 | 101 | 1 | 861828 | £ 39,29 |
| 12 | 12 | 151 | 101 | 1 | 861829 | £ 39,47 |
| 12.1 | 12.1 | 151 | 101 | 1 | 861830 | £ 53,92 |
| 12.2 | 12.2 | 151 | 101 | 1 | 861831 | £ 53,92 |
| 12.3 | 12.3 | 151 | 101 | 1 | 861832 | £ 53,92 |
| 12.4 | 12.4 | 151 | 101 | 1 | 861833 | £ 53,92 |
| 12.5 | 12.5 | 151 | 101 | 1 | 861834 | £ 53,92 |
| 12.6 | 12.6 | 151 | 101 | 1 | 861835 | £ 53,92 |
| 12.7 | 12.7 | 151 | 101 | 1 | 861836 | £ 53,92 |
| 12.8 | 12.8 | 151 | 101 | 1 | 861837 | £ 53,92 |
| 12.9 | 12.9 | 151 | 101 | 1 | 861838 | £ 53,92 |
| 13 | 13 | 151 | 101 | 1 | 861839 | £ 49,39 |

# HSS DRILL SETS

## SET OF HSS DRILLS

DIN 338N | 30° | 118°

A | F | A-C

| Content | Number of drills | | Ref. | Price each |
|---|---|---|---|---|
| From Ø1 to Ø10 by 1/2 | 19 | 1 | 845944 | £ 34,78 |
| From Ø1 to Ø13 by 1/2 | 25 | 1 | 845946 | £ 66,02 |

## SET OF HSS DRILLS TIN COATED

DIN 338N | 30° | 130° | TiN

A | F | A-C

| Content | Number of drills | | Ref. | Price each |
|---|---|---|---|---|
| From Ø1 to Ø10 by 1/2 | 19 | 1 | 860896 | £ 49,53 |
| From Ø1 to Ø13 by 1/2 | 25 | 1 | 860897 | £ 115,08 |

## SET OF HSS DRILLS TIN TIP COATED

DIN 338N | 30° | 130° | TiNBD

A | F | A-C

| Content | Number of drills | | Ref. | Price each |
|---|---|---|---|---|
| From Ø1 to Ø10 by 1/2 | 19 | 1 | 860771 | £ 50,20 |
| From Ø1 to Ø13 by 1/2 | 25 | 1 | 860772 | £ 103,57 |

## SET OF HSS DRILLS ZIRCO COATED

DIN 338N | 30° | 130° | ZIRKO

A | I | F | A-C

| Content | Number of drills | | Ref. | Price each |
|---|---|---|---|---|
| From Ø1 to Ø10 by 1/2 | 19 | 1 | 861146 | £ 50,31 |
| From Ø1 to Ø13 by 1/2 | 25 | 1 | 861147 | £ 116,79 |

## SET OF HSS DRILLS ZIRCO TIP COATED

DIN 338N | 30° | 130° | ZIRKO BB

A | I | F | A-C

| Content | Number of drills | | Ref. | Price each |
|---|---|---|---|---|
| From Ø1 to Ø10 by 1/2 | 19 | 1 | 861021 | £ 49,53 |
| From Ø1 to Ø13 by 1/2 | 25 | 1 | 861022 | £ 115,08 |

## SET OF HSS CO5% DRILLS FLATS SHANK

DIN 338W | 40° | 135° | GOLD

A | I | A-C

| Content | Number of drills | | Ref. | Price each |
|---|---|---|---|---|
| From Ø1 to Ø10 by 1/2 | 19 | 1 | 861208 | £ 72,16 |
| From Ø1 to Ø13 by 1/2 | 25 | 1 | 861209 | £ 162,94 |

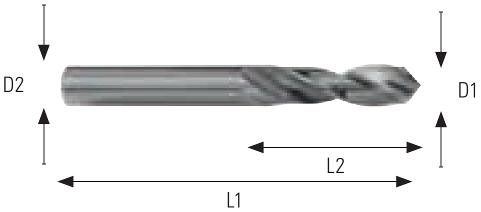
## SOLID CARBIDE DRILL - STUB

| Material | Vc [m/min] | Table of advances (f in rpm) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Ø 1 to Ø 1,5 | Ø 1,6 to Ø 1,9 | Ø 2 to Ø 2,9 | Ø 3 to Ø 4,9 | Ø 5 to Ø 7,9 | Ø 8 to Ø 12 |
| Steel <500 N/mm² (<150 HB) | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | |
| Fonte <180HB | | | | | | | |
| Malleable cast iron >180HB | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | |
| Aluminium | 200 | 0,01 | 0,01 | 0,02 | 0,03 | 0,07 | 0,11 |
| Aluminium >8% Si | 160 | 0,01 | 0,01 | 0,02 | 0,03 | 0,07 | 0,11 |
| Copper - Bronze - Brass | 100 | 0,01 | 0,01 | 0,01 | 0,02 | 0,06 | 0,11 |
| TITANIUM | 25 | 0,01 | 0,01 | 0,01 | 0,01 | 0,03 | 0,06 |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | |

## SOLID CARBIDE DRILL - STUB

DIN 6539 | HA | 118° | 30°

Ti | A-C




| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 1 | 26 | 6 | 1 | 844464 | £ 2,69 |
| 1.1 | 1.1 | 28 | 7 | 1 | 844465 | £ 3,27 |
| 1.2 | 1.2 | 30 | 8 | 1 | 844466 | £ 3,15 |
| 1.3 | 1.3 | 30 | 8 | 1 | 844467 | £ 3,09 |
| 1.4 | 1.4 | 32 | 9 | 1 | 844468 | £ 3,05 |
| 1.5 | 1.5 | 32 | 9 | 1 | 844469 | £ 2,89 |
| 1.6 | 1.6 | 34 | 10 | 1 | 844470 | £ 2,77 |
| 1.7 | 1.7 | 34 | 10 | 1 | 844471 | £ 3,07 |
| 1.8 | 1.8 | 36 | 11 | 1 | 844472 | £ 3,17 |
| 1.9 | 1.9 | 36 | 11 | 1 | 844473 | £ 3,17 |
| 2 | 2 | 38 | 12 | 1 | 844474 | £ 4,76 |
| 2.1 | 2.1 | 38 | 12 | 1 | 844475 | £ 4,80 |
| 2.2 | 2.2 | 40 | 13 | 1 | 844476 | £ 4,94 |
| 2.3 | 2.3 | 40 | 13 | 1 | 844477 | £ 4,98 |
| 2.4 | 2.4 | 43 | 14 | 1 | 844478 | £ 5,68 |
| 2.5 | 2.5 | 43 | 14 | 1 | 844479 | £ 5,48 |
| 2.6 | 2.6 | 43 | 14 | 1 | 844480 | £ 6,20 |
| 2.7 | 2.7 | 46 | 16 | 1 | 844481 | £ 6,46 |
| 2.8 | 2.8 | 46 | 16 | 1 | 844482 | £ 6,82 |
| 2.9 | 2.9 | 46 | 16 | 1 | 844483 | £ 7,22 |
| 3 | 3 | 46 | 16 | 1 | 844484 | £ 7,18 |
| 3.1 | 3.1 | 49 | 18 | 1 | 844485 | £ 8,11 |
| 3.2 | 3.2 | 49 | 18 | 1 | 844486 | £ 7,95 |
| 3.3 | 3.3 | 49 | 18 | 1 | 844487 | £ 8,01 |
| 3.4 | 3.4 | 52 | 20 | 1 | 844488 | £ 8,49 |
| 3.5 | 3.5 | 52 | 20 | 1 | 844489 | £ 8,57 |
| 3.6 | 3.6 | 52 | 20 | 1 | 844490 | £ 9,17 |
| 3.7 | 3.7 | 52 | 20 | 1 | 844491 | £ 9,15 |
| 3.8 | 3.8 | 55 | 22 | 1 | 844492 | £ 9,81 |
| 3.9 | 3.9 | 55 | 22 | 1 | 844493 | £ 9,83 |
| 4 | 4 | 55 | 22 | 1 | 844494 | £ 10,96 |
| 4.1 | 4.1 | 55 | 22 | 1 | 844495 | £ 10,27 |
| 4.2 | 4.2 | 55 | 22 | 1 | 844496 | £ 11,40 |
| 4.3 | 4.3 | 58 | 24 | 1 | 844497 | £ 10,88 |
| 4.4 | 4.4 | 58 | 24 | 1 | 844498 | £ 10,90 |
| 4.5 | 4.5 | 58 | 24 | 1 | 844499 | £ 12,63 |
| 4.6 | 4.6 | 58 | 24 | 1 | 844500 | £ 11,56 |
| 4.7 | 4.7 | 58 | 24 | 1 | 844501 | £ 11,60 |
| 4.8 | 4.8 | 62 | 26 | 1 | 844502 | £ 12,75 |
| 4.9 | 4.9 | 62 | 26 | 1 | 844503 | £ 15,91 |
| 5 | 5 | 62 | 26 | 1 | 844504 | £ 13,63 |
| 5.1 | 5.1 | 62 | 26 | 1 | 844505 | £ 15,73 |
| 5.2 | 5.2 | 62 | 26 | 1 | 844506 | £ 15,73 |
| 5.3 | 5.3 | 62 | 26 | 1 | 844507 | £ 16,48 |
| 5.4 | 5.4 | 66 | 28 | 1 | 844508 | £ 17,76 |
| 5.5 | 5.5 | 66 | 28 | 1 | 844509 | £ 18,82 |
| 5.6 | 5.6 | 66 | 28 | 1 | 844510 | £ 18,62 |
| 5.7 | 5.7 | 66 | 28 | 1 | 844511 | £ 18,72 |

| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 5.8 | 5.8 | 66 | 28 | 1 | 844512 | £ 18,90 |
| 5.9 | 5.9 | 66 | 28 | 1 | 844513 | £ 18,98 |
| 6 | 6 | 66 | 28 | 1 | 844514 | £ 20,42 |
| 6.1 | 6.1 | 70 | 31 | 1 | 844515 | £ 20,81 |
| 6.2 | 6.2 | 70 | 31 | 1 | 844516 | £ 21,47 |
| 6.3 | 6.3 | 70 | 31 | 1 | 844517 | £ 21,57 |
| 6.4 | 6.4 | 70 | 31 | 1 | 844518 | £ 22,15 |
| 6.5 | 6.5 | 70 | 31 | 1 | 844519 | £ 22,94 |
| 6.6 | 6.6 | 70 | 31 | 1 | 844520 | £ 23,10 |
| 6.7 | 6.7 | 70 | 31 | 1 | 844521 | £ 23,66 |
| 6.8 | 6.8 | 74 | 34 | 1 | 844522 | £ 23,97 |
| 6.9 | 6.9 | 74 | 34 | 1 | 844523 | £ 26,85 |
| 7 | 7 | 74 | 34 | 1 | 844524 | £ 23,90 |
| 7.1 | 7.1 | 74 | 34 | 1 | 844525 | £ 27,15 |
| 7.2 | 7.2 | 74 | 34 | 1 | 844526 | £ 27,27 |
| 7.3 | 7.3 | 74 | 34 | 1 | 844527 | £ 27,37 |
| 7.4 | 7.4 | 74 | 34 | 1 | 844528 | £ 27,43 |
| 7.5 | 7.5 | 74 | 34 | 1 | 844529 | £ 25,06 |
| 7.6 | 7.6 | 79 | 37 | 1 | 844530 | £ 30,62 |
| 7.7 | 7.7 | 79 | 37 | 1 | 844531 | £ 30,82 |
| 7.8 | 7.8 | 79 | 37 | 1 | 844532 | £ 31,10 |
| 7.9 | 7.9 | 79 | 37 | 1 | 844533 | £ 31,41 |
| 8 | 8 | 79 | 37 | 1 | 844534 | £ 27,21 |
| 8.1 | 8.1 | 79 | 37 | 1 | 844535 | £ 31,41 |
| 8.2 | 8.2 | 79 | 37 | 1 | 844536 | £ 31,41 |
| 8.3 | 8.3 | 79 | 37 | 1 | 844537 | £ 31,81 |
| 8.4 | 8.4 | 79 | 37 | 1 | 844538 | £ 32,25 |
| 8.5 | 8.5 | 79 | 37 | 1 | 844539 | £ 27,89 |
| 8.6 | 8.6 | 84 | 40 | 1 | 844540 | £ 32,39 |
| 8.7 | 8.7 | 84 | 40 | 1 | 844541 | £ 36,76 |
| 8.8 | 8.8 | 84 | 40 | 1 | 844542 | £ 37,36 |
| 8.9 | 8.9 | 84 | 40 | 1 | 844543 | £ 37,67 |
| 9 | 9 | 84 | 40 | 1 | 844544 | £ 28,73 |
| 9.1 | 9.1 | 84 | 40 | 1 | 844545 | £ 39,81 |
| 9.2 | 9.2 | 84 | 40 | 1 | 844546 | £ 40,37 |
| 9.3 | 9.3 | 84 | 40 | 1 | 844547 | £ 40,84 |
| 9.4 | 9.4 | 84 | 40 | 1 | 844548 | £ 40,92 |
| 9.5 | 9.5 | 84 | 40 | 1 | 844549 | £ 30,50 |
| 9.6 | 9.6 | 89 | 43 | 1 | 844550 | £ 43,57 |
| 9.7 | 9.7 | 89 | 43 | 1 | 844551 | £ 43,89 |
| 9.8 | 9.8 | 89 | 43 | 1 | 844552 | £ 31,99 |
| 9.9 | 9.9 | 89 | 43 | 1 | 844553 | £ 44,71 |
| 10 | 10 | 89 | 43 | 1 | 844554 | £ 56,66 |
| 10.2 | 10.2 | 89 | 43 | 1 | 844555 | £ 34,87 |
| 10.5 | 10.5 | 89 | 43 | 1 | 844556 | £ 36,37 |
| 11 | 11 | 95 | 47 | 1 | 844557 | £ 55,10 |
| 11.5 | 11.5 | 95 | 47 | 1 | 844558 | £ 45,66 |
| 12 | 12 | 102 | 51 | 1 | 844559 | £ 49,53 |

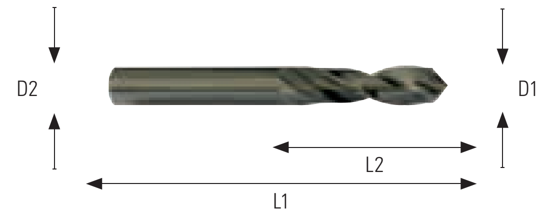
## SOLID CARBIDE DRILL - OZMD COATED STUB

| Material | Vc [m/min] | Table of advances (f in rpm) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Ø 1 to Ø 1,5 | Ø 1,6 to Ø 1,9 | Ø 2 to Ø 2,9 | Ø 3 to Ø 4,9 | Ø 5 to Ø 7,9 | Ø 8 to Ø 12 |
| Steel <500 N/mm² (<150 HB) | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | |
| Fonte <180HB | | | | | | | |
| Malleable cast iron >180HB | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | |
| Aluminium | 200 | 0,01 | 0,01 | 0,02 | 0,03 | 0,07 | 0,11 |
| Aluminium >8% Si | 160 | 0,01 | 0,01 | 0,02 | 0,03 | 0,07 | 0,11 |
| Copper - Bronze - Brass | 100 | 0,01 | 0,01 | 0,01 | 0,02 | 0,06 | 0,11 |
| TITANIUM | 25 | 0,01 | 0,01 | 0,01 | 0,01 | 0,03 | 0,06 |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | |

## SOLID CARBIDE DRILL - OZMD COATED STUB

DIN 6539 | HA | 118° | 30° | OZMD

Ti | A-C




| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 1 | 26 | 6 | 1 | 855766 | £ 4,87 |
| 1.1 | 1.1 | 28 | 7 | 1 | 855767 | £ 5,45 |
| 1.2 | 1.2 | 30 | 8 | 1 | 855768 | £ 5,27 |
| 1.3 | 1.3 | 30 | 8 | 1 | 855769 | £ 5,34 |
| 1.4 | 1.4 | 32 | 9 | 1 | 855770 | £ 5,16 |
| 1.5 | 1.5 | 32 | 9 | 1 | 855771 | £ 4,87 |
| 1.6 | 1.6 | 34 | 10 | 1 | 855772 | £ 4,75 |
| 1.7 | 1.7 | 34 | 10 | 1 | 855773 | £ 5,11 |
| 1.8 | 1.8 | 36 | 11 | 1 | 855774 | £ 5,18 |
| 1.9 | 1.9 | 36 | 11 | 1 | 855775 | £ 5,18 |
| 2 | 2 | 38 | 12 | 1 | 855776 | £ 6,97 |
| 2.1 | 2.1 | 38 | 12 | 1 | 855777 | £ 7,74 |
| 2.2 | 2.2 | 40 | 13 | 1 | 855778 | £ 8,05 |
| 2.3 | 2.3 | 40 | 13 | 1 | 855779 | £ 8,12 |
| 2.4 | 2.4 | 43 | 14 | 1 | 855780 | £ 8,75 |
| 2.5 | 2.5 | 43 | 14 | 1 | 855781 | £ 8,79 |
| 2.6 | 2.6 | 43 | 14 | 1 | 855782 | £ 9,51 |
| 2.7 | 2.7 | 46 | 16 | 1 | 855783 | £ 9,91 |
| 2.8 | 2.8 | 46 | 16 | 1 | 855784 | £ 9,91 |
| 2.9 | 2.9 | 46 | 16 | 1 | 855785 | £ 10,29 |
| 3 | 3 | 46 | 16 | 1 | 855786 | £ 10,29 |
| 3.1 | 3.1 | 49 | 18 | 1 | 855787 | £ 11,39 |
| 3.2 | 3.2 | 49 | 18 | 1 | 855788 | £ 10,56 |
| 3.3 | 3.3 | 49 | 18 | 1 | 855789 | £ 10,11 |
| 3.4 | 3.4 | 52 | 20 | 1 | 855790 | £ 10,45 |
| 3.5 | 3.5 | 52 | 20 | 1 | 855791 | £ 10,52 |
| 3.6 | 3.6 | 52 | 20 | 1 | 855792 | £ 12,18 |
| 3.7 | 3.7 | 52 | 20 | 1 | 855793 | £ 12,18 |
| 3.8 | 3.8 | 55 | 22 | 1 | 855794 | £ 12,83 |
| 3.9 | 3.9 | 55 | 22 | 1 | 855795 | £ 12,98 |
| 4 | 4 | 55 | 22 | 1 | 855796 | £ 11,58 |
| 4.1 | 4.1 | 55 | 22 | 1 | 855797 | £ 13,50 |
| 4.2 | 4.2 | 55 | 22 | 1 | 855798 | £ 11,92 |
| 4.3 | 4.3 | 58 | 24 | 1 | 855799 | £ 12,60 |
| 4.4 | 4.4 | 58 | 24 | 1 | 855800 | £ 14,20 |
| 4.5 | 4.5 | 58 | 24 | 1 | 855801 | £ 13,28 |
| 4.6 | 4.6 | 58 | 24 | 1 | 855802 | £ 15,43 |
| 4.7 | 4.7 | 58 | 24 | 1 | 855803 | £ 15,52 |
| 4.8 | 4.8 | 62 | 26 | 1 | 855804 | £ 16,93 |
| 4.9 | 4.9 | 62 | 26 | 1 | 855805 | £ 20,47 |
| 5 | 5 | 62 | 26 | 1 | 855806 | £ 17,14 |
| 5.1 | 5.1 | 62 | 26 | 1 | 855807 | £ 17,40 |
| 5.2 | 5.2 | 62 | 26 | 1 | 855808 | £ 19,58 |
| 5.3 | 5.3 | 62 | 26 | 1 | 855809 | £ 20,54 |
| 5.4 | 5.4 | 66 | 28 | 1 | 855810 | £ 22,20 |
| 5.5 | 5.5 | 66 | 28 | 1 | 855811 | £ 20,41 |
| 5.6 | 5.6 | 66 | 28 | 1 | 855812 | £ 20,57 |
| 5.7 | 5.7 | 66 | 28 | 1 | 855813 | £ 20,63 |

| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 5.8 | 5.8 | 66 | 28 | 1 | 855814 | £ 21,19 |
| 5.9 | 5.9 | 66 | 28 | 1 | 855815 | £ 21,25 |
| 6 | 6 | 66 | 28 | 1 | 855816 | £ 21,31 |
| 6.1 | 6.1 | 70 | 31 | 1 | 855817 | £ 22,37 |
| 6.2 | 6.2 | 70 | 31 | 1 | 855818 | £ 23,26 |
| 6.3 | 6.3 | 70 | 31 | 1 | 855819 | £ 23,30 |
| 6.4 | 6.4 | 70 | 31 | 1 | 855820 | £ 24,40 |
| 6.5 | 6.5 | 70 | 31 | 1 | 855821 | £ 24,72 |
| 6.6 | 6.6 | 70 | 31 | 1 | 855822 | £ 24,90 |
| 6.7 | 6.7 | 70 | 31 | 1 | 855823 | £ 25,61 |
| 6.8 | 6.8 | 74 | 34 | 1 | 855824 | £ 27,31 |
| 6.9 | 6.9 | 74 | 34 | 1 | 855825 | £ 27,50 |
| 7 | 7 | 74 | 34 | 1 | 855826 | £ 27,56 |
| 7.1 | 7.1 | 74 | 34 | 1 | 855827 | £ 29,10 |
| 7.2 | 7.2 | 74 | 34 | 1 | 855828 | £ 30,68 |
| 7.3 | 7.3 | 74 | 34 | 1 | 855829 | £ 31,38 |
| 7.4 | 7.4 | 74 | 34 | 1 | 855830 | £ 28,65 |
| 7.5 | 7.5 | 74 | 34 | 1 | 855831 | £ 28,74 |
| 7.6 | 7.6 | 79 | 37 | 1 | 855832 | £ 32,31 |
| 7.7 | 7.7 | 79 | 37 | 1 | 855833 | £ 32,37 |
| 7.8 | 7.8 | 79 | 37 | 1 | 855834 | £ 32,47 |
| 7.9 | 7.9 | 79 | 37 | 1 | 855835 | £ 33,47 |
| 8 | 8 | 79 | 37 | 1 | 855836 | £ 27,97 |
| 8.1 | 8.1 | 79 | 37 | 1 | 855837 | £ 33,45 |
| 8.2 | 8.2 | 79 | 37 | 1 | 855838 | £ 33,79 |
| 8.3 | 8.3 | 79 | 37 | 1 | 855839 | £ 34,13 |
| 8.4 | 8.4 | 79 | 37 | 1 | 855840 | £ 34,40 |
| 8.5 | 8.5 | 79 | 37 | 1 | 855841 | £ 30,21 |
| 8.6 | 8.6 | 84 | 40 | 1 | 855842 | £ 31,72 |
| 8.7 | 8.7 | 84 | 40 | 1 | 855843 | £ 32,31 |
| 8.8 | 8.8 | 84 | 40 | 1 | 855844 | £ 39,95 |
| 8.9 | 8.9 | 84 | 40 | 1 | 855845 | £ 40,17 |
| 9 | 9 | 84 | 40 | 1 | 855846 | £ 32,08 |
| 9.1 | 9.1 | 84 | 40 | 1 | 855847 | £ 41,80 |
| 9.2 | 9.2 | 84 | 40 | 1 | 855848 | £ 42,52 |
| 9.3 | 9.3 | 84 | 40 | 1 | 855849 | £ 33,31 |
| 9.4 | 9.4 | 84 | 40 | 1 | 855850 | £ 46,15 |
| 9.5 | 9.5 | 84 | 40 | 1 | 855851 | £ 33,11 |
| 9.6 | 9.6 | 89 | 43 | 1 | 855852 | £ 45,65 |
| 9.7 | 9.7 | 89 | 43 | 1 | 855853 | £ 46,03 |
| 9.8 | 9.8 | 89 | 43 | 1 | 855854 | £ 46,25 |
| 9.9 | 9.9 | 89 | 43 | 1 | 855855 | £ 46,36 |
| 10 | 10 | 89 | 43 | 1 | 855856 | £ 34,14 |
| 10.2 | 10.2 | 89 | 43 | 1 | 855857 | £ 47,40 |
| 10.5 | 10.5 | 89 | 43 | 1 | 855858 | £ 46,95 |
| 11 | 11 | 95 | 47 | 1 | 855859 | £ 49,59 |
| 11.5 | 11.5 | 95 | 47 | 1 | 855860 | £ 49,71 |
| 12 | 12 | 102 | 51 | 1 | 855861 | £ 49,51 |

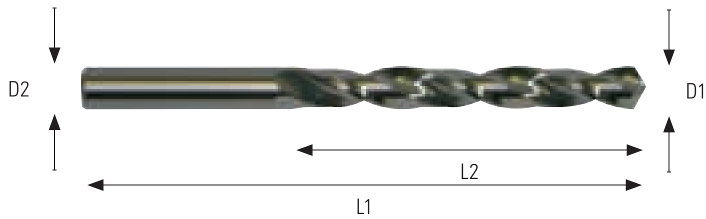
## SOLID CARBIDE DRILL

| Material | Vc [m/min] | Table of advances (f in rpm) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Ø 1 to Ø 1,5 | Ø 1,6 to Ø 1,9 | Ø 2 to Ø 2,9 | Ø 3 to Ø 4,9 | Ø 5 to Ø 7,9 | Ø 8 to Ø 12 |
| Steel <500 N/mm² (<150 HB) | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | |
| Fonte <180HB | | | | | | | |
| Malleable cast iron >180HB | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | |
| Aluminium | 200 | 0,01 | 0,01 | 0,02 | 0,03 | 0,07 | 0,11 |
| Aluminium >8% Si | 160 | 0,01 | 0,01 | 0,02 | 0,03 | 0,07 | 0,11 |
| Copper - Bronze - Brass | 100 | 0,01 | 0,01 | 0,01 | 0,02 | 0,06 | 0,11 |
| TITANIUM | 25 | 0,01 | 0,01 | 0,01 | 0,01 | 0,03 | 0,06 |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | |

## SOLID CARBIDE DRILL

DIN 338N | HA | 30° | 118°

Ti | A-C




| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 1 | 34 | 12 | 1 | 847715 | £ 4,37 |
| 1.1 | 1.1 | 36 | 14 | 1 | 847716 | £ 5,10 |
| 1.2 | 1.2 | 38 | 16 | 1 | 847717 | £ 5,12 |
| 1.3 | 1.3 | 38 | 16 | 1 | 847718 | £ 5,16 |
| 1.4 | 1.4 | 40 | 18 | 1 | 847719 | £ 5,16 |
| 1.5 | 1.5 | 40 | 18 | 1 | 847720 | £ 4,86 |
| 1.6 | 1.6 | 43 | 20 | 1 | 847721 | £ 5,28 |
| 1.7 | 1.7 | 43 | 20 | 1 | 847722 | £ 5,32 |
| 1.8 | 1.8 | 46 | 22 | 1 | 847723 | £ 5,40 |
| 1.9 | 1.9 | 46 | 22 | 1 | 847724 | £ 5,48 |
| 2 | 2 | 49 | 24 | 1 | 847725 | £ 6,36 |
| 2.1 | 2.1 | 49 | 24 | 1 | 847726 | £ 6,86 |
| 2.2 | 2.2 | 53 | 27 | 1 | 847727 | £ 7,32 |
| 2.3 | 2.3 | 53 | 27 | 1 | 847728 | £ 7,26 |
| 2.4 | 2.4 | 57 | 30 | 1 | 847729 | £ 8,07 |
| 2.5 | 2.5 | 57 | 30 | 1 | 847730 | £ 8,23 |
| 2.6 | 2.6 | 57 | 30 | 1 | 847731 | £ 8,57 |
| 2.7 | 2.7 | 61 | 33 | 1 | 847732 | £ 9,71 |
| 2.8 | 2.8 | 61 | 33 | 1 | 847733 | £ 9,43 |
| 2.9 | 2.9 | 61 | 33 | 1 | 847734 | £ 9,43 |
| 3 | 3 | 61 | 33 | 1 | 847735 | £ 9,35 |

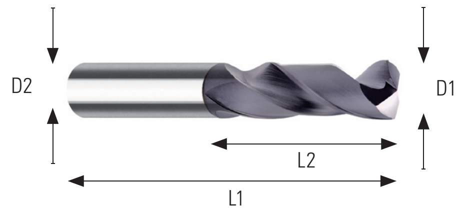
## SOLID CARBIDE 3XD DRILL OZMD COATED

| Material | Vc [m/min] | Table of advances (f in rpm) | | | | |
|---|---|---|---|---|---|---|
| | | Ø 3 to Ø 4,9 | Ø 5 to Ø 8,9 | Ø 9 to Ø 11,9 | Ø 12 to Ø 16 | Ø 16,5 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 100 | 0,12 | 0,12 | 0,16 | 0,21 | 0,35 |
| Steel <700 N/mm² (<205 HB) | 90 | 0,12 | 0,12 | 0,16 | 0,21 | 0,35 |
| Steel <850 N/mm² (<265 HB) | 85 | 0,12 | 0,12 | 0,16 | 0,21 | 0,35 |
| Steel <1000 N/mm² (<30 HRC) | 60 | 0,09 | 0,09 | 0,11 | 0,15 | 0,25 |
| Steel <1400 N/mm² (<44 HRC) | 35 | 0,05 | 0,05 | 0,06 | 0,09 | 0,17 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | 30 | 0,05 | 0,05 | 0,06 | 0,09 | 0,17 |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | |
| Steel (60 / 65 HRC) | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 40 | 0,09 | 0,09 | 0,11 | 0,15 | 0,25 |
| Stainless steel >700 N/mm² (>205 HB) | 30 | 0,06 | 0,06 | 0,09 | 0,13 | 0,21 |
| Fonte <180HB | 80 | 0,12 | 0,12 | 0,16 | 0,21 | 0,35 |
| Malleable cast iron >180HB | 70 | 0,12 | 0,12 | 0,16 | 0,21 | 0,35 |
| Cast iron with graphite >180HB | 70 | 0,12 | 0,12 | 0,16 | 0,21 | 0,35 |
| Aluminium | 150 | 0,12 | 0,12 | 0,16 | 0,21 | 0,35 |
| Aluminium >8% Si | 110 | 0,12 | 0,12 | 0,16 | 0,21 | 0,35 |
| Copper - Bronze - Brass | 95 | 0,12 | 0,12 | 0,16 | 0,21 | 0,35 |
| TITANIUM | 40 | 0,06 | 0,06 | 0,09 | 0,13 | 0,21 |
| Inconel, Hastelloy, Nimonic, Monel | 35 | 0,06 | 0,06 | 0,09 | 0,13 | 0,21 |

## SOLID CARBIDE 3XD DRILL OZMD COATED

30° | 140° | OZMD | HA

A | I | F | Ti | A-C




| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | Qty | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 6 | 62 | 20 | 1 | 843042 | £ 19,38 |
| 3.1 | 6 | 62 | 20 | 1 | 843043 | £ 19,38 |
| 3.2 | 6 | 62 | 20 | 1 | 843044 | £ 19,38 |
| 3.3 | 6 | 62 | 20 | 1 | 843045 | £ 19,38 |
| 3.4 | 6 | 62 | 20 | 1 | 843046 | £ 19,38 |
| 3.5 | 6 | 62 | 20 | 1 | 843047 | £ 19,38 |
| 3.6 | 6 | 62 | 20 | 1 | 843048 | £ 19,38 |
| 3.7 | 6 | 62 | 20 | 1 | 843049 | £ 19,38 |
| 3.8 | 6 | 66 | 24 | 1 | 843050 | £ 19,38 |
| 3.9 | 6 | 66 | 24 | 1 | 843051 | £ 19,38 |
| 4 | 6 | 66 | 24 | 1 | 843052 | £ 19,38 |
| 4.1 | 6 | 66 | 24 | 1 | 843053 | £ 19,38 |
| 4.2 | 6 | 66 | 24 | 1 | 843054 | £ 19,38 |
| 4.3 | 6 | 66 | 24 | 1 | 843055 | £ 19,38 |
| 4.4 | 6 | 66 | 24 | 1 | 843056 | £ 19,38 |
| 4.5 | 6 | 66 | 24 | 1 | 843057 | £ 19,38 |
| 4.6 | 6 | 66 | 24 | 1 | 843058 | £ 19,38 |
| 4.7 | 6 | 66 | 24 | 1 | 843059 | £ 19,38 |
| 4.8 | 6 | 66 | 28 | 1 | 843060 | £ 19,38 |
| 4.9 | 6 | 66 | 28 | 1 | 843061 | £ 19,38 |
| 5 | 6 | 66 | 28 | 1 | 843062 | £ 19,38 |
| 5.1 | 6 | 66 | 28 | 1 | 843063 | £ 19,38 |
| 5.2 | 6 | 66 | 28 | 1 | 843064 | £ 19,38 |
| 5.3 | 6 | 66 | 28 | 1 | 843065 | £ 19,38 |
| 5.4 | 6 | 66 | 28 | 1 | 843066 | £ 19,38 |
| 5.5 | 6 | 66 | 28 | 1 | 843067 | £ 19,38 |
| 5.6 | 6 | 66 | 28 | 1 | 843068 | £ 19,38 |
| 5.7 | 6 | 66 | 28 | 1 | 843069 | £ 19,38 |
| 5.8 | 6 | 66 | 28 | 1 | 843070 | £ 19,38 |
| 5.9 | 6 | 66 | 28 | 1 | 843071 | £ 19,38 |
| 6 | 6 | 66 | 28 | 1 | 843072 | £ 19,38 |
| 6.1 | 8 | 79 | 34 | 1 | 843073 | £ 20,33 |
| 6.2 | 8 | 79 | 34 | 1 | 843074 | £ 20,33 |
| 6.3 | 8 | 79 | 34 | 1 | 843075 | £ 20,33 |
| 6.4 | 8 | 79 | 34 | 1 | 843076 | £ 20,33 |
| 6.5 | 8 | 79 | 34 | 1 | 843077 | £ 20,33 |
| 6.6 | 8 | 79 | 34 | 1 | 843078 | £ 20,33 |
| 6.7 | 8 | 79 | 34 | 1 | 843079 | £ 20,33 |
| 6.8 | 8 | 79 | 34 | 1 | 843080 | £ 20,33 |
| 6.9 | 8 | 79 | 34 | 1 | 843081 | £ 20,33 |
| 7 | 8 | 79 | 34 | 1 | 843082 | £ 20,33 |
| 7.1 | 8 | 79 | 41 | 1 | 843083 | £ 20,33 |
| 7.2 | 8 | 79 | 41 | 1 | 843084 | £ 20,33 |
| 7.3 | 8 | 79 | 41 | 1 | 843085 | £ 20,33 |
| 7.4 | 8 | 79 | 41 | 1 | 843086 | £ 20,33 |
| 7.5 | 8 | 79 | 41 | 1 | 843087 | £ 20,33 |
| 7.6 | 8 | 79 | 41 | 1 | 843088 | £ 20,33 |
| 7.7 | 8 | 79 | 41 | 1 | 843089 | £ 20,33 |
| 7.8 | 8 | 79 | 41 | 1 | 843090 | £ 20,33 |
| 7.9 | 8 | 79 | 41 | 1 | 843091 | £ 20,33 |
| 8 | 8 | 79 | 41 | 1 | 843092 | £ 20,33 |
| 8.1 | 10 | 89 | 47 | 1 | 843093 | £ 20,33 |

| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | Qty | Ref. | Price each |
|---|---|---|---|---|---|---|
| 8.2 | 10 | 89 | 47 | 1 | 843094 | £ 23,07 |
| 8.3 | 10 | 89 | 47 | 1 | 843095 | £ 23,07 |
| 8.4 | 10 | 89 | 47 | 1 | 843096 | £ 23,07 |
| 8.5 | 10 | 89 | 47 | 1 | 843097 | £ 23,07 |
| 8.6 | 10 | 89 | 47 | 1 | 843098 | £ 23,07 |
| 8.7 | 10 | 89 | 47 | 1 | 843099 | £ 23,07 |
| 8.8 | 10 | 89 | 47 | 1 | 843100 | £ 23,07 |
| 8.9 | 10 | 89 | 47 | 1 | 843101 | £ 23,07 |
| 9 | 10 | 89 | 47 | 1 | 843102 | £ 23,07 |
| 9.1 | 10 | 89 | 47 | 1 | 843103 | £ 23,07 |
| 9.2 | 10 | 89 | 47 | 1 | 843104 | £ 23,07 |
| 9.3 | 10 | 89 | 47 | 1 | 843105 | £ 23,07 |
| 9.4 | 10 | 89 | 47 | 1 | 843106 | £ 23,07 |
| 9.5 | 10 | 89 | 47 | 1 | 843107 | £ 23,07 |
| 9.6 | 10 | 89 | 47 | 1 | 843108 | £ 23,07 |
| 9.7 | 10 | 89 | 47 | 1 | 843109 | £ 23,07 |
| 9.8 | 10 | 89 | 47 | 1 | 843110 | £ 23,07 |
| 9.9 | 10 | 89 | 47 | 1 | 843111 | £ 23,07 |
| 10 | 10 | 89 | 47 | 1 | 843112 | £ 23,07 |
| 10.2 | 12 | 102 | 55 | 1 | 843113 | £ 33,37 |
| 10.3 | 12 | 102 | 55 | 1 | 843114 | £ 33,37 |
| 10.5 | 12 | 102 | 55 | 1 | 843115 | £ 33,37 |
| 10.8 | 12 | 102 | 55 | 1 | 843116 | £ 33,37 |
| 11 | 12 | 102 | 55 | 1 | 843117 | £ 33,37 |
| 11.2 | 12 | 102 | 55 | 1 | 843118 | £ 33,37 |
| 11.5 | 12 | 102 | 55 | 1 | 843119 | £ 33,37 |
| 11.8 | 12 | 102 | 55 | 1 | 843120 | £ 33,37 |
| 12 | 12 | 102 | 55 | 1 | 843121 | £ 33,37 |
| 12.2 | 14 | 107 | 60 | 1 | 843122 | £ 44,40 |
| 12.5 | 14 | 107 | 60 | 1 | 843123 | £ 44,40 |
| 12.8 | 14 | 107 | 60 | 1 | 843124 | £ 44,40 |
| 13 | 14 | 107 | 60 | 1 | 843125 | £ 44,40 |
| 13.5 | 14 | 107 | 60 | 1 | 843126 | £ 44,40 |
| 13.8 | 14 | 107 | 60 | 1 | 843127 | £ 44,40 |
| 14 | 14 | 107 | 60 | 1 | 843128 | £ 44,40 |
| 14.2 | 16 | 115 | 65 | 1 | 843129 | £ 57,46 |
| 14.5 | 16 | 115 | 65 | 1 | 843130 | £ 57,46 |
| 14.8 | 16 | 115 | 65 | 1 | 843131 | £ 57,46 |
| 15 | 16 | 115 | 65 | 1 | 843132 | £ 57,46 |
| 15.2 | 16 | 115 | 65 | 1 | 843133 | £ 57,46 |
| 15.5 | 16 | 115 | 65 | 1 | 843134 | £ 57,46 |
| 15.8 | 16 | 115 | 65 | 1 | 843135 | £ 57,46 |
| 16 | 16 | 115 | 65 | 1 | 843136 | £ 57,46 |
| 16.5 | 18 | 123 | 73 | 1 | 843137 | £ 90,70 |
| 17 | 18 | 123 | 73 | 1 | 843138 | £ 90,70 |
| 17.5 | 18 | 123 | 73 | 1 | 843139 | £ 90,70 |
| 18 | 18 | 123 | 73 | 1 | 843140 | £ 90,70 |
| 18.5 | 20 | 131 | 79 | 1 | 843141 | £ 107,39 |
| 19 | 20 | 131 | 79 | 1 | 843142 | £ 107,39 |
| 19.5 | 20 | 131 | 79 | 1 | 843143 | £ 107,39 |
| 20 | 20 | 131 | 79 | 1 | 843144 | £ 107,39 |

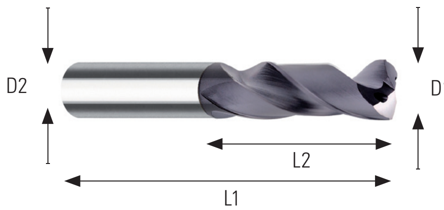
## SOLID CARBIDE 3XD DRILL WITH THROUGH COOLANT OZMD COATED

| Material | Vc [m/min] | Table of advances (f in rpm) | | | | |
|---|---|---|---|---|---|---|
| | | Ø 3 to Ø 4,9 | Ø 5 to Ø 8,9 | Ø 9 to Ø 11,9 | Ø 12 to Ø 16 | Ø 16,5 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 115 | 0,12 | 0,12 | 0,16 | 0,21 | 0,35 |
| Steel <700 N/mm² (<205 HB) | 110 | 0,12 | 0,12 | 0,16 | 0,21 | 0,35 |
| Steel <850 N/mm² (<265 HB) | 105 | 0,12 | 0,12 | 0,16 | 0,21 | 0,35 |
| Steel <1000 N/mm² (<30 HRC) | 75 | 0,09 | 0,09 | 0,11 | 0,15 | 0,25 |
| Steel <1400 N/mm² (<44 HRC) | 45 | 0,05 | 0,05 | 0,06 | 0,09 | 0,17 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | 35 | 0,05 | 0,05 | 0,06 | 0,09 | 0,17 |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | |
| Steel (60 / 65 HRC) | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 50 | 0,09 | 0,09 | 0,11 | 0,15 | 0,25 |
| Stainless steel >700 N/mm² (>205 HB) | 35 | 0,06 | 0,06 | 0,09 | 0,13 | 0,21 |
| Fonte <180HB | 100 | 0,12 | 0,12 | 0,16 | 0,21 | 0,35 |
| Malleable cast iron >180HB | 90 | 0,12 | 0,12 | 0,16 | 0,21 | 0,35 |
| Cast iron with graphite >180HB | 90 | 0,12 | 0,12 | 0,16 | 0,21 | 0,35 |
| Aluminium | 190 | 0,12 | 0,12 | 0,16 | 0,21 | 0,35 |
| Aluminium >8% Si | 140 | 0,12 | 0,12 | 0,16 | 0,21 | 0,35 |
| Copper - Bronze - Brass | 120 | 0,12 | 0,12 | 0,16 | 0,21 | 0,35 |
| TITANIUM | 50 | 0,06 | 0,06 | 0,09 | 0,13 | 0,21 |
| Inconel, Hastelloy, Nimonic, Monel | 40 | 0,06 | 0,06 | 0,09 | 0,13 | 0,21 |

## SOLID CARBIDE 3XD DRILL WITH THROUGH COOLANT OZMD COATED

30° | 140° | OZMD | HA

A | I | F | Ti | A-C




| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 6 | 62 | 20 | 1 | 843146 | £ 26,55 |
| 3.1 | 6 | 62 | 20 | 1 | 843147 | £ 26,55 |
| 3.2 | 6 | 62 | 20 | 1 | 843148 | £ 26,55 |
| 3.3 | 6 | 62 | 20 | 1 | 843149 | £ 26,55 |
| 3.4 | 6 | 62 | 20 | 1 | 843150 | £ 26,55 |
| 3.5 | 6 | 62 | 20 | 1 | 843151 | £ 26,55 |
| 3.6 | 6 | 62 | 20 | 1 | 843152 | £ 26,55 |
| 3.7 | 6 | 62 | 20 | 1 | 843153 | £ 26,55 |
| 3.8 | 6 | 66 | 24 | 1 | 843154 | £ 26,55 |
| 3.9 | 6 | 66 | 24 | 1 | 843155 | £ 26,55 |
| 4 | 6 | 66 | 24 | 1 | 843156 | £ 26,55 |
| 4.1 | 6 | 66 | 24 | 1 | 843157 | £ 26,55 |
| 4.2 | 6 | 66 | 24 | 1 | 843158 | £ 26,55 |
| 4.3 | 6 | 66 | 24 | 1 | 843159 | £ 26,55 |
| 4.4 | 6 | 66 | 24 | 1 | 843160 | £ 26,55 |
| 4.5 | 6 | 66 | 24 | 1 | 843161 | £ 26,55 |
| 4.6 | 6 | 66 | 24 | 1 | 843162 | £ 26,55 |
| 4.7 | 6 | 66 | 24 | 1 | 843163 | £ 26,55 |
| 4.8 | 6 | 66 | 28 | 1 | 843164 | £ 26,55 |
| 4.9 | 6 | 66 | 28 | 1 | 843165 | £ 26,55 |
| 5 | 6 | 66 | 28 | 1 | 843166 | £ 26,55 |
| 5.1 | 6 | 66 | 28 | 1 | 843167 | £ 26,55 |
| 5.2 | 6 | 66 | 28 | 1 | 843168 | £ 26,55 |
| 5.3 | 6 | 66 | 28 | 1 | 843169 | £ 26,55 |
| 5.4 | 6 | 66 | 28 | 1 | 843170 | £ 26,55 |
| 5.5 | 6 | 66 | 28 | 1 | 843171 | £ 26,55 |
| 5.6 | 6 | 66 | 28 | 1 | 843172 | £ 26,55 |
| 5.7 | 6 | 66 | 28 | 1 | 843173 | £ 26,55 |
| 5.8 | 6 | 66 | 28 | 1 | 843174 | £ 26,55 |
| 5.9 | 6 | 66 | 28 | 1 | 843175 | £ 26,55 |
| 6 | 6 | 66 | 28 | 1 | 843176 | £ 26,55 |
| 6.1 | 8 | 79 | 34 | 1 | 843177 | £ 34,59 |
| 6.2 | 8 | 79 | 34 | 1 | 843178 | £ 34,59 |
| 6.3 | 8 | 79 | 34 | 1 | 843179 | £ 34,59 |
| 6.4 | 8 | 79 | 34 | 1 | 843180 | £ 34,59 |
| 6.5 | 8 | 79 | 34 | 1 | 843181 | £ 34,59 |
| 6.6 | 8 | 79 | 34 | 1 | 843182 | £ 34,59 |
| 6.7 | 8 | 79 | 34 | 1 | 843183 | £ 34,59 |
| 6.8 | 8 | 79 | 34 | 1 | 843184 | £ 34,59 |
| 6.9 | 8 | 79 | 34 | 1 | 843185 | £ 34,59 |
| 7 | 8 | 79 | 34 | 1 | 843186 | £ 34,59 |
| 7.1 | 8 | 79 | 41 | 1 | 843187 | £ 34,59 |
| 7.2 | 8 | 79 | 41 | 1 | 843188 | £ 34,59 |
| 7.3 | 8 | 79 | 41 | 1 | 843189 | £ 34,59 |
| 7.4 | 8 | 79 | 41 | 1 | 843190 | £ 34,59 |
| 7.5 | 8 | 79 | 41 | 1 | 843191 | £ 34,59 |
| 7.6 | 8 | 79 | 41 | 1 | 843192 | £ 34,59 |
| 7.7 | 8 | 79 | 41 | 1 | 843193 | £ 34,59 |
| 7.8 | 8 | 79 | 41 | 1 | 843194 | £ 34,59 |
| 7.9 | 8 | 79 | 41 | 1 | 843195 | £ 34,59 |
| 8 | 8 | 79 | 41 | 1 | 843196 | £ 34,59 |
| 8.1 | 10 | 89 | 47 | 1 | 843197 | £ 40,56 |

| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 8.2 | 10 | 89 | 47 | 1 | 843198 | £ 40,56 |
| 8.3 | 10 | 89 | 47 | 1 | 843199 | £ 40,56 |
| 8.4 | 10 | 89 | 47 | 1 | 843200 | £ 40,56 |
| 8.5 | 10 | 89 | 47 | 1 | 843201 | £ 40,56 |
| 8.6 | 10 | 89 | 47 | 1 | 843202 | £ 40,56 |
| 8.7 | 10 | 89 | 47 | 1 | 843203 | £ 40,56 |
| 8.8 | 10 | 89 | 47 | 1 | 843204 | £ 40,56 |
| 8.9 | 10 | 89 | 47 | 1 | 843205 | £ 40,56 |
| 9 | 10 | 89 | 47 | 1 | 843206 | £ 40,56 |
| 9.1 | 10 | 89 | 47 | 1 | 843207 | £ 40,56 |
| 9.2 | 10 | 89 | 47 | 1 | 843208 | £ 40,56 |
| 9.3 | 10 | 89 | 47 | 1 | 843209 | £ 40,56 |
| 9.4 | 10 | 89 | 47 | 1 | 843210 | £ 40,56 |
| 9.5 | 10 | 89 | 47 | 1 | 843211 | £ 40,56 |
| 9.6 | 10 | 89 | 47 | 1 | 843212 | £ 40,56 |
| 9.7 | 10 | 89 | 47 | 1 | 843213 | £ 40,56 |
| 9.8 | 10 | 89 | 47 | 1 | 843214 | £ 40,56 |
| 9.9 | 10 | 89 | 47 | 1 | 843215 | £ 40,56 |
| 10 | 10 | 89 | 47 | 1 | 843216 | £ 40,56 |
| 10.2 | 12 | 102 | 55 | 1 | 843217 | £ 59,67 |
| 10.3 | 12 | 102 | 55 | 1 | 843218 | £ 59,67 |
| 10.5 | 12 | 102 | 55 | 1 | 843219 | £ 59,67 |
| 10.8 | 12 | 102 | 55 | 1 | 843220 | £ 59,67 |
| 11 | 12 | 102 | 55 | 1 | 843221 | £ 59,67 |
| 11.2 | 12 | 102 | 55 | 1 | 843222 | £ 59,67 |
| 11.5 | 12 | 102 | 55 | 1 | 843223 | £ 59,67 |
| 11.8 | 12 | 102 | 55 | 1 | 843224 | £ 59,67 |
| 12 | 12 | 102 | 55 | 1 | 843225 | £ 59,67 |
| 12.2 | 14 | 107 | 60 | 1 | 843226 | £ 78,77 |
| 12.5 | 14 | 107 | 60 | 1 | 843227 | £ 78,77 |
| 12.8 | 14 | 107 | 60 | 1 | 843228 | £ 78,77 |
| 13 | 14 | 107 | 60 | 1 | 843229 | £ 78,77 |
| 13.5 | 14 | 107 | 60 | 1 | 843230 | £ 78,77 |
| 13.8 | 14 | 107 | 60 | 1 | 843231 | £ 78,77 |
| 14 | 14 | 107 | 60 | 1 | 843232 | £ 78,77 |
| 14.2 | 16 | 115 | 65 | 1 | 843233 | £ 93,59 |
| 14.5 | 16 | 115 | 65 | 1 | 843234 | £ 93,59 |
| 14.8 | 16 | 115 | 65 | 1 | 843235 | £ 93,59 |
| 15 | 16 | 115 | 65 | 1 | 843236 | £ 93,59 |
| 15.2 | 16 | 115 | 65 | 1 | 843237 | £ 93,59 |
| 15.5 | 16 | 115 | 65 | 1 | 843238 | £ 93,59 |
| 15.8 | 16 | 115 | 65 | 1 | 843239 | £ 93,59 |
| 16 | 16 | 115 | 65 | 1 | 843240 | £ 93,59 |
| 16.5 | 18 | 123 | 73 | 1 | 843241 | £ 133,83 |
| 17 | 18 | 123 | 73 | 1 | 843242 | £ 133,83 |
| 17.5 | 18 | 123 | 73 | 1 | 843243 | £ 133,83 |
| 18 | 18 | 123 | 73 | 1 | 843244 | £ 133,83 |
| 18.5 | 20 | 131 | 79 | 1 | 843245 | £ 166,30 |
| 19 | 20 | 131 | 79 | 1 | 843246 | £ 166,30 |
| 19.5 | 20 | 131 | 79 | 1 | 843247 | £ 166,30 |
| 20 | 20 | 131 | 79 | 1 | 843248 | £ 166,30 |

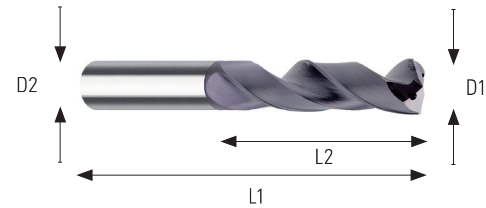
## SOLID CARBIDE 5XD DRILL WITH THROUGH COOLANT OZMD COATED

| Material | Vc [m/min] | Table of advances (f in rpm) | | | | |
|---|---|---|---|---|---|---|
| | | Ø 3 to Ø 4,9 | Ø 5 to Ø 8,9 | Ø 9 to Ø 11,9 | Ø 12 to Ø 16 | Ø 16,5 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 110 | 0,08 | 0,12 | 0,16 | 0,21 | 0,35 |
| Steel <700 N/mm² (<205 HB) | 105 | 0,08 | 0,12 | 0,16 | 0,21 | 0,35 |
| Steel <850 N/mm² (<265 HB) | 100 | 0,08 | 0,12 | 0,16 | 0,21 | 0,35 |
| Steel <1000 N/mm² (<30 HRC) | 70 | 0,06 | 0,09 | 0,11 | 0,15 | 0,25 |
| Steel <1400 N/mm² (<44 HRC) | 40 | 0,03 | 0,05 | 0,06 | 0,09 | 0,17 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | 30 | 0,03 | 0,05 | 0,06 | 0,09 | 0,17 |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | |
| Steel (60 / 65 HRC) | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 45 | 0,06 | 0,09 | 0,11 | 0,15 | 0,25 |
| Stainless steel >700 N/mm² (>205 HB) | 30 | 0,05 | 0,06 | 0,09 | 0,13 | 0,21 |
| Fonte <180HB | 95 | 0,08 | 0,12 | 0,16 | 0,21 | 0,35 |
| Malleable cast iron >180HB | 85 | 0,08 | 0,12 | 0,16 | 0,21 | 0,35 |
| Cast iron with graphite >180HB | 85 | 0,08 | 0,12 | 0,16 | 0,21 | 0,35 |
| Aluminium | 185 | 0,08 | 0,12 | 0,16 | 0,21 | 0,35 |
| Aluminium >8% Si | 135 | 0,08 | 0,12 | 0,16 | 0,21 | 0,35 |
| Copper - Bronze - Brass | 120 | 0,08 | 0,12 | 0,16 | 0,21 | 0,35 |
| TITANIUM | 45 | 0,05 | 0,06 | 0,09 | 0,13 | 0,21 |
| Inconel, Hastelloy, Nimonic, Monel | 35 | 0,05 | 0,06 | 0,09 | 0,13 | 0,21 |

# SOLID CARBIDE 5XD DRILL WITH THROUGH COOLANT OZMD COATED

30° 140° OZMD HA

A I F Ti A-C




| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 6 | 66 | 28 | 1 | 843250 | £ 37,08 |
| 3.1 | 6 | 66 | 28 | 1 | 843251 | £ 37,08 |
| 3.2 | 6 | 66 | 28 | 1 | 843252 | £ 37,08 |
| 3.3 | 6 | 66 | 28 | 1 | 843253 | £ 37,08 |
| 3.4 | 6 | 66 | 28 | 1 | 843254 | £ 37,08 |
| 3.5 | 6 | 66 | 28 | 1 | 843255 | £ 37,08 |
| 3.6 | 6 | 66 | 28 | 1 | 843256 | £ 37,08 |
| 3.7 | 6 | 66 | 28 | 1 | 843257 | £ 37,08 |
| 3.8 | 6 | 74 | 36 | 1 | 843258 | £ 37,08 |
| 3.9 | 6 | 74 | 36 | 1 | 843259 | £ 37,08 |
| 4 | 6 | 74 | 36 | 1 | 843260 | £ 37,08 |
| 4.1 | 6 | 74 | 36 | 1 | 843261 | £ 37,08 |
| 4.2 | 6 | 74 | 36 | 1 | 843262 | £ 37,08 |
| 4.3 | 6 | 74 | 36 | 1 | 843263 | £ 37,08 |
| 4.4 | 6 | 74 | 36 | 1 | 843264 | £ 37,08 |
| 4.5 | 6 | 74 | 36 | 1 | 843265 | £ 37,08 |
| 4.6 | 6 | 74 | 36 | 1 | 843266 | £ 37,08 |
| 4.7 | 6 | 74 | 36 | 1 | 843267 | £ 37,08 |
| 4.8 | 6 | 82 | 44 | 1 | 843268 | £ 37,08 |
| 4.9 | 6 | 82 | 44 | 1 | 843269 | £ 37,08 |
| 5 | 6 | 82 | 44 | 1 | 843270 | £ 37,08 |
| 5.1 | 6 | 82 | 44 | 1 | 843271 | £ 37,08 |
| 5.2 | 6 | 82 | 44 | 1 | 843272 | £ 37,08 |
| 5.3 | 6 | 82 | 44 | 1 | 843273 | £ 37,08 |
| 5.4 | 6 | 82 | 44 | 1 | 843274 | £ 37,08 |
| 5.5 | 6 | 82 | 44 | 1 | 843275 | £ 37,08 |
| 5.6 | 6 | 82 | 44 | 1 | 843276 | £ 37,08 |
| 5.7 | 6 | 82 | 44 | 1 | 843277 | £ 37,08 |
| 5.8 | 6 | 82 | 44 | 1 | 843278 | £ 37,08 |
| 5.9 | 6 | 82 | 44 | 1 | 843279 | £ 37,08 |
| 6 | 6 | 82 | 44 | 1 | 843280 | £ 37,08 |
| 6.1 | 8 | 91 | 53 | 1 | 843281 | £ 43,24 |
| 6.2 | 8 | 91 | 53 | 1 | 843282 | £ 43,24 |
| 6.3 | 8 | 91 | 53 | 1 | 843283 | £ 43,24 |
| 6.4 | 8 | 91 | 53 | 1 | 843284 | £ 43,24 |
| 6.5 | 8 | 91 | 53 | 1 | 843285 | £ 43,24 |
| 6.6 | 8 | 91 | 53 | 1 | 843286 | £ 43,24 |
| 6.7 | 8 | 91 | 53 | 1 | 843287 | £ 43,24 |
| 6.8 | 8 | 91 | 53 | 1 | 843288 | £ 43,24 |
| 6.9 | 8 | 91 | 53 | 1 | 843289 | £ 43,24 |
| 7 | 8 | 91 | 53 | 1 | 843290 | £ 43,24 |
| 7.1 | 8 | 91 | 53 | 1 | 843291 | £ 43,24 |
| 7.2 | 8 | 91 | 53 | 1 | 843292 | £ 43,24 |
| 7.3 | 8 | 91 | 53 | 1 | 843293 | £ 43,24 |
| 7.4 | 8 | 91 | 53 | 1 | 843294 | £ 43,24 |
| 7.5 | 8 | 91 | 53 | 1 | 843295 | £ 43,24 |
| 7.6 | 8 | 91 | 53 | 1 | 843296 | £ 43,24 |
| 7.7 | 8 | 91 | 53 | 1 | 843297 | £ 43,24 |
| 7.8 | 8 | 91 | 53 | 1 | 843298 | £ 43,24 |
| 7.9 | 8 | 91 | 53 | 1 | 843299 | £ 43,24 |
| 8 | 8 | 91 | 53 | 1 | 843300 | £ 43,24 |
| 8.1 | 10 | 103 | 61 | 1 | 843301 | £ 49,42 |

| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 8.2 | 10 | 103 | 61 | 1 | 843302 | £ 49,42 |
| 8.3 | 10 | 103 | 61 | 1 | 843303 | £ 49,42 |
| 8.4 | 10 | 103 | 61 | 1 | 843304 | £ 49,42 |
| 8.5 | 10 | 103 | 61 | 1 | 843305 | £ 49,42 |
| 8.6 | 10 | 103 | 61 | 1 | 843306 | £ 49,42 |
| 8.7 | 10 | 103 | 61 | 1 | 843307 | £ 49,42 |
| 8.8 | 10 | 103 | 61 | 1 | 843308 | £ 49,42 |
| 8.9 | 10 | 103 | 61 | 1 | 843309 | £ 49,42 |
| 9 | 10 | 103 | 61 | 1 | 843310 | £ 49,42 |
| 9.1 | 10 | 103 | 61 | 1 | 843311 | £ 49,42 |
| 9.2 | 10 | 103 | 61 | 1 | 843312 | £ 49,42 |
| 9.3 | 10 | 103 | 61 | 1 | 843313 | £ 49,42 |
| 9.4 | 10 | 103 | 61 | 1 | 843314 | £ 49,42 |
| 9.5 | 10 | 103 | 61 | 1 | 843315 | £ 49,42 |
| 9.6 | 10 | 103 | 61 | 1 | 843316 | £ 49,42 |
| 9.7 | 10 | 103 | 61 | 1 | 843317 | £ 49,42 |
| 9.8 | 10 | 103 | 61 | 1 | 843318 | £ 49,42 |
| 9.9 | 10 | 103 | 61 | 1 | 843319 | £ 49,42 |
| 10 | 10 | 103 | 61 | 1 | 843320 | £ 49,42 |
| 10.2 | 12 | 118 | 71 | 1 | 843321 | £ 70,41 |
| 10.3 | 12 | 118 | 71 | 1 | 843322 | £ 70,41 |
| 10.5 | 12 | 118 | 71 | 1 | 843323 | £ 70,41 |
| 10.8 | 12 | 118 | 71 | 1 | 843324 | £ 70,41 |
| 11 | 12 | 118 | 71 | 1 | 843325 | £ 70,41 |
| 11.2 | 12 | 118 | 71 | 1 | 843326 | £ 70,41 |
| 11.5 | 12 | 118 | 71 | 1 | 843327 | £ 70,41 |
| 11.8 | 12 | 118 | 71 | 1 | 843328 | £ 70,41 |
| 12 | 12 | 118 | 71 | 1 | 843329 | £ 70,41 |
| 12.2 | 14 | 124 | 77 | 1 | 843330 | £ 89,57 |
| 12.5 | 14 | 124 | 77 | 1 | 843331 | £ 89,57 |
| 12.8 | 14 | 124 | 77 | 1 | 843332 | £ 89,57 |
| 13 | 14 | 124 | 77 | 1 | 843333 | £ 89,57 |
| 13.5 | 14 | 124 | 77 | 1 | 843334 | £ 89,57 |
| 13.8 | 14 | 124 | 77 | 1 | 843335 | £ 89,57 |
| 14 | 14 | 124 | 77 | 1 | 843336 | £ 89,57 |
| 14.2 | 16 | 133 | 83 | 1 | 843337 | £ 110,56 |
| 14.5 | 16 | 133 | 83 | 1 | 843338 | £ 110,56 |
| 14.8 | 16 | 133 | 83 | 1 | 843339 | £ 110,56 |
| 15 | 16 | 133 | 83 | 1 | 843340 | £ 110,56 |
| 15.2 | 16 | 133 | 83 | 1 | 843341 | £ 110,56 |
| 15.5 | 16 | 133 | 83 | 1 | 843342 | £ 110,56 |
| 15.8 | 16 | 133 | 83 | 1 | 843343 | £ 110,56 |
| 16 | 16 | 133 | 83 | 1 | 843344 | £ 110,56 |
| 16.5 | 18 | 143 | 93 | 1 | 843345 | £ 172,96 |
| 17 | 18 | 143 | 93 | 1 | 843346 | £ 172,96 |
| 17.5 | 18 | 143 | 93 | 1 | 843347 | £ 172,96 |
| 18 | 18 | 143 | 93 | 1 | 843348 | £ 172,96 |
| 18.5 | 20 | 153 | 101 | 1 | 843349 | £ 184,69 |
| 19 | 20 | 153 | 101 | 1 | 843350 | £ 184,69 |
| 19.5 | 20 | 153 | 101 | 1 | 843351 | £ 184,69 |
| 20 | 20 | 153 | 101 | 1 | 843352 | £ 184,69 |

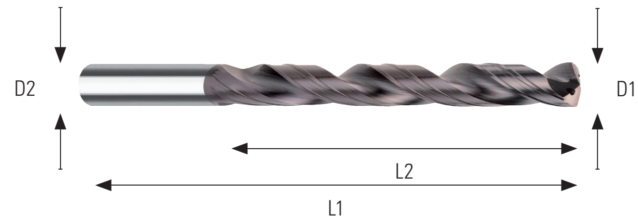
## SOLID CARBIDE 8XD DRILL WITH THROUGH COOLANT OZMD COATED

| Material | Vc [m/min] | Table of advances (f in rpm) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Ø 1 to Ø 1,9 | Ø 2 to Ø 2,9 | Ø 3 to Ø 4,9 | Ø 5 to Ø 6,9 | Ø 7 to Ø 8,9 | Ø 9 to Ø 11,9 | Ø 12 to Ø 16 |
| Steel <500 N/mm² (<150 HB) | 100 | 0,06 | 0,08 | 0,12 | 0,16 | 0,16 | 0,21 | 0,27 |
| Steel <700 N/mm² (<205 HB) | 95 | 0,06 | 0,08 | 0,12 | 0,16 | 0,16 | 0,21 | 0,27 |
| Steel <850 N/mm² (<265 HB) | 90 | 0,06 | 0,08 | 0,12 | 0,16 | 0,16 | 0,21 | 0,27 |
| Steel <1000 N/mm² (<30 HRC) | 60 | 0,04 | 0,06 | 0,09 | 0,11 | 0,11 | 0,15 | 0,19 |
| Steel <1400 N/mm² (<44 HRC) | 35 | 0,02 | 0,03 | 0,05 | 0,06 | 0,06 | 0,09 | 0,13 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | 25 | 0,02 | 0,03 | 0,05 | 0,06 | 0,06 | 0,09 | 0,13 |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 45 | 0,04 | 0,06 | 0,09 | 0,11 | 0,11 | 0,15 | 0,19 |
| Stainless steel >700 N/mm² (>205 HB) | 30 | 0,03 | 0,05 | 0,06 | 0,09 | 0,09 | 0,13 | 0,17 |
| Fonte <180HB | 85 | 0,06 | 0,08 | 0,12 | 0,16 | 0,16 | 0,21 | 0,27 |
| Malleable cast iron >180HB | 75 | 0,06 | 0,08 | 0,12 | 0,16 | 0,16 | 0,21 | 0,27 |
| Cast iron with graphite >180HB | 75 | 0,06 | 0,08 | 0,12 | 0,16 | 0,16 | 0,21 | 0,27 |
| Aluminium | 175 | 0,06 | 0,08 | 0,12 | 0,16 | 0,16 | 0,21 | 0,27 |
| Aluminium >8% Si | 125 | 0,06 | 0,08 | 0,12 | 0,16 | 0,16 | 0,21 | 0,27 |
| Copper - Bronze - Brass | 110 | 0,06 | 0,08 | 0,12 | 0,16 | 0,16 | 0,21 | 0,27 |
| TITANIUM | 45 | 0,03 | 0,05 | 0,06 | 0,09 | 0,09 | 0,13 | 0,17 |
| Inconel, Hastelloy, Nimonic, Monel | 35 | 0,03 | 0,05 | 0,06 | 0,09 | 0,09 | 0,13 | 0,17 |

# SOLID CARBIDE 8XD DRILL WITH THROUGH COOLANT OZMD COATED

30° 140° OZMD HA

A I F Ti A-C




| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 3 | 55 | 11 | 1 | 862432 | £ 67,36 |
| 1.5 | 3 | 65 | 22 | 1 | 862433 | £ 67,36 |
| 2 | 3 | 74 | 28 | 1 | 862434 | £ 75,04 |
| 2.5 | 3 | 81 | 32 | 1 | 862435 | £ 75,04 |
| 3 | 6 | 72 | 34 | 1 | 862436 | £ 88,52 |
| 3.5 | 6 | 72 | 34 | 1 | 862437 | £ 88,52 |
| 4 | 6 | 81 | 43 | 1 | 862438 | £ 88,52 |
| 4.5 | 6 | 81 | 43 | 1 | 862439 | £ 88,52 |
| 5 | 6 | 95 | 57 | 1 | 862440 | £ 88,52 |
| 5.5 | 6 | 95 | 57 | 1 | 862441 | £ 88,52 |
| 6 | 6 | 95 | 57 | 1 | 862442 | £ 88,52 |
| 6.5 | 8 | 114 | 76 | 1 | 862443 | £ 103,91 |
| 7 | 8 | 114 | 76 | 1 | 862444 | £ 103,91 |
| 7.5 | 8 | 114 | 76 | 1 | 862445 | £ 103,91 |
| 8 | 8 | 114 | 76 | 1 | 862446 | £ 103,91 |
| 8.5 | 10 | 142 | 95 | 1 | 862447 | £ 140,47 |
| 9 | 10 | 142 | 95 | 1 | 862448 | £ 140,47 |
| 9.5 | 10 | 142 | 95 | 1 | 862449 | £ 140,47 |
| 10 | 10 | 142 | 95 | 1 | 862450 | £ 140,47 |
| 10.5 | 12 | 162 | 114 | 1 | 862451 | £ 177,01 |
| 11 | 12 | 162 | 114 | 1 | 862452 | £ 177,01 |
| 11.5 | 12 | 162 | 114 | 1 | 862453 | £ 177,01 |
| 12 | 12 | 162 | 114 | 1 | 862454 | £ 177,01 |
| 12.5 | 14 | 178 | 133 | 1 | 862455 | £ 215,50 |
| 13 | 14 | 178 | 133 | 1 | 862456 | £ 215,50 |

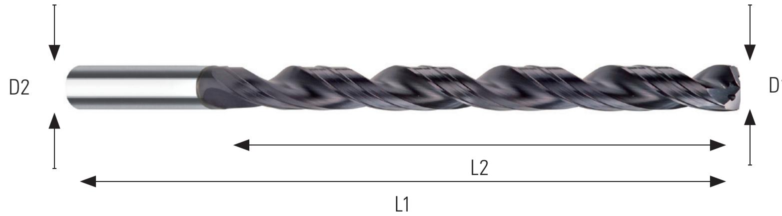
## SOLID CARBIDE 12XD DRILL WITH THROUGH COOLANT OZMD COATED

| Material | Vc [m/min] | Table of advances (f in rpm) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Ø 1 to Ø 1,9 | Ø 2 to Ø 2,9 | Ø 3 to Ø 4,9 | Ø 5 to Ø 6,9 | Ø 7 to Ø 8,9 | Ø 9 to Ø 11,9 | Ø 12 to Ø 16 |
| Steel <500 N/mm² (<150 HB) | 80 | 0,05 | 0,07 | 0,10 | 0,10 | 0,12 | 0,17 | 0,25 |
| Steel <700 N/mm² (<205 HB) | 75 | 0,05 | 0,07 | 0,10 | 0,10 | 0,12 | 0,17 | 0,25 |
| Steel <850 N/mm² (<265 HB) | 70 | 0,03 | 0,05 | 0,07 | 0,07 | 0,10 | 0,15 | 0,20 |
| Steel <1000 N/mm² (<30 HRC) | 60 | 0,03 | 0,05 | 0,07 | 0,07 | 0,10 | 0,15 | 0,20 |
| Steel <1400 N/mm² (<44 HRC) | 50 | 0,02 | 0,03 | 0,05 | 0,05 | 0,07 | 0,10 | 0,15 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 30 | 0,03 | 0,05 | 0,07 | 0,07 | 0,10 | 0,15 | 0,20 |
| Stainless steel >700 N/mm² (>205 HB) | 25 | 0,02 | 0,03 | 0,05 | 0,05 | 0,07 | 0,10 | 0,15 |
| Fonte <180HB | 70 | 0,03 | 0,05 | 0,07 | 0,07 | 0,12 | 0,17 | 0,25 |
| Malleable cast iron >180HB | 60 | 0,03 | 0,05 | 0,07 | 0,07 | 0,12 | 0,17 | 0,25 |
| Cast iron with graphite >180HB | 60 | 0,03 | 0,05 | 0,07 | 0,07 | 0,12 | 0,17 | 0,25 |
| Aluminium | 200 | 0,05 | 0,07 | 0,10 | 0,10 | 0,12 | 0,17 | 0,25 |
| Aluminium >8% Si | 140 | 0,05 | 0,07 | 0,10 | 0,10 | 0,12 | 0,17 | 0,25 |
| Copper - Bronze - Brass | 80 | 0,03 | 0,05 | 0,07 | 0,07 | 0,10 | 0,15 | 0,20 |
| TITANIUM | 25 | 0,02 | 0,03 | 0,05 | 0,05 | 0,07 | 0,10 | 0,15 |
| Inconel, Hastelloy, Nimonic, Monel | 20 | 0,02 | 0,03 | 0,05 | 0,05 | 0,07 | 0,10 | 0,15 |

## SOLID CARBIDE 12XD DRILL WITH THROUGH COOLANT OZMD COATED

30° 140° OZMD HA

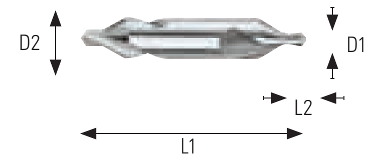
A I F Ti A-C




| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 3 | 55 | 15 | 1 | 862458 | £ 119,30 |
| 1.5 | 3 | 65 | 30 | 1 | 862459 | £ 119,30 |
| 2 | 3 | 74 | 38 | 1 | 862460 | £ 119,30 |
| 2.5 | 3 | 81 | 44 | 1 | 862461 | £ 119,30 |
| 3 | 6 | 92 | 54 | 1 | 862462 | £ 134,69 |
| 3.5 | 6 | 92 | 54 | 1 | 862463 | £ 134,69 |
| 4 | 6 | 102 | 64 | 1 | 862464 | £ 134,69 |
| 4.5 | 6 | 102 | 64 | 1 | 862465 | £ 134,69 |
| 5 | 6 | 118 | 78 | 1 | 862466 | £ 134,69 |
| 5.5 | 6 | 118 | 78 | 1 | 862467 | £ 134,69 |
| 6 | 6 | 118 | 78 | 1 | 862468 | £ 134,69 |
| 6.5 | 8 | 146 | 108 | 1 | 862469 | £ 163,56 |
| 7 | 8 | 146 | 108 | 1 | 862470 | £ 163,56 |
| 7.5 | 8 | 146 | 108 | 1 | 862471 | £ 163,56 |
| 8 | 8 | 146 | 108 | 1 | 862472 | £ 163,56 |
| 8.5 | 10 | 162 | 120 | 1 | 862473 | £ 211,66 |
| 9 | 10 | 162 | 120 | 1 | 862474 | £ 211,66 |
| 9.5 | 10 | 162 | 120 | 1 | 862475 | £ 211,66 |
| 10 | 10 | 162 | 120 | 1 | 862476 | £ 211,66 |
| 10.5 | 12 | 204 | 156 | 1 | 862477 | £ 298,23 |
| 11 | 12 | 204 | 156 | 1 | 862478 | £ 298,23 |
| 11.5 | 12 | 204 | 156 | 1 | 862479 | £ 298,23 |
| 12 | 12 | 204 | 156 | 1 | 862480 | £ 298,23 |
| 12.5 | 14 | 230 | 182 | 1 | 862481 | £ 341,07 |
| 13 | 14 | 230 | 182 | 1 | 862482 | £ 341,07 |

## CENTRE DRILL - HSS - A TYPE - 60° - STANDARD

DIN 333A | 60°




| D1<br>Ø Tip | D2<br>Ø of body | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 0,50 | 3 | 31 | 0,90 | 1 | 726896 | £ 6,35 |
| 1 | 4 | 35 | 1,70 | 1 | 726897 | £ 3,93 |
| 1.5 | 5 | 40 | 2,60 | 1 | 726898 | £ 4,22 |
| 2 | 6 | 45 | 3.1 | 1 | 726899 | £ 4,77 |
| 2.5 | 8 | 50 | 3.8 | 1 | 726900 | £ 5,22 |
| 3 | 8 | 50 | 4.6 | 1 | 726901 | £ 5,22 |
| 3 | 10 | 55 | 4.6 | 1 | 726902 | £ 6,91 |
| 4 | 10 | 55 | 5.9 | 1 | 726903 | £ 6,91 |
| 4 | 12 | 63 | 5.9 | 1 | 726904 | £ 11,75 |
| 5 | 12 | 63 | 7.2 | 1 | 726905 | £ 11,75 |

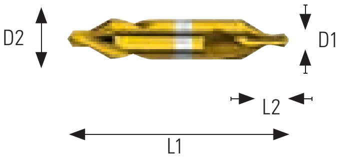
## SET OF 7 CENTRE DRILLS - HSS - A TYPE - 60° - STANDARD

DIN 333A | 60°

| Number of drill bits | Content | | Ref. | Price each |
|---|---|---|---|---|
| 7 | 4x1 - 5x1.5 - 6x2 - 8x2.5 - 8x3 - 10x4 - 12x5 | 1 | 862086 | £ 47,68 |

## CENTRE DRILL - HSS - TIN COATED - A TYPE - 60° - STANDARD

DIN 333A | 60° | TiN




| D1<br>Ø Tip | D2<br>Ø of body | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 4 | 35 | 1,70 | 1 | 862484 | £ 7,28 |
| 1.5 | 5 | 40 | 2,60 | 1 | 862485 | £ 7,75 |
| 2 | 6 | 45 | 3.1 | 1 | 862486 | £ 8,49 |
| 2.5 | 8 | 50 | 3.8 | 1 | 862487 | £ 9,62 |
| 3 | 8 | 50 | 4.6 | 1 | 862488 | £ 9,62 |
| 3 | 10 | 55 | 4.6 | 1 | 862489 | £ 12,13 |
| 4 | 10 | 55 | 5.9 | 1 | 862490 | £ 12,13 |
| 4 | 12 | 63 | 5.9 | 1 | 862491 | £ 17,98 |
| 5 | 12 | 63 | 7.2 | 1 | 862492 | £ 17,98 |

## SET OF 7 CENTRE DRILLS - HSS -TIN COATED A TYPE - 60° - STANDARD

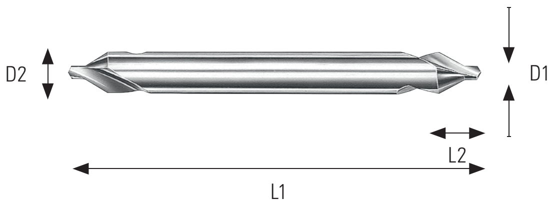
DIN 333A | 60° | TiN

| Number of drill bits | Content | | Ref. | Price each |
|---|---|---|---|---|
| 7 | 4x1 - 5x1.5 - 6x2 - 8x2.5 - 8x3 - 10x4 - 12x5 | 1 | 862088 | £ 70,86 |

# CENTRE AND SPOTTING DRILLS

## CENTRE DRILL - HSS CO5% - A TYPE - 60° - LONG SERIES

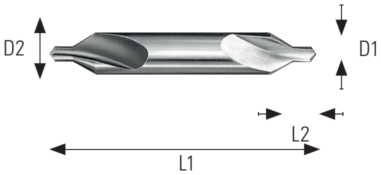
DIN 333A | 60°




| D1<br>Ø Tip | D2<br>Ø of body | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 4 | 100 | 1,70 | 1 | 862494 | £ 13,79 |
| 1.5 | 5 | 100 | 2,60 | 1 | 862495 | £ 13,79 |
| 2 | 6 | 100 | 3.1 | 1 | 862496 | £ 13,26 |
| 2.5 | 8 | 100 | 3.8 | 1 | 862497 | £ 13,79 |
| 3 | 8 | 100 | 4.6 | 1 | 862498 | £ 13,79 |
| 3 | 10 | 100 | 4.6 | 1 | 862499 | £ 14,81 |
| 4 | 10 | 100 | 5.9 | 1 | 862500 | £ 14,81 |
| 4 | 12 | 100 | 5.9 | 1 | 862501 | £ 20,61 |
| 5 | 12 | 100 | 7.2 | 1 | 862502 | £ 20,61 |

## CENTRE DRILL - SOLID CARBIDE - A TYPE - 60° - STANDARD

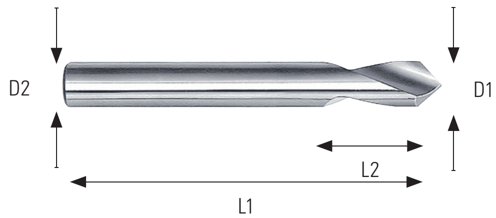
DIN 333A | 60°




| D1<br>Ø Tip | D2<br>Ø of body | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 4 | 35 | 1,70 | 1 | 862504 | £ 31,67 |
| 1.5 | 5 | 40 | 2,60 | 1 | 862505 | £ 37,18 |
| 2 | 6 | 45 | 3.1 | 1 | 862506 | £ 42,24 |
| 2.5 | 8 | 50 | 3.8 | 1 | 862507 | £ 52,78 |
| 3 | 8 | 50 | 4.6 | 1 | 862508 | £ 52,78 |
| 3 | 10 | 55 | 4.6 | 1 | 862509 | £ 73,91 |
| 4 | 10 | 55 | 5.9 | 1 | 862510 | £ 73,91 |
| 5 | 12 | 63 | 7.2 | 1 | 862511 | £ 126,66 |

## NC SPOTTING DRILL - HSS CO5% - 90° - STANDARD

ISO 10898 | h6 | 90°




| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 3 | 50 | 10 | 1 | 702359 | £ 10,48 |
| 4 | 4 | 52 | 12 | 1 | 702360 | £ 10,68 |
| 5 | 5 | 60 | 15 | 1 | 702361 | £ 11,50 |
| 6 | 6 | 66 | 20 | 1 | 702362 | £ 11,92 |
| 8 | 8 | 79 | 25 | 1 | 702363 | £ 14,41 |
| 10 | 10 | 89 | 25 | 1 | 702364 | £ 16,15 |
| 12 | 12 | 102 | 30 | 1 | 702366 | £ 22,17 |

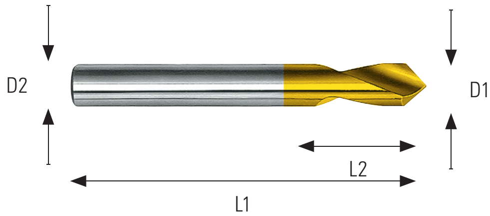
## SET OF 6 NC SPOTTING DRILLS - HSS CO5% - 90° - STANDARD

ISO 10898 | h6 | 90°

| Number of drill bits | Content | | Ref. | Price each |
|---|---|---|---|---|
| 6 | Ø3 - Ø4 - Ø5 - Ø6 - Ø8 - Ø10 | 1 | 862090 | £ 73,47 |

## NC SPOTTING DRILL - HSS CO5% - TIN COATED - 90° - STANDARD

ISO 10898 | h6 | 90° | TiN




| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 3 | 50 | 10 | 1 | 862513 | £ 13,26 |
| 4 | 4 | 52 | 12 | 1 | 862514 | £ 13,79 |
| 5 | 5 | 60 | 15 | 1 | 862515 | £ 14,81 |
| 6 | 6 | 66 | 20 | 1 | 862516 | £ 16,37 |
| 8 | 8 | 79 | 25 | 1 | 862517 | £ 19,57 |
| 10 | 10 | 89 | 25 | 1 | 862518 | £ 22,17 |
| 12 | 12 | 102 | 30 | 1 | 862519 | £ 30,66 |

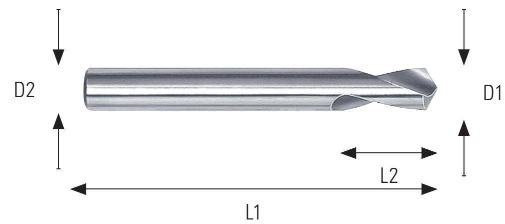
## SET OF 6 NC SPOTTING DRILLS - HSS CO5% - TIN COATED - 90° - STANDARD

ISO 10898 | h6 | 90° | TiN

| Number of drill bits | Content | | Ref. | Price each |
|---|---|---|---|---|
| 6 | Ø3 - Ø4 - Ø5 - Ø6 - Ø8 - Ø10 | 1 | 862092 | £ 88,39 |

## NC SPOTTING DRILL - HSS CO5% - 120° - STANDARD

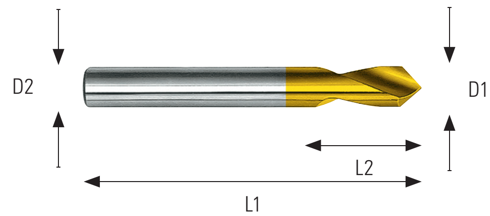
ISO 10898 | h6 | 120°




| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 3 | 50 | 10 | 1 | 862521 | £ 10,48 |
| 4 | 4 | 52 | 12 | 1 | 862522 | £ 10,68 |
| 5 | 5 | 60 | 15 | 1 | 862523 | £ 11,50 |
| 6 | 6 | 66 | 20 | 1 | 862524 | £ 11,92 |
| 8 | 8 | 79 | 25 | 1 | 862525 | £ 14,41 |
| 10 | 10 | 89 | 25 | 1 | 862526 | £ 16,15 |
| 12 | 12 | 102 | 30 | 1 | 862527 | £ 22,17 |

## NC SPOTTING DRILL - HSS CO5% - TIN COATED - 120° - STANDARD

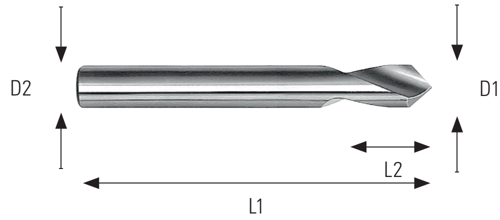
ISO 10898 | h6 | 120° | TiN




| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 3 | 50 | 10 | 1 | 862531 | £ 13,26 |
| 4 | 4 | 52 | 12 | 1 | 862532 | £ 13,79 |
| 5 | 5 | 60 | 15 | 1 | 862533 | £ 14,81 |
| 6 | 6 | 66 | 20 | 1 | 862534 | £ 16,37 |
| 8 | 8 | 79 | 25 | 1 | 862535 | £ 19,57 |
| 10 | 10 | 89 | 25 | 1 | 862536 | £ 22,17 |
| 12 | 12 | 102 | 30 | 1 | 862537 | £ 30,66 |

## NC SPOTTING DRILL - SOLID CARBIDE - 90° - STANDARD

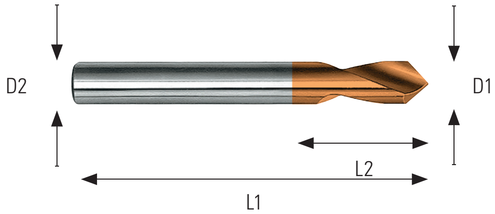
h5 | 90°




| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 3 | 45 | 10 | 1 | 847159 | £ 17,00 |
| 4 | 4 | 50 | 12 | 1 | 847160 | £ 19,06 |
| 5 | 5 | 50 | 15 | 1 | 847161 | £ 20,11 |
| 6 | 6 | 50 | 18 | 1 | 847162 | £ 21,33 |
| 8 | 8 | 60 | 23 | 1 | 847163 | £ 29,60 |
| 10 | 10 | 70 | 24 | 1 | 847164 | £ 44,41 |
| 12 | 12 | 70 | 24 | 1 | 847165 | £ 61,28 |

## NC SPOTTING DRILL - SOLID CARBIDE - HDMX - 90° - STANDARD

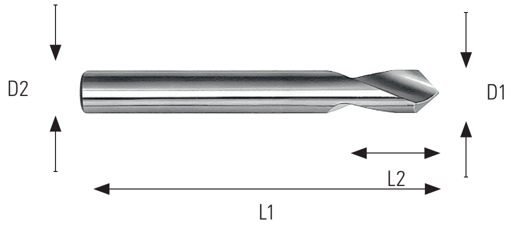
h5 | 90° | HDMX




| D1 Ø Nominal | D2 Ø Shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 3 | 45 | 10 | 1 | 847166 | £ 19,06 |
| 4 | 4 | 50 | 12 | 1 | 847167 | £ 21,13 |
| 5 | 5 | 50 | 15 | 1 | 847168 | £ 22,27 |
| 6 | 6 | 50 | 18 | 1 | 847169 | £ 23,28 |
| 8 | 8 | 60 | 23 | 1 | 847170 | £ 31,67 |
| 10 | 10 | 70 | 24 | 1 | 847171 | £ 47,00 |
| 12 | 12 | 70 | 24 | 1 | 847173 | £ 64,38 |

## NC SPOTTING DRILL - SOLID CARBIDE - 120° - STANDARD

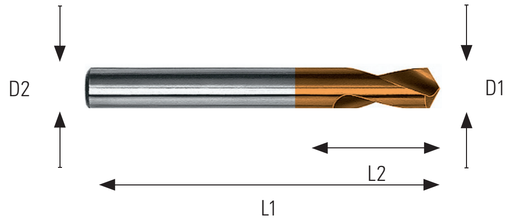
h5 | 120°




| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 3 | 45 | 10 | 1 | 862541 | £ 17,69 |
| 4 | 4 | 50 | 12 | 1 | 862542 | £ 19,84 |
| 5 | 5 | 50 | 15 | 1 | 862543 | £ 21,05 |
| 6 | 6 | 50 | 18 | 1 | 862544 | £ 22,11 |
| 8 | 8 | 60 | 23 | 1 | 862545 | £ 30,98 |
| 10 | 10 | 70 | 24 | 1 | 862546 | £ 46,48 |
| 12 | 12 | 70 | 24 | 1 | 862547 | £ 64,13 |

## NC SPOTTING DRILL - SOLID CARBIDE - HDMX - 120° - STANDARD

h5 | 120° | HDMX




| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 3 | 45 | 10 | 1 | 855285 | £ 19,50 |
| 4 | 4 | 50 | 12 | 1 | 855286 | £ 21,67 |
| 5 | 5 | 50 | 15 | 1 | 855287 | £ 22,76 |
| 6 | 6 | 50 | 18 | 1 | 855288 | £ 23,84 |
| 8 | 8 | 60 | 23 | 1 | 855289 | £ 32,40 |
| 10 | 10 | 70 | 24 | 1 | 855290 | £ 48,10 |
| 12 | 12 | 70 | 24 | 1 | 855291 | £ 65,96 |

## CARBIDE END MILLS



## CARBIDE THREAD MILLS

## HSS END MILLS



Pages **56** to **129**

MILLING

## 3 FLUTE CARBIDE END MILL - EXTRA SHORT - OZMA COATED

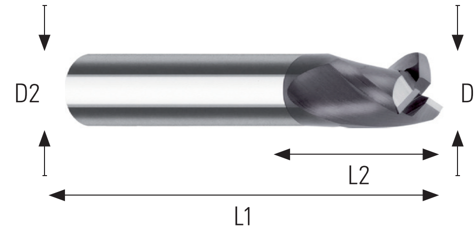
| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| ROUGH BORING | | | | Ø 2 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 98 | 1xd. | 0,5xd. | 0,02 | 0,03 | 0,05 | 0,08 | 0,12 |
| Steel <700 N/mm² (<205 HB) | 89 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,06 | 0,08 |
| Steel <850 N/mm² (<265 HB) | 87 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,06 | 0,08 |
| Steel <1000 N/mm² (<30 HRC) | 78 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,04 | 0,06 |
| Steel <1400 N/mm² (<44 HRC) | 69 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,04 | 0,06 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 92 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,06 | 0,08 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 80 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,06 | 0,08 |
| Malleable cast iron >180HB | 67 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,06 | 0,08 |
| Cast iron with graphite >180HB | 63 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,06 | 0,08 |
| Aluminium | 112 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,06 | 0,08 |
| Aluminium >8% Si | 98 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,06 | 0,08 |
| Copper - Bronze - Brass | 89 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,06 | 0,08 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 2 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 220 | 1xd. | 0,1xd. | 0,03 | 0,05 | 0,07 | 0,12 | 0,18 |
| Steel <700 N/mm² (<205 HB) | 200 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,06 | 0,08 | 0,12 |
| Steel <850 N/mm² (<265 HB) | 195 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,06 | 0,08 | 0,12 |
| Steel <1000 N/mm² (<30 HRC) | 175 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,06 | 0,12 |
| Steel <1400 N/mm² (<44 HRC) | 155 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,06 | 0,12 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 205 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,06 | 0,08 | 0,12 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 180 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,06 | 0,08 | 0,12 |
| Malleable cast iron >180HB | 150 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,06 | 0,08 | 0,12 |
| Cast iron with graphite >180HB | 140 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,06 | 0,08 | 0,12 |
| Aluminium | 250 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,06 | 0,08 | 0,12 |
| Aluminium >8% Si | 220 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,06 | 0,08 | 0,12 |
| Copper - Bronze - Brass | 200 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,06 | 0,08 | 0,12 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

## 3 FLUTE CARBIDE END MILL - EXTRA SHORT - STRAIGHT SHANK - OZMA COATED

HA 30°

A A-C F I

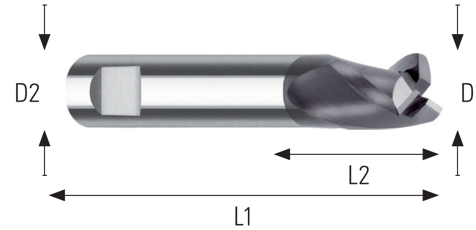



| D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 2 | 6 | 38 | 4 | 1 | 862549 | £ 13,93 |
| 3 | 6 | 38 | 5 | 1 | 862550 | £ 13,93 |
| 4 | 6 | 38 | 7 | 1 | 862551 | £ 13,93 |
| 5 | 6 | 38 | 8 | 1 | 862552 | £ 14,77 |
| 6 | 6 | 38 | 8 | 1 | 862553 | £ 14,77 |
| 8 | 8 | 43 | 11 | 1 | 862554 | £ 24,40 |
| 10 | 10 | 50 | 13 | 1 | 862555 | £ 29,10 |
| 12 | 12 | 55 | 15 | 1 | 862556 | £ 35,92 |
| 16 | 16 | 62 | 18 | 1 | 862557 | £ 55,59 |
| 20 | 20 | 75 | 22 | 1 | 862558 | £ 91,95 |

## 3 FLUTE CARBIDE END MILL - EXTRA SHORT - WELDON SHANK - OZMA COATED

HB 30°

A A-C F I




| D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 2 | 6 | 38 | 4 | 1 | 862560 | £ 13,93 |
| 3 | 6 | 38 | 5 | 1 | 862561 | £ 13,93 |
| 4 | 6 | 38 | 7 | 1 | 862562 | £ 13,93 |
| 5 | 6 | 38 | 8 | 1 | 862563 | £ 14,77 |
| 6 | 6 | 38 | 8 | 1 | 862564 | £ 14,77 |
| 8 | 8 | 43 | 11 | 1 | 862565 | £ 24,40 |
| 10 | 10 | 50 | 13 | 1 | 862566 | £ 29,10 |
| 12 | 12 | 55 | 15 | 1 | 862567 | £ 35,92 |
| 16 | 16 | 62 | 18 | 1 | 862568 | £ 55,59 |
| 20 | 20 | 75 | 22 | 1 | 862569 | £ 91,95 |

## 2 FLUTE CARBIDE END MILL - SHORT SERIES

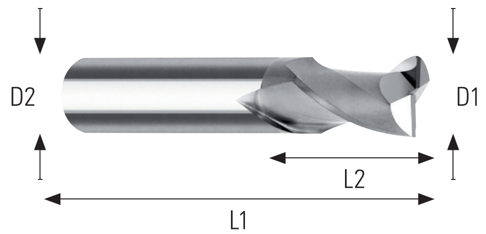
| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 1 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 83 | 1xd. | 0,5xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,12 |
| Steel <700 N/mm² (<205 HB) | 75 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,08 |
| Steel <850 N/mm² (<265 HB) | 74 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,08 |
| Steel <1000 N/mm² (<30 HRC) | 66 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,06 |
| Steel <1400 N/mm² (<44 HRC) | 58 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,06 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 45 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,08 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 68 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,08 |
| Malleable cast iron >180HB | 57 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,08 |
| Cast iron with graphite >180HB | 53 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,08 |
| Aluminium | 95 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,08 |
| Aluminium >8% Si | 83 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,08 |
| Copper - Bronze - Brass | 75 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,08 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 1 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 187 | 1xd. | 0,1xd. | 0,03 | 0,05 | 0,06 | 0,12 | 0,16 |
| Steel <700 N/mm² (<205 HB) | 170 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Steel <850 N/mm² (<265 HB) | 166 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Steel <1000 N/mm² (<30 HRC) | 148 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,03 | 0,06 | 0,08 |
| Steel <1400 N/mm² (<44 HRC) | 132 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,03 | 0,06 | 0,08 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 102 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 153 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Malleable cast iron >180HB | 127 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Cast iron with graphite >180HB | 119 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Aluminium | 212 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Aluminium >8% Si | 187 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Copper - Bronze - Brass | 170 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

## 2 FLUTE CARBIDE - SHORT SERIES - STRAIGHT SHANK

HA 30°

A A-C F I

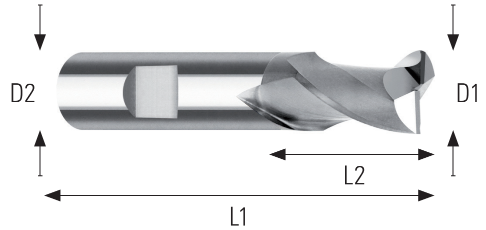



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 6 | 50 | 5 | 1 | 862571 | £ 9,41 |
| 2 | 6 | 50 | 6 | 1 | 862572 | £ 9,41 |
| 3 | 6 | 50 | 6 | 1 | 862573 | £ 9,41 |
| 4 | 6 | 50 | 8 | 1 | 862574 | £ 9,41 |
| 5 | 6 | 50 | 8 | 1 | 862575 | £ 10,07 |
| 6 | 6 | 50 | 16 | 1 | 862576 | £ 11,36 |
| 8 | 8 | 60 | 20 | 1 | 862577 | £ 16,46 |
| 10 | 10 | 70 | 22 | 1 | 862578 | £ 22,05 |
| 12 | 12 | 70 | 22 | 1 | 862579 | £ 29,10 |
| 16 | 16 | 75 | 25 | 1 | 862580 | £ 47,06 |
| 20 | 20 | 100 | 32 | 1 | 862581 | £ 81,25 |

## 2 FLUTE CARBIDE END MILL - SHORT SERIES - WELDON SHANK

HB 30°

A A-C F I




| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 6 | 50 | 5 | 1 | 862583 | £ 9,41 |
| 2 | 6 | 50 | 6 | 1 | 862584 | £ 9,41 |
| 3 | 6 | 50 | 6 | 1 | 862585 | £ 9,41 |
| 4 | 6 | 50 | 8 | 1 | 862586 | £ 9,41 |
| 5 | 6 | 50 | 8 | 1 | 862587 | £ 10,07 |
| 6 | 6 | 50 | 16 | 1 | 862588 | £ 11,36 |
| 8 | 8 | 60 | 20 | 1 | 862589 | £ 16,46 |
| 10 | 10 | 70 | 22 | 1 | 862590 | £ 22,05 |
| 12 | 12 | 70 | 22 | 1 | 862591 | £ 29,10 |
| 16 | 16 | 75 | 25 | 1 | 862592 | £ 47,06 |
| 20 | 20 | 100 | 32 | 1 | 862593 | £ 81,25 |

## 2 FLUTE CARBIDE END MILL - SHORT SERIES - OZMA COATED

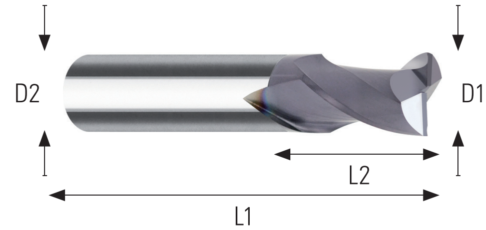
| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 1 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 98 | 1xd. | 0,5xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,12 |
| Steel <700 N/mm² (<205 HB) | 89 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,08 |
| Steel <850 N/mm² (<265 HB) | 87 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,08 |
| Steel <1000 N/mm² (<30 HRC) | 78 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,06 |
| Steel <1400 N/mm² (<44 HRC) | 69 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,06 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 54 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,08 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 80 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,08 |
| Malleable cast iron >180HB | 67 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,08 |
| Cast iron with graphite >180HB | 63 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,08 |
| Aluminium | 112 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,08 |
| Aluminium >8% Si | 98 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,08 |
| Copper - Bronze - Brass | 89 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,08 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 1 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 220 | 1xd. | 0,1xd. | 0,03 | 0,05 | 0,06 | 0,12 | 0,16 |
| Steel <700 N/mm² (<205 HB) | 200 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Steel <850 N/mm² (<265 HB) | 195 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Steel <1000 N/mm² (<30 HRC) | 175 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,03 | 0,06 | 0,08 |
| Steel <1400 N/mm² (<44 HRC) | 155 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,03 | 0,06 | 0,08 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 120 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 180 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Malleable cast iron >180HB | 150 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Cast iron with graphite >180HB | 140 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Aluminium | 250 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Aluminium >8% Si | 220 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Copper - Bronze - Brass | 200 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

## 2 FLUTE CARBIDE END MILL - SHORT SERIES - STRAIGHT SHANK - OZMA COATED

HA 30°

A A-C F I

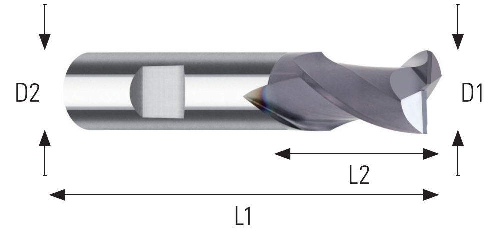



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 6 | 50 | 5 | 1 | 862595 | £ 10,72 |
| 2 | 6 | 50 | 6 | 1 | 862596 | £ 10,72 |
| 3 | 6 | 50 | 6 | 1 | 862597 | £ 11,14 |
| 4 | 6 | 50 | 8 | 1 | 862598 | £ 12,00 |
| 5 | 6 | 50 | 8 | 1 | 862599 | £ 12,40 |
| 6 | 6 | 50 | 16 | 1 | 862600 | £ 13,28 |
| 8 | 8 | 60 | 20 | 1 | 862601 | £ 17,76 |
| 10 | 10 | 70 | 22 | 1 | 862602 | £ 23,54 |
| 12 | 12 | 70 | 22 | 1 | 862603 | £ 33,79 |
| 16 | 16 | 75 | 25 | 1 | 862604 | £ 51,97 |
| 20 | 20 | 100 | 32 | 1 | 862605 | £ 91,95 |

## 2 FLUTE CARBIDE END MILL - SHORT SERIES - WELDON SHANK - OZMA COATED

HB 30°

A A-C F I



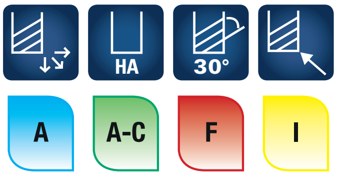

| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 6 | 50 | 5 | 1 | 862607 | £ 10,72 |
| 2 | 6 | 50 | 6 | 1 | 862608 | £ 10,72 |
| 3 | 6 | 50 | 6 | 1 | 862609 | £ 11,14 |
| 4 | 6 | 50 | 8 | 1 | 862610 | £ 12,00 |
| 5 | 6 | 50 | 8 | 1 | 862611 | £ 12,40 |
| 6 | 6 | 50 | 16 | 1 | 862612 | £ 13,28 |
| 8 | 8 | 60 | 20 | 1 | 862613 | £ 17,76 |
| 10 | 10 | 70 | 22 | 1 | 862614 | £ 23,54 |
| 12 | 12 | 70 | 22 | 1 | 862615 | £ 33,79 |
| 16 | 16 | 75 | 25 | 1 | 862616 | £ 51,97 |
| 20 | 20 | 100 | 32 | 1 | 862617 | £ 91,95 |

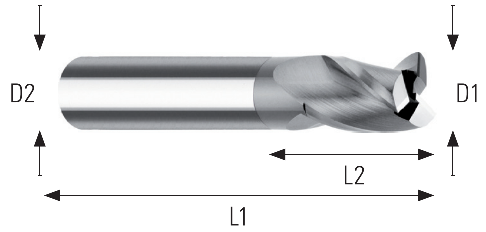
## 3 FLUTE CARBIDE END MILL - SHORT SERIES

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 1 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 102 | 1xd. | 0,5xd. | 0,01 | 0,04 | 0,05 | 0,09 | 0,13 |
| Steel <700 N/mm² (<205 HB) | 93 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,03 | 0,06 | 0,09 |
| Steel <850 N/mm² (<265 HB) | 90 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,03 | 0,06 | 0,09 |
| Steel <1000 N/mm² (<30 HRC) | 81 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,07 |
| Steel <1400 N/mm² (<44 HRC) | 72 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,07 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 56 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,03 | 0,06 | 0,09 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 84 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,03 | 0,06 | 0,09 |
| Malleable cast iron >180HB | 70 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,03 | 0,06 | 0,09 |
| Cast iron with graphite >180HB | 65 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,03 | 0,06 | 0,09 |
| Aluminium | 116 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,03 | 0,06 | 0,09 |
| Aluminium >8% Si | 102 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,03 | 0,06 | 0,09 |
| Copper - Bronze - Brass | 93 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,03 | 0,06 | 0,09 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 1 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 187 | 1,5xd. | 0,1xd. | 0,02 | 0,05 | 0,06 | 0,12 | 0,16 |
| Steel <700 N/mm² (<205 HB) | 170 | 1,5xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Steel <850 N/mm² (<265 HB) | 166 | 1,5xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Steel <1000 N/mm² (<30 HRC) | 149 | 1,5xd. | 0,1xd. | 0,01 | 0,03 | 0,03 | 0,06 | 0,08 |
| Steel <1400 N/mm² (<44 HRC) | 132 | 1,5xd. | 0,1xd. | 0,01 | 0,03 | 0,03 | 0,06 | 0,08 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 102 | 1,5xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 153 | 1,5xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Malleable cast iron >180HB | 127 | 1,5xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Cast iron with graphite >180HB | 119 | 1,5xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Aluminium | 212 | 1,5xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Aluminium >8% Si | 187 | 1,5xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Copper - Bronze - Brass | 170 | 1,5xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

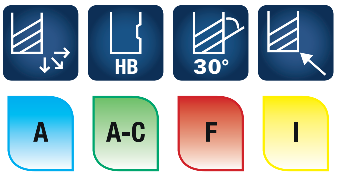
## 3 FLUTE CARBIDE END MILL - SHORT SERIES - STRAIGHT SHANK

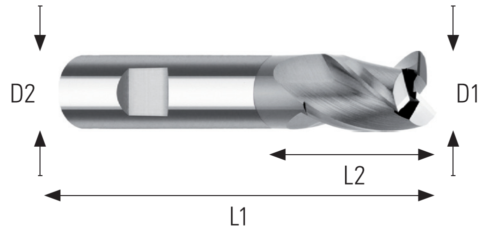



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 6 | 50 | 5 | 1 | 862619 | £ 9,85 |
| 2 | 6 | 50 | 6 | 1 | 862620 | £ 9,85 |
| 3 | 6 | 50 | 6 | 1 | 862621 | £ 10,07 |
| 4 | 6 | 50 | 8 | 1 | 862622 | £ 10,60 |
| 5 | 6 | 50 | 8 | 1 | 862623 | £ 10,92 |
| 6 | 6 | 50 | 16 | 1 | 862624 | £ 12,20 |
| 8 | 8 | 60 | 20 | 1 | 862625 | £ 17,12 |
| 10 | 10 | 70 | 22 | 1 | 862626 | £ 22,88 |
| 12 | 12 | 70 | 22 | 1 | 862627 | £ 31,43 |
| 16 | 16 | 75 | 25 | 1 | 862628 | £ 54,12 |
| 20 | 20 | 100 | 32 | 1 | 862629 | £ 85,10 |

## 3 FLUTE CARBIDE END MILL - SHORT SERIES - WELDON SHANK




| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 6 | 50 | 5 | 1 | 862631 | £ 9,85 |
| 2 | 6 | 50 | 6 | 1 | 862632 | £ 9,85 |
| 3 | 6 | 50 | 6 | 1 | 862633 | £ 10,07 |
| 4 | 6 | 50 | 8 | 1 | 862634 | £ 10,60 |
| 5 | 6 | 50 | 8 | 1 | 862635 | £ 10,92 |
| 6 | 6 | 50 | 16 | 1 | 862636 | £ 12,20 |
| 8 | 8 | 60 | 20 | 1 | 862637 | £ 17,12 |
| 10 | 10 | 70 | 22 | 1 | 862638 | £ 22,88 |
| 12 | 12 | 70 | 22 | 1 | 862639 | £ 31,43 |
| 16 | 16 | 75 | 25 | 1 | 862640 | £ 54,12 |
| 20 | 20 | 100 | 32 | 1 | 862641 | £ 85,10 |

## 3 FLUTE CARBIDE END MILL - SHORT SERIES - OZMA COATED

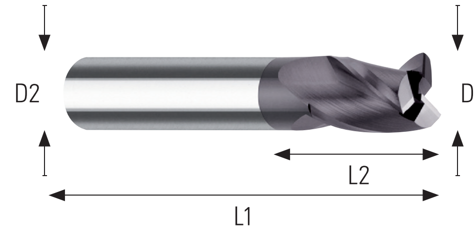
| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 1 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 120 | 1xd. | 0,5xd. | 0,01 | 0,04 | 0,05 | 0,09 | 0,13 |
| Steel <700 N/mm² (<205 HB) | 110 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,03 | 0,06 | 0,09 |
| Steel <850 N/mm² (<265 HB) | 107 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,03 | 0,06 | 0,09 |
| Steel <1000 N/mm² (<30 HRC) | 96 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,07 |
| Steel <1400 N/mm² (<44 HRC) | 85 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,07 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 66 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,03 | 0,06 | 0,09 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 99 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,03 | 0,06 | 0,09 |
| Malleable cast iron >180HB | 82 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,03 | 0,06 | 0,09 |
| Cast iron with graphite >180HB | 77 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,03 | 0,06 | 0,09 |
| Aluminium | 137 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,03 | 0,06 | 0,09 |
| Aluminium >8% Si | 120 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,03 | 0,06 | 0,09 |
| Copper - Bronze - Brass | 110 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,03 | 0,06 | 0,09 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 1 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 220 | 1,5xd. | 0,1xd. | 0,02 | 0,05 | 0,06 | 0,12 | 0,16 |
| Steel <700 N/mm² (<205 HB) | 200 | 1,5xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Steel <850 N/mm² (<265 HB) | 195 | 1,5xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Steel <1000 N/mm² (<30 HRC) | 175 | 1,5xd. | 0,1xd. | 0,01 | 0,03 | 0,03 | 0,06 | 0,08 |
| Steel <1400 N/mm² (<44 HRC) | 155 | 1,5xd. | 0,1xd. | 0,01 | 0,03 | 0,03 | 0,06 | 0,08 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 120 | 1,5xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 180 | 1,5xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Malleable cast iron >180HB | 150 | 1,5xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Cast iron with graphite >180HB | 140 | 1,5xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Aluminium | 250 | 1,5xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Aluminium >8% Si | 220 | 1,5xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| Copper - Bronze - Brass | 200 | 1,5xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,11 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

## 3 FLUTE CARBIDE END MILL - SHORT SERIES - STRAIGHT SHANK - OZMA COATED

HA 30°

A A-C F I

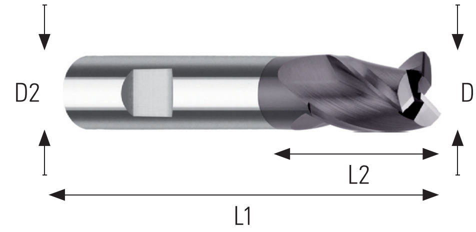



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 6 | 50 | 5 | 1 | 862643 | £ 11,36 |
| 2 | 6 | 50 | 6 | 1 | 862644 | £ 11,36 |
| 3 | 6 | 50 | 6 | 1 | 862645 | £ 11,78 |
| 4 | 6 | 50 | 8 | 1 | 862646 | £ 12,64 |
| 5 | 6 | 50 | 8 | 1 | 862647 | £ 13,04 |
| 6 | 6 | 50 | 16 | 1 | 862648 | £ 13,93 |
| 8 | 8 | 60 | 20 | 1 | 862649 | £ 18,82 |
| 10 | 10 | 70 | 22 | 1 | 862650 | £ 26,97 |
| 12 | 12 | 70 | 22 | 1 | 862651 | £ 35,72 |
| 16 | 16 | 75 | 25 | 1 | 862652 | £ 59,86 |
| 20 | 20 | 100 | 32 | 1 | 862653 | £ 96,76 |

## 3 FLUTE CARBIDE END MILL - SHORT SERIES - WELDON SHANK - OZMA COATED

HB 30°

A A-C F I



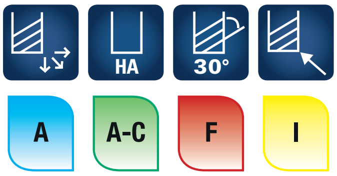

| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 6 | 50 | 5 | 1 | 862655 | £ 11,36 |
| 2 | 6 | 50 | 6 | 1 | 862656 | £ 11,36 |
| 3 | 6 | 50 | 6 | 1 | 862657 | £ 11,78 |
| 4 | 6 | 50 | 8 | 1 | 862658 | £ 12,64 |
| 5 | 6 | 50 | 8 | 1 | 862659 | £ 13,04 |
| 6 | 6 | 50 | 16 | 1 | 862660 | £ 13,93 |
| 8 | 8 | 60 | 20 | 1 | 862661 | £ 18,82 |
| 10 | 10 | 70 | 22 | 1 | 862662 | £ 26,97 |
| 12 | 12 | 70 | 22 | 1 | 862663 | £ 35,72 |
| 16 | 16 | 75 | 25 | 1 | 862664 | £ 59,86 |
| 20 | 20 | 100 | 32 | 1 | 862665 | £ 96,76 |

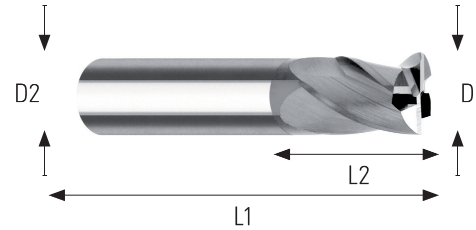
## 4 FLUTE CARBIDE END MILL - SHORT SERIES

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 1 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 83 | 1xd. | 0,5xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,15 |
| Steel <700 N/mm² (<205 HB) | 75 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,10 |
| Steel <850 N/mm² (<265 HB) | 74 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,10 |
| Steel <1000 N/mm² (<30 HRC) | 66 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,07 |
| Steel <1400 N/mm² (<44 HRC) | 59 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,07 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 45 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,10 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 68 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,10 |
| Malleable cast iron >180HB | 57 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,10 |
| Cast iron with graphite >180HB | 53 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,10 |
| Aluminium | | | | | | | | |
| Aluminium >8% Si | 83 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,10 |
| Copper - Bronze - Brass | 77 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,10 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 1 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 187 | 1xd. | 0,1xd. | 0,03 | 0,05 | 0,06 | 0,12 | 0,20 |
| Steel <700 N/mm² (<205 HB) | 170 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,14 |
| Steel <850 N/mm² (<265 HB) | 167 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,14 |
| Steel <1000 N/mm² (<30 HRC) | 148 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,03 | 0,06 | 0,10 |
| Steel <1400 N/mm² (<44 HRC) | 132 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,03 | 0,06 | 0,10 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 102 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,14 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 153 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,14 |
| Malleable cast iron >180HB | 127 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,14 |
| Cast iron with graphite >180HB | 119 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,14 |
| Aluminium | | | | | | | | |
| Aluminium >8% Si | 187 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,14 |
| Copper - Bronze - Brass | 170 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,14 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

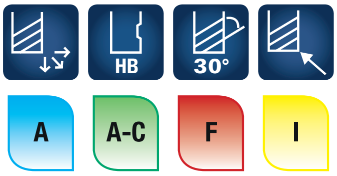
## 4 FLUTE CARBIDE END MILL - SHORT SERIES - STRAIGHT SHANK

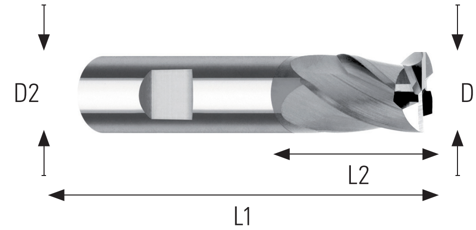



| D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 6 | 50 | 5 | 1 | 862667 | £ 9,85 |
| 2 | 6 | 50 | 7 | 1 | 862668 | £ 9,85 |
| 3 | 6 | 50 | 8 | 1 | 862669 | £ 10,07 |
| 4 | 6 | 50 | 11 | 1 | 862670 | £ 10,72 |
| 5 | 6 | 50 | 13 | 1 | 862671 | £ 11,36 |
| 6 | 6 | 50 | 16 | 1 | 862672 | £ 12,64 |
| 8 | 8 | 60 | 20 | 1 | 862673 | £ 17,66 |
| 10 | 10 | 70 | 22 | 1 | 862674 | £ 22,46 |
| 12 | 12 | 70 | 22 | 1 | 862675 | £ 32,09 |
| 16 | 16 | 75 | 25 | 1 | 862676 | £ 55,59 |
| 20 | 20 | 100 | 32 | 1 | 862677 | £ 87,47 |

## 4 FLUTE CARBIDE END MILL - SHORT SERIES - WELDON SHANK




| D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 6 | 50 | 5 | 1 | 862679 | £ 9,85 |
| 2 | 6 | 50 | 7 | 1 | 862680 | £ 9,85 |
| 3 | 6 | 50 | 8 | 1 | 862681 | £ 10,07 |
| 4 | 6 | 50 | 11 | 1 | 862682 | £ 10,72 |
| 5 | 6 | 50 | 13 | 1 | 862683 | £ 11,36 |
| 6 | 6 | 50 | 16 | 1 | 862684 | £ 12,64 |
| 8 | 8 | 60 | 20 | 1 | 862685 | £ 17,66 |
| 10 | 10 | 70 | 22 | 1 | 862686 | £ 22,46 |
| 12 | 12 | 70 | 22 | 1 | 862687 | £ 32,09 |
| 16 | 16 | 75 | 25 | 1 | 862688 | £ 55,59 |
| 20 | 20 | 100 | 32 | 1 | 862689 | £ 87,47 |

## 4 FLUTE CARBIDE END MILL - SHORT SERIES - OZMA COATED

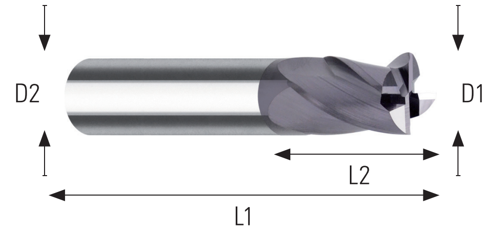
| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 1 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 98 | 1xd. | 0,5xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,15 |
| Steel <700 N/mm² (<205 HB) | 89 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,10 |
| Steel <850 N/mm² (<265 HB) | 87 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,10 |
| Steel <1000 N/mm² (<30 HRC) | 78 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,07 |
| Steel <1400 N/mm² (<44 HRC) | 69 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,07 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 54 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,10 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 80 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,10 |
| Malleable cast iron >180HB | 67 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,10 |
| Cast iron with graphite >180HB | 63 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,10 |
| Aluminium | | | | | | | | |
| Aluminium >8% Si | 98 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,10 |
| Copper - Bronze - Brass | 89 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,06 | 0,10 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 1 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 220 | 1xd. | 0,1xd. | 0,03 | 0,05 | 0,06 | 0,12 | 0,20 |
| Steel <700 N/mm² (<205 HB) | 200 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,14 |
| Steel <850 N/mm² (<265 HB) | 195 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,14 |
| Steel <1000 N/mm² (<30 HRC) | 175 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,03 | 0,06 | 0,10 |
| Steel <1400 N/mm² (<44 HRC) | 155 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,03 | 0,06 | 0,10 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 120 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,14 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 180 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,14 |
| Malleable cast iron >180HB | 150 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,14 |
| Cast iron with graphite >180HB | 140 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,14 |
| Aluminium | | | | | | | | |
| Aluminium >8% Si | 220 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,14 |
| Copper - Bronze - Brass | 200 | 1xd. | 0,1xd. | 0,02 | 0,04 | 0,04 | 0,08 | 0,14 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

## 4 FLUTE CARBIDE END MILL - SHORT SERIES - STRAIGHT SHANK - OZMA COATED

HA 30°

A A-C F I

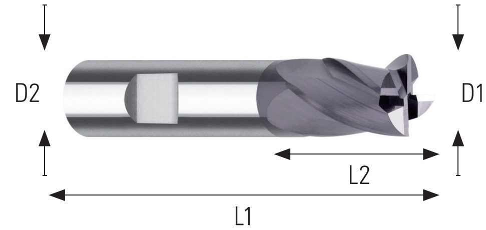



| D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 6 | 50 | 5 | 1 | 862691 | £ 11,66 |
| 2 | 6 | 50 | 7 | 1 | 862692 | £ 11,66 |
| 3 | 6 | 50 | 8 | 1 | 862693 | £ 12,10 |
| 4 | 6 | 50 | 11 | 1 | 862694 | £ 13,04 |
| 5 | 6 | 50 | 13 | 1 | 862695 | £ 13,49 |
| 6 | 6 | 50 | 16 | 1 | 862696 | £ 14,35 |
| 8 | 8 | 60 | 20 | 1 | 862697 | £ 19,45 |
| 10 | 10 | 70 | 22 | 1 | 862698 | £ 27,39 |
| 12 | 12 | 70 | 22 | 1 | 862699 | £ 36,92 |
| 16 | 16 | 75 | 25 | 1 | 862700 | £ 61,81 |
| 20 | 20 | 100 | 32 | 1 | 862701 | £ 99,75 |

## 4 FLUTE CARBIDE END MILL - SHORT SERIES - WELDON SHANK - OZMA COATED

HB 30°

A A-C F I




| D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 6 | 50 | 5 | 1 | 862703 | £ 11,66 |
| 2 | 6 | 50 | 7 | 1 | 862704 | £ 11,66 |
| 3 | 6 | 50 | 8 | 1 | 862705 | £ 12,10 |
| 4 | 6 | 50 | 11 | 1 | 862706 | £ 13,04 |
| 5 | 6 | 50 | 13 | 1 | 862707 | £ 13,49 |
| 6 | 6 | 50 | 16 | 1 | 862708 | £ 14,35 |
| 8 | 8 | 60 | 20 | 1 | 862709 | £ 19,45 |
| 10 | 10 | 70 | 22 | 1 | 862710 | £ 27,39 |
| 12 | 12 | 70 | 22 | 1 | 862711 | £ 36,92 |
| 16 | 16 | 75 | 25 | 1 | 862712 | £ 61,81 |
| 20 | 20 | 100 | 32 | 1 | 862713 | £ 99,75 |

## 4 FLUTE CARBIDE END MILL - STANDARD SERIES

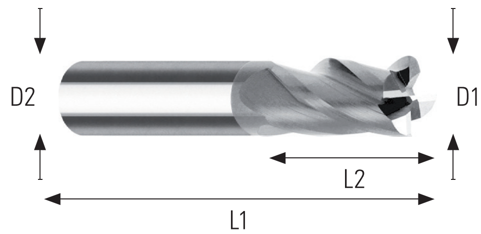
| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 1 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 83 | 1xd. | 0,5xd. | 0,02 | 0,03 | 0,03 | 0,07 | 0,12 |
| Steel <700 N/mm² (<205 HB) | 75 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,05 | 0,08 |
| Steel <850 N/mm² (<265 HB) | 74 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,05 | 0,08 |
| Steel <1000 N/mm² (<30 HRC) | 66 | 1xd. | 0,5xd. | 0,01 | 0,01 | 0,02 | 0,03 | 0,06 |
| Steel <1400 N/mm² (<44 HRC) | 59 | 1xd. | 0,5xd. | 0,01 | 0,01 | 0,02 | 0,03 | 0,06 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 45 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 68 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Malleable cast iron >180HB | 57 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Cast iron with graphite >180HB | 53 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Aluminium | | | | | | | | |
| Aluminium >8% Si | 83 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Copper - Bronze - Brass | 77 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 1 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 187 | 1xd. | 0,1xd. | 0,03 | 0,05 | 0,06 | 0,11 | 0,18 |
| Steel <700 N/mm² (<205 HB) | 170 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Steel <850 N/mm² (<265 HB) | 167 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Steel <1000 N/mm² (<30 HRC) | 148 | 1xd. | 0,1xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Steel <1400 N/mm² (<44 HRC) | 132 | 1xd. | 0,1xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 102 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 153 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Malleable cast iron >180HB | 127 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Cast iron with graphite >180HB | 119 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Aluminium | | | | | | | | |
| Aluminium >8% Si | 187 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Copper - Bronze - Brass | 170 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

## 4 FLUTE CARBIDE END MILL - STANDARD SERIES - STRAIGHT SHANK

HA 30°

A A-C F I

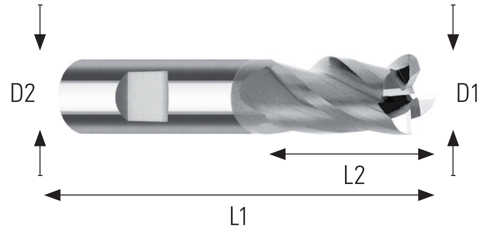



| D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 6 | 50 | 3 | 1 | 862715 | £ 10,41 |
| 2 | 6 | 50 | 4 | 1 | 862716 | £ 10,41 |
| 3 | 6 | 50 | 6 | 1 | 862717 | £ 10,60 |
| 4 | 6 | 50 | 8 | 1 | 862718 | £ 11,24 |
| 5 | 6 | 50 | 8 | 1 | 862719 | £ 12,00 |
| 6 | 6 | 57 | 13 | 1 | 862720 | £ 13,28 |
| 8 | 8 | 63 | 19 | 1 | 862721 | £ 18,62 |
| 10 | 10 | 72 | 22 | 1 | 862722 | £ 23,64 |
| 12 | 12 | 83 | 26 | 1 | 862723 | £ 33,79 |
| 16 | 16 | 92 | 32 | 1 | 862724 | £ 56,45 |
| 20 | 20 | 104 | 38 | 1 | 862725 | £ 90,66 |

## 4 FLUTE CARBIDE END MILL - STANDARD SERIES - WELDON SHANK

HB 30°

A A-C F I




| D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 6 | 50 | 3 | 1 | 862727 | £ 10,41 |
| 2 | 6 | 50 | 4 | 1 | 862728 | £ 10,41 |
| 3 | 6 | 50 | 6 | 1 | 862729 | £ 10,60 |
| 4 | 6 | 50 | 8 | 1 | 862730 | £ 11,24 |
| 5 | 6 | 50 | 8 | 1 | 862731 | £ 12,00 |
| 6 | 6 | 57 | 13 | 1 | 862732 | £ 13,28 |
| 8 | 8 | 63 | 19 | 1 | 862733 | £ 18,62 |
| 10 | 10 | 72 | 22 | 1 | 862734 | £ 23,64 |
| 12 | 12 | 83 | 26 | 1 | 862735 | £ 33,79 |
| 16 | 16 | 92 | 32 | 1 | 862736 | £ 56,45 |
| 20 | 20 | 104 | 38 | 1 | 862737 | £ 90,66 |

## 4 FLUTE CARBIDE END MILL - STANDARD SERIES - OZMA COATED

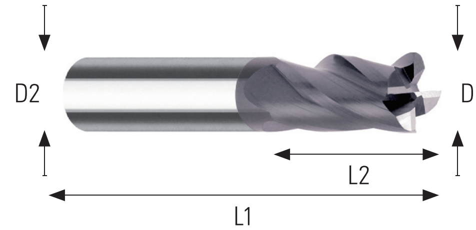
| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 1 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 98 | 1xd. | 0,5xd. | 0,02 | 0,03 | 0,04 | 0,07 | 0,13 |
| Steel <700 N/mm² (<205 HB) | 89 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Steel <850 N/mm² (<265 HB) | 87 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Steel <1000 N/mm² (<30 HRC) | 78 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,06 |
| Steel <1400 N/mm² (<44 HRC) | 69 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,06 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 54 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 80 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Malleable cast iron >180HB | 67 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Cast iron with graphite >180HB | 63 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Aluminium | | | | | | | | |
| Aluminium >8% Si | 98 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Copper - Bronze - Brass | 89 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 1 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 220 | 1xd. | 0,1xd. | 0,03 | 0,05 | 0,06 | 0,11 | 0,18 |
| Steel <700 N/mm² (<205 HB) | 200 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Steel <850 N/mm² (<265 HB) | 195 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Steel <1000 N/mm² (<30 HRC) | 175 | 1xd. | 0,1xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Steel <1400 N/mm² (<44 HRC) | 155 | 1xd. | 0,1xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 120 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 180 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Malleable cast iron >180HB | 150 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Cast iron with graphite >180HB | 140 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Aluminium | | | | | | | | |
| Aluminium >8% Si | 220 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Copper - Bronze - Brass | 200 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

## 4 FLUTE CARBIDE END MILL - STANDARD - STRAIGHT SHANK - OZMA COATED

HA 30°

A A-C F I

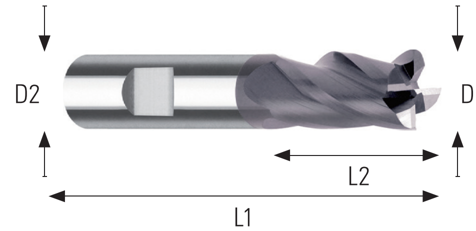



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 6 | 50 | 3 | 1 | 862739 | £ 12,40 |
| 2 | 6 | 50 | 4 | 1 | 862740 | £ 12,40 |
| 3 | 6 | 50 | 6 | 1 | 862741 | £ 12,74 |
| 4 | 6 | 50 | 8 | 1 | 862742 | £ 13,71 |
| 5 | 6 | 50 | 8 | 1 | 862743 | £ 14,13 |
| 6 | 6 | 57 | 13 | 1 | 862744 | £ 15,09 |
| 8 | 8 | 63 | 19 | 1 | 862745 | £ 20,55 |
| 10 | 10 | 72 | 22 | 1 | 862746 | £ 28,88 |
| 12 | 12 | 83 | 26 | 1 | 862747 | £ 38,93 |
| 16 | 16 | 92 | 32 | 1 | 862748 | £ 65,22 |
| 20 | 20 | 104 | 38 | 1 | 862749 | £ 104,97 |

## 4 FLUTE CARBIDE END MILL - STANDARD SERIES - WELDON SHANK - OZMA COATED

HB 30°

A A-C F I




| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 6 | 50 | 3 | 1 | 862751 | £ 12,40 |
| 2 | 6 | 50 | 4 | 1 | 862752 | £ 12,40 |
| 3 | 6 | 50 | 6 | 1 | 862753 | £ 12,74 |
| 4 | 6 | 50 | 8 | 1 | 862754 | £ 13,71 |
| 5 | 6 | 50 | 8 | 1 | 862755 | £ 14,13 |
| 6 | 6 | 57 | 13 | 1 | 862756 | £ 15,09 |
| 8 | 8 | 63 | 19 | 1 | 862757 | £ 20,55 |
| 10 | 10 | 72 | 22 | 1 | 862758 | £ 28,88 |
| 12 | 12 | 83 | 26 | 1 | 862759 | £ 38,93 |
| 16 | 16 | 92 | 32 | 1 | 862760 | £ 65,22 |
| 20 | 20 | 104 | 38 | 1 | 862761 | £ 104,97 |

## 4 FLUTE CARBIDE END MILL - LONG SERIES

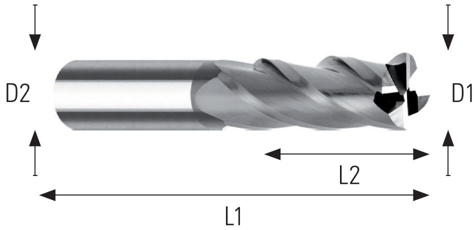
| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 1 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 75 | 1xd. | 0,5xd. | 0,02 | 0,03 | 0,03 | 0,07 | 0,12 |
| Steel <700 N/mm² (<205 HB) | 68 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,05 | 0,08 |
| Steel <850 N/mm² (<265 HB) | 67 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,05 | 0,08 |
| Steel <1000 N/mm² (<30 HRC) | 59 | 1xd. | 0,5xd. | 0,01 | 0,01 | 0,02 | 0,03 | 0,06 |
| Steel <1400 N/mm² (<44 HRC) | 53 | 1xd. | 0,5xd. | 0,01 | 0,01 | 0,02 | 0,03 | 0,06 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 41 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 61 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Malleable cast iron >180HB | 51 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Cast iron with graphite >180HB | 48 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Aluminium | | | | | | | | |
| Aluminium >8% Si | 75 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Copper - Bronze - Brass | 69 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 1 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 168 | 1xd. | 0,1xd. | 0,03 | 0,05 | 0,06 | 0,11 | 0,18 |
| Steel <700 N/mm² (<205 HB) | 153 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Steel <850 N/mm² (<265 HB) | 150 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Steel <1000 N/mm² (<30 HRC) | 133 | 1xd. | 0,1xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Steel <1400 N/mm² (<44 HRC) | 119 | 1xd. | 0,1xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 92 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 138 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Malleable cast iron >180HB | 114 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Cast iron with graphite >180HB | 107 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Aluminium | | | | | | | | |
| Aluminium >8% Si | 168 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Copper - Bronze - Brass | 153 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

## 4 FLUTE CARBIDE END MILL - LONG SERIES - STRAIGHT SHANK

HA 30°

A A-C F I

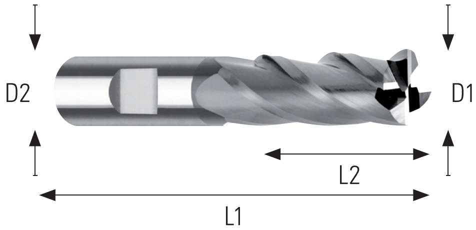



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 6 | 50 | 12 | 1 | 862763 | £ 12,40 |
| 4 | 6 | 50 | 15 | 1 | 862764 | £ 12,40 |
| 5 | 6 | 60 | 20 | 1 | 862765 | £ 15,41 |
| 6 | 6 | 60 | 20 | 1 | 862766 | £ 17,12 |
| 8 | 8 | 70 | 25 | 1 | 862767 | £ 20,55 |
| 10 | 10 | 90 | 30 | 1 | 862768 | £ 29,94 |
| 12 | 12 | 90 | 30 | 1 | 862769 | £ 39,57 |
| 16 | 16 | 110 | 50 | 1 | 862770 | £ 70,56 |
| 20 | 20 | 110 | 55 | 1 | 862771 | £ 102,64 |

## 4 FLUTE CARBIDE END MILL - LONG SERIES - WELDON SHANK

HB 30°

A A-C F I




| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 6 | 50 | 12 | 1 | 862773 | £ 12,40 |
| 4 | 6 | 50 | 15 | 1 | 862774 | £ 12,40 |
| 5 | 6 | 60 | 20 | 1 | 862775 | £ 15,41 |
| 6 | 6 | 60 | 20 | 1 | 862776 | £ 17,12 |
| 8 | 8 | 70 | 25 | 1 | 862777 | £ 20,55 |
| 10 | 10 | 90 | 30 | 1 | 862778 | £ 29,94 |
| 12 | 12 | 90 | 30 | 1 | 862779 | £ 39,57 |
| 16 | 16 | 110 | 50 | 1 | 862780 | £ 70,56 |
| 20 | 20 | 110 | 55 | 1 | 862781 | £ 102,64 |

## 4 FLUTE CARBIDE END MILL - LONG SERIES - OZMA COATED

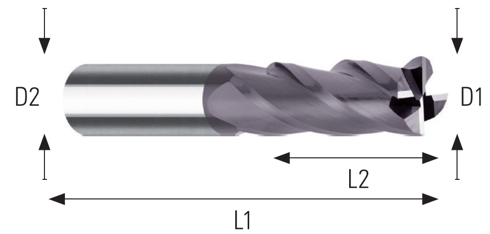
| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 1 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 88 | 1xd. | 0,5xd. | 0,02 | 0,03 | 0,04 | 0,07 | 0,13 |
| Steel <700 N/mm² (<205 HB) | 80 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Steel <850 N/mm² (<265 HB) | 78 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Steel <1000 N/mm² (<30 HRC) | 70 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,06 |
| Steel <1400 N/mm² (<44 HRC) | 62 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,06 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 49 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 72 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Malleable cast iron >180HB | 60 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Cast iron with graphite >180HB | 57 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Aluminium | | | | | | | | |
| Aluminium >8% Si | 88 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Copper - Bronze - Brass | 80 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 1 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 198 | 1xd. | 0,1xd. | 0,03 | 0,05 | 0,06 | 0,11 | 0,18 |
| Steel <700 N/mm² (<205 HB) | 180 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Steel <850 N/mm² (<265 HB) | 176 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Steel <1000 N/mm² (<30 HRC) | 158 | 1xd. | 0,1xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Steel <1400 N/mm² (<44 HRC) | 140 | 1xd. | 0,1xd. | 0,01 | 0,02 | 0,03 | 0,05 | 0,09 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 108 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 162 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Malleable cast iron >180HB | 135 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Cast iron with graphite >180HB | 126 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Aluminium | | | | | | | | |
| Aluminium >8% Si | 198 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| Copper - Bronze - Brass | 180 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,08 | 0,13 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

## 4 FLUTE CARBIDE END MILL - LONG SERIES - STRAIGHT SHANK - OZMA COATED

HA 30°

A A-C F I

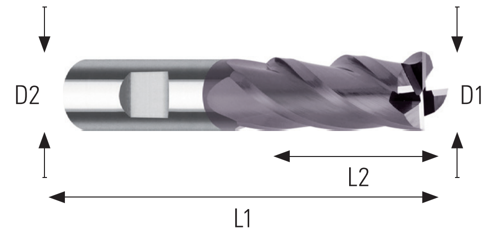



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 6 | 50 | 12 | 1 | 862783 | £ 13,49 |
| 4 | 6 | 50 | 15 | 1 | 862784 | £ 13,49 |
| 5 | 6 | 60 | 20 | 1 | 862785 | £ 17,12 |
| 6 | 6 | 60 | 20 | 1 | 862786 | £ 18,42 |
| 8 | 8 | 70 | 25 | 1 | 862787 | £ 22,88 |
| 10 | 10 | 90 | 30 | 1 | 862788 | £ 34,23 |
| 12 | 12 | 90 | 30 | 1 | 862789 | £ 44,91 |
| 16 | 16 | 110 | 50 | 1 | 862790 | £ 78,68 |
| 20 | 20 | 110 | 55 | 1 | 862791 | £ 108,20 |

## 4 FLUTE CARBIDE END MILL - LONG SERIES - WELDON SHANK - OZMA COATED

HB 30°

A A-C F I




| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 6 | 50 | 12 | 1 | 862793 | £ 13,49 |
| 4 | 6 | 50 | 15 | 1 | 862794 | £ 13,49 |
| 5 | 6 | 60 | 20 | 1 | 862795 | £ 17,12 |
| 6 | 6 | 60 | 20 | 1 | 862796 | £ 18,42 |
| 8 | 8 | 70 | 25 | 1 | 862797 | £ 22,88 |
| 10 | 10 | 90 | 30 | 1 | 862798 | £ 34,23 |
| 12 | 12 | 90 | 30 | 1 | 862799 | £ 44,91 |
| 16 | 16 | 110 | 50 | 1 | 862800 | £ 78,68 |
| 20 | 20 | 110 | 55 | 1 | 862801 | £ 108,20 |

## 4 VARI FLUTE CARBIDE END MILL - SHORT SERIES - OZMAX COATED

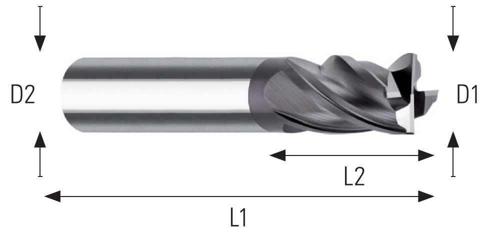
| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 3 to Ø 4 | Ø 5 to Ø 8 | Ø 10 to Ø 12 | Ø 14 to Ø 16 | Ø 18 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 141 | 1xd. | 1xd. | 0,01 | 0,03 | 0,06 | 0,08 | 0,10 |
| Steel <700 N/mm² (<205 HB) | 134 | 1xd. | 1xd. | 0,01 | 0,03 | 0,06 | 0,08 | 0,10 |
| Steel <850 N/mm² (<265 HB) | 127 | 1xd. | 1xd. | 0,01 | 0,03 | 0,06 | 0,08 | 0,10 |
| Steel <1000 N/mm² (<30 HRC) | 106 | 1xd. | 1xd. | 0,01 | 0,02 | 0,04 | 0,06 | 0,07 |
| Steel <1400 N/mm² (<44 HRC) | 78 | 1xd. | 1xd. | 0,01 | 0,02 | 0,04 | 0,06 | 0,07 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 57 | 1xd. | 1xd. | 0,01 | 0,02 | 0,04 | 0,06 | 0,07 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 141 | 1xd. | 1xd. | 0,01 | 0,03 | 0,06 | 0,08 | 0,10 |
| Malleable cast iron >180HB | 106 | 1xd. | 1xd. | 0,01 | 0,03 | 0,06 | 0,08 | 0,10 |
| Cast iron with graphite >180HB | 106 | 1xd. | 1xd. | 0,01 | 0,03 | 0,06 | 0,08 | 0,10 |
| Aluminium | | | | | | | | |
| Aluminium >8% Si | | | | | | | | |
| Copper - Bronze - Brass | | | | | | | | |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 3 to Ø 4 | Ø 5 to Ø 8 | Ø 10 to Ø 12 | Ø 14 to Ø 16 | Ø 18 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 200 | 1xd. | 0,5xd. | 0,02 | 0,04 | 0,08 | 0,10 | 0,12 |
| Steel <700 N/mm² (<205 HB) | 190 | 1xd. | 0,5xd. | 0,02 | 0,04 | 0,08 | 0,10 | 0,12 |
| Steel <850 N/mm² (<265 HB) | 180 | 1xd. | 0,5xd. | 0,02 | 0,04 | 0,08 | 0,10 | 0,12 |
| Steel <1000 N/mm² (<30 HRC) | 150 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,05 | 0,07 | 0,08 |
| Steel <1400 N/mm² (<44 HRC) | 110 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,05 | 0,07 | 0,08 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 80 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,05 | 0,07 | 0,08 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 200 | 1xd. | 0,5xd. | 0,02 | 0,04 | 0,08 | 0,10 | 0,12 |
| Malleable cast iron >180HB | 150 | 1xd. | 0,5xd. | 0,02 | 0,04 | 0,08 | 0,10 | 0,12 |
| Cast iron with graphite >180HB | 150 | 1xd. | 0,5xd. | 0,02 | 0,04 | 0,08 | 0,10 | 0,12 |
| Aluminium | | | | | | | | |
| Aluminium >8% Si | | | | | | | | |
| Copper - Bronze - Brass | | | | | | | | |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

## 4 VARI FLUTE CARBIDE END MILL - SHORT SERIES - STRAIGHT SHANK - OZMAX COATED

HA 35/38°

A F I

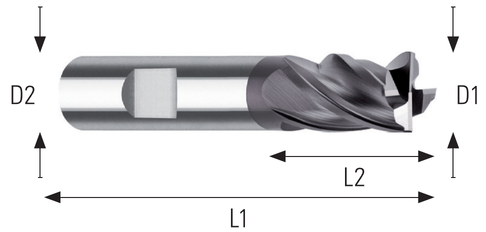



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 6 | 54 | 6 | 1 | 862815 | £ 18,20 |
| 4 | 6 | 54 | 8 | 1 | 862816 | £ 18,20 |
| 5 | 6 | 54 | 9 | 1 | 862817 | £ 18,82 |
| 6 | 6 | 54 | 10 | 1 | 862818 | £ 18,82 |
| 8 | 8 | 58 | 12 | 1 | 862819 | £ 23,54 |
| 10 | 10 | 66 | 14 | 1 | 862820 | £ 32,93 |
| 12 | 12 | 73 | 16 | 1 | 862821 | £ 47,06 |
| 14 | 14 | 75 | 18 | 1 | 862822 | £ 55,59 |
| 16 | 16 | 82 | 22 | 1 | 862823 | £ 75,69 |
| 18 | 18 | 84 | 24 | 1 | 862824 | £ 91,95 |
| 20 | 20 | 92 | 26 | 1 | 862825 | £ 117,61 |

## 4 VARI FLUTE CARBIDE END MILL - SHORT SERIES - WELDON SHANK - OZMAX COATED

HB 35/38°

A F I




| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 6 | 54 | 6 | 1 | 862803 | £ 18,20 |
| 4 | 6 | 54 | 8 | 1 | 862804 | £ 18,20 |
| 5 | 6 | 54 | 9 | 1 | 862805 | £ 18,82 |
| 6 | 6 | 54 | 10 | 1 | 862806 | £ 18,82 |
| 8 | 8 | 58 | 12 | 1 | 862807 | £ 23,54 |
| 10 | 10 | 66 | 14 | 1 | 862808 | £ 32,93 |
| 12 | 12 | 73 | 16 | 1 | 862809 | £ 47,06 |
| 14 | 14 | 75 | 18 | 1 | 862810 | £ 55,59 |
| 16 | 16 | 82 | 22 | 1 | 862811 | £ 75,69 |
| 18 | 18 | 84 | 24 | 1 | 862812 | £ 91,95 |
| 20 | 20 | 92 | 26 | 1 | 862813 | £ 117,61 |

## 4 VARI FLUTE CARBIDE END MILL - STANDARD SERIES - OZMAX COATED

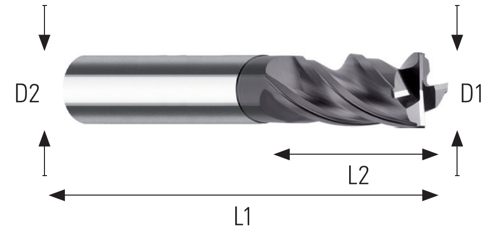
| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 3 to Ø 4 | Ø 5 to Ø 8 | Ø 10 to Ø 12 | Ø 14 to Ø 16 | Ø 18 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 141 | 1xd. | 1xd. | 0,01 | 0,03 | 0,06 | 0,08 | 0,10 |
| Steel <700 N/mm² (<205 HB) | 134 | 1xd. | 1xd. | 0,01 | 0,03 | 0,06 | 0,08 | 0,10 |
| Steel <850 N/mm² (<265 HB) | 127 | 1xd. | 1xd. | 0,01 | 0,03 | 0,06 | 0,08 | 0,10 |
| Steel <1000 N/mm² (<30 HRC) | 106 | 1xd. | 1xd. | 0,01 | 0,02 | 0,04 | 0,06 | 0,07 |
| Steel <1400 N/mm² (<44 HRC) | 78 | 1xd. | 1xd. | 0,01 | 0,02 | 0,04 | 0,06 | 0,07 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 57 | 1xd. | 1xd. | 0,01 | 0,02 | 0,04 | 0,06 | 0,07 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 141 | 1xd. | 1xd. | 0,01 | 0,03 | 0,06 | 0,08 | 0,10 |
| Malleable cast iron >180HB | 106 | 1xd. | 1xd. | 0,01 | 0,03 | 0,06 | 0,08 | 0,10 |
| Cast iron with graphite >180HB | 106 | 1xd. | 1xd. | 0,01 | 0,03 | 0,06 | 0,08 | 0,10 |
| Aluminium | | | | | | | | |
| Aluminium >8% Si | | | | | | | | |
| Copper - Bronze - Brass | | | | | | | | |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 3 to Ø 4 | Ø 5 to Ø 8 | Ø 10 to Ø 12 | Ø 14 to Ø 16 | Ø 18 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 200 | 1xd. | 0,5xd. | 0,02 | 0,04 | 0,08 | 0,10 | 0,12 |
| Steel <700 N/mm² (<205 HB) | 190 | 1xd. | 0,5xd. | 0,02 | 0,04 | 0,08 | 0,10 | 0,12 |
| Steel <850 N/mm² (<265 HB) | 180 | 1xd. | 0,5xd. | 0,02 | 0,04 | 0,08 | 0,10 | 0,12 |
| Steel <1000 N/mm² (<30 HRC) | 150 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,05 | 0,07 | 0,08 |
| Steel <1400 N/mm² (<44 HRC) | 110 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,05 | 0,07 | 0,08 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 80 | 1xd. | 0,5xd. | 0,01 | 0,03 | 0,05 | 0,07 | 0,08 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | 200 | 1xd. | 0,5xd. | 0,02 | 0,04 | 0,08 | 0,10 | 0,12 |
| Malleable cast iron >180HB | 150 | 1xd. | 0,5xd. | 0,02 | 0,04 | 0,08 | 0,10 | 0,12 |
| Cast iron with graphite >180HB | 150 | 1xd. | 0,5xd. | 0,02 | 0,04 | 0,08 | 0,10 | 0,12 |
| Aluminium | | | | | | | | |
| Aluminium >8% Si | | | | | | | | |
| Copper - Bronze - Brass | | | | | | | | |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

## 4 VARI FLUTE CARBIDE END MILL - STANDARD SERIES - STRAIGHT SHANK - OZMAX COATED

HA 35/38°

A F I

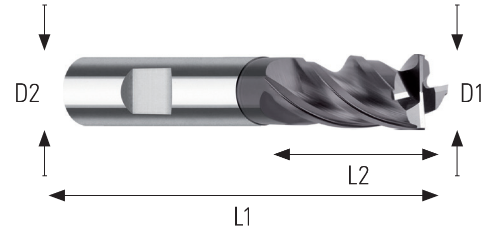



| D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | Chamfer | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 3 | 6 | 57 | 8 | 0.1 | 1 | 862827 | £ 25,24 |
| 4 | 6 | 57 | 11 | 0.13 | 1 | 862828 | £ 25,24 |
| 5 | 6 | 57 | 13 | 0.18 | 1 | 862829 | £ 26,31 |
| 6 | 6 | 57 | 13 | 0.2 | 1 | 862830 | £ 26,51 |
| 8 | 8 | 63 | 19 | 0.2 | 1 | 862831 | £ 36,36 |
| 10 | 10 | 72 | 22 | 0.3 | 1 | 862832 | £ 45,99 |
| 12 | 12 | 83 | 26 | 0.3 | 1 | 862833 | £ 65,36 |
| 14 | 14 | 83 | 26 | 0.3 | 1 | 862834 | £ 81,25 |
| 16 | 16 | 92 | 32 | 0.4 | 1 | 862835 | £ 105,21 |
| 18 | 18 | 92 | 32 | 0.4 | 1 | 862836 | £ 127,65 |
| 20 | 20 | 104 | 38 | 0.5 | 1 | 862837 | £ 157,15 |

## 4 VARI FLUTE CARBIDE END MILL - STANDARD SERIES - WELDON SHANK - OZMAX COATED

HB 35/38°

A F I




| D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | Chamfer | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 3 | 6 | 57 | 8 | 0.1 | 1 | 862839 | £ 25,24 |
| 4 | 6 | 57 | 11 | 0.13 | 1 | 862840 | £ 25,24 |
| 5 | 6 | 57 | 13 | 0.18 | 1 | 862841 | £ 26,31 |
| 6 | 6 | 57 | 13 | 0.2 | 1 | 862842 | £ 26,51 |
| 8 | 8 | 63 | 19 | 0.2 | 1 | 862843 | £ 36,36 |
| 10 | 10 | 72 | 22 | 0.3 | 1 | 862844 | £ 45,99 |
| 12 | 12 | 83 | 26 | 0.3 | 1 | 862845 | £ 64,36 |
| 14 | 14 | 83 | 26 | 0.3 | 1 | 862846 | £ 81,25 |
| 16 | 16 | 92 | 32 | 0.4 | 1 | 862847 | £ 103,93 |
| 18 | 18 | 92 | 32 | 0.4 | 1 | 862848 | £ 128,29 |
| 20 | 20 | 104 | 38 | 0.5 | 1 | 862849 | £ 160,34 |

## SINGLE FLUTE CARBIDE ROUTER

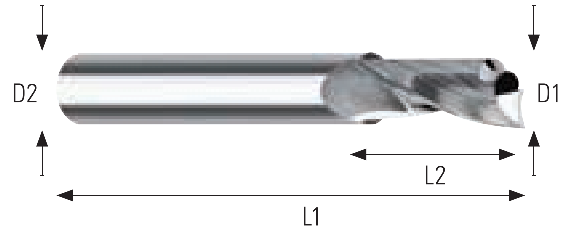
| Material<br>Rough boring | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) Ø 2 | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Steel <500 N/mm² (<150 HB) | | | | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | | | | |
| Cast iron<180HB | | | | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | | | | |
| Aluminium | 289 | 1xd. | 0,3xd. | 0,01 | 0,01 | 0,02 | 0,02 | 0,02 | 0,03 | 0,05 | 0,05 |
| Aluminium >8% Si | 231 | 1xd. | 0,3xd. | 0,01 | 0,01 | 0,02 | 0,02 | 0,02 | 0,03 | 0,05 | 0,05 |
| Copper - Bronze - Brass | | | | | | | | | | | |
| TITANIUM | | | | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | | | | |

| Material<br>FINISHING | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) Ø 2 | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Steel <500 N/mm² (<150 HB) | | | | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | | | | |
| Cast iron<180HB | | | | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | | | | |
| Aluminium | 500 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,02 | 0,02 | 0,03 | 0,05 | 0,06 | 0,06 |
| Aluminium >8% Si | 400 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,02 | 0,02 | 0,03 | 0,05 | 0,06 | 0,06 |
| Copper - Bronze - Brass | | | | | | | | | | | |
| TITANIUM | | | | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | | | | |

## SINGLE FLUTE CARBIDE ROUTER - STRAIGHT SHANK

HA 26°

A-C




| D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 2 | 3 | 50 | 8 | 1 | 862851 | £ 16,68 |
| 3 | 3 | 50 | 12 | 1 | 862852 | £ 16,68 |
| 4 | 4 | 60 | 15 | 1 | 862853 | £ 18,82 |
| 5 | 5 | 60 | 17 | 1 | 862854 | £ 23,54 |
| 6 | 6 | 65 | 20 | 1 | 862855 | £ 24,62 |
| 8 | 8 | 65 | 22 | 1 | 862856 | £ 34,44 |
| 10 | 10 | 75 | 25 | 1 | 862857 | £ 52,17 |
| 12 | 12 | 80 | 30 | 1 | 862858 | £ 70,78 |

## 2 FLUTE CARBIDE END MILL - STANDARD SERIES - ALUMINIUM

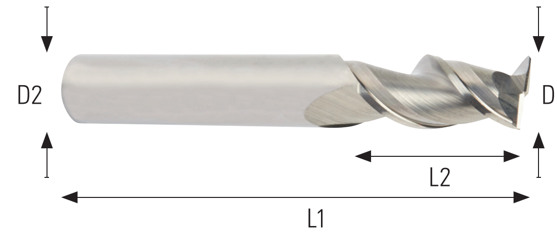
| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 2 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | |
| Aluminium | 300 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,06 |
| Aluminium >8% Si | 200 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,06 |
| Copper - Bronze - Brass | 110 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,06 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 2 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | |
| Aluminium | 680 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,06 | 0,09 |
| Aluminium >8% Si | 440 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,06 | 0,09 |
| Copper - Bronze - Brass | 250 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,06 | 0,09 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

## 2 FLUTE CARBIDE END MILL - STANDARD - STRAIGHT SHANK - ALUMINIUM

HA 45°

A-C

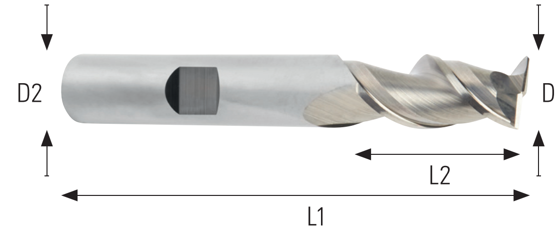



| D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | Chamfer | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 2 | 6 | 57 | 8 | 0.05 | 1 | 843378 | £ 9,28 |
| 3 | 6 | 57 | 8 | 0.1 | 1 | 843379 | £ 9,22 |
| 4 | 6 | 57 | 11 | 0.1 | 1 | 843380 | £ 9,96 |
| 5 | 6 | 57 | 13 | 0.1 | 1 | 843381 | £ 11,48 |
| 6 | 6 | 57 | 13 | 0.1 | 1 | 843382 | £ 12,89 |
| 8 | 8 | 63 | 19 | 0.1 | 1 | 843384 | £ 17,54 |
| 10 | 10 | 72 | 22 | 0.1 | 1 | 843386 | £ 23,70 |
| 12 | 12 | 83 | 26 | 0.1 | 1 | 843388 | £ 32,96 |
| 14 | 14 | 83 | 26 | 0.1 | 1 | 843390 | £ 47,36 |
| 16 | 16 | 92 | 32 | 0.1 | 1 | 843391 | £ 57,05 |
| 18 | 18 | 92 | 32 | 0.1 | 1 | 843393 | £ 78,26 |
| 20 | 20 | 104 | 38 | 0.1 | 1 | 843394 | £ 100,02 |

## 2 FLUTE CARBIDE END MILL - STANDARD - WELDON SHANK - ALUMINIUM

HB 45°

A-C




| D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | Chamfer | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 2 | 6 | 57 | 8 | 0.05 | 1 | 855653 | £ 9,28 |
| 3 | 6 | 57 | 8 | 0.1 | 1 | 855654 | £ 9,22 |
| 4 | 6 | 57 | 11 | 0.1 | 1 | 855655 | £ 9,96 |
| 5 | 6 | 57 | 13 | 0.1 | 1 | 855656 | £ 11,48 |
| 6 | 6 | 57 | 13 | 0.1 | 1 | 855657 | £ 12,89 |
| 8 | 8 | 63 | 19 | 0.1 | 1 | 855659 | £ 17,54 |
| 10 | 10 | 72 | 22 | 0.1 | 1 | 855661 | £ 23,70 |
| 12 | 12 | 83 | 26 | 0.1 | 1 | 855663 | £ 32,96 |
| 14 | 14 | 83 | 26 | 0.1 | 1 | 855665 | £ 47,36 |
| 16 | 16 | 92 | 32 | 0.1 | 1 | 855667 | £ 57,05 |
| 18 | 18 | 92 | 32 | 0.1 | 1 | 855669 | £ 78,26 |
| 20 | 20 | 104 | 38 | 0.1 | 1 | 855671 | £ 100,02 |

## 2 FLUTE CARBIDE END MILL - LONG SERIES - ALUMINIUM

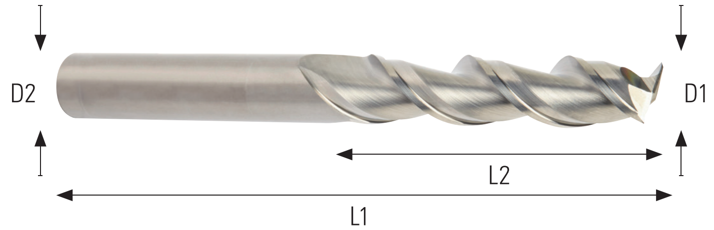
| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 2 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | |
| Aluminium | 270 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,06 |
| Aluminium >8% Si | 180 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,06 |
| Copper - Bronze - Brass | 90 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,06 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 2 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | |
| Aluminium | 600 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,06 | 0,09 |
| Aluminium >8% Si | 400 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,06 | 0,09 |
| Copper - Bronze - Brass | 220 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,06 | 0,09 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

## 2 FLUTE CARBIDE END MILL - LONG SERIES - STRAIGHT SHANK - ALUMINIUM

HA 45°

A-C

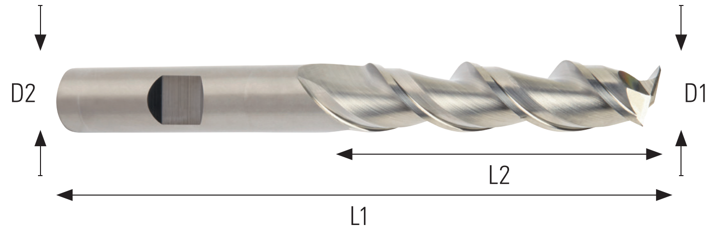



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | Chamfer | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 6 | 6 | 68 | 24 | 0.1 | 1 | 843383 | £ 20,39 |
| 8 | 8 | 88 | 38 | 0.1 | 1 | 843385 | £ 30,89 |
| 10 | 10 | 95 | 45 | 0.1 | 1 | 843387 | £ 48,04 |
| 12 | 12 | 110 | 53 | 0.1 | 1 | 843389 | £ 57,21 |
| 14 | 14 | 110 | 53 | 0.1 | 1 | 843472 | £ 73,22 |
| 16 | 16 | 123 | 63 | 0.1 | 1 | 843392 | £ 105,25 |
| 18 | 18 | 123 | 63 | 0.1 | 1 | 843473 | £ 125,84 |
| 20 | 20 | 141 | 75 | 0.1 | 1 | 843395 | £ 163,72 |

## 2 FLUTE CARBIDE END MILL - LONG SERIES - WELDON SHANK - ALUMINIUM

HB 45°

A-C




| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | Chamfer | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 6 | 6 | 68 | 24 | 0.1 | 1 | 855658 | £ 20,39 |
| 8 | 8 | 88 | 38 | 0.1 | 1 | 855660 | £ 34,33 |
| 10 | 10 | 95 | 45 | 0.1 | 1 | 855662 | £ 48,04 |
| 12 | 12 | 110 | 53 | 0.1 | 1 | 855664 | £ 57,21 |
| 14 | 14 | 110 | 53 | 0.1 | 1 | 855666 | £ 73,22 |
| 16 | 16 | 123 | 63 | 0.1 | 1 | 855668 | £ 105,25 |
| 18 | 18 | 123 | 63 | 0.1 | 1 | 855670 | £ 125,84 |
| 20 | 20 | 141 | 75 | 0.1 | 1 | 855672 | £ 163,72 |

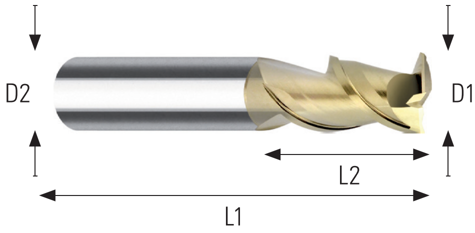
## 2 FLUTE CARBIDE END MILL - STANDARD SERIES - ALUMINIUM - ZIRKO COATED

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 2 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | |
| Aluminium | 358 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,06 |
| Aluminium >8% Si | 233 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,06 |
| Copper - Bronze - Brass | 134 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,02 | 0,04 | 0,06 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 2 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | |
| Aluminium | 800 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,06 | 0,09 |
| Aluminium >8% Si | 520 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,06 | 0,09 |
| Copper - Bronze - Brass | 300 | 1xd. | 0,1xd. | 0,02 | 0,03 | 0,04 | 0,06 | 0,09 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

## 2 FLUTE CARBIDE END MILL - STANDARD SERIES - STRAIGHT SHANK - ALUMINIUM - ZIRKO COATED

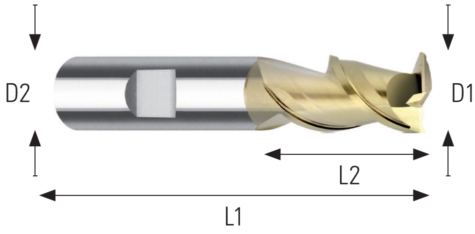
A-C




| D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | Chamfer | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 2 | 6 | 57 | 8 | 0.05 | 1 | 862861 | £ 18,68 |
| 3 | 6 | 57 | 8 | 0.1 | 1 | 862862 | £ 18,68 |
| 4 | 6 | 57 | 11 | 0.1 | 1 | 862863 | £ 18,68 |
| 5 | 6 | 57 | 13 | 0.1 | 1 | 862864 | £ 18,68 |
| 6 | 6 | 57 | 13 | 0.1 | 1 | 862865 | £ 20,99 |
| 8 | 8 | 63 | 19 | 0.1 | 1 | 862866 | £ 31,38 |
| 10 | 10 | 72 | 22 | 0.1 | 1 | 862867 | £ 41,57 |
| 12 | 12 | 83 | 26 | 0.1 | 1 | 862868 | £ 56,78 |
| 16 | 16 | 92 | 32 | 0.1 | 1 | 862869 | £ 86,97 |
| 20 | 20 | 104 | 38 | 0.1 | 1 | 862870 | £ 142,39 |

## 2 FLUTE CARBIDE END MILL - STANDARD SERIES - WELDON SHANK - ALUMINIUM - ZIRKO COATED

A-C




| D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | Chamfer | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 2 | 6 | 57 | 8 | 0.05 | 1 | 862872 | £ 18,68 |
| 3 | 6 | 57 | 8 | 0.1 | 1 | 862873 | £ 18,68 |
| 4 | 6 | 57 | 11 | 0.1 | 1 | 862874 | £ 18,68 |
| 5 | 6 | 57 | 13 | 0.1 | 1 | 862875 | £ 18,68 |
| 6 | 6 | 57 | 13 | 0.1 | 1 | 862876 | £ 20,99 |
| 8 | 8 | 63 | 19 | 0.1 | 1 | 862877 | £ 31,38 |
| 10 | 10 | 72 | 22 | 0.1 | 1 | 862878 | £ 41,57 |
| 12 | 12 | 83 | 26 | 0.1 | 1 | 862879 | £ 56,78 |
| 16 | 16 | 92 | 32 | 0.1 | 1 | 862880 | £ 86,97 |
| 20 | 20 | 104 | 38 | 0.1 | 1 | 862881 | £ 142,39 |

## 3 FLUTE CARBIDE END MILL - STANDARD SERIES - ALUMINIUM

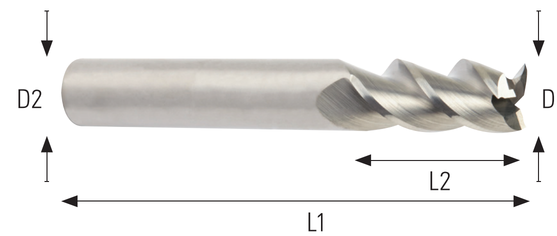
| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 2 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | |
| Aluminium | 190 | 1xd. | 0,5xd. | 0,02 | 0,02 | 0,05 | 0,06 | 0,08 |
| Aluminium >8% Si | 130 | 1xd. | 0,5xd. | 0,02 | 0,02 | 0,05 | 0,06 | 0,08 |
| Copper - Bronze - Brass | | | | | | | | |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 2 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | |
| Aluminium | 255 | 1xd. | 0,3xd. | 0,02 | 0,03 | 0,05 | 0,07 | 0,09 |
| Aluminium >8% Si | 170 | 1xd. | 0,3xd. | 0,02 | 0,03 | 0,05 | 0,07 | 0,09 |
| Copper - Bronze - Brass | | | | | | | | |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

## 3 FLUTE CARBIDE END MILL - STANDARD SERIES - STRAIGHT SHANK - ALUMINIUM

HA 45°

A-C

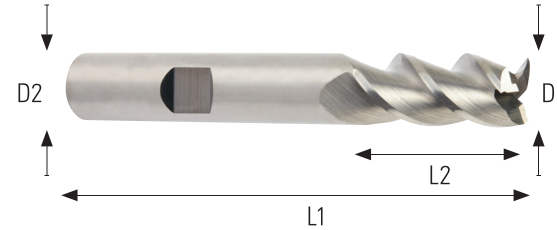



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 2 | 6 | 57 | 8 | 1 | 843474 | £ 9,17 |
| 3 | 6 | 57 | 8 | 1 | 843397 | £ 8,95 |
| 4 | 6 | 57 | 11 | 1 | 843399 | £ 8,95 |
| 5 | 6 | 57 | 13 | 1 | 843401 | £ 10,33 |
| 6 | 6 | 57 | 13 | 1 | 843403 | £ 11,46 |
| 8 | 8 | 63 | 21 | 1 | 843405 | £ 16,27 |
| 10 | 10 | 72 | 22 | 1 | 843407 | £ 21,99 |
| 12 | 12 | 83 | 26 | 1 | 843409 | £ 30,46 |
| 14 | 14 | 83 | 26 | 1 | 843411 | £ 44,17 |
| 16 | 16 | 92 | 36 | 1 | 843413 | £ 52,86 |
| 18 | 18 | 92 | 36 | 1 | 843415 | £ 74,37 |
| 20 | 20 | 104 | 41 | 1 | 843417 | £ 93,83 |

## 3 FLUTE CARBIDE END MILL - STANDARD SERIES - WELDON SHANK - ALUMINIUM

HB 45°

A-C




| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 2 | 6 | 57 | 8 | 1 | 855674 | £ 9,17 |
| 3 | 6 | 57 | 8 | 1 | 855675 | £ 8,95 |
| 4 | 6 | 57 | 11 | 1 | 855677 | £ 8,95 |
| 5 | 6 | 57 | 13 | 1 | 855679 | £ 10,33 |
| 6 | 6 | 57 | 13 | 1 | 855681 | £ 11,46 |
| 8 | 8 | 63 | 21 | 1 | 855683 | £ 16,27 |
| 10 | 10 | 72 | 22 | 1 | 855685 | £ 21,99 |
| 12 | 12 | 83 | 26 | 1 | 855687 | £ 30,46 |
| 14 | 14 | 83 | 26 | 1 | 855689 | £ 44,17 |
| 16 | 16 | 92 | 36 | 1 | 855691 | £ 52,86 |
| 18 | 18 | 92 | 36 | 1 | 855693 | £ 74,37 |
| 20 | 20 | 104 | 41 | 1 | 855695 | £ 93,83 |

## 3 FLUTE CARBIDE END MILL - LONG SERIES - ALUMINIUM

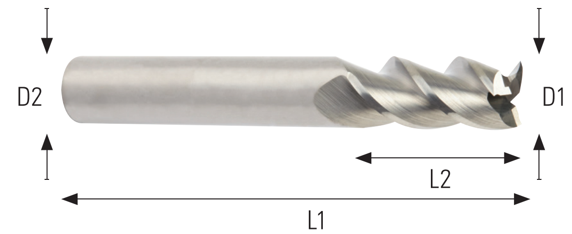
| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 3 to Ø 4 | Ø 5 to Ø 6 | Ø 8 to Ø 10 | Ø 12 to Ø 16 | Ø 18 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | |
| Aluminium | 170 | 1xd. | 0,5xd. | 0,02 | 0,02 | 0,05 | 0,06 | 0,08 |
| Aluminium >8% Si | 110 | 1xd. | 0,5xd. | 0,02 | 0,02 | 0,05 | 0,06 | 0,08 |
| Copper - Bronze - Brass | | | | | | | | |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 3 to Ø 4 | Ø 5 to Ø 6 | Ø 8 to Ø 10 | Ø 12 to Ø 16 | Ø 18 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | |
| Aluminium | 230 | 1xd. | 0,3xd. | 0,02 | 0,03 | 0,05 | 0,07 | 0,09 |
| Aluminium >8% Si | 150 | 1xd. | 0,3xd. | 0,02 | 0,03 | 0,05 | 0,07 | 0,09 |
| Copper - Bronze - Brass | | | | | | | | |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

## 3 FLUTE CARBIDE END MILL - LONG SERIES - STRAIGHT SHANK - ALUMINIUM

HA 45°

A-C

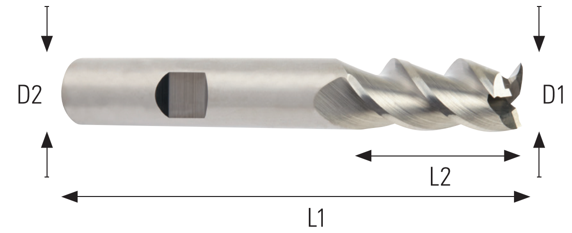



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 6 | 59 | 15 | 1 | 843398 | £ 18,32 |
| 4 | 6 | 63 | 19 | 1 | 843400 | £ 20,39 |
| 5 | 6 | 68 | 24 | 1 | 843402 | £ 21,15 |
| 6 | 6 | 68 | 24 | 1 | 843404 | £ 21,29 |
| 8 | 8 | 88 | 38 | 1 | 843406 | £ 36,16 |
| 10 | 10 | 95 | 45 | 1 | 843408 | £ 50,35 |
| 12 | 12 | 110 | 53 | 1 | 843410 | £ 61,79 |
| 14 | 14 | 110 | 53 | 1 | 843412 | £ 77,80 |
| 16 | 16 | 123 | 63 | 1 | 843414 | £ 112,09 |
| 18 | 18 | 123 | 63 | 1 | 843416 | £ 132,68 |
| 20 | 20 | 141 | 75 | 1 | 843418 | £ 192,18 |

## 3 FLUTE CARBIDE END MILL - LONG SERIES - WELDON SHANK - ALUMINIUM

HB 45°

A-C




| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 6 | 59 | 15 | 1 | 855676 | £ 18,32 |
| 4 | 6 | 63 | 19 | 1 | 855678 | £ 20,25 |
| 5 | 6 | 68 | 24 | 1 | 855680 | £ 21,15 |
| 6 | 6 | 68 | 24 | 1 | 855682 | £ 21,29 |
| 8 | 8 | 88 | 38 | 1 | 855684 | £ 36,16 |
| 10 | 10 | 95 | 45 | 1 | 855686 | £ 50,35 |
| 12 | 12 | 110 | 53 | 1 | 855688 | £ 61,79 |
| 14 | 14 | 110 | 53 | 1 | 855690 | £ 77,80 |
| 16 | 16 | 123 | 63 | 1 | 855692 | £ 112,09 |
| 18 | 18 | 123 | 63 | 1 | 855694 | £ 131,88 |
| 20 | 20 | 141 | 75 | 1 | 855696 | £ 192,18 |

## 3 FLUTE CARBIDE END MILL - STANDARD SERIES - ALUMINIUM - ZIRKO COATED

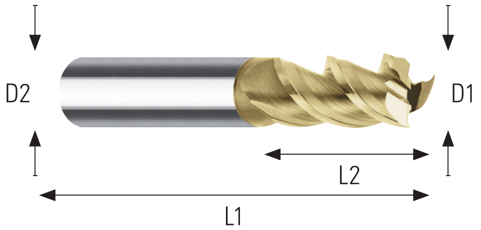
| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 3 to Ø 4 | Ø 5 to Ø 6 | Ø 8 to Ø 10 | Ø 12 to Ø 16 | Ø 18 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | |
| Aluminium | 232 | 1xd. | 0,5xd. | 0,02 | 0,02 | 0,05 | 0,06 | 0,08 |
| Aluminium >8% Si | 155 | 1xd. | 0,5xd. | 0,02 | 0,02 | 0,05 | 0,06 | 0,08 |
| Copper - Bronze - Brass | | | | | | | | |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 3 to Ø 4 | Ø 5 to Ø 6 | Ø 8 to Ø 10 | Ø 12 to Ø 16 | Ø 18 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | |
| Cast iron<180HB | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | |
| Aluminium | 300 | 1xd. | 0,3xd. | 0,02 | 0,03 | 0,05 | 0,07 | 0,09 |
| Aluminium >8% Si | 200 | 1xd. | 0,3xd. | 0,02 | 0,03 | 0,05 | 0,07 | 0,09 |
| Copper - Bronze - Brass | | | | | | | | |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

## 3 FLUTE CARBIDE END MILL - STANDARD SERIES - STRAIGHT SHANK - ALUMINIUM - ZIRKO COATED

HA 45°

A-C

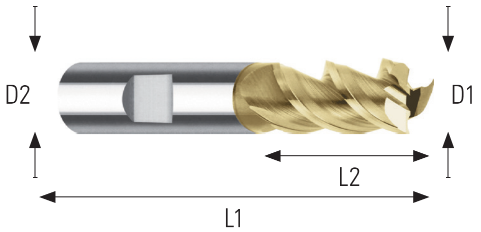



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 6 | 38 | 12 | 1 | 862883 | £ 21,76 |
| 4 | 6 | 54 | 12 | 1 | 862884 | £ 21,76 |
| 5 | 6 | 54 | 15 | 1 | 862885 | £ 21,76 |
| 6 | 6 | 57 | 16 | 1 | 862886 | £ 23,48 |
| 8 | 8 | 64 | 22 | 1 | 862887 | £ 35,81 |
| 10 | 10 | 73 | 25 | 1 | 862888 | £ 46,20 |
| 12 | 12 | 84 | 28 | 1 | 862889 | £ 63,90 |
| 16 | 16 | 93 | 35 | 1 | 862890 | £ 98,13 |
| 20 | 20 | 104 | 40 | 1 | 862891 | £ 167,51 |
| 25 | 25 | 121 | 45 | 1 | 862892 | £ 255,91 |

## 3 FLUTE CARBIDE END MILL - STANDARD SERIES - WELDON SHANK - ALUMINIUM - ZIRKO COATED

HB 45°

A-C




| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 6 | 38 | 12 | 1 | 862894 | £ 21,76 |
| 4 | 6 | 54 | 12 | 1 | 862895 | £ 21,76 |
| 5 | 6 | 54 | 15 | 1 | 862896 | £ 21,76 |
| 6 | 6 | 57 | 16 | 1 | 862897 | £ 23,48 |
| 8 | 8 | 64 | 22 | 1 | 862898 | £ 35,81 |
| 10 | 10 | 73 | 25 | 1 | 862899 | £ 46,20 |
| 12 | 12 | 84 | 28 | 1 | 862900 | £ 63,90 |
| 16 | 16 | 93 | 35 | 1 | 862901 | £ 98,13 |
| 20 | 20 | 104 | 40 | 1 | 862902 | £ 167,51 |
| 25 | 25 | 121 | 45 | 1 | 862903 | £ 255,91 |

## 4 VARI FLUTE CARBIDE END MILL - SHORT SERIES - OZDY COATED

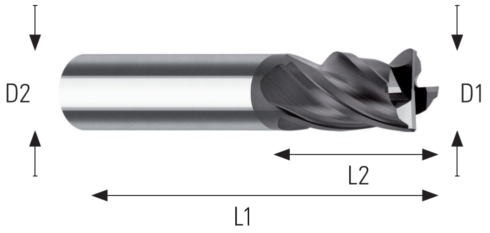
| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 |
| Steel <500 N/mm² (<150 HB) | 163 | 1xd. | 1xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 |
| Steel <700 N/mm² (<205 HB) | 148 | 1xd. | 1xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 |
| Steel <850 N/mm² (<265 HB) | 124 | 1xd. | 1xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 |
| Steel <1000 N/mm² (<30 HRC) | 99 | 1xd. | 1xd. | 0,01 | 0,01 | 0,02 | 0,02 | 0,03 | 0,04 | 0,04 | 0,06 |
| Steel <1400 N/mm² (<44 HRC) | 64 | 1xd. | 1xd. | 0,01 | 0,01 | 0,02 | 0,02 | 0,03 | 0,04 | 0,04 | 0,06 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 69 | 1xd. | 1xd. | 0,01 | 0,01 | 0,02 | 0,02 | 0,03 | 0,04 | 0,04 | 0,06 |
| Stainless steel >700 N/mm² (>205 HB) | 39 | 1xd. | 1xd. | 0,01 | 0,01 | 0,02 | 0,02 | 0,03 | 0,04 | 0,04 | 0,06 |
| Cast iron<180HB | 134 | 1xd. | 1xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 |
| Malleable cast iron >180HB | 99 | 1xd. | 1xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 |
| Cast iron with graphite >180HB | 99 | 1xd. | 1xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 |
| Aluminium | | | | | | | | | | | |
| Aluminium >8% Si | | | | | | | | | | | |
| Copper - Bronze - Brass | | | | | | | | | | | |
| TITANIUM | | | | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 |
| Steel <500 N/mm² (<150 HB) | 230 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 |
| Steel <700 N/mm² (<205 HB) | 210 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 |
| Steel <850 N/mm² (<265 HB) | 175 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 |
| Steel <1000 N/mm² (<30 HRC) | 140 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,03 | 0,05 | 0,05 | 0,07 |
| Steel <1400 N/mm² (<44 HRC) | 90 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,03 | 0,05 | 0,05 | 0,07 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 97 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,03 | 0,05 | 0,05 | 0,07 |
| Stainless steel >700 N/mm² (>205 HB) | 55 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,03 | 0,05 | 0,05 | 0,07 |
| Cast iron<180HB | 190 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 |
| Malleable cast iron >180HB | 140 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 |
| Cast iron with graphite >180HB | 140 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 |
| Aluminium | | | | | | | | | | | |
| Aluminium >8% Si | | | | | | | | | | | |
| Copper - Bronze - Brass | | | | | | | | | | | |
| TITANIUM | | | | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | | | | |

## 4 VARI FLUTE CARBIDE END MILL - SHORT SERIES - STRAIGHT SHANK - OZDY COATED

HA 35/38°

A F I

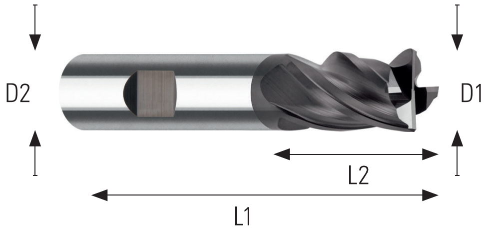



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | Chamfer | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 3 | 6 | 54 | 6 | 0.1 | 1 | 862905 | £ 21,41 |
| 4 | 6 | 54 | 8 | 0.13 | 1 | 862906 | £ 21,41 |
| 5 | 6 | 54 | 9 | 0.18 | 1 | 862907 | £ 22,46 |
| 6 | 6 | 54 | 10 | 0.2 | 1 | 862908 | £ 22,46 |
| 8 | 8 | 58 | 12 | 0.2 | 1 | 862909 | £ 28,03 |
| 10 | 10 | 66 | 14 | 0.3 | 1 | 862910 | £ 39,35 |
| 12 | 12 | 73 | 16 | 0.3 | 1 | 862911 | £ 50,27 |
| 16 | 16 | 82 | 22 | 0.4 | 1 | 862912 | £ 81,25 |

## 4 VARI FLUTE CARBIDE END MILL - SHORT SERIES - WELDON SHANK - OZDY COATED

HB 35/38°

A F I




| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | Chamfer | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 3 | 6 | 54 | 6 | 0.1 | 1 | 862914 | £ 21,41 |
| 4 | 6 | 54 | 8 | 0.13 | 1 | 862915 | £ 21,41 |
| 5 | 6 | 54 | 9 | 0.18 | 1 | 862916 | £ 22,46 |
| 6 | 6 | 54 | 10 | 0.2 | 1 | 862917 | £ 22,46 |
| 8 | 8 | 58 | 12 | 0.2 | 1 | 862918 | £ 28,03 |
| 10 | 10 | 66 | 14 | 0.3 | 1 | 862919 | £ 39,35 |
| 12 | 12 | 73 | 16 | 0.3 | 1 | 862920 | £ 50,27 |
| 16 | 16 | 82 | 22 | 0.4 | 1 | 862921 | £ 81,25 |

## 4 VARI FLUTE CARBIDE END MILL - STANDARD SERIES - OZDY COATED

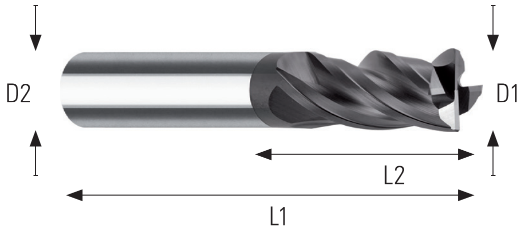
| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 |
| Steel <500 N/mm² (<150 HB) | 159 | 1xd. | 1xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 |
| Steel <700 N/mm² (<205 HB) | 145 | 1xd. | 1xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 |
| Steel <850 N/mm² (<265 HB) | 120 | 1xd. | 1xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 |
| Steel <1000 N/mm² (<30 HRC) | 95 | 1xd. | 1xd. | 0,01 | 0,01 | 0,02 | 0,02 | 0,03 | 0,04 | 0,04 | 0,06 |
| Steel <1400 N/mm² (<44 HRC) | 60 | 1xd. | 1xd. | 0,01 | 0,01 | 0,02 | 0,02 | 0,03 | 0,04 | 0,04 | 0,06 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 68 | 1xd. | 1xd. | 0,01 | 0,01 | 0,02 | 0,02 | 0,03 | 0,04 | 0,04 | 0,06 |
| Stainless steel >700 N/mm² (>205 HB) | 38 | 1xd. | 1xd. | 0,01 | 0,01 | 0,02 | 0,02 | 0,03 | 0,04 | 0,04 | 0,06 |
| Cast iron<180HB | 131 | 1xd. | 1xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 |
| Malleable cast iron >180HB | 95 | 1xd. | 1xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 |
| Cast iron with graphite >180HB | 95 | 1xd. | 1xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 |
| Aluminium | | | | | | | | | | | |
| Aluminium >8% Si | | | | | | | | | | | |
| Copper - Bronze - Brass | | | | | | | | | | | |
| TITANIUM | | | | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 |
| Steel <500 N/mm² (<150 HB) | 225 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 |
| Steel <700 N/mm² (<205 HB) | 205 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 |
| Steel <850 N/mm² (<265 HB) | 170 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 |
| Steel <1000 N/mm² (<30 HRC) | 135 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,03 | 0,05 | 0,05 | 0,07 |
| Steel <1400 N/mm² (<44 HRC) | 85 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,03 | 0,05 | 0,05 | 0,07 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 96 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,03 | 0,05 | 0,05 | 0,07 |
| Stainless steel >700 N/mm² (>205 HB) | 54 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,03 | 0,05 | 0,05 | 0,07 |
| Cast iron<180HB | 185 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 |
| Malleable cast iron >180HB | 135 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 |
| Cast iron with graphite >180HB | 135 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 |
| Aluminium | | | | | | | | | | | |
| Aluminium >8% Si | | | | | | | | | | | |
| Copper - Bronze - Brass | | | | | | | | | | | |
| TITANIUM | | | | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | | | | |

## 4 VARI FLUTE END MILL - STANDARD SERIES - STRAIGHT SHANK - OZDY COATED

HA 35/38°

A F I

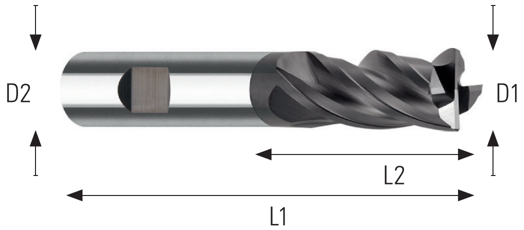



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | Chamfer | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 3 | 6 | 57 | 8 | 0.13 | 1 | 862923 | £ 24,62 |
| 4 | 6 | 57 | 11 | 0.13 | 1 | 862924 | £ 24,62 |
| 5 | 6 | 57 | 13 | 0.18 | 1 | 862925 | £ 25,87 |
| 6 | 6 | 57 | 13 | 0.2 | 1 | 862926 | £ 25,87 |
| 8 | 8 | 63 | 19 | 0.2 | 1 | 862927 | £ 33,37 |
| 10 | 10 | 72 | 22 | 0.3 | 1 | 862928 | £ 48,34 |
| 12 | 12 | 83 | 26 | 0.3 | 1 | 862929 | £ 62,01 |
| 16 | 16 | 92 | 32 | 0.4 | 1 | 862930 | £ 104,97 |

## 4 VARI FLUTE CARBIDE END MILL - STANDARD SERIES - WELDON SHANK - OZDY COATED

HB 35/38°

A F I




| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | Chamfer | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 3 | 6 | 57 | 8 | 0.13 | 1 | 862932 | £ 24,62 |
| 4 | 6 | 57 | 11 | 0.13 | 1 | 862933 | £ 24,62 |
| 5 | 6 | 57 | 13 | 0.18 | 1 | 862934 | £ 25,87 |
| 6 | 6 | 57 | 13 | 0.2 | 1 | 862935 | £ 25,87 |
| 8 | 8 | 63 | 19 | 0.2 | 1 | 862936 | £ 33,37 |
| 10 | 10 | 72 | 22 | 0.3 | 1 | 862937 | £ 48,34 |
| 12 | 12 | 83 | 26 | 0.3 | 1 | 862938 | £ 62,01 |
| 16 | 16 | 92 | 32 | 0.4 | 1 | 862939 | £ 104,97 |

## 4 VARI FLUTE CARBIDE END MILL - STANDARD SERIES - THROUGHT COOLANT - OZDY COATED

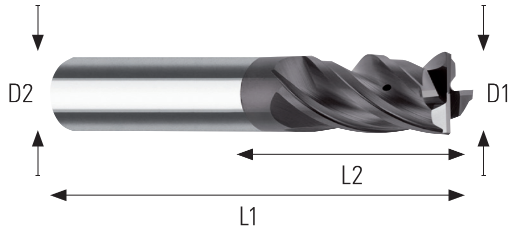
| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 |
| Steel <500 N/mm² (<150 HB) | 139 | 1xd. | 1xd. | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 |
| Steel <700 N/mm² (<205 HB) | 132 | 1xd. | 1xd. | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 |
| Steel <850 N/mm² (<265 HB) | 125 | 1xd. | 1xd. | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 |
| Steel <1000 N/mm² (<30 HRC) | 103 | 1xd. | 1xd. | 0,02 | 0,03 | 0,04 | 0,04 | 0,06 |
| Steel <1400 N/mm² (<44 HRC) | 76 | 1xd. | 1xd. | 0,02 | 0,03 | 0,04 | 0,04 | 0,06 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 85 | 1xd. | 1xd. | 0,02 | 0,03 | 0,04 | 0,04 | 0,06 |
| Stainless steel >700 N/mm² (>205 HB) | 49 | 1xd. | 1xd. | 0,02 | 0,03 | 0,04 | 0,04 | 0,06 |
| Cast iron<180HB | 134 | 1xd. | 1xd. | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 |
| Malleable cast iron >180HB | 99 | 1xd. | 1xd. | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 |
| Cast iron with graphite >180HB | 99 | 1xd. | 1xd. | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 |
| Aluminium | | | | | | | | |
| Aluminium >8% Si | | | | | | | | |
| Copper - Bronze - Brass | | | | | | | | |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 |
| Steel <500 N/mm² (<150 HB) | 197 | 1xd. | 0,5xd. | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 |
| Steel <700 N/mm² (<205 HB) | 187 | 1xd. | 0,5xd. | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 |
| Steel <850 N/mm² (<265 HB) | 177 | 1xd. | 0,5xd. | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 |
| Steel <1000 N/mm² (<30 HRC) | 145 | 1xd. | 0,5xd. | 0,03 | 0,03 | 0,05 | 0,05 | 0,07 |
| Steel <1400 N/mm² (<44 HRC) | 107 | 1xd. | 0,5xd. | 0,03 | 0,03 | 0,05 | 0,05 | 0,07 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 120 | 1xd. | 0,5xd. | 0,03 | 0,03 | 0,05 | 0,05 | 0,07 |
| Stainless steel >700 N/mm² (>205 HB) | 70 | 1xd. | 0,5xd. | 0,03 | 0,03 | 0,05 | 0,05 | 0,07 |
| Cast iron<180HB | 190 | 1xd. | 0,5xd. | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 |
| Malleable cast iron >180HB | 140 | 1xd. | 0,5xd. | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 |
| Cast iron with graphite >180HB | 140 | 1xd. | 0,5xd. | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 |
| Aluminium | | | | | | | | |
| Aluminium >8% Si | | | | | | | | |
| Copper - Bronze - Brass | | | | | | | | |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

## 4 VARI FLUTE CARBIDE END MILL - STANDARD SERIES - STRAIGHT SHANK - THROUGH COOLANT- OZDY COATED

HA 35/38°

A F I

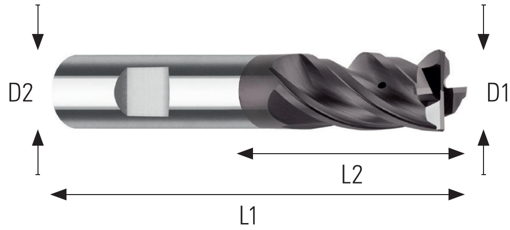



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | Chamfer | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 6 | 6 | 57 | 13 | 0.2 | 1 | 862941 | £ 59,86 |
| 8 | 8 | 63 | 19 | 0.2 | 1 | 862942 | £ 64,36 |
| 10 | 10 | 72 | 22 | 0.3 | 1 | 862943 | £ 70,78 |
| 12 | 12 | 83 | 26 | 0.3 | 1 | 862944 | £ 86,17 |
| 16 | 16 | 92 | 32 | 0.4 | 1 | 862945 | £ 130,42 |

## 4 VARI FLUTE CARBIDE END MILL - STANDARD SERIES - WELDON SHANK - THROUGH COOLANT- OZDY COATED

HB 35/38°

A F I




| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | Chamfer | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 6 | 6 | 57 | 13 | 0.2 | 1 | 862947 | £ 59,86 |
| 8 | 8 | 63 | 19 | 0.2 | 1 | 862948 | £ 64,36 |
| 10 | 10 | 72 | 22 | 0.3 | 1 | 862949 | £ 70,78 |
| 12 | 12 | 83 | 26 | 0.3 | 1 | 862950 | £ 86,17 |
| 16 | 16 | 92 | 32 | 0.4 | 1 | 862951 | £ 130,42 |

## 4 VARI FLUTE CARBIDE END MILL - SPECIAL ALLOYS - LONG REACH - OZMX COATED

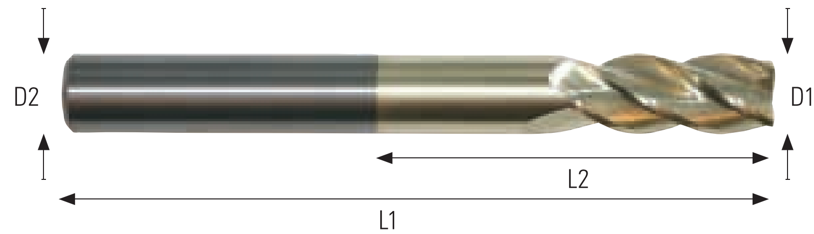
| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 4 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 | Ø 18 | Ø 20 |
| Steel <500 N/mm² (<150 HB) | | | | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | | | | |
| Cast iron<180HB | | | | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | | | | |
| Aluminium | | | | | | | | | | | |
| Aluminium >8% Si | | | | | | | | | | | |
| Copper - Bronze - Brass | | | | | | | | | | | |
| TITANIUM | 35 | 1xd. | 1xd. | 0,01 | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 |
| Inconel, Hastelloy, Nimonic, Monel | 25 | 1xd. | 1xd. | 0,01 | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 4 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 | Ø 18 | Ø 20 |
| Steel <500 N/mm² (<150 HB) | | | | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | | | | |
| Cast iron<180HB | | | | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | | | | |
| Aluminium | | | | | | | | | | | |
| Aluminium >8% Si | | | | | | | | | | | |
| Copper - Bronze - Brass | | | | | | | | | | | |
| TITANIUM | 50 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,03 | 0,05 | 0,07 | 0,07 |
| Inconel, Hastelloy, Nimonic, Monel | 35 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,03 | 0,05 | 0,07 | 0,07 |

## 4 VARI FLUTE CARBIDE END MILL - SPECIAL ALLOYS - STRAIGHT LONG REACH - OZMX COATED

HA 35/38°

Ti Ni

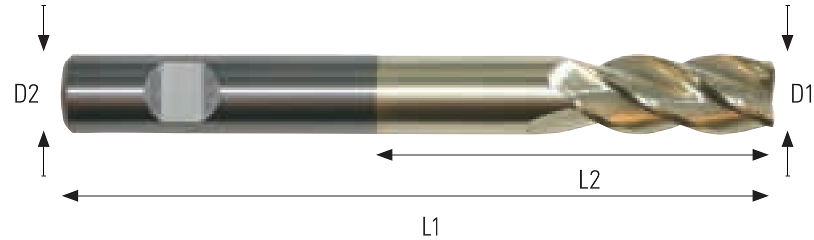



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 4 | 6 | 57 | 11 | 1 | 832285 | £ 30,28 |
| 6 | 6 | 57 | 13 | 1 | 832287 | £ 30,28 |
| 8 | 8 | 64 | 21 | 1 | 832288 | £ 36,24 |
| 10 | 10 | 73 | 22 | 1 | 832289 | £ 51,90 |
| 12 | 12 | 84 | 26 | 1 | 832290 | £ 70,83 |
| 14 | 14 | 93 | 26 | 1 | 832291 | £ 93,27 |
| 16 | 16 | 93 | 36 | 1 | 832292 | £ 105,00 |
| 18 | 18 | 93 | 36 | 1 | 832293 | £ 150,28 |
| 20 | 20 | 104 | 41 | 1 | 832294 | £ 169,44 |

## 4 VARI FLUTE CARBIDE END MILL - SPECIAL ALLOYS - WELDON LONG REACH - OZMX COATED

HB 35/38°

Ti Ni




| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 4 | 6 | 57 | 11 | 1 | 855711 | £ 30,28 |
| 6 | 6 | 57 | 13 | 1 | 855712 | £ 30,28 |
| 8 | 8 | 64 | 21 | 1 | 855713 | £ 36,24 |
| 10 | 10 | 73 | 22 | 1 | 855714 | £ 51,90 |
| 12 | 12 | 84 | 26 | 1 | 855715 | £ 70,83 |
| 14 | 14 | 93 | 26 | 1 | 855716 | £ 93,27 |
| 16 | 16 | 93 | 36 | 1 | 855717 | £ 105,00 |
| 18 | 18 | 93 | 36 | 1 | 855718 | £ 150,28 |
| 20 | 20 | 104 | 41 | 1 | 855719 | £ 169,44 |

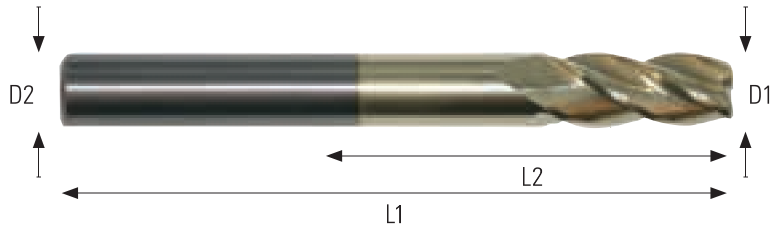
## 4 VARI FLUTE CARBIDE END MILL - SPECIAL AERO - CORNER RADIUS - OZMX COATED

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 4 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 | Ø 18 | Ø 20 |
| Steel <500 N/mm² (<150 HB) | | | | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | | | | |
| Cast iron<180HB | | | | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | | | | |
| Aluminium | | | | | | | | | | | |
| Aluminium >8% Si | | | | | | | | | | | |
| Copper - Bronze - Brass | | | | | | | | | | | |
| TITANIUM | 35 | 1xd. | 1xd. | 0,01 | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 |
| Inconel, Hastelloy, Nimonic, Monel | 25 | 1xd. | 1xd. | 0,01 | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 4 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 | Ø 18 | Ø 20 |
| Steel <500 N/mm² (<150 HB) | | | | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | | | | |
| Cast iron<180HB | | | | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | | | | |
| Aluminium | | | | | | | | | | | |
| Aluminium >8% Si | | | | | | | | | | | |
| Copper - Bronze - Brass | | | | | | | | | | | |
| TITANIUM | 50 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,03 | 0,05 | 0,07 | 0,07 |
| Inconel, Hastelloy, Nimonic, Monel | 35 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,03 | 0,05 | 0,07 | 0,07 |

## 4 VARI CARBIDE FLUTE END MILL - SPECIAL AERO - STRAIGHT SHANK - CORNER RADIUS - OZMX COATED

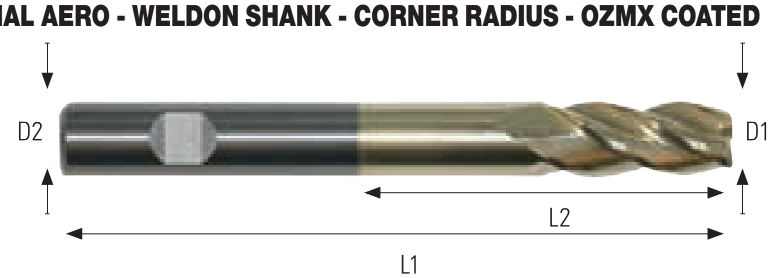
HA 35/38° Ti Ni




| D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | Radius | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 4 | 6 | 57 | 11 | 0.5 | 1 | 832296 | £ 38,91 |
| 6 | 6 | 57 | 13 | 0.5 | 1 | 832297 | £ 38,91 |
| 6 | 6 | 57 | 13 | 1 | 1 | 832298 | £ 38,91 |
| 8 | 8 | 64 | 21 | 0.5 | 1 | 832299 | £ 48,04 |
| 8 | 8 | 64 | 21 | 1 | 1 | 832300 | £ 48,04 |
| 10 | 10 | 73 | 22 | 0.5 | 1 | 832301 | £ 68,63 |
| 10 | 10 | 73 | 22 | 1 | 1 | 833138 | £ 68,63 |
| 10 | 10 | 73 | 22 | 2 | 1 | 833139 | £ 68,63 |
| 12 | 12 | 84 | 26 | 0.5 | 1 | 832302 | £ 91,51 |
| 12 | 12 | 84 | 26 | 1 | 1 | 833140 | £ 91,51 |
| 12 | 12 | 84 | 26 | 2 | 1 | 833141 | £ 91,51 |
| 12 | 12 | 84 | 26 | 4 | 1 | 833142 | £ 91,51 |
| 14 | 14 | 84 | 26 | 1 | 1 | 832303 | £ 125,84 |
| 14 | 14 | 84 | 26 | 2 | 1 | 833143 | £ 125,84 |
| 14 | 14 | 84 | 26 | 4 | 1 | 833144 | £ 125,84 |
| 16 | 16 | 93 | 36 | 1 | 1 | 832304 | £ 157,85 |
| 16 | 16 | 93 | 36 | 2 | 1 | 833145 | £ 157,85 |
| 16 | 16 | 93 | 36 | 4 | 1 | 833146 | £ 157,85 |
| 18 | 18 | 93 | 36 | 1 | 1 | 832305 | £ 194,45 |
| 18 | 18 | 93 | 36 | 2 | 1 | 833147 | £ 194,45 |
| 18 | 18 | 93 | 36 | 4 | 1 | 833148 | £ 194,45 |
| 20 | 20 | 104 | 41 | 2 | 1 | 832306 | £ 226,46 |
| 20 | 20 | 104 | 41 | 4 | 1 | 833149 | £ 226,46 |

## 4 VARI CARBIDE FLUTE END MILL - SPECIAL AERO - WELDON SHANK - CORNER RADIUS - OZMX COATED

HB 35/38° Ti Ni




| D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | Radius | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 4 | 6 | 57 | 11 | 0.5 | 1 | 855721 | £ 38,91 |
| 6 | 6 | 57 | 13 | 0.5 | 1 | 855722 | £ 38,91 |
| 6 | 6 | 57 | 13 | 1 | 1 | 855723 | £ 38,91 |
| 8 | 8 | 64 | 21 | 0.5 | 1 | 855724 | £ 48,04 |
| 8 | 8 | 64 | 21 | 1 | 1 | 855725 | £ 48,04 |
| 10 | 10 | 73 | 22 | 0.5 | 1 | 855726 | £ 68,63 |
| 10 | 10 | 73 | 22 | 1 | 1 | 855727 | £ 68,63 |
| 10 | 10 | 73 | 22 | 2 | 1 | 855728 | £ 68,63 |
| 12 | 12 | 84 | 26 | 0.5 | 1 | 855729 | £ 91,51 |
| 12 | 12 | 84 | 26 | 1 | 1 | 855730 | £ 91,51 |
| 12 | 12 | 84 | 26 | 2 | 1 | 855731 | £ 91,51 |
| 12 | 12 | 84 | 26 | 4 | 1 | 855732 | £ 91,51 |
| 14 | 14 | 84 | 26 | 1 | 1 | 855733 | £ 125,84 |
| 14 | 14 | 84 | 26 | 2 | 1 | 855734 | £ 125,84 |
| 14 | 14 | 84 | 26 | 4 | 1 | 855735 | £ 125,84 |
| 16 | 16 | 93 | 36 | 1 | 1 | 855736 | £ 194,45 |
| 16 | 16 | 93 | 36 | 2 | 1 | 855737 | £ 194,45 |
| 16 | 16 | 93 | 36 | 4 | 1 | 855738 | £ 194,45 |
| 18 | 18 | 93 | 36 | 1 | 1 | 855739 | £ 157,85 |
| 18 | 18 | 93 | 36 | 2 | 1 | 855740 | £ 157,85 |
| 18 | 18 | 93 | 36 | 4 | 1 | 855741 | £ 157,85 |
| 20 | 20 | 104 | 41 | 2 | 1 | 855742 | £ 226,46 |
| 20 | 20 | 104 | 41 | 4 | 1 | 855743 | £ 226,46 |

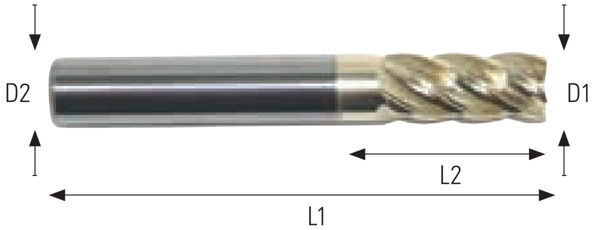
## 5 VARI FLUTE CARBIDE END MILL - STANDARD SERIES - SPECIAL ALLOYS - OZMX COATED

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 4 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 | Ø 18 | Ø 20 |
| Steel <500 N/mm² (<150 HB) | | | | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | | | | |
| Cast iron<180HB | | | | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | | | | |
| Aluminium | | | | | | | | | | | |
| Aluminium >8% Si | | | | | | | | | | | |
| Copper - Bronze - Brass | | | | | | | | | | | |
| TITANIUM | 35 | 1xd. | 1xd. | 0,01 | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 |
| Inconel, Hastelloy, Nimonic, Monel | 25 | 1xd. | 1xd. | 0,01 | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 4 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 | Ø 18 | Ø 20 |
| Steel <500 N/mm² (<150 HB) | | | | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | | | | |
| Cast iron<180HB | | | | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | | | | |
| Aluminium | | | | | | | | | | | |
| Aluminium >8% Si | | | | | | | | | | | |
| Copper - Bronze - Brass | | | | | | | | | | | |
| TITANIUM | 50 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,03 | 0,05 | 0,07 | 0,07 |
| Inconel, Hastelloy, Nimonic, Monel | 35 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,03 | 0,05 | 0,07 | 0,07 |

## 5 VARI FLUTE CARBIDE END MILL - STANDARD SERIES - STRAIGHT SHANK - SPECIAL ALLOYS - OZMX COATED

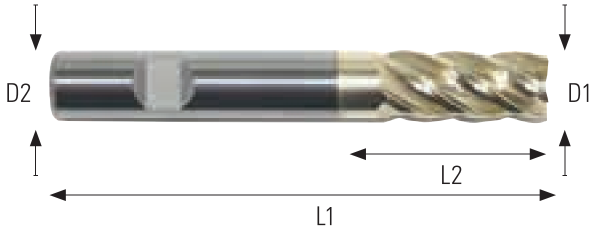
HA 35/38°
Ti Ni




| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | Radius | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 4 | 6 | 57 | 11 | 0.1 | 1 | 832315 | £ 33,71 |
| 5 | 6 | 57 | 13 | 0.1 | 1 | 843486 | £ 35,59 |
| 6 | 6 | 57 | 13 | 0.1 | 1 | 832316 | £ 35,59 |
| 8 | 8 | 63 | 21 | 0.2 | 1 | 832317 | £ 41,20 |
| 10 | 10 | 72 | 22 | 0.2 | 1 | 832318 | £ 73,00 |
| 12 | 12 | 83 | 26 | 0.2 | 1 | 832319 | £ 98,60 |
| 14 | 14 | 92 | 26 | 0.2 | 1 | 832320 | £ 165,59 |
| 16 | 16 | 92 | 36 | 0.3 | 1 | 832321 | £ 204,65 |
| 18 | 18 | 92 | 36 | 0.3 | 1 | 832322 | £ 234,41 |
| 20 | 20 | 104 | 41 | 0.3 | 1 | 832323 | £ 266,03 |

## 5 VARI FLUTE CARBIDE END MILL - STANDARD SERIES - WELDON SHANK - SPECIAL ALLOYS - OZMX COATED

HB 35/38°
Ti Ni




| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | Radius | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 4 | 6 | 57 | 11 | 0.1 | 1 | 855745 | £ 33,71 |
| 5 | 6 | 57 | 13 | 0.1 | 1 | 855747 | £ 35,59 |
| 6 | 6 | 57 | 13 | 0.1 | 1 | 855749 | £ 35,59 |
| 8 | 8 | 63 | 21 | 0.2 | 1 | 855751 | £ 41,20 |
| 10 | 10 | 72 | 22 | 0.2 | 1 | 855753 | £ 73,00 |
| 12 | 12 | 83 | 26 | 0.2 | 1 | 855755 | £ 98,60 |
| 14 | 14 | 92 | 26 | 0.2 | 1 | 855757 | £ 165,59 |
| 16 | 16 | 92 | 36 | 0.3 | 1 | 855759 | £ 204,65 |
| 18 | 18 | 92 | 36 | 0.3 | 1 | 855761 | £ 234,41 |
| 20 | 20 | 104 | 41 | 0.3 | 1 | 855763 | £ 266,03 |

## 5 VARI FLUTE CARBIDE END MILL - LONG SERIES - SPECIAL ALLOYS - OZMX COATED

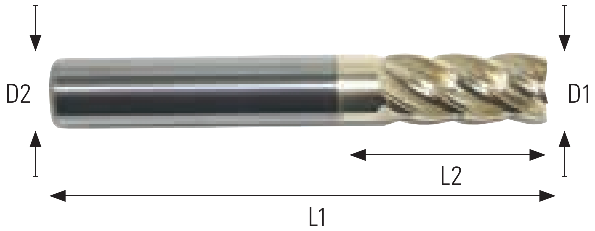
| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 4 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 | Ø 18 | Ø 20 |
| Steel <500 N/mm² (<150 HB) | | | | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | | | | |
| Cast iron<180HB | | | | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | | | | |
| Aluminium | | | | | | | | | | | |
| Aluminium >8% Si | | | | | | | | | | | |
| Copper - Bronze - Brass | | | | | | | | | | | |
| TITANIUM | 30 | 1xd. | 1xd. | 0,01 | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 |
| Inconel, Hastelloy, Nimonic, Monel | 21 | 1xd. | 1xd. | 0,01 | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 4 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 | Ø 18 | Ø 20 |
| Steel <500 N/mm² (<150 HB) | | | | | | | | | | | |
| Steel <700 N/mm² (<205 HB) | | | | | | | | | | | |
| Steel <850 N/mm² (<265 HB) | | | | | | | | | | | |
| Steel <1000 N/mm² (<30 HRC) | | | | | | | | | | | |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | | | | |
| Cast iron<180HB | | | | | | | | | | | |
| Malleable cast iron >180HB | | | | | | | | | | | |
| Cast iron with graphite >180HB | | | | | | | | | | | |
| Aluminium | | | | | | | | | | | |
| Aluminium >8% Si | | | | | | | | | | | |
| Copper - Bronze - Brass | | | | | | | | | | | |
| TITANIUM | 45 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,03 | 0,05 | 0,07 | 0,07 |
| Inconel, Hastelloy, Nimonic, Monel | 30 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,03 | 0,05 | 0,07 | 0,07 |

## 5 VARI FLUTE CARBIDE END MILL - LONG SERIES - STRAIGHT SHANK - SPECIAL ALLOYS - OZMX COATED

HA 35/38°

Ti Ni

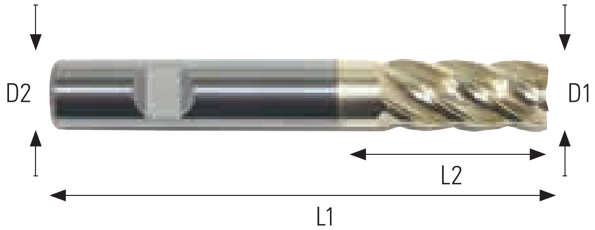



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | Radius | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 4 | 6 | 62 | 15 | 0.1 | 1 | 843485 | £ 48,37 |
| 5 | 6 | 62 | 17 | 0.1 | 1 | 843487 | £ 48,37 |
| 6 | 6 | 62 | 18 | 0.1 | 1 | 843488 | £ 52,11 |
| 8 | 8 | 68 | 24 | 0.2 | 1 | 843489 | £ 54,28 |
| 10 | 10 | 80 | 30 | 0.2 | 1 | 843490 | £ 89,31 |
| 12 | 12 | 92 | 36 | 0.2 | 1 | 843491 | £ 108,55 |
| 14 | 14 | 99 | 42 | 0.2 | 1 | 843492 | £ 178,60 |
| 16 | 16 | 108 | 48 | 0.3 | 1 | 843493 | £ 225,10 |
| 18 | 18 | 114 | 54 | 0.3 | 1 | 843494 | £ 269,75 |
| 20 | 20 | 126 | 60 | 0.3 | 1 | 843495 | £ 293,94 |

## 5 VARI FLUTE CARBIDE END MILL - LONG SERIES - WELDON SHANK - SPECIAL ALLOYS - OZMX COATED

HB 35/38°

Ti Ni




| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | Radius | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 4 | 6 | 62 | 15 | 0.1 | 1 | 855746 | £ 48,37 |
| 5 | 6 | 62 | 17 | 0.1 | 1 | 855748 | £ 48,37 |
| 6 | 6 | 62 | 18 | 0.1 | 1 | 855750 | £ 52,11 |
| 8 | 8 | 68 | 24 | 0.2 | 1 | 855752 | £ 54,28 |
| 10 | 10 | 80 | 30 | 0.2 | 1 | 855754 | £ 89,31 |
| 12 | 12 | 92 | 36 | 0.2 | 1 | 855756 | £ 108,55 |
| 14 | 14 | 99 | 42 | 0.2 | 1 | 855758 | £ 178,60 |
| 16 | 16 | 108 | 48 | 0.3 | 1 | 855760 | £ 225,10 |
| 18 | 18 | 114 | 54 | 0.3 | 1 | 855762 | £ 269,75 |
| 20 | 20 | 126 | 60 | 0.3 | 1 | 855764 | £ 293,94 |

## CARBIDE ROUGHING END MILL - FINE PITCH - OZMA COATED

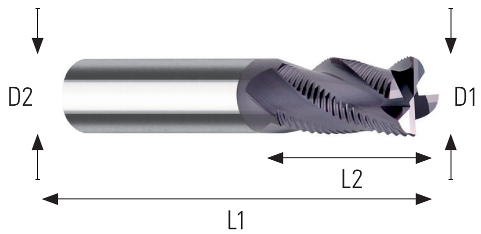
| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rough boring | | | | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 | Ø 20 |
| Steel <500 N/mm² (<150 HB) | 92 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 | 0,10 |
| Steel <700 N/mm² (<205 HB) | 81 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 | 0,10 |
| Steel <850 N/mm² (<265 HB) | 81 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 | 0,10 |
| Steel <1000 N/mm² (<30 HRC) | 67 | 1xd. | 0,5xd. | 0,01 | 0,01 | 0,02 | 0,02 | 0,03 | 0,04 | 0,04 | 0,06 | 0,07 |
| Steel <1400 N/mm² (<44 HRC) | 49 | 1xd. | 0,5xd. | 0,01 | 0,01 | 0,02 | 0,02 | 0,03 | 0,04 | 0,04 | 0,06 | 0,07 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | | | | | |
| Cast iron<180HB | 85 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 | 0,10 |
| Malleable cast iron >180HB | 64 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 | 0,10 |
| Cast iron with graphite >180HB | 64 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 | 0,10 |
| Aluminium | | | | | | | | | | | | |
| Aluminium >8% Si | 113 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 | 0,10 |
| Copper - Bronze - Brass | 106 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,06 | 0,06 | 0,08 | 0,10 |
| TITANIUM | | | | | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | | | | | |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 3 | Ø 4 | Ø 5 | Ø 6 | Ø 8 | Ø 10 | Ø 12 | Ø 16 | Ø 20 |
| Steel <500 N/mm² (<150 HB) | 130 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 | 0,12 |
| Steel <700 N/mm² (<205 HB) | 115 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 | 0,12 |
| Steel <850 N/mm² (<265 HB) | 115 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 | 0,12 |
| Steel <1000 N/mm² (<30 HRC) | 95 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,05 | 0,05 | 0,07 | 0,08 |
| Steel <1400 N/mm² (<44 HRC) | 70 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,03 | 0,03 | 0,04 | 0,05 | 0,05 | 0,07 | 0,08 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | | | | | | | | | | | | |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | | | | | |
| Cast iron<180HB | 120 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 | 0,12 |
| Malleable cast iron >180HB | 90 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 | 0,12 |
| Cast iron with graphite >180HB | 90 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 | 0,12 |
| Aluminium | | | | | | | | | | | | |
| Aluminium >8% Si | 160 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 | 0,12 |
| Copper - Bronze - Brass | 150 | 1xd. | 0,5xd. | 0,01 | 0,02 | 0,04 | 0,04 | 0,05 | 0,08 | 0,08 | 0,10 | 0,12 |
| TITANIUM | | | | | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | | | | | |

## CARBIDE ROUGHING END MILL - STRAIGHT SHANK - FINE PITCH - OZMA COATED

HA 30°

A A-C F

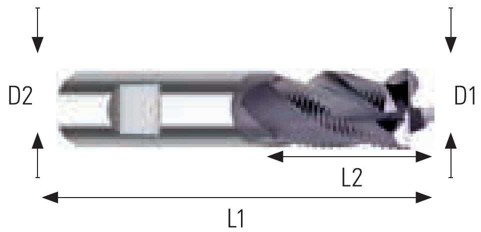



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | Number of teeth | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 3 | 6 | 57 | 6 | 3 | 1 | 862953 | £ 23,98 |
| 4 | 6 | 57 | 8 | 3 | 1 | 862954 | £ 23,98 |
| 5 | 6 | 57 | 10 | 3 | 1 | 862955 | £ 25,24 |
| 6 | 6 | 57 | 16 | 3 | 1 | 862956 | £ 26,09 |
| 8 | 8 | 63 | 16 | 3 | 1 | 862957 | £ 32,93 |
| 10 | 10 | 72 | 22 | 4 | 1 | 862958 | £ 47,70 |
| 12 | 12 | 83 | 26 | 4 | 1 | 862959 | £ 66,28 |
| 16 | 16 | 92 | 32 | 4 | 1 | 862960 | £ 102,64 |
| 20 | 20 | 104 | 38 | 4 | 1 | 862961 | £ 166,76 |

## CARBIDE ROUGHING END MILL - WELDON SHANK - FINE PITCH - OZMA COATED

HB 30°

A A-C F




| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | Number of teeth | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 3 | 6 | 57 | 6 | 3 | 1 | 862963 | £ 23,98 |
| 4 | 6 | 57 | 8 | 3 | 1 | 862964 | £ 23,98 |
| 5 | 6 | 57 | 10 | 3 | 1 | 862965 | £ 25,24 |
| 6 | 6 | 57 | 16 | 3 | 1 | 862966 | £ 26,09 |
| 8 | 8 | 63 | 16 | 3 | 1 | 862967 | £ 32,93 |
| 10 | 10 | 72 | 22 | 4 | 1 | 862968 | £ 47,70 |
| 12 | 12 | 83 | 26 | 4 | 1 | 862969 | £ 66,28 |
| 16 | 16 | 92 | 32 | 4 | 1 | 862970 | £ 102,64 |
| 20 | 20 | 104 | 38 | 4 | 1 | 862971 | £ 166,76 |

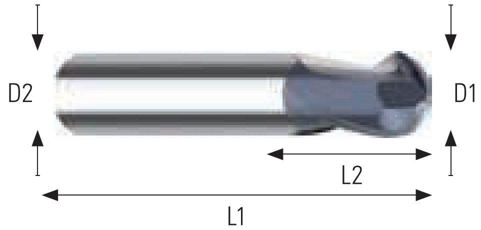
## 2 FLUTE CARBIDE BALL NOSE END MILL - SHORT SERIES - OZMA COATED

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 1 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 455 | 0,03xd. | 0,3xd. | 0,01 | 0,04 | 0,05 | 0,07 | 0,10 |
| Steel <700 N/mm² (<205 HB) | 360 | 0,03xd. | 0,3xd. | 0,01 | 0,04 | 0,05 | 0,07 | 0,10 |
| Steel <850 N/mm² (<265 HB) | 310 | 0,03xd. | 0,3xd. | 0,01 | 0,04 | 0,05 | 0,07 | 0,10 |
| Steel <1000 N/mm² (<30 HRC) | 240 | 0,03xd. | 0,3xd. | 0,01 | 0,04 | 0,05 | 0,07 | 0,10 |
| Steel <1400 N/mm² (<44 HRC) | 160 | 0,03xd. | 0,3xd. | 0,01 | 0,03 | 0,03 | 0,05 | 0,07 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | 105 | 0,03xd. | 0,3xd. | 0,01 | 0,03 | 0,03 | 0,05 | 0,07 |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 180 | 0,03xd. | 0,3xd. | 0,01 | 0,03 | 0,03 | 0,05 | 0,07 |
| Stainless steel >700 N/mm² (>205 HB) | 85 | 0,03xd. | 0,3xd. | 0,01 | 0,03 | 0,03 | 0,05 | 0,07 |
| Cast iron<180HB | 440 | 0,03xd. | 0,3xd. | 0,01 | 0,04 | 0,05 | 0,07 | 0,10 |
| Malleable cast iron >180HB | 400 | 0,03xd. | 0,3xd. | 0,01 | 0,04 | 0,05 | 0,07 | 0,10 |
| Cast iron with graphite >180HB | 400 | 0,03xd. | 0,3xd. | 0,01 | 0,04 | 0,05 | 0,07 | 0,10 |
| Aluminium | 600 | 0,03xd. | 0,3xd. | 0,01 | 0,04 | 0,05 | 0,07 | 0,10 |
| Aluminium >8% Si | 400 | 0,03xd. | 0,3xd. | 0,01 | 0,04 | 0,05 | 0,07 | 0,10 |
| Copper - Bronze - Brass | 560 | 0,03xd. | 0,3xd. | 0,01 | 0,04 | 0,05 | 0,07 | 0,10 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

## 2 FLUTE CARBIDE BALL NOSE END MILL - SHORT SERIES - STRAIGHT SHANK - OZMA COATED

HA 30°

A A-C F I

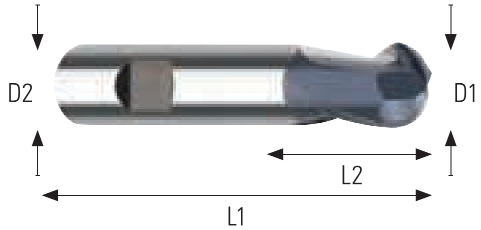



| D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | Radius | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 1 | 6 | 50 | 3 | 0.5 | 1 | 862973 | £ 10,60 |
| 2 | 6 | 50 | 4 | 1 | 1 | 862974 | £ 10,60 |
| 3 | 6 | 50 | 5 | 1.5 | 1 | 862975 | £ 10,60 |
| 4 | 6 | 50 | 6 | 2 | 1 | 862976 | £ 10,60 |
| 5 | 6 | 50 | 7 | 2.5 | 1 | 862977 | £ 11,36 |
| 6 | 6 | 51 | 7 | 3 | 1 | 862978 | £ 12,64 |
| 8 | 8 | 59 | 9 | 4 | 1 | 862979 | £ 17,98 |
| 10 | 10 | 60 | 10 | 5 | 1 | 862980 | £ 21,87 |
| 12 | 12 | 71 | 14 | 6 | 1 | 862981 | £ 31,43 |
| 16 | 16 | 76 | 16 | 8 | 1 | 862982 | £ 50,89 |
| 20 | 20 | 82 | 20 | 10 | 1 | 862983 | £ 77,42 |

## 2 FLUTE CARBIDE BALL NOSE END MILL - SHORT SERIES - WELDON SHANK - OZMA COATED

HB 30°

A A-C F I




| D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | Radius | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 1 | 6 | 50 | 3 | 0.5 | 1 | 862985 | £ 10,60 |
| 2 | 6 | 50 | 4 | 1 | 1 | 862986 | £ 10,60 |
| 3 | 6 | 50 | 5 | 1.5 | 1 | 862987 | £ 10,60 |
| 4 | 6 | 50 | 6 | 2 | 1 | 862988 | £ 10,60 |
| 5 | 6 | 50 | 7 | 2.5 | 1 | 862989 | £ 11,36 |
| 6 | 6 | 51 | 7 | 3 | 1 | 862990 | £ 12,64 |
| 8 | 8 | 59 | 9 | 4 | 1 | 862991 | £ 17,98 |
| 10 | 10 | 60 | 10 | 5 | 1 | 862992 | £ 21,87 |
| 12 | 12 | 71 | 14 | 6 | 1 | 862993 | £ 31,43 |
| 16 | 16 | 76 | 16 | 8 | 1 | 862994 | £ 50,89 |
| 20 | 20 | 82 | 20 | 10 | 1 | 862995 | £ 77,42 |

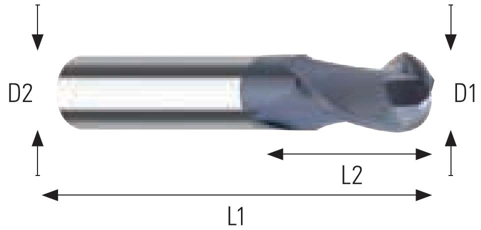
## 2 FLUTE CARBIDE BALL NOSE END MILL - STANDARD SERIES - OZMA COATED

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | |
|---|---|---|---|---|---|---|---|---|
| FINISHING | | | | Ø 1 to Ø 3 | Ø 4 to Ø 5 | Ø 6 to Ø 8 | Ø 10 to Ø 12 | Ø 16 to Ø 20 |
| Steel <500 N/mm² (<150 HB) | 455 | 0,03xd. | 0,3xd. | 0,01 | 0,03 | 0,04 | 0,06 | 0,09 |
| Steel <700 N/mm² (<205 HB) | 360 | 0,03xd. | 0,3xd. | 0,01 | 0,03 | 0,04 | 0,06 | 0,09 |
| Steel <850 N/mm² (<265 HB) | 310 | 0,03xd. | 0,3xd. | 0,01 | 0,03 | 0,04 | 0,06 | 0,09 |
| Steel <1000 N/mm² (<30 HRC) | 240 | 0,03xd. | 0,3xd. | 0,01 | 0,03 | 0,04 | 0,06 | 0,09 |
| Steel <1400 N/mm² (<44 HRC) | 160 | 0,03xd. | 0,3xd. | 0,01 | 0,02 | 0,03 | 0,04 | 0,06 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | 105 | 0,03xd. | 0,3xd. | 0,01 | 0,02 | 0,03 | 0,04 | 0,06 |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 180 | 0,03xd. | 0,3xd. | 0,01 | 0,02 | 0,03 | 0,04 | 0,06 |
| Stainless steel >700 N/mm² (>205 HB) | 85 | 0,03xd. | 0,3xd. | 0,01 | 0,02 | 0,03 | 0,04 | 0,06 |
| Cast iron<180HB | 440 | 0,03xd. | 0,3xd. | 0,01 | 0,03 | 0,04 | 0,06 | 0,09 |
| Malleable cast iron >180HB | 400 | 0,03xd. | 0,3xd. | 0,01 | 0,03 | 0,04 | 0,06 | 0,09 |
| Cast iron with graphite >180HB | 400 | 0,03xd. | 0,3xd. | 0,01 | 0,03 | 0,04 | 0,06 | 0,09 |
| Aluminium | 600 | 0,03xd. | 0,3xd. | 0,01 | 0,03 | 0,04 | 0,06 | 0,09 |
| Aluminium >8% Si | 400 | 0,03xd. | 0,3xd. | 0,01 | 0,03 | 0,04 | 0,06 | 0,09 |
| Copper - Bronze - Brass | 560 | 0,03xd. | 0,3xd. | 0,01 | 0,03 | 0,04 | 0,06 | 0,09 |
| TITANIUM | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | |

## 2 FLUTE CARBIDE BALL NOSE END MILL - STANDARD SERIES - STRAIGHT SHANK - OZMA COATED

HA 30°

A A-C F I

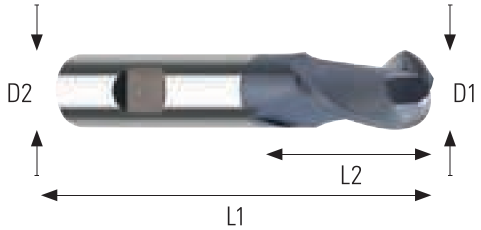



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | Radius | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 6 | 6 | 57 | 10 | 3 | 1 | 862997 | £ 14,13 |
| 8 | 8 | 63 | 16 | 4 | 1 | 862998 | £ 19,26 |
| 10 | 10 | 72 | 19 | 5 | 1 | 862999 | £ 25,36 |
| 12 | 12 | 83 | 22 | 6 | 1 | 863000 | £ 36,36 |
| 16 | 16 | 92 | 26 | 8 | 1 | 863001 | £ 59,86 |
| 20 | 20 | 104 | 32 | 10 | 1 | 863002 | £ 91,73 |

## 2 FLUTE CARBIDE BALL NOSE END MILL - STANDARD SERIES - WELDON SHANK - OZMA COATED

HB 30°

A A-C F I

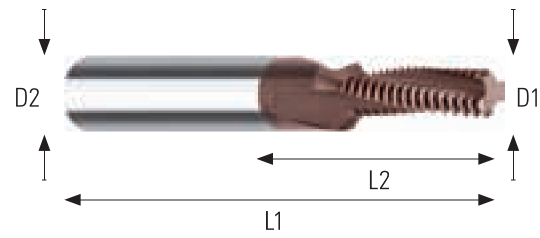



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | Radius | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 6 | 6 | 57 | 10 | 3 | 1 | 863004 | £ 14,13 |
| 8 | 8 | 63 | 16 | 4 | 1 | 863005 | £ 19,26 |
| 10 | 10 | 72 | 19 | 5 | 1 | 863006 | £ 25,36 |
| 12 | 12 | 83 | 22 | 6 | 1 | 863007 | £ 36,36 |
| 16 | 16 | 92 | 26 | 8 | 1 | 863008 | £ 59,86 |
| 20 | 20 | 104 | 32 | 10 | 1 | 863009 | £ 91,73 |

## 3 FLUTE CARBIDE THREAD MILL WITH CHAMFER - 60DEG - OZMA COATED

HA 15°

A A-C F I



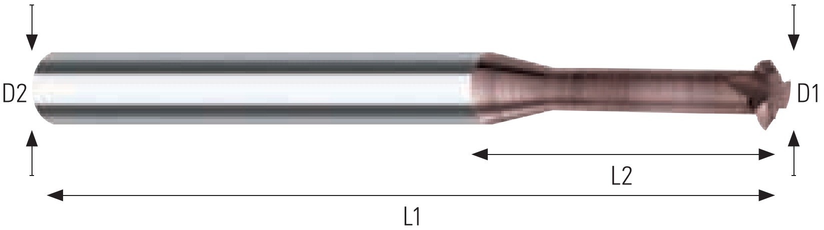

| Metric thread-cutting | D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| M3x50 | 2.3 | 6 | 63 | 7.35 | 1 | 855957 | £ 163,61 |
| M4x70 | 3 | 6 | 63 | 9.6 | 1 | 855958 | £ 163,61 |
| M5x80 | 3.8 | 6 | 63 | 11.8 | 1 | 855959 | £ 163,61 |
| M6x100 | 4.5 | 8 | 63 | 14.75 | 1 | 855960 | £ 193,19 |
| M8x125 | 6 | 10 | 76 | 19.75 | 1 | 855961 | £ 223,61 |
| M10x150 | 7.5 | 12 | 83 | 23.75 | 1 | 855962 | £ 247,43 |
| M12x175 | 9 | 14 | 89 | 29.5 | 1 | 855963 | £ 267,86 |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Ref. 855957 | Ref. 855958 | Ref. 855959 | Ref. 855960 | Ref. 855961 | Ref. 855962 | Ref. 855963 |
| | | | | Ø Nom. 2,3 | Ø Nom. 3 | Ø Nom. 3,8 | Ø Nom. 4,5 | Ø Nom. 6 | Ø Nom. 7,5 | Ø Nom. 9 |
| Steel <500 N/mm² (<150 HB) | 90 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,03 | 0,04 |
| Steel <700 N/mm² (<205 HB) | 80 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,03 | 0,04 |
| Steel <850 N/mm² (<265 HB) | 75 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,03 | 0,04 |
| Steel <1000 N/mm² (<30 HRC) | 60 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,03 | 0,04 |
| Steel <1400 N/mm² (<44 HRC) | | | | | | | | | | |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | | | | | | | | | | |
| Steel >2000 N/mm² (55 / 60 HRC) | | | | | | | | | | |
| Steel (60 / 65 HRC) | | | | | | | | | | |
| Stainless steel <700 N/mm² (<205 HB) | 50 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,03 | 0,04 |
| Stainless steel >700 N/mm² (>205 HB) | | | | | | | | | | |
| Cast iron<180HB | 90 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,03 | 0,04 |
| Malleable cast iron >180HB | 70 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,03 | 0,04 |
| Cast iron with graphite >180HB | 70 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,03 | 0,04 |
| Aluminium | 220 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,03 | 0,04 |
| Aluminium >8% Si | 120 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,03 | 0,04 |
| Copper - Bronze - Brass | 200 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,03 | 0,04 |
| TITANIUM | | | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | | | | | | | | | | |

# 3 FLUTE CARBIDE SINGLE POINT MICRO THREAD MILL - 60DEG - OZMA COATED - METRIC FINE

HA | 15°

A | A-C | F | I | Ni




| Metric thread-cutting | Fine pitch metric thread | Threading UNC/ UNF | D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| M2-M2.2 | M1.8-M2 | No.2 | 1.5 | 3 | 39 | 3.8 | 1 | 863011 | £ 62,01 |
| M2.5 | M2.2 | No.3 | 1.9 | 3 | 39 | 4.3 | 1 | 863012 | £ 62,01 |
| - | M2.5 | No.4 | 2.1 | 3 | 39 | 4.9 | 1 | 863013 | £ 62,01 |
| M3 | - | No.5 | 2.3 | 3 | 39 | 5.4 | 1 | 863014 | £ 62,01 |
| M3.5 | M3 | No.6 | 2.6 | 3 | 39 | 6.1 | 1 | 863015 | £ 62,01 |
| M4 | M3.5-M4 | No.8 | 3 | 3 | 39 | 7.1 | 1 | 863016 | £ 62,01 |
| M4.5 | M4.5 | No.10 | 3.6 | 4 | 50 | 8.3 | 1 | 863017 | £ 67,37 |
| M5-M6 | M5-M6 | No.12 | 4 | 4 | 50 | 10 | 1 | 863018 | £ 67,37 |

| Material | Vc (m/min) | ap (mm) | ae (mm) | fz (mm) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Ref. 863011 | Ref. 863012 | Ref. 863013 | Ref. 863014 | Ref. 863015 | Ref. 863016 | Ref. 863017 | Ref. 863018 |
| | | | | Ø Nom. 1,5 | Ø Nom. 1,9 | Ø Nom. 2,1 | Ø Nom. 2,3 | Ø Nom. 2,6 | Ø Nom. 3 | Ø Nom. 3,6 | Ø Nom. 4 |
| Steel <500 N/mm² (<150 HB) | 250 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,02 | 0,02 |
| Steel <700 N/mm² (<205 HB) | 220 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,02 | 0,02 |
| Steel <850 N/mm² (<265 HB) | 180 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,02 | 0,02 |
| Steel <1000 N/mm² (<30 HRC) | 90 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,02 | 0,02 |
| Steel <1400 N/mm² (<44 HRC) | 70 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,02 | 0,02 |
| Steel <1400 to 2000 N/mm² (44 / 45 HRC) | 50 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,02 | 0,02 |
| Steel >2000 N/mm² (55 / 60 HRC) | 40 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,02 | 0,02 |
| Steel (60 / 65 HRC) | 30 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 |
| Stainless steel <700 N/mm² (<205 HB) | 90 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,02 | 0,02 |
| Stainless steel >700 N/mm² (>205 HB) | 60 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,02 | 0,02 |
| Cast iron<180HB | 220 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,02 | 0,02 |
| Malleable cast iron >180HB | 180 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,02 | 0,02 |
| Cast iron with graphite >180HB | 180 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,02 | 0,02 |
| Aluminium | 280 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,02 | 0,02 |
| Aluminium >8% Si | 220 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,02 | 0,02 |
| Copper - Bronze - Brass | 200 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,02 | 0,02 |
| TITANIUM | | | | | | | | | | | |
| Inconel, Hastelloy, Nimonic, Monel | 50 | 1xd. | 0,1xd. | 0,01 | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,02 | 0,02 |

## HSS CO8% END MILLS

| Material group | d | Grooving milling cutter 2 TEETH | Grooving milling cutter 3 TEETH | Milling cutter 2 sizes 4 TEETH |
|---|---|---|---|---|
| Steels for thermic treatment Carbon steels 200 - 500 N/mm2 | | VC = 30 - 40m/min | | VC = 30 - 40m/min |
| | 4 | 0,01 | 0,01 | 0,01 |
| | 6 | 0,03 | 0,03 | 0,03 |
| | 8 | 0,04 | 0,04 | 0,04 |
| | 10 | 0,05 | 0,05 | 0,05 |
| | 12 | 0,06 | 0,06 | 0,06 |
| | 20 | 0,09 | 0,09 | 0,09 |
| Steels for thermic treatment Alloy steels 500 - 800 N/mm2 | | VC = 25 - 30m/min | | VC = 25 - 30m/min |
| | 4 | 0,01 | 0,01 | 0,01 |
| | 6 | 0,03 | 0,03 | 0,02 |
| | 8 | 0,04 | 0,04 | 0,04 |
| | 10 | 0,05 | 0,05 | 0,04 |
| | 12 | 0,06 | 0,06 | 0,06 |
| | 20 | 0,10 | 0,10 | 0,09 |
| Steels for thermic treatment Alloy steels 800 - 1000 N/mm2 | | VC = 20 - 25m/min | | VC = 20 - 25m/min |
| | 4 | 0,01 | 0,01 | 0,01 |
| | 6 | 0,03 | 0,03 | 0,02 |
| | 8 | 0,04 | 0,04 | 0,03 |
| | 10 | 0,05 | 0,05 | 0,04 |
| | 12 | 0,06 | 0,06 | 0,05 |
| | 20 | 0,09 | 0,09 | 0,07 |
| Steels for thermic treatment Alloy steels 1000 - 1300 N/mm2 | | VC = 15 - 20m/min | | VC = 15 - 20m/min |
| | 4 | 0,01 | 0,01 | 0,01 |
| | 6 | 0,03 | 0,03 | 0,02 |
| | 8 | 0,04 | 0,04 | 0,03 |
| | 10 | 0,05 | 0,05 | 0,04 |
| | 12 | 0,06 | 0,06 | 0,05 |
| | 20 | 0,10 | 0,10 | 0,07 |
| Aluminium Aluminum alloys | | VC = 95 - 125m/min | | VC = 95 - 125m/min |
| | 4 | 0,02 | 0,02 | 0,01 |
| | 6 | 0,03 | 0,03 | 0,02 |
| | 8 | 0,05 | 0,05 | 0,04 |
| | 10 | 0,07 | 0,07 | 0,05 |
| | 12 | 0,08 | 0,08 | 0,06 |
| | 20 | 0,10 | 0,10 | 0,08 |

**Vc = Cutting speed (m/min)**
**n = Round per minute (rpm)**
**fz = Feed per tooth (mm/tr)**
**vf = Feed rate (mm/min)**
**d = Diameter (mm)**

$$n = \frac{Vc \times 1000}{3{,}14 \times d}$$

**Vf = n x z x fz**

## HSS CO8% END MILLS

| Material group | d | Roughing milling cutter | d | Hole milling cutter surfacing |
|---|---|---|---|---|
| Steels for thermic treatment Carbon steels 200 - 500 N/mm2 | | VC = 30 - 40m/min | | VC = 30 - 40m/min |
| | 4 | | | 0,01 |
| | 6 | 0,01 | 50 | 0,03 |
| | 8 | 0,02 | 63 | 0,04 |
| | 10 | 0,03 | 80 | 0,05 |
| | 12 | 0,05 | 100 | 0,06 |
| | 20 | 0,08 | | 0,09 |
| Steels for thermic treatment Alloy steels 500 - 800 N/mm2 | | VC = 25 - 30m/min | | VC = 25 - 30m/min |
| | 4 | | | 0,01 |
| | 6 | 0,01 | 50 | 0,02 |
| | 8 | 0,02 | 63 | 0,04 |
| | 10 | 0,03 | 80 | 0,04 |
| | 12 | 0,04 | 100 | 0,06 |
| | 20 | 0,08 | | 0,09 |
| Steels for thermic treatment Alloy steels 800 - 1000 N/mm2 | | VC = 20 - 25m/min | | VC = 20 - 25m/min |
| | 4 | | | 0,01 |
| | 6 | 0,01 | 50 | 0,02 |
| | 8 | 0,02 | 63 | 0,03 |
| | 10 | 0,03 | 80 | 0,04 |
| | 12 | 0,04 | 100 | 0,05 |
| | 20 | 0,07 | | 0,07 |
| Steels for thermic treatment Alloy steels 1000 - 1300 N/mm2 | | VC = 15 - 20m/min | | VC = 15 - 20m/min |
| | 4 | | | 0,01 |
| | 6 | 0,02 | 50 | 0,02 |
| | 8 | 0,03 | 63 | 0,03 |
| | 10 | 0,06 | 80 | 0,04 |
| | 12 | 0,07 | 100 | 0,05 |
| | 20 | 0,13 | | 0,08 |
| Aluminium Aluminum alloys | | VC = 95 - 125m/min | | |
| | 4 | 0,01 | | |
| | 6 | 0,01 | | |
| | 8 | 0,01 | | |
| | 10 | 0,03 | | |
| | 12 | 0,04 | | |
| | 20 | 0,06 | | |

**Vc = Cutting speed (m/min)**
**n = Round per minute (rpm)**
**fz = Feed per tooth (mm/tr)**
**vf = Feed rate (mm/min)**
**d = Diameter (mm)**

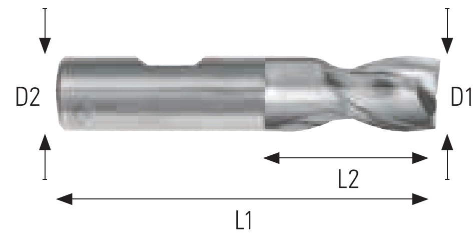
$$n = \frac{Vc \times 1000}{3{,}14 \times d}$$

**Vf = n x z x fz**

## 2 FLUTE SLOT DRILL - HSS CO8% - SHORT SERIES

30° | DIN 327N | HB

A | A-C

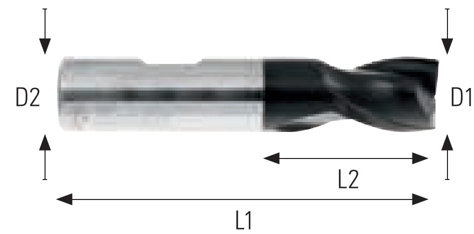



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 2 | 6 | 48 | 4 | 1 | 867449 | £ 6,56 |
| 3 | 6 | 49 | 5 | 1 | 867450 | £ 6,56 |
| 4 | 6 | 51 | 7 | 1 | 867451 | £ 6,56 |
| 5 | 6 | 52 | 8 | 1 | 867452 | £ 6,56 |
| 6 | 6 | 52 | 8 | 1 | 867453 | £ 6,89 |
| 8 | 10 | 61 | 11 | 1 | 867454 | £ 9,35 |
| 10 | 10 | 63 | 13 | 1 | 867455 | £ 9,71 |
| 12 | 12 | 73 | 16 | 1 | 867456 | £ 12,10 |
| 14 | 12 | 73 | 16 | 1 | 867457 | £ 19,71 |
| 16 | 16 | 79 | 19 | 1 | 867458 | £ 19,71 |
| 18 | 16 | 79 | 19 | 1 | 867459 | £ 29,19 |
| 20 | 20 | 88 | 22 | 1 | 867460 | £ 29,68 |

## 2 FLUTE SLOT DRILL - HSS CO8% - SHORT SERIES - TIALN COATED

30° | DIN 327N | HB

A | A-C

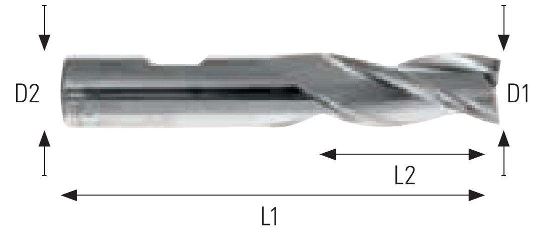



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 2 | 6 | 48 | 4 | 1 | 867462 | £ 10,79 |
| 3 | 6 | 49 | 5 | 1 | 867463 | £ 10,79 |
| 4 | 6 | 51 | 7 | 1 | 867464 | £ 10,79 |
| 5 | 6 | 52 | 8 | 1 | 867465 | £ 10,79 |
| 6 | 6 | 52 | 8 | 1 | 867466 | £ 10,79 |
| 8 | 10 | 61 | 11 | 1 | 867467 | £ 16,71 |
| 10 | 10 | 63 | 13 | 1 | 867468 | £ 17,45 |
| 12 | 12 | 73 | 16 | 1 | 867469 | £ 21,07 |
| 14 | 12 | 73 | 16 | 1 | 867470 | £ 27,14 |
| 16 | 16 | 79 | 19 | 1 | 867471 | £ 27,19 |
| 18 | 16 | 79 | 19 | 1 | 867472 | £ 35,91 |
| 20 | 20 | 88 | 22 | 1 | 867473 | £ 44,21 |

## 3 FLUTE SLOT DRILL - HSS CO8% - STANDARD SERIES

30° | DIN 844N | HB

A | A-C

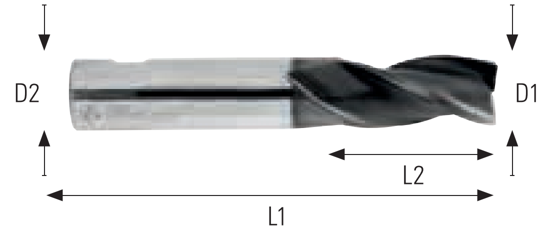



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 2 | 6 | 51 | 7 | 1 | 867475 | £ 8,97 |
| 3 | 6 | 52 | 8 | 1 | 867476 | £ 8,97 |
| 4 | 6 | 55 | 11 | 1 | 867477 | £ 8,97 |
| 5 | 6 | 57 | 13 | 1 | 867478 | £ 8,97 |
| 6 | 6 | 57 | 13 | 1 | 867479 | £ 8,97 |
| 8 | 10 | 69 | 19 | 1 | 867480 | £ 10,76 |
| 10 | 10 | 72 | 22 | 1 | 867481 | £ 11,51 |
| 12 | 12 | 83 | 26 | 1 | 867482 | £ 14,92 |
| 14 | 12 | 83 | 26 | 1 | 867483 | £ 23,27 |
| 16 | 16 | 92 | 32 | 1 | 867484 | £ 23,89 |
| 18 | 16 | 92 | 32 | 1 | 867485 | £ 41,90 |
| 20 | 20 | 104 | 38 | 1 | 867486 | £ 42,16 |

## 3 FLUTE SLOT DRILL - HSS CO8% - STANDARD SERIES - TIALN COATED

30° | DIN 844N | HB

A | A-C



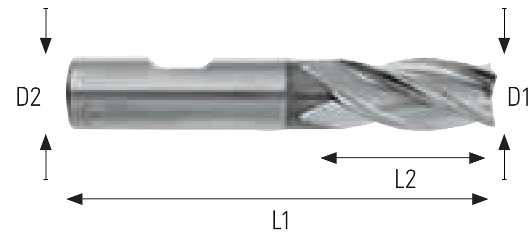

| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 2 | 6 | 51 | 7 | 1 | 867488 | £ 12,30 |
| 3 | 6 | 52 | 8 | 1 | 867489 | £ 12,30 |
| 4 | 6 | 55 | 11 | 1 | 867490 | £ 12,30 |
| 5 | 6 | 57 | 13 | 1 | 867491 | £ 12,30 |
| 6 | 6 | 57 | 13 | 1 | 867492 | £ 12,30 |
| 8 | 10 | 69 | 19 | 1 | 867493 | £ 18,35 |
| 10 | 10 | 72 | 22 | 1 | 867494 | £ 19,04 |
| 12 | 12 | 83 | 26 | 1 | 867495 | £ 23,53 |
| 14 | 12 | 83 | 26 | 1 | 867496 | £ 34,52 |
| 16 | 16 | 92 | 32 | 1 | 867497 | £ 30,40 |
| 18 | 16 | 92 | 32 | 1 | 867498 | £ 37,16 |
| 20 | 20 | 104 | 38 | 1 | 867499 | £ 49,10 |

# HSS END MILLS

## 4 FLUTE END MILL - HSS CO8% - STANDARD SERIES

30° | DIN 844N | HB

A | A-C

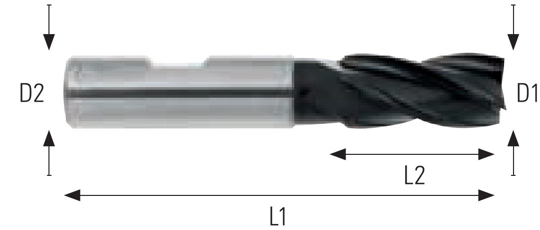



| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 2 | 6 | 51 | 7 | 1 | 867501 | £ 8,82 |
| 3 | 6 | 52 | 8 | 1 | 867502 | £ 8,82 |
| 4 | 6 | 55 | 11 | 1 | 867503 | £ 8,82 |
| 5 | 6 | 57 | 13 | 1 | 867504 | £ 8,82 |
| 6 | 6 | 57 | 13 | 1 | 867505 | £ 9,12 |
| 8 | 10 | 69 | 19 | 1 | 867506 | £ 10,76 |
| 10 | 10 | 72 | 22 | 1 | 867507 | £ 11,89 |
| 12 | 12 | 83 | 26 | 1 | 867508 | £ 14,97 |
| 14 | 12 | 83 | 26 | 1 | 867509 | £ 19,07 |
| 16 | 16 | 92 | 32 | 1 | 867510 | £ 23,37 |
| 18 | 16 | 92 | 32 | 1 | 867511 | £ 33,24 |
| 20 | 20 | 104 | 38 | 1 | 867512 | £ 37,70 |

## 4 FLUTE END MILL - HSS CO8% - STANDARD SERIES - TIALN COATED

30° | DIN 844N | HB

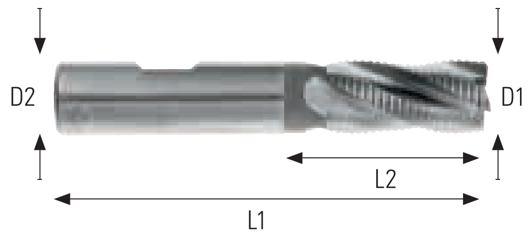
A | A-C




| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 2 | 6 | 51 | 7 | 1 | 867514 | £ 12,81 |
| 3 | 6 | 52 | 8 | 1 | 867515 | £ 12,81 |
| 4 | 6 | 55 | 11 | 1 | 867516 | £ 12,81 |
| 5 | 6 | 57 | 13 | 1 | 867517 | £ 12,81 |
| 6 | 6 | 57 | 13 | 1 | 867518 | £ 12,81 |
| 8 | 10 | 69 | 19 | 1 | 867519 | £ 18,35 |
| 10 | 10 | 72 | 22 | 1 | 867520 | £ 19,04 |
| 12 | 12 | 83 | 26 | 1 | 867521 | £ 24,63 |
| 14 | 12 | 83 | 26 | 1 | 867522 | £ 27,27 |
| 16 | 16 | 92 | 32 | 1 | 867523 | £ 31,88 |
| 18 | 16 | 92 | 32 | 1 | 867524 | £ 39,72 |
| 20 | 20 | 104 | 38 | 1 | 867525 | £ 51,74 |

## ROUGHING END MILL - HSS CO8% - STANDARD SERIES

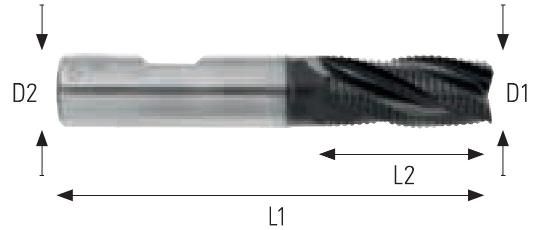
30° | DIN 844N | HB
A | A-C




| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | Number of teeth | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 6 | 6 | 57 | 13 | 3 | 1 | 867527 | £ 16,53 |
| 8 | 10 | 69 | 19 | 3 | 1 | 867528 | £ 17,58 |
| 10 | 10 | 72 | 22 | 4 | 1 | 867529 | £ 17,58 |
| 12 | 12 | 83 | 26 | 4 | 1 | 867530 | £ 19,64 |
| 14 | 12 | 83 | 26 | 4 | 1 | 867531 | £ 27,87 |
| 16 | 16 | 92 | 32 | 4 | 1 | 867532 | £ 27,87 |
| 18 | 16 | 92 | 32 | 4 | 1 | 867533 | £ 34,15 |
| 20 | 20 | 104 | 38 | 4 | 1 | 867534 | £ 35,36 |

## ROUGHING END MILL - HSS CO8% - STANDARD SERIES - TIALN COATED

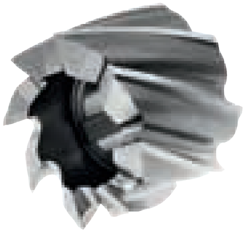
30° | DIN 844N | HB
A | A-C




| D1<br>Ø Nominal | D2<br>Ø of shank | L1<br>L. Overall | L2<br>L. Cutting | Number of teeth | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 6 | 6 | 57 | 13 | 3 | 1 | 867536 | £ 20,63 |
| 8 | 10 | 69 | 19 | 3 | 1 | 867537 | £ 25,16 |
| 10 | 10 | 72 | 22 | 4 | 1 | 867538 | £ 25,77 |
| 12 | 12 | 83 | 26 | 4 | 1 | 867539 | £ 28,66 |
| 14 | 12 | 83 | 26 | 4 | 1 | 867540 | £ 35,21 |
| 16 | 16 | 92 | 32 | 4 | 1 | 867541 | £ 39,06 |
| 18 | 16 | 92 | 32 | 4 | 1 | 867542 | £ 42,59 |
| 20 | 20 | 104 | 38 | 4 | 1 | 867543 | £ 53,86 |

## FINISHING SHELL MILL - HSS CO8% - 8/10 TEETH

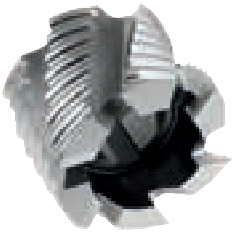
30°
DIN 1880N
A
A-C



| Ø Nominal | Ø Bore | Total height | Number of teeth | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 50 | 22 | 36 | 8 | 1 | 867550 | £ 77,82 |
| 63 | 27 | 40 | 8 | 1 | 867551 | £ 95,32 |
| 80 | 27 | 45 | 10 | 1 | 867552 | £ 183,13 |
| 100 | 32 | 50 | 10 | 1 | 867553 | £ 282,03 |

## ROUGHING SHELL MILL - HSS CO8% - 8/10 TEETH

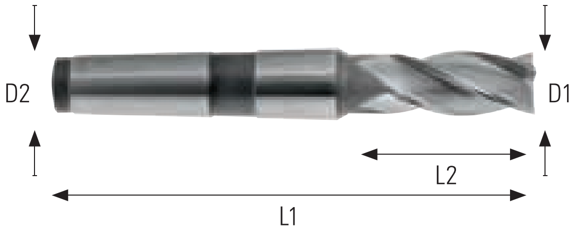
30°
DIN 1880NR
A
A-C



| Ø Nominal | Ø Bore | Total height | Number of teeth | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 50 | 22 | 36 | 8 | 1 | 867545 | £ 136,65 |
| 63 | 27 | 40 | 8 | 1 | 867546 | £ 169,55 |
| 80 | 27 | 45 | 10 | 1 | 867547 | £ 239,00 |
| 100 | 32 | 50 | 10 | 1 | 867548 | £ 364,94 |

## FINISHING END MILL - TAPER SHANK - HSS CO8% - 4/6 FLUTE

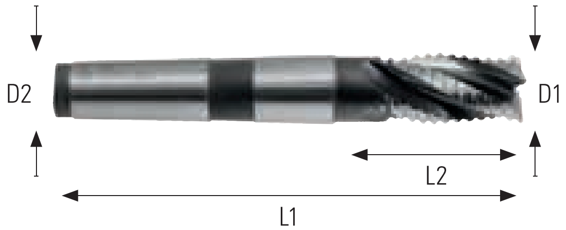
30° DIN 844N A A-C



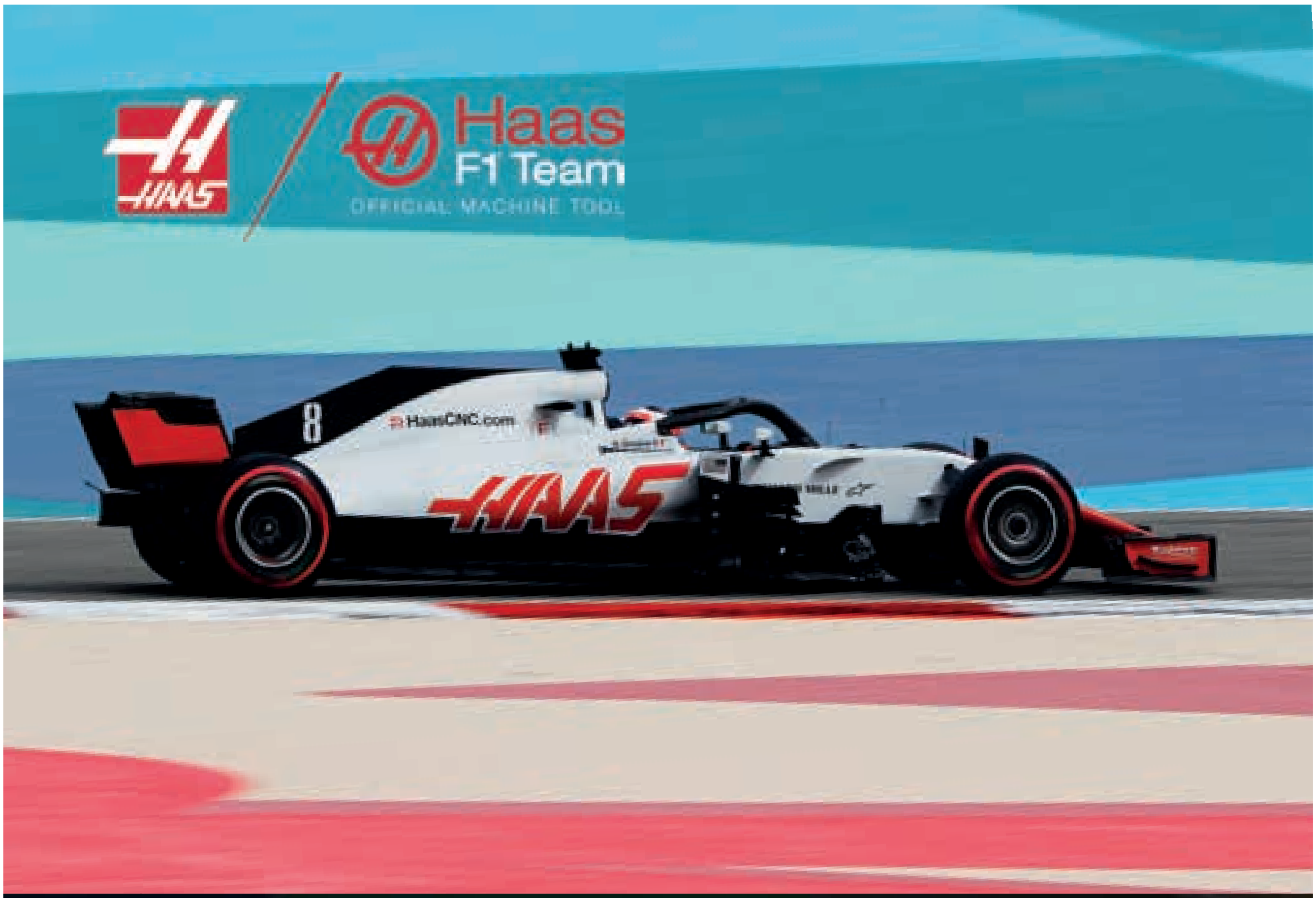

| D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | Number of teeth | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 20 | MT2 | 123 | 38 | 4 | 1 | 867564 | £ 36,03 |
| 22 | MT2 | 123 | 38 | 6 | 1 | 867565 | £ 47,33 |
| 24 | MT3 | 147 | 45 | 6 | 1 | 867566 | £ 51,24 |
| 25 | MT3 | 147 | 45 | 6 | 1 | 867567 | £ 65,71 |
| 28 | MT3 | 147 | 45 | 6 | 1 | 867568 | £ 76,83 |
| 30 | MT3 | 147 | 45 | 6 | 1 | 867569 | £ 78,23 |
| 32 | MT4 | 178 | 53 | 6 | 1 | 867570 | £ 91,64 |
| 36 | MT4 | 178 | 53 | 6 | 1 | 867571 | £ 103,79 |

## ROUGHING END MILL - TAPER SHANK - HSS CO8% - 4/6 FLUTE

30° DIN 845BNR A A-C




| D1 Ø Nominal | D2 Ø of shank | L1 L. Overall | L2 L. Cutting | Number of teeth | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 20 | MT2 | 123 | 38 | 4 | 1 | 867555 | £ 44,41 |
| 22 | MT2 | 123 | 38 | 6 | 1 | 867556 | £ 62,07 |
| 24 | MT3 | 147 | 45 | 6 | 1 | 867557 | £ 58,71 |
| 25 | MT3 | 147 | 45 | 6 | 1 | 867558 | £ 71,71 |
| 28 | MT3 | 147 | 45 | 6 | 1 | 867559 | £ 101,02 |
| 30 | MT3 | 147 | 45 | 6 | 1 | 867560 | £ 101,02 |
| 32 | MT4 | 178 | 53 | 6 | 1 | 867561 | £ 123,28 |
| 36 | MT4 | 178 | 53 | 6 | 1 | 867562 | £ 173,58 |




# HAAS AUTOMATION - MADE IN USA

## THE WORLD'S BIGGEST CNC MACHINE TOOL MANUFACTURER

Haas Automation is the largest machine tool manufacturer in the western world, producing over 13,500 machines every year. The full range of metal-cutting machine tools, including CNC machining centres, lathes and rotary tables, is designed and built in its 1.3 million ft$^2$ factory in California. Haas machine tools and rotary products are built to exacting specifications to deliver better accuracy, repeatability, and durability than any other machine tools on the market.

Haas makes extensive use of the latest lean manufacturing methods and just-in-time production practices to streamline its capabilities and reduce costs. This, combined with highly trained teams for electronics and mechanical assembly, allows Haas to control quality, cost, reliability, and availability. The resulting savings and increased quality are passed on to the customer in the form of lower prices and better products.

# TECHNICAL PARTNERS

## BRAMMER BUCK & HICKMAN PARTNERS WITH HAAS AUTOMATION

Haas are supporting Brammer Buck & Hickman by supplying a range of the latest CNC machines to complement the Technical Facility newly opened in 2018. Having these machines on site for customer trials and demonstrations will enable the specialist applications team to showcase tooling and methodology on real parts, with real tools on real machines all with a price point that delivers confidence for customers.

The partnership will give our mutual customer base, access to a state of the art facility, enabling them to experience first hand, realistically achievable cutting data and even customer specific trials. We know how important it is to take control of the metal cutting process and we aim to help customers make informed decisions with our network of technical experts.

www.haas.co.uk 01603 760539

# TAPS

## METRIC COARSE TAPS



## BSP TAPS (CYLINDRICAL GAS)



## UNF TAPS



## UNC TAPS



## METRIC TAPS

Pages 130 to 159



## METRIC COARSE HSSE MACHINE TAP

| Material group | Material subgroup 1 | Material subgroup 2 | Thread cutter for through hole Vc in m/min | Thread cutter for blind hole Vc in m/min |
|---|---|---|---|---|
| 1 - Free turning steel, for construction | 1.1 - Free turning steel | 1.1.1 Up to 500N | | |
| | | 1.1.2 Greater than 500N | | |
| 2 - Carburizing steel, for treatment | 2.1 - Carburizing steel | 2.1.1 Up to 150 HB | | |
| | | 2.1.2 From 150 to 200 HB | | |
| | 2.3 - Steel for treatment | 2.3.3 Alloyed up to 800N | 10-15 | 8-14 |
| | | 2.3.4 Alloyed from 800 to 1000N | 10-15 | 8-14 |
| | | 2.3.5 Alloyed from 1000 to 1300N | 8-13 | 7-11 |
| 3 - Tool steel | 3.1 - Unalloyed tool steel | 3.1.1 General | | |
| | 3.2 - Tool steel | 3.2.1 Low alloy up to 1000N | 15-24 | 10-15 |
| | | 3.2.4 High alloy, annealed up to 1000N | | |
| | 3.4 - High speed steel | 3.4.1 General | | |
| 4 - Stainless steel, temperature resistant | 4.1 - Stainless steel | 4.1.1 Ferritic stainless steel | 8-16 | 7-12 |
| | | 4.1.2 Martensitic stainless steel | 8-16 | 7-12 |
| | | 4.1.3 Austenitic stainless steel | 8-16 | 7-12 |
| | | 4.1.5 Sulphured stainless steel | 8-16 | 7-12 |
| 6 - Foundry iron | 6.1 - Gray cast iron with flake graphite | 6.1.1 Unalloyed up to 180 HB | | |
| | | 6.1.2 Unalloyed greater than 180 HB | | |
| | | 6.1.3 Alloyed | | |
| | | 6.1.4 High alloy | | |
| | 6.2 - Gray cast iron with spheroidal graphite | 6.2.1 Unalloyed up to 180 HB | | |
| | | 6.2.2 Unalloyed greater than 180 HB | | |
| | 6.3 - Malleable cast iron with a white core | 6.3.1 Unalloyed up to 180 HB | 10-15 | 7-14 |
| | | 6.3.2 Unalloyed greater than 180 HB | 10-15 | 7-14 |
| | 6.4 - Malleable cast iron with a black core | 6.4.1 Unalloyed up to 180 HB | 10-15 | 7-14 |
| | | 6.4.2 Unalloyed greater than 180 HB | 10-15 | 7-14 |
| 7 - Non-ferrous metals | 7.1 - Aluminium | 7.1.1 Unalloyed | 15-20 | 13-18 |
| | | 7.1.2 Untempered wrought alloy | 15-20 | 13-18 |
| | | 7.1.3 Tempered wrought alloy | 15-20 | 13-18 |
| | | 7.1.4 Casting alloy up to 6% of Si | 15-20 | 13-18 |
| | | 7.1.5 Casting alloy 6-12% of Si | 15-20 | 13-18 |
| | | 7.1.6 Casting alloy greater than 12% of Si | 15-20 | 13-18 |
| | 7.3 - Copper | 7.3.1 Unalloyed | 12-17 | 7-14 |
| | | 7.3.2 Untempered wrought alloy | 12-17 | 7-14 |
| | | 7.3.3 Tempered wrought alloy | 12-17 | 7-14 |
| | | 7.3.4 Cu-Ni Alloy | 12-17 | 7-14 |
| | | 7.3.5 Cu-Ni Zn alloy with long chips | 12-17 | 7-14 |

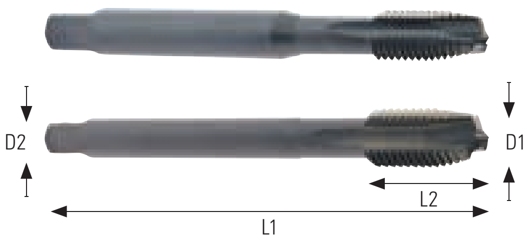


SUGGESTED SALE PRICE

## METRIC COARSE HSSE SPIRAL POINT MACHINE TAP

6H | DIN 371 | DIN 376 | VAP

A | A-C | F | I

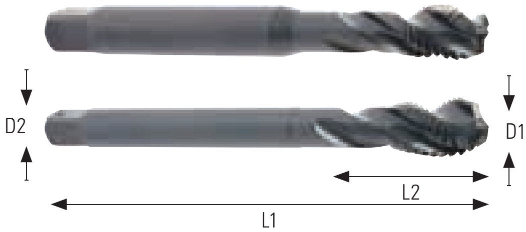



| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 371 | M1.6 | 0.35 | 2.5 | 2.1 | 40 | 8 | 1 | 864947 | £ 22,43 |
| 371 | M2 | 0.4 | 2.8 | 2.1 | 45 | 8 | 1 | 864948 | £ 14,76 |
| 371 | M2.5 | 0.45 | 2.8 | 2.1 | 50 | 9 | 1 | 864949 | £ 14,59 |
| 371 | M3 | 0.5 | 3.5 | 2.7 | 56 | 18 | 1 | 861439 | £ 11,28 |
| 371 | M4 | 0.7 | 4.5 | 3.4 | 63 | 21 | 1 | 861440 | £ 11,36 |
| 371 | M5 | 0.8 | 6 | 4.9 | 70 | 25 | 1 | 861441 | £ 11,91 |
| 371 | M6 | 1 | 6 | 4.9 | 80 | 30 | 1 | 861442 | £ 12,09 |
| 371 | M8 | 1.25 | 8 | 6.2 | 90 | 35 | 1 | 861443 | £ 13,71 |
| 371 | M10 | 1.5 | 10 | 8 | 100 | 39 | 1 | 861444 | £ 17,11 |
| 376 | M12 | 1.75 | 9 | 7 | 110 | 29 | 1 | 861445 | £ 22,86 |
| 376 | M14 | 2 | 11 | 9 | 110 | 30 | 1 | 861446 | £ 32,61 |
| 376 | M16 | 2 | 12 | 9 | 110 | 32 | 1 | 861447 | £ 33,37 |
| 376 | M18 | 2.5 | 14 | 11 | 125 | 34 | 1 | 861448 | £ 51,20 |
| 376 | M20 | 2.5 | 16 | 12 | 140 | 34 | 1 | 861449 | £ 53,10 |
| 376 | M22 | 2.5 | 18 | 14.5 | 140 | 34 | 1 | 861450 | £ 74,76 |
| 376 | M24 | 3 | 18 | 14.5 | 160 | 38 | 1 | 861451 | £ 81,50 |
| 376 | M27 | 3 | 20 | 16 | 160 | 38 | 1 | 861452 | £ 105,33 |
| 376 | M30 | 3.5 | 22 | 18 | 180 | 45 | 1 | 861453 | £ 125,92 |

## METRIC COARSE HSSE SPIRAL FLUTE MACHINE TAP

GOUJ. 40° | 6H | DIN 371 | DIN 376 | VAP

A | A-C | F | I



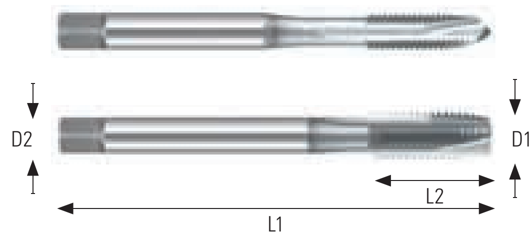

| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 371 | M1.6 | 0.35 | 2.5 | 2.1 | 40 | 8 | 1 | 864950 | £ 22,43 |
| 371 | M2 | 0.4 | 2.8 | 2.1 | 45 | 8 | 1 | 864951 | £ 15,16 |
| 371 | M2.5 | 0.45 | 2.8 | 2.1 | 50 | 9 | 1 | 864952 | £ 14,76 |
| 371 | M3 | 0.5 | 3.5 | 2.7 | 56 | 18 | 1 | 861455 | £ 12,13 |
| 371 | M4 | 0.7 | 4.5 | 3.4 | 63 | 21 | 1 | 861456 | £ 12,25 |
| 371 | M5 | 0.8 | 6 | 4.9 | 70 | 25 | 1 | 861457 | £ 12,67 |
| 371 | M6 | 1 | 6 | 4.9 | 80 | 30 | 1 | 861458 | £ 12,79 |
| 371 | M8 | 1.25 | 8 | 6.2 | 90 | 35 | 1 | 861459 | £ 14,71 |
| 371 | M10 | 1.5 | 10 | 8 | 100 | 39 | 1 | 861460 | £ 18,57 |
| 376 | M12 | 1.75 | 9 | 7 | 110 | 18 | 1 | 861461 | £ 26,37 |
| 376 | M14 | 2 | 11 | 9 | 110 | 20 | 1 | 861462 | £ 34,91 |
| 376 | M16 | 2 | 12 | 9 | 110 | 20 | 1 | 861463 | £ 40,89 |
| 376 | M18 | 2.5 | 14 | 11 | 125 | 25 | 1 | 861464 | £ 55,27 |
| 376 | M20 | 2.5 | 16 | 12 | 140 | 25 | 1 | 861465 | £ 61,01 |
| 376 | M22 | 2.5 | 18 | 14.5 | 140 | 25 | 1 | 861466 | £ 75,40 |
| 376 | M24 | 3 | 18 | 14.5 | 160 | 30 | 1 | 861467 | £ 82,00 |
| 376 | M27 | 3 | 20 | 16 | 160 | 30 | 1 | 861468 | £ 106,35 |
| 376 | M30 | 3.5 | 22 | 18 | 180 | 35 | 1 | 861469 | £ 127,84 |

## METRIC COARSE HSS-PM HARDLUBE COATED

| Material group | Material subgroup 1 | Material subgroup 2 | Thread cutter for through hole Vc in m/min | Thread cutter for blind hole Vc in m/min |
|---|---|---|---|---|
| 1 - Free turning steel, for construction | 1.1 - Free turning steel | 1.1.1 Up to 500N | | |
| | | 1.1.2 Greater than 500N | | |
| 2 - Carburizing steel, for treatment | 2.1 - Carburizing steel | 2.1.1 Up to 150 HB | | |
| | | 2.1.2 From 150 to 200 HB | | |
| | 2.3 - Steel for treatment | 2.3.3 Alloyed up to 800N | 15-25 | 10-15 |
| | | 2.3.4 Alloyed from 800 to 1000N | 10-15 | 8-15 |
| | | 2.3.5 Alloyed from 1000 to 1300N | 10-15 | 8-15 |
| 3 - Tool steel | 3.1 - Unalloyed tool steel | 3.1.1 - General | 10-15 | 8-15 |
| | 3.2 - Tool steel | 3.2.1 - Peu Alloyed jusque 1000N | 10-15 | 8-15 |
| | | 3.2.4 - Fortement Alloyed, recuit Up to 1000N | | |
| | 3.4 - High speed steel | 3.4.1 - General | | |
| 4 - Stainless steel, temperature resistant | 4.1 - Stainless steel | 4.1.1 Ferritic stainless steel | 8-20 | 7-16 |
| | | 4.1.2 Martensitic stainless steel | 8-20 | 7-16 |
| | | 4.1.3 Austenitic stainless steel | 8-20 | 7-16 |
| | | 4.1.5 Sulphured stainless steel | 8-20 | 7-16 |
| 6 - Foundry iron | 6.1 - Gray cast iron with flake graphite | 6.1.1 Unalloyed Up to 180 HB | | |
| | | 6.1.2 Unalloyed greater than 180 HB | | |
| | | 6.1.3 Alloyed | | |
| | | 6.1.4 High alloy | | |
| | 6.2 - Gray cast iron with spheroidal graphite | 6.2.1 Unalloyed Up to 180 HB | | |
| | | 6.2.2 Unalloyed greater than 180 HB | | |
| | 6.3 - Malleable cast iron with a white core | 6.3.1 Unalloyed Up to 180 HB | 10-15 | 7-14 |
| | | 6.3.2 Unalloyed greater than 180 HB | 10-15 | 7-14 |
| | 6.4 - Fonte malléable to cœur noir | 6.4.1 Unalloyed Up to 180 HB | 10-15 | 7-14 |
| | | 6.4.2 Unalloyed greater than 180 HB | 10-15 | 7-14 |
| 7 - Non-ferrous metals | 7.1 - Aluminium | 7.1.1 Unalloyed | 20-40 | 15-35 |
| | | 7.1.2 Untempered wrought alloy | 20-40 | 15-35 |
| | | 7.1.3 Tempered wrought alloy | 20-40 | 15-35 |
| | | 7.1.4 Casting alloy Up to 6% de Si | 20-40 | 15-35 |
| | | 7.1.5 Casting alloy 6-12% of Si | 20-40 | 15-35 |
| | | 7.1.6 Casting alloy greater than 12% of Si | 20-40 | 15-35 |
| | 7.3 - Copper | 7.3.1 Unalloyed | 15-25 | 10-15 |
| | | 7.3.2 Untempered wrought alloy | 15-25 | 10-15 |
| | | 7.3.3 Tempered wrought alloy | 15-25 | 10-15 |
| | | 7.3.4 Cu-Ni Alloy | 15-25 | 10-15 |
| | | 7.3.5 Cu-Ni Zn alloy with long chips | 15-25 | 10-15 |
| 7 - Non-ferrous metals | 7.8 - Titane | 7.7.1 Unalloyed | 10-15 | 5-10 |
| | | 7.7.2 Alloyed | 10-15 | 5-10 |
| | | 7.8.1 Unalloyed | 10-15 | 5-10 |
| | | 7.8.2 Allied by coalescence annealing | 10-15 | 5-10 |
| | | 7.8.3 Alloyed alloy | 10-15 | 5-10 |

## METRIC COARSE HSS-PM HARDLUBE COATED SPIRAL POINT

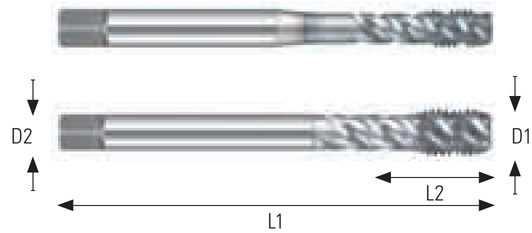
6HX | DIN 371 | DIN 376 | PM | HARDLUBE




| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| DIN371 | M2 | 0,4 | 2,8 | 2,1 | 45 | 8 | 1 | 870220 | £ 26,32 |
| DIN371 | M2.5 | 0,45 | 2,8 | 2,1 | 50 | 9 | 1 | 870221 | £ 26,25 |
| DIN371 | M3 | 0,5 | 3,5 | 2,7 | 56 | 18 | 1 | 870222 | £ 22,95 |
| DIN371 | M4 | 0,7 | 4,5 | 3,4 | 63 | 21 | 1 | 870223 | £ 23,59 |
| DIN371 | M5 | 0,8 | 6 | 4,9 | 70 | 25 | 1 | 870224 | £ 24,34 |
| DIN371 | M6 | 1 | 6 | 4,9 | 80 | 30 | 1 | 870225 | £ 24,79 |
| DIN371 | M8 | 1,25 | 8 | 6,2 | 90 | 35 | 1 | 870226 | £ 30,80 |
| DIN371 | M10 | 1,5 | 10 | 8 | 100 | 39 | 1 | 870227 | £ 39,11 |
| DIN376 | M12 | 1,75 | 9 | 7 | 110 | 29 | 1 | 870228 | £ 49,17 |
| DIN376 | M14 | 2 | 11 | 9 | 110 | 30 | 1 | 870229 | £ 67,99 |
| DIN376 | M16 | 2 | 12 | 9 | 110 | 32 | 1 | 870230 | £ 77,45 |
| DIN376 | M20 | 2,5 | 16 | 12 | 140 | 34 | 1 | 870231 | £ 114,04 |
| DIN376 | M24 | 3 | 18 | 14,5 | 160 | 38 | 1 | 870232 | £ 158,23 |
| DIN376 | M27 | 3 | 20 | 16 | 160 | 38 | 1 | 870233 | £ 203,89 |
| DIN376 | M30 | 3,5 | 22 | 18 | 180 | 45 | 1 | 870234 | £ 236,97 |

## METRIC COARSE HSS-PM HARDLUBE COATED SPIRAL FLUTE

6HX | DIN 371 | DIN 376 | PM | HARDLUBE

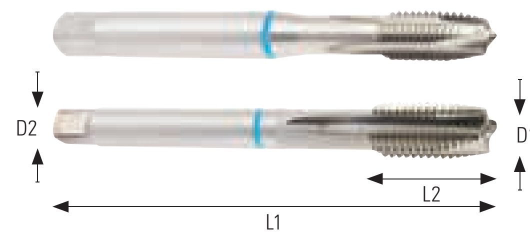



| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | L1 L. Overall | L2 L. Cutting | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| DIN371 | M2 | 0,4 | 2,8 | 2,1 | 45 | 8 | 1 | 870236 | £ 27,93 |
| DIN371 | M2.5 | 0,45 | 2,8 | 2,1 | 50 | 9 | 1 | 870237 | £ 27,61 |
| DIN371 | M3 | 0,5 | 3,5 | 2,7 | 56 | 18 | 1 | 870238 | £ 25,24 |
| DIN371 | M4 | 0,7 | 4,5 | 3,4 | 63 | 21 | 1 | 870239 | £ 25,92 |
| DIN371 | M5 | 0,8 | 6 | 4,9 | 70 | 25 | 1 | 870240 | £ 26,73 |
| DIN371 | M6 | 1 | 6 | 4,9 | 80 | 30 | 1 | 870241 | £ 27,20 |
| DIN371 | M8 | 1,25 | 8 | 6,2 | 90 | 35 | 1 | 870242 | £ 31,84 |
| DIN371 | M10 | 1,5 | 10 | 8 | 100 | 39 | 1 | 870243 | £ 35,61 |
| DIN376 | M12 | 1,75 | 9 | 7 | 110 | 18 | 1 | 870244 | £ 54,61 |
| DIN376 | M14 | 2 | 11 | 9 | 110 | 20 | 1 | 870245 | £ 69,68 |
| DIN376 | M16 | 2 | 12 | 9 | 110 | 20 | 1 | 870246 | £ 75,94 |
| DIN376 | M20 | 2,5 | 16 | 12 | 140 | 25 | 1 | 870247 | £ 118,06 |
| DIN376 | M24 | 3 | 18 | 14,5 | 160 | 30 | 1 | 870248 | £ 159,94 |
| DIN376 | M27 | 3 | 20 | 16 | 160 | 30 | 1 | 870249 | £ 221,33 |
| DIN376 | M30 | 3,5 | 22 | 18 | 180 | 35 | 1 | 870250 | £ 250,23 |

## METRIC COARSE TAP HSSE BRIGHT SPIRAL POINT

POLI | 6H | DIN 371 | DIN 376

A

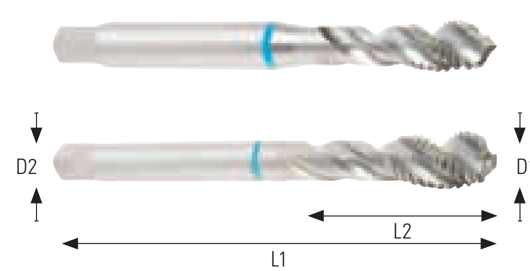



| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 371 | M2 | 0.4 | 2.8 | 2.1 | 45 | 8 | 1 | 844819 | £ 9,29 |
| 371 | M3 | 0.5 | 3.5 | 2.7 | 56 | 10 | 1 | 844820 | £ 9,29 |
| 371 | M4 | 0.7 | 4.5 | 3.4 | 63 | 12 | 1 | 844821 | £ 7,43 |
| 371 | M5 | 0.8 | 6 | 4.9 | 70 | 14 | 1 | 844822 | £ 9,29 |
| 371 | M6 | 1 | 6 | 4.9 | 80 | 16 | 1 | 844823 | £ 9,29 |
| 371 | M8 | 1.25 | 8 | 6.2 | 90 | 18 | 1 | 844824 | £ 11,14 |
| 371 | M10 | 1.5 | 10 | 8 | 100 | 20 | 1 | 844825 | £ 13,01 |
| 376 | M12 | 1.75 | 9 | 7 | 110 | 24 | 1 | 844826 | £ 20,43 |
| 376 | M14 | 2 | 11 | 9 | 110 | 26 | 1 | 844827 | £ 27,86 |
| 376 | M16 | 2 | 12 | 9 | 110 | 26 | 1 | 844828 | £ 31,57 |
| 376 | M18 | 2.5 | 14 | 11 | 125 | 30 | 1 | 844829 | £ 44,56 |
| 376 | M20 | 2.5 | 16 | 12 | 140 | 32 | 1 | 844830 | £ 50,14 |

## METRIC COARSE TAP HSSE BRIGHT SPIRAL FLUTE

GOUJ. 40° | POLI | 6H | DIN 371 | DIN 376

A



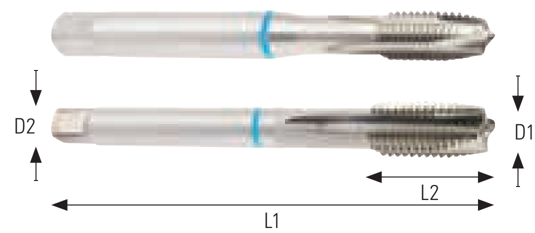

| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 371 | M2 | 0.4 | 2.8 | 2.1 | 45 | 8 | 1 | 844832 | £ 13,01 |
| 371 | M3 | 0.5 | 3.5 | 2.7 | 56 | 6 | 1 | 844833 | £ 9,29 |
| 371 | M4 | 0.7 | 4.5 | 3.4 | 63 | 7.5 | 1 | 844834 | £ 9,29 |
| 371 | M5 | 0.8 | 6 | 4.9 | 70 | 8.5 | 1 | 844835 | £ 9,29 |
| 371 | M6 | 1 | 6 | 4.9 | 80 | 11 | 1 | 844836 | £ 9,29 |
| 371 | M8 | 1.25 | 8 | 6.2 | 90 | 14 | 1 | 844837 | £ 11,14 |
| 371 | M10 | 1.5 | 10 | 8 | 100 | 16 | 1 | 844838 | £ 14,85 |
| 376 | M12 | 1.75 | 9 | 7 | 110 | 18.5 | 1 | 844839 | £ 22,28 |
| 376 | M14 | 2 | 11 | 9 | 110 | 20 | 1 | 844840 | £ 29,71 |
| 376 | M16 | 2 | 12 | 9 | 110 | 20 | 1 | 844841 | £ 29,71 |
| 376 | M18 | 2.5 | 14 | 11 | 125 | 25 | 1 | 844842 | £ 44,56 |
| 376 | M20 | 2.5 | 16 | 12 | 140 | 25 | 1 | 844843 | £ 50,14 |

| Material group | Material subgroup 1 | Material subgroup 2 | Vc in m/min |
|---|---|---|---|
| 1 - Free turning steel, for construction | 1.1 - Free turning steel | 1.1.1 Up to 500N | 10-20 |
| | | 1.1.2 Greater than 500N | 10-20 |
| 2 - Carburizing steel, for treatment | 2.1 - Carburizing steel | 2.1.1 Up to 150 HB | 10-15 |
| | | 2.1.2 From 150 to 200 HB | 10-15 |
| | 2.3 - Steel for treatment | 2.3.4 Alloyed from 800 to 1000N | 8-12 |
| | | 2.3.5 Alloyed from 1000 to 1300N | 8-12 |
| 3 - Tool steel | 3.1 - Unalloyed tool steel | 3.1.1 General | 10-15 |
| | 3.2 - Tool steel | 3.2.4 High alloy, annealed up to 1000N | 6-10 |
| | 3.4 - High speed steel | 3.4.1 General | 6-10 |

## METRIC COARSE TAP HSSE BRIGHT SPIRAL POINT FOR ALLOY STEELS

POLI | 6H | DIN 371 | DIN 376

A

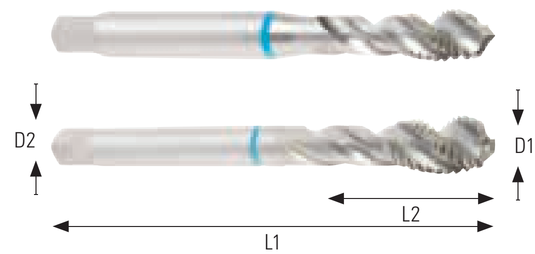



| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 371 | M3 | 0.5 | 3.5 | 2.7 | 56 | 10 | 1 | 844661 | £ 10,33 |
| 371 | M4 | 0.7 | 4.5 | 3.4 | 63 | 12 | 1 | 844662 | £ 10,33 |
| 371 | M5 | 0.8 | 6 | 4.9 | 70 | 14 | 1 | 844663 | £ 10,33 |
| 371 | M6 | 1 | 6 | 4.9 | 80 | 16 | 1 | 844664 | £ 10,33 |
| 371 | M8 | 1.25 | 8 | 6.2 | 90 | 18 | 1 | 844665 | £ 12,38 |
| 371 | M10 | 1.5 | 10 | 8 | 100 | 20 | 1 | 844666 | £ 14,45 |
| 376 | M12 | 1.75 | 9 | 7 | 110 | 24 | 1 | 844667 | £ 22,70 |

## METRIC COARSE TAP HSSE BRIGHT SPIRAL FLUTE FOR ALLOY STEELS

GOUJ. 40° | POLI | 6H | DIN 371 | DIN 376

A



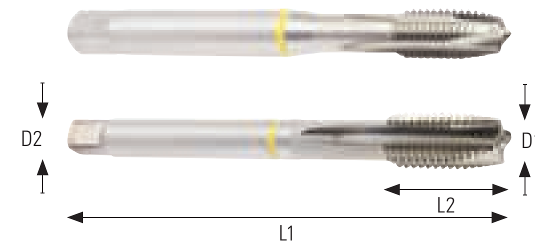

| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 371 | M3 | 0.5 | 3.5 | 2.7 | 56 | 6 | 1 | 844669 | £ 12,38 |
| 371 | M4 | 0.7 | 4.5 | 3.4 | 63 | 7.5 | 1 | 844670 | £ 10,33 |
| 371 | M5 | 0.8 | 6 | 4.9 | 70 | 8.5 | 1 | 844671 | £ 12,38 |
| 371 | M6 | 1 | 6 | 4.9 | 80 | 11 | 1 | 844672 | £ 12,38 |
| 371 | M8 | 1.25 | 8 | 6.2 | 90 | 14 | 1 | 844673 | £ 14,45 |
| 371 | M10 | 1.5 | 10 | 8 | 100 | 16 | 1 | 844674 | £ 18,58 |
| 376 | M12 | 1.75 | 9 | 7 | 110 | 18.5 | 1 | 844675 | £ 26,83 |

| Material group | Material subgroup 1 | Material subgroup 2 | Vc in m/min |
|---|---|---|---|
| 1 - Free turning steel, for construction | 1.1 - Free turning steel | 1.1.1 Up to 500N | 10-20 |
| | | 1.1.2 Greater than 500N | 10-20 |
| 2 - Carburizing steel, for treatment | 2.1 - Carburizing steel | 2.1.1 Up to 150 HB | 10-15 |
| | | 2.1.2 From 150 to 200 HB | 10-15 |
| | 2.3 - Steel for treatment | 2.3.4 Alloyed from 800 to 1000N | 8-12 |
| | | 2.3.5 Alloyed from 1000 to 1300N | 8-12 |
| 3 - Tool steel | 3.1 - Unalloyed tool steel | 3.1.1 - General | 10-15 |
| | 3.2 - Tool steel | 3.2.4 - Fortement Alloyed, recuit Up to 1000N | 6-10 |
| | 3.4 - High speed steel | 3.4.1 - General | 6-10 |

## METRIC COARSE TAP HSSE STAINLESS STEEL SPIRAL POINT

POLI | 6H | DIN 371 | DIN 376

I

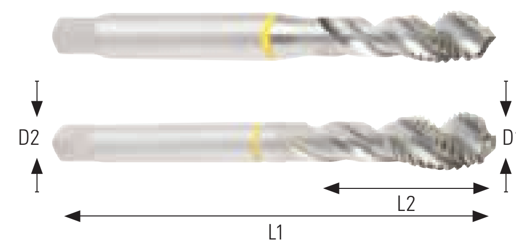



| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 371 | M3 | 0.5 | 3.5 | 2.7 | 56 | 10 | 1 | 844677 | £ 12,38 |
| 371 | M4 | 0.7 | 4.5 | 3.4 | 63 | 12 | 1 | 844678 | £ 10,33 |
| 371 | M5 | 0.8 | 6 | 4.9 | 70 | 14 | 1 | 844679 | £ 10,33 |
| 371 | M6 | 1 | 6 | 4.9 | 80 | 16 | 1 | 844680 | £ 10,33 |
| 371 | M8 | 1.25 | 8 | 6.2 | 90 | 18 | 1 | 844681 | £ 12,38 |
| 371 | M10 | 1.5 | 10 | 8 | 100 | 20 | 1 | 844682 | £ 16,50 |
| 376 | M12 | 1.75 | 9 | 7 | 110 | 24 | 1 | 844683 | £ 22,70 |
| 376 | M14 | 2 | 11 | 9 | 110 | 26 | 1 | 844684 | £ 33,01 |
| 376 | M16 | 2 | 12 | 9 | 110 | 26 | 1 | 844685 | £ 35,08 |
| 376 | M20 | 2.5 | 16 | 12 | 140 | 32 | 1 | 844686 | £ 59,84 |

## METRIC COARSE TAP HSSE STAINLESS STEEL SPIRAL FLUTE

GOUJ. 40° | POLI | 6H | DIN 371 | DIN 376

I



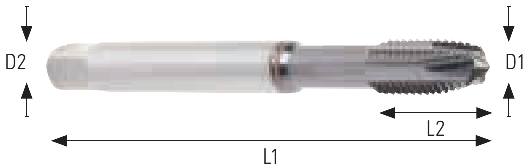

| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 371 | M3 | 0.5 | 3.5 | 2.7 | 56 | 6 | 1 | 844650 | £ 12,38 |
| 371 | M4 | 0.7 | 4.5 | 3.4 | 63 | 7.5 | 1 | 844651 | £ 12,38 |
| 371 | M5 | 0.8 | 6 | 4.9 | 70 | 8.5 | 1 | 844652 | £ 12,38 |
| 371 | M6 | 1 | 6 | 4.9 | 80 | 11 | 1 | 844653 | £ 12,38 |
| 371 | M8 | 1.25 | 8 | 6.2 | 90 | 14 | 1 | 844654 | £ 14,45 |
| 371 | M10 | 1.5 | 10 | 8 | 100 | 16 | 1 | 844655 | £ 18,58 |
| 376 | M12 | 1.75 | 9 | 7 | 110 | 18.5 | 1 | 844656 | £ 26,83 |
| 376 | M14 | 2 | 11 | 9 | 110 | 20 | 1 | 844657 | £ 35,08 |
| 376 | M16 | 2 | 12 | 9 | 110 | 20 | 1 | 844658 | £ 37,14 |
| 376 | M20 | 2.5 | 16 | 12 | 140 | 25 | 1 | 844659 | £ 63,97 |

| Material group | Material subgroup 1 | Material subgroup 2 | Vc in m/min |
|---|---|---|---|
| 4 - Stainless steel, temperature resistant | 4.1 - Stainless steel | 4.1.1 Ferritic stainless steel | 6-12 |
| | | 4.1.2 Martensitic stainless steel | 6-12 |
| | | 4.1.3 Austenitic stainless steel | 6-12 |
| | | 4.1.5 Sulphured stainless steel | 6-12 |

## METRIC COURSE TAP HSSE/ASP-PM TITANIUM TICN SPIRAL POINT

TiCN | 6HX | DIN 371 | DIN 376

Ti

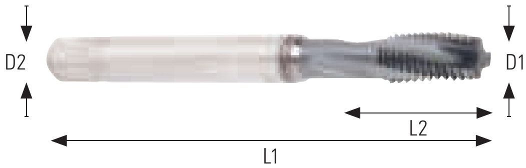



| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 371 | M3 | 0.5 | 3.5 | 2.7 | 56 | 10 | 1 | 844803 | £ 14,45 |
| 371 | M4 | 0.7 | 4.5 | 3.4 | 63 | 14 | 1 | 844804 | £ 14,45 |
| 371 | M5 | 0.8 | 6 | 4.9 | 70 | 16 | 1 | 844805 | £ 18,58 |
| 371 | M6 | 1 | 6 | 4.9 | 80 | 16 | 1 | 844806 | £ 16,50 |
| 371 | M8 | 1.25 | 8 | 6.2 | 90 | 18 | 1 | 844807 | £ 24,76 |
| 371 | M10 | 1.5 | 10 | 8 | 100 | 20 | 1 | 844808 | £ 30,96 |
| 376 | M12 | 1.75 | 9 | 7 | 110 | 24 | 1 | 844809 | £ 43,34 |

## METRIC COURSE TAP HSSE/ASP-PM TITANIUM TICN SPIRAL FLUTE

GOUJ. 30° | TiCN | 6HX | DIN 371 | DIN 376

Ti



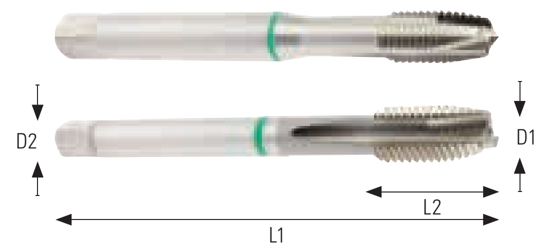

| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 371 | M3 | 0.5 | 3.5 | 2.7 | 56 | 10 | 1 | 844811 | £ 16,50 |
| 371 | M4 | 0.7 | 4.5 | 3.4 | 63 | 14 | 1 | 844812 | £ 14,45 |
| 371 | M5 | 0.8 | 6 | 4.9 | 70 | 16 | 1 | 844813 | £ 16,50 |
| 371 | M6 | 1 | 6 | 4.9 | 80 | 16 | 1 | 844814 | £ 16,50 |
| 371 | M8 | 1.25 | 8 | 6.2 | 90 | 18 | 1 | 844815 | £ 22,70 |
| 371 | M10 | 1.5 | 10 | 8 | 100 | 20 | 1 | 844816 | £ 26,83 |
| 376 | M12 | 1.75 | 9 | 7 | 110 | 24 | 1 | 844817 | £ 39,21 |

| Material group | Material subgroup 1 | Material subgroup 2 | Vc in m/min |
|---|---|---|---|
| 7 - Non-ferrous metals | 7.8 - Titanium | 7.7.1 Unalloyed | 2-8 |
| | | 7.7.2 Alloyed | 2-8 |
| | | 7.8.1 Unalloyed | 2-8 |
| | | 7.8.2 Allied by coalescence annealing | 2-8 |
| | | 7.8.3 Alloyed alloy | 2-8 |

## METRIC COURSE TAP HSSE NON-FERROUS SPIRAL POINT

POLI | 6H | DIN 371 | DIN 376

A-C

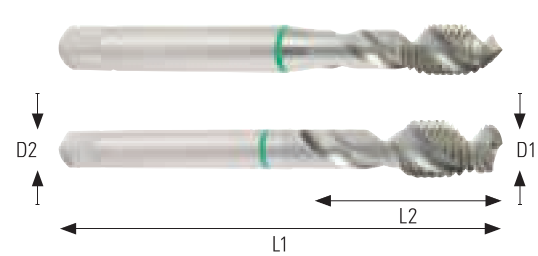



| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 371 | M3 | 0.5 | 3.5 | 2.7 | 56 | 10 | 1 | 844688 | £ 12,38 |
| 371 | M4 | 0.7 | 4.5 | 3.4 | 63 | 12 | 1 | 844689 | £ 8,25 |
| 371 | M5 | 0.8 | 6 | 4.9 | 70 | 14 | 1 | 844690 | £ 10,33 |
| 371 | M6 | 1 | 6 | 4.9 | 80 | 16 | 1 | 844691 | £ 10,33 |
| 371 | M8 | 1.25 | 8 | 6.2 | 90 | 18 | 1 | 844692 | £ 12,38 |
| 371 | M10 | 1.5 | 10 | 8 | 100 | 20 | 1 | 844693 | £ 14,45 |
| 376 | M12 | 1.75 | 9 | 7 | 110 | 24 | 1 | 844694 | £ 22,70 |

## METRIC COURSE TAP HSSE NON-FERROUS SPIRAL FLUTE

GOUJ. 45° | POLI | 6H | DIN 371 | DIN 376

A-C



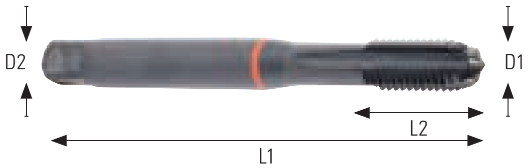

| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 371 | M3 | 0.5 | 3.5 | 2.7 | 56 | 6 | 1 | 844696 | £ 12,38 |
| 371 | M4 | 0.7 | 4.5 | 3.4 | 63 | 7.5 | 1 | 844697 | £ 10,33 |
| 371 | M5 | 0.8 | 6 | 4.9 | 70 | 8.5 | 1 | 844698 | £ 10,33 |
| 371 | M6 | 1 | 6 | 4.9 | 80 | 11 | 1 | 844699 | £ 10,33 |
| 371 | M8 | 1.25 | 8 | 6.2 | 90 | 14 | 1 | 844700 | £ 12,38 |
| 371 | M10 | 1.5 | 10 | 8 | 100 | 16 | 1 | 844701 | £ 16,50 |
| 376 | M12 | 1.75 | 9 | 7 | 110 | 18.5 | 1 | 844702 | £ 24,76 |

| Material group | Material subgroup 1 | Material subgroup 2 | Vc in m/min |
|---|---|---|---|
| 7 - Non-ferrous metals | 7.1 - Aluminium | 7.1.1 Unalloyed | 15-20 |
| | | 7.1.2 Untempered wrought alloy | 15-20 |
| | | 7.1.3 Tempered wrought alloy | 15-20 |
| | | 7.1.4 Casting alloy up to 6% of Si | 15-20 |
| | | 7.1.5 Casting alloy 6-12% of Si | 15-20 |
| | | 7.1.6 Casting alloy greater than 12% of Si | 15-20 |

# METRIC COURSE TAP HSS-E CAST IRON STRAIGHT FLUTE

NITRURE | 6HX | DIN 371 | DIN 376

F



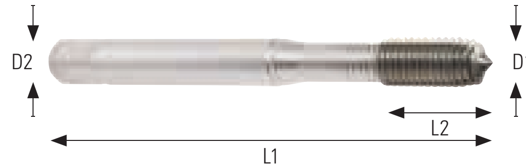

| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 371 | M3 | 0.5 | 3.5 | 2.7 | 56 | 10 | 1 | 844704 | £ 13,93 |
| 371 | M4 | 0.7 | 4.5 | 3.4 | 63 | 12 | 1 | 844705 | £ 9,28 |
| 371 | M5 | 0.8 | 6 | 4.9 | 70 | 14 | 1 | 844706 | £ 11,62 |
| 371 | M6 | 1 | 6 | 4.9 | 80 | 16 | 1 | 844707 | £ 11,62 |
| 371 | M8 | 1.25 | 8 | 6.2 | 90 | 18 | 1 | 844708 | £ 13,93 |
| 371 | M10 | 1.5 | 10 | 8 | 100 | 20 | 1 | 844709 | £ 18,57 |
| 376 | M12 | 1.75 | 9 | 7 | 110 | 24 | 1 | 844710 | £ 27,85 |

| Material group | Material subgroup 1 | Material subgroup 2 | Vc in m/min |
|---|---|---|---|
| 6 - Foundry iron | 6.1 - Gray cast iron with flake graphite | 6.1.1 Unalloyed up to 180 HB | 15-20 |
| | | 6.1.2 Unalloyed greater than 180 HB | 15-20 |
| | | 6.1.3 Alloyed | 15-20 |
| | | 6.1.4 High alloy | 15-20 |
| | 6.2 - Gray cast iron with spheroidal graphite | 6.2.1 Unalloyed up to 180 HB | 15-20 |
| | | 6.2.2 Unalloyed greater than 180 HB | 15-20 |
| | 6.3 - Malleable cast iron with a white core | 6.3.1 Unalloyed up to 180 HB | 15-20 |
| | | 6.3.2 Unalloyed greater than 180 HB | 15-20 |
| | 6.4 - Malleable cast iron with a black core | 6.4.1 Unalloyed up to 180 HB | 15-20 |
| | | 6.4.2 Unalloyed greater than 180 HB | 15-20 |

## METRIC COURSE TAP HSSE FLUTELESS TAP WITHOUT COOLANT GROOVES

POLI | 6HX | DIN 371

A | A-C

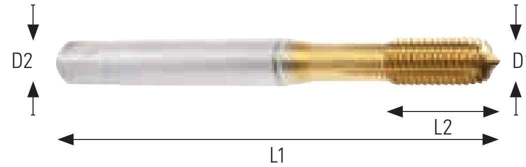



| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | Drilling Ø | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|---|
| 371 | M3 | 0.5 | 3.5 | 2.7 | 2.8 | 56 | 10 | 1 | 847316 | £ 18,58 |
| 371 | M4 | 0.7 | 4.5 | 3.4 | 3.7 | 63 | 12 | 1 | 847317 | £ 18,58 |
| 371 | M5 | 0.8 | 6 | 4.9 | 4.65 | 70 | 14 | 1 | 847318 | £ 20,63 |
| 371 | M6 | 1 | 6 | 4.9 | 5.55 | 80 | 16 | 1 | 847319 | £ 24,76 |
| 371 | M8 | 1.25 | 8 | 6.2 | 7.4 | 90 | 18 | 1 | 847320 | £ 26,83 |
| 371 | M10 | 1.5 | 10 | 8 | 9.25 | 100 | 20 | 1 | 847321 | £ 30,96 |

## METRIC COURSE TAP HSSE FLUTELESS WITH COOLANT GROOVES TIN COATED

TiN | 6HX | DIN 371

A | A-C




| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | Drilling Ø | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|---|
| 371 | M3 | 0.5 | 3.5 | 2.7 | 2.8 | 56 | 10 | 1 | 847323 | £ 22,70 |
| 371 | M4 | 0.7 | 4.5 | 3.4 | 3.7 | 63 | 12 | 1 | 847324 | £ 22,70 |
| 371 | M5 | 0.8 | 6 | 4.9 | 4.65 | 70 | 14 | 1 | 847325 | £ 26,83 |
| 371 | M6 | 1 | 6 | 4.9 | 5.55 | 80 | 16 | 1 | 847326 | £ 30,96 |
| 371 | M8 | 1.25 | 8 | 6.2 | 7.4 | 90 | 18 | 1 | 847327 | £ 35,08 |
| 371 | M10 | 1.5 | 10 | 8 | 9.25 | 100 | 20 | 1 | 847328 | £ 37,14 |

| Material group | Material subgroup 1 | Material subgroup 2 | Vc in m/min |
|---|---|---|---|
| 1 - Free turning steel, for construction | 1.1 - Free turning steel | 1.1.1 Up to 500N | 10-20 |
| | | 1.1.2 Greater than 500N | 10-20 |
| 2 - Carburizing steel, for treatment | 2.1 - Carburizing steel | 2.1.1 Up to 150 HB | 10-15 |
| | | 2.1.2 From 150 to 200 HB | 10-15 |
| | 2.3 - Steel for treatment | 2.3.4 Alloyed from 800 to 1000N | 8-12 |
| | | 2.3.5 Alloyed from 1000 to 1300N | 8-12 |
| 3 - Tool steel | 3.1 - Unalloyed tool steel | 3.1.1 General | 10-15 |
| | 3.2 - Tool steel | 3.2.4 High alloy, annealed up to 1000N | 6-10 |
| | 3.4 - High speed steel | 3.4.1 General | 6-10 |
| 7 - Non-ferrous metals | 7.1 - Aluminium | 7.1.1 Unalloyed | 15-20 |
| | | 7.1.2 Untempered wrought alloy | 15-20 |
| | | 7.1.3 Tempered wrought alloy | 15-20 |
| | | 7.1.4 Casting alloy up to 6% of Si | 15-20 |
| | | 7.1.5 Casting alloy 6-12% of Si | 15-20 |
| | | 7.1.6 Casting alloy greater than 12% of Si | 15-20 |


CALCULATE
YOUR CUTTING SPEED
IN A SIMPLE WAY!
The Cutline Calculator app is the key tool to ease your calculations when standing in front of a machine or a computer.
It allows you a fast conversion of cutting speed and feed in turning, milling, drilling and tapping.
Available in Androïd, IOS, Windows and web versions.
iOS
Proposed by GISS Cutline
www.giss.com
GISS CUTLINE

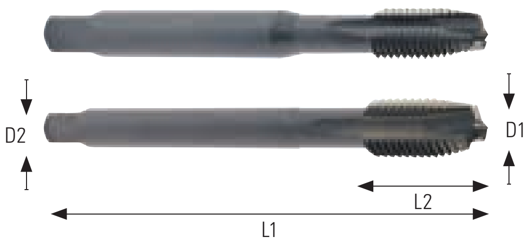
## METRIC FINETAP HSSE MULTI MATERIAL

| Material group | Material subgroup 1 | Material subgroup 2 | Thread cutter for through hole Vc in m/min | Thread cutter for blind hole Vc in m/min |
|---|---|---|---|---|
| 1 - Free turning steel, for construction | 1.1 - Free turning steel | 1.1.1 Up to 500N | | |
| | | 1.1.2 Greater than 500N | | |
| 2 - Carburizing steel, for treatment | 2.1 - Carburizing steel | 2.1.1 Up to 150 HB | | |
| | | 2.1.2 From 150 to 200 HB | | |
| | 2.3 - Steel for treatment | 2.3.3 Alloyed up to 800N | 10-15 | 8-14 |
| | | 2.3.4 Alloyed from 800 to 1000N | 10-15 | 8-14 |
| | | 2.3.5 Alloyed from 1000 to 1300N | 8-13 | 7-11 |
| 3 - Tool steel | 3.1 - Unalloyed tool steel | 3.1.1 General | | |
| | 3.2 - Tool steel | 3.2.1 Low alloy up to 1000N | 15-24 | 10-15 |
| | | 3.2.4 High alloy, annealed up to 1000N | | |
| | 3.4 - High speed steel | 3.4.1 General | | |
| 4 - Stainless steel, temperature resistant | 4.1 - Stainless steel | 4.1.1 Ferritic stainless steel | 8-16 | 7-12 |
| | | 4.1.2 Martensitic stainless steel | 8-16 | 7-12 |
| | | 4.1.3 Austenitic stainless steel | 8-16 | 7-12 |
| | | 4.1.5 Sulphured stainless steel | 8-16 | 7-12 |
| 6 - Foundry iron | 6.1 - Gray cast iron with flake graphite | 6.1.1 Unalloyed up to 180 HB | | |
| | | 6.1.2 Unalloyed greater than 180 HB | | |
| | | 6.1.3 Alloyed | | |
| | | 6.1.4 High alloy | | |
| | 6.2 - Gray cast iron with spheroidal graphite | 6.2.1 Unalloyed up to 180 HB | | |
| | | 6.2.2 Unalloyed greater than 180 HB | | |
| | 6.3 - Malleable cast iron with a white core | 6.3.1 Unalloyed up to 180 HB | 10-15 | 7-14 |
| | | 6.3.2 Unalloyed greater than 180 HB | 10-15 | 7-14 |
| | 6.4 - Malleable cast iron with a black core | 6.4.1 Unalloyed up to 180 HB | 10-15 | 7-14 |
| | | 6.4.2 Unalloyed greater than 180 HB | 10-15 | 7-14 |
| 7 - Non-ferrous metals | 7.1 - Aluminium | 7.1.1 Unalloyed | 15-20 | 13-18 |
| | | 7.1.2 Untempered wrought alloy | 15-20 | 13-18 |
| | | 7.1.3 Tempered wrought alloy | 15-20 | 13-18 |
| | | 7.1.4 Casting alloy up to 6% of Si | 15-20 | 13-18 |
| | | 7.1.5 Casting alloy 6-12% of Si | 15-20 | 13-18 |
| | | 7.1.6 Casting alloy greater than 12% of Si | 15-20 | 13-18 |
| | 7.3 - Copper | 7.3.1 Unalloyed | 12-17 | 7-14 |
| | | 7.3.2 Untempered wrought alloy | 12-17 | 7-14 |
| | | 7.3.3 Tempered wrought alloy | 12-17 | 7-14 |
| | | 7.3.4 Cu-Ni Alloy | 12-17 | 7-14 |
| | | 7.3.5 Cu-Ni Zn alloy with long chips | 12-17 | 7-14 |

## METRIC FINE TAP HSSE MULTI MATERIAL SPIRAL POINT

6H | DIN 374 | VAP

A | A-C | F | I

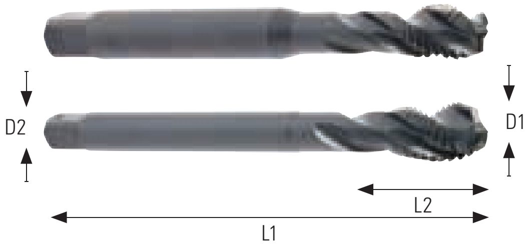



| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 374 | MF6 | 0.75 | 4.5 | 3.4 | 80 | 14 | 1 | 861841 | £ 21,73 |
| 374 | MF8 | 1 | 6 | 4.9 | 90 | 22 | 1 | 861842 | £ 23,16 |
| 374 | MF10 | 1 | 7 | 5.5 | 90 | 20 | 1 | 861843 | £ 32,59 |
| 374 | MF12 | 1 | 9 | 7 | 100 | 22 | 1 | 861844 | £ 29,82 |
| 374 | MF12 | 1.5 | 9 | 7 | 100 | 22 | 1 | 861845 | £ 27,45 |
| 374 | MF16 | 1.5 | 12 | 9 | 100 | 22 | 1 | 861846 | £ 46,90 |
| 374 | MF20 | 1.5 | 16 | 12 | 125 | 25 | 1 | 861847 | £ 59,76 |

## METRIC FINE TAP HSSE MULTI MATERIAL SPIRAL FLUTE

GOUJ. 40° | 6H | DIN 374 | VAP

A | A-C | F | I




| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 374 | MF6 | 0.75 | 1.5 | 3.4 | 80 | 8 | 1 | 861849 | £ 20,63 |
| 374 | MF8 | 0.75 | 6 | 4.9 | 80 | 10 | 1 | 861850 | £ 25,42 |
| 374 | MF8 | 1 | 6 | 4.9 | 90 | 10 | 1 | 861851 | £ 22,09 |
| 374 | MF10 | 1 | 7 | 5.5 | 90 | 12 | 1 | 861852 | £ 23,52 |
| 374 | MF12 | 1 | 9 | 7 | 100 | 14 | 1 | 861853 | £ 33,01 |
| 374 | MF12 | 1.5 | 9 | 7 | 100 | 14 | 1 | 861854 | £ 33,01 |
| 374 | MF14 | 1.5 | 11 | 9 | 100 | 16 | 1 | 861855 | £ 42,10 |
| 374 | MF16 | 1.5 | 12 | 9 | 100 | 16 | 1 | 861856 | £ 49,12 |
| 374 | MF20 | 1.5 | 16 | 12 | 125 | 20 | 1 | 861857 | £ 60,56 |

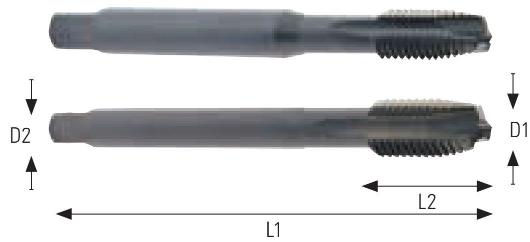
## BSP TAP HSSE MULTI MATERIAL

| Material group | Material subgroup 1 | Material subgroup 2 | Thread cutter for through hole Vc in m/min | Thread cutter for blind hole Vc in m/min |
|---|---|---|---|---|
| 1 - Free turning steel, for construction | 1.1 - Free turning steel | 1.1.1 Up to 500N | | |
| | | 1.1.2 Greater than 500N | | |
| 2 - Carburizing steel, for treatment | 2.1 - Carburizing steel | 2.1.1 Up to 150 HB | | |
| | | 2.1.2 From 150 to 200 HB | | |
| | 2.3 - Steel for treatment | 2.3.3 Alloyed up to 800N | 10-15 | 8-14 |
| | | 2.3.4 Alloyed from 800 to 1000N | 10-15 | 8-14 |
| | | 2.3.5 Alloyed from 1000 to 1300N | 8-13 | 7-11 |
| 3 - Tool steel | 3.1 - Unalloyed tool steel | 3.1.1 General | | |
| | 3.2 - Tool steel | 3.2.1 Low alloy up to 1000N | 15-24 | 10-15 |
| | | 3.2.4 High alloy, annealed up to 1000N | | |
| | 3.4 - High speed steel | 3.4.1 General | | |
| 4 - Stainless steel, temperature resistant | 4.1 - Stainless steel | 4.1.1 Ferritic stainless steel | 8-16 | 7-12 |
| | | 4.1.2 Martensitic stainless steel | 8-16 | 7-12 |
| | | 4.1.3 Austenitic stainless steel | 8-16 | 7-12 |
| | | 4.1.5 Sulphured stainless steel | 8-16 | 7-12 |
| 6 - Foundry iron | 6.1 - Gray cast iron with flake graphite | 6.1.1 Unalloyed up to 180 HB | | |
| | | 6.1.2 Unalloyed greater than 180 HB | | |
| | | 6.1.3 Alloyed | | |
| | | 6.1.4 High alloy | | |
| | 6.2 - Gray cast iron with spheroidal graphite | 6.2.1 Unalloyed up to 180 HB | | |
| | | 6.2.2 Unalloyed greater than 180 HB | | |
| | 6.3 - Malleable cast iron with a white core | 6.3.1 Unalloyed up to 180 HB | 10-15 | 7-14 |
| | | 6.3.2 Unalloyed greater than 180 HB | 10-15 | 7-14 |
| | 6.4 - Malleable cast iron with a black core | 6.4.1 Unalloyed up to 180 HB | 10-15 | 7-14 |
| | | 6.4.2 Unalloyed greater than 180 HB | 10-15 | 7-14 |
| 7 - Non-ferrous metals | 7.1 - Aluminium | 7.1.1 Unalloyed | 15-20 | 13-18 |
| | | 7.1.2 Untempered wrought alloy | 15-20 | 13-18 |
| | | 7.1.3 Tempered wrought alloy | 15-20 | 13-18 |
| | | 7.1.4 Casting alloy up to 6% of Si | 15-20 | 13-18 |
| | | 7.1.5 Casting alloy 6-12% of Si | 15-20 | 13-18 |
| | | 7.1.6 Casting alloy greater than 12% of Si | 15-20 | 13-18 |
| | 7.3 - Copper | 7.3.1 Unalloyed | 12-17 | 7-14 |
| | | 7.3.2 Untempered wrought alloy | 12-17 | 7-14 |
| | | 7.3.3 Tempered wrought alloy | 12-17 | 7-14 |
| | | 7.3.4 Cu-Ni Alloy | 12-17 | 7-14 |
| | | 7.3.5 Cu-Ni Zn alloy with long chips | 12-17 | 7-14 |

## BSP TAP HSSE MULTI MATERIAL SPIRAL POINT

ISO 229 | DIN 5156 | VAP

A | A-C | F | I

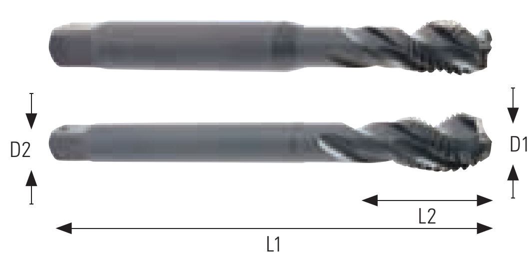



| DIN | D1 Ø Nominal | No. of threads per inch | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 5156 | G1/8 | 28 | 8 | 5.5 | 90 | 20 | 1 | 864932 | £ 30,96 |
| 5156 | G1/4 | 19 | 12 | 9 | 100 | 22 | 1 | 864933 | £ 40,44 |
| 5156 | G3/8 | 16 | 12 | 9 | 100 | 22 | 1 | 864934 | £ 53,64 |
| 5156 | G1/2 | 14 | 16 | 12 | 125 | 25 | 1 | 864935 | £ 86,65 |
| 5156 | G5/8 | 14 | 18 | 14.5 | 125 | 25 | 1 | 864936 | £ 111,41 |
| 5156 | G3/4 | 14 | 20 | 16 | 140 | 28 | 1 | 864937 | £ 117,61 |
| 5156 | G1 | 11 | 25 | 20 | 160 | 30 | 1 | 864938 | £ 165,05 |

## BSP TAP HSSE MULTI MATERIAL SPIRAL FLUTE

ISO 229 | DIN 5156 | VAP | GOUJ. 40°

A | A-C | F | I



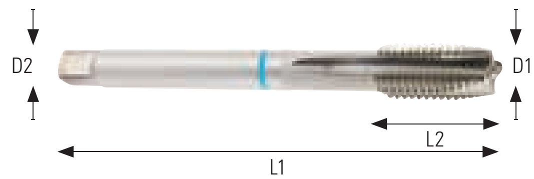

| DIN | D1 Ø Nominal | No. of threads per inch | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 5156 | G1/8 | 28 | 8 | 5.5 | 90 | 20 | 1 | 864940 | £ 30,96 |
| 5156 | G1/4 | 19 | 12 | 9 | 100 | 22 | 1 | 864941 | £ 40,64 |
| 5156 | G3/8 | 16 | 12 | 9 | 100 | 22 | 1 | 864942 | £ 53,64 |
| 5156 | G1/2 | 14 | 16 | 12 | 125 | 25 | 1 | 864943 | £ 86,65 |
| 5156 | G5/8 | 14 | 18 | 14.5 | 125 | 25 | 1 | 864944 | £ 109,35 |
| 5156 | G3/4 | 14 | 20 | 16 | 140 | 28 | 1 | 864945 | £ 120,70 |
| 5156 | G1 | 11 | 25 | 20 | 160 | 30 | 1 | 864946 | £ 173,87 |

## BSPF TAP HSSE ALLOY STEELS SPIRAL POINT

POLI

DIN 5156

A




| DIN | D1 Ø Nominal | No. of threads per inch | D2 Ø Shank | Square | Ø in mm | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|---|
| 5156 | 1/8 | 28 | 7 | 5.5 | 9.728 | 90 | 18 | 1 | 844796 | £ 16,50 |
| 5156 | 1/4 | 19 | 11 | 9 | 13.157 | 100 | 20 | 1 | 844797 | £ 33,01 |
| 5156 | 3/8 | 19 | 12 | 9 | 16.662 | 100 | 22 | 1 | 844798 | £ 37,14 |
| 5156 | 1/2 | 14 | 16 | 12 | 20.955 | 125 | 25 | 1 | 844799 | £ 51,99 |
| 5156 | 3/4 | 14 | 20 | 16 | 26.441 | 140 | 28 | 1 | 844800 | £ 69,22 |

| Material group | Material subgroup 1 | Material subgroup 2 | Vc in m/min |
|---|---|---|---|
| 1 - Free turning steel, for construction | 1.1 - Free turning steel | 1.1.1 Up to 500N | 10-20 |
| | | 1.1.2 Greater than 500N | 10-20 |
| 2 - Carburizing steel, for treatment | 2.1 - Carburizing steel | 2.1.1 Up to 150 HB | 10-15 |
| | | 2.1.2 From 150 to 200 HB | 10-15 |
| | 2.3 - Steel for treatment | 2.3.4 Alloyed from 800 to 1000N | 8-12 |
| | | 2.3.5 Alloyed from 1000 to 1300N | 8-12 |
| 3 - Tool steel | 3.1 - Unalloyed tool steel | 3.1.1 General | 10-15 |
| | 3.2 - Tool steel | 3.2.4 High alloy, annealed up to 1000N | 6-10 |
| | 3.4 - High speed steel | 3.4.1 General | 6-10 |

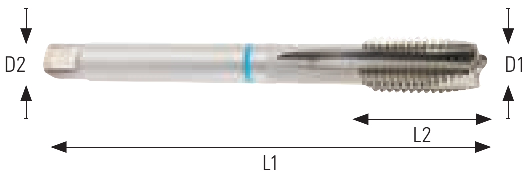


SUGGESTED SALE PRICE

## MACHINE TAP HSSE ALLOY STEELS SPIRAL POINT UNF

POLI | 2B | DIN 374

A

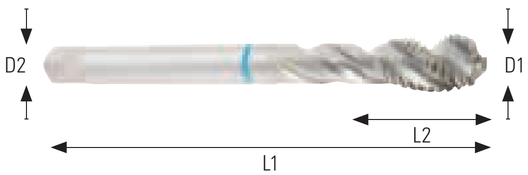



| DIN | D1<br>Ø Nominal | No. of threads per inch | D2<br>Ø Shank | Square | Ø in mm | L1<br>L. Overall | L2<br>L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|---|
| 374 | UNF 10 | 32 | 3.5 | 2.7 | 4.826 | 70 | 14 | 1 | 844735 | £ 11,62 |
| 374 | UNF 1/4 | 28 | 4.5 | 3.4 | 6.35 | 80 | 16 | 1 | 844737 | £ 13,93 |
| 374 | UNF 5/16 | 24 | 6 | 4.9 | 7.938 | 90 | 18 | 1 | 844738 | £ 16,26 |
| 374 | UNF 3/8 | 24 | 7 | 5.5 | 9.525 | 90 | 18 | 1 | 844739 | £ 18,57 |
| 374 | UNF 7/16 | 20 | 8 | 6.2 | 11.113 | 100 | 22 | 1 | 844740 | £ 27,85 |
| 374 | UNF 1/2 | 20 | 9 | 7 | 12.7 | 100 | 20 | 1 | 844741 | £ 32,49 |

## MACHINE TAP HSSE ALLOY STEELS SPIRAL FLUTE UNF

GOUJ. 40° | 2B | DIN 374

A




| DIN | D1<br>Ø Nominal | No. of threads per inch | D2<br>Ø Shank | Square | Ø in mm | L1<br>L. Overall | L2<br>L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|---|
| 374 | UNF 10 | 32 | 3.5 | 2.7 | 4.826 | 70 | 8.5 | 1 | 844746 | £ 16,26 |
| 374 | UNF 1/4 | 28 | 4.5 | 3.4 | 6.35 | 80 | 9 | 1 | 844748 | £ 18,57 |
| 374 | UNF 5/16 | 24 | 6 | 4.9 | 7.938 | 90 | 11 | 1 | 844749 | £ 20,90 |
| 374 | UNF 3/8 | 24 | 7 | 5.5 | 9.525 | 90 | 11 | 1 | 844750 | £ 25,54 |
| 374 | UNF 7/16 | 20 | 8 | 6.2 | 11.113 | 100 | 13 | 1 | 844751 | £ 30,18 |
| 374 | UNF 1/2 | 20 | 9 | 7 | 12.7 | 100 | 13 | 1 | 844752 | £ 37,14 |

| Material group | Material subgroup 1 | Material subgroup 2 | Vc in m/min |
|---|---|---|---|
| 1 - Free turning steel, for construction | 1.1 - Free turning steel | 1.1.1 Up to 500N | 10-20 |
| | | 1.1.2 Greater than 500N | 10-20 |
| 2 - Carburizing steel, for treatment | 2.1 - Carburizing steel | 2.1.1 Up to 150 HB | 10-15 |
| | | 2.1.2 From 150 to 200 HB | 10-15 |
| | 2.3 - Steel for treatment | 2.3.4 Alloyed from 800 to 1000N | 8-12 |
| | | 2.3.5 Alloyed from 1000 to 1300N | 8-12 |
| 3 - Tool steel | 3.1 - Unalloyed tool steel | 3.1.1 General | 10-15 |
| | 3.2 - Tool steel | 3.2.4 High alloy, annealed up to 1000N | 6-10 |
| | 3.4 - High speed steel | 3.4.1 General | 6-10 |

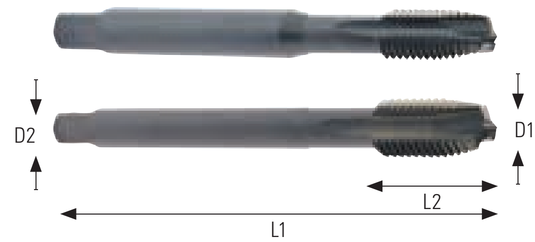
## MACHINE TAP HSSE MULTI MATERIAL UNF

| Material group | Material subgroup 1 | Material subgroup 2 | Thread cutter for through hole Vc in m/min | Thread cutter for blind hole Vc in m/min |
|---|---|---|---|---|
| 1 - Free turning steel, for construction | 1.1 - Free turning steel | 1.1.1 Up to 500N | | |
| | | 1.1.2 Greater than 500N | | |
| 2 - Carburizing steel, for treatment | 2.1 - Carburizing steel | 2.1.1 Up to 150 HB | | |
| | | 2.1.2 From 150 to 200 HB | | |
| | 2.3 - Steel for treatment | 2.3.3 Alloyed up to 800N | 10-15 | 8-14 |
| | | 2.3.4 Alloyed from 800 to 1000N | 10-15 | 8-14 |
| | | 2.3.5 Alloyed from 1000 to 1300N | 8-13 | 7-11 |
| 3 - Tool steel | 3.1 - Unalloyed tool steel | 3.1.1 General | | |
| | 3.2 - Tool steel | 3.2.1 Low alloy up to 1000N | 15-24 | 10-15 |
| | | 3.2.4 High alloy, annealed up to 1000N | | |
| | 3.4 - High speed steel | 3.4.1 General | | |
| 4 - Stainless steel, temperature resistant | 4.1 - Stainless steel | 4.1.1 Ferritic stainless steel | 8-16 | 7-12 |
| | | 4.1.2 Martensitic stainless steel | 8-16 | 7-12 |
| | | 4.1.3 Austenitic stainless steel | 8-16 | 7-12 |
| | | 4.1.5 Sulphured stainless steel | 8-16 | 7-12 |
| 6 - Foundry iron | 6.1 - Gray cast iron with flake graphite | 6.1.1 Unalloyed up to 180 HB | | |
| | | 6.1.2 Unalloyed greater than 180 HB | | |
| | | 6.1.3 Alloyed | | |
| | | 6.1.4 High alloy | | |
| | 6.2 - Gray cast iron with spheroidal graphite | 6.2.1 Unalloyed up to 180 HB | | |
| | | 6.2.2 Unalloyed greater than 180 HB | | |
| | 6.3 - Malleable cast iron with a white core | 6.3.1 Unalloyed up to 180 HB | 10-15 | 7-14 |
| | | 6.3.2 Unalloyed greater than 180 HB | 10-15 | 7-14 |
| | 6.4 - Malleable cast iron with a black core | 6.4.1 Unalloyed up to 180 HB | 10-15 | 7-14 |
| | | 6.4.2 Unalloyed greater than 180 HB | 10-15 | 7-14 |
| 7 - Non-ferrous metals | 7.1 - Aluminium | 7.1.1 Unalloyed | 15-20 | 13-18 |
| | | 7.1.2 Untempered wrought alloy | 15-20 | 13-18 |
| | | 7.1.3 Tempered wrought alloy | 15-20 | 13-18 |
| | | 7.1.4 Casting alloy up to 6% of Si | 15-20 | 13-18 |
| | | 7.1.5 Casting alloy 6-12% of Si | 15-20 | 13-18 |
| | | 7.1.6 Casting alloy greater than 12% of Si | 15-20 | 13-18 |
| | 7.3 - Copper | 7.3.1 Unalloyed | 12-17 | 7-14 |
| | | 7.3.2 Untempered wrought alloy | 12-17 | 7-14 |
| | | 7.3.3 Tempered wrought alloy | 12-17 | 7-14 |
| | | 7.3.4 Cu-Ni Alloy | 12-17 | 7-14 |
| | | 7.3.5 Cu-Ni Zn alloy with long chips | 12-17 | 7-14 |

## MACHINE TAP HSSE MULTI MATERIAL SPIRAL POINT UNF

2B | VAP | DIN 2183

A | A-C | F | I

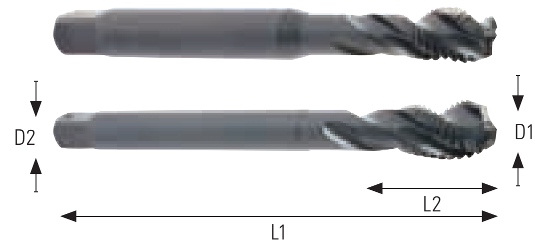



| DIN | D1 Ø Nominal | No. of threads per inch | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 2183 | UNF 4 | 48 | 2.2 | 1.8 | 56 | 9 | 1 | 867026 | £ 29,32 |
| 2183 | UNF 5 | 44 | 2.2 | 1.8 | 56 | 9 | 1 | 864986 | £ 24,76 |
| 2183 | UNF 6 | 40 | 2.5 | 2.1 | 56 | 11 | 1 | 864987 | £ 20,43 |
| 2183 | UNF 8 | 36 | 2.8 | 2.1 | 63 | 12 | 1 | 864988 | £ 19,91 |
| 2183 | UNF 10 | 32 | 3.5 | 2.7 | 70 | 13 | 1 | 864989 | £ 20,33 |
| 2183 | UNF 12 | 28 | 4 | 3 | 80 | 15 | 1 | 864990 | £ 20,63 |
| 2183 | UNF 1/4 | 28 | 4.5 | 3.4 | 80 | 15 | 1 | 864991 | £ 22,09 |
| 2183 | UNF 5/16 | 24 | 6 | 4.9 | 90 | 18 | 1 | 864992 | £ 24,04 |
| 2183 | UNF 3/8 | 24 | 7 | 5.5 | 90 | 20 | 1 | 864993 | £ 25,28 |
| 2183 | UNF 7/16 | 20 | 8 | 6.2 | 100 | 20 | 1 | 864994 | £ 26,63 |
| 2183 | UNF 1/2 | 20 | 9 | 7 | 100 | 21 | 1 | 864995 | £ 37,14 |
| 2183 | UNF 9/16 | 18 | 11 | 9 | 100 | 21 | 1 | 864996 | £ 45,39 |
| 2183 | UNF 5/8 | 18 | 12 | 9 | 100 | 21 | 1 | 864997 | £ 49,22 |
| 2183 | UNF 3/4 | 16 | 14 | 11 | 110 | 24 | 1 | 864998 | £ 66,02 |
| 2183 | UNF 7/8 | 14 | 18 | 14.5 | 125 | 24 | 1 | 864999 | £ 78,40 |
| 2183 | UNF 1 | 12 | 18 | 14.5 | 140 | 26 | 1 | 865000 | £ 113,48 |

## MACHINE TAP HSSE MULTI MATERIAL SPIRAL FLUTE UNF

GOUJ. 40° | 2B | VAP | DIN 2183

A | A-C | F | I




| DIN | D1 Ø Nominal | No. of threads per inch | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 2183 | UNF 4 | 48 | 2.2 | 1.8 | 56 | 5 | 1 | 867027 | £ 34,82 |
| 2183 | UNF 5 | 44 | 2.2 | 1.8 | 56 | 5 | 1 | 865002 | £ 25,08 |
| 2183 | UNF 6 | 40 | 2.5 | 2.1 | 56 | 7 | 1 | 865003 | £ 20,75 |
| 2183 | UNF 8 | 36 | 2.8 | 2.1 | 63 | 7 | 1 | 865004 | £ 20,23 |
| 2183 | UNF 10 | 32 | 3.5 | 2.7 | 70 | 8 | 1 | 865005 | £ 20,63 |
| 2183 | UNF 12 | 28 | 4 | 3 | 80 | 10 | 1 | 865006 | £ 20,95 |
| 2183 | UNF 1/4 | 28 | 4.5 | 3.4 | 80 | 10 | 1 | 865007 | £ 22,39 |
| 2183 | UNF 5/16 | 24 | 6 | 4.9 | 90 | 13 | 1 | 865008 | £ 24,36 |
| 2183 | UNF 3/8 | 24 | 7 | 5.5 | 90 | 15 | 1 | 865009 | £ 26,31 |
| 2183 | UNF 7/16 | 20 | 8 | 6.2 | 100 | 15 | 1 | 865010 | £ 28,88 |
| 2183 | UNF 1/2 | 20 | 9 | 7 | 100 | 14 | 1 | 865011 | £ 37,45 |
| 2183 | UNF 9/16 | 18 | 11 | 9 | 100 | 16 | 1 | 865012 | £ 47,88 |
| 2183 | UNF 5/8 | 18 | 12 | 9 | 100 | 16 | 1 | 865013 | £ 52,40 |
| 2183 | UNF 3/4 | 16 | 4 | 11 | 110 | 20 | 1 | 865014 | £ 68,09 |
| 2183 | UNF 7/8 | 14 | 18 | 14.5 | 125 | 20 | 1 | 865015 | £ 79,33 |
| 2183 | UNF 1 | 12 | 18 | 14.5 | 140 | 22 | 1 | 865016 | £ 115,53 |

## MACHINE TAP HSSE MULTI MATERIAL

| Material group | Material subgroup 1 | Material subgroup 2 | Thread cutter for through hole Vc in m/min | Thread cutter for blind hole Vc in m/min |
|---|---|---|---|---|
| 1 - Free turning steel, for construction | 1.1 - Free turning steel | 1.1.1 Up to 500N | | |
| | | 1.1.2 Greater than 500N | | |
| 2 - Carburizing steel, for treatment | 2.1 - Carburizing steel | 2.1.1 Up to 150 HB | | |
| | | 2.1.2 From 150 to 200 HB | | |
| | 2.3 - Steel for treatment | 2.3.3 Alloyed up to 800N | 10-15 | 8-14 |
| | | 2.3.4 Alloyed from 800 to 1000N | 10-15 | 8-14 |
| | | 2.3.5 Alloyed from 1000 to 1300N | 8-13 | 7-11 |
| 3 - Tool steel | 3.1 - Unalloyed tool steel | 3.1.1 General | | |
| | 3.2 - Tool steel | 3.2.1 Low alloy up to 1000N | 15-24 | 10-15 |
| | | 3.2.4 High alloy, annealed up to 1000N | | |
| | 3.4 - High speed steel | 3.4.1 General | | |
| 4 - Stainless steel, temperature resistant | 4.1 - Stainless steel | 4.1.1 Ferritic stainless steel | 8-16 | 7-12 |
| | | 4.1.2 Martensitic stainless steel | 8-16 | 7-12 |
| | | 4.1.3 Austenitic stainless steel | 8-16 | 7-12 |
| | | 4.1.5 Sulphured stainless steel | 8-16 | 7-12 |
| 6 - Foundry iron | 6.1 - Gray cast iron with flake graphite | 6.1.1 Unalloyed up to 180 HB | | |
| | | 6.1.2 Unalloyed greater than 180 HB | | |
| | | 6.1.3 Alloyed | | |
| | | 6.1.4 High alloy | | |
| | 6.2 - Gray cast iron with spheroidal graphite | 6.2.1 Unalloyed up to 180 HB | | |
| | | 6.2.2 Unalloyed greater than 180 HB | | |
| | 6.3 - Malleable cast iron with a white core | 6.3.1 Unalloyed up to 180 HB | 10-15 | 7-14 |
| | | 6.3.2 Unalloyed greater than 180 HB | 10-15 | 7-14 |
| | 6.4 - Malleable cast iron with a black core | 6.4.1 Unalloyed up to 180 HB | 10-15 | 7-14 |
| | | 6.4.2 Unalloyed greater than 180 HB | 10-15 | 7-14 |
| 7 - Non-ferrous metals | 7.1 - Aluminium | 7.1.1 Unalloyed | 15-20 | 13-18 |
| | | 7.1.2 Untempered wrought alloy | 15-20 | 13-18 |
| | | 7.1.3 Tempered wrought alloy | 15-20 | 13-18 |
| | | 7.1.4 Casting alloy up to 6% of Si | 15-20 | 13-18 |
| | | 7.1.5 Casting alloy 6-12% of Si | 15-20 | 13-18 |
| | | 7.1.6 Casting alloy greater than 12% of Si | 15-20 | 13-18 |
| | 7.3 - Copper | 7.3.1 Unalloyed | 12-17 | 7-14 |
| | | 7.3.2 Untempered wrought alloy | 12-17 | 7-14 |
| | | 7.3.3 Tempered wrought alloy | 12-17 | 7-14 |
| | | 7.3.4 Cu-Ni Alloy | 12-17 | 7-14 |
| | | 7.3.5 Cu-Ni Zn alloy with long chips | 12-17 | 7-14 |

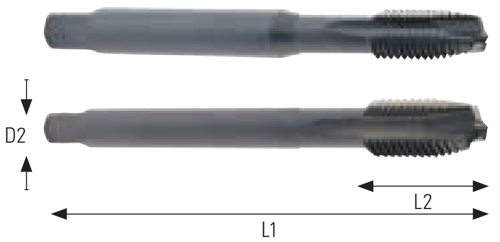


SUGGESTED SALE PRICE

## MACHINE TAP HSSE MULTI MATERIAL SPIRAL POINT UNC

2B | VAP | DIN 2182 | DIN 2183

A | A-C | F | I

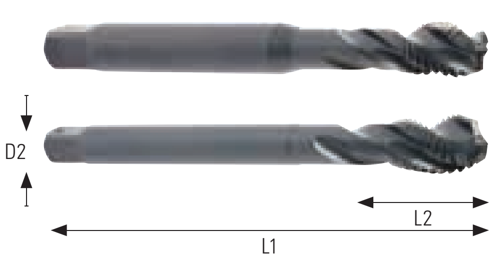



| DIN | D1 Ø Nominal | No. of threads per inch | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 2182 | UNC 4 | 40 | 3.5 | 2.7 | 56 | 9 | 1 | 867024 | £ 22,95 |
| 2182 | UNC 5 | 40 | 3.5 | 2.7 | 56 | 9 | 1 | 864954 | £ 22,01 |
| 2182 | UNC 6 | 32 | 4 | 3 | 56 | 11 | 1 | 864955 | £ 16,54 |
| 2182 | UNC 8 | 32 | 4.5 | 3.4 | 63 | 12 | 1 | 864956 | £ 17,10 |
| 2182 | UNC 10 | 24 | 6 | 4.9 | 70 | 13 | 1 | 864957 | £ 17,65 |
| 2182 | UNC 12 | 24 | 6 | 4.9 | 80 | 15 | 1 | 864958 | £ 18,01 |
| 2182 | UNC 1/4 | 20 | 7 | 5.5 | 80 | 15 | 1 | 864959 | £ 18,21 |
| 2182 | UNC 5/16 | 18 | 8 | 6.2 | 90 | 18 | 1 | 864960 | £ 19,70 |
| 2182 | UNC 3/8 | 16 | 9 | 7 | 90 | 20 | 1 | 864961 | £ 21,92 |
| 2183 | UNC 7/16 | 14 | 8 | 6.2 | 100 | 20 | 1 | 864962 | £ 23,77 |
| 2183 | UNC 1/2 | 13 | 9 | 7 | 110 | 23 | 1 | 864963 | £ 28,60 |
| 2183 | UNC 9/16 | 12 | 11 | 9 | 110 | 25 | 1 | 864964 | £ 37,51 |
| 2183 | UNC 5/8 | 11 | 12 | 9 | 110 | 25 | 1 | 864965 | £ 38,27 |
| 2183 | UNC 3/4 | 10 | 14 | 11 | 125 | 30 | 1 | 864966 | £ 53,86 |
| 2183 | UNC 7/8 | 9 | 18 | 14.5 | 140 | 30 | 1 | 864967 | £ 63,51 |
| 2183 | UNC 1 | 8 | 18 | 14.5 | 160 | 36 | 1 | 864968 | £ 95,82 |

## MACHINE TAP HSSE MULTI MATERIAL SPIRAL FLUTE UNC

GOUJ. 40° | 2B | VAP | DIN 2182 | DIN 2183

A | A-C | F | I

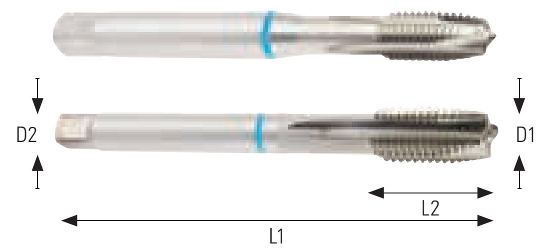



| DIN | D1 Ø Nominal | No. of threads per inch | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 2182 | UNC 4 | 40 | 3.5 | 2.7 | 56 | 5 | 1 | 867025 | £ 25,82 |
| 2182 | UNC 5 | 40 | 3.5 | 2.7 | 56 | 5 | 1 | 864970 | £ 20,81 |
| 2182 | UNC 6 | 32 | 4 | 3 | 56 | 7 | 1 | 864971 | £ 16,81 |
| 2182 | UNC 8 | 32 | 4.5 | 3.4 | 63 | 7 | 1 | 864972 | £ 17,46 |
| 2182 | UNC 10 | 24 | 6 | 4.9 | 70 | 8 | 1 | 864973 | £ 18,21 |
| 2182 | UNC 12 | 24 | 6 | 4.9 | 80 | 10 | 1 | 864974 | £ 18,30 |
| 2182 | UNC 1/4 | 20 | 7 | 5.5 | 80 | 10 | 1 | 864975 | £ 18,94 |
| 2182 | UNC 5/16 | 18 | 8 | 6.2 | 90 | 13 | 1 | 864976 | £ 20,72 |
| 2182 | UNC 3/8 | 16 | 9 | 7 | 90 | 15 | 1 | 864977 | £ 22,19 |
| 2183 | UNC 7/16 | 14 | 8 | 6.2 | 100 | 18 | 1 | 864978 | £ 25,64 |
| 2183 | UNC 1/2 | 13 | 9 | 7 | 110 | 20 | 1 | 864979 | £ 30,09 |
| 2183 | UNC 9/16 | 12 | 11 | 9 | 110 | 20 | 1 | 864980 | £ 40,11 |
| 2183 | UNC 5/8 | 11 | 12 | 9 | 110 | 20 | 1 | 864981 | £ 40,85 |
| 2183 | UNC 3/4 | 10 | 14 | 11 | 125 | 25 | 1 | 864982 | £ 61,28 |
| 2183 | UNC 7/8 | 9 | 18 | 14.5 | 140 | 25 | 1 | 864983 | £ 68,71 |
| 2183 | UNC 1 | 8 | 18 | 14.5 | 160 | 30 | 1 | 864984 | £ 107,69 |

## MACHINE TAP HSSE ALLOY STEELS SPIRAL POINT UNC

POLI | 2B | DIN 371 | DIN 376

A

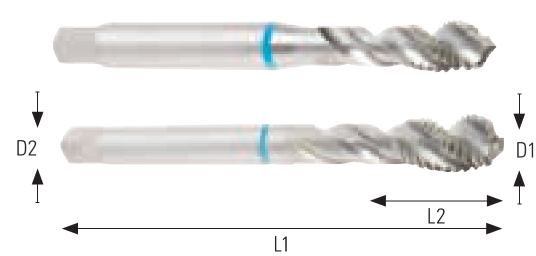



| DIN | D1 Ø Nominal | No. of threads per inch | D2 Ø Shank | Square | Ø in mm | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|---|
| 371 | UNC-4 | 40 | 3.5 | 2.7 | 2.845 | 56 | 11 | 1 | 844712 | £ 13,93 |
| 371 | UNC-6 | 32 | 4 | 3 | 3.505 | 56 | 12 | 1 | 844713 | £ 13,93 |
| 371 | UNC-8 | 32 | 4.5 | 3.4 | 4.166 | 63 | 13 | 1 | 844714 | £ 11,62 |
| 371 | UNC-10 | 24 | 6 | 4.9 | 4.826 | 70 | 14 | 1 | 844715 | £ 11,62 |
| 371 | UNC-1/4 | 20 | 7 | 5.5 | 6.35 | 80 | 18 | 1 | 844717 | £ 13,93 |
| 371 | UNC-5/16 | 18 | 8 | 6.2 | 7.938 | 90 | 20 | 1 | 844718 | £ 16,26 |
| 371 | UNC-3/8 | 16 | 10 | 8 | 9.525 | 100 | 22 | 1 | 844719 | £ 18,57 |
| 376 | UNC-1/2 | 13 | 9 | 7 | 12.7 | 110 | 25 | 1 | 844720 | £ 34,83 |

## MACHINE TAP HSSE ALLOY STEELS SPIRAL FLUTE UNC

GOUJ. 40° | POLI | 2B | DIN 371 | DIN 376

A




| DIN | D1 Ø Nominal | No. of threads per inch | D2 Ø Shank | Square | Ø in mm | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|---|
| 371 | UNC-4 | 40 | 3.5 | 2.7 | 2.845 | 56 | 6.5 | 1 | 844722 | £ 13,93 |
| 371 | UNC-6 | 32 | 4 | 3 | 3.505 | 56 | 8 | 1 | 844723 | £ 11,62 |
| 371 | UNC-8 | 32 | 4.5 | 3.4 | 4.166 | 63 | 8 | 1 | 844724 | £ 11,62 |
| 371 | UNC-10 | 24 | 6 | 4.9 | 4.826 | 70 | 11 | 1 | 844725 | £ 13,93 |
| 371 | UNC-1/4 | 20 | 7 | 5.5 | 6.35 | 80 | 13 | 1 | 844727 | £ 13,93 |
| 371 | UNC-5/16 | 18 | 8 | 6.2 | 7.938 | 90 | 14 | 1 | 844728 | £ 16,26 |
| 371 | UNC-3/8 | 16 | 10 | 8 | 9.525 | 100 | 16 | 1 | 844729 | £ 18,57 |
| 376 | UNC-1/2 | 13 | 9 | 7 | 12.7 | 110 | 20 | 1 | 844730 | £ 32,49 |

| Material group | Material subgroup 1 | Material subgroup 2 | Vc in m/min |
|---|---|---|---|
| 1 - Free turning steel, for construction | 1.1 - Free turning steel | 1.1.1 Up to 500N | 10-20 |
| | | 1.1.2 Greater than 500N | 10-20 |
| 2 - Carburizing steel, for treatment | 2.1 - Carburizing steel | 2.1.1 Up to 150 HB | 10-15 |
| | | 2.1.2 From 150 to 200 HB | 10-15 |
| | 2.3 - Steel for treatment | 2.3.4 Alloyed from 800 to 1000N | 8-12 |
| | | 2.3.5 Alloyed from 1000 to 1300N | 8-12 |
| 3 - Tool steel | 3.1 - Unalloyed tool steel | 3.1.1 General | 10-15 |
| | 3.2 - Tool steel | 3.2.4 High alloy, annealed up to 1000N | 6-10 |
| | 3.4 - High speed steel | 3.4.1 General | 6-10 |

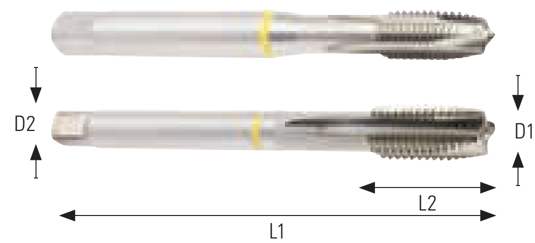


SUGGESTED SALE PRICE

## MACHINE TAP HSSE STAINLESS STEEL SPIRAL POINT UNC

POLI | 2B | DIN 371 | DIN 376

I

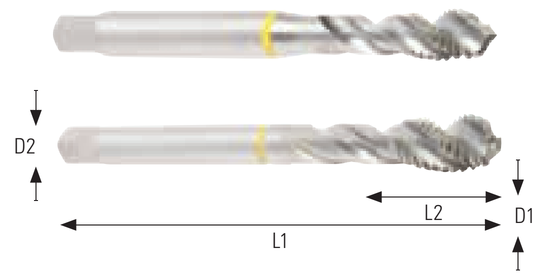



| DIN | D1 Ø Nominal | No. of threads per inch | D2 Ø Shank | Square | Ø in mm | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|---|
| 371 | UNC-4 | 40 | 3.5 | 2.7 | 2.845 | 56 | 11 | 1 | 844754 | £ 12,38 |
| 371 | UNC-6 | 32 | 4 | 3 | 3.505 | 56 | 12 | 1 | 844755 | £ 12,38 |
| 371 | UNC-8 | 32 | 4.5 | 3.4 | 4.166 | 63 | 13 | 1 | 844756 | £ 12,38 |
| 371 | UNC-10 | 24 | 6 | 4.9 | 4.826 | 70 | 14 | 1 | 844757 | £ 12,38 |
| 371 | UNC-1/4 | 20 | 7 | 5.5 | 6.35 | 80 | 18 | 1 | 844759 | £ 12,38 |
| 371 | UNC-5/16 | 18 | 8 | 6.2 | 7.938 | 90 | 20 | 1 | 844760 | £ 18,58 |
| 371 | UNC-3/8 | 16 | 10 | 8 | 9.525 | 100 | 22 | 1 | 844761 | £ 18,58 |
| 376 | UNC-1/2 | 13 | 9 | 7 | 12.7 | 110 | 25 | 1 | 844762 | £ 30,96 |

## MACHINE TAP HSSE STAINLESS STEEL SPIRAL FLUTE UNC

GOUJ. 40° | POLI | 2B | DIN 371 | DIN 376

I



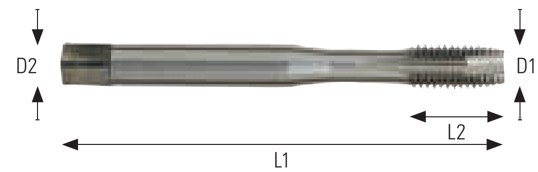

| DIN | D1 Ø Nominal | No. of threads per inch | D2 Ø Shank | Square | Ø in mm | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|---|
| 371 | UNC-4 | 40 | 3.5 | 2.7 | 2.845 | 56 | 6.5 | 1 | 844764 | £ 16,50 |
| 371 | UNC-6 | 32 | 4 | 3 | 3.505 | 56 | 8 | 1 | 844765 | £ 14,45 |
| 371 | UNC-8 | 32 | 4.5 | 3.4 | 4.166 | 63 | 8 | 1 | 844766 | £ 16,50 |
| 371 | UNC-10 | 24 | 6 | 4.9 | 4.826 | 70 | 11 | 1 | 844767 | £ 14,45 |
| 371 | UNC-1/4 | 20 | 7 | 5.5 | 6.35 | 80 | 13 | 1 | 844769 | £ 14,45 |
| 371 | UNC-5/16 | 18 | 8 | 6.2 | 7.938 | 90 | 14 | 1 | 844770 | £ 12,38 |
| 371 | UNC-3/8 | 16 | 10 | 8 | 9.525 | 100 | 16 | 1 | 844771 | £ 18,58 |
| 376 | UNC-1/2 | 13 | 9 | 7 | 12.7 | 110 | 20 | 1 | 844772 | £ 30,96 |

| Material group | Material subgroup 1 | Material subgroup 2 | Vc in m/min |
|---|---|---|---|
| 4 - Stainless steel, temperature resistant | 4.1 - Stainless steel | 4.1.1 Ferritic stainless steel | 6-12 |
| | | 4.1.2 Martensitic stainless steel | 6-12 |
| | | 4.1.3 Austenitic stainless steel | 6-12 |
| | | 4.1.5 Sulphured stainless steel | 6-12 |

## MACHINE TAP HSSE METRIC COARSE BRIGHT SPIRAL POINT

6H | DIN 371 | DIN 376

A | F

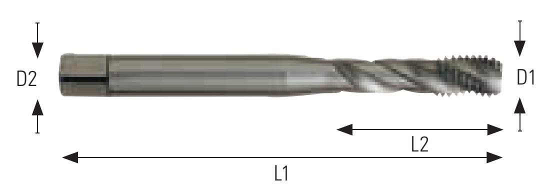



| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 371 | M 3 | 0.5 | 3.5 | 2.7 | 56 | 10 | 1 | 832118 | £ 6,67 |
| 371 | M 4 | 0.7 | 4.5 | 3.4 | 63 | 12 | 1 | 832119 | £ 6,67 |
| 371 | M 5 | 0.8 | 6 | 4.9 | 70 | 14 | 1 | 832120 | £ 6,76 |
| 371 | M 6 | 1 | 6 | 4.9 | 80 | 16 | 1 | 832121 | £ 7,12 |
| 371 | M 8 | 1.25 | 8 | 6.2 | 90 | 18 | 1 | 832122 | £ 8,55 |
| 371 | M 10 | 1.5 | 10 | 8 | 100 | 20 | 1 | 832123 | £ 11,78 |
| 376 | M 12 | 1.75 | 9 | 7 | 110 | 22 | 1 | 832124 | £ 14,65 |
| 376 | M 14 | 2 | 11 | 9 | 110 | 25 | 1 | 832125 | £ 27,21 |
| 376 | M 16 | 2 | 12 | 9 | 110 | 28 | 1 | 832126 | £ 35,88 |
| 376 | M 18 | 2.5 | 14 | 11 | 125 | 32 | 1 | 832127 | £ 42,79 |
| 376 | M 20 | 2.5 | 16 | 12 | 140 | 32 | 1 | 832128 | £ 56,81 |

## MACHINE TAP HSSE METRIC COARSE BRIGHT SPIRAL FLUTE

GOUJ. 40° | 6H | DIN 371 | DIN 376

A | F

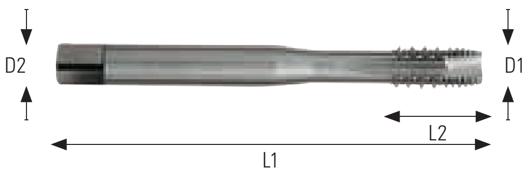



| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 371 | M 3 | 0.5 | 3.5 | 2.7 | 56 | 5 | 1 | 832130 | £ 8,88 |
| 371 | M 4 | 0.7 | 4.5 | 3.4 | 63 | 7 | 1 | 832131 | £ 9,54 |
| 371 | M 5 | 0.8 | 6 | 4.9 | 70 | 9 | 1 | 832132 | £ 9,54 |
| 371 | M 6 | 1 | 6 | 4.9 | 80 | 10 | 1 | 832133 | £ 9,63 |
| 371 | M 8 | 1.25 | 8 | 6.2 | 90 | 12 | 1 | 832134 | £ 11,84 |
| 371 | M 10 | 1.5 | 10 | 8 | 100 | 14 | 1 | 832135 | £ 15,97 |
| 376 | M 12 | 1.75 | 9 | 7 | 110 | 16 | 1 | 832136 | £ 18,21 |
| 376 | M 14 | 2 | 11 | 9 | 110 | 18 | 1 | 832137 | £ 24,10 |
| 376 | M 16 | 2 | 12 | 9 | 110 | 18 | 1 | 832138 | £ 26,01 |
| 376 | M 18 | 2.5 | 14 | 11 | 125 | 25 | 1 | 832139 | £ 38,45 |
| 376 | M 20 | 2.5 | 16 | 12 | 140 | 25 | 1 | 832140 | £ 51,19 |

## MACHINE TAP METRIC HSS INTERMITTENT PITCH

6H | DIN 371 | DIN 376

A | F

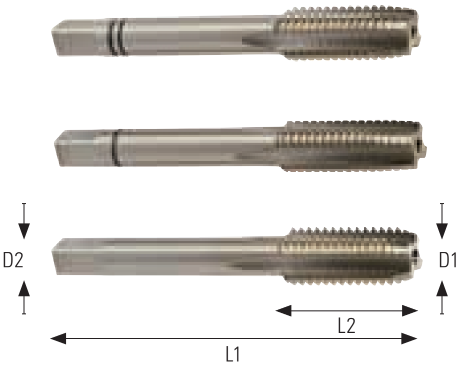



| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| DIN 371 | M3 | 0.5 | 3.5 | 2.7 | 56 | 10 | 1 | 832144 | £ 10,41 |
| DIN 371 | M4 | 0.7 | 4.5 | 3.4 | 63 | 12 | 1 | 832145 | £ 8,43 |
| DIN 371 | M5 | 0.8 | 6 | 4.9 | 70 | 14 | 1 | 832146 | £ 8,73 |
| DIN 371 | M6 | 1 | 6 | 4.9 | 80 | 16 | 1 | 832147 | £ 8,79 |
| DIN 371 | M8 | 1.25 | 8 | 6.2 | 90 | 18 | 1 | 832148 | £ 10,70 |
| DIN 371 | M10 | 1.5 | 10 | 8 | 100 | 20 | 1 | 832149 | £ 12,83 |
| DIN 376 | M12 | 1.75 | 9 | 7 | 110 | 22 | 1 | 832150 | £ 19,11 |

## METRIC COARSE HSS HAND TAP SET 3

6H | DIN 352

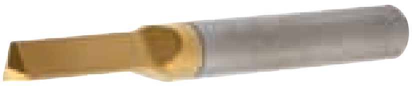
A | F




| DIN | D1 Ø Nominal | Thread | D2 Ø Shank | Square | L1 L. Overall | L2 L. Trimmed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| DIN 352 | M3 | 0.5 | 3.5 | 2.7 | 40 | 11 | 1 | 832152 | £ 11,10 |
| DIN 352 | M4 | 0.7 | 4.5 | 3.4 | 45 | 13 | 1 | 832153 | £ 11,10 |
| DIN 352 | M5 | 0.8 | 6 | 4.9 | 50 | 15 | 1 | 832154 | £ 11,15 |
| DIN 352 | M6 | 1 | 6 | 4.9 | 50 | 16 | 1 | 832155 | £ 11,81 |
| DIN 352 | M8 | 1.25 | 6 | 4.9 | 56 | 22 | 1 | 832156 | £ 14,63 |
| DIN 352 | M10 | 1.5 | 7 | 5.5 | 70 | 24 | 1 | 832157 | £ 16,09 |
| DIN 352 | M12 | 1.75 | 9 | 7 | 75 | 29 | 1 | 832158 | £ 22,68 |
| DIN 352 | M14 | 2 | 11 | 9 | 80 | 30 | 1 | 832159 | £ 34,75 |
| DIN 352 | M16 | 2 | 12 | 9 | 80 | 32 | 1 | 832160 | £ 45,59 |
| DIN 352 | M18 | 2.5 | 14 | 11 | 95 | 40 | 1 | 832161 | £ 63,00 |
| DIN 352 | M20 | 2.5 | 16 | 12 | 95 | 40 | 1 | 832162 | £ 75,96 |

## SOLID CARBIDE BROKEN TAP DRILL OZDT COATED

OZDT | DIN 6539



| DIN | Ø Shank | Ø Cutter | Ø Tapping | L. Overall | L. Cutting | Drilling speed | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| DIN 6539 | 6 | 2.45 | M3 | 38 | 10 | 10 to 28 m/min | 1 | 843354 | £ 23,40 |
| DIN 6539 | 6 | 3.25 | M4 | 46 | 14 | 10 to 28 m/min | 1 | 843355 | £ 23,40 |
| DIN 6539 | 6 | 4.15 | M5 | 50 | 19 | 10 to 28 m/min | 1 | 843356 | £ 24,86 |
| DIN 6539 | 6 | 4.95 | M6 | 50 | 19 | 10 to 28 m/min | 1 | 843357 | £ 27,81 |

## SOLID CARBIDE BROKEN TAP DRILL OZDT COATED M3 - M6 SET 4 PCE

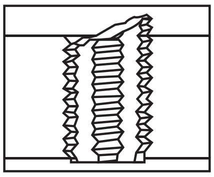
OZDT | DIN 6539


| Content | Drill number | | Ref. | Price each |
|---|---|---|---|---|
| M3. M4. M5. M6 | 4 | 1 | 843038 | £ 93,38 |

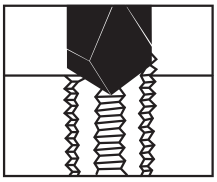
APPLICATIONS:
Adapted for broken taps removal.
Also suitable for drilling difficult materials: glass, chilled cast iron...
Dry drilling.

| Diameter | Speed m/min | f | M | UNC | UNF |
|---|---|---|---|---|---|
| 2,45 | 10 to 28 | 0,05 | M3 | 4/40 | 6/40 |
| 3,25 | 10 to 28 | 0,08 | M4-M5 | 8/32 | 10/32 |
| 4,15 | 10 to 28 | 0,10 | M6 | 1/4-5/16 | 1/4-5/16 |
| 4,95 | 10 to 28 | 0,10 | M8-M10 | 5/16-3/8 | 5/16-3/8 |

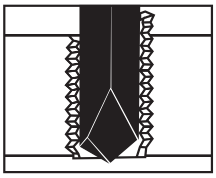
INSTRUCTIONS



Secure the workpiece with a vice. Center the drill ti the broken tap.



Drill the broken tap using a larger drill than the thread.



Select the appropriate drill (see work chart). Drill with a constant lead. Remove the chips regularly.

Once the tap is drilled, remove the remaining pieces with a scribe.


CALCULATE
YOUR CUTTING SPEED
IN A SIMPLE WAY!
The Cutline Calculator app is the key tool to ease your calculations when standing in front of a machine or a computer.
It allows you a fast conversion of cutting speed and feed in turning, milling, drilling and tapping.
Available in Androïd, IOS, Windows and web versions.
iOS
Proposed by GISS Cutline
www.giss.com
CUTLINE

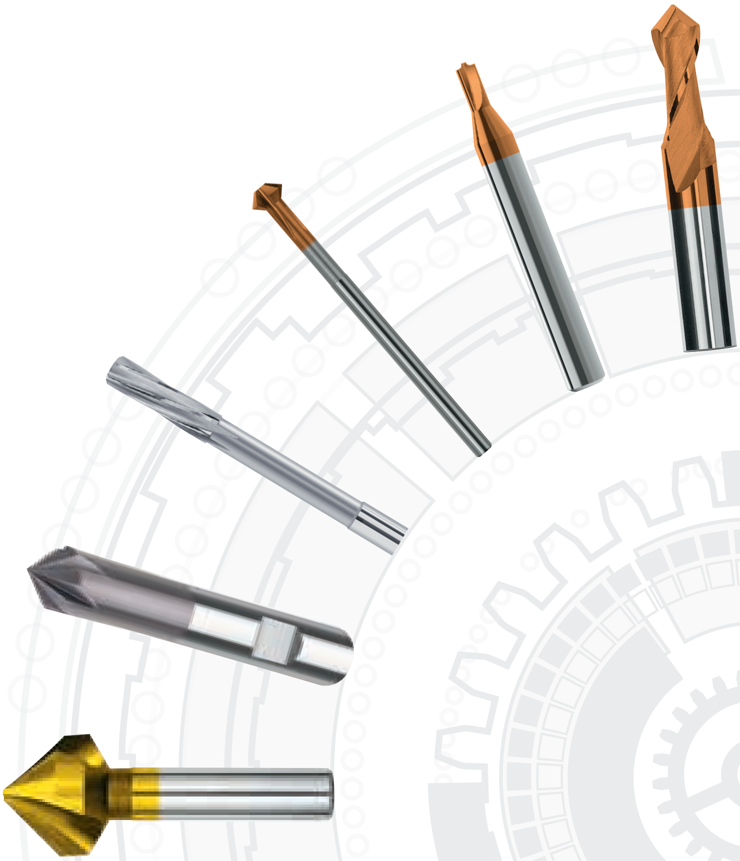
## REAMERS AND THREADING ACCESSORIES



## COUNTERSINKS

Pages **160** to **221**





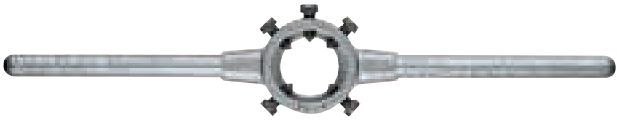
## METRIC COARSE HSS CIRCULAR SPLIT DIE

NFE 74001

| Diameter | Thread | Ø bore hole | Thickness | | Ref. | Price each |
|---|---|---|---|---|---|---|
| M3 | 0.5 | 25.4 | 9 | 1 | 832166 | £ 15,10 |
| M4 | 0.7 | 25.4 | 9 | 1 | 832167 | £ 15,10 |
| M5 | 0.8 | 25.4 | 9 | 1 | 832168 | £ 15,10 |
| M6 | 1 | 25.4 | 9 | 1 | 832169 | £ 15,10 |
| M8 | 1.25 | 25.4 | 9 | 1 | 832170 | £ 15,10 |
| M10 | 1.5 | 25.4 | 9 | 1 | 832171 | £ 15,10 |
| M10 | 1.5 | 38.1 | 13 | 1 | 832172 | £ 31,16 |
| M12 | 1.75 | 38.1 | 13 | 1 | 832173 | £ 31,16 |
| M14 | 2 | 38.1 | 13 | 1 | 832174 | £ 31,16 |
| M16 | 2 | 38.1 | 13 | 1 | 832175 | £ 34,12 |
| M18 | 2.5 | 38.1 | 13 | 1 | 832176 | £ 39,23 |
| M20 | 2.5 | 38.1 | 13 | 1 | 832177 | £ 39,23 |

## DIE STOCK HOLDER

NFE 74001



| DIN | Ø bore hole | Thickness | Length | | Ref. | Price each |
|---|---|---|---|---|---|---|
| DIN 225 | 25.4 | 9 | 224 | 1 | 843717 | £ 7,59 |
| DIN 225 | 38.1 | 14 | 315 | 1 | 843718 | £ 15,19 |

## ADJUSTABLE TAP WRENCH

ISO 2568 NFE 66130

| Diameter | | Ref. | Price each |
|---|---|---|---|
| M1 to M10 | 1 | 828229 | £ 10,64 |
| M4 to M12 | 1 | 828230 | £ 14,52 |



SUGGESTED SALE PRICE

## METRIC HSS TAP AND DIE SET M3 - M20

Case of thread-cutters and die-stocks from M3 to M20 in HSS (56 pieces)

DIN 352 | DIN 223

| Ref. | Price each |
|---|---|
| 5103071 | £ 365,00 |


## METRIC HSS TAP AND DIE SET M3 - M12

Case of thread-cutters and die-stocks from M3 to M12 in HSS (33 segments)

DIN 352 | DIN 223

| Ref. | Price each |
|---|---|
| 5103072 | £ 120,00 |


## METRIC DRILL, TAP AND DIE SET M3 - M12

Case of drills, taps and die-stocks from M3 to M12 in HSS (45 pieces)

DIN 352 | DIN 223

| Ref. | Price each |
|---|---|
| 7281149 | £ 235,00 |

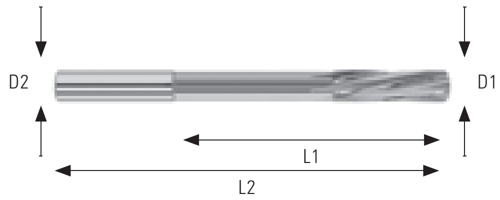
## TAP WRENCH

| Square drive adapter | | Ref. | Price each |
|---|---|---|---|
| 2-5 | 1 | 828234 | £ 16,60 |
| 4,6-8 | 1 | 828235 | £ 19,08 |

# MACHINE REAMER H7 SPIRAL FLUTE HSS CO5%

DIN 212B

10°




The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.

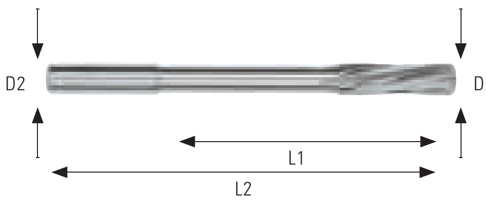
| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Cutting | L2<br>L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 1 | 22 | 38 | 1 | 869691 | £ 17,06 |
| 1,5 | 1.5 | 22 | 40 | 1 | 869692 | £ 16,54 |
| 2 | 2 | 31 | 49 | 1 | 869693 | £ 15,47 |
| 2,5 | 2.5 | 38 | 57 | 1 | 869694 | £ 14,93 |
| 3 | 3 | 38 | 57 | 1 | 702335 | £ 14,13 |
| 3.175 (1/8") | 3.175 | 38 | 57 | 1 | 869695 | £ 14,93 |
| 3,5 | 3.5 | 51 | 57 | 1 | 869696 | £ 14,93 |
| 4 | 4 | 51 | 75 | 1 | 702336 | £ 15,23 |
| 4,5 | 4.5 | 55 | 80 | 1 | 869697 | £ 16,01 |
| 4.762 (3/16") | 5 | 60 | 86 | 1 | 869698 | £ 16,15 |
| 5 | 5 | 60 | 86 | 1 | 702337 | £ 16,15 |
| 5,5 | 5.5 | 66 | 93 | 1 | 869699 | £ 16,33 |
| 6 | 6 | 73 | 101 | 1 | 702338 | £ 16,45 |
| 6.35 (1/4") | 6 | 73 | 101 | 1 | 869700 | £ 19,73 |
| 6,5 | 6 | 73 | 101 | 1 | 869701 | £ 19,73 |
| 7 | 7 | 80 | 109 | 1 | 702339 | £ 20,67 |
| 7,5 | 7 | 80 | 109 | 1 | 869702 | £ 21,31 |
| 7.937 (5/16") | 8 | 86 | 117 | 1 | 869703 | £ 21,31 |
| 8 | 8 | 86 | 117 | 1 | 702340 | £ 21,31 |
| 8,5 | 8 | 86 | 117 | 1 | 869704 | £ 27,29 |
| 9 | 9 | 91 | 125 | 1 | 702341 | £ 27,29 |
| 9,5 | 9 | 91 | 125 | 1 | 869705 | £ 27,55 |
| 9.525 (3/8") | 9 | 91 | 125 | 1 | 869706 | £ 27,55 |
| 10 | 10 | 99 | 133 | 1 | 702342 | £ 27,55 |
| 10,5 | 10 | 99 | 133 | 1 | 869707 | £ 33,79 |
| 11 | 10 | 99 | 133 | 1 | 702343 | £ 33,79 |
| 11.112 (7/16") | 10 | 99 | 133 | 1 | 869708 | £ 35,60 |
| 11,5 | 12 | 106 | 151 | 1 | 869709 | £ 35,60 |
| 12 | 12 | 106 | 151 | 1 | 702344 | £ 35,60 |
| 12.7 (1/2") | 12 | 106 | 151 | 1 | 869710 | £ 40,64 |
| 13 | 12 | 106 | 151 | 1 | 702345 | £ 40,64 |
| 14 | 14 | 110 | 160 | 1 | 702346 | £ 42,54 |
| 14.287 ( 9/16" ) | 14 | 112 | 162 | 1 | 869711 | £ 46,78 |
| 15 | 14 | 112 | 162 | 1 | 702347 | £ 46,78 |
| 15.875 ( 5/8" ) | 16 | 117 | 170 | 1 | 869712 | £ 49,04 |
| 16 | 16 | 117 | 170 | 1 | 702348 | £ 49,04 |
| 18 | 16 | 129 | 182 | 1 | 869713 | £ 63,47 |
| 19.05 ( 3/4" ) | 16 | 136 | 189 | 1 | 869714 | £ 70,72 |
| 20 | 16 | 142 | 195 | 1 | 869715 | £ 70,72 |

## MACHINE REAMER H7 CARBIDE SPIRAL FLUTE

DIN 212B

10°

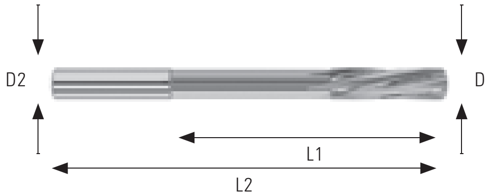
The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.




| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1 | 1 | 22 | 38 | 1 | 870252 | £ 42,66 |
| 1,5 | 1.5 | 22 | 40 | 1 | 870253 | £ 42,66 |
| 2 | 2 | 31 | 49 | 1 | 870254 | £ 42,66 |
| 2,5 | 2.5 | 38 | 57 | 1 | 870255 | £ 42,66 |
| 3 | 3 | 38 | 57 | 1 | 870256 | £ 42,66 |
| 3.175 (1/8") | 3.175 | 38 | 57 | 1 | 870257 | £ 42,66 |
| 3,5 | 3.5 | 51 | 57 | 1 | 870258 | £ 42,66 |
| 4 | 4 | 51 | 75 | 1 | 870259 | £ 46,92 |
| 4,5 | 4.5 | 55 | 80 | 1 | 870260 | £ 50,13 |
| 4.762 (3/16") | 5 | 60 | 86 | 1 | 870261 | £ 50,13 |
| 5 | 5 | 60 | 86 | 1 | 870262 | £ 50,13 |
| 5,5 | 5.5 | 66 | 93 | 1 | 870263 | £ 52,27 |
| 6 | 6 | 73 | 101 | 1 | 870264 | £ 52,27 |
| 6.35 (1/4") | 6 | 73 | 101 | 1 | 870265 | £ 55,45 |
| 6,5 | 6 | 73 | 101 | 1 | 870266 | £ 55,45 |
| 7 | 7 | 80 | 109 | 1 | 870267 | £ 63,99 |
| 7,5 | 7 | 80 | 109 | 1 | 870268 | £ 72,52 |
| 7.937 (5/16") | 8 | 86 | 117 | 1 | 870269 | £ 72,52 |
| 8 | 8 | 86 | 117 | 1 | 870270 | £ 72,52 |
| 8,5 | 8 | 86 | 117 | 1 | 870271 | £ 79,99 |
| 9 | 9 | 91 | 125 | 1 | 870272 | £ 90,66 |
| 9,5 | 9 | 91 | 125 | 1 | 870273 | £ 90,66 |
| 9.525 (3/8") | 9 | 91 | 125 | 1 | 870274 | £ 90,66 |
| 10 | 10 | 99 | 133 | 1 | 870275 | £ 90,66 |
| 10,5 | 10 | 99 | 133 | 1 | 870276 | £ 117,31 |
| 11 | 10 | 99 | 133 | 1 | 870277 | £ 117,31 |
| 11.112 (7/16") | 10 | 99 | 133 | 1 | 870278 | £ 127,97 |
| 11,5 | 12 | 106 | 151 | 1 | 870279 | £ 127,97 |
| 12 | 12 | 106 | 151 | 1 | 870280 | £ 127,97 |
| 12.7 (1/2") | 12 | 106 | 151 | 1 | 870281 | £ 154,64 |

# HIGH PRECISION MACHINE REAMERS - HSS CO5% - HPR

DIN 212B | NFE 66014 | 10°



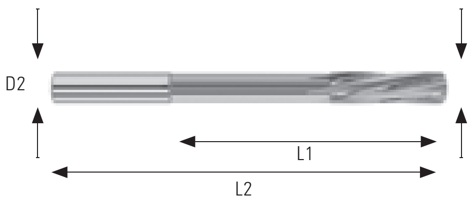

The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.
Tolerance: From Ø 0.6 to 3.00 = 0 / +3µ - From Ø 3.01 to 6.00 = 0 / +4µ   From Ø 6.01 to 20.00 = 0 / +5µ - Tail diameter h8

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 0,6 | 0.6 | 17 | 33 | 1 | 871593 | £ 34,60 |
| 0,61 | 0.61 | 17 | 33 | 1 | 871594 | £ 34,60 |
| 0,62 | 0.62 | 17 | 33 | 1 | 871595 | £ 34,60 |
| 0,63 | 0.63 | 17 | 33 | 1 | 871596 | £ 34,60 |
| 0,64 | 0.64 | 17 | 33 | 1 | 871597 | £ 34,60 |
| 0,65 | 0.65 | 17 | 33 | 1 | 871598 | £ 34,60 |
| 0,66 | 0.66 | 17 | 33 | 1 | 871599 | £ 34,60 |
| 0,67 | 0.67 | 17 | 33 | 1 | 871600 | £ 34,60 |
| 0,68 | 0.68 | 17 | 33 | 1 | 871601 | £ 34,60 |
| 0,69 | 0.69 | 17 | 33 | 1 | 871602 | £ 34,60 |
| 0,7 | 0.7 | 17 | 33 | 1 | 871603 | £ 26,23 |
| 0,71 | 0.71 | 17 | 33 | 1 | 871604 | £ 26,23 |
| 0,72 | 0.72 | 17 | 33 | 1 | 871605 | £ 26,23 |
| 0,73 | 0.73 | 17 | 33 | 1 | 871606 | £ 26,23 |
| 0,74 | 0.74 | 17 | 33 | 1 | 871607 | £ 26,23 |
| 0,75 | 0.75 | 17 | 33 | 1 | 871608 | £ 26,23 |
| 0,76 | 0.76 | 17 | 33 | 1 | 871609 | £ 26,23 |
| 0,77 | 0.77 | 17 | 33 | 1 | 871610 | £ 26,23 |
| 0,78 | 0.78 | 17 | 33 | 1 | 871611 | £ 26,23 |
| 0,79 | 0.79 | 17 | 33 | 1 | 871612 | £ 26,23 |
| 0,8 | 0.8 | 22 | 38 | 1 | 871613 | £ 23,44 |
| 0,81 | 0.81 | 22 | 38 | 1 | 871614 | £ 23,44 |
| 0,82 | 0.82 | 22 | 38 | 1 | 871615 | £ 23,44 |
| 0,83 | 0.83 | 22 | 38 | 1 | 871616 | £ 23,44 |
| 0,84 | 0.84 | 22 | 38 | 1 | 871617 | £ 23,44 |
| 0,85 | 0.85 | 22 | 38 | 1 | 871618 | £ 23,44 |
| 0,86 | 0.86 | 22 | 38 | 1 | 871619 | £ 23,44 |
| 0,87 | 0.87 | 22 | 38 | 1 | 871620 | £ 23,44 |
| 0,88 | 0.88 | 22 | 38 | 1 | 871621 | £ 23,44 |
| 0,89 | 0.89 | 22 | 38 | 1 | 871622 | £ 23,44 |
| 0,9 | 0.9 | 22 | 38 | 1 | 871623 | £ 23,44 |
| 0,91 | 0.91 | 22 | 38 | 1 | 871624 | £ 23,44 |
| 0,92 | 0.92 | 22 | 38 | 1 | 871625 | £ 23,44 |
| 0,93 | 0.93 | 22 | 38 | 1 | 871626 | £ 23,44 |
| 0,94 | 0.94 | 22 | 38 | 1 | 871627 | £ 23,44 |
| 0,95 | 0.95 | 22 | 38 | 1 | 871628 | £ 23,44 |
| 0,96 | 0.96 | 22 | 38 | 1 | 871629 | £ 23,44 |
| 0,97 | 0.97 | 22 | 38 | 1 | 871630 | £ 23,44 |
| 0,98 | 0.98 | 22 | 38 | 1 | 871631 | £ 23,44 |
| 0,99 | 0.99 | 22 | 38 | 1 | 871632 | £ 23,44 |
| 1 | 1 | 22 | 38 | 1 | 871633 | £ 23,44 |
| 1,01 | 1.01 | 22 | 38 | 1 | 871634 | £ 23,44 |
| 1,02 | 1.02 | 22 | 38 | 1 | 871635 | £ 23,44 |
| 1,03 | 1.03 | 22 | 38 | 1 | 871636 | £ 23,44 |
| 1,04 | 1.04 | 22 | 38 | 1 | 871637 | £ 23,44 |
| 1,05 | 1.05 | 22 | 38 | 1 | 871638 | £ 23,44 |
| 1,06 | 1.06 | 24 | 40 | 1 | 871639 | £ 18,97 |
| 1,07 | 1.07 | 24 | 40 | 1 | 871640 | £ 18,97 |
| 1,08 | 1.08 | 24 | 40 | 1 | 871641 | £ 18,97 |
| 1,09 | 1.09 | 24 | 40 | 1 | 871642 | £ 18,97 |
| 1,1 | 1.1 | 24 | 40 | 1 | 871643 | £ 18,97 |
| 1,11 | 1.11 | 24 | 40 | 1 | 871644 | £ 18,97 |
| 1,12 | 1.12 | 24 | 40 | 1 | 871645 | £ 18,97 |
| 1,13 | 1.13 | 24 | 40 | 1 | 871646 | £ 18,97 |
| 1,14 | 1.14 | 24 | 40 | 1 | 871647 | £ 18,97 |
| 1,15 | 1.15 | 24 | 40 | 1 | 871648 | £ 18,97 |
| 1,16 | 1.16 | 24 | 40 | 1 | 871649 | £ 18,97 |
| 1,17 | 1.17 | 24 | 40 | 1 | 871650 | £ 18,97 |
| 1,18 | 1.18 | 24 | 40 | 1 | 871651 | £ 18,97 |
| 1,19 | 1.19 | 24 | 40 | 1 | 871652 | £ 18,97 |

CUTTING TOOLS

## HIGH PRECISION MACHINE REAMERS - HSS CO5% - HPR

DIN 212B | NFE 66014 | 10°



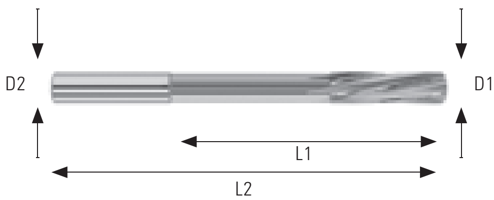

The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.
Tolerance: From Ø 0.6 to 3.00 = 0 / +3µ - From Ø 3.01 to 6.00 = 0 / +4µ - From Ø 6.01 to 20.00 = 0 / +5µ - Tail diameter h8

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1,2 | 1.2 | 24 | 40 | 1 | 871653 | £ 18,97 |
| 1,21 | 1.21 | 24 | 40 | 1 | 871654 | £ 18,97 |
| 1,22 | 1.22 | 24 | 40 | 1 | 871655 | £ 18,97 |
| 1,23 | 1.23 | 24 | 40 | 1 | 871656 | £ 18,97 |
| 1,24 | 1.24 | 24 | 40 | 1 | 871657 | £ 18,97 |
| 1,25 | 1.25 | 24 | 40 | 1 | 871658 | £ 18,97 |
| 1,26 | 1.26 | 24 | 40 | 1 | 871659 | £ 18,97 |
| 1,27 | 1.27 | 24 | 40 | 1 | 871660 | £ 18,97 |
| 1,28 | 1.28 | 24 | 40 | 1 | 871661 | £ 18,97 |
| 1,29 | 1.29 | 24 | 40 | 1 | 871662 | £ 18,97 |
| 1,3 | 1.3 | 24 | 40 | 1 | 871663 | £ 18,97 |
| 1,31 | 1.31 | 24 | 40 | 1 | 871664 | £ 18,97 |
| 1,32 | 1.32 | 24 | 40 | 1 | 871665 | £ 18,97 |
| 1,33 | 1.33 | 24 | 40 | 1 | 871666 | £ 18,97 |
| 1,34 | 1.34 | 24 | 40 | 1 | 871667 | £ 18,97 |
| 1,35 | 1.35 | 24 | 40 | 1 | 871668 | £ 18,97 |
| 1,36 | 1.36 | 24 | 40 | 1 | 871669 | £ 18,97 |
| 1,37 | 1.37 | 24 | 40 | 1 | 871670 | £ 18,97 |
| 1,38 | 1.38 | 24 | 40 | 1 | 871671 | £ 18,97 |
| 1,39 | 1.39 | 24 | 40 | 1 | 871672 | £ 18,97 |
| 1,4 | 1.4 | 24 | 40 | 1 | 871673 | £ 18,97 |
| 1,41 | 1.41 | 24 | 40 | 1 | 871674 | £ 18,97 |
| 1,42 | 1.42 | 24 | 40 | 1 | 871675 | £ 18,97 |
| 1,43 | 1.43 | 24 | 40 | 1 | 871676 | £ 18,97 |
| 1,44 | 1.44 | 24 | 40 | 1 | 871677 | £ 18,97 |
| 1,45 | 1.45 | 24 | 40 | 1 | 871678 | £ 18,97 |
| 1,46 | 1.46 | 24 | 40 | 1 | 871679 | £ 18,97 |
| 1,47 | 1.47 | 24 | 40 | 1 | 871680 | £ 18,97 |
| 1,48 | 1.48 | 24 | 40 | 1 | 871681 | £ 18,97 |
| 1,49 | 1.49 | 24 | 40 | 1 | 871682 | £ 18,97 |
| 1,5 | 1.5 | 24 | 40 | 1 | 871683 | £ 18,97 |
| 1,51 | 1.51 | 24 | 40 | 1 | 871684 | £ 18,97 |
| 1,52 | 1.52 | 24 | 40 | 1 | 871685 | £ 18,97 |
| 1,53 | 1.53 | 24 | 40 | 1 | 871686 | £ 18,97 |
| 1,54 | 1.54 | 24 | 40 | 1 | 871687 | £ 18,97 |
| 1,55 | 1.55 | 24 | 40 | 1 | 871688 | £ 18,97 |
| 1,56 | 1.56 | 26 | 43 | 1 | 871689 | £ 18,97 |
| 1,57 | 1.57 | 26 | 43 | 1 | 871690 | £ 18,97 |
| 1,58 | 1.58 | 26 | 43 | 1 | 871691 | £ 18,97 |
| 1,59 | 1.59 | 26 | 43 | 1 | 871692 | £ 18,97 |
| 1,6 | 1.6 | 26 | 43 | 1 | 871693 | £ 18,97 |
| 1,61 | 1.61 | 26 | 43 | 1 | 871694 | £ 18,97 |
| 1,62 | 1.62 | 26 | 43 | 1 | 871695 | £ 18,97 |
| 1,63 | 1.63 | 26 | 43 | 1 | 871696 | £ 18,97 |
| 1,64 | 1.64 | 26 | 43 | 1 | 871697 | £ 18,97 |
| 1,65 | 1.65 | 26 | 43 | 1 | 871698 | £ 18,97 |
| 1,66 | 1.66 | 26 | 43 | 1 | 871699 | £ 18,97 |
| 1,67 | 1.67 | 26 | 43 | 1 | 871700 | £ 18,97 |
| 1,68 | 1.68 | 26 | 43 | 1 | 871701 | £ 18,97 |
| 1,69 | 1.69 | 26 | 43 | 1 | 871702 | £ 18,97 |
| 1,7 | 1.7 | 26 | 43 | 1 | 871703 | £ 18,97 |
| 1,71 | 1.71 | 26 | 43 | 1 | 871704 | £ 18,97 |
| 1,72 | 1.72 | 26 | 43 | 1 | 871705 | £ 18,97 |
| 1,73 | 1.73 | 26 | 43 | 1 | 871706 | £ 18,97 |
| 1,74 | 1.74 | 26 | 43 | 1 | 871707 | £ 18,97 |
| 1,75 | 1.75 | 26 | 43 | 1 | 871708 | £ 18,97 |
| 1,76 | 1.76 | 26 | 43 | 1 | 871709 | £ 18,97 |
| 1,77 | 1.77 | 26 | 43 | 1 | 871710 | £ 18,97 |
| 1,78 | 1.78 | 26 | 43 | 1 | 871711 | £ 18,97 |
| 1,79 | 1.79 | 26 | 43 | 1 | 871712 | £ 18,97 |
| 1,8 | 1.8 | 31 | 49 | 1 | 871713 | £ 18,97 |
| 1,81 | 1.81 | 31 | 49 | 1 | 871714 | £ 18,97 |
| 1,82 | 1.82 | 31 | 49 | 1 | 871715 | £ 18,97 |
| 1,83 | 1.83 | 31 | 49 | 1 | 871716 | £ 18,97 |

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1,84 | 1.84 | 31 | 49 | 1 | 871717 | £ 18,97 |
| 1,85 | 1.85 | 31 | 49 | 1 | 871718 | £ 18,97 |
| 1,86 | 1.86 | 31 | 49 | 1 | 871719 | £ 18,97 |
| 1,87 | 1.87 | 31 | 49 | 1 | 871720 | £ 18,97 |
| 1,88 | 1.88 | 31 | 49 | 1 | 871721 | £ 18,97 |
| 1,89 | 1.89 | 31 | 49 | 1 | 871722 | £ 18,97 |
| 1,9 | 1.9 | 31 | 49 | 1 | 871723 | £ 18,97 |
| 1,91 | 1.91 | 31 | 49 | 1 | 871724 | £ 18,97 |
| 1,92 | 1.92 | 31 | 49 | 1 | 871725 | £ 18,97 |
| 1,93 | 1.93 | 31 | 49 | 1 | 871726 | £ 18,97 |
| 1,94 | 1.94 | 31 | 49 | 1 | 871727 | £ 18,97 |
| 1,95 | 1.95 | 31 | 49 | 1 | 871728 | £ 18,97 |
| 1,96 | 1.96 | 31 | 49 | 1 | 871729 | £ 18,97 |
| 1,97 | 1.97 | 31 | 49 | 1 | 871730 | £ 18,97 |
| 1,98 | 1.98 | 31 | 49 | 1 | 871731 | £ 18,97 |
| 1,99 | 1.99 | 31 | 49 | 1 | 871732 | £ 18,97 |
| 2 | 2 | 31 | 49 | 1 | 871733 | £ 18,97 |
| 2,01 | 2.01 | 31 | 49 | 1 | 871734 | £ 18,97 |
| 2,02 | 2.02 | 31 | 49 | 1 | 871735 | £ 18,97 |
| 2,03 | 2.03 | 31 | 49 | 1 | 871736 | £ 18,97 |
| 2,04 | 2.04 | 31 | 49 | 1 | 871737 | £ 18,97 |
| 2,05 | 2.05 | 31 | 49 | 1 | 871738 | £ 18,97 |
| 2,06 | 2.06 | 31 | 49 | 1 | 871739 | £ 17,03 |
| 2,07 | 2.07 | 31 | 49 | 1 | 871740 | £ 17,03 |
| 2,08 | 2.08 | 31 | 49 | 1 | 871741 | £ 17,03 |
| 2,09 | 2.09 | 31 | 49 | 1 | 871742 | £ 17,03 |
| 2,1 | 2.1 | 31 | 49 | 1 | 871743 | £ 17,03 |
| 2,11 | 2.11 | 31 | 49 | 1 | 871744 | £ 17,03 |
| 2,12 | 2.12 | 31 | 49 | 1 | 871745 | £ 17,03 |
| 2,13 | 2.13 | 31 | 49 | 1 | 871746 | £ 17,03 |
| 2,14 | 2.14 | 31 | 49 | 1 | 871747 | £ 17,03 |
| 2,15 | 2.15 | 31 | 49 | 1 | 871748 | £ 17,03 |
| 2,16 | 2.16 | 31 | 49 | 1 | 871749 | £ 17,03 |
| 2,17 | 2.17 | 31 | 49 | 1 | 871750 | £ 17,03 |
| 2,18 | 2.18 | 31 | 49 | 1 | 871751 | £ 17,03 |
| 2,19 | 2.19 | 31 | 49 | 1 | 871752 | £ 17,03 |
| 2,2 | 2.2 | 31 | 49 | 1 | 871753 | £ 17,03 |
| 2,21 | 2.21 | 31 | 49 | 1 | 871754 | £ 17,03 |
| 2,22 | 2.22 | 31 | 49 | 1 | 871755 | £ 17,03 |
| 2,23 | 2.23 | 31 | 49 | 1 | 871756 | £ 17,03 |
| 2,24 | 2.24 | 31 | 49 | 1 | 871757 | £ 17,03 |
| 2,25 | 2.25 | 31 | 49 | 1 | 871758 | £ 17,03 |
| 2,26 | 2.26 | 31 | 49 | 1 | 871759 | £ 17,03 |
| 2,27 | 2.27 | 31 | 49 | 1 | 871760 | £ 17,03 |
| 2,28 | 2.28 | 31 | 49 | 1 | 871761 | £ 17,03 |
| 2,29 | 2.29 | 31 | 49 | 1 | 871762 | £ 17,03 |
| 2,3 | 2.3 | 31 | 49 | 1 | 871763 | £ 17,03 |
| 2,31 | 2.31 | 31 | 49 | 1 | 871764 | £ 17,03 |
| 2,32 | 2.32 | 31 | 49 | 1 | 871765 | £ 17,03 |
| 2,33 | 2.33 | 31 | 49 | 1 | 871766 | £ 17,03 |
| 2,34 | 2.34 | 31 | 49 | 1 | 871767 | £ 17,03 |
| 2,35 | 2.35 | 31 | 49 | 1 | 871768 | £ 17,03 |
| 2,36 | 2.36 | 31 | 49 | 1 | 871769 | £ 17,03 |
| 2,37 | 2.37 | 38 | 57 | 1 | 871770 | £ 17,03 |
| 2,38 | 2.38 | 38 | 57 | 1 | 871771 | £ 17,03 |
| 2,39 | 2.39 | 38 | 57 | 1 | 871772 | £ 17,03 |
| 2,4 | 2.4 | 38 | 57 | 1 | 871773 | £ 17,03 |
| 2,41 | 2.41 | 38 | 57 | 1 | 871774 | £ 17,03 |
| 2,42 | 2.42 | 38 | 57 | 1 | 871775 | £ 17,03 |
| 2,43 | 2.43 | 38 | 57 | 1 | 871776 | £ 17,03 |
| 2,44 | 2.44 | 38 | 57 | 1 | 871777 | £ 17,03 |
| 2,45 | 2.45 | 38 | 57 | 1 | 871778 | £ 17,03 |
| 2,46 | 2.46 | 38 | 57 | 1 | 871779 | £ 17,03 |
| 2,47 | 2.47 | 38 | 57 | 1 | 871780 | £ 17,03 |
| 2,48 | 2.48 | 38 | 57 | 1 | 871781 | £ 17,03 |
| 2,49 | 2.49 | 38 | 57 | 1 | 871782 | £ 17,03 |
| 2,5 | 2.5 | 38 | 57 | 1 | 871783 | £ 17,03 |
| 2,51 | 2.51 | 38 | 57 | 1 | 871784 | £ 17,03 |
| 2,52 | 2.52 | 38 | 57 | 1 | 871785 | £ 17,03 |
| 2,53 | 2.53 | 38 | 57 | 1 | 871786 | £ 17,03 |
| 2,54 | 2.54 | 38 | 57 | 1 | 871787 | £ 17,03 |
| 2,55 | 2.55 | 38 | 57 | 1 | 871788 | £ 17,03 |
| 2,56 | 2.56 | 38 | 57 | 1 | 871789 | £ 17,03 |
| 2,57 | 2.57 | 38 | 57 | 1 | 871790 | £ 17,03 |
| 2,58 | 2.58 | 38 | 57 | 1 | 871791 | £ 17,03 |
| 2,59 | 2.59 | 38 | 57 | 1 | 871792 | £ 17,03 |

## HIGH PRECISION MACHINE REAMERS - HSS CO5% - HPR

DIN 212B | NFE 66014 | 10°



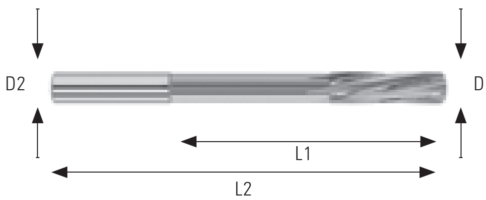

The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.
Tolerance: From Ø 0.6 to 3.00 = 0 / +3µ - From Ø 3.01 to 6.00 = 0 / +4µ - From Ø 6.01 to 20.00 = 0 / +5µ - Tail diameter h8

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 2,6 | 2.6 | 38 | 57 | 1 | 871793 | £ 17,03 |
| 2,61 | 2.61 | 38 | 57 | 1 | 871794 | £ 17,03 |
| 2,62 | 2.62 | 38 | 57 | 1 | 871795 | £ 17,03 |
| 2,63 | 2.63 | 38 | 57 | 1 | 871796 | £ 17,03 |
| 2,64 | 2.64 | 38 | 57 | 1 | 871797 | £ 17,03 |
| 2,65 | 2.65 | 38 | 57 | 1 | 871798 | £ 17,03 |
| 2,66 | 2.66 | 38 | 57 | 1 | 871799 | £ 17,03 |
| 2,67 | 2.67 | 38 | 57 | 1 | 871800 | £ 17,03 |
| 2,68 | 2.68 | 38 | 57 | 1 | 871801 | £ 17,03 |
| 2,69 | 2.69 | 38 | 57 | 1 | 871802 | £ 17,03 |
| 2,7 | 2.7 | 38 | 57 | 1 | 871803 | £ 17,03 |
| 2,71 | 2.71 | 38 | 57 | 1 | 871804 | £ 17,03 |
| 2,72 | 2.72 | 38 | 57 | 1 | 871805 | £ 17,03 |
| 2,73 | 2.73 | 38 | 57 | 1 | 871806 | £ 17,03 |
| 2,74 | 2.74 | 38 | 57 | 1 | 871807 | £ 17,03 |
| 2,75 | 2.75 | 38 | 57 | 1 | 871808 | £ 17,03 |
| 2,76 | 2.76 | 38 | 57 | 1 | 871809 | £ 17,03 |
| 2,77 | 2.77 | 38 | 57 | 1 | 871810 | £ 17,03 |
| 2,78 | 2.78 | 38 | 57 | 1 | 871811 | £ 17,03 |
| 2,79 | 2.79 | 38 | 57 | 1 | 871812 | £ 17,03 |
| 2,8 | 2.8 | 38 | 57 | 1 | 871813 | £ 17,03 |
| 2,81 | 2.81 | 38 | 57 | 1 | 871814 | £ 17,03 |
| 2,82 | 2.82 | 38 | 57 | 1 | 871815 | £ 17,03 |
| 2,83 | 2.83 | 38 | 57 | 1 | 871816 | £ 17,03 |
| 2,84 | 2.84 | 38 | 57 | 1 | 871817 | £ 17,03 |
| 2,85 | 2.85 | 38 | 57 | 1 | 871818 | £ 17,03 |
| 2,86 | 2.86 | 38 | 57 | 1 | 871819 | £ 17,03 |
| 2,87 | 2.87 | 38 | 57 | 1 | 871820 | £ 17,03 |
| 2,88 | 2.88 | 38 | 57 | 1 | 871821 | £ 17,03 |
| 2,89 | 2.89 | 38 | 57 | 1 | 871822 | £ 17,03 |
| 2,9 | 2.9 | 38 | 57 | 1 | 871823 | £ 17,03 |
| 2,91 | 2.91 | 38 | 57 | 1 | 871824 | £ 17,03 |
| 2,92 | 2.92 | 38 | 57 | 1 | 871825 | £ 17,03 |
| 2,93 | 2.93 | 38 | 57 | 1 | 871826 | £ 17,03 |
| 2,94 | 2.94 | 38 | 57 | 1 | 871827 | £ 17,03 |
| 2,95 | 2.95 | 38 | 57 | 1 | 871828 | £ 17,03 |
| 2,96 | 2.96 | 38 | 57 | 1 | 871829 | £ 17,03 |
| 2,97 | 2.97 | 38 | 57 | 1 | 871830 | £ 17,03 |
| 2,98 | 2.98 | 38 | 57 | 1 | 847187 | £ 16,98 |
| 2,99 | 2.99 | 38 | 57 | 1 | 847188 | £ 16,98 |
| 3 | 3 | 38 | 57 | 1 | 847189 | £ 16,98 |
| 3,01 | 3.01 | 38 | 57 | 1 | 847190 | £ 16,98 |
| 3,02 | 3.02 | 38 | 57 | 1 | 847191 | £ 16,98 |
| 3,03 | 3.03 | 38 | 57 | 1 | 871831 | £ 17,03 |
| 3,04 | 3.04 | 38 | 57 | 1 | 871832 | £ 17,03 |
| 3,05 | 3.05 | 38 | 57 | 1 | 871833 | £ 17,03 |
| 3,06 | 3.06 | 38 | 57 | 1 | 871834 | £ 18,26 |
| 3,07 | 3.07 | 38 | 57 | 1 | 871835 | £ 18,26 |
| 3,08 | 3.08 | 38 | 57 | 1 | 871836 | £ 18,26 |
| 3,09 | 3.09 | 38 | 57 | 1 | 871837 | £ 18,26 |
| 3,1 | 3.1 | 38 | 57 | 1 | 871838 | £ 18,26 |
| 3,11 | 3.11 | 38 | 57 | 1 | 871839 | £ 18,26 |
| 3,12 | 3.12 | 38 | 57 | 1 | 871840 | £ 18,26 |
| 3,13 | 3.13 | 38 | 57 | 1 | 871841 | £ 18,26 |
| 3,14 | 3.14 | 38 | 57 | 1 | 871842 | £ 18,26 |
| 3,15 | 3.15 | 38 | 57 | 1 | 871843 | £ 18,26 |
| 3,16 | 3.16 | 38 | 57 | 1 | 871844 | £ 18,26 |
| 3,17 | 3.17 | 38 | 57 | 1 | 871845 | £ 18,26 |
| 3,18 | 3.18 | 38 | 57 | 1 | 871846 | £ 18,26 |
| 3,19 | 3.19 | 38 | 57 | 1 | 871847 | £ 18,26 |
| 3,2 | 3.2 | 38 | 57 | 1 | 871848 | £ 18,26 |
| 3,21 | 3.21 | 38 | 57 | 1 | 871849 | £ 18,26 |
| 3,22 | 3.22 | 38 | 57 | 1 | 871850 | £ 18,26 |
| 3,23 | 3.23 | 38 | 57 | 1 | 871851 | £ 18,26 |

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3,24 | 3.24 | 38 | 57 | 1 | 871852 | £ 18,26 |
| 3,25 | 3.25 | 38 | 57 | 1 | 871853 | £ 18,26 |
| 3,26 | 3.26 | 38 | 57 | 1 | 871854 | £ 18,26 |
| 3,27 | 3.27 | 38 | 57 | 1 | 871855 | £ 18,26 |
| 3,28 | 3.28 | 38 | 57 | 1 | 871856 | £ 18,26 |
| 3,29 | 3.29 | 38 | 57 | 1 | 871857 | £ 18,26 |
| 3,3 | 3.3 | 38 | 57 | 1 | 871858 | £ 18,26 |
| 3,31 | 3.31 | 38 | 57 | 1 | 871859 | £ 18,26 |
| 3,32 | 3.32 | 38 | 57 | 1 | 871860 | £ 18,26 |
| 3,33 | 3.33 | 38 | 57 | 1 | 871861 | £ 18,26 |
| 3,34 | 3.34 | 38 | 57 | 1 | 871862 | £ 18,26 |
| 3,35 | 3.35 | 38 | 57 | 1 | 871863 | £ 18,26 |
| 3,36 | 3.36 | 38 | 57 | 1 | 871864 | £ 18,26 |
| 3,37 | 3.37 | 38 | 57 | 1 | 871865 | £ 18,26 |
| 3,38 | 3.38 | 38 | 57 | 1 | 871866 | £ 18,26 |
| 3,39 | 3.39 | 38 | 57 | 1 | 871867 | £ 18,26 |
| 3,4 | 3.4 | 38 | 57 | 1 | 871868 | £ 18,26 |
| 3,41 | 3.41 | 38 | 57 | 1 | 871869 | £ 18,26 |
| 3,42 | 3.42 | 38 | 57 | 1 | 871870 | £ 18,26 |
| 3,43 | 3.43 | 38 | 57 | 1 | 871871 | £ 18,26 |
| 3,44 | 3.44 | 38 | 57 | 1 | 871872 | £ 18,26 |
| 3,45 | 3.45 | 38 | 57 | 1 | 871873 | £ 18,26 |
| 3,46 | 3.46 | 38 | 57 | 1 | 871874 | £ 18,26 |
| 3,47 | 3.47 | 38 | 57 | 1 | 871875 | £ 18,26 |
| 3,48 | 3.48 | 38 | 57 | 1 | 871876 | £ 18,26 |
| 3,49 | 3.49 | 38 | 57 | 1 | 871877 | £ 18,26 |
| 3,5 | 3.5 | 38 | 57 | 1 | 871878 | £ 18,26 |
| 3,51 | 3.51 | 38 | 57 | 1 | 871879 | £ 18,26 |
| 3,52 | 3.52 | 38 | 57 | 1 | 871880 | £ 18,26 |
| 3,53 | 3.53 | 38 | 57 | 1 | 871881 | £ 18,26 |
| 3,54 | 3.54 | 38 | 57 | 1 | 871882 | £ 18,26 |
| 3,55 | 3.55 | 38 | 57 | 1 | 871883 | £ 18,26 |
| 3,56 | 3.56 | 38 | 57 | 1 | 871884 | £ 18,26 |
| 3,57 | 3.57 | 38 | 57 | 1 | 871885 | £ 18,26 |
| 3,58 | 3.58 | 38 | 57 | 1 | 871886 | £ 18,26 |
| 3,59 | 3.59 | 38 | 57 | 1 | 871887 | £ 18,26 |
| 3,6 | 3.6 | 38 | 57 | 1 | 871888 | £ 18,26 |
| 3,61 | 3.61 | 38 | 57 | 1 | 871889 | £ 18,26 |
| 3,62 | 3.62 | 38 | 57 | 1 | 871890 | £ 18,26 |
| 3,63 | 3.63 | 38 | 57 | 1 | 871891 | £ 18,26 |
| 3,64 | 3.64 | 38 | 57 | 1 | 871892 | £ 18,26 |
| 3,65 | 3.65 | 38 | 57 | 1 | 871893 | £ 18,26 |
| 3,66 | 3.66 | 38 | 57 | 1 | 871894 | £ 18,26 |
| 3,67 | 3.67 | 38 | 57 | 1 | 871895 | £ 18,26 |
| 3,68 | 3.68 | 38 | 57 | 1 | 871896 | £ 18,26 |
| 3,69 | 3.69 | 38 | 57 | 1 | 871897 | £ 18,26 |
| 3,7 | 3.7 | 38 | 57 | 1 | 871898 | £ 18,26 |
| 3,71 | 3.71 | 38 | 57 | 1 | 871899 | £ 18,26 |
| 3,72 | 3.72 | 38 | 57 | 1 | 871900 | £ 18,26 |
| 3,73 | 3.73 | 38 | 57 | 1 | 871901 | £ 18,26 |
| 3,74 | 3.74 | 38 | 57 | 1 | 871902 | £ 18,26 |
| 3,75 | 3.75 | 38 | 57 | 1 | 871903 | £ 18,26 |
| 3,76 | 4 | 51 | 75 | 1 | 871904 | £ 18,26 |
| 3,77 | 4 | 51 | 75 | 1 | 871905 | £ 18,26 |
| 3,78 | 4 | 51 | 75 | 1 | 871906 | £ 18,26 |
| 3,79 | 4 | 51 | 75 | 1 | 871907 | £ 18,26 |
| 3,8 | 4 | 51 | 75 | 1 | 871908 | £ 18,26 |
| 3,81 | 4 | 51 | 75 | 1 | 871909 | £ 18,26 |
| 3,82 | 4 | 51 | 75 | 1 | 871910 | £ 18,26 |
| 3,83 | 4 | 51 | 75 | 1 | 871911 | £ 18,26 |
| 3,84 | 4 | 51 | 75 | 1 | 871912 | £ 18,26 |
| 3,85 | 4 | 51 | 75 | 1 | 871913 | £ 18,26 |
| 3,86 | 4 | 51 | 75 | 1 | 871914 | £ 18,26 |
| 3,87 | 4 | 51 | 75 | 1 | 871915 | £ 18,26 |
| 3,88 | 4 | 51 | 75 | 1 | 871916 | £ 18,26 |
| 3,89 | 4 | 51 | 75 | 1 | 871917 | £ 18,26 |
| 3,9 | 4 | 51 | 75 | 1 | 871918 | £ 18,26 |
| 3,91 | 4 | 51 | 75 | 1 | 871919 | £ 18,26 |
| 3,92 | 4 | 51 | 75 | 1 | 871920 | £ 18,26 |
| 3,93 | 4 | 51 | 75 | 1 | 871921 | £ 18,26 |
| 3,94 | 4 | 51 | 75 | 1 | 871922 | £ 18,26 |
| 3,95 | 4 | 51 | 75 | 1 | 871923 | £ 18,26 |
| 3,96 | 4 | 51 | 75 | 1 | 871924 | £ 18,26 |
| 3,97 | 4 | 51 | 75 | 1 | 871925 | £ 18,26 |
| 3,98 | 4 | 51 | 75 | 1 | 847192 | £ 18,15 |
| 3,99 | 4 | 51 | 75 | 1 | 847193 | £ 18,15 |

## HIGH PRECISION MACHINE REAMERS - HSS CO5% - HPR

DIN 212B | NFE 66014 | 10°



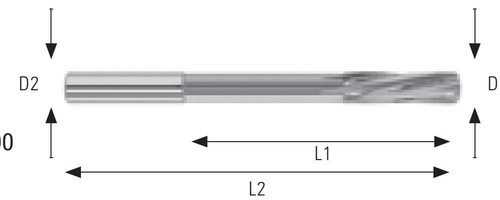

The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.
Tolerance: From Ø 0.6 to 3.00 = 0 / +3µ - From Ø 3.01 to 6.00 = 0 / +4µ - From Ø 6.01 to 20.00 = 0 / +5µ - Tail diameter h8

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 4 | 4 | 51 | 75 | 1 | 847194 | £ 18,15 |
| 4,01 | 4 | 51 | 75 | 1 | 847195 | £ 18,15 |
| 4,02 | 4 | 51 | 75 | 1 | 847196 | £ 18,15 |
| 4,03 | 4 | 51 | 75 | 1 | 871926 | £ 18,26 |
| 4,04 | 4 | 51 | 75 | 1 | 871927 | £ 18,26 |
| 4,05 | 4 | 51 | 75 | 1 | 871928 | £ 18,26 |
| 4,06 | 4 | 51 | 75 | 1 | 871929 | £ 19,46 |
| 4,07 | 4 | 51 | 75 | 1 | 871930 | £ 19,46 |
| 4,08 | 4 | 51 | 75 | 1 | 871931 | £ 19,46 |
| 4,09 | 4 | 51 | 75 | 1 | 871932 | £ 19,46 |
| 4,1 | 4 | 51 | 75 | 1 | 871933 | £ 19,46 |
| 4,11 | 4 | 51 | 75 | 1 | 871934 | £ 19,46 |
| 4,12 | 4 | 51 | 75 | 1 | 871935 | £ 19,46 |
| 4,13 | 4 | 51 | 75 | 1 | 871936 | £ 19,46 |
| 4,14 | 4 | 51 | 75 | 1 | 871937 | £ 19,46 |
| 4,15 | 4 | 51 | 75 | 1 | 871938 | £ 19,46 |
| 4,16 | 4 | 51 | 75 | 1 | 871939 | £ 19,46 |
| 4,17 | 4 | 51 | 75 | 1 | 871940 | £ 19,46 |
| 4,18 | 4 | 51 | 75 | 1 | 871941 | £ 19,46 |
| 4,19 | 4 | 51 | 75 | 1 | 871942 | £ 19,46 |
| 4,2 | 4 | 51 | 75 | 1 | 871943 | £ 19,46 |
| 4,21 | 4 | 51 | 75 | 1 | 871944 | £ 19,46 |
| 4,22 | 4 | 51 | 75 | 1 | 871945 | £ 19,46 |
| 4,23 | 4 | 51 | 75 | 1 | 871946 | £ 19,46 |
| 4,24 | 4 | 51 | 75 | 1 | 871947 | £ 19,46 |
| 4,25 | 4 | 51 | 75 | 1 | 871948 | £ 19,46 |
| 4,26 | 4.5 | 55 | 80 | 1 | 871949 | £ 19,46 |
| 4,27 | 4.5 | 55 | 80 | 1 | 871950 | £ 19,46 |
| 4,28 | 4.5 | 55 | 80 | 1 | 871951 | £ 19,46 |
| 4,29 | 4.5 | 55 | 80 | 1 | 871952 | £ 19,46 |
| 4,3 | 4.5 | 55 | 80 | 1 | 871953 | £ 19,46 |
| 4,31 | 4.5 | 55 | 80 | 1 | 871954 | £ 19,46 |
| 4,32 | 4.5 | 55 | 80 | 1 | 871955 | £ 19,46 |
| 4,33 | 4.5 | 55 | 80 | 1 | 871956 | £ 19,46 |
| 4,34 | 4.5 | 55 | 80 | 1 | 871957 | £ 19,46 |
| 4,35 | 4.5 | 55 | 80 | 1 | 871958 | £ 19,46 |
| 4,36 | 4.5 | 55 | 80 | 1 | 871959 | £ 19,46 |
| 4,37 | 4.5 | 55 | 80 | 1 | 871960 | £ 19,46 |
| 4,38 | 4.5 | 55 | 80 | 1 | 871961 | £ 19,46 |
| 4,39 | 4.5 | 55 | 80 | 1 | 871962 | £ 19,46 |
| 4,4 | 4.5 | 55 | 80 | 1 | 871963 | £ 19,46 |
| 4,41 | 4.5 | 55 | 80 | 1 | 871964 | £ 19,46 |
| 4,42 | 4.5 | 55 | 80 | 1 | 871965 | £ 19,46 |
| 4,43 | 4.5 | 55 | 80 | 1 | 871966 | £ 19,46 |
| 4,44 | 4.5 | 55 | 80 | 1 | 871967 | £ 19,46 |
| 4,45 | 4.5 | 55 | 80 | 1 | 871968 | £ 19,46 |
| 4,46 | 4.5 | 55 | 80 | 1 | 871969 | £ 19,46 |
| 4,47 | 4.5 | 55 | 80 | 1 | 871970 | £ 19,46 |
| 4,48 | 4.5 | 55 | 80 | 1 | 871971 | £ 19,46 |
| 4,49 | 4.5 | 55 | 80 | 1 | 871972 | £ 19,46 |
| 4,5 | 4.5 | 55 | 80 | 1 | 871973 | £ 19,46 |
| 4,51 | 4.5 | 55 | 80 | 1 | 871974 | £ 19,46 |
| 4,52 | 4.5 | 55 | 80 | 1 | 871975 | £ 19,46 |
| 4,53 | 4.5 | 55 | 80 | 1 | 871976 | £ 19,46 |
| 4,54 | 4.5 | 55 | 80 | 1 | 871977 | £ 19,46 |
| 4,55 | 4.5 | 55 | 80 | 1 | 871978 | £ 19,46 |
| 4,56 | 4.5 | 55 | 80 | 1 | 871979 | £ 19,46 |
| 4,57 | 4.5 | 55 | 80 | 1 | 871980 | £ 19,46 |
| 4,58 | 4.5 | 55 | 80 | 1 | 871981 | £ 19,46 |
| 4,59 | 4.5 | 55 | 80 | 1 | 871982 | £ 19,46 |
| 4,6 | 4.5 | 55 | 80 | 1 | 871983 | £ 19,46 |
| 4,61 | 4.5 | 55 | 80 | 1 | 871984 | £ 19,46 |
| 4,62 | 4.5 | 55 | 80 | 1 | 871985 | £ 19,46 |
| 4,63 | 4.5 | 55 | 80 | 1 | 871986 | £ 19,46 |

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 4,64 | 4.5 | 55 | 80 | 1 | 871987 | £ 19,46 |
| 4,65 | 4.5 | 55 | 80 | 1 | 871988 | £ 19,46 |
| 4,66 | 4.5 | 55 | 80 | 1 | 871989 | £ 19,46 |
| 4,67 | 4.5 | 55 | 80 | 1 | 871990 | £ 19,46 |
| 4,68 | 4.5 | 55 | 80 | 1 | 871991 | £ 19,46 |
| 4,69 | 4.5 | 55 | 80 | 1 | 871992 | £ 19,46 |
| 4,7 | 4.5 | 55 | 80 | 1 | 871993 | £ 19,46 |
| 4,71 | 4.5 | 55 | 80 | 1 | 871994 | £ 19,46 |
| 4,72 | 4.5 | 55 | 80 | 1 | 871995 | £ 19,46 |
| 4,73 | 4.5 | 55 | 80 | 1 | 871996 | £ 19,46 |
| 4,74 | 4.5 | 55 | 80 | 1 | 871997 | £ 19,46 |
| 4,75 | 4.5 | 55 | 80 | 1 | 871998 | £ 19,46 |
| 4,76 | 5 | 60 | 86 | 1 | 871999 | £ 19,46 |
| 4,77 | 5 | 60 | 86 | 1 | 872000 | £ 19,46 |
| 4,78 | 5 | 60 | 86 | 1 | 872001 | £ 19,46 |
| 4,79 | 5 | 60 | 86 | 1 | 872002 | £ 19,46 |
| 4,8 | 5 | 60 | 86 | 1 | 872003 | £ 19,46 |
| 4,81 | 5 | 60 | 86 | 1 | 872004 | £ 19,46 |
| 4,82 | 5 | 60 | 86 | 1 | 872005 | £ 19,46 |
| 4,83 | 5 | 60 | 86 | 1 | 872006 | £ 19,46 |
| 4,84 | 5 | 60 | 86 | 1 | 872007 | £ 19,46 |
| 4,85 | 5 | 60 | 86 | 1 | 872008 | £ 19,46 |
| 4,86 | 5 | 60 | 86 | 1 | 872009 | £ 19,46 |
| 4,87 | 5 | 60 | 86 | 1 | 872010 | £ 19,46 |
| 4,88 | 5 | 60 | 86 | 1 | 872011 | £ 19,46 |
| 4,89 | 5 | 60 | 86 | 1 | 872012 | £ 19,46 |
| 4,9 | 5 | 60 | 86 | 1 | 872013 | £ 19,46 |
| 4,91 | 5 | 60 | 86 | 1 | 872014 | £ 19,46 |
| 4,92 | 5 | 60 | 86 | 1 | 872015 | £ 19,46 |
| 4,93 | 5 | 60 | 86 | 1 | 872016 | £ 19,46 |
| 4,94 | 5 | 60 | 86 | 1 | 872017 | £ 19,46 |
| 4,95 | 5 | 60 | 86 | 1 | 872018 | £ 19,46 |
| 4,96 | 5 | 60 | 86 | 1 | 872019 | £ 19,46 |
| 4,97 | 5 | 60 | 86 | 1 | 872020 | £ 19,46 |
| 4,98 | 5 | 60 | 86 | 1 | 847197 | £ 19,36 |
| 4,99 | 5 | 60 | 86 | 1 | 847198 | £ 19,36 |
| 5 | 5 | 60 | 86 | 1 | 847199 | £ 19,36 |
| 5,01 | 5 | 60 | 86 | 1 | 847200 | £ 19,36 |
| 5,02 | 5 | 60 | 86 | 1 | 847201 | £ 19,36 |
| 5,03 | 5 | 60 | 86 | 1 | 872021 | £ 19,46 |
| 5,04 | 5 | 60 | 86 | 1 | 872022 | £ 19,46 |
| 5,05 | 5 | 60 | 86 | 1 | 872023 | £ 19,46 |
| 5,06 | 5 | 60 | 86 | 1 | 872024 | £ 20,69 |
| 5,07 | 5 | 60 | 86 | 1 | 872025 | £ 20,69 |
| 5,08 | 5 | 60 | 86 | 1 | 872026 | £ 20,69 |
| 5,09 | 5 | 60 | 86 | 1 | 872027 | £ 20,69 |
| 5,1 | 5 | 60 | 86 | 1 | 872028 | £ 20,69 |
| 5,11 | 5 | 60 | 86 | 1 | 872029 | £ 20,69 |
| 5,12 | 5 | 60 | 86 | 1 | 872030 | £ 20,69 |
| 5,13 | 5 | 60 | 86 | 1 | 872031 | £ 20,69 |
| 5,14 | 5 | 60 | 86 | 1 | 872032 | £ 20,69 |
| 5,15 | 5 | 60 | 86 | 1 | 872033 | £ 20,69 |
| 5,16 | 5 | 60 | 86 | 1 | 872034 | £ 20,69 |
| 5,17 | 5 | 60 | 86 | 1 | 872035 | £ 20,69 |
| 5,18 | 5 | 60 | 86 | 1 | 872036 | £ 20,69 |
| 5,19 | 5 | 60 | 86 | 1 | 872037 | £ 20,69 |
| 5,2 | 5 | 60 | 86 | 1 | 872038 | £ 20,69 |
| 5,21 | 5 | 60 | 86 | 1 | 872039 | £ 20,69 |
| 5,22 | 5 | 60 | 86 | 1 | 872040 | £ 20,69 |
| 5,23 | 5 | 60 | 86 | 1 | 872041 | £ 20,69 |
| 5,24 | 5 | 60 | 86 | 1 | 872042 | £ 20,69 |
| 5,25 | 5 | 60 | 86 | 1 | 872043 | £ 20,69 |
| 5,26 | 5 | 60 | 86 | 1 | 872044 | £ 20,69 |
| 5,27 | 5 | 60 | 86 | 1 | 872045 | £ 20,69 |
| 5,28 | 5 | 60 | 86 | 1 | 872046 | £ 20,69 |
| 5,29 | 5 | 60 | 86 | 1 | 872047 | £ 20,69 |
| 5,3 | 5 | 60 | 86 | 1 | 872048 | £ 20,69 |
| 5,31 | 5.5 | 66 | 93 | 1 | 872049 | £ 20,69 |
| 5,32 | 5.5 | 66 | 93 | 1 | 872050 | £ 20,69 |
| 5,33 | 5.5 | 66 | 93 | 1 | 872051 | £ 20,69 |
| 5,34 | 5.5 | 66 | 93 | 1 | 872052 | £ 20,69 |
| 5,35 | 5.5 | 66 | 93 | 1 | 872053 | £ 20,69 |
| 5,36 | 5.5 | 66 | 93 | 1 | 872054 | £ 20,69 |
| 5,37 | 5.5 | 66 | 93 | 1 | 872055 | £ 20,69 |
| 5,38 | 5.5 | 66 | 93 | 1 | 872056 | £ 20,69 |
| 5,39 | 5.5 | 66 | 93 | 1 | 872057 | £ 20,69 |

## HIGH PRECISION MACHINE REAMERS - HSS CO5% - HPR

DIN 212B | NFE 66014 | 10°



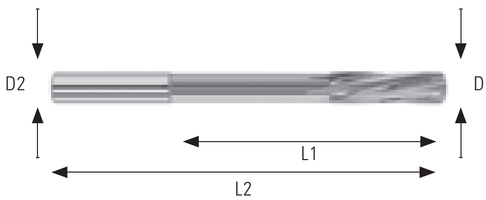

The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.
Tolerance: From Ø 0.6 to 3.00 = 0 / +3µ - From Ø 3.01 to 6.00 = 0 / +4µ - From Ø 6.01 to 20.00 = 0 / +5µ - Tail diameter h8

| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Cutting | L2<br>L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 5,4 | 5.5 | 66 | 93 | 1 | 872058 | £ 20,69 |
| 5,41 | 5.5 | 66 | 93 | 1 | 872059 | £ 20,69 |
| 5,42 | 5.5 | 66 | 93 | 1 | 872060 | £ 20,69 |
| 5,43 | 5.5 | 66 | 93 | 1 | 872061 | £ 20,69 |
| 5,44 | 5.5 | 66 | 93 | 1 | 872062 | £ 20,69 |
| 5,45 | 5.5 | 66 | 93 | 1 | 872063 | £ 20,69 |
| 5,46 | 5.5 | 66 | 93 | 1 | 872064 | £ 20,69 |
| 5,47 | 5.5 | 66 | 93 | 1 | 872065 | £ 20,69 |
| 5,48 | 5.5 | 66 | 93 | 1 | 872066 | £ 20,69 |
| 5,49 | 5.5 | 66 | 93 | 1 | 872067 | £ 20,69 |
| 5,5 | 5.5 | 66 | 93 | 1 | 872068 | £ 20,69 |
| 5,51 | 5.5 | 66 | 93 | 1 | 872069 | £ 20,69 |
| 5,52 | 5.5 | 66 | 93 | 1 | 872070 | £ 20,69 |
| 5,53 | 5.5 | 66 | 93 | 1 | 872071 | £ 20,69 |
| 5,54 | 5.5 | 66 | 93 | 1 | 872072 | £ 20,69 |
| 5,55 | 5.5 | 66 | 93 | 1 | 872073 | £ 20,69 |
| 5,56 | 5.5 | 66 | 93 | 1 | 872074 | £ 20,69 |
| 5,57 | 5.5 | 66 | 93 | 1 | 872075 | £ 20,69 |
| 5,58 | 5.5 | 66 | 93 | 1 | 872076 | £ 20,69 |
| 5,59 | 5.5 | 66 | 93 | 1 | 872077 | £ 20,69 |
| 5,6 | 5.5 | 66 | 93 | 1 | 872078 | £ 20,69 |
| 5,61 | 5.5 | 66 | 93 | 1 | 872079 | £ 20,69 |
| 5,62 | 5.5 | 66 | 93 | 1 | 872080 | £ 20,69 |
| 5,63 | 5.5 | 66 | 93 | 1 | 872081 | £ 20,69 |
| 5,64 | 5.5 | 66 | 93 | 1 | 872082 | £ 20,69 |
| 5,65 | 5.5 | 66 | 93 | 1 | 872083 | £ 20,69 |
| 5,66 | 5.5 | 66 | 93 | 1 | 872084 | £ 20,69 |
| 5,67 | 5.5 | 66 | 93 | 1 | 872085 | £ 20,69 |
| 5,68 | 5.5 | 66 | 93 | 1 | 872086 | £ 20,69 |
| 5,69 | 5.5 | 66 | 93 | 1 | 872087 | £ 20,69 |
| 5,7 | 5.5 | 66 | 93 | 1 | 872088 | £ 20,69 |
| 5,71 | 5.5 | 66 | 93 | 1 | 872089 | £ 20,69 |
| 5,72 | 5.5 | 66 | 93 | 1 | 872090 | £ 20,69 |
| 5,73 | 5.5 | 66 | 93 | 1 | 872091 | £ 20,69 |
| 5,74 | 5.5 | 66 | 93 | 1 | 872092 | £ 20,69 |
| 5,75 | 5.5 | 66 | 93 | 1 | 872093 | £ 20,69 |
| 5,76 | 5.5 | 66 | 93 | 1 | 872094 | £ 20,69 |
| 5,77 | 5.5 | 66 | 93 | 1 | 872095 | £ 20,69 |
| 5,78 | 5.5 | 66 | 93 | 1 | 872096 | £ 20,69 |
| 5,79 | 5.5 | 66 | 93 | 1 | 872097 | £ 20,69 |
| 5,8 | 5.5 | 66 | 93 | 1 | 872098 | £ 20,69 |
| 5,81 | 6 | 73 | 101 | 1 | 872099 | £ 20,69 |
| 5,82 | 6 | 73 | 101 | 1 | 872100 | £ 20,69 |
| 5,83 | 6 | 73 | 101 | 1 | 872101 | £ 20,69 |
| 5,84 | 6 | 73 | 101 | 1 | 872102 | £ 20,69 |
| 5,85 | 6 | 73 | 101 | 1 | 872103 | £ 20,69 |
| 5,86 | 6 | 73 | 101 | 1 | 872104 | £ 20,69 |
| 5,87 | 6 | 73 | 101 | 1 | 872105 | £ 20,69 |
| 5,88 | 6 | 73 | 101 | 1 | 872106 | £ 20,69 |
| 5,89 | 6 | 73 | 101 | 1 | 872107 | £ 20,69 |
| 5,9 | 6 | 73 | 101 | 1 | 872108 | £ 20,69 |
| 5,91 | 6 | 73 | 101 | 1 | 872109 | £ 20,69 |
| 5,92 | 6 | 73 | 101 | 1 | 872110 | £ 20,69 |
| 5,93 | 6 | 73 | 101 | 1 | 872111 | £ 20,69 |
| 5,94 | 6 | 73 | 101 | 1 | 872112 | £ 20,69 |
| 5,95 | 6 | 73 | 101 | 1 | 872113 | £ 20,69 |
| 5,96 | 6 | 73 | 101 | 1 | 872114 | £ 20,69 |
| 5,97 | 6 | 73 | 101 | 1 | 872115 | £ 20,69 |
| 5,98 | 6 | 73 | 101 | 1 | 847202 | £ 20,55 |
| 5,99 | 6 | 73 | 101 | 1 | 847203 | £ 20,55 |
| 6 | 6 | 73 | 101 | 1 | 847204 | £ 20,55 |
| 6,01 | 6 | 73 | 101 | 1 | 847205 | £ 20,55 |
| 6,02 | 6 | 73 | 101 | 1 | 847206 | £ 20,55 |
| 6,03 | 6 | 73 | 101 | 1 | 872116 | £ 20,69 |

| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Cutting | L2<br>L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 6,04 | 6 | 73 | 101 | 1 | 872117 | £ 20,69 |
| 6,05 | 6 | 73 | 101 | 1 | 872118 | £ 20,69 |
| 6,06 | 6 | 73 | 101 | 1 | 872119 | £ 23,44 |
| 6,07 | 6 | 73 | 101 | 1 | 872120 | £ 23,44 |
| 6,08 | 6 | 73 | 101 | 1 | 872121 | £ 23,44 |
| 6,09 | 6 | 73 | 101 | 1 | 872122 | £ 23,44 |
| 6,1 | 6 | 73 | 101 | 1 | 872123 | £ 23,44 |
| 6,11 | 6 | 73 | 101 | 1 | 872124 | £ 23,44 |
| 6,12 | 6 | 73 | 101 | 1 | 872125 | £ 23,44 |
| 6,13 | 6 | 73 | 101 | 1 | 872126 | £ 23,44 |
| 6,14 | 6 | 73 | 101 | 1 | 872127 | £ 23,44 |
| 6,15 | 6 | 73 | 101 | 1 | 872128 | £ 23,44 |
| 6,16 | 6 | 73 | 101 | 1 | 872129 | £ 23,44 |
| 6,17 | 6 | 73 | 101 | 1 | 872130 | £ 23,44 |
| 6,18 | 6 | 73 | 101 | 1 | 872131 | £ 23,44 |
| 6,19 | 6 | 73 | 101 | 1 | 872132 | £ 23,44 |
| 6,2 | 6 | 73 | 101 | 1 | 872133 | £ 23,44 |
| 6,21 | 6 | 73 | 101 | 1 | 872134 | £ 23,44 |
| 6,22 | 6 | 73 | 101 | 1 | 872135 | £ 23,44 |
| 6,23 | 6 | 73 | 101 | 1 | 872136 | £ 23,44 |
| 6,24 | 6 | 73 | 101 | 1 | 872137 | £ 23,44 |
| 6,25 | 6 | 73 | 101 | 1 | 872138 | £ 23,44 |
| 6,26 | 6 | 73 | 101 | 1 | 872139 | £ 23,44 |
| 6,27 | 6 | 73 | 101 | 1 | 872140 | £ 23,44 |
| 6,28 | 6 | 73 | 101 | 1 | 872141 | £ 23,44 |
| 6,29 | 6 | 73 | 101 | 1 | 872142 | £ 23,44 |
| 6,3 | 6 | 73 | 101 | 1 | 872143 | £ 23,44 |
| 6,31 | 6 | 73 | 101 | 1 | 872144 | £ 23,44 |
| 6,32 | 6 | 73 | 101 | 1 | 872145 | £ 23,44 |
| 6,33 | 6 | 73 | 101 | 1 | 872146 | £ 23,44 |
| 6,34 | 6 | 73 | 101 | 1 | 872147 | £ 23,44 |
| 6,35 | 6 | 73 | 101 | 1 | 872148 | £ 23,44 |
| 6,36 | 6 | 73 | 101 | 1 | 872149 | £ 23,44 |
| 6,37 | 6 | 73 | 101 | 1 | 872150 | £ 23,44 |
| 6,38 | 6 | 73 | 101 | 1 | 872151 | £ 23,44 |
| 6,39 | 6 | 73 | 101 | 1 | 872152 | £ 23,44 |
| 6,4 | 6 | 73 | 101 | 1 | 872153 | £ 23,44 |
| 6,41 | 6 | 73 | 101 | 1 | 872154 | £ 23,44 |
| 6,42 | 6 | 73 | 101 | 1 | 872155 | £ 23,44 |
| 6,43 | 6 | 73 | 101 | 1 | 872156 | £ 23,44 |
| 6,44 | 6 | 73 | 101 | 1 | 872157 | £ 23,44 |
| 6,45 | 6 | 73 | 101 | 1 | 872158 | £ 23,44 |
| 6,46 | 6 | 73 | 101 | 1 | 872159 | £ 23,44 |
| 6,47 | 6 | 73 | 101 | 1 | 872160 | £ 23,44 |
| 6,48 | 6 | 73 | 101 | 1 | 872161 | £ 23,44 |
| 6,49 | 6 | 73 | 101 | 1 | 872162 | £ 23,44 |
| 6,5 | 6 | 73 | 101 | 1 | 872163 | £ 23,44 |
| 6,51 | 6 | 73 | 101 | 1 | 872164 | £ 23,44 |
| 6,52 | 6 | 73 | 101 | 1 | 872165 | £ 23,44 |
| 6,53 | 6 | 73 | 101 | 1 | 872166 | £ 23,44 |
| 6,54 | 6 | 73 | 101 | 1 | 872167 | £ 23,44 |
| 6,55 | 6 | 73 | 101 | 1 | 872168 | £ 23,44 |
| 6,56 | 6 | 73 | 101 | 1 | 872169 | £ 23,44 |
| 6,57 | 6 | 73 | 101 | 1 | 872170 | £ 23,44 |
| 6,58 | 6 | 73 | 101 | 1 | 872171 | £ 23,44 |
| 6,59 | 6 | 73 | 101 | 1 | 872172 | £ 23,44 |
| 6,6 | 6 | 73 | 101 | 1 | 872173 | £ 23,44 |
| 6,61 | 6 | 73 | 101 | 1 | 872174 | £ 23,44 |
| 6,62 | 6 | 73 | 101 | 1 | 872175 | £ 23,44 |
| 6,63 | 6 | 73 | 101 | 1 | 872176 | £ 23,44 |
| 6,64 | 6 | 73 | 101 | 1 | 872177 | £ 23,44 |
| 6,65 | 6 | 73 | 101 | 1 | 872178 | £ 23,44 |
| 6,66 | 6 | 73 | 101 | 1 | 872179 | £ 23,44 |
| 6,67 | 6 | 73 | 101 | 1 | 872180 | £ 23,44 |
| 6,68 | 6 | 73 | 101 | 1 | 872181 | £ 23,44 |
| 6,69 | 6 | 73 | 101 | 1 | 872182 | £ 23,44 |
| 6,7 | 6 | 73 | 101 | 1 | 872183 | £ 23,44 |
| 6,71 | 7 | 80 | 109 | 1 | 872184 | £ 23,44 |
| 6,72 | 7 | 80 | 109 | 1 | 872185 | £ 23,44 |
| 6,73 | 7 | 80 | 109 | 1 | 872186 | £ 23,44 |
| 6,74 | 7 | 80 | 109 | 1 | 872187 | £ 23,44 |
| 6,75 | 7 | 80 | 109 | 1 | 872188 | £ 23,44 |
| 6,76 | 7 | 80 | 109 | 1 | 872189 | £ 23,44 |
| 6,77 | 7 | 80 | 109 | 1 | 872190 | £ 23,44 |
| 6,78 | 7 | 80 | 109 | 1 | 872191 | £ 23,44 |
| 6,79 | 7 | 80 | 109 | 1 | 872192 | £ 23,44 |

## HIGH PRECISION MACHINE REAMERS - HSS CO5% - HPR

DIN 212B | NFE 66014 | 10°



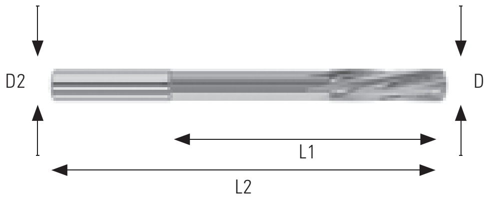

The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.
Tolerance: From Ø 0.6 to 3.00 = 0 / +3µ - From Ø 3.01 to 6.00 = 0 / +4µ - From Ø 6.01 to 20.00 = 0 / +5µ - Tail diameter h8

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 6,8 | 7 | 80 | 109 | 1 | 872193 | £ 23,44 |
| 6,81 | 7 | 80 | 109 | 1 | 872194 | £ 23,44 |
| 6,82 | 7 | 80 | 109 | 1 | 872195 | £ 23,44 |
| 6,83 | 7 | 80 | 109 | 1 | 872196 | £ 23,44 |
| 6,84 | 7 | 80 | 109 | 1 | 872197 | £ 23,44 |
| 6,85 | 7 | 80 | 109 | 1 | 872198 | £ 23,44 |
| 6,86 | 7 | 80 | 109 | 1 | 872199 | £ 23,44 |
| 6,87 | 7 | 80 | 109 | 1 | 872200 | £ 23,44 |
| 6,88 | 7 | 80 | 109 | 1 | 872201 | £ 23,44 |
| 6,89 | 7 | 80 | 109 | 1 | 872202 | £ 23,44 |
| 6,9 | 7 | 80 | 109 | 1 | 872203 | £ 23,44 |
| 6,91 | 7 | 80 | 109 | 1 | 872204 | £ 23,44 |
| 6,92 | 7 | 80 | 109 | 1 | 872205 | £ 23,44 |
| 6,93 | 7 | 80 | 109 | 1 | 872206 | £ 23,44 |
| 6,94 | 7 | 80 | 109 | 1 | 872207 | £ 23,44 |
| 6,95 | 7 | 80 | 109 | 1 | 872208 | £ 23,44 |
| 6,96 | 7 | 80 | 109 | 1 | 872209 | £ 23,44 |
| 6,97 | 7 | 80 | 109 | 1 | 872210 | £ 23,44 |
| 6,98 | 7 | 80 | 109 | 1 | 872211 | £ 23,44 |
| 6,99 | 7 | 80 | 109 | 1 | 872212 | £ 23,44 |
| 7 | 7 | 80 | 109 | 1 | 872213 | £ 23,44 |
| 7,01 | 7 | 80 | 109 | 1 | 872214 | £ 23,44 |
| 7,02 | 7 | 80 | 109 | 1 | 872215 | £ 23,44 |
| 7,03 | 7 | 80 | 109 | 1 | 872216 | £ 23,44 |
| 7,04 | 7 | 80 | 109 | 1 | 872217 | £ 23,44 |
| 7,05 | 7 | 80 | 109 | 1 | 872218 | £ 23,44 |
| 7,06 | 7 | 80 | 109 | 1 | 872219 | £ 24,33 |
| 7,07 | 7 | 80 | 109 | 1 | 872220 | £ 24,33 |
| 7,08 | 7 | 80 | 109 | 1 | 872221 | £ 24,33 |
| 7,09 | 7 | 80 | 109 | 1 | 872222 | £ 24,33 |
| 7,1 | 7 | 80 | 109 | 1 | 872223 | £ 24,33 |
| 7,11 | 7 | 80 | 109 | 1 | 872224 | £ 24,33 |
| 7,12 | 7 | 80 | 109 | 1 | 872225 | £ 24,33 |
| 7,13 | 7 | 80 | 109 | 1 | 872226 | £ 24,33 |
| 7,14 | 7 | 80 | 109 | 1 | 872227 | £ 24,33 |
| 7,15 | 7 | 80 | 109 | 1 | 872228 | £ 24,33 |
| 7,16 | 7 | 80 | 109 | 1 | 872229 | £ 24,33 |
| 7,17 | 7 | 80 | 109 | 1 | 872230 | £ 24,33 |
| 7,18 | 7 | 80 | 109 | 1 | 872231 | £ 24,33 |
| 7,19 | 7 | 80 | 109 | 1 | 872232 | £ 24,33 |
| 7,2 | 7 | 80 | 109 | 1 | 872233 | £ 24,33 |
| 7,21 | 7 | 80 | 109 | 1 | 872234 | £ 24,33 |
| 7,22 | 7 | 80 | 109 | 1 | 872235 | £ 24,33 |
| 7,23 | 7 | 80 | 109 | 1 | 872236 | £ 24,33 |
| 7,24 | 7 | 80 | 109 | 1 | 872237 | £ 24,33 |
| 7,25 | 7 | 80 | 109 | 1 | 872238 | £ 24,33 |
| 7,26 | 7 | 80 | 109 | 1 | 872239 | £ 24,33 |
| 7,27 | 7 | 80 | 109 | 1 | 872240 | £ 24,33 |
| 7,28 | 7 | 80 | 109 | 1 | 872241 | £ 24,33 |
| 7,29 | 7 | 80 | 109 | 1 | 872242 | £ 24,33 |
| 7,3 | 7 | 80 | 109 | 1 | 872243 | £ 24,33 |
| 7,31 | 7 | 80 | 109 | 1 | 872244 | £ 24,33 |
| 7,32 | 7 | 80 | 109 | 1 | 872245 | £ 24,33 |
| 7,33 | 7 | 80 | 109 | 1 | 872246 | £ 24,33 |
| 7,34 | 7 | 80 | 109 | 1 | 872247 | £ 24,33 |
| 7,35 | 7 | 80 | 109 | 1 | 872248 | £ 24,33 |
| 7,36 | 7 | 80 | 109 | 1 | 872249 | £ 24,33 |
| 7,37 | 7 | 80 | 109 | 1 | 872250 | £ 24,33 |
| 7,38 | 7 | 80 | 109 | 1 | 872251 | £ 24,33 |
| 7,39 | 7 | 80 | 109 | 1 | 872252 | £ 24,33 |
| 7,4 | 7 | 80 | 109 | 1 | 872253 | £ 24,33 |
| 7,41 | 7 | 80 | 109 | 1 | 872254 | £ 24,33 |
| 7,42 | 7 | 80 | 109 | 1 | 872255 | £ 24,33 |
| 7,43 | 7 | 80 | 109 | 1 | 872256 | £ 24,33 |

| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Cutting | L2<br>L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 7,44 | 7 | 80 | 109 | 1 | 872257 | £ 24,33 |
| 7,45 | 7 | 80 | 109 | 1 | 872258 | £ 24,33 |
| 7,46 | 7 | 80 | 109 | 1 | 872259 | £ 24,33 |
| 7,47 | 7 | 80 | 109 | 1 | 872260 | £ 24,33 |
| 7,48 | 7 | 80 | 109 | 1 | 872261 | £ 24,33 |
| 7,49 | 7 | 80 | 109 | 1 | 872262 | £ 24,33 |
| 7,5 | 7 | 80 | 109 | 1 | 872263 | £ 24,33 |
| 7,51 | 7 | 80 | 109 | 1 | 872264 | £ 24,33 |
| 7,52 | 7 | 80 | 109 | 1 | 872265 | £ 24,33 |
| 7,53 | 7 | 80 | 109 | 1 | 872266 | £ 24,33 |
| 7,54 | 7 | 80 | 109 | 1 | 872267 | £ 24,33 |
| 7,55 | 7 | 80 | 109 | 1 | 872268 | £ 24,33 |
| 7,56 | 8 | 86 | 117 | 1 | 872269 | £ 24,33 |
| 7,57 | 8 | 86 | 117 | 1 | 872270 | £ 24,33 |
| 7,58 | 8 | 86 | 117 | 1 | 872271 | £ 24,33 |
| 7,59 | 8 | 86 | 117 | 1 | 872272 | £ 24,33 |
| 7,6 | 8 | 86 | 117 | 1 | 872273 | £ 24,33 |
| 7,61 | 8 | 86 | 117 | 1 | 872274 | £ 24,33 |
| 7,62 | 8 | 86 | 117 | 1 | 872275 | £ 24,33 |
| 7,63 | 8 | 86 | 117 | 1 | 872276 | £ 24,33 |
| 7,64 | 8 | 86 | 117 | 1 | 872277 | £ 24,33 |
| 7,65 | 8 | 86 | 117 | 1 | 872278 | £ 24,33 |
| 7,66 | 8 | 86 | 117 | 1 | 872279 | £ 24,33 |
| 7,67 | 8 | 86 | 117 | 1 | 872280 | £ 24,33 |
| 7,68 | 8 | 86 | 117 | 1 | 872281 | £ 24,33 |
| 7,69 | 8 | 86 | 117 | 1 | 872282 | £ 24,33 |
| 7,7 | 8 | 86 | 117 | 1 | 872283 | £ 24,33 |
| 7,71 | 8 | 86 | 117 | 1 | 872284 | £ 24,33 |
| 7,72 | 8 | 86 | 117 | 1 | 872285 | £ 24,33 |
| 7,73 | 8 | 86 | 117 | 1 | 872286 | £ 24,33 |
| 7,74 | 8 | 86 | 117 | 1 | 872287 | £ 24,33 |
| 7,75 | 8 | 86 | 117 | 1 | 872288 | £ 24,33 |
| 7,76 | 8 | 86 | 117 | 1 | 872289 | £ 24,33 |
| 7,77 | 8 | 86 | 117 | 1 | 872290 | £ 24,33 |
| 7,78 | 8 | 86 | 117 | 1 | 872291 | £ 24,33 |
| 7,79 | 8 | 86 | 117 | 1 | 872292 | £ 24,33 |
| 7,8 | 8 | 86 | 117 | 1 | 872293 | £ 24,33 |
| 7,81 | 8 | 86 | 117 | 1 | 872294 | £ 24,33 |
| 7,82 | 8 | 86 | 117 | 1 | 872295 | £ 24,33 |
| 7,83 | 8 | 86 | 117 | 1 | 872296 | £ 24,33 |
| 7,84 | 8 | 86 | 117 | 1 | 872297 | £ 24,33 |
| 7,85 | 8 | 86 | 117 | 1 | 872298 | £ 24,33 |
| 7,86 | 8 | 86 | 117 | 1 | 872299 | £ 24,33 |
| 7,87 | 8 | 86 | 117 | 1 | 872300 | £ 24,33 |
| 7,88 | 8 | 86 | 117 | 1 | 872301 | £ 24,33 |
| 7,89 | 8 | 86 | 117 | 1 | 872302 | £ 24,33 |
| 7,9 | 8 | 86 | 117 | 1 | 872303 | £ 24,33 |
| 7,91 | 8 | 86 | 117 | 1 | 872304 | £ 24,33 |
| 7,92 | 8 | 86 | 117 | 1 | 872305 | £ 24,33 |
| 7,93 | 8 | 86 | 117 | 1 | 872306 | £ 24,33 |
| 7,94 | 8 | 86 | 117 | 1 | 872307 | £ 24,33 |
| 7,95 | 8 | 86 | 117 | 1 | 872308 | £ 24,33 |
| 7,96 | 8 | 86 | 117 | 1 | 872309 | £ 24,33 |
| 7,97 | 8 | 86 | 117 | 1 | 872310 | £ 24,33 |
| 7,98 | 8 | 86 | 117 | 1 | 847207 | £ 24,26 |
| 7,99 | 8 | 86 | 117 | 1 | 847208 | £ 24,26 |
| 8 | 8 | 86 | 117 | 1 | 847209 | £ 24,26 |
| 8,01 | 8 | 86 | 117 | 1 | 847210 | £ 24,26 |
| 8,02 | 8 | 86 | 117 | 1 | 847211 | £ 24,26 |
| 8,03 | 8 | 86 | 117 | 1 | 872311 | £ 24,33 |
| 8,04 | 8 | 86 | 117 | 1 | 872312 | £ 24,33 |
| 8,05 | 8 | 86 | 117 | 1 | 872313 | £ 24,33 |
| 8,06 | 8 | 86 | 117 | 1 | 872314 | £ 25,89 |
| 8,07 | 8 | 86 | 117 | 1 | 872315 | £ 25,89 |
| 8,08 | 8 | 86 | 117 | 1 | 872316 | £ 25,89 |
| 8,09 | 8 | 86 | 117 | 1 | 872317 | £ 25,89 |
| 8,1 | 8 | 86 | 117 | 1 | 872318 | £ 25,89 |
| 8,11 | 8 | 86 | 117 | 1 | 872319 | £ 25,89 |
| 8,12 | 8 | 86 | 117 | 1 | 872320 | £ 25,89 |
| 8,13 | 8 | 86 | 117 | 1 | 872321 | £ 25,89 |
| 8,14 | 8 | 86 | 117 | 1 | 872322 | £ 25,89 |
| 8,15 | 8 | 86 | 117 | 1 | 872323 | £ 25,89 |
| 8,16 | 8 | 86 | 117 | 1 | 872324 | £ 25,89 |
| 8,17 | 8 | 86 | 117 | 1 | 872325 | £ 25,89 |
| 8,18 | 8 | 86 | 117 | 1 | 872326 | £ 25,89 |
| 8,19 | 8 | 86 | 117 | 1 | 872327 | £ 25,89 |

## HIGH PRECISION MACHINE REAMERS - HSS CO5% - HPR

DIN 212B | NFE 66014 | 10°




The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.
Tolerance: From Ø 0.6 to 3.00 = 0 / +3µ - From Ø 3.01 to 6.00 = 0 / +4µ - From Ø 6.01 to 20.00 = 0 / +5µ - Tail diameter h8

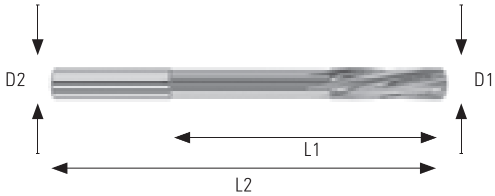
| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 8,2 | 8 | 86 | 117 | 1 | 872328 | £ 25,89 |
| 8,21 | 8 | 86 | 117 | 1 | 872329 | £ 25,89 |
| 8,22 | 8 | 86 | 117 | 1 | 872330 | £ 25,89 |
| 8,23 | 8 | 86 | 117 | 1 | 872331 | £ 25,89 |
| 8,24 | 8 | 86 | 117 | 1 | 872332 | £ 25,89 |
| 8,25 | 8 | 86 | 117 | 1 | 872333 | £ 25,89 |
| 8,26 | 8 | 86 | 117 | 1 | 872334 | £ 25,89 |
| 8,27 | 8 | 86 | 117 | 1 | 872335 | £ 25,89 |
| 8,28 | 8 | 86 | 117 | 1 | 872336 | £ 25,89 |
| 8,29 | 8 | 86 | 117 | 1 | 872337 | £ 25,89 |
| 8,3 | 8 | 86 | 117 | 1 | 872338 | £ 25,89 |
| 8,31 | 8 | 86 | 117 | 1 | 872339 | £ 25,89 |
| 8,32 | 8 | 86 | 117 | 1 | 872340 | £ 25,89 |
| 8,33 | 8 | 86 | 117 | 1 | 872341 | £ 25,89 |
| 8,34 | 8 | 86 | 117 | 1 | 872342 | £ 25,89 |
| 8,35 | 8 | 86 | 117 | 1 | 872343 | £ 25,89 |
| 8,36 | 8 | 86 | 117 | 1 | 872344 | £ 25,89 |
| 8,37 | 8 | 86 | 117 | 1 | 872345 | £ 25,89 |
| 8,38 | 8 | 86 | 117 | 1 | 872346 | £ 25,89 |
| 8,39 | 8 | 86 | 117 | 1 | 872347 | £ 25,89 |
| 8,4 | 8 | 86 | 117 | 1 | 872348 | £ 25,89 |
| 8,41 | 8 | 86 | 117 | 1 | 872349 | £ 25,89 |
| 8,42 | 8 | 86 | 117 | 1 | 872350 | £ 25,89 |
| 8,43 | 8 | 86 | 117 | 1 | 872351 | £ 25,89 |
| 8,44 | 8 | 86 | 117 | 1 | 872352 | £ 25,89 |
| 8,45 | 8 | 86 | 117 | 1 | 872353 | £ 25,89 |
| 8,46 | 8 | 86 | 117 | 1 | 872354 | £ 25,89 |
| 8,47 | 8 | 86 | 117 | 1 | 872355 | £ 25,89 |
| 8,48 | 8 | 86 | 117 | 1 | 872356 | £ 25,89 |
| 8,49 | 8 | 86 | 117 | 1 | 872357 | £ 25,89 |
| 8,5 | 8 | 86 | 117 | 1 | 872358 | £ 25,89 |
| 8,51 | 8 | 86 | 117 | 1 | 872359 | £ 25,89 |
| 8,52 | 8 | 86 | 117 | 1 | 872360 | £ 25,89 |
| 8,53 | 8 | 86 | 117 | 1 | 872361 | £ 25,89 |
| 8,54 | 8 | 86 | 117 | 1 | 872362 | £ 25,89 |
| 8,55 | 8 | 86 | 117 | 1 | 872363 | £ 25,89 |
| 8,56 | 9 | 91 | 125 | 1 | 872364 | £ 25,89 |
| 8,57 | 9 | 91 | 125 | 1 | 872365 | £ 25,89 |
| 8,58 | 9 | 91 | 125 | 1 | 872366 | £ 25,89 |
| 8,59 | 9 | 91 | 125 | 1 | 872367 | £ 25,89 |
| 8,6 | 9 | 91 | 125 | 1 | 872368 | £ 25,89 |
| 8,61 | 9 | 91 | 125 | 1 | 872369 | £ 25,89 |
| 8,62 | 9 | 91 | 125 | 1 | 872370 | £ 25,89 |
| 8,63 | 9 | 91 | 125 | 1 | 872371 | £ 25,89 |
| 8,64 | 9 | 91 | 125 | 1 | 872372 | £ 25,89 |
| 8,65 | 9 | 91 | 125 | 1 | 872373 | £ 25,89 |
| 8,66 | 9 | 91 | 125 | 1 | 872374 | £ 25,89 |
| 8,67 | 9 | 91 | 125 | 1 | 872375 | £ 25,89 |
| 8,68 | 9 | 91 | 125 | 1 | 872376 | £ 25,89 |
| 8,69 | 9 | 91 | 125 | 1 | 872377 | £ 25,89 |
| 8,7 | 9 | 91 | 125 | 1 | 872378 | £ 25,89 |
| 8,71 | 9 | 91 | 125 | 1 | 872379 | £ 25,89 |
| 8,72 | 9 | 91 | 125 | 1 | 872380 | £ 25,89 |
| 8,73 | 9 | 91 | 125 | 1 | 872381 | £ 25,89 |
| 8,74 | 9 | 91 | 125 | 1 | 872382 | £ 25,89 |
| 8,75 | 9 | 91 | 125 | 1 | 872383 | £ 25,89 |
| 8,76 | 9 | 91 | 125 | 1 | 872384 | £ 25,89 |
| 8,77 | 9 | 91 | 125 | 1 | 872385 | £ 25,89 |
| 8,78 | 9 | 91 | 125 | 1 | 872386 | £ 25,89 |
| 8,79 | 9 | 91 | 125 | 1 | 872387 | £ 25,89 |
| 8,8 | 9 | 91 | 125 | 1 | 872388 | £ 25,89 |
| 8,81 | 9 | 91 | 125 | 1 | 872389 | £ 25,89 |
| 8,82 | 9 | 91 | 125 | 1 | 872390 | £ 25,89 |
| 8,83 | 9 | 91 | 125 | 1 | 872391 | £ 25,89 |

| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Cutting | L2<br>L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 8,84 | 9 | 91 | 125 | 1 | 872392 | £ 25,89 |
| 8,85 | 9 | 91 | 125 | 1 | 872393 | £ 25,89 |
| 8,86 | 9 | 91 | 125 | 1 | 872394 | £ 25,89 |
| 8,87 | 9 | 91 | 125 | 1 | 872395 | £ 25,89 |
| 8,88 | 9 | 91 | 125 | 1 | 872396 | £ 25,89 |
| 8,89 | 9 | 91 | 125 | 1 | 872397 | £ 25,89 |
| 8,9 | 9 | 91 | 125 | 1 | 872398 | £ 25,89 |
| 8,91 | 9 | 91 | 125 | 1 | 872399 | £ 25,89 |
| 8,92 | 9 | 91 | 125 | 1 | 872400 | £ 25,89 |
| 8,93 | 9 | 91 | 125 | 1 | 872401 | £ 25,89 |
| 8,94 | 9 | 91 | 125 | 1 | 872402 | £ 25,89 |
| 8,95 | 9 | 91 | 125 | 1 | 872403 | £ 25,89 |
| 8,96 | 9 | 91 | 125 | 1 | 872404 | £ 25,89 |
| 8,97 | 9 | 91 | 125 | 1 | 872405 | £ 25,89 |
| 8,98 | 9 | 91 | 125 | 1 | 872406 | £ 25,89 |
| 8,99 | 9 | 91 | 125 | 1 | 872407 | £ 25,89 |
| 9 | 9 | 91 | 125 | 1 | 872408 | £ 25,89 |
| 9,01 | 9 | 91 | 125 | 1 | 872409 | £ 25,89 |
| 9,02 | 9 | 91 | 125 | 1 | 872410 | £ 25,89 |
| 9,03 | 9 | 91 | 125 | 1 | 872411 | £ 25,89 |
| 9,04 | 9 | 91 | 125 | 1 | 872412 | £ 25,89 |
| 9,05 | 9 | 91 | 125 | 1 | 872413 | £ 25,89 |
| 9,06 | 9 | 91 | 125 | 1 | 872414 | £ 31,03 |
| 9,07 | 9 | 91 | 125 | 1 | 872415 | £ 31,03 |
| 9,08 | 9 | 91 | 125 | 1 | 872416 | £ 31,03 |
| 9,09 | 9 | 91 | 125 | 1 | 872417 | £ 31,03 |
| 9,1 | 9 | 91 | 125 | 1 | 872418 | £ 31,03 |
| 9,11 | 9 | 91 | 125 | 1 | 872419 | £ 31,03 |
| 9,12 | 9 | 91 | 125 | 1 | 872420 | £ 31,03 |
| 9,13 | 9 | 91 | 125 | 1 | 872421 | £ 31,03 |
| 9,14 | 9 | 91 | 125 | 1 | 872422 | £ 31,03 |
| 9,15 | 9 | 91 | 125 | 1 | 872423 | £ 31,03 |
| 9,16 | 9 | 91 | 125 | 1 | 872424 | £ 31,03 |
| 9,17 | 9 | 91 | 125 | 1 | 872425 | £ 31,03 |
| 9,18 | 9 | 91 | 125 | 1 | 872426 | £ 31,03 |
| 9,19 | 9 | 91 | 125 | 1 | 872427 | £ 31,03 |
| 9,2 | 9 | 91 | 125 | 1 | 872428 | £ 31,03 |
| 9,21 | 9 | 91 | 125 | 1 | 872429 | £ 31,03 |
| 9,22 | 9 | 91 | 125 | 1 | 872430 | £ 31,03 |
| 9,23 | 9 | 91 | 125 | 1 | 872431 | £ 31,03 |
| 9,24 | 9 | 91 | 125 | 1 | 872432 | £ 31,03 |
| 9,25 | 9 | 91 | 125 | 1 | 872433 | £ 31,03 |
| 9,26 | 9 | 91 | 125 | 1 | 872434 | £ 31,03 |
| 9,27 | 9 | 91 | 125 | 1 | 872435 | £ 31,03 |
| 9,28 | 9 | 91 | 125 | 1 | 872436 | £ 31,03 |
| 9,29 | 9 | 91 | 125 | 1 | 872437 | £ 31,03 |
| 9,3 | 9 | 91 | 125 | 1 | 872438 | £ 31,03 |
| 9,31 | 9 | 91 | 125 | 1 | 872439 | £ 31,03 |
| 9,32 | 9 | 91 | 125 | 1 | 872440 | £ 31,03 |
| 9,33 | 9 | 91 | 125 | 1 | 872441 | £ 31,03 |
| 9,34 | 9 | 91 | 125 | 1 | 872442 | £ 31,03 |
| 9,35 | 9 | 91 | 125 | 1 | 872443 | £ 31,03 |
| 9,36 | 9 | 91 | 125 | 1 | 872444 | £ 31,03 |
| 9,37 | 9 | 91 | 125 | 1 | 872445 | £ 31,03 |
| 9,38 | 9 | 91 | 125 | 1 | 872446 | £ 31,03 |
| 9,39 | 9 | 91 | 125 | 1 | 872447 | £ 31,03 |
| 9,4 | 9 | 91 | 125 | 1 | 872448 | £ 31,03 |
| 9,41 | 9 | 91 | 125 | 1 | 872449 | £ 31,03 |
| 9,42 | 9 | 91 | 125 | 1 | 872450 | £ 31,03 |
| 9,43 | 9 | 91 | 125 | 1 | 872451 | £ 31,03 |
| 9,44 | 9 | 91 | 125 | 1 | 872452 | £ 31,03 |
| 9,45 | 9 | 91 | 125 | 1 | 872453 | £ 31,03 |
| 9,46 | 9 | 91 | 125 | 1 | 872454 | £ 31,03 |
| 9,47 | 9 | 91 | 125 | 1 | 872455 | £ 31,03 |
| 9,48 | 9 | 91 | 125 | 1 | 872456 | £ 31,03 |
| 9,49 | 9 | 91 | 125 | 1 | 872457 | £ 31,03 |
| 9,5 | 9 | 91 | 125 | 1 | 872458 | £ 31,03 |
| 9,51 | 9 | 91 | 125 | 1 | 872459 | £ 31,03 |
| 9,52 | 9 | 91 | 125 | 1 | 872460 | £ 31,03 |
| 9,53 | 9 | 91 | 125 | 1 | 872461 | £ 31,03 |
| 9,54 | 9 | 91 | 125 | 1 | 872462 | £ 31,03 |
| 9,55 | 9 | 91 | 125 | 1 | 872463 | £ 31,03 |
| 9,56 | 10 | 99 | 133 | 1 | 872464 | £ 31,03 |
| 9,57 | 10 | 99 | 133 | 1 | 872465 | £ 31,03 |
| 9,58 | 10 | 99 | 133 | 1 | 872466 | £ 31,03 |
| 9,59 | 10 | 99 | 133 | 1 | 872467 | £ 31,03 |

## HIGH PRECISION MACHINE REAMERS - HSS CO5% - HPR

DIN 212B | NFE 66014 | 10°

The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.
Tolerance: From Ø 0.6 to 3.00 = 0 / +3µ - From Ø 3.01 to 6.00 = 0 / +4µ - From Ø 6.01 to 20.00 = 0 / +5µ - Tail diameter h8

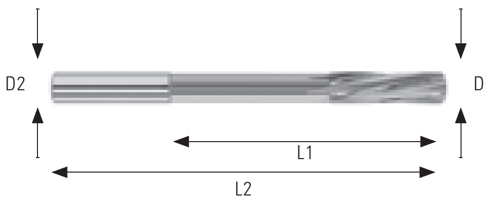



| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 9,6 | 10 | 99 | 133 | 1 | 872468 | £ 31,03 |
| 9,61 | 10 | 99 | 133 | 1 | 872469 | £ 31,03 |
| 9,62 | 10 | 99 | 133 | 1 | 872470 | £ 31,03 |
| 9,63 | 10 | 99 | 133 | 1 | 872471 | £ 31,03 |
| 9,64 | 10 | 99 | 133 | 1 | 872472 | £ 31,03 |
| 9,65 | 10 | 99 | 133 | 1 | 872473 | £ 31,03 |
| 9,66 | 10 | 99 | 133 | 1 | 872474 | £ 31,03 |
| 9,67 | 10 | 99 | 133 | 1 | 872475 | £ 31,03 |
| 9,68 | 10 | 99 | 133 | 1 | 872476 | £ 31,03 |
| 9,69 | 10 | 99 | 133 | 1 | 872477 | £ 31,03 |
| 9,7 | 10 | 99 | 133 | 1 | 872478 | £ 31,03 |
| 9,71 | 10 | 99 | 133 | 1 | 872479 | £ 31,03 |
| 9,72 | 10 | 99 | 133 | 1 | 872480 | £ 31,03 |
| 9,73 | 10 | 99 | 133 | 1 | 872481 | £ 31,03 |
| 9,74 | 10 | 99 | 133 | 1 | 872482 | £ 31,03 |
| 9,75 | 10 | 99 | 133 | 1 | 872483 | £ 31,03 |
| 9,76 | 10 | 99 | 133 | 1 | 872484 | £ 31,03 |
| 9,77 | 10 | 99 | 133 | 1 | 872485 | £ 31,03 |
| 9,78 | 10 | 99 | 133 | 1 | 872486 | £ 31,03 |
| 9,79 | 10 | 99 | 133 | 1 | 872487 | £ 31,03 |
| 9,8 | 10 | 99 | 133 | 1 | 872488 | £ 31,03 |
| 9,81 | 10 | 99 | 133 | 1 | 872489 | £ 31,03 |
| 9,82 | 10 | 99 | 133 | 1 | 872490 | £ 31,03 |
| 9,83 | 10 | 99 | 133 | 1 | 872491 | £ 31,03 |
| 9,84 | 10 | 99 | 133 | 1 | 872492 | £ 31,03 |
| 9,85 | 10 | 99 | 133 | 1 | 872493 | £ 31,03 |
| 9,86 | 10 | 99 | 133 | 1 | 872494 | £ 31,03 |
| 9,87 | 10 | 99 | 133 | 1 | 872495 | £ 31,03 |
| 9,88 | 10 | 99 | 133 | 1 | 872496 | £ 31,03 |
| 9,89 | 10 | 99 | 133 | 1 | 872497 | £ 31,03 |
| 9,9 | 10 | 99 | 133 | 1 | 872498 | £ 31,03 |
| 9,91 | 10 | 99 | 133 | 1 | 872499 | £ 31,03 |
| 9,92 | 10 | 99 | 133 | 1 | 872500 | £ 31,03 |
| 9,93 | 10 | 99 | 133 | 1 | 872501 | £ 31,03 |
| 9,94 | 10 | 99 | 133 | 1 | 872502 | £ 31,03 |
| 9,95 | 10 | 99 | 133 | 1 | 872503 | £ 31,03 |
| 9,96 | 10 | 99 | 133 | 1 | 872504 | £ 31,03 |
| 9,97 | 10 | 99 | 133 | 1 | 872505 | £ 31,03 |
| 9,98 | 10 | 99 | 133 | 1 | 847212 | £ 30,87 |
| 9,99 | 10 | 99 | 133 | 1 | 847213 | £ 30,87 |
| 10 | 10 | 99 | 133 | 1 | 847214 | £ 30,87 |
| 10,01 | 10 | 99 | 133 | 1 | 847215 | £ 30,87 |
| 10,02 | 10 | 99 | 133 | 1 | 847216 | £ 30,87 |
| 10,03 | 10 | 99 | 133 | 1 | 872506 | £ 31,03 |
| 10,04 | 10 | 99 | 133 | 1 | 872507 | £ 31,03 |
| 10,05 | 10 | 99 | 133 | 1 | 872508 | £ 31,03 |
| 10,06 | 10 | 99 | 133 | 1 | 872509 | £ 31,81 |
| 10,07 | 10 | 99 | 133 | 1 | 872510 | £ 31,81 |
| 10,08 | 10 | 99 | 133 | 1 | 872511 | £ 31,81 |
| 10,09 | 10 | 99 | 133 | 1 | 872512 | £ 31,81 |
| 10,1 | 10 | 99 | 133 | 1 | 872513 | £ 31,81 |
| 10,11 | 10 | 99 | 133 | 1 | 872514 | £ 31,81 |
| 10,12 | 10 | 99 | 133 | 1 | 872515 | £ 31,81 |
| 10,13 | 10 | 99 | 133 | 1 | 872516 | £ 31,81 |
| 10,14 | 10 | 99 | 133 | 1 | 872517 | £ 31,81 |
| 10,15 | 10 | 99 | 133 | 1 | 872518 | £ 31,81 |
| 10,16 | 10 | 99 | 133 | 1 | 872519 | £ 31,81 |
| 10,17 | 10 | 99 | 133 | 1 | 872520 | £ 31,81 |
| 10,18 | 10 | 99 | 133 | 1 | 872521 | £ 31,81 |
| 10,19 | 10 | 99 | 133 | 1 | 872522 | £ 31,81 |
| 10,2 | 10 | 99 | 133 | 1 | 872523 | £ 31,81 |
| 10,21 | 10 | 99 | 133 | 1 | 872524 | £ 31,81 |
| 10,22 | 10 | 99 | 133 | 1 | 872525 | £ 31,81 |
| 10,23 | 10 | 99 | 133 | 1 | 872526 | £ 31,81 |

| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Cutting | L2<br>L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 10,24 | 10 | 99 | 133 | 1 | 872527 | £ 31,81 |
| 10,25 | 10 | 99 | 133 | 1 | 872528 | £ 31,81 |
| 10,26 | 10 | 99 | 133 | 1 | 872529 | £ 31,81 |
| 10,27 | 10 | 99 | 133 | 1 | 872530 | £ 31,81 |
| 10,28 | 10 | 99 | 133 | 1 | 872531 | £ 31,81 |
| 10,29 | 10 | 99 | 133 | 1 | 872532 | £ 31,81 |
| 10,3 | 10 | 99 | 133 | 1 | 872533 | £ 31,81 |
| 10,31 | 10 | 99 | 133 | 1 | 872534 | £ 31,81 |
| 10,32 | 10 | 99 | 133 | 1 | 872535 | £ 31,81 |
| 10,33 | 10 | 99 | 133 | 1 | 872536 | £ 31,81 |
| 10,34 | 10 | 99 | 133 | 1 | 872537 | £ 31,81 |
| 10,35 | 10 | 99 | 133 | 1 | 872538 | £ 31,81 |
| 10,36 | 10 | 99 | 133 | 1 | 872539 | £ 31,81 |
| 10,37 | 10 | 99 | 133 | 1 | 872540 | £ 31,81 |
| 10,38 | 10 | 99 | 133 | 1 | 872541 | £ 31,81 |
| 10,39 | 10 | 99 | 133 | 1 | 872542 | £ 31,81 |
| 10,4 | 10 | 99 | 133 | 1 | 872543 | £ 31,81 |
| 10,41 | 10 | 99 | 133 | 1 | 872544 | £ 31,81 |
| 10,42 | 10 | 99 | 133 | 1 | 872545 | £ 31,81 |
| 10,43 | 10 | 99 | 133 | 1 | 872546 | £ 31,81 |
| 10,44 | 10 | 99 | 133 | 1 | 872547 | £ 31,81 |
| 10,45 | 10 | 99 | 133 | 1 | 872548 | £ 31,81 |
| 10,46 | 10 | 99 | 133 | 1 | 872549 | £ 31,81 |
| 10,47 | 10 | 99 | 133 | 1 | 872550 | £ 31,81 |
| 10,48 | 10 | 99 | 133 | 1 | 872551 | £ 31,81 |
| 10,49 | 10 | 99 | 133 | 1 | 872552 | £ 31,81 |
| 10,5 | 10 | 99 | 133 | 1 | 872553 | £ 31,81 |
| 10,51 | 10 | 99 | 133 | 1 | 872554 | £ 31,81 |
| 10,52 | 10 | 99 | 133 | 1 | 872555 | £ 31,81 |
| 10,53 | 10 | 99 | 133 | 1 | 872556 | £ 31,81 |
| 10,54 | 10 | 99 | 133 | 1 | 872557 | £ 31,81 |
| 10,55 | 10 | 99 | 133 | 1 | 872558 | £ 31,81 |
| 10,56 | 10 | 99 | 133 | 1 | 872559 | £ 31,81 |
| 10,57 | 10 | 99 | 133 | 1 | 872560 | £ 31,81 |
| 10,58 | 10 | 99 | 133 | 1 | 872561 | £ 31,81 |
| 10,59 | 10 | 99 | 133 | 1 | 872562 | £ 31,81 |
| 10,6 | 10 | 99 | 133 | 1 | 872563 | £ 31,81 |
| 10,61 | 10 | 99 | 133 | 1 | 872564 | £ 31,81 |
| 10,62 | 10 | 99 | 133 | 1 | 872565 | £ 31,81 |
| 10,63 | 10 | 99 | 133 | 1 | 872566 | £ 31,81 |
| 10,64 | 10 | 99 | 133 | 1 | 872567 | £ 31,81 |
| 10,65 | 10 | 99 | 133 | 1 | 872568 | £ 31,81 |
| 10,66 | 10 | 99 | 133 | 1 | 872569 | £ 31,81 |
| 10,67 | 10 | 99 | 133 | 1 | 872570 | £ 31,81 |
| 10,68 | 10 | 99 | 133 | 1 | 872571 | £ 31,81 |
| 10,69 | 10 | 99 | 133 | 1 | 872572 | £ 31,81 |
| 10,7 | 10 | 99 | 133 | 1 | 872573 | £ 31,81 |
| 10,71 | 10 | 99 | 133 | 1 | 872574 | £ 31,81 |
| 10,72 | 10 | 99 | 133 | 1 | 872575 | £ 31,81 |
| 10,73 | 10 | 99 | 133 | 1 | 872576 | £ 31,81 |
| 10,74 | 10 | 99 | 133 | 1 | 872577 | £ 31,81 |
| 10,75 | 10 | 99 | 133 | 1 | 872578 | £ 31,81 |
| 10,76 | 10 | 99 | 133 | 1 | 872579 | £ 31,81 |
| 10,77 | 10 | 99 | 133 | 1 | 872580 | £ 31,81 |
| 10,78 | 10 | 99 | 133 | 1 | 872581 | £ 31,81 |
| 10,79 | 10 | 99 | 133 | 1 | 872582 | £ 31,81 |
| 10,8 | 10 | 99 | 133 | 1 | 872583 | £ 31,81 |
| 10,81 | 10 | 99 | 133 | 1 | 872584 | £ 31,81 |
| 10,82 | 10 | 99 | 133 | 1 | 872585 | £ 31,81 |
| 10,83 | 10 | 99 | 133 | 1 | 872586 | £ 31,81 |
| 10,84 | 10 | 99 | 133 | 1 | 872587 | £ 31,81 |
| 10,85 | 10 | 99 | 133 | 1 | 872588 | £ 31,81 |
| 10,86 | 10 | 99 | 133 | 1 | 872589 | £ 31,81 |
| 10,87 | 10 | 99 | 133 | 1 | 872590 | £ 31,81 |
| 10,88 | 10 | 99 | 133 | 1 | 872591 | £ 31,81 |
| 10,89 | 10 | 99 | 133 | 1 | 872592 | £ 31,81 |
| 10,9 | 10 | 99 | 133 | 1 | 872593 | £ 31,81 |
| 10,91 | 10 | 99 | 133 | 1 | 872594 | £ 31,81 |
| 10,92 | 10 | 99 | 133 | 1 | 872595 | £ 31,81 |
| 10,93 | 10 | 99 | 133 | 1 | 872596 | £ 31,81 |
| 10,94 | 10 | 99 | 133 | 1 | 872597 | £ 31,81 |
| 10,95 | 10 | 99 | 133 | 1 | 872598 | £ 31,81 |
| 10,96 | 10 | 99 | 133 | 1 | 872599 | £ 31,81 |
| 10,97 | 10 | 99 | 133 | 1 | 872600 | £ 31,81 |
| 10,98 | 10 | 99 | 133 | 1 | 872601 | £ 31,81 |
| 10,99 | 10 | 99 | 133 | 1 | 872602 | £ 31,81 |

## HIGH PRECISION MACHINE REAMERS - HSS CO5% - HPR

DIN 212B | NFE 66014 | 10°




The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.
Tolerance: From Ø 0.6 to 3.00 = 0 / +3µ - From Ø 3.01 to 6.00 = 0 / +4µ - From Ø 6.01 to 20.00 = 0 / +5µ - Tail diameter h8

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 11 | 10 | 99 | 133 | 1 | 872603 | £ 31,81 |
| 11,01 | 10 | 99 | 133 | 1 | 872604 | £ 31,81 |
| 11,02 | 10 | 99 | 133 | 1 | 872605 | £ 31,81 |
| 11,03 | 10 | 99 | 133 | 1 | 872606 | £ 31,81 |
| 11,04 | 10 | 99 | 133 | 1 | 872607 | £ 31,81 |
| 11,05 | 10 | 99 | 133 | 1 | 872608 | £ 31,81 |
| 11,06 | 10 | 99 | 133 | 1 | 872609 | £ 31,81 |
| 11,07 | 10 | 99 | 133 | 1 | 872610 | £ 31,81 |
| 11,08 | 10 | 99 | 133 | 1 | 872611 | £ 31,81 |
| 11,09 | 10 | 99 | 133 | 1 | 872612 | £ 31,81 |
| 11,1 | 10 | 99 | 133 | 1 | 872613 | £ 31,81 |
| 11,11 | 10 | 99 | 133 | 1 | 872614 | £ 31,81 |
| 11,12 | 10 | 99 | 133 | 1 | 872615 | £ 31,81 |
| 11,13 | 10 | 99 | 133 | 1 | 872616 | £ 31,81 |
| 11,14 | 10 | 99 | 133 | 1 | 872617 | £ 31,81 |
| 11,15 | 10 | 99 | 133 | 1 | 872618 | £ 31,81 |
| 11,16 | 10 | 99 | 133 | 1 | 872619 | £ 31,81 |
| 11,17 | 10 | 99 | 133 | 1 | 872620 | £ 31,81 |
| 11,18 | 10 | 99 | 133 | 1 | 872621 | £ 31,81 |
| 11,19 | 10 | 99 | 133 | 1 | 872622 | £ 31,81 |
| 11,2 | 10 | 99 | 133 | 1 | 872623 | £ 31,81 |
| 11,21 | 10 | 99 | 133 | 1 | 872624 | £ 31,81 |
| 11,22 | 10 | 99 | 133 | 1 | 872625 | £ 31,81 |
| 11,23 | 10 | 99 | 133 | 1 | 872626 | £ 31,81 |
| 11,24 | 10 | 99 | 133 | 1 | 872627 | £ 31,81 |
| 11,25 | 10 | 99 | 133 | 1 | 872628 | £ 31,81 |
| 11,26 | 10 | 99 | 133 | 1 | 872629 | £ 31,81 |
| 11,27 | 10 | 99 | 133 | 1 | 872630 | £ 31,81 |
| 11,28 | 10 | 99 | 133 | 1 | 872631 | £ 31,81 |
| 11,29 | 10 | 99 | 133 | 1 | 872632 | £ 31,81 |
| 11,3 | 10 | 99 | 133 | 1 | 872633 | £ 31,81 |
| 11,31 | 12 | 106 | 151 | 1 | 872634 | £ 41,29 |
| 11,32 | 12 | 106 | 151 | 1 | 872635 | £ 41,29 |
| 11,33 | 12 | 106 | 151 | 1 | 872636 | £ 41,29 |
| 11,34 | 12 | 106 | 151 | 1 | 872637 | £ 41,29 |
| 11,35 | 12 | 106 | 151 | 1 | 872638 | £ 41,29 |
| 11,36 | 12 | 106 | 151 | 1 | 872639 | £ 41,29 |
| 11,37 | 12 | 106 | 151 | 1 | 872640 | £ 41,29 |
| 11,38 | 12 | 106 | 151 | 1 | 872641 | £ 41,29 |
| 11,39 | 12 | 106 | 151 | 1 | 872642 | £ 41,29 |
| 11,4 | 12 | 106 | 151 | 1 | 872643 | £ 41,29 |
| 11,41 | 12 | 106 | 151 | 1 | 872644 | £ 41,29 |
| 11,42 | 12 | 106 | 151 | 1 | 872645 | £ 41,29 |
| 11,43 | 12 | 106 | 151 | 1 | 872646 | £ 41,29 |
| 11,44 | 12 | 106 | 151 | 1 | 872647 | £ 41,29 |
| 11,45 | 12 | 106 | 151 | 1 | 872648 | £ 41,29 |
| 11,46 | 12 | 106 | 151 | 1 | 872649 | £ 41,29 |
| 11,47 | 12 | 106 | 151 | 1 | 872650 | £ 41,29 |
| 11,48 | 12 | 106 | 151 | 1 | 872651 | £ 41,29 |
| 11,49 | 12 | 106 | 151 | 1 | 872652 | £ 41,29 |
| 11,5 | 12 | 106 | 151 | 1 | 872653 | £ 41,29 |
| 11,51 | 12 | 106 | 151 | 1 | 872654 | £ 41,29 |
| 11,52 | 12 | 106 | 151 | 1 | 872655 | £ 41,29 |
| 11,53 | 12 | 106 | 151 | 1 | 872656 | £ 41,29 |
| 11,54 | 12 | 106 | 151 | 1 | 872657 | £ 41,29 |
| 11,55 | 12 | 106 | 151 | 1 | 872658 | £ 41,29 |
| 11,56 | 12 | 106 | 151 | 1 | 872659 | £ 41,29 |
| 11,57 | 12 | 106 | 151 | 1 | 872660 | £ 41,29 |
| 11,58 | 12 | 106 | 151 | 1 | 872661 | £ 41,29 |
| 11,59 | 12 | 106 | 151 | 1 | 872662 | £ 41,29 |
| 11,6 | 12 | 106 | 151 | 1 | 872663 | £ 41,29 |
| 11,61 | 12 | 106 | 151 | 1 | 872664 | £ 41,29 |
| 11,62 | 12 | 106 | 151 | 1 | 872665 | £ 41,29 |
| 11,63 | 12 | 106 | 151 | 1 | 872666 | £ 41,29 |

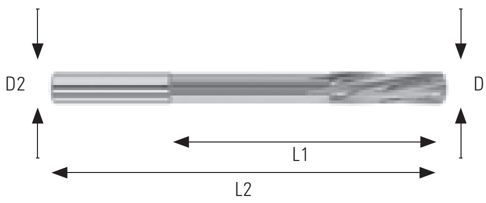
CUTLINE

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 11,64 | 12 | 106 | 151 | 1 | 872667 | £ 41,29 |
| 11,65 | 12 | 106 | 151 | 1 | 872668 | £ 41,29 |
| 11,66 | 12 | 106 | 151 | 1 | 872669 | £ 41,29 |
| 11,67 | 12 | 106 | 151 | 1 | 872670 | £ 41,29 |
| 11,68 | 12 | 106 | 151 | 1 | 872671 | £ 41,29 |
| 11,69 | 12 | 106 | 151 | 1 | 872672 | £ 41,29 |
| 11,7 | 12 | 106 | 151 | 1 | 872673 | £ 41,29 |
| 11,71 | 12 | 106 | 151 | 1 | 872674 | £ 41,29 |
| 11,72 | 12 | 106 | 151 | 1 | 872675 | £ 41,29 |
| 11,73 | 12 | 106 | 151 | 1 | 872676 | £ 41,29 |
| 11,74 | 12 | 106 | 151 | 1 | 872677 | £ 41,29 |
| 11,75 | 12 | 106 | 151 | 1 | 872678 | £ 41,29 |
| 11,76 | 12 | 106 | 151 | 1 | 872679 | £ 41,29 |
| 11,77 | 12 | 106 | 151 | 1 | 872680 | £ 41,29 |
| 11,78 | 12 | 106 | 151 | 1 | 872681 | £ 41,29 |
| 11,79 | 12 | 106 | 151 | 1 | 872682 | £ 41,29 |
| 11,8 | 12 | 106 | 151 | 1 | 872683 | £ 41,29 |
| 11,81 | 12 | 106 | 151 | 1 | 872684 | £ 41,29 |
| 11,82 | 12 | 106 | 151 | 1 | 872685 | £ 41,29 |
| 11,83 | 12 | 106 | 151 | 1 | 872686 | £ 41,29 |
| 11,84 | 12 | 106 | 151 | 1 | 872687 | £ 41,29 |
| 11,85 | 12 | 106 | 151 | 1 | 872688 | £ 41,29 |
| 11,86 | 12 | 106 | 151 | 1 | 872689 | £ 41,29 |
| 11,87 | 12 | 106 | 151 | 1 | 872690 | £ 41,29 |
| 11,88 | 12 | 106 | 151 | 1 | 872691 | £ 41,29 |
| 11,89 | 12 | 106 | 151 | 1 | 872692 | £ 41,29 |
| 11,9 | 12 | 106 | 151 | 1 | 872693 | £ 41,29 |
| 11,91 | 12 | 106 | 151 | 1 | 872694 | £ 41,29 |
| 11,92 | 12 | 106 | 151 | 1 | 872695 | £ 41,29 |
| 11,93 | 12 | 106 | 151 | 1 | 872696 | £ 41,29 |
| 11,94 | 12 | 106 | 151 | 1 | 872697 | £ 41,29 |
| 11,95 | 12 | 106 | 151 | 1 | 872698 | £ 41,29 |
| 11,96 | 12 | 106 | 151 | 1 | 872699 | £ 41,29 |
| 11,97 | 12 | 106 | 151 | 1 | 872700 | £ 41,29 |
| 11,98 | 12 | 106 | 151 | 1 | 872701 | £ 41,29 |
| 11,99 | 12 | 106 | 151 | 1 | 872702 | £ 41,29 |
| 12 | 12 | 106 | 151 | 1 | 872703 | £ 41,29 |
| 12,01 | 12 | 106 | 151 | 1 | 872704 | £ 41,29 |
| 12,02 | 12 | 106 | 151 | 1 | 872705 | £ 41,29 |
| 12,03 | 12 | 106 | 151 | 1 | 872706 | £ 41,29 |
| 12,04 | 12 | 106 | 151 | 1 | 872707 | £ 41,29 |
| 12,05 | 12 | 106 | 151 | 1 | 872708 | £ 41,29 |
| 12,06 | 12 | 106 | 151 | 1 | 872709 | £ 41,29 |
| 12,07 | 12 | 106 | 151 | 1 | 872710 | £ 41,29 |
| 12,08 | 12 | 106 | 151 | 1 | 872711 | £ 41,29 |
| 12,09 | 12 | 106 | 151 | 1 | 872712 | £ 41,29 |
| 12,1 | 12 | 106 | 151 | 1 | 872713 | £ 41,29 |
| 12,11 | 12 | 106 | 151 | 1 | 872714 | £ 41,29 |
| 12,12 | 12 | 106 | 151 | 1 | 872715 | £ 41,29 |
| 12,13 | 12 | 106 | 151 | 1 | 872716 | £ 41,29 |
| 12,14 | 12 | 106 | 151 | 1 | 872717 | £ 41,29 |
| 12,15 | 12 | 106 | 151 | 1 | 872718 | £ 41,29 |
| 12,16 | 12 | 106 | 151 | 1 | 872719 | £ 41,29 |
| 12,17 | 12 | 106 | 151 | 1 | 872720 | £ 41,29 |
| 12,18 | 12 | 106 | 151 | 1 | 872721 | £ 41,29 |
| 12,19 | 12 | 106 | 151 | 1 | 872722 | £ 41,29 |
| 12,2 | 12 | 106 | 151 | 1 | 872723 | £ 41,29 |
| 12,21 | 12 | 106 | 151 | 1 | 872724 | £ 41,29 |
| 12,22 | 12 | 106 | 151 | 1 | 872725 | £ 41,29 |
| 12,23 | 12 | 106 | 151 | 1 | 872726 | £ 41,29 |
| 12,24 | 12 | 106 | 151 | 1 | 872727 | £ 41,29 |
| 12,25 | 12 | 106 | 151 | 1 | 872728 | £ 41,29 |
| 12,26 | 12 | 106 | 151 | 1 | 872729 | £ 41,29 |
| 12,27 | 12 | 106 | 151 | 1 | 872730 | £ 41,29 |
| 12,28 | 12 | 106 | 151 | 1 | 872731 | £ 41,29 |
| 12,29 | 12 | 106 | 151 | 1 | 872732 | £ 41,29 |
| 12,3 | 12 | 106 | 151 | 1 | 872733 | £ 41,29 |
| 12,31 | 12 | 106 | 151 | 1 | 872734 | £ 41,29 |
| 12,32 | 12 | 106 | 151 | 1 | 872735 | £ 41,29 |
| 12,33 | 12 | 106 | 151 | 1 | 872736 | £ 41,29 |
| 12,34 | 12 | 106 | 151 | 1 | 872737 | £ 41,29 |
| 12,35 | 12 | 106 | 151 | 1 | 872738 | £ 41,29 |
| 12,36 | 12 | 106 | 151 | 1 | 872739 | £ 41,29 |
| 12,37 | 12 | 106 | 151 | 1 | 872740 | £ 41,29 |
| 12,38 | 12 | 106 | 151 | 1 | 872741 | £ 41,29 |
| 12,39 | 12 | 106 | 151 | 1 | 872742 | £ 41,29 |

## HIGH PRECISION MACHINE REAMERS - HSS CO5% - HPR

DIN 212B | NFE 66014 | 10°

The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.
Tolerance: From Ø 0.6 to 3.00 = 0 / +3μ - From Ø 3.01 to 6.00 = 0 / +4μ - From Ø 6.01 to 20.00 = 0 / +5μ - Tail diameter h8



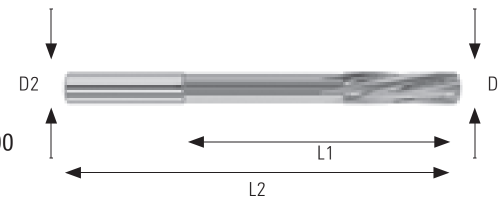

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 12,4 | 12 | 106 | 151 | 1 | 872743 | £ 41,29 |
| 12,41 | 12 | 106 | 151 | 1 | 872744 | £ 41,29 |
| 12,42 | 12 | 106 | 151 | 1 | 872745 | £ 41,29 |
| 12,43 | 12 | 106 | 151 | 1 | 872746 | £ 41,29 |
| 12,44 | 12 | 106 | 151 | 1 | 872747 | £ 41,29 |
| 12,45 | 12 | 106 | 151 | 1 | 872748 | £ 41,29 |
| 12,46 | 12 | 106 | 151 | 1 | 872749 | £ 41,29 |
| 12,47 | 12 | 106 | 151 | 1 | 872750 | £ 41,29 |
| 12,48 | 12 | 106 | 151 | 1 | 872751 | £ 41,29 |
| 12,49 | 12 | 106 | 151 | 1 | 872752 | £ 41,29 |
| 12,5 | 12 | 106 | 151 | 1 | 872753 | £ 41,29 |
| 12,51 | 12 | 106 | 151 | 1 | 872754 | £ 41,29 |
| 12,52 | 12 | 106 | 151 | 1 | 872755 | £ 41,29 |
| 12,53 | 12 | 106 | 151 | 1 | 872756 | £ 41,29 |
| 12,54 | 12 | 106 | 151 | 1 | 872757 | £ 41,29 |
| 12,55 | 12 | 106 | 151 | 1 | 872758 | £ 41,29 |
| 12,56 | 12 | 106 | 151 | 1 | 872759 | £ 41,29 |
| 12,57 | 12 | 106 | 151 | 1 | 872760 | £ 41,29 |
| 12,58 | 12 | 106 | 151 | 1 | 872761 | £ 41,29 |
| 12,59 | 12 | 106 | 151 | 1 | 872762 | £ 41,29 |
| 12,6 | 12 | 106 | 151 | 1 | 872763 | £ 41,29 |
| 12,61 | 12 | 106 | 151 | 1 | 872764 | £ 41,29 |
| 12,62 | 12 | 106 | 151 | 1 | 872765 | £ 41,29 |
| 12,63 | 12 | 106 | 151 | 1 | 872766 | £ 41,29 |
| 12,64 | 12 | 106 | 151 | 1 | 872767 | £ 41,29 |
| 12,65 | 12 | 106 | 151 | 1 | 872768 | £ 41,29 |
| 12,66 | 12 | 106 | 151 | 1 | 872769 | £ 41,29 |
| 12,67 | 12 | 106 | 151 | 1 | 872770 | £ 41,29 |
| 12,68 | 12 | 106 | 151 | 1 | 872771 | £ 41,29 |
| 12,69 | 12 | 106 | 151 | 1 | 872772 | £ 41,29 |
| 12,7 | 12 | 106 | 151 | 1 | 872773 | £ 41,29 |
| 12,71 | 12 | 106 | 151 | 1 | 872774 | £ 41,29 |
| 12,72 | 12 | 106 | 151 | 1 | 872775 | £ 41,29 |
| 12,73 | 12 | 106 | 151 | 1 | 872776 | £ 41,29 |
| 12,74 | 12 | 106 | 151 | 1 | 872777 | £ 41,29 |
| 12,75 | 12 | 106 | 151 | 1 | 872778 | £ 41,29 |
| 12,76 | 12 | 106 | 151 | 1 | 872779 | £ 41,29 |
| 12,77 | 12 | 106 | 151 | 1 | 872780 | £ 41,29 |
| 12,78 | 12 | 106 | 151 | 1 | 872781 | £ 41,29 |
| 12,79 | 12 | 106 | 151 | 1 | 872782 | £ 41,29 |
| 12,8 | 12 | 106 | 151 | 1 | 872783 | £ 41,29 |
| 12,81 | 12 | 106 | 151 | 1 | 872784 | £ 41,29 |
| 12,82 | 12 | 106 | 151 | 1 | 872785 | £ 41,29 |
| 12,83 | 12 | 106 | 151 | 1 | 872786 | £ 41,29 |
| 12,84 | 12 | 106 | 151 | 1 | 872787 | £ 41,29 |
| 12,85 | 12 | 106 | 151 | 1 | 872788 | £ 41,29 |
| 12,86 | 12 | 106 | 151 | 1 | 872789 | £ 41,29 |
| 12,87 | 12 | 106 | 151 | 1 | 872790 | £ 41,29 |
| 12,88 | 12 | 106 | 151 | 1 | 872791 | £ 41,29 |
| 12,89 | 12 | 106 | 151 | 1 | 872792 | £ 41,29 |
| 12,9 | 12 | 106 | 151 | 1 | 872793 | £ 41,29 |
| 12,91 | 12 | 106 | 151 | 1 | 872794 | £ 41,29 |
| 12,92 | 12 | 106 | 151 | 1 | 872795 | £ 41,29 |
| 12,93 | 12 | 106 | 151 | 1 | 872796 | £ 41,29 |
| 12,94 | 12 | 106 | 151 | 1 | 872797 | £ 41,29 |
| 12,95 | 12 | 106 | 151 | 1 | 872798 | £ 41,29 |
| 12,96 | 12 | 106 | 151 | 1 | 872799 | £ 41,29 |
| 12,97 | 12 | 106 | 151 | 1 | 872800 | £ 41,29 |
| 12,98 | 12 | 106 | 151 | 1 | 872801 | £ 41,29 |
| 12,99 | 12 | 106 | 151 | 1 | 872802 | £ 41,29 |
| 13 | 12 | 106 | 151 | 1 | 872803 | £ 41,29 |
| 13,01 | 12 | 106 | 151 | 1 | 872804 | £ 41,29 |
| 13,02 | 12 | 106 | 151 | 1 | 872805 | £ 41,29 |
| 13,03 | 12 | 106 | 151 | 1 | 872806 | £ 41,29 |

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 13,04 | 12 | 106 | 151 | 1 | 872807 | £ 41,29 |
| 13,05 | 12 | 106 | 151 | 1 | 872808 | £ 41,29 |
| 13,06 | 12 | 106 | 151 | 1 | 872809 | £ 49,11 |
| 13,07 | 12 | 106 | 151 | 1 | 872810 | £ 49,11 |
| 13,08 | 12 | 106 | 151 | 1 | 872811 | £ 49,11 |
| 13,09 | 12 | 106 | 151 | 1 | 872812 | £ 49,11 |
| 13,1 | 12 | 106 | 151 | 1 | 872813 | £ 49,11 |
| 13,11 | 12 | 106 | 151 | 1 | 872814 | £ 49,11 |
| 13,12 | 12 | 106 | 151 | 1 | 872815 | £ 49,11 |
| 13,13 | 12 | 106 | 151 | 1 | 872816 | £ 49,11 |
| 13,14 | 12 | 106 | 151 | 1 | 872817 | £ 49,11 |
| 13,15 | 12 | 106 | 151 | 1 | 872818 | £ 49,11 |
| 13,16 | 12 | 106 | 151 | 1 | 872819 | £ 49,11 |
| 13,17 | 12 | 106 | 151 | 1 | 872820 | £ 49,11 |
| 13,18 | 12 | 106 | 151 | 1 | 872821 | £ 49,11 |
| 13,19 | 12 | 106 | 151 | 1 | 872822 | £ 49,11 |
| 13,2 | 12 | 106 | 151 | 1 | 872823 | £ 49,11 |
| 13,21 | 14 | 110 | 160 | 1 | 872824 | £ 61,38 |
| 13,22 | 14 | 110 | 160 | 1 | 872825 | £ 61,38 |
| 13,23 | 14 | 110 | 160 | 1 | 872826 | £ 61,38 |
| 13,24 | 14 | 110 | 160 | 1 | 872827 | £ 61,38 |
| 13,25 | 14 | 110 | 160 | 1 | 872828 | £ 61,38 |
| 13,26 | 14 | 110 | 160 | 1 | 872829 | £ 61,38 |
| 13,27 | 14 | 110 | 160 | 1 | 872830 | £ 61,38 |
| 13,28 | 14 | 110 | 160 | 1 | 872831 | £ 61,38 |
| 13,29 | 14 | 110 | 160 | 1 | 872832 | £ 61,38 |
| 13,3 | 14 | 110 | 160 | 1 | 872833 | £ 61,38 |
| 13,31 | 14 | 110 | 160 | 1 | 872834 | £ 61,38 |
| 13,32 | 14 | 110 | 160 | 1 | 872835 | £ 61,38 |
| 13,33 | 14 | 110 | 160 | 1 | 872836 | £ 61,38 |
| 13,34 | 14 | 110 | 160 | 1 | 872837 | £ 61,38 |
| 13,35 | 14 | 110 | 160 | 1 | 872838 | £ 61,38 |
| 13,36 | 14 | 110 | 160 | 1 | 872839 | £ 61,38 |
| 13,37 | 14 | 110 | 160 | 1 | 872840 | £ 61,38 |
| 13,38 | 14 | 110 | 160 | 1 | 872841 | £ 61,38 |
| 13,39 | 14 | 110 | 160 | 1 | 872842 | £ 61,38 |
| 13,4 | 14 | 110 | 160 | 1 | 872843 | £ 61,38 |
| 13,41 | 14 | 110 | 160 | 1 | 872844 | £ 61,38 |
| 13,42 | 14 | 110 | 160 | 1 | 872845 | £ 61,38 |
| 13,43 | 14 | 110 | 160 | 1 | 872846 | £ 61,38 |
| 13,44 | 14 | 110 | 160 | 1 | 872847 | £ 61,38 |
| 13,45 | 14 | 110 | 160 | 1 | 872848 | £ 61,38 |
| 13,46 | 14 | 110 | 160 | 1 | 872849 | £ 61,38 |
| 13,47 | 14 | 110 | 160 | 1 | 872850 | £ 61,38 |
| 13,48 | 14 | 110 | 160 | 1 | 872851 | £ 61,38 |
| 13,49 | 14 | 110 | 160 | 1 | 872852 | £ 61,38 |
| 13,5 | 14 | 110 | 160 | 1 | 872853 | £ 61,38 |
| 13,51 | 14 | 110 | 160 | 1 | 872854 | £ 61,38 |
| 13,52 | 14 | 110 | 160 | 1 | 872855 | £ 61,38 |
| 13,53 | 14 | 110 | 160 | 1 | 872856 | £ 61,38 |
| 13,54 | 14 | 110 | 160 | 1 | 872857 | £ 61,38 |
| 13,55 | 14 | 110 | 160 | 1 | 872858 | £ 61,38 |
| 13,56 | 14 | 110 | 160 | 1 | 872859 | £ 61,38 |
| 13,57 | 14 | 110 | 160 | 1 | 872860 | £ 61,38 |
| 13,58 | 14 | 110 | 160 | 1 | 872861 | £ 61,38 |
| 13,59 | 14 | 110 | 160 | 1 | 872862 | £ 61,38 |
| 13,6 | 14 | 110 | 160 | 1 | 872863 | £ 61,38 |
| 13,61 | 14 | 110 | 160 | 1 | 872864 | £ 61,38 |
| 13,62 | 14 | 110 | 160 | 1 | 872865 | £ 61,38 |
| 13,63 | 14 | 110 | 160 | 1 | 872866 | £ 61,38 |
| 13,64 | 14 | 110 | 160 | 1 | 872867 | £ 61,38 |
| 13,65 | 14 | 110 | 160 | 1 | 872868 | £ 61,38 |
| 13,66 | 14 | 110 | 160 | 1 | 872869 | £ 61,38 |
| 13,67 | 14 | 110 | 160 | 1 | 872870 | £ 61,38 |
| 13,68 | 14 | 110 | 160 | 1 | 872871 | £ 61,38 |
| 13,69 | 14 | 110 | 160 | 1 | 872872 | £ 61,38 |
| 13,7 | 14 | 110 | 160 | 1 | 872873 | £ 61,38 |
| 13,71 | 14 | 110 | 160 | 1 | 872874 | £ 61,38 |
| 13,72 | 14 | 110 | 160 | 1 | 872875 | £ 61,38 |
| 13,73 | 14 | 110 | 160 | 1 | 872876 | £ 61,38 |
| 13,74 | 14 | 110 | 160 | 1 | 872877 | £ 61,38 |
| 13,75 | 14 | 110 | 160 | 1 | 872878 | £ 61,38 |
| 13,76 | 14 | 110 | 160 | 1 | 872879 | £ 61,38 |
| 13,77 | 14 | 110 | 160 | 1 | 872880 | £ 61,38 |
| 13,78 | 14 | 110 | 160 | 1 | 872881 | £ 61,38 |
| 13,79 | 14 | 110 | 160 | 1 | 872882 | £ 61,38 |

## HIGH PRECISION MACHINE REAMERS - HSS CO5% - HPR

DIN 212B | NFE 66014 | 10°

The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.
Tolerance: From Ø 0.6 to 3.00 = 0 / +3µ - From Ø 3.01 to 6.00 = 0 / +4µ - From Ø 6.01 to 20.00 = 0 / +5µ - Tail diameter h8

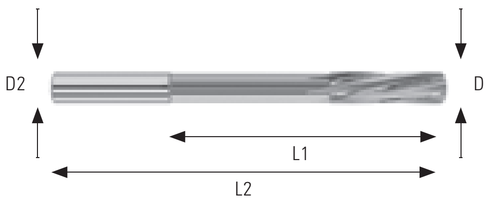



| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Cutting | L2<br>L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 13,8 | 14 | 110 | 160 | 1 | 872883 | £ 61,38 |
| 13,81 | 14 | 110 | 160 | 1 | 872884 | £ 61,38 |
| 13,82 | 14 | 110 | 160 | 1 | 872885 | £ 61,38 |
| 13,83 | 14 | 110 | 160 | 1 | 872886 | £ 61,38 |
| 13,84 | 14 | 110 | 160 | 1 | 872887 | £ 61,38 |
| 13,85 | 14 | 110 | 160 | 1 | 872888 | £ 61,38 |
| 13,86 | 14 | 110 | 160 | 1 | 872889 | £ 61,38 |
| 13,87 | 14 | 110 | 160 | 1 | 872890 | £ 61,38 |
| 13,88 | 14 | 110 | 160 | 1 | 872891 | £ 61,38 |
| 13,89 | 14 | 110 | 160 | 1 | 872892 | £ 61,38 |
| 13,9 | 14 | 110 | 160 | 1 | 872893 | £ 61,38 |
| 13,91 | 14 | 110 | 160 | 1 | 872894 | £ 61,38 |
| 13,92 | 14 | 110 | 160 | 1 | 872895 | £ 61,38 |
| 13,93 | 14 | 110 | 160 | 1 | 872896 | £ 61,38 |
| 13,94 | 14 | 110 | 160 | 1 | 872897 | £ 61,38 |
| 13,95 | 14 | 110 | 160 | 1 | 872898 | £ 61,38 |
| 13,96 | 14 | 110 | 160 | 1 | 872899 | £ 61,38 |
| 13,97 | 14 | 110 | 160 | 1 | 872900 | £ 49,11 |
| 13,98 | 14 | 110 | 160 | 1 | 872901 | £ 49,11 |
| 13,99 | 14 | 110 | 160 | 1 | 872902 | £ 49,11 |
| 14 | 14 | 110 | 160 | 1 | 872903 | £ 49,11 |
| 14,01 | 14 | 110 | 160 | 1 | 872904 | £ 49,11 |
| 14,02 | 14 | 110 | 160 | 1 | 872905 | £ 49,11 |
| 14,03 | 14 | 110 | 160 | 1 | 872906 | £ 49,11 |
| 14,04 | 14 | 110 | 160 | 1 | 872907 | £ 49,11 |
| 14,05 | 14 | 110 | 160 | 1 | 872908 | £ 49,11 |
| 14,06 | 14 | 112 | 162 | 1 | 872909 | £ 64,73 |
| 14,07 | 14 | 112 | 162 | 1 | 872910 | £ 64,73 |
| 14,08 | 14 | 112 | 162 | 1 | 872911 | £ 64,73 |
| 14,09 | 14 | 112 | 162 | 1 | 872912 | £ 64,73 |
| 14,1 | 14 | 112 | 162 | 1 | 872913 | £ 64,73 |
| 14,11 | 14 | 112 | 162 | 1 | 872914 | £ 64,73 |
| 14,12 | 14 | 112 | 162 | 1 | 872915 | £ 64,73 |
| 14,13 | 14 | 112 | 162 | 1 | 872916 | £ 64,73 |
| 14,14 | 14 | 112 | 162 | 1 | 872917 | £ 64,73 |
| 14,15 | 14 | 112 | 162 | 1 | 872918 | £ 64,73 |
| 14,16 | 14 | 112 | 162 | 1 | 872919 | £ 64,73 |
| 14,17 | 14 | 112 | 162 | 1 | 872920 | £ 64,73 |
| 14,18 | 14 | 112 | 162 | 1 | 872921 | £ 64,73 |
| 14,19 | 14 | 112 | 162 | 1 | 872922 | £ 64,73 |
| 14,2 | 14 | 112 | 162 | 1 | 872923 | £ 64,73 |
| 14,21 | 14 | 112 | 162 | 1 | 872924 | £ 64,73 |
| 14,22 | 14 | 112 | 162 | 1 | 872925 | £ 64,73 |
| 14,23 | 14 | 112 | 162 | 1 | 872926 | £ 64,73 |
| 14,24 | 14 | 112 | 162 | 1 | 872927 | £ 64,73 |
| 14,25 | 14 | 112 | 162 | 1 | 872928 | £ 64,73 |
| 14,26 | 14 | 112 | 162 | 1 | 872929 | £ 64,73 |
| 14,27 | 14 | 112 | 162 | 1 | 872930 | £ 64,73 |
| 14,28 | 14 | 112 | 162 | 1 | 872931 | £ 64,73 |
| 14,29 | 14 | 112 | 162 | 1 | 872932 | £ 64,73 |
| 14,3 | 14 | 112 | 162 | 1 | 872933 | £ 64,73 |
| 14,31 | 14 | 112 | 162 | 1 | 872934 | £ 64,73 |
| 14,32 | 14 | 112 | 162 | 1 | 872935 | £ 64,73 |
| 14,33 | 14 | 112 | 162 | 1 | 872936 | £ 64,73 |
| 14,34 | 14 | 112 | 162 | 1 | 872937 | £ 64,73 |
| 14,35 | 14 | 112 | 162 | 1 | 872938 | £ 64,73 |
| 14,36 | 14 | 112 | 162 | 1 | 872939 | £ 64,73 |
| 14,37 | 14 | 112 | 162 | 1 | 872940 | £ 64,73 |
| 14,38 | 14 | 112 | 162 | 1 | 872941 | £ 64,73 |
| 14,39 | 14 | 112 | 162 | 1 | 872942 | £ 64,73 |
| 14,4 | 14 | 112 | 162 | 1 | 872943 | £ 64,73 |
| 14,41 | 14 | 112 | 162 | 1 | 872944 | £ 64,73 |
| 14,42 | 14 | 112 | 162 | 1 | 872945 | £ 64,73 |
| 14,43 | 14 | 112 | 162 | 1 | 872946 | £ 64,73 |

| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Cutting | L2<br>L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 14,44 | 14 | 112 | 162 | 1 | 872947 | £ 64,73 |
| 14,45 | 14 | 112 | 162 | 1 | 872948 | £ 64,73 |
| 14,46 | 14 | 112 | 162 | 1 | 872949 | £ 64,73 |
| 14,47 | 14 | 112 | 162 | 1 | 872950 | £ 64,73 |
| 14,48 | 14 | 112 | 162 | 1 | 872951 | £ 64,73 |
| 14,49 | 14 | 112 | 162 | 1 | 872952 | £ 64,73 |
| 14,5 | 14 | 112 | 162 | 1 | 872953 | £ 64,73 |
| 14,51 | 14 | 112 | 162 | 1 | 872954 | £ 64,73 |
| 14,52 | 14 | 112 | 162 | 1 | 872955 | £ 64,73 |
| 14,53 | 14 | 112 | 162 | 1 | 872956 | £ 64,73 |
| 14,54 | 14 | 112 | 162 | 1 | 872957 | £ 64,73 |
| 14,55 | 14 | 112 | 162 | 1 | 872958 | £ 64,73 |
| 14,56 | 14 | 112 | 162 | 1 | 872959 | £ 64,73 |
| 14,57 | 14 | 112 | 162 | 1 | 872960 | £ 64,73 |
| 14,58 | 14 | 112 | 162 | 1 | 872961 | £ 64,73 |
| 14,59 | 14 | 112 | 162 | 1 | 872962 | £ 64,73 |
| 14,6 | 14 | 112 | 162 | 1 | 872963 | £ 64,73 |
| 14,61 | 14 | 112 | 162 | 1 | 872964 | £ 64,73 |
| 14,62 | 14 | 112 | 162 | 1 | 872965 | £ 64,73 |
| 14,63 | 14 | 112 | 162 | 1 | 872966 | £ 64,73 |
| 14,64 | 14 | 112 | 162 | 1 | 872967 | £ 64,73 |
| 14,65 | 14 | 112 | 162 | 1 | 872968 | £ 64,73 |
| 14,66 | 14 | 112 | 162 | 1 | 872969 | £ 64,73 |
| 14,67 | 14 | 112 | 162 | 1 | 872970 | £ 64,73 |
| 14,68 | 14 | 112 | 162 | 1 | 872971 | £ 64,73 |
| 14,69 | 14 | 112 | 162 | 1 | 872972 | £ 64,73 |
| 14,7 | 14 | 112 | 162 | 1 | 872973 | £ 64,73 |
| 14,71 | 14 | 112 | 162 | 1 | 872974 | £ 64,73 |
| 14,72 | 14 | 112 | 162 | 1 | 872975 | £ 64,73 |
| 14,73 | 14 | 112 | 162 | 1 | 872976 | £ 64,73 |
| 14,74 | 14 | 112 | 162 | 1 | 872977 | £ 64,73 |
| 14,75 | 14 | 112 | 162 | 1 | 872978 | £ 64,73 |
| 14,76 | 14 | 112 | 162 | 1 | 872979 | £ 64,73 |
| 14,77 | 14 | 112 | 162 | 1 | 872980 | £ 64,73 |
| 14,78 | 14 | 112 | 162 | 1 | 872981 | £ 64,73 |
| 14,79 | 14 | 112 | 162 | 1 | 872982 | £ 64,73 |
| 14,8 | 14 | 112 | 162 | 1 | 872983 | £ 64,73 |
| 14,81 | 14 | 112 | 162 | 1 | 872984 | £ 64,73 |
| 14,82 | 14 | 112 | 162 | 1 | 872985 | £ 64,73 |
| 14,83 | 14 | 112 | 162 | 1 | 872986 | £ 64,73 |
| 14,84 | 14 | 112 | 162 | 1 | 872987 | £ 64,73 |
| 14,85 | 14 | 112 | 162 | 1 | 872988 | £ 64,73 |
| 14,86 | 14 | 112 | 162 | 1 | 872989 | £ 64,73 |
| 14,87 | 14 | 112 | 162 | 1 | 872990 | £ 64,73 |
| 14,88 | 14 | 112 | 162 | 1 | 872991 | £ 64,73 |
| 14,89 | 14 | 112 | 162 | 1 | 872992 | £ 64,73 |
| 14,9 | 14 | 112 | 162 | 1 | 872993 | £ 64,73 |
| 14,91 | 14 | 112 | 162 | 1 | 872994 | £ 64,73 |
| 14,92 | 14 | 112 | 162 | 1 | 872995 | £ 64,73 |
| 14,93 | 14 | 112 | 162 | 1 | 872996 | £ 64,73 |
| 14,94 | 14 | 112 | 162 | 1 | 872997 | £ 64,73 |
| 14,95 | 14 | 112 | 162 | 1 | 872998 | £ 62,50 |
| 14,96 | 14 | 112 | 162 | 1 | 872999 | £ 62,50 |
| 14,97 | 14 | 112 | 162 | 1 | 873000 | £ 62,50 |
| 14,98 | 14 | 112 | 162 | 1 | 873001 | £ 62,50 |
| 14,99 | 14 | 112 | 162 | 1 | 873002 | £ 62,50 |
| 15 | 14 | 112 | 162 | 1 | 873003 | £ 62,50 |
| 15,01 | 14 | 112 | 162 | 1 | 873004 | £ 62,50 |
| 15,02 | 14 | 112 | 162 | 1 | 873005 | £ 62,50 |
| 15,03 | 14 | 112 | 162 | 1 | 873006 | £ 62,50 |
| 15,04 | 14 | 112 | 162 | 1 | 873007 | £ 62,50 |
| 15,05 | 14 | 112 | 162 | 1 | 873008 | £ 62,50 |
| 15,06 | 16 | 117 | 170 | 1 | 873009 | £ 72,54 |
| 15,07 | 16 | 117 | 170 | 1 | 873010 | £ 72,54 |
| 15,08 | 16 | 117 | 170 | 1 | 873011 | £ 72,54 |
| 15,09 | 16 | 117 | 170 | 1 | 873012 | £ 72,54 |
| 15,1 | 16 | 117 | 170 | 1 | 873013 | £ 72,54 |
| 15,11 | 16 | 117 | 170 | 1 | 873014 | £ 72,54 |
| 15,12 | 16 | 117 | 170 | 1 | 873015 | £ 72,54 |
| 15,13 | 16 | 117 | 170 | 1 | 873016 | £ 72,54 |
| 15,14 | 16 | 117 | 170 | 1 | 873017 | £ 72,54 |
| 15,15 | 16 | 117 | 170 | 1 | 873018 | £ 72,54 |
| 15,16 | 16 | 117 | 170 | 1 | 873019 | £ 72,54 |
| 15,17 | 16 | 117 | 170 | 1 | 873020 | £ 72,54 |
| 15,18 | 16 | 117 | 170 | 1 | 873021 | £ 72,54 |
| 15,19 | 16 | 117 | 170 | 1 | 873022 | £ 72,54 |

## HIGH PRECISION MACHINE REAMERS - HSS CO5% - HPR

DIN 212B | NFE 66014 | 10°



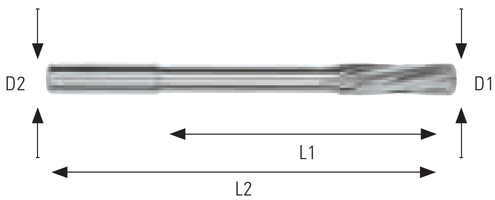

The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.
Tolerance: From Ø 0.6 to 3.00 = 0 / +3µ - From Ø 3.01 to 6.00 = 0 / +4µ - From Ø 6.01 to 20.00 = 0 / +5µ - Tail diameter h8

| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Cutting | L2<br>L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 15,2 | 16 | 117 | 170 | 1 | 873023 | £ 72,54 |
| 15,21 | 16 | 117 | 170 | 1 | 873024 | £ 72,54 |
| 15,22 | 16 | 117 | 170 | 1 | 873025 | £ 72,54 |
| 15,23 | 16 | 117 | 170 | 1 | 873026 | £ 72,54 |
| 15,24 | 16 | 117 | 170 | 1 | 873027 | £ 72,54 |
| 15,25 | 16 | 117 | 170 | 1 | 873028 | £ 72,54 |
| 15,26 | 16 | 117 | 170 | 1 | 873029 | £ 72,54 |
| 15,27 | 16 | 117 | 170 | 1 | 873030 | £ 72,54 |
| 15,28 | 16 | 117 | 170 | 1 | 873031 | £ 72,54 |
| 15,29 | 16 | 117 | 170 | 1 | 873032 | £ 72,54 |
| 15,3 | 16 | 117 | 170 | 1 | 873033 | £ 72,54 |
| 15,31 | 16 | 117 | 170 | 1 | 873034 | £ 72,54 |
| 15,32 | 16 | 117 | 170 | 1 | 873035 | £ 72,54 |
| 15,33 | 16 | 117 | 170 | 1 | 873036 | £ 72,54 |
| 15,34 | 16 | 117 | 170 | 1 | 873037 | £ 72,54 |
| 15,35 | 16 | 117 | 170 | 1 | 873038 | £ 72,54 |
| 15,36 | 16 | 117 | 170 | 1 | 873039 | £ 72,54 |
| 15,37 | 16 | 117 | 170 | 1 | 873040 | £ 72,54 |
| 15,38 | 16 | 117 | 170 | 1 | 873041 | £ 72,54 |
| 15,39 | 16 | 117 | 170 | 1 | 873042 | £ 72,54 |
| 15,4 | 16 | 117 | 170 | 1 | 873043 | £ 72,54 |
| 15,41 | 16 | 117 | 170 | 1 | 873044 | £ 72,54 |
| 15,42 | 16 | 117 | 170 | 1 | 873045 | £ 72,54 |
| 15,43 | 16 | 117 | 170 | 1 | 873046 | £ 72,54 |
| 15,44 | 16 | 117 | 170 | 1 | 873047 | £ 72,54 |
| 15,45 | 16 | 117 | 170 | 1 | 873048 | £ 72,54 |
| 15,46 | 16 | 117 | 170 | 1 | 873049 | £ 72,54 |
| 15,47 | 16 | 117 | 170 | 1 | 873050 | £ 72,54 |
| 15,48 | 16 | 117 | 170 | 1 | 873051 | £ 72,54 |
| 15,49 | 16 | 117 | 170 | 1 | 873052 | £ 72,54 |
| 15,5 | 16 | 117 | 170 | 1 | 873053 | £ 72,54 |
| 15,51 | 16 | 117 | 170 | 1 | 873054 | £ 72,54 |
| 15,52 | 16 | 117 | 170 | 1 | 873055 | £ 72,54 |
| 15,53 | 16 | 117 | 170 | 1 | 873056 | £ 72,54 |
| 15,54 | 16 | 117 | 170 | 1 | 873057 | £ 72,54 |
| 15,55 | 16 | 117 | 170 | 1 | 873058 | £ 72,54 |
| 15,56 | 16 | 117 | 170 | 1 | 873059 | £ 72,54 |
| 15,57 | 16 | 117 | 170 | 1 | 873060 | £ 72,54 |
| 15,58 | 16 | 117 | 170 | 1 | 873061 | £ 72,54 |
| 15,59 | 16 | 117 | 170 | 1 | 873062 | £ 72,54 |
| 15,6 | 16 | 117 | 170 | 1 | 873063 | £ 72,54 |
| 15,61 | 16 | 117 | 170 | 1 | 873064 | £ 72,54 |
| 15,62 | 16 | 117 | 170 | 1 | 873065 | £ 72,54 |
| 15,63 | 16 | 117 | 170 | 1 | 873066 | £ 72,54 |
| 15,64 | 16 | 117 | 170 | 1 | 873067 | £ 72,54 |
| 15,65 | 16 | 117 | 170 | 1 | 873068 | £ 72,54 |
| 15,66 | 16 | 117 | 170 | 1 | 873069 | £ 72,54 |
| 15,67 | 16 | 117 | 170 | 1 | 873070 | £ 72,54 |
| 15,68 | 16 | 117 | 170 | 1 | 873071 | £ 72,54 |
| 15,69 | 16 | 117 | 170 | 1 | 873072 | £ 72,54 |
| 15,7 | 16 | 117 | 170 | 1 | 873073 | £ 72,54 |
| 15,71 | 16 | 117 | 170 | 1 | 873074 | £ 72,54 |
| 15,72 | 16 | 117 | 170 | 1 | 873075 | £ 72,54 |
| 15,73 | 16 | 117 | 170 | 1 | 873076 | £ 72,54 |
| 15,74 | 16 | 117 | 170 | 1 | 873077 | £ 72,54 |
| 15,75 | 16 | 117 | 170 | 1 | 873078 | £ 72,54 |
| 15,76 | 16 | 117 | 170 | 1 | 873079 | £ 72,54 |
| 15,77 | 16 | 117 | 170 | 1 | 873080 | £ 72,54 |
| 15,78 | 16 | 117 | 170 | 1 | 873081 | £ 72,54 |
| 15,79 | 16 | 117 | 170 | 1 | 873082 | £ 72,54 |
| 15,8 | 16 | 117 | 170 | 1 | 873083 | £ 72,54 |
| 15,81 | 16 | 117 | 170 | 1 | 873084 | £ 72,54 |
| 15,82 | 16 | 117 | 170 | 1 | 873085 | £ 72,54 |
| 15,83 | 16 | 117 | 170 | 1 | 873086 | £ 72,54 |

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 15,84 | 16 | 117 | 170 | 1 | 873087 | £ 72,54 |
| 15,85 | 16 | 117 | 170 | 1 | 873088 | £ 72,54 |
| 15,86 | 16 | 117 | 170 | 1 | 873089 | £ 72,54 |
| 15,87 | 16 | 117 | 170 | 1 | 873090 | £ 72,54 |
| 15,88 | 16 | 117 | 170 | 1 | 873091 | £ 72,54 |
| 15,89 | 16 | 117 | 170 | 1 | 873092 | £ 72,54 |
| 15,9 | 16 | 117 | 170 | 1 | 873093 | £ 72,54 |
| 15,91 | 16 | 117 | 170 | 1 | 873094 | £ 72,54 |
| 15,92 | 16 | 117 | 170 | 1 | 873095 | £ 72,54 |
| 15,93 | 16 | 117 | 170 | 1 | 873096 | £ 72,54 |
| 15,94 | 16 | 117 | 170 | 1 | 873097 | £ 72,54 |
| 15,95 | 16 | 117 | 170 | 1 | 873098 | £ 72,54 |
| 15,96 | 16 | 117 | 170 | 1 | 873099 | £ 72,54 |
| 15,97 | 16 | 117 | 170 | 1 | 873100 | £ 65,85 |
| 15,98 | 16 | 117 | 170 | 1 | 873101 | £ 65,85 |
| 15,99 | 16 | 117 | 170 | 1 | 873102 | £ 65,85 |
| 16 | 16 | 117 | 170 | 1 | 873103 | £ 65,85 |
| 16,01 | 16 | 117 | 170 | 1 | 873104 | £ 65,85 |
| 16,02 | 16 | 117 | 170 | 1 | 873105 | £ 65,85 |
| 16,03 | 16 | 117 | 170 | 1 | 873106 | £ 65,85 |
| 16,04 | 16 | 117 | 170 | 1 | 873107 | £ 65,85 |
| 16,05 | 16 | 117 | 170 | 1 | 873108 | £ 65,85 |
| 16,06 | 16 | 122 | 175 | 1 | 873109 | £ 82,59 |
| 16,07 | 16 | 122 | 175 | 1 | 873110 | £ 83,70 |
| 16,08 | 16 | 122 | 175 | 1 | 873111 | £ 83,70 |
| 16,09 | 16 | 122 | 175 | 1 | 873112 | £ 83,70 |
| 16,1 | 16 | 122 | 175 | 1 | 873113 | £ 83,70 |
| 16,11 | 16 | 122 | 175 | 1 | 873114 | £ 83,70 |
| 16,12 | 16 | 122 | 175 | 1 | 873115 | £ 83,70 |
| 16,13 | 16 | 122 | 175 | 1 | 873116 | £ 83,70 |
| 16,14 | 16 | 122 | 175 | 1 | 873117 | £ 83,70 |
| 16,15 | 16 | 122 | 175 | 1 | 873118 | £ 83,70 |
| 16,16 | 16 | 122 | 175 | 1 | 873119 | £ 83,70 |
| 16,17 | 16 | 122 | 175 | 1 | 873120 | £ 83,70 |
| 16,18 | 16 | 122 | 175 | 1 | 873121 | £ 83,70 |
| 16,19 | 16 | 122 | 175 | 1 | 873122 | £ 83,70 |
| 16,2 | 16 | 122 | 175 | 1 | 873123 | £ 83,70 |
| 16,97 | 16 | 122 | 175 | 1 | 873124 | £ 83,70 |
| 16,98 | 16 | 122 | 175 | 1 | 873125 | £ 83,70 |
| 16,99 | 16 | 122 | 175 | 1 | 873126 | £ 83,70 |
| 17 | 16 | 122 | 175 | 1 | 873127 | £ 83,70 |
| 17,01 | 16 | 122 | 175 | 1 | 873128 | £ 83,70 |
| 17,02 | 16 | 122 | 175 | 1 | 873129 | £ 83,70 |
| 17,03 | 16 | 122 | 175 | 1 | 873130 | £ 83,70 |
| 17,04 | 16 | 122 | 175 | 1 | 873131 | £ 83,70 |
| 17,05 | 16 | 122 | 175 | 1 | 873132 | £ 83,70 |
| 17,97 | 16 | 129 | 182 | 1 | 873133 | £ 83,70 |
| 17,98 | 16 | 129 | 182 | 1 | 873134 | £ 83,70 |
| 17,99 | 16 | 129 | 182 | 1 | 873135 | £ 83,70 |
| 18 | 16 | 129 | 182 | 1 | 873136 | £ 83,70 |
| 18,01 | 16 | 129 | 182 | 1 | 873137 | £ 83,70 |
| 18,02 | 16 | 129 | 182 | 1 | 873138 | £ 83,70 |
| 18,03 | 16 | 129 | 182 | 1 | 873139 | £ 83,70 |
| 18,04 | 16 | 129 | 182 | 1 | 873140 | £ 83,70 |
| 18,05 | 16 | 129 | 182 | 1 | 873141 | £ 83,70 |
| 18,1 | 16 | 136 | 189 | 1 | 873142 | £ 83,70 |
| 18,2 | 16 | 136 | 189 | 1 | 873143 | £ 83,70 |
| 18,97 | 16 | 136 | 189 | 1 | 873144 | £ 83,70 |
| 18,98 | 16 | 136 | 189 | 1 | 873145 | £ 83,70 |
| 18,99 | 16 | 136 | 189 | 1 | 873146 | £ 83,70 |
| 19 | 16 | 136 | 189 | 1 | 873147 | £ 83,70 |
| 19,01 | 16 | 136 | 189 | 1 | 873148 | £ 83,70 |
| 19,02 | 16 | 136 | 189 | 1 | 873149 | £ 83,70 |
| 19,03 | 16 | 136 | 189 | 1 | 873150 | £ 83,70 |
| 19,04 | 16 | 136 | 189 | 1 | 873151 | £ 83,70 |
| 19,05 | 16 | 136 | 189 | 1 | 873152 | £ 83,70 |
| 19,97 | 16 | 142 | 195 | 1 | 873153 | £ 83,70 |
| 19,98 | 16 | 142 | 195 | 1 | 873154 | £ 83,70 |
| 19,99 | 16 | 142 | 195 | 1 | 873155 | £ 83,70 |
| 20 | 16 | 142 | 195 | 1 | 873156 | £ 83,70 |
| 20,01 | 16 | 142 | 195 | 1 | 873157 | £ 83,70 |
| 20,02 | 16 | 142 | 195 | 1 | 873158 | £ 83,70 |
| 20,03 | 16 | 142 | 195 | 1 | 873159 | £ 83,70 |
| 20,04 | 16 | 142 | 195 | 1 | 873160 | £ 83,70 |
| 20,05 | 16 | 142 | 195 | 1 | 873161 | £ 83,70 |
| 20,1 | 16 | 142 | 195 | 1 | 873162 | £ 83,70 |
| 20,2 | 16 | 142 | 195 | 1 | 873163 | £ 83,70 |

## HIGH PRECISION MACHINE REAMERS CARBIDE - HPRC

DIN 212B | NFE 66014 | 10°



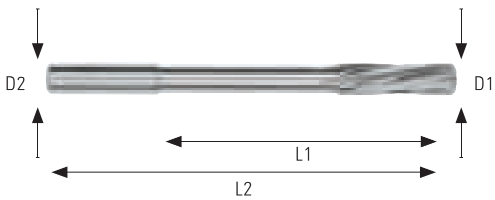

The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.
Tolerance: From Ø 0.6 to 3.00 = 0 / +3µ - From Ø 3.01 to 6.00 = 0 / +4µ - From Ø 6.01 to 20.00 = 0 / +5µ - Tail diameter h8

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 0,6 | 0.6 | 17 | 33 | 1 | 870283 | £ 69,32 |
| 0,61 | 0.61 | 17 | 33 | 1 | 870284 | £ 69,32 |
| 0,62 | 0.62 | 17 | 33 | 1 | 870285 | £ 69,32 |
| 0,63 | 0.63 | 17 | 33 | 1 | 870286 | £ 69,32 |
| 0,64 | 0.64 | 17 | 33 | 1 | 870287 | £ 69,32 |
| 0,65 | 0.65 | 17 | 33 | 1 | 870288 | £ 69,32 |
| 0,66 | 0.66 | 17 | 33 | 1 | 870289 | £ 69,32 |
| 0,67 | 0.67 | 17 | 33 | 1 | 870290 | £ 69,32 |
| 0,68 | 0.68 | 17 | 33 | 1 | 870291 | £ 69,32 |
| 0,69 | 0.69 | 17 | 33 | 1 | 870292 | £ 69,32 |
| 0,7 | 0.7 | 17 | 33 | 1 | 870293 | £ 50,12 |
| 0,71 | 0.71 | 17 | 33 | 1 | 870294 | £ 50,12 |
| 0,72 | 0.72 | 17 | 33 | 1 | 870295 | £ 50,12 |
| 0,73 | 0.73 | 17 | 33 | 1 | 870296 | £ 50,12 |
| 0,74 | 0.74 | 17 | 33 | 1 | 870297 | £ 50,12 |
| 0,75 | 0.75 | 17 | 33 | 1 | 870298 | £ 50,12 |
| 0,76 | 0.76 | 17 | 33 | 1 | 870299 | £ 50,12 |
| 0,77 | 0.77 | 17 | 33 | 1 | 870300 | £ 50,12 |
| 0,78 | 0.78 | 17 | 33 | 1 | 870301 | £ 50,12 |
| 0,79 | 0.79 | 17 | 33 | 1 | 870302 | £ 50,12 |
| 0,8 | 0.8 | 22 | 38 | 1 | 870303 | £ 46,92 |
| 0,81 | 0.81 | 22 | 38 | 1 | 870304 | £ 46,92 |
| 0,82 | 0.82 | 22 | 38 | 1 | 870305 | £ 46,92 |
| 0,83 | 0.83 | 22 | 38 | 1 | 870306 | £ 46,92 |
| 0,84 | 0.84 | 22 | 38 | 1 | 870307 | £ 46,92 |
| 0,85 | 0.85 | 22 | 38 | 1 | 870308 | £ 46,92 |
| 0,86 | 0.86 | 22 | 38 | 1 | 870309 | £ 46,92 |
| 0,87 | 0.87 | 22 | 38 | 1 | 870310 | £ 46,92 |
| 0,88 | 0.88 | 22 | 38 | 1 | 870311 | £ 46,92 |
| 0,89 | 0.89 | 22 | 38 | 1 | 870312 | £ 46,92 |
| 0,9 | 0.9 | 22 | 38 | 1 | 870313 | £ 46,92 |
| 0,91 | 0.91 | 22 | 38 | 1 | 870314 | £ 46,92 |
| 0,92 | 0.92 | 22 | 38 | 1 | 870315 | £ 46,92 |
| 0,93 | 0.93 | 22 | 38 | 1 | 870316 | £ 46,92 |
| 0,94 | 0.94 | 22 | 38 | 1 | 870317 | £ 46,92 |
| 0,95 | 0.95 | 22 | 38 | 1 | 870318 | £ 46,92 |
| 0,96 | 0.96 | 22 | 38 | 1 | 870319 | £ 46,92 |
| 0,97 | 0.97 | 22 | 38 | 1 | 870320 | £ 46,92 |
| 0,98 | 0.98 | 22 | 38 | 1 | 870321 | £ 46,92 |
| 0,99 | 0.99 | 22 | 38 | 1 | 870322 | £ 46,92 |
| 1 | 1 | 22 | 38 | 1 | 870323 | £ 46,92 |
| 1,01 | 1.01 | 22 | 38 | 1 | 870324 | £ 46,92 |
| 1,02 | 1.02 | 22 | 38 | 1 | 870325 | £ 46,92 |
| 1,03 | 1.03 | 22 | 38 | 1 | 870326 | £ 46,92 |
| 1,04 | 1.04 | 22 | 38 | 1 | 870327 | £ 46,92 |
| 1,05 | 1.05 | 22 | 38 | 1 | 870328 | £ 46,92 |
| 1,06 | 1.06 | 24 | 40 | 1 | 870329 | £ 46,92 |
| 1,07 | 1.07 | 24 | 40 | 1 | 870330 | £ 46,92 |
| 1,08 | 1.08 | 24 | 40 | 1 | 870331 | £ 46,92 |
| 1,09 | 1.09 | 24 | 40 | 1 | 870332 | £ 46,92 |
| 1,1 | 1.1 | 24 | 40 | 1 | 870333 | £ 46,92 |
| 1,11 | 1.11 | 24 | 40 | 1 | 870334 | £ 46,92 |
| 1,12 | 1.12 | 24 | 40 | 1 | 870335 | £ 46,92 |
| 1,13 | 1.13 | 24 | 40 | 1 | 870336 | £ 46,92 |
| 1,14 | 1.14 | 24 | 40 | 1 | 870337 | £ 46,92 |
| 1,15 | 1.15 | 24 | 40 | 1 | 870338 | £ 46,92 |
| 1,16 | 1.16 | 24 | 40 | 1 | 870339 | £ 46,92 |
| 1,17 | 1.17 | 24 | 40 | 1 | 870340 | £ 46,92 |
| 1,18 | 1.18 | 24 | 40 | 1 | 870341 | £ 46,92 |

| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Cutting | L2<br>L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1,19 | 1.19 | 24 | 40 | 1 | 870342 | £ 46,92 |
| 1,2 | 1.2 | 24 | 40 | 1 | 870343 | £ 46,92 |
| 1,21 | 1.21 | 24 | 40 | 1 | 870344 | £ 46,92 |
| 1,22 | 1.22 | 24 | 40 | 1 | 870345 | £ 46,92 |
| 1,23 | 1.23 | 24 | 40 | 1 | 870346 | £ 46,92 |
| 1,24 | 1.24 | 24 | 40 | 1 | 870347 | £ 46,92 |
| 1,25 | 1.25 | 24 | 40 | 1 | 870348 | £ 46,92 |
| 1,26 | 1.26 | 24 | 40 | 1 | 870349 | £ 46,92 |
| 1,27 | 1.27 | 24 | 40 | 1 | 870350 | £ 46,92 |
| 1,28 | 1.28 | 24 | 40 | 1 | 870351 | £ 46,92 |
| 1,29 | 1.29 | 24 | 40 | 1 | 870352 | £ 46,92 |
| 1,3 | 1.3 | 24 | 40 | 1 | 870353 | £ 46,92 |
| 1,31 | 1.31 | 24 | 40 | 1 | 870354 | £ 46,92 |
| 1,32 | 1.32 | 24 | 40 | 1 | 870355 | £ 46,92 |
| 1,33 | 1.33 | 24 | 40 | 1 | 870356 | £ 46,92 |
| 1,34 | 1.34 | 24 | 40 | 1 | 870357 | £ 46,92 |
| 1,35 | 1.35 | 24 | 40 | 1 | 870358 | £ 46,92 |
| 1,36 | 1.36 | 24 | 40 | 1 | 870359 | £ 46,92 |
| 1,37 | 1.37 | 24 | 40 | 1 | 870360 | £ 46,92 |
| 1,38 | 1.38 | 24 | 40 | 1 | 870361 | £ 46,92 |
| 1,39 | 1.39 | 24 | 40 | 1 | 870362 | £ 46,92 |
| 1,4 | 1.4 | 24 | 40 | 1 | 870363 | £ 46,92 |
| 1,41 | 1.41 | 24 | 40 | 1 | 870364 | £ 46,92 |
| 1,42 | 1.42 | 24 | 40 | 1 | 870365 | £ 46,92 |
| 1,43 | 1.43 | 24 | 40 | 1 | 870366 | £ 46,92 |
| 1,44 | 1.44 | 24 | 40 | 1 | 870367 | £ 46,92 |
| 1,45 | 1.45 | 24 | 40 | 1 | 870368 | £ 46,92 |
| 1,46 | 1.46 | 24 | 40 | 1 | 870369 | £ 46,92 |
| 1,47 | 1.47 | 24 | 40 | 1 | 870370 | £ 46,92 |
| 1,48 | 1.48 | 24 | 40 | 1 | 870371 | £ 46,92 |
| 1,49 | 1.49 | 24 | 40 | 1 | 870372 | £ 46,92 |
| 1,5 | 1.5 | 24 | 40 | 1 | 870373 | £ 46,92 |
| 1,51 | 1.51 | 24 | 40 | 1 | 870374 | £ 46,92 |
| 1,52 | 1.52 | 24 | 40 | 1 | 870375 | £ 46,92 |
| 1,53 | 1.53 | 24 | 40 | 1 | 870376 | £ 46,92 |
| 1,54 | 1.54 | 24 | 40 | 1 | 870377 | £ 46,92 |
| 1,55 | 1.55 | 24 | 40 | 1 | 870378 | £ 46,92 |
| 1,56 | 1.56 | 26 | 43 | 1 | 870379 | £ 46,92 |
| 1,57 | 1.57 | 26 | 43 | 1 | 870380 | £ 46,92 |
| 1,58 | 1.58 | 26 | 43 | 1 | 870381 | £ 46,92 |
| 1,59 | 1.59 | 26 | 43 | 1 | 870382 | £ 46,92 |
| 1,6 | 1.6 | 26 | 43 | 1 | 870383 | £ 46,92 |
| 1,61 | 1.61 | 26 | 43 | 1 | 870384 | £ 46,92 |
| 1,62 | 1.62 | 26 | 43 | 1 | 870385 | £ 46,92 |
| 1,63 | 1.63 | 26 | 43 | 1 | 870386 | £ 46,92 |
| 1,64 | 1.64 | 26 | 43 | 1 | 870387 | £ 46,92 |
| 1,65 | 1.65 | 26 | 43 | 1 | 870388 | £ 46,92 |
| 1,66 | 1.66 | 26 | 43 | 1 | 870389 | £ 46,92 |
| 1,67 | 1.67 | 26 | 43 | 1 | 870390 | £ 46,92 |
| 1,68 | 1.68 | 26 | 43 | 1 | 870391 | £ 46,92 |
| 1,69 | 1.69 | 26 | 43 | 1 | 870392 | £ 46,92 |
| 1,7 | 1.7 | 26 | 43 | 1 | 870393 | £ 46,92 |
| 1,71 | 1.71 | 26 | 43 | 1 | 870394 | £ 46,92 |
| 1,72 | 1.72 | 26 | 43 | 1 | 870395 | £ 46,92 |
| 1,73 | 1.73 | 26 | 43 | 1 | 870396 | £ 46,92 |
| 1,74 | 1.74 | 26 | 43 | 1 | 870397 | £ 46,92 |
| 1,75 | 1.75 | 26 | 43 | 1 | 870398 | £ 46,92 |
| 1,76 | 1.76 | 26 | 43 | 1 | 870399 | £ 46,92 |
| 1,77 | 1.77 | 26 | 43 | 1 | 870400 | £ 46,92 |
| 1,78 | 1.78 | 26 | 43 | 1 | 870401 | £ 46,92 |
| 1,79 | 1.79 | 26 | 43 | 1 | 870402 | £ 46,92 |
| 1,8 | 1.8 | 31 | 49 | 1 | 870403 | £ 46,92 |
| 1,81 | 1.81 | 31 | 49 | 1 | 870404 | £ 46,92 |
| 1,82 | 1.82 | 31 | 49 | 1 | 870405 | £ 46,92 |
| 1,83 | 1.83 | 31 | 49 | 1 | 870406 | £ 46,92 |
| 1,84 | 1.84 | 31 | 49 | 1 | 870407 | £ 46,92 |
| 1,85 | 1.85 | 31 | 49 | 1 | 870408 | £ 46,92 |
| 1,86 | 1.86 | 31 | 49 | 1 | 870409 | £ 46,92 |
| 1,87 | 1.87 | 31 | 49 | 1 | 870410 | £ 46,92 |
| 1,88 | 1.88 | 31 | 49 | 1 | 870411 | £ 46,92 |
| 1,89 | 1.89 | 31 | 49 | 1 | 870412 | £ 46,92 |
| 1,9 | 1.9 | 31 | 49 | 1 | 870413 | £ 46,92 |

## HIGH PRECISION MACHINE REAMERS CARBIDE - HPRC

DIN 212B | NFE 66014 | 10°



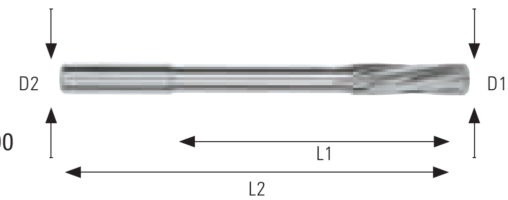

The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.
Tolerance: From Ø 0.6 to 3.00 = 0 / +3µ - From Ø 3.01 to 6.00 = 0 / +4µ - From Ø 6.01 to 20.00 = 0 / +5µ - Tail diameter h8

| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Cutting | L2<br>L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 1,91 | 1.91 | 31 | 49 | 1 | 870414 | £ 46,92 |
| 1,92 | 1.92 | 31 | 49 | 1 | 870415 | £ 46,92 |
| 1,93 | 1.93 | 31 | 49 | 1 | 870416 | £ 46,92 |
| 1,94 | 1.94 | 31 | 49 | 1 | 870417 | £ 46,92 |
| 1,95 | 1.95 | 31 | 49 | 1 | 870418 | £ 46,92 |
| 1,96 | 1.96 | 31 | 49 | 1 | 870419 | £ 46,92 |
| 1,97 | 1.97 | 31 | 49 | 1 | 870420 | £ 46,92 |
| 1,98 | 1.98 | 31 | 49 | 1 | 870421 | £ 46,92 |
| 1,99 | 1.99 | 31 | 49 | 1 | 870422 | £ 46,92 |
| 2 | 2 | 31 | 49 | 1 | 870423 | £ 46,92 |
| 2,01 | 2.01 | 31 | 49 | 1 | 870424 | £ 46,92 |
| 2,02 | 2.02 | 31 | 49 | 1 | 870425 | £ 46,92 |
| 2,03 | 2.03 | 31 | 49 | 1 | 870426 | £ 46,92 |
| 2,04 | 2.04 | 31 | 49 | 1 | 870427 | £ 46,92 |
| 2,05 | 2.05 | 31 | 49 | 1 | 870428 | £ 46,92 |
| 2,06 | 2.06 | 31 | 49 | 1 | 870429 | £ 46,92 |
| 2,07 | 2.07 | 31 | 49 | 1 | 870430 | £ 46,92 |
| 2,08 | 2.08 | 31 | 49 | 1 | 870431 | £ 46,92 |
| 2,09 | 2.09 | 31 | 49 | 1 | 870432 | £ 46,92 |
| 2,1 | 2.1 | 31 | 49 | 1 | 870433 | £ 46,92 |
| 2,11 | 2.11 | 31 | 49 | 1 | 870434 | £ 46,92 |
| 2,12 | 2.12 | 31 | 49 | 1 | 870435 | £ 46,92 |
| 2,13 | 2.13 | 31 | 49 | 1 | 870436 | £ 46,92 |
| 2,14 | 2.14 | 31 | 49 | 1 | 870437 | £ 46,92 |
| 2,15 | 2.15 | 31 | 49 | 1 | 870438 | £ 46,92 |
| 2,16 | 2.16 | 31 | 49 | 1 | 870439 | £ 46,92 |
| 2,17 | 2.17 | 31 | 49 | 1 | 870440 | £ 46,92 |
| 2,18 | 2.18 | 31 | 49 | 1 | 870441 | £ 46,92 |
| 2,19 | 2.19 | 31 | 49 | 1 | 870442 | £ 46,92 |
| 2,2 | 2.2 | 31 | 49 | 1 | 870443 | £ 46,92 |
| 2,21 | 2.21 | 31 | 49 | 1 | 870444 | £ 46,92 |
| 2,22 | 2.22 | 31 | 49 | 1 | 870445 | £ 46,92 |
| 2,23 | 2.23 | 31 | 49 | 1 | 870446 | £ 46,92 |
| 2,24 | 2.24 | 31 | 49 | 1 | 870447 | £ 46,92 |
| 2,25 | 2.25 | 31 | 49 | 1 | 870448 | £ 46,92 |
| 2,26 | 2.26 | 31 | 49 | 1 | 870449 | £ 46,92 |
| 2,27 | 2.27 | 31 | 49 | 1 | 870450 | £ 46,92 |
| 2,28 | 2.28 | 31 | 49 | 1 | 870451 | £ 46,92 |
| 2,29 | 2.29 | 31 | 49 | 1 | 870452 | £ 46,92 |
| 2,3 | 2.3 | 31 | 49 | 1 | 870453 | £ 46,92 |
| 2,31 | 2.31 | 31 | 49 | 1 | 870454 | £ 46,92 |
| 2,32 | 2.32 | 31 | 49 | 1 | 870455 | £ 46,92 |
| 2,33 | 2.33 | 31 | 49 | 1 | 870456 | £ 46,92 |
| 2,34 | 2.34 | 31 | 49 | 1 | 870457 | £ 46,92 |
| 2,35 | 2.35 | 31 | 49 | 1 | 870458 | £ 46,92 |
| 2,36 | 2.36 | 31 | 49 | 1 | 870459 | £ 46,92 |
| 2,37 | 2.37 | 38 | 57 | 1 | 870460 | £ 45,86 |
| 2,38 | 2.38 | 38 | 57 | 1 | 870461 | £ 45,86 |
| 2,39 | 2.39 | 38 | 57 | 1 | 870462 | £ 45,86 |
| 2,4 | 2.4 | 38 | 57 | 1 | 870463 | £ 45,86 |
| 2,41 | 2.41 | 38 | 57 | 1 | 870464 | £ 45,86 |
| 2,42 | 2.42 | 38 | 57 | 1 | 870465 | £ 45,86 |
| 2,43 | 2.43 | 38 | 57 | 1 | 870466 | £ 45,86 |
| 2,44 | 2.44 | 38 | 57 | 1 | 870467 | £ 45,86 |
| 2,45 | 2.45 | 38 | 57 | 1 | 870468 | £ 45,86 |
| 2,46 | 2.46 | 38 | 57 | 1 | 870469 | £ 45,86 |
| 2,47 | 2.47 | 38 | 57 | 1 | 870470 | £ 45,86 |
| 2,48 | 2.48 | 38 | 57 | 1 | 870471 | £ 45,86 |
| 2,49 | 2.49 | 38 | 57 | 1 | 870472 | £ 45,86 |

| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Cutting | L2<br>L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 2,5 | 2.5 | 38 | 57 | 1 | 870473 | £ 45,86 |
| 2,51 | 2.51 | 38 | 57 | 1 | 870474 | £ 45,86 |
| 2,52 | 2.52 | 38 | 57 | 1 | 870475 | £ 45,86 |
| 2,53 | 2.53 | 38 | 57 | 1 | 870476 | £ 45,86 |
| 2,54 | 2.54 | 38 | 57 | 1 | 870477 | £ 45,86 |
| 2,55 | 2.55 | 38 | 57 | 1 | 870478 | £ 45,86 |
| 2,56 | 2.56 | 38 | 57 | 1 | 870479 | £ 45,86 |
| 2,57 | 2.57 | 38 | 57 | 1 | 870480 | £ 45,86 |
| 2,58 | 2.58 | 38 | 57 | 1 | 870481 | £ 45,86 |
| 2,59 | 2.59 | 38 | 57 | 1 | 870482 | £ 45,86 |
| 2,6 | 2.6 | 38 | 57 | 1 | 870483 | £ 45,86 |
| 2,61 | 2.61 | 38 | 57 | 1 | 870484 | £ 45,86 |
| 2,62 | 2.62 | 38 | 57 | 1 | 870485 | £ 45,86 |
| 2,63 | 2.63 | 38 | 57 | 1 | 870486 | £ 45,86 |
| 2,64 | 2.64 | 38 | 57 | 1 | 870487 | £ 45,86 |
| 2,65 | 2.65 | 38 | 57 | 1 | 870488 | £ 45,86 |
| 2,66 | 2.66 | 38 | 57 | 1 | 870489 | £ 45,86 |
| 2,67 | 2.67 | 38 | 57 | 1 | 870490 | £ 45,86 |
| 2,68 | 2.68 | 38 | 57 | 1 | 870491 | £ 45,86 |
| 2,69 | 2.69 | 38 | 57 | 1 | 870492 | £ 45,86 |
| 2,7 | 2.7 | 38 | 57 | 1 | 870493 | £ 45,86 |
| 2,71 | 2.71 | 38 | 57 | 1 | 870494 | £ 45,86 |
| 2,72 | 2.72 | 38 | 57 | 1 | 870495 | £ 45,86 |
| 2,73 | 2.73 | 38 | 57 | 1 | 870496 | £ 45,86 |
| 2,74 | 2.74 | 38 | 57 | 1 | 870497 | £ 45,86 |
| 2,75 | 2.75 | 38 | 57 | 1 | 870498 | £ 45,86 |
| 2,76 | 2.76 | 38 | 57 | 1 | 870499 | £ 45,86 |
| 2,77 | 2.77 | 38 | 57 | 1 | 870500 | £ 45,86 |
| 2,78 | 2.78 | 38 | 57 | 1 | 870501 | £ 45,86 |
| 2,79 | 2.79 | 38 | 57 | 1 | 870502 | £ 45,86 |
| 2,8 | 2.8 | 38 | 57 | 1 | 870503 | £ 45,86 |
| 2,81 | 2.81 | 38 | 57 | 1 | 870504 | £ 45,86 |
| 2,82 | 2.82 | 38 | 57 | 1 | 870505 | £ 45,86 |
| 2,83 | 2.83 | 38 | 57 | 1 | 870506 | £ 45,86 |
| 2,84 | 2.84 | 38 | 57 | 1 | 870507 | £ 45,86 |
| 2,85 | 2.85 | 38 | 57 | 1 | 870508 | £ 45,86 |
| 2,86 | 2.86 | 38 | 57 | 1 | 870509 | £ 45,86 |
| 2,87 | 2.87 | 38 | 57 | 1 | 870510 | £ 45,86 |
| 2,88 | 2.88 | 38 | 57 | 1 | 870511 | £ 45,86 |
| 2,89 | 2.89 | 38 | 57 | 1 | 870512 | £ 45,86 |
| 2,9 | 2.9 | 38 | 57 | 1 | 870513 | £ 45,86 |
| 2,91 | 2.91 | 38 | 57 | 1 | 870514 | £ 45,86 |
| 2,92 | 2.92 | 38 | 57 | 1 | 870515 | £ 45,86 |
| 2,93 | 2.93 | 38 | 57 | 1 | 870516 | £ 45,86 |
| 2,94 | 2.94 | 38 | 57 | 1 | 870517 | £ 45,86 |
| 2,95 | 2.95 | 38 | 57 | 1 | 870518 | £ 45,86 |
| 2,96 | 2.96 | 38 | 57 | 1 | 870519 | £ 45,86 |
| 2,97 | 2.97 | 38 | 57 | 1 | 870520 | £ 45,86 |
| 2,98 | 2.98 | 38 | 57 | 1 | 870521 | £ 45,86 |
| 2,99 | 2.99 | 38 | 57 | 1 | 870522 | £ 45,86 |
| 3 | 3 | 38 | 57 | 1 | 870523 | £ 45,86 |
| 3,01 | 3.01 | 38 | 57 | 1 | 870524 | £ 45,86 |
| 3,02 | 3.02 | 38 | 57 | 1 | 870525 | £ 45,86 |
| 3,03 | 3.03 | 38 | 57 | 1 | 870526 | £ 45,86 |
| 3,04 | 3.04 | 38 | 57 | 1 | 870527 | £ 45,86 |
| 3,05 | 3.05 | 38 | 57 | 1 | 870528 | £ 45,86 |
| 3,06 | 3.06 | 38 | 57 | 1 | 870529 | £ 45,86 |
| 3,07 | 3.07 | 38 | 57 | 1 | 870530 | £ 45,86 |
| 3,08 | 3.08 | 38 | 57 | 1 | 870531 | £ 45,86 |
| 3,09 | 3.09 | 38 | 57 | 1 | 870532 | £ 45,86 |
| 3,1 | 3.1 | 38 | 57 | 1 | 870533 | £ 45,86 |
| 3,11 | 3.11 | 38 | 57 | 1 | 870534 | £ 45,86 |
| 3,12 | 3.12 | 38 | 57 | 1 | 870535 | £ 45,86 |
| 3,13 | 3.13 | 38 | 57 | 1 | 870536 | £ 45,86 |
| 3,14 | 3.14 | 38 | 57 | 1 | 870537 | £ 45,86 |
| 3,15 | 3.15 | 38 | 57 | 1 | 870538 | £ 45,86 |
| 3,16 | 3.16 | 38 | 57 | 1 | 870539 | £ 45,86 |
| 3,17 | 3.17 | 38 | 57 | 1 | 870540 | £ 45,86 |
| 3,18 | 3.18 | 38 | 57 | 1 | 870541 | £ 45,86 |
| 3,19 | 3.19 | 38 | 57 | 1 | 870542 | £ 45,86 |
| 3,2 | 3.2 | 38 | 57 | 1 | 870543 | £ 45,86 |
| 3,21 | 3.21 | 38 | 57 | 1 | 870544 | £ 45,86 |

## HIGH PRECISION MACHINE REAMERS CARBIDE - HPRC

DIN 212B | NFE 66014 | 10°




The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.
Tolerance: From Ø 0.6 to 3.00 = 0 / +3µ - From Ø 3.01 to 6.00 = 0 / +4µ - From Ø 6.01 to 20.00 = 0 / +5µ - Tail diameter h8

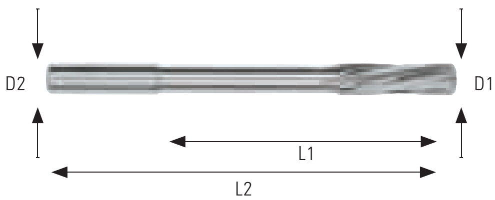
| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Cutting | L2<br>L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3,22 | 3.22 | 38 | 57 | 1 | 870545 | £ 45,86 |
| 3,23 | 3.23 | 38 | 57 | 1 | 870546 | £ 45,86 |
| 3,24 | 3.24 | 38 | 57 | 1 | 870547 | £ 45,86 |
| 3,25 | 3.25 | 38 | 57 | 1 | 870548 | £ 45,86 |
| 3,26 | 3.26 | 38 | 57 | 1 | 870549 | £ 45,86 |
| 3,27 | 3.27 | 38 | 57 | 1 | 870550 | £ 45,86 |
| 3,28 | 3.28 | 38 | 57 | 1 | 870551 | £ 45,86 |
| 3,29 | 3.29 | 38 | 57 | 1 | 870552 | £ 45,86 |
| 3,3 | 3.3 | 38 | 57 | 1 | 870553 | £ 45,86 |
| 3,31 | 3.31 | 38 | 57 | 1 | 870554 | £ 45,86 |
| 3,32 | 3.32 | 38 | 57 | 1 | 870555 | £ 45,86 |
| 3,33 | 3.33 | 38 | 57 | 1 | 870556 | £ 45,86 |
| 3,34 | 3.34 | 38 | 57 | 1 | 870557 | £ 45,86 |
| 3,35 | 3.35 | 38 | 57 | 1 | 870558 | £ 45,86 |
| 3,36 | 3.36 | 38 | 57 | 1 | 870559 | £ 45,86 |
| 3,37 | 3.37 | 38 | 57 | 1 | 870560 | £ 45,86 |
| 3,38 | 3.38 | 38 | 57 | 1 | 870561 | £ 45,86 |
| 3,39 | 3.39 | 38 | 57 | 1 | 870562 | £ 45,86 |
| 3,4 | 3.4 | 38 | 57 | 1 | 870563 | £ 45,86 |
| 3,41 | 3.41 | 38 | 57 | 1 | 870564 | £ 45,86 |
| 3,42 | 3.42 | 38 | 57 | 1 | 870565 | £ 45,86 |
| 3,43 | 3.43 | 38 | 57 | 1 | 870566 | £ 45,86 |
| 3,44 | 3.44 | 38 | 57 | 1 | 870567 | £ 45,86 |
| 3,45 | 3.45 | 38 | 57 | 1 | 870568 | £ 45,86 |
| 3,46 | 3.46 | 38 | 57 | 1 | 870569 | £ 45,86 |
| 3,47 | 3.47 | 38 | 57 | 1 | 870570 | £ 45,86 |
| 3,48 | 3.48 | 38 | 57 | 1 | 870571 | £ 45,86 |
| 3,49 | 3.49 | 38 | 57 | 1 | 870572 | £ 45,86 |
| 3,5 | 3.5 | 38 | 57 | 1 | 870573 | £ 45,86 |
| 3,51 | 3.51 | 38 | 57 | 1 | 870574 | £ 45,86 |
| 3,52 | 3.52 | 38 | 57 | 1 | 870575 | £ 45,86 |
| 3,53 | 3.53 | 38 | 57 | 1 | 870576 | £ 45,86 |
| 3,54 | 3.54 | 38 | 57 | 1 | 870577 | £ 45,86 |
| 3,55 | 3.55 | 38 | 57 | 1 | 870578 | £ 45,86 |
| 3,56 | 3.56 | 38 | 57 | 1 | 870579 | £ 45,86 |
| 3,57 | 3.57 | 38 | 57 | 1 | 870580 | £ 45,86 |
| 3,58 | 3.58 | 38 | 57 | 1 | 870581 | £ 45,86 |
| 3,59 | 3.59 | 38 | 57 | 1 | 870582 | £ 45,86 |
| 3,6 | 3.6 | 38 | 57 | 1 | 870583 | £ 45,86 |
| 3,61 | 3.61 | 38 | 57 | 1 | 870584 | £ 45,86 |
| 3,62 | 3.62 | 38 | 57 | 1 | 870585 | £ 45,86 |
| 3,63 | 3.63 | 38 | 57 | 1 | 870586 | £ 45,86 |
| 3,64 | 3.64 | 38 | 57 | 1 | 870587 | £ 45,86 |
| 3,65 | 3.65 | 38 | 57 | 1 | 870588 | £ 45,86 |
| 3,66 | 3.66 | 38 | 57 | 1 | 870589 | £ 45,86 |
| 3,67 | 3.67 | 38 | 57 | 1 | 870590 | £ 45,86 |
| 3,68 | 3.68 | 38 | 57 | 1 | 870591 | £ 45,86 |
| 3,69 | 3.69 | 38 | 57 | 1 | 870592 | £ 45,86 |
| 3,7 | 3.7 | 38 | 57 | 1 | 870593 | £ 45,86 |
| 3,71 | 3.71 | 38 | 57 | 1 | 870594 | £ 45,86 |
| 3,72 | 3.72 | 38 | 57 | 1 | 870595 | £ 45,86 |
| 3,73 | 3.73 | 38 | 57 | 1 | 870596 | £ 45,86 |
| 3,74 | 3.74 | 38 | 57 | 1 | 870597 | £ 45,86 |
| 3,75 | 3.75 | 38 | 57 | 1 | 870598 | £ 45,86 |
| 3,76 | 4 | 51 | 75 | 1 | 870599 | £ 50,12 |
| 3,77 | 4 | 51 | 75 | 1 | 870600 | £ 50,12 |
| 3,78 | 4 | 51 | 75 | 1 | 870601 | £ 50,12 |
| 3,79 | 4 | 51 | 75 | 1 | 870602 | £ 50,12 |
| 3,8 | 4 | 51 | 75 | 1 | 870603 | £ 50,12 |

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3,81 | 4 | 51 | 75 | 1 | 870604 | £ 50,12 |
| 3,82 | 4 | 51 | 75 | 1 | 870605 | £ 50,12 |
| 3,83 | 4 | 51 | 75 | 1 | 870606 | £ 50,12 |
| 3,84 | 4 | 51 | 75 | 1 | 870607 | £ 50,12 |
| 3,85 | 4 | 51 | 75 | 1 | 870608 | £ 50,12 |
| 3,86 | 4 | 51 | 75 | 1 | 870609 | £ 50,12 |
| 3,87 | 4 | 51 | 75 | 1 | 870610 | £ 50,12 |
| 3,88 | 4 | 51 | 75 | 1 | 870611 | £ 50,12 |
| 3,89 | 4 | 51 | 75 | 1 | 870612 | £ 50,12 |
| 3,9 | 4 | 51 | 75 | 1 | 870613 | £ 50,12 |
| 3,91 | 4 | 51 | 75 | 1 | 870614 | £ 50,12 |
| 3,92 | 4 | 51 | 75 | 1 | 870615 | £ 50,12 |
| 3,93 | 4 | 51 | 75 | 1 | 870616 | £ 50,12 |
| 3,94 | 4 | 51 | 75 | 1 | 870617 | £ 50,12 |
| 3,95 | 4 | 51 | 75 | 1 | 870618 | £ 50,12 |
| 3,96 | 4 | 51 | 75 | 1 | 870619 | £ 50,12 |
| 3,97 | 4 | 51 | 75 | 1 | 870620 | £ 50,12 |
| 3,98 | 4 | 51 | 75 | 1 | 870621 | £ 50,12 |
| 3,99 | 4 | 51 | 75 | 1 | 870622 | £ 50,12 |
| 4 | 4 | 51 | 75 | 1 | 870623 | £ 50,12 |
| 4,01 | 4 | 51 | 75 | 1 | 870624 | £ 50,12 |
| 4,02 | 4 | 51 | 75 | 1 | 870625 | £ 50,12 |
| 4,03 | 4 | 51 | 75 | 1 | 870626 | £ 50,12 |
| 4,04 | 4 | 51 | 75 | 1 | 870627 | £ 50,12 |
| 4,05 | 4 | 51 | 75 | 1 | 870628 | £ 50,12 |
| 4,06 | 4 | 51 | 75 | 1 | 870629 | £ 50,12 |
| 4,07 | 4 | 51 | 75 | 1 | 870630 | £ 50,12 |
| 4,08 | 4 | 51 | 75 | 1 | 870631 | £ 50,12 |
| 4,09 | 4 | 51 | 75 | 1 | 870632 | £ 50,12 |
| 4,1 | 4 | 51 | 75 | 1 | 870633 | £ 50,12 |
| 4,11 | 4 | 51 | 75 | 1 | 870634 | £ 50,12 |
| 4,12 | 4 | 51 | 75 | 1 | 870635 | £ 50,12 |
| 4,13 | 4 | 51 | 75 | 1 | 870636 | £ 50,12 |
| 4,14 | 4 | 51 | 75 | 1 | 870637 | £ 50,12 |
| 4,15 | 4 | 51 | 75 | 1 | 870638 | £ 50,12 |
| 4,16 | 4 | 51 | 75 | 1 | 870639 | £ 50,12 |
| 4,17 | 4 | 51 | 75 | 1 | 870640 | £ 50,12 |
| 4,18 | 4 | 51 | 75 | 1 | 870641 | £ 50,12 |
| 4,19 | 4 | 51 | 75 | 1 | 870642 | £ 50,12 |
| 4,2 | 4 | 51 | 75 | 1 | 870643 | £ 50,12 |
| 4,21 | 4 | 51 | 75 | 1 | 870644 | £ 50,12 |
| 4,22 | 4 | 51 | 75 | 1 | 870645 | £ 50,12 |
| 4,23 | 4 | 51 | 75 | 1 | 870646 | £ 50,12 |
| 4,24 | 4 | 51 | 75 | 1 | 870647 | £ 50,12 |
| 4,25 | 4 | 51 | 75 | 1 | 870648 | £ 50,12 |
| 4,26 | 4.5 | 55 | 80 | 1 | 870649 | £ 54,39 |
| 4,27 | 4.5 | 55 | 80 | 1 | 870650 | £ 54,39 |
| 4,28 | 4.5 | 55 | 80 | 1 | 870651 | £ 54,39 |
| 4,29 | 4.5 | 55 | 80 | 1 | 870652 | £ 54,39 |
| 4,3 | 4.5 | 55 | 80 | 1 | 870653 | £ 54,39 |
| 4,31 | 4.5 | 55 | 80 | 1 | 870654 | £ 54,39 |
| 4,32 | 4.5 | 55 | 80 | 1 | 870655 | £ 54,39 |
| 4,33 | 4.5 | 55 | 80 | 1 | 870656 | £ 54,39 |
| 4,34 | 4.5 | 55 | 80 | 1 | 870657 | £ 54,39 |
| 4,35 | 4.5 | 55 | 80 | 1 | 870658 | £ 54,39 |
| 4,36 | 4.5 | 55 | 80 | 1 | 870659 | £ 54,39 |
| 4,37 | 4.5 | 55 | 80 | 1 | 870660 | £ 54,39 |
| 4,38 | 4.5 | 55 | 80 | 1 | 870661 | £ 54,39 |
| 4,39 | 4.5 | 55 | 80 | 1 | 870662 | £ 54,39 |
| 4,4 | 4.5 | 55 | 80 | 1 | 870663 | £ 54,39 |
| 4,41 | 4.5 | 55 | 80 | 1 | 870664 | £ 54,39 |
| 4,42 | 4.5 | 55 | 80 | 1 | 870665 | £ 54,39 |
| 4,43 | 4.5 | 55 | 80 | 1 | 870666 | £ 54,39 |
| 4,44 | 4.5 | 55 | 80 | 1 | 870667 | £ 54,39 |
| 4,45 | 4.5 | 55 | 80 | 1 | 870668 | £ 54,39 |
| 4,46 | 4.5 | 55 | 80 | 1 | 870669 | £ 54,39 |
| 4,47 | 4.5 | 55 | 80 | 1 | 870670 | £ 54,39 |
| 4,48 | 4.5 | 55 | 80 | 1 | 870671 | £ 54,39 |
| 4,49 | 4.5 | 55 | 80 | 1 | 870672 | £ 54,39 |
| 4,5 | 4.5 | 55 | 80 | 1 | 870673 | £ 54,39 |
| 4,51 | 4.5 | 55 | 80 | 1 | 870674 | £ 54,39 |
| 4,52 | 4.5 | 55 | 80 | 1 | 870675 | £ 54,39 |

## HIGH PRECISION MACHINE REAMERS CARBIDE - HPRC

DIN 212B | NFE 66014 | 10°

The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.
Tolerance: From Ø 0.6 to 3.00 = 0 / +3µ - From Ø 3.01 to 6.00 = 0 / +4µ - From Ø 6.01 to 20.00 = 0 / +5µ - Tail diameter h8

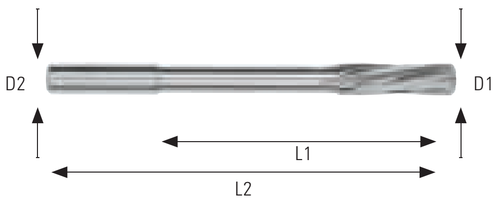



| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Cutting | L2<br>L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 4,53 | 4.5 | 55 | 80 | 1 | 870676 | £ 54,39 |
| 4,54 | 4.5 | 55 | 80 | 1 | 870677 | £ 54,39 |
| 4,55 | 4.5 | 55 | 80 | 1 | 870678 | £ 54,39 |
| 4,56 | 4.5 | 55 | 80 | 1 | 870679 | £ 54,39 |
| 4,57 | 4.5 | 55 | 80 | 1 | 870680 | £ 54,39 |
| 4,58 | 4.5 | 55 | 80 | 1 | 870681 | £ 54,39 |
| 4,59 | 4.5 | 55 | 80 | 1 | 870682 | £ 54,39 |
| 4,6 | 4.5 | 55 | 80 | 1 | 870683 | £ 54,39 |
| 4,61 | 4.5 | 55 | 80 | 1 | 870684 | £ 54,39 |
| 4,62 | 4.5 | 55 | 80 | 1 | 870685 | £ 54,39 |
| 4,63 | 4.5 | 55 | 80 | 1 | 870686 | £ 54,39 |
| 4,64 | 4.5 | 55 | 80 | 1 | 870687 | £ 54,39 |
| 4,65 | 4.5 | 55 | 80 | 1 | 870688 | £ 54,39 |
| 4,66 | 4.5 | 55 | 80 | 1 | 870689 | £ 54,39 |
| 4,67 | 4.5 | 55 | 80 | 1 | 870690 | £ 54,39 |
| 4,68 | 4.5 | 55 | 80 | 1 | 870691 | £ 54,39 |
| 4,69 | 4.5 | 55 | 80 | 1 | 870692 | £ 54,39 |
| 4,7 | 4.5 | 55 | 80 | 1 | 870693 | £ 54,39 |
| 4,71 | 4.5 | 55 | 80 | 1 | 870694 | £ 54,39 |
| 4,72 | 4.5 | 55 | 80 | 1 | 870695 | £ 54,39 |
| 4,73 | 4.5 | 55 | 80 | 1 | 870696 | £ 54,39 |
| 4,74 | 4.5 | 55 | 80 | 1 | 870697 | £ 54,39 |
| 4,75 | 4.5 | 55 | 80 | 1 | 870698 | £ 54,39 |
| 4,76 | 5 | 60 | 86 | 1 | 870699 | £ 54,39 |
| 4,77 | 5 | 60 | 86 | 1 | 870700 | £ 54,39 |
| 4,78 | 5 | 60 | 86 | 1 | 870701 | £ 54,39 |
| 4,79 | 5 | 60 | 86 | 1 | 870702 | £ 54,39 |
| 4,8 | 5 | 60 | 86 | 1 | 870703 | £ 54,39 |
| 4,81 | 5 | 60 | 86 | 1 | 870704 | £ 54,39 |
| 4,82 | 5 | 60 | 86 | 1 | 870705 | £ 54,39 |
| 4,83 | 5 | 60 | 86 | 1 | 870706 | £ 54,39 |
| 4,84 | 5 | 60 | 86 | 1 | 870707 | £ 54,39 |
| 4,85 | 5 | 60 | 86 | 1 | 870708 | £ 54,39 |
| 4,86 | 5 | 60 | 86 | 1 | 870709 | £ 54,39 |
| 4,87 | 5 | 60 | 86 | 1 | 870710 | £ 54,39 |
| 4,88 | 5 | 60 | 86 | 1 | 870711 | £ 54,39 |
| 4,89 | 5 | 60 | 86 | 1 | 870712 | £ 54,39 |
| 4,9 | 5 | 60 | 86 | 1 | 870713 | £ 54,39 |
| 4,91 | 5 | 60 | 86 | 1 | 870714 | £ 54,39 |
| 4,92 | 5 | 60 | 86 | 1 | 870715 | £ 54,39 |
| 4,93 | 5 | 60 | 86 | 1 | 870716 | £ 54,39 |
| 4,94 | 5 | 60 | 86 | 1 | 870717 | £ 54,39 |
| 4,95 | 5 | 60 | 86 | 1 | 870718 | £ 54,39 |
| 4,96 | 5 | 60 | 86 | 1 | 870719 | £ 54,39 |
| 4,97 | 5 | 60 | 86 | 1 | 870720 | £ 54,39 |
| 4,98 | 5 | 60 | 86 | 1 | 870721 | £ 54,39 |
| 4,99 | 5 | 60 | 86 | 1 | 870722 | £ 54,39 |
| 5 | 5 | 60 | 86 | 1 | 870723 | £ 54,39 |
| 5,01 | 5 | 60 | 86 | 1 | 870724 | £ 54,39 |
| 5,02 | 5 | 60 | 86 | 1 | 870725 | £ 54,39 |
| 5,03 | 5 | 60 | 86 | 1 | 870726 | £ 54,39 |
| 5,04 | 5 | 60 | 86 | 1 | 870727 | £ 54,39 |
| 5,05 | 5 | 60 | 86 | 1 | 870728 | £ 54,39 |
| 5,06 | 5 | 60 | 86 | 1 | 870729 | £ 54,39 |
| 5,07 | 5 | 60 | 86 | 1 | 870730 | £ 54,39 |
| 5,08 | 5 | 60 | 86 | 1 | 870731 | £ 54,39 |
| 5,09 | 5 | 60 | 86 | 1 | 870732 | £ 54,39 |
| 5,1 | 5 | 60 | 86 | 1 | 870733 | £ 54,39 |
| 5,11 | 5 | 60 | 86 | 1 | 870734 | £ 54,39 |

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 5,12 | 5 | 60 | 86 | 1 | 870735 | £ 54,39 |
| 5,13 | 5 | 60 | 86 | 1 | 870736 | £ 54,39 |
| 5,14 | 5 | 60 | 86 | 1 | 870737 | £ 54,39 |
| 5,15 | 5 | 60 | 86 | 1 | 870738 | £ 54,39 |
| 5,16 | 5 | 60 | 86 | 1 | 870739 | £ 54,39 |
| 5,17 | 5 | 60 | 86 | 1 | 870740 | £ 54,39 |
| 5,18 | 5 | 60 | 86 | 1 | 870741 | £ 54,39 |
| 5,19 | 5 | 60 | 86 | 1 | 870742 | £ 54,39 |
| 5,2 | 5 | 60 | 86 | 1 | 870743 | £ 54,39 |
| 5,21 | 5 | 60 | 86 | 1 | 870744 | £ 54,39 |
| 5,22 | 5 | 60 | 86 | 1 | 870745 | £ 54,39 |
| 5,23 | 5 | 60 | 86 | 1 | 870746 | £ 54,39 |
| 5,24 | 5 | 60 | 86 | 1 | 870747 | £ 54,39 |
| 5,25 | 5 | 60 | 86 | 1 | 870748 | £ 54,39 |
| 5,26 | 5 | 60 | 86 | 1 | 870749 | £ 54,39 |
| 5,27 | 5 | 60 | 86 | 1 | 870750 | £ 54,39 |
| 5,28 | 5 | 60 | 86 | 1 | 870751 | £ 54,39 |
| 5,29 | 5 | 60 | 86 | 1 | 870752 | £ 54,39 |
| 5,3 | 5 | 60 | 86 | 1 | 870753 | £ 54,39 |
| 5,31 | 5.5 | 66 | 93 | 1 | 870754 | £ 57,59 |
| 5,32 | 5.5 | 66 | 93 | 1 | 870755 | £ 57,59 |
| 5,33 | 5.5 | 66 | 93 | 1 | 870756 | £ 57,59 |
| 5,34 | 5.5 | 66 | 93 | 1 | 870757 | £ 57,59 |
| 5,35 | 5.5 | 66 | 93 | 1 | 870758 | £ 57,59 |
| 5,36 | 5.5 | 66 | 93 | 1 | 870759 | £ 57,59 |
| 5,37 | 5.5 | 66 | 93 | 1 | 870760 | £ 57,59 |
| 5,38 | 5.5 | 66 | 93 | 1 | 870761 | £ 57,59 |
| 5,39 | 5.5 | 66 | 93 | 1 | 870762 | £ 57,59 |
| 5,4 | 5.5 | 66 | 93 | 1 | 870763 | £ 57,59 |
| 5,41 | 5.5 | 66 | 93 | 1 | 870764 | £ 57,59 |
| 5,42 | 5.5 | 66 | 93 | 1 | 870765 | £ 57,59 |
| 5,43 | 5.5 | 66 | 93 | 1 | 870766 | £ 57,59 |
| 5,44 | 5.5 | 66 | 93 | 1 | 870767 | £ 57,59 |
| 5,45 | 5.5 | 66 | 93 | 1 | 870768 | £ 57,59 |
| 5,46 | 5.5 | 66 | 93 | 1 | 870769 | £ 57,59 |
| 5,47 | 5.5 | 66 | 93 | 1 | 870770 | £ 57,59 |
| 5,48 | 5.5 | 66 | 93 | 1 | 870771 | £ 57,59 |
| 5,49 | 5.5 | 66 | 93 | 1 | 870772 | £ 57,59 |
| 5,5 | 5.5 | 66 | 93 | 1 | 870773 | £ 57,59 |
| 5,51 | 5.5 | 66 | 93 | 1 | 870774 | £ 57,59 |
| 5,52 | 5.5 | 66 | 93 | 1 | 870775 | £ 57,59 |
| 5,53 | 5.5 | 66 | 93 | 1 | 870776 | £ 57,59 |
| 5,54 | 5.5 | 66 | 93 | 1 | 870777 | £ 57,59 |
| 5,55 | 5.5 | 66 | 93 | 1 | 870778 | £ 57,59 |
| 5,56 | 5.5 | 66 | 93 | 1 | 870779 | £ 57,59 |
| 5,57 | 5.5 | 66 | 93 | 1 | 870780 | £ 57,59 |
| 5,58 | 5.5 | 66 | 93 | 1 | 870781 | £ 57,59 |
| 5,59 | 5.5 | 66 | 93 | 1 | 870782 | £ 57,59 |
| 5,6 | 5.5 | 66 | 93 | 1 | 870783 | £ 57,59 |
| 5,61 | 5.5 | 66 | 93 | 1 | 870784 | £ 57,59 |
| 5,62 | 5.5 | 66 | 93 | 1 | 870785 | £ 57,59 |
| 5,63 | 5.5 | 66 | 93 | 1 | 870786 | £ 57,59 |
| 5,64 | 5.5 | 66 | 93 | 1 | 870787 | £ 57,59 |
| 5,65 | 5.5 | 66 | 93 | 1 | 870788 | £ 57,59 |
| 5,66 | 5.5 | 66 | 93 | 1 | 870789 | £ 57,59 |
| 5,67 | 5.5 | 66 | 93 | 1 | 870790 | £ 57,59 |
| 5,68 | 5.5 | 66 | 93 | 1 | 870791 | £ 57,59 |
| 5,69 | 5.5 | 66 | 93 | 1 | 870792 | £ 57,59 |
| 5,7 | 5.5 | 66 | 93 | 1 | 870793 | £ 57,59 |
| 5,71 | 5.5 | 66 | 93 | 1 | 870794 | £ 57,59 |
| 5,72 | 5.5 | 66 | 93 | 1 | 870795 | £ 57,59 |
| 5,73 | 5.5 | 66 | 93 | 1 | 870796 | £ 57,59 |
| 5,74 | 5.5 | 66 | 93 | 1 | 870797 | £ 57,59 |
| 5,75 | 5.5 | 66 | 93 | 1 | 870798 | £ 57,59 |
| 5,76 | 5.5 | 66 | 93 | 1 | 870799 | £ 57,59 |
| 5,77 | 5.5 | 66 | 93 | 1 | 870800 | £ 57,59 |
| 5,78 | 5.5 | 66 | 93 | 1 | 870801 | £ 57,59 |
| 5,79 | 5.5 | 66 | 93 | 1 | 870802 | £ 57,59 |
| 5,8 | 5.5 | 66 | 93 | 1 | 870803 | £ 57,59 |
| 5,81 | 6 | 73 | 101 | 1 | 870804 | £ 57,59 |
| 5,82 | 6 | 73 | 101 | 1 | 870805 | £ 57,59 |
| 5,83 | 6 | 73 | 101 | 1 | 870806 | £ 57,59 |

## HIGH PRECISION MACHINE REAMERS CARBIDE - HPRC

DIN 212B | NFE 66014 | 10°



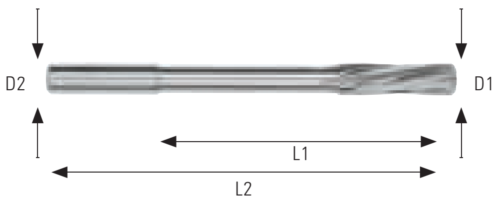

The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.
Tolerance: From Ø 0.6 to 3.00 = 0 / +3µ - From Ø 3.01 to 6.00 = 0 / +4µ - From Ø 6.01 to 20.00 = 0 / +5µ - Tail diameter h8

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 5,84 | 6 | 73 | 101 | 1 | 870807 | £ 57,59 |
| 5,85 | 6 | 73 | 101 | 1 | 870808 | £ 57,59 |
| 5,86 | 6 | 73 | 101 | 1 | 870809 | £ 57,59 |
| 5,87 | 6 | 73 | 101 | 1 | 870810 | £ 57,59 |
| 5,88 | 6 | 73 | 101 | 1 | 870811 | £ 57,59 |
| 5,89 | 6 | 73 | 101 | 1 | 870812 | £ 57,59 |
| 5,9 | 6 | 73 | 101 | 1 | 870813 | £ 57,59 |
| 5,91 | 6 | 73 | 101 | 1 | 870814 | £ 57,59 |
| 5,92 | 6 | 73 | 101 | 1 | 870815 | £ 57,59 |
| 5,93 | 6 | 73 | 101 | 1 | 870816 | £ 57,59 |
| 5,94 | 6 | 73 | 101 | 1 | 870817 | £ 57,59 |
| 5,95 | 6 | 73 | 101 | 1 | 870818 | £ 57,59 |
| 5,96 | 6 | 73 | 101 | 1 | 870819 | £ 57,59 |
| 5,97 | 6 | 73 | 101 | 1 | 870820 | £ 57,59 |
| 5,98 | 6 | 73 | 101 | 1 | 870821 | £ 57,59 |
| 5,99 | 6 | 73 | 101 | 1 | 870822 | £ 57,59 |
| 6 | 6 | 73 | 101 | 1 | 870823 | £ 57,59 |
| 6,01 | 6 | 73 | 101 | 1 | 870824 | £ 57,59 |
| 6,02 | 6 | 73 | 101 | 1 | 870825 | £ 57,59 |
| 6,03 | 6 | 73 | 101 | 1 | 870826 | £ 57,59 |
| 6,04 | 6 | 73 | 101 | 1 | 870827 | £ 57,59 |
| 6,05 | 6 | 73 | 101 | 1 | 870828 | £ 57,59 |
| 6,06 | 6 | 73 | 101 | 1 | 870829 | £ 60,25 |
| 6,07 | 6 | 73 | 101 | 1 | 870830 | £ 60,25 |
| 6,08 | 6 | 73 | 101 | 1 | 870831 | £ 60,25 |
| 6,09 | 6 | 73 | 101 | 1 | 870832 | £ 60,25 |
| 6,1 | 6 | 73 | 101 | 1 | 870833 | £ 60,25 |
| 6,11 | 6 | 73 | 101 | 1 | 870834 | £ 60,25 |
| 6,12 | 6 | 73 | 101 | 1 | 870835 | £ 60,25 |
| 6,13 | 6 | 73 | 101 | 1 | 870836 | £ 60,25 |
| 6,14 | 6 | 73 | 101 | 1 | 870837 | £ 60,25 |
| 6,15 | 6 | 73 | 101 | 1 | 870838 | £ 60,25 |
| 6,16 | 6 | 73 | 101 | 1 | 870839 | £ 60,25 |
| 6,17 | 6 | 73 | 101 | 1 | 870840 | £ 60,25 |
| 6,18 | 6 | 73 | 101 | 1 | 870841 | £ 60,25 |
| 6,19 | 6 | 73 | 101 | 1 | 870842 | £ 60,25 |
| 6,2 | 6 | 73 | 101 | 1 | 870843 | £ 60,25 |
| 6,21 | 6 | 73 | 101 | 1 | 870844 | £ 60,25 |
| 6,22 | 6 | 73 | 101 | 1 | 870845 | £ 60,25 |
| 6,23 | 6 | 73 | 101 | 1 | 870846 | £ 60,25 |
| 6,24 | 6 | 73 | 101 | 1 | 870847 | £ 60,25 |
| 6,25 | 6 | 73 | 101 | 1 | 870848 | £ 60,25 |
| 6,26 | 6 | 73 | 101 | 1 | 870849 | £ 60,25 |
| 6,27 | 6 | 73 | 101 | 1 | 870850 | £ 60,25 |
| 6,28 | 6 | 73 | 101 | 1 | 870851 | £ 60,25 |
| 6,29 | 6 | 73 | 101 | 1 | 870852 | £ 60,25 |
| 6,3 | 6 | 73 | 101 | 1 | 870853 | £ 60,25 |
| 6,31 | 6 | 73 | 101 | 1 | 870854 | £ 60,25 |
| 6,32 | 6 | 73 | 101 | 1 | 870855 | £ 60,25 |
| 6,33 | 6 | 73 | 101 | 1 | 870856 | £ 60,25 |
| 6,34 | 6 | 73 | 101 | 1 | 870857 | £ 60,25 |
| 6,35 | 6 | 73 | 101 | 1 | 870858 | £ 60,25 |
| 6,36 | 6 | 73 | 101 | 1 | 870859 | £ 60,25 |
| 6,37 | 6 | 73 | 101 | 1 | 870860 | £ 60,25 |
| 6,38 | 6 | 73 | 101 | 1 | 870861 | £ 60,25 |
| 6,39 | 6 | 73 | 101 | 1 | 870862 | £ 60,25 |
| 6,4 | 6 | 73 | 101 | 1 | 870863 | £ 60,25 |
| 6,41 | 6 | 73 | 101 | 1 | 870864 | £ 60,25 |
| 6,42 | 6 | 73 | 101 | 1 | 870865 | £ 60,25 |

| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Cutting | L2<br>L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 6,43 | 6 | 73 | 101 | 1 | 870866 | £ 60,25 |
| 6,44 | 6 | 73 | 101 | 1 | 870867 | £ 60,25 |
| 6,45 | 6 | 73 | 101 | 1 | 870868 | £ 60,25 |
| 6,46 | 6 | 73 | 101 | 1 | 870869 | £ 60,25 |
| 6,47 | 6 | 73 | 101 | 1 | 870870 | £ 60,25 |
| 6,48 | 6 | 73 | 101 | 1 | 870871 | £ 60,25 |
| 6,49 | 6 | 73 | 101 | 1 | 870872 | £ 60,25 |
| 6,5 | 6 | 73 | 101 | 1 | 870873 | £ 60,25 |
| 6,51 | 6 | 73 | 101 | 1 | 870874 | £ 60,25 |
| 6,52 | 6 | 73 | 101 | 1 | 870875 | £ 60,25 |
| 6,53 | 6 | 73 | 101 | 1 | 870876 | £ 60,25 |
| 6,54 | 6 | 73 | 101 | 1 | 870877 | £ 60,25 |
| 6,55 | 6 | 73 | 101 | 1 | 870878 | £ 60,25 |
| 6,56 | 6 | 73 | 101 | 1 | 870879 | £ 60,25 |
| 6,57 | 6 | 73 | 101 | 1 | 870880 | £ 60,25 |
| 6,58 | 6 | 73 | 101 | 1 | 870881 | £ 60,25 |
| 6,59 | 6 | 73 | 101 | 1 | 870882 | £ 60,25 |
| 6,6 | 6 | 73 | 101 | 1 | 870883 | £ 60,25 |
| 6,61 | 6 | 73 | 101 | 1 | 870884 | £ 60,25 |
| 6,62 | 6 | 73 | 101 | 1 | 870885 | £ 60,25 |
| 6,63 | 6 | 73 | 101 | 1 | 870886 | £ 60,25 |
| 6,64 | 6 | 73 | 101 | 1 | 870887 | £ 60,25 |
| 6,65 | 6 | 73 | 101 | 1 | 870888 | £ 60,25 |
| 6,66 | 6 | 73 | 101 | 1 | 870889 | £ 60,25 |
| 6,67 | 6 | 73 | 101 | 1 | 870890 | £ 60,25 |
| 6,68 | 6 | 73 | 101 | 1 | 870891 | £ 60,25 |
| 6,69 | 6 | 73 | 101 | 1 | 870892 | £ 60,25 |
| 6,7 | 6 | 73 | 101 | 1 | 870893 | £ 60,25 |
| 6,71 | 7 | 80 | 109 | 1 | 870894 | £ 70,38 |
| 6,72 | 7 | 80 | 109 | 1 | 870895 | £ 70,38 |
| 6,73 | 7 | 80 | 109 | 1 | 870896 | £ 70,38 |
| 6,74 | 7 | 80 | 109 | 1 | 870897 | £ 70,38 |
| 6,75 | 7 | 80 | 109 | 1 | 870898 | £ 70,38 |
| 6,76 | 7 | 80 | 109 | 1 | 870899 | £ 70,38 |
| 6,77 | 7 | 80 | 109 | 1 | 870900 | £ 70,38 |
| 6,78 | 7 | 80 | 109 | 1 | 870901 | £ 70,38 |
| 6,79 | 7 | 80 | 109 | 1 | 870902 | £ 70,38 |
| 6,8 | 7 | 80 | 109 | 1 | 870903 | £ 70,38 |
| 6,81 | 7 | 80 | 109 | 1 | 870904 | £ 70,38 |
| 6,82 | 7 | 80 | 109 | 1 | 870905 | £ 70,38 |
| 6,83 | 7 | 80 | 109 | 1 | 870906 | £ 70,38 |
| 6,84 | 7 | 80 | 109 | 1 | 870907 | £ 70,38 |
| 6,85 | 7 | 80 | 109 | 1 | 870908 | £ 70,38 |
| 6,86 | 7 | 80 | 109 | 1 | 870909 | £ 70,38 |
| 6,87 | 7 | 80 | 109 | 1 | 870910 | £ 70,38 |
| 6,88 | 7 | 80 | 109 | 1 | 870911 | £ 70,38 |
| 6,89 | 7 | 80 | 109 | 1 | 870912 | £ 70,38 |
| 6,9 | 7 | 80 | 109 | 1 | 870913 | £ 70,38 |
| 6,91 | 7 | 80 | 109 | 1 | 870914 | £ 70,38 |
| 6,92 | 7 | 80 | 109 | 1 | 870915 | £ 70,38 |
| 6,93 | 7 | 80 | 109 | 1 | 870916 | £ 70,38 |
| 6,94 | 7 | 80 | 109 | 1 | 870917 | £ 70,38 |
| 6,95 | 7 | 80 | 109 | 1 | 870918 | £ 70,38 |
| 6,96 | 7 | 80 | 109 | 1 | 870919 | £ 70,38 |
| 6,97 | 7 | 80 | 109 | 1 | 870920 | £ 70,38 |
| 6,98 | 7 | 80 | 109 | 1 | 870921 | £ 70,38 |
| 6,99 | 7 | 80 | 109 | 1 | 870922 | £ 70,38 |
| 7 | 7 | 80 | 109 | 1 | 870923 | £ 70,38 |
| 7,01 | 7 | 80 | 109 | 1 | 870924 | £ 70,38 |
| 7,02 | 7 | 80 | 109 | 1 | 870925 | £ 70,38 |
| 7,03 | 7 | 80 | 109 | 1 | 870926 | £ 70,38 |
| 7,04 | 7 | 80 | 109 | 1 | 870927 | £ 70,38 |
| 7,05 | 7 | 80 | 109 | 1 | 870928 | £ 70,38 |
| 7,06 | 7 | 80 | 109 | 1 | 870929 | £ 79,98 |
| 7,07 | 7 | 80 | 109 | 1 | 870930 | £ 79,98 |
| 7,08 | 7 | 80 | 109 | 1 | 870931 | £ 79,98 |
| 7,09 | 7 | 80 | 109 | 1 | 870932 | £ 79,98 |
| 7,1 | 7 | 80 | 109 | 1 | 870933 | £ 79,98 |
| 7,11 | 7 | 80 | 109 | 1 | 870934 | £ 79,98 |
| 7,12 | 7 | 80 | 109 | 1 | 870935 | £ 79,98 |
| 7,13 | 7 | 80 | 109 | 1 | 870936 | £ 79,98 |
| 7,14 | 7 | 80 | 109 | 1 | 870937 | £ 79,98 |

## HIGH PRECISION MACHINE REAMERS CARBIDE - HPRC

DIN 212B | NFE 66014 | 10°



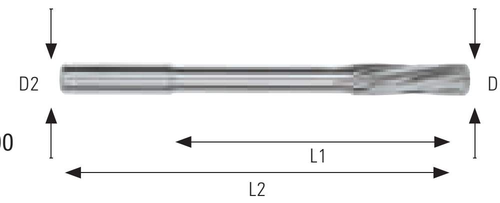

The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.
Tolerance: From Ø 0.6 to 3.00 = 0 / +3µ - From Ø 3.01 to 6.00 = 0 / +4µ - From Ø 6.01 to 20.00 = 0 / +5µ - Tail diameter h8

| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Cutting | L2<br>L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 7,15 | 7 | 80 | 109 | 1 | 870938 | £ 79,98 |
| 7,16 | 7 | 80 | 109 | 1 | 870939 | £ 79,98 |
| 7,17 | 7 | 80 | 109 | 1 | 870940 | £ 79,98 |
| 7,18 | 7 | 80 | 109 | 1 | 870941 | £ 79,98 |
| 7,19 | 7 | 80 | 109 | 1 | 870942 | £ 79,98 |
| 7,2 | 7 | 80 | 109 | 1 | 870943 | £ 79,98 |
| 7,21 | 7 | 80 | 109 | 1 | 870944 | £ 79,98 |
| 7,22 | 7 | 80 | 109 | 1 | 870945 | £ 79,98 |
| 7,23 | 7 | 80 | 109 | 1 | 870946 | £ 79,98 |
| 7,24 | 7 | 80 | 109 | 1 | 870947 | £ 79,98 |
| 7,25 | 7 | 80 | 109 | 1 | 870948 | £ 79,98 |
| 7,26 | 7 | 80 | 109 | 1 | 870949 | £ 79,98 |
| 7,27 | 7 | 80 | 109 | 1 | 870950 | £ 79,98 |
| 7,28 | 7 | 80 | 109 | 1 | 870951 | £ 79,98 |
| 7,29 | 7 | 80 | 109 | 1 | 870952 | £ 79,98 |
| 7,3 | 7 | 80 | 109 | 1 | 870953 | £ 79,98 |
| 7,31 | 7 | 80 | 109 | 1 | 870954 | £ 79,98 |
| 7,32 | 7 | 80 | 109 | 1 | 870955 | £ 79,98 |
| 7,33 | 7 | 80 | 109 | 1 | 870956 | £ 79,98 |
| 7,34 | 7 | 80 | 109 | 1 | 870957 | £ 79,98 |
| 7,35 | 7 | 80 | 109 | 1 | 870958 | £ 79,98 |
| 7,36 | 7 | 80 | 109 | 1 | 870959 | £ 79,98 |
| 7,37 | 7 | 80 | 109 | 1 | 870960 | £ 79,98 |
| 7,38 | 7 | 80 | 109 | 1 | 870961 | £ 79,98 |
| 7,39 | 7 | 80 | 109 | 1 | 870962 | £ 79,98 |
| 7,4 | 7 | 80 | 109 | 1 | 870963 | £ 79,98 |
| 7,41 | 7 | 80 | 109 | 1 | 870964 | £ 79,98 |
| 7,42 | 7 | 80 | 109 | 1 | 870965 | £ 79,98 |
| 7,43 | 7 | 80 | 109 | 1 | 870966 | £ 79,98 |
| 7,44 | 7 | 80 | 109 | 1 | 870967 | £ 79,98 |
| 7,45 | 7 | 80 | 109 | 1 | 870968 | £ 79,98 |
| 7,46 | 7 | 80 | 109 | 1 | 870969 | £ 79,98 |
| 7,47 | 7 | 80 | 109 | 1 | 870970 | £ 79,98 |
| 7,48 | 7 | 80 | 109 | 1 | 870971 | £ 79,98 |
| 7,49 | 7 | 80 | 109 | 1 | 870972 | £ 79,98 |
| 7,5 | 7 | 80 | 109 | 1 | 870973 | £ 79,98 |
| 7,51 | 7 | 80 | 109 | 1 | 870974 | £ 79,98 |
| 7,52 | 7 | 80 | 109 | 1 | 870975 | £ 79,98 |
| 7,53 | 7 | 80 | 109 | 1 | 870976 | £ 79,98 |
| 7,54 | 7 | 80 | 109 | 1 | 870977 | £ 79,98 |
| 7,55 | 7 | 80 | 109 | 1 | 870978 | £ 79,98 |
| 7,56 | 8 | 86 | 117 | 1 | 870979 | £ 79,98 |
| 7,57 | 8 | 86 | 117 | 1 | 870980 | £ 79,98 |
| 7,58 | 8 | 86 | 117 | 1 | 870981 | £ 79,98 |
| 7,59 | 8 | 86 | 117 | 1 | 870982 | £ 79,98 |
| 7,6 | 8 | 86 | 117 | 1 | 870983 | £ 79,98 |
| 7,61 | 8 | 86 | 117 | 1 | 870984 | £ 79,98 |
| 7,62 | 8 | 86 | 117 | 1 | 870985 | £ 79,98 |
| 7,63 | 8 | 86 | 117 | 1 | 870986 | £ 79,98 |
| 7,64 | 8 | 86 | 117 | 1 | 870987 | £ 79,98 |
| 7,65 | 8 | 86 | 117 | 1 | 870988 | £ 79,98 |
| 7,66 | 8 | 86 | 117 | 1 | 870989 | £ 79,98 |
| 7,67 | 8 | 86 | 117 | 1 | 870990 | £ 79,98 |
| 7,68 | 8 | 86 | 117 | 1 | 870991 | £ 79,98 |
| 7,69 | 8 | 86 | 117 | 1 | 870992 | £ 79,98 |
| 7,7 | 8 | 86 | 117 | 1 | 870993 | £ 79,98 |
| 7,71 | 8 | 86 | 117 | 1 | 870994 | £ 79,98 |
| 7,72 | 8 | 86 | 117 | 1 | 870995 | £ 79,98 |
| 7,73 | 8 | 86 | 117 | 1 | 870996 | £ 79,98 |

| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Cutting | L2<br>L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 7,74 | 8 | 86 | 117 | 1 | 870997 | £ 79,98 |
| 7,75 | 8 | 86 | 117 | 1 | 870998 | £ 79,98 |
| 7,76 | 8 | 86 | 117 | 1 | 870999 | £ 79,98 |
| 7,77 | 8 | 86 | 117 | 1 | 871000 | £ 79,98 |
| 7,78 | 8 | 86 | 117 | 1 | 871001 | £ 79,98 |
| 7,79 | 8 | 86 | 117 | 1 | 871002 | £ 79,98 |
| 7,8 | 8 | 86 | 117 | 1 | 871003 | £ 79,98 |
| 7,81 | 8 | 86 | 117 | 1 | 871004 | £ 79,98 |
| 7,82 | 8 | 86 | 117 | 1 | 871005 | £ 79,98 |
| 7,83 | 8 | 86 | 117 | 1 | 871006 | £ 79,98 |
| 7,84 | 8 | 86 | 117 | 1 | 871007 | £ 79,98 |
| 7,85 | 8 | 86 | 117 | 1 | 871008 | £ 79,98 |
| 7,86 | 8 | 86 | 117 | 1 | 871009 | £ 79,98 |
| 7,87 | 8 | 86 | 117 | 1 | 871010 | £ 79,98 |
| 7,88 | 8 | 86 | 117 | 1 | 871011 | £ 79,98 |
| 7,89 | 8 | 86 | 117 | 1 | 871012 | £ 79,98 |
| 7,9 | 8 | 86 | 117 | 1 | 871013 | £ 79,98 |
| 7,91 | 8 | 86 | 117 | 1 | 871014 | £ 79,98 |
| 7,92 | 8 | 86 | 117 | 1 | 871015 | £ 79,98 |
| 7,93 | 8 | 86 | 117 | 1 | 871016 | £ 79,98 |
| 7,94 | 8 | 86 | 117 | 1 | 871017 | £ 79,98 |
| 7,95 | 8 | 86 | 117 | 1 | 871018 | £ 79,98 |
| 7,96 | 8 | 86 | 117 | 1 | 871019 | £ 79,98 |
| 7,97 | 8 | 86 | 117 | 1 | 871020 | £ 79,98 |
| 7,98 | 8 | 86 | 117 | 1 | 871021 | £ 79,98 |
| 7,99 | 8 | 86 | 117 | 1 | 871022 | £ 79,98 |
| 8 | 8 | 86 | 117 | 1 | 871023 | £ 79,98 |
| 8,01 | 8 | 86 | 117 | 1 | 871024 | £ 79,98 |
| 8,02 | 8 | 86 | 117 | 1 | 871025 | £ 79,98 |
| 8,03 | 8 | 86 | 117 | 1 | 871026 | £ 79,98 |
| 8,04 | 8 | 86 | 117 | 1 | 871027 | £ 79,98 |
| 8,05 | 8 | 86 | 117 | 1 | 871028 | £ 79,98 |
| 8,06 | 8 | 86 | 117 | 1 | 871029 | £ 84,25 |
| 8,07 | 8 | 86 | 117 | 1 | 871030 | £ 84,25 |
| 8,08 | 8 | 86 | 117 | 1 | 871031 | £ 84,25 |
| 8,09 | 8 | 86 | 117 | 1 | 871032 | £ 84,25 |
| 8,1 | 8 | 86 | 117 | 1 | 871033 | £ 84,25 |
| 8,11 | 8 | 86 | 117 | 1 | 871034 | £ 84,25 |
| 8,12 | 8 | 86 | 117 | 1 | 871035 | £ 84,25 |
| 8,13 | 8 | 86 | 117 | 1 | 871036 | £ 84,25 |
| 8,14 | 8 | 86 | 117 | 1 | 871037 | £ 84,25 |
| 8,15 | 8 | 86 | 117 | 1 | 871038 | £ 84,25 |
| 8,16 | 8 | 86 | 117 | 1 | 871039 | £ 84,25 |
| 8,17 | 8 | 86 | 117 | 1 | 871040 | £ 84,25 |
| 8,18 | 8 | 86 | 117 | 1 | 871041 | £ 84,25 |
| 8,19 | 8 | 86 | 117 | 1 | 871042 | £ 84,25 |
| 8,2 | 8 | 86 | 117 | 1 | 871043 | £ 84,25 |
| 8,21 | 8 | 86 | 117 | 1 | 871044 | £ 84,25 |
| 8,22 | 8 | 86 | 117 | 1 | 871045 | £ 84,25 |
| 8,23 | 8 | 86 | 117 | 1 | 871046 | £ 84,25 |
| 8,24 | 8 | 86 | 117 | 1 | 871047 | £ 84,25 |
| 8,25 | 8 | 86 | 117 | 1 | 871048 | £ 84,25 |
| 8,26 | 8 | 86 | 117 | 1 | 871049 | £ 84,25 |
| 8,27 | 8 | 86 | 117 | 1 | 871050 | £ 84,25 |
| 8,28 | 8 | 86 | 117 | 1 | 871051 | £ 84,25 |
| 8,29 | 8 | 86 | 117 | 1 | 871052 | £ 84,25 |
| 8,3 | 8 | 86 | 117 | 1 | 871053 | £ 84,25 |
| 8,31 | 8 | 86 | 117 | 1 | 871054 | £ 84,25 |
| 8,32 | 8 | 86 | 117 | 1 | 871055 | £ 84,25 |
| 8,33 | 8 | 86 | 117 | 1 | 871056 | £ 84,25 |
| 8,34 | 8 | 86 | 117 | 1 | 871057 | £ 84,25 |
| 8,35 | 8 | 86 | 117 | 1 | 871058 | £ 84,25 |
| 8,36 | 8 | 86 | 117 | 1 | 871059 | £ 84,25 |
| 8,37 | 8 | 86 | 117 | 1 | 871060 | £ 84,25 |
| 8,38 | 8 | 86 | 117 | 1 | 871061 | £ 84,25 |
| 8,39 | 8 | 86 | 117 | 1 | 871062 | £ 84,25 |
| 8,4 | 8 | 86 | 117 | 1 | 871063 | £ 84,25 |
| 8,41 | 8 | 86 | 117 | 1 | 871064 | £ 84,25 |
| 8,42 | 8 | 86 | 117 | 1 | 871065 | £ 84,25 |
| 8,43 | 8 | 86 | 117 | 1 | 871066 | £ 84,25 |
| 8,44 | 8 | 86 | 117 | 1 | 871067 | £ 84,25 |
| 8,45 | 8 | 86 | 117 | 1 | 871068 | £ 84,25 |

## HIGH PRECISION MACHINE REAMERS CARBIDE - HPRC

DIN 212B | NFE 66014 | 10°




The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.
Tolerance: From Ø 0.6 to 3.00 = 0 / +3µ - From Ø 3.01 to 6.00 = 0 / +4µ - From Ø 6.01 to 20.00 = 0 / +5µ - Tail diameter h8

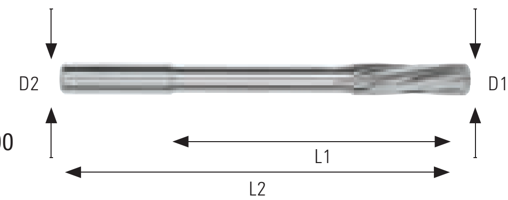
| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 8,46 | 8 | 86 | 117 | 1 | 871069 | £ 84,25 |
| 8,47 | 8 | 86 | 117 | 1 | 871070 | £ 84,25 |
| 8,48 | 8 | 86 | 117 | 1 | 871071 | £ 84,25 |
| 8,49 | 8 | 86 | 117 | 1 | 871072 | £ 84,25 |
| 8,5 | 8 | 86 | 117 | 1 | 871073 | £ 84,25 |
| 8,51 | 8 | 86 | 117 | 1 | 871074 | £ 84,25 |
| 8,52 | 8 | 86 | 117 | 1 | 871075 | £ 84,25 |
| 8,53 | 8 | 86 | 117 | 1 | 871076 | £ 84,25 |
| 8,54 | 8 | 86 | 117 | 1 | 871077 | £ 84,25 |
| 8,55 | 8 | 86 | 117 | 1 | 871078 | £ 84,25 |
| 8,56 | 9 | 91 | 125 | 1 | 871079 | £ 100,24 |
| 8,57 | 9 | 91 | 125 | 1 | 871080 | £ 100,24 |
| 8,58 | 9 | 91 | 125 | 1 | 871081 | £ 100,24 |
| 8,59 | 9 | 91 | 125 | 1 | 871082 | £ 100,24 |
| 8,6 | 9 | 91 | 125 | 1 | 871083 | £ 100,24 |
| 8,61 | 9 | 91 | 125 | 1 | 871084 | £ 100,24 |
| 8,62 | 9 | 91 | 125 | 1 | 871085 | £ 100,24 |
| 8,63 | 9 | 91 | 125 | 1 | 871086 | £ 100,24 |
| 8,64 | 9 | 91 | 125 | 1 | 871087 | £ 100,24 |
| 8,65 | 9 | 91 | 125 | 1 | 871088 | £ 100,24 |
| 8,66 | 9 | 91 | 125 | 1 | 871089 | £ 100,24 |
| 8,67 | 9 | 91 | 125 | 1 | 871090 | £ 100,24 |
| 8,68 | 9 | 91 | 125 | 1 | 871091 | £ 100,24 |
| 8,69 | 9 | 91 | 125 | 1 | 871092 | £ 100,24 |
| 8,7 | 9 | 91 | 125 | 1 | 871093 | £ 100,24 |
| 8,71 | 9 | 91 | 125 | 1 | 871094 | £ 100,24 |
| 8,72 | 9 | 91 | 125 | 1 | 871095 | £ 100,24 |
| 8,73 | 9 | 91 | 125 | 1 | 871096 | £ 100,24 |
| 8,74 | 9 | 91 | 125 | 1 | 871097 | £ 100,24 |
| 8,75 | 9 | 91 | 125 | 1 | 871098 | £ 100,24 |
| 8,76 | 9 | 91 | 125 | 1 | 871099 | £ 100,24 |
| 8,77 | 9 | 91 | 125 | 1 | 871100 | £ 100,24 |
| 8,78 | 9 | 91 | 125 | 1 | 871101 | £ 100,24 |
| 8,79 | 9 | 91 | 125 | 1 | 871102 | £ 100,24 |
| 8,8 | 9 | 91 | 125 | 1 | 871103 | £ 100,24 |
| 8,81 | 9 | 91 | 125 | 1 | 871104 | £ 100,24 |
| 8,82 | 9 | 91 | 125 | 1 | 871105 | £ 100,24 |
| 8,83 | 9 | 91 | 125 | 1 | 871106 | £ 100,24 |
| 8,84 | 9 | 91 | 125 | 1 | 871107 | £ 100,24 |
| 8,85 | 9 | 91 | 125 | 1 | 871108 | £ 100,24 |
| 8,86 | 9 | 91 | 125 | 1 | 871109 | £ 100,24 |
| 8,87 | 9 | 91 | 125 | 1 | 871110 | £ 100,24 |
| 8,88 | 9 | 91 | 125 | 1 | 871111 | £ 100,24 |
| 8,89 | 9 | 91 | 125 | 1 | 871112 | £ 100,24 |
| 8,9 | 9 | 91 | 125 | 1 | 871113 | £ 100,24 |
| 8,91 | 9 | 91 | 125 | 1 | 871114 | £ 100,24 |
| 8,92 | 9 | 91 | 125 | 1 | 871115 | £ 100,24 |
| 8,93 | 9 | 91 | 125 | 1 | 871116 | £ 100,24 |
| 8,94 | 9 | 91 | 125 | 1 | 871117 | £ 100,24 |
| 8,95 | 9 | 91 | 125 | 1 | 871118 | £ 100,24 |
| 8,96 | 9 | 91 | 125 | 1 | 871119 | £ 100,24 |
| 8,97 | 9 | 91 | 125 | 1 | 871120 | £ 100,24 |
| 8,98 | 9 | 91 | 125 | 1 | 871121 | £ 100,24 |
| 8,99 | 9 | 91 | 125 | 1 | 871122 | £ 100,24 |
| 9 | 9 | 91 | 125 | 1 | 871123 | £ 100,24 |
| 9,01 | 9 | 91 | 125 | 1 | 871124 | £ 100,24 |
| 9,02 | 9 | 91 | 125 | 1 | 871125 | £ 100,24 |
| 9,03 | 9 | 91 | 125 | 1 | 871126 | £ 100,24 |
| 9,04 | 9 | 91 | 125 | 1 | 871127 | £ 100,24 |

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 9,05 | 9 | 91 | 125 | 1 | 871128 | £ 100,24 |
| 9,06 | 9 | 91 | 125 | 1 | 871129 | £ 100,24 |
| 9,07 | 9 | 91 | 125 | 1 | 871130 | £ 100,24 |
| 9,08 | 9 | 91 | 125 | 1 | 871131 | £ 100,24 |
| 9,09 | 9 | 91 | 125 | 1 | 871132 | £ 100,24 |
| 9,1 | 9 | 91 | 125 | 1 | 871133 | £ 100,24 |
| 9,11 | 9 | 91 | 125 | 1 | 871134 | £ 100,24 |
| 9,12 | 9 | 91 | 125 | 1 | 871135 | £ 100,24 |
| 9,13 | 9 | 91 | 125 | 1 | 871136 | £ 100,24 |
| 9,14 | 9 | 91 | 125 | 1 | 871137 | £ 100,24 |
| 9,15 | 9 | 91 | 125 | 1 | 871138 | £ 100,24 |
| 9,16 | 9 | 91 | 125 | 1 | 871139 | £ 100,24 |
| 9,17 | 9 | 91 | 125 | 1 | 871140 | £ 100,24 |
| 9,18 | 9 | 91 | 125 | 1 | 871141 | £ 100,24 |
| 9,19 | 9 | 91 | 125 | 1 | 871142 | £ 100,24 |
| 9,2 | 9 | 91 | 125 | 1 | 871143 | £ 100,24 |
| 9,21 | 9 | 91 | 125 | 1 | 871144 | £ 100,24 |
| 9,22 | 9 | 91 | 125 | 1 | 871145 | £ 100,24 |
| 9,23 | 9 | 91 | 125 | 1 | 871146 | £ 100,24 |
| 9,24 | 9 | 91 | 125 | 1 | 871147 | £ 100,24 |
| 9,25 | 9 | 91 | 125 | 1 | 871148 | £ 100,24 |
| 9,26 | 9 | 91 | 125 | 1 | 871149 | £ 100,24 |
| 9,27 | 9 | 91 | 125 | 1 | 871150 | £ 100,24 |
| 9,28 | 9 | 91 | 125 | 1 | 871151 | £ 100,24 |
| 9,29 | 9 | 91 | 125 | 1 | 871152 | £ 100,24 |
| 9,3 | 9 | 91 | 125 | 1 | 871153 | £ 100,24 |
| 9,31 | 9 | 91 | 125 | 1 | 871154 | £ 100,24 |
| 9,32 | 9 | 91 | 125 | 1 | 871155 | £ 100,24 |
| 9,33 | 9 | 91 | 125 | 1 | 871156 | £ 100,24 |
| 9,34 | 9 | 91 | 125 | 1 | 871157 | £ 100,24 |
| 9,35 | 9 | 91 | 125 | 1 | 871158 | £ 100,24 |
| 9,36 | 9 | 91 | 125 | 1 | 871159 | £ 100,24 |
| 9,37 | 9 | 91 | 125 | 1 | 871160 | £ 100,24 |
| 9,38 | 9 | 91 | 125 | 1 | 871161 | £ 100,24 |
| 9,39 | 9 | 91 | 125 | 1 | 871162 | £ 100,24 |
| 9,4 | 9 | 91 | 125 | 1 | 871163 | £ 100,24 |
| 9,41 | 9 | 91 | 125 | 1 | 871164 | £ 100,24 |
| 9,42 | 9 | 91 | 125 | 1 | 871165 | £ 100,24 |
| 9,43 | 9 | 91 | 125 | 1 | 871166 | £ 100,24 |
| 9,44 | 9 | 91 | 125 | 1 | 871167 | £ 100,24 |
| 9,45 | 9 | 91 | 125 | 1 | 871168 | £ 100,24 |
| 9,46 | 9 | 91 | 125 | 1 | 871169 | £ 100,24 |
| 9,47 | 9 | 91 | 125 | 1 | 871170 | £ 100,24 |
| 9,48 | 9 | 91 | 125 | 1 | 871171 | £ 100,24 |
| 9,49 | 9 | 91 | 125 | 1 | 871172 | £ 100,24 |
| 9,5 | 9 | 91 | 125 | 1 | 871173 | £ 100,24 |
| 9,51 | 9 | 91 | 125 | 1 | 871174 | £ 100,24 |
| 9,52 | 9 | 91 | 125 | 1 | 871175 | £ 100,24 |
| 9,53 | 9 | 91 | 125 | 1 | 871176 | £ 100,24 |
| 9,54 | 9 | 91 | 125 | 1 | 871177 | £ 100,24 |
| 9,55 | 9 | 91 | 125 | 1 | 871178 | £ 100,24 |
| 9,56 | 10 | 99 | 133 | 1 | 871179 | £ 100,24 |
| 9,57 | 10 | 99 | 133 | 1 | 871180 | £ 100,24 |
| 9,58 | 10 | 99 | 133 | 1 | 871181 | £ 100,24 |
| 9,59 | 10 | 99 | 133 | 1 | 871182 | £ 100,24 |
| 9,6 | 10 | 99 | 133 | 1 | 871183 | £ 100,24 |
| 9,61 | 10 | 99 | 133 | 1 | 871184 | £ 100,24 |
| 9,62 | 10 | 99 | 133 | 1 | 871185 | £ 100,24 |
| 9,63 | 10 | 99 | 133 | 1 | 871186 | £ 100,24 |
| 9,64 | 10 | 99 | 133 | 1 | 871187 | £ 100,24 |
| 9,65 | 10 | 99 | 133 | 1 | 871188 | £ 100,24 |
| 9,66 | 10 | 99 | 133 | 1 | 871189 | £ 100,24 |
| 9,67 | 10 | 99 | 133 | 1 | 871190 | £ 100,24 |
| 9,68 | 10 | 99 | 133 | 1 | 871191 | £ 100,24 |
| 9,69 | 10 | 99 | 133 | 1 | 871192 | £ 100,24 |
| 9,7 | 10 | 99 | 133 | 1 | 871193 | £ 100,24 |
| 9,71 | 10 | 99 | 133 | 1 | 871194 | £ 100,24 |
| 9,72 | 10 | 99 | 133 | 1 | 871195 | £ 100,24 |
| 9,73 | 10 | 99 | 133 | 1 | 871196 | £ 100,24 |
| 9,74 | 10 | 99 | 133 | 1 | 871197 | £ 100,24 |
| 9,75 | 10 | 99 | 133 | 1 | 871198 | £ 100,24 |
| 9,76 | 10 | 99 | 133 | 1 | 871199 | £ 100,24 |

## HIGH PRECISION MACHINE REAMERS CARBIDE - HPRC

DIN 212B | NFE 66014 | 10°

The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.
Tolerance: From Ø 0.6 to 3.00 = 0 / +3µ - From Ø 3.01 to 6.00 = 0 / +4µ - From Ø 6.01 to 20.00 = 0 / +5µ - Tail diameter h8



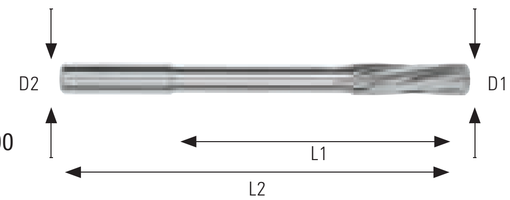

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 9,77 | 10 | 99 | 133 | 1 | 871200 | £ 100,24 |
| 9,78 | 10 | 99 | 133 | 1 | 871201 | £ 100,24 |
| 9,79 | 10 | 99 | 133 | 1 | 871202 | £ 100,24 |
| 9,8 | 10 | 99 | 133 | 1 | 871203 | £ 100,24 |
| 9,81 | 10 | 99 | 133 | 1 | 871204 | £ 100,24 |
| 9,82 | 10 | 99 | 133 | 1 | 871205 | £ 100,24 |
| 9,83 | 10 | 99 | 133 | 1 | 871206 | £ 100,24 |
| 9,84 | 10 | 99 | 133 | 1 | 871207 | £ 100,24 |
| 9,85 | 10 | 99 | 133 | 1 | 871208 | £ 100,24 |
| 9,86 | 10 | 99 | 133 | 1 | 871209 | £ 100,24 |
| 9,87 | 10 | 99 | 133 | 1 | 871210 | £ 100,24 |
| 9,88 | 10 | 99 | 133 | 1 | 871211 | £ 100,24 |
| 9,89 | 10 | 99 | 133 | 1 | 871212 | £ 100,24 |
| 9,9 | 10 | 99 | 133 | 1 | 871213 | £ 100,24 |
| 9,91 | 10 | 99 | 133 | 1 | 871214 | £ 100,24 |
| 9,92 | 10 | 99 | 133 | 1 | 871215 | £ 100,24 |
| 9,93 | 10 | 99 | 133 | 1 | 871216 | £ 100,24 |
| 9,94 | 10 | 99 | 133 | 1 | 871217 | £ 100,24 |
| 9,95 | 10 | 99 | 133 | 1 | 871218 | £ 100,24 |
| 9,96 | 10 | 99 | 133 | 1 | 871219 | £ 100,24 |
| 9,97 | 10 | 99 | 133 | 1 | 871220 | £ 100,24 |
| 9,98 | 10 | 99 | 133 | 1 | 871221 | £ 100,24 |
| 9,99 | 10 | 99 | 133 | 1 | 871222 | £ 100,24 |
| 10 | 10 | 99 | 133 | 1 | 871223 | £ 100,24 |
| 10,01 | 10 | 99 | 133 | 1 | 871224 | £ 100,24 |
| 10,02 | 10 | 99 | 133 | 1 | 871225 | £ 100,24 |
| 10,03 | 10 | 99 | 133 | 1 | 871226 | £ 100,24 |
| 10,04 | 10 | 99 | 133 | 1 | 871227 | £ 100,24 |
| 10,05 | 10 | 99 | 133 | 1 | 871228 | £ 100,24 |
| 10,06 | 10 | 99 | 133 | 1 | 871229 | £ 131,17 |
| 10,07 | 10 | 99 | 133 | 1 | 871230 | £ 131,17 |
| 10,08 | 10 | 99 | 133 | 1 | 871231 | £ 131,17 |
| 10,09 | 10 | 99 | 133 | 1 | 871232 | £ 131,17 |
| 10,1 | 10 | 99 | 133 | 1 | 871233 | £ 131,17 |
| 10,11 | 10 | 99 | 133 | 1 | 871234 | £ 131,17 |
| 10,12 | 10 | 99 | 133 | 1 | 871235 | £ 131,17 |
| 10,13 | 10 | 99 | 133 | 1 | 871236 | £ 131,17 |
| 10,14 | 10 | 99 | 133 | 1 | 871237 | £ 131,17 |
| 10,15 | 10 | 99 | 133 | 1 | 871238 | £ 131,17 |
| 10,16 | 10 | 99 | 133 | 1 | 871239 | £ 131,17 |
| 10,17 | 10 | 99 | 133 | 1 | 871240 | £ 131,17 |
| 10,18 | 10 | 99 | 133 | 1 | 871241 | £ 131,17 |
| 10,19 | 10 | 99 | 133 | 1 | 871242 | £ 131,17 |
| 10,2 | 10 | 99 | 133 | 1 | 871243 | £ 131,17 |
| 10,21 | 10 | 99 | 133 | 1 | 871244 | £ 131,17 |
| 10,22 | 10 | 99 | 133 | 1 | 871245 | £ 131,17 |
| 10,23 | 10 | 99 | 133 | 1 | 871246 | £ 131,17 |
| 10,24 | 10 | 99 | 133 | 1 | 871247 | £ 131,17 |
| 10,25 | 10 | 99 | 133 | 1 | 871248 | £ 131,17 |
| 10,26 | 10 | 99 | 133 | 1 | 871249 | £ 131,17 |
| 10,27 | 10 | 99 | 133 | 1 | 871250 | £ 131,17 |
| 10,28 | 10 | 99 | 133 | 1 | 871251 | £ 131,17 |
| 10,29 | 10 | 99 | 133 | 1 | 871252 | £ 131,17 |
| 10,3 | 10 | 99 | 133 | 1 | 871253 | £ 131,17 |
| 10,31 | 10 | 99 | 133 | 1 | 871254 | £ 131,17 |
| 10,32 | 10 | 99 | 133 | 1 | 871255 | £ 131,17 |
| 10,33 | 10 | 99 | 133 | 1 | 871256 | £ 131,17 |
| 10,34 | 10 | 99 | 133 | 1 | 871257 | £ 131,17 |
| 10,35 | 10 | 99 | 133 | 1 | 871258 | £ 131,17 |

| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Cutting | L2<br>L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 10,36 | 10 | 99 | 133 | 1 | 871259 | £ 131,17 |
| 10,37 | 10 | 99 | 133 | 1 | 871260 | £ 131,17 |
| 10,38 | 10 | 99 | 133 | 1 | 871261 | £ 131,17 |
| 10,39 | 10 | 99 | 133 | 1 | 871262 | £ 131,17 |
| 10,4 | 10 | 99 | 133 | 1 | 871263 | £ 131,17 |
| 10,41 | 10 | 99 | 133 | 1 | 871264 | £ 131,17 |
| 10,42 | 10 | 99 | 133 | 1 | 871265 | £ 131,17 |
| 10,43 | 10 | 99 | 133 | 1 | 871266 | £ 131,17 |
| 10,44 | 10 | 99 | 133 | 1 | 871267 | £ 131,17 |
| 10,45 | 10 | 99 | 133 | 1 | 871268 | £ 131,17 |
| 10,46 | 10 | 99 | 133 | 1 | 871269 | £ 131,17 |
| 10,47 | 10 | 99 | 133 | 1 | 871270 | £ 131,17 |
| 10,48 | 10 | 99 | 133 | 1 | 871271 | £ 131,17 |
| 10,49 | 10 | 99 | 133 | 1 | 871272 | £ 131,17 |
| 10,5 | 10 | 99 | 133 | 1 | 871273 | £ 131,17 |
| 10,51 | 10 | 99 | 133 | 1 | 871274 | £ 131,17 |
| 10,52 | 10 | 99 | 133 | 1 | 871275 | £ 131,17 |
| 10,53 | 10 | 99 | 133 | 1 | 871276 | £ 131,17 |
| 10,54 | 10 | 99 | 133 | 1 | 871277 | £ 131,17 |
| 10,55 | 10 | 99 | 133 | 1 | 871278 | £ 131,17 |
| 10,56 | 10 | 99 | 133 | 1 | 871279 | £ 131,17 |
| 10,57 | 10 | 99 | 133 | 1 | 871280 | £ 131,17 |
| 10,58 | 10 | 99 | 133 | 1 | 871281 | £ 131,17 |
| 10,59 | 10 | 99 | 133 | 1 | 871282 | £ 131,17 |
| 10,6 | 10 | 99 | 133 | 1 | 871283 | £ 131,17 |
| 10,61 | 10 | 99 | 133 | 1 | 871284 | £ 131,17 |
| 10,62 | 10 | 99 | 133 | 1 | 871285 | £ 131,17 |
| 10,63 | 10 | 99 | 133 | 1 | 871286 | £ 131,17 |
| 10,64 | 10 | 99 | 133 | 1 | 871287 | £ 131,17 |
| 10,65 | 10 | 99 | 133 | 1 | 871288 | £ 131,17 |
| 10,66 | 10 | 99 | 133 | 1 | 871289 | £ 131,17 |
| 10,67 | 10 | 99 | 133 | 1 | 871290 | £ 131,17 |
| 10,68 | 10 | 99 | 133 | 1 | 871291 | £ 131,17 |
| 10,69 | 10 | 99 | 133 | 1 | 871292 | £ 131,17 |
| 10,7 | 10 | 99 | 133 | 1 | 871293 | £ 131,17 |
| 10,71 | 10 | 99 | 133 | 1 | 871294 | £ 131,17 |
| 10,72 | 10 | 99 | 133 | 1 | 871295 | £ 131,17 |
| 10,73 | 10 | 99 | 133 | 1 | 871296 | £ 131,17 |
| 10,74 | 10 | 99 | 133 | 1 | 871297 | £ 131,17 |
| 10,75 | 10 | 99 | 133 | 1 | 871298 | £ 131,17 |
| 10,76 | 10 | 99 | 133 | 1 | 871299 | £ 131,17 |
| 10,77 | 10 | 99 | 133 | 1 | 871300 | £ 131,17 |
| 10,78 | 10 | 99 | 133 | 1 | 871301 | £ 131,17 |
| 10,79 | 10 | 99 | 133 | 1 | 871302 | £ 131,17 |
| 10,8 | 10 | 99 | 133 | 1 | 871303 | £ 131,17 |
| 10,81 | 10 | 99 | 133 | 1 | 871304 | £ 131,17 |
| 10,82 | 10 | 99 | 133 | 1 | 871305 | £ 131,17 |
| 10,83 | 10 | 99 | 133 | 1 | 871306 | £ 131,17 |
| 10,84 | 10 | 99 | 133 | 1 | 871307 | £ 131,17 |
| 10,85 | 10 | 99 | 133 | 1 | 871308 | £ 131,17 |
| 10,86 | 10 | 99 | 133 | 1 | 871309 | £ 131,17 |
| 10,87 | 10 | 99 | 133 | 1 | 871310 | £ 131,17 |
| 10,88 | 10 | 99 | 133 | 1 | 871311 | £ 131,17 |
| 10,89 | 10 | 99 | 133 | 1 | 871312 | £ 131,17 |
| 10,9 | 10 | 99 | 133 | 1 | 871313 | £ 131,17 |
| 10,91 | 10 | 99 | 133 | 1 | 871314 | £ 131,17 |
| 10,92 | 10 | 99 | 133 | 1 | 871315 | £ 131,17 |
| 10,93 | 10 | 99 | 133 | 1 | 871316 | £ 131,17 |
| 10,94 | 10 | 99 | 133 | 1 | 871317 | £ 131,17 |
| 10,95 | 10 | 99 | 133 | 1 | 871318 | £ 131,17 |
| 10,96 | 10 | 99 | 133 | 1 | 871319 | £ 131,17 |
| 10,97 | 10 | 99 | 133 | 1 | 871320 | £ 131,17 |
| 10,98 | 10 | 99 | 133 | 1 | 871321 | £ 131,17 |
| 10,99 | 10 | 99 | 133 | 1 | 871322 | £ 131,17 |
| 11 | 10 | 99 | 133 | 1 | 871323 | £ 131,17 |
| 11,01 | 10 | 99 | 133 | 1 | 871324 | £ 131,17 |
| 11,02 | 10 | 99 | 133 | 1 | 871325 | £ 131,17 |
| 11,03 | 10 | 99 | 133 | 1 | 871326 | £ 131,17 |
| 11,04 | 10 | 99 | 133 | 1 | 871327 | £ 131,17 |
| 11,05 | 10 | 99 | 133 | 1 | 871328 | £ 131,17 |
| 11,06 | 10 | 99 | 133 | 1 | 871329 | £ 138,64 |
| 11,07 | 10 | 99 | 133 | 1 | 871330 | £ 138,64 |

CUTTING TOOLS

## HIGH PRECISION MACHINE REAMERS CARBIDE - HPRC

DIN 212B | NFE 66014 | 10°



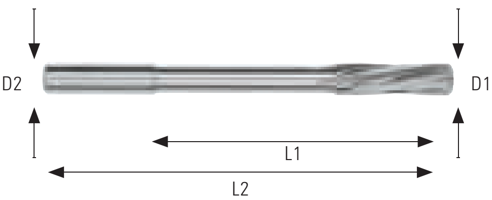

The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.
Tolerance: From Ø 0.6 to 3.00 = 0 / +3µ - From Ø 3.01 to 6.00 = 0 / +4µ - From Ø 6.01 to 20.00 = 0 / +5µ - Tail diameter h8

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 11,08 | 10 | 99 | 133 | 1 | 871331 | £ 138,64 |
| 11,09 | 10 | 99 | 133 | 1 | 871332 | £ 138,64 |
| 11,1 | 10 | 99 | 133 | 1 | 871333 | £ 138,64 |
| 11,11 | 10 | 99 | 133 | 1 | 871334 | £ 138,64 |
| 11,12 | 10 | 99 | 133 | 1 | 871335 | £ 138,64 |
| 11,13 | 10 | 99 | 133 | 1 | 871336 | £ 138,64 |
| 11,14 | 10 | 99 | 133 | 1 | 871337 | £ 138,64 |
| 11,15 | 10 | 99 | 133 | 1 | 871338 | £ 138,64 |
| 11,16 | 10 | 99 | 133 | 1 | 871339 | £ 138,64 |
| 11,17 | 10 | 99 | 133 | 1 | 871340 | £ 138,64 |
| 11,18 | 10 | 99 | 133 | 1 | 871341 | £ 138,64 |
| 11,19 | 10 | 99 | 133 | 1 | 871342 | £ 138,64 |
| 11,2 | 10 | 99 | 133 | 1 | 871343 | £ 138,64 |
| 11,21 | 10 | 99 | 133 | 1 | 871344 | £ 138,64 |
| 11,22 | 10 | 99 | 133 | 1 | 871345 | £ 138,64 |
| 11,23 | 10 | 99 | 133 | 1 | 871346 | £ 138,64 |
| 11,24 | 10 | 99 | 133 | 1 | 871347 | £ 138,64 |
| 11,25 | 10 | 99 | 133 | 1 | 871348 | £ 138,64 |
| 11,26 | 10 | 99 | 133 | 1 | 871349 | £ 138,64 |
| 11,27 | 10 | 99 | 133 | 1 | 871350 | £ 138,64 |
| 11,28 | 10 | 99 | 133 | 1 | 871351 | £ 138,64 |
| 11,29 | 10 | 99 | 133 | 1 | 871352 | £ 138,64 |
| 11,3 | 10 | 99 | 133 | 1 | 871353 | £ 138,64 |
| 11,31 | 12 | 106 | 151 | 1 | 871354 | £ 138,64 |
| 11,32 | 12 | 106 | 151 | 1 | 871355 | £ 138,64 |
| 11,33 | 12 | 106 | 151 | 1 | 871356 | £ 138,64 |
| 11,34 | 12 | 106 | 151 | 1 | 871357 | £ 138,64 |
| 11,35 | 12 | 106 | 151 | 1 | 871358 | £ 138,64 |
| 11,36 | 12 | 106 | 151 | 1 | 871359 | £ 138,64 |
| 11,37 | 12 | 106 | 151 | 1 | 871360 | £ 138,64 |
| 11,38 | 12 | 106 | 151 | 1 | 871361 | £ 138,64 |
| 11,39 | 12 | 106 | 151 | 1 | 871362 | £ 138,64 |
| 11,4 | 12 | 106 | 151 | 1 | 871363 | £ 138,64 |
| 11,41 | 12 | 106 | 151 | 1 | 871364 | £ 138,64 |
| 11,42 | 12 | 106 | 151 | 1 | 871365 | £ 138,64 |
| 11,43 | 12 | 106 | 151 | 1 | 871366 | £ 138,64 |
| 11,44 | 12 | 106 | 151 | 1 | 871367 | £ 138,64 |
| 11,45 | 12 | 106 | 151 | 1 | 871368 | £ 138,64 |
| 11,46 | 12 | 106 | 151 | 1 | 871369 | £ 138,64 |
| 11,47 | 12 | 106 | 151 | 1 | 871370 | £ 138,64 |
| 11,48 | 12 | 106 | 151 | 1 | 871371 | £ 138,64 |
| 11,49 | 12 | 106 | 151 | 1 | 871372 | £ 138,64 |
| 11,5 | 12 | 106 | 151 | 1 | 871373 | £ 138,64 |
| 11,51 | 12 | 106 | 151 | 1 | 871374 | £ 138,64 |
| 11,52 | 12 | 106 | 151 | 1 | 871375 | £ 138,64 |
| 11,53 | 12 | 106 | 151 | 1 | 871376 | £ 138,64 |
| 11,54 | 12 | 106 | 151 | 1 | 871377 | £ 138,64 |
| 11,55 | 12 | 106 | 151 | 1 | 871378 | £ 138,64 |
| 11,56 | 12 | 106 | 151 | 1 | 871379 | £ 138,64 |
| 11,57 | 12 | 106 | 151 | 1 | 871380 | £ 138,64 |
| 11,58 | 12 | 106 | 151 | 1 | 871381 | £ 138,64 |
| 11,59 | 12 | 106 | 151 | 1 | 871382 | £ 138,64 |
| 11,6 | 12 | 106 | 151 | 1 | 871383 | £ 138,64 |
| 11,61 | 12 | 106 | 151 | 1 | 871384 | £ 138,64 |
| 11,62 | 12 | 106 | 151 | 1 | 871385 | £ 138,64 |
| 11,63 | 12 | 106 | 151 | 1 | 871386 | £ 138,64 |
| 11,64 | 12 | 106 | 151 | 1 | 871387 | £ 138,64 |
| 11,65 | 12 | 106 | 151 | 1 | 871388 | £ 138,64 |
| 11,66 | 12 | 106 | 151 | 1 | 871389 | £ 138,64 |

| D1<br>Ø Nominal | D2<br>Ø Shank | L1<br>L. Cutting | L2<br>L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 11,67 | 12 | 106 | 151 | 1 | 871390 | £ 138,64 |
| 11,68 | 12 | 106 | 151 | 1 | 871391 | £ 138,64 |
| 11,69 | 12 | 106 | 151 | 1 | 871392 | £ 138,64 |
| 11,7 | 12 | 106 | 151 | 1 | 871393 | £ 138,64 |
| 11,71 | 12 | 106 | 151 | 1 | 871394 | £ 138,64 |
| 11,72 | 12 | 106 | 151 | 1 | 871395 | £ 138,64 |
| 11,73 | 12 | 106 | 151 | 1 | 871396 | £ 138,64 |
| 11,74 | 12 | 106 | 151 | 1 | 871397 | £ 138,64 |
| 11,75 | 12 | 106 | 151 | 1 | 871398 | £ 138,64 |
| 11,76 | 12 | 106 | 151 | 1 | 871399 | £ 138,64 |
| 11,77 | 12 | 106 | 151 | 1 | 871400 | £ 138,64 |
| 11,78 | 12 | 106 | 151 | 1 | 871401 | £ 138,64 |
| 11,79 | 12 | 106 | 151 | 1 | 871402 | £ 138,64 |
| 11,8 | 12 | 106 | 151 | 1 | 871403 | £ 138,64 |
| 11,81 | 12 | 106 | 151 | 1 | 871404 | £ 138,64 |
| 11,82 | 12 | 106 | 151 | 1 | 871405 | £ 138,64 |
| 11,83 | 12 | 106 | 151 | 1 | 871406 | £ 138,64 |
| 11,84 | 12 | 106 | 151 | 1 | 871407 | £ 138,64 |
| 11,85 | 12 | 106 | 151 | 1 | 871408 | £ 138,64 |
| 11,86 | 12 | 106 | 151 | 1 | 871409 | £ 138,64 |
| 11,87 | 12 | 106 | 151 | 1 | 871410 | £ 138,64 |
| 11,88 | 12 | 106 | 151 | 1 | 871411 | £ 138,64 |
| 11,89 | 12 | 106 | 151 | 1 | 871412 | £ 138,64 |
| 11,9 | 12 | 106 | 151 | 1 | 871413 | £ 138,64 |
| 11,91 | 12 | 106 | 151 | 1 | 871414 | £ 138,64 |
| 11,92 | 12 | 106 | 151 | 1 | 871415 | £ 138,64 |
| 11,93 | 12 | 106 | 151 | 1 | 871416 | £ 138,64 |
| 11,94 | 12 | 106 | 151 | 1 | 871417 | £ 138,64 |
| 11,95 | 12 | 106 | 151 | 1 | 871418 | £ 138,64 |
| 11,96 | 12 | 106 | 151 | 1 | 871419 | £ 138,64 |
| 11,97 | 12 | 106 | 151 | 1 | 871420 | £ 138,64 |
| 11,98 | 12 | 106 | 151 | 1 | 871421 | £ 138,64 |
| 11,99 | 12 | 106 | 151 | 1 | 871422 | £ 138,64 |
| 12 | 12 | 106 | 151 | 1 | 871423 | £ 138,64 |
| 12,01 | 12 | 106 | 151 | 1 | 871424 | £ 138,64 |
| 12,02 | 12 | 106 | 151 | 1 | 871425 | £ 138,64 |
| 12,03 | 12 | 106 | 151 | 1 | 871426 | £ 138,64 |
| 12,04 | 12 | 106 | 151 | 1 | 871427 | £ 138,64 |
| 12,05 | 12 | 106 | 151 | 1 | 871428 | £ 138,64 |
| 12,06 | 12 | 106 | 151 | 1 | 871429 | £ 165,30 |
| 12,07 | 12 | 106 | 151 | 1 | 871430 | £ 165,30 |
| 12,08 | 12 | 106 | 151 | 1 | 871431 | £ 165,30 |
| 12,09 | 12 | 106 | 151 | 1 | 871432 | £ 165,30 |
| 12,1 | 12 | 106 | 151 | 1 | 871433 | £ 165,30 |
| 12,11 | 12 | 106 | 151 | 1 | 871434 | £ 165,30 |
| 12,12 | 12 | 106 | 151 | 1 | 871435 | £ 165,30 |
| 12,13 | 12 | 106 | 151 | 1 | 871436 | £ 165,30 |
| 12,14 | 12 | 106 | 151 | 1 | 871437 | £ 165,30 |
| 12,15 | 12 | 106 | 151 | 1 | 871438 | £ 165,30 |
| 12,16 | 12 | 106 | 151 | 1 | 871439 | £ 165,30 |
| 12,17 | 12 | 106 | 151 | 1 | 871440 | £ 165,30 |
| 12,18 | 12 | 106 | 151 | 1 | 871441 | £ 165,30 |
| 12,19 | 12 | 106 | 151 | 1 | 871442 | £ 165,30 |
| 12,2 | 12 | 106 | 151 | 1 | 871443 | £ 165,30 |
| 12,21 | 12 | 106 | 151 | 1 | 871444 | £ 165,30 |
| 12,22 | 12 | 106 | 151 | 1 | 871445 | £ 165,30 |
| 12,23 | 12 | 106 | 151 | 1 | 871446 | £ 165,30 |
| 12,24 | 12 | 106 | 151 | 1 | 871447 | £ 165,30 |
| 12,25 | 12 | 106 | 151 | 1 | 871448 | £ 165,30 |
| 12,26 | 12 | 106 | 151 | 1 | 871449 | £ 165,30 |
| 12,27 | 12 | 106 | 151 | 1 | 871450 | £ 165,30 |
| 12,28 | 12 | 106 | 151 | 1 | 871451 | £ 165,30 |
| 12,29 | 12 | 106 | 151 | 1 | 871452 | £ 165,30 |
| 12,3 | 12 | 106 | 151 | 1 | 871453 | £ 165,30 |
| 12,31 | 12 | 106 | 151 | 1 | 871454 | £ 165,30 |
| 12,32 | 12 | 106 | 151 | 1 | 871455 | £ 165,30 |
| 12,33 | 12 | 106 | 151 | 1 | 871456 | £ 165,30 |
| 12,34 | 12 | 106 | 151 | 1 | 871457 | £ 165,30 |
| 12,35 | 12 | 106 | 151 | 1 | 871458 | £ 165,30 |
| 12,36 | 12 | 106 | 151 | 1 | 871459 | £ 165,30 |
| 12,37 | 12 | 106 | 151 | 1 | 871460 | £ 165,30 |
| 12,38 | 12 | 106 | 151 | 1 | 871461 | £ 165,30 |

## HIGH PRECISION MACHINE REAMERS CARBIDE - HPRC

DIN 212B | NFE 66014 | 10°



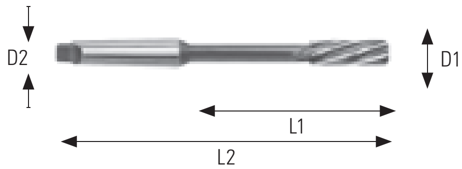

The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.
Tolerance: From Ø 0.6 to 3.00 = 0 / +3µ - From Ø 3.01 to 6.00 = 0 / +4µ - From Ø 6.01 to 20.00 = 0 / +5µ - Tail diameter h8

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 12,39 | 12 | 106 | 151 | 1 | 871462 | £ 165,30 |
| 12,4 | 12 | 106 | 151 | 1 | 871463 | £ 165,30 |
| 12,41 | 12 | 106 | 151 | 1 | 871464 | £ 165,30 |
| 12,42 | 12 | 106 | 151 | 1 | 871465 | £ 165,30 |
| 12,43 | 12 | 106 | 151 | 1 | 871466 | £ 165,30 |
| 12,44 | 12 | 106 | 151 | 1 | 871467 | £ 165,30 |
| 12,45 | 12 | 106 | 151 | 1 | 871468 | £ 165,30 |
| 12,46 | 12 | 106 | 151 | 1 | 871469 | £ 165,30 |
| 12,47 | 12 | 106 | 151 | 1 | 871470 | £ 165,30 |
| 12,48 | 12 | 106 | 151 | 1 | 871471 | £ 165,30 |
| 12,49 | 12 | 106 | 151 | 1 | 871472 | £ 165,30 |
| 12,5 | 12 | 106 | 151 | 1 | 871473 | £ 165,30 |
| 12,51 | 12 | 106 | 151 | 1 | 871474 | £ 165,30 |
| 12,52 | 12 | 106 | 151 | 1 | 871475 | £ 165,30 |
| 12,53 | 12 | 106 | 151 | 1 | 871476 | £ 165,30 |
| 12,54 | 12 | 106 | 151 | 1 | 871477 | £ 165,30 |
| 12,55 | 12 | 106 | 151 | 1 | 871478 | £ 165,30 |
| 12,56 | 12 | 106 | 151 | 1 | 871479 | £ 165,30 |
| 12,57 | 12 | 106 | 151 | 1 | 871480 | £ 165,30 |
| 12,58 | 12 | 106 | 151 | 1 | 871481 | £ 165,30 |
| 12,59 | 12 | 106 | 151 | 1 | 871482 | £ 165,30 |
| 12,6 | 12 | 106 | 151 | 1 | 871483 | £ 165,30 |
| 12,61 | 12 | 106 | 151 | 1 | 871484 | £ 165,30 |
| 12,62 | 12 | 106 | 151 | 1 | 871485 | £ 165,30 |
| 12,63 | 12 | 106 | 151 | 1 | 871486 | £ 165,30 |
| 12,64 | 12 | 106 | 151 | 1 | 871487 | £ 165,30 |
| 12,65 | 12 | 106 | 151 | 1 | 871488 | £ 165,30 |
| 12,66 | 12 | 106 | 151 | 1 | 871489 | £ 165,30 |
| 12,67 | 12 | 106 | 151 | 1 | 871490 | £ 165,30 |
| 12,68 | 12 | 106 | 151 | 1 | 871491 | £ 165,30 |
| 12,69 | 12 | 106 | 151 | 1 | 871492 | £ 165,30 |
| 12,7 | 12 | 106 | 151 | 1 | 871493 | £ 165,30 |
| 12,71 | 12 | 106 | 151 | 1 | 871494 | £ 165,30 |
| 12,72 | 12 | 106 | 151 | 1 | 871495 | £ 165,30 |
| 12,73 | 12 | 106 | 151 | 1 | 871496 | £ 165,30 |
| 12,74 | 12 | 106 | 151 | 1 | 871497 | £ 165,30 |
| 12,75 | 12 | 106 | 151 | 1 | 871498 | £ 165,30 |
| 12,76 | 12 | 106 | 151 | 1 | 871499 | £ 165,30 |
| 12,77 | 12 | 106 | 151 | 1 | 871500 | £ 165,30 |
| 12,78 | 12 | 106 | 151 | 1 | 871501 | £ 165,30 |
| 12,79 | 12 | 106 | 151 | 1 | 871502 | £ 165,30 |
| 12,8 | 12 | 106 | 151 | 1 | 871503 | £ 165,30 |
| 12,81 | 12 | 106 | 151 | 1 | 871504 | £ 165,30 |
| 12,82 | 12 | 106 | 151 | 1 | 871505 | £ 165,30 |
| 12,83 | 12 | 106 | 151 | 1 | 871506 | £ 165,30 |
| 12,84 | 12 | 106 | 151 | 1 | 871507 | £ 165,30 |
| 12,85 | 12 | 106 | 151 | 1 | 871508 | £ 165,30 |
| 12,86 | 12 | 106 | 151 | 1 | 871509 | £ 165,30 |
| 12,87 | 12 | 106 | 151 | 1 | 871510 | £ 165,30 |
| 12,88 | 12 | 106 | 151 | 1 | 871511 | £ 165,30 |
| 12,89 | 12 | 106 | 151 | 1 | 871512 | £ 165,30 |
| 12,9 | 12 | 106 | 151 | 1 | 871513 | £ 165,30 |
| 12,91 | 12 | 106 | 151 | 1 | 871514 | £ 165,30 |
| 12,92 | 12 | 106 | 151 | 1 | 871515 | £ 165,30 |
| 12,93 | 12 | 106 | 151 | 1 | 871516 | £ 165,30 |
| 12,94 | 12 | 106 | 151 | 1 | 871517 | £ 165,30 |
| 12,95 | 12 | 106 | 151 | 1 | 871518 | £ 165,30 |
| 12,96 | 12 | 106 | 151 | 1 | 871519 | £ 165,30 |
| 12,97 | 12 | 106 | 151 | 1 | 871520 | £ 165,30 |

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 12,98 | 12 | 106 | 151 | 1 | 871521 | £ 165,30 |
| 12,99 | 12 | 106 | 151 | 1 | 871522 | £ 165,30 |
| 13 | 12 | 106 | 151 | 1 | 871523 | £ 165,30 |
| 13,01 | 12 | 106 | 151 | 1 | 871524 | £ 165,30 |
| 13,02 | 12 | 106 | 151 | 1 | 871525 | £ 165,30 |
| 13,03 | 12 | 106 | 151 | 1 | 871526 | £ 165,30 |
| 13,04 | 12 | 106 | 151 | 1 | 871527 | £ 165,30 |
| 13,05 | 12 | 106 | 151 | 1 | 871528 | £ 165,30 |
| 13,97 | 14 | 110 | 160 | 1 | 871529 | £ 223,95 |
| 13,98 | 14 | 110 | 160 | 1 | 871530 | £ 223,95 |
| 13,99 | 14 | 110 | 160 | 1 | 871531 | £ 223,95 |
| 14 | 14 | 110 | 160 | 1 | 871532 | £ 223,95 |
| 14,01 | 14 | 110 | 160 | 1 | 871533 | £ 223,95 |
| 14,02 | 14 | 110 | 160 | 1 | 871534 | £ 223,95 |
| 14,03 | 14 | 110 | 160 | 1 | 871535 | £ 223,95 |
| 14,04 | 14 | 110 | 160 | 1 | 871536 | £ 223,95 |
| 14,05 | 14 | 110 | 160 | 1 | 871537 | £ 223,95 |
| 14,97 | 14 | 112 | 162 | 1 | 871538 | £ 255,94 |
| 14,98 | 14 | 112 | 162 | 1 | 871539 | £ 255,94 |
| 14,99 | 14 | 112 | 162 | 1 | 871540 | £ 255,94 |
| 15 | 14 | 112 | 162 | 1 | 871541 | £ 255,94 |
| 15,01 | 14 | 112 | 162 | 1 | 871542 | £ 255,94 |
| 15,02 | 14 | 112 | 162 | 1 | 871543 | £ 255,94 |
| 15,03 | 14 | 112 | 162 | 1 | 871544 | £ 255,94 |
| 15,04 | 14 | 112 | 162 | 1 | 871545 | £ 255,94 |
| 15,05 | 14 | 112 | 162 | 1 | 871546 | £ 255,94 |
| 15,97 | 16 | 117 | 170 | 1 | 871547 | £ 266,61 |
| 15,98 | 16 | 117 | 170 | 1 | 871548 | £ 266,61 |
| 15,99 | 16 | 117 | 170 | 1 | 871549 | £ 266,61 |
| 16 | 16 | 117 | 170 | 1 | 871550 | £ 266,61 |
| 16,01 | 16 | 117 | 170 | 1 | 871551 | £ 266,61 |
| 16,02 | 16 | 117 | 170 | 1 | 871552 | £ 266,61 |
| 16,03 | 16 | 117 | 170 | 1 | 871553 | £ 266,61 |
| 16,04 | 16 | 117 | 170 | 1 | 871554 | £ 266,61 |
| 16,05 | 16 | 117 | 170 | 1 | 871555 | £ 266,61 |
| 16,97 | 16 | 122 | 175 | 1 | 871556 | £ 330,59 |
| 16,98 | 16 | 122 | 175 | 1 | 871557 | £ 330,59 |
| 16,99 | 16 | 122 | 175 | 1 | 871558 | £ 330,59 |
| 17 | 16 | 122 | 175 | 1 | 871559 | £ 330,59 |
| 17,01 | 16 | 122 | 175 | 1 | 871560 | £ 330,59 |
| 17,02 | 16 | 122 | 175 | 1 | 871561 | £ 330,59 |
| 17,03 | 16 | 122 | 175 | 1 | 871562 | £ 330,59 |
| 17,04 | 16 | 122 | 175 | 1 | 871563 | £ 330,59 |
| 17,05 | 16 | 122 | 175 | 1 | 871564 | £ 330,59 |
| 17,97 | 16 | 129 | 182 | 1 | 871565 | £ 341,26 |
| 17,98 | 16 | 129 | 182 | 1 | 871566 | £ 341,26 |
| 17,99 | 16 | 129 | 182 | 1 | 871567 | £ 341,26 |
| 18 | 16 | 129 | 182 | 1 | 871568 | £ 341,26 |
| 18,01 | 16 | 129 | 182 | 1 | 871569 | £ 341,26 |
| 18,02 | 16 | 129 | 182 | 1 | 871570 | £ 341,26 |
| 18,03 | 16 | 129 | 182 | 1 | 871571 | £ 341,26 |
| 18,04 | 16 | 129 | 182 | 1 | 871572 | £ 341,26 |
| 18,05 | 16 | 129 | 182 | 1 | 871573 | £ 341,26 |
| 18,97 | 16 | 136 | 189 | 1 | 871574 | £ 373,25 |
| 18,98 | 16 | 136 | 189 | 1 | 871575 | £ 373,25 |
| 18,99 | 16 | 136 | 189 | 1 | 871576 | £ 373,25 |
| 19 | 16 | 136 | 189 | 1 | 871577 | £ 373,25 |
| 19,01 | 16 | 136 | 189 | 1 | 871578 | £ 373,25 |
| 19,02 | 16 | 136 | 189 | 1 | 871579 | £ 373,25 |
| 19,03 | 16 | 136 | 189 | 1 | 871580 | £ 373,25 |
| 19,04 | 16 | 136 | 189 | 1 | 871581 | £ 373,25 |
| 19,05 | 16 | 136 | 189 | 1 | 871582 | £ 373,25 |
| 19,97 | 16 | 142 | 195 | 1 | 871583 | £ 383,92 |
| 19,98 | 16 | 142 | 195 | 1 | 871584 | £ 383,92 |
| 19,99 | 16 | 142 | 195 | 1 | 871585 | £ 383,92 |
| 20 | 16 | 142 | 195 | 1 | 871586 | £ 383,92 |
| 20,01 | 16 | 142 | 195 | 1 | 871587 | £ 383,92 |
| 20,02 | 16 | 142 | 195 | 1 | 871588 | £ 383,92 |
| 20,03 | 16 | 142 | 195 | 1 | 871589 | £ 383,92 |
| 20,04 | 16 | 142 | 195 | 1 | 871590 | £ 383,92 |
| 20,05 | 16 | 142 | 195 | 1 | 871591 | £ 383,92 |

## MACHINE REAMER TAPER SHANK H7 HSS CO5

DIN 208B



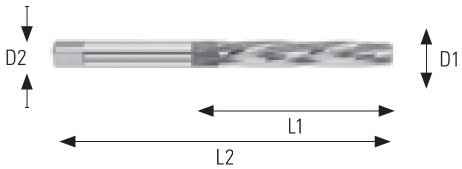

The left flute and the straight cut Improve lubrication and cooling. Recommended for through-bores.

| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 10 | CM1 | 102 | 168 | 1 | 869717 | £ 37,30 |
| 12 | CM1 | 116 | 182 | 1 | 869718 | £ 40,69 |
| 12.7 (1/2") | CM1 | 116 | 182 | 1 | 869719 | £ 43,59 |
| 14 | CM1 | 123 | 189 | 1 | 869720 | £ 45,05 |
| 15 | CM2 | 124 | 204 | 1 | 869721 | £ 55,70 |
| 16 | CM2 | 130 | 210 | 1 | 869722 | £ 58,13 |
| 18 | CM2 | 139 | 219 | 1 | 869723 | £ 62,97 |
| 19.05 ( 3/4" ) | CM2 | 148 | 228 | 1 | 869724 | £ 67,81 |
| 20 | CM2 | 148 | 228 | 1 | 869725 | £ 67,81 |
| 21 | CM2 | 152 | 232 | 1 | 869726 | £ 77,50 |
| 22 | CM2 | 157 | 237 | 1 | 869727 | £ 77,50 |
| 22.225 ( 7/8" ) | CM2 | 157 | 237 | 1 | 869728 | £ 102,26 |
| 24 | CM3 | 168 | 268 | 1 | 869729 | £ 106,56 |
| 25 | CM3 | 168 | 268 | 1 | 869730 | £ 111,41 |
| 25.4 ( 1" ) | CM3 | 173 | 273 | 1 | 869731 | £ 116,25 |
| 26 | CM3 | 173 | 273 | 1 | 869732 | £ 116,25 |
| 27 | CM3 | 177 | 277 | 1 | 869733 | £ 130,78 |
| 28 | CM3 | 177 | 277 | 1 | 869734 | £ 130,78 |
| 29 | CM3 | 181 | 281 | 1 | 869735 | £ 145,31 |
| 30 | CM3 | 181 | 281 | 1 | 869736 | £ 145,31 |

# HAND REAMER H7 HSS

DIN 206B

Conical on the tip.

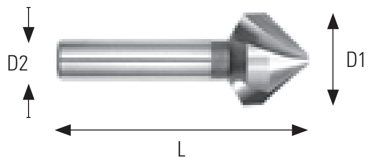



| D1 Ø Nominal | D2 Ø Shank | L1 L. Cutting | L2 L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 2 | 2 | 25 | 50 | 1 | 869758 | £ 23,25 |
| 3 | 3 | 31 | 66 | 1 | 869759 | £ 22,28 |
| 4 | 4 | 38 | 76 | 1 | 869760 | £ 23,25 |
| 5 | 5 | 44 | 87 | 1 | 869761 | £ 24,22 |
| 6 | 6 | 47 | 93 | 1 | 869762 | £ 25,19 |
| 7 | 7 | 54 | 107 | 1 | 869763 | £ 31,48 |
| 8 | 8 | 58 | 115 | 1 | 869764 | £ 28,09 |
| 9 | 9 | 62 | 124 | 1 | 869765 | £ 36,33 |
| 10 | 10 | 66 | 133 | 1 | 869766 | £ 31,48 |
| 11 | 11 | 71 | 142 | 1 | 869767 | £ 44,56 |
| 12 | 12 | 76 | 152 | 1 | 869768 | £ 39,23 |
| 13 | 13 | 76 | 152 | 1 | 869769 | £ 46,50 |
| 14 | 14 | 81 | 163 | 1 | 869770 | £ 48,44 |
| 15 | 15 | 81 | 163 | 1 | 869771 | £ 52,31 |
| 16 | 16 | 87 | 175 | 1 | 869772 | £ 54,25 |
| 17 | 17 | 87 | 175 | 1 | 869773 | £ 67,81 |
| 18 | 18 | 93 | 188 | 1 | 869774 | £ 67,81 |
| 19 | 19 | 93 | 188 | 1 | 869775 | £ 77,50 |
| 20 | 20 | 100 | 201 | 1 | 869776 | £ 77,50 |

## COUNTERSINKS «EASYCUT» - HSS CO5 - 90°

DIN 335C

Unequal flutes reduce vibrations for better surface finish and drilling.

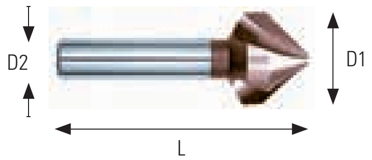



| D1 Ø Nominal | D2 Ø Shank | L. Overall | Number of teeth | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 4,3 | 4 | 40 | 3 | 1 | 869738 | £ 10,05 |
| 6,3 | 5 | 45 | 3 | 1 | 869739 | £ 11,10 |
| 8,3 | 6 | 50 | 3 | 1 | 869740 | £ 12,48 |
| 10,4 | 6 | 50 | 3 | 1 | 869741 | £ 14,49 |
| 12,4 | 8 | 56 | 3 | 1 | 869742 | £ 17,22 |
| 16,5 | 10 | 60 | 3 | 1 | 869743 | £ 22,72 |
| 20,5 | 10 | 63 | 3 | 1 | 869744 | £ 27,05 |
| 25 | 10 | 67 | 3 | 1 | 869745 | £ 33,81 |
| 31 | 12 | 71 | 3 | 1 | 869746 | £ 47,84 |

## COUNTERSINKS «EASYCUT» - HSS CO5 - HDMX - 90°

DIN 335C

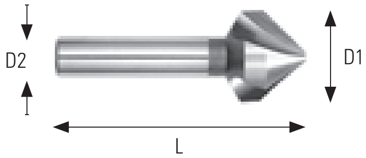
Unequal flutes reduce vibrations for better surface finish and drilling.




| D1 Ø Nominal | D2 Ø Shank | L. Overall | Number of teeth | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 4,3 | 4 | 40 | 3 | 1 | 869748 | £ 13,75 |
| 6,3 | 5 | 45 | 3 | 1 | 869749 | £ 14,55 |
| 8,3 | 6 | 50 | 3 | 1 | 869750 | £ 16,35 |
| 10,4 | 6 | 50 | 3 | 1 | 869751 | £ 18,94 |
| 12,4 | 8 | 56 | 3 | 1 | 869752 | £ 22,33 |
| 16,5 | 10 | 60 | 3 | 1 | 869753 | £ 29,10 |
| 20,5 | 10 | 63 | 3 | 1 | 869754 | £ 35,28 |
| 25 | 10 | 67 | 3 | 1 | 869755 | £ 44,45 |
| 31 | 12 | 71 | 3 | 1 | 869756 | £ 60,20 |

## COUNTERINK HSS 90°

DIN 335C




| D1 Ø Nominal | D2 Ø Shank | L L. Overall | Number of teeth | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 6.3 | 5 | 45 | 3 | 1 | 847329 | £ 7,00 |
| 8.3 | 6 | 50 | 3 | 1 | 847330 | £ 8,13 |
| 10.4 | 6 | 50 | 3 | 1 | 847331 | £ 9,37 |
| 12.4 | 8 | 56 | 3 | 1 | 847332 | £ 10,80 |
| 14.4 | 8 | 56 | 3 | 1 | 847333 | £ 12,86 |
| 16.5 | 8 | 56 | 3 | 1 | 847334 | £ 13,47 |
| 20.5 | 10 | 63 | 3 | 1 | 847335 | £ 15,23 |
| 25 | 10 | 67 | 3 | 1 | 847336 | £ 19,36 |
| 31 | 12 | 71 | 3 | 1 | 847337 | £ 26,85 |

## SET OF 5 COUTERSINK 90° - HSS

DIN 335C

| Number | The set contains | | Ref. | Price each |
|---|---|---|---|---|
| 5 | 10,4-16,5-20,5-25-31 | 1 | 847143 | £ 84,14 |

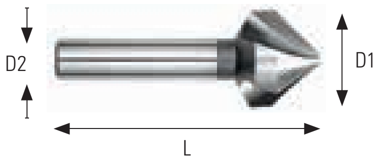
## SET OF 6 COUTERSINK 90° - HSS

DIN 335C

| Number | The set contains | | Ref. | Price each |
|---|---|---|---|---|
| 6 | 6,3-8,3-10,4-12,4-16,5-20,5 | 1 | 847141 | £ 63,69 |

## COUNTERSINK HSS CO5% 90°

DIN 335C




| D1 Ø Nominal | D2 Ø Shank | L L. Overall | Number of teeth | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 6.3 | 5 | 45 | 3 | 1 | 863020 | £ 9,17 |
| 8.3 | 6 | 50 | 3 | 1 | 863021 | £ 10,60 |
| 10.4 | 6 | 50 | 3 | 1 | 863022 | £ 12,56 |
| 12.4 | 8 | 56 | 3 | 1 | 863023 | £ 15,03 |
| 14.4 | 8 | 56 | 3 | 1 | 863024 | £ 19,14 |
| 16.5 | 8 | 56 | 3 | 1 | 863025 | £ 19,85 |
| 20.5 | 10 | 63 | 3 | 1 | 863026 | £ 22,43 |
| 25 | 10 | 67 | 3 | 1 | 863027 | £ 29,42 |
| 31 | 12 | 71 | 3 | 1 | 863028 | £ 39,81 |

## COUNTERSINK HSS CO5% 90° SET 5 10.4 - 31.0MM

DIN 335C

| Number | The set contains | | Ref. | Price each |
|---|---|---|---|---|
| 5 | 10,4-16,5-20,5-25-31 | 1 | 863030 | £ 114,80 |

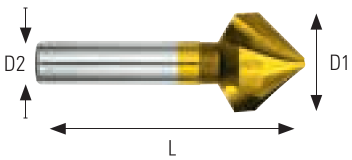
## COUNTERSINK HSS CO5% 90° SET 6 6.3 - 20.50 MM

DIN 335C

| Number | The set contains | | Ref. | Price each |
|---|---|---|---|---|
| 6 | 6,3-8,3-10,4-12,4-16,5-20,5 | 1 | 863032 | £ 83,87 |

## COUNTERSINK HSS CO5% 90° TIN COATED

TiN | DIN 335C




| D1 Ø Nominal | D2 Ø Shank | L L. Overall | Number of teeth | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 6.3 | 5 | 45 | 3 | 1 | 847145 | £ 11,32 |
| 8.3 | 6 | 50 | 3 | 1 | 847146 | £ 12,98 |
| 10.4 | 6 | 50 | 3 | 1 | 847147 | £ 15,03 |
| 12.4 | 8 | 56 | 3 | 1 | 847148 | £ 17,80 |
| 14.4 | 8 | 56 | 3 | 1 | 847149 | £ 22,13 |
| 16.5 | 8 | 56 | 3 | 1 | 847150 | £ 22,84 |
| 20.5 | 10 | 63 | 3 | 1 | 847151 | £ 25,83 |
| 25 | 10 | 67 | 3 | 1 | 847152 | £ 32,83 |
| 31 | 12 | 71 | 3 | 1 | 847153 | £ 45,27 |

## SET OF 5 COUTERSINK 90° - HSS CO5% - TIN COATED

TiN | DIN 335C

| Number | The set contains | | Ref. | Price each |
|---|---|---|---|---|
| 5 | 10,4-16,5-20,5-25-31 | 1 | 847157 | £ 125,99 |

## SET OF 6 COUTERSINK 90° - HSS CO5% - TIN COATED

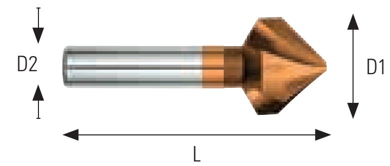
TiN | DIN 335C

| Number | The set contains | | Ref. | Price each |
|---|---|---|---|---|
| 6 | 6,3-8,3-10,4-12,4-16,5-20,5 | 1 | 847155 | £ 95,08 |

CUTTING TOOLS

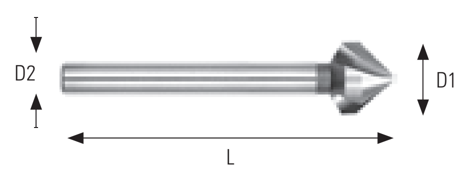
## COUNTERSINK CARBIDE 90° HDMX COATED

DIN 335C



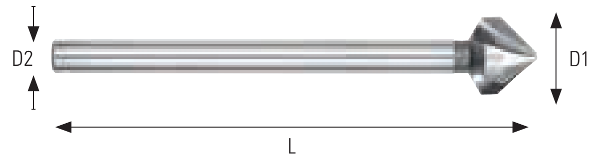

| D1<br>Ø Nominal | D2<br>Ø Shank | L<br>L. Overall | Number of teeth | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 6.3 | 5 | 45 | 3 | 1 | 863050 | £ 62,95 |
| 8.3 | 6 | 50 | 3 | 1 | 863051 | £ 73,45 |
| 10.4 | 6 | 50 | 3 | 1 | 863052 | £ 83,94 |
| 12.4 | 8 | 56 | 3 | 1 | 863053 | £ 94,42 |
| 16.5 | 10 | 60 | 3 | 1 | 863054 | £ 104,93 |
| 20.5 | 10 | 63 | 3 | 1 | 863055 | £ 146,89 |

## COUNTERSINK HSS 90° LONG SHANK



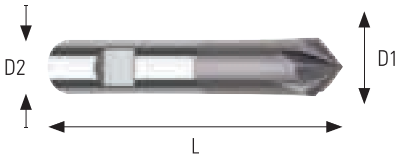

| D1<br>Ø Nominal | D2<br>Ø Shank | L<br>L. Overall | Number of teeth | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 6.3 | 5 | 104 | 3 | 1 | 863034 | £ 31,47 |
| 8.3 | 6 | 105 | 3 | 1 | 863035 | £ 32,51 |
| 10.4 | 6 | 107 | 3 | 1 | 863036 | £ 33,55 |
| 12.4 | 8 | 108 | 3 | 1 | 863037 | £ 34,56 |
| 15 | 10 | 109 | 3 | 1 | 863038 | £ 36,74 |
| 16.5 | 10 | 111 | 3 | 1 | 863039 | £ 38,79 |
| 20.5 | 10 | 114 | 3 | 1 | 863040 | £ 52,46 |

## COUNTERSINK HSS 90° EXTRA LONG SHANK




| D1<br>Ø Nominal | D2<br>Ø Shank | L<br>L. Overall | Number of teeth | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 6.3 | 5 | 154 | 3 | 1 | 863042 | £ 41,98 |
| 8.3 | 6 | 155 | 3 | 1 | 863043 | £ 43,00 |
| 10.4 | 6 | 157 | 3 | 1 | 863044 | £ 44,03 |
| 12.4 | 8 | 158 | 3 | 1 | 863045 | £ 45,07 |
| 15 | 10 | 159 | 3 | 1 | 863046 | £ 49,28 |
| 16.5 | 10 | 161 | 3 | 1 | 863047 | £ 50,41 |
| 20.5 | 10 | 164 | 3 | 1 | 863048 | £ 68,21 |

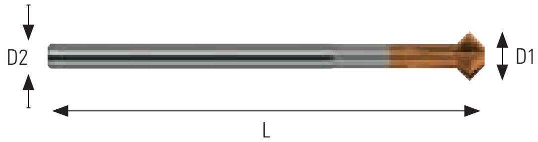
## CHAMFER MILLTOOL 90° - SOLID CARBIDE - MULTI FLUTE - OZMA




| D1 Ø Nominal | D2 Ø Shank | L L. Overall | Number of teeth | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 6 | 6 | 57 | 4 | 1 | 863068 | £ 24,24 |
| 8 | 8 | 63 | 5 | 1 | 863069 | £ 31,89 |
| 10 | 10 | 72 | 6 | 1 | 863070 | £ 37,41 |
| 12 | 12 | 83 | 6 | 1 | 863071 | £ 56,11 |

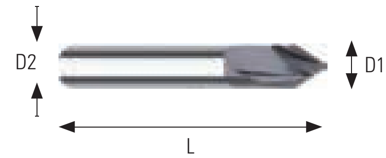


## FRONT AND BACK CHAMFERING - 90° - SOLID CARBIDE - HDMX COATED



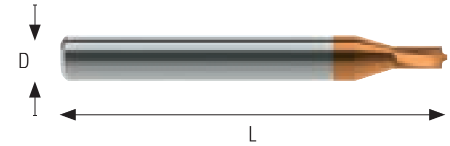

| D1 Ø Nominal | D2 Ø Shank | L L. Overall | Number of teeth | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 6 | 100 | 4 | 1 | 863057 | £ 42,62 |
| 4 | 6 | 100 | 4 | 1 | 863058 | £ 47,92 |
| 5 | 6 | 100 | 4 | 1 | 863059 | £ 53,24 |
| 6 | 6 | 100 | 4 | 1 | 863060 | £ 58,58 |
| 8 | 6 | 100 | 4 | 1 | 863061 | £ 74,55 |
| 10 | 6 | 100 | 4 | 1 | 863062 | £ 90,52 |
| 12 | 6 | 100 | 4 | 1 | 863063 | £ 117,15 |

## ENGRAVING END MILL - SOLID CARBIDE - 60° - CYLINDRICAL SHANK



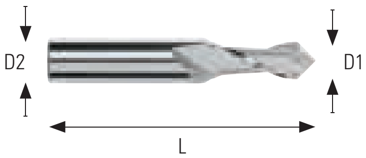

| D1<br>Ø Nominal | D2<br>Ø Shank | L<br>L. Overall | Number of teeth | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 3 | 3 | 40 | 1 | 1 | 863075 | £ 21,27 |
| 4 | 4 | 40 | 1 | 1 | 863076 | £ 23,38 |
| 6 | 6 | 50 | 1 | 1 | 863077 | £ 31,89 |

## CORNER ROUNDING END MILL - SOLID CARBIDE - HDMX



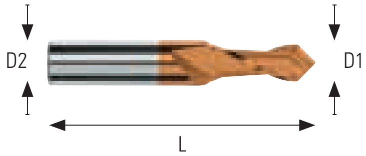

| R Radius | D<br>Ø Tail | L<br>L. Overall | | Ref. | Price each |
|---|---|---|---|---|---|
| 0.25 | 3 | 50 | 1 | 863079 | £ 48,98 |
| 0.5 | 3 | 50 | 1 | 863080 | £ 48,98 |
| 0.75 | 3 | 50 | 1 | 863081 | £ 48,98 |
| 1 | 3 | 50 | 1 | 863082 | £ 48,98 |
| 1.5 | 5 | 50 | 1 | 863083 | £ 58,58 |
| 2 | 6 | 50 | 1 | 863084 | £ 57,71 |
| 2.5 | 8 | 50 | 1 | 863085 | £ 69,23 |
| 3 | 8 | 50 | 1 | 863086 | £ 74,55 |

## MULTI-CUT - TOOL MULTI-FUNCTIONS - SOLID CARBIDE - 90°




| D1<br>Ø Nominal | D2<br>Ø Shank | L<br>L. Overall | D1 Tolerance | Angle tolerance | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 1 | 3 | 39 | h9 | ± 1° | 1 | 863091 | £ 25,22 |
| 2 | 3 | 39 | h9 | ± 1° | 1 | 863092 | £ 25,22 |
| 3 | 4 | 50 | h9 | ± 1° | 1 | 863093 | £ 25,22 |
| 4 | 5 | 50 | h9 | ± 1° | 1 | 863094 | £ 27,27 |
| 5 | 6 | 50 | h9 | ± 1° | 1 | 863095 | £ 29,94 |
| 6 | 8 | 60 | h9 | ± 1° | 1 | 863096 | £ 36,74 |
| 8 | 10 | 70 | h9 | ± 1° | 1 | 863097 | £ 48,76 |
| 10 | 12 | 70 | h9 | ± 1° | 1 | 863098 | £ 62,95 |
| 12 | 12 | 70 | d9 | ± 1° | 1 | 863099 | £ 62,95 |

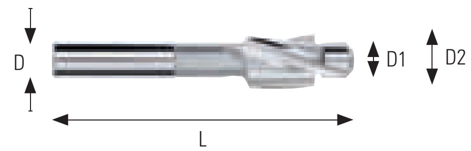
## MULTI-CUT - TOOL MULTI-FUNCTIONS - SOLID CARBIDE - 90° - HDMX




| D1<br>Ø Nominal | D2<br>Ø Shank | L<br>L. Overall | D1 Tolerance | Angle tolerance | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 1 | 3 | 39 | h9 | ± 1° | 1 | 863101 | £ 29,42 |
| 2 | 3 | 39 | h9 | ± 1° | 1 | 863102 | £ 29,42 |
| 3 | 4 | 50 | h9 | ± 1° | 1 | 863103 | £ 29,42 |
| 4 | 5 | 50 | h9 | ± 1° | 1 | 863104 | £ 32,51 |
| 5 | 6 | 50 | h9 | ± 1° | 1 | 863105 | £ 34,66 |
| 6 | 8 | 60 | h9 | ± 1° | 1 | 863106 | £ 41,98 |
| 8 | 10 | 70 | h9 | ± 1° | 1 | 863107 | £ 55,14 |
| 10 | 12 | 70 | h9 | ± 1° | 1 | 863108 | £ 71,40 |
| 12 | 12 | 70 | d9 | ± 1° | 1 | 863109 | £ 71,40 |

## COUTERBORE WITH PILOT 180° HSS CO5%

DIN 373




| D Ø Tail | D1 Ø Screw passage | D2 Ø Screw head | L L. Overall | For screw | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 6 | 3.2 | 6 | 71 | M3 | 1 | 855295 | £ 18,05 |
| 8 | 4.3 | 8 | 71 | M4 | 1 | 855296 | £ 19,11 |
| 10 | 5.3 | 10 | 80 | M5 | 1 | 855297 | £ 20,38 |
| 11 | 6.4 | 11 | 80 | M6 | 1 | 855298 | £ 22,47 |
| 12.5 | 8.4 | 15 | 100 | M8 | 1 | 855299 | £ 31,48 |
| 12.5 | 10.5 | 18 | 100 | M10 | 1 | 855300 | £ 39,24 |

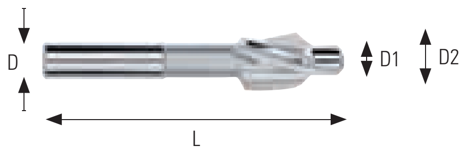
## SET OF 6 COUTERBORE WITH PILOT 180° - HSS CO5%

DIN 373

| Number | The set contains | | Ref. | Price each |
|---|---|---|---|---|
| 6 | 6x3.2 - 8x4.3 - 10x5.3 - 11x6.4 15x8.4 - 18x10.5 | 1 | 855293 | £ 134,65 |

## COUTERBORE WITH PILOT 90° HSS CO5%

DIN 1866




| D Ø Tail | D1 Ø Screw passage | D2 Ø Screw head | L L. Overall | For screw | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 6 | 3.2 | 6 | 71 | M3 | 1 | 855304 | £ 20,25 |
| 8 | 4.3 | 8 | 71 | M4 | 1 | 855305 | £ 22,47 |
| 10 | 5.3 | 10 | 80 | M5 | 1 | 855306 | £ 26,39 |
| 11.5 | 6.4 | 11.5 | 80 | M6 | 1 | 855307 | £ 28,59 |
| 12.5 | 8.4 | 15 | 100 | M8 | 1 | 855308 | £ 42,02 |
| 12.5 | 10.5 | 19 | 100 | M10 | 1 | 855309 | £ 60,53 |

## SET OF 6 COUTERBORE WITH PILOT 90° - HSS CO5%

DIN 1866

| Number | The set contains | | Ref. | Price each |
|---|---|---|---|---|
| 6 | 6x3.2 - 8x4.3 - 10x5.3 - 11.5x6.4 15x8.4 - 19x10.5 | 1 | 855302 | £ 178,56 |

CUTTING TOOLS

## CHUCKS



## DRILL CHUCKS



## ER COLLETS



## TAP CHUCKS

## PULL STUDS



## VDI



## ACCESSORIES



Pages 222 to 271

# GHP - THE HIGH PRECISION CHUCK

This precision collet chuck has a concentricity 3xD <= 5 micron with GISS precision 5 micron collet chucks.

This technology brings you 3 important advantages:


- Extended tool lifetime: the various tests show a greater life from 30 to 45%. The tool will rotate homogeneously so there is less wear on the teeth.

- Better surface condition: thanks to reduced tool vibration, it brings better surface condition and reduced finishing time.

- Improved manufacturing tolerance as the homogeneity ensures less tolerance deviation.

## GHP PRECISION CHUCK TECHNOLOGY

Only the nominal side can be obtained by tightening.

There are many special features with the GHP chuck:

- Its double guiding and horizontal threading allows a perfect centering of the chuck nut.

- Its specific tightening allows a complete insertion of the ER GISS precision clamp in the GHP chuck. This feature ensures the tool shank clamping force **3 times greater** than a conventional ER collet chuck.

STANDARD CHUCK

GISS GHP CHUCK

- It significantly reduces vibration thanks to its clamp, connecting part and vibration shank absorber during machining.

- It makes possible the largest possible access inside the GHP chuck compare with a conventional chuck limited by its M12 stop.

Example: GHP 32 BT 40 A = 70

Max. access = 100 mm

Standard chuck

Max. access = 50 to 60 mm

## BALANCE

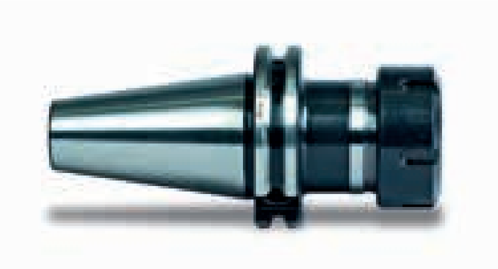
The GHP range offers you the best possible balance with a standard G 2.5 data.

This allows you to get the minimum unbalance and to be in accordance with the factory spindle specifications, and therefore not to wear it prematurely.

The GHP chuck has a smooth nut, and therefore a constant stroke of the nut. It closes almost at the same place, which is not possible with a conventional nut notch. As a result, the GHP chuck maintains the specified balancing over time.

## COLLECT CHUCK ER DIN 69871

AD | DIN 69871 | SK

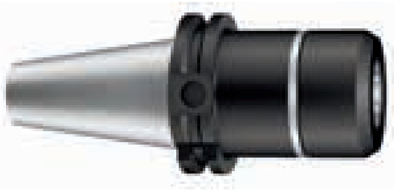


Balancing 15,000 rpm

| SK | ER | Capacity | Length | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 40 | 16 | 1-10 | 70 | 1 | 868199 | £ 27,48 |
| 40 | 25 | 1-16 | 70 | 1 | 847521 | £ 27,48 |
| 40 | 32 | 2-20 | 70 | 1 | 847522 | £ 27,48 |
| 40 | 40 | 3-30 | 70 | 1 | 868202 | £ 32,10 |
| 40 | 16 | 1-10 | 100 | 1 | 868204 | £ 40,56 |
| 40 | 25 | 1-16 | 100 | 1 | 847523 | £ 42,80 |
| 40 | 32 | 2-20 | 100 | 1 | 847524 | £ 42,80 |
| 40 | 40 | 3-30 | 100 | 1 | 868207 | £ 47,35 |
| 40 | 16 | 1-10 | 160 | 1 | 868209 | £ 63,73 |
| 40 | 25 | 1-16 | 160 | 1 | 868210 | £ 63,73 |
| 40 | 32 | 2-20 | 160 | 1 | 868211 | £ 65,56 |
| 40 | 40 | 3-30 | 160 | 1 | 868212 | £ 68,29 |
| 50 | 16 | 1-10 | 70 | 1 | 868222 | £ 50,08 |
| 50 | 25 | 1-16 | 70 | 1 | 868223 | £ 51,91 |
| 50 | 32 | 2-20 | 70 | 1 | 868224 | £ 53,73 |
| 50 | 40 | 3-30 | 70 | 1 | 868225 | £ 53,73 |
| 50 | 16 | 1-10 | 100 | 1 | 868227 | £ 63,73 |
| 50 | 25 | 1-16 | 100 | 1 | 868228 | £ 63,73 |
| 50 | 32 | 2-20 | 100 | 1 | 868229 | £ 75,57 |
| 50 | 40 | 3-30 | 100 | 1 | 868230 | £ 77,40 |

## GHP PRECISION COLLET CHUCK ER DIN 69871

AD | G 2,5 22.000/min-1 | U <= 1gmm | DIN 69871



| SK | ER | Capacity | A | D | Leaf | Type | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 40 | 25 | 1-16 | 70 | 40 | M16 | AD/B | 1 | 847083 | £ 95,69 |
| 40 | 32 | 2-20 | 70 | 50 | M16 | AD/B | 1 | 847084 | £ 97,79 |
| 40 | 16 | 1-10 | 100 | 30 | M16 | AD/B | 1 | 847085 | £ 107,13 |
| 40 | 25 | 1-16 | 100 | 40 | M16 | AD/B | 1 | 847086 | £ 110,26 |

## WELDON SIDE LOCK HOLDER DIN 69871

AD | DIN 69871 | SK

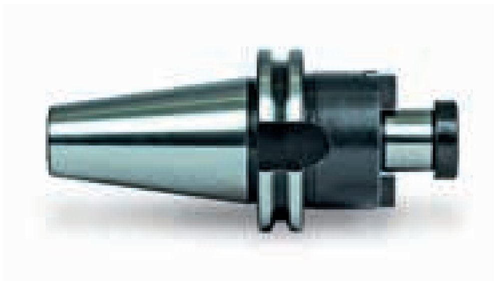
Balancing 15,000 rpm

| SK | Diameter | Length | | Ref. | Price each |
|---|---|---|---|---|---|
| 40 | 06 | 50 | 1 | 847510 | £ 24,77 |
| 40 | 08 | 50 | 1 | 847511 | £ 23,64 |
| 40 | 10 | 50 | 1 | 847512 | £ 23,64 |
| 40 | 12 | 50 | 1 | 847513 | £ 23,64 |
| 40 | 14 | 50 | 1 | 847514 | £ 23,64 |
| 40 | 16 | 63 | 1 | 847515 | £ 23,64 |
| 40 | 18 | 63 | 1 | 847516 | £ 23,64 |
| 40 | 20 | 63 | 1 | 868243 | £ 23,64 |
| 40 | 25 | 100 | 1 | 847518 | £ 27,70 |
| 40 | 32 | 100 | 1 | 847519 | £ 30,26 |
| 40 | 40 | 115 | 1 | 868246 | £ 39,71 |
| 40 | 06 | 100 | 1 | 868248 | £ 33,08 |
| 40 | 08 | 100 | 1 | 868249 | £ 30,26 |
| 40 | 10 | 100 | 1 | 868250 | £ 30,26 |
| 40 | 12 | 100 | 1 | 868251 | £ 30,26 |
| 40 | 14 | 100 | 1 | 868252 | £ 30,26 |
| 40 | 16 | 100 | 1 | 868253 | £ 30,26 |
| 40 | 18 | 100 | 1 | 868254 | £ 30,26 |
| 40 | 20 | 100 | 1 | 868255 | £ 30,26 |
| 40 | 06 | 160 | 1 | 868257 | £ 55,76 |
| 40 | 08 | 160 | 1 | 868258 | £ 53,88 |
| 40 | 10 | 160 | 1 | 868259 | £ 53,88 |
| 40 | 12 | 160 | 1 | 868260 | £ 53,88 |
| 40 | 14 | 160 | 1 | 868261 | £ 53,88 |
| 40 | 16 | 160 | 1 | 868262 | £ 53,88 |
| 40 | 18 | 160 | 1 | 868263 | £ 53,88 |
| 40 | 20 | 160 | 1 | 868264 | £ 53,88 |
| 40 | 25 | 160 | 1 | 868265 | £ 58,60 |
| 40 | 32 | 160 | 1 | 868266 | £ 62,39 |
| 50 | 06 | 63 | 1 | 868289 | £ 41,59 |
| 50 | 08 | 63 | 1 | 868290 | £ 39,71 |
| 50 | 10 | 63 | 1 | 868291 | £ 39,71 |
| 50 | 12 | 63 | 1 | 868292 | £ 39,71 |
| 50 | 14 | 63 | 1 | 868293 | £ 39,71 |
| 50 | 16 | 63 | 1 | 868294 | £ 39,71 |
| 50 | 18 | 63 | 1 | 868295 | £ 39,71 |
| 50 | 20 | 63 | 1 | 868296 | £ 39,71 |
| 50 | 25 | 80 | 1 | 868297 | £ 44,43 |

## SHELL MILL HOLDER DIN 69871

AD | DIN 69871 | SK

Balancing 15,000 rpm



| SK | Diameter | Length | | Ref. | Price each |
|---|---|---|---|---|---|
| 40 | 16 | 45 | 1 | 847505 | £ 33,08 |
| 40 | 22 | 45 | 1 | 847506 | £ 33,08 |
| 40 | 27 | 50 | 1 | 847507 | £ 34,03 |
| 40 | 32 | 55 | 1 | 847508 | £ 34,98 |
| 40 | 16 | 100 | 1 | 868358 | £ 50,11 |
| 40 | 22 | 100 | 1 | 868359 | £ 50,11 |
| 40 | 27 | 100 | 1 | 868360 | £ 51,04 |
| 40 | 32 | 100 | 1 | 868361 | £ 55,67 |
| 50 | 16 | 45 | 1 | 868363 | £ 48,26 |
| 50 | 22 | 45 | 1 | 868364 | £ 48,26 |
| 50 | 27 | 45 | 1 | 868365 | £ 51,97 |
| 50 | 32 | 50 | 1 | 868366 | £ 51,97 |
| 50 | 40 | 55 | 1 | 868367 | £ 59,38 |

## TAPER SHANK HOLDER DIN 68971

AD | DIN 69871 | SK

Balancing 15,000 rpm

| SK | Capacity | Length | | Ref. | Price each |
|---|---|---|---|---|---|
| 40 | MT1 | 50 | 1 | 868344 | £ 25,52 |
| 40 | MT2 | 50 | 1 | 868345 | £ 25,52 |
| 40 | MT3 | 70 | 1 | 868346 | £ 25,52 |
| 40 | MT4 | 95 | 1 | 868347 | £ 32,19 |
| 50 | MT1 | 50 | 1 | 868349 | £ 42,53 |
| 50 | MT2 | 60 | 1 | 868350 | £ 42,53 |
| 50 | MT3 | 65 | 1 | 868351 | £ 42,53 |
| 50 | MT4 | 95 | 1 | 868352 | £ 42,53 |

## REDUCED SHANK SIDE LOCK HOLDER DIN 69871

A | G 6,3 12.000/min-1 | DIN 69871

| SK | CM | D | A | Leaf | Type | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| 40 | 2 | 31 | 32 | M16 | A | 1 | 847501 | £ 56,81 |
| 40 | 3 | 51 | 40 | M16 | A | 1 | 847502 | £ 56,81 |
| 40 | 4 | 91 | 63 | M16 | A | 1 | 847503 | £ 62,79 |

TOOL HOLDING

## DRILL CHUCK DIN 69871

A | DIN 69871 | SK

Balancing 8,000 rpm

| SK | Capacity | Length | | Ref. | Price each |
|---|---|---|---|---|---|
| 40 | 1-13 | 90 | 1 | 870203 | £ 171,16 |
| 40 | 3-16 | 95 | 1 | 870204 | £ 188,76 |
| 50 | 1-13 | 90 | 1 | 870206 | £ 211,15 |
| 50 | 3-16 | 95 | 1 | 870207 | £ 230,35 |

## PRECISION DRILL CHUCK DIN 69871

AD/B | DIN 69871 | SK

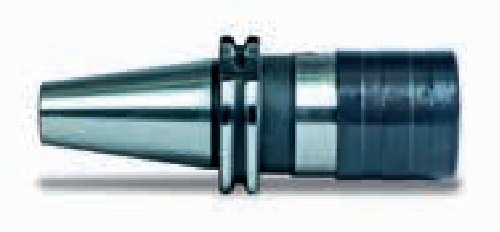
Balancing 8,000 rpm

| SK | Capacity | Length | | Ref. | Price each |
|---|---|---|---|---|---|
| 40 | 1-13 | 90 | 1 | 868410 | £ 226,51 |
| 40 | 3-16 | 95 | 1 | 868411 | £ 241,17 |
| 50 | 1-13 | 90 | 1 | 868413 | £ 293,32 |
| 50 | 3-16 | 95 | 1 | 868414 | £ 307,98 |

## TAPPING CHUCK DIN 69871

A | DIN 69871 | SK

Balancing 8,000 rpm



| SK | Capacity | Type of clamp | Length | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 40 | M03-12 | GR1 | 60 | 1 | 868390 | £ 112,29 |
| 40 | M06-20 | GR2 | 98 | 1 | 868391 | £ 124,67 |
| 40 | M14-33 | GR3 | 151 | 1 | 868392 | £ 195,55 |
| 50 | M03-12 | GR1 | 60 | 1 | 868394 | £ 149,92 |
| 50 | M06-20 | GR2 | 84 | 1 | 868395 | £ 168,67 |
| 50 | M14-33 | GR3 | 139 | 1 | 868396 | £ 215,10 |

## HEAT SHRINK HOLDER 3°

AD/B | DIN 69871 | SK

Balancing 25,000 rpm

| SK | Diameter | Length | | Ref. | Price each |
|---|---|---|---|---|---|
| 40 | 03 | 80 | 1 | 869902 | £ 128,97 |
| 40 | 03 | 120 | 1 | 869903 | £ 145,67 |
| 40 | 03 | 160 | 1 | 869904 | £ 167,01 |
| 40 | 04 | 80 | 1 | 869905 | £ 125,27 |
| 40 | 04 | 120 | 1 | 869906 | £ 141,97 |
| 40 | 04 | 160 | 1 | 869907 | £ 167,01 |
| 40 | 05 | 80 | 1 | 869908 | £ 125,27 |
| 40 | 05 | 120 | 1 | 869909 | £ 141,97 |
| 40 | 05 | 160 | 1 | 869910 | £ 167,01 |
| 40 | 06 | 80 | 1 | 869911 | £ 84,44 |
| 40 | 06 | 120 | 1 | 869912 | £ 119,69 |
| 40 | 06 | 160 | 1 | 869913 | £ 134,54 |
| 40 | 08 | 80 | 1 | 869914 | £ 84,44 |
| 40 | 08 | 120 | 1 | 869915 | £ 119,69 |
| 40 | 08 | 160 | 1 | 869916 | £ 134,54 |
| 40 | 10 | 80 | 1 | 869917 | £ 84,44 |
| 40 | 10 | 120 | 1 | 869918 | £ 119,69 |
| 40 | 10 | 160 | 1 | 869919 | £ 134,54 |
| 40 | 12 | 80 | 1 | 869920 | £ 84,44 |
| 40 | 12 | 120 | 1 | 869921 | £ 119,69 |
| 40 | 12 | 160 | 1 | 869922 | £ 134,54 |
| 40 | 14 | 80 | 1 | 869923 | £ 84,44 |
| 40 | 14 | 120 | 1 | 869924 | £ 119,69 |
| 40 | 14 | 160 | 1 | 869925 | £ 134,54 |
| 40 | 16 | 80 | 1 | 869926 | £ 84,44 |
| 40 | 16 | 120 | 1 | 869927 | £ 119,69 |
| 40 | 16 | 160 | 1 | 869928 | £ 134,54 |
| 40 | 18 | 80 | 1 | 869929 | £ 84,44 |
| 40 | 18 | 120 | 1 | 869930 | £ 119,69 |
| 40 | 18 | 160 | 1 | 869931 | £ 134,54 |
| 40 | 20 | 80 | 1 | 869932 | £ 84,44 |
| 40 | 20 | 120 | 1 | 869933 | £ 119,69 |
| 40 | 20 | 160 | 1 | 869934 | £ 134,54 |

## HEAT SHRINK HOLDER 4.5°

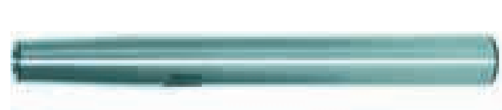
AD/B | DIN 69871 | SK

Balancing 25,000 rpm

| SK | Diameter | Length | | Ref. | Price each |
|---|---|---|---|---|---|
| 40 | 03 | 80 | 1 | 869822 | £ 87,98 |
| 40 | 03 | 120 | 1 | 869823 | £ 115,82 |
| 40 | 04 | 80 | 1 | 869824 | £ 87,98 |
| 40 | 04 | 120 | 1 | 869825 | £ 113,98 |
| 40 | 05 | 80 | 1 | 869826 | £ 87,98 |
| 40 | 05 | 120 | 1 | 869827 | £ 113,98 |
| 40 | 06 | 80 | 1 | 869828 | £ 68,02 |
| 40 | 06 | 120 | 1 | 869829 | £ 87,98 |
| 40 | 06 | 160 | 1 | 869830 | £ 113,07 |
| 40 | 08 | 80 | 1 | 869831 | £ 68,02 |
| 40 | 08 | 120 | 1 | 869832 | £ 87,98 |
| 40 | 08 | 160 | 1 | 869833 | £ 113,07 |
| 40 | 10 | 80 | 1 | 869834 | £ 68,02 |
| 40 | 10 | 120 | 1 | 869835 | £ 87,98 |
| 40 | 10 | 160 | 1 | 869836 | £ 113,07 |
| 40 | 12 | 80 | 1 | 869837 | £ 68,02 |
| 40 | 12 | 120 | 1 | 869838 | £ 87,98 |
| 40 | 12 | 160 | 1 | 869839 | £ 113,07 |
| 40 | 14 | 80 | 1 | 869840 | £ 68,02 |
| 40 | 14 | 120 | 1 | 869841 | £ 87,98 |
| 40 | 14 | 160 | 1 | 869842 | £ 113,07 |
| 40 | 16 | 80 | 1 | 869843 | £ 68,02 |
| 40 | 16 | 120 | 1 | 869844 | £ 87,98 |
| 40 | 16 | 160 | 1 | 869845 | £ 113,07 |
| 40 | 18 | 80 | 1 | 869846 | £ 68,02 |
| 40 | 18 | 120 | 1 | 869847 | £ 87,98 |
| 40 | 18 | 160 | 1 | 869848 | £ 113,07 |
| 40 | 20 | 80 | 1 | 869849 | £ 68,02 |
| 40 | 20 | 120 | 1 | 869850 | £ 87,98 |
| 40 | 20 | 160 | 1 | 869851 | £ 113,07 |
| 40 | 25 | 100 | 1 | 869852 | £ 68,02 |
| 40 | 25 | 120 | 1 | 869853 | £ 87,98 |
| 40 | 25 | 160 | 1 | 869854 | £ 113,07 |
| 40 | 32 | 100 | 1 | 869855 | £ 68,02 |
| 40 | 32 | 120 | 1 | 869856 | £ 87,98 |
| 40 | 32 | 160 | 1 | 869857 | £ 113,07 |

See p.241

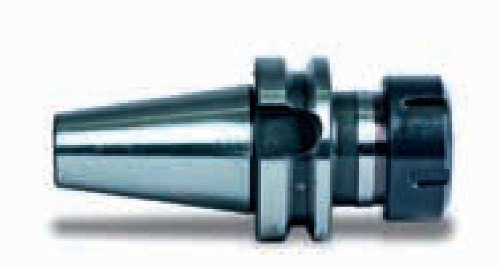
HEAT SHRINK EXTENSION 4.5°



## COLLECT CHUCK MAS/BT ER

AD | MAS BT | JIS B6339

Balancing 15,000 rpm

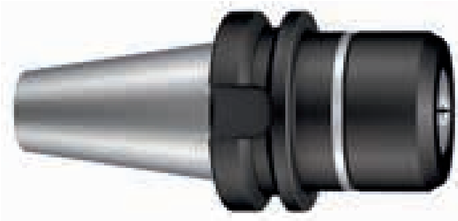


| BT | ER | Capacity | Length | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 40 | ER16 | 1-10 | 70 | 1 | 868184 | £ 27,48 |
| 40 | ER25 | 1-16 | 70 | 1 | 847553 | £ 27,48 |
| 40 | ER32 | 2-20 | 70 | 1 | 868186 | £ 27,48 |
| 40 | ER40 | 3-30 | 70 | 1 | 868187 | £ 32,10 |
| 40 | ER16 | 1-10 | 100 | 1 | 868189 | £ 40,56 |
| 40 | ER25 | 1-16 | 100 | 1 | 847555 | £ 42,80 |
| 40 | ER32 | 2-20 | 100 | 1 | 847556 | £ 42,80 |
| 40 | ER40 | 3-30 | 100 | 1 | 868192 | £ 47,35 |
| 40 | ER16 | 1-10 | 160 | 1 | 868194 | £ 63,73 |
| 40 | ER25 | 1-16 | 160 | 1 | 868195 | £ 63,73 |
| 40 | ER32 | 2-20 | 160 | 1 | 868196 | £ 65,56 |
| 40 | ER40 | 3-30 | 160 | 1 | 868197 | £ 68,29 |
| 50 | ER25 | 1-16 | 80 | 1 | 868232 | £ 55,54 |
| 50 | ER32 | 2-20 | 80 | 1 | 868233 | £ 57,36 |
| 50 | ER40 | 3-30 | 80 | 1 | 868234 | £ 57,36 |



## GHP PRECISION COLLECT CHUCK MAS/BT ER

AD | MAS BT | JIS B6339 | G 2,5 22.000/min-1 | U <= 1gmm



| BT | ER | Capacity | A | D | Leaf | Type | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| 40 | 16 | 1-10 | 75 | 30 | M16 | AD | 1 | 847088 | £ 92,57 |
| 40 | 25 | 1-16 | 75 | 40 | M16 | AD | 1 | 847089 | £ 95,69 |
| 40 | 32 | 2-20 | 75 | 50 | M16 | AD | 1 | 847090 | £ 97,79 |
| 40 | 16 | 1-10 | 105 | 30 | M16 | AD | 1 | 847091 | £ 107,13 |
| 40 | 25 | 1-16 | 105 | 40 | M16 | AD | 1 | 847092 | £ 110,26 |
| 40 | 32 | 2-20 | 105 | 50 | M16 | AD | 1 | 847093 | £ 112,35 |

## WELDON SIDE LOCK HOLDER MAS/BT40

AD | MAS BT | JIS B6339

| BT | D | D1 | A | Leaf | Type | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| 40 | 25 | 6 | 50 | M16 | AD | 1 | 847542 | £ 24,77 |
| 40 | 28 | 8 | 50 | M16 | AD | 1 | 847543 | £ 23,64 |
| 40 | 35 | 10 | 63 | M16 | AD | 1 | 847544 | £ 23,64 |
| 40 | 42 | 12 | 63 | M16 | AD | 1 | 847545 | £ 23,64 |
| 40 | 44 | 14 | 63 | M16 | AD | 1 | 847546 | £ 23,64 |
| 40 | 48 | 16 | 63 | M16 | AD | 1 | 847547 | £ 23,64 |
| 40 | 50 | 18 | 63 | M16 | AD | 1 | 847548 | £ 23,64 |
| 40 | 52 | 20 | 63 | M16 | AD | 1 | 847549 | £ 23,64 |
| 40 | 65 | 25 | 90 | M16 | AD | 1 | 847550 | £ 27,70 |
| 40 | 72 | 32 | 100 | M16 | AD | 1 | 847551 | £ 30,26 |

## MORSE TAPER HOLDER MAS/BT40

A | BT40 | JIS B6339 | G 6,3 12.000/min-1

| BT | MT | D | A | Leaf | Type | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| 40 | 2 | 32 | 50 | M16 | A | 1 | 847533 | £ 35,33 |
| 40 | 3 | 40 | 70 | M16 | A | 1 | 847534 | £ 35,33 |
| 40 | 4 | 63 | 95 | M16 | A | 1 | 847535 | £ 39,75 |

## SHELL MILL ARBOUR MAS/BT

AD | MAS BT | JIS B6339

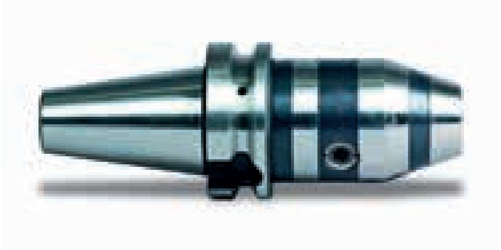
Balancing 15,000 rpm

| BT | Diameter | Length | | Ref. | Price each |
|---|---|---|---|---|---|
| 40 | 16 | 45 | 1 | 847537 | £ 33,08 |
| 40 | 22 | 45 | 1 | 868370 | £ 33,08 |
| 40 | 27 | 50 | 1 | 847539 | £ 34,03 |
| 40 | 32 | 55 | 1 | 847540 | £ 34,98 |
| 50 | 16 | 60 | 1 | 868363 | £ 48,26 |
| 50 | 22 | 60 | 1 | 868364 | £ 48,26 |
| 50 | 27 | 60 | 1 | 868365 | £ 51,97 |
| 50 | 32 | 60 | 1 | 868366 | £ 51,97 |
| 50 | 40 | 60 | 1 | 868367 | £ 59,38 |

## DRILL CHUCK MAS/BT

A | MAS BT | JIS B6339

Balancing 8,000 rpm



| BT | Capacity | Length | | Ref. | Price each |
|---|---|---|---|---|---|
| 40 | 1-13 | 90 | 1 | 870209 | £ 171,16 |
| 40 | 3-16 | 95 | 1 | 870210 | £ 188,76 |
| 50 | 1-13 | 90 | 1 | 870212 | £ 211,15 |
| 50 | 3-16 | 95 | 1 | 870213 | £ 230,35 |

## PRECISION DRILL CHUCK MAS/BT

AD | MAS BT | JIS B6339

Balancing 8,000 rpm

| BT | Capacity | Length | | Ref. | Price each |
|---|---|---|---|---|---|
| 40 | 1-13 | 90 | 1 | 847640 | £ 226,51 |
| 40 | 3-16 | 95 | 1 | 847641 | £ 241,17 |
| 50 | 1-13 | 90 | 1 | 868419 | £ 293,32 |
| 50 | 3-16 | 95 | 1 | 868420 | £ 307,98 |

## TAPPING CHUCK MAS/BT

A | MAS BT | JIS B6339

Balancing 8,000 rpm

| BT | Capacity | Length | | Ref. | Price each |
|---|---|---|---|---|---|
| 40 | M03-12 | 68 | 1 | 868398 | £ 112,29 |
| 40 | M06-20 | 95 | 1 | 868399 | £ 124,67 |
| 40 | M14-33 | 165 | 1 | 868400 | £ 195,55 |
| 50 | M03-12 | 77 | 1 | 868402 | £ 149,92 |
| 50 | M06-20 | 103 | 1 | 868403 | £ 168,67 |
| 50 | M14-33 | 143 | 1 | 868404 | £ 215,10 |

## HEAT SHRINK HOLDER MAS/BT 3°

AD/B | MAS BT | JIS B6339

Balancing 25,000 rpm

| BT | Diameter | Length | Pack | Ref. | Price each |
|---|---|---|---|---|---|
| 40 | 03 | 90 | 1 | 869970 | £ 136,39 |
| 40 | 03 | 120 | 1 | 869971 | £ 153,09 |
| 40 | 04 | 90 | 1 | 869972 | £ 132,68 |
| 40 | 04 | 120 | 1 | 869973 | £ 150,31 |
| 40 | 05 | 90 | 1 | 869974 | £ 132,68 |
| 40 | 05 | 120 | 1 | 869975 | £ 143,82 |
| 40 | 06 | 90 | 1 | 869976 | £ 112,27 |
| 40 | 06 | 120 | 1 | 869977 | £ 128,05 |
| 40 | 06 | 160 | 1 | 869978 | £ 148,45 |
| 40 | 08 | 90 | 1 | 869979 | £ 112,27 |
| 40 | 08 | 120 | 1 | 869980 | £ 128,05 |
| 40 | 08 | 160 | 1 | 869981 | £ 148,45 |
| 40 | 10 | 90 | 1 | 869982 | £ 112,27 |
| 40 | 10 | 120 | 1 | 869983 | £ 128,05 |
| 40 | 10 | 160 | 1 | 869984 | £ 148,45 |
| 40 | 12 | 90 | 1 | 869985 | £ 112,27 |
| 40 | 12 | 120 | 1 | 869986 | £ 128,05 |
| 40 | 12 | 160 | 1 | 869987 | £ 148,45 |
| 40 | 14 | 90 | 1 | 869988 | £ 112,27 |
| 40 | 14 | 120 | 1 | 869989 | £ 128,05 |
| 40 | 14 | 160 | 1 | 869990 | £ 148,45 |
| 40 | 16 | 90 | 1 | 869991 | £ 112,27 |
| 40 | 16 | 120 | 1 | 869992 | £ 128,05 |
| 40 | 16 | 160 | 1 | 869993 | £ 148,45 |
| 40 | 18 | 90 | 1 | 869994 | £ 112,27 |
| 40 | 18 | 120 | 1 | 869995 | £ 128,05 |
| 40 | 18 | 160 | 1 | 869996 | £ 148,45 |
| 40 | 20 | 90 | 1 | 869997 | £ 112,27 |
| 40 | 20 | 120 | 1 | 869998 | £ 128,05 |
| 40 | 20 | 160 | 1 | 869999 | £ 148,45 |

# HEAT SHRINK HOLDER MAS/BT 4.5°

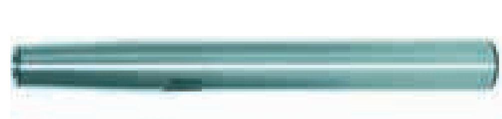
AD/B | MAS BT | JIS B6339

Balancing 25,000 rpm

| BT | Diameter | Length | | Ref. | Price each |
|---|---|---|---|---|---|
| 40 | 03 | 90 | 1 | 869860 | £ 87,98 |
| 40 | 03 | 120 | 1 | 869861 | £ 120,41 |
| 40 | 03 | 160 | 1 | 869862 | £ 136,96 |
| 40 | 04 | 90 | 1 | 869864 | £ 87,98 |
| 40 | 04 | 120 | 1 | 869865 | £ 117,66 |
| 40 | 04 | 160 | 1 | 869866 | £ 134,21 |
| 40 | 05 | 90 | 1 | 869868 | £ 87,98 |
| 40 | 05 | 120 | 1 | 869869 | £ 117,66 |
| 40 | 05 | 160 | 1 | 869870 | £ 134,21 |
| 40 | 06 | 90 | 1 | 869871 | £ 74,72 |
| 40 | 06 | 120 | 1 | 869872 | £ 95,26 |
| 40 | 06 | 160 | 1 | 869873 | £ 119,50 |
| 40 | 08 | 90 | 1 | 869874 | £ 74,72 |
| 40 | 08 | 120 | 1 | 869875 | £ 95,26 |
| 40 | 08 | 160 | 1 | 869876 | £ 119,50 |
| 40 | 10 | 90 | 1 | 869877 | £ 74,72 |
| 40 | 10 | 120 | 1 | 869878 | £ 95,26 |
| 40 | 10 | 160 | 1 | 869879 | £ 119,50 |
| 40 | 12 | 90 | 1 | 869880 | £ 74,72 |
| 40 | 12 | 120 | 1 | 869881 | £ 95,26 |
| 40 | 12 | 160 | 1 | 869882 | £ 119,50 |
| 40 | 14 | 90 | 1 | 869883 | £ 74,72 |
| 40 | 14 | 120 | 1 | 869884 | £ 95,26 |
| 40 | 14 | 160 | 1 | 869885 | £ 119,50 |
| 40 | 16 | 90 | 1 | 869886 | £ 74,72 |
| 40 | 16 | 120 | 1 | 869887 | £ 95,26 |
| 40 | 16 | 160 | 1 | 869888 | £ 119,50 |
| 40 | 18 | 90 | 1 | 869889 | £ 74,72 |
| 40 | 18 | 120 | 1 | 869890 | £ 95,26 |
| 40 | 18 | 160 | 1 | 869891 | £ 119,50 |
| 40 | 20 | 90 | 1 | 869892 | £ 74,72 |
| 40 | 20 | 120 | 1 | 869893 | £ 95,26 |
| 40 | 20 | 160 | 1 | 869894 | £ 119,50 |
| 40 | 25 | 100 | 1 | 869895 | £ 74,72 |
| 40 | 25 | 120 | 1 | 869896 | £ 95,26 |
| 40 | 25 | 160 | 1 | 869897 | £ 119,50 |
| 40 | 32 | 100 | 1 | 869898 | £ 74,72 |
| 40 | 32 | 120 | 1 | 869899 | £ 98,43 |
| 40 | 32 | 160 | 1 | 869900 | £ 121,33 |

See p.241

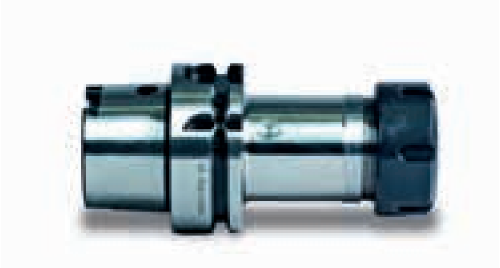
HEAT SHRINK EXTENSION 4.5°



## HSK/A 63 ER COLLET CHUCK

HSK/A | DIN 69893

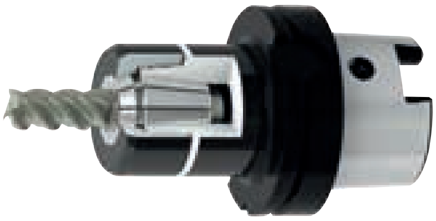
Balancing 20,000 rpm



| HSK | ER | Capacity | Length | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 63 | ER16 | 1-10 | 100 | 1 | 868214 | £ 68,29 |
| 63 | ER25 | 1-16 | 100 | 1 | 847576 | £ 66,47 |
| 63 | ER32 | 2-20 | 100 | 1 | 847577 | £ 68,29 |
| 63 | ER16 | 1-10 | 160 | 1 | 868218 | £ 86,50 |
| 63 | ER25 | 1-16 | 160 | 1 | 868219 | £ 86,50 |
| 63 | ER32 | 2-20 | 160 | 1 | 868218 | 97,00 € |

## GHP HSK 63 PRECISION ER COLLET CHUCK

HSK/A | DIN 69893

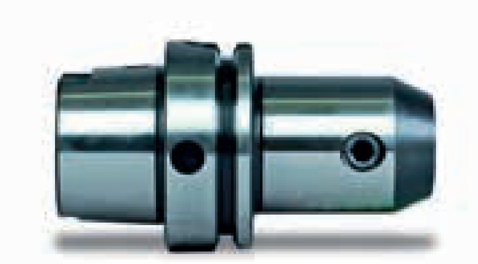


| HSK | ER | Capacity | A | D | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| 63 | 32 | 2-20 | 70 | 50 | 1 | 847095 | £ 127,39 |

# HSK/A 63 WELDON SIDE LOCK HOLDER

HSK/A DIN 69893

Balancing 20,000 rpm

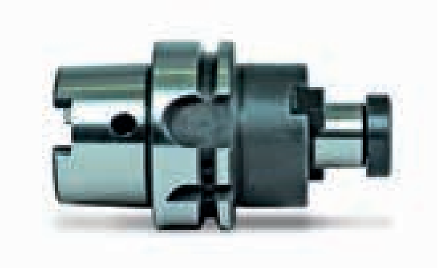


| HSK | Diameter | Length | | Ref. | Price each |
|---|---|---|---|---|---|
| 63 | 06 | 065 | 1 | 847565 | £ 72,37 |
| 63 | 08 | 065 | 1 | 847566 | £ 69,59 |
| 63 | 10 | 065 | 1 | 847567 | £ 69,59 |
| 63 | 12 | 080 | 1 | 847568 | £ 69,59 |
| 63 | 14 | 080 | 1 | 847569 | £ 69,59 |
| 63 | 16 | 080 | 1 | 847570 | £ 69,59 |
| 63 | 18 | 080 | 1 | 847571 | £ 69,59 |
| 63 | 20 | 080 | 1 | 847572 | £ 69,59 |
| 63 | 25 | 110 | 1 | 847573 | £ 72,37 |
| 63 | 32 | 110 | 1 | 847574 | £ 77,95 |
| 63 | 40 | 125 | 1 | 868323 | £ 97,43 |
| 63 | 06 | 100 | 1 | 868325 | £ 83,51 |
| 63 | 08 | 100 | 1 | 868326 | £ 82,58 |
| 63 | 10 | 100 | 1 | 868327 | £ 82,58 |
| 63 | 12 | 100 | 1 | 868328 | £ 82,58 |
| 63 | 14 | 100 | 1 | 868329 | £ 82,58 |
| 63 | 16 | 100 | 1 | 868330 | £ 82,58 |
| 63 | 18 | 100 | 1 | 868331 | £ 82,58 |
| 63 | 20 | 100 | 1 | 868332 | £ 82,58 |
| 63 | 06 | 160 | 1 | 868334 | £ 111,35 |
| 63 | 08 | 160 | 1 | 868335 | £ 110,42 |
| 63 | 10 | 160 | 1 | 868336 | £ 110,42 |
| 63 | 12 | 160 | 1 | 868337 | £ 110,42 |
| 63 | 14 | 160 | 1 | 868338 | £ 110,42 |
| 63 | 16 | 160 | 1 | 868339 | £ 110,42 |
| 63 | 18 | 160 | 1 | 868340 | £ 110,42 |
| 63 | 20 | 160 | 1 | 868341 | £ 110,42 |
| 63 | 25 | 160 | 1 | 868342 | £ 115,06 |

## HSK/A 63 SHELL MILL HOLDER

HSK/A DIN 69893

Balancing 20,000 rpm

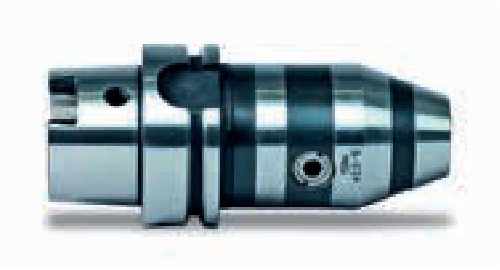


| HSK | Diameter | Length | 📦 | Ref. | Price each |
|---|---|---|---|---|---|
| 63 | 16 | 60 | 1 | 847560 | £ 77,01 |
| 63 | 22 | 60 | 1 | 847561 | £ 77,01 |
| 63 | 27 | 60 | 1 | 847562 | £ 78,88 |
| 63 | 32 | 65 | 1 | 847563 | £ 84,44 |
| 63 | 16 | 100 | 1 | 868385 | £ 83,51 |
| 63 | 22 | 100 | 1 | 868386 | £ 83,51 |
| 63 | 27 | 100 | 1 | 868387 | £ 85,36 |
| 63 | 32 | 100 | 1 | 868388 | £ 90,93 |

## HSK/A 63 DRILL CHUCK

HSK/A DIN 69893

Balancing 8,000 rpm



| HSK | Capacity | Length | 📦 | Ref. | Price each |
|---|---|---|---|---|---|
| 63 | 1-13 | 100 | 1 | 847579 | £ 280,28 |
| 63 | 3-16 | 105 | 1 | 847580 | £ 301,47 |

## HSK/A 63 TAPPING CHUCK

HSK/A DIN 69893

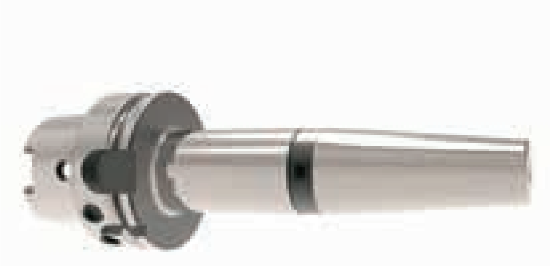
Balancing 8,000 rpm

| HSK | Capacity | Type of clamp | Length | 📦 | Ref. | Price each |
|---|---|---|---|---|---|---|
| 63 | M03-12 | GR1 | 81 | 1 | 868406 | £ 240,62 |
| 63 | M06-20 | GR2 | 119 | 1 | 868407 | £ 257,86 |
| 63 | M14-33 | GR3 | 176 | 1 | 868408 | £ 339,41 |

## HSK/A 63 HEAT SHRINK HOLDER 3°

HSK/A DIN 69893

Balancing 25,000 rpm

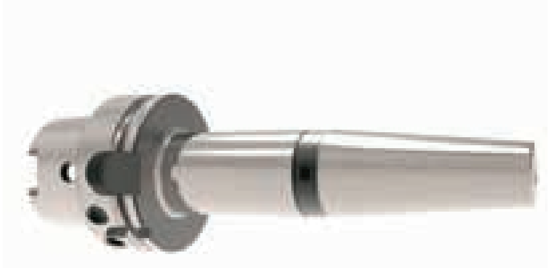


| HSK | Diameter | Length | | Ref. | Price each |
|---|---|---|---|---|---|
| 63 | 03 | 80 | 1 | 869936 | £ 152,16 |
| 63 | 03 | 120 | 1 | 869937 | £ 166,08 |
| 63 | 03 | 160 | 1 | 869938 | £ 233,82 |
| 63 | 04 | 80 | 1 | 869939 | £ 152,16 |
| 63 | 04 | 120 | 1 | 869940 | £ 166,08 |
| 63 | 04 | 160 | 1 | 869941 | £ 184,63 |
| 63 | 05 | 80 | 1 | 869942 | £ 147,53 |
| 63 | 05 | 120 | 1 | 869943 | £ 161,45 |
| 63 | 05 | 160 | 1 | 869944 | £ 180,00 |
| 63 | 06 | 80 | 1 | 869945 | £ 110,42 |
| 63 | 06 | 120 | 1 | 869946 | £ 140,11 |
| 63 | 06 | 160 | 1 | 869947 | £ 154,01 |
| 63 | 08 | 80 | 1 | 869948 | £ 110,42 |
| 63 | 08 | 120 | 1 | 869949 | £ 135,46 |
| 63 | 08 | 160 | 1 | 869950 | £ 154,01 |
| 63 | 10 | 85 | 1 | 869951 | £ 110,42 |
| 63 | 10 | 120 | 1 | 869952 | £ 135,46 |
| 63 | 10 | 160 | 1 | 869953 | £ 154,01 |
| 63 | 12 | 90 | 1 | 869954 | £ 110,42 |
| 63 | 12 | 120 | 1 | 869955 | £ 135,46 |
| 63 | 12 | 160 | 1 | 869956 | £ 154,01 |
| 63 | 14 | 90 | 1 | 869957 | £ 110,42 |
| 63 | 14 | 120 | 1 | 869958 | £ 135,46 |
| 63 | 14 | 160 | 1 | 869959 | £ 154,01 |
| 63 | 16 | 95 | 1 | 869960 | £ 110,42 |
| 63 | 16 | 120 | 1 | 869961 | £ 135,46 |
| 63 | 16 | 160 | 1 | 869962 | £ 154,01 |
| 63 | 18 | 95 | 1 | 869963 | £ 110,42 |
| 63 | 18 | 120 | 1 | 869964 | £ 135,46 |
| 63 | 18 | 160 | 1 | 869965 | £ 154,01 |
| 63 | 20 | 100 | 1 | 869966 | £ 110,42 |
| 63 | 20 | 120 | 1 | 869967 | £ 135,46 |
| 63 | 20 | 160 | 1 | 869968 | £ 154,01 |

## HSK/A 63 HEAT SHRINK HOLDER 4.5°

HSK/A | DIN 69893

Balancing 25,000 rpm



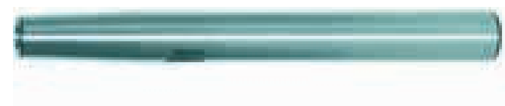
| HSK | Diameter | Length | | Ref. | Price each |
|---|---|---|---|---|---|
| 63 | 03 | 080 | 1 | 869783 | £ 110,38 |
| 63 | 03 | 120 | 1 | 869784 | £ 130,53 |
| 63 | 03 | 160 | 1 | 869785 | £ 145,22 |
| 63 | 04 | 080 | 1 | 869786 | £ 110,38 |
| 63 | 04 | 120 | 1 | 869787 | £ 128,69 |
| 63 | 04 | 160 | 1 | 869788 | £ 145,22 |
| 63 | 05 | 080 | 1 | 869789 | £ 110,38 |
| 63 | 05 | 120 | 1 | 869790 | £ 125,01 |
| 63 | 05 | 160 | 1 | 869791 | £ 145,22 |
| 63 | 06 | 080 | 1 | 869792 | £ 86,41 |
| 63 | 06 | 120 | 1 | 869793 | £ 105,58 |
| 63 | 06 | 160 | 1 | 869794 | £ 128,69 |
| 63 | 08 | 080 | 1 | 869795 | £ 86,41 |
| 63 | 08 | 120 | 1 | 869796 | £ 105,58 |
| 63 | 08 | 160 | 1 | 869797 | £ 128,69 |
| 63 | 10 | 085 | 1 | 869798 | £ 86,41 |
| 63 | 10 | 120 | 1 | 869799 | £ 105,58 |
| 63 | 10 | 160 | 1 | 869800 | £ 128,69 |
| 63 | 12 | 090 | 1 | 869801 | £ 86,41 |
| 63 | 12 | 120 | 1 | 869802 | £ 105,58 |
| 63 | 12 | 160 | 1 | 869803 | £ 128,69 |
| 63 | 14 | 090 | 1 | 869804 | £ 86,41 |
| 63 | 14 | 120 | 1 | 869805 | £ 105,58 |
| 63 | 14 | 160 | 1 | 869806 | £ 128,69 |
| 63 | 16 | 095 | 1 | 869807 | £ 86,41 |
| 63 | 16 | 120 | 1 | 869808 | £ 105,58 |
| 63 | 16 | 160 | 1 | 869809 | £ 128,69 |
| 63 | 18 | 095 | 1 | 869810 | £ 86,41 |
| 63 | 18 | 120 | 1 | 869811 | £ 105,58 |
| 63 | 18 | 160 | 1 | 869812 | £ 128,69 |
| 63 | 20 | 100 | 1 | 869813 | £ 86,41 |
| 63 | 20 | 120 | 1 | 869814 | £ 105,58 |
| 63 | 20 | 160 | 1 | 869815 | £ 128,69 |
| 63 | 25 | 115 | 1 | 869816 | £ 90,09 |
| 63 | 25 | 120 | 1 | 869817 | £ 105,58 |
| 63 | 25 | 160 | 1 | 869818 | £ 128,69 |
| 63 | 32 | 120 | 1 | 869819 | £ 105,58 |
| 63 | 32 | 160 | 1 | 869820 | £ 123,17 |

## HEAT SHRINK EXTENSION 4.5°

A

DIN 1835

Balancing 25,000 rpm



| Exterior diameter | Interior diameter | Length | | Ref. | Price each |
|---|---|---|---|---|---|
| 12 | 3 | 150 | 1 | 870001 | £ 68,20 |
| 12 | 4 | 150 | 1 | 870002 | £ 68,20 |
| 12 | 5 | 150 | 1 | 870003 | £ 68,20 |
| 12 | 6 | 150 | 1 | 870004 | £ 68,20 |
| 16 | 3 | 150 | 1 | 870005 | £ 68,20 |
| 16 | 4 | 150 | 1 | 870006 | £ 68,20 |
| 16 | 5 | 150 | 1 | 870007 | £ 68,20 |
| 16 | 6 | 150 | 1 | 870008 | £ 68,20 |
| 16 | 8 | 150 | 1 | 870009 | £ 68,20 |
| 20 | 2 | 150 | 1 | 870010 | £ 68,20 |
| 20 | 4 | 150 | 1 | 870011 | £ 68,20 |
| 20 | 5 | 150 | 1 | 870012 | £ 68,20 |
| 20 | 6 | 150 | 1 | 870013 | £ 68,20 |
| 20 | 8 | 150 | 1 | 870014 | £ 68,20 |
| 20 | 10 | 150 | 1 | 870015 | £ 68,20 |
| 20 | 12 | 150 | 1 | 870016 | £ 68,20 |
| 25 | 3 | 150 | 1 | 870017 | £ 68,20 |
| 25 | 4 | 150 | 1 | 870018 | £ 68,20 |
| 25 | 5 | 150 | 1 | 870019 | £ 68,20 |
| 25 | 6 | 150 | 1 | 870020 | £ 68,20 |
| 25 | 8 | 150 | 1 | 870021 | £ 68,20 |
| 25 | 10 | 150 | 1 | 870022 | £ 68,20 |
| 25 | 12 | 150 | 1 | 870023 | £ 68,20 |
| 25 | 14 | 150 | 1 | 870024 | £ 68,20 |
| 25 | 16 | 150 | 1 | 870025 | £ 68,20 |
| 32 | 6 | 150 | 1 | 870026 | £ 68,20 |
| 32 | 8 | 150 | 1 | 870027 | £ 68,20 |
| 32 | 10 | 150 | 1 | 870028 | £ 68,20 |
| 32 | 12 | 150 | 1 | 870029 | £ 68,20 |
| 32 | 14 | 150 | 1 | 870030 | £ 68,20 |
| 32 | 16 | 150 | 1 | 870031 | £ 68,20 |
| 32 | 18 | 150 | 1 | 870032 | £ 68,20 |
| 32 | 20 | 150 | 1 | 870033 | £ 68,20 |

## HSK/A 63 BLANKING PLUG

A | HSK/A | HSK/C | DIN 69893

Adaptable for HSK A+C

| HSK | | Ref. | Price each |
|---|---|---|---|
| 63 | 1 | 868425 | £ 7,19 |

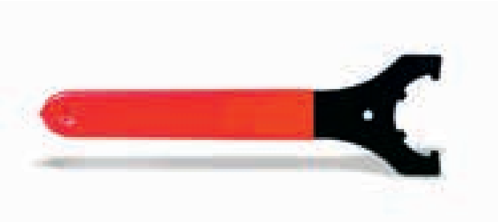
## HSK/A 63 BLANKING PLUG WRENCH

HSK/A | HSK/C

Adaptable for HSK A+C

| HSK | | Ref. | Price each |
|---|---|---|---|
| 63 | 1 | 868427 | £ 23,32 |

## ER COLLET SPANNER



| Dimensions | | Ref. | Price each |
|---|---|---|---|
| ER16 | 1 | 868429 | £ 12,32 |
| ER20 | 1 | 868430 | £ 14,80 |
| ER25 | 1 | 868431 | £ 13,56 |
| ER32 | 1 | 868432 | £ 15,41 |
| ER40 | 1 | 868433 | £ 18,50 |

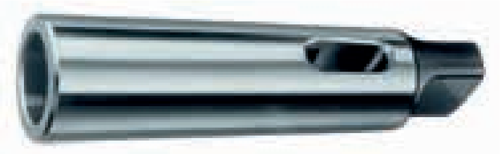
## MILLING ARBOUR CLAMPING SCREWS

| Mandrel diameter | Screw diameter | | Ref. | Price each |
|---|---|---|---|---|
| 16 | M8 | 1 | 870035 | £ 5,72 |
| 22 | M10 | 1 | 870036 | £ 7,61 |
| 27 | M12 | 1 | 870037 | £ 9,51 |
| 32 | M16 | 1 | 870038 | £ 11,41 |
| 40 | M20 | 1 | 870039 | £ 15,20 |

## MILLING ARBOUR CLAMPING SCREWS THROUGH COOLANT

| Mandrel diameter | Screw diameter | | Ref. | Price each |
|---|---|---|---|---|
| 16 | M8 | 1 | 870041 | £ 12,67 |
| 22 | M10 | 1 | 870042 | £ 13,94 |
| 27 | M12 | 1 | 870043 | £ 15,20 |
| 32 | M16 | 1 | 870044 | £ 17,72 |
| 40 | M20 | 1 | 870045 | £ 20,25 |

## TAPER SHANK REDUCING SLEEVES



| Exterior diameter | Interior diameter | | Ref. | Price each |
|---|---|---|---|---|
| MT2 | MT1 | 1 | 868917 | £ 5,38 |
| MT3 | MT1 | 1 | 868918 | £ 6,73 |
| MT3 | MT2 | 1 | 868919 | £ 6,73 |
| MT4 | MT1 | 1 | 868920 | £ 10,23 |
| MT4 | MT2 | 1 | 868921 | £ 10,23 |
| MT4 | MT3 | 1 | 868922 | £ 10,23 |
| MT5 | MT1 | 1 | 868923 | £ 18,17 |
| MT5 | MT2 | 1 | 868924 | £ 18,17 |
| MT5 | MT3 | 1 | 868925 | £ 18,17 |
| MT5 | MT4 | 1 | 868926 | £ 18,17 |

## MT DRILL DRIFT

| Capacity | Length | | Ref. | Price each |
|---|---|---|---|---|
| MT1 / MT2 | 140 | 1 | 868941 | £ 2,64 |
| MT3 | 190 | 1 | 868942 | £ 3,91 |
| MT4 | 225 | 1 | 868943 | £ 6,73 |
| MT5 | 250 | 1 | 868944 | £ 12,56 |

## AUTOMATIC DRILL DRIFT

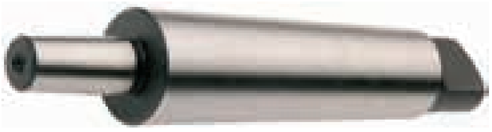
| Capacity | Length | | Ref. | Price each |
|---|---|---|---|---|
| MT1 to MT3 | 317 | 1 | 868946 | £ 47,54 |
| MT4 to MT6 | 380 | 1 | 868947 | £ 60,06 |

## DRILL CHUCK KEYLESS

Quick-clamping drilling mandrels for DIN 238 shafts.

| Handle fitting | Capacity | | Ref. | Price each |
|---|---|---|---|---|
| B12 | 0 to 10 | 1 | 869092 | £ 89,29 |
| B16 | 1 to 13 | 1 | 869093 | £ 96,16 |
| B16 | 3 to 16 | 1 | 869094 | £ 110,49 |
| B18 | 3 to 16 | 1 | 869095 | £ 110,49 |

## DRILL CHUCK ARBOR

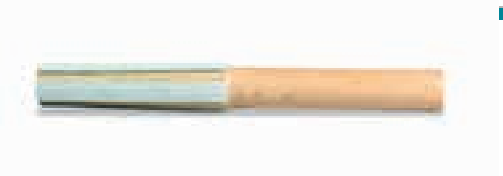


| Taper shank dimensions | Handle fitting | | Ref. | Price each |
|---|---|---|---|---|
| B10 | MT1 | 1 | 868928 | £ 4,68 |
| B12 | MT1 | 1 | 868929 | £ 4,16 |
| B16 | MT1 | 1 | 868930 | £ 4,16 |
| B10 | MT2 | 1 | 868931 | £ 4,56 |
| B12 | MT2 | 1 | 868932 | £ 4,56 |
| B16 | MT2 | 1 | 868933 | £ 4,56 |
| B18 | MT2 | 1 | 868934 | £ 4,56 |
| B12 | MT3 | 1 | 868935 | £ 5,87 |
| B16 | MT3 | 1 | 868936 | £ 5,87 |
| B18 | MT3 | 1 | 868937 | £ 5,87 |
| B16 | MT4 | 1 | 868938 | £ 7,80 |
| B18 | MT4 | 1 | 868939 | £ 7,80 |

## UNIVERSAL MOUNTING BLOCK

| Type | Taper | | Ref. | Price each |
|---|---|---|---|---|
| 1 | ISO40 / BT40 / SK40 / HSK63 | 1 | 869089 | £ 178,02 |
| 2 | ISO50 / BT 50 / SK50 / HSK100 | 1 | 869090 | £ 201,75 |

TOOL HOLDING

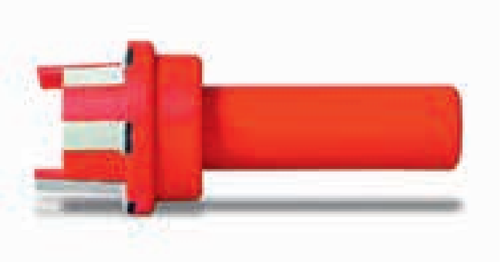


## TAPER CLEANER MT

| Taper | | Ref. | Price each |
|---|---|---|---|
| MT1 | 1 | 868949 | £ 7,41 |
| MT2 | 1 | 868950 | £ 7,41 |
| MT3 | 1 | 868951 | £ 8,63 |
| MT4 | 1 | 868952 | £ 12,32 |
| MT5 | 1 | 868953 | £ 14,80 |
| MT6 | 1 | 868954 | £ 30,80 |

## TAPER CLEANER SK

| Taper | | Ref. | Price each |
|---|---|---|---|
| ISO30 / BT30 / SK30 | 1 | 868956 | £ 16,02 |
| ISO40 / BT40 / SK40 | 1 | 868957 | £ 12,32 |
| ISO50 / BT 50 / SK50 | 1 | 868958 | £ 17,26 |



## TAPER CLEANER HSK

| Taper | | Ref. | Price each |
|---|---|---|---|
| HSK32 | 1 | 868960 | £ 43,13 |
| HSK40 | 1 | 868961 | £ 43,13 |
| HSK50 | 1 | 868962 | £ 44,37 |
| HSK63 | 1 | 868963 | £ 44,37 |
| HSK100 | 1 | 868964 | £ 61,61 |

## COLLET ER11 CLASS 2

DIN 6499B | 15µ

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER11 | 1 | 1 | 868435 | £ 12,95 |
| ER11 | 1,5 | 1 | 868436 | £ 12,95 |
| ER11 | 2 | 1 | 868437 | £ 12,95 |
| ER11 | 2,5 | 1 | 868438 | £ 12,95 |
| ER11 | 3 | 1 | 868439 | £ 12,95 |
| ER11 | 3,5 | 1 | 868440 | £ 12,95 |
| ER11 | 4 | 1 | 868441 | £ 12,95 |
| ER11 | 4,5 | 1 | 868442 | £ 12,95 |
| ER11 | 5 | 1 | 868443 | £ 12,95 |
| ER11 | 5,5 | 1 | 868444 | £ 12,95 |
| ER11 | 6 | 1 | 868445 | £ 12,95 |
| ER11 | 6,5 | 1 | 868446 | £ 12,95 |
| ER11 | 7 | 1 | 868447 | £ 12,95 |

## COLLET ER16 CLASS 2

DIN 6499B | 15µ

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER16 | 1 | 1 | 868448 | £ 9,88 |
| ER16 | 1,5 | 1 | 868449 | £ 9,88 |
| ER16 | 2 | 1 | 868450 | £ 9,88 |
| ER16 | 2,5 | 1 | 868451 | £ 9,88 |
| ER16 | 3 | 1 | 868452 | £ 9,88 |
| ER16 | 3,5 | 1 | 868453 | £ 9,88 |
| ER16 | 4 | 1 | 868454 | £ 9,88 |
| ER16 | 4,5 | 1 | 868455 | £ 9,88 |
| ER16 | 5 | 1 | 868456 | £ 9,88 |
| ER16 | 5,5 | 1 | 868457 | £ 9,88 |
| ER16 | 6 | 1 | 868458 | £ 9,88 |
| ER16 | 6,5 | 1 | 868459 | £ 9,88 |
| ER16 | 7 | 1 | 868460 | £ 9,88 |
| ER16 | 7,5 | 1 | 868461 | £ 9,88 |
| ER16 | 8 | 1 | 868462 | £ 9,88 |
| ER16 | 8,5 | 1 | 868463 | £ 9,88 |
| ER16 | 9 | 1 | 868464 | £ 9,88 |
| ER16 | 9,5 | 1 | 868465 | £ 9,88 |
| ER16 | 10 | 1 | 868466 | £ 9,88 |

## COLLET ER20 CLASS 2

DIN 6499B | 15µ

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER20 | 1 | 1 | 868467 | £ 10,21 |
| ER20 | 2 | 1 | 868468 | £ 10,21 |
| ER20 | 2,5 | 1 | 868469 | £ 10,21 |
| ER20 | 3 | 1 | 868470 | £ 10,21 |
| ER20 | 4 | 1 | 868471 | £ 10,21 |
| ER20 | 5 | 1 | 868472 | £ 10,21 |
| ER20 | 6 | 1 | 868473 | £ 10,21 |
| ER20 | 7 | 1 | 868474 | £ 10,21 |
| ER20 | 8 | 1 | 868475 | £ 10,21 |
| ER20 | 9 | 1 | 868476 | £ 10,21 |
| ER20 | 10 | 1 | 868477 | £ 10,21 |
| ER20 | 11 | 1 | 868478 | £ 10,21 |
| ER20 | 12 | 1 | 868479 | £ 10,21 |
| ER20 | 13 | 1 | 868480 | £ 10,21 |

## COLLET ER25 CLASS 2

DIN 6499B | 15 µm

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER25 | 1 | 1 | 868481 | £ 10,21 |
| ER25 | 1,5 | 1 | 868482 | £ 13,62 |
| ER25 | 2 | 1 | 868483 | £ 10,21 |
| ER25 | 2,5 | 1 | 868484 | £ 13,62 |
| ER25 | 3 | 1 | 868485 | £ 10,21 |
| ER25 | 4 | 1 | 868486 | £ 10,21 |
| ER25 | 5 | 1 | 868487 | £ 10,21 |
| ER25 | 6 | 1 | 868488 | £ 10,21 |
| ER25 | 7 | 1 | 868489 | £ 10,21 |

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER25 | 8 | 1 | 868490 | £ 10,21 |
| ER25 | 9 | 1 | 868491 | £ 10,21 |
| ER25 | 10 | 1 | 868492 | £ 10,21 |
| ER25 | 11 | 1 | 868493 | £ 10,21 |
| ER25 | 12 | 1 | 868494 | £ 10,21 |
| ER25 | 13 | 1 | 868495 | £ 10,21 |
| ER25 | 14 | 1 | 868496 | £ 10,21 |
| ER25 | 15 | 1 | 868497 | £ 10,21 |
| ER25 | 16 | 1 | 868498 | £ 10,21 |

## COLLET ER32 CLASS 2

DIN 6499B | 15 µm

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER32 | 2 | 1 | 868499 | £ 10,21 |
| ER32 | 3 | 1 | 868500 | £ 10,21 |
| ER32 | 4 | 1 | 868501 | £ 10,21 |
| ER32 | 5 | 1 | 868502 | £ 10,21 |
| ER32 | 6 | 1 | 868503 | £ 10,21 |
| ER32 | 7 | 1 | 868504 | £ 10,21 |
| ER32 | 8 | 1 | 868505 | £ 10,21 |
| ER32 | 9 | 1 | 868506 | £ 10,21 |
| ER32 | 10 | 1 | 868507 | £ 10,21 |
| ER32 | 11 | 1 | 868508 | £ 10,21 |

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER32 | 12 | 1 | 868509 | £ 10,21 |
| ER32 | 13 | 1 | 868510 | £ 10,21 |
| ER32 | 14 | 1 | 868511 | £ 10,21 |
| ER32 | 15 | 1 | 868512 | £ 10,21 |
| ER32 | 16 | 1 | 868513 | £ 10,21 |
| ER32 | 17 | 1 | 868514 | £ 10,21 |
| ER32 | 18 | 1 | 868515 | £ 10,21 |
| ER32 | 19 | 1 | 868516 | £ 10,21 |
| ER32 | 20 | 1 | 868517 | £ 10,21 |

## COLLET ER40 CLASS 2

DIN 6499B | 15µ

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER40 | 3 | 1 | 868518 | £ 12,49 |
| ER40 | 4 | 1 | 868519 | £ 12,49 |
| ER40 | 5 | 1 | 868520 | £ 12,49 |
| ER40 | 6 | 1 | 868521 | £ 12,49 |
| ER40 | 7 | 1 | 868522 | £ 12,49 |
| ER40 | 8 | 1 | 868523 | £ 12,49 |
| ER40 | 9 | 1 | 868524 | £ 12,49 |
| ER40 | 10 | 1 | 868525 | £ 12,49 |
| ER40 | 11 | 1 | 868526 | £ 12,49 |
| ER40 | 12 | 1 | 868527 | £ 12,49 |
| ER40 | 13 | 1 | 868528 | £ 12,49 |
| ER40 | 14 | 1 | 868529 | £ 12,49 |
| ER40 | 15 | 1 | 868530 | £ 12,49 |
| ER40 | 16 | 1 | 868531 | £ 12,49 |

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER40 | 17 | 1 | 868532 | £ 12,49 |
| ER40 | 18 | 1 | 868533 | £ 12,49 |
| ER40 | 19 | 1 | 868534 | £ 12,49 |
| ER40 | 20 | 1 | 868535 | £ 12,49 |
| ER40 | 21 | 1 | 868536 | £ 12,49 |
| ER40 | 22 | 1 | 868537 | £ 12,49 |
| ER40 | 23 | 1 | 868538 | £ 12,49 |
| ER40 | 24 | 1 | 868539 | £ 12,49 |
| ER40 | 25 | 1 | 868540 | £ 12,49 |
| ER40 | 26 | 1 | 868541 | £ 12,49 |
| ER40 | 27 | 1 | 868542 | £ 14,75 |
| ER40 | 28 | 1 | 868543 | £ 14,75 |
| ER40 | 29 | 1 | 868544 | £ 14,75 |
| ER40 | 30 | 1 | 868545 | £ 14,75 |

## COLLET PRECISION ER11+

DIN 6499B | 5μ

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER11 | 1 | 1 | 868547 | £ 28,35 |
| ER11 | 1,5 | 1 | 868548 | £ 28,35 |
| ER11 | 2 | 1 | 868549 | £ 28,35 |
| ER11 | 2,5 | 1 | 868550 | £ 28,35 |
| ER11 | 3 | 1 | 868551 | £ 22,19 |
| ER11 | 3,5 | 1 | 868552 | £ 22,19 |
| ER11 | 4 | 1 | 868553 | £ 22,19 |

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER11 | 4,5 | 1 | 868554 | £ 22,19 |
| ER11 | 5 | 1 | 868555 | £ 22,19 |
| ER11 | 5,5 | 1 | 868556 | £ 22,19 |
| ER11 | 6 | 1 | 868557 | £ 22,19 |
| ER11 | 6,5 | 1 | 868558 | £ 22,19 |
| ER11 | 7 | 1 | 868559 | £ 22,19 |

## COLLET PRECISION ER16+

DIN 6499B | 5μ

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER16 | 1 | 1 | 868560 | £ 19,50 |
| ER16 | 1,5 | 1 | 868561 | £ 19,50 |
| ER16 | 2 | 1 | 868562 | £ 19,50 |
| ER16 | 2,5 | 1 | 868563 | £ 19,50 |
| ER16 | 3 | 1 | 868564 | £ 14,30 |
| ER16 | 3,5 | 1 | 868565 | £ 14,30 |
| ER16 | 4 | 1 | 868566 | £ 14,30 |
| ER16 | 4,5 | 1 | 868567 | £ 14,30 |
| ER16 | 5 | 1 | 868568 | £ 14,30 |
| ER16 | 5,5 | 1 | 868569 | £ 14,30 |

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER16 | 6 | 1 | 868570 | £ 14,30 |
| ER16 | 6,5 | 1 | 868571 | £ 14,30 |
| ER16 | 7 | 1 | 868572 | £ 14,30 |
| ER16 | 7,5 | 1 | 868573 | £ 14,30 |
| ER16 | 8 | 1 | 868574 | £ 14,30 |
| ER16 | 8,5 | 1 | 868575 | £ 14,30 |
| ER16 | 9 | 1 | 868576 | £ 14,30 |
| ER16 | 9,5 | 1 | 868577 | £ 14,30 |
| ER16 | 10 | 1 | 868578 | £ 14,30 |

## COLLET PRECISION ER20+

DIN 6499B | 5μ

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER20 | 1 | 1 | 868579 | £ 15,36 |
| ER20 | 2 | 1 | 868580 | £ 15,36 |
| ER20 | 3 | 1 | 868581 | £ 15,36 |
| ER20 | 4 | 1 | 868582 | £ 15,36 |
| ER20 | 5 | 1 | 868583 | £ 15,36 |
| ER20 | 6 | 1 | 868584 | £ 15,36 |
| ER20 | 7 | 1 | 868585 | £ 15,36 |

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER20 | 8 | 1 | 868586 | £ 15,36 |
| ER20 | 9 | 1 | 868587 | £ 15,36 |
| ER20 | 10 | 1 | 868588 | £ 15,36 |
| ER20 | 11 | 1 | 868589 | £ 15,36 |
| ER20 | 12 | 1 | 868590 | £ 15,36 |
| ER20 | 13 | 1 | 868591 | £ 15,36 |

## COLLET PRECISION ER25+

DIN 6499B | 5µ

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER25 | 1 | 1 | 868592 | £ 15,61 |
| ER25 | 1,5 | 1 | 868593 | £ 19,50 |
| ER25 | 2 | 1 | 868594 | £ 18,21 |
| ER25 | 2,5 | 1 | 868595 | £ 19,50 |
| ER25 | 3 | 1 | 868596 | £ 15,61 |
| ER25 | 3,5 | 1 | 868597 | £ 19,50 |
| ER25 | 4 | 1 | 868598 | £ 15,61 |
| ER25 | 4,5 | 1 | 868599 | £ 19,50 |
| ER25 | 5 | 1 | 868600 | £ 15,61 |
| ER25 | 5,5 | 1 | 868601 | £ 19,50 |
| ER25 | 6 | 1 | 868602 | £ 15,61 |
| ER25 | 6,5 | 1 | 868603 | £ 19,50 |
| ER25 | 7 | 1 | 868604 | £ 15,61 |
| ER25 | 7,5 | 1 | 868605 | £ 19,50 |
| ER25 | 8 | 1 | 868606 | £ 15,61 |
| ER25 | 8,5 | 1 | 868607 | £ 19,50 |

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER25 | 9 | 1 | 868608 | £ 15,61 |
| ER25 | 9,5 | 1 | 868609 | £ 19,50 |
| ER25 | 10 | 1 | 868610 | £ 15,61 |
| ER25 | 10,5 | 1 | 868611 | £ 19,50 |
| ER25 | 11 | 1 | 868612 | £ 15,61 |
| ER25 | 11,5 | 1 | 868613 | £ 19,50 |
| ER25 | 12 | 1 | 868614 | £ 15,61 |
| ER25 | 12,5 | 1 | 868615 | £ 19,50 |
| ER25 | 13 | 1 | 868616 | £ 15,61 |
| ER25 | 13,5 | 1 | 868617 | £ 19,50 |
| ER25 | 14 | 1 | 868618 | £ 15,61 |
| ER25 | 14,5 | 1 | 868619 | £ 19,50 |
| ER25 | 15 | 1 | 868620 | £ 15,61 |
| ER25 | 15,5 | 1 | 868621 | £ 19,50 |
| ER25 | 16 | 1 | 868622 | £ 15,61 |

## COLLET PRECISION ER32+

DIN 6499B | 5µ

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER32 | 2 | 1 | 868623 | £ 16,27 |
| ER32 | 3 | 1 | 868624 | £ 16,27 |
| ER32 | 4 | 1 | 868625 | £ 16,27 |
| ER32 | 5 | 1 | 868626 | £ 16,27 |
| ER32 | 6 | 1 | 868627 | £ 16,27 |
| ER32 | 7 | 1 | 868628 | £ 16,27 |
| ER32 | 8 | 1 | 868629 | £ 16,27 |
| ER32 | 9 | 1 | 868630 | £ 16,27 |
| ER32 | 10 | 1 | 868631 | £ 16,27 |
| ER32 | 11 | 1 | 868632 | £ 16,27 |

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER32 | 12 | 1 | 868633 | £ 16,27 |
| ER32 | 13 | 1 | 868634 | £ 16,27 |
| ER32 | 14 | 1 | 868635 | £ 16,27 |
| ER32 | 15 | 1 | 868636 | £ 16,27 |
| ER32 | 16 | 1 | 868637 | £ 16,27 |
| ER32 | 17 | 1 | 868638 | £ 16,27 |
| ER32 | 18 | 1 | 868639 | £ 16,27 |
| ER32 | 19 | 1 | 868640 | £ 16,27 |
| ER32 | 20 | 1 | 868641 | £ 16,27 |

## COLLET PRECISION ER40+

DIN 6499B | 5µ

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER40 | 3 | 1 | 868642 | £ 19,50 |
| ER40 | 4 | 1 | 868643 | £ 19,50 |
| ER40 | 5 | 1 | 868644 | £ 19,50 |
| ER40 | 6 | 1 | 868645 | £ 19,50 |
| ER40 | 7 | 1 | 868646 | £ 19,50 |
| ER40 | 8 | 1 | 868647 | £ 19,50 |
| ER40 | 9 | 1 | 868648 | £ 19,50 |
| ER40 | 10 | 1 | 868649 | £ 19,50 |
| ER40 | 11 | 1 | 868650 | £ 19,50 |
| ER40 | 12 | 1 | 868651 | £ 19,50 |
| ER40 | 13 | 1 | 868652 | £ 19,50 |
| ER40 | 14 | 1 | 868653 | £ 19,50 |

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER40 | 15 | 1 | 868654 | £ 19,50 |
| ER40 | 16 | 1 | 868655 | £ 19,50 |
| ER40 | 17 | 1 | 868656 | £ 19,50 |
| ER40 | 18 | 1 | 868657 | £ 19,50 |
| ER40 | 19 | 1 | 868658 | £ 19,50 |
| ER40 | 20 | 1 | 868659 | £ 19,50 |
| ER40 | 21 | 1 | 868660 | £ 19,50 |
| ER40 | 22 | 1 | 868661 | £ 19,50 |
| ER40 | 23 | 1 | 868662 | £ 19,50 |
| ER40 | 24 | 1 | 868663 | £ 19,50 |
| ER40 | 25 | 1 | 868664 | £ 19,50 |
| ER40 | 26 | 1 | 868665 | £ 19,50 |

## SET OF ER COLLETS CLASS 2

DIN 6499B | 15µ

| Dimensions | Range | Increment | Number of clamps | | Ref. | Price each |
|---|---|---|---|---|---|---|
| ER8 | 1 to 5 | 0,5 | 9 | 1 | 868904 | £ 158,50 |
| ER11 | 1 to 7 | 1 | 7 | 1 | 868905 | £ 72,34 |
| ER16 | 1 to 10 | 1 | 10 | 1 | 868906 | £ 80,73 |
| ER20 | 2 to 13 | 1 | 12 | 1 | 868907 | £ 109,08 |
| ER25 | 2 to 16 | 1 | 15 | 1 | 868908 | £ 126,30 |
| ER32 | 3 to 20 | 1 | 18 | 1 | 868909 | £ 155,72 |
| ER40 | 4 to 26 | 1 | 23 | 1 | 868910 | £ 237,35 |



## SET OF PRECISION ER+ COLLETS

DIN 6499B | 5µ

| Dimensions | Range | Increment | Number of clamps | | Ref. | Price each |
|---|---|---|---|---|---|---|
| ER16 | 1 to 10 | 1 | 10 | 1 | 868911 | £ 129,53 |
| ER20 | 2 to 13 | 1 | 12 | 1 | 868912 | £ 153,39 |
| ER25 | 2 to 16 | 1 | 15 | 1 | 868913 | £ 197,70 |
| ER32 | 3 to 20 | 1 | 18 | 1 | 868914 | £ 236,81 |
| ER40 | 4 to 26 | 1 | 23 | 1 | 868915 | £ 355,21 |

## COLLET ER16 SEALED APPLICABLE UP TO 21 BAR

DIN 6499B | 15μ

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER16 | 3 | 1 | 868966 | £ 30,91 |
| ER16 | 4 | 1 | 868967 | £ 30,91 |
| ER16 | 5 | 1 | 868968 | £ 30,91 |
| ER16 | 6 | 1 | 868969 | £ 30,91 |

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER16 | 7 | 1 | 868970 | £ 30,91 |
| ER16 | 8 | 1 | 868971 | £ 30,91 |
| ER16 | 9 | 1 | 868972 | £ 30,91 |
| ER16 | 10 | 1 | 868973 | £ 30,91 |

## COLLET ER20 SEALED APPLICABLE UP TO 21 BAR

DIN 6499B | 15μ

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER20 | 3 | 1 | 868975 | £ 35,70 |
| ER20 | 4 | 1 | 868976 | £ 35,70 |
| ER20 | 5 | 1 | 868977 | £ 35,70 |
| ER20 | 6 | 1 | 868978 | £ 35,70 |
| ER20 | 7 | 1 | 868979 | £ 35,70 |
| ER20 | 8 | 1 | 868980 | £ 35,70 |

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER20 | 9 | 1 | 868981 | £ 35,70 |
| ER20 | 10 | 1 | 868982 | £ 35,70 |
| ER20 | 11 | 1 | 868983 | £ 35,70 |
| ER20 | 12 | 1 | 868984 | £ 35,70 |
| ER20 | 13 | 1 | 868985 | £ 35,70 |

## COLLET ER25 SEALED APPLICABLE UP TO 21 BAR

DIN 6499B | 15μ

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER25 | 3 | 1 | 868987 | £ 31,68 |
| ER25 | 4 | 1 | 868988 | £ 31,68 |
| ER25 | 5 | 1 | 868989 | £ 31,68 |
| ER25 | 6 | 1 | 868990 | £ 31,68 |
| ER25 | 7 | 1 | 868991 | £ 31,68 |
| ER25 | 8 | 1 | 868992 | £ 31,68 |
| ER25 | 9 | 1 | 868993 | £ 31,68 |

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER25 | 10 | 1 | 868994 | £ 31,68 |
| ER25 | 11 | 1 | 868995 | £ 31,68 |
| ER25 | 12 | 1 | 868996 | £ 31,68 |
| ER25 | 13 | 1 | 868997 | £ 31,68 |
| ER25 | 14 | 1 | 868998 | £ 31,68 |
| ER25 | 15 | 1 | 868999 | £ 31,68 |
| ER25 | 16 | 1 | 869000 | £ 31,68 |

## COLLET ER32 SEALED APPLICABLE UP TO 21 BAR

DIN 6499B | 15μ

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER32 | 3 | 1 | 869002 | £ 33,24 |
| ER32 | 4 | 1 | 869003 | £ 33,24 |
| ER32 | 5 | 1 | 869004 | £ 33,24 |
| ER32 | 6 | 1 | 869005 | £ 33,24 |
| ER32 | 7 | 1 | 869006 | £ 33,24 |
| ER32 | 8 | 1 | 869007 | £ 33,24 |
| ER32 | 9 | 1 | 869008 | £ 33,24 |
| ER32 | 10 | 1 | 869009 | £ 33,24 |
| ER32 | 11 | 1 | 869010 | £ 33,24 |

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER32 | 12 | 1 | 869011 | £ 33,24 |
| ER32 | 13 | 1 | 869012 | £ 33,24 |
| ER32 | 14 | 1 | 869013 | £ 33,24 |
| ER32 | 15 | 1 | 869014 | £ 33,24 |
| ER32 | 16 | 1 | 869015 | £ 33,24 |
| ER32 | 17 | 1 | 869016 | £ 33,24 |
| ER32 | 18 | 1 | 869017 | £ 33,24 |
| ER32 | 19 | 1 | 869018 | £ 33,24 |
| ER32 | 20 | 1 | 869019 | £ 33,24 |

## COLLET ER40 SEALED APPLICABLE UP TO 21 BAR

DIN 6499B | 15μ

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER40 | 3 | 1 | 869021 | £ 39,20 |
| ER40 | 4 | 1 | 869022 | £ 39,20 |
| ER40 | 5 | 1 | 869023 | £ 39,20 |
| ER40 | 6 | 1 | 869024 | £ 39,20 |
| ER40 | 7 | 1 | 869025 | £ 39,20 |
| ER40 | 8 | 1 | 869026 | £ 39,20 |
| ER40 | 9 | 1 | 869027 | £ 39,20 |
| ER40 | 10 | 1 | 869028 | £ 39,20 |
| ER40 | 11 | 1 | 869029 | £ 39,20 |
| ER40 | 12 | 1 | 869030 | £ 39,20 |
| ER40 | 13 | 1 | 869031 | £ 39,20 |
| ER40 | 14 | 1 | 869032 | £ 39,20 |

| Dimensions | Diameter | | Ref. | Price each |
|---|---|---|---|---|
| ER40 | 15 | 1 | 869033 | £ 39,20 |
| ER40 | 16 | 1 | 869034 | £ 39,20 |
| ER40 | 17 | 1 | 869035 | £ 39,20 |
| ER40 | 18 | 1 | 869036 | £ 39,20 |
| ER40 | 19 | 1 | 869037 | £ 39,20 |
| ER40 | 20 | 1 | 869038 | £ 39,20 |
| ER40 | 21 | 1 | 869039 | £ 39,20 |
| ER40 | 22 | 1 | 869040 | £ 39,20 |
| ER40 | 23 | 1 | 869041 | £ 39,20 |
| ER40 | 24 | 1 | 869042 | £ 39,20 |
| ER40 | 25 | 1 | 869043 | £ 39,20 |
| ER40 | 26 | 1 | 869044 | £ 39,20 |

## COLLET ER16 WITH SQUARE LOCKING DRIVE FOR TAPPING

DIN 6499B | 15µ

| Dimensions | Shank diameter | Square drive | | Ref. | Price each |
|---|---|---|---|---|---|
| ER16 | 3,5 | 2,7 | 1 | 868667 | £ 32,31 |
| ER16 | 4 | 3 | 1 | 868668 | £ 32,31 |
| ER16 | 4,5 | 3,15 | 1 | 868669 | £ 32,31 |
| ER16 | 4,5 | 3,4 | 1 | 868670 | £ 32,31 |
| ER16 | 5 | 4 | 1 | 868671 | £ 32,31 |
| ER16 | 5,5 | 4,3 | 1 | 868672 | £ 32,31 |

| Dimensions | Shank diameter | Square drive | | Ref. | Price each |
|---|---|---|---|---|---|
| ER16 | 6 | 4,9 | 1 | 868673 | £ 32,31 |
| ER16 | 7 | 5,5 | 1 | 868674 | £ 32,31 |
| ER16 | 8 | 6,2 | 1 | 868675 | £ 32,31 |
| ER16 | 9 | 7 | 1 | 868676 | £ 32,31 |
| ER16 | 9 | 7,1 | 1 | 868677 | £ 32,31 |
| ER16 | 10 | 8 | 1 | 868678 | £ 32,31 |

## COLLET ER20 WITH SQUARE LOCKING DRIVE FOR TAPPING

DIN 6499B | 15µ

| Dimensions | Shank diameter | Square drive | | Ref. | Price each |
|---|---|---|---|---|---|
| ER20 | 3,5 | 2,7 | 1 | 868680 | £ 32,31 |
| ER20 | 4 | 3 | 1 | 868681 | £ 32,31 |
| ER20 | 4,5 | 3,4 | 1 | 868682 | £ 32,31 |
| ER20 | 5 | 4 | 1 | 868683 | £ 32,31 |
| ER20 | 6 | 4,9 | 1 | 868684 | £ 32,31 |
| ER20 | 7 | 5,5 | 1 | 868685 | £ 32,31 |

| Dimensions | Shank diameter | Square drive | | Ref. | Price each |
|---|---|---|---|---|---|
| ER20 | 8 | 6,2 | 1 | 868686 | £ 32,31 |
| ER20 | 8 | 6,3 | 1 | 868687 | £ 32,31 |
| ER20 | 9 | 7 | 1 | 868688 | £ 32,31 |
| ER20 | 10 | 8 | 1 | 868689 | £ 32,31 |
| ER20 | 11 | 9 | 1 | 868690 | £ 32,31 |
| ER20 | 11,2 | 9 | 1 | 868691 | £ 32,31 |

## COLLET ER25 WITH SQUARE LOCKING DRIVE FOR TAPPING

DIN 6499B | 15µ

| Dimensions | Shank diameter | Square drive | | Ref. | Price each |
|---|---|---|---|---|---|
| ER25 | 3,5 | 2,7 | 1 | 868693 | £ 33,69 |
| ER25 | 4 | 3 | 1 | 868694 | £ 33,69 |
| ER25 | 4 | 3,15 | 1 | 868695 | £ 33,69 |
| ER25 | 4,5 | 3,4 | 1 | 868696 | £ 33,69 |
| ER25 | 5 | 4 | 1 | 868697 | £ 33,69 |
| ER25 | 5,5 | 4,3 | 1 | 868698 | £ 33,69 |
| ER25 | 6 | 4,9 | 1 | 868699 | £ 33,69 |
| ER25 | 7 | 5,5 | 1 | 868700 | £ 33,69 |

| Dimensions | Shank diameter | Square drive | | Ref. | Price each |
|---|---|---|---|---|---|
| ER25 | 8 | 6,2 | 1 | 868701 | £ 33,69 |
| ER25 | 9 | 7 | 1 | 868702 | £ 33,69 |
| ER25 | 10 | 8 | 1 | 868703 | £ 33,69 |
| ER25 | 11 | 9 | 1 | 868704 | £ 33,69 |
| ER25 | 12 | 9 | 1 | 868705 | £ 33,69 |
| ER25 | 14 | 11 | 1 | 868706 | £ 33,69 |
| ER25 | 16 | 12 | 1 | 868707 | £ 33,69 |

## COLLET ER32 WITH SQUARE LOCKING DRIVE FOR TAPPING

DIN 6499B

15µ

| Dimensions | Shank diameter | Square drive | | Ref. | Price each |
|---|---|---|---|---|---|
| ER32 | 3,5 | 2,7 | 1 | 868709 | £ 33,69 |
| ER32 | 4 | 3 | 1 | 868710 | £ 33,69 |
| ER32 | 4,5 | 3,4 | 1 | 868711 | £ 33,69 |
| ER32 | 5 | 4 | 1 | 868712 | £ 33,69 |
| ER32 | 5,5 | 4,3 | 1 | 868713 | £ 33,69 |
| ER32 | 6 | 4,9 | 1 | 868714 | £ 33,69 |
| ER32 | 7 | 5,5 | 1 | 868715 | £ 33,69 |
| ER32 | 8 | 6,2 | 1 | 868716 | £ 33,69 |
| ER32 | 9 | 7 | 1 | 868717 | £ 33,69 |

| Dimensions | Shank diameter | Square drive | | Ref. | Price each |
|---|---|---|---|---|---|
| ER32 | 10 | 8 | 1 | 868718 | £ 33,69 |
| ER32 | 11 | 9 | 1 | 868719 | £ 33,69 |
| ER32 | 12 | 9 | 1 | 868720 | £ 33,69 |
| ER32 | 14 | 11 | 1 | 868721 | £ 33,69 |
| ER32 | 16 | 12 | 1 | 868722 | £ 33,69 |
| ER32 | 18 | 14 | 1 | 868723 | £ 33,69 |
| ER32 | 18 | 14,5 | 1 | 868724 | £ 33,69 |
| ER32 | 20 | 16 | 1 | 868725 | £ 33,69 |

## COLLET ER40 WITH SQUARE LOCKING DRIVE FOR TAPPING

DIN 6499B

15µ

| Dimensions | Shank diameter | Square drive | | Ref. | Price each |
|---|---|---|---|---|---|
| ER40 | 3,5 | 2,7 | 1 | 868726 | £ 36,90 |
| ER40 | 4 | 3 | 1 | 868727 | £ 36,90 |
| ER40 | 4,5 | 3,4 | 1 | 868728 | £ 36,90 |
| ER40 | 6 | 4,9 | 1 | 868729 | £ 36,90 |
| ER40 | 7 | 5,5 | 1 | 868730 | £ 36,90 |
| ER40 | 8 | 6,2 | 1 | 868731 | £ 36,90 |
| ER40 | 8 | 6,3 | 1 | 868732 | £ 36,90 |
| ER40 | 9 | 7 | 1 | 868733 | £ 36,90 |
| ER40 | 10 | 8 | 1 | 868734 | £ 36,90 |

| Dimensions | Shank diameter | Square drive | | Ref. | Price each |
|---|---|---|---|---|---|
| ER40 | 11 | 9 | 1 | 868735 | £ 36,90 |
| ER40 | 12 | 9 | 1 | 868736 | £ 36,90 |
| ER40 | 14 | 11 | 1 | 868737 | £ 36,90 |
| ER40 | 15 | 12 | 1 | 868738 | £ 36,90 |
| ER40 | 18 | 14 | 1 | 868739 | £ 36,90 |
| ER40 | 18 | 14,5 | 1 | 868740 | £ 36,90 |
| ER40 | 20 | 16 | 1 | 868741 | £ 36,90 |
| ER40 | 22 | 18 | 1 | 868742 | £ 36,90 |

## ER32 TAPPING COLLET

The extension inside the clamp allows axial compensation to the spindle inversion during your tapping applications.

| Dimensions | Shank diameter | Square drive | | Ref. | Price each |
|---|---|---|---|---|---|
| ER32 | 2,5 | 2,1 | 1 | 868744 | £ 61,77 |
| ER32 | 2,8 | 2,1 | 1 | 868745 | £ 61,77 |
| ER32 | 3,5 | 2,7 | 1 | 868746 | £ 61,77 |
| ER32 | 4 | 3 | 1 | 868747 | £ 61,77 |
| ER32 | 4,5 | 3,4 | 1 | 868748 | £ 61,77 |
| ER32 | 4,5 | 3,5 | 1 | 868749 | £ 61,77 |
| ER32 | 5 | 4 | 1 | 868750 | £ 61,77 |
| ER32 | 6 | 4,9 | 1 | 868751 | £ 61,77 |
| ER32 | 6,3 | 5 | 1 | 868752 | £ 61,77 |

| Dimensions | Shank diameter | Square drive | | Ref. | Price each |
|---|---|---|---|---|---|
| ER32 | 7 | 5,5 | 1 | 868753 | £ 61,77 |
| ER32 | 8 | 6,2 | 1 | 868754 | £ 61,77 |
| ER32 | 8 | 6,3 | 1 | 868755 | £ 61,77 |
| ER32 | 9 | 7 | 1 | 868756 | £ 61,77 |
| ER32 | 9 | 7,1 | 1 | 868757 | £ 61,77 |
| ER32 | 10 | 8 | 1 | 868758 | £ 61,77 |
| ER32 | 11 | 9 | 1 | 868759 | £ 61,77 |
| ER32 | 12 | 9 | 1 | 868760 | £ 61,77 |

## ADJUSTABLE TORQUE CONTROL TAP ADAPTER

The torque limiter allows the friction of the thread-cutting dowel

| Size | Shank diameter | Square drive | Threaded / Standard | | Ref. | Price each |
|---|---|---|---|---|---|---|
| GR.0 | 2,5 | 2,1 | M1 / DIN 371 | 1 | 868827 | £ 27,74 |
| GR.0 | 2,8 | 2,1 | M2 / DIN 371 | 1 | 868828 | £ 27,74 |
| GR.0 | 3,5 | 2,7 | M3 / DIN 371 | 1 | 868829 | £ 27,74 |
| GR.0 | 4 | 3 | M3.5 / DIN 371 | 1 | 868830 | £ 27,74 |
| GR.0 | 4 | 3,15 | M4 / ISO 529 | 1 | 868831 | £ 27,74 |
| GR.0 | 4,5 | 3,4 | M4 / DIN 371 | 1 | 868832 | £ 27,74 |
| GR.0 | 5 | 4 | M5 / ISO 529 | 1 | 868833 | £ 27,74 |
| GR.0 | 6 | 4,9 | M5 / DIN 371 | 1 | 868834 | £ 27,74 |
| GR.0 | 6 | 4,9 | M6 / DIN 371 | 1 | 868835 | £ 27,74 |
| GR.0 | 7 | 5,5 | M10 / DIN 376 | 1 | 868836 | £ 27,74 |
| GR.0 | 8 | 6,2 | M8 / DIN 371 | 1 | 868837 | £ 27,74 |
| GR.1 | 2,8 | 2,1 | M2 / DIN 371 | 1 | 868838 | £ 27,74 |
| GR.1 | 3,15 | 2,5 | M3 / ISO 529 | 1 | 868839 | £ 27,74 |
| GR.1 | 3,5 | 2,7 | M3 / DIN 371 | 1 | 868840 | £ 27,74 |
| GR.1 | 3,5 | 2,7 | M5 / DIN 376 | 1 | 868841 | £ 27,74 |
| GR.1 | 4 | 3,15 | M4 / ISO 529 | 1 | 868842 | £ 27,74 |
| GR.1 | 4,5 | 3,55 | M4.5 / ISO 529 | 1 | 868843 | £ 27,74 |
| GR.1 | 4 | 3 | M3.5 / DIN 371 | 1 | 868844 | £ 27,74 |
| GR.1 | 4,5 | 3,4 | M4 / DIN 371 | 1 | 868845 | £ 27,74 |
| GR.1 | 4,5 | 3,4 | M6 / DIN 376 | 1 | 868846 | £ 27,74 |
| GR.1 | 5 | 4 | M5 / ISO 529 | 1 | 868847 | £ 27,74 |
| GR.1 | 5,5 | 4,3 | M7 / DIN 374 | 1 | 868848 | £ 27,74 |
| GR.1 | 6,3 | 5 | M6 / ISO 529 | 1 | 868849 | £ 27,74 |
| GR.1 | 6 | 4,9 | M5 / DIN 371 | 1 | 868850 | £ 27,74 |
| GR.1 | 6 | 4,9 | M6 / DIN 371 | 1 | 868851 | £ 27,74 |
| GR.1 | 6 | 4,9 | M8 / DIN 376 | 1 | 868852 | £ 27,74 |
| GR.1 | 7 | 5,5 | M10 / DIN 376 | 1 | 868853 | £ 27,74 |
| GR.1 | 8 | 6,3 | M8 / ISO 529 | 1 | 868854 | £ 27,74 |
| GR.1 | 8 | 6,2 | M8 / DIN 371 | 1 | 868855 | £ 27,74 |
| GR.1 | 9 | 7 | M12 / DIN 376 | 1 | 868856 | £ 27,74 |
| GR.1 | 10 | 8 | M10 / DIN 371 | 1 | 868857 | £ 27,74 |
| GR.1 | 11,2 | 9 | M14 / ISO 529 | 1 | 868858 | £ 27,74 |
| GR.1 | 11 | 9 | M14 / DIN 376 | 1 | 868859 | £ 27,74 |
| GR.1 | 12 | 9 | M16 / DIN 376 | 1 | 868860 | £ 27,74 |
| GR.2 | 6,3 | 5 | M6 / ISO 529 | 1 | 868861 | £ 41,07 |
| GR.2 | 6 | 4,9 | M5 / DIN 371 | 1 | 868862 | £ 41,07 |

| Size | Shank diameter | Square drive | Threaded / Standard | | Ref. | Price each |
|---|---|---|---|---|---|---|
| GR.2 | 6 | 4,9 | M6 / DIN 371 | 1 | 868863 | £ 41,07 |
| GR.2 | 6 | 4,9 | M8 / DIN 376 | 1 | 868864 | £ 41,07 |
| GR.2 | 7 | 5,5 | M10 / DIN 376 | 1 | 868865 | £ 41,07 |
| GR.2 | 8 | 6,2 | M8 / DIN 371 | 1 | 868866 | £ 41,07 |
| GR.2 | 9 | 7 | M12 / DIN 376 | 1 | 868867 | £ 41,07 |
| GR.2 | 10 | 8 | M10 / DIN 371 | 1 | 868868 | £ 41,07 |
| GR.2 | 11,2 | 9 | M14 / ISO 529 | 1 | 868869 | £ 41,07 |
| GR.2 | 11 | 9 | M14 / DIN 376 | 1 | 868870 | £ 41,07 |
| GR.2 | 12,5 | 10 | M16 / ISO 529 | 1 | 868871 | £ 41,07 |
| GR.2 | 12 | 9 | M16 / DIN 376 | 1 | 868872 | £ 41,07 |
| GR.2 | 14 | 11,2 | M20 / ISO 529 | 1 | 868873 | £ 41,07 |
| GR.2 | 14 | 11 | M18 / DIN 376 | 1 | 868874 | £ 41,07 |
| GR.2 | 16 | 12,5 | M22 / ISO 529 | 1 | 868875 | £ 41,07 |
| GR.2 | 16 | 12 | M20 / DIN 376 | 1 | 868876 | £ 41,07 |
| GR.2 | 18 | 14,5 | M22 / DIN 376 | 1 | 868877 | £ 41,07 |
| GR.2 | 18 | 14,5 | M24 / DIN 376 | 1 | 868878 | £ 41,07 |
| GR.2 | 20 | 16 | M27 / ISO 529 | 1 | 868879 | £ 41,07 |
| GR.2 | 20 | 16 | M27 / DIN 376 | 1 | 868880 | £ 41,07 |
| GR.3 | 11 | 9 | M14 / DIN 376 | 1 | 868881 | £ 100,99 |
| GR.3 | 12,5 | 10 | M16 / ISO 529 | 1 | 868882 | £ 100,99 |
| GR.3 | 12 | 9 | M16 / DIN 376 | 1 | 868883 | £ 100,99 |
| GR.3 | 14 | 11 | M18 / DIN 376 | 1 | 868884 | £ 100,99 |
| GR.3 | 16 | 12,5 | M22 / ISO 529 | 1 | 868885 | £ 100,99 |
| GR.3 | 16 | 12 | M20 / DIN 376 | 1 | 868886 | £ 100,99 |
| GR.3 | 18 | 14,5 | M22 / DIN 376 | 1 | 868887 | £ 100,99 |
| GR.3 | 18 | 14,5 | M24 / DIN 376 | 1 | 868888 | £ 100,99 |
| GR.3 | 18 | 14 | M24 / ISO 529 | 1 | 868889 | £ 100,99 |
| GR.3 | 20 | 16 | M27 / DIN 376 | 1 | 868890 | £ 100,99 |
| GR.3 | 22 | 18 | M30 / DIN 376 | 1 | 868891 | £ 100,99 |
| GR.3 | 25 | 20 | M33 / DIN 376 | 1 | 868892 | £ 100,99 |
| GR.3 | 25 | 20 | M36 / ISO 529 | 1 | 868893 | £ 100,99 |
| GR.3 | 28 | 22 | M36 / DIN 376 | 1 | 868894 | £ 100,99 |
| GR.3 | 32 | 24 | M42 / DIN 376 | 1 | 868895 | £ 100,99 |
| GR.3 | 36 | 29 | M45 / DIN 376 | 1 | 868896 | £ 100,99 |
| GR.3 | 36 | 29 | M48 / DIN 376 | 1 | 868897 | £ 100,99 |

## POSITIVE DRIVE SOLID TAP ADAPTER

| Size | Shank diameter | Square drive | | Ref. | Price each |
|---|---|---|---|---|---|
| GR.0 | 2,5 | 2,1 | 1 | 868762 | £ 12,22 |
| GR.0 | 2,8 | 2,1 | 1 | 868763 | £ 12,22 |
| GR.0 | 3,5 | 2,7 | 1 | 868764 | £ 12,22 |
| GR.0 | 4 | 3 | 1 | 868765 | £ 12,22 |
| GR.0 | 4,5 | 3,4 | 1 | 868766 | £ 12,22 |
| GR.0 | 4 | 3,15 | 1 | 868767 | £ 12,22 |
| GR.0 | 5 | 4 | 1 | 868768 | £ 12,22 |
| GR.0 | 6 | 4,9 | 1 | 868769 | £ 12,22 |
| GR.0 | 7 | 5,5 | 1 | 868770 | £ 12,22 |
| GR.0 | 8 | 6,2 | 1 | 868771 | £ 12,22 |
| GR.1 | 2,5 | 2,1 | 1 | 868772 | £ 12,22 |
| GR.1 | 2,8 | 2,1 | 1 | 868773 | £ 12,22 |
| GR.1 | 3,15 | 2,5 | 1 | 868774 | £ 12,22 |
| GR.1 | 3,55 | 2,8 | 1 | 868775 | £ 12,22 |
| GR.1 | 3,5 | 2,7 | 1 | 868776 | £ 12,22 |
| GR.1 | 4 | 3 | 1 | 868777 | £ 12,22 |
| GR.1 | 4 | 3,15 | 1 | 868778 | £ 12,22 |
| GR.1 | 4,5 | 3,4 | 1 | 868779 | £ 12,22 |
| GR.1 | 4,5 | 3,55 | 1 | 868780 | £ 12,22 |
| GR.1 | 5 | 4 | 1 | 868781 | £ 12,22 |
| GR.1 | 5,5 | 4,5 | 1 | 868782 | £ 12,22 |
| GR.1 | 5,6 | 4,5 | 1 | 868783 | £ 12,22 |
| GR.1 | 6 | 4,9 | 1 | 868784 | £ 12,22 |
| GR.1 | 6,3 | 5 | 1 | 868785 | £ 12,22 |
| GR.1 | 7 | 5,5 | 1 | 868786 | £ 12,22 |
| GR.1 | 7,1 | 5,6 | 1 | 868787 | £ 12,22 |
| GR.1 | 8 | 6,2 | 1 | 868788 | £ 12,22 |
| GR.1 | 8 | 6,3 | 1 | 868789 | £ 12,22 |
| GR.1 | 9 | 7 | 1 | 868790 | £ 12,22 |
| GR.1 | 9 | 7,1 | 1 | 868791 | £ 12,22 |
| GR.1 | 10 | 8 | 1 | 868792 | £ 12,22 |
| GR.1 | 11 | 9 | 1 | 868793 | £ 12,22 |
| GR.1 | 11,2 | 9 | 1 | 868794 | £ 12,22 |

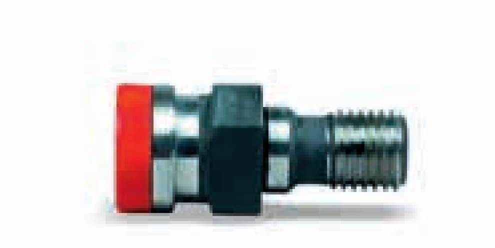
| Size | Shank diameter | Square drive | | Ref. | Price each |
|---|---|---|---|---|---|
| GR.1 | 12 | 9 | 1 | 868795 | £ 12,22 |
| GR.2 | 10 | 8 | 1 | 868796 | £ 17,76 |
| GR.2 | 11 | 9 | 1 | 868797 | £ 17,76 |
| GR.2 | 11,2 | 9 | 1 | 868798 | £ 17,76 |
| GR.2 | 12 | 9 | 1 | 868799 | £ 17,76 |
| GR.2 | 12,5 | 10 | 1 | 868800 | £ 17,76 |
| GR.2 | 14 | 11 | 1 | 868801 | £ 17,76 |
| GR.2 | 14 | 11,2 | 1 | 868802 | £ 17,76 |
| GR.2 | 16 | 12 | 1 | 868803 | £ 17,76 |
| GR.2 | 16 | 12,5 | 1 | 868804 | £ 17,76 |
| GR.2 | 18 | 14,5 | 1 | 868805 | £ 17,76 |
| GR.2 | 20 | 16 | 1 | 868806 | £ 17,76 |
| GR.2 | 6 | 4,9 | 1 | 868807 | £ 17,76 |
| GR.2 | 6,3 | 5 | 1 | 868808 | £ 17,76 |
| GR.2 | 7 | 5,5 | 1 | 868809 | £ 17,76 |
| GR.2 | 8 | 6,2 | 1 | 868810 | £ 17,76 |
| GR.2 | 9 | 7 | 1 | 868811 | £ 17,76 |
| GR.2 | 9 | 7,1 | 1 | 868812 | £ 17,76 |
| GR.3 | 11 | 9 | 1 | 868813 | £ 44,39 |
| GR.3 | 12 | 9 | 1 | 868814 | £ 44,39 |
| GR.3 | 12,5 | 10 | 1 | 868815 | £ 44,39 |
| GR.3 | 14 | 11 | 1 | 868816 | £ 44,39 |
| GR.3 | 16 | 12 | 1 | 868817 | £ 44,39 |
| GR.3 | 18 | 14 | 1 | 868818 | £ 44,39 |
| GR.3 | 18 | 14,5 | 1 | 868819 | £ 44,39 |
| GR.3 | 20 | 16 | 1 | 868820 | £ 44,39 |
| GR.3 | 22 | 18 | 1 | 868821 | £ 44,39 |
| GR.3 | 22,4 | 18 | 1 | 868822 | £ 44,39 |
| GR.3 | 25 | 20 | 1 | 868823 | £ 44,39 |
| GR.3 | 28 | 22 | 1 | 868824 | £ 44,39 |
| GR.3 | 32 | 24 | 1 | 868825 | £ 44,39 |
| GR.3 | 36 | 29 | 1 | 868826 | £ 44,39 |

## REDUCTION TAP ADAPTER

ADAPTABLE ON DOWEL WITH AND WITHOUT FRICTION

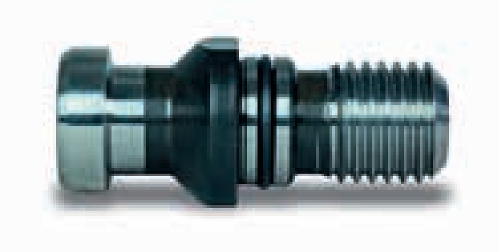
| Size | Reduction | | Ref. | Price each |
|---|---|---|---|---|
| GR.1 | GR.0 | 1 | 868899 | £ 44,39 |
| GR.2 | GR.1 | 1 | 868900 | £ 44,39 |
| GR.3 | GR.1 | 1 | 868901 | £ 66,59 |
| GR.3 | GR.2 | 1 | 868902 | £ 66,59 |

## PULL STUD DIN 2080



| Taper | Thread | | Ref. | Price each |
|---|---|---|---|---|
| SK40 | M16 | 1 | 869046 | £ 7,84 |
| BT40 | M16 | 1 | 869047 | £ 10,10 |
| SK50 | M24 | 1 | 869048 | £ 13,46 |

## PULL STUD SEALED DIN 69872-B

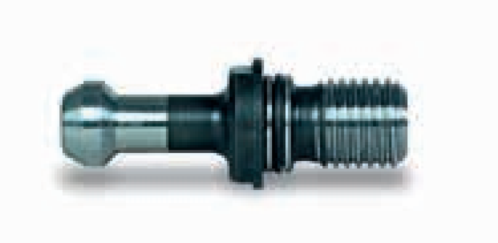


| Taper | Thread | | Ref. | Price each |
|---|---|---|---|---|
| SK40 | M16 | 1 | 869050 | £ 6,18 |
| SK50 | M24 | 1 | 869051 | £ 7,84 |

## PULL STUD THROUGH DIN 69872-A

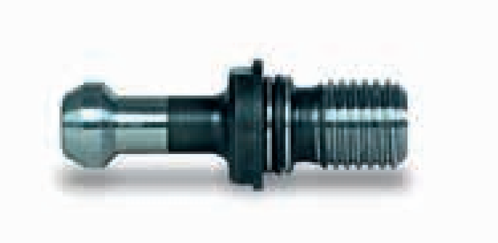
| Taper | Thread | | Ref. | Price each |
|---|---|---|---|---|
| SK40 | M16 | 1 | 869053 | £ 5,61 |
| SK50 | M24 | 1 | 869054 | £ 7,84 |

## PULL STUD SEALED MAS/BT



| Taper | Thread | Angle | | Ref. | Price each |
|---|---|---|---|---|---|
| BT30 | M12 | 45 DEG. | 1 | 869056 | £ 8,97 |
| BT40 | M16 | 30 DEG. | 1 | 869057 | £ 6,18 |
| BT40 | M16 | 45 DEG. | 1 | 869058 | £ 6,18 |
| BT40 | M16 | 90 DEG. | 1 | 869059 | £ 6,18 |
| BT50 | M24 | 30 DEG. | 1 | 869060 | £ 6,74 |
| BT50 | M24 | 45 DEG. | 1 | 869061 | £ 6,74 |
| BT50 | M24 | 90 DEG. | 1 | 869062 | £ 6,74 |

## PULL STUD THROUGH COOLANT SEALED MAS/BT



| Taper | Thread | Angle | | Ref. | Price each |
|---|---|---|---|---|---|
| BT30 | M12 | 30 DEG. | 1 | 869064 | £ 8,97 |
| BT30 BROTHER | M12 | 30 DEG. | 1 | 869065 | £ 11,20 |
| BT30 | M12 | 45 DEG. | 1 | 869066 | £ 8,97 |
| BT40 | M16 | 30 DEG. | 1 | 869067 | £ 5,61 |
| BT40 | M16 | 45 DEG. | 1 | 869068 | £ 5,61 |
| BT40 | M16 | 90 DEG. | 1 | 869069 | £ 5,61 |
| BT50 | M24 | 30 DEG. | 1 | 869070 | £ 7,84 |
| BT50 | M24 | 45 DEG. | 1 | 869071 | £ 7,84 |
| BT50 | M24 | 90 DEG. | 1 | 869072 | £ 7,84 |

## PULL STUD SEALED DIN 69872 MAS/BT

| Taper | Thread | Angle | | Ref. | Price each |
|---|---|---|---|---|---|
| BT40 | M16 | 30 DEG. | 1 | 869074 | £ 11,20 |
| BT40 | M16 | 45 DEG. | 1 | 869075 | £ 9,31 |
| BT40 | M16 | 90 DEG. | 1 | 869076 | £ 15,69 |

## PULL STUD THROUGH COOLANT SEALED DIN 69872 MAS/BT

| Taper | Thread | Angle | | Ref. | Price each |
|---|---|---|---|---|---|
| BT40 | M16 | 30 DEG. | 1 | 869078 | £ 10,10 |
| BT40 | M16 | 45 DEG. | 1 | 869079 | £ 10,10 |
| BT40 | M16 | 90 DEG. | 1 | 869080 | £ 15,13 |

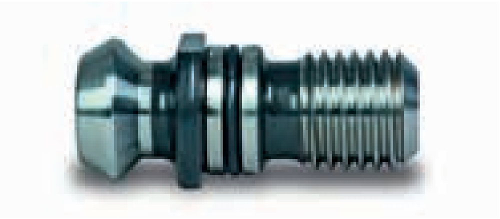
## PULL STUD SEALED ISO 7388-2A

| Taper | Thread | | Ref. | Price each |
|---|---|---|---|---|
| BT30-SK30 | M12 | 1 | 869082 | £ 10,10 |
| BT40-SK40 | M16 | 1 | 869083 | £ 10,65 |
| BT50-SK50 | M24 | 1 | 869084 | £ 10,65 |

## PULL STUD THROUGH COOLANT SEALED ISO 7388-

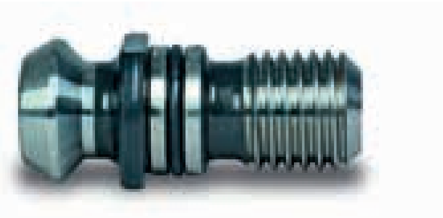
| Taper | Thread | | Ref. | Price each |
|---|---|---|---|---|
| BT40-SK40 | M16 | 1 | 869086 | £ 10,65 |
| BT50-SK50 | M24 | 1 | 869087 | £ 10,65 |

## PULL STUD SEALED ISO 7388-2B



| Taper | Thread | | Ref. | Price each |
|---|---|---|---|---|
| BT40-SK40 | M16 | 1 | 869778 | £ 8,97 |
| BT50-SK50 | M24 | 1 | 869779 | £ 10,65 |

## PULL STUD THROUGH COOLANT SEALED ISO 7388-2B



| Taper | Thread | | Ref. | Price each |
|---|---|---|---|---|
| BT40-SK40 | M16 | 1 | 869780 | £ 5,61 |
| BT50-SK50 | M24 | 1 | 869781 | £ 7,84 |

## VDI - B1 - RADIAL - RIGHT - SHORT

DIN 69880

| VDI | Dimensions | | Ref. | Price each |
|---|---|---|---|---|
| 30 | 20x40 | 1 | 870047 | £ 53,33 |
| 40 | 25x44 | 1 | 870048 | £ 66,13 |

## VDI - B2 - RADIAL - LEFT - SHORT

DIN 69880

| VDI | Dimensions | | Ref. | Price each |
|---|---|---|---|---|
| 30 | 20x40 | 1 | 870050 | £ 56,54 |
| 40 | 25x44 | 1 | 870051 | £ 66,13 |

## VDI - B3 - RADIAL - INVERSE - RIGHT - SHORT

DIN 69880

| VDI | Dimensions | | Ref. | Price each |
|---|---|---|---|---|
| 30 | 20x40 | 1 | 870053 | £ 61,88 |
| 40 | 25x44 | 1 | 870054 | £ 66,13 |

## VDI - B4 - RADIAL - INVERSE - LEFT - SHORT

DIN 69880

| VDI | Dimensions | | Ref. | Price each |
|---|---|---|---|---|
| 30 | 20x40 | 1 | 870056 | £ 61,88 |
| 40 | 25x44 | 1 | 870057 | £ 66,13 |

## VDI - B5 - RADIAL - RIGHT - LONG

DIN 69880

| VDI | Dimensions | | Ref. | Price each |
|---|---|---|---|---|
| 30 | 20x40 | 1 | 870059 | £ 70,41 |
| 40 | 25x44 | 1 | 870060 | £ 78,94 |

## VDI - B6 - RADIAL - LEFT - LONG

DIN 69880

| VDI | Dimensions | | Ref. | Price each |
|---|---|---|---|---|
| 30 | 20x40 | 1 | 870062 | £ 70,41 |
| 40 | 25x44 | 1 | 870063 | £ 83,21 |

## VDI - B7 - RADIAL - INVERSE - RIGHT - LONG

DIN 69880

| VDI | Dimensions | | Ref. | Price each |
|---|---|---|---|---|
| 30 | 20x40 | 1 | 870065 | £ 73,60 |
| 40 | 25x44 | 1 | 870066 | £ 85,33 |

## VDI - B8 - RADIAL - INVERSE - LEFT - LONG

DIN 69880

| VDI | Dimensions | | Ref. | Price each |
|---|---|---|---|---|
| 30 | 20x40 | 1 | 870068 | £ 73,60 |
| 40 | 25x44 | 1 | 870069 | £ 85,33 |

## VDI - C1 - AXIAL - RIGHT - SHORT

DIN 69880

| VDI | Dimensions | | Ref. | Price each |
|---|---|---|---|---|
| 30 | 20x70 | 1 | 870071 | £ 71,47 |
| 40 | 25x85 | 1 | 870072 | £ 81,07 |

## VDI - C2 - AXIAL - LEFT - SHORT

DIN 69880

| VDI | Dimensions | Qty | Ref. | Price each |
|---|---|---|---|---|
| 30 | 20x70 | 1 | 870074 | £ 71,47 |
| 40 | 25x85 | 1 | 870075 | £ 87,47 |

## VDI - C3 - AXIAL - INVERSE - RIGHT - SHORT

DIN 69880

| VDI | Dimensions | Qty | Ref. | Price each |
|---|---|---|---|---|
| 30 | 20x70 | 1 | 870077 | £ 69,33 |
| 40 | 25x85 | 1 | 870078 | £ 87,47 |

## VDI - C4 - AXIAL - INVERSE - LEFT - SHORT

DIN 69880

| VDI | Dimensions | Qty | Ref. | Price each |
|---|---|---|---|---|
| 30 | 20x70 | 1 | 870080 | £ 70,41 |
| 40 | 25x85 | 1 | 870081 | £ 90,66 |

## VDI - D1 - MULTIPLE - RIGHT - LEFT

DIN 69880

| VDI | Dimensions | | Ref. | Price each |
|---|---|---|---|---|
| 30 | 20x60 | 1 | 870083 | £ 136,54 |
| 40 | 25x72 | 1 | 870084 | £ 154,66 |

## VDI - D2 - MULTIPLE - INVERSE - RIGHT - LEFT

DIN 69880

| VDI | Dimensions | | Ref. | Price each |
|---|---|---|---|---|
| 30 | 20x60 | 1 | 870086 | £ 136,54 |
| 40 | 25x72 | 1 | 870087 | £ 154,66 |

## VDI - E1 - PARALELL

DIN 69880

| VDI | Dimensions | | Ref. | Price each |
|---|---|---|---|---|
| 30 | Ø16 | 1 | 870089 | £ 52,27 |
| 30 | Ø20 | 1 | 870090 | £ 52,27 |
| 30 | Ø25 | 1 | 870091 | £ 52,27 |
| 30 | Ø32 | 1 | 870092 | £ 52,27 |
| 40 | Ø40 | 1 | 870093 | £ 53,33 |
| 40 | Ø16 | 1 | 870094 | £ 68,27 |
| 40 | Ø20 | 1 | 870095 | £ 68,27 |
| 40 | Ø25 | 1 | 870096 | £ 68,27 |
| 40 | Ø32 | 1 | 870097 | £ 68,27 |
| 40 | Ø40 | 1 | 870098 | £ 68,27 |
| 40 | Ø50 | 1 | 870099 | £ 68,27 |

## VDI - E2 - PARALELL

DIN 69880

| VDI | Dimensions | | Ref. | Price each |
|---|---|---|---|---|
| 30 | Ø06 | 1 | 870101 | £ 55,47 |
| 30 | Ø08 | 1 | 870102 | £ 55,47 |
| 30 | Ø10 | 1 | 870103 | £ 55,47 |
| 30 | Ø12 | 1 | 870104 | £ 55,47 |
| 30 | Ø16 | 1 | 870105 | £ 55,47 |
| 30 | Ø20 | 1 | 870106 | £ 55,47 |
| 30 | Ø25 | 1 | 870107 | £ 55,47 |
| 30 | Ø30 | 1 | 870108 | £ 66,13 |
| 30 | Ø32 | 1 | 870109 | £ 55,47 |
| 30 | Ø40 | 1 | 870110 | £ 55,47 |
| 40 | Ø06 | 1 | 870111 | £ 61,88 |
| 40 | Ø08 | 1 | 870112 | £ 61,88 |
| 40 | Ø10 | 1 | 870113 | £ 61,88 |
| 40 | Ø12 | 1 | 870114 | £ 61,88 |
| 40 | Ø16 | 1 | 870115 | £ 61,88 |
| 40 | Ø20 | 1 | 870116 | £ 61,88 |
| 40 | Ø25 | 1 | 870117 | £ 61,88 |
| 40 | Ø30 | 1 | 870118 | £ 69,33 |
| 40 | Ø32 | 1 | 870119 | £ 62,94 |
| 40 | Ø40 | 1 | 870120 | £ 69,33 |
| 40 | Ø50 | 1 | 870121 | £ 69,33 |

## VDI - E3 - OZ PINCER MANDREL HOLDER

DIN 69880

| VDI | Dimensions | | Ref. | Price each |
|---|---|---|---|---|
| 30 | OZ16 | 1 | 870123 | £ 119,46 |
| 30 | OZ25 | 1 | 870124 | £ 119,46 |
| 30 | OZ32 | 1 | 870125 | £ 119,46 |
| 40 | OZ25 | 1 | 870126 | £ 125,87 |
| 40 | OZ32 | 1 | 870127 | £ 127,99 |

## VDI - E4 - ER PINCER MANDREL HOLDER

DIN 69880

| VDI | Dimensions | | Ref. | Price each |
|---|---|---|---|---|
| 30 | ER16 | 1 | 870129 | £ 89,60 |
| 30 | ER20 | 1 | 870130 | £ 89,60 |
| 30 | ER25 | 1 | 870131 | £ 89,60 |
| 30 | ER32 | 1 | 870132 | £ 89,60 |
| 30 | ER40 | 1 | 870133 | £ 89,60 |
| 40 | ER25 | 1 | 870134 | £ 89,60 |
| 40 | ER32 | 1 | 870135 | £ 89,60 |
| 40 | ER40 | 1 | 870136 | £ 89,60 |

## VDI - MORSE TAPER SHANK HOLDER

DIN
69880

| VDI | Dimensions | | Ref. | Price each |
|---|---|---|---|---|
| 30 | CM1 | 1 | 870138 | £ 61,88 |
| 30 | CM2 | 1 | 870139 | £ 61,88 |
| 40 | CM3 | 1 | 870140 | £ 61,88 |
| 40 | CM1 | 1 | 870141 | £ 67,21 |
| 40 | CM2 | 1 | 870142 | £ 67,21 |
| 40 | CM3 | 1 | 870143 | £ 67,21 |
| 40 | CM4 | 1 | 870144 | £ 74,66 |

## VDI - GR TAPPING HOLDER

DIN
69880

| VDI | Dimensions | | Ref. | Price each |
|---|---|---|---|---|
| 30 | Gr1 M03-12 | 1 | 870146 | £ 191,99 |
| 30 | Gr2 M06-20 | 1 | 870147 | £ 234,66 |
| 40 | Gr1 M03-12 | 1 | 870148 | £ 202,66 |
| 40 | Gr2 M06-20 | 1 | 870149 | £ 234,66 |
| 40 | Gr3 M14-33 | 1 | 870150 | £ 309,32 |

## VDI - NC DRILL CHUCK HOLDER

DIN
69880

| VDI | Dimensions | | Ref. | Price each |
|---|---|---|---|---|
| 30 | 1 to 13 | 1 | 870152 | £ 378,65 |
| 30 | 2.5 to 16 | 1 | 870153 | £ 405,31 |
| 40 | 1 to 13 | 1 | 870154 | £ 389,31 |
| 40 | 2.5 to 16 | 1 | 870155 | £ 405,31 |

## VDI - TRD PARTING BLADE HOLDER

DIN 69880

| VDI | Dimensions | | Ref. | Price each |
|---|---|---|---|---|
| 30 | H26 | 1 | 870157 | £ 261,32 |
| 30 | H32 | 1 | 870158 | £ 298,65 |
| 40 | H26 | 1 | 870159 | £ 293,32 |
| 40 | H32 | 1 | 870160 | £ 293,32 |

## VDI - TRDI PARTING BLADE HOLDER

DIN 69880

| VDI | Dimensions | | Ref. | Price each |
|---|---|---|---|---|
| 30 | H26 | 1 | 870162 | £ 261,32 |
| 30 | H32 | 1 | 870163 | £ 303,99 |
| 40 | H26 | 1 | 870164 | £ 287,99 |
| 40 | H32 | 1 | 870165 | £ 303,99 |

## VDI - TRG PARTING BLADE HOLDER

DIN 69880

| VDI | Dimensions | | Ref. | Price each |
|---|---|---|---|---|
| 30 | H26 | 1 | 870167 | £ 261,32 |
| 30 | H32 | 1 | 870168 | £ 298,65 |
| 40 | H26 | 1 | 870169 | £ 293,32 |
| 40 | H32 | 1 | 870170 | £ 293,32 |

## VDI - TB BAR PULLER

DIN 69880

| VDI | Dimensions | | Ref. | Price each |
|---|---|---|---|---|
| 30 | D.10 to 75 | 1 | 870172 | £ 699,66 |
| 40 | D.10 to 75 | 1 | 870173 | £ 774,68 |

## VDI - PROTECTIVE CAP - STEEL

DIN 69880

| VDI | Ref. | Price each |
|---|---|---|
| 30 | 870175 | £ 22,41 |
| 40 | 870176 | £ 26,67 |

## VDI - PROTECTIVE CAP - PLASTIC

DIN 69880

| VDI | Ref. | Price each |
|---|---|---|
| 30 | 870178 | £ 10,14 |
| 40 | 870179 | £ 12,54 |

## COLLET CLAMPING NUT ER

Nut adapted to the GHP pincer mandrel.
For high rotation speeds.
Ideal for very precise clamping. Only the nominal side can be clamped.
Nut without notch and without drilling which improves the kinetic properties during high speed rotations.

| ER | Clamping range | D | L | | Ref. | Price each |
|---|---|---|---|---|---|---|
| 16 | 1-10 | 30 | 23.4 | 1 | 847097 | £ 27,11 |
| 25 | 1-16 | 40 | 25.6 | 1 | 847098 | £ 30,97 |
| 32 | 2-20 | 50 | 26.9 | 1 | 847099 | £ 33,55 |

## MANDREL ROLLER WRENCH GHP ER

For the GHP pincer clamping nut mandrel.
Allows quick and safe clamping as they will not slip.
The ER wrench is compatible with all other mandrels on the market.

| ER | Clamping range | | Ref. | Price each |
|---|---|---|---|---|
| 16 | 1-10 | 1 | 847101 | £ 65,86 |
| 25 | 1-16 | 1 | 847102 | £ 65,86 |

## MOUNTING DEVICE WITH ROLLERS

Roller wrench not included.
For simple and safe clamping of tool slots on the flange with rollers.
Friction drive, self locking.
Compatible with tool slots: SK 40. HSK63. C6. MAS/BT40.CAT40.

| D | Compatible | | Ref. | Price each |
|---|---|---|---|---|
| 63 | SK 40<br>HSK 63 MAS/BT 40<br>C6<br>CAT 4 | 1 | 847105 | £ 137,49 |

## REVOLVING LATHE CENTRE WITH EXTENDED POINT TAPER SHANK

0,003 mm

| Taper | Cone length (L1) | L2 | L3 | Taper diametre (d1) | D2 | Maximum total difference | Max part weight / kg | Rpm (t/min) | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CM3 | 29 | 47 | 163 | 22 | 49 | 0.003 mm. | 400 | 4200 | 1 | 844322 | £ 172,81 |
| CM4 | 35 | 52 | 196 | 30 | 63 | 0.003 mm. | 800 | 3100 | 1 | 844323 | £ 216,52 |
| CM5 | 48 | 64 | 250 | 33 | 85 | 0.004 mm. | 1750 | 2500 | 1 | 844324 | £ 320,15 |

## REVOLVING LATHE CENTRE TAPER SHANK

0,003 mm

| Taper | Copying cone length (L1) | L2 | L3 | D1 | D2 | Copying cone diametre (d3) | Maximum total difference | Max part weight / kg | Rpm (t/min) | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CM3 | 38 | 47 | 174 | 22 | 49 | 10 | 0.003 mm. | 400 | 4200 | 1 | 844567 | £ 183,56 |
| CM4 | 46 | 52 | 207 | 30 | 63 | 11 | 0.003 mm. | 800 | 3100 | 1 | 844568 | £ 234,59 |
| CM5 | 64 | 64 | 266 | 33 | 85 | 18 | 0.004 mm. | 1750 | 2500 | 1 | 844569 | £ 334,03 |

## REVOLVING LATHE CENTRE - PROFILED - EXTENDED POINT TAPER SHANK

| Taper | Ø1 | Ø2 | Ø3 | L1 | L2 | L3 | Rpm (t/min) | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|---|
| CM3 | 15 | 34 | 8 | 31 | 40 | 155 | 7000 | 1 | 847244 | £ 277,91 |
| CM4 | 20 | 43 | 10 | 38 | 42 | 190 | 5000 | 1 | 847245 | £ 334,84 |
| CM5 | 30 | 58 | 12 | 49 | 60 | 245 | 3500 | 1 | 847246 | £ 528,77 |

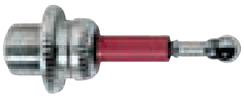
## 3D MECHANICAL LEAKTIGHT SENSOR

IP67

Exact positioning of the spindle axis in alignment with the reference edge of the workpiece (edge of a workpiece or template). The 3D GISS probe determines the zero point in all positions and in all 3 axes.
The large stroke of the comparator and keys for probing the breaking point, securing the device. Unit control of each probe during its manufacture.

| Ø assembly shank (mm) | Precision (mm) | Length without assembly shank (mm) | Ref. | Price each |
|---|---|---|---|---|
| 20 | 0.01 | 113 | 844318 | £ 243,98 |

## SHORT TOUCH SENSING - 25 MM



Adaptable for 3D GISS sensor. Interchangeable key without mounting tool.
The key change does not require any adjustment.

| Ø (mm) | | Ref. | Price each |
|---|---|---|---|
| 4 | 1 | 844320 | £ 23,07 |

## LONG TOUCH SENSING - 65 MM

Adaptable for 3D GISS sensor. Interchangeable key without mounting tool.
The key change does not require any adjustment.

| Ø (mm) | | Ref. | Price each |
|---|---|---|---|
| 8 | 1 | 844316 | £ 39,57 |

# INDEXABLE TOOLING

## EXTERNAL TURNING



## INTERNAL TURNING



## THREADING

Pages 272 to 307

## CUTTING



## MILLING



## MULTI-FUNCTIONS

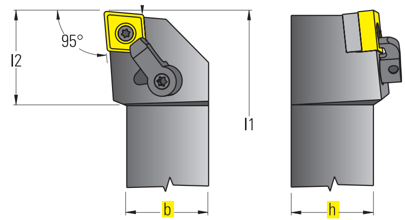


## SPARES



INDEXABLE TOOLING

## TURNING TOOLS HOLDERS EXTER 95° MCLNR/L

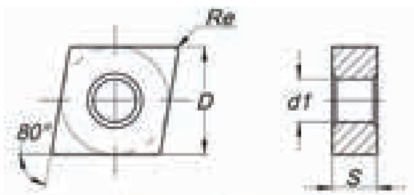




| Type | Type of assembly | Tool tip | WXH | l1 | l2 | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| MCLNR 2020 K12 | Right | CNMG 1204 | 20x20 | 125 | 28 | 1 | 832679 | £ 46,61 |
| MCLNL 2020 K12 | Left | CNMG 1204 | 20x20 | 125 | 28 | 1 | 832680 | £ 46,61 |
| MCLNR 2525 M12 | Right | CNMG 1204 | 25X25 | 150 | 33 | 1 | 832681 | £ 48,06 |
| MCLNL 2525 M12 | Left | CNMG 1204 | 25X25 | 150 | 33 | 1 | 832682 | £ 48,06 |

| Type | PART | SPARE PART | SPARE FLANGE | FLANGE SCREW | CLAMPING WRENCH TOOL TIP | Price each |
|---|---|---|---|---|---|---|
| **MCLNR/L** | 832690 | | | | | £ 8,86 |
| | | 832815 | | | | £ 8,30 |
| | | | 832710 | | | £ 12,47 |
| | | | | 832716 | | £ 4,12 |
| | | | | | 832714 | £ 4,12 |

## CNMG 1204... TURNING INSERTS

P M K N S





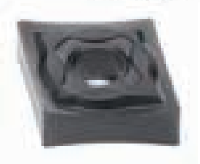
CNMG-MR


CNMG-MF


CNMG-ST


CNMG-SS


CNMG-SF

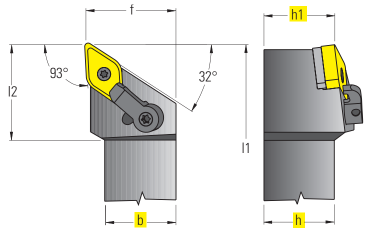

CNMG-MS

| Name | Inscribed circle (D) | Thickness (S) | Screw passage (d1) | Tool tip radius (Re) | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| CNMG 120408-MR GCMP25 | 12.7 | 4.76 | 5.16 | 0.8 | 10 | 867278 | £ 4,40 |
| CNMG 120404-MF GCMP25 | 12.7 | 4.76 | 5.16 | 0.4 | 10 | 867279 | £ 4,40 |
| CNMG 120408-ST GCK20 | 12.7 | 4.76 | 5.16 | 0.8 | 10 | 867280 | £ 4,40 |
| CNMG 120404-ST GCK20 | 12.7 | 4.76 | 5.16 | 0.4 | 10 | 867281 | £ 4,40 |
| CNMG 120408-SS GCMS20 | 12.7 | 4.76 | 5.16 | 0.8 | 10 | 867282 | £ 4,78 |
| CNMG 120404-SF GCMS20 | 12.7 | 4.76 | 5.16 | 0.4 | 10 | 867283 | £ 4,78 |
| CNMG 120408-MS GCN10 | 12.7 | 4.76 | 5.16 | 0.8 | 10 | 867284 | £ 4,40 |
| CNMG 120404-MS GCN10 | 12.7 | 4.76 | 5.16 | 0.4 | 10 | 867285 | £ 4,40 |

| Name | Ref. | CUTTING SPEED - Vc m/min | | | | | ap mm | min ap mm | max ap mm | Fz mm/tr | Min Fz mm/tr | Max Fz mm/tr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | | | | | | |
| CNMG 120408-MR GCMP25 | 867278 | 100-**150**-240 | 70-**100**-180 | o | o | - | **3,00** | 0,50 | 5,50 | **0,30** | 0,15 | 0,50 |
| CNMG 120404-MF GCMP25 | 867279 | 130-**180**-290 | 100-**130**-240 | o | o | - | **0,40** | 0,10 | 1,50 | **0,15** | 0,10 | 0,40 |
| CNMG 120408-ST GCK20 | 867280 | - | - | 120-**170**-280 | - | - | **3,00** | 0,20 | 6,00 | **0,35** | 0,15 | 0,50 |
| CNMG 120404-ST GCK20 | 867281 | - | - | 140-**220**-330 | - | - | **2,50** | 0,20 | 5,00 | **0,22** | 0,15 | 0,26 |
| CNMG 120408-SS GCMS20 | 867282 | - | 100-**120**-240 | - | o | 30-**80**-150 | **3,00** | 0,50 | 5,70 | **0,25** | 0,12 | 0,45 |
| CNMG 120404-SF GCMS20 | 867283 | - | 120-**150**-240 | - | o | 30-**80**-150 | **1,50** | 0,10 | 3,00 | **0,15** | 0,10 | 0,23 |
| CNMG 120408-MS GCN10 | 867284 | - | - | - | 400-**520**-800 | - | **2,00** | 0,30 | 3,60 | **0,25** | 0,10 | 0,40 |
| CNMG 120404-MS GCN10 | 867285 | - | - | - | 400-**580**-2400 | - | **1,50** | 0,20 | 3,60 | **0,15** | 0,10 | 0,20 |
| ( 100-**150**-240 ) Speed range in bold = ideal | | | ( o ) May be suitable | | | | ( - ) Not suitable | | | | | |

## TURNING TOOLS HOLDERS EXTER 93° MDJNR/L

93°

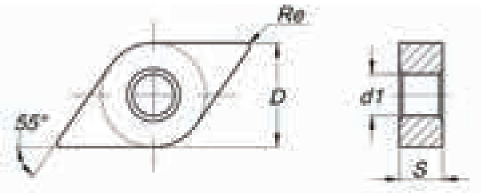


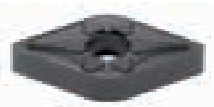

| Type | Type of assembly | Tool tip | WXH | l1 | l2 | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| MDJNR 2020 K15 | Right | DNMG 1506... | 20x20 | 125 | 35 | 1 | 832810 | £ 47,31 |
| MDJNL 2020 K15 | Left | DNMG 1506... | 20x20 | 125 | 35 | 1 | 832811 | £ 47,31 |
| MDJNR 2525 M15 | Right | DNMG 1506... | 25X25 | 150 | 35 | 1 | 832812 | £ 50,20 |
| MDJNL 2525 M15 | Left | DNMG 1506... | 25X25 | 150 | 35 | 1 | 832813 | £ 50,20 |

| Type | PART | SPARE PART | FLANGE | FLANGE SCREW | CLAMPING WRENCH TOOL TIP | Price each |
|---|---|---|---|---|---|---|
| MDJNR/L | 832808 | | | | | £ 10,77 |
| | | 832806 | | | | £ 9,27 |
| | | | 832804 | | | £ 12,47 |
| | | | | 832716 | | £ 4,12 |
| | | | | | 832714 | £ 4,12 |

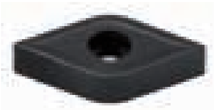
## DNMG 1506... TURNING INSERT

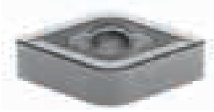
P M K N S

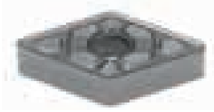


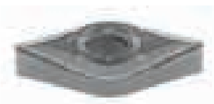


MR grade


MF grade


DNMG-ST


DNMG-SS


DNMG-SF


DNMG-MS

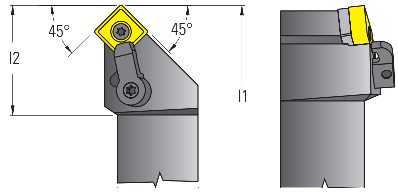
| Name | Inscribed circle (D) | Thickness (S) | Screw passage (d1) | Tool tip radius (Re) | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| DNMG 150608-MR GCMP25 | 12.7 | 6.35 | 5.16 | 0.8 | 10 | 867287 | £ 6,32 |
| DNMG 150604-MF GCMP25 | 12.7 | 6.35 | 5.16 | 0.4 | 10 | 867288 | £ 6,32 |
| DNMG 150608-ST GCK20 | 12.7 | 6.35 | 5.16 | 0.8 | 10 | 867289 | £ 6,32 |
| DNMG 150604-ST GCK20 | 12.7 | 6.35 | 5.16 | 0.4 | 10 | 867290 | £ 6,32 |
| DNMG 150608-SS GCMS20 | 12.7 | 6.35 | 5.16 | 0.8 | 10 | 867291 | £ 6,70 |
| DNMG 150604-SF GCMS20 | 12.7 | 6.35 | 5.16 | 0.4 | 10 | 867292 | £ 6,70 |
| DNMG 150608-MS GCN10 | 12.7 | 6.35 | 5.16 | 0.8 | 10 | 867293 | £ 6,32 |
| DNMG 150604-MS GCN10 | 12.7 | 6.35 | 5.16 | 0.4 | 10 | 867294 | £ 6,32 |

| Name | Ref. | CUTTING SPEED - Vc m/min | | | | | ap mm | min ap mm | max ap mm | Fz mm/tr | Min Fz mm/tr | Max Fz mm/tr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | | | | | | |
| DNMG 150608-MR GCMP25 | 867287 | 100-**150**-240 | 70-**100**-180 | o | o | - | **3,00** | 0,50 | 6,00 | **0,30** | 0,15 | 0,50 |
| DNMG 150604-MF GCMP25 | 867288 | 130-**180**-290 | 100-**130**-240 | o | o | - | **0,40** | 0,10 | 1,50 | **0,15** | 0,05 | 0,25 |
| DNMG 150608-ST GCK20 | 867289 | - | - | 120-**170**-280 | - | - | **2,50** | 0,50 | 5,00 | **0,35** | 0,15 | 0,50 |
| DNMG 150604-ST GCK20 | 867290 | - | - | 140-**220**-330 | - | - | **2,50** | 0,20 | 5,00 | **0,20** | 0,15 | 0,30 |
| DNMG 150608-SS GCMS20 | 867291 | - | 100-**120**-240 | - | o | 30-**80**-150 | **3,00** | 0,50 | 6,40 | **0,25** | 0,12 | 0,45 |
| DNMG 150604-SF GCMS20 | 867292 | - | 120-**150**-240 | - | o | 30-**80**-150 | **0,15** | 0,10 | 3,60 | **0,15** | 0,06 | 0,30 |
| DNMG 150608-MS GCN10 | 867293 | - | - | - | 400-**520**-800 | - | **2,00** | 0,30 | 3,80 | **0,25** | 0,10 | 0,40 |
| DNMG 150604-MS GCN10 | 867294 | - | - | - | 400-**580**-2400 | - | **1,50** | 0,20 | 3,60 | **0,15** | 0,10 | 0,20 |
| ( 100-**150**-240 ) Speed range in bold = ideal | | | | ( o ) May be suitable | | | ( - ) Not suitable | | | | | |

INDEXABLE TOOLING

## TURNING TOOLS HOLDERS EXTER 45° MSSNR/L

45°

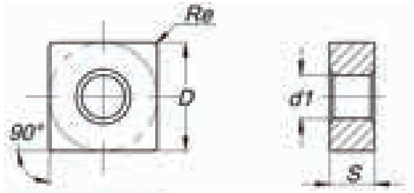



| Type | Type of assembly | Tool tip | WXH | l1 | l2 | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| MSSNR 2020 K12 | Right | SNMG 1204... | 20x20 | 125 | 32 | 1 | 832775 | £ 46,61 |
| MSSNL 2020 K12 | Left | SNMG 1204... | 20x20 | 125 | 32 | 1 | 832776 | £ 46,61 |
| MSSNR 2525 M12 | Right | SNMG 1204... | 25X25 | 150 | 33 | 1 | 832777 | £ 48,06 |
| MSSNL 2525 M12 | Left | SNMG 1204... | 25X25 | 150 | 33 | 1 | 832778 | £ 48,06 |

| Type | PART | SPARE PART | SPARE FLANGE | FLANGE SCREW | CLAMPING WRENCH TOOL TIP | Price each |
|---|---|---|---|---|---|---|
| MSSNR/L | 832773 | | | | | £ 8,71 |
| | | 832815 | | | | £ 8,30 |
| | | | 832710 | | | £ 12,47 |
| | | | | 832716 | | £ 4,12 |
| | | | | | 832714 | £ 4,12 |

## SNMG 1204... TURNING INSERT

P M K S





MR grade


MF grade


SNMG-ST


SNMG-SS

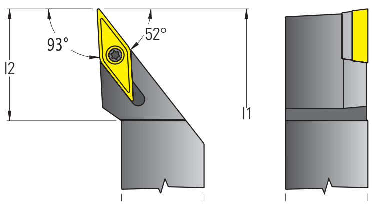

SNMG-SF

| Name | Inscribed circle (D) | Thickness (S) | Screw passage (d1) | Tool tip radius (Re) | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| SNMG 120408-MR GCMP25 | 12.7 | 4.76 | 5.16 | 0.8 | 10 | 867296 | £ 4,44 |
| SNMG 120404-MF GCMP25 | 12.7 | 4.76 | 5.16 | 0.4 | 10 | 867297 | £ 4,44 |
| SNMG 120408-ST GCK20 | 12.7 | 4.76 | 5.16 | 0.8 | 10 | 867298 | £ 4,44 |
| SNMG 120404-ST GCK20 | 12.7 | 4.76 | 5.16 | 0.4 | 10 | 867299 | £ 4,44 |
| SNMG 120408-SS GCMS20 | 12.7 | 4.76 | 5.16 | 0.8 | 10 | 867300 | £ 4,86 |
| SNMG 120404-SF GCMS20 | 12.7 | 4.76 | 5.16 | 0.4 | 10 | 867301 | £ 4,86 |

| Name | Ref. | CUTTING SPEED - Vc m/min | | | | | ap mm | min ap mm | max ap mm | Fz mm/tr | Min Fz mm/tr | Max Fz mm/tr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | | | | | | |
| SNMG 120408-MR GCMP25 | 867296 | 100-**150**-240 | 70-**100**-180 | o | o | - | **3,00** | 0,50 | 6,00 | **0,30** | 0,15 | 0,50 |
| SNMG 120404-MF GCMP25 | 867297 | 130-**180**-290 | 100-**130**-240 | o | o | - | **0,40** | 0,10 | 1,50 | **0,10** | 0,05 | 0,25 |
| SNMG 120408-ST GCK20 | 867298 | - | - | 120-**170**-280 | - | - | **3,00** | 0,20 | 6,00 | **0,35** | 0,15 | 0,50 |
| SNMG 120404-ST GCK20 | 867299 | - | - | 140-**220**-330 | - | - | **3,00** | 0,20 | 6,00 | **0,20** | 0,15 | 0,30 |
| SNMG 120408-SS GCMS20 | 867300 | - | 100-**120**-240 | - | o | 30-**80**-150 | **2,00** | 0,50 | 4,50 | **0,25** | 0,12 | 0,45 |
| SNMG 120404-SF GCMS20 | 867301 | - | 120-**150**-240 | - | o | 30-**80**-150 | **1,50** | 0,10 | 3,00 | **0,15** | 0,10 | 0,23 |
| ( 100-**150**-240 ) Speed range in bold = ideal | | | | ( o ) May be suitable | | | ( - ) Not suitable | | | | | |

## TURNING TOOLS HOLDERS EXTER 93° SVJBR/L

93°

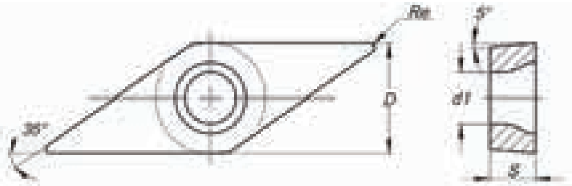



| Type | Type of assembly | Tool tip | WXH | l1 | l2 | Qty | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| SVJBR 2020 K16 | Right | VBMT 1604... | 20x20 | 125 | 30 | 1 | 832799 | £ 57,36 |
| SVJBL 2020 K16 | Left | VBMT 1604... | 20x20 | 125 | 30 | 1 | 832800 | £ 57,36 |
| SVJBR 2525 M16 | Right | VBMT 1604... | 25X25 | 150 | 33 | 1 | 832801 | £ 64,54 |
| SVJBL 2525 M16 | Left | VBMT 1604... | 25X25 | 150 | 33 | 1 | 832802 | £ 64,54 |

| Type | PART | SPARE SCREW | CLAMPING SCREW TOOL TIP | CLAMPING WRENCH TOOL TIP | Price each |
|---|---|---|---|---|---|
| **SVJBR/L** | 832797 | | | | £ 8,30 |
| | | 832702 | | | £ 5,10 |
| | | | 832817 | | £ 2,89 |
| | | | | 832712 | £ 4,12 |

## VBMT 1604... TURNING INSERT

P M K S





FP grade


MK grace


VBMT-FK


VBMT-MM


VBMT-FM

| Name | Inscribed circle (D) | Thickness (S) | Screw passage (d1) | Tool tip radius (Re) | Qty | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| VBMT 160408-FP GCMP15 | 9.525 | 4.76 | 4.4 | 0.8 | 10 | 867303 | £ 6,85 |
| VBMT 160404-FP GCMP15 | 9.525 | 4.76 | 4.4 | 0.4 | 10 | 867304 | £ 6,85 |
| VBMT 160408-MK GCK20 | 9.525 | 4.76 | 4.4 | 0.8 | 10 | 867305 | £ 6,85 |
| VBMT 160404-FK GCK05 | 9.525 | 4.76 | 4.4 | 0.4 | 10 | 867306 | £ 6,85 |
| VBMT 160408-MM GCMS20 | 9.525 | 4.76 | 4.4 | 0.8 | 10 | 867307 | £ 7,09 |
| VBMT 160404-FM GCMS25 | 9.525 | 4.76 | 4.4 | 0.4 | 10 | 867308 | £ 7,09 |

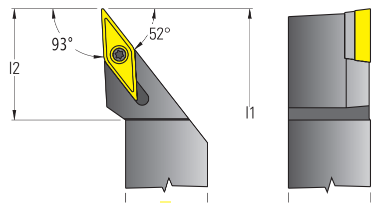
| Name | Ref. | CUTTING SPEED - Vc m/min | | | | | ap mm | min ap mm | max ap mm | Fz mm/tr | Min Fz mm/tr | Max Fz mm/tr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | | | | | | |
| VBMT 160408-FP GCMP15 | 867303 | 120-**160**-240 | 80-**100**-180 | o | o | - | **0,32** | 0,14 | 1,80 | **0,14** | 0,07 | 0,27 |
| VBMT 160404-FP GCMP15 | 867304 | 140-**200**-350 | 100-**130**-240 | o | o | - | **0,32** | 0,10 | 1,80 | **0,10** | 0,05 | 0,20 |
| VBMT 160408-MK GCK20 | 867305 | - | - | 120-**170**-280 | - | - | **0,72** | 0,45 | 2,70 | **0,18** | 0,09 | 0,27 |
| VBMT 160404-FK GCK05 | 867306 | - | - | 140-**220**-300 | - | - | **0,32** | 0,10 | 1,80 | **0,10** | 0,05 | 0,20 |
| VBMT 160408-MM GCMS20 | 867307 | - | 100-**120**-240 | - | o | 30-**70**-110 | **0,72** | 0,45 | 2,70 | **0,18** | 0,09 | 0,27 |
| VBMT 160404-FM GCMS25 | 867308 | - | 100-**150**-240 | - | o | 30-**80**-140 | **0,32** | 0,10 | 1,80 | **0,10** | 0,05 | 0,20 |

( 120-**160**-240 ) Speed range in bold = ideal — ( o ) May be suitable — ( - ) Not suitable

INDEXABLE TOOLING

## EXTERNAL TURNING TOOL HOLDER 93° SVJCR/L

93°

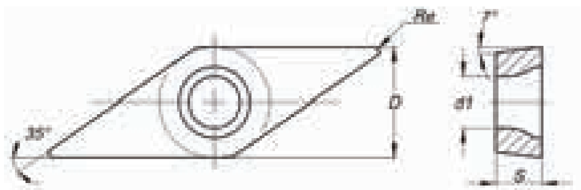



| Type | Type of assembly | Tool tip | WXH | l1 | l2 | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| SVJCR 2020 K16 | Right | VCGT...1604 | 20x20 | 125 | 37 | 1 | 867444 | £ 60,03 |
| SVJCL 2020 K16 | Left | VCGT...1604 | 20x20 | 125 | 37 | 1 | 867445 | £ 60,03 |
| SVJCR 2525 M16 | Right | VCGT...1604 | 25X25 | 150 | 37 | 1 | 867446 | £ 64,42 |
| SVJCL 2525 M16 | Left | VCGT...1604 | 25X25 | 150 | 37 | 1 | 867447 | £ 64,42 |

| Type | PART | SPARE SCREW | CLAMPING SCREW TOOL TIP | SCREW CLAMPING WRENCH | Price each |
|---|---|---|---|---|---|
| SVJCR/L | 867573 | | | | £ 10,56 |
| | | 867575 | | | £ 5,83 |
| | | | 867577 | | £ 3,89 |
| | | | | 867579 | £ 9,49 |

## VCGT 1604... TURNING INSERT

N



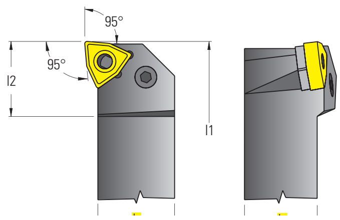

LN grade

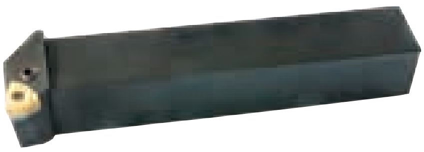
| Name | Inscribed circle (D) | Thickness (S) | Screw passage (d1) | Tool tip radius (Re) | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| VCGT 160408-LN GCN10 | 9.525 | 4.76 | 4.4 | 0.8 | 10 | 867441 | £ 7,39 |
| VCGT 160404-LN GCN10 | 9.525 | 4.76 | 4.4 | 0.4 | 10 | 867442 | £ 7,39 |

| Name | Ref. | CUTTING SPEED - Vc m/min | | | | | ap mm | min ap mm | max ap mm | Fz mm/tr | Min Fz mm/tr | Max Fz mm/tr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | | | | | | |
| VCGT 160408-LN GCN10 | 867441 | - | - | - | 400-**520**-800 | - | **2,55** | 0,10 | 5,00 | **0,22** | 0,10 | 0,45 |
| VCGT 160404-LN GCN10 | 867442 | - | - | - | 400-**600**-2400 | - | **2,55** | 0,10 | 5,00 | **0,15** | 0,10 | 0,25 |
| ( 400-**520**-800 ) Speed range in bold = ideal | | | ( o ) May be suitable | | | | ( - ) Not suitable | | | | | |

## TURNING TOOLS HOLDERS EXTER 95° PWLNR/L

95°



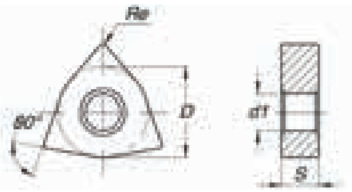



| Type | Type of assembly | Tool tip | WXH | l1 | l2 | Qty | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| PWLNR 2020 K06 | Right | WNMG…0604 | 20x20 | 125 | 16 | 1 | 832790 | £ 47,31 |
| PWLNL 2020 K06 | Left | WNMG…0604 | 20x20 | 125 | 16 | 1 | 832791 | £ 47,31 |
| PWLNR 2525 M06 | Right | WNMG…0604 | 25X25 | 150 | 16 | 1 | 832792 | £ 48,06 |
| PWLNL 2525 M06 | Left | WNMG…0604 | 25X25 | 150 | 16 | 1 | 832793 | £ 48,06 |

| Type | LEVER | AXIS LEVER | CLAMPING WRENCH TOOL TIP | PART | PIN | Price each |
|---|---|---|---|---|---|---|
| **PWLNR/L** | 832788 | | | | | £ 6,29 |
| | | 832786 | | | | £ 3,09 |
| | | | 832780 | | | £ 2,12 |
| | | | | 832784 | | £ 7,21 |
| | | | | | 832782 | £ 2,12 |

## WNMG 0604... TURNING INSERT

P M K S





WNMG-MR


WNMG-MF


WNMG-SS


WNMG-SF

| Name | Inscribed circle (D) | Thickness (S) | Screw passage (d1) | Tool tip radius (Re) | Qty | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| WNMG 060408-MR GCMPK25 | 9.525 | 4.76 | 3.81 | 0.8 | 10 | 867310 | £ 4,19 |
| WNMG 060404-MF GCMPK25 | 9.525 | 4.76 | 3.81 | 0.4 | 10 | 867311 | £ 4,19 |
| WNMG 060408-SS GCMS20 | 9.525 | 4.76 | 3.81 | 0.8 | 10 | 867312 | £ 4,44 |
| WNMG 060404-SF GCMS20 | 9.525 | 4.76 | 3.81 | 0.4 | 10 | 867313 | £ 4,44 |

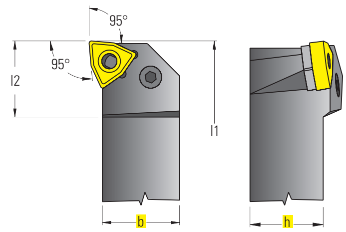
| Name | Ref. | CUTTING SPEED - Vc m/min | | | | | ap mm | min ap mm | max ap mm | Fz mm/tr | Min Fz mm/tr | Max Fz mm/tr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | | | | | | |
| WNMG 060408-MR GCMPK25 | 867310 | 100-**150**-240 | 70-**100**-180 | 100-**160**-240 | o | - | **2,00** | 0,50 | 3,00 | **0,30** | 0,15 | 0,50 |
| WNMG 060404-MF GCMPK25 | 867311 | 130-**180**-290 | 100-**130**-240 | 130-**190**-290 | o | - | **0,40** | 0,10 | 1,50 | **0,15** | 0,05 | 0,30 |
| WNMG 060408-SS GCMS20 | 867312 | - | 100-**120**-240 | - | o | 30-**80**-150 | **2,00** | 0,50 | 3,00 | **0,25** | 0,12 | 0,45 |
| WNMG 060404-SF GCMS20 | 867313 | - | 120-**150**-240 | - | o | 30-**80**-150 | **0,15** | 0,10 | 1,50 | **0,15** | 0,06 | 0,30 |

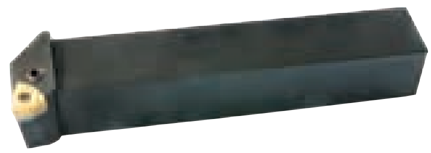
( 100-**150**-240 ) Speed range in bold = ideal | ( o ) May be suitable | ( - ) Not suitable

INDEXABLE TOOLING

## TURNING TOOLS HOLDERS EXTER 95° PWLNR/L

95°



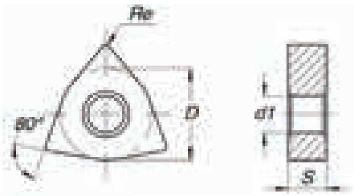



| Type | Type of assembly | Tool tip | WXH | l1 | l2 | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| PWLNR 2020 K08 | Right | WNMG...0804 | 20x20 | 125 | 20 | 847294 | £ 49,91 |
| PWLNL 2020 K08 | Left | WNMG...0804 | 20x20 | 125 | 20 | 847295 | £ 49,91 |
| PWLNR 2525 M08 | Right | WNMG...0804 | 25X25 | 150 | 21 | 847296 | £ 50,61 |
| PWLNL 2525 M08 | Left | WNMG...0804 | 25X25 | 150 | 21 | 847297 | £ 50,61 |
| PWLNR 3232 P08 | Right | WNMG...0804 | 32x32 | 170 | 23 | 847298 | £ 61,86 |
| PWLNL 3232 P08 | Left | WNMG...0804 | 32x32 | 170 | 23 | 847299 | £ 61,86 |

| Type | LEVER | AXIS LEVER | PART | CLAMPING WRENCH TOOL TIP | PIN | Price each |
|---|---|---|---|---|---|---|
| PWLNR/L | 847301 | | | | | £ 7,42 |
| | | 847303 | | | | £ 3,92 |
| | | | 844601 | | | £ 9,33 |
| | | | | 847305 | | £ 2,63 |
| | | | | | 847307 | £ 2,84 |

## WNMG 0804... TURNING INSERT

P M K S




WNMG-MR

WNMG-MF

WNMG-SS

WNMG-SF

WNMG-ST

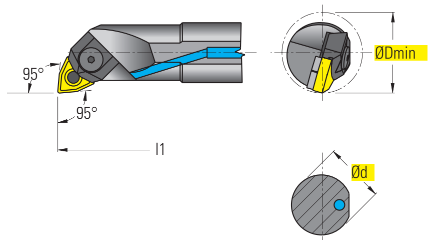
| Name | Inscribed circle (D) | Thickness (S) | Screw passage (d1) | Tool tip radius (Re) | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| WNMG 080408-MR GCMP25 | 9.525 | 4.76 | 3.81 | 0.8 | 10 | 867315 | £ 4,65 |
| WNMG 080404-MF GCMP25 | 9.525 | 4.76 | 3.81 | 0.4 | 10 | 867316 | £ 4,65 |
| WNMG 080408-ST GCK20 | 9.525 | 4.76 | 3.81 | 0.8 | 10 | 867317 | £ 4,65 |
| WNMG 080404-ST GCK20 | 9.525 | 4.76 | 3.81 | 0.4 | 10 | 867318 | £ 4,65 |
| WNMG 080408-SS GCMS20 | 9.525 | 4.76 | 3.81 | 0.8 | 10 | 867319 | £ 4,86 |
| WNMG 080404-SF GCMS20 | 9.525 | 4.76 | 3.81 | 0.4 | 10 | 867320 | £ 4,86 |

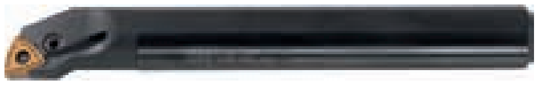
| Name | Ref. | CUTTING SPEED - Vc m/min | | | | | ap mm | min ap mm | max ap mm | Fz mm/tr | Min Fz mm/tr | Max Fz mm/tr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | | | | | | |
| WNMG 080408-MR GCMP25 | 867315 | 100-**150**-240 | 70-**100**-180 | o | o | - | **2,50** | 0,50 | 4,00 | **0,30** | 0,15 | 0,50 |
| WNMG 080404-MF GCMP25 | 867316 | 130-**180**-290 | 100-**130**-240 | o | o | - | **0,60** | 0,10 | 2,00 | **0,15** | 0,05 | 0,30 |
| WNMG 080408-ST GCK20 | 867317 | - | - | 100-**160**-240 | - | - | **2,50** | 0,20 | 5,00 | **0,35** | 0,15 | 0,50 |
| WNMG 080404-ST GCK20 | 867318 | - | - | 130-**190**-290 | - | - | **2,50** | 0,20 | 5,00 | **0,22** | 0,15 | 0,30 |
| WNMG 080408-SS GCMS20 | 867319 | - | 100-**120**-240 | - | o | 30-**80**-150 | **2,50** | 0,50 | 4,00 | **0,25** | 0,12 | 0,45 |
| WNMG 080404-SF GCMS20 | 867320 | - | 120-**150**-240 | - | o | 30-**80**-150 | **0,15** | 0,10 | 1,50 | **0,15** | 0,06 | 0,30 |

( 100-**150**-240 ) Speed range in bold = ideal — ( o ) May be suitable — ( - ) Not suitable

## INTERNAL BORING BAR 95° PWLNR/L - 08

95°



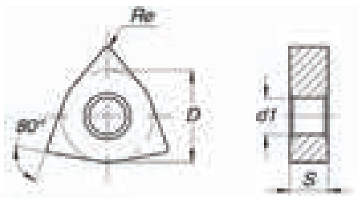



| Type | Type of assembly | Tool tip | Ø D min | l1 | Ø d | Qty | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| A25 PWLNR 08 | Right | WNMG...0804 | 25 | 125 | 20 | 1 | 847309 | £ 99,87 |
| A25 PWLNL 08 | Left | WNMG...0804 | 25 | 125 | 20 | 1 | 847310 | £ 99,87 |
| A32 PWLNR 08 | Right | WNMG...0804 | 40 | 170 | 32 | 1 | 847311 | £ 122,46 |
| A32 PWLNL 08 | Left | WNMG...0804 | 40 | 170 | 32 | 1 | 847312 | £ 122,46 |

| Type | LEVER | AXIS LEVER - ALC | AXIS LEVER - ALB | CLAMPING WRENCH TOOL TIP | PART | PIN | Price each |
|---|---|---|---|---|---|---|---|
| A... PWLNR/L | 847301 | | | | | | £ 7,42 |
| | | 847314 | | | | | £ 5,10 |
| | | | 847303 | | | | £ 3,92 |
| | | | | 847305 | | | £ 2,63 |
| | | | | | 844601 | | £ 9,33 |
| | | | | | | 847307 | £ 2,84 |

## WNMG 0804... TURNING INSERT

P M K S

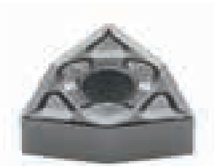




WNMG-MR


WNMG-MF


WNMG-SS


WNMG-SF


WNMG-ST

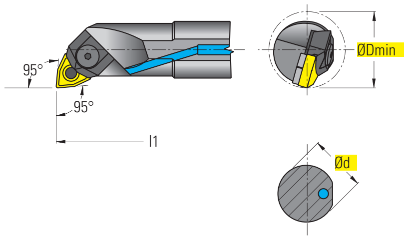
| Name | Inscribed circle (D) | Thickness (S) | Screw passage (d1) | Tool tip radius (Re) | Qty | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| WNMG 080408-MR GCMP25 | 9.525 | 4.76 | 3.81 | 0.8 | 10 | 867315 | £ 4,65 |
| WNMG 080404-MF GCMP25 | 9.525 | 4.76 | 3.81 | 0.4 | 10 | 867316 | £ 4,65 |
| WNMG 080408-ST GCK20 | 9.525 | 4.76 | 3.81 | 0.8 | 10 | 867317 | £ 4,65 |
| WNMG 080404-ST GCK20 | 9.525 | 4.76 | 3.81 | 0.4 | 10 | 867318 | £ 4,65 |
| WNMG 080408-SS GCMS20 | 9.525 | 4.76 | 3.81 | 0.8 | 10 | 867319 | £ 4,86 |
| WNMG 080404-SF GCMS20 | 9.525 | 4.76 | 3.81 | 0.4 | 10 | 867320 | £ 4,86 |

| Name | Ref. | CUTTING SPEED - Vc m/min | | | | | ap mm | min ap mm | max ap mm | Fz mm/tr | Min Fz mm/tr | Max Fz mm/tr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | | | | | | |
| WNMG 080408-MR GCMP25 | 867315 | 100-**150**-240 | 70-**100**-180 | o | o | - | **2,50** | 0,50 | 4,00 | **0,30** | 0,15 | 0,50 |
| WNMG 080404-MF GCMP25 | 867316 | 130-**180**-290 | 100-**130**-240 | o | o | - | **0,60** | 0,10 | 2,00 | **0,15** | 0,05 | 0,30 |
| WNMG 080408-ST GCK20 | 867317 | - | - | 100-**160**-240 | - | - | **2,50** | 0,20 | 5,00 | **0,35** | 0,15 | 0,50 |
| WNMG 080404-ST GCK20 | 867318 | - | - | 130-**190**-290 | - | - | **2,50** | 0,20 | 5,00 | **0,22** | 0,15 | 0,30 |
| WNMG 080408-SS GCMS20 | 867319 | - | 100-**120**-240 | - | o | 30-**80**-150 | **2,50** | 0,50 | 4,00 | **0,25** | 0,12 | 0,45 |
| WNMG 080404-SF GCMS20 | 867320 | - | 120-**150**-240 | - | o | 30-**80**-150 | **0,15** | 0,10 | 1,50 | **0,15** | 0,06 | 0,30 |
| ( 100-**150**-240 ) Speed range in bold = ideal | | | | ( o ) May be suitable | | | ( - ) Not suitable | | | | | |

INDEXABLE TOOLING

## INTERNAL BORING BAR 95° MWLNR/L - 06

95°

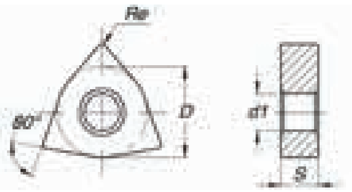



| Type | Type of assembly | Tool tip | Ø D min | l1 | Ø d | Qty | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| A20Q MWLNR 06 | Right | WNMG 0604... | 25 | 180 | 20 | 1 | 832766 | £ 94,99 |
| A20Q MWLNL 06 | Left | WNMG 0604... | 25 | 180 | 20 | 1 | 832767 | £ 94,99 |
| A25R MWLNR 06 | Right | WNMG 0604... | 32 | 200 | 25 | 1 | 832768 | £ 101,88 |
| A25R MWLNL 06 | Left | WNMG 0604... | 32 | 200 | 25 | 1 | 832769 | £ 101,88 |
| A32S MWLNR 06 | Right | WNMG 0604... | 40 | 250 | 32 | 1 | 832770 | £ 123,20 |
| A32S MWLNL 06 | Left | WNMG 0604... | 40 | 250 | 32 | 1 | 832771 | £ 123,20 |

| Type | FLANGE KIT | CLAMPING WRENCH TOOL TIP | PART | SPARE PART AAC | SPARE PART AAD | Price each |
|---|---|---|---|---|---|---|
| **A20Q MWLNR/L<br>A25R MWLNR/L<br>A32S MWLNR/L** | 832764 | | | | | £ 15,45 |
| | | 832706 | | | | £ 4,12 |
| **A25R MWLNR/L<br>A32S MWLNR/L** | | | 832762 | | | £ 7,21 |
| | | | | 832760 | | £ 5,88 |
| **A20Q MWLNR/L** | | | | | 833278 | £ 8,86 |

## WNMG 0604... TURNING INSERT

P M K S

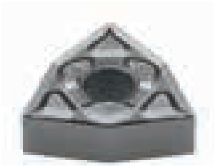




WNMG-MR


WNMG-MF


WNMG-SS


WNMG-SF

| Name | Inscribed circle (D) | Thickness (S) | Screw passage (d1) | Tool tip radius (Re) | Qty | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| WNMG 060408-MR GCMPK25 | 9.525 | 4.76 | 3.81 | 0.8 | 10 | 867310 | £ 4,19 |
| WNMG 060404-MF GCMPK25 | 9.525 | 4.76 | 3.81 | 0.4 | 10 | 867311 | £ 4,19 |
| WNMG 060408-SS GCMS20 | 9.525 | 4.76 | 3.81 | 0.8 | 10 | 867312 | £ 4,44 |
| WNMG 060404-SF GCMS20 | 9.525 | 4.76 | 3.81 | 0.4 | 10 | 867313 | £ 4,44 |

| Name | Ref. | CUTTING SPEED - Vc m/min | | | | | ap mm | min ap mm | max ap mm | Fz mm/tr | Min Fz mm/tr | Max Fz mm/tr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | | | | | | |
| WNMG 060408-MR GCMPK25 | 867310 | 100-**150**-240 | 70-**100**-180 | 100-**160**-240 | o | - | **2,00** | 0,50 | 3,00 | **0,30** | 0,15 | 0,50 |
| WNMG 060404-MF GCMPK25 | 867311 | 130-**180**-290 | 100-**130**-240 | 130-**190**-290 | o | - | **0,40** | 0,10 | 1,50 | **0,15** | 0,05 | 0,30 |
| WNMG 060408-SS GCMS20 | 867312 | - | 100-**120**-240 | - | o | 30-**80**-150 | **2,00** | 0,50 | 3,00 | **0,25** | 0,12 | 0,45 |
| WNMG 060404-SF GCMS20 | 867313 | - | 120-**150**-240 | - | o | 30-**80**-150 | **0,15** | 0,10 | 1,50 | **0,15** | 0,06 | 0,30 |

( 100-**150**-240 ) Speed range in bold = ideal ( o ) May be suitable ( - ) Not suitable

## INTERNAL BORING BAR 95° MWLNR/L - 08

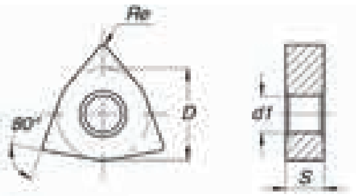
95°

| Type | Type of assembly | Tool tip | Ø D min | l1 | Ø d | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| A25R MWLNR 08 | Right | WNMG 0804... | 32 | 200 | 25 | 1 | 844641 | £ 107,28 |
| A25R MWLNL 08 | Left | WNMG 0804... | 32 | 200 | 25 | 1 | 844642 | £ 107,28 |
| A32S MWLNR 08 | Right | WNMG 0804... | 40 | 250 | 32 | 1 | 844643 | £ 129,54 |
| A32S MWLNL 08 | Left | WNMG 0804... | 40 | 250 | 32 | 1 | 844644 | £ 129,54 |

| Type | FLANGE KIT | CLAMPING WRENCH TOOL TIP | PART | SPARE PART AAE | SPARE PART AAF | SCREWS | Price each |
|---|---|---|---|---|---|---|---|
| A... MWLNR/L | 844605 | | | | | | £ 21,53 |
| | | 832780 | | | | | £ 2,12 |
| | | | 844601 | | | | £ 9,33 |
| | | | | 844607 | | | £ 9,33 |
| | | | | | 844611 | | £ 9,33 |
| | | | | | | 844609 | £ 8,81 |

## WNMG 0804... TURNING INSERT

P M K S





WNMG-MR


WNMG-MF


WNMG-SS


WNMG-SF


WNMG-ST

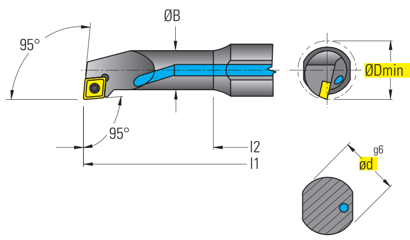
| Name | Inscribed circle (D) | Thickness (S) | Screw passage (d1) | Tool tip radius (Re) | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| WNMG 080408-MR GCMP25 | 9.525 | 4.76 | 3.81 | 0.8 | 10 | 867315 | £ 4,65 |
| WNMG 080404-MF GCMP25 | 9.525 | 4.76 | 3.81 | 0.4 | 10 | 867316 | £ 4,65 |
| WNMG 080408-ST GCK20 | 9.525 | 4.76 | 3.81 | 0.8 | 10 | 867317 | £ 4,65 |
| WNMG 080404-ST GCK20 | 9.525 | 4.76 | 3.81 | 0.4 | 10 | 867318 | £ 4,65 |
| WNMG 080408-SS GCMS20 | 9.525 | 4.76 | 3.81 | 0.8 | 10 | 867319 | £ 4,86 |
| WNMG 080404-SF GCMS20 | 9.525 | 4.76 | 3.81 | 0.4 | 10 | 867320 | £ 4,86 |

| Name | Ref. | CUTTING SPEED - Vc m/min | | | | | ap mm | min ap mm | max ap mm | Fz mm/tr | Min Fz mm/tr | Max Fz mm/tr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | | | | | | |
| WNMG 080408-MR GCMP25 | 867315 | 100-**150**-240 | 70-**100**-180 | o | o | - | **2,50** | 0,50 | 4,00 | **0,30** | 0,15 | 0,50 |
| WNMG 080404-MF GCMP25 | 867316 | 130-**180**-290 | 100-**130**-240 | o | o | - | **0,60** | 0,10 | 2,00 | **0,15** | 0,05 | 0,30 |
| WNMG 080408-ST GCK20 | 867317 | - | - | 100-**160**-240 | - | - | **2,50** | 0,20 | 5,00 | **0,35** | 0,15 | 0,50 |
| WNMG 080404-ST GCK20 | 867318 | - | - | 130-**190**-290 | - | - | **2,50** | 0,20 | 5,00 | **0,22** | 0,15 | 0,30 |
| WNMG 080408-SS GCMS20 | 867319 | - | 100-**120**-240 | - | o | 30-**80**-150 | **2,50** | 0,50 | 4,00 | **0,25** | 0,12 | 0,45 |
| WNMG 080404-SF GCMS20 | 867320 | - | 120-**150**-240 | - | o | 30-**80**-150 | **0,15** | 0,10 | 1,50 | **0,15** | 0,06 | 0,30 |
| ( 100-**150**-240 ) Speed range in bold = ideal | | | ( o ) May be suitable | | | | ( - ) Not suitable | | | | | |

INDEXABLE TOOLING

## INTERNAL BORING BAR 95° SCLCR/L

95°

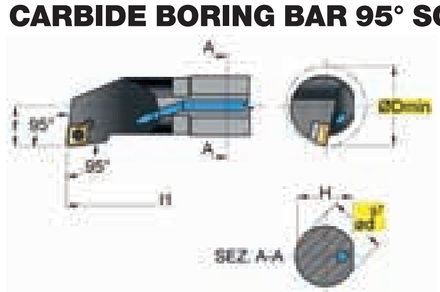


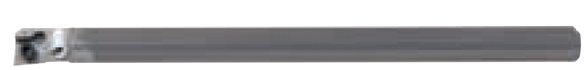

| Type | Type of assembly | Tool tip | Ø D min | l1 | Ø d | l2 | Ø B | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|---|
| A0810 SCLCR 06 | Right | CC…0602 | 10.5 | 110 | 10 | 26 | 8 | 1 | 832753 | £ 44,05 |
| A0810 SCLCL 06 | Left | CC…0602 | 10.5 | 110 | 10 | 26 | 8 | 1 | 832754 | £ 44,05 |
| A1012 SCLCR 06 | Right | CC…0602 | 12.5 | 125 | 12 | 32 | 10 | 1 | 832755 | £ 44,05 |
| A1012 SCLCL 06 | Left | CC…0602 | 12.5 | 125 | 12 | 32 | 10 | 1 | 832756 | £ 44,05 |
| A1216 SCLCR 06 | Right | CC…0602 | 15.5 | 150 | 16 | 40 | 12 | 1 | 855312 | £ 49,93 |
| A1216 SCLCL 06 | Left | CC…0602 | 15.5 | 150 | 16 | 40 | 12 | 1 | 855313 | £ 49,93 |
| A16 SCLCR 09 | Right | CC…09T3 | 20 | 150 | 16 | - | - | 1 | 832757 | £ 58,50 |
| A16 SCLCL 09 | Left | CC…09T3 | 20 | 150 | 16 | - | - | 1 | 832758 | £ 58,50 |

| Type | CLAMPING SCREW TOOL TIP VSP8 | CLAMPING WRENCH TOOL TIP CSP8 | CLAMPING SCREW TOOL TIP VSP2 | CLAMPING WRENCH TOOL TIP CSP3 | Price each |
|---|---|---|---|---|---|
| A0810 SCLCR/L<br>A0812 SCLCR/L<br>A0816 SCLCR/L | 832751 | | | | £ 3,09 |
| | | 832749 | | | £ 4,12 |
| A16 SCLCR/L | | | 832704 | | £ 3,09 |
| | | | | 832712 | £ 4,12 |

## INTERNAL CARBIDE BORING BAR 95° SCLCR/L - 06

95° CARBURE



| Type | Type of assembly | Tool tip | Ø D min | Ø d | l1 | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| E08 SCLCR 06 | Right | CC…0602 | 11 | 8 | 125 | 1 | 855321 | £ 95,47 |
| E08 SCLCL 06 | Left | CC…0602 | 11 | 8 | 125 | 1 | 855324 | £ 95,47 |
| E10 SCLCR 06 | Right | CC…0602 | 13 | 10 | 125 | 1 | 855322 | £ 145,45 |
| E10 SCLCL 06 | Left | CC…0602 | 13 | 10 | 125 | 1 | 855325 | £ 145,45 |
| E12 SCLCR 06 | Right | CC…0602 | 16 | 12 | 150 | 1 | 855323 | £ 124,17 |
| E12 SCLCL 06 | Left | CC…0602 | 16 | 12 | 150 | 1 | 855326 | £ 124,17 |

| Type | CLAMPING SCREW TOOL TIP VSP8 | CLAMPING WRENCH TOOL TIP CSP8 | CLAMPING SCREW TOOL TIP VSP9 | CLAMPING WRENCH TOOL TIP CSP9 | Price each |
|---|---|---|---|---|---|
| E08 SCLCR/L | 832751 | | | | £ 3,09 |
| | | 832749 | | | £ 4,12 |
| E10 SCLCR/L<br>E12 SCLCR/L | | | 832734 | | £ 3,09 |
| | | | | 832732 | £ 4,12 |

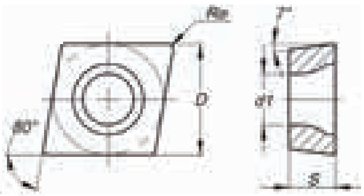
## SET OF 3 BORING BARS INT 95°

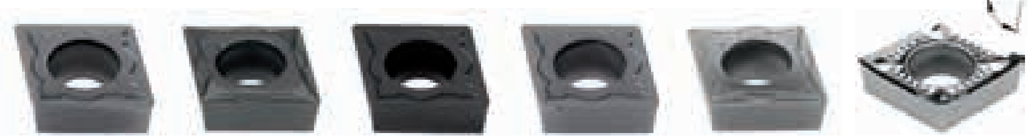
95°


| Type | Type of assembly | Tool tip | Tool 1 | Tool 2 | Tool 3 | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| A0812 SCLCR 06 | Right | CC…0602 | A0810 | A1012 | A1216 | 1 | 855315 | £ 133,84 |
| A0812 SCLCL 06 | Left | CC…0602 | A0810 | A1012 | A1216 | 1 | 855316 | £ 133,84 |

## CCMT & CCGT TURNING INSERT

P M K N S



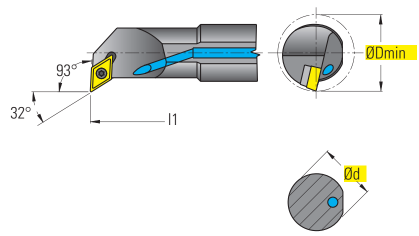

| Name | Inscribed circle (D) | Thickness (S) | Screw passage (d1) | Tool tip radius (Re) | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| CCMT 09T308-MP GCMP20 | 9.525 | 3.97 | 4.4 | 0.8 | 10 | 867322 | £ 3,72 |
| CCMT 09T304-FP GCMP20 | 9.525 | 3.97 | 4.4 | 0.4 | 10 | 867323 | £ 3,72 |
| CCMT 09T308-MK GCK20 | 9.525 | 3.97 | 4.4 | 0.8 | 10 | 867324 | £ 3,72 |
| CCMT 09T304-FK GCK05 | 9.525 | 3.97 | 4.4 | 0.4 | 10 | 867325 | £ 3,72 |
| CCMT 09T308-MM GCMS20 | 9.525 | 3.97 | 4.4 | 0.8 | 10 | 867326 | £ 3,92 |
| CCMT 09T304-FM GCMS20 | 9.525 | 3.97 | 4.4 | 0.4 | 10 | 867327 | £ 3,92 |
| CCMT 060208-MP GCMP25 | 6.35 | 2.38 | 2.8 | 0.8 | 10 | 867328 | £ 3,72 |
| CCMT 060204-FP GCMP20 | 6.35 | 2.38 | 2.8 | 0.4 | 10 | 867329 | £ 3,72 |
| CCMT 060202-FP GCMP25 | 6.35 | 2.38 | 2.8 | 0.2 | 10 | 867330 | £ 3,72 |
| CCMT 060208-MK GCK20 | 6.35 | 2.38 | 2.8 | 0.8 | 10 | 867331 | £ 3,72 |
| CCMT 060204-FK GCK05 | 6.35 | 2.38 | 2.8 | 0.4 | 10 | 867332 | £ 3,72 |
| CCMT 060202-FK GCK05 | 6.35 | 2.38 | 2.8 | 0.2 | 10 | 867333 | £ 3,72 |
| CCMT 060208-MM GCMS35 | 6.35 | 2.38 | 2.8 | 0.8 | 10 | 867334 | £ 3,92 |
| CCMT 060204-FM GCMS20 | 6.35 | 2.38 | 2.8 | 0.4 | 10 | 867335 | £ 3,92 |
| CCMT 060202-FM GCMS20 | 6.35 | 2.38 | 2.8 | 0.2 | 10 | 867336 | £ 3,92 |
| CCGT 09T308-LN GCN10 | 9.525 | 3.97 | 4.4 | 0.8 | 10 | 867338 | £ 6,29 |
| CCGT 09T304-LN GCN10 | 9.525 | 3.97 | 4.4 | 0.4 | 10 | 867339 | £ 6,29 |
| CCGT 09T302-LN GCN10 | 9.525 | 3.97 | 4.4 | 0.2 | 10 | 867340 | £ 6,29 |
| CCGT 060204-LN GCN10 | 9.525 | 3.97 | 4.4 | 0.4 | 10 | 867341 | £ 6,01 |
| CCGT 060202-LN GCN10 | 9.525 | 3.97 | 4.4 | 0.2 | 10 | 867342 | £ 6,01 |

| Name | Ref. | CUTTING SPEED - Vc m/min | | | | | ap mm | min ap mm | max ap mm | Fz mm/tr | Min Fz mm/tr | Max Fz mm/tr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | | | | | | |
| CCMT 09T308-MP GCMP20 | 867322 | 100-**140**-220 | 70-**100**-180 | o | o | - | **0,80** | 0,50 | 3,00 | **0,20** | 0,10 | 0,40 |
| CCMT 09T304-FP GCMP20 | 867323 | 100-**150**-220 | 100-**120**-200 | o | o | - | **0,35** | 0,11 | 2,00 | **0,11** | 0,06 | 0,23 |
| CCMT 09T308-MK GCK20 | 867324 | - | - | 100-**160**-240 | - | - | **0,80** | 0,50 | 3,00 | **0,20** | 0,10 | 0,40 |
| CCMT 09T304-FK GCK05 | 867325 | - | - | 130-**190**-290 | - | - | **0,35** | 0,11 | 2,00 | **0,11** | 0,06 | 0,23 |
| CCMT 09T308-MM GCMS20 | 867326 | - | 80-**100**-180 | - | o | 30-**70**-150 | **0,80** | 0,50 | 3,00 | **0,20** | 0,10 | 0,40 |
| CCMT 09T304-FM GCMS20 | 867327 | - | 100-**120**-200 | - | o | 30-**70**-150 | **0,35** | 0,11 | 2,00 | **0,11** | 0,06 | 0,23 |
| CCMT 060208-MP GCMP25 | 867328 | 100-**140**-220 | 70-**100**-180 | o | o | - | **0,64** | 0,20 | 2,40 | **0,11** | 0,06 | 0,17 |
| CCMT 060204-FP GCMP20 | 867329 | 100-**150**-220 | 100-**120**-200 | o | o | - | **0,30** | 0,10 | 1,70 | **0,08** | 0,05 | 0,17 |
| CCMT 060202-FP GCMP25 | 867330 | 100-**150**-220 | 100-**120**-200 | o | o | - | **0,30** | 0,06 | 1,70 | **0,06** | 0,03 | 0,11 |
| CCMT 060208-MK GCK20 | 867331 | - | - | 100-**160**-240 | - | - | **0,64** | 0,40 | 2,40 | **0,18** | 0,08 | 0,35 |
| CCMT 060204-FK GCK05 | 867332 | - | - | 130-**190**-290 | - | - | **0,30** | 0,10 | 1,70 | **0,08** | 0,05 | 0,17 |
| CCMT 060202-FK GCK05 | 867333 | - | - | 130-**190**-290 | - | - | **0,30** | 0,06 | 1,70 | **0,06** | 0,03 | 0,11 |
| CCMT 060208-MM GCMS35 | 867334 | - | 80-**100**-180 | - | o | 30-**70**-150 | **0,64** | 0,40 | 2,40 | **0,18** | 0,08 | 0,35 |
| CCMT 060204-FM GCMS20 | 867335 | - | 100-**120**-200 | - | o | 30-**70**-150 | **0,30** | 0,10 | 1,70 | **0,08** | 0,05 | 0,17 |
| CCMT 060202-FM GCMS20 | 867336 | - | 100-**120**-200 | - | o | 30-**70**-150 | **0,30** | 0,06 | 1,70 | **0,06** | 0,03 | 0,11 |
| CCGT 09T308-LN GCN10 | 867338 | - | - | - | 400-**520**-800 | - | **2,55** | 0,10 | 5,00 | **0,22** | 0,15 | 0,45 |
| CCGT 09T304-LN GCN10 | 867339 | - | - | - | 400-**520**-800 | - | **2,55** | 0,10 | 5,00 | **0,16** | 0,10 | 0,22 |
| CCGT 09T302-LN GCN10 | 867340 | - | - | - | 400-**520**-800 | - | **1,53** | 0,05 | 3,00 | **0,07** | 0,05 | 0,12 |
| CCGT 060204-LN GCN10 | 867341 | - | - | - | 400-**520**-800 | - | **1,55** | 0,10 | 3,00 | **0,15** | 0,10 | 0,20 |
| CCGT 060202-LN GCN10 | 867342 | - | - | - | 400-**520**-800 | - | **1,00** | 0,05 | 3,00 | **0,07** | 0,05 | 0,12 |
| ( 100-140-220 ) Speed range in bold = ideal | | | ( o ) May be suitable | | | | ( - ) Not suitable | | | | | |

INDEXABLE TOOLING

## INTERNAL BORING BAR 93° SDUCR/L

93°

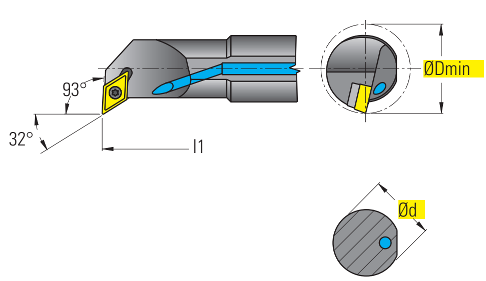



| Type | Type of assembly | Tool tip | Ø D min | Ø d | l1 | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| A10 SDUCR 07 | Right | DC…0702 | 13 | 10 | 100 | 1 | 832738 | £ 52,99 |
| A10 SDUCL 07 | Left | DC…0702 | 13 | 10 | 100 | 1 | 832739 | £ 52,99 |
| A12 SDUCR 07 | Right | DC…0702 | 16 | 12 | 125 | 1 | 832740 | £ 52,99 |
| A12 SDUCL 07 | Left | DC…0702 | 16 | 12 | 125 | 1 | 832741 | £ 52,99 |
| A16 SDUCR 07 | Right | DC…0702 | 20 | 16 | 150 | 1 | 832742 | £ 58,50 |
| A16 SDUCL 07 | Left | DC…0702 | 20 | 16 | 150 | 1 | 832743 | £ 58,50 |
| A20 SDUCR 11 | Right | DC…11T3 | 25 | 20 | 180 | 1 | 832744 | £ 61,96 |
| A20 SDUCL 11 | Left | DC…11T3 | 25 | 20 | 180 | 1 | 832745 | £ 61,96 |
| A25 SDUCR 11 | Right | DC…11T3 | 32 | 25 | 200 | 1 | 832746 | £ 72,98 |
| A25 SDUCL 11 | Left | DC…11T3 | 32 | 25 | 200 | 1 | 832747 | £ 72,98 |

| Type | CLAMPING SCREW TOOL TIP VSP9 | CLAMPING WRENCH TOOL TIP CSP9 | CLAMPING SCREW TOOL TIP VSP2 | CLAMPING WRENCH TOOL TIP CSP1 | CLAMPING SCREW TOOL TIP VSP10 | Price each |
|---|---|---|---|---|---|---|
| **A10 SDUCR/L A12 SDUCR/L A16 SDUCR/L** | 832734 | | | | | £ 3,09 |
| | | 832732 | | | | £ 4,12 |
| **A20 SDUCR/L** | | | 832704 | | | £ 3,09 |
| **A20 SDUCR/L A25 SDUCR/L** | | | | 832712 | | £ 4,12 |
| **A25 SDUCR/L** | | | | | 832736 | £ 3,09 |

## INTERNAL BORING BAR CARBIDE 93° SDUCR/L

93° CARBURE




| Type | Type of assembly | Tool tip | Ø D min | Ø d | l1 | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| E10 SDUCR 07 | Right | DC…0702 | 12 | 10 | 125 | 1 | 855328 | £ 145,45 |
| E10 SDUCL 07 | Left | DC…0702 | 12 | 10 | 125 | 1 | 855330 | £ 145,45 |
| E12 SDUCR 07 | Right | DC…0702 | 16 | 12 | 150 | 1 | 855329 | £ 124,17 |
| E12 SDUCL 07 | Left | DC…0702 | 16 | 12 | 150 | 1 | 855331 | £ 124,17 |

| Type | CLAMPING SCREW TOOL TIP | CLAMPING WRENCH TOOL TIP | Price each |
|---|---|---|---|
| **E10 SDUCR/L E12 SDUCR/L** | 832734 | | £ 3,09 |
| | | 832732 | £ 4,12 |

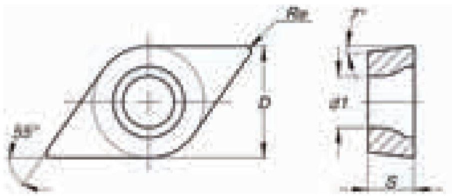
## SET 2 BORING BARS INT 93°

93°


| Type | Type of assembly | Tool tip | Tool 1 | Tool 2 | Qty | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| A10 SDUCR 07 | Right | DC…0702 | A10 | A12 | 1 | 855318 | £ 103,67 |
| A10 SDUCL 07 | Left | DC…0702 | A10 | A12 | 1 | 855319 | £ 103,67 |

## DCMT & DCGT TURNING INSERT

P M K N S





DCMT-FP


DCMT-FM


DCMT-FK

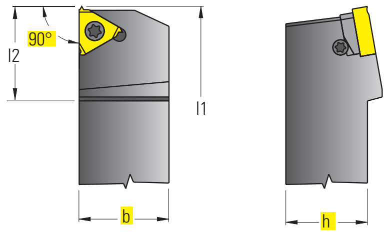

DCGT-LN

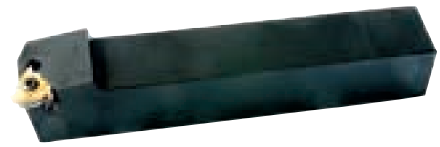
| Name | Inscribed circle (D) | Thickness (S) | Screw passage (d1) | Tool tip radius (Re) | Qty | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| DCMT 070204-FP GCMP25 | 6.35 | 2.38 | 2.8 | 0.4 | 10 | 867344 | £ 3,50 |
| DCMT 070202-FP GCMP25 | 6.35 | 2.38 | 2.8 | 0.2 | 10 | 867345 | £ 3,50 |
| DCMT 070204-FM GCMS25 | 6.35 | 2.38 | 2.8 | 0.4 | 10 | 867346 | £ 3,75 |
| DCMT 070202-FM GCMS25 | 6.35 | 2.38 | 2.8 | 0.2 | 10 | 867347 | £ 3,75 |
| DCMT 070204-FK GCK05 | 6.35 | 2.38 | 2.8 | 0.4 | 10 | 867348 | £ 3,50 |
| DCMT 070202-FK GCK05 | 6.35 | 2.38 | 2.8 | 0.2 | 10 | 867349 | £ 3,50 |
| DCMT 11T304-FP GCMP25 | 9.525 | 3.97 | 4.4 | 0.4 | 10 | 867350 | £ 3,72 |
| DCMT 11T302-FP GCMP25 | 9.525 | 3.97 | 4.4 | 0.2 | 10 | 867351 | £ 3,72 |
| DCMT 11T304-FM GCMS20 | 9.525 | 3.97 | 4.4 | 0.4 | 10 | 867352 | £ 3,92 |
| DCMT 11T302-FM GCMS20 | 9.525 | 3.97 | 4.4 | 0.2 | 10 | 867353 | £ 3,92 |
| DCMT 11T304-FK GCK05 | 9.525 | 3.97 | 4.4 | 0.4 | 10 | 867354 | £ 3,72 |
| DCMT 11T302-FK GCK05 | 9.525 | 3.97 | 4.4 | 0.2 | 10 | 867355 | £ 3,72 |
| DCGT 070204-LN GCN10 | 6.35 | 2.38 | 2.8 | 0.4 | 10 | 867357 | £ 5,94 |
| DCGT 070202-LN GCN10 | 6.35 | 2.38 | 2.8 | 0.2 | 10 | 867358 | £ 5,94 |
| DCGT 11T304-LN GCN10 | 9.525 | 3.97 | 4.4 | 0.4 | 10 | 867359 | £ 6,83 |
| DCGT 11T302-LN GCN10 | 9.525 | 3.97 | 4.4 | 0.2 | 10 | 867360 | £ 6,83 |

| Name | Ref. | CUTTING SPEED - Vc m/min | | | | | ap mm | min ap mm | max ap mm | Fz mm/tr | Min Fz mm/tr | Max Fz mm/tr |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | | | | | | |
| DCMT 070204-FP GCMP25 | 867344 | 100-**140**-220 | 70-**100**-180 | o | o | - | **0,26** | 0,08 | 1,50 | **0,08** | 0,05 | 0,17 |
| DCMT 070202-FP GCMP25 | 867345 | 100-**150**-220 | 100-**120**-200 | o | o | - | **0,26** | 0,06 | 1,50 | **0,06** | 0,03 | 0,11 |
| DCMT 070204-FM GCMS25 | 867346 | - | 80-**100**-180 | - | o | 30-**70**-150 | **0,26** | 0,08 | 1,50 | **0,08** | 0,05 | 0,17 |
| DCMT 070202-FM GCMS25 | 867347 | - | 100-**120**-200 | - | o | 30-**70**-150 | **0,26** | 0,06 | 1,50 | **0,06** | 0,03 | 0,11 |
| DCMT 070204-FK GCK05 | 867348 | - | - | 100-**160**-240 | - | - | **0,26** | 0,08 | 1,50 | **0,08** | 0,05 | 0,17 |
| DCMT 070202-FK GCK05 | 867349 | - | - | 130-**190**-290 | - | - | **0,26** | 0,06 | 1,50 | **0,06** | 0,03 | 0,11 |
| DCMT 11T304-FP GCMP25 | 867350 | 100-**140**-220 | 70-**100**-180 | o | o | - | **0,35** | 0,11 | 2,00 | **0,11** | 0,06 | 0,23 |
| DCMT 11T302-FP GCMP25 | 867351 | 100-**150**-220 | 100-**120**-200 | o | o | - | **0,35** | 0,08 | 2,00 | **0,08** | 0,04 | 0,15 |
| DCMT 11T304-FM GCMS20 | 867352 | - | 80-**100**-180 | - | o | 30-**70**-150 | **0,35** | 0,11 | 2,00 | **0,11** | 0,06 | 0,23 |
| DCMT 11T302-FM GCMS20 | 867353 | - | 100-**120**-200 | - | - | 30-**70**-150 | **0,35** | 0,08 | 2,00 | **0,08** | 0,04 | 0,15 |
| DCMT 11T304-FK GCK05 | 867354 | - | - | 130-**190**-290 | - | - | **0,35** | 0,11 | 2,00 | **0,11** | 0,06 | 0,23 |
| DCMT 11T302-FK GCK05 | 867355 | - | - | 130-**190**-290 | - | - | **0,35** | 0,08 | 2,00 | **0,08** | 0,04 | 0,15 |
| DCGT 070204-LN GCN10 | 867357 | - | - | - | 400-**520**-800 | - | **2,05** | 0,10 | 4,00 | **0,15** | 0,10 | 0,20 |
| DCGT 070202-LN GCN10 | 867358 | - | - | - | 400-**520**-800 | - | **1,00** | 0,05 | 3,00 | **0,07** | 0,05 | 0,12 |
| DCGT 11T304-LN GCN10 | 867359 | - | - | - | 400-**520**-800 | - | **2,55** | 0,10 | 5,00 | **0,16** | 0,10 | 0,22 |
| DCGT 11T302-LN GCN10 | 867360 | - | - | - | 400-**520**-800 | - | **2,03** | 0,05 | 4,00 | **0,07** | 0,05 | 0,12 |

( 100-140-220 ) Speed range in bold = ideal — ( o ) May be suitable — ( - ) Not suitable

## EXTERNAL THREADING TOOL HOLDER FEGR



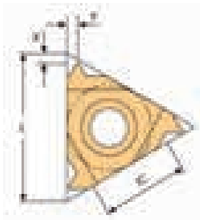
| Type | Type of assembly | Tool tip | WXH | l1 | l2 | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| FEGR 2020 16 | 16ER... | Right | 20x20 | 125 | 27 | 1 | 832658 | £ 57,44 |
| FEGR 2525 16 | 16ER... | Right | 25X25 | 150 | 29 | 1 | 832660 | £ 60,66 |

| Type | PART | SPARE SCREW | CLAMPING SCREW TOOL TIP | CLAMPING WRENCH TOOL TIP | Price each |
|---|---|---|---|---|---|
| FEGR | 832825 | | | | £ 17,46 |
| | | 832821 | | | £ 4,12 |
| | | | 832819 | | £ 4,12 |
| | | | | 832706 | £ 4,12 |

## EXTERNAL THREADING INSERT 16 ER...

P M K N S

CT16ER-GCU

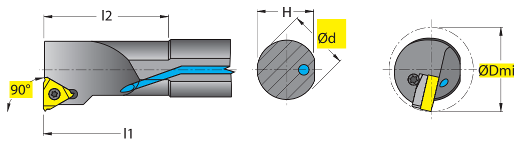


| Name | Thread (mm) | Angle | Inscribed circle (IC) | Thickness (S) | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| CT16 ER 0.50 ISO GCU20 | 0.5 | 60° | 9.525 | 3.47 | 2 | 867362 | £ 9,39 |
| CT16 ER 0.75 ISO GCU20 | 0.75 | 60° | 9.525 | 3.47 | 2 | 867363 | £ 9,39 |
| CT16 ER 1.00 ISO GCU20 | 1 | 60° | 9.525 | 3.47 | 2 | 867364 | £ 9,39 |
| CT16 ER 1.25 ISO GCU20 | 1.25 | 60° | 9.525 | 3.47 | 2 | 867365 | £ 9,39 |
| CT16 ER 1.50 ISO GCU20 | 1.5 | 60° | 9.525 | 3.47 | 2 | 867366 | £ 9,39 |
| CT16 ER 1.75 ISO GCU20 | 1.75 | 60° | 9.525 | 3.47 | 2 | 867367 | £ 9,39 |
| CT16 ER 2.00 ISO GCU20 | 2 | 60° | 9.525 | 3.47 | 2 | 867368 | £ 9,39 |
| CT16 ER 2.50 ISO GCU20 | 2.5 | 60° | 9.525 | 3.47 | 2 | 867369 | £ 9,39 |
| CT16 ER 3.00 ISO GCU20 | 3 | 60° | 9.525 | 3.47 | 2 | 867370 | £ 9,39 |
| CT16 ER A60 GCU20 | 0,50-1,50 | 60° | 9.525 | 3.47 | 2 | 867372 | £ 9,39 |
| CT16 ER G60 GCU20 | 1,75-3,00 | 60° | 9.525 | 3.47 | 2 | 867373 | £ 9,39 |
| CT16 ER AG60 GCU20 | 0,50-3,00 | 60° | 9.525 | 3.47 | 2 | 867374 | £ 9,39 |
| CT16 ER A55 GCU20 | 0,50-1,50 | 55° | 9.525 | 3.47 | 2 | 867376 | £ 9,39 |
| CT16 ER G55 GCU20 | 1,75-3,00 | 55° | 9.525 | 3.47 | 2 | 867377 | £ 9,39 |
| CT16 ER AG55 GCU20 | 0,50-3,00 | 55° | 9.525 | 3.47 | 2 | 867378 | £ 9,39 |

| Name | Ref. | CUTTING SPEED - Vc m/min | | | | | Number of cuts |
|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | |
| CT16 ER 0,50 ISO GCU20 | 867362 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **4 à 6** |
| CT16 ER 0,75 ISO GCU20 | 867363 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **4 à 7** |
| CT16 ER 1,00 ISO GCU20 | 867364 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **4 à 8** |
| CT16 ER 1,25 ISO GCU20 | 867365 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **5 à 9** |
| CT16 ER 1,50 ISO GCU20 | 867366 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **6 à 10** |
| CT16 ER 1,75 ISO GCU20 | 867367 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **7 à 12** |
| CT16 ER 2,00 ISO GCU20 | 867368 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **7 à 12** |
| CT16 ER 2,50 ISO GCU20 | 867369 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **8 à 14** |
| CT16 ER 3,00 ISO GCU20 | 867370 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **9 à 16** |
| CT16 ER A60 GCU20 | 867372 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **4 à 10** |
| CT16 ER G60 GCU20 | 867373 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **6 à 16** |
| CT16 ER AG60 GCU20 | 867374 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **4 à 16** |
| CT16 ER A55 GCU20 | 867376 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **4 à 10** |
| CT16 ER G55 GCU20 | 867377 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **6 à 16** |
| CT16 ER AG55 GCU20 | 867378 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **4 à 16** |

( 80-**140**-200 ) Speed range in bold = ideal

## INTERNAL THREADING TOOL HOLDER FIG..R

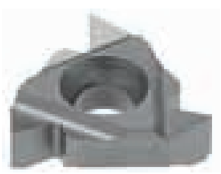


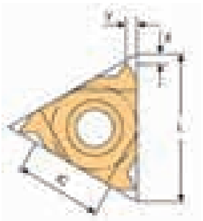

| Type | Type of assembly | Tool tip | l1 | Ø d | Ø D min | l2 | Qty | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| FIG16R 16 | Right | 16NR... | 150 | 16 | 19 | 40 | 1 | 832667 | £ 61,31 |
| FIG20R 16 | Right | 16NR... | 180 | 20 | 24 | 50 | 1 | 832669 | £ 75,50 |
| FIG25R 16 | Right | 16NR... | 200 | 25 | 29 | 55 | 1 | 832671 | £ 85,17 |

| Type | PART | SPARE SCREW | CLAMPING SCREW TOOL TIP VSP3 | CLAMPING WRENCH TOOL TIP CSP2 | CLAMPING WRENCH TOOL TIP CSP3 | CLAMPING SCREW TOOL TIP VSP1 | Price each |
|---|---|---|---|---|---|---|---|
| FIG 20R FIG 25R | 832823 | | | | | | £ 17,46 |
| | | 832821 | | | | | £ 4,12 |
| | | | 832819 | | | | £ 4,12 |
| | | | | 832706 | | | £ 4,12 |
| FIG 16R | | | | | 832712 | | £ 4,12 |
| | | | | | | 832817 | £ 2,89 |

## INTERNAL THREADING INSERT 16 IR...

P M K N S


CT16IR-GCU



| Name | Thread (mm) | Angle | Inscribed circle (IC) | Thickness (S) | Qty | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| CT16 IR 0.50 ISO GCU20 | 0.5 | 60° | 9.525 | 3.47 | 2 | 867380 | £ 9,39 |
| CT16 IR 0.75 ISO GCU20 | 0.75 | 60° | 9.525 | 3.47 | 2 | 867381 | £ 9,39 |
| CT16 IR 1.00 ISO GCU20 | 1 | 60° | 9.525 | 3.47 | 2 | 867382 | £ 9,39 |
| CT16 IR 1.25 ISO GCU20 | 1.25 | 60° | 9.525 | 3.47 | 2 | 867383 | £ 9,39 |
| CT16 IR 1.50 ISO GCU20 | 1.5 | 60° | 9.525 | 3.47 | 2 | 867384 | £ 9,39 |
| CT16 IR 1.75 ISO GCU20 | 1.75 | 60° | 9.525 | 3.47 | 2 | 867385 | £ 9,39 |
| CT16 IR 2.00 ISO GCU20 | 2 | 60° | 9.525 | 3.47 | 2 | 867386 | £ 9,39 |
| CT16 IR 2.50 ISO GCU20 | 2.5 | 60° | 9.525 | 3.47 | 2 | 867387 | £ 9,39 |
| CT16 IR 3.00 ISO GCU20 | 3 | 60° | 9.525 | 3.47 | 2 | 867388 | £ 9,39 |
| CT16 IR A60 GCU20 | 0,50-1,50 | 60° | 9.525 | 3.47 | 2 | 867390 | £ 9,39 |
| CT16 IR G60 GCU20 | 1,75-3,00 | 60° | 9.525 | 3.47 | 2 | 867391 | £ 9,39 |
| CT16 IR AG60 GCU20 | 0,50-3,00 | 60° | 9.525 | 3.47 | 2 | 867392 | £ 9,39 |
| CT16 IR A55 GCU20 | 0,50-1,50 | 55° | 9.525 | 3.47 | 2 | 867394 | £ 9,39 |
| CT16 IR G55 GCU20 | 1,75-3,00 | 55° | 9.525 | 3.47 | 2 | 867395 | £ 9,39 |
| CT16 IR AG55 GCU20 | 0,50-3,00 | 55° | 9.525 | 3.47 | 2 | 867396 | £ 9,39 |

| Name | Ref. | CUTTING SPEED - Vc m/min | | | | | Number of cuts |
|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | |
| CT16 IR 0,50 ISO GCU20 | 867380 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **4 à 6** |
| CT16 IR 0,75 ISO GCU20 | 867381 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **4 à 7** |
| CT16 IR 1,00 ISO GCU20 | 867382 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **4 à 8** |
| CT16 IR 1,25 ISO GCU20 | 867383 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **5 à 9** |
| CT16 IR 1,50 ISO GCU20 | 867384 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **6 à 10** |
| CT16 IR 1,75 ISO GCU20 | 867385 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **7 à 12** |
| CT16 IR 2,00 ISO GCU20 | 867386 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **7 à 12** |
| CT16 IR 2,50 ISO GCU20 | 867387 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **8 à 14** |
| CT16 IR 3,00 ISO GCU20 | 867388 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **9 à 16** |
| CT16 IR A60 GCU20 | 867390 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **4 à 10** |
| CT16 IR G60 GCU20 | 867391 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **6 à 16** |
| CT16 IR AG60 GCU20 | 867392 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **4 à 16** |
| CT16 IR A55 GCU20 | 867394 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **4 à 10** |
| CT16 IR G55 GCU20 | 867395 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **6 à 16** |
| CT16 IR AG55 GCU20 | 867396 | 80-**140**-200 | 50-**80**-140 | 70-**120**-150 | 100-**240**-400 | 20-**70**-150 | **4 à 16** |

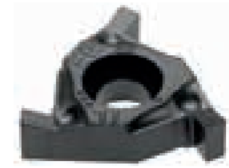
( 80-**140**-200 ) Speed range in bold = ideal

INDEXABLE TOOLING

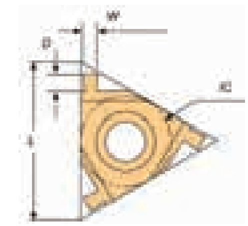
# INDEXABLE TOOLING

## EXTERNAL CIRCLIP GROOVE INSERT 16 ER...

P M K N S



CG16ER-GCU



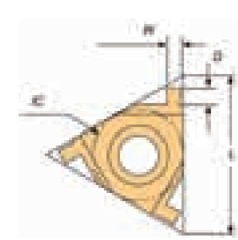
| Name | Groove width (mm) | Groove depths (mm) | Inscribed circle (IC) | Thickness (S) | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| CG16 ER W 0.50 GCU20 | 0.5 | 1.2 | 9.525 | 3.47 | 2 | 867398 | £ 12,30 |
| CG16 ER W 1.00 GCU20 | 1 | 1.5 | 9.525 | 3.47 | 2 | 867400 | £ 12,30 |
| CG16 ER W 1.20 GCU20 | 1.2 | 1.8 | 9.525 | 3.47 | 2 | 867401 | £ 12,30 |
| CG16 ER W 1.40 GCU20 | 1.4 | 1.9 | 9.525 | 3.47 | 2 | 867402 | £ 12,30 |
| CG16 ER W 1.70 GCU20 | 1.7 | 2 | 9.525 | 3.47 | 2 | 867404 | £ 12,30 |
| CG16 ER W 1.95 GCU20 | 1.95 | 2 | 9.525 | 3.47 | 2 | 867405 | £ 12,30 |
| CG16 ER W 2.25 GCU20 | 2.25 | 2 | 9.525 | 3.47 | 2 | 867406 | £ 12,30 |
| CG16 ER W 2.36 GCU20 | 2.36 | 2 | 9.525 | 3.47 | 2 | 867407 | £ 12,30 |

| Name | Ref. | CUTTING SPEED - Vc m/min | | | | | Fz mm/tr | Min Fz mm/tr | Max Fz mm/tr |
|---|---|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | | | |
| CG16 ER W 0.50 GCU20 | 867398 | 50-**80**-120 | 50-**80**-140 | 70-**110**-150 | o | o | **0,08** | 0,04 | 0,25 |
| CG16 ER W 1.00 GCU20 | 867400 | 50-**80**-120 | 50-**80**-140 | 70-**110**-150 | o | o | **0,08** | 0,04 | 0,25 |
| CG16 ER W 1.20 GCU20 | 867401 | 50-**80**-120 | 50-**80**-140 | 70-**110**-150 | o | o | **0,08** | 0,04 | 0,25 |
| CG16 ER W 1.40 GCU20 | 867402 | 50-**80**-120 | 50-**80**-140 | 70-**110**-150 | o | o | **0,08** | 0,04 | 0,25 |
| CG16 ER W 1.70 GCU20 | 867404 | 50-**80**-120 | 50-**80**-140 | 70-**110**-150 | o | o | **0,08** | 0,04 | 0,25 |
| CG16 ER W 1.95 GCU20 | 867405 | 50-**80**-120 | 50-**80**-140 | 70-**110**-150 | o | o | **0,08** | 0,04 | 0,25 |
| CG16 ER W 2.25 GCU20 | 867406 | 50-**80**-120 | 50-**80**-140 | 70-**110**-150 | o | o | **0,08** | 0,04 | 0,25 |
| CG16 ER W 2.36 GCU20 | 867407 | 50-**80**-120 | 50-**80**-140 | 70-**110**-150 | o | o | **0,08** | 0,04 | 0,25 |
| ( 55-**80**-120 ) Speed range in bold = ideal | | | | ( o ) May be suitable | | | ( - ) Not suitable | | |

## INTERNAL CIRCLIP GROOVE INSERT 16 IR...

P M K N S

CG16IR-GCU

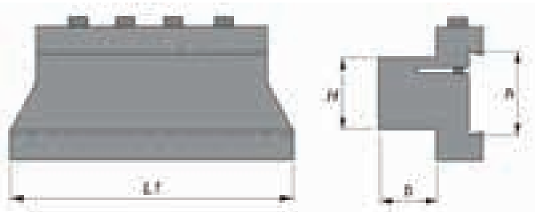


| Name | Groove width (mm) | Groove depths (mm) | Inscribed circle (IC) | Thickness (S) | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| CG16 IR W 0.50 GCU20 | 0.5 | 1.2 | 9.525 | 3.47 | 2 | 867408 | £ 12,30 |
| CG16 IR W 1.00 GCU20 | 1 | 1.5 | 9.525 | 3.47 | 2 | 867409 | £ 12,30 |
| CG16 IR W 1.20 GCU20 | 1.2 | 1.8 | 9.525 | 3.47 | 2 | 867410 | £ 12,30 |
| CG16 IR W 1.40 GCU20 | 1.4 | 1.9 | 9.525 | 3.47 | 2 | 867411 | £ 12,30 |
| CG16 IR W 1.70 GCU20 | 1.7 | 2 | 9.525 | 3.47 | 2 | 867412 | £ 12,30 |
| CG16 IR W 1.95 GCU20 | 1.95 | 2 | 9.525 | 3.47 | 2 | 867413 | £ 12,30 |
| CG16 IR W 2.25 GCU20 | 2.25 | 2 | 9.525 | 3.47 | 2 | 867414 | £ 12,30 |

| Name | Ref. | CUTTING SPEED - Vc m/min | | | | | Fz mm/tr | Min Fz mm/tr | Max Fz mm/tr |
|---|---|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | | | |
| CG16 IR W 0.50 GCU20 | 867408 | 50-**80**-120 | 50-**80**-140 | 70-**110**-150 | o | o | **0,08** | 0,04 | 0,25 |
| CG16 IR W 1.00 GCU20 | 867409 | 50-**80**-120 | 50-**80**-140 | 70-**110**-150 | o | o | **0,08** | 0,04 | 0,25 |
| CG16 IR W 1.20 GCU20 | 867410 | 50-**80**-120 | 50-**80**-140 | 70-**110**-150 | o | o | **0,08** | 0,04 | 0,25 |
| CG16 IR W 1.40 GCU20 | 867411 | 50-**80**-120 | 50-**80**-140 | 70-**110**-150 | o | o | **0,08** | 0,04 | 0,25 |
| CG16 IR W 1.70 GCU20 | 867412 | 50-**80**-120 | 50-**80**-140 | 70-**110**-150 | o | o | **0,08** | 0,04 | 0,25 |
| CG16 IR W 1.95 GCU20 | 867413 | 50-**80**-120 | 50-**80**-140 | 70-**110**-150 | o | o | **0,08** | 0,04 | 0,25 |
| CG16 IR W 2.25 GCU20 | 867414 | 50-**80**-120 | 50-**80**-140 | 70-**110**-150 | o | o | **0,08** | 0,04 | 0,25 |
| ( 55-**80**-120 ) Speed range in bold = ideal | | | | ( o ) May be suitable | | | ( - ) Not suitable | | |

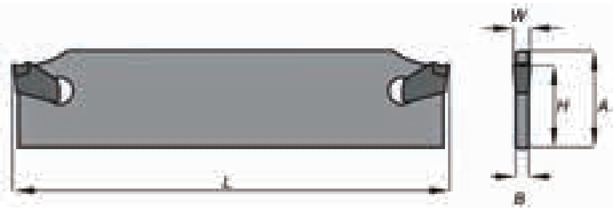

CALCULATE
YOUR CUTTING SPEED
IN A SIMPLE WAY!
The Cutline Calculator app is the key tool to ease your calculations when standing in front of a machine or a computer.
It allows you a fast conversion of cutting speed and feed in turning, milling, drilling and tapping.
Available in Androïd, IOS, Windows and web versions.
iOS
Proposed by GISS Cutline
www.giss.com
CUTLINE

## GPLT PARTING BLADE BLOCK



| Name | Blade | Height H (mm) | Width B (mm) | Length L1 (mm) | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| BLADE HOLDER GPLT 2620 | LTGC-26 | 20 | 20 | 87 | 1 | 867426 | £ 114,37 |
| BLADE HOLDER GPLT 3225 | LTGC-32 | 25 | 25 | 110 | 1 | 867427 | £ 120,78 |

## LTGC PARTING BLADE



| Name | Tool tip | Height A (mm) | Width W (mm) | Height H (mm) | Width B (mm) | Length L (mm) | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| BLADE LTGC 3-26 | GCMX-3 | 26 | 3 | 21.4 | 2.4 | 110 | 1 | 867419 | £ 75,03 |
| BLADE LTGC 4-26 | GCMX-4 | 26 | 4 | 21.4 | 3.2 | 110 | 1 | 867420 | £ 75,03 |
| BLADE LTGC 3-32 | GCMX-3 | 32 | 3 | 25 | 2.4 | 150 | 1 | 867421 | £ 79,61 |
| BLADE LTGC 4-32 | GCMX-4 | 32 | 4 | 25 | 3.2 | 150 | 1 | 867422 | £ 79,61 |

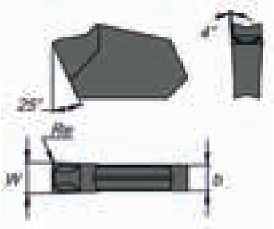
## BLADE WRENCH - LTGC

| Ref. | Price each |
|---|---|
| 867424 | £ 4,53 |

## GCMX PARTING INSERT

P M K N

GCMX-GCU



| Name | Width W (mm) | Width b (mm) | Re Radius | | Ref. | Price each |
|---|---|---|---|---|---|---|
| GCMX-3N GCU35 | 3.1 | 2.6 | 0.25 | 10 | 867416 | £ 5,19 |
| GCMX-4N GCU35 | 4.1 | 3.5 | 0.25 | 10 | 867417 | £ 5,28 |

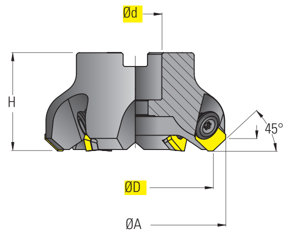
| Name | Ref. | CUTTING SPEED - Vc m/min | | | | | Fz mm/tr | Min Fz mm/tr | Max Fz mm/tr |
|---|---|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | | | |
| GCMX-3N GCU35 | 867416 | 55-**90**-140 | 55-**90**-140 | 55-**90**-140 | o | - | **0,15** | 0,10 | 0,25 |
| GCMX-4N GCU35 | 867417 | 55-**90**-140 | 55-**90**-140 | 55-**90**-140 | o | - | **0,18** | 0,10 | 0,30 |
| ( 55-**90**-140 ) Speed range in bold = ideal | | | | ( o ) May be suitable | | | ( - ) Not suitable | | |

## PARTING KIT

| Content | | Ref. | Price each |
|---|---|---|---|
| 1xLTGC 3-26 + 20xGCMX-3N GCU35 | 1 | 867587 | £ 132,83 |
| 1xLTGC 3-32 + 20xGCMX-3N GCU35 | 1 | 867588 | £ 132,83 |
| 1xLTGC 4-26 + 20xGCMX-3N GCU35 | 1 | 867589 | £ 135,72 |
| 1xLTGC 4-32 + 20xGCMX-3N GCU35 | 1 | 867590 | £ 135,72 |

## SHELL FACE MILL 45° FRS45P

45°



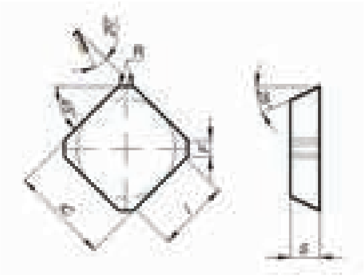

| Type | Tool tip | Ø D | Ø A | H | Number of teeth (z) | 📦 | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| FRS45 P063 12 | SEKR 1203... | 22 | 76 | 40 | 5 | 1 | 832622 | £ 183,25 |
| FRS45 P080 12 | SEKR 1203... | 27 | 93 | 50 | 6 | 1 | 832623 | £ 200,68 |
| FRS45 P100 12 | SEKR 1203... | 32 | 113 | 50 | 6 | 1 | 832624 | £ 231,00 |

| Type | PART | SPARE SCREW | CLAMPING SCREW | CLAMPING WRENCH TOOL TIP | SPARE CLAMPING WRENCH | Price each |
|---|---|---|---|---|---|---|
| FRS45P | 832698 | | | | | £ 5,98 |
| | | 832697 | | | | £ 3,09 |
| | | | 832696 | | | £ 6,24 |
| | | | | 832827 | | £ 11,33 |
| | | | | | 832695 | £ 1,96 |

## SEKR 1203... POSITIVE MILLING INSERT

P M K N


SEKN-AFSN

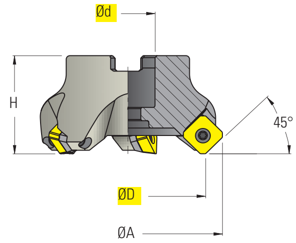


| Name | Inscribed circle (IC) | Thickness (S) | Width (W) | Radius (R) | Width (F) | 📦 | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| SEKR 1203 AFSN GCPK20 | 12.7 | 3.18 | 9.2 | 1.2 | 2.4 | 10 | 867432 | £ 5,31 |
| SEKR 1203 AFSN GCMN40 | 12.7 | 3.18 | 9.2 | 1.2 | 2.4 | 10 | 867433 | £ 5,56 |

| Name | Ref. | CUTTING SPEED - Vc m/min | | | | | Fz mm/tr | Min Fz mm/tr | Max Fz mm/tr |
|---|---|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | | | |
| SEKR 1203 AFSN GCPK20 | 867432 | 130-**150**-220 | o | 120-**180**-250 | o | - | **0,12** | 0,08 | 0,25 |
| SEKR 1203 AFSN GCMN40 | 867433 | o | 70-**100**-140 | o | 400-**550**-800 | - | **0,12** | 0,08 | 0,25 |
| ( 130-**150**-220 ) Speed range in bold = ideal | | | | ( o ) May be suitable | | | ( - ) Not suitable | | |

## SHELL FACE MILL 45° FRS45SP

45°



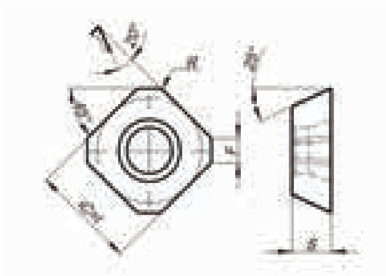

| Type | Tool tip | Ø D | Ø A | H | Number of teeth (z) | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| FRS45SP 050 13 | SEHT 13T3... | 22 | 63 | 40 | 4 | 1 | 832630 | £ 156,80 |
| FRS45SP 063 13 | SEHT 13T3... | 22 | 76 | 40 | 5 | 1 | 832631 | £ 189,08 |
| FRS45SP 080 13 | SEHT 13T3... | 27 | 93 | 50 | 6 | 1 | 832632 | £ 221,95 |
| FRS45SP 100 13 | SEHT 13T3... | 32 | 113 | 50 | 6 | 1 | 832633 | £ 317,79 |

| Type | PART | SPARE SCREW | CLAMPING SCREW | CLAMPING WRENCH TOOL TIP | Price each |
|---|---|---|---|---|---|
| FRS45SP | 832694 | | | | £ 6,29 |
| | | 832702 | | | £ 5,10 |
| | | | 832693 | | £ 3,09 |
| | | | | 832700 | £ 6,29 |

## SEHT 13T3... POSITIVE MILLING INSERT

P M K N

SEHT-AGSN



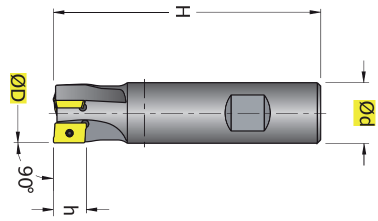
| Name | Inscribed circle (IC) | Thickness (S) | Width (W) | Width (F) | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| SEHT 13T3 AGSN GCPK20 | 13.35 | 3.97 | 10 | 2 | 10 | 867429 | £ 6,29 |
| SEHT 13T3 AGSN GCMN40 | 13.35 | 3.97 | 10 | 2 | 10 | 867430 | £ 6,29 |

| Name | Ref. | CUTTING SPEED - Vc m/min | | | | | Fz mm/tr | Min Fz mm/tr | Max Fz mm/tr |
|---|---|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | | | |
| SEHT 13T3 AGSN GCPK20 | 867429 | 130-**150**-220 | o | 120-**180**-250 | o | - | **0,12** | 0,08 | 0,25 |
| SEHT 13T3 AGSN GCMN40 | 867430 | o | 70-**100**-140 | o | 400-**550**-800 | - | **0,12** | 0,08 | 0,25 |
| ( 130-**150**-220 ) Speed range in bold = ideal | | | | ( o ) May be suitable | | | ( - ) Not suitable | | |

INDEXABLE TOOLING

## SHOULDER MILL 90° FRSD90QC

90°

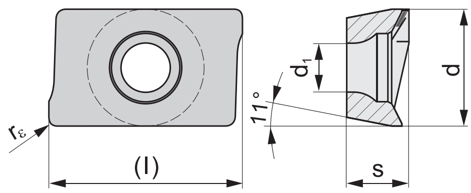


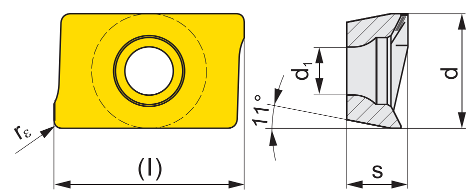

| Type | Tool tip | Ø D | Ø d | H | Number of teeth (z) | | Shank | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| FRSD90QC 016 10 | APKT 1003... | 16 | 16 | 85 | 2 | 1 | Cylandrical Weldon | 832639 | £ 52,27 |
| FRSD90QC 020 10 | APKT 1003... | 20 | 20 | 90 | 3 | 1 | Cylandrical Weldon | 832640 | £ 69,06 |
| FRSD90QC 025 10 | APKT 1003... | 25 | 25 | 95 | 4 | 1 | Cylandrical Weldon | 832641 | £ 81,95 |
| FRSD90QC 032 10 | APKT 1003... | 32 | 25 | 95 | 5 | 1 | Cylandrical Weldon | 832642 | £ 101,31 |

| Type | CLAMPING SCREW | CLAMPING WRENCH TOOL TIP | Price each |
|---|---|---|---|
| FRSD90QC | 832692 | | £ 3,09 |
| | | 832691 | £ 6,24 |

## APKT 10... POSITIVE MILLING INSERT

P M K N



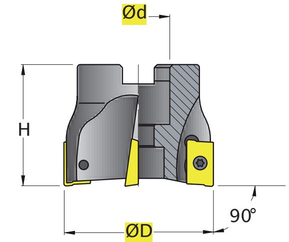




| Type | Edge length (L) | Tool tip width (d) | Thickness (s) | Ø Screw passage (d1) | Tool tip radius ® | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| APKT 1003PDER-M MGP230 | 11 | 6.7 | 3.5 | 2.88 | 0.5 | 10 | 866994 | £ 6,50 |
| APKT 1003PDER-M MGP240 | 11 | 6.7 | 3.5 | 2.88 | 0.5 | 10 | 866995 | £ 6,35 |
| APKT 1003PDFR-FA MG015 | 11 | 6.7 | 3.5 | 2.88 | 0.5 | 10 | 866996 | £ 9,43 |

| Ref. | GRADES | CUTTING SPEED Vc = m/min | | | | | Feed fz = mm |
|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | |
| 866994 | MGP230 | 120-190 | - | 140-200 | - | - | 0,1-0,25 |
| 866995 | MGP240 | - | 120-180 | 140-200 | - | - | 0,1-0,25 |
| 866996 | MG015 | - | - | - | 400-800 | - | 0,1-0,25 |

## SHOULDER SHELL MILL 90° FRSD90AT

90°

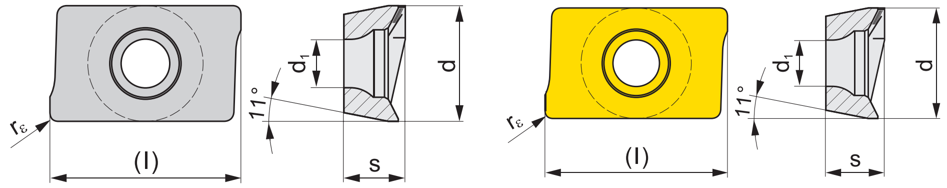



| Type | Tool tip | Ø D | Ø d | H | Number of teeth (z) | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| FRSD90AT 040 16 | AP..1604 | 40 | 16 | 40 | 4 | 1 | 832645 | £ 85,17 |
| FRSD90AT 050 16 | AP..1604 | 50 | 22 | 40 | 5 | 1 | 832646 | £ 94,85 |
| FRSD90AT 063 16 | AP..1604 | 63 | 22 | 40 | 6 | 1 | 832647 | £ 110,98 |
| FRSD90AT 080 16 | AP..1604 | 80 | 27 | 50 | 7 | 1 | 832648 | £ 137,46 |
| FRSD90AT 100 16 | AP..1604 | 100 | 32 | 50 | 8 | 1 | 832649 | £ 156,80 |

| Type | CLAMPING SCREW | CLAMPING WRENCH TOOL TIP | Price each |
|---|---|---|---|
| FRSD90AT | 832651 | | £ 3,09 |
| | | 832700 | £ 6,29 |

## APKT 16... MILLING INSERT

P M K N

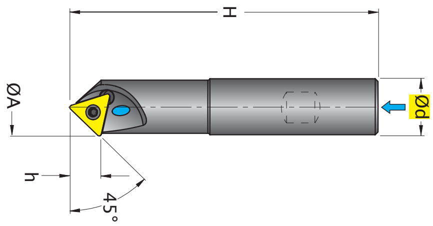



| Type | Edge length (L) | Tool tip width (d) | Thickness (s) | Ø Screw passage (d1) | Tool tip radius ® | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| APKT 1604PDR-GM MGP230 | 17 | 9.44 | 5.67 | 4.6 | 0.8 | 10 | 866991 | £ 5,99 |
| APKT 1604PDR-GM MGP240 | 17 | 9.44 | 5.67 | 4.6 | 0.8 | 10 | 866992 | £ 7,89 |
| APET 160408-FR-FA MG015 | 17 | 9.44 | 5.67 | 4.6 | 0.8 | 10 | 866993 | £ 9,43 |

| Ref. | GRADES | CUTTING SPEED Vc = m/min | | | | | Feed fz = mm |
|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | |
| 866991 | MGP230 | 120-190 | - | 140-200 | - | - | 0,2-0,4 |
| 866992 | MGP240 | - | 120-180 | 140-200 | - | - | 0,2-0,4 |
| 866993 | MG015 | - | - | - | 400-800 | - | 0,2-0,4 |

INDEXABLE TOOLING

## CENTER MILLING CUTTER 45° FRCH45

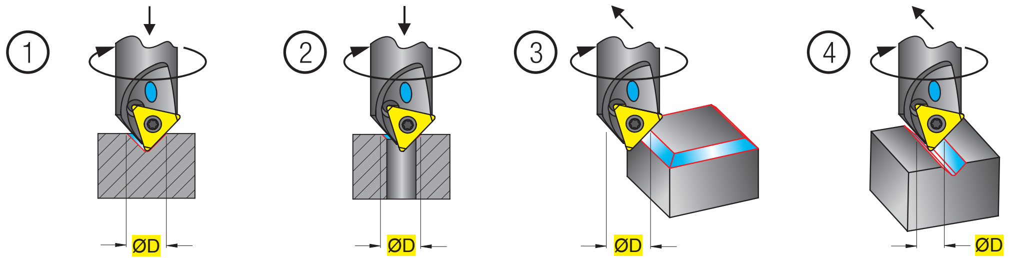



| Type | H (mm) | Tool tip | Number of teeth (z) | Ø d | h | Ø A | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|
| FRCH45 16 | 110 | TCMX... | 1 | 20 | 10 | 21.6 | 1 | 832730 | £ 136,33 |

| Type | CLAMPING SCREW TOOL TIP | CLAMPING WRENCH TOOL TIP | Price each |
|---|---|---|---|
| FRCH45 | 832704 | | £ 3,09 |
| | | 832700 | £ 6,29 |

## CHAMFERING AND MILLING INSERT - TCMX

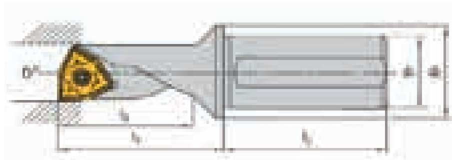
P M K N




| Type | Edge length (L) | Tool tip width (d) | Thickness (s) | Tool tip radius ® | | Ref. | Price each |
|---|---|---|---|---|---|---|---|
| TCMX 16T308ZZ FG30 | 16.5 | 9.52 | 4.4 | 0.8 | 1 | 832689 | £ 19,14 |

| Ref. | GRADES | P | M | K | N | S | |
|---|---|---|---|---|---|---|---|
| 832689 | FG30 | 100 | 100 | 120 | 150 | - | Cutting speed Vc=m/min |
| Figure 1 | | 0,02 - 0,04 | 0,03 - 0,05 | 0,03 - 0,06 | 0,03 - 0,06 | - | Feed fz = mm |
| Figure 2 | | 0,05 - 0,2 | 0,05 - 0,2 | 0,05 - 0,2 | 0,05 - 0,2 | - | |
| Figure 3 | | 0,05 - 0,2 | 0,05 - 0,2 | 0,05 - 0,2 | 0,05 - 0,2 | - | |
| Figure 4 | | 0,03 - 0,08 | 0,03 - 0,08 | 0,05 - 0,1 | 0,08 - 0,15 | - | |

## MULTI-FUNCTION TOOL ACDLPR/L...08

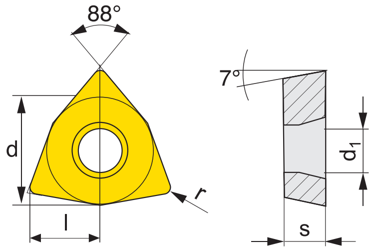


| Type | Type of assembly | Tool tip | D1 | d1 | d2 | l1 | l2 | l3 | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ACDLPR 08 | Right | WCHX 04 | 8 | 10 | 12 | 22.5 | 38 | 18 | 1 | 855522 | £ 205,66 |
| ACDLPL 08 | Left | WCHX 04 | 8 | 10 | 12 | 22.5 | 38 | 18 | 1 | 855521 | £ 205,66 |

| Type | CLAMPING SCREW TOOL TIP | CLAMPING WRENCH TOOL TIP | Price each |
|---|---|---|---|
| ACDLPR/L | 855991 | | £ 5,77 |
| | | 855999 | £ 8,76 |

## WCHX 04... MULTI INSERT

P M N




| Type | Edge length (L) | Tool tip width (d) | Thickness (s) | Ø Screw passage (d1) | Tool tip radius (r) | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| WCHX 040102-FN WG015 | 4 | 6.35 | 1.59 | 2.25 | 0.2 | 10 | 855496 | £ 13,84 |
| WCHX 040104-FN WG015 | 4 | 6.35 | 1.59 | 2.25 | 0.4 | 10 | 855497 | £ 13,84 |
| WCHX 040102-EN WGC230 | 4 | 6.35 | 1.59 | 2.25 | 0.2 | 10 | 855498 | £ 12,98 |
| WCHX 040104-EN WGC230 | 4 | 6.35 | 1.59 | 2.25 | 0.4 | 10 | 855499 | £ 12,98 |
| WCHX 040102-EN WGC240 | 4 | 6.35 | 1.59 | 2.25 | 0.2 | 10 | 855500 | £ 12,98 |
| WCHX 040104-EN WGC240 | 4 | 6.35 | 1.59 | 2.25 | 0.4 | 10 | 855501 | £ 12,98 |

| Ref. | GRADES | CUTTING SPEED Vc = m/min | | | | | Feed fz = mm |
|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | |
| 855496 | WG015 | - | - | - | 200-1500 | - | 0,05-0,15 |
| 855497 | WG015 | - | - | - | 200-1500 | - | 0,1-0,25 |
| 855498 | WGC230 | 150-230 | - | - | - | - | 0,07-0,15 |
| 855499 | WGC230 | 150-230 | - | - | - | - | 0,1-0,25 |
| 855500 | WGC240 | - | 50-150 | - | - | - | 0,07-0,15 |
| 855501 | WGC240 | - | 50-150 | - | - | - | 0,1-0,25 |

INDEXABLE TOOLING

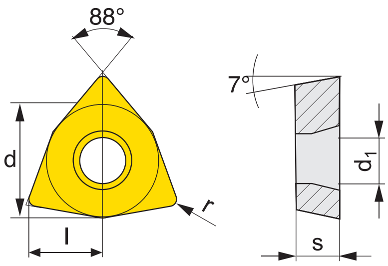
## MULTI-FUNCTION TOOL ACDLPR/L...11

| Type | Type of assembly | Tool tip | D1 | d1 | d2 | l1 | l2 | l3 | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ACDLPR 11 | Right | WCHX 06 | 11 | 16 | 20 | 32 | 45 | 24.75 | 1 | 855524 | £ 205,66 |
| ACDLPL 11 | Left | WCHX 06 | 11 | 16 | 20 | 32 | 45 | 24.75 | 1 | 855523 | £ 205,66 |

| Type | CLAMPING SCREW TOOL TIP | CLAMPING WRENCH TOOL TIP | Price each |
|---|---|---|---|
| ACDLPR/L | 855993 | | £ 5,77 |
| | | 856001 | £ 8,76 |

## WCHX 06... MULTI INSERT

P M N




| Type | Edge length (L) | Tool tip width (d) | Thickness (s) | Ø Screw passage (d1) | Tool tip radius (r) | | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| WCHX 060202-FN WG015 | 5.5 | 8.73 | 2.38 | 2.8 | 0.2 | 10 | 855502 | £ 14,34 |
| WCHX 060204-FN WG015 | 5.5 | 8.73 | 2.38 | 2.8 | 0.4 | 10 | 855503 | £ 14,34 |
| WCHX 060202-EN WGC230 | 5.5 | 8.73 | 2.38 | 2.8 | 0.2 | 10 | 855504 | £ 13,48 |
| WCHX 060204-EN WGC230 | 5.5 | 8.73 | 2.38 | 2.8 | 0.4 | 10 | 855505 | £ 13,48 |
| WCHX 060202-EN WGC240 | 5.5 | 8.73 | 2.38 | 2.8 | 0.2 | 10 | 855506 | £ 13,48 |
| WCHX 060204-EN WGC240 | 5.5 | 8.73 | 2.38 | 2.8 | 0.4 | 10 | 855507 | £ 13,48 |

| Ref. | GRADES | CUTTING SPEED Vc = m/min | | | | | Feed fz = mm |
|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | |
| 855502 | WG015 | - | - | - | 200-1500 | - | 0,05-0,15 |
| 855503 | WG015 | - | - | - | 200-1500 | - | 0,1-0,25 |
| 855504 | WGC230 | 150-230 | - | - | - | - | 0,07-0,15 |
| 855505 | WGC230 | 150-230 | - | - | - | - | 0,1-0,25 |
| 855506 | WGC240 | - | 50-150 | - | - | - | 0,07-0,15 |
| 855507 | WGC240 | - | 50-150 | - | - | - | 0,1-0,25 |

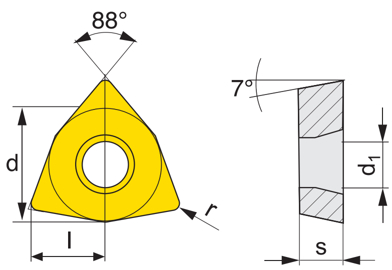
## MULTI-FUNCTION TOOL ACDLPR/L...15

| Type | Type of assembly | Tool tip | D1 | d1 | d2 | l1 | l2 | l3 | (box icon) | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ACDLPR 15 | Right | WCHX 07 | 15 | 20 | 25 | 43 | 50 | 33.75 | 1 | 855526 | £ 221,55 |
| ACDLPL 15 | Left | WCHX 07 | 15 | 20 | 25 | 43 | 50 | 33.75 | 1 | 855525 | £ 221,55 |

| Type | CLAMPING SCREW TOOL TIP | CLAMPING WRENCH TOOL TIP | Price each |
|---|---|---|---|
| ACDLRP/L | 855994 | | £ 4,64 |
| | | 856001 | £ 8,76 |

## WCHX-07... MULTI INSERT

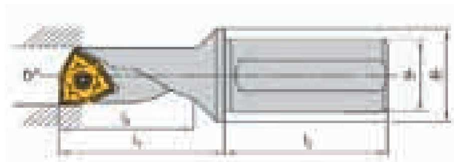
P M N




| Type | Edge length (L) | Tool tip width (d) | Thickness (s) | Ø Screw passage (d1) | Tool tip radius (r) | (box icon) | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| WCHX 070304-FN WG015 | 7.5 | 12 | 3.18 | 3.4 | 0.4 | 10 | 855508 | £ 14,49 |
| WCHX 070308-FN WG015 | 7.5 | 12 | 3.18 | 3.4 | 0.8 | 10 | 855509 | £ 14,49 |
| WCHX 070304-EN WGC230 | 7.5 | 12 | 3.18 | 3.4 | 0.4 | 10 | 855510 | £ 13,66 |
| WCHX 070308-EN WGC230 | 7.5 | 12 | 3.18 | 3.4 | 0.8 | 10 | 855511 | £ 13,66 |
| WCHX 070304-EN WGC240 | 7.5 | 12 | 3.18 | 3.4 | 0.4 | 10 | 855512 | £ 13,66 |
| WCHX 070308-EN WGC240 | 7.5 | 12 | 3.18 | 3.4 | 0.8 | 10 | 855513 | £ 13,66 |

| Ref. | GRADES | CUTTING SPEED Vc = m/min | | | | | Feed fz = mm |
|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | |
| 855508 | WG015 | - | - | - | 200-1500 | - | 0,05-0,15 |
| 855509 | WG015 | - | - | - | 200-1500 | - | 0,1-0,25 |
| 855510 | WGC230 | 150-230 | - | - | - | - | 0,07-0,15 |
| 855511 | WGC230 | 150-230 | - | - | - | - | 0,1-0,25 |
| 855512 | WGC240 | - | 50-150 | - | - | - | 0,07-0,15 |
| 855513 | WGC240 | - | 50-150 | - | - | - | 0,1-0,25 |

## MULTI-FUNCTION TOOL ACDLPR/L...20

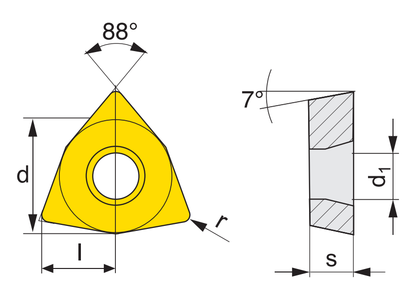


| Type | Type of assembly | Tool tip | D1 | d1 | d2 | l1 | l2 | l3 | Pack | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ACDLPR 20 | Right | WCHX 10 | 20 | 25 | 32 | 56 | 56 | 45 | 1 | 855528 | £ 265,86 |
| ACDLPL 20 | Left | WCHX 10 | 20 | 25 | 32 | 56 | 56 | 45 | 1 | 855527 | £ 265,86 |

| Type | CLAMPING SCREW TOOL TIP | CLAMPING WRENCH TOOL TIP | Price each |
|---|---|---|---|
| ACDLPR/L | 855996 | | £ 4,12 |
| | | 856004 | £ 10,41 |

## WCHX-10... MULTI INSERT

P M N




| Type | Edge length (L) | Tool tip width (d) | Thickness (s) | Ø Screw passage (d1) | Tool tip radius (r) | Pack | Ref. | Price each |
|---|---|---|---|---|---|---|---|---|
| WCHX 10T304-FN WG015 | 10 | 15.88 | 3.97 | 5.9 | 0.4 | 10 | 855514 | £ 15,37 |
| WCHX 10T308-FN WG015 | 10 | 15.88 | 3.97 | 5.9 | 0.8 | 10 | 855515 | £ 15,37 |
| WCHX 10T304-EN WGC230 | 10 | 15.88 | 3.97 | 5.9 | 0.4 | 10 | 855516 | £ 14,56 |
| WCHX 10T308-EN WGC230 | 10 | 15.88 | 3.97 | 5.9 | 0.8 | 10 | 855517 | £ 14,56 |
| WCHX 10T304-EN WGC240 | 10 | 15.88 | 3.97 | 5.9 | 0.4 | 10 | 855518 | £ 14,56 |
| WCHX 10T308-EN WGC240 | 10 | 15.88 | 3.97 | 5.9 | 0.8 | 10 | 855519 | £ 14,56 |

| Ref. | GRADES | CUTTING SPEED Vc = m/min | | | | | Feed fz = mm |
|---|---|---|---|---|---|---|---|
| | | P | M | K | N | S | |
| 855514 | WG015 | - | - | - | 200-1500 | - | 0,05-0,15 |
| 855515 | WG015 | - | - | - | 200-1500 | - | 0,1-0,25 |
| 855516 | WGC230 | 150-230 | - | - | - | - | 0,07-0,15 |
| 855517 | WGC230 | 150-230 | - | - | - | - | 0,1-0,25 |
| 855518 | WGC240 | - | 50-150 | - | - | - | 0,07-0,15 |
| 855519 | WGC240 | - | 50-150 | - | - | - | 0,1-0,25 |

# THE CUTTING TOOL ACDLPR/L FOR UNIVERSAL MILLING AND DRILLING REPLACES UP TO 5 ISO TOOLS.

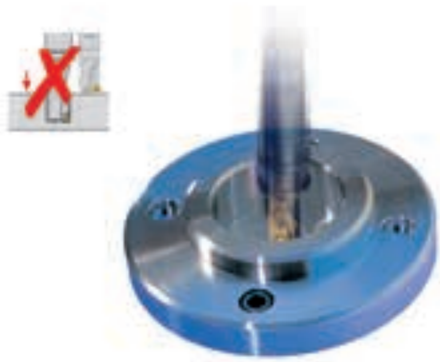
## 5 MACHINING OPERATIONS = 1 TOOL

REAMING

CHAMPFERING

DRESSING

SPOTTING



DRILLING

| TYPE | SYMBOL | PRODUCT | INSERT | SHIM | SHIM AXIS | PIN | LEVER | AXIS LEVER |
|---|---|---|---|---|---|---|---|---|
| TURNING | MCLNR/L | TOOL HOLDER 95° EXTERNAL TURNING MCLNR/L | CNMG 1204… | 832690 - AC | 832815 - AAA | - - - | - - - | - - - |
| | MDJNR/L | TOOL HOLDER 93° EXTERNAL TURNING MDJNR/L | DNMG 1506… | 832808 - AD | 832806 - AAB | - - - | - - - | - - - |
| | MSSNR/L | TOOL HOLDER 45° EXTERNAL TURNING MSSNR/L | SNMG 1204… | 832773 - AH | 832815 - AAA | - - - | - - - | - - - |
| | SVJBR/L | TOOL HOLDER 93° EXTERNAL TURNING SVJBR/L | VBMT 1604… | 832797 - AF | - - - | - - - | - - - | - - - |
| | PWLNR/ L06 | TOOL HOLDER 95° EXTERNAL TURNING PWLNR/L 2020 06 | WNMG 0604… | 832784 - AG | - - - | 832782 - GA | 832788 - LA | 832786 - ALA |
| | PWLNR/ L08 | TOOL HOLDER 95° EXTERNAL TURNING PWLNR/L 2020 08 | WNMG 0804… | 844601 - AK | - - - | 847307 - GB | 847301 - LB | 847303 - ALB |
| | A0810/12 SCLCR/L 06 | TOOL HOLDER 95° INTERNAL TURNING A...SCLCR 06 | CC…0602 | - - - | - - - | - - - | - - - | - - - |
| | A16 SCLCR/L 09 | TOOL HOLDER 95° INTERNAL TURNING A...SCLCR/L 09 | CC...09T3 | - - - | - - - | - - - | - - - | - - - |
| | A10/12/16 SDUCR/ L07 | TOOL HOLDER 93° INTERNAL TURNING COPYING INT A...SDUCR/L 07 | DC…0702 | - - - | - - - | - - - | - - - | - - - |
| | A20 SDUCR/ L11 | TOOL HOLDER 93° INTERNAL TURNING COPYING INT A...SDUCR/L 11 | DC...11T3 | - - - | - - - | - - - | - - - | - - - |
| | A25 SDUCR/ L11 | TOOL HOLDER 93° INTERNAL TURNING COPYING INT A...SDUCR/L 11 | DC...11T3 | - - - | - - - | - - - | - - - | - - - |
| | A20Q MWLNR/ L06 | TOOL HOLDER 95° INTERNAL TURNING A...MWLNR/L 06 | WNMG 0604… | - - - | 833278 - AAD | - - - | - - - | - - - |
| | A25R MWLNR/ L06 | TOOL HOLDER 95° INTERNAL TURNING A...MWLNR/L 06 | WNMG 0604... | 832762 - AJ | 832760 - AAC | - - - | - - - | - - - |
| | A32S MWLNR/ L06 | TOOL HOLDER 95° INTERNAL TURNING A...MWLNR/L 06 | WNMG 0604... | 832762 - AJ | 832760 - AAC | - - - | - - - | - - - |
| | A25R MWLNR/L 08 | TOOL HOLDER 95° INTERNAL TURNING A...MWLNR/L A25 08 | WNMG 0804… | 844601 - AK | 844607 - AAE | - - - | - - - | - - - |
| | A32S MWLNR/L 08 | TOOL HOLDER 95° INTERNAL TURNING A...MWLNR/L A32 08 | WNMG 0804… | 844601 - AK | 844611 - AAF | - - - | - - - | - - - |
| | A25R PWLNR/L 08 | TOOL HOLDER 95° INTERNAL TURNING A...PWLNR/L A25 08 | WNMG 0804… | 844601 - AK | - - - | 847307 - GB | 847301 - LB | 847314 - ALC |
| | A32S PWLNR/L 08 | TOOL HOLDER 95° INTERNAL TURNING A...PWLNR/L A32 08 | WNMG 0804… | 844601 - AK | - - - | 847307 - GB | 847301 - LB | 847303 - ALC |

| FLANGE | FLANGE SCREW | FLANGE KIT | SCREW | CLAMP WRENCH | BLADE WRENCH | INSERT SECURING SCREW | INSERT SECURING TOOL |
|---|---|---|---|---|---|---|---|
| 832710 - BA | 832716 - VDBA | - - - | - - - | - - - | - - - | - - - | 832714 -CSP1 - TORX 15 |
| 832804 - BB | 832716 - VDBA | - - - | - - - | - - - | - - - | - - - | 832714 - CSP1 - TORX 15 |
| 832710 - BA | 832716 - VDBA | - - - | - - - | - - - | - - - | - - - | 832714 - CSP1 - TORX 15 |
| - - - | - - - | - - - | 832702 - VAB | - - - | - - - | 832817 - VSP1 - Nm 3,0-3,5 | 832712 - CSP3 - TORX PLUS 15 IP |
| - - - | - - - | - - - | - - - | - - - | - - - | - - - | 832780 - CSP7 - 6 PANS TS 2,5 |
| - - - | - - - | - - - | - - - | - - - | - - - | - - - | 847305 - CSP10 - 6 PANS TS 3 |
| - - - | - - - | - - - | - - - | - - - | - - - | 832751 - VSP8 - Nm 1,0-1,2 | 832749 - CSP8 - TORX PLUS 7 IP |
| - - - | - - - | - - - | - - - | - - - | - - - | 832704 - VSP2 - Nm 3,8-5,0 | 832712 - CSP3 - TORX PLUS 15 IP |
| - - - | - - - | - - - | - - - | - - - | - - - | 832734 - VSP9 - Nm 1,1-1,3 | 832732 - CSP9 - TORX PLUS 8IP |
| - - - | - - - | - - - | - - - | - - - | - - - | 832704 - VSP2 - Nm 3,8-5,0 | 832712 - CSP3 - TORX PLUS 15 IP |
| - - - | - - - | - - - | - - - | - - - | - - - | 832736 - VSP10 - Nm 3,8-5,0 | 832712 - CSP3 - TORX PLUS 15 IP |
| - - - | - - - | 832764 - KBA | - - - | - - - | - - - | - - - | 832706 - CSP2 - TORX 10 |
| - - - | - - - | 832764 - KBA | - - - | - - - | - - - | - - - | 832706 - CSP2 - TORX 10 |
| - - - | - - - | 832764 - KBA | - - - | - - - | - - - | - - - | 832706 - CSP2 - TORX 10 |
| - - - | 844609 - VTORX | 844605 - KBB | - - - | - - - | - - - | - - - | 832780 - CSP7 - 6 PANS TS 2,5 |
| - - - | 844609 - VTORX | 844605 - KBB | - - - | - - - | - - - | - - - | 832780 - CSP7 - 6 PANS TS 2,5 |
| - - - |  |  | - - - | - - - | - - - | - - - | 847305 - CSP10 - 6 PANS TS 3 |
| - - - |  |  | - - - | - - - | - - - | - - - | 847305 - CSP10 - 6 PANS TS 3 |

| TYPE | SYMBOL | PRODUCT | INSERT | SHIM | SHIM AXIS | PIN | LEVER | AXIS LEVER |
|---|---|---|---|---|---|---|---|---|
| THREADING | FEGR | TOOL HOLDER EXTERNAL THREADING FEGR/L | 16ER... | 832825-AE | - - - | - - - | - - - | - - - |
| | FIG16R 16 | TOOL HOLDER INTERNAL THREADING FIG16R 16 | 16NR... | - - - | - - - | - - - | - - - | - - - |
| | FIG20R 16 | TOOL HOLDER INTERNAL THREADING FIG20R16 | 16NR... | 832823 - AI | - - - | - - - | - - - | - - - |
| | FIG25R 16 | TOOL HOLDER INTERNAL THREADING FIG25R16 | 16NR... | 832823 - AI | - - - | - - - | - - - | - - - |
| PARTING | GPLT 20 26 | BLADE HOLDER PARTING GPLT 20 26 / 25 32 | GTS... | - - - | - - - | - - - | - - - | - - - |
| TRIMMING | FRS45P | CYLINDRICAL CUTTER 45° FRS45P | SEER 1203... | 832698 - AA | - - - | - - - | - - - | - - - |
| | FRS45SP | CYLINDRICAL CUTTER 45° FRS45SP | SEET 13T3... | 832694 - AB | - - - | - - - | - - - | - - - |
| | FRS-D90QC | JOINTING-CYLINDRICAL CUTTER FRSD90QC | APKT 1003... | - - - | - - - | - - - | - - - | - - - |
| | FRSD90AT | JOINTING-CYLINDRICAL CUTTER FRSD90AT | AP...1604 | - - - | - - - | - - - | - - - | - - - |
| | FRCH45 | CHAMFERING-CENTERING CUTTER 45° FRCH45 | TCMX 16T3... | - - - | - - - | - - - | - - - | - - - |
| | ACDLPR/L -08 | MULTI FUNCTION TOOL ACDLPR/L | WCHX 04 | - - - | - - - | - - - | - - - | - - - |
| | ACDLPR/L -11 | MULTI FUNCTION TOOL ACDLPR/L | WCHX 06 | - - - | - - - | - - - | - - - | - - - |
| | ACDLPR/L -15 | MULTI FUNCTION TOOL ACDLPR/L | WCHX 07 | - - - | - - - | - - - | - - - | - - - |
| | ACDLPR/L -20 | MULTI FUNCTION TOOL ACDLPR/L | WCHX 10 | - - - | - - - | - - - | - - - | - - - |

| FLANGE | FLANGE SCREW | FLANGE KIT | SCREW | CLAMP WRENCH | BLADE WRENCH | INSERT SECURING SCREW | INSERT SECURING TOOL |
|---|---|---|---|---|---|---|---|
| - - - | - - - | - - - | 832821 - VAC | - - - | - - - | 832819 - VSP3 - Nm 1,8-2,0 | 832706 - CSP2 -TORX 10 |
| - - - | - - - | - - - | - - - | - - - | - - - | 832817 - VSP1 - Nm 3,0-3,5 | 832712 - CSP3 - TORX PLUS 15 IP |
| - - - | - - - | - - - | 832821 - VAC | - - - | - - - | 832819 - VSP3 - Nm 1,8-2,0 | 832706 - CSP2 - TORX 10 |
| - - - | - - - | - - - | 832821 - VAC | - - - | - - - | 832819 - VSP3 - Nm 1,8-2,0 | 832706 - CSP2 - TORX 10 |
| - - - | - - - | - - - | - - - | - - - | 832720 - GPLT | - - - | - - - |
| - - - | - - - | - - - | 832697 - VAA | 832695 - CSAA | - - - | 832696 - VSP4 - Nm 6,0-7,5 | 832827 - CSP5 - TORX 25 |
| - - - | - - - | - - - | 832702 - VAB | - - - | - - - | 832693 - VSP5 - Nm 3,0-3,5 | 832700 - CSP4 - TORX PLUS 15 IP |
| - - - | - - - | - - - | - - - | - - - | - - - | 832692 - VSP6 - Nm 1,1-1,3 | 832691 - CSP6 - TORX PLUS 8 IP |
| - - - | - - - | - - - | - - - | - - - | - - - | 832651 - VSP7 - Nm 3,8-5,0 | 832700 - CSP4 - TORX PLUS 15 IP |
| - - - | - - - | - - - | - - - | - - - | - - - | 832704 - VSP2 - Nm 3,8-5,0 | 832700 - CSP4 - TORX PLUS 15 IP |
| - - - | - - - | - - - | - - - | - - - | - - - | 855991 - VST8 | 855999 - CSV6 |
| - - - | - - - | - - - | - - - | - - - | - - - | 855993 - VST11 | 856001 - CSV8 |
| - - - | - - - | - - - | - - - | - - - | - - - | 855994 - VST15 | 856001 - CSV8 |
| - - - | - - - | - - - | - - - | - - - | - - - | 855996 - VST20 | 856004 - CSV20 |

# MATERIAL GROUP



Pages **308** to **323**

# COLOR CODE EXPLANATION

The product families are classified by colored tabs:

- **DRILLS**
- **MILLING**
- **TAPS**
- **CUTTING TOOLS**
- **TOOL HOLDING**
- **INDEXABLE TOOLING**
- **MATERIAL GROUP**
- **INDEX & NOTES**

# MATERIAL GROUP

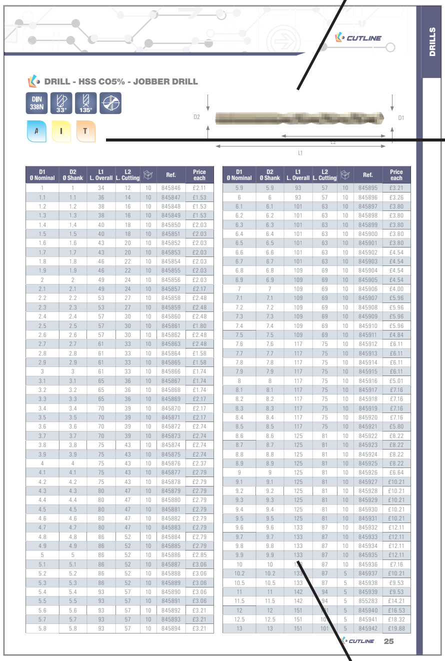
The ISO colours of the material groups are common to all families presented in this catalogue.

=> Cutting conditions ease of reading

=> No risk of error in the appellation and use of the product

| ISO COLOUR | MATERIAL GROUP | GISS FAMILY CUTLINE |
|---|---|---|
| blue | steels | Taps<br>Milling cutters<br>Drills<br>Inserts |
| yellow | stainless steels | |
| red | cast iron | |
| green | non-ferrous | |
| orange | titanium/nickel | |

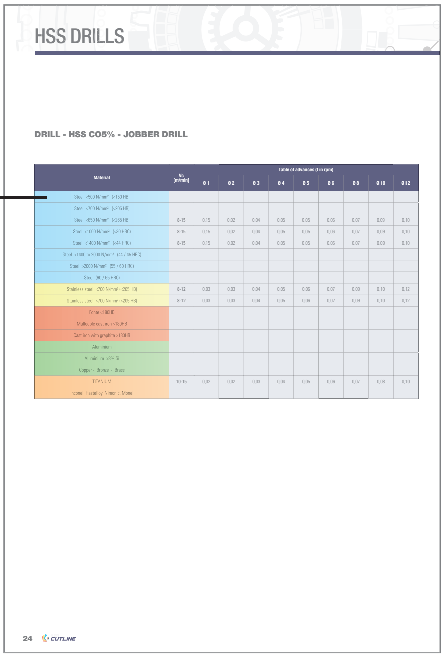
Diagram and dimensions of the tool




Colour code material group

Cutting conditions of the tool
If no advance is marked in the corresponding table, the product is not suitable for the material!

Always the right recommendation.




Reference and price with ratings

## CUTLINE COATING NAMES EXPLANATIONS

GISS CUTLINE presents in this catalogue products with conventional coatings but also specific coatings to meet particular needs. These exclusive coatings have been subject to extensive customer tests before commercialisation.

In this 2018 selection, you will discover two coating categories:

**Standard coatings**

GOLD TiAIN TiCN TiN VAP ZIRKO

**Specific GISS CUTLINE coatings**

OZDY

Coating developed for stainless steel machining.

OZMA

Superior to TIALN it is particularly suitable for 2-3 and 4 teeth carbide milling cutters as well as aluminum milling cutters.

OZMAX

Developed for our 4-tooth offset milling cutter, it provides complete coverage in steel, stainless steel and cast iron.

OZMD

Developed for our range of carbide drills, this coating offers a wide range of use in many materials.

OZMX

Most suitable coating when working with materials such as nickel, titanium or stainless steel.

HDMX

Intended for intensive use.

# MATERIAL GROUP

| DIN | AFNOR | Material subgroup 1 | Material subgroup 2 |
|---|---|---|---|
| 10 CrMo 9 10 | 10 CD 9.10 | 1.2 Construction steel | 1.2.3 Alloyed |
| 10 S 20 | 10 F 1 | 1.1 Free turning steel | 1.1.1 Up to 500 N/mm² |
| 10 SPb 20 | 10 PbF 2 | 1.1 Free turning steel | 1.1.1 Up to 500 N/mm² |
| 100 Cr 6 | 100 C 6 | 2.3 Steel for treatment | 2.3.3 Alloyed Up to 800 N/mm² |
| 100 Cr 6 | Y 100 C 6 | 3.2 Tool steel for cold work | 3.2.1 Low alloy Up to 1000 N/mm² |
| 100 MnCrW 4 | 90 MWCV 5 | 3.2 Tool steel for cold work | 3.2.1 Low alloy Up to 1000 N/mm² |
| 100 V 1 | Y1 105 V | 3.2 Tool steel for cold work | 3.2.1 Low alloy Up to 1000 N/mm² |
| 105 WCr 6 | 105 WC 13 | 3.2 Tool steel for cold work | 3.2.1 Low alloy Up to 1000 N/mm² |
| 115 CrV 3 | 100 C 3 | 3.2 Tool steel for cold work | 3.2.1 Low alloy Up to 1000 N/mm² |
| 12 Ni 19 | Z 18 N 5 | 1.2 Construction steel | 1.2.3 Alloyed |
| 120 WV 4 | 110 WC 20 | 3.2 Tool steel for cold work | 3.2.1 Low alloy Up to 1000 N/mm² |
| 13 Cr 2 | | 2.1 Carburizing steel | 2.1.2 150-200 HB |
| 13 CrMo 4 4 | 15 CD 3.5 | 1.2 Construction steel | 1.2.3 Alloyed |
| 14 CrMoV 6 9 | 15 CDV 6 | 1.2 Construction steel | 1.2.3 Alloyed |
| 14 CrMoV 6 9 | | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm² |
| 14 CrMoV 6 9 | | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm² |
| 14 CrMoV 6 9 | | 2.3 Steel for treatment | 2.3.6 Alloyed 1300-1600 N/mm² |
| 14 MoV 6 3 | | 1.2 Construction steel | 1.2.3 Alloyed |
| 14 Ni 6 | 16 N 6 | 1.2 Construction steel | 1.2.3 Alloyed |
| 14 NiCr 10 | 14 NC 11 | 2.1 Carburizing steel | 2.1.3 Above 200 HB |
| 14 NiCr 14 | 12 NC 15 | 2.1 Carburizing steel | 2.1.3 Above 200 HB |
| 14 NiCr 18 | | 2.1 Carburizing steel | 2.1.3 Above 200 HB |
| 15 Cr 3 | 12 C 3 | 2.1 Carburizing steel | 2.1.2 150-200 HB |
| 15 CrMo 5 | 12 CD 4 | 2.1 Carburizing steel | 2.1.3 Above 200 HB |
| 15 CrMoV 5 9 | | 2.2 Steel pour nitruration | 2.2.2 Above 1000 N/mm² |
| 15 CrNi 6 | 16 NC 6 | 2.1 Carburizing steel | 2.1.3 Above 200 HB |
| 15 Mo 3 | 15 D 3 | 1.2 Construction steel | 1.2.3 Alloyed |
| 15 NiCr 14 | 10 NC 12 | 3.2 Tool steel for cold work | 3.2.1 Low alloy Up to 1000 N/mm² |
| 15 S 20 | | 1.1 Free turning steel | 1.1.1 Up to 500 N/mm² |
| 16 CrMo 4 4 | 15 CD 4.5 | 1.2 Construction steel | 1.2.3 Alloyed |
| 16 MnCr 5 | 16 MC 4 | 2.1 Carburizing steel | 2.1.3 Above 200 HB |
| 16 MnCrS 5 | | 2.1 Carburizing steel | 2.1.3 Above 200 HB |
| 16 Mo 5 | | 1.2 Construction steel | 1.2.3 Alloyed |
| 17 CrNiMo 6 | 18 NCD 6 | 2.1 Carburizing steel | 2.1.3 Above 200 HB |
| 18 CrNi 8 | 20 NC 6 | 2.1 Carburizing steel | 2.1.3 Above 200 HB |
| 20 CrMo 2 | | 2.1 Carburizing steel | 2.1.3 Above 200 HB |
| 20 CrMo 5 | 18 CD 4 | 2.1 Carburizing steel | 2.1.3 Above 200 HB |
| 20 Mn 5 | 20 M 5 | 2.3 Steel for treatment | 2.3.3 Alloyed Up to 800 N/mm² |
| 20 MnCr 5 | 20 MC 5 | 2.1 Carburizing steel | 2.1.3 Above 200 HB |
| 20 MnCrS 5 | | 2.1 Carburizing steel | 2.1.3 Above 200 HB |
| 20 MoCr 4 | | 2.1 Carburizing steel | 2.1.3 Above 200 HB |
| 20 MoCrS 4 | | 2.1 Carburizing steel | 2.1.3 Above 200 HB |
| 21 CrMoV 5 7 | | 1.2 Construction steel | 1.2.3 Alloyed |
| 21 MnCr 5 | 20 NC 5 | 3.2 Tool steel for cold work | 3.2.1 Low alloy Up to 1000 N/mm² |
| 21 NiCrMo 2 | 20 NCD 2 | 2.1 Carburizing steel | 2.1.3 Above 200 HB |
| 23 CrMoB 3 3 | | 2.1 Carburizing steel | 2.1.3 Above 200 HB |
| 25 CrMo 4 | 25 CD 4 | 2.3 Steel for treatment | 2.3.3 Alloyed Up to 800 N/mm² |
| 25 CrMo 4 | 25 CD 4 S | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm² |
| 25 CrMo 4 | 25 CD 4 S | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm² |

| DIN | AFNOR | Material subgroup 1 | Material subgroup 2 |
|---|---|---|---|
| 25 MoCr 4 | | 2.1 Carburizing steel | 2.1.3 Above 200 HB |
| 25 MoCrS 4 | | 2.1 Carburizing steel | 2.1.3 Above 200 HB |
| 28 Cr 4 | | 2.3 Steel for treatment | 2.3.3 Alloyed Up to 800 N/mm² |
| 28 Cr 4 | | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm² |
| 28 Mn 6 | 20 M 5 | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm² |
| 28 NiCrMo 4 | | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm² |
| 30 CrMoV 9 | | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm² |
| 30 CrMoV 9 | | 2.3 Steel for treatment | 2.3.6 Alloyed 1300-1600 N/mm² |
| 30 CrNiMo 8 | 30 CND 8 | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm² |
| 30 CrNiMo 8 | 30 CND 8 | 2.3 Steel for treatment | 2.3.6 Alloyed 1300-1600 N/mm² |
| 30 Mn 5 | 35 M 5 | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm² |
| 31 CrMo 12 | 30 CD 12 | 2.2 Steel pour nitruration | 2.2.2 Above 1000 N/mm² |
| 31 CrMoV 9 | | 2.2 Steel pour nitruration | 2.2.2 Above 1000 N/mm² |
| 31 NiCr 14 | 18 NC 13 | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm² |
| 32 Cr 2 | | 2.3 Steel for treatment | 2.3.3 Alloyed Up to 800 N/mm² |
| 32 CrMo 12 | 30 CD 12 | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm² |
| 32 CrMo 12 | 30 CD 12 | 2.3 Steel for treatment | 2.3.6 Alloyed 1300-1600 N/mm² |
| 32 NiCrMo 14 5 | 35 NCD 14 | 2.3 Steel for treatment | 2.3.6 Alloyed 1300-1600 N/mm² |
| 34 Cr 4 | 32 C 4 | 2.3 Steel for treatment | 2.3.3 Alloyed Up to 800 N/mm² |
| 34 Cr 4 | 32 C 4 | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm² |
| 34 Cr 4 | 32 C 4 | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm² |
| 34 CrAl 6 | | 2.2 Steel pour nitruration | 2.2.1 Up to 1000 N/mm² |
| 34 CrAlMo 5 | 30 CAD 6.12 | 2.2 Steel pour nitruration | 2.2.1 Up to 1000 N/mm² |
| 34 CrAlNi 7 | | 2.2 Steel pour nitruration | 2.2.2 Above 1000 N/mm² |
| 34 CrAlS 5 | | 2.2 Steel pour nitruration | 2.2.1 Up to 1000 N/mm² |
| 34 CrMo 4 | 35 CD 4 | 2.3 Steel for treatment | 2.3.3 Alloyed Up to 800 N/mm² |
| 34 CrMo 4 | 35 CD 4 | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm² |
| 34 CrMo 4 | 35 CD 4 | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm² |
| 34 CrNiMo 6 | 35 NCD 6 | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm² |
| 34 CrNiMo 6 | 35 NCD 6 | 2.3 Steel for treatment | 2.3.6 Alloyed 1300-1600 N/mm² |
| 35 CrMo 4 | 34 CD 4 | 3.2 Tool steel for cold work | 3.2.1 Low alloy Up to 1000 N/mm² |
| 35 NiCr 18 | | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm² |
| 35 NiCr 18 | | 2.3 Steel for treatment | 2.3.6 Alloyed 1300-1600 N/mm² |
| 35 S 20 | 35 MF 4 | 1.1 Free turning steel | 1.1.2 Above 500 N/mm² |
| 36 CrNiMo 4 | 40 NCD 3 | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm² |
| 36 CrNiMo 4 | 40 NCD 3 | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm² |
| 36 Mn 5 | 40 M 5 | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm² |
| 36 NiCr 10 | 30 NC 11 | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm² |
| 36 NiCr 10 | 30 NC 11 | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm² |
| 36 NiCr 6 | 35 NC 6 | 2.3 Steel for treatment | 2.3.3 Alloyed Up to 800 N/mm² |
| 36 NiCr 6 | 35 NC 6 | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm² |
| 36 NiCr 6 | 35 NC 6 | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm² |
| 37 Cr 4 | 38 C 4 | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm² |
| 37 Cr 4 | 38 C 4 | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm² |
| 37 MnSi 4 | | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm² |
| 37 MnSi 4 | | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm² |
| 38 Cr 2 | 38 C 2 | 2.3 Steel for treatment | 2.3.3 Alloyed Up to 800 N/mm² |
| 38 Cr 2 | 38 C 2 | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm² |
| 38 MnSi 4 | | 2.3 Steel for treatment | 2.3.3 Alloyed Up to 800 N/mm² |

| DIN | AFNOR | Material subgroup 1 | Material subgroup 2 |
|---|---|---|---|
| 38 MnSi 4 | | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm$^2$ |
| 38 MnSi 4 | | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm$^2$ |
| 39 CrMoV 13 9 | | 2.2 Steel pour nitruration | 2.2.2 Above 1000 N/mm$^2$ |
| 40 CrMnMo 7 | | 3.3 Tool steel for hot work | 3.3.1 Low alloy Up to 1200 N/mm$^2$ |
| 40 CrMnMoS 8 6 | | 3.2 Tool steel for cold work | 3.2.2 Low alloy Up to 1200 N/mm$^2$ |
| 40 CrMnNiMo 8 | | 3.3 Tool steel for hot work | 3.3.1 Low alloy Up to 1200 N/mm$^2$ |
| 40 Mn 4 | 35 M 5 | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm$^2$ |
| 40 NiCrMo 2 2 | 40 NCD 2 | 2.3 Steel for treatment | 2.3.3 Alloyed Up to 800 N/mm$^2$ |
| 40 NiCrMo 6 | | 2.3 Steel for treatment | 2.3.3 Alloyed Up to 800 N/mm$^2$ |
| 41 Cr 4 | 42 C 4 | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm$^2$ |
| 41 Cr 4 | 42 C 4 | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm$^2$ |
| 41 CrAlMo 7 | 40 CAD 6.12 | 2.2 Steel pour nitruration | 2.2.1 Up to 1000 N/mm$^2$ |
| 41 CrMo 4 | 42 CD 4 TS | 2.3 Steel for treatment | 2.3.3 Alloyed Up to 800 N/mm$^2$ |
| 41 CrMo 4 | 42 CD 4 TS | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm$^2$ |
| 41 CrMo 4 | 42 CD 4 TS | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm$^2$ |
| 42 Cr 4 | 42 C 4 TS | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm$^2$ |
| 42 CrMo 4 | 42 CD 4 | 2.3 Steel for treatment | 2.3.3 Alloyed Up to 800 N/mm$^2$ |
| 42 CrMo 4 | 42 CD 4 | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm$^2$ |
| 42 CrMo 4 | 42 CD 4 | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm$^2$ |
| 42 CrV 6 | | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm$^2$ |
| 42 CrV 6 | | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm$^2$ |
| 42 MnV 7 | | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm$^2$ |
| 42 MnV 7 | | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm$^2$ |
| 43 CrMo 4 | | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm$^2$ |
| 43 CrMo 4 | | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm$^2$ |
| 44 Cr 2 | | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm$^2$ |
| 45 S 20 | 45 MF 4 | 1.1 Free turning steel | 1.1.2 Above 500 N/mm$^2$ |
| 45 WCrV 7 | | 3.2 Tool steel for cold work | 3.2.1 Low alloy Up to 1000 N/mm$^2$ |
| 46 Cr 2 | 42 C 2 | 2.3 Steel for treatment | 2.3.3 Alloyed Up to 800 N/mm$^2$ |
| 46 Cr 2 | 42 C 2 | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm$^2$ |
| 46 MnSi 4 | | 2.3 Steel for treatment | 2.3.3 Alloyed Up to 800 N/mm$^2$ |
| 46 MnSi 4 | | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm$^2$ |
| 46 MnSi 4 | | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm$^2$ |
| 47 CrMo 4 | 42 CD 4 | 3.2 Tool steel for cold work | 3.2.1 Low alloy Up to 1000 N/mm$^2$ |
| 48 CrMo 4 | | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm$^2$ |
| 48 CrMo 4 | | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm$^2$ |
| 50 CrMo 4 | 50 CR M04 | 2.3 Steel for treatment | 2.3.3 Alloyed Up to 800 N/mm$^2$ |
| 50 CrMo 4 | 50 CR M04 | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm$^2$ |
| 50 CrMo 4 | 50 CR M04 | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm$^2$ |
| 50 CrV 4 | 50 CV 4 | 1.3 Spring steels | 1.3.1 Annealed (Up to 250 HB) |
| 50 CrV 4 | 50 CV 4 | 1.3 Spring steels | 1.3.2 Autotrempant (250-350 HB) |
| 50 CrV 4 | 50 CV 4 | 1.3 Spring steels | 1.3.3 Ecroui (1200-1600 N/mm$^2$) |
| 50 CrV 4 | 50 CV 4 | 2.3 Steel for treatment | 2.3.3 Alloyed Up to 800 N/mm$^2$ |
| 50 CrV 4 | 50 CV 4 | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm$^2$ |
| 50 CrV 4 | 50 CV 4 | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm$^2$ |
| 50 MnSi 4 | | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm$^2$ |
| 50 NiCr 13 | | 3.2 Tool steel for cold work | 3.2.1 Low alloy Up to 1000 N/mm$^2$ |
| 53 MnSi 4 | | 2.3 Steel for treatment | 2.3.3 Alloyed Up to 800 N/mm$^2$ |
| 53 MnSi 4 | | 2.3 Steel for treatment | 2.3.4 Alloyed 800-1000 N/mm$^2$ |

| DIN | AFNOR | Material subgroup 1 | Material subgroup 2 |
|---|---|---|---|
| 54 NiCrMoV 6 | 55 NCDV 6 | 3.2 Tool steel for cold work | 3.2.2 Low alloy Up to 1200 N/mm$^2$ |
| 55 Cr 3 | 55 C 3 | 1.3 Spring steels | 1.3.1 Annealed (Up to 250 HB) |
| 55 Cr 3 | 55 C 3 | 1.3 Spring steels | 1.3.2 Autotrempant (250-350 HB) |
| 55 Cr 3 | 55 C 3 | 1.3 Spring steels | 1.3.3 Ecroui (1200-1600 N/mm$^2$) |
| 55 NiCrMoV 6 | 55 NCDV 7 | 3.2 Tool steel for cold work | 3.2.3 Low alloy Up to 1500 N/mm$^2$ |
| 55 NiCrMoV 6 | 55 NCDV 7 | 3.3 Tool steel for hot work | 3.3.2 Low alloy Up to 1500 N/mm$^2$ |
| 55 Si 7 | 55 S 7 | 1.3 Spring steels | 1.3.1 Annealed (Up to 250 HB) |
| 55 Si 7 | 55 S 7 | 1.3 Spring steels | 1.3.2 Autotrempant (250-350 HB) |
| 55 Si 7 | 55 S 7 | 1.3 Spring steels | 1.3.3 Ecroui (1200-1600 N/mm$^2$) |
| 57 NiCrMoV 7 7 | | 3.3 Tool steel for hot work | 3.3.1 Low alloy Up to 1200 N/mm$^2$ |
| 58 CrV 4 | | 2.3 Steel for treatment | 2.3.5 Alloyed 1000-1300 N/mm$^2$ |
| 58 CrV 4 | | 2.3 Steel for treatment | 2.3.6 Alloyed 1300-1600 N/mm$^2$ |
| 58 SiCr 8 | | 1.3 Spring steels | 1.3.1 Annealed (Up to 250 HB) |
| 58 SiCr 8 | | 1.3 Spring steels | 1.3.2 Autotrempant (250-350 HB) |
| 58 SiCr 8 | | 1.3 Spring steels | 1.3.3 Ecroui (1200-1600 N/mm$^2$) |
| 58 SiCr 8 | | 3.2 Tool steel for cold work | 3.2.1 Low alloy Up to 1000 N/mm$^2$ |
| 60 MnSiCr 4 | | 3.2 Tool steel for cold work | 3.2.1 Low alloy Up to 1000 N/mm$^2$ |
| 60 S 20 | 60 MF 4 | 1.1 Free turning steel | 1.1.2 Above 500 N/mm$^2$ |
| 60 SiCr 7 | 60 SC 7 | 1.3 Spring steels | 1.3.1 Annealed (Up to 250 HB) |
| 60 SiCr 7 | 60 SC 7 | 1.3 Spring steels | 1.3.2 Autotrempant (250-350 HB) |
| 60 SiCr 7 | 60 SC 7 | 1.3 Spring steels | 1.3.3 Ecroui (1200-1600 N/mm$^2$) |
| 60 WCrV 7 | 55 WC 20 | 3.2 Tool steel for cold work | 3.2.1 Low alloy Up to 1000 N/mm$^2$ |
| 62 SiMnCr 4 | | 1.3 Spring steels | 1.3.1 Annealed (Up to 250 HB) |
| 62 SiMnCr 4 | | 1.3 Spring steels | 1.3.2 Autotrempant (250-350 HB) |
| 62 SiMnCr 4 | | 1.3 Spring steels | 1.3.3 Ecroui (1200-1600 N/mm$^2$) |
| 62 SiMnCr 4 | | 3.2 Tool steel for cold work | 3.2.1 Low alloy Up to 1000 N/mm$^2$ |
| 67 SiCr 5 | | 1.3 Spring steels | 1.3.1 Annealed (Up to 250 HB) |
| 67 SiCr 5 | | 1.3 Spring steels | 1.3.2 Autotrempant (250-350 HB) |
| 67 SiCr 5 | | 1.3 Spring steels | 1.3.3 Ecroui (1200-1600 N/mm$^2$) |
| 75 CrMoNiW 6 7 | | 3.2 Tool steel for cold work | 3.2.1 Low alloy Up to 1000 N/mm$^2$ |
| 81 CrMov 42 16 | | 3.2 Tool steel for cold work | 3.2.1 Low alloy Up to 1000 N/mm$^2$ |
| 9 SMn 36 | S 300 | 1.1 Free turning steel | 1.1.1 Up to 500 N/mm$^2$ |
| 9 SMnPb 36 | S 300 Pb | 1.1 Free turning steel | 1.1.1 Up to 500 N/mm$^2$ |
| 90 CrSi 5 | | 3.2 Tool steel for cold work | 3.2.1 Low alloy Up to 1000 N/mm$^2$ |
| 90 Mn 4 | | 2.3 Steel for treatment | 2.3.6 Alloyed 1300-1600 N/mm$^2$ |
| 90 MnCrV 8 | 90 MV 8 | 3.2 Tool steel for cold work | 3.2.1 Low alloy Up to 1000 N/mm$^2$ |
| 9S 20 | | 1.1 Free turning steel | 1.1.1 Up to 500 N/mm$^2$ |
| 9SMn 28 | S 250 | 1.1 Free turning steel | 1.1.1 Up to 500 N/mm$^2$ |
| 9SMnPb 28 | S 250 Pb | 1.1 Free turning steel | 1.1.1 Up to 500 N/mm$^2$ |
| Acrylglas | Altulite | 8.1 Thermoplastics | 8.1.5 Polymethyl methacrylate |
| Akulon | Orgamide | 8.1 Thermoplastics | 8.1.7 Polyamide |
| Al99 | | 7.1 Aluminium | 7.1.1 Unalloyed |
| Al99.5 | 1050 A | 7.1 Aluminium | 7.1.1 Unalloyed |
| Al99.5Mg0.5 | | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| Al99.7 | | 7.1 Aluminium | 7.1.1 Unalloyed |
| Al99.8 | | 7.1 Aluminium | 7.1.1 Unalloyed |
| Al99.85Mg0.5 | | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| Al99.85Mg1 | | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| Al99.85MgSi | | 7.1 Aluminium | 7.1.3 Tempered wrought alloy |

MATERIAL GROUP

# MATERIAL GROUP

| DIN | AFNOR | Material subgroup 1 | Material subgroup 2 |
|---|---|---|---|
| Al99.8ZnMg | | 7.1 Aluminium | 7.1.3 Tempered wrought alloy |
| Al99.9 | | 7.1 Aluminium | 7.1.1 Unalloyed |
| Al99.9Mg1 | | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| Al99.9MgSi | | 7.1 Aluminium | 7.1.3 Tempered wrought alloy |
| Albanit | | 8.2 Thermosetting resin | 8.2.2 Melamine-formaldehyde resin |
| Alberit | | 8.2 Thermosetting resin | 8.2.1 Phenol-formaldehyde resin |
| AlCu2.5Mg0.5 | | 7.1 Aluminium | 7.1.3 Tempered wrought alloy |
| AlCuBiPb | 2011 | 7.1 Aluminium | 7.1.3 Tempered wrought alloy |
| AlCuMg1 | 2017 A | 7.1 Aluminium | 7.1.3 Tempered wrought alloy |
| AlCuMg2 | 2024 | 7.1 Aluminium | 7.1.3 Tempered wrought alloy |
| AlCuMgPb | 2030 | 7.1 Aluminium | 7.1.3 Tempered wrought alloy |
| AlCuSiMn | 2014 | 7.1 Aluminium | 7.1.3 Tempered wrought alloy |
| AlFeSi | | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| AlMg1 | 5005 | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| AlMg1.5 | | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| AlMg1.8 | | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| AlMg1SiCu | 6061 | 7.1 Aluminium | 7.1.3 Tempered wrought alloy |
| AlMg2.5 | | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| AlMg2.7Mn | | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| AlMg2Mn0.3 | | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| AlMg2Mn0.8 | | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| AlMg3 | 5754 | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| AlMg4.5 | | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| AlMg4.5Mn | 5087 | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| AlMg4Mn | 5086 | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| AlMg5 | 5056 A | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| AlMg5Mn | | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| AlMgSi0.5 | 6060 | 7.1 Aluminium | 7.1.3 Tempered wrought alloy |
| AlMgSi0.7 | 6005 A | 7.1 Aluminium | 7.1.3 Tempered wrought alloy |
| AlMgSi1 | 6082 | 7.1 Aluminium | 7.1.3 Tempered wrought alloy |
| AlMgSiPb | | 7.1 Aluminium | 7.1.3 Tempered wrought alloy |
| AlMn0.5Mg0.5 | | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| AlMn0.6 | | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| AlMn1 | | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| AlMn1Mg0.5 | 3005 | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| AlMn1Mg1 | | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| AlMnCu | | 7.1 Aluminium | 7.1.2 Untempered wrought alloy |
| Alpolit | Norsomix | 8.2 Thermosetting resin | 8.2.7 Unsaturated polyester resin |
| AlZn4.5Mg1 | 7020 | 7.1 Aluminium | 7.1.3 Tempered wrought alloy |
| AlZnMgCu0.5 | | 7.1 Aluminium | 7.1.3 Tempered wrought alloy |
| AlZnMgCu1.5 | 7075 | 7.1 Aluminium | 7.1.3 Tempered wrought alloy |
| Ampal | Stratyl | 8.2 Thermosetting resin | 8.2.7 Unsaturated polyester resin |
| Araldit | | 8.2 Thermosetting resin | 8.2.8 Epoxy resin |
| Artrite | | 8.2 Thermosetting resin | 8.2.7 Unsaturated polyester resin |
| Bakelit | | 8.2 Thermosetting resin | 8.2.1 Phenol-formaldehyde resin |
| Bakelite | | 8.2 Thermosetting resin | 8.2.3 Urea-formaldehyde resin |
| Baydur | | 8.2 Thermosetting resin | 8.2.4 Polyurethane resin |
| Bayfill | | 8.2 Thermosetting resin | 8.2.4 Polyurethane resin |
| Bayfit | | 8.2 Thermosetting resin | 8.2.4 Polyurethane resin |

| DIN | AFNOR | Material subgroup 1 | Material subgroup 2 |
|---|---|---|---|
| Bayflex | | 8.2 Thermosetting resin | 8.2.4 Polyurethane resin |
| Baylon | Lacqtène | 8.1 Thermoplastics | 8.1.1 Polyéthylène |
| Baynat | | 8.2 Thermosetting resin | 8.2.4 Polyurethane resin |
| Baypreg | | 8.2 Thermosetting resin | 8.2.4 Polyurethane resin |
| Baysilon | | 8.2 Thermosetting resin | 8.2.5 Résine silicone |
| Beckopox | | 8.2 Thermosetting resin | 8.2.8 Epoxy resin |
| Bulitol | | 8.2 Thermosetting resin | 8.2.1 Phenol-formaldehyde resin |
| C 10 | AF 34 C 10; XC 10 | 2.1 Carburizing steel | 2.1.1 Up to 150 HB |
| C 105 W1 | Y1 105 | 3.1 Unalloyed tool steel | 3.1.1 General |
| C 105 W2 | Y2 105 | 3.1 Unalloyed tool steel | 3.1.1 General |
| C 110 W | | 3.1 Unalloyed tool steel | 3.1.1 General |
| C 125 W | Y2 120 | 3.1 Unalloyed tool steel | 3.1.1 General |
| C 135 W | Y2 140 | 3.1 Unalloyed tool steel | 3.1.1 General |
| C 15 | AF3 7 C 12; XC 18 | 2.1 Carburizing steel | 2.1.1 Up to 150 HB |
| C 22 | AF 42 C 20 | 2.3 Steel for treatment | 2.3.1 Non Alloyed jusqu'à 800 N/mm² |
| C 25 | AF 50 C 30 | 2.3 Steel for treatment | 2.3.1 Non Alloyed jusqu'à 800 N/mm² |
| C 30 | | 2.3 Steel for treatment | 2.3.1 Non Alloyed jusqu'à 800 N/mm² |
| C 35 | AF 55 C 35 | 2.3 Steel for treatment | 2.3.1 Non Alloyed jusqu'à 800 N/mm² |
| C 40 | AF 60 C 40 | 2.3 Steel for treatment | 2.3.1 Non Alloyed jusqu'à 800 N/mm² |
| C 45 | AF 65 C 45 | 2.3 Steel for treatment | 2.3.1 Non Alloyed jusqu'à 800 N/mm² |
| C 45 W | Y3 42 | 3.1 Unalloyed tool steel | 3.1.1 General |
| C 50 | | 2.3 Steel for treatment | 2.3.2 Unalloyed 800-1000 N/mm² |
| C 55 | AF 70 C55 | 2.3 Steel for treatment | 2.3.2 Unalloyed 800-1000 N/mm² |
| C 55 W | | 3.1 Unalloyed tool steel | 3.1.1 General |
| C 60 | CC 55 | 2.3 Steel for treatment | 2.3.2 Unalloyed 800-1000 N/mm² |
| C 60 W | Y3 55 | 3.1 Unalloyed tool steel | 3.1.1 General |
| C 67 W | | 3.1 Unalloyed tool steel | 3.1.1 General |
| C 70 W1 | | 3.1 Unalloyed tool steel | 3.1.1 General |
| C 70 W2 | | 3.1 Unalloyed tool steel | 3.1.1 General |
| C 75 W | | 3.1 Unalloyed tool steel | 3.1.1 General |
| C 80 W1 | Y1 90; Y1 80 | 3.1 Unalloyed tool steel | 3.1.1 General |
| C 80 W2 | | 3.1 Unalloyed tool steel | 3.1.1 General |
| C 85 W | Y3 90 | 3.1 Unalloyed tool steel | 3.1.1 General |
| Carbalit | | 8.2 Thermosetting resin | 8.2.3 Urea-formaldehyde resin |
| Cibamin | | 8.2 Thermosetting resin | 8.2.3 Urea-formaldehyde resin |
| Ck 10 | XC 10 | 2.1 Carburizing steel | 2.1.1 Up to 150 HB |
| Ck 101 | XC 100 | 1.3 Spring steels | 1.3.1 Annealed (Up to 250 HB) |
| Ck 101 | XC 100 | 1.3 Spring steels | 1.3.2 Autotrempant (250-350 HB) |
| Ck 101 | XC 100 | 1.3 Spring steels | 1.3.3 Ecroui (1200-1600 N/mm²) |
| Ck 15 | XC 15; XC 18 | 2.1 Carburizing steel | 2.1.1 Up to 150 HB |
| Ck 22 | XC 25; XC 18 | 2.3 Steel for treatment | 2.3.1 Non Alloyed jusqu'à 800 N/mm² |
| Ck 25 | XC 25 | 2.3 Steel for treatment | 2.3.1 Non Alloyed jusqu'à 800 N/mm² |
| Ck 30 | | 2.3 Steel for treatment | 2.3.1 Non Alloyed jusqu'à 800 N/mm² |
| Ck 35 | XC 38 H1:XC 32 | 2.3 Steel for treatment | 2.3.1 Non Alloyed jusqu'à 800 N/mm² |
| Ck 40 | XC 42 H1 | 2.3 Steel for treatment | 2.3.1 Non Alloyed jusqu'à 800 N/mm² |
| Ck 45 | XC 42 | 2.3 Steel for treatment | 2.3.1 Non Alloyed jusqu'à 800 N/mm² |
| Ck 50 | XC 48 H1 | 2.3 Steel for treatment | 2.3.2 Unalloyed 800-1000 N/mm² |
| Ck 55 | XC 55 | 2.3 Steel for treatment | 2.3.2 Unalloyed 800-1000 N/mm² |
| Ck 60 | XC 60 | 2.3 Steel for treatment | 2.3.2 Unalloyed 800-1000 N/mm² |

| DIN | AFNOR | Material subgroup 1 | Material subgroup 2 |
|---|---|---|---|
| Ck 67 | XC 68 | 1.3 Spring steels | 1.3.1 Annealed (Up to 250 HB) |
| Ck 67 | XC 68 | 1.3 Spring steels | 1.3.2 Autotrempant (250-350 HB) |
| Ck 67 | XC 68 | 1.3 Spring steels | 1.3.3 Ecroui (1200-1600 N/mm$^2$) |
| Ck 75 | XC 75 | 1.3 Spring steels | 1.3.1 Annealed (Up to 250 HB) |
| Ck 75 | XC 75 | 1.3 Spring steels | 1.3.2 Autotrempant (250-350 HB) |
| Ck 75 | XC 75 | 1.3 Spring steels | 1.3.3 Ecroui (1200-1600 N/mm$^2$) |
| CoCr20Ni15Mo | | 4.2 High temperature resistant alloy | 4.2.4 Co-Alloy |
| CoCr20NiW | | 4.2 High temperature resistant alloy | 4.2.4 Co-Alloy |
| CoCr20W15Ni | | 4.2 High temperature resistant alloy | 4.2.4 Co-Alloy |
| CoCr28MoNi | | 4.2 High temperature resistant alloy | 4.2.4 Co-Alloy |
| Contilan | | 8.2 Thermosetting resin | 8.2.4 Polyurethane resin |
| Coroplast | Ekavyl | 8.1 Thermoplastics | 8.1.3 Polychlorure de vinyle (PVC) |
| CuAg0.1 | | 7.3 Copper | 7.3.2 Untempered wrought alloy |
| CuAg0.1P | | 7.3 Copper | 7.3.2 Untempered wrought alloy |
| CuAl10.5Fe3.5 | | 7.6 CuAlFe (Ampco) | 7.6.1 CuAlFe à copeaux longs |
| CuAl10.5Fe4Ni5Mn3.5 | | 7.6 CuAlFe (Ampco) | 7.6.1 CuAlFe à copeaux longs |
| CuAl10Fe2.5Ni5Mn1.5 | | 7.6 CuAlFe (Ampco) | 7.6.1 CuAlFe à copeaux longs |
| CuAl10Fe3 | | 7.6 CuAlFe (Ampco) | 7.6.1 CuAlFe à copeaux longs |
| CuAl10Fe3Mn2 | | 7.6 CuAlFe (Ampco) | 7.6.1 CuAlFe à copeaux longs |
| CuAl10Ni5Fe4 | | 7.6 CuAlFe (Ampco) | 7.6.1 CuAlFe à copeaux longs |
| CuAl11Fe4 | | 7.6 CuAlFe (Ampco) | 7.6.1 CuAlFe à copeaux longs |
| CuAl11Ni6Fe5 | | 7.6 CuAlFe (Ampco) | 7.6.1 CuAlFe à copeaux longs |
| CuAl13Fe4.5 | | 7.6 CuAlFe (Ampco) | 7.6.1 CuAlFe à copeaux longs |
| CuAl14Fe5 | | 7.6 CuAlFe (Ampco) | 7.6.1 CuAlFe à copeaux longs |
| CuAl5As | | 7.6 CuAlFe (Ampco) | 7.6.1 CuAlFe à copeaux longs |
| CuAl6.5Fe2.5Sn | | 7.6 CuAlFe (Ampco) | 7.6.1 CuAlFe à copeaux longs |
| CuAl8 | | 7.6 CuAlFe (Ampco) | 7.6.1 CuAlFe à copeaux longs |
| CuAl8Fe3 | | 7.6 CuAlFe (Ampco) | 7.6.1 CuAlFe à copeaux longs |
| CuAl9Fe3 | | 7.6 CuAlFe (Ampco) | 7.6.1 CuAlFe à copeaux longs |
| CuAl9Fe4Ni4.5Mn1 | | 7.6 CuAlFe (Ampco) | 7.6.1 CuAlFe à copeaux longs |
| CuAl9Mn2 | | 7.6 CuAlFe (Ampco) | 7.6.1 CuAlFe à copeaux longs |
| CuAl9Ni3Fe2 | | 7.6 CuAlFe (Ampco) | 7.6.1 CuAlFe à copeaux longs |
| CuAsP | | 7.3 Copper | 7.3.2 Untempered wrought alloy |
| CuBe1.7 | | 7.3 Copper | 7.3.3 Tempered wrought alloy |
| CuBe2 | | 7.3 Copper | 7.3.3 Tempered wrought alloy |
| CuBe2Pb | | 7.3 Copper | 7.3.3 Tempered wrought alloy |
| CuCd0.5 | | 7.3 Copper | 7.3.2 Untempered wrought alloy |
| CuCd1 | | 7.3 Copper | 7.3.2 Untempered wrought alloy |
| CuCo2Be | | 7.3 Copper | 7.3.3 Tempered wrought alloy |
| CuCrZr | | 7.3 Copper | 7.3.3 Tempered wrought alloy |
| CuFe2P | | 7.3 Copper | 7.3.2 Untempered wrought alloy |
| CuMg0.4 | | 7.3 Copper | 7.3.2 Untempered wrought alloy |
| CuMg0.7 | | 7.3 Copper | 7.3.2 Untempered wrought alloy |
| CuMn2 | | 7.3 Copper | 7.3.2 Untempered wrought alloy |
| CuMn3 | | 7.3 Copper | 7.3.2 Untempered wrought alloy |
| CuMn5 | | 7.3 Copper | 7.3.2 Untempered wrought alloy |
| CuNi1.5Si | | 7.3 Copper | 7.3.3 Tempered wrought alloy |
| CuNi10Fe1Mn | | 7.3 Copper | 7.3.4 Alloy-CuNi |
| CuNi12Zn24 | | 7.3 Copper | 7.3.5 Alloy-CuNiZn with long chips |
| CuNi12Zn30Pb1 | | 7.3 Copper | 7.3.5 Alloy-CuNiZn with long chips |
| CuNi18Zn19Pb1 | | 7.3 Copper | 7.3.5 Alloy-CuNiZn with long chips |
| CuNi18Zn20 | | 7.3 Copper | 7.3.5 Alloy-CuNiZn with long chips |
| CuNi18Zn27 | | 7.3 Copper | 7.3.5 Alloy-CuNiZn with long chips |
| CuNi25 | | 7.3 Copper | 7.3.4 Alloy-CuNi |
| CuNi2Be | | 7.3 Copper | 7.3.3 Tempered wrought alloy |
| CuNi2Si | | 7.3 Copper | 7.3.3 Tempered wrought alloy |
| CuNi30Fe2Mn2 | | 7.3 Copper | 7.3.4 Alloy-CuNi |
| CuNi30Mn1Fe | | 7.3 Copper | 7.3.4 Alloy-CuNi |
| CuNi3Si | | 7.3 Copper | 7.3.3 Tempered wrought alloy |
| CuNi44Mn1 | | 7.3 Copper | 7.3.4 Alloy-CuNi |
| CuNi7Zn39Mn5Pb3 | | 7.3 Copper | 7.3.5 Alloy-CuNiZn with long chips |
| CuNi9Sn2 | | 7.3 Copper | 7.3.4 Alloy-CuNi |
| CuPb1P | | 7.3 Copper | 7.3.2 Untempered wrought alloy |
| CuSi2Mn | | 7.3 Copper | 7.3.2 Untempered wrought alloy |
| CuSi3Mn | | 7.3 Copper | 7.3.2 Untempered wrought alloy |
| CuSn4 | | 7.5 CuSn (Bronze) | 7.5.1 CuSn à copeaux longs |
| CuSn6 | | 7.5 CuSn (Bronze) | 7.5.1 CuSn à copeaux longs |
| CuSn6Zn6 | | 7.5 CuSn (Bronze) | 7.5.1 CuSn à copeaux longs |
| CuSn8 | | 7.5 CuSn (Bronze) | 7.5.1 CuSn à copeaux longs |
| CuSP | | 7.3 Copper | 7.3.2 Untempered wrought alloy |
| CuSuMnF34 | | 7.3 Copper | 7.3.2 Untempered wrought alloy |
| CuTeP | | 7.3 Copper | 7.3.2 Untempered wrought alloy |
| CuZn0.5 | | 7.3 Copper | 7.3.2 Untempered wrought alloy |
| CuZn10 | | 7.4 CuZn (Brass) | 7.4.1 CuZn with long chips |
| CuZn15 | | 7.4 CuZn (Brass) | 7.4.1 CuZn with long chips |
| CuZn20 | | 7.4 CuZn (Brass) | 7.4.1 CuZn with long chips |
| CuZn20Al2 | | 7.4 CuZn (Brass) | 7.4.2 CuZn with short chips |
| CuZn23Al6Mn4Fe3 | | 7.4 CuZn (Brass) | 7.4.2 CuZn with short chips |
| CuZn28 | | 7.4 CuZn (Brass) | 7.4.1 CuZn with long chips |
| CuZn28Sn1 | | 7.4 CuZn (Brass) | 7.4.2 CuZn with short chips |
| CuZn30 | | 7.4 CuZn (Brass) | 7.4.1 CuZn with long chips |
| CuZn31Si1 | | 7.4 CuZn (Brass) | 7.4.2 CuZn with short chips |
| CuZn33 | | 7.4 CuZn (Brass) | 7.4.1 CuZn with long chips |
| CuZn35Ni2 | | 7.4 CuZn (Brass) | 7.4.2 CuZn with short chips |
| CuZn36 | | 7.4 CuZn (Brass) | 7.4.1 CuZn with long chips |
| CuZn36Pb1.5 | | 7.4 CuZn (Brass) | 7.4.2 CuZn with short chips |
| CuZn36Pb3 | | 7.4 CuZn (Brass) | 7.4.2 CuZn with short chips |
| CuZn37 | | 7.4 CuZn (Brass) | 7.4.1 CuZn with long chips |
| CuZn37Al1 | | 7.4 CuZn (Brass) | 7.4.2 CuZn with short chips |
| CuZn37Pb0.5 | | 7.4 CuZn (Brass) | 7.4.1 CuZn with long chips |
| CuZn38Pb1.5 | | 7.4 CuZn (Brass) | 7.4.2 CuZn with short chips |
| CuZn38Sn1 | | 7.4 CuZn (Brass) | 7.4.2 CuZn with short chips |
| CuZn38SnAl | | 7.4 CuZn (Brass) | 7.4.2 CuZn with short chips |
| CuZn39Pb0.5 | | 7.4 CuZn (Brass) | 7.4.1 CuZn with long chips |
| CuZn39Pb2 | | 7.4 CuZn (Brass) | 7.4.2 CuZn with short chips |
| CuZn39Pb3 | | 7.4 CuZn (Brass) | 7.4.2 CuZn with short chips |
| CuZn40 | | 7.4 CuZn (Brass) | 7.4.1 CuZn with long chips |
| CuZn40Al1 | | 7.4 CuZn (Brass) | 7.4.2 CuZn with short chips |

# MATERIAL GROUP

| DIN | AFNOR | Material subgroup 1 | Material subgroup 2 |
|---|---|---|---|
| CuZn40Al2 | | 7.4 CuZn (Brass) | 7.4.2 CuZn with short chips |
| CuZn40Mn1 | | 7.4 CuZn (Brass) | 7.4.2 CuZn with short chips |
| CuZn40Mn1Pb | | 7.4 CuZn (Brass) | 7.4.2 CuZn with short chips |
| CuZn40Pb2 | | 7.4 CuZn (Brass) | 7.4.2 CuZn with short chips |
| CuZn44Pb2 | | 7.4 CuZn (Brass) | 7.4.2 CuZn with short chips |
| CuZn5 | | 7.4 CuZn (Brass) | 7.4.1 CuZn with long chips |
| CuZr | | 7.3 Copper | 7.3.3 Tempered wrought alloy |
| Daglas | | 8.1 Thermoplastics | 8.1.5 Polymethyl methacrylate |
| Daplen | Eltex P | 8.1 Thermoplastics | 8.1.2 Polypropylene |
| Degalan | | 8.1 Thermoplastics | 8.1.5 Polymethyl methacrylate |
| Dekalen | Natène | 8.1 Thermoplastics | 8.1.1 Polyéthylène |
| Desmodur | | 8.2 Thermosetting resin | 8.2.4 Polyurethane resin |
| Dewoglas | | 8.1 Thermoplastics | 8.1.5 Polymethyl methacrylate |
| Dobeckan | | 8.2 Thermosetting resin | 8.2.7 Unsaturated polyester resin |
| Durapreg | | 8.2 Thermosetting resin | 8.2.7 Unsaturated polyester resin |
| Durax | | 8.2 Thermosetting resin | 8.2.1 Phenol-formaldehyde resin |
| Durax | | 8.2 Thermosetting resin | 8.2.7 Unsaturated polyester resin |
| Durethan | Rilsan | 8.1 Thermoplastics | 8.1.7 Polyamide |
| Durodet | | 8.2 Thermosetting resin | 8.2.7 Unsaturated polyester resin |
| Duropal | | 8.2 Thermosetting resin | 8.2.2 Melamine-formaldehyde resin |
| Durophen | | 8.2 Thermosetting resin | 8.2.1 Phenol-formaldehyde resin |
| Duroxyn | | 8.2 Thermosetting resin | 8.2.8 Epoxy resin |
| E-Cu57 | | 7.3 Copper | 7.3.1 Unalloyed |
| E-Cu58 | | 7.3 Copper | 7.3.1 Unalloyed |
| Elastolan | | 8.2 Thermosetting resin | 8.2.4 Polyurethane resin |
| Elastolit | | 8.2 Thermosetting resin | 8.2.4 Polyurethane resin |
| Elastopal | | 8.2 Thermosetting resin | 8.2.4 Polyurethane resin |
| Elastopan | | 8.2 Thermosetting resin | 8.2.4 Polyurethane resin |
| Elastopor | | 8.2 Thermosetting resin | 8.2.4 Polyurethane resin |
| Epoxin | | 8.2 Thermosetting resin | 8.2.8 Epoxy resin |
| Ertalen | | 8.1 Thermoplastics | 8.1.1 Polyéthylène |
| Eurepox | | 8.2 Thermosetting resin | 8.2.8 Epoxy resin |
| Fabenyl | Technyl | 8.1 Thermoplastics | 8.1.7 Polyamide |
| Faturan | | 8.2 Thermosetting resin | 8.2.1 Phenol-formaldehyde resin |
| G-AlCu4Ti | | 7.1 Aluminium | 7.1.4 Casting alloy up to 6% Si |
| G-AlCu4TiMg | | 7.1 Aluminium | 7.1.4 Casting alloy up to 6% Si |
| G-AlMg10 | | 7.1 Aluminium | 7.1.4 Casting alloy up to 6% Si |
| G-AlMg3 | | 7.1 Aluminium | 7.1.4 Casting alloy up to 6% Si |
| G-AlMg3(Cu) | | 7.1 Aluminium | 7.1.4 Casting alloy up to 6% Si |
| G-AlMg3Si | | 7.1 Aluminium | 7.1.4 Casting alloy up to 6% Si |
| G-AlMg5 | | 7.1 Aluminium | 7.1.4 Casting alloy up to 6% Si |
| G-AlMg5Si | | 7.1 Aluminium | 7.1.4 Casting alloy up to 6% Si |
| G-AlSi10Mg | | 7.1 Aluminium | 7.1.5 Casting alloy 6-12% Si |
| G-AlSi10Mg(Cu) | | 7.1 Aluminium | 7.1.5 Casting alloy 6-12% Si |
| G-AlSi12 | | 7.1 Aluminium | 7.1.5 Casting alloy 6-12% Si |
| G-AlSi12(Cu) | | 7.1 Aluminium | 7.1.5 Casting alloy 6-12% Si |
| G-AlSi18 | | 7.1 Aluminium | 7.1.6 Casting alloy above 12% Si |
| G-AlSi5Cu1Mg | | 7.1 Aluminium | 7.1.4 Casting alloy up to 6% Si |
| G-AlSi5Mg | | 7.1 Aluminium | 7.1.5 Casting alloy 6-12% Si |

| DIN | AFNOR | Material subgroup 1 | Material subgroup 2 |
|---|---|---|---|
| G-AlSi6Cu4 | | 7.1 Aluminium | 7.1.5 Casting alloy 6-12% Si |
| G-AlSi7Mg | | 7.1 Aluminium | 7.1.5 Casting alloy 6-12% Si |
| G-AlSi8Cu3 | | 7.1 Aluminium | 7.1.5 Casting alloy 6-12% Si |
| G-AlSi9Mg | | 7.1 Aluminium | 7.1.5 Casting alloy 6-12% Si |
| G-CuSn10Zn | | 7.5 CuSn (Bronze) | 7.5.1 CuSn à copeaux longs |
| G-CuSn5ZnPb | | 7.5 CuSn (Bronze) | 7.5.1 CuSn à copeaux longs |
| G-CuSn6ZnNi | | 7.5 CuSn (Bronze) | 7.5.1 CuSn à copeaux longs |
| GD-AlMg9 | | 7.1 Aluminium | 7.1.4 Casting alloy up to 6% Si |
| GD-MgAl4Si1 | | 7.2 Magnesium | 7.2.2 Casting alloy |
| GD-MgAl6Zn1 | | 7.2 Magnesium | 7.2.2 Casting alloy |
| Geax | | 8.2 Thermosetting resin | 8.2.1 Phenol-formaldehyde resin |
| Getalit | | 8.2 Thermosetting resin | 8.2.2 Melamine-formaldehyde resin |
| GG-10 | Ft 10 D | 6.1 Gray cast iron (with flake graphite) | 6.1.1 Unalloyed Up to 180 HB |
| GG-15 | Ft 15 D | 6.1 Gray cast iron (with flake graphite) | 6.1.1 Unalloyed Up to 180 HB |
| GG-20 | Ft 20 D | 6.1 Gray cast iron (with flake graphite) | 6.1.1 Unalloyed Up to 180 HB |
| GG-25 | Ft 25 D | 6.1 Gray cast iron (with flake graphite) | 6.1.2 Non Alloyed jusqu'à 180 HB |
| GG-30 | Ft 30 D | 6.1 Gray cast iron (with flake graphite) | 6.1.2 Non Alloyed jusqu'à 180 HB |
| GG-35 | Ft 35 D | 6.1 Gray cast iron (with flake graphite) | 6.1.2 Non Alloyed jusqu'à 180 HB |
| GG-40 | Ft 40 D | 6.1 Gray cast iron (with flake graphite) | 6.1.2 Non Alloyed jusqu'à 180 HB |
| GGG-35.3 | | 6.2 Gray cast iron (with spheroidal graphite) | 6.2.1 Unalloyed Up to 180 HB |
| GGG-40 | FGS 400-12 | 6.2 Gray cast iron (with spheroidal graphite) | 6.2.1 Unalloyed Up to 180 HB |
| GGG-40.3 | FGS 370-17 | 6.2 Gray cast iron (with spheroidal graphite) | 6.2.1 Unalloyed Up to 180 HB |
| GGG-50 | FGS 500-7 | 6.2 Gray cast iron (with spheroidal graphite) | 6.2.2 Non Alloyed jusqu'à 180 HB |
| GGG-60 | FGS 600-3 | 6.2 Gray cast iron (with spheroidal graphite) | 6.2.2 Non Alloyed jusqu'à 180 HB |
| GGG-70 | FGS 700-2 | 6.2 Gray cast iron (with spheroidal graphite) | 6.2.2 Non Alloyed jusqu'à 180 HB |
| GGG-80 | FGS 800-2 | 6.2 Gray cast iron (with spheroidal graphite) | 6.2.2 Non Alloyed jusqu'à 180 HB |
| GGG-Ni 22 | S-N 22 | 6.2 Gray cast iron (with spheroidal graphite) | 6.2.3 Alloyed |
| GGG-Ni 35 | S-N 35 | 6.2 Gray cast iron (with spheroidal graphite) | 6.2.3 Alloyed |
| GGG-NiCr 20 2 | S-NC 20 2 | 6.2 Gray cast iron (with spheroidal graphite) | 6.2.3 Alloyed |
| GGG-NiCr 20 3 | S-NC 20 3 | 6.2 Gray cast iron (with spheroidal graphite) | 6.2.3 Alloyed |
| GGG-NiCr 30 1 | S-NC 30 1 | 6.2 Gray cast iron (with spheroidal graphite) | 6.2.3 Alloyed |
| GGG-NiCr 30 3 | S-NC 30 3 | 6.2 Gray cast iron (with spheroidal graphite) | 6.2.3 Alloyed |
| GGG-NiCr 35 3 | S-NC 35 3 | 6.2 Gray cast iron (with spheroidal graphite) | 6.2.3 Alloyed |
| GGG-NiMn 13 7 | S-NM 13 7 | 6.2 Gray cast iron (with spheroidal graphite) | 6.2.3 Alloyed |
| GGG-NiMn 23 4 | S-NM 23 4 | 6.2 Gray cast iron (with spheroidal graphite) | 6.2.3 Alloyed |
| GGG-NiSiCr 20 5 2 | S-NSC 20 5 2 | 6.2 Gray cast iron (with spheroidal graphite) | 6.2.3 Alloyed |
| GGG-NiSiCr 30 5 5 | S-NSC 30 5 5 | 6.2 Gray cast iron (with spheroidal graphite) | 6.2.3 Alloyed |
| GGL-NiCr 20 2 | L-NC 20 2 | 6.1 Gray cast iron (with flake graphite) | 6.1.3 Alloyed |
| GGL-NiCr 20 3 | L-NC 20 3 | 6.1 Gray cast iron (with flake graphite) | 6.1.3 Alloyed |
| GGL-NiCr 30 3 | L-NC 30 3 | 6.1 Gray cast iron (with flake graphite) | 6.1.3 Alloyed |
| GGL-NiCuCr 15 6 2 | L-NUC 15 6 2 | 6.1 Gray cast iron (with flake graphite) | 6.1.3 Alloyed |
| GGL-NiCuCr 15 6 3 | L-NUC 15 6 3 | 6.1 Gray cast iron (with flake graphite) | 6.1.3 Alloyed |
| GGL-NiMn 13 7 | L- NM 13 7 | 6.1 Gray cast iron (with flake graphite) | 6.1.3 Alloyed |
| GGL-NiSiCr 20 5 3 | L-NSC 20 5 3 | 6.1 Gray cast iron (with flake graphite) | 6.1.3 Alloyed |
| GGL-NiSiCr 30 5 5 | L-NSC 30 5 5 | 6.1 Gray cast iron (with flake graphite) | 6.1.3 Alloyed |
| G-MgAg3Se2Zr1 | | 7.2 Magnesium | 7.2.2 Casting alloy |
| G-MgAl6 | | 7.2 Magnesium | 7.2.2 Casting alloy |
| G-MgAl8Zn1 | | 7.2 Magnesium | 7.2.2 Casting alloy |
| G-MgAl9Zn1 | | 7.2 Magnesium | 7.2.2 Casting alloy |

| DIN | AFNOR | Material subgroup 1 | Material subgroup 2 |
|---|---|---|---|
| G-MgSE3Zn2Zr1 | | 7.2 Magnesium | 7.2.2 Casting alloy |
| G-MgTh3Zn2Zr1 | | 7.2 Magnesium | 7.2.2 Casting alloy |
| G-MgZn4SE1Zr1 | | 7.2 Magnesium | 7.2.2 Casting alloy |
| G-MgZn5Th2Zr1 | | 7.2 Magnesium | 7.2.2 Casting alloy |
| Graphit | | 9.1 Standard graphite | 9.1.1 Standard graphite |
| Graphit | | 9.1 Standard graphite | 9.1.1 Standard graphite |
| Graphit | | 9.1 Standard graphite | 9.1.1 Standard graphite |
| Graphit | | 9.1 Standard graphite | 9.1.1 Standard graphite |
| Graphit | | 9.2 Wear-resistant graphite | 9.2.1 Wear-resistant graphite |
| Graphit | | 9.2 Wear-resistant graphite | 9.2.1 Wear-resistant graphite |
| Graphit | | 9.2 Wear-resistant graphite | 9.2.1 Wear-resistant graphite |
| Graphit | | 9.2 Wear-resistant graphite | 9.2.1 Wear-resistant graphite |
| Graphit | | 9.2 Wear-resistant graphite | 9.2.1 Wear-resistant graphite |
| Grilamid | | 8.1 Thermoplastics | 8.1.7 Polyamide |
| Grilon | | 8.1 Thermoplastics | 8.1.7 Polyamide |
| Grilonit | | 8.2 Thermosetting resin | 8.2.8 Epoxy resin |
| GS-10 Ni 14 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-10 Ni 19 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-10 Ni 6 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-12 CrMo 19 5 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-12 CrMo 9 10 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-12 MnMo 7 4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-12 MnNiCrMo 5 3 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-13 MnNi 6 4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-14 NiCrMo 10 6 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-15 CrNi 6 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-16 Mn 5 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-16 MnCr 5 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-17 CrMnMo 5 5 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-17 CrMo 5 5 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-17 CrMo 9 10 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-17 CrMoV 5 11 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-18 CrMo 9 10 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-18 MnCrMo 6 3 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-18 NiCrMo 12 6 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-18 NiMoCr 3 6 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-19 CrMo 9 10 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-19 MnCrMo 6 3 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-19 NiCrMo 12 6 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-20 Mn 5 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-20 MnCr 5 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-20 MnCrMo 6 3 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-20 MnMo 5 3 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-20 MnMoNi 5 5 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-20 MnNb 5 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-20 MnNiTi 5 3 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-20 MoNi 33 13 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-20 NiCrMo 3 7 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-21 Mn 5 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |

| DIN | AFNOR | Material subgroup 1 | Material subgroup 2 |
|---|---|---|---|
| GS-22 CrMo 5 4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-22 MnNi 5 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-22 Mo 4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-22 NiMoCr 5 6 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-24 CrNiMo 3 2 5 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-24 Mn 4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-24 Mn 6 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-24 Ni 8 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-25 CrMo 4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-25 CrNiMo 4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-26 CrMo 4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-30 CrMoV 6 4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-30 Mn 5 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-30 NiCrMo 8 5 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-33 NiCrMo 7 4 4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-34 CoCrMoV 19 12 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-34 CrMo 4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-34 CrMo 4 4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-34 CrNiMo 6 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-35 CrMoV 10 4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-36 CrMoV 10 4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-36 CrNiMo 4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-36 Mn 5 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-37 MnSi 5 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-38 | | 5.1 Conventional cast steel | 5.1.1 Unalloyed |
| GS-38 MnSi 4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-38 NiCrMo 8 4 4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-40 CrMnMo 7 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-40 Mn 5 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-40 NiCrMo 6 5 6 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-42 CrMo 4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-45 | | 5.1 Conventional cast steel | 5.1.1 Unalloyed |
| GS-46 Mn4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-46 MnSi 4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-48 CrMoV 6 7 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-50 CrMo 4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-50 CrV 4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-52 | | 5.1 Conventional cast steel | 5.1.1 Unalloyed |
| GS-55 NiCrMoV 6 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-60 | | 5.1 Conventional cast steel | 5.1.1 Unalloyed |
| GS-8 Mn 7 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-8 MnMo 7 4 | | 5.1 Conventional cast steel | 5.1.2 Low alloy |
| GS-C 25 | | 5.1 Conventional cast steel | 5.1.1 Unalloyed |
| GS-Ck 16 | | 5.1 Conventional cast steel | 5.1.1 Unalloyed |
| GS-Ck 25 | | 5.1 Conventional cast steel | 5.1.1 Unalloyed |
| GS-Ck 45 | | 5.1 Conventional cast steel | 5.1.1 Unalloyed |
| GTS-35-10 | MN 35-10 | 6.4 Black malleable cast iron | 6.4.1 Up to 180 HB |
| GTS-45-06 | | 6.4 Black malleable cast iron | 6.4.2 Above 180 HB |
| GTS-55-04 | MP 50-5 | 6.4 Black malleable cast iron | 6.4.2 Above 180 HB |

MATERIAL GROUP

# MATERIAL GROUP

| DIN | AFNOR | Material subgroup 1 | Material subgroup 2 |
|---|---|---|---|
| GTS-65-02 | MP 60-3 | 6.4 Black malleable cast iron | 6.4.2 Above 180 HB |
| GTS-70-02 | IP 70-2 | 6.4 Black malleable cast iron | 6.4.2 Above 180 HB |
| GTW-35-04 | | 6.3 White malleable iron | 6.3.1 Up to 180 HB |
| GTW-40-05 | | 6.3 White malleable iron | 6.3.1 Up to 180 HB |
| GTW-45-07 | | 6.3 White malleable iron | 6.3.1 Up to 180 HB |
| GTW-55 | | 6.3 White malleable iron | 6.3.2 Above 180 HB |
| GTW-65 | | 6.3 White malleable iron | 6.3.2 Above 180 HB |
| G-X 10 Cr 13 | Z 10 C 13 | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 10 CrNi 18 8 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 10 CrNiMo 18 9 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 10 CrNiMoNb 18 1 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 10 CrNiNb 16 13 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 10 NiCrNb 32 20 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 100 CrMoV 5 1 | Z 100 CDV 5 | 5.1 Conventional cast steel | 5.1.3 Highly alloyed |
| G-X 12 CrMo 10 1 | | 5.1 Conventional cast steel | 5.1.3 Highly alloyed |
| G-X 12 CrNi 18 11 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 12 CrNi 26 5 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 12 CrNiMoCoVN 12 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 120 Cr 29 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 120 CrMo 29 2 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 120 CrSi 23 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 120 Mn 12 | Z 120 M 12 | 5.1 Conventional cast steel | 5.1.3 Highly alloyed |
| G-X 130 CrSi 29 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 14 CrCoMo 13 10 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 15 CrNi 25 20 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 15 CrNiCo 21 20 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 160 CrSi 18 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 165 CrCoMo 12 | | 5.1 Conventional cast steel | 5.1.3 Highly alloyed |
| G-X 165 CrMoV 12 | | 5.1 Conventional cast steel | 5.1.3 Highly alloyed |
| G-X 165 CrV 12 | | 5.1 Conventional cast steel | 5.1.3 Highly alloyed |
| G-X 2 CrNi 18 9 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 2 CrNiMo 17 13 4 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 2 CrNiMo 18 10 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 2 CrNiMo 18 15 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 2 CrNiMoN 25 25 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 2 NiCoMoTi 17 10 | | 5.1 Conventional cast steel | 5.1.3 Highly alloyed |
| G-X 2 NiCrMoCuN 20 1 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 2 NiCrMoCuN 25 2 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 20 Cr 14 | Z 20 C 13 M | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 20 CrMo 13 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 22 CrMoV 12 1 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 22 CrNi 17 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 25 CrNiSi 18 9 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 25 CrNiSi 20 14 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 25 MnCrNi 8 8 6 | | 5.1 Conventional cast steel | 5.1.3 Highly alloyed |
| G-X 260 Cr 27 | | 6.1 Gray cast iron (with flake graphite) | 6.1.4 Highly alloyed |
| G-X 260 CrMoNi 20 2 | | 6.1 Gray cast iron (with flake graphite) | 6.1.4 Highly alloyed |
| G-X 260 NiCr 4 2 | | 6.1 Gray cast iron (with flake graphite) | 6.1.4 Highly alloyed |

| DIN | AFNOR | Material subgroup 1 | Material subgroup 2 |
|---|---|---|---|
| G-X 28 CrMoV 5 1 | | 5.1 Conventional cast steel | 5.1.3 Highly alloyed |
| G-X 3 CrNi 13 4 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 3 CrNiMo 17 13 5 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 30 CrNiSiNb 24 2 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 30 CrSi 6 | | 5.1 Conventional cast steel | 5.1.3 Highly alloyed |
| G-X 300 CrMo 27 1 | | 6.1 Gray cast iron (with flake graphite) | 6.1.4 Highly alloyed |
| G-X 300 CrMoNi 15 2 | | 6.1 Gray cast iron (with flake graphite) | 6.1.4 Highly alloyed |
| G-X 300 CrNiSi 9 5 2 | | 6.1 Gray cast iron (with flake graphite) | 6.1.4 Highly alloyed |
| G-X 32 CrMoV 3 3 | 32 DCV 28 | 5.1 Conventional cast steel | 5.1.3 Highly alloyed |
| G-X 32 CrNi 28 10 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 330 CrMo 15 3 | | 6.1 Gray cast iron (with flake graphite) | 6.1.4 Highly alloyed |
| G-X 330 NiCr 4 2 | | 6.1 Gray cast iron (with flake graphite) | 6.1.4 Highly alloyed |
| G-X 35 CrMo 17 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 37 CrMoW 5 1 | | 5.1 Conventional cast steel | 5.1.3 Highly alloyed |
| G-X 38 CrMoV 5 1 | Z 38 CDV 5 | 5.1 Conventional cast steel | 5.1.3 Highly alloyed |
| G-X 4 CrNi 18 13 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 4 CrNiCuNb 16 4 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 4 CrNiMnMoN 19 1 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 4 CrNiMo 13 4 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 4 CrNiMoN 18 14 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 4 CrNiMoN 22 15 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 40 CrMoV 5 3 | Z 40 CDV 5 | 5.1 Conventional cast steel | 5.1.3 Highly alloyed |
| G-X 40 CrNi 23 14 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 40 CrNi 24 5 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 40 CrNi 27 4 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 40 CrNiMo 27 5 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 40 CrNiSi 22 9 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 40 CrNiSi 25 12 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 40 CrNiSi 25 20 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 40 CrNiSi 27 4 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 40 CrSi 13 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 40 CrSi 17 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 40 CrSi 23 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 40 CrSi 29 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 40 NiCrNb 35 25 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 40 NiCrSi 35 25 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 40 NiCrSi 38 18 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 40 NiCrSiNb 38 1 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 45 CrNiW 18 9 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 45 CrSi 9 3 | | 5.1 Conventional cast steel | 5.1.3 Highly alloyed |
| G-X 46 Cr 13 | Z 40 C 14 | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 5 CrNi 13 4 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 5 CrNi 18 11 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 5 CrNi 22 10 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 5 CrNiMo 13 4 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 5 CrNiMo 16 5 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 5 CrNiMoNb 18 10 | Z 4 CNMNb 18.12 M | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 5 CrNiNb 18 10 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |

| DIN | AFNOR | Material subgroup 1 | Material subgroup 2 |
|---|---|---|---|
| G-X 5 CrNiNb 18 9 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 50 CrNi 30 30 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 6 CrNi 18 10 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 6 CrNi 18 9 | Z 6 CN 18.10 M | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 6 CrNiMo 17 13 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 6 CrNiMo 18 10 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 6 CrNiMo 18 12 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 6 CrNiMo 24 8 2 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 7 Cr 13 | Z 8 C 13 FF | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 7 CrNiMoCuNb 18 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 7 CrNiNb 16 13 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 7 NiCrMoCuNb 25 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 70 Cr 29 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 70 CrMo 29 2 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 8 CrNi 12 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 8 CrNi 13 | Z 12 CN 13 M | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 8 CrNi 18 10 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 8 CrNi 19 10 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 8 CrNi 26 7 | | 5.2 Corrosion resisting cast steel | 5.2.2 Austenitic |
| G-X 8 CrNiMoVNb 16 1 | | 5.2 Corrosion resisting cast steel | 5.2.1 Ferritic / martensitic |
| G-X 8 Ni 9 | | 5.1 Conventional cast steel | 5.1.3 Highly alloyed |
| Harex | | 8.2 Thermosetting resin | 8.2.1 Phenol-formaldehyde resin |
| Hastelloy B-2 | Hastelloy B-2 | 4.2 High temperature resistant alloy | 4.2.2 Untempered Ni-alloy |
| Hastelloy C | Hastelloy C | 4.2 High temperature resistant alloy | 4.2.2 Untempered Ni-alloy |
| Homapal | | 8.2 Thermosetting resin | 8.2.2 Melamine-formaldehyde resin |
| Hornit | | 8.2 Thermosetting resin | 8.2.2 Melamine-formaldehyde resin |
| Hostaflon | SoRef.lon | 8.1 Thermoplastics | 8.1.6 Polytétrafluor-éthylène |
| Hostalen | | 8.1 Thermoplastics | 8.1.1 Polyéthylène |
| Hostalen PP | Lacqtène P | 8.1 Thermoplastics | 8.1.2 Polypropylene |
| Hostalit, | | 8.1 Thermoplastics | 8.1.3 Polychlorure de vinyle (PVC) |
| Hostaset | | 8.2 Thermosetting resin | 8.2.7 Unsaturated polyester resin |
| Hostyron | Afcolène | 8.1 Thermoplastics | 8.1.4 Polystyrène |
| Kaurit | | 8.2 Thermosetting resin | 8.2.3 Urea-formaldehyde resin |
| Kerimel | Kerimel | 8.1 Thermoplastics | 8.1.9 Polymère SP Thermoplastics |
| Keripol | | 8.2 Thermosetting resin | 8.2.7 Unsaturated polyester resin |
| Kevlar | | 8.3 Matière synthétique renforcée par fibre | 8.3.1 Renforcée par fibre à l'aramide |
| Kinel | Kinel | 8.1 Thermoplastics | 8.1.9 Polymère SP Thermoplastics |
| Laminac | | 8.2 Thermosetting resin | 8.2.7 Unsaturated polyester resin |
| Leguval | | 8.2 Thermosetting resin | 8.2.7 Unsaturated polyester resin |
| Lekutherm | | 8.2 Thermosetting resin | 8.2.8 Epoxy resin |
| Lorkalen | Lacqrène | 8.1 Thermoplastics | 8.1.4 Polystyrène |
| Luparen | Napryl | 8.1 Thermoplastics | 8.1.2 Polypropylene |
| Luphen | | 8.2 Thermosetting resin | 8.2.1 Phenol-formaldehyde resin |
| Lupolen | | 8.1 Thermoplastics | 8.1.1 Polyéthylène |
| Madurit | | 8.2 Thermosetting resin | 8.2.2 Melamine-formaldehyde resin |
| Makralon | Orgalan | 8.1 Thermoplastics | 8.1.8 Polycarbonate |
| Maprenal | | 8.2 Thermosetting resin | 8.2.2 Melamine-formaldehyde resin |
| Melan | | 8.2 Thermosetting resin | 8.2.2 Melamine-formaldehyde resin |

| DIN | AFNOR | Material subgroup 1 | Material subgroup 2 |
|---|---|---|---|
| Melocol | | 8.2 Thermosetting resin | 8.2.3 Urea-formaldehyde resin |
| Melolam | | 8.2 Thermosetting resin | 8.2.2 Melamine-formaldehyde resin |
| Melopas | | 8.2 Thermosetting resin | 8.2.2 Melamine-formaldehyde resin |
| Menzolit | | 8.2 Thermosetting resin | 8.2.7 Unsaturated polyester resin |
| MgAl3Zn | | 7.2 Magnesium | 7.2.1 Wrought alloy |
| MgAl6Zn | | 7.2 Magnesium | 7.2.1 Wrought alloy |
| MgAl8Zn | | 7.2 Magnesium | 7.2.1 Wrought alloy |
| MgMn2 | | 7.2 Magnesium | 7.2.1 Wrought alloy |
| Mipolam | | 8.1 Thermoplastics | 8.1.3 Polychlorure de vinyle (PVC) |
| Moltopren | | 8.2 Thermosetting resin | 8.2.4 Polyurethane resin |
| Ni99.4Fe | | 7.7 Nickel | 7.7.1 Unalloyed |
| Ni99.6 | | 7.7 Nickel | 7.7.1 Unalloyed |
| Ni99CSi | | 7.7 Nickel | 7.7.1 Unalloyed |
| NiAlBz | | 7.7 Nickel | 7.7.1 Unalloyed |
| NiCo20Cr15MoAlTi | Nimonic 105 | 4.2 High temperature resistant alloy | 4.2.3 Tempered Ni-alloy |
| NiCr13Mo6Ti3 | Nimonic 901 | 4.2 High temperature resistant alloy | 4.2.3 Tempered Ni-alloy |
| NiCr15Fe | Inconel 600 | 4.2 High temperature resistant alloy | 4.2.2 Untempered Ni-alloy |
| NiCr15Fe | Inconel 600 | 4.2 High temperature resistant alloy | 4.2.2 Untempered Ni-alloy |
| NiCr19Co11MoTi | | 4.2 High temperature resistant alloy | 4.2.3 Tempered Ni-alloy |
| NiCr19Fe18Nb5Mg | Inconel 718 | 4.2 High temperature resistant alloy | 4.2.2 Untempered Ni-alloy |
| NiCr20Co18Ti | Nimonic 90 | 4.2 High temperature resistant alloy | 4.2.3 Tempered Ni-alloy |
| NiCr20Co18Ti | Nimonic 90 | 4.2 High temperature resistant alloy | 4.2.3 Tempered Ni-alloy |
| NiCr20Ti | Nimonic 75 | 4.2 High temperature resistant alloy | 4.2.3 Tempered Ni-alloy |
| NiCr20Ti | Nimonic 75 | 4.2 High temperature resistant alloy | 4.2.3 Tempered Ni-alloy |
| NiCr20TiAl | Nimonic 80 A | 4.2 High temperature resistant alloy | 4.2.3 Tempered Ni-alloy |
| NiCr20TiAl | Nimonic 80 A | 4.2 High temperature resistant alloy | 4.2.3 Tempered Ni-alloy |
| NiCr21Mo | | 4.2 High temperature resistant alloy | 4.2.2 Untempered Ni-alloy |
| NiCr22Mo9Nb | Inconel 625 | 4.2 High temperature resistant alloy | 4.2.2 Untempered Ni-alloy |
| NiCr30FeMo | Hastelloy X | 4.2 High temperature resistant alloy | 4.2.2 Untempered Ni-alloy |
| NiCu30Al | Monel K 500 | 4.2 High temperature resistant alloy | 4.2.2 Untempered Ni-alloy |
| NiCu30Fe | Monel 400 | 4.2 High temperature resistant alloy | 4.2.2 Untempered Ni-alloy |
| Nimocast 713 | Nimocast 713 | 4.2 High temperature resistant alloy | 4.2.3 Tempered Ni-alloy |
| Nimocast PK 24 | Nimocast PK 24 | 4.2 High temperature resistant alloy | 4.2.3 Tempered Ni-alloy |
| Nolimid | Nolimid | 8.1 Thermoplastics | 8.1.9 Polyimère SP Thermoplastics |
| Novolen | | 8.1 Thermoplastics | 8.1.2 Polypropylene |
| Nuclon | | 8.1 Thermoplastics | 8.1.8 Polycarbonate |
| Nyhamin | | 8.2 Thermosetting resin | 8.2.2 Melamine-formaldehyde resin |
| Nylon | | 8.1 Thermoplastics | 8.1.7 Polyamide |
| OF-Cu | | 7.3 Copper | 7.3.1 Unalloyed |
| Oldapal | | 8.2 Thermosetting resin | 8.2.7 Unsaturated polyester resin |
| Opalon | | 8.1 Thermoplastics | 8.1.3 Polychlorure de vinyle (PVC) |
| Palatal | | 8.2 Thermosetting resin | 8.2.7 Unsaturated polyester resin |
| Pertinax | | 8.2 Thermosetting resin | 8.2.1 Phenol-formaldehyde resin |
| Plastocarbon | | 8.1 Thermoplastics | 8.1.8 Polycarbonate |
| Plexidur | | 8.1 Thermoplastics | 8.1.5 Polymethyl methacrylate |
| Plexiglas | | 8.1 Thermoplastics | 8.1.5 Polymethyl methacrylate |
| Pollopas | | 8.2 Thermosetting resin | 8.2.3 Urea-formaldehyde resin |
| Polydur | | 8.2 Thermosetting resin | 8.2.7 Unsaturated polyester resin |

MATERIAL GROUP

| DIN | AFNOR | Material subgroup 1 | Material subgroup 2 |
|---|---|---|---|
| Polyleit | | 8.2 Thermosetting resin | 8.2.7 Unsaturated polyester resin |
| Polystyrol | Gédex | 8.1 Thermoplastics | 8.1.4 Polystyrène |
| Pressal | | 8.2 Thermosetting resin | 8.2.2 Melamine-formaldehyde resin |
| Resamin | | 8.2 Thermosetting resin | 8.2.3 Urea-formaldehyde resin |
| Resart | | 8.2 Thermosetting resin | 8.2.2 Melamine-formaldehyde resin |
| Resartglas | | 8.1 Thermoplastics | 8.1.5 Polymethyl methacrylate |
| Resinol | | 8.2 Thermosetting resin | 8.2.1 Phenol-formaldehyde resin |
| Resipol | | 8.2 Thermosetting resin | 8.2.7 Unsaturated polyester resin |
| Resopal | | 8.2 Thermosetting resin | 8.2.2 Melamine-formaldehyde resin |
| Rhodopas | | 8.1 Thermoplastics | 8.1.3 Polychlorure de vinyle (PVC) |
| Ricolor | | 8.2 Thermosetting resin | 8.2.2 Melamine-formaldehyde resin |
| Rütapox | | 8.2 Thermosetting resin | 8.2.8 Epoxy resin |
| S 10-4-3-10 | Z 130 WKCDV 10-10-04 | 3.4 High speed steel | 3.4.1 General |
| S 12-1-2 | | 3.4 High speed steel | 3.4.1 General |
| S 12-1-4 | | 3.4 High speed steel | 3.4.1 General |
| S 12-1-4-5 | | 3.4 High speed steel | 3.4.1 General |
| S 18-0-1 | Z 80 WCV 18-04-01 | 3.4 High speed steel | 3.4.1 General |
| S 18-1-2-10 | | 3.4 High speed steel | 3.4.1 General |
| S 18-1-2-15 | | 3.4 High speed steel | 3.4.1 General |
| S 18-1-2-5 | Z 80 WKCV 18-05-04-0 | 3.4 High speed steel | 3.4.1 General |
| S 2-10-1-8 | Z 110 DKCWV 09-08-04 | 3.4 High speed steel | 3.4.1 General |
| S 2-9-1 | Z 85 DCWV 08-04-02-0 | 3.4 High speed steel | 3.4.1 General |
| S 2-9-2 | Z 100 DCWV 09-04-02- | 3.4 High speed steel | 3.4.1 General |
| S 2-9-2-8 | | 3.4 High speed steel | 3.4.1 General |
| S 3-3-2 | | 3.4 High speed steel | 3.4.1 General |
| S 6-5-2 | Z 85 WDCV 06-05-04-0 | 3.4 High speed steel | 3.4.1 General |
| S 6-5-2-5 | Z 85 WDKCV 06-05-05- | 3.4 High speed steel | 3.4.1 General |
| S 6-5-3 | Z 120 WDCV 06-05-04- | 3.4 High speed steel | 3.4.1 General |
| S 7-4-2-5 | Z 110 WKCDV 07-05-04 | 3.4 High speed steel | 3.4.1 General |
| SE-Cu | | 7.3 Copper | 7.3.1 Unalloyed |
| Setarol | | 8.2 Thermosetting resin | 8.2.7 Unsaturated polyester resin |
| SF-Cu | | 7.3 Copper | 7.3.1 Unalloyed |
| Silastic | | 8.2 Thermosetting resin | 8.2.5 Résine silicone |
| Silopren | | 8.2 Thermosetting resin | 8.2.5 Résine silicone |
| Sintimid | | 8.2 Thermosetting resin | 8.2.6 Thermosetting resin polymère |
| Soflex | | 8.1 Thermoplastics | 8.1.3 Polychlorure de vinyle (PVC) |
| Solvec | | 8.1 Thermoplastics | 8.1.3 Polychlorure de vinyle (PVC) |
| St 37-2 | | 1.2 Construction steel | 1.2.1 Unalloyed Up to 500 N/mm² |
| St 37-3 | E 24-3; E 24-4 | 1.2 Construction steel | 1.2.1 Unalloyed Up to 500 N/mm² |
| St 44-2 | E 28-2 | 1.2 Construction steel | 1.2.1 Unalloyed Up to 500 N/mm² |
| St 44-3 | E 28-3; E 28-4 | 1.2 Construction steel | 1.2.1 Unalloyed Up to 500 N/mm² |
| St 50-2 | A 50-2 | 1.2 Construction steel | 1.2.2 Non Alloyed jusqu'à 500 N/mm² |
| St 52-3 | E 36-3; E 36-4 | 1.2 Construction steel | 1.2.2 Non Alloyed jusqu'à 500 N/mm² |
| St 60-2 | A 60-2 | 1.2 Construction steel | 1.2.2 Non Alloyed jusqu'à 500 N/mm² |
| Styropor | | 8.1 Thermoplastics | 8.1.4 Polystyrène |

| DIN | AFNOR | Material subgroup 1 | Material subgroup 2 |
|---|---|---|---|
| Supradur | | 8.1 Thermoplastics | 8.1.3 Polychlorure de vinyle (PVC) |
| Supralen | | 8.1 Thermoplastics | 8.1.1 Polyéthylène |
| Supraplast | | 8.2 Thermosetting resin | 8.2.1 Phenol-formaldehyde resin |
| Supraplast | | 8.2 Thermosetting resin | 8.2.2 Melamine-formaldehyde resin |
| SW-Cu | | 7.3 Copper | 7.3.1 Unalloyed |
| Symalen | | 8.1 Thermoplastics | 8.1.1 Polyéthylène |
| Symalen PP | | 8.1 Thermoplastics | 8.1.2 Polypropylene |
| Synolite | | 8.2 Thermosetting resin | 8.2.7 Unsaturated polyester resin |
| Ti99.2 | | 7.8 Titane | 7.8.1 Unalloyed |
| Ti99.4 | | 7.8 Titane | 7.8.1 Unalloyed |
| Ti99.5 | | 7.8 Titane | 7.8.1 Unalloyed |
| Ti99.7 | | 7.8 Titane | 7.8.1 Unalloyed |
| TiAl4Mo4Sn2 | | 7.8 Titane | 7.8.3 Tempered alloy |
| TiAl5Sn2 | | 7.8 Titane | 7.8.2 Alloy, by coalescence annealing |
| TiAl6Sn2Zr4Mo2 | | 7.8 Titane | 7.8.3 Tempered alloy |
| TiAl6V4 | T-A 6 V | 7.8 Titane | 7.8.3 Tempered alloy |
| TiAl6V6Sn2 | | 7.8 Titane | 7.8.3 Tempered alloy |
| TiAl6Zr5 | | 7.8 Titane | 7.8.3 Tempered alloy |
| TiCu2 | | 7.8 Titane | 7.8.2 Alloy, by coalescence annealing |
| Trespa-Duro | | 8.2 Thermosetting resin | 8.2.2 Melamine-formaldehyde resin |
| Trogamid | | 8.1 Thermoplastics | 8.1.7 Polyamide |
| Trolitan | | 8.2 Thermosetting resin | 8.2.1 Phenol-formaldehyde resin |
| Trolitax | | 8.2 Thermosetting resin | 8.2.1 Phenol-formaldehyde resin |
| Trolitul | | 8.1 Thermoplastics | 8.1.4 Polystyrène |
| Trolon | | 8.2 Thermosetting resin | 8.2.8 Epoxy resin |
| Trosiplast | | 8.1 Thermoplastics | 8.1.3 Polychlorure de vinyle (PVC) |
| Trovidur | | 8.1 Thermoplastics | 8.1.3 Polychlorure de vinyle (PVC) |
| Udimet 500 | Udimet 500 | 4.2 High temperature resistant alloy | 4.2.2 Untempered Ni-alloy |
| Ultramid | | 8.1 Thermoplastics | 8.1.7 Polyamide |
| Ultrapas | | 8.2 Thermosetting resin | 8.2.2 Melamine-formaldehyde resin |
| Urecoll | | 8.2 Thermosetting resin | 8.2.3 Urea-formaldehyde resin |
| Vestamid | | 8.1 Thermoplastics | 8.1.7 Polyamide |
| Vestolen | | 8.1 Thermoplastics | 8.1.1 Polyéthylène |
| Vestolen PP | | 8.1 Thermoplastics | 8.1.2 Polypropylene |
| Vestolit | | 8.1 Thermoplastics | 8.1.3 Polychlorure de vinyle (PVC) |
| Vestopal | | 8.2 Thermosetting resin | 8.2.7 Unsaturated polyester resin |
| Vestyron | | 8.1 Thermoplastics | 8.1.4 Polystyrène |
| Vetrophen | | 8.2 Thermosetting resin | 8.2.7 Unsaturated polyester resin |
| Viapal | | 8.2 Thermosetting resin | 8.2.7 Unsaturated polyester resin |
| Vinidur | | 8.1 Thermoplastics | 8.1.3 Polychlorure de vinyle (PVC) |
| Vinnol | | 8.1 Thermoplastics | 8.1.3 Polychlorure de vinyle (PVC) |
| Vinoflex | | 8.1 Thermoplastics | 8.1.3 Polychlorure de vinyle (PVC) |
| Vinylite | | 8.1 Thermoplastics | 8.1.3 Polychlorure de vinyle (PVC) |
| Vulkollan | | 8.2 Thermosetting resin | 8.2.4 Polyurethane resin |
| Waspaloy | Waspaloy | 4.2 High temperature resistant alloy | 4.2.3 Tempered Ni-alloy |
| X 10 Cr 13 | Z 12 C 13 | 4.1 Stainless steel | 4.1.2 Martensitic |
| X 10 CrAl 13 | Z 10 C 13 | 4.2 High temperature resistant alloy | 4.2.1 Alloy-Fe |

| DIN | AFNOR | Material subgroup 1 | Material subgroup 2 |
|---|---|---|---|
| X 10 CrAl 18 | Z 10 CAS 18 | 4.2 High temperature resistant alloy | 4.2.1 Alloy-Fe |
| X 10 CrAl 24 | Z 10 CAS 24 | 4.2 High temperature resistant alloy | 4.2.1 Alloy-Fe |
| X 10 CrNiMoNb 18 12 | | 4.1 Stainless steel | 4.1.4 Austenitic A5 >40% |
| X 10 CrNiMoTi 18 12 | | 4.1 Stainless steel | 4.1.4 Austenitic A5 >40% |
| X 10 CrNiS 18 9 | Z 10 CNF 18.09 | 4.1 Stainless steel | 4.1.5 Sulphide |
| X 10 NiCrAlTi 32 20 | Incoloy 800 | 4.2 High temperature resistant alloy | 4.2.2 Untempered Ni-alloy |
| X 10 NiCrAlTi 33 20 | Z 8 NC 32.21 | 4.2 High temperature resistant alloy | 4.2.1 Alloy-Fe |
| X 100 CrMo 13 | | 4.1 Stainless steel | 4.1.2 Martensitic |
| X 100 CrMoV 5 1 | Z 100 CDV 5 | 3.2 Tool steel for cold work | 3.2.4 Highly alloyed, Annealed Up to 1000 $N/mm^2$ |
| X 105 CrMo 17 | Z 100 CD 17 | 4.1 Stainless steel | 4.1.2 Martensitic |
| X 12 CrMoS 17 | Z 10 CF 17 | 4.1 Stainless steel | 4.1.5 Sulphide |
| X 12 CrNi 17 7 | Z 12 CN 17.07 | 4.1 Stainless steel | 4.1.4 Austenitic A5 >40% |
| X 12 CrNi 25 21 | Z 12 CN 25.20 | 4.2 High temperature resistant alloy | 4.2.1 Alloy-Fe |
| X 12 CrNiTi 18 9 | Z 6 CNT 18.12 (B) | 4.2 High temperature resistant alloy | 4.2.1 Alloy-Fe |
| X 12 CrNiWTi 16 3 | | 4.2 High temperature resistant alloy | 4.2.1 Alloy-Fe |
| X 12 CrS 13 | Z 12 CF 13 | 4.1 Stainless steel | 4.1.5 Sulphide |
| X 12 NiCrSi 36 16 | Z 12 NCS 37.18 | 4.2 High temperature resistant alloy | 4.2.1 Alloy-Fe |
| X 15 Cr 13 | Z 13 C 13 | 4.1 Stainless steel | 4.1.2 Martensitic |
| X 15 CrNiSi 20 12 | Z 15 CNS 20.12 | 4.2 High temperature resistant alloy | 4.2.1 Alloy-Fe |
| X 15 CrNiSi 25 20 | Z 15 CNS 25.20 | 4.2 High temperature resistant alloy | 4.2.1 Alloy-Fe |
| X 155 CrVMo 12 1 | Z 160 CDV 12 | 3.2 Tool steel for cold work | 3.2.4 Highly alloyed, Annealed Up to 1000 $N/mm^2$ |
| X 165 CrMoV 12 | | 3.2 Tool steel for cold work | 3.2.4 Highly alloyed, Annealed Up to 1000 $N/mm^2$ |
| X 19 NiCrMo 4 | | 3.2 Tool steel for cold work | 3.2.4 Highly alloyed, Annealed Up to 1000 $N/mm^2$ |
| X 2 CrNi 19 11 | Z 2 CN 18.10 | 4.1 Stainless steel | 4.1.4 Austenitic A5 >40% |
| X 2 CrNiMo 17 13 2 | Z 2 CND 17.12 | 4.1 Stainless steel | 4.1.3 Austenitic A5 <40% |
| X 2 CrNiMo 18 14 3 | Z 2 CND 17.13 | 4.1 Stainless steel | 4.1.3 Austenitic A5 <40% |
| X 2 CrNiMo 18 16 4 | Z 2 CND 19.15 | 4.1 Stainless steel | 4.1.3 Austenitic A5 <40% |
| X 2 CrNiMoN 17 12 2 | Z 2 CND 17.12 Az | 4.1 Stainless steel | 4.1.3 Austenitic A5 <40% |
| X 2 CrNiMoN 17 13 3 | Z 2 CND 17.13 Az | 4.1 Stainless steel | 4.1.3 Austenitic A5 <40% |
| X 2 CrNiMoN 22 5 | Z 2 CND 22 5 Az | 4.1 Stainless steel | 4.1.3 Austenitic A5 <40% |
| X 2 CrNiN 18 10 | Z 2 CN 18 .10 | 4.1 Stainless steel | 4.1.3 Austenitic A5 <40% |
| X 2 NiCoMoTi 18 12 4 | | 3.2 Tool steel for cold work | 3.2.5 Highly alloyed traité Up to 1300 $N/mm^2$ |
| X 2 NiCoMoTi 18 9 5 | | 3.2 Tool steel for cold work | 3.2.5 Highly alloyed traité Up to 1300 $N/mm^2$ |
| X 2 NiCoMoTi 18 9 5 | | 3.3 Tool steel for hot work | 3.3.4 Highly alloyed traité Up to 1300 $N/mm^2$ |
| X 2 NiCrMoCu 25 20 5 | Z 1 CNDU 25 20 | 4.1 Stainless steel | 4.1.3 Austenitic A5 <40% |
| X 20 Cr 13 | Z 20 C 13 | 4.1 Stainless steel | 4.1.2 Martensitic |
| X 20 CrMoWV 12 1 | | 4.2 High temperature resistant alloy | 4.2.1 Alloy-Fe |
| X 20 CrNi 17 2 | Z 15 CN 16.02 | 4.1 Stainless steel | 4.1.2 Martensitic |
| X 210 Cr 12 | Z 200 C 12 | 3.2 Tool steel for cold work | 3.2.4 Highly alloyed, Annealed Up to 1000 $N/mm^2$ |
| X 210 CrW 12 | Z 200 CW 12 | 3.2 Tool steel for cold work | 3.2.4 Highly alloyed, Annealed Up to 1000 $N/mm^2$ |
| X 22 CrMoV 12 1 | | 4.2 High temperature resistant alloy | 4.2.1 Alloy-Fe |
| X 3 NiCrMo 18 8 5 | E-Z 2 NKD 18 | 3.3 Tool steel for hot work | 3.3.3 Highly alloyed Annealed Up to 1000 $N/mm^2$ |
| X 30 Cr 13 | Z 30 C 13 | 4.1 Stainless steel | 4.1.2 Martensitic |

| DIN | AFNOR | Material subgroup 1 | Material subgroup 2 |
|---|---|---|---|
| X 30 WCrV 5 3 | Z 32 WCV 5 | 3.3 Tool steel for hot work | 3.3.3 Highly alloyed Annealed Up to 1000 $N/mm^2$ |
| X 30 WCrV 9 3 | Z 30 WCV 9 | 3.3 Tool steel for hot work | 3.3.3 Highly alloyed Annealed Up to 1000 $N/mm^2$ |
| X 32 CrMoCoV 3 3 3 | 30 DCKV 28 | 3.2 Tool steel for cold work | 3.2.4 Highly alloyed, Annealed Up to 1000 $N/mm^2$ |
| X 32 CrMoV 3 3 | 32 DCV 28 | 3.3 Tool steel for hot work | 3.3.3 Highly alloyed Annealed Up to 1000 $N/mm^2$ |
| X 36 CrMo 17 | | 3.2 Tool steel for cold work | 3.2.5 Highly alloyed traité Up to 1300 $N/mm^2$ |
| X 38 Cr 13 | Z 40 C 14 | 4.1 Stainless steel | 4.1.2 Martensitic |
| X 38 CrMoV 5 1 | Z 38 CDV 5 | 3.3 Tool steel for hot work | 3.3.3 Highly alloyed Annealed Up to 1000 $N/mm^2$ |
| X 38 CrMoV 5 3 | | 3.3 Tool steel for hot work | 3.3.3 Highly alloyed Annealed Up to 1000 $N/mm^2$ |
| X 4 NiCrTi 25 15 | Z 6 NCTDV 25.15 B | 4.2 High temperature resistant alloy | 4.2.1 Alloy-Fe |
| X 40 CrMoV 5 1 | Z 40 CDV 5 | 3.3 Tool steel for hot work | 3.3.3 Highly alloyed Annealed Up to 1000 $N/mm^2$ |
| X 42 Cr 13 | Z 40 C 14 | 3.2 Tool steel for cold work | 3.2.4 Highly alloyed, Annealed Up to 1000 $N/mm^2$ |
| X 45 CrMoV 15 | | 4.1 Stainless steel | 4.1.2 Martensitic |
| X 45 CrNiW 18 9 | Z 35 CNWS 20.09 | 4.2 High temperature resistant alloy | 4.2.1 Alloy-Fe |
| X 45 CrSi 9 3 | Z 45 CS 9 | 4.2 High temperature resistant alloy | 4.2.1 Alloy-Fe |
| X 45 NiCrMo 4 | Y 35 NCD 16 | 3.2 Tool steel for cold work | 3.2.4 Highly alloyed, Annealed Up to 1000 $N/mm^2$ |
| X 46 Cr 13 | Z 40 C 14 | 4.1 Stainless steel | 4.1.2 Martensitic |
| X 5 CrNi 13 4 | Z 5 CN 13.4 | 4.1 Stainless steel | 4.1.1 Ferritique |
| X 5 CrNi 18 12 | Z 8 CN 18.12 | 4.1 Stainless steel | 4.1.4 Austenitic A5 >40% |
| X 5 CrNi 18 9 | Z 6 CN 18.09 | 4.1 Stainless steel | 4.1.4 Austenitic A5 >40% |
| X 5 CrNiCuNb 17 14 | Z 5 CNU 17.4 | 4.1 Stainless steel | 4.1.3 Austenitic A5 <40% |
| X 5 CrNiMo 17 13 3 | Z 6 CND 17.12 | 4.1 Stainless steel | 4.1.3 Austenitic A5 <40% |
| X 5 CrNiMo 18 10 | Z 6 CND 17.11 | 4.1 Stainless steel | 4.1.3 Austenitic A5 <40% |
| X 5 CrNiNb 18 10 | | 4.1 Stainless steel | 4.1.3 Austenitic A5 <40% |
| X 5 CrTi 12 | Z 6 CT 12 | 4.1 Stainless steel | 4.1.1 Ferritique |
| X 5 NiCrTi 26 15 | | 4.2 High temperature resistant alloy | 4.2.1 Alloy-Fe |
| X 53 CrMnNiN 21 9 | Z 52 CMN 21.09 | 4.2 High temperature resistant alloy | 4.2.1 Alloy-Fe |
| X 6 Cr 13 | Z 6 C 13 | 4.1 Stainless steel | 4.1.1 Ferritique |
| X 6 Cr 17 | Z 8 C 17 | 4.1 Stainless steel | 4.1.1 Ferritique |
| X 6 CrAl 13 | Z 6 CA 13 | 4.1 Stainless steel | 4.1.1 Ferritique |
| X 6 CrMo 17 | Z 8 CD 17.01 | 4.1 Stainless steel | 4.1.1 Ferritique |
| X 6 CrMo 17 | Z 8 CD 17.01 | 4.1 Stainless steel | 4.1.2 Martensitic |
| X 6 CrMo 4 | | 3.2 Tool steel for cold work | 3.2.4 Highly alloyed, Annealed Up to 1000 $N/mm^2$ |
| X 6 CrNiMoNb 17 12 2 | Z 6 CNDNb 17.12 | 4.1 Stainless steel | 4.1.3 Austenitic A5 <40% |
| X 6 CrNiMoTi 17 12 2 | Z 6 CNT 17.12 | 4.1 Stainless steel | 4.1.3 Austenitic A5 <40% |
| X 6 CrNiNb 18 10 | Z 6 CNNb 18.10 | 4.1 Stainless steel | 4.1.3 Austenitic A5 <40% |
| X 6 CrNiTi 18 10 | Z 6 CNT 18.10 | 4.1 Stainless steel | 4.1.3 Austenitic A5 <40% |
| X 6 CrNiWNb 16 16 | | 4.2 High temperature resistant alloy | 4.2.1 Alloy-Fe |
| X 6 CrTi 17 | Z 8 CT 17 | 4.1 Stainless steel | 4.1.1 Ferritique |
| X 65 CrMo 14 | | 4.1 Stainless steel | 4.1.2 Martensitic |
| X 8 CrNb 17 | Z 8 CNb 17 | 4.1 Stainless steel | 4.1.1 Ferritique |
| X 8 CrNiMo 27 5 | Z 5 CND 27.05 Az | 4.1 Stainless steel | 4.1.3 Austenitic A5 <40% |
| X 80 CrNiSi 20 | Z 80 CSN 20.02 | 4.2 High temperature resistant alloy | 4.2.1 Alloy-Fe |
| X 90 CrMoV 18 | | 4.1 Stainless steel | 4.1.2 Martensitic |

## COMPARISON TABLE OF HARDNESS MEASUREMENTS ACCORDING TO VICKERS-BRINELL-ROCKWELL TEST AND BREAKING STRENGTH BY TRACTION

| VICKERS HARDNESS TEST HV 30 | BRINELL HARDNESS TEST HB 30 | Rockwell hardness | | Breaking strength by traction N/mm2 |
|---|---|---|---|---|
| | | HRB | HRC | |
| 80 | 80 | 36,4 | - | 270 |
| 85 | 85 | 42,4 | - | 290 |
| 90 | 90 | 47,4 | - | 310 |
| 95 | 95 | 52,0 | - | 320 |
| 100 | 100 | 56,4 | - | 340 |
| 105 | 105 | 60,0 | - | 360 |
| 110 | 110 | 63,4 | - | 380 |
| 115 | 115 | 66,4 | - | 390 |
| 120 | 120 | 69,4 | - | 410 |
| 125 | 125 | 72,0 | - | 420 |
| 130 | 130 | 74,4 | - | 440 |
| 135 | 135 | 76,4 | - | 460 |
| 140 | 140 | 78,4 | - | 470 |
| 145 | 145 | 80,4 | - | 490 |
| 150 | 150 | 82,2 | - | 500 |
| 155 | 155 | 83,8 | - | 520 |
| 160 | 160 | 85,4 | - | 540 |
| 165 | 165 | 86,8 | - | 550 |
| 170 | 170 | 88,2 | - | 570 |
| 175 | 175 | 89,6 | - | 590 |
| 180 | 180 | 90,8 | - | 600 |
| 185 | 185 | 91,8 | - | 620 |
| 190 | 190 | 93,0 | - | 640 |
| 195 | 195 | 94,0 | - | 660 |
| 200 | 200 | 95,0 | - | 670 |
| 205 | 205 | 95,8 | - | 680 |
| 210 | 210 | 96,6 | - | 710 |
| 215 | 215 | 97,6 | - | 720 |
| 220 | 220 | 98,2 | - | 730 |
| 225 | 225 | 99,0 | - | 750 |
| 230 | 230 | - | 19,2 | 760 |
| 235 | 235 | - | 20,2 | 780 |
| 240 | 240 | - | 21,2 | 800 |
| 245 | 245 | - | 22,1 | 820 |
| 250 | 250 | - | 23,0 | 830 |
| 255 | 255 | - | 23,8 | 850 |
| 260 | 260 | - | 24,6 | 870 |
| 265 | 265 | - | 25,4 | 880 |
| 270 | 270 | - | 26,2 | 900 |
| 275 | 275 | - | 26,9 | 920 |
| 280 | 280 | - | 27,6 | 940 |
| 285 | 285 | - | 28,3 | 950 |
| 290 | 290 | - | 29,0 | 970 |
| 295 | 295 | - | 29,6 | 990 |
| 300 | 300 | - | 30,3 | 1010 |
| 310 | 310 | - | 31,5 | 1040 |
| 320 | 320 | - | 32,7 | 1080 |
| 330 | 330 | - | 33,8 | 1110 |
| 340 | 340 | - | 34,9 | 1140 |

Source : Organisation executive calculate Measure

The hardness values measured by various processes on different materials are only partially comparable. The Rockwell test values, to one decimal place, serve only as interpolation and should be rounded to the unit for the final result.

| VICKERS HARDNESS TEST HV 30 | BRINELL HARDNESS TEST HB 30 | Rockwell hardness | | Breaking strength by traction N/mm2 |
|---|---|---|---|---|
| | | HRB | HRC | |
| 350 | 350 | - | 36,0 | 1170 |
| 360 | 359 | - | 37,0 | 1200 |
| 370 | 368 | - | 38,0 | 1230 |
| 380 | 376 | - | 38,9 | 1260 |
| 390 | 385 | - | 39,8 | 1290 |
| 400 | 392 | - | 40,7 | 1320 |
| 410 | 400 | - | 41,5 | 1350 |
| 420 | 408 | - | 42,4 | 1380 |
| 430 | 415 | - | 43,2 | 1410 |
| 440 | 423 | - | 44,0 | 1430 |
| 450 | 430 | - | 44,8 | 1460 |
| 460 | - | - | 45,6 | - |
| 470 | - | - | 46,3 | - |
| 480 | - | - | 47,0 | - |
| 490 | - | - | 47,7 | - |
| 500 | - | - | 48,3 | - |
| 510 | - | - | 49,1 | - |
| 520 | - | - | 49,7 | - |
| 530 | - | - | 50,4 | - |
| 540 | - | - | 51,0 | - |
| 550 | - | - | 51,6 | - |
| 560 | - | - | 52,2 | - |
| 570 | - | - | 52,8 | - |
| 580 | - | - | 53,3 | - |
| 590 | - | - | 53,9 | - |
| 600 | - | - | 54,4 | - |
| 610 | - | - | 55,0 | - |
| 620 | - | - | 55,5 | - |
| 630 | - | - | 56,0 | - |
| 640 | - | - | 56,5 | - |
| 650 | - | - | 57,0 | - |
| 660 | - | - | 57,5 | - |
| 670 | - | - | 58,0 | - |
| 680 | - | - | 58,5 | - |
| 690 | - | - | 59,0 | - |
| 700 | - | - | 59,5 | - |
| 720 | - | - | 60,4 | - |
| 740 | - | - | 61,2 | - |
| 760 | - | - | 62,0 | - |
| 780 | - | - | 62,8 | - |
| 800 | - | - | 63,6 | - |
| 820 | - | - | 64,3 | - |
| 840 | - | - | 65,0 | - |
| 860 | - | - | 65,7 | - |
| 880 | - | - | 66,3 | - |
| 900 | - | - | 66,9 | - |
| 920 | - | - | 67,5 | - |
| 940 | - | - | 68,0 | - |
| - | - | - | - | - |

MATERIAL GROUP

# NUMERICAL INDEX

# NOTES

# NOTES

# TERMS AND CONDITIONS OF SALE OF BRAMMER UK LIMITED
## (including BUCK & HICKMAN a trading division of Brammer UK Limited)

### 1. INTERPRETATION

**a)** In these Conditions (unless the context otherwise requires) the following definitions shall apply:

| | |
|---|---|
| **Buyer** | The purchaser of Goods and/or Services. |
| **Company** | Brammer UK Limited. |
| **Contract** | The agreement between the Buyer and the Company for the supply of Goods and/or the provision of Services. |
| **Conditions** | These Terms and Conditions. |
| **Confidential Information** | All information in respect of the business and financing of the Parties including but not limited to: any business methods, financial information, prices, discounts; business, financial, marketing, development or manpower plans; customer lists or details; computer systems and software know-how or other matters connected with the Goods or other products or Services manufactured for, marketed, provided or obtained by either Party; information concerning either Party's relationships with actual or potential clients or customers and the needs and requirements of such persons. |
| **Goods** | Goods supplied or to be supplied by the Company to the Buyer pursuant to the Contract. |
| **Non-Returnable Goods** | Goods supplied which the Company is unable to accept by return due to the nature of the Goods as more particularly described in Section 6. |
| **Parties** | The Buyer and the Company. |
| **Services** | Services carried out or to be carried out by the Company for the Buyer pursuant to the Contract. |

Words used in the singular shall include the plural and vice versa. References to any gender shall include all other genders. References to legal persons shall include natural persons and all other legal entities.

### 2. BASIS OF THE CONTRACT

**a)** Any quotation given by the Company to the Buyer shall not constitute an offer but merely an invitation to treat and shall not be binding on the Company unless and until an order from the Buyer is accepted in writing by the Company.

**b)** The Buyer may make and the Company may accept an order transmitted by the Buyer by means of the postal service, facsimile machine, e mail, by the Company's internet sales service or over the telephone. Acceptance may be formally in writing or by the supply of the Goods or performance of the Services.

**c)** Any Contract formed as in clause 2. b) above is subject solely to these Conditions which shall override any terms and conditions of the Buyer which may at any time be transmitted to the Company in whatever form and the Buyer waives any rights which it might otherwise have to rely on any other Terms & Conditions whatsoever.

**d)** No variation or qualification to these Conditions shall be binding upon the Parties unless agreed in writing by an authorised representative of the Company.

**e)** Any typographical, clerical or other error or omission in any quotation, sales literature, acceptance of an offer, letter, invoice or any other document whatsoever and howsoever transmitted to the Buyer shall be subject to correction withoutany liability on the part of the Company.

**f)** No information, including but not restricted to, statements, descriptions, particulars of weights and/or dimensions, warranties, conditions or recommendations contained in any catalogue, price list, advertisement or any other written statement or verbal communication whatsoever or howsoever transmitted shall be incorporated into the Contract nor shall it be deemed to vary or override these Conditions in any way.

**g)** Each Party acknowledges that each Contract together with any variations and/or qualifications made pursuant to these Conditions contains the whole agreement between the Parties and that it has not relied upon any oral or written representation made to it by the other Party or the other Party's employees or agents

### 3. PRICE

**a)** The Price payable shall be the list price of the Company at the time of despatch unless otherwise agreed between the Parties.

**b)** The Company reserves the right, by giving notice to the Buyer at any time before delivery, to increase the price of the Goods and/or Services to reflect any increase in the cost to the Company which is due to any factor beyond its control including but not restricted to alteration of duties, fluctuation in exchange rates, significant increase in the costs of labour, materials or other costs including, without limitation, any increase in the prices charged to the Company by its suppliers. The Company accordingly reserves the right to adjust the invoice price by the amount of any increase in such costs after the price is quoted and the invoice so adjusted shall be payable as if the price set out therein were the original contract price.

**c)** The Buyer shall indemnify the Company in respect of any loss, cost or expense incurred by the Company as a result of, either directly or indirectly, the Buyer requesting a change in the delivery date, quantity or specifications of the Goods, the Buyer causing delay or the Buyer failing to give the Company adequate information or instructions.

**d)** All prices are exclusive of VAT

**e)** The Company reserves the right to impose a minimum order charge at its discretion.

### 4. DELIVERY

**a)** Delivery and/or dates for performance of Services quoted are approximate only and time of delivery shall not be of the essence of the Contract. The Buyer will accept the Goods and/or performance of Services even if they are delivered late and late delivery will not entitle the Buyer to terminate the Contract. The Company may deliver Goods early on giving reasonable notice to the Buyer.

**b)** Where delivery is by instalments or where Goods are held by the Company to be called off by the Buyer as required then, in the event that the Company fails to deliver any one or more of the instalments or goods called off in accordance with any agreed dates or in the event that the Buyer makes any claim whatsoever in respect of any one or more instalments or Goods called off, the Buyer shall not be entitled to repudiate the Contract.

**c)** Unless otherwise agreed by the Company in writing the Goods will be delivered ex works and the price of the Goods is exclusive of carriage, packing and insurance to the Buyer's premises.

**d)** If the Buyer fails to take delivery of Goods or fails to accept performance of Services or fails to give the Company adequate delivery instructions in advance of the delivery date then, without prejudice to any other right or remedy available to it, the Company may: i) store the Goods until delivery can be effected and charge the Buyer the reasonable costs of storage and insurance; or ii) sell the Goods at the best price readily obtainable in which event the Buyer shall be liable for any shortfall between the price which would have been payable under the Contract and that actually obtained. These rights shall also apply where the Buyer has arranged to collect the Goods from the Company but fails to do so within twenty-one days of notification by the Company that such Goods are ready for collection. In any or all of the eventualities specified in this clause 4. d), the Company shall be entitled to treat the Contract as being repudiated and thereby terminated.

**e)** Goods should be examined by the Buyer immediately on delivery. Notification of short delivery of Goods and/or of lost or damaged Goods in transit must be made either by giving to the carrier a note detailing the shortage and/or damage at the time of delivery and confirming to the Company in writing within three days of delivery or if no note is given to the carrier then by written notification to the Company within the said three days of the date of delivery of the Goods.

**f)** Any claim that Goods are not as specified in the Buyer's order must be made by written notification to the Company within fourteen days of the date of delivery.

**g)** Goods ordered in error or inaccurately by the Buyer may only be returned with the written permission of the Company and the Company is entitled to require payment of any losses it has suffered due to the Buyer's error. Duly authorised returns shall be sent to the Company's premises at the Buyer's expense.

**h)** Where Goods are held by the Company to be called off by the Buyer as required, the Company may notify the Buyer that it must complete collection or accept delivery of all the remaining Goods, whichever is appropriate, within a period of six months from the date of such notification. Payment for Goods still remaining with the Company at the expiry of this period shall be due immediately.

**i)** The Company shall be entitled to cancel any accepted order or withhold delivery of any Goods or performance of any Services if the Buyer is in breach of any obligation to the Company.

**j)** The Company shall be entitled to assume that any person signing a delivery note on behalf of the Buyer and who appears or claims to have authority to accept delivery shall in fact have that authority.

**k)** The Buyer shall be responsible for the safety and protection of all Company personnel who enter the Buyers premises to make delivery.

### 5. PAYMENT

**a)** The time of payment shall be of the essence of the Contract.

**b)** The Company may check the following records about the Buyer, the Buyer's business and the Buyer's business partners,

- **a)** the Company's own records;
- **b)** business records at the credit reference agencies (CRA's). (When CRA's receive a search they will place a search on the Buyer's business credit file that may be seen by other lenders. These agencies supply business and fraud prevention information);
- **c)** records at Fraud Prevention Agencies (FPA's);
- **d)** the Company may seek confirmation from CRA's, that the residential addresses of the Buyer's directors are the same as those shown on the restricted register of directors' usual addresses at Companies House. The Company also reserve the right to make further periodic searches as it considers appropriate.

**c)** If credit terms are permitted, payment must be made on or by 20th of the month following the date of the relevant invoice.

**d)** If the Buyer has selected electronic invoicing, invoices and statements will be delivered electronically.

**e)** If the Buyer fails to make any payment due under any Contract between it and the Company then the Company shall be entitled to terminate any Contract between it and the Buyer forthwith and shall not be liable to perform any part of any Contract still incomplete at that time nor shall the Company be bound by any warranty.

**f)** If the Buyer fails to adhere to the terms of payment of any invoice then the Company may at its sole discretion demand immediate payment of any or all liabilities whether or not payment of these is due.

**g)** If the Buyer fails to make any payment on the due date then the Company, without prejudice to any other right or remedy available to it, shall be entitled to charge the Buyer interest, both before and after any Judgment, from the date on which the payment became overdue on the amounts unpaid at the rate of eight per cent above the HSBC plc base rate in force at the time of imposition of the interest until payment in full is made (a part of a month shall be treated as a full month for the purpose of calculating interest). In the event that legal action has to be taken or the Company has to pass the debt to solicitors or any other agent for the recovery of any outstanding debt then the Company shall be entitled to charge the Buyer an administration fee of £100.

**h)** The Company reserves the right to set off any debts whatsoever which the Buyer owes under any Contract against any amounts which the Company owes to the Buyer for any reason whatsoever.

**i)** Payment

## 6. WARRANTIES, CONDITIONS AND NON-RETURNABLE GOODS

**a)** The Company undertakes at its option to replace or refund the purchase price of any Goods sold or supplied in the following circumstances only:

- **a)** Where the Goods do not correspond to any written identifying description applied to them.
- **b)** Where the Goods prove to be unfit for a particular purpose which has been expressed in writing by the Company.
- **c)** Where the Goods prove to be defective and not fit for their ordinary purposes within 12 months of delivery. The Company's liability under this clause shall be accepted by the Customer in lieu of any warranty or condition whether expressed or implied by law.

**b)** Subject to clauses 3 e) and 3 f) the Company (whether in contract, tort or otherwise) shall have no liability for any loss of or damage to or discernible defect in the quality or condition of Goods arising prior to delivery or for any claim that any item delivered pursuant to the Contract is defective or otherwise not in accordance with the Contract (being a defect or loss, damage or non-compliance which would be obvious upon a reasonable inspection of the Goods) or for nondelivery unless claims to that effect are notified to the Company in writing within fourteen days of the date of delivery.

**c)** In the case of Service performed by the Company if within 12 months of performance of the Service a defect in materials or workmanship appears therein being a defect which would not be obvious on reasonable inspection thereof (whether such an inspection was carried out or not) the Company will at its own discretion either credit the Buyer with the full price paid by the Buyer to the Company for such Service or it will re-perform the Service always provided that the Service has been accepted and paid for.

**d)** In the case of Goods the Company shall pass on to the Buyer to the extent that it is able any benefits obtainable under any warranty and/ or guarantee given by the Company's suppliers always provided that the Goods have been accepted and paid for. Concerning 'Roebuck Lifetime Warranty' please refer to the special conditions available at www.roebuck-tools.com under 'About Roebuck'.

**e)** In order to exercise its rights under clauses 6 c) or 6 d) the Buyer shall inform the Company within fourteen days of the date when a defect appeared or ought reasonably to have been discoverable and shall at the Company's written request return the defective Goods carriage paid to the Company's Premises.

**f)** In the event of a valid claim for defect, loss, damage, non compliance with the Contract, non-delivery or non-performance the Company undertakes at its option either to repair, reprocess or replace the Goods concerned.

**g)** The Company shall have no liability in respect of any defect arising from any act, omission or error by the Buyer, its employees or its agents including but not restricted to fair wear and tear, wilful damage, negligence, abnormal working conditions, failure to follow any instructions provided by the Company or the manufacturer of the Goods, misuse, improper installation or repair or the use of incorrect lubricants.

**h)** The Company shall have no liability for any advice or recommendation given by its employees, representatives, agents or sub contractors to the Buyer as to the storage, application or use of Goods or for any statement whatsoever on any matter whatsoever relating to Goods or Services which has not been confirmed in writing. i) Where samples are supplied to the Buyer and an order(s) is subsequently placed for these same items and/or such items are accepted by the Buyer subsequent to the receipt of the samples then the Buyer is reliant entirely on its own judgment of the samples and the sale of these Goods shall not be considered to be a sale by sample. The Company shall have no liability whatsoever for any claim that these Goods are not fit for the purpose for which they are intended but this shall not affect the Buyer's right to claim for defect, loss, damage or non-delivery as provided under these Conditions.

**j)** Where the Buyer has purchased Non-Returnable Goods, which for the avoidance of doubt are (i) any Goods of a bespoke nature to the Buyer or (ii) Goods which the Company have supplied which are outside of its normal product range or not within its catalogue or (iii) Goods which for any reason are not returnable to the Company's supplier or (iv) which at the time of Order the parties agree are Non-Returnable Goods, then subject to the Buyer's rights as set out in this Section 6 in relation to defects, such Good shall not be capable of return to the Company.

## 7. INDEMNITY

**a)** The Buyer shall keep the Company fully and effectively indemnified at all times against all and any costs, claims, demands, losses or liabilities whatsoever brought or made against the Company or otherwise suffered or incurred by the Company arising directly or indirectly out of any infringement or alleged infringement of patents, trade marks, copyright, design right or other intellectual property right occasioned by the importation, manufacture or sale of the Goods if made to the specification or special requirements of the Buyer.

**b)** The Buyer shall keep the Company fully and effectively indemnified against any loss or liability whatsoever which is suffered or incurred by the Company as a result of the acts or omissions of the Buyer, its employees or agents in the course of collection of Goods from the Company.

## 8. RISK AND PROPERTY

**a)** The Goods shall remain the property of the Company until the Buyer has paid in full for all Goods and Services supplied or to be supplied under the Contract. Until that time the Buyer shall hold the Goods as bailee, keep them separate from like Goods belonging to the Buyer or any third party and keep them properly stored and protected and labelled as belonging to the Company.

**b)** The Goods shall be at the Buyer's risk from the time of delivery to either the Buyer or a third party nominated by the Buyer or on the expiry of seven days from the date on which the Company gives notice to the Buyer that the Goods are available for collection. Risk shall also pass should the Buyer or a third party nominated by the Buyer fail without due cause to accept delivery of the Goods, from the date and time of the abortive delivery.

**c)** The Buyer shall at all times comprehensively insure the Goods against loss or damage and in the event of such loss or damage shall hold the proceeds of such insurance on behalf of the Company as trustee for the Company until such time as the Goods are paid for in full.

**d)** The Buyer's right to possession of the Goods shall cease: i. if the Buyer has not paid for the Goods in full by the due date as described in clause 5 b) above or any alternative date agreed between the Company and the Buyer or ii. if, payment in full not having been made, any of the events as described below in Clause 10 a), sub clauses i) to vi) inclusive shall occur on cessation of the Buyer's right to possession of the Goods in accordance with this clause the Buyer shall at its own expense make the Goods available to the Company and permit the Company to repossess them.

**e)** The Buyer hereby grants the Company, its employees, agents and sub-contractors an irrevocable licence to enter any premises where the Goods are stored in order to repossess them or inspect them at any time.

**f)** In the event that the Buyer shall hold in its premises consignment stock belonging to the Company then the Company reserves the right to enter upon the Buyer's premises at any time to remove such stock should it consider that this stock is at risk of non payment, unauthorised use or removal.

## 9. CONFIDENTIAL INFORMATION

Each Party hereby agrees in respect of all Confidential Information:

**a)** to keep the Confidential Information in strict confidence and secrecy:

**b)** not to use the Confidential Information save for enjoying its rights and complying with its obligations under this Contract;

**c)** not to disclose the Confidential Information to any third party save only as is required by law. Any company within the Brammer Group shall not be classified as a third party;

**d)** to restrict the disclosure of Confidential Information to relevant and necessary information required by such of its employees and others who of necessity need the same in the performance of their duties as envisaged by the Contract and to ensure that such employees and others are aware of the confidential nature of such Confidential Information.

## 10. TERMINATION AND CANCELLATION

**a)** The Contract may be terminated by the Company:

- **i.** if the Buyer is declared bankrupt or makes any proposal to his creditors for a composition or other voluntary arrangement;
- **ii.** if a receiver, liquidator, administrator, administrative receiver or any other like practitioner is appointed in respect of the Buyer's business;
- **iii.** if the Buyer ceases, or threatens to cease, to carry on business;
- **iv.** if an attachment order is made against the Buyer or any legal process is levied on any property of the Buyer;
- **v.** if the Company reasonably apprehends that any of the events in clauses 10. a) i) to iv are about to occur and gives notice to the Buyer;
- **vi.** if the Buyer is unable to pay its debts within the meaning of section 123 of the Insolvency Act 1986;
- **vii.** by either Party if the other commits a material breach of the of the Contract and has not remedied the breach within thirty days of a written request to do so but without prejudice to any other rights or remedies a Party may be entitled to under these Conditions or at law or to any accrued rights or liabilities of a Party;
- **viii.** if payment by the due date of the full amount of any invoice correctly levied by the Company on the Buyer has not been made.

**b)** Any right which the Company has to terminate the Contract under any of the provisions of this clause 10. shall include the right to suspend any further deliveries and/or Services to be performed under the Contract and upon such termination the Company shall not incur any liability to the Buyer. Furthermore, upon such termination then, if any Goods have been delivered but not paid for, the price shall become immediately due and payable notwithstanding any previous agreement regarding payment or the normal terms under clause 5. b) above. The Company shall also retain its rights under Clause 5. f) above.

**c)** The Buyer may not cancel any order which has been accepted by the Company except with the agreement in writing of the Company. In the event of any cancellation or termination for any reason whatsoever, the Buyer shall indemnify the Company against all loss including but not restricted to loss of profit, costs, damages, charges and expenses howsoever incurred by the Company as a result of such cancellation or termination.

## 11. FORCE MAJEURE

The Company shall not be liable to the Buyer or be deemed to be in breach of the Contract by reason of any delay in performing or any failure to perform any of its obligations under the Contract, if the delay or failure was due to any cause beyond the Company's reasonable control, including but not restricted to the following:

- Act of God, explosion, flood, tempest, fire or accident;
- war or threat of war, sabotage, insurrection, civil disturbance or requisition;
- acts, restrictions, regulations, bye-laws, prohibitions or measures of any kind enacted by any parliamentary or local government;
- import or export regulations or embargoes
- strikes, lock-outs or other industrial actions or trade disputes whether involving employees of the Company or of a third party;
- power failure or breakdown in machinery;
- difficulties in obtaining or shortages or failures of any supplies whatsoever including shortages or failures caused by the Company's own suppliers. These same rights shall apply equally and in all respects to the Buyer.

## 12. LIMITATION OF LIABILITY

**a)** The Company's liability in contract, tort, (including negligence or breach of statutory duty) or otherwise in connection with the Contract (except in relation to death or personal injury caused by the negligence of the Company or its employees whilst acting in the course of their employment) shall be limited to the value of the Goods and/ or Services upon which such liability is based.

**b)** Save as above the Company shall not be liable in any circumstances for

i) any loss of use, production or profit, (direct or indirect);

ii) any loss of business, contracts, revenues or anticipated savings;

iii) any increase in operating costs or any other financial or economic loss;

iv) any indirect or consequential loss or damage whatsoever

v) personal injury which is not caused by negligence whether sustained by the Buyer or by any third party and whether in contract, tort, (including negligence or breach of statutory duty as permitted under law), or otherwise in connection with the Contract.

**c)** If the Company undertakes to perform Services to the Buyer's own design and/or specification and/or instruction, it shall have no liability for any loss whatsoever arising in whole or in part from the unsuitability or inadequacy of any such design, specification or instructions nor shall the Company's right to payment be in any way diminished in such circumstances.

**d)** Nothing herein shall have the effect of excluding or restricting the liability of the Company for: i. death or personal injury resulting from its negligence; ii. fraud and/or fraudulent misrepresentation and iii. the Consumer Protection Act 1987, in so far as all the foregoing is prohibited by United Kingdom Statute.

## 13. GENERAL

**a)** The Buyer may only assign the benefit of the Contract with the prior written consent of the Company, such consent not to be unreasonably withheld.

**b)** No party not itself a party to the Contract shall have any rights whatsoever under the Contract nor any right of enforcement thereof.

**c)** Any notice required or permitted to be given by either Party to the other shall be in writing, addressed to the other Party at its principal place of business or any other address previously provided as being that to which correspondence should be sent. Such notice should be delivered by hand or sent by first class post and shall be deemed to have been received by the Party to whom it is sent 48 hours after the date of posting.

**d)** In the event that the Goods supplied are of US origin and are intended for re-export outside the EU, then the Purchaser shall provide details to the Company as to the destination and purchaser of such Goods. Similarly, if the Company reasonably believes that the Goods are intended for export outside of the EU then, if requested by the Company, the Purchaser shall provide the same information in relation to destination and purchaser. The Purchaser shall demonstrate to the Company that all necessary export licences have been obtained (which for the avoidance of doubt shall include compliance with US export requirements). The Company reserves the right not to supply the Goods in the event of failure to provide any of the information referred to in this Clause 13 d) when so required.

**e)** No waiver by the Company of any breach of the Contract by the Buyer shall be considered as a waiver of this breach in the future or a waiver of any other breach whatsoever.

**f)** Any reference in these Conditions to a provision of a Statute shall be construed as a reference to that provision as amended, re-enacted or extended at the relevant time.

**g)** If any court or competent authority finds that any provision or part of any provision of these Terms is invalid, illegal or unenforceable then that provision or part of a provision shall, to the extent required, be deemed to be deleted and the validity and enforceability of the other provisions of these Terms shall not be affected.

**h)** If any invalid, unenforceable or illegal provision of these Terms would be valid, enforceable and legal if some or any part of it were deleted, the provision shall apply with the minimum modification necessary to make it legal, valid and enforceable.

**i)** This Contract shall be governed by English law and subject to the exclusive jurisdiction of the English Courts.

**j)** The headings in these Conditions are for convenience only and shall not affect the interpretation of the Contract.

**k)** A credit check may be carried out by the Company and such a search will show in the records of individuals.

**l)** The Company supplies information to a third party Credit Information Agency.

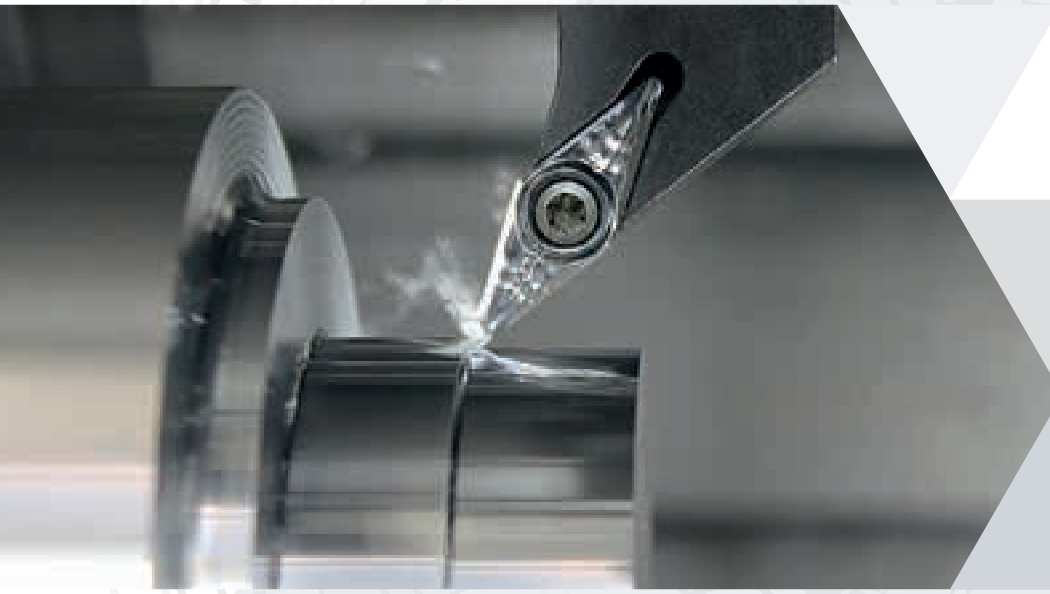
**V3. December 2017**

# Where to find us

1. Inverness
2. Aberdeen
3. Glasgow
4. Uddingston
5. Grangemouth
6. Dumfries
7. North East
8. Carlisle
9. Middlesbrough
10. Barrow
11. York
12. Preston
13. Leeds
14. Hull
15. Manchester
16. Liverpool
17. Sheffield
18. Grimsby
19. Ellesmere Port
20. Stoke
21. Burton
22. Derby
23. Nottingham
24. Wolverhampton
25. Leicester
26. Birmingham
27. Coventry
28. Peterborough
29. Norwich
30. Northampton
31. Ipswich
32. Merthyr Tydfil
33. Swansea
34. Cardiff
35. Newport
36. Cheltenham
37. Stevenage
38. Bristol
39. Newbury
40. Reading
41. Feltham
42. West Thurrock
43. Crawley
44. Maidstone
45. Southampton
46. Exeter
47. Plymouth
48. Belfast
49. Dublin


brammerbuckandhickman.com

Concept, design and printing elpev Subject to misprint errors.



CUTLINE