

MICRO-FRAISE · Z3-FINISHING-MICRO-END-MILL-FOR-WATCHMAKING-COMPONENT · Z3-FINISH-MIKROFRÄSER-FÜR-UHRENKOMPONENTE



SWISS MADE

21161T-1 Version 11.09.2026

E25
UF

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

$\lambda=32^{\circ}-38^{\circ}$
 $\gamma=10^{\circ}$

VARIABLE HELIX
ANGLES 32° - 38° AND
CUTTING ANGLE 10°

angle
vif

SHARP EDGE

SIDE AND CENTER CUT

l_1
 $1.5 \times D$

CUTTING EDGE
LENGTH $1.5 \times D$

IRREGULAR TOOTHINGS

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	21161T-1
Alloyed and non-alloyed steels	Non-alloyed steels	Rm < 450 N/mm ²	1a	●●● 3/3
		Rm 450–700 N/mm ²	1b	●●● 3/3
		Rm 700–900 N/mm ²	1c	●●● 3/3
		Rm > 1200 N/mm ²	1d	●●● 3/3
Stainless steels	Stainless steels	Rm < 650 N/mm ²	2a	●●● 3/3
		Rm 650–950 N/mm ²	2b	●●● 3/3
		Rm > 950 N/mm ²	2c	●●● 3/3
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	●●○ 2/3
Cast iron	Grey / nodular cast iron	< 32 HRC	6a	●●○ 2/3
		> 32 HRC	6b	●●○ 2/3
Titanium	Titanium alloys	Rm < 600 N/mm ²	7a	●●● 3/3
		600 < Rm N/mm ²	7b	●●● 3/3
Nickel alloys	Inconel, Hastelloy	Rm < 1000 N/mm ²	8a	●●● 3/3
		Rm > 1000 N/mm ²	8b	●●● 3/3
Copper, brass, bronze	Copper-based	Rm < 850 N/mm ²	9a	●●○ 2/3
		Rm > 850 N/mm ²	9b	●●○ 2/3
Aluminum	Aluminum alloys	Si < 0.5%	10a	●○○ 1/3
		0.5% < Si < 5%	10b	●○○ 1/3
		Si > 5%	10c	●○○ 1/3
Synthetic materials	Engineering plastics	Thermoplastic	11a	○○○ 0/3
		Thermoset	11b	○○○ 0/3
Composite materials	Reinforced composites	Glass fiber / GFK	12a	●●○ 2/3
		Carbon fiber / KFK	12b	●●○ 2/3
Precious metals	Gold, platinum, silver	Gold	13a	●○○ 1/3
		Platinum	13b	●○○ 1/3

TECHNICAL DRAWING



DIMENSIONS

NOMINAL DIMENSIONS	
D (0 / -0.01)	1 mm
d (h5)	3 mm
L	38 mm
l1	1.5 mm
l3	–
d3	–
R	–
e	–
Z	3
Chamfer K	–
w° collision angle	10°





eskenazi.ch/eshop/21161T-1

All rights reserved