

FRAISE-D'ÉBAUCHE-MD-E2-+-EZI-ALPHA-+L3-POUR-  
MATÉRIAUX-DIFFICILES- · ROUGHING-ENDMILL-SC-E2-+-  
EZI-ALPHA-+L3-FOR-DIFFICULT-MATERIALS · SCHAFT-  
SCHRUPPFRÄSER-HM-E2-+-EZI-ALPHA-+L3-FÜR-HARTE-  
WERKSTOFFE



SWISS MADE

21133A-12

Version 10.09.2026

E2

SUBMICRON GRAIN  
GRADE HIGH-  
SPEED MACHINING  
OF ABRASIVE  
MATERIALS

$\lambda = 50^\circ$   
 $\gamma = -12^\circ$

HELIX ANGLE 50°  
AND CUTTING  
ANGLE -12°

0.05-0.15  
45°

CHAMFER AT 45° /  
HEIGHT 0.05 TO  
0.15 MM

SIDE AND CENTER  
CUT

$l_1$   
1.5xD

CUTTING EDGE  
LENGTH 1.5xD

$l_3$

CUTTING LENGTH

FITTING LENGTH  
STANDARD

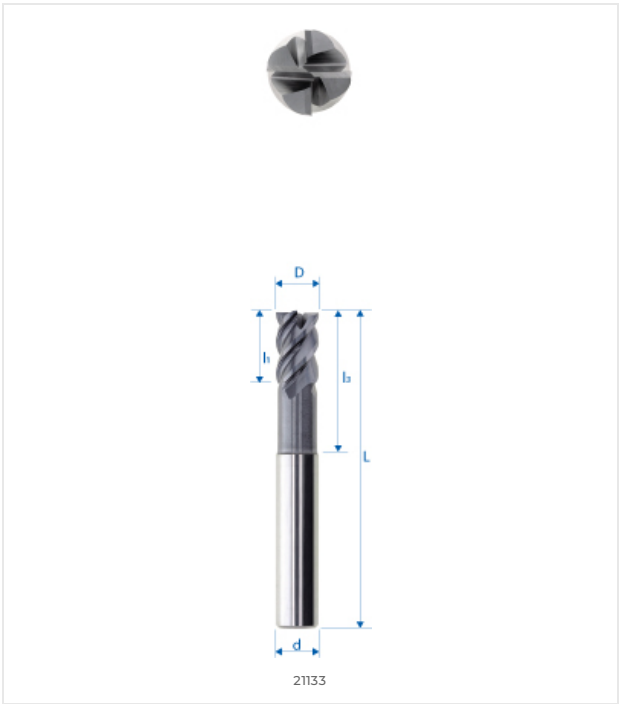
IRREGULAR  
TOOTHING

MATERIAL COMPATIBILITY

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

| Product material compatibility |                          |                    |     |           |
|--------------------------------|--------------------------|--------------------|-----|-----------|
| CATEGORY                       | MATERIAL                 | SPECIFICATION      | GRP | 21133A-12 |
| Alloyed and non-alloyed steels | Non-alloyed steels       | Rm < 450 N/mm²     | 1a  | ○○○ 0/3   |
|                                |                          | Rm 450–700 N/mm²   | 1b  | ○○○ 0/3   |
|                                |                          | Rm 700–900 N/mm²   | 1c  | ●○○ 1/3   |
|                                |                          | Rm > 1200 N/mm²    | 1d  | ●●● 3/3   |
| Stainless steels               | Stainless steels         | Rm < 650 N/mm²     | 2a  | ○○○ 0/3   |
|                                |                          | Rm 650–950 N/mm²   | 2b  | ●○○ 1/3   |
|                                |                          | Rm > 950 N/mm²     | 2c  | ●●○ 2/3   |
| Hardened steels                | Hardened steels          | 44–56 HRC          | 3a  | ●●● 3/3   |
|                                |                          | 57–67 HRC          | 3b  | ●●○ 2/3   |
| Exotic materials               | Special alloys           | < 32 HRC           | 4a  | ●●● 3/3   |
|                                |                          | > 32 HRC           | 4b  | ●●● 3/3   |
| Graphite                       | Industrial graphite      |                    | 5   | ○○○ 0/3   |
| Cast iron                      | Grey / nodular cast iron | < 32 HRC           | 6a  | ●○○ 1/3   |
|                                |                          | > 32 HRC           | 6b  | ●○○ 1/3   |
| Titanium                       | Titanium alloys          | Rm < 600 N/mm²     | 7a  | ●○○ 1/3   |
|                                |                          | 600 < Rm N/mm²     | 7b  | ●○○ 1/3   |
| Nickel alloys                  | Inconel, Hastelloy       | Rm < 1000 N/mm²    | 8a  | ●●● 3/3   |
|                                |                          | Rm > 1000 N/mm²    | 8b  | ●●● 3/3   |
| Copper, brass, bronze          | Copper-based             | Rm < 850 N/mm²     | 9a  | ○○○ 0/3   |
|                                |                          | Rm > 850 N/mm²     | 9b  | ○○○ 0/3   |
| Aluminum                       | Aluminum alloys          | Si < 0.5%          | 10a | ○○○ 0/3   |
|                                |                          | 0.5% < Si < 5%     | 10b | ○○○ 0/3   |
|                                |                          | Si > 5%            | 10c | ○○○ 0/3   |
| Synthetic materials            | Engineering plastics     | Thermoplastic      | 11a | ○○○ 0/3   |
|                                |                          | Thermoset          | 11b | ○○○ 0/3   |
| Composite materials            | Reinforced composites    | Glass fiber / GFK  | 12a | ○○○ 0/3   |
|                                |                          | Carbon fiber / KFK | 12b | ○○○ 0/3   |
| Precious metals                | Gold, platinum, silver   | Gold               | 13a | ○○○ 0/3   |
|                                |                          | Platinum           | 13b | ○○○ 0/3   |

TECHNICAL DRAWING



DIMENSIONS

| NOMINAL DIMENSIONS |       |
|--------------------|-------|
| D (0 / -0.01)      | 12 mm |
| d (h5)             | 12 mm |
| L                  | 83 mm |
| l1                 | 18 mm |
| l3                 | 37 mm |
| d3                 | –     |
| R                  | –     |
| e                  | –     |
| Z                  | 4     |
| Chamfer K          | 0.1   |
| w° collision angle | –     |



E-SHOP / EZI CUT  
[eskenazi.ch/eshop/21133A-12](https://eskenazi.ch/eshop/21133A-12)