

E2

SUBMICRON GRAIN GRADE HIGH-SPEED MACHINING OF ABRASIVE MATERIALS

$\lambda=32^{\circ}-38^{\circ}$   
 $\gamma=10^{\circ}$

VARIABLE HELIX ANGLES 32° - 38° AND CUTTING ANGLE 10°

$\phi \leq 6$   
 $\phi > 6$   
90° 45°

SHARP EDGE  $\phi \leq 6$  AND CHAMFER AT 45°  $\phi > 6$

SIDE AND CENTER CUT

$h$   
2.2xD

CUTTING EDGE LENGTH 2.2xD

FITTING LENGTH STANDARD

IRREGULAR TOOTHING

$\lambda 2$   
 $\lambda 1$

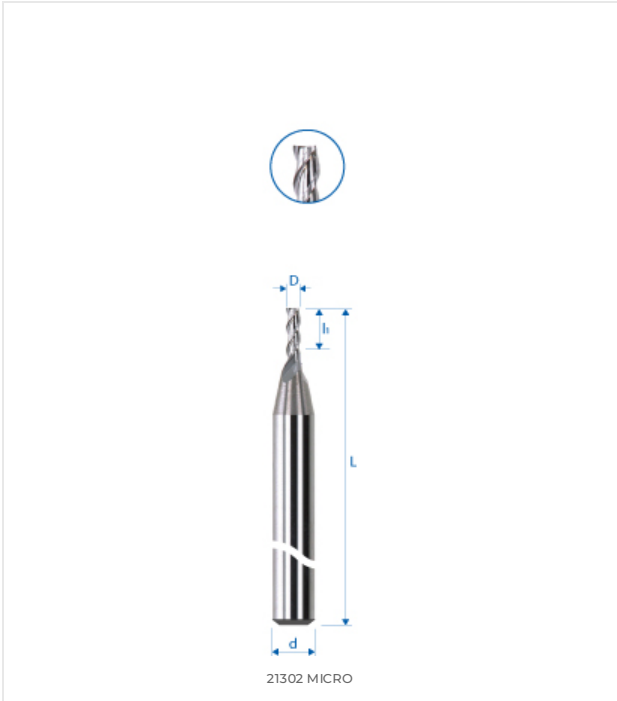
VARIABLE HELIX ANGLES

MATERIAL COMPATIBILITY

●●● Excellent (3/3) ●● Good (2/3) ●○ Possible (1/3) ○○○ Not recommended

| Product material compatibility |                          |                              |     |            |
|--------------------------------|--------------------------|------------------------------|-----|------------|
| CATEGORY                       | MATERIAL                 | SPECIFICATION                | GRP | 21302D-1.6 |
| Alloyed and non-alloyed steels | Non-alloyed steels       | Rm < 450 N/mm <sup>2</sup>   | 1a  | ○○○ 0/3    |
|                                |                          | Rm 450–700 N/mm <sup>2</sup> | 1b  | ○○○ 0/3    |
|                                |                          | Rm 700–900 N/mm <sup>2</sup> | 1c  | ○○○ 0/3    |
|                                |                          | Rm > 1200 N/mm <sup>2</sup>  | 1d  | ○○○ 0/3    |
| Stainless steels               | Stainless steels         | Rm < 650 N/mm <sup>2</sup>   | 2a  | ○○○ 0/3    |
|                                |                          | Rm 650–950 N/mm <sup>2</sup> | 2b  | ○○○ 0/3    |
|                                |                          | Rm > 950 N/mm <sup>2</sup>   | 2c  | ○○○ 0/3    |
| Hardened steels                | Hardened steels          | 44–56 HRC                    | 3a  | ○○○ 0/3    |
|                                |                          | 57–67 HRC                    | 3b  | ○○○ 0/3    |
| Exotic materials               | Special alloys           | < 32 HRC                     | 4a  | ○○○ 0/3    |
|                                |                          | > 32 HRC                     | 4b  | ○○○ 0/3    |
| Graphite                       | Industrial graphite      |                              | 5   | ●●● 3/3    |
| Cast iron                      | Grey / nodular cast iron | < 32 HRC                     | 6a  | ○○○ 0/3    |
|                                |                          | > 32 HRC                     | 6b  | ○○○ 0/3    |
| Titanium                       | Titanium alloys          | Rm < 600 N/mm <sup>2</sup>   | 7a  | ○○○ 0/3    |
|                                |                          | 600 < Rm N/mm <sup>2</sup>   | 7b  | ○○○ 0/3    |
| Nickel alloys                  | Inconel, Hastelloy       | Rm < 1000 N/mm <sup>2</sup>  | 8a  | ○○○ 0/3    |
|                                |                          | Rm > 1000 N/mm <sup>2</sup>  | 8b  | ○○○ 0/3    |
| Copper, brass, bronze          | Copper-based             | Rm < 850 N/mm <sup>2</sup>   | 9a  | ●●○ 2/3    |
|                                |                          | Rm > 850 N/mm <sup>2</sup>   | 9b  | ●●○ 2/3    |
| Aluminum                       | Aluminum alloys          | Si < 0.5%                    | 10a | ●○● 1/3    |
|                                |                          | 0.5% < Si < 5%               | 10b | ●●○ 2/3    |
|                                |                          | Si > 5%                      | 10c | ●●● 3/3    |
| Synthetic materials            | Engineering plastics     | Thermoplastic                | 11a | ○○○ 0/3    |
|                                |                          | Thermoset                    | 11b | ○○○ 0/3    |
| Composite materials            | Reinforced composites    | Glass fiber / GFK            | 12a | ●●● 3/3    |
|                                |                          | Carbon fiber / KFK           | 12b | ●●● 3/3    |
| Precious metals                | Gold, platinum, silver   | Gold                         | 13a | ●○● 1/3    |
|                                |                          | Platinum                     | 13b | ●●● 3/3    |

TECHNICAL DRAWING



DIMENSIONS

| NOMINAL DIMENSIONS |        |
|--------------------|--------|
| D (0 / -0.01)      | 1.6 mm |
| d (h5)             | 3 mm   |
| L                  | 38 mm  |
| l1                 | 4.5 mm |
| l3                 | –      |
| d3                 | –      |
| R                  | –      |
| e                  | –      |
| Z                  | 3      |
| Chamfer K          | –      |
| w° collision angle | 5.6°   |

