

E2

SUBMICRON GRAIN  
GRADE HIGH-  
SPEED MACHINING  
OF ABRASIVE  
MATERIALS

$\lambda=35^{\circ}-38^{\circ}$   
 $\gamma=10^{\circ}$

VARIABLE HELIX  
ANGLES 35° - 38°  
AND CUTTING  
ANGLE 10°

angle  
vif

SHARP EDGE

SIDE AND CENTER  
CUT

$l_h$   
2.2xD

CUTTING EDGE  
LENGTH 2.2xD

FITTING LENGTH  
STANDARD

IRREGULAR  
TOOTHING

$\lambda_2$   
 $\lambda_1$

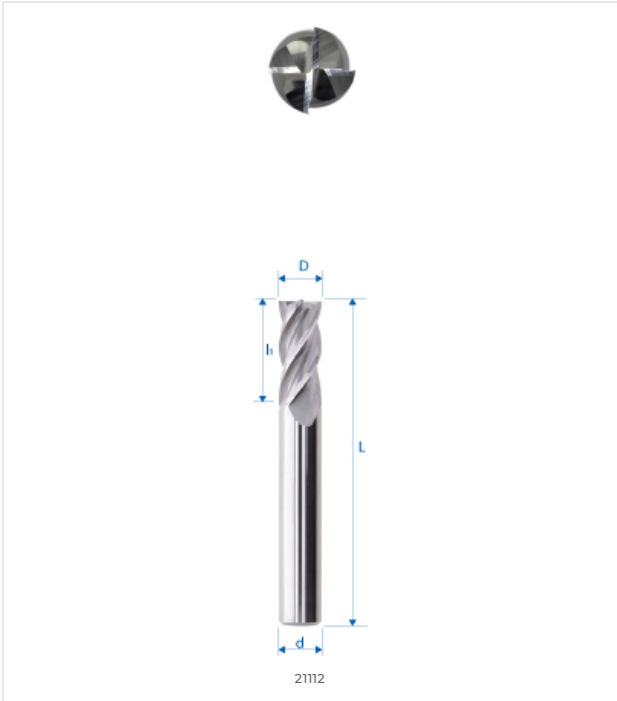
VARIABLE HELIX  
ANGLES

MATERIAL COMPATIBILITY

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

| Product material compatibility |                          |                    |     |           |
|--------------------------------|--------------------------|--------------------|-----|-----------|
| CATEGORY                       | MATERIAL                 | SPECIFICATION      | GRP | 21112A-12 |
| Alloyed and non-alloyed steels | Non-alloyed steels       | Rm < 450 N/mm²     | 1a  | ●●● 3/3   |
|                                |                          | Rm 450–700 N/mm²   | 1b  | ●●● 3/3   |
|                                |                          | Rm 700–900 N/mm²   | 1c  | ●●● 3/3   |
|                                |                          | Rm > 1200 N/mm²    | 1d  | ●●● 3/3   |
| Stainless steels               | Stainless steels         | Rm < 650 N/mm²     | 2a  | ●●● 3/3   |
|                                |                          | Rm 650–950 N/mm²   | 2b  | ●●● 3/3   |
|                                |                          | Rm > 950 N/mm²     | 2c  | ●●● 3/3   |
| Hardened steels                | Hardened steels          | 44–56 HRC          | 3a  | ●○○ 1/3   |
|                                |                          | 57–67 HRC          | 3b  | ○○○ 0/3   |
| Exotic materials               | Special alloys           | < 32 HRC           | 4a  | ●●○ 2/3   |
|                                |                          | > 32 HRC           | 4b  | ●●○ 2/3   |
| Graphite                       | Industrial graphite      |                    | 5   | ●●○ 2/3   |
| Cast iron                      | Grey / nodular cast iron | < 32 HRC           | 6a  | ●●● 3/3   |
|                                |                          | > 32 HRC           | 6b  | ●●● 3/3   |
| Titanium                       | Titanium alloys          | Rm < 600 N/mm²     | 7a  | ●●● 3/3   |
|                                |                          | 600 < Rm N/mm²     | 7b  | ●●● 3/3   |
| Nickel alloys                  | Inconel, Hastelloy       | Rm < 1000 N/mm²    | 8a  | ●●○ 2/3   |
|                                |                          | Rm > 1000 N/mm²    | 8b  | ●●○ 2/3   |
| Copper, brass, bronze          | Copper-based             | Rm < 850 N/mm²     | 9a  | ●○○ 1/3   |
|                                |                          | Rm > 850 N/mm²     | 9b  | ●○○ 1/3   |
| Aluminum                       | Aluminum alloys          | Si < 0.5%          | 10a | ●○○ 1/3   |
|                                |                          | 0.5% < Si < 5%     | 10b | ●○○ 1/3   |
|                                |                          | Si > 5%            | 10c | ●○○ 1/3   |
| Synthetic materials            | Engineering plastics     | Thermoplastic      | 11a | ○○○ 0/3   |
|                                |                          | Thermoset          | 11b | ○○○ 0/3   |
| Composite materials            | Reinforced composites    | Glass fiber / GFK  | 12a | ●○○ 1/3   |
|                                |                          | Carbon fiber / KFK | 12b | ●○○ 1/3   |
| Precious metals                | Gold, platinum, silver   | Gold               | 13a | ●○○ 1/3   |
|                                |                          | Platinum           | 13b | ●●○ 2/3   |

TECHNICAL DRAWING



DIMENSIONS

| NOMINAL DIMENSIONS |       |
|--------------------|-------|
| D (0 / -0.01)      | 12 mm |
| d (h5)             | 12 mm |
| L                  | 83 mm |
| l1                 | 26 mm |
| l3                 | –     |
| d3                 | –     |
| R                  | –     |
| e                  | –     |
| Z                  | 4     |
| Chamfer K          | –     |
| w° collision angle | –     |

