

FRAISE Z3 · ENDMILL Z3 · FRÄSER Z3

22302A-13-14 Version 11.09.2026



SWISS MADE

E2

SUBMICRON GRAIN GRADE HIGH-SPEED MACHINING OF ABRASIVE MATERIALS

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

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

$\phi \leq 6$ $\phi > 6$
90° 45°

SHARP EDGE $\phi \leq 6$ AND CHAMFER AT 45° $\phi > 6$

SIDE AND CENTER CUT

h
2.2xD

CUTTING EDGE LENGTH 2.2xD

FITTING LENGTH STANDARD

IRREGULAR TOOthing

$\lambda 2$
 $\lambda 1$

VARIABLE HELIX ANGLES

MATERIAL COMPATIBILITY

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

Product material compatibility				
CATEGORY	MATERIAL	SPECIFICATION	GRP	22302A-13-14
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	○○○ 0/3
		57–67 HRC	3b	○○○ 0/3
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	●●○ 2/3
		> 32 HRC	6b	●●○ 2/3
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	●●○ 2/3
		Rm > 1000 N/mm²	8b	●●○ 2/3
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	●●○ 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)	13 mm
d (h5)	14 mm
L	83 mm
l1	26 mm
l3	–
d3	–
R	–
e	–
Z	3
Chamfer K	–
w° collision angle	1.1°

