

FRAISE-HÉMISPHERIQUE Z2 · BALL-NOSE-ENDMILL Z2 ·  
HALBRUND-FRÄSER Z2



21416-4-6 Version 11.09.2026



**E2**  
SUBMICRON GRAIN  
GRADE HIGH-SPEED  
MACHINING OF  
ABRASIVE MATERIALS

$\lambda = 40^\circ$   
 $\gamma = 20^\circ$   
VARIABLE HELIX  
ANGLES 40° AND  
CUTTING ANGLE 20°

HEMISPHERICAL  
SHAPE

SIDE AND CENTER CUT

$l_1$   
2.2xD  
CUTTING EDGE  
LENGTH 2.2xD

$l_3$   
CUTTING LENGTH

FITTING LENGTH  
STANDARD

MATERIAL COMPATIBILITY

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

| Product material compatibility |                          |                              |     |           |
|--------------------------------|--------------------------|------------------------------|-----|-----------|
| CATEGORY                       | MATERIAL                 | SPECIFICATION                | GRP | 21416-4-6 |
| 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   | ●○○ 1/3   |
| 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  | ●○○ 1/3   |
|                                |                          | 600 < Rm N/mm <sup>2</sup>   | 7b  | ●○○ 1/3   |
| 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  | ●●● 3/3   |
|                                |                          | Rm > 850 N/mm <sup>2</sup>   | 9b  | ●●● 3/3   |
| Aluminum                       | Aluminum alloys          | Si < 0.5%                    | 10a | ●●● 3/3   |
|                                |                          | 0.5% < Si < 5%               | 10b | ●●● 3/3   |
|                                |                          | Si > 5%                      | 10c | ○○○ 0/3   |
| Synthetic materials            | Engineering plastics     | Thermoplastic                | 11a | ●●● 3/3   |
|                                |                          | Thermoset                    | 11b | ●●● 3/3   |
| Composite materials            | Reinforced composites    | Glass fiber / GFK            | 12a | ●○○ 1/3   |
|                                |                          | Carbon fiber / KFK           | 12b | ●○○ 1/3   |
| Precious metals                | Gold, platinum, silver   | Gold                         | 13a | ●●● 3/3   |
|                                |                          | Platinum                     | 13b | ○○○ 0/3   |

TECHNICAL DRAWING



DIMENSIONS

| NOMINAL DIMENSIONS |       |
|--------------------|-------|
| D (0 / -0.01)      | 4 mm  |
| d (h5)             | 6 mm  |
| L                  | 57 mm |
| l1                 | 11 mm |
| l3                 | 14 mm |
| d3                 | –     |
| R                  | 2 mm  |
| e                  | –     |
| Z                  | 2     |
| Chamfer K          | –     |
| w° collision angle | 3.3°  |



E-SHOP / EZI CUT  
eskenazi.ch/eshop/21416-4-6