

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



21054-2.0 Version 10.09.2026



E25
UF

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

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

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

angle
vif

SHARP EDGE

SIDE AND
CENTER CUT

l_1
 $1.2 \times D$

CUTTING EDGE
LENGTH $1.2 \times D$

l_3
 $12 \times D$

CUTTING
LENGTH $12 \times D$

FITTING LENGTH
EXTRALONG

IRREGULAR
TOOTHING

λ_2
 λ_1

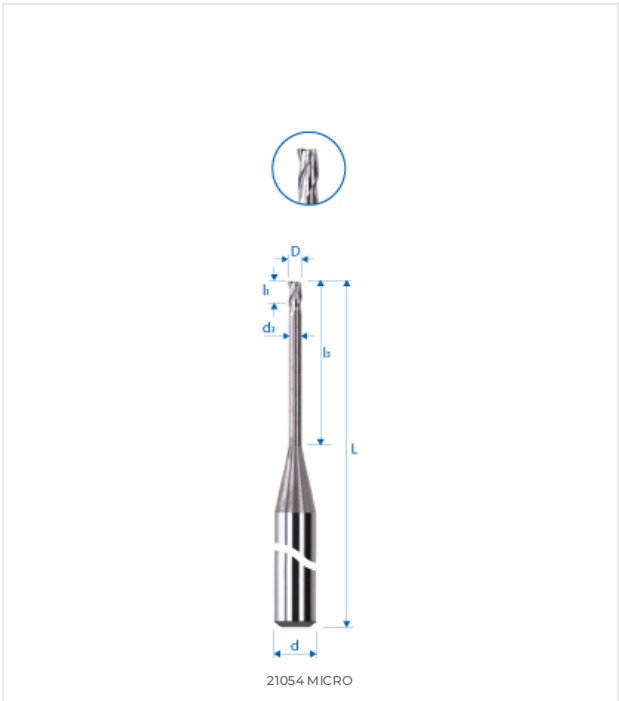
VARIABLE HELIX
ANGLES

MATERIAL COMPATIBILITY

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

Product material compatibility				
CATEGORY	MATERIAL	SPECIFICATION	GRP	21054-2.0
Alloyed and non-alloyed steels Non-alloyed steels		Rm < 450 N/mm ²	1a	●○○ 1/3
		Rm 450–700 N/mm ²	1b	○○○ 0/3
		Rm 700–900 N/mm ²	1c	○○○ 0/3
		Rm > 1200 N/mm ²	1d	○○○ 0/3
Stainless steels Stainless steels		Rm < 650 N/mm ²	2a	○○○ 0/3
		Rm 650–950 N/mm ²	2b	○○○ 0/3
		Rm > 950 N/mm ²	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 ²	7a	●○○ 1/3
		600 < Rm N/mm ²	7b	●○○ 1/3
Nickel alloys Inconel, Hastelloy		Rm < 1000 N/mm ²	8a	○○○ 0/3
		Rm > 1000 N/mm ²	8b	○○○ 0/3
Copper, brass, bronze Copper-based		Rm < 850 N/mm ²	9a	●●● 3/3
		Rm > 850 N/mm ²	9b	●●● 3/3
Aluminum Aluminum alloys		Si < 0.5%	10a	●●○ 2/3
		0.5% < Si < 5%	10b	●●○ 2/3
		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)	2 mm
d (h5)	3 mm
L	50 mm
l1	2.6 mm
l3	24 mm
d3	–
R	–
e	–
Z	3
Chamfer K	–
w° collision angle	1.1°



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