# FRAISE D'ÉBAUCHE MD E2 + EZI-ALPHA +L3 POUR ACIERS · ROUGHING ENDMILL SC E2 + EZI-ALPHA +L3 FOR STEEL · SCHAFT-SCHRUPPFRÄSER HM E2 + EZI-ALPHA +L3 FÜR STAHL

TAKE IT EZI

SWISS MADE

**22139A-12** Version 03.11.2026

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| E2 | λ = 48° Y = 0° | 0.05-0.15 45° | | $l_1$ 1.5xD | $l_3$ | | |
| SUBMICRON GRAIN GRADE HIGH-SPEED MACHINING OF ABRASIVE MATERIALS | HELIX ANGLE 48° AND CUTTING ANGLE 0° | CHAMFER AT 45° / HEIGHT 0.05 TO 0.15 MM | SIDE AND CENTER CUT | CUTTING EDGE LENGTH 1.5XD | CUTTING LENGTH | FITTING LENGTH STANDARD | IRREGULAR TOOTHING |

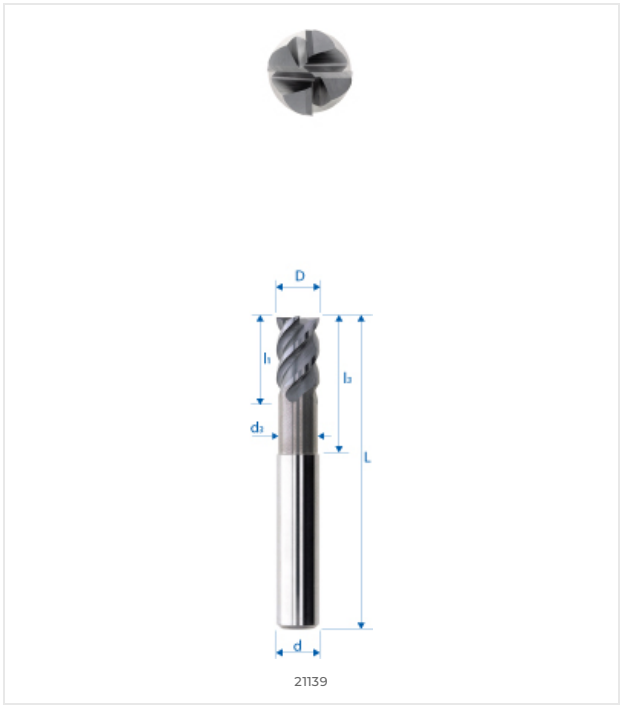
## MATERIAL COMPATIBILITY

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

Product material compatibility

| CATEGORY | MATERIAL | SPECIFICATION | GRP | 22139A-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 | ●●○ 2/3 |
| | **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 | ●●○ 2/3 |
| | | 57–67 HRC | 3b | ●○○ 1/3 |
| | **Exotic materials** Special alloys | < 32 HRC | 4a | ●●○ 2/3 |
| | | > 32 HRC | 4b | ●●○ 2/3 |
| | **Graphite** Industrial graphite | | 5 | ○○○ 0/3 |
| | **Cast iron** Grey / nodular cast iron | < 32 HRC | 6a | ●●● 3/3 |
| | | > 32 HRC | 6b | ●●● 3/3 |
| | **Titanium** Titanium alloys | Rm < 600 N/mm² | 7a | ●●○ 2/3 |
| | | 600 < Rm N/mm² | 7b | ●●○ 2/3 |
| | **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 | ○○○ 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 | ●○○ 1/3 |

## TECHNICAL DRAWING




21139

## DIMENSIONS

| NOMINAL DIMENSIONS | |
|---|---|
| D (h10) | 12 mm |
| d (h6) | 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

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