

# 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

22133A-12

Version 07.05.2026

<b>E2</b> E2 HIGH PRECISION TOOL MATERIAL	$\lambda = 50^\circ$ $\gamma = -12^\circ$ CUTTING ANGLES $750^\circ$ $7-12^\circ$	0.005-0.03 45° 45° CHAMFER TOLERANCE 0.005-0.03	 DUAL DIRECTION HELICAL DRILL BIT	$h_1$ 1.5xD 1.5XD DEPTH PRECISION TOOL	<b>L3</b> THREE-POINT CONTACT TOOL	 STANDARD TOOL WEAR INDICATOR	 ADJUSTABLE ANGLE ICON
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## MATERIAL COMPATIBILITY

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

MATERIAL	SPECIFICATION	GRP	22133A-12
<b>Alloyed and non-alloyed steels</b> Non-alloyed steels	Rm < 450 N/mm <sup>2</sup>	1a	○○○
	Rm 450-700 N/mm <sup>2</sup>	1b	○○○
	Rm 700-900 N/mm <sup>2</sup>	1c	●○○
	Rm > 1200 N/mm <sup>2</sup>	1d	●●●
<b>Stainless steels</b> Stainless steels	Rm < 650 N/mm <sup>2</sup>	2a	○○○
	Rm 650-950 N/mm <sup>2</sup>	2b	●○○
	Rm > 950 N/mm <sup>2</sup>	2c	●●○
<b>Hardened steels</b> Hardened steels	44-56 HRC	3a	●●●
	57-67 HRC	3b	●●○
<b>Exotic materials</b> Special alloys	< 32 HRC	4a	●●●
	> 32 HRC	4b	●●●
<b>Graphite</b> Industrial graphite		5	○○○
<b>Cast iron</b> Grey / nodular cast iron	< 32 HRC	6a	●○○
	> 32 HRC	6b	●○○
<b>Titanium</b> Titanium alloys	Rm < 600 N/mm <sup>2</sup>	7a	●○○
	600 < Rm N/mm <sup>2</sup>	7b	●○○
<b>Nickel alloys</b> Inconel, Hastelloy	Rm < 1000 N/mm <sup>2</sup>	8a	●●●
	Rm > 1000 N/mm <sup>2</sup>	8b	●●●
<b>Copper, brass, bronze</b> Copper-based	Rm < 850 N/mm <sup>2</sup>	9a	○○○
	Rm > 850 N/mm <sup>2</sup>	9b	○○○
<b>Aluminum</b> Aluminum alloys	Si < 0.5%	10a	○○○
	0.5% < Si < 5%	10b	○○○
	Si > 5%	10c	○○○
<b>Synthetic materials</b> Engineering plastics	Thermoplastic	11a	○○○
	Thermoset	11b	○○○
<b>Composite materials</b> Reinforced composites	Glass fiber / GFK	12a	○○○
	Carbon fiber / KFK	12b	○○○
<b>Precious metals</b> Gold, platinum, silver	Gold	13a	○○○
	Platinum	13b	○○○

## 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	-



**E-SHOP / EZI CUT**  
[eskenazi.ch/eshop/22133A-12](https://eskenazi.ch/eshop/22133A-12)