

MICRO-FRAISE Z3 · MICRO-ENDMILL Z3 · MICRO-FRÄSER Z3



21048A-2.5 Version 11.09.2026



E25
UF

ULTRAFINE GRADE HIGH-END GRADE WITH VERY HIGH HARDNESS AND TOUGHNESS FOR MICRO-MACHINING

$\lambda=30^{\circ}-35^{\circ}$
 $\gamma=8^{\circ}$

VARIABLE HELIX ANGLES 30° - 35° AND CUTTING ANGLE 8°

D/40
45°

CHAMFER AT 45° / HEIGHT D/40

SIDE AND CENTER CUT

l_1
1.5xD

CUTTING EDGE LENGTH 1.5xD

l_3
8xD

CUTTING LENGTH 8xD

FITTING LENGTH LONG

IRREGULAR TOOTHING

λ_2
 λ_1

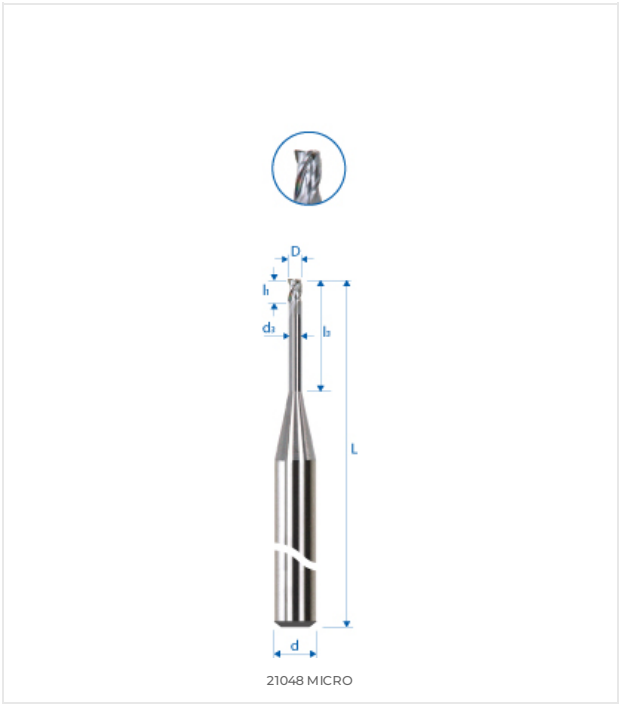
VARIABLE HELIX ANGLES

MATERIAL COMPATIBILITY

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

Product material compatibility				
CATEGORY	MATERIAL	SPECIFICATION	GRP	21048A-2.5
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	●●○ 2/3
		57–67 HRC	3b	●●○ 2/3
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	●●● 3/3
		Rm > 1000 N/mm²	8b	●●● 3/3
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	●●○ 2/3
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	●●○ 2/3
		Platinum	13b	●○○ 1/3

TECHNICAL DRAWING



DIMENSIONS

NOMINAL DIMENSIONS	
D (0 / -0.01)	2.5 mm
d (h5)	3 mm
L	50 mm
l1	3.7 mm
l3	20 mm
d3	–
R	–
e	–
Z	3
Chamfer K	0.063
w° collision angle	0.7°



