INDUSTRIAL-TOOLS
UK Authorised Distributor of Piksan-Toolex

toolex®

END MILL - DRILL - REAMER

Volume 14

Catalogue
Katalog
Catalogue

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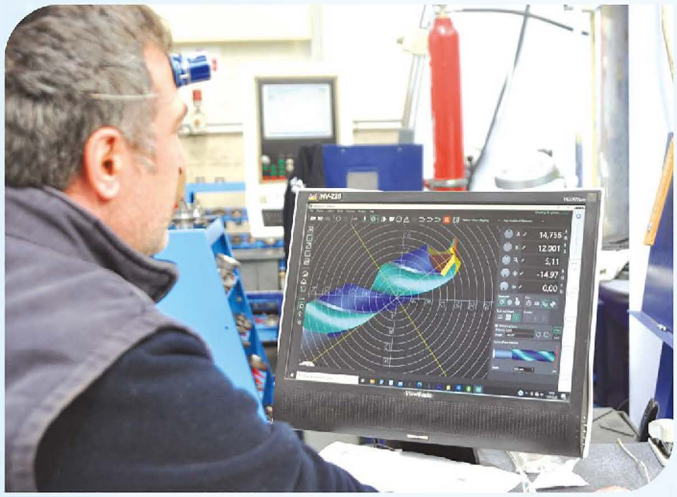
END MILL - DRILL - REAMER

You see the working on solid carbide tools from production with 5 Axis Strausak, Rollomatic , Anca, Schütte CNC sharpening and grinding machines.

Our company has been certified by Bureau Veritas Iso 9001 - 2015 and manufactures solid carbide cutting tools with the brand name of TOOLEX under this certification's rules. Our solid carbide rods are imported from Hartmetall A.G. (Swiss)



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INDUSTRIAL - TOOLS

Type Typ Type Tip	Quality Qualität Qualitè Kalite	Diameter Durchmesser Diamètre Çap	Norm Norm Norme Norm	Flutes Zähne Zahl Dents Diş	Shaft Type Schafttyp Queue Type Şaft Tipi	Cutting Length Schneidlänge Langeur de coupe Kesici Boyu	Helix Angle Drall winkel Angle d' Helice Helis Açısı	Edge Form Stirnform Form de Centre Uç Formu	Coated Beschichtung Revetement Kaplama	Full Length Ganze Lange Tout longueur Tam Boy	Cooland Hole Kühlkanal à Trous d'Huile Su Kanalı
F	**S**	**1000**	**G**	**4**	**C**	**22**	**A**	**01**	**N**	**072**	**C**
F	S	1000	G	1	C	22	A	01	N	072	C
END MILL Fräser Fraises	NG-10	d1	DIN 6528		DIN 6535 HA		30°	0.1x45°	nACo Multilayer		
TYPE	QUALITY	DIAMETER	FLAT	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FLUTE LENGTH	COOLANT HOLE
B	G	0500	R	2	M	40	B	00	A		C
DRILL Bohrer Forets Hèlicoïdaux	NG-07	d1	DIN 6528		TOOLEX		15°		AlTiN Multilayer nano		
TYPE	QUALITY	DIAMETER	BALL NOSE	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED		COOLANT HOLE
R	H	0500	K	3	W	65	R	01	C		C
REAMER Reibahlen Alésoirs	NG-12	d1	TOOLEX		DIN 6535 HB		40°	R	TiCN		
TYPE	QUALITY	DIAMETER	CORNER RADIUS	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CORNER RADIUS	COATED		COOLANT HOLE
S	E	0500	S	4	B		D	50	L		C
SENKER Senker Perçeur	MG-10	d1	TOOLEX		DIN 6535 HB		45°	R	TiAlN		
TYPE	QUALITY	DIAMETER	ROUGH	FLUTES	SHAFT TYPE		HELICAL	RADIUS	COATED		COOLANT HOLE
T		1000	3°	5	E		E	S6	T		
T-END MILL T-Fräser T Slotting Mills		d1	TOOLEX		DIN 6535 HE		55°	140°	TiN		
TYPE		DIAMETER	TAPER	FLUTES	SHAFT TYPE		HELICAL	EDGE FORM	COATED		
N		10HR	X	6	K		F	T3	D		
NC DRILL NC-Bohrer Forets à Pointer			DIN 6539		DIN 6535 HEK		20°	140°	DRYCUT		
TYPE		DIAMETER	DRILL NORM	FLUTES	SHAFT TYPE		HELICAL	EDGE FORM	COATED		
P		10NR	Z	8	R		L	15	S		
CENTER DRILL Zentrierbohrer Mèche à Centre			DIN 338		DIN 1809		7	P	AlCrSiN		
TYPE		DIAMETER	DRILL NORM	FLUTES	SHAFT TYPE		HELICAL	PITCH	COATED		
K		10WR	U	12	S		G				
TAP Gewindebohrer Taraud			DIN 6537K 3 D				0°				
TYPE		DIAMETER	DRILL NORM	FLUTES	SHAFT TYPE		HELICAL				
V		10HF	B		D		S				
THREAD MILLING CUTTER Gevindefräser Fraises À Fileter			5 D				SPECIAL X°				
TYPE		DIAMETER	DRILL NORM		SHAFT TYPE		HELICAL				
I		10NF	Y		N		K				
INNER RADIUS CUTTER Kantenabrundfräser			DIN 6537K 7 D		TOOLEX		CONICAL				
TYPE		DIAMETER	DRILL NORM		SHAFT TYPE		HELICAL				
H		10WF	T				C	H			
COUNTER Kegelsenker Fraises coniques			TOOLEX					35°			
TYPE		DIAMETER	DRILL NORM				HELICAL	HELICAL			

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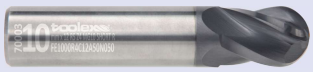
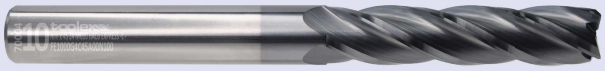
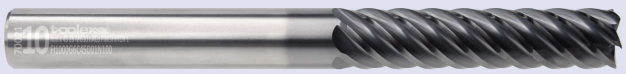
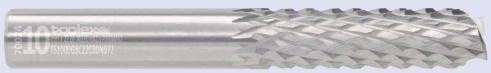
1	Solid carbide end mills VHM - Schaftfräser Fraises en bout carbure ***Karbür Freze***	STANDART			
		DIN 6528	2-3-4	30°	
2	Solid carbide ball nose end mills VHM - Radiusfräser Fraises a rayon carbure ***Karbür Küre Freze***	STANDART R			
		DIN 6528	2-3-4	30°	
3	Solid carbide end mills - Short VHM - Schaftfräser - Kurz Fraises en bout carbure - Court ***Karbür Freze - Kısa***	STANDART SHORT			
		TOOLEX	2-3-4	30°	
4	Solid carbide ball nose end mills - Short VHM - Radiusfräser - Kurz Fraises a rayon carbure - Court ***Karbür Küre Freze - Kısa***	STANDART SHORT R			
		TOOLEX	2-3-4	30°	
5	Solid carbide end mills - Long VHM - Schaftfräser - Lang Fraises en bout carbure - Longue ***Karbür Freze - Uzun***	STANDART LONG			
		TOOLEX	4	30°	
6	Solid carbide ball nose end mills - Long VHM - Radiusfräser - Lang Fraises a rayon carbure - Longue ***Karbür Küre Freze - Uzun***	STANDART LONG R			
		TOOLEX	4	30°	
7	Solid carbide end mills - Wave Fraises en bout carbure - D'onde VHM - Wellenfräse ***Karbür Dalga Freze***	WAVE			
		TOOLEX	4	30°	
8	Solid carbide end mills - Fourex VHM - Fourexfräser Fraises en bout carbure - Fourex ***Karbür Fourex Freze***	FOUREX			
		TOOLEX	4		
9	Solid carbide end mills - Pentex VHM - Schaftfräser - Pentex Fraises en bout carbure - Pentex ***Karbür Freze - Pentex***	PENTEX			
		TOOLEX	5		
10	Solid carbide end mills - Perfex VHM - Schaftfräser - Perfex Fraises en bout carbure - Perfex ***Karbür Freze - Perfex***	PERFEX			
		TOOLEX	3	45°	
11	Solid carbide end mills - Diagonal VHM - Kreuzfräser Fraises en bout - Diagonal ***Karbür Diagonal Freze***	DIAGONAL			
		TOOLEX	4		
12	Solid carbide roughing end mills NF VHM - Schruppfräser NF Fraises d'ebauche carbure NF ***Karbür Kaba Talaş Freze NF***	ROUGH NF			
		DIN 6528	4	30°	
13	Solid carbide roughing end mills NR VHM - Schruppfräser NR Fraises d'ebauche NR ***Karbür Kaba Talaş Freze NR***	ROUGH NR			
		DIN 6528	4	40°	
14	Solid carbide roughing end mills NF VHM - Schruppfräser NF Fraises d'ebauche NF ***Karbür Kaba Talaş Freze NF***	ROUGHEX NF			
		DIN 6528	4	40°	
15	Solid carbide finishing end mills VHM - Schlichtfräser Fraise de finition carbure ***Karbür Çok Ağızlı Freeze***	FINISH			
		DIN 6528	6-8-10	45°	
16	Solid carbide finishing end mills - Inox VHM - Schlichtfräser - Inox Fraise de finition carbure -Inox ***Karbür Çok Ağızlı Freze - Inox***	FINISH INOX			
		TOOLEX	6-8-10	45°	
17	Solid carbide finishing end mills - Hard VHM - Schlichtfräser - Hart Fraise de finition carbure - Dure ***Karbür Çok Ağızlı Freze -Sert***	FINISH HARD			
		TOOLEX	6-8-10	55°	
18	Solid carbide end mills - Pyramid VHM - Schaftfräser - Pyramid Fraises en bout carbure - Pyramid ***Karbür Freze - Pyramid***	PYRAMID			
		TOOLEX	9		

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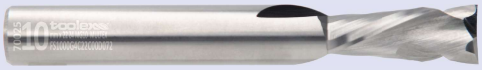
18	Solid carbide end mills - Multex VHM - Schaftfräser - Multex Fraises en bout carbure - Multex ***Karbür Freze - Multex***	MULTEX			
		DIN 6528	2-3-4	30°	
19	Solid carbide end mills - Micro VHM - Schaftfräser - Micro Fraises en bout carbure - Micro ***Karbür Freze - Micro***	MICRO			
		DIN 6528	2-4	30°	
20	Solid carbide end mills - Micro Long VHM - Schaftfräser - Micro Lang Fraises en bout carbure - Micro Longue ***Karbür Freze - Micro Uzun***	MICRO LONG			
		DIN 6528	2-4	30°	
21	Solid carbide ball nose end mills - Micro VHM - Radiusfräser - Micro Fraises a rayon carbure - Micro ***Karbür Küre Freze - Micro***	MICRO BALL NOSE			
		DIN 6528	2	30°	
22	Solid carbide ball nose end mills - Micro Long VHM - Radiusfräser - Micro Lang Fraises a rayon carbure - Micro Longue ***Karbür Küre Freze - Micro Uzun***	MICRO LONG BALL NOSE			
		DIN 6528	2	30°	
23	Solid carbide end mills with corner radius - Micro VHM - Schaftfräser mit Eckenradius - Micro Fraises toriques carbure - Micro ***Karbür Köşe Radyüslü Freze -Micro***	MICRO CORNER - R			
		TOOLEX	2	30°	
24	Solid carbide end mills with corner radius - Micro Long VHM - Schaftfräser mit Eckenradius - Micro Lang Fraises toriques carbure - Micro Longue ***Karbür Köşe Radyüslü Freze -Micro Uzun***	MICRO LONG CORNER - R			
		TOOLEX	2	30°	
25	Solid carbide end mills - Mini VHM - Schaftfräser - Mini Fraises en bout carbure - Mini ***Karbür Freze - Mini***	MINI			
		DIN 6528	2-4	30°	
26	Solid carbide end mills - Mini Long VHM - Schaftfräser - Mini Lang Fraises en bout carbure - Mini Longue ***Karbür Freze - Mini Uzun***	MINI LONG			
		DIN 6528	2-4	30°	
27	Solid carbide ball nose end mills - Mini VHM - Radiusfräser - Mini Fraises a rayon carbure - Mini ***Karbür Küre Freze - Mini***	MINI BALL NOSE			
		DIN 6528	2	30°	
28	Solid carbide ball nose end mills - Mini Long VHM - Radiusfräser - Mini Lang Fraises a rayon carbure - Mini Longue ***Karbür Küre Freze - Mini Uzun***	MINI LONG BALL NOSE			
		DIN 6528	2	30°	
29	Solid carbide end mills with corner radius - Mini VHM - Schaftfräser mit Eckenradius - Mini Fraises toriques carbure - Mini ***Karbür Köşe Radyüslü Freze - Mini***	MINI CORNER - R			
		TOOLEX	2	30°	
30	Solid carbide end mills with corner radius - Mini Long VHM - Schaftfräser mit Eckenradius - Mini Lang Fraises toriques carbure - Mini Longue ***Karbür Köşe Radyüslü Freze - Mini Uzun***	MINI LONG CORNER - R			
		TOOLEX	2	30°	
31	Solid carbide end mills - Midi VHM - Schaftfräser - Midi Fraises en bout carbure - Midi ***Karbür Freze - Midi***	MIDI			
		DIN 6528	2	30°	
32	Solid carbide end mills - Midi Long VHM - Schaftfräser - Midi Lang Fraises en bout carbure - Midi Longue ***Karbür Freze - Midi Uzun***	MIDI LONG			
		DIN 6528	2	30°	
33	Solid carbide ball nose end mills - Midi VHM - Radiusfräser - Midi Fraises a rayon carbure - Midi ***Karbür Küre Freze - Midi***	MIDI BALL NOSE			
		DIN 6528	2	30°	
34	Solid carbide ball nose end mills - Midi Long VHM - Radiusfräser - Midi Lang Fraises arayon carbure - Midi Longue ***Karbür Küre Freze - Midi Uzun***	MIDI LONG BALL NOSE			
		DIN 6528	2	30°	
35	Solid carbide end mills with corner radius - Midi VHM - Schaftfräser mit Eckenradius - Midi Fraises toriques carbure - Midi ***Karbür Köşe Radyüslü Freze - Midi***	MIDI CORNER - R			
		TOOLEX	2-4	30°	

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36	Solid carbide end mills with corner radius - Midi Long VHM - Schaftfräser mit Eckenradius - Midi Lang Fraises toriques carbure - Midi Longue ***Karbür Köşe Radyüslü Freze - Midi Uzun***	MIDI LONG CORNER - R TOOLEX	2-4	30°	
37	Solid carbide end mills - Alu Mini VHM - Schaftfräser - Alu Mini Fraises en bout carbure - Alu Mini ***Karbür Freze - Alu Mini***	ALU MINI DIN 6528	2-4	30°	
38	Solid carbide end mills - Alu Mini Long VHM - Schaftfräser - Alu Mini Lang Fraises en bout carbure - Alu Mini Longue ***Karbür Freze - Alu Mini Uzun***	ALU MINI LONG DIN 6528	2-4	30°	
39	Solid carbide ball nose end mills - Alu Mini VHM - Radiusfräser - Alu Mini Fraises a rayon carbure - Alu Mini ***Karbür Küre Freze - Alu Mini***	ALU MINI BALL NOSE DIN 6528	2	30°	
40	Solid carbide ball nose end mills - Alu Mini Long VHM - Radiusfräser - Alu Mini Lang Fraises a rayon carbure - Alu Mini Longue ***Karbür Küre Freze - Alu Mini Uzun***	ALU MINI LONG BALL NOSE DIN 6528	2	30°	
41	Solid carbide end mills with corner radius - Alu Mini VHM - Schaftfräser mit Eckenradius - Alu Mini Fraises toriques carbure - Alu Mini ***Karbür Köşe Radyüslü Freze - Alu Mini***	ALU MINI CORNER - R TOOLEX	2-4	30°	
42	Solid carbide end mills with corner radius - Alu Mini Long VHM - Schaftfräser mit Eckenradius - Alu Mini Lang Fraises toriques carbure - Alu Mini Longue ***Karbür Köşe Radyüslü Freze - Alu Mini Uzun***	ALU MINI LONG CORNER - R TOOLEX	2-4	30°	
43	Solid carbide end mills - Mini Hard VHM - Schaftfräser - Mini Hart Fraises en bout carbure - Mini Dure ***Karbür Freze - Mini Sert***	HARD MINI DIN 6528	2-4	30°	
44	Solid carbide end mills - Mini Hard Long VHM - Schaftfräser - Mini Hart Lang Fraises en bout carbure - Mini Dure Longue ***Karbür Freze - Mini Sert Uzun***	HARD MINI LONG DIN 6528	2-4	30°	
45	Solid carbide ball nose end mills - Mini Hard VHM - Radiusfräser - Mini Hart Fraises a rayon carbure - Mini Dure ***Karbür Küre Freze - Mini Sert***	HARD MINI BALL NOSE DIN 6528	2	30°	
46	Solid carbide ball nose end mills - Mini Hard Long VHM - Radiusfräser - Mini Hart Lang Fraises a rayon carbure - Mini Dure Longue ***Karbür Küre Freze - Mini Sert Uzun***	HARD MINI LONG BALL NOSE DIN 6528	2	30°	
47	Solid carbide end mills with corner radius - Mini Hard VHM - Schaftfräser mit Eckenradius - Mini Hart Fraises toriques carbure - Mini Dure ***Karbür Köşe Radyüslü Freze - Mini Sert***	HARD MINI CORNER - R TOOLEX	2-4	30°	
48	Solid carbide end mills with corner radius - Mini Hard Long VHM - Schaftfräser mit Eckenradius - Mini Hart Lang Fraises toriques carbure - Mini Dure Longue ***Karbür Köşe Radyüslü Freze - Mini Sert Uzun***	HARD MINI LONG CORNER - R TOOLEX	2-4	30°	
49	Solid carbide ball nose end mills - Ballcut 270° VHM - Radiusfräser - Ballcut 270° Fraises a rayon carbure - Ballcut 270° ***Karbür Küre Freze - Ballcut 270°***	BALL CUT 270° DIN 6528	2	30°	
50	Solid carbide end mills with corner radius - High speed Torus VHM - Schaftfräser mit Eckenradius - High speed Torus Fraises toriques carbure - High speed Torus ***Karbür Köşe Radyüslü Freze - High speed Torus***	TORUS TOOLEX	4	0°	
51	Solid carbide end mills with corner radius VHM - Schaftfräser mit Eckenradius Fraises toriques carbure ***Karbür Köşe Radyüslü Freze***	CORNER - R TOOLEX	4	30°	
52	Solid carbide end mills with corner radius - Long VHM - Schaftfräser mit Eckenradius - Lang Fraises toriques carbure - Longue ***Karbür Köşe Radyüslü Freze - Uzun***	LONG CORNER - R TOOLEX	4	30°	
53	Solid carbide end mills - Moldex VHM - Schaftfräser - Moldex Fraises en bout carbure - Moldex ***Karbür Freze - Moldex***	MOLDEX TOOLEX	4	35°	

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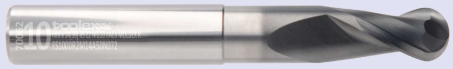
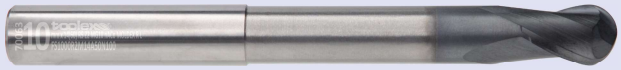
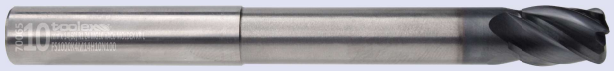
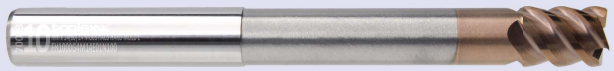
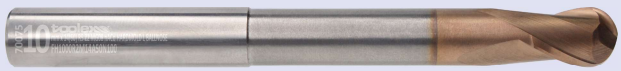
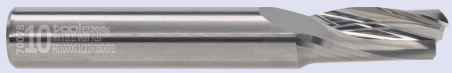
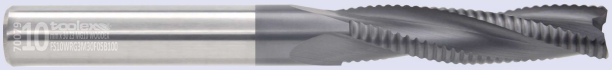
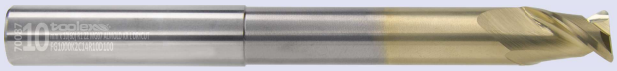
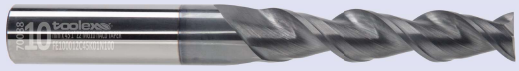
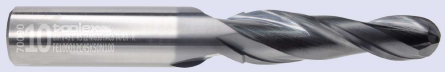
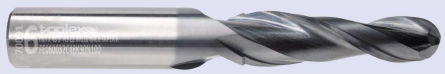
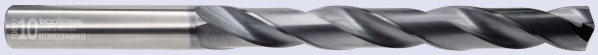
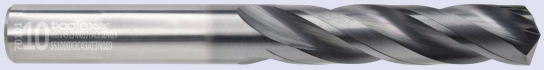
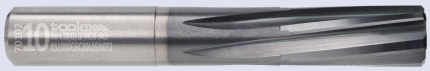
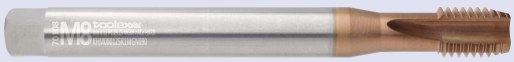
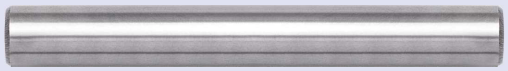
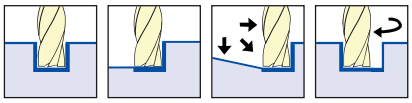
54	Solid carbide end mills - Moldex Long VHM - Schaftfräser - Moldex Lang Fraises en bout carbure - Moldex Longue ***Karbür Freze - Moldex Uzun***	MOLDEX LONG TOOLEX	4	35°	
55	Solid carbide ball nose end mills - Moldex VHM - Radiusfräser - Moldex Fraises a rayon carbure - Moldex ***Karbür Küre Freze - Moldex***	MOLDEX BALL NOSE DIN 6528	2	30°	
56	Solid carbide ball nose end mills - Moldex Long VHM - Radiusfräser - Moldex Lang Fraises a rayon carbure - Moldex Longue ***Karbür Küre Freze - Moldex Uzun***	MOLDEX LONG BALL NOSE TOOLEX	2	30°	
57	Solid carbide end mills with corner radius - Moldex VHM - Schaftfräser mit Eckenradius - Moldex Fraises toriques carbure - Moldex ***Karbür Köşe Radyüslü Freze - Moldex***	MOLDEX CORNER - R TOOLEX	4	35°	
58	Solid carbide end mills with corner radius - Moldex Long VHM - Schaftfräser mit Eckenradius - Moldex Lang Fraises toriques carbure - Moldex Longue ***Karbür Köşe Radyüslü Freze - Moldex Uzun***	MOLDEX LONG CORNER - R TOOLEX	4	35°	
59	Solid carbide ball nose end mills - Performance Long VHM - Radiusfräser - Performance Lang Fraises a rayon carbure - Performance longue ***Karbür Küre Freze - Performance Uzun***	POWER - R BALL NOSE TOOLEX	2	30°	
60	Solid carbide ball nose end mills - Long VHM - Radiusfräser - Lange Fraises a rayon carbure - Longue ***Karbür Küre Freze - Uzun***	BALL NOSE TOOLEX	2	30°	
61	Solid carbide ball nose end mills - Performance Long Hard VHM - Radiusfräser - Performance Lang Hart Fraises a rayon carbure - Performance longue Dure ***Karbür Küre Freze - Performance Uzun Sert***	POWER - R HARD BALL NOSE TOOLEX	2	30°	
62	Solid carbide ball nose end mills - Long Hard VHM - Radiusfräser - Lange Hart Fraises a rayon carbure - Longue Dure ***Karbür Küre Freze - Uzun Sert***	HARD BALL NOSE TOOLEX	2	30°	
63	Solid carbide end mills - Hard VHM - Schaftfräser - Hart Fraises en bout carbure - Dure ***Karbür Freze - Sert***	HARD DIN 6528	4	55°	
64	Solid carbide ball nose end mills - Hard VHM - Radiusfräser - Hart Fraises a rayon carbure - Dure ***Karbür Küre Freze - Sert***	HARD BALL NOSE DIN 6528	4	30°	
65	Solid carbide end mills - Hard Mold VHM - Schaftfräser - Hart Mold Fraises en bout carbure - Dure Mold ***Karbür Freze - Sert Mold***	HARDMOLD TOOLEX	4	55°	
66	Solid carbide end mills - Hard Mold Long VHM - Schaftfräser - Hart Mold Lang Fraises en bout carbure - Dure Mold Longue ***Karbür Freze -Sert Mold Uzun***	HARDMOLD LONG TOOLEX	4	55°	
67	Solid carbide ball nose end mills - Hard Mold VHM - Radiusfräser - Hart Mold Fraises a rayon carbure - Dure Mold ***Karbür Küre Freze - Sert Mold***	HARDMOLD BALL NOSE TOOLEX	2	30°	
68	Solid carbide ball nose end mills - Hard Mold Long VHM - Radiusfräser - Hart Mold Lang Fraises a rayon carbure - Dure Mold Longue ***Karbür Küre Freze - Sert Mold Uzun***	HARDMOLD LONG BALL NOSE TOOLEX	2	30°	
69	Solid carbide end mills with corner radius - Hard Mold VHM - Schaftfräser mit Eckenradius - Hart Mold Fraises toriques carbure - Dure Mold ***Karbür Köşe Radyüslü Freze - Sert Mold***	HARDMOLD CORNER - R TOOLEX	4	55°	
70	Solid carbide end mills with corner radius - Hard Mold Long VHM - Schaftfräser mit Eckenradius - Hart Mold Lang Fraises toriques carbure - Dure Mold Longue ***Karbür Köşe Radyüslü Freze - Sert Mold Uzun***	HARDMOLD LONG CORNER - R TOOLEX	4	55°	
71	Solid carbide end mills - Alu Z1 VHM - Schaftfräser - Alu Z1 Fraises en bout carbure - Alu Z1 ***Karbür Freze - Alu Z1***	ALU TOOLEX	1	40°	

INDEX / INHALT / SOMMAIRE / İNDEKS

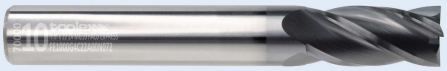
PAGE SEITE PAGE SAYFA	DESCRIPTION / BESCHREIBUNG DESCRIBTION / AÇIKLAMA	NORM NORM NORME NORM	FLUTES ZÄHNE DENTS DİŞ	HELIX ANGE DRALL WINKEL HELICÉ HELİS AÇISI	PRODUCT / PRODUKT / PRODUCTION / ÜRÜN
72	Solid carbide end mills - Flex Z1 VHM - Schaftfräser - Flex Z1 Fraises en bout carbure - Flex Z1 ***Karbür Freze - Flex Z1***	FLEX			
		TOOLEX	1	25°	
73	Solid carbide roughing end mills for wood - Woodex VHM - Schruppfräser für Holz - Woodex Fraises d'ebauche en bout carbure pour bois - Woodex ***Karbür Ağac Freze - Woodex***	WOODEX			
		TOOLEX	3	20°	
73	Solid carbide Wood end mills -Wood VHM - Schaftfräser für Holz -Wood Fraises en bout carbure pour bois -Wood ***Karbür Ağac Freze -Wood***	WOOD			
		TOOLEX	2	20°	
74	Solid carbide end mills - Alu VHM - Schaftfräser - Alu Fraises en bout carbure - Alu ***Karbür Freze - Alu***	ALU			
		TOOLEX	2	40°	
75	Solid carbide end mills - Almold VHM - Schaftfräser - Almold Fraises en bout carbure - Almold ***Karbür Freze - Almold***	ALMOLD			
		DIN 6528	2	40°	
76	Solid carbide end mills - Almold long VHM - Schaftfräser - Almold Lang Fraises en bout carbure - Almold Longue ***Karbür Freze - Almold Uzun***	ALMOLD LONG			
		TOOLEX	2	40°	
77	Solid carbide ball nose end mills - Almold VHM - Radiusfräser - Almold Fraises a rayon carbure - Almold ***Karbür Küre Freze - Almold***	ALMOLD BALL NOSE			
		DIN 6528	2	30°	
78	Solid carbide ball nose end mills - Almold Long VHM - Radiusfräser - Almold Lang Fraises a rayon carbure - Almold Longue ***Karbür Küre Freze - Almold Uzun***	ALMOLD LONG BALL NOSE			
		TOOLEX	2-4	40°	
79	Solid carbide end mills with corner radius - Almold VHM - Schaftfräser mit Eckenradius - Almold Fraises toriques carbure - Almold ***Karbür Köşe Radyüslü Freze - Almold***	ALMOLD CORNER - R			
		TOOLEX	2-4	40°	
80	Solid carbide end mills with corner radius - Almold Long VHM - Schaftfräser mit Eckenradius - Almold Lang Fraises toriques carbure - Almold Longue ***Karbür Köşe Radyüslü Freze - Almold Uzun***	ALMOLD LONG CORNER - R			
		TOOLEX	2	40°	
81	Solid carbide conical end millls - Taper VHM - Konischer Schaftfräser - Taper Fraises Cônique en bout carbure - Taper ***Karbür Konik Freze - Taper***	TAPER			
		TOOLEX	2	45°	
82	Solid carbide conical end millls - Taper VHM - Konischer Schaftfräser - Taper Fraises Cônique en bout carbure - Taper ***Karbür Konik Freze - Taper***	TAPER			
		TOOLEX	2	45°	
83	Solid carbide conical ball nose end millls - Taper VHM - Konischer Radiusfräser - Taper Fraises Cônique a rayon carbure - Taper ***Karbür Konik Küre Freze - Taper***	TAPER BALL NOSE			
		TOOLEX	2	45°	
84	Solid carbide conical ball nose end millls - Taper VHM - Konischer Radiusfräser - Taper Fraises Cônique a rayon carbure - Taper ***Karbür Konik Küre Freze - Taper***	TAPER BALL NOSE			
		TOOLEX	2	45°	
85	Solid carbide Center drills VHM - Zentrierbohrer Mèche a Centrer carbure ***Karbür Punta Matkab***	CENTER			
		TOOLEX	2	20°	
86	Solid carbide pantograph VHM - Pantograph Forets a pantographe ***Karbür Pantograf***	PANTOGRAF			
		TOOLEX	1	0°	
87	Solid carbide NCEX drills VHM - NCEX Bohrer Forets a pointer NCEX ***Karbür NCEX Matkap***	NCEX			
		TOOLEX	1	20°	
88	Solid carbide NC drills VHM - NC Bohrer Forets a pointer NC ***Karbür NC Matkap***	NC			
		TOOLEX	2	20°	

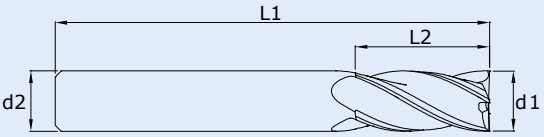
PAGE SEITE PAGE SAYFA	DESCRIPTION / BESCHREIBUNG DESCRIBTION / AÇIKLAMA	NORM NORM NORME NORM	FLUTES ZÄHNE DENTS DİŞ	HELIX ANGE DRALL WINKEL HELICE HELİS AÇISI	PRODUCT / PRODUKT / PRODUCTION / ÜRÜN
89	Solid carbide drills VHM - Bohrer Forets Hélicoïdaux ***Karbür Matkap***	DRILL X			
		TOOLEX	2	30°	
90	Solid carbide drills Long VHM - Bohrer Lang Forets Hélicoïdaux Longue ***Karbür Matkap Uzun***	DRILL Z			
		TOOLEX	2	30°	
91	Solid carbide 3D drills VHM - 3D Bohrer Forets Hélicoïdaux 3D en carbure ***Karbür 3D Matkap***	DRILL 3D			
		TOOLEX	2	30°	
92	Solid carbide 5D drills VHM - 5D Bohrer Forets Hélicoïdaux 5D en carbure ***Karbür 5D Matkap***	DRILL 5D			
		TOOLEX	2	30°	
93	Solid carbide 7D drills VHM - 7D Bohrer Forets Hélicoïdaux 7D en carbure ***Karbür 7D Matkap***	DRILL 7D			
		TOOLEX	2	30°	
94	Solid carbide Senker VHM - Senker Perçeur en carbure ***Karbür Senker***	SENKER			
		TOOLEX	3	30°	
95	Solid carbide reamer VHM - Reibahlen Alésoirs en carbure ***Karbür Rayba***	REAMER			
		TOOLEX	4-6-8	7°	
96	Solid carbide reamer - Long VHM - Reibahlen - Lang Alésoirs en carbure - Longue ***Karbür Rayba - Uzun***	REAMER LONG			
		TOOLEX	4-6-8	7°	
97	Solid carbide countersinker VHM - Kegelsenker Fraises Coniques en carbure ***Karbür Havşa Freze***	CHAMFER			
		TOOLEX	3	0°	
97	Solid carbide corner rounding cutters VHM - Viertelkreisfräser Fraises au quart de cercle en carbure ***Karbür Dış Köşe Freze***	INNER R			
		TOOLEX	4	0°	
98	Solid carbide T Slotting End mills VHM - T - Fräser Fraises "T" en carbure ***Karbür T Freze***	T			
		TOOLEX	6-10-12	0°	
99	Solid carbide Taps - Alu VHM - Gewindebohrer - Alu Taraud en carbure - Alu ***Karbür Kılavuz - Alu***	TAP ALU			
		TOOLEX	3	20°	
99	Solid carbide Taps - Hard VHM - Gewindebohrer - Hart Taraud en carbure - Dure ***Karbür Kılavuz - Sert***	TAP HARD			
		TOOLEX	3	20°	
100	Solid Carbide Thread Milling Cutters VHM - Gewindefräser Fraises À Fileter ***Karbür Vida Freze***	THREAD			
		TOOLEX	3	20°	
100	Solid Carbide Rods Hartmetall - Rundstäbe Tiges de Carbure ***Karbür Çubuk***				
		HART METAL			

EXPRESS <52 HRC



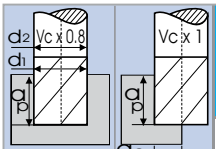
Solid carbide end mills
VHM - Schaftfräser
Fraises en bout carbure
Karbür Freze



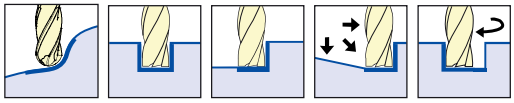


F	E	1000	G	4	C	22	A	00	N	072
END MILL	MG-10	d1	DIN 6528		DIN 6535 HA		30°		nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

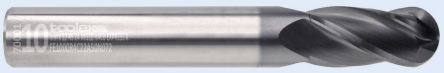
d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Coated Code
2	6	40	2-3	2-3-4	FE0200G4C06A00B040	FE0200G4C06A00N040
3	8	40	3	2-3-4	FE0300G4C08A00B040	FE0300G4C08A00N040
4	11	50	4	2-3-4	FE0400G4C11A00B050	FE0400G4C11A00N050
5	13	50	5	2-3-4	FE0500G4C13A00B050	FE0500G4C13A00N050
6	13	57	6	2-3-4	FE0600G4C13A00B057	FE0600G4C13A00N057
7	16	60	7	2-3-4	FE0700G4C16A00B060	FE0700G4C16A00N060
8	19	63	8	2-3-4	FE0800G4C19A00B063	FE0800G4C19A00N063
9	19	67	9	2-3-4	FE0900G4C19A00B067	FE0900G4C19A00N067
10	22	72	10	2-3-4	FE1000G4C22A00B072	FE1000G4C22A00N072
11	26	83	11	2-3-4	FE1100G4C26A00B083	FE1100G4C26A00N083
12	26	83	12	2-3-4	FE1200G4C26A00B083	FE1200G4C26A00N083
13	26	83	13	2-3-4	FE1300G4C26A00B083	FE1300G4C26A00N083
14	26	83	14	2-3-4	FE1400G4C26A00B083	FE1400G4C26A00N083
15	32	92	15	2-3-4	FE1500G4C32A00B092	FE1500G4C32A00N092
16	32	92	16	2-3-4	FE1600G4C32A00B092	FE1600G4C32A00N092
18	32	92	18	2-3-4	FE1800G4C32A00B092	FE1800G4C32A00N092
20	38	104	20	2-3-4	FE2000G4C38A00B104	FE2000G4C38A00N104
22	38	104	22	2-3-4	FE2200G4C38A00B104	FE2200G4C38A00N104
24	40	110	24	2-3-4	FE2400G4C40A00B110	FE2400G4C40A00N110
25	40	110	25	2-3-4	FE2500G4C40A00B110	FE2500G4C40A00N110

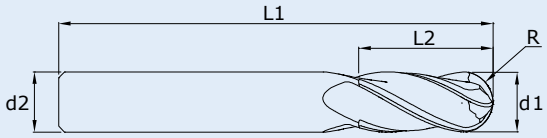


			HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
			1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
			Vc=100 m/dk.			Vc=75 m/dk.			Vc=55 m/dk.			Vc=120 m/dk.			Vc=300 m/dk.			Vc=190 m/dk.			Vc=50 m/dk.			Vc=50 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
2	1.0	1.0	0.012	15925	190XZ	0.014	11942	170xZ	0.013	8757	115xZ	0.031	19107	590xZ	0.023	47770	1100xZ	0.026	30255	785xZ	0,008	7960	65 xZ	0,007	7960	55xZ
3	1.5	1.5	0.018	10616	190xZ	0.021	7962	170xZ	0.020	5838	115xZ	0.046	12738	590xZ	0.035	31846	1100xZ	0.039	20170	785xZ	0,012	5306	65 xZ	0,010	5306	55xZ
4	2.0	2.0	0.024	7962	190xZ	0.028	5971	170xZ	0.026	4379	115xZ	0.062	9554	590xZ	0.046	23885	1100xZ	0.052	15127	785xZ	0,016	3980	65 xZ	0,014	3980	55xZ
5	2.5	2.5	0.030	6370	190xZ	0.036	4777	170xZ	0.033	3503	115xZ	0.077	7643	590xZ	0.058	19108	1100xZ	0.065	12102	785xZ	0,020	3184	65 xZ	0,017	3184	55xZ
6	3.0	3.0	0.036	5308	190xZ	0.043	3980	170xZ	0.039	2919	115xZ	0.093	6369	590xZ	0.069	15923	1100xZ	0.078	10085	785xZ	0,025	2653	65 xZ	0,020	2653	55xZ
8	4.0	4.0	0.048	3981	190xZ	0.057	2985	170xZ	0.053	2189	115xZ	0.123	4777	590xZ	0.092	11942	1100xZ	0.104	7564	785xZ	0,033	1990	65 xZ	0,028	1990	55xZ
10	5.0	5.0	0.060	3185	190xZ	0.071	2388	170xZ	0.066	1751	115xZ	0.154	3821	590xZ	0.115	9554	1100xZ	0.130	6051	785xZ	0,041	1592	65 xZ	0,035	1592	55xZ
12	6.0	6.0	0.072	2654	190xZ	0.085	1990	170xZ	0.079	1460	115xZ	0.185	3185	590xZ	0.138	7962	1100xZ	0.156	5042	785xZ	0,049	1327	65 xZ	0,041	1327	55xZ
14	7.0	7.0	0.083	2275	190xZ	0.100	1706	170xZ	0.092	1251	115xZ	0.216	2730	590xZ	0.161	6824	1100xZ	0.182	4322	785xZ	0,057	1137	65 xZ	0,048	1137	55xZ
16	8.0	8.0	0.095	1990	190xZ	0.114	1493	170xZ	0.105	1095	115xZ	0.247	2388	590xZ	0.184	5971	1100xZ	0.207	3782	785xZ	0,065	995	65 xZ	0,055	995	55xZ
18	9.0	9.0	0.108	1760	190xZ	0.118	1327	170xZ	0.118	973	115xZ	0.278	2123	590xZ	0.207	5308	1100xZ	0.233	3362	785xZ	0,073	885	65 xZ	0,062	885	55xZ
20	10.0	10.0	0.119	1592	190xZ	0.131	1194	170xZ	0.131	875	115xZ	0.309	1910	590xZ	0.230	4777	1100xZ	0.260	3025	785xZ	0,082	796	65 xZ	0,069	796	55xZ
25	12.5	12.5	0.149	1274	190xZ	0.164	955	170xZ	0.164	700	115xZ	0.386	1528	590xZ	0.288	3822	1100xZ	0.324	2420	785xZ	0,102	637	65 xZ	0,086	637	55xZ



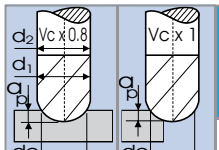
Solid carbide ball nose end mills
VHM - Radiusfräser
Fraises a rayon carbure
Karbür Küre Freze



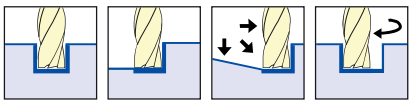


F	E	1000	R	4	C	22	A	50	N	072
END MILL	MG-10	d1	DIN 6528		DIN 6535 HA		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

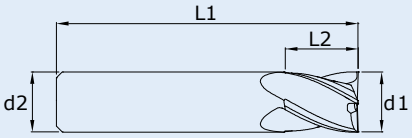
d1(e8)	L2	L1	d2(h6)	Z	R	Uncoated Code	Coated Code
2	6	40	3	2-3-4	1	FE0200R4C06A10B040	FE0200R4C06A10N040
3	8	40	3	2-3-4	1,5	FE0300R4C08A15B040	FE0300R4C08A15N040
4	11	50	4	2-3-4	2	FE0400R4C11A20B050	FE0400R4C11A20N050
5	13	50	5	2-3-4	2,5	FE0500R4C13A25B050	FE0500R4C13A25N050
6	13	57	6	2-3-4	3	FE0600R4C13A30B057	FE0600R4C13A30N057
7	16	60	7	2-3-4	3,5	FE0700R4C16A35B060	FE0700R4C16A35N060
8	19	63	8	2-3-4	4	FE0800R4C19A40B063	FE0800R4C19A40N063
9	19	67	9	2-3-4	4,5	FE0900R4C19A45B067	FE0900R4C19A45N067
10	22	72	10	2-3-4	5	FE1000R4C22A50B072	FE1000R4C22A50N072
11	26	83	11	2-3-4	5,5	FE1100R4C26A55B083	FE1100R4C26A55N083
12	26	83	12	2-3-4	6	FE1200R4C26A60B083	FE1200R4C26A60N083
13	26	83	13	2-3-4	6,5	FE1300R4C26A65B083	FE1300R4C26A65N083
14	26	83	14	2-3-4	7	FE1400R4C26A70B083	FE1400R4C26A70N083
15	32	92	15	2-3-4	7,5	FE1500R4C32A75B092	FE1500R4C32A75N092
16	32	92	16	2-3-4	8	FE1600R4C32A80B092	FE1600R4C32A80N092
18	32	92	18	2-3-4	9	FE1800R4C32A90B092	FE1800R4C32A90N092
20	38	104	20	2-3-4	10	FE2000R4C38A10B104	FE2000R4C38A10N104
22	38	104	22	2-3-4	11	FE2200R4C38A11B104	FE2200R4C38A11N104
24	40	110	24	2-3-4	12	FE2400R4C40A12B110	FE2400R4C40A12N110
25	40	110	25	2-3-4	12,5	FE2500R4C40A13B110	FE2500R4C40A13N110



				HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
				1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
				Vc=110 m/dk.			Vc=80 m/dk.			Vc=60 m/dk.			Vc=130 m/dk.			Vc=320 m/dk.			Vc=200 m/dk.			Vc=50 m/dk.			Vc=50 m/dk.		
d1	de	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
2	2	1.0	1.0	0.012	17500	210xZ	0.015	12740	190xZ	0.0013	9554	125xZ	0.030	20700	620xZ	0.022	50950	1120xZ	0.025	31850	800xZ	0.008	7960	65xZ	0.007	7960	55xZ
3	3	1.5	1.5	0.018	11666	210xZ	0.022	8492	190xZ	0.020	6369	125xZ	0.045	13800	620xZ	0.033	33966	1120xZ	0.038	21233	800xZ	0.012	5306	65xZ	0.010	5306	55xZ
4	4	2.0	2.0	0.024	8750	210xZ	0.030	6370	190xZ	0.026	4777	125xZ	0.060	10350	620xZ	0.044	25475	1120xZ	0.050	15925	800xZ	0.016	3980	65xZ	0.014	3980	55xZ
5	5	2.5	2.5	0.030	7000	210xZ	0.037	5100	190xZ	0.033	3822	125xZ	0.075	8280	620xZ	0.055	20380	1120xZ	0.063	12740	800xZ	0.020	3184	65xZ	0.017	3184	55xZ
6	6	3.0	3.0	0.036	5833	210xZ	0.045	4250	190xZ	0.039	3185	125xZ	0.090	6900	620xZ	0.066	16983	1120xZ	0.075	10616	800xZ	0.025	2653	65xZ	0.020	2653	55xZ
8	8	4.0	4.0	0.048	4375	210xZ	0.060	3185	190xZ	0.052	2389	125xZ	0.122	5175	620xZ	0.077	12737	1120xZ	0.100	7962	800xZ	0.033	1990	65xZ	0.028	1990	55xZ
10	10	5.0	5.0	0.060	3500	210xZ	0.075	2550	190xZ	0.065	1911	125xZ	0.150	4140	620xZ	0.088	10190	1120xZ	0.126	6370	800xZ	0.041	1592	65xZ	0.035	1592	55xZ
12	12	6.0	6.0	0.072	2916	210xZ	0.089	2123	190xZ	0.078	1592	125xZ	0.180	3450	620xZ	0.132	8492	1120xZ	0.151	5308	800xZ	0.049	1327	65xZ	0.041	1327	55xZ
14	14	7.0	7.0	0.084	2500	210xZ	0.104	1820	190xZ	0.092	1365	125xZ	0.194	3204	620xZ	0.154	7278	1120xZ	0.176	4550	800xZ	0.057	1137	65xZ	0.048	1135	55xZ
16	16	8.0	8.0	0.096	2187	210xZ	0.119	1592	190xZ	0.105	1194	125xZ	0.240	2587	620xZ	0.176	6369	1120xZ	0.201	3981	800xZ	0.065	995	65xZ	0.055	995	55xZ
18	18	9.0	9.0	0.108	1944	210xZ	0.134	1415	190xZ	0.118	1062	125xZ	0.270	2300	620xZ	0.198	5661	1120xZ	0.226	3539	800xZ	0.073	885	65xZ	0.062	885	55xZ
20	20	10.0	10.0	0.120	1750	210xZ	0.149	1275	190xZ	0.131	955	125xZ	0.300	2070	620xZ	0.220	5095	1120xZ	0.251	3185	800xZ	0.082	796	65xZ	0.069	796	55xZ
25	25	12.5	12.5	0.150	1400	210xZ	0.186	1020	190xZ	0.164	764	125xZ	0.370	1656	620xZ	0.275	4076	1120xZ	0.314	2548	800xZ	0.102	637	65xZ	0.086	637	55xZ

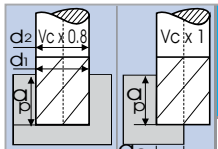


Solid carbide end mills - Short
VHM - Schaftfräser - Kurz
Fraises en bout carbure - Court
Karbür Freze - Kısa

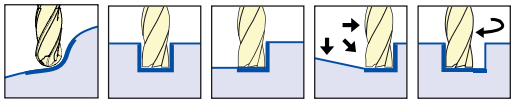


F	E	1000	G	4	C	12	A	00	N	050
END MILL	MG-10	d1	TOOLEX		DIN 6535 HA		30°		nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

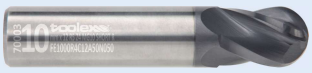
d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Coated Code
3	5	40	3	2-3-4	FE0300G4C05A00B040	FE0300G4C05A00N040
4	7	40	4	2-3-4	FE0400G4C07A00B040	FE0400G4C07A00N040
5	8	40	5	2-3-4	FE0500G4C08A00B040	FE0500G4C08A00N040
6	8	40	6	2-3-4	FE0600G4C08A00B040	FE0600G4C08A00N040
8	10	45	8	2-3-4	FE0800G4C10A00B045	FE0800G4C10A00N045
10	12	50	10	2-3-4	FE1000G4C12A00B050	FE1000G4C12A00N050
12	14	60	12	2-3-4	FE1200G4C14A00B060	FE1200G4C14A00N060
14	15	70	14	2-3-4	FE1400G4C15A00B070	FE1400G4C15A00N070
16	15	70	16	2-3-4	FE1600G4C15A00B070	FE1600G4C15A00N070
18	15	70	18	2-3-4	FE1800G4C15A00B070	FE1800G4C15A00N070
20	15	70	20	2-3-4	FE2000G4C15A00B070	FE2000G4C15A00N070

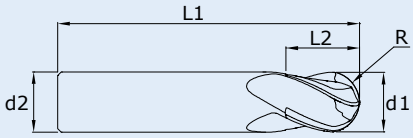


			HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
			1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
			Vc=100 m/dk.			Vc=75 m/dk.			Vc=55 m/dk.			Vc=120 m/dk.			Vc=300 m/dk.			Vc=190 m/dk.			Vc=50 m/dk.			Vc=50 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
2	1.0	1.0	0.012	15925	190XZ	0.014	11942	170xZ	0.013	8757	115xZ	0.031	19107	590xZ	0.023	47770	1100xZ	0.026	30255	785xZ	0,008	7960	65 xZ	0,007	7960	55 xZ
3	1.5	1.5	0.018	10616	190xZ	0.021	7962	170xZ	0.020	5838	115xZ	0.046	12738	590xZ	0.035	31846	1100xZ	0.039	20170	785xZ	0,012	5306	65 xZ	0,010	5306	55 xZ
4	2.0	2.0	0.024	7962	190xZ	0.028	5971	170xZ	0.026	4379	115xZ	0.062	9554	590xZ	0.046	23885	1100xZ	0.052	15127	785xZ	0,016	3980	65 xZ	0,014	3980	55 xZ
5	2.5	2.5	0.030	6370	190xZ	0.036	4777	170xZ	0.033	3503	115xZ	0.077	7643	590xZ	0.058	19108	1100xZ	0.065	12102	785xZ	0,020	3184	65 xZ	0,017	3184	55 xZ
6	3.0	3.0	0.036	5308	190xZ	0.043	3980	170xZ	0.039	2919	115xZ	0.093	6369	590xZ	0.069	15923	1100xZ	0.078	10085	785xZ	0,025	2653	65 xZ	0,020	2653	55 xZ
8	4.0	4.0	0.048	3981	190xZ	0.057	2985	170xZ	0.053	2189	115xZ	0.123	4777	590xZ	0.092	11942	1100xZ	0.104	7564	785xZ	0,033	1990	65 xZ	0,028	1990	55 xZ
10	5.0	5.0	0.060	3185	190xZ	0.071	2388	170xZ	0.066	1751	115xZ	0.154	3821	590xZ	0.115	9554	1100xZ	0.130	6051	785xZ	0,041	1592	65 xZ	0,035	1592	55 xZ
12	6.0	6.0	0.072	2654	190xZ	0.085	1990	170xZ	0.079	1460	115xZ	0.185	3185	590xZ	0.138	7962	1100xZ	0.156	5042	785xZ	0,049	1327	65 xZ	0,041	1327	55 xZ
14	7.0	7.0	0.083	2275	190xZ	0.100	1706	170xZ	0.092	1251	115xZ	0.216	2730	590xZ	0.161	6824	1100xZ	0.182	4322	785xZ	0,057	1137	65 xZ	0,048	1137	55 xZ
16	8.0	8.0	0.095	1990	190xZ	0.114	1493	170xZ	0.105	1095	115xZ	0.247	2388	590xZ	0.184	5971	1100xZ	0.207	3782	785xZ	0,065	995	65 xZ	0,055	995	55 xZ
18	9.0	9.0	0.108	1760	190xZ	0.118	1327	170xZ	0.118	973	115xZ	0.278	2123	590xZ	0.207	5308	1100xZ	0.233	3362	785xZ	0,073	885	65 xZ	0,062	885	55 xZ
20	10.0	10.0	0.119	1592	190xZ	0.131	1194	170xZ	0.131	875	115xZ	0.309	1910	590xZ	0.230	4777	1100xZ	0.260	3025	785xZ	0,082	796	65 xZ	0,069	796	55 xZ
25	12.5	12.5	0.149	1274	190xZ	0.164	955	170xZ	0.164	700	115xZ	0.386	1528	590xZ	0.288	3822	1100xZ	0.324	2420	785xZ	0,102	637	65 xZ	0,086	637	55 xZ



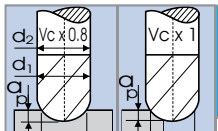
Solid carbide ball nose end mills - Short
VHM - Radiusfräser - Kurz
Fraises a rayon carbure - Court
Karbür Küre Freze - Kısa



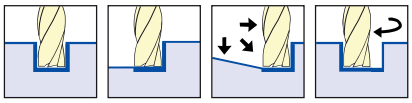


F	E	1000	R	4	C	12	A	50	N	050
END MILL	MG-10	d1	TOOLEX		DIN 6535 HA		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

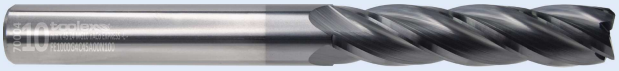
d1(e8)	L2	L1	d2(h6)	Z	R	Uncoated Code	Coated Code
3	5	40	3	2-3-4	1,5	FE0300R4C05A15B040	FE0300R4C05A15N040
4	7	40	4	2-3-4	2	FE0400R4C07A20B040	FE0400R4C07A20N040
5	8	40	5	2-3-4	2,5	FE0500R4C08A25B040	FE0500R4C08A25N040
6	8	40	6	2-3-4	3	FE0600R4C08A30B040	FE0600R4C08A30N040
8	10	45	8	2-3-4	4	FE0800R4C10A40B045	FE0800R4C10A40N045
10	12	50	10	2-3-4	5	FE1000R4C12A50B050	FE1000R4C12A50N050
12	14	60	12	2-3-4	6	FE1200R4C14A60B060	FE1200R4C14A60N060
14	15	70	14	2-3-4	7	FE1400R4C15A70B070	FE1400R4C15A70N070
16	15	70	16	2-3-4	8	FE1600R4C15A80B070	FE1600R4C15A80N070
18	15	70	18	2-3-4	9	FE1800R4C15A90B070	FE1800R4C15A90N070
20	15	70	20	2-3-4	10	FE2000R4C15A10B070	FE2000R4C15A10N070

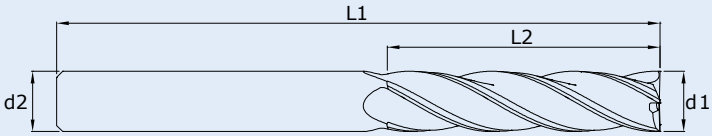


				HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
				1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
				Vc=110 m/dk.			Vc=80 m/dk.			Vc=60 m/dk.			Vc=130 m/dk.			Vc=320 m/dk.			Vc=200 m/dk.			Vc=50 m/dk.			Vc=50 m/dk.		
d1	de	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
2	2	1.0	1.0	0.012	17500	210xZ	0.015	12740	190xZ	0.0013	9554	125xZ	0.030	20700	620xZ	0.022	50950	1120xZ	0.025	31850	800xZ	0.008	7960	65xZ	0.007	7960	55xZ
3	3	1.5	1.5	0.018	11666	210xZ	0.022	8492	190xZ	0.020	6369	125xZ	0.045	13800	620xZ	0.033	33966	1120xZ	0.038	21233	800xZ	0.012	5306	65xZ	0.010	5306	55xZ
4	4	2.0	2.0	0.024	8750	210xZ	0.030	6370	190xZ	0.026	4777	125xZ	0.060	10350	620xZ	0.044	25475	1120xZ	0.050	15925	800xZ	0.016	3980	65xZ	0.014	3980	55xZ
5	5	2.5	2.5	0.030	7000	210xZ	0.037	5100	190xZ	0.033	3822	125xZ	0.075	8280	620xZ	0.055	20380	1120xZ	0.063	12740	800xZ	0.020	3184	65xZ	0.017	3184	55xZ
6	6	3.0	3.0	0.036	5833	210xZ	0.045	4250	190xZ	0.039	3185	125xZ	0.090	6900	620xZ	0.066	16983	1120xZ	0.075	10616	800xZ	0.025	2653	65xZ	0.020	2653	55xZ
8	8	4.0	4.0	0.048	4375	210xZ	0.060	3185	190xZ	0.052	2389	125xZ	0.122	5175	620xZ	0.077	12737	1120xZ	0.100	7962	800xZ	0.033	1990	65xZ	0.028	1990	55xZ
10	10	5.0	5.0	0.060	3500	210xZ	0.075	2550	190xZ	0.065	1911	125xZ	0.150	4140	620xZ	0.088	10190	1120xZ	0.126	6370	800xZ	0.041	1592	65xZ	0.035	1592	55xZ
12	12	6.0	6.0	0.072	2916	210xZ	0.089	2123	190xZ	0.078	1592	125xZ	0.180	3450	620xZ	0.132	8492	1120xZ	0.151	5308	800xZ	0.049	1327	65xZ	0.041	1327	55xZ
14	14	7.0	7.0	0.084	2500	210xZ	0.104	1820	190xZ	0.092	1365	125xZ	0.194	3204	620xZ	0.154	7278	1120xZ	0.176	4550	800xZ	0.057	1137	65xZ	0.048	1135	55xZ
16	16	8.0	8.0	0.096	2187	210xZ	0.119	1592	190xZ	0.105	1194	125xZ	0.240	2587	620xZ	0.176	6369	1120xZ	0.201	3981	800xZ	0.065	995	65xZ	0.055	995	55xZ
18	18	9.0	9.0	0.108	1944	210xZ	0.134	1415	190xZ	0.118	1062	125xZ	0.270	2300	620xZ	0.198	5661	1120xZ	0.226	3539	800xZ	0.073	885	65xZ	0.062	885	55xZ
20	20	10.0	10.0	0.120	1750	210xZ	0.149	1275	190xZ	0.131	955	125xZ	0.300	2070	620xZ	0.220	5095	1120xZ	0.251	3185	800xZ	0.082	796	65xZ	0.069	796	55xZ
25	25	12.5	12.5	0.150	1400	210xZ	0.186	1020	190xZ	0.164	764	125xZ	0.370	1656	620xZ	0.275	4076	1120xZ	0.314	2548	800xZ	0.102	637	65xZ	0.086	637	55xZ



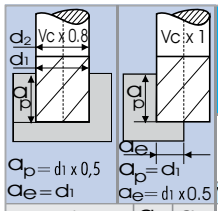
Solid carbide end mills - Long
VHM - Schaftfräser - Lang
Fraises en bout carbure - Longue
Karbür Freze - Uzun



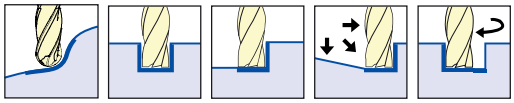


F	E	1000	G	4	C	45	A	00	N	100
END MILL	MG-10	d1	TOOLEX		DIN 6535 HA		30°		nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

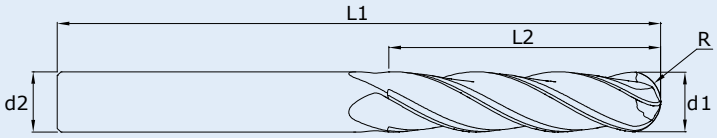
d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Coated Code
3	16	65	3	4	FE0300G4C16A00B065	FE0300G4C16A00N065
4	18	65	4	4	FE0400G4C18A00B065	FE0400G4C18A00N065
5	20	65	5	4	FE0500G4C20A00B065	FE0500G4C20A00N065
6	24	68	6	4	FE0600G4C24A00B068	FE0600G4C24A00N068
8	38	88	8	4	FE0800G4C38A00B088	FE0800G4C38A00N088
3	20	100	3	4	FE0300G4C20A00B100	FE0300G4C20A00N100
4	26	100	4	4	FE0400G4C26A00B100	FE0400G4C26A00N100
5	26	100	5	4	FE0500G4C26A00B100	FE0500G4C26A00N100
6	40	100	6	4	FE0600G4C40A00B100	FE0600G4C40A00N100
8	45	100	8	4	FE0800G4C45A00B100	FE0800G4C45A00N100
10	45	100	10	4	FE1000G4C45A00B100	FE1000G4C45A00N100
12	45	100	12	4	FE1200G4C45A00B100	FE1200G4C45A00N100
14	45	100	14	4	FE1400G4C45A00B100	FE1400G4C45A00N100
16	45	100	16	4	FE1600G4C45A00B100	FE1600G4C45A00N100
18	45	100	18	4	FE1800G4C45A00B100	FE1800G4C45A00N100
20	45	104	20	4	FE2000G4C45A00B104	FE2000G4C45A00N104
8	40	130	8	4	FE0800G4C40A00B130	FE0800G4C40A00N130
10	50	130	10	4	FE1000G4C50A00B130	FE1000G4C50A00N130
12	50	130	12	4	FE1200G4C50A00B130	FE1200G4C50A00N130
14	50	130	14	4	FE1400G4C50A00B130	FE1400G4C50A00N130
16	60	130	16	4	FE1600G4C60A00B130	FE1600G4C60A00N130
18	60	130	18	4	FE1800G4C60A00B130	FE1800G4C60A00N130
20	60	130	20	4	FE2000G4C60A00B130	FE2000G4C60A00N130
10	65	165	10	4	FE1000G4C65A00B165	FE1000G4C65A00N165
12	65	165	12	4	FE1200G4C65A00B165	FE1200G4C65A00N165
14	65	165	14	4	FE1400G4C65A00B165	FE1400G4C65A00N165
16	75	165	16	4	FE1600G4C75A00B165	FE1600G4C75A00N165
18	75	165	18	4	FE1800G4C75A00B165	FE1800G4C75A00N165
20	75	165	20	4	FE2000G4C75A00B165	FE2000G4C75A00N165
25	75	165	25	4	FE2500G4C75A00B165	FE2500G4C75A00N165



			HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
			1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
			Vc=100 m/dk.			Vc=80 m/dk.			Vc=55 m/dk.			Vc=120 m/dk.			Vc=300 m/dk.			Vc=190 m/dk.			Vc=45 m/dk.			Vc=45 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
3	1.5	1.5	0.015	10616	160XZ	0.015	8492	130XZ	0.020	5838	115XZ	0.043	12738	550XZ	0.036	31846	1150XZ	0.037	20170	755XZ	0.012	4777	55XZ	0.011	4777	50XZ
4	2.0	2.0	0.020	7962	160xZ	0.020	6370	130xZ	0.026	4379	115xZ	0.058	9554	550xZ	0.048	23885	1150xZ	0.050	15127	755xZ	0.015	3582	55xZ	0.014	3582	50xZ
5	2.5	2.5	0.025	6370	160xZ	0.025	5100	130xZ	0.033	3503	115xZ	0.072	7643	550xZ	0.060	19108	1150xZ	0.062	12102	755xZ	0.019	2866	55xZ	0.017	2866	50xZ
6	3.0	3.0	0.030	5308	160xZ	0.030	4250	130xZ	0.039	2919	115xZ	0.086	6369	550xZ	0.072	15923	1150xZ	0.075	10085	755xZ	0.023	2388	55xZ	0.021	2388	50xZ
8	4.0	4.0	0.040	3981	160xZ	0.040	3185	130xZ	0.053	2189	115xZ	0.115	4777	550xZ	0.092	11942	1150xZ	0.100	7564	755xZ	0.031	1791	55xZ	0.028	1791	50xZ
10	5.0	5.0	0.050	3185	160xZ	0.050	2550	130xZ	0.066	1751	115xZ	0.144	3821	550xZ	0.120	9554	1150xZ	0.125	6051	755xZ	0.038	1433	55xZ	0.035	1433	50xZ
12	6.0	6.0	0.060	2654	160xZ	0.060	2123	130xZ	0.079	1460	115xZ	0.173	3185	550xZ	0.144	7962	1150xZ	0.150	5042	755xZ	0.046	1194	55xZ	0.042	1194	50xZ
14	7.0	7.0	0.070	2275	160xZ	0.070	1820	130xZ	0.092	1251	115xZ	0.202	2730	550xZ	0.168	6824	1150xZ	0.175	4322	755xZ	0.054	1024	55xZ	0.049	1024	50xZ
16	8.0	8.0	0.080	1990	160xZ	0.080	1592	130xZ	0.105	1095	115xZ	0.230	2388	550xZ	0.193	5971	1150xZ	0.200	3782	755xZ	0.062	896	55xZ	0.056	896	50xZ
18	9.0	9.0	0.090	1760	160xZ	0.090	1415	130xZ	0.118	973	115xZ	0.259	2123	550xZ	0.217	5308	1150xZ	0.225	3362	755xZ	0.070	796	55xZ	0.063	796	50xZ
20	10.0	10.0	0.100	1592	160xZ	0.100	1275	130xZ	0.131	875	115xZ	0.288	1910	550xZ	0.241	4777	1150xZ	0.250	3025	755xZ	0.078	716	55xZ	0.070	716	50xZ
25	12.5	12.5	0.130	1274	160xZ	0.130	1020	130xZ	0.164	700	115xZ	0.360	1528	550xZ	0.300	3822	1150xZ	0.312	2420	755xZ	0.086	573	55xZ	0.087	573	50xZ

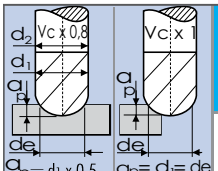


Solid carbide ball nose end mills - Long
VHM - Radiusfräser - Lang
Fraises a rayon carbure - Longue
Karbür Küre Freze - Uzun



F	E	1000	R	4	C	45	A	50	N	100
END MILL	MG-10	d1	TOOLEX		DIN 6535 HA		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	Uncoated Code	Coated Code
3	16	65	3	4	1,5	FE0300R4C16A15B065	FE0300R4C16A15N065
4	18	65	4	4	2	FE0400R4C18A20B065	FE0400R4C18A20N065
5	20	65	5	4	2,5	FE0500R4C20A25B065	FE0500R4C20A25N065
6	24	68	6	4	3	FE0600R4C24A30B068	FE0600R4C24A30N068
8	38	88	8	4	4	FE0800R4C38A40B088	FE0800R4C38A40N088
3	20	100	3	4	1,5	FE0300R4C20A15B100	FE0300R4C20A15N100
4	26	100	4	4	2	FE0400R4C26A20B100	FE0400R4C26A20N100
5	26	100	5	4	2,5	FE0500R4C26A25B100	FE0500R4C26A25N100
6	40	100	6	4	3	FE0600R4C40A30B100	FE0600R4C40A30N100
8	45	100	8	4	4	FE0800R4C45A40B100	FE0800R4C45A40N100
10	45	100	10	4	5	FE1000R4C45A50B100	FE1000R4C45A50N100
12	45	100	12	4	6	FE1200R4C45A60B100	FE1200R4C45A60N100
14	45	100	14	4	7	FE1400R4C45A70B100	FE1400R4C45A70N100
16	45	100	16	4	8	FE1600R4C45A80B100	FE1600R4C45A80N100
18	45	100	18	4	9	FE1800R4C45A90B100	FE1800R4C45A90N100
20	45	104	20	4	10	FE2000R4C45A10B104	FE2000R4C45A10N104
8	40	130	8	4	4	FE0800R4C40A40B130	FE0800R4C40A40N130
10	50	130	10	4	5	FE1000R4C50A50B130	FE1000R4C50A50N130
12	50	130	12	4	6	FE1200R4C50A60B130	FE1200R4C50A60N130
14	50	130	14	4	7	FE1400R4C50A70B130	FE1400R4C50A70N130
16	60	130	16	4	8	FE1600R4C60A80B130	FE1600R4C60A80N130
18	60	130	18	4	9	FE1800R4C60A90B130	FE1800R4C60A90N130
20	60	130	20	4	10	FE2000R4C60A10B130	FE2000R4C60A10N130
10	65	165	10	4	5	FE1000R4C65A50B165	FE1000R4C65A50N165
12	65	165	12	4	6	FE1200R4C65A60B165	FE1200R4C65A60N165
14	65	165	14	4	7	FE1400R4C65A70B165	FE1400R4C65A70N165
16	75	165	16	4	8	FE1600R4C75A80B165	FE1600R4C75A80N165
18	75	165	18	4	9	FE1800R4C75A90B165	FE1800R4C75A90N165
20	75	165	20	4	10	FE2000R4C75A10B165	FE2000R4C75A10N165
25	75	165	25	4	12,5	FE2500R4C75A12B165	FE2500R4C75A12N165

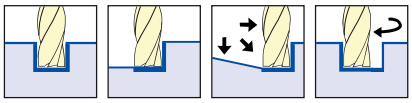


$a_p = d_1 \times 0{,}5$ $a_p = d_1 = de$
$de = de = d_1$ $a_e = d_1 \times 0{,}5$

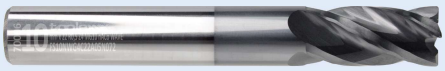
				HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
				1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
				Vc=100 m/dk.			Vc=80 m/dk.			Vc=55 m/dk.			Vc=120 m/dk.			Vc=300 m/dk.			Vc=190 m/dk.			Vc=45 m/dk.			Vc=45 m/dk.		
d1	de	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
3	3	1,5	1,5	0,017	10616	180XZ	0,018	8492	150XZ	0,021	5838	125XZ	0,051	12738	650XZ	0,039	31846	1240xZ	0,043	20170	875XZ	0,014	4777	65XZ	0,012	4777	55XZ
4	4	2,0	2,0	0,023	7962	180xZ	0,024	6370	150xZ	0,028	4379	125xZ	0,068	9554	650xZ	0,052	23885	1240xZ	0,058	15127	875xZ	0,018	3582	65xZ	0,015	3582	55xZ
5	5	2,5	2,5	0,028	6370	180xZ	0,029	5100	150xZ	0,035	3503	125xZ	0,085	7643	650xZ	0,065	19108	1240xZ	0,072	12102	875xZ	0,023	2866	65xZ	0,019	2866	55xZ
6	6	3,0	3,0	0,034	5308	180xZ	0,035	4250	150xZ	0,043	2919	125xZ	0,102	6369	650xZ	0,078	15923	1240xZ	0,087	10085	875xZ	0,027	2388	65xZ	0,023	2388	55xZ
8	8	4,0	4,0	0,045	3981	180xZ	0,047	3185	150xZ	0,057	2189	125xZ	0,136	4777	650xZ	0,104	11942	1240xZ	0,116	7564	875xZ	0,036	1791	65xZ	0,031	1791	55xZ
10	10	5,0	5,0	0,056	3185	180xZ	0,059	2550	150xZ	0,071	1751	125xZ	0,170	3821	650xZ	0,130	9554	1240xZ	0,145	6051	875xZ	0,045	1433	65xZ	0,038	1433	55xZ
12	12	6,0	6,0	0,068	2654	180xZ	0,071	2123	150xZ	0,086	1460	125xZ	0,204	3185	650xZ	0,156	7962	1240xZ	0,174	5042	875xZ	0,054	1194	65xZ	0,046	1194	55xZ
14	14	7,0	7,0	0,079	2275	180xZ	0,082	1820	150xZ	0,100	1251	125xZ	0,238	2730	650xZ	0,182	6824	1240xZ	0,202	4322	875xZ	0,063	1024	65xZ	0,054	1024	55xZ
16	16	8,0	8,0	0,090	1990	180xZ	0,094	1592	150xZ	0,114	1095	125xZ	0,272	2388	650xZ	0,208	5971	1240xZ	0,231	3782	875xZ	0,073	896	65xZ	0,061	896	55xZ
18	18	9,0	9,0	0,102	1760	180xZ	0,106	1415	150xZ	0,128	973	125xZ	0,306	2123	650xZ	0,234	5308	1240xZ	0,260	3362	875xZ	0,082	796	65xZ	0,069	796	55xZ
20	20	10,0	10,0	0,113	1592	180xZ	0,117	1275	150xZ	0,143	875	125xZ	0,340	1910	650xZ	0,260	4777	1240xZ	0,290	3025	875xZ	0,090	716	65xZ	0,077	716	55xZ
25	25	12,5	12,5	0,141	1274	180xZ	0,147	1020	150xZ	0,179	700	125xZ	0,425	1528	650xZ	0,324	3822	1240xZ	0,362	2420	875xZ	0,113	573	65xZ	0,100	573	55xZ

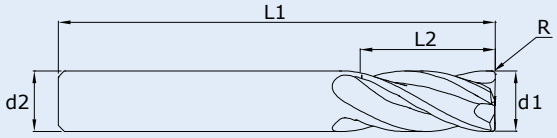
NW

WAVE <52 HRC



Solid carbide end mills - Wave
Fraises en bout carbure - D'onde
VHM - Wellenfräse
Karbür Dalga Freze



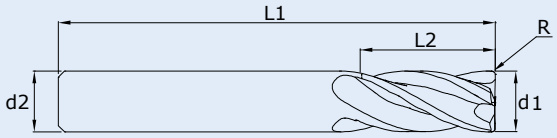


F	S	10NW	G	4	C	22	A	05	N	072
END MILL	MG-10	d1	DIN 6528		DIN 6535 HA		30	0,5	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	Coated Code
6	13	57	6	4	0,30	FS06NWG4C13A03N057
8	19	63	8	4	0,40	FS08NWG4C19A04N063
10	22	72	10	4	0,50	FS10NWG4C22A05N072
12	26	83	12	4	0,60	FS12NWG4C26A06N083
14	26	83	14	4	0,70	FS14NWG4C26A07N083
16	32	92	16	4	0,80	FS16NWG4C32A08N092
18	32	92	18	4	0,90	FS18NWG4C32A09N092
20	38	104	20	4	1,00	FS20NWG4C38A10N104

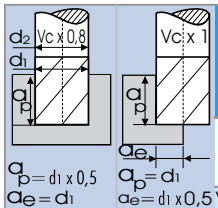
NX

WAVE INOX <52 HRC



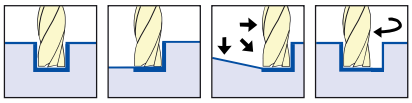
F	I	10NX	G	4	C	22	A	05	N	072
END MILL	MG-10	d1	DIN 6528		DIN 6535 HA		30	0,5	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	Coated Code
6	13	57	6	4	0,30	FI06NXG4C13A03N057
8	19	63	8	4	0,40	FI08NXG4C19A04N063
10	22	72	10	4	0,50	FI10NXG4C22A05N072
12	26	83	12	4	0,60	FI12NXG4C26A06N083
14	26	83	14	4	0,70	FI14NXG4C26A07N083
16	32	92	16	4	0,80	FI16NXG4C32A08N092
18	32	92	18	4	0,90	FI18NXG4C32A09N092
20	38	104	20	4	1,00	FI20NXG4C38A10N104

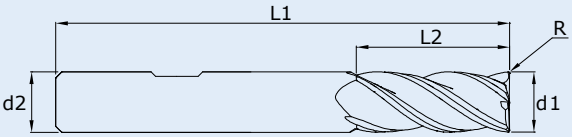


			WAVE HRC 20-30			WAVE HRC 30-40			WAVEX INOX			WAVE GG			WAVEX AL			WAVEX CU			WAVEX TITAN			WAVE < 52 HRC		
			1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
			Vc=120 m/dk.			Vc=90 m/dk.			Vc=65 m/dk.			Vc=130 m/dk.			Vc=320 m/dk.			Vc=200 m/dk.			Vc=50 m/dk.			Vc=50 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
6	3,0	3,0	0,045	4250	190xZ	0,032	4777	150xZ	0,040	3450	140xZ	0,090	6900	620xZ	0,066	16983	1120xZ	0,075	10616	800xZ	0,008	2654	65xZ	0,007	2854	55xZ
8	4,0	4,0	0,060	3185	190xZ	0,042	3582	150xZ	0,054	2587	140xZ	0,120	5175	620xZ	0,088	12737	1120xZ	0,100	7962	800xZ	0,033	1990	65xZ	0,028	1990	55xZ
10	5,0	5,0	0,075	2550	190xZ	0,052	2866	150xZ	0,068	2070	140xZ	0,150	4140	620xZ	0,110	10190	1120xZ	0,126	6370	800xZ	0,041	1592	65xZ	0,035	1592	55xZ
12	6,0	6,0	0,090	2123	190xZ	0,063	2388	150xZ	0,081	1725	140xZ	0,180	3450	620xZ	0,132	8492	1120xZ	0,151	5308	800xZ	0,049	1327	65xZ	0,041	1327	55xZ
14	7,0	7,0	0,104	1820	190xZ	0,073	2047	150xZ	0,095	1478	140xZ	0,210	2957	620xZ	0,154	7278	1120xZ	0,176	4550	800xZ	0,057	1137	65xZ	0,048	1137	55xZ
16	8,0	8,0	0,119	1592	190xZ	0,084	1791	150xZ	0,108	1294	140xZ	0,240	2587	620xZ	0,176	6369	1120xZ	0,201	3981	800xZ	0,065	995	65xZ	0,055	995	55xZ
18	9,0	9,0	0,134	1415	190xZ	0,094	1592	150xZ	0,122	1150	140xZ	0,270	2300	620xZ	0,198	5661	1120xZ	0,226	3539	800xZ	0,073	885	65xZ	0,062	885	55xZ
20	10,0	10,0	0,149	1275	190xZ	0,105	1433	150xZ	0,135	1035	140xZ	0,300	2070	620xZ	0,220	5095	1120xZ	0,251	3185	800xZ	0,082	796	65xZ	0,069	796	55xZ

FOUREX <52 HRC



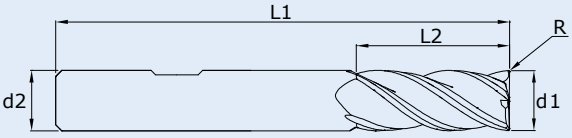
Solid carbide end mills - Fourex
VHM - Fourexfräser
Fraises en bout carbure - Fourex
Karbür Fourex Freze



F	S	1000	G	4	W	22	S	05	N	072
END MILL	MG-10	d1	DIN 6528		DIN 6535 HB			0,5	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

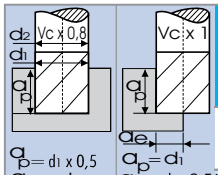
d1(e8)	L2	L1	d2(h6)	Z	R	Uncoated Code
3	5	57	6	4	0,15	FS0300G4W05S02N057
4	7	57	6	4	0,20	FS0400G4W07S02N057
5	8	57	6	4	0,25	FS0500G4W08S02N057
6	10	57	6	4	0,30	FS0600G4W10S03N057
8	16	63	8	4	0,40	FS0800G4W16S04N063
10	22	72	10	4	0,50	FS1000G4W22S05N072
12	26	83	12	4	0,60	FS1200G4W26S06N083
14	26	83	14	4	0,70	FS1400G4W26S07N083
16	32	92	16	4	0,80	FS1600G4W32S08N092
18	32	92	18	4	0,90	FS1800G4W32S09N092
20	38	104	20	4	1,00	FS2000G4W38S10N104

FOUREX INOX <52 HRC



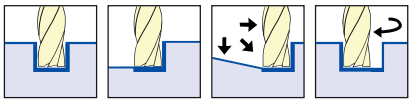
F	I	1000	G	4	W	22	S	05	N	072
END MILL	MG-10	d1	DIN 6528		DIN 6535 HB			0,5	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	Uncoated Code
3	5	57	6	4	0,15	FI0300G4W05S02N057
4	7	57	6	4	0,20	FI0400G4W07S02N057
5	8	57	6	4	0,25	FI0500G4W08S02N057
6	10	57	6	4	0,30	FI0600G4W10S03N057
8	16	63	8	4	0,40	FI0800G4W16S04N063
10	22	72	10	4	0,50	FI1000G4W22S05N072
12	26	83	12	4	0,60	FI1200G4W26S06N083
14	26	83	14	4	0,70	FI1400G4W26S07N083
16	32	92	16	4	0,80	FI1600G4W32S08N092
18	32	92	18	4	0,90	FI1800G4W32S09N092
20	38	104	20	4	1,00	FI2000G4W38S10N104

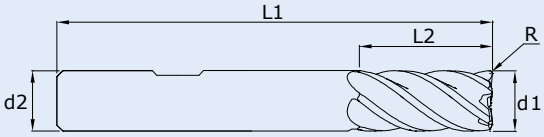


	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=120 m/dk.			Vc=90 m/dk.			Vc=65 m/dk.			Vc=130 m/dk.			Vc=320 m/dk.			Vc=200 m/dk.			Vc=50 m/dk.			Vc=50 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
6	3,0	3,0	0,045	4250	190xZ	0,032	4777	150xZ	0,040	3450	140xZ	0,090	6900	620xZ	0,066	16983	1120xZ	0,075	10616	800xZ	0,008	2654	65xZ	0,007	2854	55xZ
8	4,0	4,0	0,060	3185	190xZ	0,042	3582	150xZ	0,054	2587	140xZ	0,120	5175	620xZ	0,088	12737	1120xZ	0,100	7962	800xZ	0,033	1990	65xZ	0,028	1990	55xZ
10	5,0	5,0	0,075	2550	190xZ	0,052	2866	150xZ	0,068	2070	140xZ	0,150	4140	620xZ	0,110	10190	1120xZ	0,126	6370	800xZ	0,041	1592	65xZ	0,035	1592	55xZ
12	6,0	6,0	0,090	2123	190xZ	0,063	2388	150xZ	0,081	1725	140xZ	0,180	3450	620xZ	0,132	8492	1120xZ	0,151	5308	800xZ	0,049	1327	65xZ	0,041	1327	55xZ
14	7,0	7,0	0,104	1820	190xZ	0,073	2047	150xZ	0,095	1478	140xZ	0,210	2957	620xZ	0,154	7278	1120xZ	0,176	4550	800xZ	0,057	1137	65xZ	0,048	1137	55xZ
16	8,0	8,0	0,119	1592	190xZ	0,084	1791	150xZ	0,108	1294	140xZ	0,240	2587	620xZ	0,176	6369	1120xZ	0,201	3981	800xZ	0,065	995	65xZ	0,055	995	55xZ
18	9,0	9,0	0,134	1415	190xZ	0,094	1592	150xZ	0,122	1150	140xZ	0,270	2300	620xZ	0,198	5661	1120xZ	0,226	3539	800xZ	0,073	885	65xZ	0,062	885	55xZ
20	10,0	10,0	0,149	1275	190xZ	0,105	1433	150xZ	0,135	1035	140xZ	0,300	2070	620xZ	0,220	5095	1120xZ	0,251	3185	800xZ	0,082	796	65xZ	0,069	796	55xZ

PENTEX <52 HRC



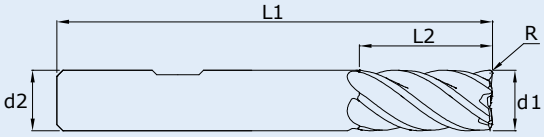
Solid carbide end mills - Pentex
VHM - Schaftfräser - Pentex
Fraises en bout carbure - Pentex
Karbür Freze - Pentex



F	S	1000	G	5	W	22	S	05	N	072
END MILL	MG-10	d1	DIN 6528		DIN 6535 HB			0,5	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

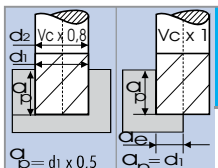
d1(e8)	L2	L1	d2(h6)	Z	R	Uncoated Code
3	5	57	6	5	0,15	FS0300G5W05S01N057
4	7	57	6	5	0,20	FS0400G5W07S02N057
5	8	57	6	5	0,25	FS0500G5W08S02N057
6	10	57	6	5	0,30	FS0600G5W10S03N057
8	16	63	8	5	0,40	FS0800G5W16S04N063
10	22	72	10	5	0,50	FS1000G5W22S05N072
12	26	83	12	5	0,60	FS1200G5W26S06N083
14	26	83	14	5	0,70	FS1400G5W26S07N083
16	32	92	16	5	0,80	FS1600G5W32S08N092
18	32	92	18	5	0,90	FS1800G5W32S09N092
20	38	104	20	5	1,00	FS2000G5W38S10N104

PENTEX INOX <52 HRC



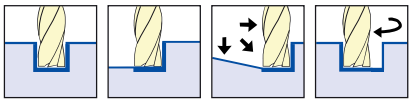
F	I	1000	G	5	W	22	S	05	N	072
END MILL	MG-10	d1	DIN 6528		DIN 6535 HB			0,5	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	Uncoated Code
3	5	57	6	5	0,15	FI0300G5W05S01N057
4	7	57	6	5	0,20	FI0400G5W07S02N057
5	8	57	6	5	0,25	FI0500G5W08S02N057
6	10	57	6	5	0,30	FI0600G5W10S03N057
8	16	63	8	5	0,40	FI0800G5W16S04N063
10	22	72	10	5	0,50	FI1000G5W22S05N072
12	26	83	12	5	0,60	FI1200G5W26S06N083
14	26	83	14	5	0,70	FI1400G5W26S07N083
16	32	92	16	5	0,80	FI1600G5W32S08N092
18	32	92	18	5	0,90	FI1800G5W32S09N092
20	38	104	20	5	1,00	FI2000G5W38S10N104

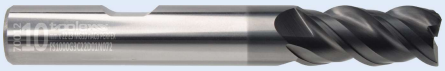


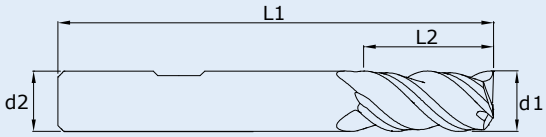
	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=120 m/dk.			Vc=90 m/dk.			Vc=65 m/dk.			Vc=130 m/dk.			Vc=320 m/dk.			Vc=200 m/dk.			Vc=50 m/dk.			Vc=50 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
6	3,0	3,0	0,045	4250	190xZ	0,032	4777	150xZ	0,040	3450	140xZ	0,090	6900	620xZ	0,066	16983	1120xZ	0,075	10616	800xZ	0,008	2654	65xZ	0,007	2854	55xZ
8	4,0	4,0	0,060	3185	190xZ	0,042	3582	150xZ	0,054	2587	140xZ	0,120	5175	620xZ	0,088	12737	1120xZ	0,100	7962	800xZ	0,033	1990	65xZ	0,028	1990	55xZ
10	5,0	5,0	0,075	2550	190xZ	0,052	2866	150xZ	0,068	2070	140xZ	0,150	4140	620xZ	0,110	10190	1120xZ	0,126	6370	800xZ	0,041	1592	65xZ	0,035	1592	55xZ
12	6,0	6,0	0,090	2123	190xZ	0,063	2388	150xZ	0,081	1725	140xZ	0,180	3450	620xZ	0,132	8492	1120xZ	0,151	5308	800xZ	0,049	1327	65xZ	0,041	1327	55xZ
14	7,0	7,0	0,104	1820	190xZ	0,073	2047	150xZ	0,095	1478	140xZ	0,210	2957	620xZ	0,154	7278	1120xZ	0,176	4550	800xZ	0,057	1137	65xZ	0,048	1137	55xZ
16	8,0	8,0	0,119	1592	190xZ	0,084	1791	150xZ	0,108	1294	140xZ	0,240	2587	620xZ	0,176	6369	1120xZ	0,201	3981	800xZ	0,065	995	65xZ	0,055	995	55xZ
18	9,0	9,0	0,134	1415	190xZ	0,094	1592	150xZ	0,122	1150	140xZ	0,270	2300	620xZ	0,198	5661	1120xZ	0,226	3539	800xZ	0,073	885	65xZ	0,062	885	55xZ
20	10,0	10,0	0,149	1275	190xZ	0,105	1433	150xZ	0,135	1035	140xZ	0,300	2070	620xZ	0,220	5095	1120xZ	0,251	3185	800xZ	0,082	796	65xZ	0,069	796	55xZ

PERFEX <52 HRC



Solid carbide end mills - Perfex
VHM - Schaftfräser - Perfex
Fraises en bout carbure - Perfex
Karbür Freze - Perfex

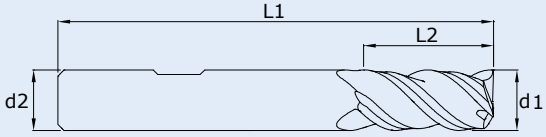




F	S	1000	G	3	W	22	D	01	N	072
END MILL	MG-10	d1	TOOLEX		DIN 6535 HB		45°	0.1x45°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

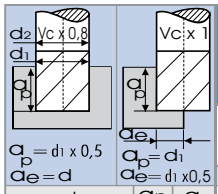
d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Coated Code
2	3	57	6	3	FS0200G3W03D01B057	FS0200G3W03D01N057
3	5	57	6	3	FS0300G3W05D01B057	FS0300G3W05D01N057
4	7	57	6	3	FS0400G3W07D01B057	FS0400G3W07D01N057
5	8	57	6	3	FS0500G3W08D01B057	FS0500G3W08D01N057
6	10	57	6	3	FS0600G3W10D01B057	FS0600G3W10D01N057
8	16	63	8	3	FS0800G3W16D01B063	FS0800G3W16D01N063
10	22	72	10	3	FS1000G3W22D01B072	FS1000G3W22D01N072
12	26	83	12	3	FS1200G3W26D01B083	FS1200G3W26D01N083
14	28	83	14	3	FS1400G3W28D01B083	FS1400G3W28D01N083
16	32	92	16	3	FS1600G3W32D01B092	FS1600G3W32D01N092
18	32	92	18	3	FS1800G3W32D01B092	FS1800G3W32D01N092
20	38	104	20	3	FS2000G3W38D01B104	FS2000G3W38D01N104

PERFEX INOX <52 HRC



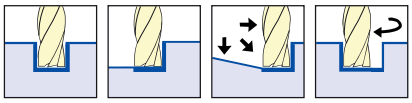
F	I	1000	G	3	W	22	D	01	N	072
END MILL	MG-10	d1	TOOLEX		DIN 6535 HB		45°	0.1x45°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Coated Code
2	3	57	6	3	FI0200G3W03D01B057	FI0200G3W03D01N057
3	5	57	6	3	FI0300G3W05D01B057	FI0300G3W05D01N057
4	7	57	6	3	FI0400G3W07D01B057	FI0400G3W07D01N057
5	8	57	6	3	FI0500G3W08D01B057	FI0500G3W08D01N057
6	10	57	6	3	FI0600G3W10D01B057	FI0600G3W10D01N057
8	16	63	8	3	FI0800G3W16D01B063	FI0800G3W16D01N063
10	22	72	10	3	FI1000G3W22D01B072	FI1000G3W22D01N072
12	26	83	12	3	FI1200G3W26D01B083	FI1200G3W26D01N083
14	28	83	14	3	FI1400G3W28D01B083	FI1400G3W28D01N083
16	32	92	16	3	FI1600G3W32D01B092	FI1600G3W32D01N092
18	32	92	18	3	FI1800G3W32D01B092	FI1800G3W32D01N092
20	38	104	20	3	FI2000G3W38D01B104	FI2000G3W38D01N104

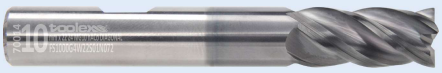


d1	ap	ae	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
			1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
			Vc=90 m/dk.			Vc=70 m/dk.			Vc=50 m/dk.			Vc=130 m/dk.			Vc=390 m/dk.			Vc=220 m/dk.			Vc=40 m/dk.			Vc=40 m/dk.		
			fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
2	1,0	1,0	0,020	14331	285xZ	0,015	11145	165xZ	0,006	7962	50xZ	0,008	20700	170xZ	0,020	62100	1100xZ	0,012	35032	420xZ	0,008	6370	50 xZ	0,008	6370	45xZ
3	1,5	1,5	0,030	9554	285xZ	0,022	7431	165xZ	0,009	5308	50xZ	0,012	13800	170xZ	0,026	41400	1100xZ	0,018	23355	420xZ	0,012	4246	50 xZ	0,012	4246	45xZ
4	2,0	2,0	0,040	7135	285xZ	0,030	5573	165xZ	0,013	3981	50xZ	0,016	10350	170xZ	0,035	31050	1100xZ	0,024	17516	420xZ	0,016	3185	50 xZ	0,016	3183	45xZ
5	2,5	2,5	0,050	5732	285xZ	0,037	4458	165xZ	0,016	3185	50xZ	0,020	8280	170xZ	0,044	24804	1100xZ	0,030	14013	420xZ	0,020	1548	50 xZ	0,020	2548	45xZ
6	3,0	3,0	0,060	4777	285xZ	0,045	3715	165xZ	0,019	2654	50xZ	0,025	6900	170xZ	0,053	20700	1100xZ	0,036	11677	420xZ	0,023	2123	50 xZ	0,023	2123	45xZ
8	4,0	4,0	0,080	3583	285xZ	0,059	2786	165xZ	0,025	1990	50xZ	0,033	5175	170xZ	0,171	15525	1100xZ	0,048	8758	420xZ	0,031	1592	50 xZ	0,031	1592	45xZ
10	5,0	5,0	0,100	2866	285xZ	0,074	2229	165xZ	0,032	1592	50xZ	0,041	4140	170xZ	0,188	12420	1100xZ	0,060	7006	420xZ	0,039	1274	50 xZ	0,039	1274	45xZ
12	6,0	6,0	0,120	2388	285xZ	0,089	1858	165xZ	0,038	1327	50xZ	0,049	3450	170xZ	0,106	10350	1100xZ	0,172	5839	420xZ	0,047	1062	50 xZ	0,047	1062	45xZ
14	7,0	7,0	0,140	2047	285xZ	0,104	1592	165xZ	0,044	1137	50xZ	0,057	2957	170xZ	0,124	8871	1100xZ	0,184	5005	420xZ	0,055	910	50 xZ	0,055	910	45xZ
16	8,0	8,0	0,160	1791	285xZ	0,118	1393	165xZ	0,050	995	50xZ	0,066	2588	170xZ	0,142	7762	1100xZ	0,196	4379	420xZ	0,063	796	50 xZ	0,063	796	45xZ
18	9,0	9,0	0,179	1592	285xZ	0,133	1238	165xZ	0,056	885	50xZ	0,074	2300	170xZ	0,159	6900	1100xZ	0,108	3892	420xZ	0,071	708	50 xZ	0,071	708	45xZ
20	10,0	10,0	0,200	1433	285xZ	0,145	1115	165xZ	0,063	796	50xZ	0,082	2070	170xZ	0,177	6210	1100xZ	0,120	3503	420xZ	0,078	637	50 xZ	0,078	637	45xZ

DIAGONAL <52 HRC

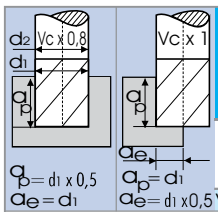


Solid carbide end mills - Diagonal
VHM - Kreuzfräser
Fraises en bout - Diagonal
Karbür Diagonal Freze



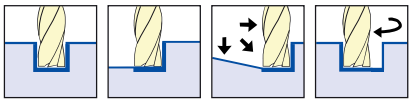
F	S	1000	G	4	W	22	S	01	N	072
END MILL	MG-10	d1	DIN 6528		DIN 6535 HB		SPECIAL X°	0.1x45°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Coated Code
3	5	57	6	4	FS0300G4W05S01N057
4	7	57	6	4	FS0400G4W07S01N057
5	8	57	6	4	FS0500G4W08S01N057
6	10	57	6	4	FS0600G4W10S01N057
8	16	63	8	4	FS0800G4W16S01N063
10	22	72	10	4	FS1000G4W22S01N072
12	26	83	12	4	FS1200G4W26S01N083
14	26	83	14	4	FS1400G4W26S01N083
16	32	92	16	4	FS1600G4W32S01N092
18	32	92	18	4	FS1800G4W32S01N092
20	38	104	20	4	FS2000G4W38S01N104

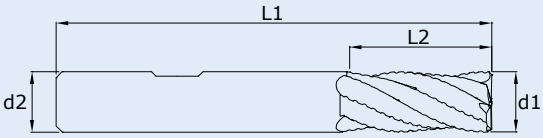


			HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
			1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
			Vc=120 m/dk.			Vc=90 m/dk.			Vc=65 m/dk.			Vc=130 m/dk.			Vc=320 m/dk.			Vc=200 m/dk.			Vc=50 m/dk.			Vc=50 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
6	3,0	3,0	0,045	4250	190xZ	0,032	4777	150xZ	0,040	3450	140xZ	0,090	6900	620xZ	0,066	16983	1120xZ	0,075	10616	800xZ	0,008	2654	65xZ	0,007	2854	55xZ
8	4,0	4,0	0,060	3185	190xZ	0,042	3582	150xZ	0,054	2587	140xZ	0,120	5175	620xZ	0,088	12737	1120xZ	0,100	7962	800xZ	0,033	1990	65xZ	0,028	1990	55xZ
10	5,0	5,0	0,075	2550	190xZ	0,052	2866	150xZ	0,068	2070	140xZ	0,150	4140	620xZ	0,110	10190	1120xZ	0,126	6370	800xZ	0,041	1592	65xZ	0,035	1592	55xZ
12	6,0	6,0	0,090	2123	190xZ	0,063	2388	150xZ	0,081	1725	140xZ	0,180	3450	620xZ	0,132	8492	1120xZ	0,151	5308	800xZ	0,049	1327	65xZ	0,041	1327	55xZ
14	7,0	7,0	0,104	1820	190xZ	0,073	2047	150xZ	0,095	1478	140xZ	0,210	2957	620xZ	0,154	7278	1120xZ	0,176	4550	800xZ	0,057	1137	65xZ	0,048	1137	55xZ
16	8,0	8,0	0,119	1592	190xZ	0,084	1791	150xZ	0,108	1294	140xZ	0,240	2587	620xZ	0,176	6369	1120xZ	0,201	3981	800xZ	0,065	995	65xZ	0,055	995	55xZ
18	9,0	9,0	0,134	1415	190xZ	0,094	1592	150xZ	0,122	1150	140xZ	0,270	2300	620xZ	0,198	5661	1120xZ	0,226	3539	800xZ	0,073	885	65xZ	0,062	885	55xZ
20	10,0	10,0	0,149	1275	190xZ	0,105	1433	150xZ	0,135	1035	140xZ	0,300	2070	620xZ	0,220	5095	1120xZ	0,251	3185	800xZ	0,082	796	65xZ	0,069	796	55xZ

NF <52 HRC

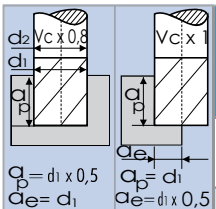


Solid carbide roughing end mills NF
VHM - Schruppfräser NF
Fraises d'ebauche carbure NF
Karbür Kaba Talaş Freze NF



F	S	10NF	G	4	W	22	A	05	N	072
END MILL	MG-10	d1	DIN 6527		DIN 6535 HB		30°	d1x0.05 45°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	x45°	Z	Uncoated Code	Coated Code
6	13	57	6	0,30	4	FS06NF G4W13A03B057	FS06NF G4W13A03N057
7	16	60	7	0,35	4	FS07NF G4W16A03B060	FS07NF G4W16A03N060
8	19	63	8	0,40	4	FS08NF G4W19A04B063	FS08NF G4W19A04N063
9	19	67	9	0,45	4	FS09NF G4W19A04B067	FS09NF G4W19A04N067
10	22	72	10	0,50	4	FS10NF G4W22A05B072	FS10NF G4W22A05N072
12	26	83	12	0,60	4	FS12NF G4W26A06B083	FS12NF G4W26A06N083
14	26	83	14	0,70	4	FS14NF G4W26A07B083	FS14NF G4W26A07N083
16	32	92	16	0,80	4	FS16NF G4W32A08B092	FS16NF G4W32A08N092
18	32	92	18	0,90	4	FS18NF G4W32A09B092	FS18NF G4W32A09N092
20	38	104	20	1,00	4	FS20NF G4W38A10B104	FS20NF G4W38A10N104
6	24	68	6	0,30	4	FS06NF G4W24A03B068	FS06NF G4W24A03N068
8	38	88	8	0,40	4	FS08NF G4W38A04B088	FS08NF G4W38A04N088
10	45	100	10	0,50	4	FS10NF G4W45A05B100	FS10NF G4W45A05N100
12	53	110	12	0,60	4	FS12NF G4W53A06B110	FS12NF G4W53A06N110
14	53	110	14	0,70	4	FS14NF G4W53A07B110	FS14NF G4W53A07N110
16	63	110	16	0,80	4	FS16NF G4W63A08B110	FS16NF G4W63A08N110
18	63	110	18	0,90	4	FS18NF G4W63A09B110	FS18NF G4W63A09N110
20	75	141	20	1,00	4	FS20NF G4W75A10B141	FS20NF G4W75A10N141

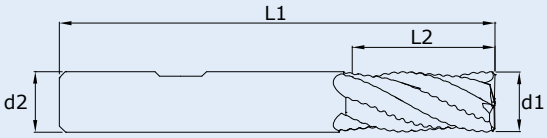


			NF			NF			HF			NF			WF			WF			HF			HF		
			HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
			1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
			Vc=70 m/dk.			Vc=50 m/dk.			Vc=35 m/dk.			Vc=100 m/dk.			Vc=260 m/dk.			Vc=180 m/dk.			Vc=30 m/dk.			Vc=30 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
6	3,0	3,0	0,070	3715	260xZ	0,070	2654	185xZ	0,054	1858	100xZ	0,034	5308	180xZ	0,079	13800	1100xZ	0,048	9554	460xZ	0,031	1592	50xZ	0,025	1592	24xZ
7	3,5	3,5	0,081	3185	260xZ	0,081	2275	185xZ	0,063	1592	100xZ	0,040	4500	180xZ	0,093	11828	1100xZ	0,056	8189	460xZ	0,037	1365	50xZ	0,029	1365	40xZ
8	4,0	4,0	0,093	2787	260xZ	0,093	1190	185xZ	0,072	1393	100xZ	0,045	3981	180xZ	0,106	10350	1100xZ	0,064	7166	460xZ	0,042	1194	50xZ	0,034	1194	40xZ
9	4,5	4,5	0,105	2477	260xZ	0,105	1769	185xZ	0,081	1238	100xZ	0,051	3538	180xZ	0,119	9200	1100xZ	0,072	6370	460xZ	0,047	1062	50xZ	0,038	1062	40xZ
10	5,0	5,0	0,116	2229	260xZ	0,116	1592	185xZ	0,090	1115	100xZ	0,056	3185	180xZ	0,133	8280	1100xZ	0,080	5732	460xZ	0,052	955	50xZ	0,042	955	40xZ
12	6,0	6,0	0,140	1858	260xZ	0,140	1327	185xZ	0,107	929	100xZ	0,068	2654	180xZ	0,159	6900	1100xZ	0,096	4777	460xZ	0,063	796	50xZ	0,050	796	40xZ
14	7,0	7,0	0,163	1592	260xZ	0,163	1137	185xZ	0,125	796	100xZ	0,079	2275	180xZ	0,186	5914	1100xZ	0,112	4095	460xZ	0,073	682	50xZ	0,058	682	40xZ
16	8,0	8,0	0,187	1393	260xZ	0,187	995	185xZ	0,143	697	100xZ	0,090	1990	180xZ	0,212	5175	1100xZ	0,128	3583	460xZ	0,084	597	50xZ	0,067	597	40xZ
18	9,0	9,0	0,210	1238	260xZ	0,210	885	185xZ	0,161	619	100xZ	0,102	1769	180xZ	0,239	4600	1100xZ	0,144	3185	460xZ	0,094	531	50xZ	0,075	531	40xZ
20	10,0	10,0	0,233	1115	260xZ	0,233	796	185xZ	0,179	557	100xZ	0,113	1592	180xZ	0,266	4140	1100xZ	0,161	2866	460xZ	0,105	478	50xZ	0,084	478	40xZ
22	11,0	11,0	0,257	1013	260xZ	0,257	724	185xZ	0,197	507	100xZ	0,124	1448	180xZ	0,292	3766	1100xZ	0,176	2606	460xZ	0,115	434	50xZ	0,092	434	40xZ
25	12,5	12,5	0,291	892	260xZ	0,291	637	185xZ	0,224	446	100xZ	0,141	1274	180xZ	0,332	3312	1100xZ	0,201	2293	460xZ	0,131	382	50xZ	0,105	382	40xZ
28	14,0	14,0	0,327	796	260xZ	0,327	569	185xZ	0,251	398	100xZ	0,158	1137	180xZ	0,372	2957	1100xZ	0,225	2047	460xZ	0,147	341	50xZ	0,117	341	40xZ

NR

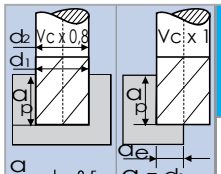
<52 HRC

Solid carbide roughing end mills NR
VHM - Schruppfräser NR
Fraises d'ebauche NR
Karbür Kaba Talaş Freze NR



F	S	10NR	G	4	W	22	R	05	N	072
END MILL	MG-10	d1	DIN 6527		DIN 6535 HB		40°	d1x0.05 45°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	x45°	Z	Uncoated Code	Coated Code
6	13	57	6	0,30	4	FS06NRG4W13R03B057	FS06NRG4W13R03N057
7	16	60	7	0,35	4	FS07NRG4W16R03B060	FS07NRG4W16R03N060
8	19	63	8	0,40	4	FS08NRG4W19R04B063	FS08NRG4W19R04N063
9	19	67	9	0,45	4	FS09NRG4W19R04B067	FS09NRG4W19R04N067
10	22	72	10	0,50	4	FS10NRG4W22R05B072	FS10NRG4W22R05N072
12	26	83	12	0,60	4	FS12NRG4W26R06B083	FS12NRG4W26R06N083
14	26	83	14	0,70	4	FS14NRG4W26R07B083	FS14NRG4W26R07N083
16	32	92	16	0,80	4	FS16NRG4W32R08B092	FS16NRG4W32R08N092
18	32	92	18	0,90	4	FS18NRG4W32R09B092	FS18NRG4W32R09N092
20	38	104	20	1,00	4	FS20NRG4W38R10B104	FS20NRG4W38R10N104
6	24	68	6	0,30	4	FS06NRG4W24R03B068	FS06NRG4W24R03N068
8	38	88	8	0,40	4	FS08NRG4W38R04B088	FS08NRG4W38R04N088
10	45	100	10	0,50	4	FS10NRG4W45R05B100	FS10NRG4W45R05N100
12	53	110	12	0,60	4	FS12NRG4W53R06B110	FS12NRG4W53R06N110
14	53	110	14	0,70	4	FS14NRG4W53R07B110	FS14NRG4W53R07N110
16	63	110	16	0,80	4	FS16NRG4W63R08B110	FS16NRG4W63R08N110
18	63	110	18	0,90	4	FS18NRG4W63R09B110	FS18NRG4W63R09N110
20	75	141	20	1,00	4	FS20NRG4W75R10B141	FS20NRG4W75R10N141

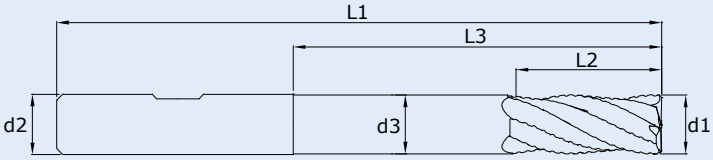


			NR			NR			HR			NR			WR			WR			HR			HR		
			HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
			1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
			Vc=70 m/dk.			Vc=50 m/dk.			Vc=35 m/dk.			Vc=100 m/dk.			Vc=260 m/dk.			Vc=180 m/dk.			Vc=30 m/dk.			Vc=30 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
6	3,0	3,0	0,081	3715	300xZ	0,083	2654	220xZ	0,065	1858	120xZ	0,042	5308	225xZ	0,094	13800	1300xZ	0,058	9554	550xZ	0,041	1592	65xZ	0,035	1592	55xZ
7	3,5	3,5	0,094	3185	300xZ	0,097	2275	220xZ	0,075	1592	120xZ	0,049	4550	225xZ	0,110	11828	1300xZ	0,067	8189	550xZ	0,048	1365	65xZ	0,040	1365	55xZ
8	4,0	4,0	0,108	2787	300xZ	0,110	1990	220xZ	0,086	1393	120xZ	0,056	3981	225xZ	0,126	10350	1300xZ	0,077	7166	550xZ	0,054	1194	65xZ	0,046	1194	55xZ
9	4,5	4,5	0,121	2477	300xZ	0,124	1769	220xZ	0,097	1238	120xZ	0,064	3538	225xZ	0,141	9200	1300xZ	0,086	6370	550xZ	0,061	1062	65xZ	0,052	1062	55xZ
10	5,0	5,0	0,135	2229	300xZ	0,138	1592	220xZ	0,108	1115	120xZ	0,071	3185	225xZ	0,157	8280	1300xZ	0,096	5732	550xZ	0,068	955	65xZ	0,057	955	55xZ
12	6,0	6,0	0,161	1858	300xZ	0,166	1327	220xZ	0,129	929	120xZ	0,085	2654	225xZ	0,188	6900	1300xZ	0,115	4777	550xZ	0,082	796	65xZ	0,069	796	55xZ
14	7,0	7,0	0,188	1592	300xZ	0,194	1137	220xZ	0,151	796	120xZ	0,100	2275	225xZ	0,220	5914	1300xZ	0,134	4095	550xZ	0,095	682	65xZ	0,080	682	55xZ
16	8,0	8,0	0,215	1393	300xZ	0,221	995	220xZ	0,172	697	120xZ	0,113	1990	225xZ	0,251	5175	1300xZ	0,154	3583	550xZ	0,109	597	65xZ	0,092	597	55xZ
18	9,0	9,0	0,242	1238	300xZ	0,250	885	220xZ	0,194	619	120xZ	0,127	1769	225xZ	0,282	4600	1300xZ	0,173	3185	550xZ	0,122	531	65xZ	0,103	531	55xZ
20	10,0	10,0	0,269	1115	300xZ	0,280	796	220xZ	0,215	557	120xZ	0,141	1592	225xZ	0,314	4140	1300xZ	0,192	2866	550xZ	0,136	478	65xZ	0,115	478	55xZ
22	11,0	11,0	0,296	1013	300xZ	0,300	724	220xZ	0,240	507	120xZ	0,155	1448	225xZ	0,345	3766	1300xZ	0,211	2606	550xZ	0,150	434	65xZ	0,127	434	55xZ
25	12,5	12,5	0,336	892	300xZ	0,345	637	220xZ	0,269	446	120xZ	0,177	1274	225xZ	0,392	3312	1300xZ	0,240	2293	550xZ	0,170	382	65xZ	0,144	382	55xZ
28	14,0	14,0	0,377	796	300xZ	0,390	569	220xZ	0,300	398	120xZ	0,198	1137	225xZ	0,440	2957	1300xZ	0,268	2047	550xZ	0,190	341	65xZ	0,161	341	55xZ

NF

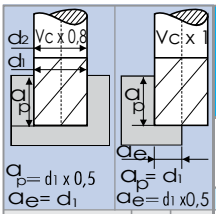
ROUGHEX <52 HRC

Solid carbide roughing end mills NF
VHM - Schruppfräser NF
Fraises d'ebauche NF
Karbür Kaba Talaş Freze NF



F	S	10NF	G	4	M	24	R	05	N	100
END MILL	MG-10	d1	TOOLEX		TOOLEX		40°	d1x0.05 45°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

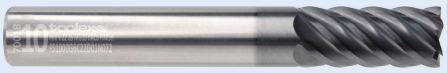
d1(e8)	L2	d3	L3	L1	x45°	d2(h6)	Z	Coated Code
6	13	5,7	48	80	0,30	6,00	4	FS06NFG4M13R03N080
8	19	7,6	54	88	0,40	8,00	4	FS08NFG4M19R04N088
6	14	5,7	60	100	0,30	6,00	4	FS06NFG4M14R03N100
8	20	7,6	60	100	0,40	8,00	4	FS08NFG4M20R04N100
10	24	9,5	60	100	0,50	10,00	4	FS10NFG4M24R05N100
12	28	11,5	60	100	0,60	12,00	4	FS12NFG4M28R06N100
14	28	13,5	60	100	0,70	14,00	4	FS14NFG4M28R07N100
16	34	15,5	60	100	0,80	16,00	4	FS16NFG4M34R08N100
20	40	19,5	60	104	1,00	20,00	4	FS20NFG4M40R10N104
10	26	9,5	120	165	0,50	10,00	4	FS10NFG4M26R05N165
12	30	11,5	120	165	0,60	12,00	4	FS12NFG4M30R06N165
14	30	13,5	120	165	0,70	14,00	4	FS14NFG4M30R07N165
16	36	15,5	120	165	0,80	16,00	4	FS16NFG4M36R08N165
18	36	17,5	120	165	0,90	18,00	4	FS18NFG4M36R09N165
20	42	19,5	120	165	1,00	20,00	4	FS20NFG4M42R10N165

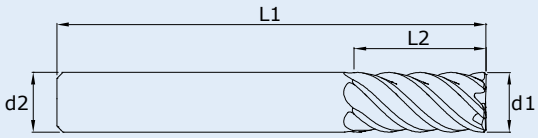


			NF			NF			HF			NF			WF			WF			HF			HF		
			HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
			1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
			Vc=70 m/dk.			Vc=50 m/dk.			Vc=35 m/dk.			Vc=100 m/dk.			Vc=260 m/dk.			Vc=180 m/dk.			Vc=30 m/dk.			Vc=30 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
6	3	3	0,070	3715	260xZ	0,070	2654	180xZ	0,055	1858	100xZ	0,038	1858	200xZ	0,087	13800	1200xZ	0,050	9554	480xZ	0,035	1592	55xZ	0,031	1592	50xZ
8	4	4	0,093	2786	260xZ	0,090	1990	180xZ	0,072	1393	100xZ	0,050	1393	200xZ	0,116	10350	1200xZ	0,067	7165	480xZ	0,046	1194	55xZ	0,042	1194	50xZ
10	5	5	0,117	2229	260xZ	0,113	1592	180xZ	0,090	1112	100xZ	0,063	1112	200xZ	0,145	8280	1200xZ	0,084	5732	480xZ	0,058	955	55xZ	0,052	955	50xZ
12	6	6	0,140	1858	260xZ	0,135	1327	180xZ	0,108	929	100xZ	0,075	929	200xZ	0,175	6900	1200xZ	0,100	4777	480xZ	0,069	796	55xZ	0,063	796	50xZ
14	7	7	0,163	1592	260xZ	0,158	1137	180xZ	0,126	796	100xZ	0,088	796	200xZ	0,203	5914	1200xZ	0,117	4095	480xZ	0,081	682	55xZ	0,073	682	50xZ
16	8	8	0,187	1393	260xZ	0,181	995	180xZ	0,143	697	100xZ	0,100	697	200xZ	0,232	5175	1200xZ	0,134	3583	480xZ	0,092	597	55xZ	0,084	597	50xZ
18	9	9	0,210	1238	260xZ	0,200	885	180xZ	0,162	619	100xZ	0,113	619	200xZ	0,261	4600	1200xZ	0,150	3185	480xZ	0,104	530	55xZ	0,094	530	50xZ
20	10	10	0,233	1115	260xZ	0,226	796	180xZ	0,180	557	100xZ	0,125	557	200xZ	0,290	4140	1200xZ	0,167	2866	480xZ	0,115	478	55xZ	0,105	478	50xZ

FINISH <52 HRC

Solid carbide finishing end mills
VHM - Schlichtfräser
Fraise de finition carbure
Karbür Çok Ağızlı Freeze



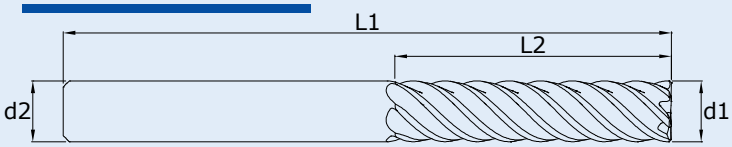


F	S	1000	G	6	C	22	D	01	N	072
END MILL	MG-10	d1	DIN 6528		DIN 6535 HA		45°	0.1x45°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

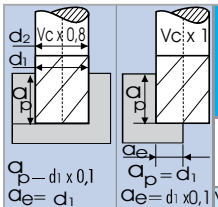
d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Coated Code
6	13	57	6	6	FS0600G6C13D01B057	FS0600G6C13D01N057
8	19	63	8	6	FS0800G6C19D01B063	FS0800G6C19D01N063
10	22	72	10	6	FS1000G6C22D01B072	FS1000G6C22D01N072
12	26	83	12	6	FS1200G6C26D01B083	FS1200G6C26D01N083
14	26	83	14	6	FS1400G6C26D01B083	FS1400G6C26D01N083
16	32	92	16	6	FS1600G6C32D01B092	FS1600G6C32D01N092
18	32	92	18	8	FS1800G8C32D01B092	FS1800G8C32D01N092
20	38	104	20	8	FS2000G8C38D01B104	FS2000G8C38D01N104
25	45	121	25	10	FS2500GOC45D01B121	FS2500GOC45D01N121

FINISH LONG <52 HRC

Solid carbide finishing end mills - Long
VHM - Schlichtfräser - Lang
Fraise de finition carbure - Longue
Karbür Çok Ağızlı Freze - Uzun

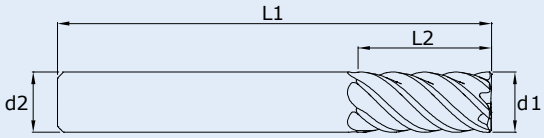


d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Coated Code
6	24	68	6	6	FS0600G6C24D01B068	FS0600G6C24D01N068
8	38	88	8	6	FS0800G6C38D01B088	FS0800G6C38D01N088
10	45	100	10	6	FS1000G6C45D01B100	FS1000G6C45D01N100
12	53	110	12	6	FS1200G6C53D01B110	FS1200G6C53D01N110
16	63	110	16	6	FS1600G6C63D01B110	FS1600G6C63D01N110
20	75	141	20	8	FS2000G8C75D01B141	FS2000G8C75D01N141
25	90	165	25	10	FS2500G0C90D01B165	FS2500G0C90D01N165



			HRC 20-30			HRC 30-40			GG			< 52 HRC		
			1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			0.6035 0.7080 0.8055			1.3255 1.3265 1.3333		
			Vc=130 m/dk.			Vc=100 m/dk.			Vc=120 m/dk.			Vc=60 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
6	6	6	0,015	6900	100 xZ	0,015	5308	80xZ	0,020	6370	130xZ	0,009	3185	30xZ
8	8	8	0,019	5175	100 xZ	0,020	3981	80xZ	0,027	4777	130xZ	0,013	2390	30xZ
10	10	10	0,024	4140	100 xZ	0,025	3185	80xZ	0,034	3822	130xZ	0,016	1910	30xZ
12	12	12	0,029	3450	100 xZ	0,030	2654	80xZ	0,041	3185	130xZ	0,019	1592	30xZ
14	14	14	0,034	2957	100 xZ	0,035	2275	80xZ	0,048	2730	130xZ	0,022	1365	30xZ
16	16	16	0,038	2588	100 xZ	0,040	1990	80xZ	0,054	2390	130xZ	0,025	1194	30xZ
18	18	18	0,043	2300	100 xZ	0,045	1770	80xZ	0,061	2123	130xZ	0,028	1062	30xZ
20	20	20	0,048	2070	100 xZ	0,050	1592	80xZ	0,068	1911	130xZ	0,031	955	30xZ
25	25	25	0,060	1656	100 xZ	0,063	1274	80xZ	0,085	1530	130xZ	0,039	765	30xZ

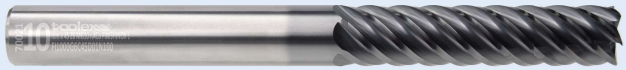
Solid carbide finishing end mills - Inox
VHM - Schlichtfräser - Inox
Fraise de finition carbure -Inox
Karbür Çok Ağızlı Freze - Inox



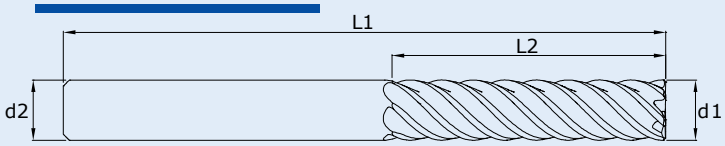
F	I	1000	G	6	C	22	D	01	N	072
END MILL	MG-10	d1	DIN 6928		DIN 6535 HA		45°	0.1x45°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Coated Code
6	13	57	6	6	FI0600G6C13D01B057	FI0600G6C13D01N057
8	19	63	8	6	FI0800G6C19D01B063	FI0800G6C19D01N063
10	22	72	10	6	FI1000G6C22D01B072	FI1000G6C22D01N072
12	26	83	12	6	FI1200G6C26D01B083	FI1200G6C26D01N083
14	26	83	14	6	FI1400G6C26D01B083	FI1400G6C26D01N083
16	32	92	16	6	FI1600G6C32D01B092	FI1600G6C32D01N092
18	32	92	18	8	FI1800G8C32D01B092	FI1800G8C32D01N092
20	38	104	20	8	FI2000G8C38D01B104	FI2000G8C38D01N104
25	45	121	25	10	FI2500G0C45D01B121	FI2500G0C45D01N121

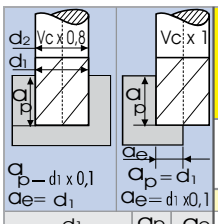
Solid carbide finishing end mills - Inox Long
VHM - Schlichtfräser - Inox Lang
Fraise de finition carbure - Inox Longue
Karbür Çok Ağızlı Freze - Inox Uzun



FINISH INOX <52 HRC

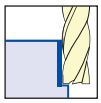


d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Coated Code
6	24	68	6	6	FI0600G6C24D01B068	FI0600G6C24D01N068
8	38	88	8	6	FI0800G6C38D01B088	FI0800G6C38D01N088
10	45	100	10	6	FI1000G6C45D01B100	FI1000G6C45D01N100
12	53	110	12	6	FI1200G6C53D01B110	FI1200G6C53D01N110
16	63	110	16	6	FI1600G6C63D01B110	FI1600G6C63D01N110
20	75	141	20	8	FI2000G8C75D01B141	FI2000G8C75D01N141
25	90	165	25	10	FI2500G0C90D01B165	FI2500G0C90D01N165

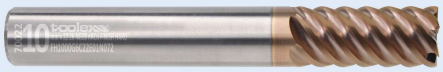


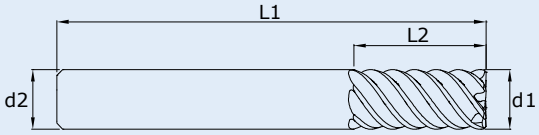
			INOX			AL			CU			TITAN		
			1.4405 1.4460 1.4505			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065		
			Vc=60 m/dk.			Vc=300 m/dk.			Vc=200 m/dk.			Vc=60 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
6	6	6	0,015	3185	50xZ	0,041	15924	650xZ	0,014	10617	150xZ	0,011	3185	35xZ
8	8	8	0,021	2390	50xZ	0,054	11942	650xZ	0,019	7962	150xZ	0,015	2390	35xZ
10	10	10	0,026	1910	50xZ	0,068	9554	650xZ	0,024	6370	150xZ	0,018	1910	35xZ
12	12	12	0,031	1592	50xZ	0,082	7962	650xZ	0,028	5308	150xZ	0,022	1592	35xZ
14	14	14	0,037	1365	50xZ	0,095	6824	650xZ	0,033	4550	150xZ	0,025	1365	35xZ
16	16	16	0,042	1194	50xZ	0,108	5971	650xZ	0,037	3981	150xZ	0,029	1194	35xZ
18	18	18	0,047	1062	50xZ	0,122	5308	650xZ	0,042	3540	150xZ	0,033	1062	35xZ
20	20	20	0,052	955	50xZ	0,136	4777	650xZ	0,047	3185	150xZ	0,037	955	35xZ
25	25	25	0,065	765	50xZ	0,170	3822	650xZ	0,059	2548	150xZ	0,046	765	35xZ

FINISH HARD 52 - 68 HRC



Solid carbide finishing end mills - Hard
VHM - Schlichtfräser - Hart
Fraise de finition carbure - Dure
Karbür Çok Ağızlı Freze -Sert



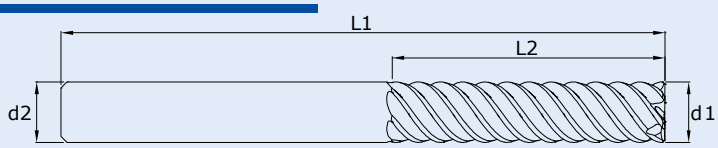


F	H	1000	G	6	C	22	E	01	N	072
END MILL	MG-08	d1	TOOLEX		DIN 6535 HA		55°	0.1x45°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

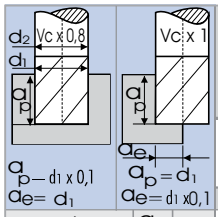
d1(e8)	L2	L1	d2(h6)	Z	Coated Code
6	13	57	6	6	FH0600G6C13E01N057
8	19	63	8	6	FH0800G6C19E01N063
10	22	72	10	6	FH1000G6C22E01N072
12	26	83	12	6	FH1200G6C26E01N083
14	26	83	14	6	FH1400G6C26E01N083
16	32	92	16	6	FH1600G6C32E01N092
18	32	92	18	8	FH1800G8C32E01N092
20	38	104	20	8	FH2000G8C38E01N104
25	45	121	25	10	FH2500G0C45E01N121

FINISH HARD LONG 52 - 68 HRC

Solid carbide finishing end mills - Hard Long
VHM - Schlichtfräser - Hart Lang
Fraise de finition carbure - Dure Longue
Karbür Çok Ağızlı Freze -Sert Uzun

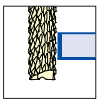


d1(e8)	L2	L1	d2(h6)	Z	Coated Code
6	24	68	6	6	FH0600G6C24E01N068
8	38	88	8	6	FH0800G6C38E01N088
10	45	100	10	6	FH1000G6C45E01N100
12	53	110	12	6	FH1200G6C53E01N110
16	63	110	16	6	FH1600G6C63E01N110
20	75	141	20	8	FH2000G8C75E01N141
25	90	165	25	10	FH2500G0C90E01N165



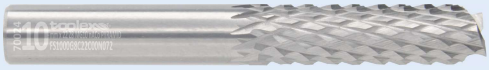
			HRC <50			HRC <53			HRC <56			HRC <59			HRC <61			HRC <63			HRC <65			HRC <68		
			1.5860-1.6587			1.1520 - 1.1525			1.2002 - 1.2003			1.1563 - 1.2004			1.2365 - 1.2379			1.3343 - 1.3344			1.3302 - 1.3318			1.2067 - 1.3343		
			1.6587-1.7326			1.1545 - 1.1820			1.2082 - 1.2344			1.2056 - 1.2057			1.2601 - 1.2622			1.3348 - 1.3355			1.3333 - 1.3334			1.3344 - 1.3355		
			Vc=65 m/dk.			Vc=60 m/dk.			Vc=55 m/dk.			Vc=50 m/dk.			Vc=45 m/dk.			Vc=40 m/dk.			Vc=35 m/dk.			Vc=30 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
6	0,6	0,6	0,011	3450	40 xZ	0,009	3185	30xZ	0,009	2919	26XZ	0,009	2654	24 xZ	0,009	2388	22 xZ	0,009	2123	19xZ	0,008	1858	16xZ	0,008	1592	13 xZ
8	0,8	0,8	0,015	2587	40 xZ	0,013	2390	30xZ	0,012	2189	26xZ	0,012	1990	24xZ	0,012	1791	22xZ	0,012	1592	19xZ	0,012	1393	16xZ	0,011	1194	13 xZ
10	1,0	1,0	0,019	2070	40 xZ	0,016	1910	30xZ	0,015	1752	26xZ	0,015	1592	24xZ	0,015	1433	22xZ	0,015	1274	19xZ	0,014	1115	16xZ	0,013	955	13 xZ
12	1,2	1,2	0,023	1725	40 xZ	0,019	1592	30xZ	0,018	1460	26xZ	0,018	1327	24xZ	0,018	1194	22xZ	0,018	1062	19xZ	0,017	929	16xZ	0,016	796	13 xZ
14	1,4	1,4	0,027	1478	40 xZ	0,022	1365	30xZ	0,021	1251	26xZ	0,021	1137	24xZ	0,021	1024	22xZ	0,021	910	19xZ	0,020	796	16xZ	0,019	682	13 xZ
16	1,6	1,6	0,031	1294	40 xZ	0,025	1194	30xZ	0,024	1095	26xZ	0,024	995	24xZ	0,024	896	22xZ	0,024	796	19xZ	0,023	697	16xZ	0,022	597	13 xZ
18	1,8	1,8	0,035	1150	40 xZ	0,028	1062	30xZ	0,027	973	26xZ	0,027	885	24xZ	0,027	796	22xZ	0,027	708	19xZ	0,026	619	16xZ	0,024	531	13 xZ
20	2,0	2,0	0,038	1035	40 xZ	0,031	955	30xZ	0,030	876	26xZ	0,030	796	24xZ	0,030	717	22xZ	0,030	637	19xZ	0,029	557	16xZ	0,027	478	13 xZ
25	2,5	2,5	0,048	828	40 xZ	0,039	765	30xZ	0,037	700	26xZ	0,038	637	24xZ	0,038	573	22xZ	0,038	510	19xZ	0,036	446	16xZ	0,034	382	13 xZ

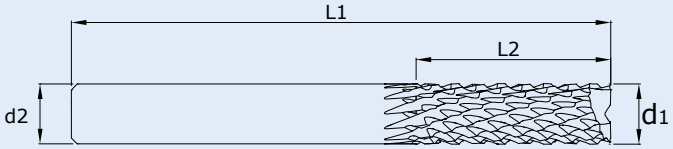
PYRAMID <52 HRC



Solid carbide end mills - Pyramid
VHM - Schaftfräser - Pyramid
Fraises en bout carbure - Pyramid

Karbür Freze - Pyramid





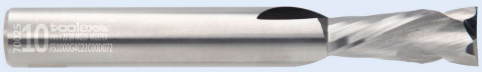
F	S	1000	G	9	C	22	C	00	N	072
END MILL	MG-10	d1	TOOLEX		DIN 6535 HA			0	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

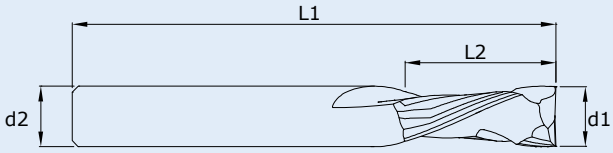
d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Coated Code
3	12	57	6	6	FS0300G6C12C00B057	FS0300G6C12C00N057
4	11	57	6	6	FS0400G6C11C00B057	FS0400G6C11C00N057
5	13	57	6	8	FS0500G8C13C00B057	FS0500G8C13C00N057
6	13	57	6	8	FS0600G8C13C00B057	FS0600G8C13C00N057
8	19	63	8	8	FS0800G8C19C00B063	FS0800G8C19C00N063
10	22	72	10	8	FS1000G8C22C00B072	FS1000G8C22C00N072
12	26	83	12	10	FS1200G1C26C00B083	FS1200G1C26C00N083
14	26	83	14	10	FS1400G1C26C00B083	FS1400G1C26C00N083
16	32	92	16	12	FS1600G1C32C00B092	FS1600G1C32C00N092
18	32	92	18	16	FS1800G1C32C00B092	FS1800G1C32C00N092
20	38	104	20	20	FS2000G2C38C00B104	FS2000G2C38C00N104

MULTEX <52 HRC

Solid carbide end mills - Multex
VHM - Schaftfräser - Multex
Fraises en bout carbure - Multex

Karbür Freze - Multex

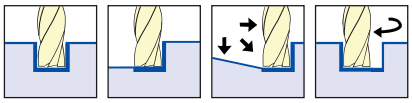




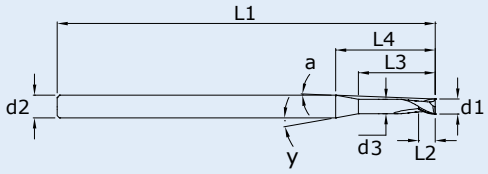
F	S	1000	G	2	C	22	C	00	D	072
END MILL	MG-10	d1	DIN 6528		DIN 6535 HA				nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Coated Code
6	13	57	6	2-4	FS0600G4C13C00B057	FS0600G4C13C00D057
8	19	63	8	2-4	FS0800G4C19C00B063	FS0800G4C19C00D063
10	22	72	10	2-4	FS1000G4C22C00B072	FS1000G4C22C00D072
12	26	83	12	2-4	FS1200G4C26C00B083	FS1200G4C26C00D083
16	32	92	16	2-4	FS1600G4C32C00B092	FS1600G4C32C00D092
18	32	92	18	2-4	FS1800G4C32C00B092	FS1800G4C32C00D092
20	38	104	20	2-4	FS2000G4C38C00B104	FS2000G4C38C00D104
6	24	68	6	2-4	FS0600G4C24C00B068	FS0600G4C24C00D068
8	38	88	8	2-4	FS0800G4C38C00B088	FS0800G4C38C00D088
10	45	100	10	2-4	FS1000G4C45C00B100	FS1000G4C45C00D100
12	53	110	12	2-4	FS1200G4C53C00B110	FS1200G4C53C00D110
16	63	110	16	2-4	FS1600G4C63C00B110	FS1600G4C63C00D110
18	63	110	18	2-4	FS1800G4C63C00B110	FS1800G4C63C00D110
20	75	141	20	2-4	FS2000G4C75C00B141	FS2000G4C75C00D141

MICRO <52 HRC

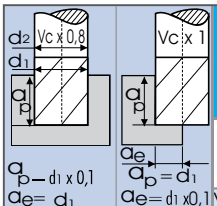


Solid carbide end mills - Micro
VHM - Schaftfräser - Micro
Fraises en bout carbure - Micro
Karbür Freze - Micro

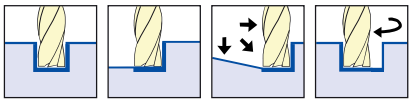


F	E	0100	G	2	K	40	A	00	N	020
END MILL	MG-10	d1	DIN 6528		DIN 6535 HA		30°		nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CHAMFER	COATED	FLUTE LENGTH

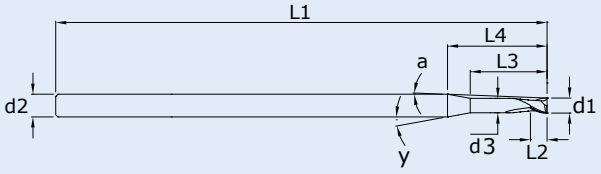
d1($^{+0,003}_{-0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Coated Code
0,2	0,3	0,4	11,9	0,19	40	3	2	7,0°	6,71°	FE0020G2K40A00N004
0,2	0,3	0,8	12,3	0,19	40	3	2	7,0°	6,50°	FE0020G2K40A00N008
0,2	0,3	1,2	9,2	0,19	40	3	2	10,0°	8,61°	FE0020G2K40A00N012
0,2	0,3	2,0	10,0	0,19	40	3	2	10,0°	7,94°	FE0020G2K40A00N020
0,3	0,5	0,6	11,8	0,29	40	3	2	7,0°	6,56°	FE0030G2K40A00N006
0,3	0,5	1,2	9,0	0,29	40	3	2	10,0°	8,53°	FE0030G2K40A00N012
0,3	0,5	2,4	10,2	0,29	40	3	2	10,0°	7,57°	FE0030G2K40A00N024
0,3	0,5	3,0	10,8	0,29	40	3	2	10,0°	7,12°	FE0030G2K40A00N030
0,4	0,6	0,8	11,6	0,38	40	3	2	7,0°	6,40°	FE0040G2K40A00N008
0,4	0,6	1,6	9,2	0,38	40	3	2	10,0°	8,70°	FE0040G2K40A00N016
0,4	0,6	3,2	10,8	0,38	40	3	2	10,0°	6,88°	FE0040G2K40A00N032
0,4	0,6	4,0	11,6	0,38	40	3	2	10,0°	6,41°	FE0040G2K40A00N040
0,5	0,8	1,0	11,4	0,48	40	3	2	7,0°	6,17°	FE0050G2K40A00N010
0,5	0,8	2,0	9,3	0,48	40	3	2	10,0°	7,63°	FE0050G2K40A00N020
0,5	0,8	4,0	11,3	0,48	40	3	2	10,0°	6,30°	FE0050G2K40A00N040
0,5	0,8	6,0	13,3	0,48	40	3	2	10,0°	5,36°	FE0050G2K40A00N060
0,6	0,9	1,2	11,3	0,57	40	3	2	7,0°	6,10°	FE0060G2K40A00N012
0,6	0,9	2,0	9,1	0,57	40	3	2	10,0°	7,52°	FE0060G2K40A00N020
0,6	0,9	4,0	11,1	0,57	40	3	2	10,0°	6,18°	FE0060G2K40A00N040
0,6	0,9	8,0	15,1	0,57	40	3	2	10,0°	4,55°	FE0060G2K40A00N080
0,7	1,1	1,4	11,1	0,67	40	3	2	7,0°	5,90°	FE0070G2K40A00N014
0,7	1,1	2,5	9,4	0,67	40	3	2	10,0°	6,99°	FE0070G2K40A00N025
0,7	1,1	5,0	11,9	0,67	40	3	2	10,0°	5,54°	FE0070G2K40A00N050
0,7	1,1	8,0	14,9	0,67	40	3	2	10,0°	4,43°	FE0070G2K40A00N080
0,8	1,2	2,0	8,6	0,76	40	3	2	10,0°	7,61°	FE0080G2K40A00N020
0,8	1,2	3,0	9,6	0,76	40	3	2	10,0°	6,51°	FE0080G2K40A00N030
0,8	1,2	6,0	12,6	0,76	40	3	2	10,0°	4,98°	FE0080G2K40A00N060
0,8	1,2	10,0	16,6	0,76	50	3	2	10,0°	3,44°	FE0080G2K50A00N100
1,0	1,5	2,0	8,2	0,95	40	3	2	10,0°	6,98°	FE0100G2K40A00N020
1,0	1,5	4,0	10,2	0,95	40	3	2	10,0°	5,62°	FE0100G2K40A00N040
1,0	1,5	8,0	14,2	0,95	40	3	2	10,0°	4,40°	FE0100G2K40A00N080
1,0	1,5	12,0	18,2	0,95	50	3	2	10,0°	3,16°	FE0100G2K50A00N120
1,0	1,5	16,0	22,2	0,95	50	3	2	10,0°	2,59°	FE0100G2K50A00N160
1,0	1,5	20,0	26,2	0,95	50	3	2	10,0°	2,19°	FE0100G2K50A00N200
1,2	1,8	2,0	7,7	1,14	40	3	2	10,0°	6,67°	FE0120G2K40A00N020
1,2	1,8	4,0	9,7	1,14	40	3	2	10,0°	5,31°	FE0120G2K40A00N040
1,5	2,3	4,0	9,0	1,43	40	3	2	10,0°	4,76°	FE0150G2K40A00N040
1,5	2,3	8,0	13,0	1,43	40	3	2	10,0°	3,30°	FE0150G2K40A00N080
1,5	2,3	12,0	17,0	1,43	50	3	2	10,0°	2,52°	FE0150G2K50A00N120
1,5	2,3	20,0	25,0	1,43	50	3	2	10,0°	1,72°	FE0150G2K50A00N200
2,0	3,0	4,0	7,8	1,90	40	3	4	10,0°	3,65°	FE0200G4K40A00N040
2,0	3,0	8,0	11,8	1,90	40	3	4	10,0°	2,42°	FE0200G4K40A00N080
2,0	3,0	12,0	15,8	1,90	50	3	4	10,0°	1,81°	FE0200G4K50A00N120
2,0	4,0	16,0	19,8	1,90	50	3	4	10,0°	1,45°	FE0200G4K50A00N160
2,0	4,0	20,0	23,8	1,90	50	3	4	10,0°	1,21°	FE0200G4K50A00N200



			HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
			1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
			Vc=120 m/dk.			Vc=80 m/dk.			Vc=60 m/dk.			Vc=200 m/dk.			Vc=460 m/dk.			Vc=230 m/dk.			Vc=60 m/dk.			Vc=50 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0,5	0,05	0,05	0,009	60000	1000x2	0,011	51200	1000x2	0,011	38400	800x2	0,007	60000	600x2	0,016	60000	1250x2	0,010	60000	1250x2	0,007	38400	400x2	0,008	32000	300x2
1,0	0,10	0,10	0,016	38400	1000x2	0,023	25600	1000x2	0,021	19200	800x2	0,013	60000	600x2	0,016	60000	1250x2	0,013	60000	1250x2	0,015	19200	400x2	0,016	16000	300x2
1,5	0,15	0,15	0,023	25600	1000x2	0,035	17000	1000x2	0,031	12800	800x2	0,019	42600	600x2	0,016	60000	1250x2	0,016	49000	1250x2	0,023	12800	400x2	0,024	10600	300x2
2,0	0,20	0,20	0,031	19200	1000x2	0,047	12800	1000x2	0,042	9600	800x2	0,025	32000	600x2	0,016	60000	1250x2	0,022	36800	1250x2	0,031	9600	400x2	0,033	8000	300x2

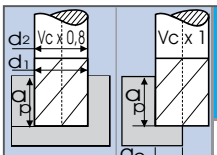


Solid carbide end mills - Micro Long
VHM - Schaftfräser - Micro Lang
Fraises en bout carbure - Micro Longue
Karbür Freze - Micro Uzun



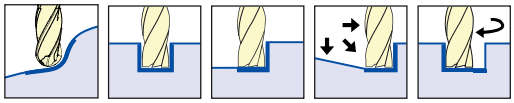
F	E	0100	G	2	K	65	A	00	N	020
END MILL	MG-10	d1	DIN 6528		DIN 6535 HA		30°		nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CHAMFER	COATED	FLUTE LENGTH

d1 ($\pm^{0,003}_{0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Coated Code
0,2	0,3	0,4	11,9	0,19	65	3	2	7,0°	6,71°	FE0020G2K65A00N004
0,2	0,3	0,8	12,3	0,19	65	3	2	7,0°	6,50°	FE0020G2K65A00N008
0,2	0,3	1,2	9,2	0,19	65	3	2	10,0°	8,61°	FE0020G2K65A00N012
0,2	0,3	2,0	10,0	0,19	65	3	2	10,0°	7,94°	FE0020G2K65A00N020
0,3	0,5	0,6	11,8	0,29	65	3	2	7,0°	6,56°	FE0030G2K65A00N006
0,3	0,5	1,2	9,0	0,29	65	3	2	10,0°	8,53°	FE0030G2K65A00N012
0,3	0,5	2,4	10,2	0,29	65	3	2	10,0°	7,57°	FE0030G2K65A00N024
0,3	0,5	3,0	10,8	0,29	65	3	2	10,0°	7,12°	FE0030G2K65A00N030
0,4	0,6	0,8	11,6	0,38	65	3	2	7,0°	6,40°	FE0040G2K65A00N008
0,4	0,6	1,6	9,2	0,38	65	3	2	10,0°	8,70°	FE0040G2K65A00N016
0,4	0,6	3,2	10,8	0,38	65	3	2	10,0°	6,88°	FE0040G2K65A00N032
0,4	0,6	4,0	11,6	0,38	65	3	2	10,0°	6,41°	FE0040G2K65A00N040
0,5	0,8	1,0	11,4	0,48	65	3	2	7,0°	6,17°	FE0050G2K65A00N010
0,5	0,8	2,0	9,3	0,48	65	3	2	10,0°	7,63°	FE0050G2K65A00N020
0,5	0,8	4,0	11,3	0,48	65	3	2	10,0°	6,30°	FE0050G2K65A00N040
0,5	0,8	6,0	13,3	0,48	65	3	2	10,0°	5,36°	FE0050G2K65A00N060
0,6	0,9	1,2	11,3	0,57	65	3	2	7,0°	6,10°	FE0060G2K65A00N012
0,6	0,9	2,0	9,1	0,57	65	3	2	10,0°	7,52°	FE0060G2K65A00N020
0,6	0,9	4,0	11,1	0,57	65	3	2	10,0°	6,18°	FE0060G2K65A00N040
0,6	0,9	8,0	15,1	0,57	65	3	2	10,0°	4,55°	FE0060G2K65A00N080
0,7	1,1	1,4	11,1	0,67	65	3	2	7,0°	5,90°	FE0070G2K65A00N014
0,7	1,1	2,5	9,4	0,67	65	3	2	10,0°	6,99°	FE0070G2K65A00N025
0,7	1,1	5,0	11,9	0,67	65	3	2	10,0°	5,54°	FE0070G2K65A00N050
0,7	1,1	8,0	14,9	0,67	65	3	2	10,0°	4,43°	FE0070G2K65A00N080
0,8	1,2	2,0	8,6	0,76	65	3	2	10,0°	7,61°	FE0080G2K65A00N020
0,8	1,2	3,0	9,6	0,76	65	3	2	10,0°	6,51°	FE0080G2K65A00N030
0,8	1,2	6,0	12,6	0,76	65	3	2	10,0°	4,98°	FE0080G2K65A00N060
0,8	1,2	10,0	16,6	0,76	65	3	2	10,0°	3,44°	FE0080G2K65A00N100
1,0	1,5	2,0	8,2	0,95	65	3	2	10,0°	6,98°	FE0100G2K65A00N020
1,0	1,5	4,0	10,2	0,95	65	3	2	10,0°	5,62°	FE0100G2K65A00N040
1,0	1,5	8,0	14,2	0,95	65	3	2	10,0°	4,40°	FE0100G2K65A00N080
1,0	1,5	12,0	18,2	0,95	65	3	2	10,0°	3,16°	FE0100G2K65A00N120
1,0	1,5	16,0	22,2	0,95	65	3	2	10,0°	2,59°	FE0100G2K65A00N160
1,0	1,5	20,0	26,2	0,95	65	3	2	10,0°	2,19°	FE0100G2K65A00N200
1,2	1,8	2,0	7,7	1,14	65	3	2	10,0°	6,67°	FE0120G2K65A00N020
1,2	1,8	4,0	9,7	1,14	65	3	2	10,0°	5,31°	FE0120G2K65A00N040
1,5	2,3	4,0	9,0	1,43	65	3	2	10,0°	4,76°	FE0150G2K65A00N040
1,5	2,3	8,0	13,0	1,43	65	3	2	10,0°	3,30°	FE0150G2K65A00N080
1,5	2,3	12,0	17,0	1,43	65	3	2	10,0°	2,52°	FE0150G2K65A00N120
1,5	2,3	20,0	25,0	1,43	65	3	2	10,0°	1,72°	FE0150G2K65A00N200
2,0	3,0	4,0	7,8	1,90	65	3	4	10,0°	3,65°	FE0200G4K65A00N040
2,0	3,0	8,0	11,8	1,90	65	3	4	10,0°	2,42°	FE0200G4K65A00N080
2,0	3,0	12,0	15,8	1,90	65	3	4	10,0°	1,81°	FE0200G4K65A00N120
2,0	4,0	16,0	19,8	1,90	65	3	4	10,0°	1,45°	FE0200G4K65A00N160
2,0	4,0	20,0	23,8	1,90	65	3	4	10,0°	1,21°	FE0200G4K65A00N200

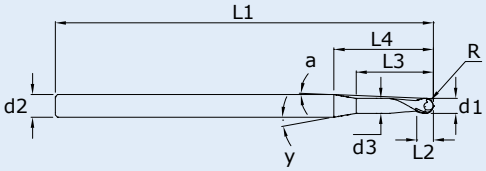


			HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
			1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
			Vc=120 m/dk.			Vc=80 m/dk.			Vc=60 m/dk.			Vc=200 m/dk.			Vc=460 m/dk.			Vc=230 m/dk.			Vc=60 m/dk.			Vc=50 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0,5	0,05	0,05	0,009	60000	1000x2	0,011	51200	1000x2	0,011	38400	800x2	0,007	60000	600x2	0,016	60000	1250x2	0,010	60000	1250x2	0,007	38400	400x2	0,008	32000	300x2
1,0	0,10	0,10	0,016	38400	1000x2	0,023	25600	1000x2	0,021	19200	800x2	0,013	60000	600x2	0,016	60000	1250x2	0,013	60000	1250x2	0,015	19200	400x2	0,016	16000	300x2
1,5	0,15	0,15	0,023	25600	1000x2	0,035	17000	1000x2	0,031	12800	800x2	0,019	42600	600x2	0,016	60000	1250x2	0,016	49000	1250x2	0,023	12800	400x2	0,024	10600	300x2
2,0	0,20	0,20	0,031	19200	1000x2	0,047	12800	1000x2	0,042	9600	800x2	0,025	32000	600x2	0,016	60000	1250x2	0,022	36800	1250x2	0,031	9600	400x2	0,033	8000	300x2

MICRO BALL NOSE <52 HRC

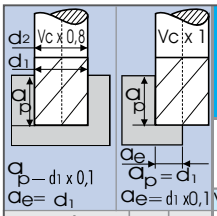


Solid carbide ball nose end mills - Micro
VHM - Radiusfräser - Micro
Fraises a rayon carbure - Micro
Karbür Küre Freze - Micro



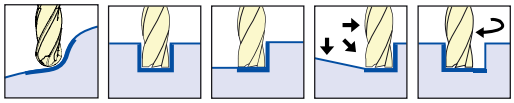
F	E	0100	R	2	K	40	A	50	N	020
END MILL	MG-10	d1	DIN 6528		DIN 6535 HA		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	RADIUS	COATED	FLUTE LENGTH

d1 ($\pm^{0,003}_{0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	R	Coated Code
0,2	0,3	0,4	11,9	0,19	40	3	2	7,0°	6,71°	0,10	FE0020R2K40A10N004
0,2	0,3	0,8	12,3	0,19	40	3	2	7,0°	6,50°	0,10	FE0020R2K40A10N008
0,2	0,3	1,2	9,2	0,19	40	3	2	10,0°	8,61°	0,10	FE0020R2K40A10N012
0,2	0,3	2,0	10,0	0,19	40	3	2	10,0°	7,94°	0,10	FE0020R2K40A10N020
0,3	0,5	0,6	11,8	0,29	40	3	2	7,0°	6,56°	0,15	FE0030R2K40A15N006
0,3	0,5	1,2	9,0	0,29	40	3	2	10,0°	8,53°	0,15	FE0030R2K40A15N012
0,3	0,5	2,4	10,2	0,29	40	3	2	10,0°	7,57°	0,15	FE0030R2K40A15N024
0,3	0,5	3,0	10,8	0,29	40	3	2	10,0°	7,12°	0,15	FE0030R2K40A15N030
0,4	0,6	0,8	11,6	0,38	40	3	2	7,0°	6,40°	0,20	FE0040R2K40A20N008
0,4	0,6	1,6	9,2	0,38	40	3	2	10,0°	8,70°	0,20	FE0040R2K40A20N016
0,4	0,6	3,2	10,8	0,38	40	3	2	10,0°	6,88°	0,20	FE0040R2K40A20N032
0,4	0,6	4,0	11,6	0,38	40	3	2	10,0°	6,41°	0,20	FE0040R2K40A20N040
0,5	0,8	1,0	11,4	0,48	40	3	2	7,0°	6,17°	0,25	FE0050R2K40A25N010
0,5	0,8	2,0	9,3	0,48	40	3	2	10,0°	7,63°	0,25	FE0050R2K40A25N020
0,5	0,8	4,0	11,3	0,48	40	3	2	10,0°	6,30°	0,25	FE0050R2K40A25N040
0,5	0,8	6,0	13,3	0,48	40	3	2	10,0°	5,36°	0,25	FE0050R2K40A25N060
0,6	0,9	1,2	11,3	0,57	40	3	2	7,0°	6,10°	0,30	FE0060R2K40A30N012
0,6	0,9	2,0	9,1	0,57	40	3	2	10,0°	7,52°	0,30	FE0060R2K40A30N020
0,6	0,9	4,0	11,1	0,57	40	3	2	10,0°	6,18°	0,30	FE0060R2K40A30N040
0,6	0,9	8,0	15,1	0,57	40	3	2	10,0°	4,55°	0,30	FE0060R2K40A30N080
0,7	1,1	1,4	11,1	0,67	40	3	2	7,0°	5,90°	0,35	FE0070R2K40A35N014
0,7	1,1	2,5	9,4	0,67	40	3	2	10,0°	6,99°	0,35	FE0070R2K40A35N025
0,7	1,1	5,0	11,9	0,67	40	3	2	10,0°	5,54°	0,35	FE0070R2K40A35N050
0,7	1,1	8,0	14,9	0,67	40	3	2	10,0°	4,43°	0,35	FE0070R2K40A35N080
0,8	1,2	2,0	8,6	0,76	40	3	2	10,0°	7,61°	0,40	FE0080R2K40A40N020
0,8	1,2	3,0	9,6	0,76	40	3	2	10,0°	6,51°	0,40	FE0080R2K40A40N030
0,8	1,2	6,0	12,6	0,76	40	3	2	10,0°	4,98°	0,40	FE0080R2K40A40N060
0,8	1,2	10,0	16,6	0,76	50	3	2	10,0°	3,44°	0,40	FE0080R2K50A40N100
1,0	1,5	2,0	8,2	0,95	40	3	2	10,0°	6,98°	0,50	FE0100R2K40A50N020
1,0	1,5	4,0	10,2	0,95	40	3	2	10,0°	5,62°	0,50	FE0100R2K40A50N040
1,0	1,5	8,0	14,2	0,95	40	3	2	10,0°	4,40°	0,50	FE0100R2K40A50N080
1,0	1,5	12,0	18,2	0,95	50	3	2	10,0°	3,16°	0,50	FE0100R2K50A50N120
1,0	1,5	16,0	22,2	0,95	50	3	2	10,0°	2,59°	0,50	FE0100R2K50A50N160
1,0	1,5	20,0	26,2	0,95	50	3	2	10,0°	2,19°	0,50	FE0100R2K50A50N200
1,2	1,8	2,0	7,7	1,14	40	3	2	10,0°	6,67°	0,60	FE0120R2K40A60N020
1,2	1,8	4,0	9,7	1,14	40	3	2	10,0°	5,31°	0,60	FE0120R2K40A60N040
1,5	2,3	4,0	9,0	1,43	40	3	2	10,0°	4,76°	0,75	FE0150R2K40A75N040
1,5	2,3	8,0	13,0	1,43	40	3	2	10,0°	3,30°	0,75	FE0150R2K40A75N080
1,5	2,3	12,0	17,0	1,43	50	3	2	10,0°	2,52°	0,75	FE0150R2K50A75N120
1,5	2,3	20,0	25,0	1,43	50	3	2	10,0°	1,72°	0,75	FE0150R2K50A75N200
2,0	3,0	4,0	7,8	1,90	40	3	2	10,0°	3,65°	1,00	FE0200R2K40A10N040
2,0	3,0	8,0	11,8	1,90	40	3	2	10,0°	2,42°	1,00	FE0200R2K40A10N080
2,0	3,0	12,0	15,8	1,90	50	3	2	10,0°	1,81°	1,00	FE0200R2K50A10N120
2,0	4,0	16,0	19,8	1,90	50	3	2	10,0°	1,45°	1,00	FE0200R2K50A10N160
2,0	4,0	20,0	23,8	1,90	50	3	2	10,0°	1,21°	1,00	FE0200R2K50A10N200

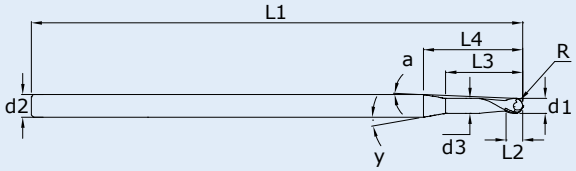


d1	ap	ae	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
			1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
			Vc=120 m/dk.			Vc=80 m/dk.			Vc=60 m/dk.			Vc=200 m/dk.			Vc=460 m/dk.			Vc=230 m/dk.			Vc=60 m/dk.			Vc=50 m/dk.		
			fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0,5	0,05	0,05	0,009	60000	1000x2	0,011	51200	1000x2	0,011	38400	800x2	0,007	60000	600x2	0,016	60000	1250x2	0,010	60000	1250x2	0,007	38400	400x2	0,008	32000	300x2
1,0	0,10	0,10	0,016	38400	1000x2	0,023	25600	1000x2	0,021	19200	800x2	0,013	60000	600x2	0,016	60000	1250x2	0,013	60000	1250x2	0,015	19200	400x2	0,016	16000	300x2
1,5	0,15	0,15	0,023	25600	1000x2	0,035	17000	1000x2	0,031	12800	800x2	0,019	42600	600x2	0,016	60000	1250x2	0,016	49000	1250x2	0,023	12800	400x2	0,024	10600	300x2
2,0	0,20	0,20	0,031	19200	1000x2	0,047	12800	1000x2	0,042	9600	800x2	0,025	32000	600x2	0,016	60000	1250x2	0,022	36800	1250x2	0,031	9600	400x2	0,033	8000	300x2

MICRO LONG BALL NOSE <52 HRC

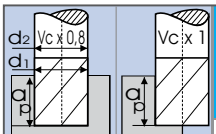


Solid carbide ball nose end mills - Micro Long
VHM - Radiusfräser - Micro Lang
Fraises a rayon carbure - Micro Longue
Karbür Küre Freze - Micro Uzun

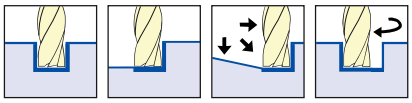


F	E	0100	R	2	K	65	A	50	N	020
END MILL	MG-10	d1	DIN 6528		DIN 6535 HA		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	RADIUS	COATED	FLUTE LENGTH

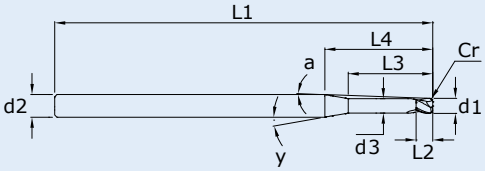
d1 ($\pm^{0,003}_{0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	R	Coated Code
0,2	0,3	0,4	11,9	0,19	65	3	2	7,0°	6,71°	0,10	FE0020R2K65A10N004
0,2	0,3	0,8	12,3	0,19	65	3	2	7,0°	6,50°	0,10	FE0020R2K65A10N008
0,2	0,3	1,2	9,2	0,19	65	3	2	10,0°	8,61°	0,10	FE0020R2K65A10N012
0,2	0,3	2,0	10,0	0,19	65	3	2	10,0°	7,94°	0,10	FE0020R2K65A10N020
0,3	0,5	0,6	11,8	0,29	65	3	2	7,0°	6,56°	0,15	FE0030R2K65A15N006
0,3	0,5	1,2	9,0	0,29	65	3	2	10,0°	8,53°	0,15	FE0030R2K65A15N012
0,3	0,5	2,4	10,2	0,29	65	3	2	10,0°	7,57°	0,15	FE0030R2K65A15N024
0,3	0,5	3,0	10,8	0,29	65	3	2	10,0°	7,12°	0,15	FE0030R2K65A15N030
0,4	0,6	0,8	11,6	0,38	65	3	2	7,0°	6,40°	0,20	FE0040R2K65A20N008
0,4	0,6	1,6	9,2	0,38	65	3	2	10,0°	8,70°	0,20	FE0040R2K65A20N016
0,4	0,6	3,2	10,8	0,38	65	3	2	10,0°	6,88°	0,20	FE0040R2K65A20N032
0,4	0,6	4,0	11,6	0,38	65	3	2	10,0°	6,41°	0,20	FE0040R2K65A20N040
0,5	0,8	1,0	11,4	0,48	65	3	2	7,0°	6,17°	0,25	FE0050R2K65A25N010
0,5	0,8	2,0	9,3	0,48	65	3	2	10,0°	7,63°	0,25	FE0050R2K65A25N020
0,5	0,8	4,0	11,3	0,48	65	3	2	10,0°	6,30°	0,25	FE0050R2K65A25N040
0,5	0,8	6,0	13,3	0,48	65	3	2	10,0°	5,36°	0,25	FE0050R2K65A25N060
0,6	0,9	1,2	11,3	0,57	65	3	2	7,0°	6,10°	0,30	FE0060R2K65A30N012
0,6	0,9	2,0	9,1	0,57	65	3	2	10,0°	7,52°	0,30	FE0060R2K65A30N020
0,6	0,9	4,0	11,1	0,57	65	3	2	10,0°	6,18°	0,30	FE0060R2K65A30N040
0,6	0,9	8,0	15,1	0,57	65	3	2	10,0°	4,55°	0,30	FE0060R2K65A30N080
0,7	1,1	1,4	11,1	0,67	65	3	2	7,0°	5,90°	0,35	FE0070R2K65A35N014
0,7	1,1	2,5	9,4	0,67	65	3	2	10,0°	6,99°	0,35	FE0070R2K65A35N025
0,7	1,1	5,0	11,9	0,67	65	3	2	10,0°	5,54°	0,35	FE0070R2K65A35N050
0,7	1,1	8,0	14,9	0,67	65	3	2	10,0°	4,43°	0,35	FE0070R2K65A35N080
0,8	1,2	2,0	8,6	0,76	65	3	2	10,0°	7,61°	0,40	FE0080R2K65A40N020
0,8	1,2	3,0	9,6	0,76	65	3	2	10,0°	6,51°	0,40	FE0080R2K65A40N030
0,8	1,2	6,0	12,6	0,76	65	3	2	10,0°	4,98°	0,40	FE0080R2K65A40N060
0,8	1,2	10,0	16,6	0,76	65	3	2	10,0°	3,44°	0,40	FE0080R2K65A40N100
1,0	1,5	2,0	8,2	0,95	65	3	2	10,0°	6,98°	0,50	FE0100R2K65A50N020
1,0	1,5	4,0	10,2	0,95	65	3	2	10,0°	5,62°	0,50	FE0100R2K65A50N040
1,0	1,5	8,0	14,2	0,95	65	3	2	10,0°	4,40°	0,50	FE0100R2K65A50N080
1,0	1,5	12,0	18,2	0,95	65	3	2	10,0°	3,16°	0,50	FE0100R2K65A50N120
1,0	1,5	16,0	22,2	0,95	65	3	2	10,0°	2,59°	0,50	FE0100R2K65A50N160
1,0	1,5	20,0	26,2	0,95	65	3	2	10,0°	2,19°	0,50	FE0100R2K65A50N200
1,2	1,8	2,0	7,7	1,14	65	3	2	10,0°	6,67°	0,60	FE0120R2K65A60N020
1,2	1,8	4,0	9,7	1,14	65	3	2	10,0°	5,31°	0,60	FE0120R2K65A60N040
1,5	2,3	4,0	9,0	1,43	65	3	2	10,0°	4,76°	0,75	FE0150R2K65A75N040
1,5	2,3	8,0	13,0	1,43	65	3	2	10,0°	3,30°	0,75	FE0150R2K65A75N080
1,5	2,3	12,0	17,0	1,43	65	3	2	10,0°	2,52°	0,75	FE0150R2K65A75N120
1,5	2,3	20,0	25,0	1,43	65	3	2	10,0°	1,72°	0,75	FE0150R2K65A75N200
2,0	3,0	4,0	7,8	1,90	65	3	2	10,0°	3,65°	1,00	FE0200R2K65A10N040
2,0	3,0	8,0	11,8	1,90	65	3	2	10,0°	2,42°	1,00	FE0200R2K65A10N080
2,0	3,0	12,0	15,8	1,90	65	3	2	10,0°	1,81°	1,00	FE0200R2K65A10N120
2,0	4,0	16,0	19,8	1,90	65	3	2	10,0°	1,45°	1,00	FE0200R2K65A10N160
2,0	4,0	20,0	23,8	1,90	65	3	2	10,0°	1,21°	1,00	FE0200R2K65A10N200



			HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
			1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
			Vc=120 m/dk.			Vc=80 m/dk.			Vc=60 m/dk.			Vc=200 m/dk.			Vc=460 m/dk.			Vc=230 m/dk.			Vc=60 m/dk.			Vc=50 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0,5	0,05	0,05	0,009	60000	1000x2	0,011	51200	1000x2	0,011	38400	800x2	0,007	60000	600x2	0,016	60000	1250x2	0,010	60000	1250x2	0,007	38400	400x2	0,008	32000	300x2
1,0	0,10	0,10	0,016	38400	1000x2	0,023	25600	1000x2	0,021	19200	800x2	0,013	60000	600x2	0,016	60000	1250x2	0,013	60000	1250x2	0,015	19200	400x2	0,016	16000	300x2
1,5	0,15	0,15	0,023	25600	1000x2	0,035	17000	1000x2	0,031	12800	800x2	0,019	42600	600x2	0,016	60000	1250x2	0,016	49000	1250x2	0,023	12800	400x2	0,024	10600	300x2
2,0	0,20	0,20	0,031	19200	1000x2	0,047	12800	1000x2	0,042	9600	800x2	0,025	32000	600x2	0,016	60000	1250x2	0,022	36800	1250x2	0,031	9600	400x2	0,033	8000	300x2

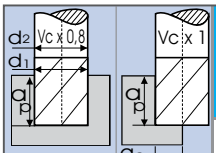


Solid carbide end mills with corner radius - Micro
VHM - Schaftfräser mit Eckenradius - Micro
Fraises toriques carbure - Micro
Karbür Köşe Radyüslü Freze - Micro



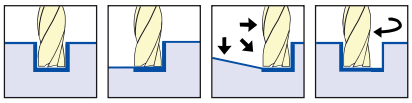
F	E	0100	K	2	K	40	A	20	N	020
END MILL	MG-10	d1	TOOLEX		DIN 6535 HA		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	CORNER RADIUS	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CORNER RADIUS	COATED	FLUTE LENGTH

d1($^{+0,003}_{-0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Cr	Coated Code
0,5	0,8	1,0	11,4	0,48	40	3	2	7,0°	6,17°	0,10	FE0050K2K40A10N010
0,5	0,8	2,0	9,3	0,48	40	3	2	10,0°	7,63°	0,10	FE0050K2K40A10N020
0,5	0,8	4,0	11,3	0,48	40	3	2	10,0°	6,30°	0,10	FE0050K2K40A10N040
0,5	0,8	6,0	13,3	0,48	40	3	2	10,0°	5,36°	0,10	FE0050K2K40A10N060
0,6	0,9	1,2	11,3	0,57	40	3	2	7,0°	6,10°	0,10	FE0060K2K40A10N012
0,6	0,9	2,0	9,1	0,57	40	3	2	10,0°	7,52°	0,10	FE0060K2K40A10N020
0,6	0,9	4,0	11,1	0,57	40	3	2	10,0°	6,18°	0,10	FE0060K2K40A10N040
0,6	0,9	8,0	15,1	0,57	40	3	2	10,0°	4,55°	0,10	FE0060K2K40A10N080
0,7	1,1	1,4	11,1	0,67	40	3	2	7,0°	5,90°	0,10	FE0070K2K40A10N014
0,7	1,1	2,5	9,4	0,67	40	3	2	10,0°	6,99°	0,10	FE0070K2K40A10N025
0,7	1,1	5,0	11,9	0,67	40	3	2	10,0°	5,54°	0,10	FE0070K2K40A10N050
0,7	1,1	8,0	14,9	0,67	40	3	2	10,0°	4,43°	0,10	FE0070K2K40A10N080
0,8	1,2	2,0	8,6	0,76	40	3	2	10,0°	7,61°	0,15	FE0080K2K40A15N020
0,8	1,2	3,0	9,6	0,76	40	3	2	10,0°	6,51°	0,15	FE0080K2K40A15N030
0,8	1,2	6,0	12,6	0,76	40	3	2	10,0°	4,98°	0,15	FE0080K2K40A15N060
0,8	1,2	10,0	16,6	0,76	50	3	2	10,0°	3,44°	0,15	FE0080K2K50A15N100
1,0	1,5	2,0	8,2	0,95	40	3	2	10,0°	6,98°	0,20	FE0100K2K40A20N020
1,0	1,5	4,0	10,2	0,95	40	3	2	10,0°	5,62°	0,20	FE0100K2K40A20N040
1,0	1,5	8,0	14,2	0,95	40	3	2	10,0°	4,40°	0,20	FE0100K2K40A20N080
1,0	1,5	12,0	18,2	0,95	50	3	2	10,0°	3,16°	0,20	FE0100K2K50A20N120
1,0	1,5	16,0	22,2	0,95	50	3	2	10,0°	2,59°	0,20	FE0100K2K50A20N160
1,0	1,5	20,0	26,2	0,95	50	3	2	10,0°	2,19°	0,20	FE0100K2K50A20N200
1,2	1,8	2,0	7,7	1,14	40	3	2	10,0°	6,67°	0,25	FE0120K2K40A25N020
1,2	1,8	4,0	9,7	1,14	40	3	2	10,0°	5,31°	0,25	FE0120K2K40A25N040
1,5	2,3	4,0	9,0	1,43	40	3	2	10,0°	4,76°	0,30	FE0150K2K40A30N040
1,5	2,3	8,0	13,0	1,43	40	3	2	10,0°	3,30°	0,30	FE0150K2K40A30N080
1,5	2,3	12,0	17,0	1,43	50	3	2	10,0°	2,52°	0,30	FE0150K2K50A30N120
1,5	2,3	20,0	25,0	1,43	50	3	2	10,0°	1,72°	0,30	FE0150K2K50A30N200
2,0	3,0	4,0	7,8	1,90	40	3	4	10,0°	3,65°	0,50	FE0200K4K40A50N040
2,0	3,0	8,0	11,8	1,90	40	3	4	10,0°	2,42°	0,50	FE0200K4K40A50N080
2,0	3,0	12,0	15,8	1,90	50	3	4	10,0°	1,81°	0,50	FE0200K4K50A50N120
2,0	4,0	16,0	19,8	1,90	50	3	4	10,0°	1,45°	0,50	FE0200K4K50A50N160
2,0	4,0	20,0	23,8	1,90	50	3	4	10,0°	1,21°	0,50	FE0200K4K50A50N200

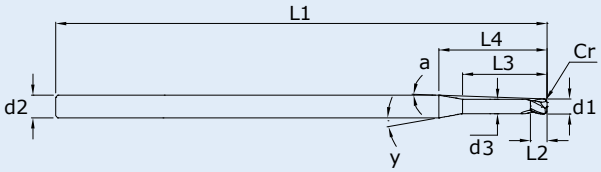


			HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
			1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
			Vc=120 m/dk.			Vc=80 m/dk.			Vc=60 m/dk.			Vc=200 m/dk.			Vc=460 m/dk.			Vc=230 m/dk.			Vc=60 m/dk.			Vc=50 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0,5	0,05	0,05	0,009	60000	1000x2	0,011	51200	1000x2	0,011	38400	800x2	0,007	60000	600x2	0,016	60000	1250x2	0,010	60000	1250x2	0,007	38400	400x2	0,008	32000	300x2
1,0	0,10	0,10	0,016	38400	1000x2	0,023	25600	1000x2	0,021	19200	800x2	0,013	60000	600x2	0,016	60000	1250x2	0,013	60000	1250x2	0,015	19200	400x2	0,016	16000	300x2
1,5	0,15	0,15	0,023	25600	1000x2	0,035	17000	1000x2	0,031	12800	800x2	0,019	42600	600x2	0,016	60000	1250x2	0,016	49000	1250x2	0,023	12800	400x2	0,024	10600	300x2
2,0	0,20	0,20	0,031	19200	1000x2	0,047	12800	1000x2	0,042	9600	800x2	0,025	32000	600x2	0,016	60000	1250x2	0,022	36800	1250x2	0,031	9600	400x2	0,033	8000	300x2

MICRO LONG CORNER - R <52 HRC

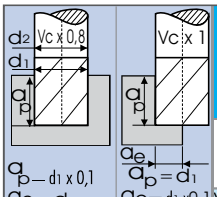


Solid carbide end mills with corner radius - Micro Long
VHM - Schaftfräser mit Eckenradius - Micro Lang
Fraises toriques carbure - Micro Longue
Karbür Köşe Radyüslü Freze -Micro Uzun



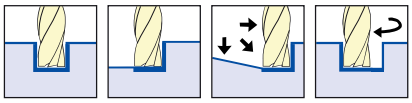
F	E	0100	K	2	K	65	A	20	N	020
END MILL	MG-10	d1	TOOLEX		DIN 6535 HA		30	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	CORNER RADIUS	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CORNER RADIUS	COATED	FLUTE LENGTH

d1 ($^{+0,003}_{-0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Cr	Coated Code
0,5	0,8	1,0	11,4	0,48	65	3	2	7,0°	6,17°	0,10	FE0050K2K65A10N010
0,5	0,8	2,0	9,3	0,48	65	3	2	10,0°	7,63°	0,10	FE0050K2K65A10N020
0,5	0,8	4,0	11,3	0,48	65	3	2	10,0°	6,30°	0,10	FE0050K2K65A10N040
0,5	0,8	6,0	13,3	0,48	65	3	2	10,0°	5,36°	0,10	FE0050K2K65A10N060
0,6	0,9	1,2	11,3	0,57	65	3	2	7,0°	6,10°	0,10	FE0060K2K65A10N012
0,6	0,9	2,0	9,1	0,57	65	3	2	10,0°	7,52°	0,10	FE0060K2K65A10N020
0,6	0,9	4,0	11,1	0,57	65	3	2	10,0°	6,18°	0,10	FE0060K2K65A10N040
0,6	0,9	8,0	15,1	0,57	65	3	2	10,0°	4,55°	0,10	FE0060K2K65A10N080
0,7	1,1	1,4	11,1	0,67	65	3	2	7,0°	5,90°	0,10	FE0070K2K65A10N014
0,7	1,1	2,5	9,4	0,67	65	3	2	10,0°	6,99°	0,10	FE0070K2K65A10N025
0,7	1,1	5,0	11,9	0,67	65	3	2	10,0°	5,54°	0,10	FE0070K2K65A10N050
0,7	1,1	8,0	14,9	0,67	65	3	2	10,0°	4,43°	0,10	FE0070K2K65A10N080
0,8	1,2	2,0	8,6	0,76	65	3	2	10,0°	7,61°	0,15	FE0080K2K65A15N020
0,8	1,2	3,0	9,6	0,76	65	3	2	10,0°	6,51°	0,15	FE0080K2K65A15N030
0,8	1,2	6,0	12,6	0,76	65	3	2	10,0°	4,98°	0,15	FE0080K2K65A15N060
0,8	1,2	10,0	16,6	0,76	65	3	2	10,0°	3,44°	0,15	FE0080K2K65A15N100
1,0	1,5	2,0	8,2	0,95	65	3	2	10,0°	6,98°	0,20	FE0100K2K65A20N020
1,0	1,5	4,0	10,2	0,95	65	3	2	10,0°	5,62°	0,20	FE0100K2K65A20N040
1,0	1,5	8,0	14,2	0,95	65	3	2	10,0°	4,40°	0,20	FE0100K2K65A20N080
1,0	1,5	12,0	18,2	0,95	65	3	2	10,0°	3,16°	0,20	FE0100K2K65A20N120
1,0	1,5	16,0	22,2	0,95	65	3	2	10,0°	2,59°	0,20	FE0100K2K65A20N160
1,0	1,5	20,0	26,2	0,95	65	3	2	10,0°	2,19°	0,20	FE0100K2K65A20N200
1,2	1,8	2,0	7,7	1,14	65	3	2	10,0°	6,67°	0,25	FE0120K2K65A25N020
1,2	1,8	4,0	9,7	1,14	65	3	2	10,0°	5,31°	0,25	FE0120K2K65A25N040
1,5	2,3	4,0	9,0	1,43	65	3	2	10,0°	4,76°	0,30	FE0150K2K65A30N040
1,5	2,3	8,0	13,0	1,43	65	3	2	10,0°	3,30°	0,30	FE0150K2K65A30N080
1,5	2,3	12,0	17,0	1,43	65	3	2	10,0°	2,52°	0,30	FE0150K2K65A30N120
1,5	2,3	20,0	25,0	1,43	65	3	2	10,0°	1,72°	0,30	FE0150K2K65A30N200
2,0	3,0	4,0	7,8	1,90	65	3	4	10,0°	3,65°	0,50	FE0200K4K65A50N040
2,0	3,0	8,0	11,8	1,90	65	3	4	10,0°	2,42°	0,50	FE0200K4K65A50N080
2,0	3,0	12,0	15,8	1,90	65	3	4	10,0°	1,81°	0,50	FE0200K4K65A50N120
2,0	4,0	16,0	19,8	1,90	65	3	4	10,0°	1,45°	0,50	FE0200K4K65A50N160
2,0	4,0	20,0	23,8	1,90	65	3	4	10,0°	1,21°	0,50	FE0200K4K65A50N200

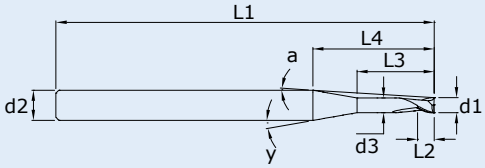


			HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
			1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
			Vc=120 m/dk.			Vc=80 m/dk.			Vc=60 m/dk.			Vc=200 m/dk.			Vc=460 m/dk.			Vc=230 m/dk.			Vc=60 m/dk.			Vc=50 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0,5	0,05	0,05	0,009	60000	1000x2	0,011	51200	1000x2	0,011	38400	800x2	0,007	60000	600x2	0,016	60000	1250x2	0,010	60000	1250x2	0,007	38400	400x2	0,008	32000	300x2
1,0	0,10	0,10	0,016	38400	1000x2	0,023	25600	1000x2	0,021	19200	800x2	0,013	60000	600x2	0,016	60000	1250x2	0,013	60000	1250x2	0,015	19200	400x2	0,016	16000	300x2
1,5	0,15	0,15	0,023	25600	1000x2	0,035	17000	1000x2	0,031	12800	800x2	0,019	42600	600x2	0,016	60000	1250x2	0,016	49000	1250x2	0,023	12800	400x2	0,024	10600	300x2
2,0	0,20	0,20	0,031	19200	1000x2	0,047	12800	1000x2	0,042	9600	800x2	0,025	32000	600x2	0,016	60000	1250x2	0,022	36800	1250x2	0,031	9600	400x2	0,033	8000	300x2

MINI <52 HRC

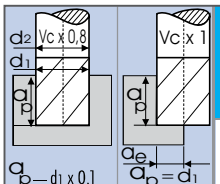


Solid carbide end mills - Mini
VHM - Schaftfräser - Mini
Fraises en bout carbure - Mini
Karbür Freze - Mini



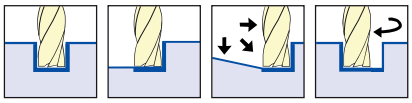
F	E	0100	G	2	N	50	A	00	N	020
END MILL	MG-10	d1	DIN 6528		DIN 6535 HA		30°		nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CHAMFER	COATED	FLUTE LENGTH

d1 ($\pm^{0,003}_{0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Coated Code
0,2	0,3	0,4	15,98	0,19	50	4	2	7,00°	6,78°	FE0020G2N50A00N004
0,2	0,3	0,8	16,38	0,19	50	4	2	7,00°	6,62°	FE0020G2N50A00N008
0,2	0,3	1,2	12,08	0,19	50	4	2	10,00°	8,94°	FE0020G2N50A00N012
0,2	0,3	2,0	12,88	0,19	50	4	2	10,00°	8,39°	FE0020G2N50A00N020
0,3	0,5	0,6	15,85	0,29	50	4	2	7,00°	6,66°	FE0030G2N50A00N006
0,3	0,5	1,2	11,85	0,29	50	4	2	10,00°	8,88°	FE0030G2N50A00N012
0,3	0,5	2,4	13,05	0,29	50	4	2	10,00°	8,70°	FE0030G2N50A00N024
0,3	0,5	3,0	13,65	0,29	50	4	2	10,00°	7,72°	FE0030G2N50A00N030
0,4	0,6	0,8	15,66	0,38	50	4	2	7,00°	6,55°	FE0040G2N50A00N008
0,4	0,6	1,6	12,01	0,38	50	4	2	10,00°	8,52°	FE0040G2N50A00N016
0,4	0,6	3,2	13,61	0,38	50	4	2	10,00°	7,53°	FE0040G2N50A00N032
0,4	0,6	4,0	14,41	0,38	50	4	2	10,00°	6,92°	FE0040G2N50A00N040
0,5	0,8	1,0	15,55	0,48	50	4	2	7,00°	6,42°	FE0050G2N50A00N010
0,5	0,8	2,0	12,18	0,48	50	4	2	10,00°	8,17°	FE0050G2N50A00N020
0,5	0,8	4,0	14,18	0,48	50	4	2	10,00°	7,03°	FE0050G2N50A00N040
0,5	0,8	6,0	16,18	0,48	50	4	2	10,00°	6,17°	FE0050G2N50A00N060
0,6	0,9	1,2	15,35	0,57	50	4	2	10,00°	6,32°	FE0060G2N50A00N012
0,6	0,9	2,0	11,95	0,57	50	4	2	10,00°	8,09°	FE0060G2N50A00N020
0,6	0,9	4,0	13,95	0,57	50	4	2	10,00°	6,94°	FE0060G2N50A00N040
0,6	0,9	8,0	17,95	0,57	50	4	2	10,00°	5,41°	FE0060G2N50A00N080
0,7	1,1	1,4	15,18	0,67	50	4	2	7,00°	6,20°	FE0070G2N50A00N014
0,7	1,1	2,5	12,21	0,67	50	4	2	10,00°	7,69°	FE0070G2N50A00N025
0,7	1,1	5,0	14,71	0,67	50	4	2	10,00°	6,40°	FE0070G2N50A00N050
0,7	1,1	8,0	17,71	0,67	50	4	2	10,00°	5,32°	FE0070G2N50A00N080
0,8	1,2	1,6	11,10	0,76	50	4	2	10,00°	8,20°	FE0080G2N50A00N016
0,8	1,2	3,0	12,50	0,76	50	4	2	10,00°	7,29°	FE0080G2N50A00N030
0,8	1,2	6,0	15,50	0,76	50	4	2	10,00°	5,89°	FE0080G2N50A00N060
0,8	1,2	10,0	19,50	0,76	50	4	2	10,00°	4,69°	FE0080G2N50A00N100
1,0	1,5	2,0	11,01	0,95	50	4	2	10,00°	7,75°	FE0100G2N50A00N020
1,0	1,5	4,0	13,01	0,95	50	4	2	10,00°	6,57°	FE0100G2N50A00N040
1,0	1,5	8,0	17,01	0,95	50	4	2	10,00°	5,03°	FE0100G2N50A00N080
1,0	1,5	12,0	21,01	0,95	50	4	2	10,00°	4,08°	FE0100G2N50A00N120
1,0	1,5	16,0	25,01	0,95	50	4	2	10,00°	3,43°	FE0100G2N50A00N160
1,0	1,5	20,0	29,01	0,95	50	4	2	10,00°	2,96°	FE0100G2N50A00N200
1,2	1,8	2,0	10,54	1,14	50	4	2	10,00°	7,56°	FE0120G2N50A00N020
1,2	1,8	4,0	12,54	1,14	50	4	2	10,00°	6,37°	FE0120G2N50A00N040
1,5	2,3	4,0	11,85	1,43	50	4	2	10,00°	6,02°	FE0150G2N50A00N040
1,5	2,3	8,0	15,85	1,43	50	4	2	10,00°	4,50°	FE0150G2N50A00N080
1,5	2,3	12,0	19,85	1,43	50	4	2	10,00°	3,60°	FE0150G2N50A00N120
1,5	2,3	20,0	27,85	1,43	50	4	2	10,00°	2,57°	FE0150G2N50A00N200
2,0	3,0	4,0	10,68	1,90	50	4	4	10,00°	5,35°	FE0200G4N50A00N040
2,0	3,0	8,0	14,68	1,90	50	4	4	10,00°	3,09°	FE0200G4N50A00N080
2,0	3,0	12,0	18,68	1,90	50	4	4	10,00°	3,06°	FE0200G4N50A00N120
2,0	3,0	16,0	22,68	1,90	50	4	4	10,00°	2,52°	FE0200G4N50A00N160
2,0	3,0	20,0	26,68	1,90	50	4	4	10,00°	2,14°	FE0200G4N50A00N200
2,5	3,8	5,0	10,51	2,38	50	4	4	10,00°	4,08°	FE0250G4N50A00N050
2,5	3,8	8,0	13,51	2,38	50	4	4	10,00°	3,17°	FE0250G4N50A00N080
2,5	3,8	12,0	17,51	2,38	50	4	4	10,00°	2,45°	FE0250G4N50A00N120
2,5	3,8	16,0	21,51	2,38	50	4	4	10,00°	1,99°	FE0250G4N50A00N160
2,5	3,8	20,0	25,51	2,38	50	4	4	10,00°	1,68°	FE0250G4N50A00N200
3,0	4,5	6,0	10,34	2,85	50	4	4	10,00°	2,76°	FE0300G4N50A00N060
3,0	4,5	8,0	12,34	2,85	50	4	4	10,00°	2,32°	FE0300G4N50A00N080
3,0	4,5	12,0	16,34	2,85	50	4	4	10,00°	1,75°	FE0300G4N50A00N120
3,0	4,5	16,0	20,34	2,85	50	4	4	10,00°	1,40°	FE0300G4N50A00N160
3,0	4,5	20,0	24,34	2,85	50	4	4	10,00°	1,17°	FE0300G4N50A00N200

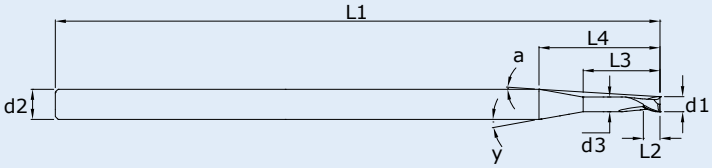


	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=120 m/dk.			Vc=80 m/dk.			Vc=60 m/dk.			Vc=200 m/dk.			Vc=460 m/dk.			Vc=230 m/dk.			Vc=60 m/dk.			Vc=50 m/dk.		
d1 ap ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5 0.05 0.05	0.009	60000	1080	0.011	51200	1126	0.011	38400	845	0.007	60000	840	0.016	60000	1920	0.010	60000	1200	0.007	38400	538	0.008	32000	512
1.0 0.10 0.10	0.016	38400	1229	0.023	25600	1178	0.021	19200	806	0.013	60000	1560	0.016	60000	1920	0.013	60000	1560	0.015	19200	576	0.016	16000	512
1.5 0.15 0.15	0.023	25600	1178	0.035	17067	1195	0.031	12800	794	0.019	42600	1618	0.016	60000	1920	0.016	49000	1568	0.023	12800	589	0.024	10600	509
2.0 0.20 0.20	0.031	19200	2381	0.047	12800	2406	0.042	9600	1613	0.025	32000	3200	0.016	60000	3840	0.022	36800	3238	0.031	9600	1190	0.033	8000	1056
2.5 0.25 0.25	0.039	15360	2396	0.059	10240	2417	0.053	7680	1628	0.031	25600	3174	0.016	58800	3763	0.028	29400	3292	0.039	7600	1186	0.042	6400	1075
3.0 0.30 0.30	0.047	12800	2406	0.071	8533	2423	0.064	6400	1638	0.037	21300	3152	0.016	49000	3136	0.034	24500	3332	0.047	6400	1203	0.052	5300	1102

MINI LONG <52 HRC

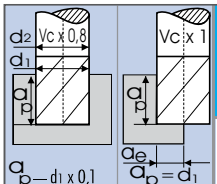


Solid carbide end mills - Mini Long
VHM - Schaftfräser - Mini Lang
Fraises en bout carbure - Mini Longue
Karbür Freze - Mini Uzun



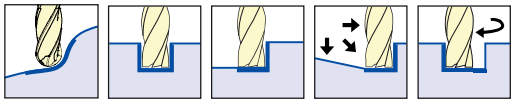
F	E	0100	G	2	N	80	A	00	N	020
END MILL	MG-10	d1	DIN 6528		DIN 6535 HA		30°		nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CHAMFER	COATED	FLUTE LENGTH

d1 (±0,003/0,005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Coated Code
0,2	0,3	0,4	15,98	0,19	80	4	2	7,00°	6,78°	FE0020G2N80A00N004
0,2	0,3	0,8	16,38	0,19	80	4	2	7,00°	6,62°	FE0020G2N80A00N008
0,2	0,3	1,2	12,08	0,19	80	4	2	10,00°	8,94°	FE0020G2N80A00N012
0,2	0,3	2,0	12,88	0,19	80	4	2	10,00°	8,39°	FE0020G2N80A00N020
0,3	0,5	0,6	15,85	0,29	80	4	2	7,00°	6,66°	FE0030G2N80A00N006
0,3	0,5	1,2	11,85	0,29	80	4	2	10,00°	8,88°	FE0030G2N80A00N012
0,3	0,5	2,4	13,05	0,29	80	4	2	10,00°	8,70°	FE0030G2N80A00N024
0,3	0,5	3,0	13,65	0,29	80	4	2	10,00°	7,72°	FE0030G2N80A00N030
0,4	0,6	0,8	15,66	0,38	80	4	2	7,00°	6,55°	FE0040G2N80A00N008
0,4	0,6	1,6	12,01	0,38	80	4	2	10,00°	8,52°	FE0040G2N80A00N016
0,4	0,6	3,2	13,61	0,38	80	4	2	10,00°	7,53°	FE0040G2N80A00N032
0,4	0,6	4,0	14,41	0,38	80	4	2	10,00°	6,92°	FE0040G2N80A00N040
0,5	0,8	1,0	15,55	0,48	80	4	2	7,00°	6,42°	FE0050G2N80A00N010
0,5	0,8	2,0	12,18	0,48	80	4	2	10,00°	8,17°	FE0050G2N80A00N020
0,5	0,8	4,0	14,18	0,48	80	4	2	10,00°	7,03°	FE0050G2N80A00N040
0,5	0,8	6,0	16,18	0,48	80	4	2	10,00°	6,17°	FE0050G2N80A00N060
0,6	0,9	1,2	15,35	0,57	80	4	2	10,00°	6,32°	FE0060G2N80A00N012
0,6	0,9	2,0	11,95	0,57	80	4	2	10,00°	8,09°	FE0060G2N80A00N020
0,6	0,9	4,0	13,95	0,57	80	4	2	10,00°	6,94°	FE0060G2N80A00N040
0,6	0,9	8,0	17,95	0,57	80	4	2	10,00°	5,41°	FE0060G2N80A00N080
0,7	1,1	1,4	15,18	0,67	80	4	2	7,00°	6,20°	FE0070G2N80A00N014
0,7	1,1	2,5	12,21	0,67	80	4	2	10,00°	7,69°	FE0070G2N80A00N025
0,7	1,1	5,0	14,71	0,67	80	4	2	10,00°	6,40°	FE0070G2N80A00N050
0,7	1,1	8,0	17,71	0,67	80	4	2	10,00°	5,32°	FE0070G2N80A00N080
0,8	1,2	1,6	11,10	0,76	80	4	2	10,00°	8,20°	FE0080G2N80A00N016
0,8	1,2	3,0	12,50	0,76	80	4	2	10,00°	7,29°	FE0080G2N80A00N030
0,8	1,2	6,0	15,50	0,76	80	4	2	10,00°	5,89°	FE0080G2N80A00N060
0,8	1,2	10,0	19,50	0,76	80	4	2	10,00°	4,69°	FE0080G2N80A00N100
1,0	1,5	2,0	11,01	0,95	80	4	2	10,00°	7,75°	FE0100G2N80A00N020
1,0	1,5	4,0	13,01	0,95	80	4	2	10,00°	6,57°	FE0100G2N80A00N040
1,0	1,5	8,0	17,01	0,95	80	4	2	10,00°	5,03°	FE0100G2N80A00N080
1,0	1,5	12,0	21,01	0,95	80	4	2	10,00°	4,08°	FE0100G2N80A00N120
1,0	1,5	16,0	25,01	0,95	80	4	2	10,00°	3,43°	FE0100G2N80A00N160
1,0	1,5	20,0	29,01	0,95	80	4	2	10,00°	2,96°	FE0100G2N80A00N200
1,2	1,8	2,0	10,54	1,14	80	4	2	10,00°	7,56°	FE0120G2N80A00N020
1,2	1,8	4,0	12,54	1,14	80	4	2	10,00°	6,37°	FE0120G2N80A00N040
1,5	2,3	4,0	11,85	1,43	80	4	2	10,00°	6,02°	FE0150G2N80A00N040
1,5	2,3	8,0	15,85	1,43	80	4	2	10,00°	4,50°	FE0150G2N80A00N080
1,5	2,3	12,0	19,85	1,43	80	4	2	10,00°	3,60°	FE0150G2N80A00N120
1,5	2,3	20,0	27,85	1,43	80	4	2	10,00°	2,57°	FE0150G2N80A00N200
2,0	3,0	4,0	10,68	1,90	80	4	4	10,00°	5,35°	FE0200G4N80A00N040
2,0	3,0	8,0	14,68	1,90	80	4	4	10,00°	3,09°	FE0200G4N80A00N080
2,0	3,0	12,0	18,68	1,90	80	4	4	10,00°	3,06°	FE0200G4N80A00N120
2,0	3,0	16,0	22,68	1,90	80	4	4	10,00°	2,52°	FE0200G4N80A00N160
2,0	3,0	20,0	26,68	1,90	80	4	4	10,00°	2,14°	FE0200G4N80A00N200
2,5	3,8	5,0	10,51	2,38	80	4	4	10,00°	4,08°	FE0250G4N80A00N050
2,5	3,8	8,0	13,51	2,38	80	4	4	10,00°	3,17°	FE0250G4N80A00N080
2,5	3,8	12,0	17,51	2,38	80	4	4	10,00°	2,45°	FE0250G4N80A00N120
2,5	3,8	16,0	21,51	2,38	80	4	4	10,00°	1,99°	FE0250G4N80A00N160
2,5	3,8	20,0	25,51	2,38	80	4	4	10,00°	1,68°	FE0250G4N80A00N200
3,0	4,5	6,0	10,34	2,85	80	4	4	10,00°	2,76°	FE0300G4N80A00N060
3,0	4,5	8,0	12,34	2,85	80	4	4	10,00°	2,32°	FE0300G4N80A00N080
3,0	4,5	12,0	16,34	2,85	80	4	4	10,00°	1,75°	FE0300G4N80A00N120
3,0	4,5	16,0	20,34	2,85	80	4	4	10,00°	1,40°	FE0300G4N80A00N160
3,0	4,5	20,0	24,34	2,85	80	4	4	10,00°	1,17°	FE0300G4N80A00N200

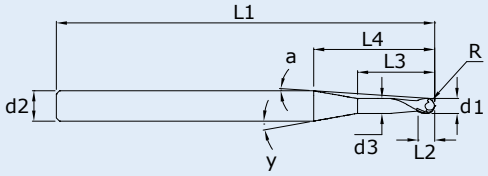


	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=120 m/dk.			Vc=80 m/dk.			Vc=60 m/dk.			Vc=200 m/dk.			Vc=460 m/dk.			Vc=230 m/dk.			Vc=60 m/dk.			Vc=50 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5	0.05	0.05	0.009	60000	1080	0.011	51200	1126	0.011	38400	845	0.007	60000	840	0.016	60000	1920	0.010	60000	1200	0.007	38400	538	0.008	32000	512
1.0	0.10	0.10	0.016	38400	1229	0.023	25600	1178	0.021	19200	806	0.013	60000	1560	0.016	60000	1920	0.013	60000	1560	0.015	19200	576	0.016	16000	512
1.5	0.15	0.15	0.023	25600	1178	0.035	17067	1195	0.031	12800	794	0.019	42600	1618	0.016	60000	1920	0.016	49000	1568	0.023	12800	589	0.024	10600	509
2.0	0.20	0.20	0.031	19200	2381	0.047	12800	2406	0.042	9600	1613	0.025	32000	3200	0.016	60000	3840	0.022	36800	3238	0.031	9600	1190	0.033	8000	1056
2.5	0.25	0.25	0.039	15360	2396	0.059	10240	2417	0.053	7680	1628	0.031	25600	3174	0.016	58800	3763	0.028	29400	3292	0.039	7600	1186	0.042	6400	1075
3.0	0.30	0.30	0.047	12800	2406	0.071	8533	2423	0.064	6400	1638	0.037	21300	3152	0.016	49000	3136	0.034	24500	3332	0.047	6400	1203	0.052	5300	1102

MINI BALL NOSE < 52 HRC

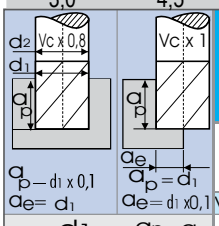


Solid carbide ball nose end mills - Mini
VHM - Radiusfräser - Mini
Fraises a rayon carbure - Mini
Karbür Küre Freze - Mini



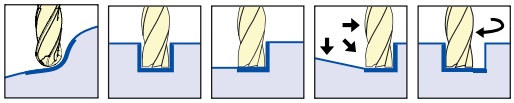
F	E	0100	R	2	N	50	A	50	N	020
END MILL	MG-10	d1	DIN 6928		DIN 6535 HA		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	BALL NOSE	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	RADIUS	COATED	FLUTE LENGTH

d1 ($^{+0,003}_{-0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	R	Coated Code
0,2	0,3	0,4	15,98	0,19	50	4	2	7,00°	6,78°	0,10	FE0020R2N50A10N004
0,2	0,3	0,8	16,38	0,19	50	4	2	7,00°	6,62°	0,10	FE0020R2N50A10N008
0,2	0,3	1,2	12,08	0,19	50	4	2	10,00°	8,94°	0,10	FE0020R2N50A10N012
0,2	0,3	2,0	12,88	0,19	50	4	2	10,00°	8,39°	0,10	FE0020R2N50A10N020
0,3	0,5	0,6	15,85	0,29	50	4	2	7,00°	6,66°	0,15	FE0030R2N50A15N006
0,3	0,5	1,2	11,85	0,29	50	4	2	10,00°	8,88°	0,15	FE0030R2N50A15N012
0,3	0,5	2,4	13,05	0,29	50	4	2	10,00°	8,70°	0,15	FE0030R2N50A15N024
0,3	0,5	3,0	13,65	0,29	50	4	2	10,00°	7,72°	0,15	FE0030R2N50A15N030
0,4	0,6	0,8	15,66	0,38	50	4	2	7,00°	6,55°	0,20	FE0040R2N50A20N008
0,4	0,6	1,6	12,01	0,38	50	4	2	10,00°	8,52°	0,20	FE0040R2N50A20N016
0,4	0,6	3,2	13,61	0,38	50	4	2	10,00°	7,53°	0,20	FE0040R2N50A20N032
0,4	0,6	4,0	14,41	0,38	50	4	2	10,00°	6,92°	0,20	FE0040R2N50A20N040
0,5	0,8	1,0	15,55	0,48	50	4	2	7,00°	6,42°	0,25	FE0050R2N50A25N010
0,5	0,8	2,0	12,18	0,48	50	4	2	10,00°	8,17°	0,25	FE0050R2N50A25N020
0,5	0,8	4,0	14,18	0,48	50	4	2	10,00°	7,03°	0,25	FE0050R2N50A25N040
0,5	0,8	6,0	16,18	0,48	50	4	2	10,00°	6,17°	0,25	FE0050R2N50A25N060
0,6	0,9	1,2	15,35	0,57	50	4	2	10,00°	6,32°	0,30	FE0060R2N50A30N012
0,6	0,9	2,0	11,95	0,57	50	4	2	10,00°	8,09°	0,30	FE0060R2N50A30N020
0,6	0,9	4,0	13,95	0,57	50	4	2	10,00°	6,94°	0,30	FE0060R2N50A30N040
0,6	0,9	8,0	17,95	0,57	50	4	2	10,00°	5,41°	0,30	FE0060R2N50A30N080
0,7	1,1	1,4	15,18	0,67	50	4	2	7,00°	6,20°	0,35	FE0070R2N50A35N014
0,7	1,1	2,5	12,21	0,67	50	4	2	10,00°	7,69°	0,35	FE0070R2N50A35N025
0,7	1,1	5,0	14,71	0,67	50	4	2	10,00°	6,40°	0,35	FE0070R2N50A35N050
0,7	1,1	8,0	17,71	0,67	50	4	2	10,00°	5,32°	0,35	FE0070R2N50A35N080
0,8	1,2	1,6	11,10	0,76	50	4	2	10,00°	8,20°	0,40	FE0080R2N50A40N016
0,8	1,2	3,0	12,50	0,76	50	4	2	10,00°	7,29°	0,40	FE0080R2N50A40N030
0,8	1,2	6,0	15,50	0,76	50	4	2	10,00°	5,89°	0,40	FE0080R2N50A40N060
0,8	1,2	10,0	19,50	0,76	50	4	2	10,00°	4,69°	0,40	FE0080R2N50A40N100
1,0	1,5	2,0	11,01	0,95	50	4	2	10,00°	7,75°	0,50	FE0100R2N50A50N020
1,0	1,5	4,0	13,01	0,95	50	4	2	10,00°	6,57°	0,50	FE0100R2N50A50N040
1,0	1,5	8,0	17,01	0,95	50	4	2	10,00°	5,03°	0,50	FE0100R2N50A50N080
1,0	1,5	12,0	21,01	0,95	50	4	2	10,00°	4,08°	0,50	FE0100R2N50A50N120
1,0	1,5	16,0	25,01	0,95	50	4	2	10,00°	3,43°	0,50	FE0100R2N50A50N160
1,0	1,5	20,0	29,01	0,95	50	4	2	10,00°	2,96°	0,50	FE0100R2N50A50N200
1,2	1,8	2,0	10,54	1,14	50	4	2	10,00°	7,56°	0,60	FE0120R2N50A60N020
1,2	1,8	4,0	12,54	1,14	50	4	2	10,00°	6,37°	0,60	FE0120R2N50A60N040
1,5	2,3	4,0	11,85	1,43	50	4	2	10,00°	6,02°	0,75	FE0150R2N50A75N040
1,5	2,3	8,0	15,85	1,43	50	4	2	10,00°	4,50°	0,75	FE0150R2N50A75N080
1,5	2,3	12,0	19,85	1,43	50	4	2	10,00°	3,60°	0,75	FE0150R2N50A75N120
1,5	2,3	20,0	27,85	1,43	50	4	2	10,00°	2,57°	0,75	FE0150R2N50A75N200
2,0	3,0	4,0	10,68	1,90	50	4	2	10,00°	5,35°	1,00	FE0200R2N50A10N040
2,0	3,0	8,0	14,68	1,90	50	4	2	10,00°	3,09°	1,00	FE0200R2N50A10N080
2,0	3,0	12,0	18,68	1,90	50	4	2	10,00°	3,06°	1,00	FE0200R2N50A10N120
2,0	3,0	16,0	22,68	1,90	50	4	2	10,00°	2,52°	1,00	FE0200R2N50A10N160
2,0	3,0	20,0	26,68	1,90	50	4	2	10,00°	2,14°	1,00	FE0200R2N50A10N200
2,5	3,8	5,0	10,51	2,38	50	4	2	10,00°	4,08°	1,25	FE0250R2N50A13N050
2,5	3,8	8,0	13,51	2,38	50	4	2	10,00°	3,17°	1,25	FE0250R2N50A13N080
2,5	3,8	12,0	17,51	2,38	50	4	2	10,00°	2,45°	1,25	FE0250R2N50A13N120
2,5	3,8	16,0	21,51	2,38	50	4	2	10,00°	1,99°	1,25	FE0250R2N50A13N160
2,5	3,8	20,0	25,51	2,38	50	4	2	10,00°	1,68°	1,25	FE0250R2N50A13N200
3,0	4,5	6,0	10,34	2,85	50	4	2	10,00°	2,76°	1,50	FE0300R2N50A15N060
3,0	4,5	8,0	12,34	2,85	50	4	2	10,00°	2,32°	1,50	FE0300R2N50A15N080
3,0	4,5	12,0	16,34	2,85	50	4	2	10,00°	1,75°	1,50	FE0300R2N50A15N120
3,0	4,5	16,0	20,34	2,85	50	4	2	10,00°	1,40°	1,50	FE0300R2N50A15N160
3,0	4,5	20,0	24,34	2,85	50	4	2	10,00°	1,17°	1,50	FE0300R2N50A15N200

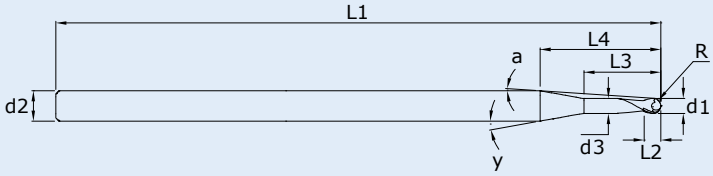


	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=120 m/dk.			Vc=80 m/dk.			Vc=60 m/dk.			Vc=200 m/dk.			Vc=460 m/dk.			Vc=230 m/dk.			Vc=60 m/dk.			Vc=50 m/dk.		
d1 ap ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5 0.05 0.05	0.009	60000	1080	0.011	51200	1126	0.011	38400	845	0.007	60000	840	0.016	60000	1920	0.010	60000	1200	0.007	38400	538	0.008	32000	512
1.0 0.10 0.10	0.016	38400	1229	0.023	25600	1178	0.021	19200	806	0.013	60000	1560	0.016	60000	1920	0.013	60000	1560	0.015	19200	576	0.016	16000	512
1.5 0.15 0.15	0.023	25600	1178	0.035	17067	1195	0.031	12800	794	0.019	42600	1618	0.016	60000	1920	0.016	49000	1568	0.023	12800	589	0.024	10600	509
2.0 0.20 0.20	0.031	19200	1190	0.047	12800	1203	0.042	9600	806	0.025	32000	1600	0.016	60000	1920	0.022	36800	1619	0.031	9600	595	0.033	8000	528
2.5 0.25 0.25	0.039	15360	1198	0.059	10240	1208	0.053	7680	814	0.031	25600	1587	0.016	58800	1881	0.028	29400	1646	0.039	7600	593	0.042	6400	538
3.0 0.30 0.30	0.047	12800	1203	0.071	8533	1212	0.064	6400	819	0.037	21300	1576	0.016	49000	1568	0.034	24500	1666	0.047	6400	602	0.052	5300	551

MINI LONG BALL NOSE <52 HRC

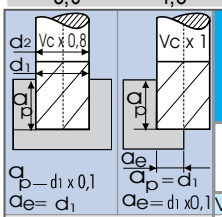


Solid carbide ball nose end mills - Mini Long
VHM - Radiusfräser - Mini Lang
Fraises a rayon carbure - Mini Longue
Karbür Küre Freze - Mini Uzun



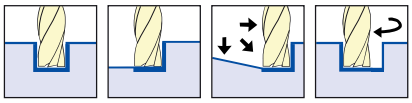
F	E	0100	R	2	N	80	A	50	N	020
END MILL	MG-10	d1	DIN 6928		DIN 6535 HA		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	BALL NOSE	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	RADIUS	COATED	FLUTE LENGTH

d1 ($\pm^{0,003}_{0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	R	Coated Code
0,2	0,3	0,4	15,98	0,19	80	4	2	7,00°	6,78°	0,10	FE0020R2N80A10N004
0,2	0,3	0,8	16,38	0,19	80	4	2	7,00°	6,62°	0,10	FE0020R2N80A10N008
0,2	0,3	1,2	12,08	0,19	80	4	2	10,00°	8,94°	0,10	FE0020R2N80A10N012
0,2	0,3	2,0	12,88	0,19	80	4	2	10,00°	8,39°	0,10	FE0020R2N80A10N020
0,3	0,5	0,6	15,85	0,29	80	4	2	7,00°	6,66°	0,15	FE0030R2N80A15N006
0,3	0,5	1,2	11,85	0,29	80	4	2	10,00°	8,88°	0,15	FE0030R2N80A15N012
0,3	0,5	2,4	13,05	0,29	80	4	2	10,00°	8,70°	0,15	FE0030R2N80A15N024
0,3	0,5	3,0	13,65	0,29	80	4	2	10,00°	7,72°	0,15	FE0030R2N80A15N030
0,4	0,6	0,8	15,66	0,38	80	4	2	7,00°	6,55°	0,20	FE0040R2N80A20N008
0,4	0,6	1,6	12,01	0,38	80	4	2	10,00°	8,52°	0,20	FE0040R2N80A20N016
0,4	0,6	3,2	13,61	0,38	80	4	2	10,00°	7,53°	0,20	FE0040R2N80A20N032
0,4	0,6	4,0	14,41	0,38	80	4	2	10,00°	6,92°	0,20	FE0040R2N80A20N040
0,5	0,8	1,0	15,55	0,48	80	4	2	7,00°	6,42°	0,25	FE0050R2N80A25N010
0,5	0,8	2,0	12,18	0,48	80	4	2	10,00°	8,17°	0,25	FE0050R2N80A25N020
0,5	0,8	4,0	14,18	0,48	80	4	2	10,00°	7,03°	0,25	FE0050R2N80A25N040
0,5	0,8	6,0	16,18	0,48	80	4	2	10,00°	6,17°	0,25	FE0050R2N80A25N060
0,6	0,9	1,2	15,35	0,57	80	4	2	10,00°	6,32°	0,30	FE0060R2N80A30N012
0,6	0,9	2,0	11,95	0,57	80	4	2	10,00°	8,09°	0,30	FE0060R2N80A30N020
0,6	0,9	4,0	13,95	0,57	80	4	2	10,00°	6,94°	0,30	FE0060R2N80A30N040
0,6	0,9	8,0	17,95	0,57	80	4	2	10,00°	5,41°	0,30	FE0060R2N80A30N080
0,7	1,1	1,4	15,18	0,67	80	4	2	7,00°	6,20°	0,35	FE0070R2N80A35N014
0,7	1,1	2,5	12,21	0,67	80	4	2	10,00°	7,69°	0,35	FE0070R2N80A35N025
0,7	1,1	5,0	14,71	0,67	80	4	2	10,00°	6,40°	0,35	FE0070R2N80A35N050
0,7	1,1	8,0	17,71	0,67	80	4	2	10,00°	5,32°	0,35	FE0070R2N80A35N080
0,8	1,2	1,6	11,10	0,76	80	4	2	10,00°	8,20°	0,40	FE0080R2N80A40N016
0,8	1,2	3,0	12,50	0,76	80	4	2	10,00°	7,29°	0,40	FE0080R2N80A40N030
0,8	1,2	6,0	15,50	0,76	80	4	2	10,00°	5,89°	0,40	FE0080R2N80A40N060
0,8	1,2	10,0	19,50	0,76	80	4	2	10,00°	4,69°	0,40	FE0080R2N80A40N100
1,0	1,5	2,0	11,01	0,95	80	4	2	10,00°	7,75°	0,50	FE0100R2N80A50N020
1,0	1,5	4,0	13,01	0,95	80	4	2	10,00°	6,57°	0,50	FE0100R2N80A50N040
1,0	1,5	8,0	17,01	0,95	80	4	2	10,00°	5,03°	0,50	FE0100R2N80A50N080
1,0	1,5	12,0	21,01	0,95	80	4	2	10,00°	4,08°	0,50	FE0100R2N80A50N120
1,0	1,5	16,0	25,01	0,95	80	4	2	10,00°	3,43°	0,50	FE0100R2N80A50N160
1,0	1,5	20,0	29,01	0,95	80	4	2	10,00°	2,96°	0,50	FE0100R2N80A50N200
1,2	1,8	2,0	10,54	1,14	80	4	2	10,00°	7,56°	0,60	FE0120R2N80A60N020
1,2	1,8	4,0	12,54	1,14	80	4	2	10,00°	6,37°	0,60	FE0120R2N80A60N040
1,5	2,3	4,0	11,85	1,43	80	4	2	10,00°	6,02°	0,75	FE0150R2N80A75N040
1,5	2,3	8,0	15,85	1,43	80	4	2	10,00°	4,50°	0,75	FE0150R2N80A75N080
1,5	2,3	12,0	19,85	1,43	80	4	2	10,00°	3,60°	0,75	FE0150R2N80A75N120
1,5	2,3	20,0	27,85	1,43	80	4	2	10,00°	2,57°	0,75	FE0150R2N80A75N200
2,0	3,0	4,0	10,68	1,90	80	4	2	10,00°	5,35°	1,00	FE0200R2N80A10N040
2,0	3,0	8,0	14,68	1,90	80	4	2	10,00°	3,09°	1,00	FE0200R2N80A10N080
2,0	3,0	12,0	18,68	1,90	80	4	2	10,00°	3,06°	1,00	FE0200R2N80A10N120
2,0	3,0	16,0	22,68	1,90	80	4	2	10,00°	2,52°	1,00	FE0200R2N80A10N160
2,0	3,0	20,0	26,68	1,90	80	4	2	10,00°	2,14°	1,00	FE0200R2N80A10N200
2,5	3,8	5,00	10,51	2,38	80	4	2	10,00°	4,08°	1,25	FE0250R2N80A13N050
2,5	3,8	8,00	13,51	2,38	80	4	2	10,00°	3,17°	1,25	FE0250R2N80A13N080
2,5	3,8	12,00	17,51	2,38	80	4	2	10,00°	2,45°	1,25	FE0250R2N80A13N120
2,5	3,8	16,00	21,51	2,38	80	4	2	10,00°	1,99°	1,25	FE0250R2N80A13N160
2,5	3,8	20,00	25,51	2,38	80	4	2	10,00°	1,68°	1,25	FE0250R2N80A13N200
3,0	4,5	6,00	10,34	2,85	80	4	2	10,00°	2,76°	1,50	FE0300R2N80A15N060
3,0	4,5	8,00	12,34	2,85	80	4	2	10,00°	2,32°	1,50	FE0300R2N80A15N080
3,0	4,5	12,00	16,34	2,85	80	4	2	10,00°	1,75°	1,50	FE0300R2N80A15N120
3,0	4,5	16,00	20,34	2,85	80	4	2	10,00°	1,40°	1,50	FE0300R2N80A15N160
3,0	4,5	20,00	24,34	2,85	80	4	2	10,00°	1,17°	1,50	FE0300R2N80A15N200

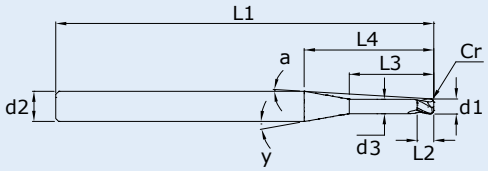


	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=120 m/dk.			Vc=80 m/dk.			Vc=60 m/dk.			Vc=200 m/dk.			Vc=460 m/dk.			Vc=230 m/dk.			Vc=60 m/dk.			Vc=50 m/dk.		
d1 ap ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5 0.05 0.05	0.009	60000	1080	0.011	51200	1126	0.011	38400	845	0.007	60000	840	0.016	60000	1920	0.010	60000	1200	0.007	38400	538	0.008	32000	512
1.0 0.10 0.10	0.016	38400	1229	0.023	25600	1178	0.021	19200	806	0.013	60000	1560	0.016	60000	1920	0.013	60000	1560	0.015	19200	576	0.016	16000	512
1.5 0.15 0.15	0.023	25600	1178	0.035	17067	1195	0.031	12800	794	0.019	42600	1618	0.016	60000	1920	0.016	49000	1568	0.023	12800	589	0.024	10600	509
2.0 0.20 0.20	0.031	19200	1190	0.047	12800	1203	0.042	9600	806	0.025	32000	1600	0.016	60000	1920	0.022	36800	1619	0.031	9600	595	0.033	8000	528
2.5 0.25 0.25	0.039	15360	1198	0.059	10240	1208	0.053	7680	814	0.031	25600	1587	0.016	58800	1881	0.028	29400	1646	0.039	7600	593	0.042	6400	538
3.0 0.30 0.30	0.047	12800	1203	0.071	8533	1212	0.064	6400	819	0.037	21300	1576	0.016	49000	1568	0.034	24500	1666	0.047	6400	602	0.052	5300	551

MINI CORNER - R <52 HRC

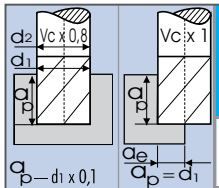


Solid carbide end mills with corner radius - Mini
VHM - Schaftfräser mit Eckenradius - Mini
Fraises toriques carbure - Mini
Karbür Köşe Radyüslü Freze - Mini



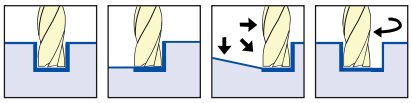
F	E	0100	K	2	N	50	A	20	N	020
END MILL	MG-10	d1	TOOLEX		DIN 6535 HA		30	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	CORNER RADIUS	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CORNER RADIUS	COATED	FLUTE LENGTH

d1 ($\pm^{0,003}_{0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Cr	Coated Code
0,5	0,8	1,0	15,55	0,48	50	4	2	7,00°	6,42°	0,10	FE0050K2N50A10N010
0,5	0,8	2,0	12,18	0,48	50	4	2	10,00°	8,17°	0,10	FE0050K2N50A10N020
0,5	0,8	4,0	14,18	0,48	50	4	2	10,00°	7,03°	0,10	FE0050K2N50A10N040
0,5	0,8	6,0	16,18	0,48	50	4	2	10,00°	6,17°	0,10	FE0050K2N50A10N060
0,6	0,9	1,2	15,35	0,57	50	4	2	10,00°	6,32°	0,10	FE0060K2N50A10N012
0,6	0,9	2,0	11,95	0,57	50	4	2	10,00°	8,09°	0,10	FE0060K2N50A10N020
0,6	0,9	4,0	13,95	0,57	50	4	2	10,00°	6,94°	0,10	FE0060K2N50A10N040
0,6	0,9	8,0	17,95	0,57	50	4	2	10,00°	5,41°	0,10	FE0060K2N50A10N080
0,7	1,1	1,4	15,18	0,67	50	4	2	7,00°	6,20°	0,10	FE0070K2N50A10N014
0,7	1,1	2,5	12,21	0,67	50	4	2	10,00°	7,69°	0,10	FE0070K2N50A10N025
0,7	1,1	5,0	14,71	0,67	50	4	2	10,00°	6,40°	0,10	FE0070K2N50A10N050
0,7	1,1	8,0	17,71	0,67	50	4	2	10,00°	5,32°	0,10	FE0070K2N50A10N080
0,8	1,2	1,6	11,10	0,76	50	4	2	10,00°	8,20°	0,15	FE0080K2N50A15N016
0,8	1,2	3,0	12,50	0,76	50	4	2	10,00°	7,29°	0,15	FE0080K2N50A15N030
0,8	1,2	6,0	15,50	0,76	50	4	2	10,00°	5,89°	0,15	FE0080K2N50A15N060
0,8	1,2	10,0	19,50	0,76	50	4	2	10,00°	4,69°	0,15	FE0080K2N50A15N100
1,0	1,5	2,0	11,01	0,95	50	4	2	10,00°	7,75°	0,20	FE0100K2N50A20N020
1,0	1,5	4,0	13,01	0,95	50	4	2	10,00°	6,57°	0,20	FE0100K2N50A20N040
1,0	1,5	8,0	17,01	0,95	50	4	2	10,00°	5,03°	0,20	FE0100K2N50A20N080
1,0	1,5	12,0	21,01	0,95	50	4	2	10,00°	4,08°	0,20	FE0100K2N50A20N120
1,0	1,5	16,0	25,01	0,95	50	4	2	10,00°	3,43°	0,20	FE0100K2N50A20N160
1,0	1,5	20,0	29,01	0,95	50	4	2	10,00°	2,96°	0,20	FE0100K2N50A20N200
1,2	1,8	2,0	10,54	1,14	50	4	2	10,00°	7,56°	0,25	FE0120K2N50A25N020
1,2	1,8	4,0	12,54	1,14	50	4	2	10,00°	6,37°	0,25	FE0120K2N50A25N040
1,5	2,3	4,0	11,85	1,43	50	4	2	10,00°	6,02°	0,30	FE0150K2N50A30N040
1,5	2,3	8,0	15,85	1,43	50	4	2	10,00°	4,50°	0,30	FE0150K2N50A30N080
1,5	2,3	12,0	19,85	1,43	50	4	2	10,00°	3,60°	0,30	FE0150K2N50A30N120
1,5	2,3	20,0	27,85	1,43	50	4	2	10,00°	2,57°	0,30	FE0150K2N50A30N200
2,0	3,0	4,0	10,68	1,90	50	4	4	10,00°	5,35°	0,50	FE0200K4N50A50N040
2,0	3,0	8,0	14,68	1,90	50	4	4	10,00°	3,09°	0,50	FE0200K4N50A50N080
2,0	3,0	12,0	18,68	1,90	50	4	4	10,00°	3,06°	0,50	FE0200K4N50A50N120
2,0	3,0	16,0	22,68	1,90	50	4	4	10,00°	2,52°	0,50	FE0200K4N50A50N160
2,0	3,0	20,0	26,68	1,90	50	4	4	10,00°	2,14°	0,50	FE0200K4N50A50N200
2,5	3,8	5,0	10,51	2,38	50	4	4	10,00°	4,08°	0,50	FE0250K4N50A50N050
2,5	3,8	8,0	13,51	2,38	50	4	4	10,00°	3,17°	0,50	FE0250K4N50A50N080
2,5	3,8	12,0	17,51	2,38	50	4	4	10,00°	2,45°	0,50	FE0250K4N50A50N120
2,5	3,8	16,0	21,51	2,38	50	4	4	10,00°	1,99°	0,50	FE0250K4N50A50N160
2,5	3,8	20,0	25,51	2,38	50	4	4	10,00°	1,68°	0,50	FE0250K4N50A50N200
3,0	4,5	6,0	10,34	2,85	50	4	4	10,00°	2,76°	0,50	FE0300K4N50A50N060
3,0	4,5	8,0	12,34	2,85	50	4	4	10,00°	2,32°	0,50	FE0300K4N50A50N080
3,0	4,5	12,0	16,34	2,85	50	4	4	10,00°	1,75°	0,50	FE0300K4N50A50N120
3,0	4,5	16,0	20,34	2,85	50	4	4	10,00°	1,40°	0,50	FE0300K4N50A50N160
3,0	4,5	20,0	24,34	2,85	50	4	4	10,00°	1,17°	0,50	FE0300K4N50A50N200

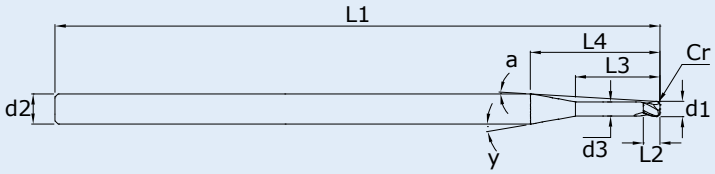


	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=120 m/dk.			Vc=80 m/dk.			Vc=60 m/dk.			Vc=200 m/dk.			Vc=460 m/dk.			Vc=230 m/dk.			Vc=60 m/dk.			Vc=50 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5	0.05	0.05	0.009	60000	1080	0.011	51200	1126	0.011	38400	845	0.007	60000	840	0.016	60000	1920	0.010	60000	1200	0.007	38400	538	0.008	32000	512
1.0	0.10	0.10	0.016	38400	1229	0.023	25600	1178	0.021	19200	806	0.013	60000	1560	0.016	60000	1920	0.013	60000	1560	0.015	19200	576	0.016	16000	512
1.5	0.15	0.15	0.023	25600	1178	0.035	17067	1195	0.031	12800	794	0.019	42600	1618	0.016	60000	1920	0.016	49000	1568	0.023	12800	589	0.024	10600	509
2.0	0.20	0.20	0.031	19200	2381	0.047	12800	2406	0.042	9600	1613	0.025	32000	3200	0.016	60000	3840	0.022	36800	3238	0.031	9600	1190	0.033	8000	1056
2.5	0.25	0.25	0.039	15360	2396	0.059	10240	2417	0.053	7680	1628	0.031	25600	3174	0.016	58800	3763	0.028	29400	3292	0.039	7600	1186	0.042	6400	1075
3.0	0.30	0.30	0.047	12800	2406	0.071	8533	2423	0.064	6400	1638	0.037	21300	3152	0.016	49000	3136	0.034	24500	3332	0.047	6400	1203	0.052	5300	1102

MINI LONG CORNER - R <52 HRC

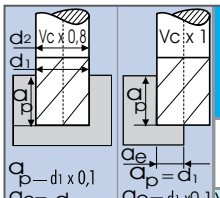


Solid carbide end mills with corner radius - Mini Long
VHM - Schaftfräser mit Eckenradius - Mini Lang
Fraises toriques carbure - Mini Longue
Karbür Köşe Radyüslü Freze - Mini Uzun



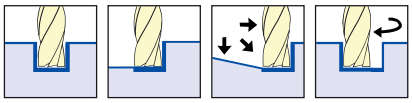
F	E	0100	K	2	N	50	A	20	N	020
END MILL	MG-10	d1	TOOLEX		DIN 6535 HA		30	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	CORNER RADIUS	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CORNER RADIUS	COATED	FLUTE LENGTH

d1($^{+0,003}_{-0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Cr	Coated Code
0,5	0,8	1,0	15,55	0,48	80	4	2	7,00°	6,42°	0,10	FE0050K2N80A10N010
0,5	0,8	2,0	12,18	0,48	80	4	2	10,00°	8,17°	0,10	FE0050K2N80A10N020
0,5	0,8	4,0	14,18	0,48	80	4	2	10,00°	7,03°	0,10	FE0050K2N80A10N040
0,5	0,8	6,0	16,18	0,48	80	4	2	10,00°	6,17°	0,10	FE0050K2N80A10N060
0,6	0,9	1,2	15,35	0,57	80	4	2	10,00°	6,32°	0,10	FE0060K2N80A10N012
0,6	0,9	2,0	11,95	0,57	80	4	2	10,00°	8,09°	0,10	FE0060K2N80A10N020
0,6	0,9	4,0	13,95	0,57	80	4	2	10,00°	6,94°	0,10	FE0060K2N80A10N040
0,6	0,9	8,0	17,95	0,57	80	4	2	10,00°	5,41°	0,10	FE0060K2N80A10N080
0,7	1,1	1,4	15,18	0,67	80	4	2	7,00°	6,20°	0,10	FE0070K2N80A10N014
0,7	1,1	2,5	12,21	0,67	80	4	2	10,00°	7,69°	0,10	FE0070K2N80A10N025
0,7	1,1	5,0	14,71	0,67	80	4	2	10,00°	6,40°	0,10	FE0070K2N80A10N050
0,7	1,1	8,0	17,71	0,67	80	4	2	10,00°	5,32°	0,10	FE0070K2N80A10N080
0,8	1,2	1,6	11,10	0,76	80	4	2	10,00°	8,20°	0,15	FE0080K2N80A15N016
0,8	1,2	3,0	12,50	0,76	80	4	2	10,00°	7,29°	0,15	FE0080K2N80A15N030
0,8	1,2	6,0	15,50	0,76	80	4	2	10,00°	5,89°	0,15	FE0080K2N80A15N060
0,8	1,2	10,0	19,50	0,76	80	4	2	10,00°	4,69°	0,15	FE0080K2N80A15N100
1,0	1,5	2,0	11,01	0,95	80	4	2	10,00°	7,75°	0,20	FE0100K2N80A20N020
1,0	1,5	4,0	13,01	0,95	80	4	2	10,00°	6,57°	0,20	FE0100K2N80A20N040
1,0	1,5	8,0	17,01	0,95	80	4	2	10,00°	5,03°	0,20	FE0100K2N80A20N080
1,0	1,5	12,0	21,01	0,95	80	4	2	10,00°	4,08°	0,20	FE0100K2N80A20N120
1,0	1,5	16,0	25,01	0,95	80	4	2	10,00°	3,43°	0,20	FE0100K2N80A20N160
1,0	1,5	20,0	29,01	0,95	80	4	2	10,00°	2,96°	0,20	FE0100K2N80A20N200
1,2	1,8	2,0	10,54	1,14	80	4	2	10,00°	7,56°	0,25	FE0120K2N80A25N020
1,2	1,8	4,0	12,54	1,14	80	4	2	10,00°	6,37°	0,25	FE0120K2N80A25N040
1,5	2,3	4,0	11,85	1,43	80	4	2	10,00°	6,02°	0,30	FE0150K2N80A30N040
1,5	2,3	8,0	15,85	1,43	80	4	2	10,00°	4,50°	0,30	FE0150K2N80A30N080
1,5	2,3	12,0	19,85	1,43	80	4	2	10,00°	3,60°	0,30	FE0150K2N80A30N120
1,5	2,3	20,0	27,85	1,43	80	4	2	10,00°	2,57°	0,30	FE0150K2N80A30N200
2,0	3,0	4,0	10,68	1,90	80	4	4	10,00°	5,35°	0,50	FE0200K4N80A50N040
2,0	3,0	8,0	14,68	1,90	80	4	4	10,00°	3,09°	0,50	FE0200K4N80A50N080
2,0	3,0	12,0	18,68	1,90	80	4	4	10,00°	3,06°	0,50	FE0200K4N80A50N120
2,0	3,0	16,0	22,68	1,90	80	4	4	10,00°	2,52°	0,50	FE0200K4N80A50N160
2,0	3,0	20,0	26,68	1,90	80	4	4	10,00°	2,14°	0,50	FE0200K4N80A50N200
2,5	3,8	5,0	10,51	2,38	80	4	4	10,00°	4,08°	0,50	FE0250K4N80A50N050
2,5	3,8	8,0	13,51	2,38	80	4	4	10,00°	3,17°	0,50	FE0250K4N80A50N080
2,5	3,8	12,0	17,51	2,38	80	4	4	10,00°	2,45°	0,50	FE0250K4N80A50N120
2,5	3,8	16,0	21,51	2,38	80	4	4	10,00°	1,99°	0,50	FE0250K4N80A50N160
2,5	3,8	20,0	25,51	2,38	80	4	4	10,00°	1,68°	0,50	FE0250K4N80A50N200
3,0	4,5	6,0	10,34	2,85	80	4	4	10,00°	2,76°	0,50	FE0300K4N80A50N060
3,0	4,5	8,0	12,34	2,85	80	4	4	10,00°	2,32°	0,50	FE0300K4N80A50N080
3,0	4,5	12,0	16,34	2,85	80	4	4	10,00°	1,75°	0,50	FE0300K4N80A50N120
3,0	4,5	16,0	20,34	2,85	80	4	4	10,00°	1,40°	0,50	FE0300K4N80A50N160
3,0	4,5	20,0	24,34	2,85	80	4	4	10,00°	1,17°	0,50	FE0300K4N80A50N200

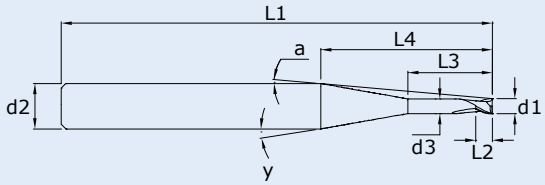


	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=120 m/dk.			Vc=80 m/dk.			Vc=60 m/dk.			Vc=200 m/dk.			Vc=460 m/dk.			Vc=230 m/dk.			Vc=60 m/dk.			Vc=50 m/dk.		
d1 ap ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5 0.05 0.05	0.009	60000	1080	0.011	51200	1126	0.011	38400	845	0.007	60000	840	0.016	60000	1920	0.010	60000	1200	0.007	38400	538	0.008	32000	512
1.0 0.10 0.10	0.016	38400	1229	0.023	25600	1178	0.021	19200	806	0.013	60000	1560	0.016	60000	1920	0.013	60000	1560	0.015	19200	576	0.016	16000	512
1.5 0.15 0.15	0.023	25600	1178	0.035	17067	1195	0.031	12800	794	0.019	42600	1618	0.016	60000	1920	0.016	49000	1568	0.023	12800	589	0.024	10600	509
2.0 0.20 0.20	0.031	19200	2381	0.047	12800	2406	0.042	9600	1613	0.025	32000	3200	0.016	60000	3840	0.022	36800	3238	0.031	9600	1190	0.033	8000	1056
2.5 0.25 0.25	0.039	15360	2396	0.059	10240	2417	0.053	7680	1628	0.031	25600	3174	0.016	58800	3763	0.028	29400	3292	0.039	7600	1186	0.042	6400	1075
3.0 0.30 0.30	0.047	12800	2406	0.071	8533	2423	0.064	6400	1638	0.037	21300	3152	0.016	49000	3136	0.034	24500	3332	0.047	6400	1203	0.052	5300	1102

MIDI

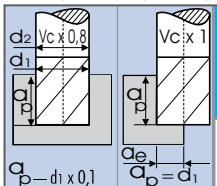


Solid carbide end mills - Midi
VHM - Schaftfräser - Midi
Fraises en bout carbure - Midi
Karbür Freze - Midi



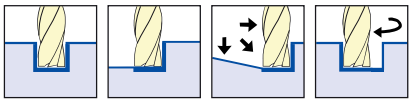
F	E	0100	G	2	D	57	A	00	N	020
END MILL	MG-10 MG-08	d1	DIN 6528		DIN 6535 HA		30°		nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CHAMFER	COATED	FLUTE LENGTH

d1($\pm^{0,003}_{0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	<52 HRC	52 - 68 HRC
0,2	0,3	0,4	24,20	0,19	57	6	2	7,00°	6,83°	FE0020G2D57A00N004	FH0020G2D57A00N004
0,2	0,3	0,8	24,60	0,19	57	6	2	7,00°	6,72°	FE0020G2D57A00N008	FH0020G2D57A00N008
0,2	0,3	1,2	17,75	0,19	57	6	2	10,00°	9,27°	FE0020G2D57A00N012	FH0020G2D57A00N012
0,3	0,5	0,6	23,97	0,29	57	6	2	7,00°	6,78°	FE0030G2D57A00N006	FH0030G2D57A00N006
0,3	0,5	1,2	17,52	0,29	57	6	2	10,00°	9,24°	FE0030G2D57A00N012	FH0030G2D57A00N012
0,3	0,5	2,4	18,72	0,29	57	6	2	10,00°	8,65°	FE0030G2D57A00N024	FH0030G2D57A00N024
0,4	0,6	0,8	23,80	0,38	57	6	2	7,00°	6,70°	FE0040G2D57A00N008	FH0040G2D57A00N008
0,4	0,6	1,6	17,68	0,38	57	6	2	10,00°	8,99°	FE0040G2D57A00N016	FH0040G2D57A00N016
0,4	0,6	3,2	19,28	0,38	57	6	2	10,00°	8,26°	FE0040G2D57A00N032	FH0040G2D57A00N032
0,5	0,8	1,0	23,65	0,48	57	6	2	7,00°	6,63°	FE0050G2D57A00N010	FH0050G2D57A00N010
0,5	0,8	2,0	17,85	0,48	57	6	2	10,00°	8,75°	FE0050G2D57A00N020	FH0050G2D57A00N020
0,5	0,8	4,0	19,85	0,48	57	6	2	10,00°	7,88°	FE0050G2D57A00N040	FH0050G2D57A00N040
0,6	0,9	1,2	23,49	0,57	57	6	2	7,00°	6,55°	FE0060G2D57A00N012	FH0060G2D57A00N012
0,6	0,9	2,0	17,62	0,57	57	6	2	10,00°	8,71°	FE0060G2D57A00N020	FH0060G2D57A00N020
0,6	0,9	4,0	19,62	0,57	57	6	2	10,00°	7,83°	FE0060G2D57A00N040	FH0060G2D57A00N040
0,7	1,1	1,4	23,34	0,67	57	6	2	7,00°	6,47°	FE0070G2D57A00N014	FH0070G2D57A00N014
0,7	1,1	2,5	17,95	0,67	57	6	2	10,00°	8,39°	FE0070G2D57A00N025	FH0070G2D57A00N025
0,8	1,2	1,6	16,75	0,76	57	6	2	10,00°	8,82°	FE0080G2D57A00N016	FH0080G2D57A00N016
0,8	1,2	3,0	18,15	0,76	57	6	2	10,00°	8,15°	FE0080G2D57A00N030	FH0080G2D57A00N030
0,8	1,2	6,0	21,15	0,76	57	6	2	10,00°	7,00°	FE0080G2D57A00N060	FH0080G2D57A00N060
1,0	1,5	2,0	16,70	0,95	57	6	2	10,00°	8,51°	FE0100G2D57A00N020	FH0100G2D57A00N020
1,0	1,5	4,0	18,70	0,95	57	6	2	10,00°	7,61°	FE0100G2D57A00N040	FH0100G2D57A00N040
1,0	1,5	8,0	22,70	0,95	57	6	2	10,00°	6,28°	FE0100G2D57A00N080	FH0100G2D57A00N080
1,0	1,5	12,0	26,70	0,95	57	6	2	10,00°	5,34°	FE0100G2D57A00N120	FH0100G2D57A00N120
1,0	1,5	16,0	30,70	0,95	57	6	2	10,00°	4,65°	FE0100G2D57A00N160	FH0100G2D57A00N160
1,0	1,5	20,0	34,70	0,95	57	6	2	10,00°	4,12°	FE0100G2D57A00N200	FH0100G2D57A00N200
1,2	1,8	2,0	16,22	1,14	57	6	2	10,00°	8,41°	FE0120G2D57A00N020	FH0120G2D57A00N020
1,2	1,8	4,0	18,22	1,14	57	6	2	10,00°	7,81°	FE0120G2D57A00N040	FH0120G2D57A00N040
1,5	2,3	4,0	17,52	1,43	57	3	2	10,00°	5,96°	FE0150G2D57A00N040	FH0150G2D57A00N040
1,5	2,3	8,0	21,52	1,43	57	3	2	10,00°	5,03°	FE0150G2D57A00N080	FH0150G2D57A00N080
1,5	2,3	12,0	25,52	1,43	57	4	2	10,00°	4,35°	FE0150G2D57A00N120	FH0150G2D57A00N120
2,0	3,0	4,0	16,35	1,90	57	6	4	10,00°	6,97°	FE0200G4D57A00N040	FH0200G4D57A00N040
2,0	3,0	8,0	20,35	1,90	57	6	4	10,00°	5,61°	FE0200G4D57A00N080	FH0200G4D57A00N080
2,0	3,0	12,0	24,35	1,90	57	6	4	10,00°	4,69°	FE0200G4D57A00N120	FH0200G4D57A00N120
2,0	3,0	16,0	28,35	1,90	57	6	4	10,00°	4,03°	FE0200G4D57A00N160	FH0200G4D57A00N160
2,0	3,0	20,0	32,35	1,90	57	6	4	10,00°	3,53°	FE0200G4D57A00N200	FH0200G4D57A00N200
2,5	3,8	5,0	16,18	2,38	57	6	4	10,00°	6,17°	FE0250G4D57A00N050	FH0250G4D57A00N050
2,5	3,8	8,0	19,18	2,38	57	6	4	10,00°	5,21°	FE0250G4D57A00N080	FH0250G4D57A00N080
2,5	3,8	12,0	23,18	2,38	57	6	4	10,00°	4,31°	FE0250G4D57A00N120	FH0250G4D57A00N120
3,0	4,5	6,0	16,01	2,85	57	6	4	10,00°	5,35°	FE0300G4D57A00N060	FH0300G4D57A00N060
3,0	4,5	8,0	18,01	2,85	57	6	4	10,00°	4,76°	FE0300G4D57A00N080	FH0300G4D57A00N080
3,0	4,5	12,0	22,01	2,85	57	6	4	10,00°	3,89°	FE0300G4D57A00N120	FH0300G4D57A00N120
3,0	4,5	16,0	26,01	2,85	57	6	4	10,00°	3,30°	FE0300G4D57A00N160	FH0300G4D57A00N160
3,0	4,5	20,0	30,01	2,85	57	6	4	10,00°	2,86°	FE0300G4D57A00N200	FH0300G4D57A00N200
3,5	5,3	6,0	14,83	3,33	57	6	4	10,00°	4,81°	FE0350G4D57A00N060	FH0350G4D57A00N060
4,0	6,0	6,0	13,68	3,80	57	6	4	10,00°	4,18°	FE0400G4D57A00N060	FH0400G4D57A00N060
4,0	6,0	8,0	15,68	3,80	57	6	4	10,00°	3,64°	FE0400G4D57A00N080	FH0400G4D57A00N080
4,0	6,0	12,0	19,68	3,80	57	6	4	10,00°	2,90°	FE0400G4D57A00N120	FH0400G4D57A00N120
4,0	6,0	16,0	23,68	3,80	57	6	4	10,00°	2,41°	FE0400G4D57A00N160	FH0400G4D57A00N160
4,5	6,8	7,0	13,51	4,28	57	6	4	10,00°	3,17°	FE0450G4D57A00N070	FH0450G4D57A00N070
4,5	6,8	12,0	18,51	4,28	57	6	4	10,00°	2,32°	FE0450G4D57A00N120	FH0450G4D57A00N120
5,0	7,5	8,0	13,34	4,75	57	6	4	10,00°	2,14°	FE0500G4D57A00N080	FH0500G4D57A00N080
5,0	7,5	12,0	17,34	4,75	57	6	4	10,00°	1,65°	FE0500G4D57A00N120	FH0500G4D57A00N120
5,0	7,5	16,0	21,34	4,75	57	6	4	10,00°	1,34°	FE0500G4D57A00N160	FH0500G4D57A00N160
5,0	7,5	20,0	25,34	4,75	57	6	4	10,00°	1,13°	FE0500G4D57A00N200	FH0500G4D57A00N200

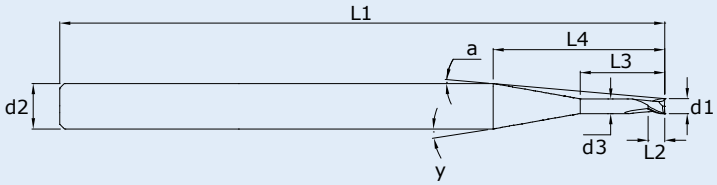


	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=120 m/dk.			Vc=80 m/dk.			Vc=60 m/dk.			Vc=200 m/dk.			Vc=460 m/dk.			Vc=230 m/dk.			Vc=60 m/dk.			Vc=50 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5	0.05	0.05	0.009	60000	1080	0.011	51200	1126	0.011	38400	845	0.007	60000	840	0.016	60000	1920	0.010	60000	1200	0.007	38400	538	0.008	32000	512
1.0	0.10	0.10	0.016	38400	1229	0.023	25600	1178	0.021	19200	806	0.013	60000	1560	0.016	60000	1920	0.013	60000	1560	0.015	19200	576	0.016	16000	512
2.0	0.20	0.20	0.031	19200	2381	0.035	12800	2406	0.042	9600	1613	0.025	32000	3200	0.016	60000	3840	0.022	36800	3238	0.031	9600	1190	0.033	8000	1056
3.0	0.30	0.30	0.047	12800	2406	0.047	8500	2414	0.064	6400	1638	0.037	21300	3152	0.016	60000	3136	0.034	24500	3332	0.047	6400	1203	0.052	5300	1102
4.0	0.40	0.40	0.065	9600	2496	0.059	6400	2432	0.087	4800	1670	0.049	16000	3136	0.016	58800	2355	0.046	18400	3386	0.063	4800	1210	0.072	4000	1152
5.0	0.50	0.50	0.085	7600	2584	0.071	5100	2428	0.111	3800	1687	0.061	12800	3123	0.016	49000	1882	0.060	14700	3528	0.079	3800	1201	0.094	3200	1203

MIDI LONG

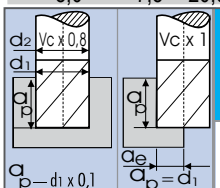


Solid carbide end mills - Midi Long
VHM - Schaftfräser - Midi Lang
Fraises en bout carbure - Midi Longue
Karbür Freze - Midi Uzun



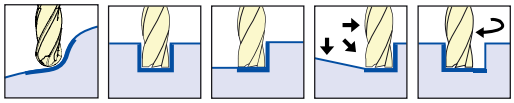
F	E	0100	G	2	D	80	A	00	N	020
END MILL	MG-10 MG-08	d1	DIN 6528		DIN 6535 HA		30°		nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CHAMFER	COATED	FLUTE LENGTH

d1 ($\pm^{0,003}_{0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	<52 HRC	52 - 68 HRC
0,2	0,3	0,4	24,20	0,19	80	6	2	7,00°	6,83°	FE0020G2D80A00N004	FH0020G2D80A00N004
0,2	0,3	0,8	24,60	0,19	80	6	2	7,00°	6,72°	FE0020G2D80A00N008	FH0020G2D80A00N008
0,2	0,3	1,2	17,75	0,19	80	6	2	10,00°	9,27°	FE0020G2D80A00N012	FH0020G2D80A00N012
0,3	0,5	0,6	23,97	0,29	80	6	2	7,00°	6,78°	FE0030G2D80A00N006	FH0030G2D80A00N006
0,3	0,5	1,2	17,52	0,29	80	6	2	10,00°	9,24°	FE0030G2D80A00N012	FH0030G2D80A00N012
0,3	0,5	2,4	18,72	0,29	80	6	2	10,00°	8,65°	FE0030G2D80A00N024	FH0030G2D80A00N024
0,4	0,6	0,8	23,80	0,38	80	6	2	7,00°	6,70°	FE0040G2D80A00N008	FH0040G2D80A00N008
0,4	0,6	1,6	17,68	0,38	80	6	2	10,00°	8,99°	FE0040G2D80A00N016	FH0040G2D80A00N016
0,4	0,6	3,2	19,28	0,38	80	6	2	10,00°	8,26°	FE0040G2D80A00N032	FH0040G2D80A00N032
0,5	0,8	1,0	23,65	0,48	80	6	2	7,00°	6,63°	FE0050G2D80A00N010	FH0050G2D80A00N010
0,5	0,8	2,0	17,85	0,48	80	6	2	10,00°	8,75°	FE0050G2D80A00N020	FH0050G2D80A00N020
0,5	0,8	4,0	19,85	0,48	80	6	2	10,00°	7,88°	FE0050G2D80A00N040	FH0050G2D80A00N040
0,6	0,9	1,2	23,49	0,57	80	6	2	7,00°	6,55°	FE0060G2D80A00N012	FH0060G2D80A00N012
0,6	0,9	2,0	17,62	0,57	80	6	2	10,00°	8,71°	FE0060G2D80A00N020	FH0060G2D80A00N020
0,6	0,9	4,0	19,62	0,57	80	6	2	10,00°	7,83°	FE0060G2D80A00N040	FH0060G2D80A00N040
0,7	1,1	1,4	23,34	0,67	80	6	2	7,00°	6,47°	FE0070G2D80A00N014	FH0070G2D80A00N014
0,7	1,1	2,5	17,95	0,67	80	6	2	10,00°	8,39°	FE0070G2D80A00N025	FH0070G2D80A00N025
0,8	1,2	1,6	16,75	0,76	80	6	2	10,00°	8,82°	FE0080G2D80A00N016	FH0080G2D80A00N016
0,8	1,2	3,0	18,15	0,76	80	6	2	10,00°	8,15°	FE0080G2D80A00N030	FH0080G2D80A00N030
0,8	1,2	6,0	21,15	0,76	80	6	2	10,00°	7,00°	FE0080G2D80A00N060	FH0080G2D80A00N060
1,0	1,5	2,0	16,70	0,95	80	6	2	10,00°	8,51°	FE0100G2D80A00N020	FH0100G2D80A00N020
1,0	1,5	4,0	18,70	0,95	80	6	2	10,00°	7,61°	FE0100G2D80A00N040	FH0100G2D80A00N040
1,0	1,5	8,0	22,70	0,95	80	6	2	10,00°	6,28°	FE0100G2D80A00N080	FH0100G2D80A00N080
1,0	1,5	12,0	26,70	0,95	80	6	2	10,00°	5,34°	FE0100G2D80A00N120	FH0100G2D80A00N120
1,0	1,5	16,0	30,70	0,95	80	6	2	10,00°	4,65°	FE0100G2D80A00N160	FH0100G2D80A00N160
1,0	1,5	20,0	34,70	0,95	80	6	2	10,00°	4,12°	FE0100G2D80A00N200	FH0100G2D80A00N200
1,2	1,8	2,0	16,22	1,14	80	6	2	10,00°	8,41°	FE0120G2D80A00N020	FH0120G2D80A00N020
1,2	1,8	4,0	18,22	1,14	80	6	2	10,00°	7,81°	FE0120G2D80A00N040	FH0120G2D80A00N040
1,5	2,3	4,0	17,52	1,43	80	6	2	10,00°	5,96°	FE0150G2D80A00N040	FH0150G2D80A00N040
1,5	2,3	8,0	21,52	1,43	80	6	2	10,00°	5,03°	FE0150G2D80A00N080	FH0150G2D80A00N080
1,5	2,3	12,0	25,52	1,43	80	6	2	10,00°	4,35°	FE0150G2D80A00N120	FH0150G2D80A00N120
2,0	3,0	4,0	16,35	1,90	80	6	4	10,00°	6,97°	FE0200G4D80A00N040	FH0200G4D80A00N040
2,0	3,0	8,0	20,35	1,90	80	6	4	10,00°	5,61°	FE0200G4D80A00N080	FH0200G4D80A00N080
2,0	3,0	12,0	24,35	1,90	80	6	4	10,00°	4,69°	FE0200G4D80A00N120	FH0200G4D80A00N120
2,0	3,0	16,0	28,35	1,90	80	6	4	10,00°	4,03°	FE0200G4D80A00N160	FH0200G4D80A00N160
2,0	3,0	20,0	32,35	1,90	80	6	4	10,00°	3,53°	FE0200G4D80A00N200	FH0200G4D80A00N200
2,5	3,8	5,0	16,18	2,38	80	6	4	10,00°	6,17°	FE0250G4D80A00N050	FH0250G4D80A00N050
2,5	3,8	8,0	19,18	2,38	80	6	4	10,00°	5,21°	FE0250G4D80A00N080	FH0250G4D80A00N080
2,5	3,8	12,0	23,18	2,38	80	6	4	10,00°	4,31°	FE0250G4D80A00N120	FH0250G4D80A00N120
3,0	4,5	6,0	16,01	2,85	80	6	4	10,00°	5,35°	FE0300G4D80A00N060	FH0300G4D80A00N060
3,0	4,5	8,0	18,01	2,85	80	6	4	10,00°	4,76°	FE0300G4D80A00N080	FH0300G4D80A00N080
3,0	4,5	12,0	22,01	2,85	80	6	4	10,00°	3,89°	FE0300G4D80A00N120	FH0300G4D80A00N120
3,0	4,5	16,0	26,01	2,85	80	6	4	10,00°	3,30°	FE0300G4D80A00N160	FH0300G4D80A00N160
3,0	4,5	20,0	30,01	2,85	80	6	4	10,00°	2,86°	FE0300G4D80A00N200	FH0300G4D80A00N200
3,5	5,3	6,0	14,83	3,33	80	6	4	10,00°	4,81°	FE0350G4D80A00N060	FH0350G4D80A00N060
4,0	6,0	6,0	13,68	3,80	80	6	4	10,00°	4,18°	FE0400G4D80A00N060	FH0400G4D80A00N060
4,0	6,0	8,0	15,68	3,80	80	6	4	10,00°	3,64°	FE0400G4D80A00N080	FH0400G4D80A00N080
4,0	6,0	12,0	19,68	3,80	80	6	4	10,00°	2,90°	FE0400G4D80A00N120	FH0400G4D80A00N120
4,0	6,0	16,0	23,68	3,80	80	6	4	10,00°	2,41°	FE0400G4D80A00N160	FH0400G4D80A00N160
4,5	6,8	7,0	13,51	4,28	80	6	4	10,00°	3,17°	FE0450G4D80A00N070	FH0450G4D80A00N070
4,5	6,8	12,0	18,51	4,28	80	6	4	10,00°	2,32°	FE0450G4D80A00N120	FH0450G4D80A00N120
5,0	7,5	8,0	13,34	4,75	80	6	4	10,00°	2,14°	FE0500G4D80A00N080	FH0500G4D80A00N080
5,0	7,5	12,0	17,34	4,75	80	6	4	10,00°	1,65°	FE0500G4D80A00N120	FH0500G4D80A00N120
5,0	7,5	16,0	21,34	4,75	80	6	4	10,00°	1,34°	FE0500G4D80A00N160	FH0500G4D80A00N160
5,0	7,5	20,0	25,34	4,75	80	6	4	10,00°	1,13°	FE0500G4D80A00N200	FH0500G4D80A00N200

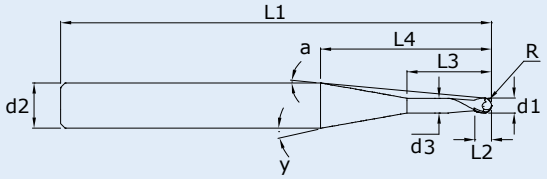


	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=120 m/dk.			Vc=80 m/dk.			Vc=60 m/dk.			Vc=200 m/dk.			Vc=460 m/dk.			Vc=230 m/dk.			Vc=60 m/dk.			Vc=50 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5	0.05	0.05	0.009	60000	1080	0.011	51200	1126	0.011	38400	845	0.007	60000	840	0.016	60000	1920	0.010	60000	1200	0.007	38400	538	0.008	32000	512
1.0	0.10	0.10	0.016	38400	1229	0.023	25600	1178	0.021	19200	806	0.013	60000	1560	0.016	60000	1920	0.013	60000	1560	0.015	19200	576	0.016	16000	512
2.0	0.20	0.20	0.031	19200	2381	0.035	12800	2406	0.042	9600	1613	0.025	32000	3200	0.016	60000	3840	0.022	36800	3238	0.031	9600	1190	0.033	8000	1056
3.0	0.30	0.30	0.047	12800	2406	0.047	8500	2414	0.064	6400	1638	0.037	21300	3152	0.016	60000	3136	0.034	24500	3332	0.047	6400	1203	0.052	5300	1102
4.0	0.40	0.40	0.065	9600	2496	0.059	6400	2432	0.087	4800	1670	0.049	16000	3136	0.016	58800	2355	0.046	18400	3386	0.063	4800	1210	0.072	4000	1152
5.0	0.50	0.50	0.085	7600	2584	0.071	5100	2428	0.111	3800	1687	0.061	12800	3123	0.016	49000	1882	0.060	14700	3528	0.079	3800	1201	0.094	3200	1203

MIDI BALL NOSE

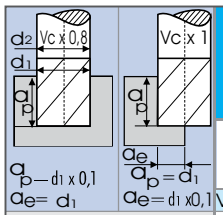


Solid carbide ball nose end mills - Midi
VHM - Radiusfräser - Midi
Fraises a rayon carbure - Midi
Karbür Küre Freze - Midi



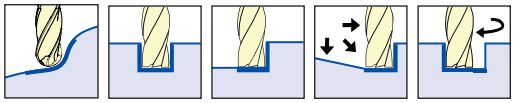
F	E	0100	R	2	D	57	A	50	N	020
END MILL	MG-10 MG-08	d1	DIN 6928		DIN 6535 HA		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	RADIUS	COATED	FLUTE LENGTH

d1($\pm^{0,003}_{0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	R	<52 HRC	52 - 68 HRC
0,2	0,3	0,4	24,20	0,19	57	6	2	7,00°	6,83°	0,10	FE0020R2D57A10N004	FH0020R2D57A10N004
0,2	0,3	0,8	24,60	0,19	57	6	2	7,00°	6,72°	0,10	FE0020R2D57A10N008	FH0020R2D57A10N008
0,2	0,3	1,2	17,75	0,19	57	6	2	10,00°	9,27°	0,10	FE0020R2D57A10N012	FH0020R2D57A10N012
0,3	0,5	0,6	23,97	0,29	57	6	2	7,00°	6,78°	0,15	FE0030R2D57A15N006	FH0030R2D57A15N006
0,3	0,5	1,2	17,52	0,29	57	6	2	10,00°	9,24°	0,15	FE0030R2D57A15N012	FH0030R2D57A15N012
0,3	0,5	2,4	18,72	0,29	57	6	2	10,00°	8,65°	0,15	FE0030R2D57A15N024	FH0030R2D57A15N024
0,4	0,6	0,8	23,80	0,38	57	6	2	7,00°	6,70°	0,20	FE0040R2D57A20N008	FH0040R2D57A20N008
0,4	0,6	1,6	17,68	0,38	57	6	2	10,00°	8,99°	0,20	FE0040R2D57A20N016	FH0040R2D57A20N016
0,4	0,6	3,2	19,28	0,38	57	6	2	10,00°	8,26°	0,20	FE0040R2D57A20N032	FH0040R2D57A20N032
0,5	0,8	1,0	23,65	0,48	57	6	2	7,00°	6,63°	0,25	FE0050R2D57A25N010	FH0050R2D57A25N010
0,5	0,8	2,0	17,85	0,48	57	6	2	10,00°	8,75°	0,25	FE0050R2D57A25N020	FH0050R2D57A25N020
0,5	0,8	4,0	19,85	0,48	57	6	2	10,00°	7,88°	0,25	FE0050R2D57A25N040	FH0050R2D57A25N040
0,6	0,9	1,2	23,49	0,57	57	6	2	7,00°	6,55°	0,30	FE0060R2D57A30N012	FH0060R2D57A30N012
0,6	0,9	2,0	17,62	0,57	57	6	2	10,00°	8,71°	0,30	FE0060R2D57A30N020	FH0060R2D57A30N020
0,6	0,9	4,0	19,62	0,57	57	6	2	10,00°	7,83°	0,30	FE0060R2D57A30N040	FH0060R2D57A30N040
0,7	1,1	1,4	23,34	0,67	57	6	2	7,00°	6,47°	0,35	FE0070R2D57A35N014	FH0070R2D57A35N014
0,7	1,1	2,5	17,95	0,67	57	6	2	10,00°	8,39°	0,35	FE0070R2D57A35N025	FH0070R2D57A35N025
0,8	1,2	1,6	16,75	0,76	57	6	2	10,00°	8,82°	0,40	FE0080R2D57A40N016	FH0080R2D57A40N016
0,8	1,2	3,0	18,15	0,76	57	6	2	10,00°	8,15°	0,40	FE0080R2D57A40N030	FH0080R2D57A40N030
0,8	1,2	6,0	21,15	0,76	57	6	2	10,00°	7,00°	0,40	FE0080R2D57A40N060	FH0080R2D57A40N060
1,0	1,5	2,0	16,70	0,95	57	6	2	10,00°	8,51°	0,50	FE0100R2D57A50N020	FH0100R2D57A50N020
1,0	1,5	4,0	18,70	0,95	57	6	2	10,00°	7,61°	0,50	FE0100R2D57A50N040	FH0100R2D57A50N040
1,0	1,5	8,0	22,70	0,95	57	6	2	10,00°	6,28°	0,50	FE0100R2D57A50N080	FH0100R2D57A50N080
1,0	1,5	12,0	26,70	0,95	57	6	2	10,00°	5,34°	0,50	FE0100R2D57A50N120	FH0100R2D57A50N120
1,0	1,5	16,0	30,70	0,95	57	6	2	10,00°	4,65°	0,50	FE0100R2D57A50N160	FH0100R2D57A50N160
1,0	1,5	20,0	34,70	0,95	57	6	2	10,00°	4,12°	0,50	FE0100R2D57A50N200	FH0100R2D57A50N200
1,2	1,8	2,0	16,22	1,14	57	6	2	10,00°	8,41°	0,60	FE0120R2D57A60N020	FH0120R2D57A60N020
1,2	1,8	4,0	18,22	1,14	57	6	2	10,00°	7,81°	0,60	FE0120R2D57A60N040	FH0120R2D57A60N040
1,5	2,3	4,0	17,52	1,43	57	6	2	10,00°	5,96°	0,75	FE0150R2D57A75N040	FH0150R2D57A75N040
1,5	2,3	8,0	21,52	1,43	57	6	2	10,00°	5,03°	0,75	FE0150R2D57A75N080	FH0150R2D57A75N080
1,5	2,3	12,0	25,52	1,43	57	6	2	10,00°	4,35°	0,75	FE0150R2D57A75N120	FH0150R2D57A75N120
2,0	3,0	4,0	16,35	1,90	57	6	2	10,00°	6,97°	1,00	FE0200R2D57A10N040	FH0200R2D57A10N040
2,0	3,0	8,0	20,35	1,90	57	6	2	10,00°	5,61°	1,00	FE0200R2D57A10N080	FH0200R2D57A10N080
2,0	3,0	12,0	24,35	1,90	57	6	2	10,00°	4,69°	1,00	FE0200R2D57A10N120	FH0200R2D57A10N120
2,0	3,0	16,0	28,35	1,90	57	6	2	10,00°	4,03°	1,00	FE0200R2D57A10N160	FH0200R2D57A10N160
2,0	3,0	20,0	32,35	1,90	57	6	2	10,00°	3,53°	1,00	FE0200R2D57A10N200	FH0200R2D57A10N200
2,5	3,8	5,0	16,18	2,38	57	6	2	10,00°	6,17°	1,25	FE0250R2D57A13N050	FH0250R2D57A13N050
2,5	3,8	8,0	19,18	2,38	57	6	2	10,00°	5,21°	1,25	FE0250R2D57A13N080	FH0250R2D57A13N080
2,5	3,8	12,0	23,18	2,38	57	6	2	10,00°	4,31°	1,25	FE0250R2D57A13N120	FH0250R2D57A13N120
3,0	4,5	6,0	16,01	2,85	57	6	2	10,00°	5,35°	1,50	FE0300R2D57A15N060	FH0300R2D57A15N060
3,0	4,5	8,0	18,01	2,85	57	6	2	10,00°	4,76°	1,50	FE0300R2D57A15N080	FH0300R2D57A15N080
3,0	4,5	12,0	22,01	2,85	57	6	2	10,00°	3,89°	1,50	FE0300R2D57A15N120	FH0300R2D57A15N120
3,0	4,5	16,0	26,01	2,85	57	6	2	10,00°	3,30°	1,50	FE0300R2D57A15N160	FH0300R2D57A15N160
3,0	4,5	20,0	30,01	2,85	57	6	2	10,00°	2,86°	1,50	FE0300R2D57A15N200	FH0300R2D57A15N200
3,5	5,3	6,0	14,83	3,33	57	6	2	10,00°	4,81°	1,75	FE0350R2D57A18N060	FH0350R2D57A18N060
4,0	6,0	6,0	13,68	3,80	57	6	2	10,00°	4,18°	2,00	FE0400R2D57A20N060	FH0400R2D57A20N060
4,0	6,0	8,0	15,68	3,80	57	6	2	10,00°	3,64°	2,00	FE0400R2D57A20N080	FH0400R2D57A20N080
4,0	6,0	12,0	19,68	3,80	57	6	2	10,00°	2,90°	2,00	FE0400R2D57A20N120	FH0400R2D57A20N120
4,0	6,0	16,0	23,68	3,80	57	6	2	10,00°	2,41°	2,00	FE0400R2D57A20N160	FH0400R2D57A20N160
4,5	6,8	7,0	13,51	4,28	57	6	2	10,00°	3,17°	2,25	FE0450R2D57A23N070	FH0450R2D57A23N070
4,5	6,8	12,0	18,51	4,28	57	6	2	10,00°	2,32°	2,25	FE0450R2D57A23N120	FH0450R2D57A23N120
5,0	7,5	8,0	13,34	4,75	57	6	2	10,00°	2,14°	2,50	FE0500R2D57A25N080	FH0500R2D57A25N080
5,0	7,5	12,0	17,34	4,75	57	6	2	10,00°	1,65°	2,50	FE0500R2D57A25N120	FH0500R2D57A25N120
5,0	7,5	16,0	21,34	4,75	57	6	2	10,00°	1,34°	2,50	FE0500R2D57A25N160	FH0500R2D57A25N160
5,0	7,5	20,0	25,34	4,75	57	6	2	10,00°	1,13°	2,50	FE0500R2D57A25N200	FH0500R2D57A25N200

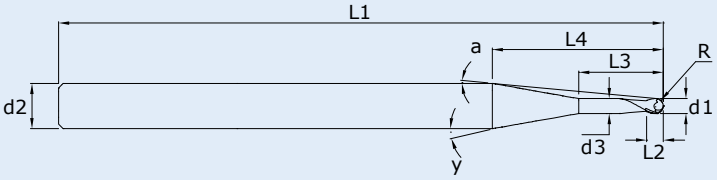


	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=120 m/dk.			Vc=80 m/dk.			Vc=60 m/dk.			Vc=200 m/dk.			Vc=460 m/dk.			Vc=230 m/dk.			Vc=60 m/dk.			Vc=50 m/dk.		
d1 ap ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5 0.05 0.05	0.009	60000	1080	0.011	51200	1126	0.011	38400	845	0.007	60000	840	0.016	60000	1920	0.010	60000	1200	0.007	38400	538	0.008	32000	512
1.0 0.10 0.10	0.016	38400	1229	0.023	25600	1178	0.021	19200	806	0.013	60000	1560	0.016	60000	1920	0.013	60000	1560	0.015	19200	576	0.016	16000	512
2.0 0.20 0.20	0.031	19200	1190	0.035	12800	1203	0.042	9600	806	0.025	32000	1600	0.016	60000	1920	0.022	36800	1619	0.031	9600	595	0.033	8000	528
3.0 0.30 0.30	0.047	12800	1203	0.047	8500	1207	0.064	6400	819	0.037	21300	1576	0.016	60000	1568	0.034	24500	1666	0.047	6400	602	0.052	5300	551
4.0 0.40 0.40	0.065	9600	1248	0.059	6400	1216	0.087	4800	835	0.049	16000	1568	0.016	58800	1178	0.046	18400	1693	0.063	4800	605	0.072	4000	576
5.0 0.50 0.50	0.085	7600	1292	0.071	5100	1214	0.111	3800	844	0.061	12800	1562	0.016	49000	941	0.060	14700	1764	0.079	3800	600	0.094	3200	602

MIDI LONG BALL NOSE

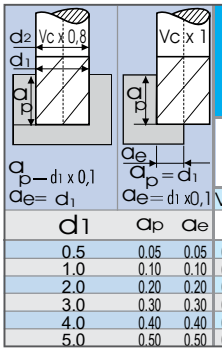


Solid carbide ball nose end mills - Midi Long
VHM - Radiusfräser - Midi Lang
Fraises arayon carbure - Midi Longue
Karbür Küre Freze - Midi Uzun



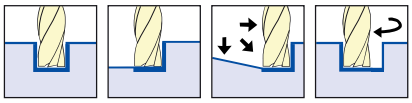
F	E	0100	R	2	D	80	A	50	N	020
END MILL	MG-10 MG-08	d1	DIN 6928		DIN 6535 HA		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	RADIUS	COATED	FLUTE LENGTH

d1 (±0,003/0,005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	R	<52 HRC	52 - 68 HRC
0,2	0,3	0,4	24,20	0,19	80	6	2	7,00°	6,83°	0,10	FE0020R2D80A10N004	FH0020R2D80A10N004
0,2	0,3	0,8	24,60	0,19	80	6	2	7,00°	6,72°	0,10	FE0020R2D80A10N008	FH0020R2D80A10N008
0,2	0,3	1,2	17,75	0,19	80	6	2	10,00°	9,27°	0,10	FE0020R2D80A10N012	FH0020R2D80A10N012
0,3	0,5	0,6	23,97	0,29	80	6	2	7,00°	6,78°	0,15	FE0030R2D80A15N006	FH0030R2D80A15N006
0,3	0,5	1,2	17,52	0,29	80	6	2	10,00°	9,24°	0,15	FE0030R2D80A15N012	FH0030R2D80A15N012
0,3	0,5	2,4	18,72	0,29	80	6	2	10,00°	8,65°	0,15	FE0030R2D80A15N024	FH0030R2D80A15N024
0,4	0,6	0,8	23,80	0,38	80	6	2	7,00°	6,70°	0,20	FE0040R2D80A20N008	FH0040R2D80A20N008
0,4	0,6	1,6	17,68	0,38	80	6	2	10,00°	8,99°	0,20	FE0040R2D80A20N016	FH0040R2D80A20N016
0,4	0,6	3,2	19,28	0,38	80	6	2	10,00°	8,26°	0,20	FE0040R2D80A20N032	FH0040R2D80A20N032
0,5	0,8	1,0	23,65	0,48	80	6	2	7,00°	6,63°	0,25	FE0050R2D80A25N010	FH0050R2D80A25N010
0,5	0,8	2,0	17,85	0,48	80	6	2	10,00°	8,75°	0,25	FE0050R2D80A25N020	FH0050R2D80A25N020
0,5	0,8	4,0	19,85	0,48	80	6	2	10,00°	7,88°	0,25	FE0050R2D80A25N040	FH0050R2D80A25N040
0,6	0,9	1,2	23,49	0,57	80	6	2	7,00°	6,55°	0,30	FE0060R2D80A30N012	FH0060R2D80A30N012
0,6	0,9	2,0	17,62	0,57	80	6	2	10,00°	8,71°	0,30	FE0060R2D80A30N020	FH0060R2D80A30N020
0,6	0,9	4,0	19,62	0,57	80	6	2	10,00°	7,83°	0,30	FE0060R2D80A30N040	FH0060R2D80A30N040
0,7	1,1	1,4	23,34	0,67	80	6	2	7,00°	6,47°	0,35	FE0070R2D80A35N014	FH0070R2D80A35N014
0,7	1,1	2,5	17,95	0,67	80	6	2	10,00°	8,39°	0,35	FE0070R2D80A35N025	FH0070R2D80A35N025
0,8	1,2	1,6	16,75	0,76	80	6	2	10,00°	8,82°	0,40	FE0080R2D80A40N016	FH0080R2D80A40N016
0,8	1,2	3,0	18,15	0,76	80	6	2	10,00°	8,15°	0,40	FE0080R2D80A40N030	FH0080R2D80A40N030
0,8	1,2	6,0	21,15	0,76	80	6	2	10,00°	7,00°	0,40	FE0080R2D80A40N060	FH0080R2D80A40N060
1,0	1,5	2,0	16,70	0,95	80	6	2	10,00°	8,51°	0,50	FE0100R2D80A50N020	FH0100R2D80A50N020
1,0	1,5	4,0	18,70	0,95	80	6	2	10,00°	7,61°	0,50	FE0100R2D80A50N040	FH0100R2D80A50N040
1,0	1,5	8,0	22,70	0,95	80	6	2	10,00°	6,28°	0,50	FE0100R2D80A50N080	FH0100R2D80A50N080
1,0	1,5	12,0	26,70	0,95	80	6	2	10,00°	5,34°	0,50	FE0100R2D80A50N120	FH0100R2D80A50N120
1,0	1,5	16,0	30,70	0,95	80	6	2	10,00°	4,65°	0,50	FE0100R2D80A50N160	FH0100R2D80A50N160
1,0	1,5	20,0	34,70	0,95	80	6	2	10,00°	4,12°	0,50	FE0100R2D80A50N200	FH0100R2D80A50N200
1,2	1,8	2,0	16,22	1,14	80	6	2	10,00°	8,41°	0,60	FE0120R2D80A60N020	FH0120R2D80A60N020
1,2	1,8	4,0	18,22	1,14	80	6	2	10,00°	7,81°	0,60	FE0120R2D80A60N040	FH0120R2D80A60N040
1,5	2,3	4,0	17,52	1,43	80	6	2	10,00°	5,96°	0,75	FE0150R2D80A75N040	FH0150R2D80A75N040
1,5	2,3	8,0	21,52	1,43	80	6	2	10,00°	5,03°	0,75	FE0150R2D80A75N080	FH0150R2D80A75N080
1,5	2,3	12,0	25,52	1,43	80	6	2	10,00°	4,35°	0,75	FE0150R2D80A75N120	FH0150R2D80A75N120
2,0	3,0	4,0	16,35	1,90	80	6	2	10,00°	6,97°	1,00	FE0200R2D80A10N040	FH0200R2D80A10N040
2,0	3,0	8,0	20,35	1,90	80	6	2	10,00°	5,61°	1,00	FE0200R2D80A10N080	FH0200R2D80A10N080
2,0	3,0	12,0	24,35	1,90	80	6	2	10,00°	4,69°	1,00	FE0200R2D80A10N120	FH0200R2D80A10N120
2,0	3,0	16,0	28,35	1,90	80	6	2	10,00°	4,03°	1,00	FE0200R2D80A10N160	FH0200R2D80A10N160
2,0	3,0	20,0	32,35	1,90	80	6	2	10,00°	3,53°	1,00	FE0200R2D80A10N200	FH0200R2D80A10N200
2,5	3,8	5,0	16,18	2,38	80	6	2	10,00°	6,17°	1,25	FE0250R2D80A13N050	FH0250R2D80A13N050
2,5	3,8	8,0	19,18	2,38	80	6	2	10,00°	5,21°	1,25	FE0250R2D80A13N080	FH0250R2D80A13N080
2,5	3,8	12,0	23,18	2,38	80	6	2	10,00°	4,31°	1,25	FE0250R2D80A13N120	FH0250R2D80A13N120
3,0	4,5	6,0	16,01	2,90	80	6	2	10,00°	5,35°	1,50	FE0300R2D80A15N060	FH0300R2D80A15N060
3,0	4,5	8,0	18,01	2,90	80	6	2	10,00°	4,76°	1,50	FE0300R2D80A15N080	FH0300R2D80A15N080
3,0	4,5	12,0	22,01	2,90	80	6	2	10,00°	3,89°	1,50	FE0300R2D80A15N120	FH0300R2D80A15N120
3,0	4,5	16,0	26,01	2,90	80	6	2	10,00°	3,30°	1,50	FE0300R2D80A15N160	FH0300R2D80A15N160
3,0	4,5	20,0	30,01	2,90	80	6	2	10,00°	2,86°	1,50	FE0300R2D80A15N200	FH0300R2D80A15N200
3,5	5,3	6,00	14,83	3,33	80	6	2	10,00°	4,81°	1,75	FE0350R2D80A18N060	FH0350R2D80A18N060
4,0	6,0	6,00	13,68	3,80	80	6	2	10,00°	4,18°	2,00	FE0400R2D80A20N060	FH0400R2D80A20N060
4,0	6,0	8,00	15,68	3,80	80	6	2	10,00°	3,64°	2,00	FE0400R2D80A20N080	FH0400R2D80A20N080
4,0	6,0	12,00	19,68	3,80	80	6	2	10,00°	2,90°	2,00	FE0400R2D80A20N120	FH0400R2D80A20N120
4,0	6,0	16,00	23,68	3,80	80	6	2	10,00°	2,41°	2,00	FE0400R2D80A20N160	FH0400R2D80A20N160
4,5	6,8	7,00	13,51	4,28	80	6	2	10,00°	3,17°	2,25	FE0450R2D80A23N070	FH0450R2D80A23N070
4,5	6,8	12,00	18,51	4,28	80	6	2	10,00°	2,32°	2,25	FE0450R2D80A23N120	FH0450R2D80A23N120
5,0	7,5	8,00	13,34	4,75	80	6	2	10,00°	2,14°	2,50	FE0500R2D80A25N080	FH0500R2D80A25N080
5,0	7,5	12,00	17,34	4,75	80	6	2	10,00°	1,65°	2,50	FE0500R2D80A25N120	FH0500R2D80A25N120
5,0	7,5	16,00	21,34	4,75	80	6	2	10,00°	1,34°	2,50	FE0500R2D80A25N160	FH0500R2D80A25N160
5,0	7,5	20,00	25,34	4,75	80	6	2	10,00°	1,13°	2,50	FE0500R2D80A25N200	FH0500R2D80A25N200

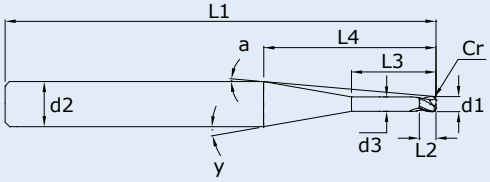


	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=120 m/dk.			Vc=80 m/dk.			Vc=60 m/dk.			Vc=200 m/dk.			Vc=460 m/dk.			Vc=230 m/dk.			Vc=60 m/dk.			Vc=50 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5	0.05	0.05	0.009	60000	1080	0.011	51200	1126	0.011	38400	845	0.007	60000	840	0.016	60000	1920	0.010	60000	1200	0.007	38400	538	0.008	32000	512
1.0	0.10	0.10	0.016	38400	1229	0.023	25600	1178	0.021	19200	806	0.013	60000	1560	0.016	60000	1920	0.013	60000	1560	0.015	19200	576	0.016	16000	512
2.0	0.20	0.20	0.031	19200	1190	0.035	12800	1203	0.042	9600	806	0.025	32000	1600	0.016	60000	1920	0.022	36800	1619	0.031	9600	595	0.033	8000	528
3.0	0.30	0.30	0.047	12800	1203	0.047	8500	1207	0.064	6400	819	0.037	21300	1576	0.016	60000	1568	0.034	24500	1666	0.047	6400	602	0.052	5300	551
4.0	0.40	0.40	0.065	9600	1248	0.059	6400	1216	0.087	4800	835	0.049	16000	1568	0.016	58800	1178	0.046	18400	1693	0.063	4800	605	0.072	4000	576
5.0	0.50	0.50	0.085	7600	1292	0.071	5100	1214	0.111	3800	844	0.061	12800	1562	0.016	49000	941	0.060	14700	1764	0.079	3800	600	0.094	3200	602

MIDI CORNER - R

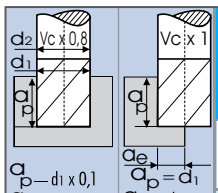


Solid carbide end mills with corner radius - Midi
VHM - Schaftfräser mit Eckenradius - Midi
Fraises toriques carbure - Midi
Karbür Köşe Radyüslü Freze - Midi



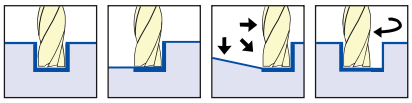
F	E	0100	K	2	D	57	A	20	N	020
END MILL	MG-10 MG-08	d1	TOOLEX		DIN 6535 HA		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	CORNER RADIUS	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CORNER RADIUS	COATED	FLUTE LENGTH

d1 (±0,003/0,005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Cr	<52 HRC	52 - 68 HRC
0,5	0,8	1,0	23,65	0,48	57	6	2	7,00°	6,63°	0,10	FE0050K2D57A10N010	FH0050K2D57A10N010
0,5	0,8	2,0	17,85	0,48	57	6	2	10,00°	8,75°	0,10	FE0050K2D57A10N020	FH0050K2D57A10N020
0,5	0,8	4,0	19,85	0,48	57	6	2	10,00°	7,88°	0,10	FE0050K2D57A10N040	FH0050K2D57A10N040
0,6	0,9	1,2	23,49	0,57	57	6	2	7,00°	6,55°	0,10	FE0060K2D57A10N012	FH0060K2D57A10N012
0,6	0,9	2,0	17,62	0,57	57	6	2	10,00°	8,71°	0,10	FE0060K2D57A10N020	FH0060K2D57A10N020
0,6	0,9	4,0	19,62	0,57	57	6	2	10,00°	7,83°	0,10	FE0060K2D57A10N040	FH0060K2D57A10N040
0,7	1,1	1,4	23,34	0,67	57	6	2	7,00°	6,47°	0,10	FE0070K2D57A10N014	FH0070K2D57A10N014
0,7	1,1	2,5	17,95	0,67	57	6	2	10,00°	8,39°	0,10	FE0070K2D57A10N025	FH0070K2D57A10N025
0,8	1,2	1,6	16,75	0,76	57	6	2	10,00°	8,82°	0,15	FE0080K2D57A15N016	FH0080K2D57A15N016
0,8	1,2	3,0	18,15	0,76	57	6	2	10,00°	8,15°	0,15	FE0080K2D57A15N030	FH0080K2D57A15N030
0,8	1,2	6,0	21,15	0,76	57	6	2	10,00°	7,00°	0,15	FE0080K2D57A15N060	FH0080K2D57A15N060
1,0	1,5	2,0	16,70	0,95	57	6	2	10,00°	8,51°	0,20	FE0100K2D57A20N020	FH0100K2D57A20N020
1,0	1,5	4,0	18,70	0,95	57	6	2	10,00°	7,61°	0,20	FE0100K2D57A20N040	FH0100K2D57A20N040
1,0	1,5	8,0	22,70	0,95	57	6	2	10,00°	6,28°	0,20	FE0100K2D57A20N080	FH0100K2D57A20N080
1,0	1,5	12,0	26,70	0,95	57	6	2	10,00°	5,34°	0,20	FE0100K2D57A20N120	FH0100K2D57A20N120
1,0	1,5	16,0	30,70	0,95	57	6	2	10,00°	4,65°	0,20	FE0100K2D57A20N160	FH0100K2D57A20N160
1,0	1,5	20,0	34,70	0,95	57	6	2	10,00°	4,12°	0,20	FE0100K2D57A20N200	FH0100K2D57A20N200
1,2	1,8	2,0	16,22	1,14	57	6	2	10,00°	8,41°	0,25	FE0120K2D57A25N020	FH0120K2D57A25N020
1,2	1,8	4,0	18,22	1,14	57	6	2	10,00°	7,81°	0,25	FE0120K2D57A25N040	FH0120K2D57A25N040
1,5	2,3	4,0	17,52	1,43	57	6	2	10,00°	5,96°	0,30	FE0150K2D57A30N040	FH0150K2D57A30N040
1,5	2,3	8,0	21,52	1,43	57	6	2	10,00°	5,03°	0,30	FE0150K2D57A30N080	FH0150K2D57A30N080
1,5	2,3	12,0	25,52	1,43	57	6	2	10,00°	4,35°	0,30	FE0150K2D57A30N120	FH0150K2D57A30N120
2,0	3,0	4,0	16,35	1,90	57	6	4	10,00°	6,97°	0,50	FE0200K4D57A50N040	FH0200K4D57A50N040
2,0	3,0	8,0	20,35	1,90	57	6	4	10,00°	5,61°	0,50	FE0200K4D57A50N080	FH0200K4D57A50N080
2,0	3,0	12,0	24,35	1,90	57	6	4	10,00°	4,69°	0,50	FE0200K4D57A50N120	FH0200K4D57A50N120
2,0	3,0	16,0	28,35	1,90	57	6	4	10,00°	4,03°	0,50	FE0200K4D57A50N160	FH0200K4D57A50N160
2,0	3,0	20,0	32,35	1,90	57	6	4	10,00°	3,53°	0,50	FE0200K4D57A50N200	FH0200K4D57A50N200
2,5	3,8	5,0	16,18	2,38	57	6	4	10,00°	6,17°	0,50	FE0250K4D57A50N050	FH0250K4D57A50N050
2,5	3,8	8,0	19,18	2,38	57	6	4	10,00°	5,21°	0,50	FE0250K4D57A50N080	FH0250K4D57A50N080
2,5	3,8	12,0	23,18	2,38	57	6	4	10,00°	4,31°	0,50	FE0250K4D57A50N120	FH0250K4D57A50N120
3,0	4,5	6,0	16,01	2,85	57	6	4	10,00°	5,35°	0,50	FE0300K4D57A50N060	FH0300K4D57A50N060
3,0	4,5	8,0	18,01	2,85	57	6	4	10,00°	4,76°	0,50	FE0300K4D57A50N080	FH0300K4D57A50N080
3,0	4,5	12,0	22,01	2,85	57	6	4	10,00°	3,89°	0,50	FE0300K4D57A50N120	FH0300K4D57A50N120
3,0	4,5	16,0	26,01	2,85	57	6	4	10,00°	3,30°	0,50	FE0300K4D57A50N160	FH0300K4D57A50N160
3,0	4,5	20,0	30,01	2,85	57	6	4	10,00°	2,86°	0,50	FE0300K4D57A50N200	FH0300K4D57A50N200
3,5	5,3	6,0	14,83	3,33	57	6	4	10,00°	4,81°	0,50	FE0350K4D57A50N060	FH0350K4D57A50N060
4,0	6,0	6,0	13,68	3,80	57	6	4	10,00°	4,18°	0,50	FE0400K4D57A50N060	FH0400K4D57A50N060
4,0	6,0	8,0	15,68	3,80	57	6	4	10,00°	3,64°	0,50	FE0400K4D57A50N080	FH0400K4D57A50N080
4,0	6,0	12,0	19,68	3,80	57	6	4	10,00°	2,90°	0,50	FE0400K4D57A50N120	FH0400K4D57A50N120
4,0	6,0	16,0	23,68	3,80	57	6	4	10,00°	2,41°	0,50	FE0400K4D57A50N160	FH0400K4D57A50N160
4,5	6,8	7,0	13,51	4,28	57	6	4	10,00°	3,17°	0,50	FE0450K4D57A50N070	FH0450K4D57A50N070
4,5	6,8	12,0	18,51	4,28	57	6	4	10,00°	2,32°	0,50	FE0450K4D57A50N120	FH0450K4D57A50N120
5,0	7,5	8,0	13,34	4,75	57	6	4	10,00°	2,14°	0,50	FE0500K4D57A50N080	FH0500K4D57A50N080
5,0	7,5	12,0	17,34	4,75	57	6	4	10,00°	1,65°	0,50	FE0500K4D57A50N120	FH0500K4D57A50N120
5,0	7,5	16,0	21,34	4,75	57	6	4	10,00°	1,34°	0,50	FE0500K4D57A50N160	FH0500K4D57A50N160
5,0	7,5	20,0	25,34	4,75	57	6	4	10,00°	1,13°	0,50	FE0500K4D57A50N200	FH0500K4D57A50N200

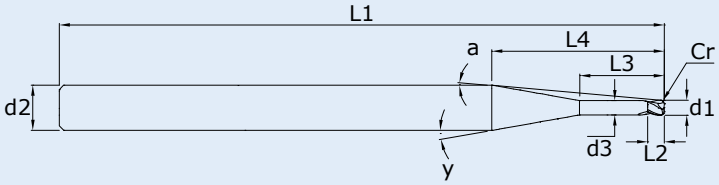


	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=120 m/dk.			Vc=80 m/dk.			Vc=60 m/dk.			Vc=200 m/dk.			Vc=460 m/dk.			Vc=230 m/dk.			Vc=60 m/dk.			Vc=50 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5	0.05	0.05	0.009	60000	1080	0.011	51200	1126	0.011	38400	845	0.007	60000	840	0.016	60000	1920	0.010	60000	1200	0.007	38400	538	0.008	32000	512
1.0	0.10	0.10	0.016	38400	1229	0.023	25600	1178	0.021	19200	806	0.013	60000	1560	0.016	60000	1920	0.013	60000	1560	0.015	19200	576	0.016	16000	512
2.0	0.20	0.20	0.031	19200	2381	0.035	12800	2406	0.042	9600	1613	0.025	32000	3200	0.016	60000	3840	0.022	36800	3238	0.031	9600	1190	0.033	8000	1056
3.0	0.30	0.30	0.047	12800	2406	0.047	8500	2414	0.064	6400	1638	0.037	21300	3152	0.016	60000	3136	0.034	24500	3332	0.047	6400	1203	0.052	5300	1102
4.0	0.40	0.40	0.065	9600	2496	0.059	6400	2432	0.087	4800	1670	0.049	16000	3136	0.016	58800	2355	0.046	18400	3386	0.063	4800	1210	0.072	4000	1152
5.0	0.50	0.50	0.085	7600	2584	0.071	5100	2428	0.111	3800	1687	0.061	12800	3123	0.016	49000	1882	0.060	14700	3528	0.079	3800	1201	0.094	3200	1203

MIDI LONG CORNER - R

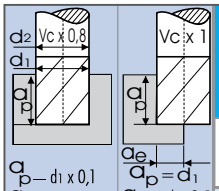


Solid carbide end mills with corner radius - Midi Long
VHM - Schaftfräser mit Eckenradius - Midi Lang
Fraises toriques carbure - Midi Longue
Karbür Köşe Radyüslü Freze - Midi Uzun



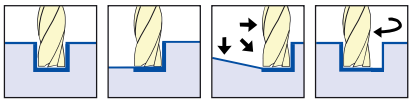
F	E	0100	K	2	D	80	A	20	N	020
END MILL	MG-10 MG-08	d1	TOOLEX		DIN 6535 HA		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	CORNER RADIUS	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CORNER RADIUS	COATED	FLUTE LENGTH

d1(±0,003/0,005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Cr	<52 HRC	52 - 68 HRC
0,5	0,8	1,0	23,65	0,48	80	6	2	7,00°	6,63°	0,10	FE0050K2D80A10N010	FH0050K2D80A10N010
0,5	0,8	2,0	17,85	0,48	80	6	2	10,00°	8,75°	0,10	FE0050K2D80A10N020	FH0050K2D80A10N020
0,5	0,8	4,0	19,85	0,48	80	6	2	10,00°	7,88°	0,10	FE0050K2D80A10N040	FH0050K2D80A10N040
0,6	0,9	1,2	23,49	0,57	80	6	2	7,00°	6,55°	0,10	FE0060K2D80A10N012	FH0060K2D80A10N012
0,6	0,9	2,0	17,62	0,57	80	6	2	10,00°	8,71°	0,10	FE0060K2D80A10N020	FH0060K2D80A10N020
0,6	0,9	4,0	19,62	0,57	80	6	2	10,00°	7,83°	0,10	FE0060K2D80A10N040	FH0060K2D80A10N040
0,7	1,1	1,4	23,34	0,67	80	6	2	7,00°	6,47°	0,10	FE0070K2D80A10N014	FH0070K2D80A10N014
0,7	1,1	2,5	17,95	0,67	80	6	2	10,00°	8,39°	0,10	FE0070K2D80A10N025	FH0070K2D80A10N025
0,8	1,2	1,6	16,75	0,76	80	6	2	10,00°	8,82°	0,15	FE0080K2D80A15N016	FH0080K2D80A15N016
0,8	1,2	3,0	18,15	0,76	80	6	2	10,00°	8,15°	0,15	FE0080K2D80A15N030	FH0080K2D80A15N030
0,8	1,2	6,0	21,15	0,76	80	6	2	10,00°	7,00°	0,15	FE0080K2D80A15N060	FH0080K2D80A15N060
1,0	1,5	2,0	16,70	0,95	80	6	2	10,00°	8,51°	0,20	FE0100K2D80A20N020	FH0100K2D80A20N020
1,0	1,5	4,0	18,70	0,95	80	6	2	10,00°	7,61°	0,20	FE0100K2D80A20N040	FH0100K2D80A20N040
1,0	1,5	8,0	22,70	0,95	80	6	2	10,00°	6,28°	0,20	FE0100K2D80A20N080	FH0100K2D80A20N080
1,0	1,5	12,0	26,70	0,95	80	6	2	10,00°	5,34°	0,20	FE0100K2D80A20N120	FH0100K2D80A20N120
1,0	1,5	16,0	30,70	0,95	80	6	2	10,00°	4,65°	0,20	FE0100K2D80A20N160	FH0100K2D80A20N160
1,0	1,5	20,0	34,70	0,95	80	6	2	10,00°	4,12°	0,20	FE0100K2D80A20N200	FH0100K2D80A20N200
1,2	1,8	2,0	16,22	1,14	80	6	2	10,00°	8,41°	0,25	FE0120K2D80A25N020	FH0120K2D80A25N020
1,2	1,8	4,0	18,22	1,14	80	6	2	10,00°	7,81°	0,25	FE0120K2D80A25N040	FH0120K2D80A25N040
1,5	2,3	4,0	17,52	1,43	80	6	2	10,00°	5,96°	0,30	FE0150K2D80A30N040	FH0150K2D80A30N040
1,5	2,3	8,0	21,52	1,43	80	6	2	10,00°	5,03°	0,30	FE0150K2D80A30N080	FH0150K2D80A30N080
1,5	2,3	12,0	25,52	1,43	80	6	2	10,00°	4,35°	0,30	FE0150K2D80A30N120	FH0150K2D80A30N120
2,0	3,0	4,0	16,35	1,90	80	6	4	10,00°	6,97°	0,50	FE0200K4D80A50N040	FH0200K4D80A50N040
2,0	3,0	8,0	20,35	1,90	80	6	4	10,00°	5,61°	0,50	FE0200K4D80A50N080	FH0200K4D80A50N080
2,0	3,0	12,0	24,35	1,90	80	6	4	10,00°	4,69°	0,50	FE0200K4D80A50N120	FH0200K4D80A50N120
2,0	3,0	16,0	28,35	1,90	80	6	4	10,00°	4,03°	0,50	FE0200K4D80A50N160	FH0200K4D80A50N160
2,0	3,0	20,0	32,35	1,90	80	6	4	10,00°	3,53°	0,50	FE0200K4D80A50N200	FH0200K4D80A50N200
2,5	3,8	5,0	16,18	2,38	80	6	4	10,00°	6,17°	0,50	FE0250K4D80A50N050	FH0250K4D80A50N050
2,5	3,8	8,0	19,18	2,38	80	6	4	10,00°	5,21°	0,50	FE0250K4D80A50N080	FH0250K4D80A50N080
2,5	3,8	12,0	23,18	2,38	80	6	4	10,00°	4,31°	0,50	FE0250K4D80A50N120	FH0250K4D80A50N120
3,0	4,5	6,0	16,01	2,85	80	6	4	10,00°	5,35°	0,50	FE0300K4D80A50N060	FH0300K4D80A50N060
3,0	4,5	8,0	18,01	2,85	80	6	4	10,00°	4,76°	0,50	FE0300K4D80A50N080	FH0300K4D80A50N080
3,0	4,5	12,0	22,01	2,85	80	6	4	10,00°	3,89°	0,50	FE0300K4D80A50N120	FH0300K4D80A50N120
3,0	4,5	16,0	26,01	2,85	80	6	4	10,00°	3,30°	0,50	FE0300K4D80A50N160	FH0300K4D80A50N160
3,0	4,5	20,0	30,01	2,85	80	6	4	10,00°	2,86°	0,50	FE0300K4D80A50N200	FH0300K4D80A50N200
3,5	5,3	6,0	14,83	3,33	80	6	4	10,00°	4,81°	0,50	FE0350K4D80A50N060	FH0350K4D80A50N060
4,0	6,0	6,0	13,68	3,80	80	6	4	10,00°	4,18°	0,50	FE0400K4D80A50N060	FH0400K4D80A50N060
4,0	6,0	8,0	15,68	3,80	80	6	4	10,00°	3,64°	0,50	FE0400K4D80A50N080	FH0400K4D80A50N080
4,0	6,0	12,0	19,68	3,80	80	6	4	10,00°	2,90°	0,50	FE0400K4D80A50N120	FH0400K4D80A50N120
4,0	6,0	16,0	23,68	3,80	80	6	4	10,00°	2,41°	0,50	FE0400K4D80A50N160	FH0400K4D80A50N160
4,5	6,8	7,0	13,51	4,28	80	6	4	10,00°	3,17°	0,50	FE0450K4D80A50N070	FH0450K4D80A50N070
4,5	6,8	12,0	18,51	4,28	80	6	4	10,00°	2,32°	0,50	FE0450K4D80A50N120	FH0450K4D80A50N120
5,0	7,5	8,0	13,34	4,75	80	6	4	10,00°	2,14°	0,50	FE0500K4D80A50N080	FH0500K4D80A50N080
5,0	7,5	12,0	17,34	4,75	80	6	4	10,00°	1,65°	0,50	FE0500K4D80A50N120	FH0500K4D80A50N120
5,0	7,5	16,0	21,34	4,75	80	6	4	10,00°	1,34°	0,50	FE0500K4D80A50N160	FH0500K4D80A50N160
5,0	7,5	20,0	25,34	4,75	80	6	4	10,00°	1,13°	0,50	FE0500K4D80A50N200	FH0500K4D80A50N200

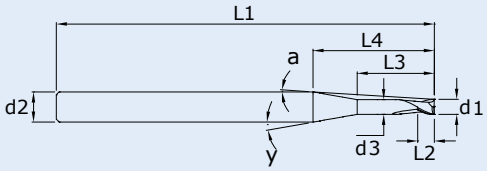


	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=120 m/dk.			Vc=80 m/dk.			Vc=60 m/dk.			Vc=200 m/dk.			Vc=460 m/dk.			Vc=230 m/dk.			Vc=60 m/dk.			Vc=50 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5	0.05	0.05	0.009	60000	1080	0.011	51200	1126	0.011	38400	845	0.007	60000	840	0.016	60000	1920	0.010	60000	1200	0.007	38400	538	0.008	32000	512
1.0	0.10	0.10	0.016	38400	1229	0.023	25600	1178	0.021	19200	806	0.013	60000	1560	0.016	60000	1920	0.013	60000	1560	0.015	19200	576	0.016	16000	512
2.0	0.20	0.20	0.031	19200	2381	0.035	12800	2406	0.042	9600	1613	0.025	32000	3200	0.016	60000	3840	0.022	36800	3238	0.031	9600	1190	0.033	8000	1056
3.0	0.30	0.30	0.047	12800	2406	0.047	8500	2414	0.064	6400	1638	0.037	21300	3152	0.016	60000	3136	0.034	24500	3332	0.047	6400	1203	0.052	5300	1102
4.0	0.40	0.40	0.065	9600	2496	0.059	6400	2432	0.087	4800	1670	0.049	16000	3136	0.016	58800	2355	0.046	18400	3386	0.063	4800	1210	0.072	4000	1152
5.0	0.50	0.50	0.085	7600	2584	0.071	5100	2428	0.111	3800	1687	0.061	12800	3123	0.016	49000	1882	0.060	14700	3528	0.079	3800	1201	0.094	3200	1203

ALU MINI <52 HRC

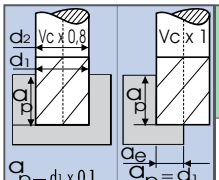


Solid carbide end mills - Alu Mini
VHM - Schaftfräser - Alu Mini
Fraises en bout carbure - Alu Mini
Karbür Freze - Alu Mini



F	G	0100	G	2	N	50	A	00	D	020
END MILL	MG-07	d1	DIN 6528		DIN 6535 HA		30°		DRYCUT	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CHAMFER	COATED	FLUTE LENGTH

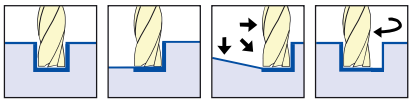
d1 ($\pm^{0.003}_{0.005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Coated Code
0,2	0,3	0,4	15,98	0,19	50	4	2	7,00°	6,78°	FG0020G2N50A00D004
0,2	0,3	0,8	16,38	0,19	50	4	2	7,00°	6,62°	FG0020G2N50A00D008
0,2	0,3	1,2	12,08	0,19	50	4	2	10,00°	8,94°	FG0020G2N50A00D012
0,2	0,3	2,0	12,88	0,19	50	4	2	10,00°	8,39°	FG0020G2N50A00D020
0,3	0,5	0,6	15,85	0,29	50	4	2	7,00°	6,66°	FG0030G2N50A00D006
0,3	0,5	1,2	11,85	0,29	50	4	2	10,00°	8,88°	FG0030G2N50A00D012
0,3	0,5	2,4	13,05	0,29	50	4	2	10,00°	8,70°	FG0030G2N50A00D024
0,3	0,5	3,0	13,65	0,29	50	4	2	10,00°	7,72°	FG0030G2N50A00D030
0,4	0,6	0,8	15,66	0,38	50	4	2	7,00°	6,55°	FG0040G2N50A00D008
0,4	0,6	1,6	12,01	0,38	50	4	2	10,00°	8,52°	FG0040G2N50A00D016
0,4	0,6	3,2	13,61	0,38	50	4	2	10,00°	7,53°	FG0040G2N50A00D032
0,4	0,6	4,0	14,41	0,38	50	4	2	10,00°	6,92°	FG0040G2N50A00D040
0,5	0,8	1,0	15,55	0,48	50	4	2	7,00°	6,42°	FG0050G2N50A00D010
0,5	0,8	2,0	12,18	0,48	50	4	2	10,00°	8,17°	FG0050G2N50A00D020
0,5	0,8	4,0	14,18	0,48	50	4	2	10,00°	7,03°	FG0050G2N50A00D040
0,5	0,8	6,0	16,18	0,48	50	4	2	10,00°	6,17°	FG0050G2N50A00D060
0,6	0,9	1,2	15,35	0,57	50	4	2	10,00°	6,32°	FG0060G2N50A00D012
0,6	0,9	2,0	11,95	0,57	50	4	2	10,00°	8,09°	FG0060G2N50A00D020
0,6	0,9	4,0	13,95	0,57	50	4	2	10,00°	6,94°	FG0060G2N50A00D040
0,6	0,9	8,0	17,95	0,57	50	4	2	10,00°	5,41°	FG0060G2N50A00D080
0,7	1,1	1,4	15,18	0,67	50	4	2	7,00°	6,20°	FG0070G2N50A00D014
0,7	1,1	2,5	12,21	0,67	50	4	2	10,00°	7,69°	FG0070G2N50A00D025
0,7	1,1	5,0	14,71	0,67	50	4	2	10,00°	6,40°	FG0070G2N50A00D050
0,7	1,1	8,0	17,71	0,67	50	4	2	10,00°	5,32°	FG0070G2N50A00D080
0,8	1,2	1,6	11,10	0,76	50	4	2	10,00°	8,20°	FG0080G2N50A00D016
0,8	1,2	3,0	12,50	0,76	50	4	2	10,00°	7,29°	FG0080G2N50A00D030
0,8	1,2	6,0	15,50	0,76	50	4	2	10,00°	5,89°	FG0080G2N50A00D060
0,8	1,2	10,0	19,50	0,76	50	4	2	10,00°	4,69°	FG0080G2N50A00D100
1,0	1,5	2,0	11,01	0,95	50	4	2	10,00°	7,75°	FG0100G2N50A00D020
1,0	1,5	4,0	13,01	0,95	50	4	2	10,00°	6,57°	FG0100G2N50A00D040
1,0	1,5	8,0	17,01	0,95	50	4	2	10,00°	5,03°	FG0100G2N50A00D080
1,0	1,5	12,0	21,01	0,95	50	4	2	10,00°	4,08°	FG0100G2N50A00D120
1,0	1,5	16,0	25,01	0,95	50	4	2	10,00°	3,43°	FG0100G2N50A00D160
1,0	1,5	20,0	29,01	0,95	50	4	2	10,00°	2,96°	FG0100G2N50A00D200
1,2	1,8	2,0	10,54	1,14	50	4	2	10,00°	7,56°	FG0120G2N50A00D020
1,2	1,8	4,0	12,54	1,14	50	4	2	10,00°	6,37°	FG0120G2N50A00D040
1,5	2,3	4,0	11,85	1,43	50	4	2	10,00°	6,02°	FG0150G2N50A00D040
1,5	2,3	8,0	15,85	1,43	50	4	2	10,00°	4,50°	FG0150G2N50A00D080
1,5	2,3	12,0	19,85	1,43	50	4	2	10,00°	3,60°	FG0150G2N50A00D120
1,5	2,3	20,0	27,85	1,43	50	4	2	10,00°	2,57°	FG0150G2N50A00D200
2,0	3,0	4,0	10,68	1,90	50	4	2	10,00°	5,35°	FG0200G2N50A00D040
2,0	3,0	8,0	14,68	1,90	50	4	2	10,00°	3,09°	FG0200G2N50A00D080
2,0	3,0	12,0	18,68	1,90	50	4	2	10,00°	3,06°	FG0200G2N50A00D120
2,0	3,0	16,0	22,68	1,90	50	4	2	10,00°	2,52°	FG0200G2N50A00D160
2,0	3,0	20,0	26,68	1,90	50	4	2	10,00°	2,14°	FG0200G2N50A00D200
2,5	3,8	5,0	10,51	2,38	50	4	2	10,00°	4,08°	FG0250G2N50A00D050
2,5	3,8	8,0	13,51	2,38	50	4	2	10,00°	3,17°	FG0250G2N50A00D080
2,5	3,8	12,0	17,51	2,38	50	4	2	10,00°	2,45°	FG0250G2N50A00D120
2,5	3,8	16,0	21,51	2,38	50	4	2	10,00°	1,99°	FG0250G2N50A00D160
2,5	3,8	20,0	25,51	2,38	50	4	2	10,00°	1,68°	FG0250G2N50A00D200
3,0	4,5	6,0	10,34	2,85	50	4	2	10,00°	2,76°	FG0300G2N50A00D060
3,0	4,5	8,0	12,34	2,85	50	4	2	10,00°	2,32°	FG0300G2N50A00D080
3,0	4,5	12,0	16,34	2,85	50	4	2	10,00°	1,75°	FG0300G2N50A00D120
3,0	4,5	16,0	20,34	2,85	50	4	2	10,00°	1,40°	FG0300G2N50A00D160
3,0	4,5	20,0	24,34	2,85	50	4	2	10,00°	1,17°	FG0300G2N50A00D200



	AL	CU	GRAPHIT
	3.2151 3.2373 3.2382	2.1247 2.0580 2.0598	
	Vc=460 m/dk.	Vc=230 m/dk.	Vc=500 m/dk.

d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5	0.05	0.05	0.008	60000	960	0.010	60000	1200	0.005	60000	600
1.0	0.10	0.10	0.014	60000	1680	0.013	60000	1560	0.010	60000	1200
1.5	0.15	0.15	0.020	60000	2400	0.016	49000	1568	0.015	60000	1800
2.0	0.20	0.20	0.026	60000	3120	0.022	36800	1619	0.020	60000	2400
2.5	0.25	0.25	0.032	58800	3763	0.032	29400	1881	0.025	60000	3000
3.0	0.30	0.30	0.038	49000	3724	0.044	24500	2156	0.030	53300	3198

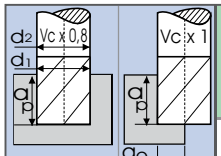
ALU MINI LONG <52 HRC



Solid carbide end mills - Alu Mini Long
VHM - Schaftfräser - Alu Mini Lang
Fraises en bout carbure - Alu Mini Longue
Karbür Freze - Alu Mini Uzun

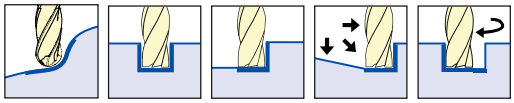
F	G	0100	G	2	N	80	A	00	D	020
END MILL	MG-07	d1	DIN 6528		DIN 6535 HA		30°		DRYCUT	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CHAMFER	COATED	FLUTE LENGTH

d1 ($^{+0,003}_{-0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Coated Code
0,2	0,3	0,4	15,98	0,19	80	4	2	7,00°	6,78°	FG0020G2N80A00D004
0,2	0,3	0,8	16,38	0,19	80	4	2	7,00°	6,62°	FG0020G2N80A00D008
0,2	0,3	1,2	12,08	0,19	80	4	2	10,00°	8,94°	FG0020G2N80A00D012
0,2	0,3	2,0	12,88	0,19	80	4	2	10,00°	8,39°	FG0020G2N80A00D020
0,3	0,5	0,6	15,85	0,29	80	4	2	7,00°	6,66°	FG0030G2N80A00D006
0,3	0,5	1,2	11,85	0,29	80	4	2	10,00°	8,88°	FG0030G2N80A00D012
0,3	0,5	2,4	13,05	0,29	80	4	2	10,00°	8,70°	FG0030G2N80A00D024
0,3	0,5	3,0	13,65	0,29	80	4	2	10,00°	7,72°	FG0030G2N80A00D030
0,4	0,6	0,8	15,66	0,38	80	4	2	7,00°	6,55°	FG0040G2N80A00D008
0,4	0,6	1,6	12,01	0,38	80	4	2	10,00°	8,52°	FG0040G2N80A00D016
0,4	0,6	3,2	13,61	0,38	80	4	2	10,00°	7,53°	FG0040G2N80A00D032
0,4	0,6	4,0	14,41	0,38	80	4	2	10,00°	6,92°	FG0040G2N80A00D040
0,5	0,8	1,0	15,55	0,48	80	4	2	7,00°	6,42°	FG0050G2N80A00D010
0,5	0,8	2,0	12,18	0,48	80	4	2	10,00°	8,17°	FG0050G2N80A00D020
0,5	0,8	4,0	14,18	0,48	80	4	2	10,00°	7,03°	FG0050G2N80A00D040
0,5	0,8	6,0	16,18	0,48	80	4	2	10,00°	6,17°	FG0050G2N80A00D060
0,6	0,9	1,2	15,35	0,57	80	4	2	10,00°	6,32°	FG0060G2N80A00D012
0,6	0,9	2,0	11,95	0,57	80	4	2	10,00°	8,09°	FG0060G2N80A00D020
0,6	0,9	4,0	13,95	0,57	80	4	2	10,00°	6,94°	FG0060G2N80A00D040
0,6	0,9	8,0	17,95	0,57	80	4	2	10,00°	5,41°	FG0060G2N80A00D080
0,7	1,1	1,4	15,18	0,67	80	4	2	7,00°	6,20°	FG0070G2N80A00D014
0,7	1,1	2,5	12,21	0,67	80	4	2	10,00°	7,69°	FG0070G2N80A00D025
0,7	1,1	5,0	14,71	0,67	80	4	2	10,00°	6,40°	FG0070G2N80A00D050
0,7	1,1	8,0	17,71	0,67	80	4	2	10,00°	5,32°	FG0070G2N80A00D080
0,8	1,2	1,6	11,10	0,76	80	4	2	10,00°	8,20°	FG0080G2N80A00D016
0,8	1,2	3,0	12,50	0,76	80	4	2	10,00°	7,29°	FG0080G2N80A00D030
0,8	1,2	6,0	15,50	0,76	80	4	2	10,00°	5,89°	FG0080G2N80A00D060
0,8	1,2	10,0	19,50	0,76	80	4	2	10,00°	4,69°	FG0080G2N80A00D100
1,0	1,5	2,0	11,01	0,95	80	4	2	10,00°	7,75°	FG0100G2N80A00D020
1,0	1,5	4,0	13,01	0,95	80	4	2	10,00°	6,57°	FG0100G2N80A00D040
1,0	1,5	8,0	17,01	0,95	80	4	2	10,00°	5,03°	FG0100G2N80A00D080
1,0	1,5	12,0	21,01	0,95	80	4	2	10,00°	4,08°	FG0100G2N80A00D120
1,0	1,5	16,0	25,01	0,95	80	4	2	10,00°	3,43°	FG0100G2N80A00D160
1,0	1,5	20,0	29,01	0,95	80	4	2	10,00°	2,96°	FG0100G2N80A00D200
1,2	1,8	2,0	10,54	1,14	80	4	2	10,00°	7,56°	FG0120G2N80A00D020
1,2	1,8	4,0	12,54	1,14	80	4	2	10,00°	6,37°	FG0120G2N80A00D040
1,5	2,3	4,0	11,85	1,43	80	4	2	10,00°	6,02°	FG0150G2N80A00D040
1,5	2,3	8,0	15,85	1,43	80	4	2	10,00°	4,50°	FG0150G2N80A00D080
1,5	2,3	12,0	19,85	1,43	80	4	2	10,00°	3,60°	FG0150G2N80A00D120
1,5	2,3	20,0	27,85	1,43	80	4	2	10,00°	2,57°	FG0150G2N80A00D200
2,0	3,0	4,0	10,68	1,90	80	4	2	10,00°	5,35°	FG0200G2N80A00D040
2,0	3,0	8,0	14,68	1,90	80	4	2	10,00°	3,09°	FG0200G2N80A00D080
2,0	3,0	12,0	18,68	1,90	80	4	2	10,00°	3,06°	FG0200G2N80A00D120
2,0	3,0	16,0	22,68	1,90	80	4	2	10,00°	2,52°	FG0200G2N80A00D160
2,0	3,0	20,0	26,68	1,90	80	4	2	10,00°	2,14°	FG0200G2N80A00D200
2,5	3,8	5,0	10,51	2,38	80	4	2	10,00°	4,08°	FG0250G2N80A00D050
2,5	3,8	8,0	13,51	2,38	80	4	2	10,00°	3,17°	FG0250G2N80A00D080
2,5	3,8	12,0	17,51	2,38	80	4	2	10,00°	2,45°	FG0250G2N80A00D120
2,5	3,8	16,0	21,51	2,38	80	4	2	10,00°	1,99°	FG0250G2N80A00D160
2,5	3,8	20,0	25,51	2,38	80	4	2	10,00°	1,68°	FG0250G2N80A00D200
3,0	4,5	6,0	10,34	2,85	80	4	2	10,00°	2,76°	FG0300G2N80A00D060
3,0	4,5	8,0	12,34	2,85	80	4	2	10,00°	2,32°	FG0300G2N80A00D080
3,0	4,5	12,0	16,34	2,85	80	4	2	10,00°	1,75°	FG0300G2N80A00D120
3,0	4,5	16,0	20,34	2,85	80	4	2	10,00°	1,40°	FG0300G2N80A00D160
3,0	4,5	20,0	24,34	2,85	80	4	2	10,00°	1,17°	FG0300G2N80A00D200

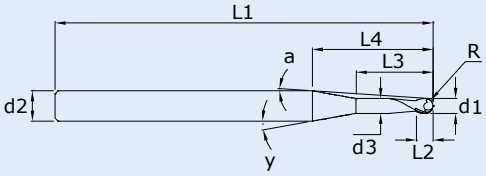


			AL			CU			GRAPHIT		
			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598					
			Vc=460 m/dk.			Vc=230 m/dk.			Vc=500 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5	0.05	0.05	0.008	60000	960	0.010	60000	1200	0.005	60000	600
1.0	0.10	0.10	0.014	60000	1680	0.013	60000	1560	0.010	60000	1200
1.5	0.15	0.15	0.020	60000	2400	0.016	49000	1568	0.015	60000	1800
2.0	0.20	0.20	0.026	60000	3120	0.022	36800	1619	0.020	60000	2400
2.5	0.25	0.25	0.032	58800	3763	0.032	29400	1881	0.025	60000	3000
3.0	0.30	0.30	0.038	49000	3724	0.044	24500	2156	0.030	53300	3198

ALU MINI BALL NOSE <52 HRC

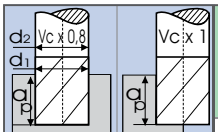


Solid carbide ball nose end mills - Alu Mini
VHM - Radiusfräser - Alu Mini
Fraises a rayon carbure - Alu Mini
Karbür Küre Freze - Alu Mini



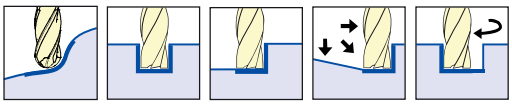
F	G	0100	R	2	N	50	A	50	D	020
END MILL	MG-07	d1	DIN 6928		DIN 6535 HA		30	R	DRYCUT	
TYPE	QUALITY	DIAMETER	BALL NOSE	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	RADIUS	COATED	FLUTE LENGTH

d1($\pm^{0,003}_{0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	R	Coated Code
0,2	0,3	0,4	15,98	0,19	50	4	2	7,00°	6,78°	0,10	FG0020R2N50A10D004
0,2	0,3	0,8	16,38	0,19	50	4	2	7,00°	6,62°	0,10	FG0020R2N50A10D008
0,2	0,3	1,2	12,08	0,19	50	4	2	10,00°	8,94°	0,10	FG0020R2N50A10D012
0,2	0,3	2,0	12,88	0,19	50	4	2	10,00°	8,39°	0,10	FG0020R2N50A10D020
0,3	0,5	0,6	15,85	0,29	50	4	2	7,00°	6,66°	0,15	FG0030R2N50A15N006
0,3	0,5	1,2	11,85	0,29	50	4	2	10,00°	8,88°	0,15	FG0030R2N50A15N012
0,3	0,5	2,4	13,05	0,29	50	4	2	10,00°	8,70°	0,15	FG0030R2N50A15N024
0,3	0,5	3,0	13,65	0,29	50	4	2	10,00°	7,72°	0,15	FG0030R2N50A15N030
0,4	0,6	0,8	15,66	0,38	50	4	2	7,00°	6,55°	0,20	FG0040R2N50A20D008
0,4	0,6	1,6	12,01	0,38	50	4	2	10,00°	8,52°	0,20	FG0040R2N50A20D016
0,4	0,6	3,2	13,61	0,38	50	4	2	10,00°	7,53°	0,20	FG0040R2N50A20D032
0,4	0,6	4,0	14,41	0,38	50	4	2	10,00°	6,92°	0,20	FG0040R2N50A20D040
0,5	0,8	1,0	15,55	0,48	50	4	2	7,00°	6,42°	0,25	FG0050R2N50A25N010
0,5	0,8	2,0	12,18	0,48	50	4	2	10,00°	8,17°	0,25	FG0050R2N50A25N020
0,5	0,8	4,0	14,18	0,48	50	4	2	10,00°	7,03°	0,25	FG0050R2N50A25N040
0,5	0,8	6,0	16,18	0,48	50	4	2	10,00°	6,17°	0,25	FG0050R2N50A25N060
0,6	0,9	1,2	15,35	0,57	50	4	2	10,00°	6,32°	0,30	FG0060R2N50A30D012
0,6	0,9	2,0	11,95	0,57	50	4	2	10,00°	8,09°	0,30	FG0060R2N50A30D020
0,6	0,9	4,0	13,95	0,57	50	4	2	10,00°	6,94°	0,30	FG0060R2N50A30D040
0,6	0,9	8,0	17,95	0,57	50	4	2	10,00°	5,41°	0,30	FG0060R2N50A30D080
0,7	1,1	1,4	15,18	0,67	50	4	2	7,00°	6,20°	0,35	FG0070R2N50A35N014
0,7	1,1	2,5	12,21	0,67	50	4	2	10,00°	7,69°	0,35	FG0070R2N50A35N025
0,7	1,1	5,0	14,71	0,67	50	4	2	10,00°	6,40°	0,35	FG0070R2N50A35N050
0,7	1,1	8,0	17,71	0,67	50	4	2	10,00°	5,32°	0,35	FG0070R2N50A35N080
0,8	1,2	1,6	11,10	0,76	50	4	2	10,00°	8,20°	0,40	FG0080R2N50A40D016
0,8	1,2	3,0	12,50	0,76	50	4	2	10,00°	7,29°	0,40	FG0080R2N50A40D030
0,8	1,2	6,0	15,50	0,76	50	4	2	10,00°	5,89°	0,40	FG0080R2N50A40D060
0,8	1,2	10,0	19,50	0,76	50	4	2	10,00°	4,69°	0,40	FG0080R2N50A40D100
1,0	1,5	2,0	11,01	0,95	50	4	2	10,00°	7,75°	0,50	FG0100R2N50A50D020
1,0	1,5	4,0	13,01	0,95	50	4	2	10,00°	6,57°	0,50	FG0100R2N50A50D040
1,0	1,5	8,0	17,01	0,95	50	4	2	10,00°	5,03°	0,50	FG0100R2N50A50D080
1,0	1,5	12,0	21,01	0,95	50	4	2	10,00°	4,08°	0,50	FG0100R2N50A50D120
1,0	1,5	16,0	25,01	0,95	50	4	2	10,00°	3,43°	0,50	FG0100R2N50A50D160
1,0	1,5	20,0	29,01	0,95	50	4	2	10,00°	2,96°	0,50	FG0100R2N50A50D200
1,2	1,8	2,0	10,54	1,14	50	4	2	10,00°	7,56°	0,60	FG0120R2N50A60D020
1,2	1,8	4,0	12,54	1,14	50	4	2	10,00°	6,37°	0,60	FG0120R2N50A60D040
1,5	2,3	4,0	11,85	1,43	50	4	2	10,00°	6,02°	0,75	FG0150R2N50A75N040
1,5	2,3	8,0	15,85	1,43	50	4	2	10,00°	4,50°	0,75	FG0150R2N50A75N080
1,5	2,3	12,0	19,85	1,43	50	4	2	10,00°	3,60°	0,75	FG0150R2N50A75N120
1,5	2,3	20,0	27,85	1,43	50	4	2	10,00°	2,57°	0,75	FG0150R2N50A75N200
2,0	3,0	4,0	10,68	1,90	50	4	2	10,00°	5,35°	1,00	FG0200R2N50A10D040
2,0	3,0	8,0	14,68	1,90	50	4	2	10,00°	3,09°	1,00	FG0200R2N50A10D080
2,0	3,0	12,0	18,68	1,90	50	4	2	10,00°	3,06°	1,00	FG0200R2N50A10D120
2,0	3,0	16,0	22,68	1,90	50	4	2	10,00°	2,52°	1,00	FG0200R2N50A10D160
2,0	3,0	20,0	26,68	1,90	50	4	2	10,00°	2,14°	1,00	FG0200R2N50A10D200
2,5	3,8	5,0	10,51	2,38	50	4	2	10,00°	4,08°	1,25	FG0250R2N50A13D050
2,5	3,8	8,0	13,51	2,38	50	4	2	10,00°	3,17°	1,25	FG0250R2N50A13D080
2,5	3,8	12,0	17,51	2,38	50	4	2	10,00°	2,45°	1,25	FG0250R2N50A13D120
2,5	3,8	16,0	21,51	2,38	50	4	2	10,00°	1,99°	1,25	FG0250R2N50A13D160
2,5	3,8	20,0	25,51	2,38	50	4	2	10,00°	1,68°	1,25	FG0250R2N50A13D200
3,0	4,5	6,0	10,34	2,85	50	4	2	10,00°	2,76°	1,50	FG0300R2N50A15D060
3,0	4,5	8,0	12,34	2,85	50	4	2	10,00°	2,32°	1,50	FG0300R2N50A15D080
3,0	4,5	12,0	16,34	2,85	50	4	2	10,00°	1,75°	1,50	FG0300R2N50A15D120
3,0	4,5	16,0	20,34	2,85	50	4	2	10,00°	1,40°	1,50	FG0300R2N50A15D160
3,0	4,5	20,0	24,34	2,85	50	4	2	10,00°	1,17°	1,50	FG0300R2N50A15D200

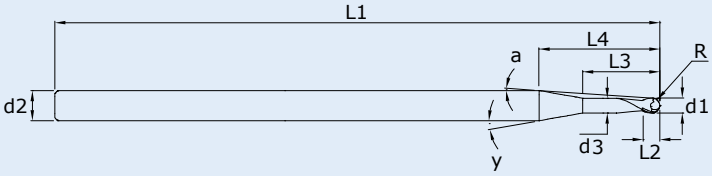


			AL			CU			GRAPHIT		
			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598					
			Vc=460 m/dk.			Vc=230 m/dk.			Vc=500 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5	0.05	0.05	0.008	60000	960	0.010	60000	1200	0.005	60000	600
1.0	0.10	0.10	0.014	60000	1680	0.013	60000	1560	0.010	60000	1200
1.5	0.15	0.15	0.020	60000	2400	0.016	49000	1568	0.015	60000	1800
2.0	0.20	0.20	0.026	60000	3120	0.022	36800	1619	0.020	60000	2400
2.5	0.25	0.25	0.032	58800	3763	0.032	29400	1881	0.025	60000	3000
3.0	0.30	0.30	0.038	49000	3724	0.044	24500	2156	0.030	53300	3198

ALU MINI LONG BALL NOSE <52 HRC

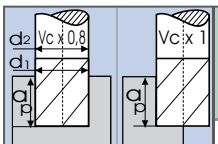


Solid carbide ball nose end mills - Alu Mini Long
VHM - Radiusfräser - Alu Mini Lang
Fraises a rayon carbure - Alu Mini Longue
Karbür Küre Freze - Alu Mini Uzun



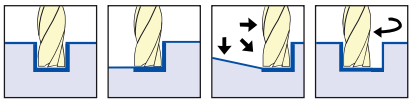
F	G	0100	R	2	N	80	A	50	D	020
END MILL	MG-07	d1	DIN 6928		DIN 6535 HA		30	R	DRYCUT	
TYPE	QUALITY	DIAMETER	BALL NOSE	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	RADIUS	COATED	FLUTE LENGTH

d1 ($\pm^{0,003}_{0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	R	Coated Code
0,2	0,3	0,4	15,98	0,19	80	4	2	7,00°	6,78°	0,10	FG0020R2N80A10D004
0,2	0,3	0,8	16,38	0,19	80	4	2	7,00°	6,62°	0,10	FG0020R2N80A10D008
0,2	0,3	1,2	12,08	0,19	80	4	2	10,00°	8,94°	0,10	FG0020R2N80A10D012
0,2	0,3	2,0	12,88	0,19	80	4	2	10,00°	8,39°	0,10	FG0020R2N80A10D020
0,3	0,5	0,6	15,85	0,29	80	4	2	7,00°	6,66°	0,15	FG0030R2N80A15N006
0,3	0,5	1,2	11,85	0,29	80	4	2	10,00°	8,88°	0,15	FG0030R2N80A15N012
0,3	0,5	2,4	13,05	0,29	80	4	2	10,00°	8,70°	0,15	FG0030R2N80A15N024
0,3	0,5	3,0	13,65	0,29	80	4	2	10,00°	7,72°	0,15	FG0030R2N80A15N030
0,4	0,6	0,8	15,66	0,38	80	4	2	7,00°	6,55°	0,20	FG0040R2N80A20D008
0,4	0,6	1,6	12,01	0,38	80	4	2	10,00°	8,52°	0,20	FG0040R2N80A20D016
0,4	0,6	3,2	13,61	0,38	80	4	2	10,00°	7,53°	0,20	FG0040R2N80A20D032
0,4	0,6	4,0	14,41	0,38	80	4	2	10,00°	6,92°	0,20	FG0040R2N80A20D040
0,5	0,8	1,0	15,55	0,48	80	4	2	7,00°	6,42°	0,25	FG0050R2N80A25N010
0,5	0,8	2,0	12,18	0,48	80	4	2	10,00°	8,17°	0,25	FG0050R2N80A25N020
0,5	0,8	4,0	14,18	0,48	80	4	2	10,00°	7,03°	0,25	FG0050R2N80A25N040
0,5	0,8	6,0	16,18	0,48	80	4	2	10,00°	6,17°	0,25	FG0050R2N80A25N060
0,6	0,9	1,2	15,35	0,57	80	4	2	10,00°	6,32°	0,30	FG0060R2N80A30D012
0,6	0,9	2,0	11,95	0,57	80	4	2	10,00°	8,09°	0,30	FG0060R2N80A30D020
0,6	0,9	4,0	13,95	0,57	80	4	2	10,00°	6,94°	0,30	FG0060R2N80A30D040
0,6	0,9	8,0	17,95	0,57	80	4	2	10,00°	5,41°	0,30	FG0060R2N80A30D080
0,7	1,1	1,4	15,18	0,67	80	4	2	7,00°	6,20°	0,35	FG0070R2N80A35N014
0,7	1,1	2,5	12,21	0,67	80	4	2	10,00°	7,69°	0,35	FG0070R2N80A35N025
0,7	1,1	5,0	14,71	0,67	80	4	2	10,00°	6,40°	0,35	FG0070R2N80A35N050
0,7	1,1	8,0	17,71	0,67	80	4	2	10,00°	5,32°	0,35	FG0070R2N80A35N080
0,8	1,2	1,6	11,10	0,76	80	4	2	10,00°	8,20°	0,40	FG0080R2N80A40D016
0,8	1,2	3,0	12,50	0,76	80	4	2	10,00°	7,29°	0,40	FG0080R2N80A40D030
0,8	1,2	6,0	15,50	0,76	80	4	2	10,00°	5,89°	0,40	FG0080R2N80A40D060
0,8	1,2	10,0	19,50	0,76	80	4	2	10,00°	4,69°	0,40	FG0080R2N80A40D100
1,0	1,5	2,0	11,01	0,95	80	4	2	10,00°	7,75°	0,50	FG0100R2N80A50D020
1,0	1,5	4,0	13,01	0,95	80	4	2	10,00°	6,57°	0,50	FG0100R2N80A50D040
1,0	1,5	8,0	17,01	0,95	80	4	2	10,00°	5,03°	0,50	FG0100R2N80A50D080
1,0	1,5	12,0	21,01	0,95	80	4	2	10,00°	4,08°	0,50	FG0100R2N80A50D120
1,0	1,5	16,0	25,01	0,95	80	4	2	10,00°	3,43°	0,50	FG0100R2N80A50D160
1,0	1,5	20,0	29,01	0,95	80	4	2	10,00°	2,96°	0,50	FG0100R2N80A50D200
1,2	1,8	2,0	10,54	1,14	80	4	2	10,00°	7,56°	0,60	FG0120R2N80A60D020
1,2	1,8	4,0	12,54	1,14	80	4	2	10,00°	6,37°	0,60	FG0120R2N80A60D040
1,5	2,3	4,0	11,85	1,43	80	4	2	10,00°	6,02°	0,75	FG0150R2N80A75N040
1,5	2,3	8,0	15,85	1,43	80	4	2	10,00°	4,50°	0,75	FG0150R2N80A75N080
1,5	2,3	12,0	19,85	1,43	80	4	2	10,00°	3,60°	0,75	FG0150R2N80A75N120
1,5	2,3	20,0	27,85	1,43	80	4	2	10,00°	2,57°	0,75	FG0150R2N80A75N200
2,0	3,0	4,0	10,68	1,90	80	4	2	10,00°	5,35°	1,00	FG0200R2N80A10D040
2,0	3,0	8,0	14,68	1,90	80	4	2	10,00°	3,09°	1,00	FG0200R2N80A10D080
2,0	3,0	12,0	18,68	1,90	80	4	2	10,00°	3,06°	1,00	FG0200R2N80A10D120
2,0	3,0	16,0	22,68	1,90	80	4	2	10,00°	2,52°	1,00	FG0200R2N80A10D160
2,0	3,0	20	26,68	1,90	80	4	2	10,00°	2,14°	1,00	FG0200R2N80A10D200
2,5	3,8	5,0	10,51	2,38	80	4	2	10,00°	4,08°	1,25	FG0250R2N80A13D050
2,5	3,8	8,0	13,51	2,38	80	4	2	10,00°	3,17°	1,25	FG0250R2N80A13D080
2,5	3,8	12,0	17,51	2,38	80	4	2	10,00°	2,45°	1,25	FG0250R2N80A13D120
2,5	3,8	16,0	21,51	2,38	80	4	2	10,00°	1,99°	1,25	FG0250R2N80A13D160
2,5	3,8	20,0	25,51	2,38	80	4	2	10,00°	1,68°	1,25	FG0250R2N80A13D200
3,0	4,5	6,0	10,34	2,85	80	4	2	10,00°	2,76°	1,50	FG0300R2N80A15D060
3,0	4,5	8,0	12,34	2,85	80	4	2	10,00°	2,32°	1,50	FG0300R2N80A15D080
3,0	4,5	12,0	16,34	2,85	80	4	2	10,00°	1,75°	1,50	FG0300R2N80A15D120
3,0	4,5	16,0	20,34	2,85	80	4	2	10,00°	1,40°	1,50	FG0300R2N80A15D160
3,0	4,5	20,0	24,34	2,85	80	4	2	10,00°	1,17°	1,50	FG0300R2N80A15D200

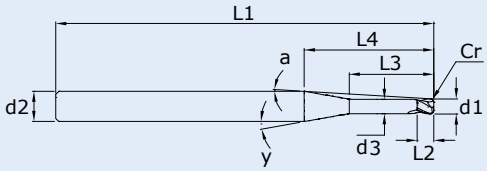


			AL			CU			GRAPHIT		
			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598					
			Vc=460 m/dk.			Vc=230 m/dk.			Vc=500 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5	0.05	0.05	0.008	60000	960	0.010	60000	1200	0.005	60000	600
1.0	0.10	0.10	0.014	60000	1680	0.013	60000	1560	0.010	60000	1200
1.5	0.15	0.15	0.020	60000	2400	0.016	49000	1568	0.015	60000	1800
2.0	0.20	0.20	0.026	60000	3120	0.022	36800	1619	0.020	60000	2400
2.5	0.25	0.25	0.032	58800	3763	0.032	29400	1881	0.025	60000	3000
3.0	0.30	0.30	0.038	49000	3724	0.044	24500	2156	0.030	53300	3198

ALU MINI CORNER - R <52 HRC

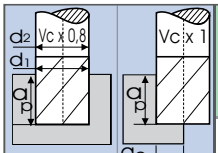


Solid carbide end mills with corner radius - Alu Mini
VHM - Schaftfräser mit Eckenradius - Alu Mini
Fraises toriques carbure - Alu Mini
Karbür Köşe Radyüslü Freze - Alu Mini



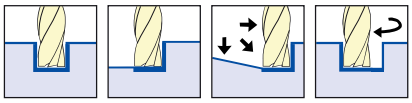
F	G	0100	K	2	N	50	A	20	D	020
END MILL	MG-07	d1	TOOLEX		DIN 6535 HA		30°	R	DRYCUT	
TYPE	QUALITY	DIAMETER	CORNER RADIUS	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CORNER RADIUS	COATED	FLUTE LENGTH

d1($\pm^{0,003}_{0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Cr	Coated Code
0,5	0,8	1,0	15,55	0,48	50	4	2	7,00°	6,42°	0,10	FG0050K2N50A10D010
0,5	0,8	2,0	12,18	0,48	50	4	2	10,00°	8,17°	0,10	FG0050K2N50A10D020
0,5	0,8	4,0	14,18	0,48	50	4	2	10,00°	7,03°	0,10	FG0050K2N50A10D040
0,5	0,8	6,0	16,18	0,48	50	4	2	10,00°	6,17°	0,10	FG0050K2N50A10D060
0,6	0,9	1,2	15,35	0,57	50	4	2	10,00°	6,32°	0,10	FG0060K2N50A10D012
0,6	0,9	2,0	11,95	0,57	50	4	2	10,00°	8,09°	0,10	FG0060K2N50A10D020
0,6	0,9	4,0	13,95	0,57	50	4	2	10,00°	6,94°	0,10	FG0060K2N50A10D040
0,6	0,9	8,0	17,95	0,57	50	4	2	10,00°	5,41°	0,10	FG0060K2N50A10D080
0,7	1,1	1,4	15,18	0,67	50	4	2	7,00°	6,20°	0,10	FG0070K2N50A10D014
0,7	1,1	2,5	12,21	0,67	50	4	2	10,00°	7,69°	0,10	FG0070K2N50A10D025
0,7	1,1	5,0	14,71	0,67	50	4	2	10,00°	6,40°	0,10	FG0070K2N50A10D050
0,7	1,1	8,0	17,71	0,67	50	4	2	10,00°	5,32°	0,10	FG0070K2N50A10D080
0,8	1,2	1,6	11,10	0,76	50	4	2	10,00°	8,20°	0,15	FG0080K2N50A15D016
0,8	1,2	3,0	12,50	0,76	50	4	2	10,00°	7,29°	0,15	FG0080K2N50A15D030
0,8	1,2	6,0	15,50	0,76	50	4	2	10,00°	5,89°	0,15	FG0080K2N50A15D060
0,8	1,2	10,0	19,50	0,76	50	4	2	10,00°	4,69°	0,15	FG0080K2N50A15D100
1,0	1,5	2,0	11,01	0,95	50	4	2	10,00°	7,75°	0,20	FG0100K2N50A20D020
1,0	1,5	4,0	13,01	0,95	50	4	2	10,00°	6,57°	0,20	FG0100K2N50A20D040
1,0	1,5	8,0	17,01	0,95	50	4	2	10,00°	5,03°	0,20	FG0100K2N50A20D080
1,0	1,5	12,0	21,01	0,95	50	4	2	10,00°	4,08°	0,20	FG0100K2N50A20D120
1,0	1,5	16,0	25,01	0,95	50	4	2	10,00°	3,43°	0,20	FG0100K2N50A20D160
1,0	1,5	20,0	29,01	0,95	50	4	2	10,00°	2,96°	0,20	FG0100K2N50A20D200
1,2	1,8	2,0	10,54	1,14	50	4	2	10,00°	7,56°	0,25	FG0120K2N50A25D020
1,2	1,8	4,0	12,54	1,14	50	4	2	10,00°	6,37°	0,25	FG0120K2N50A25D040
1,5	2,3	4,0	11,85	1,43	50	4	2	10,00°	6,02°	0,30	FG0150K2N50A30D040
1,5	2,3	8,0	15,85	1,43	50	4	2	10,00°	4,50°	0,30	FG0150K2N50A30D080
1,5	2,3	12,0	19,85	1,43	50	4	2	10,00°	3,60°	0,30	FG0150K2N50A30D120
1,5	2,3	20,0	27,85	1,43	50	4	2	10,00°	2,57°	0,30	FG0150K2N50A30D200
2,0	3,0	4,0	10,68	1,90	50	4	2	10,00°	5,35°	0,50	FG0200K2N50A50D040
2,0	3,0	8,0	14,68	1,90	50	4	2	10,00°	3,09°	0,50	FG0200K2N50A50D080
2,0	3,0	12,0	18,68	1,90	50	4	2	10,00°	3,06°	0,50	FG0200K2N50A50D120
2,0	3,0	16,0	22,68	1,90	50	4	2	10,00°	2,52°	0,50	FG0200K2N50A50D160
2,0	3,0	20,0	26,68	1,90	50	4	2	10,00°	2,14°	0,50	FG0200K2N50A50D200
2,5	3,8	5,0	10,51	2,38	50	4	2	10,00°	4,08°	0,50	FG0250K2N50A50D050
2,5	3,8	8,0	13,51	2,38	50	4	2	10,00°	3,17°	0,50	FG0250K2N50A50D080
2,5	3,8	12,0	17,51	2,38	50	4	2	10,00°	2,45°	0,50	FG0250K2N50A50D120
2,5	3,8	16,0	21,51	2,38	50	4	2	10,00°	1,99°	0,50	FG0250K2N50A50D160
2,5	3,8	20,0	25,51	2,38	50	4	2	10,00°	1,68°	0,50	FG0250K2N50A50D200
3,0	4,5	6,0	10,34	2,85	50	4	2	10,00°	2,76°	0,50	FG0300K2N50A50D060
3,0	4,5	8,0	12,34	2,85	50	4	2	10,00°	2,32°	0,50	FG0300K2N50A50D080
3,0	4,5	12,0	16,34	2,85	50	4	2	10,00°	1,75°	0,50	FG0300K2N50A50D120
3,0	4,5	16,0	20,34	2,85	50	4	2	10,00°	1,40°	0,50	FG0300K2N50A50D160
3,0	4,5	20,0	24,34	2,85	50	4	2	10,00°	1,17°	0,50	FG0300K2N50A50D200

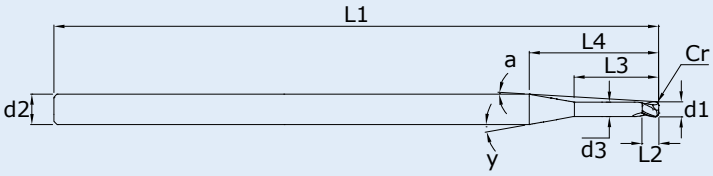


			AL			CU			GRAPHIT		
			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598					
			Vc=460 m/dk.			Vc=230 m/dk.			Vc=500 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5	0.05	0.05	0.008	60000	960	0.010	60000	1200	0.005	60000	600
1.0	0.10	0.10	0.014	60000	1680	0.013	60000	1560	0.010	60000	1200
1.5	0.15	0.15	0.020	60000	2400	0.016	49000	1568	0.015	60000	1800
2.0	0.20	0.20	0.026	60000	3120	0.022	36800	1619	0.020	60000	2400
2.5	0.25	0.25	0.032	58800	3763	0.032	29400	1881	0.025	60000	3000
3.0	0.30	0.30	0.038	49000	3724	0.044	24500	2156	0.030	53300	3198

ALU MINI LONG CORNER - R <52 HRC

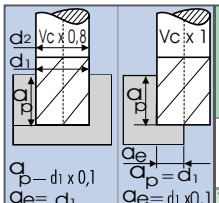


Solid carbide end mills with corner radius - Alu Mini Long
VHM - Schaftfräser mit Eckenradius - Alu Mini Lang
Fraises toriques carbure - Alu Mini Longue
Karbür Köşe Radyüslü Freze - Alu Mini Uzun



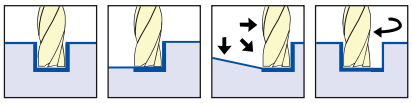
F	G	0100	K	2	N	80	A	20	D	020
END MILL	MG-07	d1	TOOLEX		DIN 6535 HA		30	R	DRYCUT	
TYPE	QUALITY	DIAMETER	CORNER RADIUS	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CORNER RADIUS	COATED	FLUTE LENGTH

d1($^{+0,003}_{-0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Cr	Coated Code
0,5	0,8	1,0	15,55	0,48	80	4	2	7,00°	6,42°	0,10	FG0050K2N80A10D010
0,5	0,8	2,0	12,18	0,48	80	4	2	10,00°	8,17°	0,10	FG0050K2N80A10D020
0,5	0,8	4,0	14,18	0,48	80	4	2	10,00°	7,03°	0,10	FG0050K2N80A10D040
0,5	0,8	6,0	16,18	0,48	80	4	2	10,00°	6,17°	0,10	FG0050K2N80A10D060
0,6	0,9	1,2	15,35	0,57	80	4	2	10,00°	6,32°	0,10	FG0060K2N80A10D012
0,6	0,9	2,0	11,95	0,57	80	4	2	10,00°	8,09°	0,10	FG0060K2N80A10D020
0,6	0,9	4,0	13,95	0,57	80	4	2	10,00°	6,94°	0,10	FG0060K2N80A10D040
0,6	0,9	8,0	17,95	0,57	80	4	2	10,00°	5,41°	0,10	FG0060K2N80A10D080
0,7	1,1	1,4	15,18	0,67	80	4	2	7,00°	6,20°	0,10	FG0070K2N80A10D014
0,7	1,1	2,5	12,21	0,67	80	4	2	10,00°	7,69°	0,10	FG0070K2N80A10D025
0,7	1,1	5,0	14,71	0,67	80	4	2	10,00°	6,40°	0,10	FG0070K2N80A10D050
0,7	1,1	8,0	17,71	0,67	80	4	2	10,00°	5,32°	0,10	FG0070K2N80A10D080
0,8	1,2	1,6	11,10	0,76	80	4	2	10,00°	8,20°	0,15	FG0080K2N80A15D016
0,8	1,2	3,0	12,50	0,76	80	4	2	10,00°	7,29°	0,15	FG0080K2N80A15D030
0,8	1,2	6,0	15,50	0,76	80	4	2	10,00°	5,89°	0,15	FG0080K2N80A15D060
0,8	1,2	10,0	19,50	0,76	80	4	2	10,00°	4,69°	0,15	FG0080K2N80A15D100
1,0	1,5	2,0	11,01	0,95	80	4	2	10,00°	7,75°	0,20	FG0100K2N80A20D020
1,0	1,5	4,0	13,01	0,95	80	4	2	10,00°	6,57°	0,20	FG0100K2N80A20D040
1,0	1,5	8,0	17,01	0,95	80	4	2	10,00°	5,03°	0,20	FG0100K2N80A20D080
1,0	1,5	12,0	21,01	0,95	80	4	2	10,00°	4,08°	0,20	FG0100K2N80A20D120
1,0	1,5	16,0	25,01	0,95	80	4	2	10,00°	3,43°	0,20	FG0100K2N80A20D160
1,0	1,5	20,0	29,01	0,95	80	4	2	10,00°	2,96°	0,20	FG0100K2N80A20D200
1,2	1,8	2,0	10,54	1,14	80	4	2	10,00°	7,56°	0,25	FG0120K2N80A25D020
1,2	1,8	4,0	12,54	1,14	80	4	2	10,00°	6,37°	0,25	FG0120K2N80A25D040
1,5	2,3	4,0	11,85	1,43	80	4	2	10,00°	6,02°	0,30	FG0150K2N80A30D040
1,5	2,3	8,0	15,85	1,43	80	4	2	10,00°	4,50°	0,30	FG0150K2N80A30D080
1,5	2,3	12,0	19,85	1,43	80	4	2	10,00°	3,60°	0,30	FG0150K2N80A30D120
1,5	2,3	20,0	27,85	1,43	80	4	2	10,00°	2,57°	0,30	FG0150K2N80A30D200
2,0	3,0	4,0	10,68	1,90	80	4	2	10,00°	5,35°	0,50	FG0200K2N80A50D040
2,0	3,0	8,0	14,68	1,90	80	4	2	10,00°	3,09°	0,50	FG0200K2N80A50D080
2,0	3,0	12,0	18,68	1,90	80	4	2	10,00°	3,06°	0,50	FG0200K2N80A50D120
2,0	3,0	16,0	22,68	1,90	80	4	2	10,00°	2,52°	0,50	FG0200K2N80A50D160
2,0	3,0	20,0	26,68	1,90	80	4	2	10,00°	2,14°	0,50	FG0200K2N80A50D200
2,5	3,8	5,0	10,51	2,38	80	4	2	10,00°	4,08°	0,50	FG0250K2N80A50D050
2,5	3,8	8,0	13,51	2,38	80	4	2	10,00°	3,17°	0,50	FG0250K2N80A50D080
2,5	3,8	12,0	17,51	2,38	80	4	2	10,00°	2,45°	0,50	FG0250K2N80A50D120
2,5	3,8	16,0	21,51	2,38	80	4	2	10,00°	1,99°	0,50	FG0250K2N80A50D160
2,5	3,8	20,0	25,51	2,38	80	4	2	10,00°	1,68°	0,50	FG0250K2N80A50D200
3,0	4,5	6,0	10,34	2,85	80	4	2	10,00°	2,76°	0,50	FG0300K2N80A50D060
3,0	4,5	8,0	12,34	2,85	80	4	2	10,00°	2,32°	0,50	FG0300K2N80A50D080
3,0	4,5	12,0	16,34	2,85	80	4	2	10,00°	1,75°	0,50	FG0300K2N80A50D120
3,0	4,5	16,0	20,34	2,85	80	4	2	10,00°	1,40°	0,50	FG0300K2N80A50D160
3,0	4,5	20,0	24,34	2,85	80	4	2	10,00°	1,17°	0,50	FG0300K2N80A50D200

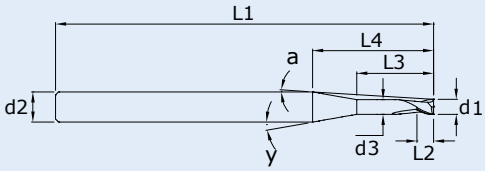


			AL			CU			GRAPHIT		
			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598					
			Vc=460 m/dk.			Vc=230 m/dk.			Vc=500 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5	0.05	0.05	0.008	60000	960	0.010	60000	1200	0.005	60000	600
1.0	0.10	0.10	0.014	60000	1680	0.013	60000	1560	0.010	60000	1200
1.5	0.15	0.15	0.020	60000	2400	0.016	49000	1568	0.015	60000	1800
2.0	0.20	0.20	0.026	60000	3120	0.022	36800	1619	0.020	60000	2400
2.5	0.25	0.25	0.032	58800	3763	0.032	29400	1881	0.025	60000	3000
3.0	0.30	0.30	0.038	49000	3724	0.044	24500	2156	0.030	53300	3198

HARD MINI 52 - 68 HRC

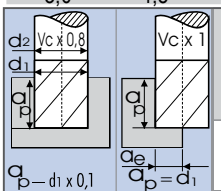


Solid carbide end mills - Mini Hard
VHM - Schaftfräser - Mini Hart
Fraises en bout carbure - Mini Dure
Karbür Freze - Mini Sert



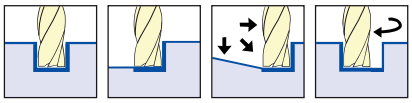
F	H	0100	G	2	N	50	A	00	N	020
END MILL	MG-08	d1	DIN 6528		DIN 6535 HA		30°		nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CHAMFER	COATED	FLUTE LENGTH

d1 ($\pm^{0,003}_{0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Coated Code
0,2	0,3	0,4	16,00	0,19	50	4	2	7,00°	6,78°	FH0020G2N50A00N004
0,2	0,3	0,8	16,38	0,19	50	4	2	7,00°	6,62°	FH0020G2N50A00N008
0,2	0,3	1,2	12,08	0,19	50	4	2	10,00°	8,94°	FH0020G2N50A00N012
0,2	0,3	2,0	12,88	0,19	50	4	2	10,00°	8,39°	FH0020G2N50A00N020
0,3	0,5	0,6	15,85	0,29	50	4	2	7,00°	6,66°	FH0030G2N50A00N006
0,3	0,5	1,2	11,85	0,29	50	4	2	10,00°	8,88°	FH0030G2N50A00N012
0,3	0,5	2,4	13,05	0,29	50	4	2	10,00°	8,70°	FH0030G2N50A00N024
0,3	0,5	3,0	13,65	0,29	50	4	2	10,00°	7,72°	FH0030G2N50A00N030
0,4	0,6	0,8	15,66	0,38	50	4	2	7,00°	6,55°	FH0040G2N50A00N008
0,4	0,6	1,6	12,01	0,38	50	4	2	10,00°	8,52°	FH0040G2N50A00N016
0,4	0,6	3,2	13,61	0,38	50	4	2	10,00°	7,53°	FH0040G2N50A00N032
0,4	0,6	4,0	14,41	0,38	50	4	2	10,00°	6,92°	FH0040G2N50A00N040
0,5	0,8	1,0	15,55	0,48	50	4	2	7,00°	6,42°	FH0050G2N50A00N010
0,5	0,8	2,0	12,18	0,48	50	4	2	10,00°	8,17°	FH0050G2N50A00N020
0,5	0,8	4,0	14,18	0,48	50	4	2	10,00°	7,03°	FH0050G2N50A00N040
0,5	0,8	6,0	16,18	0,48	50	4	2	10,00°	6,17°	FH0050G2N50A00N060
0,6	0,9	1,2	15,35	0,57	50	4	2	10,00°	6,32°	FH0060G2N50A00N012
0,6	0,9	2,0	11,95	0,57	50	4	2	10,00°	8,09°	FH0060G2N50A00N020
0,6	0,9	4,0	13,95	0,57	50	4	2	10,00°	6,94°	FH0060G2N50A00N040
0,6	0,9	8,0	17,95	0,57	50	4	2	10,00°	5,41°	FH0060G2N50A00N080
0,7	1,1	1,4	15,18	0,67	50	4	2	7,00°	6,20°	FH0070G2N50A00N014
0,7	1,1	2,5	12,21	0,67	50	4	2	10,00°	7,69°	FH0070G2N50A00N025
0,7	1,1	5,0	14,71	0,67	50	4	2	10,00°	6,40°	FH0070G2N50A00N050
0,7	1,1	8,0	17,71	0,67	50	4	2	10,00°	5,32°	FH0070G2N50A00N080
0,8	1,2	1,6	11,10	0,76	50	4	2	10,00°	8,20°	FH0080G2N50A00N016
0,8	1,2	3,0	12,50	0,76	50	4	2	10,00°	7,29°	FH0080G2N50A00N030
0,8	1,2	6,0	15,50	0,76	50	4	2	10,00°	5,89°	FH0080G2N50A00N060
0,8	1,2	10,0	19,50	0,76	50	4	2	10,00°	4,69°	FH0080G2N50A00N100
1,0	1,5	2,0	11,01	0,95	50	4	2	10,00°	7,75°	FH0100G2N50A00N020
1,0	1,5	4,0	13,01	0,95	50	4	2	10,00°	6,57°	FH0100G2N50A00N040
1,0	1,5	8,0	17,01	0,95	50	4	2	10,00°	5,03°	FH0100G2N50A00N080
1,0	1,5	12,0	21,01	0,95	50	4	2	10,00°	4,08°	FH0100G2N50A00N120
1,0	1,5	16,0	25,01	0,95	50	4	2	10,00°	3,43°	FH0100G2N50A00N160
1,0	1,5	20,0	29,01	0,95	50	4	2	10,00°	2,96°	FH0100G2N50A00N200
1,2	1,8	2,0	10,54	1,14	50	4	2	10,00°	7,56°	FH0120G2N50A00N020
1,2	1,8	4,0	12,54	1,14	50	4	2	10,00°	6,37°	FH0120G2N50A00N040
1,5	2,3	4,0	11,85	1,43	50	4	2	10,00°	6,02°	FH0150G2N50A00N040
1,5	2,3	8,0	15,85	1,43	50	4	2	10,00°	4,50°	FH0150G2N50A00N080
1,5	2,3	12,0	19,85	1,43	50	4	2	10,00°	3,60°	FH0150G2N50A00N120
1,5	2,3	20,0	27,85	1,43	50	4	2	10,00°	2,57°	FH0150G2N50A00N200
2,0	3,0	4,0	10,68	1,90	50	4	4	10,00°	5,35°	FH0200G4N50A00N040
2,0	3,0	8,0	14,68	1,90	50	4	4	10,00°	3,09°	FH0200G4N50A00N080
2,0	3,0	12,0	18,68	1,90	50	4	4	10,00°	3,06°	FH0200G4N50A00N120
2,0	3,0	16,0	22,68	1,90	50	4	4	10,00°	2,52°	FH0200G4N50A00N160
2,0	3,0	20,0	26,68	1,90	50	4	4	10,00°	2,14°	FH0200G4N50A00N200
2,5	3,8	5,0	10,51	2,38	50	4	4	10,00°	4,08°	FH0250G4N50A00N050
2,5	3,8	8,0	13,51	2,38	50	4	4	10,00°	3,17°	FH0250G4N50A00N080
2,5	3,8	12,0	17,51	2,38	50	4	4	10,00°	2,45°	FH0250G4N50A00N120
2,5	3,8	16,0	21,51	2,38	50	4	4	10,00°	1,99°	FH0250G4N50A00N160
2,5	3,8	20,0	25,51	2,38	50	4	4	10,00°	1,68°	FH0250G4N50A00N200
3,0	4,5	6,0	10,34	2,85	50	4	4	10,00°	2,76°	FH0300G4N50A00N060
3,0	4,5	8,0	12,34	2,85	50	4	4	10,00°	2,32°	FH0300G4N50A00N080
3,0	4,5	12,0	16,34	2,85	50	4	4	10,00°	1,75°	FH0300G4N50A00N120
3,0	4,5	16,0	20,34	2,85	50	4	4	10,00°	1,40°	FH0300G4N50A00N160
3,0	4,5	20,0	24,34	2,85	50	4	4	10,00°	1,17°	FH0300G4N50A00N200

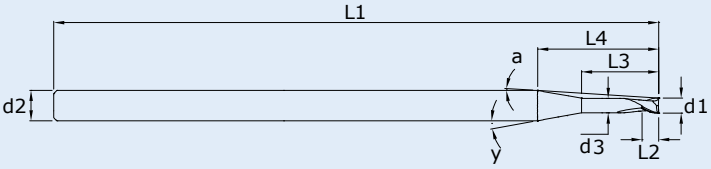


	HRC <50	HRC <53	HRC <56	HRC <59	HRC <61	HRC <63	HRC <65	HRC <68
	1.5860-1.6587 1.6587-1.7326	1.1520 - 1.1525 1.1545 - 1.1820	1.2002 - 1.2003 1.2082 - 1.2344	1.1563 - 1.2004 1.2056 - 1.2057	1.2365 - 1.2379 1.2601 - 1.2622	1.3343 - 1.3344 1.3348 - 1.3355	1.3302 - 1.3318 1.3333 - 1.3334	1.2067 - 1.3343 1.3344 - 1.3355
	Vc=45 m/dk.	Vc=42 m/dk.	Vc=39 m/dk.	36m/dk.	Vc=33 m/dk.	Vc=30 m/dk.	Vc=27 m/dk.	Vc=24 m/dk.

d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5	0.5	0.05	0.006	28800	346	0.005	26880	269	0.006	24960	300	0.005	23040	230	0.005	21120	211	0.005	19200	192	0.004	17280	138	0.004	15360	123
1.0	1.0	0.10	0.009	14400	259	0.009	13440	242	0.009	12480	225	0.007	11520	161	0.007	10560	148	0.006	9600	115	0.005	8640	86	0.005	7680	77
1.5	1.5	0.15	0.012	9600	230	0.012	8960	215	0.012	8320	200	0.009	7680	138	0.010	7040	141	0.008	6400	102	0.006	5760	69	0.006	5120	61
2.0	2.0	0.20	0.015	7200	216	0.015	6720	202	0.015	6240	187	0.011	5760	127	0.012	5280	127	0.009	4800	86	0.008	4320	69	0.007	3840	54
2.5	2.5	0.25	0.019	5760	219	0.019	5376	204	0.019	4992	190	0.013	4608	120	0.015	4224	127	0.011	3840	84	0.009	3456	62	0.008	3072	49
3.0	3.0	0.30	0.023	4800	221	0.023	4480	206	0.023	4160	191	0.015	3840	115	0.017	3520	120	0.013	3200	83	0.010	2880	58	0.009	2560	46

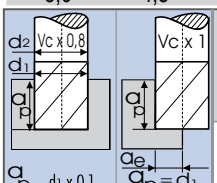


Solid carbide end mills - Mini Hard Long
VHM - Schaftfräser - Mini Hart Lang
Fraises en bout carbure - Mini Dure Longue
Karbür Freze - Mini Sert Uzun



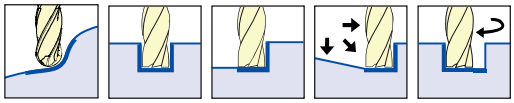
F	H	0100	G	2	N	80	A	00	N	020
END MILL	MG-08	d1	DIN 6528		DIN 6535 HA		30		nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CHAMFER	COATED	FLUTE LENGTH

d1($\pm^{0,003}_{0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Coated Code
0,2	0,3	0,4	15,98	0,19	80	4	2	7,00°	6,78°	FH0020G2N80A00N004
0,2	0,3	0,8	16,38	0,19	80	4	2	7,00°	6,62°	FH0020G2N80A00N008
0,2	0,3	1,2	12,08	0,19	80	4	2	10,00°	8,94°	FH0020G2N80A00N012
0,2	0,3	2,0	12,88	0,19	80	4	2	10,00°	8,39°	FH0020G2N80A00N020
0,3	0,5	0,6	15,85	0,29	80	4	2	7,00°	6,66°	FH0030G2N80A00N006
0,3	0,5	1,2	11,85	0,29	80	4	2	10,00°	8,88°	FH0030G2N80A00N012
0,3	0,5	2,4	13,05	0,29	80	4	2	10,00°	8,70°	FH0030G2N80A00N024
0,3	0,5	3,0	13,65	0,29	80	4	2	10,00°	7,72°	FH0030G2N80A00N030
0,4	0,6	0,8	15,66	0,38	80	4	2	7,00°	6,55°	FH0040G2N80A00N008
0,4	0,6	1,6	12,01	0,38	80	4	2	10,00°	8,52°	FH0040G2N80A00N016
0,4	0,6	3,2	13,61	0,38	80	4	2	10,00°	7,53°	FH0040G2N80A00N032
0,4	0,6	4,0	14,41	0,38	80	4	2	10,00°	6,92°	FH0040G2N80A00N040
0,5	0,8	1,0	15,55	0,48	80	4	2	7,00°	6,42°	FH0050G2N80A00N010
0,5	0,8	2,0	12,18	0,48	80	4	2	10,00°	8,17°	FH0050G2N80A00N020
0,5	0,8	4,0	14,18	0,48	80	4	2	10,00°	7,03°	FH0050G2N80A00N040
0,5	0,8	6,0	16,18	0,48	80	4	2	10,00°	6,17°	FH0050G2N80A00N060
0,6	0,9	1,2	15,35	0,57	80	4	2	10,00°	6,32°	FH0060G2N80A00N012
0,6	0,9	2,0	11,95	0,57	80	4	2	10,00°	8,09°	FH0060G2N80A00N020
0,6	0,9	4,0	13,95	0,57	80	4	2	10,00°	6,94°	FH0060G2N80A00N040
0,6	0,9	8,0	17,95	0,57	80	4	2	10,00°	5,41°	FH0060G2N80A00N080
0,7	1,1	1,4	15,18	0,67	80	4	2	7,00°	6,20°	FH0070G2N80A00N014
0,7	1,1	2,5	12,21	0,67	80	4	2	10,00°	7,69°	FH0070G2N80A00N025
0,7	1,1	5,0	14,71	0,67	80	4	2	10,00°	6,40°	FH0070G2N80A00N050
0,7	1,1	8,0	17,71	0,67	80	4	2	10,00°	5,32°	FH0070G2N80A00N080
0,8	1,2	1,6	11,10	0,76	80	4	2	10,00°	8,20°	FH0080G2N80A00N016
0,8	1,2	3,0	12,50	0,76	80	4	2	10,00°	7,29°	FH0080G2N80A00N030
0,8	1,2	6,0	15,50	0,76	80	4	2	10,00°	5,89°	FH0080G2N80A00N060
0,8	1,2	10,0	19,50	0,76	80	4	2	10,00°	4,69°	FH0080G2N80A00N100
1,0	1,5	2,0	11,01	0,95	80	4	2	10,00°	7,75°	FH0100G2N80A00N020
1,0	1,5	4,0	13,01	0,95	80	4	2	10,00°	6,57°	FH0100G2N80A00N040
1,0	1,5	8,0	17,01	0,95	80	4	2	10,00°	5,03°	FH0100G2N80A00N080
1,0	1,5	12,0	21,01	0,95	80	4	2	10,00°	4,08°	FH0100G2N80A00N120
1,0	1,5	16,0	25,01	0,95	80	4	2	10,00°	3,43°	FH0100G2N80A00N160
1,0	1,5	20,0	29,01	0,95	80	4	2	10,00°	2,96°	FH0100G2N80A00N200
1,2	1,8	2,0	10,54	1,14	80	4	2	10,00°	7,56°	FH0120G2N80A00N020
1,2	1,8	4,0	12,54	1,14	80	4	2	10,00°	6,37°	FH0120G2N80A00N040
1,5	2,3	4,0	11,85	1,43	80	4	2	10,00°	6,02°	FH0150G2N80A00N040
1,5	2,3	8,0	15,85	1,43	80	4	2	10,00°	4,50°	FH0150G2N80A00N080
1,5	2,3	12,0	19,85	1,43	80	4	2	10,00°	3,60°	FH0150G2N80A00N120
1,5	2,3	20,0	27,85	1,43	80	4	2	10,00°	2,57°	FH0150G2N80A00N200
2,0	3,0	4,0	10,68	1,90	80	4	4	10,00°	5,35°	FH0200G4N80A00N040
2,0	3,0	8,0	14,68	1,90	80	4	4	10,00°	3,09°	FH0200G4N80A00N080
2,0	3,0	12,0	18,68	1,90	80	4	4	10,00°	3,06°	FH0200G4N80A00N120
2,0	3,0	16,0	22,68	1,90	80	4	4	10,00°	2,52°	FH0200G4N80A00N160
2,0	3,0	20,0	26,68	1,90	80	4	4	10,00°	2,14°	FH0200G4N80A00N200
2,5	3,8	5,0	10,51	2,38	80	4	4	10,00°	4,08°	FH0250G4N80A00N050
2,5	3,8	8,0	13,51	2,38	80	4	4	10,00°	3,17°	FH0250G4N80A00N080
2,5	3,8	12,0	17,51	2,38	80	4	4	10,00°	2,45°	FH0250G4N80A00N120
2,5	3,8	16,0	21,51	2,38	80	4	4	10,00°	1,99°	FH0250G4N80A00N160
2,5	3,8	20,0	25,51	2,38	80	4	4	10,00°	1,68°	FH0250G4N80A00N200
3,0	4,5	6,0	10,34	2,85	80	4	4	10,00°	2,76°	FH0300G4N80A00N060
3,0	4,5	8,0	12,34	2,85	80	4	4	10,00°	2,32°	FH0300G4N80A00N080
3,0	4,5	12,0	16,34	2,85	80	4	4	10,00°	1,75°	FH0300G4N80A00N120
3,0	4,5	16,0	20,34	2,85	80	4	4	10,00°	1,40°	FH0300G4N80A00N160
3,0	4,5	20,0	24,34	2,85	80	4	4	10,00°	1,17°	FH0300G4N80A00N200

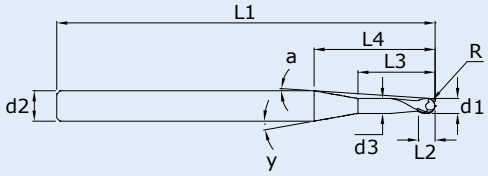


			HRC <50			HRC <53			HRC <56			HRC <59			HRC <61			HRC <63			HRC <65			HRC <68		
			1.5860-1.6587			1.1520 - 1.1525			1.2002 - 1.2003			1.1563 - 1.2004			1.2365 - 1.2379			1.3343 - 1.3344			1.3302 - 1.3318			1.2067 - 1.3343		
			1.6587-1.7326			1.1545 - 1.1820			1.2082 - 1.2344			1.2056 - 1.2057			1.2601 - 1.2622			1.3348 - 1.3355			1.3333 - 1.3334			1.3344 - 1.3355		
			Vc=45 m/dk.			Vc=42 m/dk.			Vc=39 m/dk.			36m/dk.			Vc=33 m/dk.			Vc=30 m/dk.			Vc=27 m/dk.			Vc=24 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5	0.5	0.05	0.006	28800	346	0.005	26880	269	0.006	24960	300	0.005	23040	230	0.005	21120	211	0.005	19200	192	0.004	17280	138	0.004	15360	123
1.0	1.0	0.10	0.009	14400	259	0.009	13440	242	0.009	12480	225	0.007	11520	161	0.007	10560	148	0.006	9600	115	0.005	8640	86	0.005	7680	77
1.5	1.5	0.15	0.012	9600	230	0.012	8960	215	0.012	8320	200	0.009	7680	138	0.010	7040	141	0.008	6400	102	0.006	5760	69	0.006	5120	61
2.0	2.0	0.20	0.015	7200	216	0.015	6720	202	0.015	6240	187	0.011	5760	127	0.012	5280	127	0.009	4800	86	0.008	4320	69	0.007	3840	54
2.5	2.5	0.25	0.019	5760	219	0.019	5376	204	0.019	4992	190	0.013	4608	120	0.015	4224	127	0.011	3840	84	0.009	3456	62	0.008	3072	49
3.0	3.0	0.30	0.023	4800	221	0.023	4480	206	0.023	4160	191	0.015	3840	115	0.017	3520	120	0.013	3200	83	0.010	2880	58	0.009	2560	46

HARD MINI BALL NOSE 52 - 68 HRC

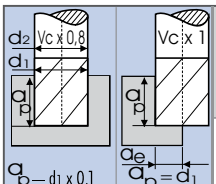


Solid carbide ball nose end mills - Mini Hard
VHM - Radiusfräser - Mini Hart
Fraises a rayon carbure - Mini Dure
Karbür Küre Freze - Mini Sert



F	H	0100	R	2	N	50	A	50	N	020
END MILL	MG-08	d1	DIN 6928		DIN 6535 HA		30	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	BALL NOSE	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	RADIUS	COATED	FLUTE LENGTH

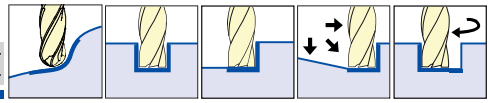
d1($\pm^{0,003}_{0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	R	Coated Code
0,2	0,3	0,4	15,98	0,19	50	4	2	7,00°	6,78°	0,10	FH0020R2N50A10N004
0,2	0,3	0,8	16,38	0,19	50	4	2	7,00°	6,62°	0,10	FH0020R2N50A10N008
0,2	0,3	1,2	12,08	0,19	50	4	2	10,00°	8,94°	0,10	FH0020R2N50A10N012
0,2	0,3	2,0	12,88	0,19	50	4	2	10,00°	8,39°	0,10	FH0020R2N50A10N020
0,3	0,5	0,6	15,85	0,29	50	4	2	7,00°	6,66°	0,15	FH0030R2N50A15N006
0,3	0,5	1,2	11,85	0,29	50	4	2	10,00°	8,88°	0,15	FH0030R2N50A15N012
0,3	0,5	2,4	13,05	0,29	50	4	2	10,00°	8,70°	0,15	FH0030R2N50A15N024
0,3	0,5	3,0	13,65	0,29	50	4	2	10,00°	7,72°	0,15	FH0030R2N50A15N030
0,4	0,6	0,8	15,66	0,38	50	4	2	7,00°	6,55°	0,20	FH0040R2N50A20N008
0,4	0,6	1,6	12,01	0,38	50	4	2	10,00°	8,52°	0,20	FH0040R2N50A20N016
0,4	0,6	3,2	13,61	0,38	50	4	2	10,00°	7,53°	0,20	FH0040R2N50A20N032
0,4	0,6	4,0	14,41	0,38	50	4	2	10,00°	6,92°	0,20	FH0040R2N50A20N040
0,5	0,8	1,0	15,55	0,48	50	4	2	7,00°	6,42°	0,25	FH0050R2N50A25N010
0,5	0,8	2,0	12,18	0,48	50	4	2	10,00°	8,17°	0,25	FH0050R2N50A25N020
0,5	0,8	4,0	14,18	0,48	50	4	2	10,00°	7,03°	0,25	FH0050R2N50A25N040
0,5	0,8	6,0	16,18	0,48	50	4	2	10,00°	6,17°	0,25	FH0050R2N50A25N060
0,6	0,9	1,2	15,35	0,57	50	4	2	10,00°	6,32°	0,30	FH0060R2N50A30N012
0,6	0,9	2,0	11,95	0,57	50	4	2	10,00°	8,09°	0,30	FH0060R2N50A30N020
0,6	0,9	4,0	13,95	0,57	50	4	2	10,00°	6,94°	0,30	FH0060R2N50A30N040
0,6	0,9	8,0	17,95	0,57	50	4	2	10,00°	5,41°	0,30	FH0060R2N50A30N080
0,7	1,1	1,4	15,18	0,67	50	4	2	7,00°	6,20°	0,35	FH0070R2N50A35N014
0,7	1,1	2,5	12,21	0,67	50	4	2	10,00°	7,69°	0,35	FH0070R2N50A35N025
0,7	1,1	5,0	14,71	0,67	50	4	2	10,00°	6,40°	0,35	FH0070R2N50A35N050
0,7	1,1	8,0	17,71	0,67	50	4	2	10,00°	5,32°	0,35	FH0070R2N50A35N080
0,8	1,2	1,6	11,10	0,76	50	4	2	10,00°	8,20°	0,40	FH0080R2N50A40N016
0,8	1,2	3,0	12,50	0,76	50	4	2	10,00°	7,29°	0,40	FH0080R2N50A40N030
0,8	1,2	6,0	15,50	0,76	50	4	2	10,00°	5,89°	0,40	FH0080R2N50A40N060
0,8	1,2	10,0	19,50	0,76	50	4	2	10,00°	4,69°	0,40	FH0080R2N50A40N100
1,0	1,5	2,0	11,01	0,95	50	4	2	10,00°	7,75°	0,50	FH0100R2N50A50N020
1,0	1,5	4,0	13,01	0,95	50	4	2	10,00°	6,57°	0,50	FH0100R2N50A50N040
1,0	1,5	8,0	17,01	0,95	50	4	2	10,00°	5,03°	0,50	FH0100R2N50A50N080
1,0	1,5	12,0	21,01	0,95	50	4	2	10,00°	4,08°	0,50	FH0100R2N50A50N120
1,0	1,5	16,0	25,01	0,95	50	4	2	10,00°	3,43°	0,50	FH0100R2N50A50N160
1,0	1,5	20,0	29,01	0,95	50	4	2	10,00°	2,96°	0,50	FH0100R2N50A50N200
1,2	1,8	2,0	10,54	1,14	50	4	2	10,00°	7,56°	0,60	FH0120R2N50A60N020
1,2	1,8	4,0	12,54	1,14	50	4	2	10,00°	6,37°	0,60	FH0120R2N50A60N040
1,5	2,3	4,0	11,85	1,43	50	4	2	10,00°	6,02°	0,75	FH0150R2N50A75N040
1,5	2,3	8,0	15,85	1,43	50	4	2	10,00°	4,50°	0,75	FH0150R2N50A75N080
1,5	2,3	12,0	19,85	1,43	50	4	2	10,00°	3,60°	0,75	FH0150R2N50A75N120
1,5	2,3	20,0	27,85	1,43	50	4	2	10,00°	2,57°	0,75	FH0150R2N50A75N200
2,0	3,0	4,0	10,68	1,90	50	4	2	10,00°	5,35°	1,00	FH0200R2N50A10N040
2,0	3,0	8,0	14,68	1,90	50	4	2	10,00°	3,09°	1,00	FH0200R2N50A10N080
2,0	3,0	12,0	18,68	1,90	50	4	2	10,00°	3,06°	1,00	FH0200R2N50A10N120
2,0	3,0	16,0	22,68	1,90	50	4	2	10,00°	2,52°	1,00	FH0200R2N50A10N160
2,0	3,0	20,0	26,68	1,90	50	4	2	10,00°	2,14°	1,00	FH0200R2N50A10N200
2,5	3,8	5,0	10,51	2,38	50	4	2	10,00°	4,08°	1,25	FH0250R2N50A13N050
2,5	3,8	8,0	13,51	2,38	50	4	2	10,00°	3,17°	1,25	FH0250R2N50A13N080
2,5	3,8	12,0	17,51	2,38	50	4	2	10,00°	2,45°	1,25	FH0250R2N50A13N120
2,5	3,8	16,0	21,51	2,38	50	4	2	10,00°	1,99°	1,25	FH0250R2N50A13N160
2,5	3,8	20,0	25,51	2,38	50	4	2	10,00°	1,68°	1,25	FH0250R2N50A13N200
3,0	4,5	6,0	10,34	2,85	50	4	2	10,00°	2,76°	1,50	FH0300R2N50A15N060
3,0	4,5	8,0	12,34	2,85	50	4	2	10,00°	2,32°	1,50	FH0300R2N50A15N080
3,0	4,5	12,0	16,34	2,85	50	4	2	10,00°	1,75°	1,50	FH0300R2N50A15N120
3,0	4,5	16,0	20,34	2,85	50	4	2	10,00°	1,40°	1,50	FH0300R2N50A15N160
3,0	4,5	20,0	24,34	2,85	50	4	2	10,00°	1,17°	1,50	FH0300R2N50A15N200



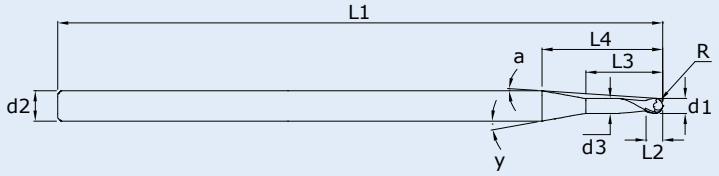
	HRC <50	HRC <53	HRC <56	HRC <59	HRC <61	HRC <63	HRC <65	HRC <68
	1.5860-1.6587	1.1520 - 1.1525	1.2002 - 1.2003	1.1563 - 1.2004	1.2365 - 1.2379	1.3343 - 1.3344	1.3302 - 1.3318	1.2067 - 1.3343
	1.6587-1.7326	1.1545 - 1.1820	1.2082 - 1.2344	1.2056 - 1.2057	1.2601 - 1.2622	1.3348 - 1.3355	1.3333 - 1.3334	1.3344 - 1.3355
	Vc=45 m/dk.	Vc=42 m/dk.	Vc=39 m/dk.	36m/dk.	Vc=33 m/dk.	Vc=30 m/dk.	Vc=27 m/dk.	Vc=24 m/dk.

d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5	0.5	0.05	0.006	28800	346	0.005	26880	269	0.006	24960	300	0.005	23040	230	0.005	21120	211	0.005	19200	192	0.004	17280	138	0.004	15360	123
1.0	1.0	0.10	0.009	14400	259	0.009	13440	242	0.009	12480	225	0.007	11520	161	0.007	10560	148	0.006	9600	115	0.005	8640	86	0.005	7680	77
1.5	1.5	0.15	0.012	9600	230	0.012	8960	215	0.012	8320	200	0.009	7680	138	0.010	7040	141	0.008	6400	102	0.006	5760	69	0.006	5120	61
2.0	2.0	0.20	0.015	7200	216	0.015	6720	202	0.015	6240	187	0.011	5760	127	0.012	5280	127	0.009	4800	86	0.008	4320	69	0.007	3840	54
2.5	2.5	0.25	0.019	5760	219	0.019	5376	204	0.019	4992	190	0.013	4608	120	0.015	4224	127	0.011	3840	84	0.009	3456	62	0.008	3072	49
3.0	3.0	0.30	0.023	4800	221	0.023	4480	206	0.023	4160	191	0.015	3840	115	0.017	3520	120	0.013	3200	83	0.010	2880	58	0.009	2560	46

HARD MINI LONG BALL NOSE 52 - 68 HRC

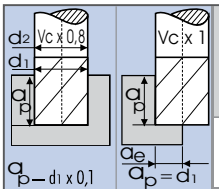


Solid carbide ball nose end mills - Mini Hard Long
VHM - Radiusfräser - Mini Hart Lang
Fraises a rayon carbure - Mini Dure Longue
Karbür Küre Freze - Mini Sert Uzun



F	H	0100	R	2	N	80	A	50	N	020
END MILL	MG-08	d1	DIN 6928		DIN 6535 HA		30	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	BALL NOSE	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	RADIUS	COATED	FLUTE LENGTH

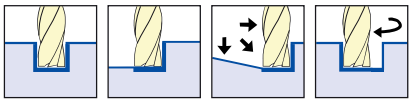
d1 ($\pm^{0,003}_{0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	R	Coated Code
0,2	0,3	0,4	15,98	0,19	80	4	2	7,00°	6,78°	0,10	FH0020R2N80A10N004
0,2	0,3	0,8	16,38	0,19	80	4	2	7,00°	6,62°	0,10	FH0020R2N80A10N008
0,2	0,3	1,2	12,08	0,19	80	4	2	10,00°	8,94°	0,10	FH0020R2N80A10N012
0,2	0,3	2,0	12,88	0,19	80	4	2	10,00°	8,39°	0,10	FH0020R2N80A10N020
0,3	0,5	0,6	15,85	0,29	80	4	2	7,00°	6,66°	0,15	FH0030R2N80A15N006
0,3	0,5	1,2	11,85	0,29	80	4	2	10,00°	8,88°	0,15	FH0030R2N80A15N012
0,3	0,5	2,4	13,05	0,29	80	4	2	10,00°	8,70°	0,15	FH0030R2N80A15N024
0,3	0,5	3,0	13,65	0,29	80	4	2	10,00°	7,72°	0,15	FH0030R2N80A15N030
0,4	0,6	0,8	15,66	0,38	80	4	2	7,00°	6,55°	0,20	FH0040R2N80A20N008
0,4	0,6	1,6	12,01	0,38	80	4	2	10,00°	8,52°	0,20	FH0040R2N80A20N016
0,4	0,6	3,2	13,61	0,38	80	4	2	10,00°	7,53°	0,20	FH0040R2N80A20N032
0,4	0,6	4,0	14,41	0,38	80	4	2	10,00°	6,92°	0,20	FH0040R2N80A20N040
0,5	0,8	1,0	15,55	0,48	80	4	2	7,00°	6,42°	0,25	FH0050R2N80A25N010
0,5	0,8	2,0	12,18	0,48	80	4	2	10,00°	8,17°	0,25	FH0050R2N80A25N020
0,5	0,8	4,0	14,18	0,48	80	4	2	10,00°	7,03°	0,25	FH0050R2N80A25N040
0,5	0,8	6,0	16,18	0,48	80	4	2	10,00°	6,17°	0,25	FH0050R2N80A25N060
0,6	0,9	1,2	15,35	0,57	80	4	2	10,00°	6,32°	0,30	FH0060R2N80A30N012
0,6	0,9	2,0	11,95	0,57	80	4	2	10,00°	8,09°	0,30	FH0060R2N80A30N020
0,6	0,9	4,0	13,95	0,57	80	4	2	10,00°	6,94°	0,30	FH0060R2N80A30N040
0,6	0,9	8,0	17,95	0,57	80	4	2	10,00°	5,41°	0,30	FH0060R2N80A30N080
0,7	1,1	1,4	15,18	0,67	80	4	2	7,00°	6,20°	0,35	FH0070R2N80A35N014
0,7	1,1	2,5	12,21	0,67	80	4	2	10,00°	7,69°	0,35	FH0070R2N80A35N025
0,7	1,1	5,0	14,71	0,67	80	4	2	10,00°	6,40°	0,35	FH0070R2N80A35N050
0,7	1,1	8,0	17,71	0,67	80	4	2	10,00°	5,32°	0,35	FH0070R2N80A35N080
0,8	1,2	1,6	11,10	0,76	80	4	2	10,00°	8,20°	0,40	FH0080R2N80A40N016
0,8	1,2	3,0	12,50	0,76	80	4	2	10,00°	7,29°	0,40	FH0080R2N80A40N030
0,8	1,2	6,0	15,50	0,76	80	4	2	10,00°	5,89°	0,40	FH0080R2N80A40N060
0,8	1,2	10,0	19,50	0,76	80	4	2	10,00°	4,69°	0,40	FH0080R2N80A40N100
1,0	1,5	2,0	11,01	0,95	80	4	2	10,00°	7,75°	0,50	FH0100R2N80A50N020
1,0	1,5	4,0	13,01	0,95	80	4	2	10,00°	6,57°	0,50	FH0100R2N80A50N040
1,0	1,5	8,0	17,01	0,95	80	4	2	10,00°	5,03°	0,50	FH0100R2N80A50N080
1,0	1,5	12,0	21,01	0,95	80	4	2	10,00°	4,08°	0,50	FH0100R2N80A50N120
1,0	1,5	16,0	25,01	0,95	80	4	2	10,00°	3,43°	0,50	FH0100R2N80A50N160
1,0	1,5	20,0	29,01	0,95	80	4	2	10,00°	2,96°	0,50	FH0100R2N80A50N200
1,2	1,8	2,0	10,54	1,14	80	4	2	10,00°	7,56°	0,60	FH0120R2N80A60N020
1,2	1,8	4,0	12,54	1,14	80	4	2	10,00°	6,37°	0,60	FH0120R2N80A60N040
1,5	2,3	4,0	11,85	1,43	80	4	2	10,00°	6,02°	0,75	FH0150R2N80A75N040
1,5	2,3	8,0	15,85	1,43	80	4	2	10,00°	4,50°	0,75	FH0150R2N80A75N080
1,5	2,3	12,0	19,85	1,43	80	4	2	10,00°	3,60°	0,75	FH0150R2N80A75N120
1,5	2,3	20,0	27,85	1,43	80	4	2	10,00°	2,57°	0,75	FH0150R2N80A75N200
2,0	3,0	4,0	10,68	1,90	80	4	2	10,00°	5,35°	1,00	FH0200R2N80A10N040
2,0	3,0	8,0	14,68	1,90	80	4	2	10,00°	3,09°	1,00	FH0200R2N80A10N080
2,0	3,0	12,0	18,68	1,90	80	4	2	10,00°	3,06°	1,00	FH0200R2N80A10N120
2,0	3,0	16,0	22,68	1,90	80	4	2	10,00°	2,52°	1,00	FH0200R2N80A10N160
2,0	3,0	20,0	26,68	1,90	80	4	2	10,00°	2,14°	1,00	FH0200R2N80A10N200
2,5	3,8	5,0	10,51	2,38	80	4	2	10,00°	4,08°	1,25	FH0250R2N80A13N050
2,5	3,8	8,0	13,51	2,38	80	4	2	10,00°	3,17°	1,25	FH0250R2N80A13N080
2,5	3,8	12,0	17,51	2,38	80	4	2	10,00°	2,45°	1,25	FH0250R2N80A13N120
2,5	3,8	16,0	21,51	2,38	80	4	2	10,00°	1,99°	1,25	FH0250R2N80A13N160
2,5	3,8	20,0	25,51	2,38	80	4	2	10,00°	1,68°	1,25	FH0250R2N80A13N200
3,0	4,5	6,0	10,34	2,85	80	4	2	10,00°	2,76°	1,50	FH0300R2N80A15N060
3,0	4,5	8,0	12,34	2,85	80	4	2	10,00°	2,32°	1,50	FH0300R2N80A15N080
3,0	4,5	12,0	16,34	2,85	80	4	2	10,00°	1,75°	1,50	FH0300R2N80A15N120
3,0	4,5	16,0	20,34	2,85	80	4	2	10,00°	1,40°	1,50	FH0300R2N80A15N160
3,0	4,5	20,0	24,34	2,85	80	4	2	10,00°	1,17°	1,50	FH0300R2N80A15N200



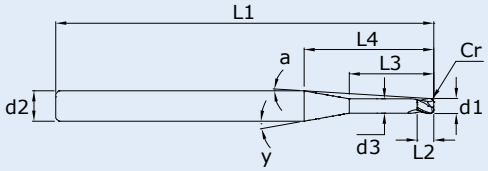
	HRC <50	HRC <53	HRC <56	HRC <59	HRC <61	HRC <63	HRC <65	HRC <68
	1.5860-1.6587 1.6587-1.7326	1.1520 - 1.1525 1.1545 - 1.1820	1.2002 - 1.2003 1.2082 - 1.2344	1.1563 - 1.2004 1.2056 - 1.2057	1.2365 - 1.2379 1.2601 - 1.2622	1.3343 - 1.3344 1.3348 - 1.3355	1.3302 - 1.3318 1.3333 - 1.3334	1.2067 - 1.3343 1.3344 - 1.3355
	Vc=45 m/dk.	Vc=42 m/dk.	Vc=39 m/dk.	36m/dk.	Vc=33 m/dk.	Vc=30 m/dk.	Vc=27 m/dk.	Vc=24 m/dk.

d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5	0.5	0.05	0.006	28800	346	0.005	26880	269	0.006	24960	300	0.005	23040	230	0.005	21120	211	0.005	19200	192	0.004	17280	138	0.004	15360	123
1.0	1.0	0.10	0.009	14400	259	0.009	13440	242	0.009	12480	225	0.007	11520	161	0.007	10560	148	0.006	9600	115	0.005	8640	86	0.005	7680	77
1.5	1.5	0.15	0.012	9600	230	0.012	8960	215	0.012	8320	200	0.009	7680	138	0.010	7040	141	0.008	6400	102	0.006	5760	69	0.006	5120	61
2.0	2.0	0.20	0.015	7200	216	0.015	6720	202	0.015	6240	187	0.011	5760	127	0.012	5280	127	0.009	4800	86	0.008	4320	69	0.007	3840	54
2.5	2.5	0.25	0.019	5760	219	0.019	5376	204	0.019	4992	190	0.013	4608	120	0.015	4224	127	0.011	3840	84	0.009	3456	62	0.008	3072	49
3.0	3.0	0.30	0.023	4800	221	0.023	4480	206	0.023	4160	191	0.015	3840	115	0.017	3520	120	0.013	3200	83	0.010	2880	58	0.009	2560	46

HARD MINI CORNER - R 52 - 68 HRC

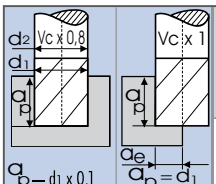


Solid carbide end mills with corner radius - Mini Hard
VHM - Schaftfräser mit Eckenradius - Mini Hart
Fraises toriques carbure - Mini Dure
Karbür Köşe Radyüslü Freze - Mini Sert



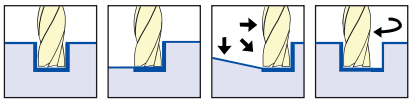
F	H	0100	K	2	N	50	A	20	N	020
END MILL	MG-08	d1	TOOLEX		DIN 6535 HA		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	CORNER RADIUS	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CORNER RADIUS	COATED	FLUTE LENGTH

d1 (±0,003/0,005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Cr	Coated Code
0,5	0,8	1,0	15,55	0,48	50	4	2	7,00°	6,42°	0,10	FH0050K2N50A10N010
0,5	0,8	2,0	12,18	0,48	50	4	2	10,00°	8,17°	0,10	FH0050K2N50A10N020
0,5	0,8	4,0	14,18	0,48	50	4	2	10,00°	7,03°	0,10	FH0050K2N50A10N040
0,5	0,8	6,0	16,18	0,48	50	4	2	10,00°	6,17°	0,10	FH0050K2N50A10N060
0,6	0,9	1,2	15,35	0,57	50	4	2	10,00°	6,32°	0,10	FH0060K2N50A10N012
0,6	0,9	2,0	11,95	0,57	50	4	2	10,00°	8,09°	0,10	FH0060K2N50A10N020
0,6	0,9	4,0	13,95	0,57	50	4	2	10,00°	6,94°	0,10	FH0060K2N50A10N040
0,6	0,9	8,0	17,95	0,57	50	4	2	10,00°	5,41°	0,10	FH0060K2N50A10N080
0,7	1,1	1,4	15,18	0,67	50	4	2	7,00°	6,20°	0,10	FH0070K2N50A10N014
0,7	1,1	2,5	12,21	0,67	50	4	2	10,00°	7,69°	0,10	FH0070K2N50A10N025
0,7	1,1	5,0	14,71	0,67	50	4	2	10,00°	6,40°	0,10	FH0070K2N50A10N050
0,7	1,1	8,0	17,71	0,67	50	4	2	10,00°	5,32°	0,10	FH0070K2N50A10N080
0,8	1,2	1,6	11,10	0,76	50	4	2	10,00°	8,20°	0,15	FH0080K2N50A15N016
0,8	1,2	3,0	12,50	0,76	50	4	2	10,00°	7,29°	0,15	FH0080K2N50A15N030
0,8	1,2	6,0	15,50	0,76	50	4	2	10,00°	5,89°	0,15	FH0080K2N50A15N060
0,8	1,2	10,0	19,50	0,76	50	4	2	10,00°	4,69°	0,15	FH0080K2N50A15N100
1,0	1,5	2,0	11,01	0,95	50	4	2	10,00°	7,75°	0,20	FH0100K2N50A20N020
1,0	1,5	4,0	13,01	0,95	50	4	2	10,00°	6,57°	0,20	FH0100K2N50A20N040
1,0	1,5	8,0	17,01	0,95	50	4	2	10,00°	5,03°	0,20	FH0100K2N50A20N080
1,0	1,5	12,0	21,01	0,95	50	4	2	10,00°	4,08°	0,20	FH0100K2N50A20N120
1,0	1,5	16,0	25,01	0,95	50	4	2	10,00°	3,43°	0,20	FH0100K2N50A20N160
1,0	1,5	20,0	29,01	0,95	50	4	2	10,00°	2,96°	0,20	FH0100K2N50A20N200
1,2	1,8	2,0	10,54	1,14	50	4	2	10,00°	7,56°	0,25	FH0120K2N50A25N020
1,2	1,8	4,0	12,54	1,14	50	4	2	10,00°	6,37°	0,25	FH0120K2N50A25N040
1,5	2,3	4,0	11,85	1,43	50	4	2	10,00°	6,02°	0,30	FH0150K2N50A30N040
1,5	2,3	8,0	15,85	1,43	50	4	2	10,00°	4,50°	0,30	FH0150K2N50A30N080
1,5	2,3	12,0	19,85	1,43	50	4	2	10,00°	3,60°	0,30	FH0150K2N50A30N120
1,5	2,3	20,0	27,85	1,43	50	4	2	10,00°	2,57°	0,30	FH0150K2N50A30N200
2,0	3,0	4,0	10,68	1,90	50	4	4	10,00°	5,35°	0,50	FH0200K4N50A50N040
2,0	3,0	8,0	14,68	1,90	50	4	4	10,00°	3,09°	0,50	FH0200K4N50A50N080
2,0	3,0	12,0	18,68	1,90	50	4	4	10,00°	3,06°	0,50	FH0200K4N50A50N120
2,0	3,0	16,0	22,68	1,90	50	4	4	10,00°	2,52°	0,50	FH0200K4N50A50N160
2,0	3,0	20,0	26,68	1,90	50	4	4	10,00°	2,14°	0,50	FH0200K4N50A50N200
2,5	3,8	5,0	10,51	2,38	50	4	4	10,00°	4,08°	0,50	FH0250K4N50A50N050
2,5	3,8	8,0	13,51	2,38	50	4	4	10,00°	3,17°	0,50	FH0250K4N50A50N080
2,5	3,8	12,0	17,51	2,38	50	4	4	10,00°	2,45°	0,50	FH0250K4N50A50N120
2,5	3,8	16,0	21,51	2,38	50	4	4	10,00°	1,99°	0,50	FH0250K4N50A50N160
2,5	3,8	20,0	25,51	2,38	50	4	4	10,00°	1,68°	0,50	FH0250K4N50A50N200
3,0	4,5	6,0	10,34	2,85	50	4	4	10,00°	2,76°	0,50	FH0300K4N50A50N060
3,0	4,5	8,0	12,34	2,85	50	4	4	10,00°	2,32°	0,50	FH0300K4N50A50N080
3,0	4,5	12,0	16,34	2,85	50	4	4	10,00°	1,75°	0,50	FH0300K4N50A50N120
3,0	4,5	16,0	20,34	2,85	50	4	4	10,00°	1,40°	0,50	FH0300K4N50A50N160
3,0	4,5	20,0	24,34	2,85	50	4	4	10,00°	1,17°	0,50	FH0300K4N50A50N200



d1	ap	ae	HRC <50			HRC <53			HRC <56			HRC <59			HRC <61			HRC <63			HRC <65			HRC <68		
			1.5860-1.6587 1.6587-1.7326			1.1520 - 1.1525 1.1545 - 1.1820			1.2002 - 1.2003 1.2082 - 1.2344			1.1563 - 1.2004 1.2056 - 1.2057			1.2365 - 1.2379 1.2601 - 1.2622			1.3343 - 1.3344 1.3348 - 1.3355			1.3302 - 1.3318 1.3333 - 1.3334			1.2067 - 1.3343 1.3344 - 1.3355		
			Vc=45 m/dk.			Vc=42 m/dk.			Vc=39 m/dk.			36m/dk.			Vc=33 m/dk.			Vc=30 m/dk.			Vc=27 m/dk.			Vc=24 m/dk.		
			fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5	0.5	0.05	0.006	28800	346	0.005	26880	269	0.006	24960	300	0.005	23040	230	0.005	21120	211	0.005	19200	192	0.004	17280	138	0.004	15360	123
1.0	1.0	0.10	0.009	14400	259	0.009	13440	242	0.009	12480	225	0.007	11520	161	0.007	10560	148	0.006	9600	115	0.005	8640	86	0.005	7680	77
1.5	1.5	0.15	0.012	9600	230	0.012	8960	215	0.012	8320	200	0.009	7680	138	0.010	7040	141	0.008	6400	102	0.006	5760	69	0.006	5120	61
2.0	2.0	0.20	0.015	7200	216	0.015	6720	202	0.015	6240	187	0.011	5760	127	0.012	5280	127	0.009	4800	86	0.008	4320	69	0.007	3840	54
2.5	2.5	0.25	0.019	5760	219	0.019	5376	204	0.019	4992	190	0.013	4608	120	0.015	4224	127	0.011	3840	84	0.009	3456	62	0.008	3072	49
3.0	3.0	0.30	0.023	4800	221	0.023	4480	206	0.023	4160	191	0.015	3840	115	0.017	3520	120	0.013	3200	83	0.010	2880	58	0.009	2560	46

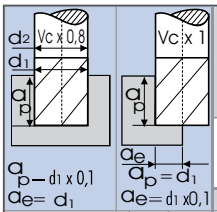
HARD MINI LONG CORNER - R 52 - 68 HRC



Solid carbide end mills with corner radius - Mini Hard Long
VHM - Schaftfräser mit Eckenradius - Mini Hart Lang
Fraises toriques carbure - Mini Dure Longue
Karbür Köşe Radyüslü Freze - Mini Sert Uzun

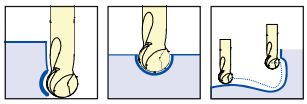
F	H	0100	K	2	N	80	A	20	N	020
END MILL	MG-08	d1	TOOLEX		DIN 6535 HA		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	CORNER RADIUS	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CORNER RADIUS	COATED	FLUTE LENGTH

d1($^{+0,003}_{-0,005}$)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Cr	Coated Code
0,5	0,8	1,0	15,55	0,48	80	4	2	7,00°	6,42°	0,10	FH0050K2N80A10N010
0,5	0,8	2,0	12,18	0,48	80	4	2	10,00°	8,17°	0,10	FH0050K2N80A10N020
0,5	0,8	4,0	14,18	0,48	80	4	2	10,00°	7,03°	0,10	FH0050K2N80A10N040
0,5	0,8	6,0	16,18	0,48	80	4	2	10,00°	6,17°	0,10	FH0050K2N80A10N060
0,6	0,9	1,2	15,35	0,57	80	4	2	10,00°	6,32°	0,10	FH0060K2N80A10N012
0,6	0,9	2,0	11,95	0,57	80	4	2	10,00°	8,09°	0,10	FH0060K2N80A10N020
0,6	0,9	4,0	13,95	0,57	80	4	2	10,00°	6,94°	0,10	FH0060K2N80A10N040
0,6	0,9	8,0	17,95	0,57	80	4	2	10,00°	5,41°	0,10	FH0060K2N80A10N080
0,7	1,1	1,4	15,18	0,67	80	4	2	7,00°	6,20°	0,10	FH0070K2N80A10N014
0,7	1,1	2,5	12,21	0,67	80	4	2	10,00°	7,69°	0,10	FH0070K2N80A10N025
0,7	1,1	5,0	14,71	0,67	80	4	2	10,00°	6,40°	0,10	FH0070K2N80A10N050
0,7	1,1	8,0	17,71	0,67	80	4	2	10,00°	5,32°	0,10	FH0070K2N80A10N080
0,8	1,2	1,6	11,10	0,76	80	4	2	10,00°	8,20°	0,15	FH0080K2N80A15N016
0,8	1,2	3,0	12,50	0,76	80	4	2	10,00°	7,29°	0,15	FH0080K2N80A15N030
0,8	1,2	6,0	15,50	0,76	80	4	2	10,00°	5,89°	0,15	FH0080K2N80A15N060
0,8	1,2	10,0	19,50	0,76	80	4	2	10,00°	4,69°	0,15	FH0080K2N80A15N100
1,0	1,5	2,0	11,01	0,95	80	4	2	10,00°	7,75°	0,20	FH0100K2N80A20N020
1,0	1,5	4,0	13,01	0,95	80	4	2	10,00°	6,57°	0,20	FH0100K2N80A20N040
1,0	1,5	8,0	17,01	0,95	80	4	2	10,00°	5,03°	0,20	FH0100K2N80A20N080
1,0	1,5	12,0	21,01	0,95	80	4	2	10,00°	4,08°	0,20	FH0100K2N80A20N120
1,0	1,5	16,0	25,01	0,95	80	4	2	10,00°	3,43°	0,20	FH0100K2N80A20N160
1,0	1,5	20,0	29,01	0,95	80	4	2	10,00°	2,96°	0,20	FH0100K2N80A20N200
1,2	1,8	2,0	10,54	1,14	80	4	2	10,00°	7,56°	0,25	FH0120K2N80A25N020
1,2	1,8	4,0	12,54	1,14	80	4	2	10,00°	6,37°	0,25	FH0120K2N80A25N040
1,5	2,3	4,0	11,85	1,43	80	4	2	10,00°	6,02°	0,30	FH0150K2N80A30N040
1,5	2,3	8,0	15,85	1,43	80	4	2	10,00°	4,50°	0,30	FH0150K2N80A30N080
1,5	2,3	12,0	19,85	1,43	80	4	2	10,00°	3,60°	0,30	FH0150K2N80A30N120
1,5	2,3	20,0	27,85	1,43	80	4	2	10,00°	2,57°	0,30	FH0150K2N80A30N200
2,0	3,0	4,0	10,68	1,90	80	4	4	10,00°	5,35°	0,50	FH0200K4N80A50N040
2,0	3,0	8,0	14,68	1,90	80	4	4	10,00°	3,09°	0,50	FH0200K4N80A50N080
2,0	3,0	12,0	18,68	1,90	80	4	4	10,00°	3,06°	0,50	FH0200K4N80A50N120
2,0	3,0	16,0	22,68	1,90	80	4	4	10,00°	2,52°	0,50	FH0200K4N80A50N160
2,0	3,0	20,0	26,68	1,90	80	4	4	10,00°	2,14°	0,50	FH0200K4N80A50N200
2,5	3,8	5,0	10,51	2,38	80	4	4	10,00°	4,08°	0,50	FH0250K4N80A50N050
2,5	3,8	8,0	13,51	2,38	80	4	4	10,00°	3,17°	0,50	FH0250K4N80A50N080
2,5	3,8	12,0	17,51	2,38	80	4	4	10,00°	2,45°	0,50	FH0250K4N80A50N120
2,5	3,8	16,0	21,51	2,38	80	4	4	10,00°	1,99°	0,50	FH0250K4N80A50N160
2,5	3,8	20,0	25,51	2,38	80	4	4	10,00°	1,68°	0,50	FH0250K4N80A50N200
3,0	4,5	6,0	10,34	2,85	80	4	4	10,00°	2,76°	0,50	FH0300K4N80A50N060
3,0	4,5	8,0	12,34	2,85	80	4	4	10,00°	2,32°	0,50	FH0300K4N80A50N080
3,0	4,5	12,0	16,34	2,85	80	4	4	10,00°	1,75°	0,50	FH0300K4N80A50N120
3,0	4,5	16,0	20,34	2,85	80	4	4	10,00°	1,40°	0,50	FH0300K4N80A50N160
3,0	4,5	20,0	24,34	2,85	80	4	4	10,00°	1,17°	0,50	FH0300K4N80A50N200

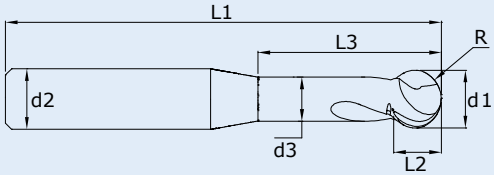


			HRC <50			HRC <53			HRC <56			HRC <59			HRC <61			HRC <63			HRC <65			HRC <68		
			1.5860-1.6587			1.1520 - 1.1525			1.2002 - 1.2003			1.1563 - 1.2004			1.2365 - 1.2379			1.3343 - 1.3344			1.3302 - 1.3318			1.2067 - 1.3343		
			1.6587-1.7326			1.1545 - 1.1820			1.2082 - 1.2344			1.2056 - 1.2057			1.2601 - 1.2622			1.3348 - 1.3355			1.3333 - 1.3334			1.3344 - 1.3355		
			Vc=45 m/dk.			Vc=42 m/dk.			Vc=39 m/dk.			36m/dk.			Vc=33 m/dk.			Vc=30 m/dk.			Vc=27 m/dk.			Vc=24 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5	0.5	0.05	0.006	28800	346	0.005	26880	269	0.006	24960	300	0.005	23040	230	0.005	21120	211	0.005	19200	192	0.004	17280	138	0.004	15360	123
1.0	1.0	0.10	0.009	14400	259	0.009	13440	242	0.009	12480	225	0.007	11520	161	0.007	10560	148	0.006	9600	115	0.005	8640	86	0.005	7680	77
1.5	1.5	0.15	0.012	9600	230	0.012	8960	215	0.012	8320	200	0.009	7680	138	0.010	7040	141	0.008	6400	102	0.006	5760	69	0.006	5120	61
2.0	2.0	0.20	0.015	7200	216	0.015	6720	202	0.015	6240	187	0.011	5760	127	0.012	5280	127	0.009	4800	86	0.008	4320	69	0.007	3840	54
2.5	2.5	0.25	0.019	5760	219	0.019	5376	204	0.019	4992	190	0.013	4608	120	0.015	4224	127	0.011	3840	84	0.009	3456	62	0.008	3072	49
3.0	3.0	0.30	0.023	4800	221	0.023	4480	206	0.023	4160	191	0.015	3840	115	0.017	3520	120	0.013	3200	83	0.010	2880	58	0.009	2560	46

270° BALLCUT <52 HRC

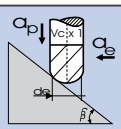


Solid carbide ball nose end mills - Ballcut 270°
VHM - Radiusfräser - Ballcut 270°
Fraises a rayon carbure - Ballcut 270°
Karbür Küre Freze - Ballcut 270°



F	S	1000	R	2	C	22	A	50	N	072
END MILL	MG-10	d1	DIN 6528		TOOLEX		<30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

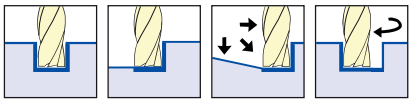
d1(e8)	L2	L3	L4	L1	d2(h6)	Z	R	Coated Code
3	2,56	2,5	9	57	6	2	1,50	FS0300R2C09A15N057
4	3,41	3,3	12	57	6	2	2,00	FS0400R2C12A20N057
5	4,27	4,1	15	57	6	2	2,50	FS0500R2C15A25N057
6	5,12	4,7	18	57	6	2	3,00	FS0600R2C18A30N057
8	6,83	6,5	19	63	8	2	4,00	FS0800R2C19A40N063
10	8,54	8,2	22	72	10	2	5,00	FS1000R2C22A50N072
12	10,24	9,8	26	83	12	2	6,00	FS1200R2C26A60N083
16	13,66	13,4	32	92	16	2	8,00	FS1600R2C32A80N092
3	2,56	2,3	30	100	6	2	1,50	FS0300R2C30A15N100
4	3,41	3,3	36	100	6	2	2,00	FS0400R2C36A20N100
5	4,27	4,1	40	100	6	2	2,50	FS0500R2C40A25N100
6	5,12	4,7	45	100	6	2	3,00	FS0600R2C45A30N100
8	6,83	6,5	48	100	8	2	4,00	FS0800R2C48A40N100
10	8,54	8,2	52	100	10	2	5,00	FS1000R2C52A50N100
12	10,24	9,8	60	130	12	2	6,00	FS1200R2C60A60N130
16	13,66	13,4	70	130	13	2	8,00	FS1600R2C70A80N160



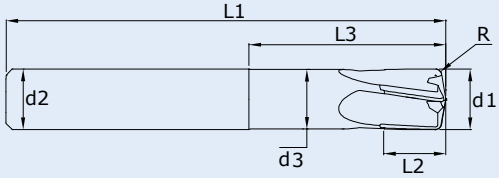
$a_p = 0{,}3 \times d1$
$de = d1 \times \cos\alpha$
$\sin\alpha = \frac{d1 - 2 \times a_p}{d1}$

				HRC <20			HRC <25			HRC <30			HRC <35			HRC <40			HRC <45			HRC <50			HRC <52		
				1.7131-1.7139 1.7149-1.7262			1.4112 - 1.4116 1.4117 - 1.4125			1.7039 - 1.7225 1.7220 - 1.7226			1.5864 - 1.7707 1.6580 - 1.4542			1.7139 - 1.7262 1.7311 - 1.7323			1.8509 - 1.2713 1.2714 - 1.2718			1.2718 - 1.2726 1.2343 - 1.2344			1.2360 - 1.2782 1.2884 - 1.2365		
				Vc=150 m/dk.			Vc=140 m/dk.			Vc=130m/dk.			Vc=125 m/dk.			Vc=120m/dk.			Vc=110 m/dk.			Vc=100m/dk.			Vc=90 m/dk.		
d1	de	ap	β	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	3,67	1,2	18,5°	0,041	13016	540xZ	0,041	12149	500xZ	0,041	11280	460xZ	0,039	10847	420xZ	0,035	10413	360xZ	0,034	9545	320xZ	0,032	8678	280xZ	0,031	7810	240xZ
5	4,58	1,5	18,5°	0,052	10430	540xZ	0,051	9735	500xZ	0,051	9039	460xZ	0,048	8692	420xZ	0,043	8344	360xZ	0,042	7649	320xZ	0,040	6954	280xZ	0,038	6258	240xZ
6	5,50	1,8	18,5°	0,062	8685	540xZ	0,062	8106	500xZ	0,061	7527	460xZ	0,058	7238	420xZ	0,052	6948	360xZ	0,050	6369	320xZ	0,048	5791	280xZ	0,046	5211	240xZ
8	7,33	2,4	18,5°	0,083	6517	540xZ	0,082	6083	500xZ	0,081	5648	460xZ	0,077	5431	420xZ	0,069	5214	360xZ	0,067	4779	320xZ	0,064	4345	280xZ	0,061	3910	240xZ
10	9,16	3,0	18,5°	0,103	5215	540xZ	0,103	4867	500xZ	0,102	4520	460xZ	0,097	4346	420xZ	0,086	4172	360xZ	0,084	3824	320xZ	0,080	3477	280xZ	0,077	3129	240xZ
12	11,00	3,6	18,5°	0,124	4343	540xZ	0,123	4053	500xZ	0,122	3764	460xZ	0,116	3619	420xZ	0,103	3474	360xZ	0,100	3185	320xZ	0,097	2895	280xZ	0,092	2605	240xZ
14	12,83	4,2	18,5°	0,145	3723	540xZ	0,144	3475	500xZ	0,142	3227	460xZ	0,135	3103	420xZ	0,121	2978	360xZ	0,117	2730	320xZ	0,113	2482	280xZ	0,107	2234	240xZ
16	14,66	4,8	18,5°	0,166	3258	540xZ	0,164	3041	500xZ	0,163	2824	460xZ	0,155	2715	420xZ	0,138	2607	360xZ	0,134	2390	320xZ	0,129	2172	280xZ	0,123	1955	240xZ
18	16,50	5,4	18,5°	0,186	2895	540xZ	0,185	2702	500xZ	0,183	2509	460xZ	0,174	2413	420xZ	0,155	2316	360xZ	0,151	2123	320xZ	0,145	1930	280xZ	0,138	1737	240xZ
20	18,33	6,0	18,5°	0,207	2606	540xZ	0,205	2432	500xZ	0,203	2258	460xZ	0,193	2172	420xZ	0,173	2085	360xZ	0,167	1911	320xZ	0,161	1738	280xZ	0,153	1564	240xZ

TORUS <52 HRC

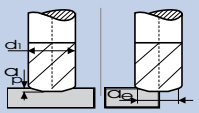


Solid carbide end mills with corner radius - High speed Torus
VHM - Schaftfräser mit Eckenradius - High speed Torus
Fraises toriques carbure - High speed Torus
Karbür Köşe Radyüslü Freze - High speed Torus



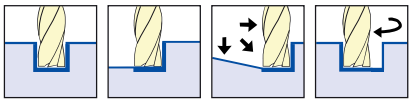
F	S	1000	T	4	C	10	G	10	N	072
END MILL	MG-10	d1	TOOLEX		DIN 6535 HA		0°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	Coated Code
6	6	5,80	21	57	6	4	0,60	FS0600T4C06G06N057
6	6	5,80	30	100	6	4	0,60	FS0600T4C06G06N100
8	8	7,80	27	63	8	4	0,80	FS0800T4C08G08N063
8	8	7,80	35	100	8	4	0,80	FS0800T4C08G08N100
10	10	9,80	32	72	10	4	1,00	FS1000T4C10G10N072
10	10	9,80	35	100	10	4	1,00	FS1000T4C10G10N100
12	12	11,80	38	83	12	4	1,20	FS1200T4C12G12N083
12	12	11,80	40	110	12	4	1,20	FS1200T4C12G12N110
14	14	13,80	38	83	14	4	1,40	FS1400T4C14G14N083
14	14	13,80	45	110	14	4	1,40	FS1400T4C14G14N110
16	16	15,80	45	92	16	4	1,60	FS1600T4C16G16N092
16	16	15,80	50	110	16	4	1,60	FS1600T4C16G16N110

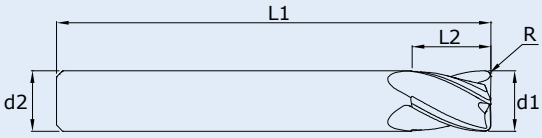


			HRC 20-30			HRC 30-40			INOX			GG			TITAN			< 52 HRC		
			1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
			Vc=300 m/dk.			Vc=240 m/dk.			Vc=220 m/dk.			Vc=200 m/dk.			Vc=100 m/dk.			Vc=200 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
6	0,3	3,0	0,600	15924	9554xZ	0,480	12739	6115xZ	0,420	11677	4904xZ	0,600	10616	6369xZ	0,180	5308	955xZ	0,420	10616	4459xZ
8	0,4	4,0	0,800	11943	9554xZ	0,640	9554	6115xZ	0,560	8758	4904xZ	0,800	7962	6369xZ	0,240	3981	955xZ	0,560	7962	4459xZ
10	0,5	5,0	1,000	9554	9554xZ	0,800	7643	6115xZ	0,700	7006	4904xZ	1,000	6369	6369xZ	0,300	3185	955xZ	0,700	6369	4459xZ
12	0,6	6,0	1,200	7962	9554xZ	0,960	6369	6115xZ	0,840	5839	4904xZ	1,200	5308	6369xZ	0,360	2654	955xZ	0,840	5308	4459xZ
14	0,7	7,0	1,400	6824	9554xZ	1,120	5460	6115xZ	0,980	5005	4904xZ	1,400	4550	6369xZ	0,420	2275	955xZ	0,980	4550	4459xZ
16	0,8	8,0	1,600	5971	9554xZ	1,280	4777	6115xZ	1,200	4379	5255xZ	1,600	3981	6369xZ	0,460	1990	916xZ	1,200	3981	4777xZ

CORNER - R <52 HRC

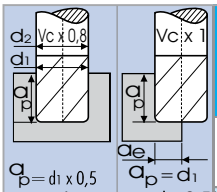


Solid carbide end mills with corner radius
VHM - Schaftfräser mit Eckenradius
Fraises toriques carbure
Karbür Köşe Radyüslü Freze



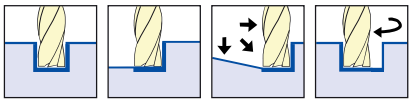
F	E	1000	K	4	C	13	A	20	N	072
END MILL	MG-10	d1	TOOLEX		DIN 6535 HA		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	Uncoated Code	Coated Code
3	5	40	3	4	0,50	FE0300K4C05A05B040	FE0300K4C05A05N040
4	7	50	4	4	0,50	FE0400K4C07A05B050	FE0400K4C07A05N050
5	8	50	5	4	0,50	FE0500K4C08A05B050	FE0500K4C08A05N050
6	8	57	6	4	0,50	FE0600K4C08A05B057	FE0600K4C08A05N057
6	8	57	6	4	1,00	FE0600K4C08A10B057	FE0600K4C08A10N057
8	11	63	8	4	0,50	FE0800K4C11A05B063	FE0800K4C11A05N063
8	11	63	8	4	1,00	FE0800K4C11A10B063	FE0800K4C11A10N063
8	11	63	8	4	1,50	FE0800K4C11A15B063	FE0800K4C11A15N063
8	11	63	8	4	2,00	FE0800K4C11A20B063	FE0800K4C11A20N063
10	13	72	10	4	0,50	FE1000K4C13A05B072	FE1000K4C13A05N072
10	13	72	10	4	1,00	FE1000K4C13A10B072	FE1000K4C13A10N072
10	13	72	10	4	1,50	FE1000K4C13A15B072	FE1000K4C13A15N072
10	13	72	10	4	2,00	FE1000K4C13A20B072	FE1000K4C13A20N072
12	16	83	12	4	0,50	FE1200K4C16A05B083	FE1200K4C16A05N083
12	16	83	12	4	1,00	FE1200K4C16A10B083	FE1200K4C16A10N083
12	16	83	12	4	1,50	FE1200K4C16A15B083	FE1200K4C16A15N083
12	16	83	12	4	2,00	FE1200K4C16A20B083	FE1200K4C16A20N083
14	16	83	12	4	0,50	FE1400K4C16A05B083	FE1400K4C16A05N083
14	16	83	12	4	1,00	FE1400K4C16A10B083	FE1400K4C16A10N083
14	16	83	12	4	1,50	FE1400K4C16A15B083	FE1400K4C16A15N083
14	16	83	12	4	2,00	FE1400K4C16A20B083	FE1400K4C16A20N083
16	19	92	16	4	0,50	FE1600K4C19A05B092	FE1600K4C19A05N092
16	19	92	16	4	1,00	FE1600K4C19A10B092	FE1600K4C19A10N092
16	19	92	16	4	1,50	FE1600K4C19A15B092	FE1600K4C19A15N092
16	19	92	16	4	2,00	FE1600K4C19A20B092	FE1600K4C19A20N092

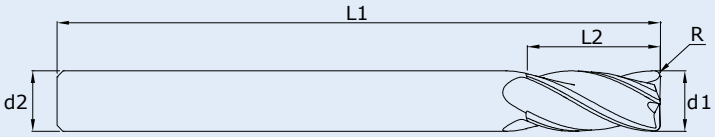


			HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
			1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
			Vc=120 m/dk.			Vc=90 m/dk.			Vc=65 m/dk.			Vc=130 m/dk.			Vc=320 m/dk.			Vc=200 m/dk.			Vc=50 m/dk.			Vc=50 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
3	1,5	1,5	0,016	12739	205xZ	0,019	9554	180xZ	0,017	6900	120xZ	0,045	13800	620xZ	0,034	33970	1150xZ	0,037	21233	785xZ	0,012	5300	65 xZ	0,010	5300	53xZ
4	2,0	2,0	0,021	9554	205xZ	0,025	7166	180xZ	0,023	5175	120xZ	0,060	10350	620xZ	0,045	25477	1150xZ	0,049	15925	785xZ	0,016	3975	65 xZ	0,013	3975	53xZ
5	2,5	2,5	0,027	7643	205xZ	0,031	5732	180xZ	0,029	4140	120xZ	0,075	8280	620xZ	0,056	20382	1150xZ	0,062	12740	785xZ	0,020	3180	65 xZ	0,017	3180	53xZ
6	3,0	3,0	0,032	6369	205xZ	0,038	4777	180xZ	0,035	3450	120xZ	0,090	6900	620xZ	0,068	16985	1150xZ	0,074	10617	785xZ	0,025	2650	65 xZ	0,020	2650	53xZ
8	4,0	4,0	0,043	4777	205xZ	0,050	3583	180xZ	0,046	2587	120xZ	0,120	5175	620xZ	0,090	12739	1150xZ	0,099	7962	785xZ	0,033	1987	65 xZ	0,027	1987	53xZ
10	5,0	5,0	0,053	3822	205xZ	0,063	2866	180xZ	0,058	2070	120xZ	0,150	4140	620xZ	0,110	10191	1150xZ	0,123	6370	785xZ	0,041	1590	65 xZ	0,033	1590	53xZ
12	6,0	6,0	0,064	3185	205xZ	0,075	2389	180xZ	0,070	1725	120xZ	0,180	3450	620xZ	0,140	8492	1150xZ	0,148	5308	785xZ	0,049	1325	65 xZ	0,040	1325	53xZ
14	7,0	7,0	0,075	2730	205xZ	0,088	2047	180xZ	0,081	1478	120xZ	0,210	2957	620xZ	0,160	7279	1150xZ	0,173	4550	785xZ	0,057	1136	65 xZ	0,047	1136	53xZ
16	8,0	8,0	0,086	2389	205xZ	0,100	1791	180xZ	0,093	1294	120xZ	0,240	2588	620xZ	0,180	6369	1150xZ	0,197	3981	785xZ	0,065	994	65 xZ	0,053	994	53xZ

CORNER - R LONG <52 HRC

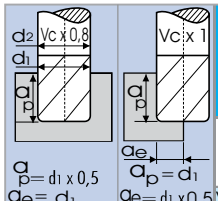


Solid carbide end mills with corner radius - Long
VHM - Schaftfräser mit Eckenradius - Lang
Fraises toriques carbure - Longue
Karbür Köşe Radyüslü Freze - Uzun

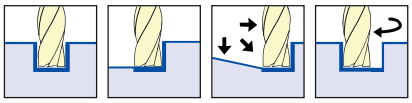


F	E	1000	K	4	C	22	A	20	N	100
END MILL	MG-10	d1	TOOLEX		DIN 6535 HA		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

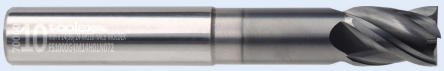
d1(e8)	L2	L1	d2(h6)	Z	R	Uncoated Code	Coated Code
3	8	65	3	4	0,50	FE0300K4C08A05B065	FE0300K4C08A05N065
4	11	65	4	4	0,50	FE0400K4C11A05B065	FE0400K4C11A05N065
5	13	65	5	4	0,50	FE0500K4C13A05B065	FE0500K4C13A05N065
6	13	68	6	4	0,50	FE0600K4C13A05B068	FE0600K4C13A05N068
6	13	68	6	4	1,00	FE0600K4C13A10B068	FE0600K4C13A10N068
8	19	88	8	4	0,50	FE0800K4C19A05B088	FE0800K4C19A05N088
8	19	88	8	4	1,00	FE0800K4C19A10B088	FE0800K4C19A10N088
8	19	88	8	4	1,50	FE0800K4C19A15B088	FE0800K4C19A15N088
8	22	88	8	4	2,00	FE0800K4C19A20B088	FE0800K4C19A20N088
10	22	100	10	4	0,50	FE1000K4C22A05B100	FE1000K4C22A05N100
10	22	100	10	4	1,00	FE1000K4C22A10B100	FE1000K4C22A10N100
10	22	100	10	4	1,50	FE1000K4C22A15B100	FE1000K4C22A15N100
10	26	100	10	4	2,00	FE1000K4C22A20B100	FE1000K4C22A20N100
12	26	110	12	4	0,50	FE1200K4C26A05B110	FE1200K4C26A05N110
12	26	110	12	4	1,00	FE1200K4C26A10B110	FE1200K4C26A10N110
12	26	110	12	4	1,50	FE1200K4C26A15B110	FE1200K4C26A15N110
12	26	110	12	4	2,00	FE1200K4C26A20B110	FE1200K4C26A20N110
14	26	110	14	4	0,50	FE1400K4C26A05B110	FE1400K4C26A05N110
14	26	110	14	4	1,00	FE1400K4C26A10B110	FE1400K4C26A10N110
14	26	110	14	4	1,50	FE1400K4C26A15B110	FE1400K4C26A15N110
14	32	110	14	4	2,00	FE1400K4C26A20B110	FE1400K4C26A20N110
16	32	110	16	4	1,00	FE1600K4C32A10B110	FE1600K4C32A10N110
16	32	110	16	4	2,00	FE1600K4C32A20B110	FE1600K4C32A20N110
16	32	110	16	4	3,00	FE1600K4C32A30B110	FE1600K4C32A30N110

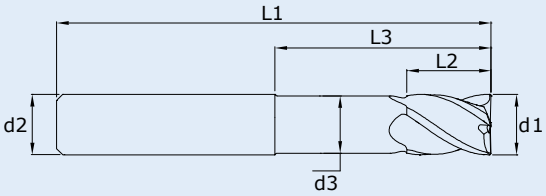


			HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
			1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
			Vc=110 m/dk.			Vc=80 m/dk.			Vc=60 m/dk.			Vc=120 m/dk.			Vc=300 m/dk.			Vc=200 m/dk.			Vc=50 m/dk.			Vc=50 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
3	1,5	1,5	0,016	11677	185xZ	0,019	8493	160xZ	0,017	6369	110xZ	0,045	12739	570xZ	0,034	31847	1080xZ	0,037	21233	785xZ	0,012	5300	65 xZ	0,010	5300	53xZ
4	2,0	2,0	0,021	8757	185xZ	0,025	6370	160xZ	0,023	4777	110xZ	0,060	9554	570xZ	0,045	23885	1080xZ	0,049	15925	785xZ	0,016	3975	65 xZ	0,013	3975	53xZ
5	2,5	2,5	0,026	7006	185xZ	0,031	5095	160xZ	0,029	3822	110xZ	0,075	7643	570xZ	0,057	19108	1080xZ	0,062	12740	785xZ	0,020	3180	65 xZ	0,017	3180	53xZ
6	3,0	3,0	0,032	5838	185xZ	0,038	4246	160xZ	0,035	3185	110xZ	0,090	6369	570xZ	0,068	15923	1080xZ	0,074	10617	785xZ	0,025	2650	65 xZ	0,020	2650	53xZ
8	4,0	4,0	0,042	4379	185xZ	0,050	3185	160xZ	0,046	2389	110xZ	0,119	4777	570xZ	0,090	11942	1080xZ	0,099	7962	785xZ	0,033	1987	65 xZ	0,027	1985	53xZ
10	5,0	5,0	0,053	3503	185xZ	0,063	2548	160xZ	0,057	1911	110xZ	0,149	3822	570xZ	0,113	9554	1080xZ	0,123	6370	785xZ	0,041	1590	65 xZ	0,033	1590	53xZ
12	6,0	6,0	0,063	2919	185xZ	0,075	2123	160xZ	0,069	1592	110xZ	0,179	3185	570xZ	0,136	7962	1080xZ	0,148	5308	785xZ	0,049	1325	65 xZ	0,040	1325	53xZ
14	7,0	7,0	0,074	2502	185xZ	0,088	1820	160xZ	0,081	1365	110xZ	0,209	2730	570xZ	0,158	6824	1080xZ	0,173	4550	785xZ	0,057	1136	65 xZ	0,047	1136	53xZ
16	8,0	8,0	0,085	2189	185xZ	0,110	1592	160xZ	0,092	1194	110xZ	0,239	2388	570xZ	0,181	5971	1080xZ	0,197	3981	785xZ	0,065	994	65 xZ	0,053	994	53xZ



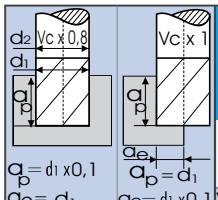
Solid carbide end mills - Moldex
VHM - Schaftfräser - Moldex
Fraises en bout carbure - Moldex
Karbür Freze - Moldex



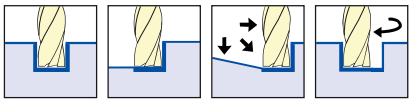


F	S	1000	G	4	M	14	H	01	N	072
END MILL	MG-10	d1	DIN 6528		TOOLEX		35	0.1x 45°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

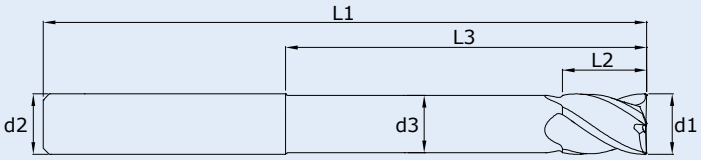
d1(e8)	L2	d3	L3	L1	d2(h6)	Z	Coated Code
4	6	3,8	25	50	4	4	FS0400G4M06H01N050
5	7	4,8	25	50	5	4	FS0500G4M07H01N050
6	8	5,7	28	57	6	4	FS0600G4M08H01N057
8	10	7,6	32	63	8	4	FS0800G4M10H01N063
10	14	9,5	36	72	10	4	FS1000G4M14H01N072
12	16	11,5	42	83	12	4	FS1200G4M16H01N083
14	18	13,5	42	83	14	4	FS1400G4M18H01N083
16	20	15,5	46	92	16	4	FS1600G4M20H01N092
18	22	17,5	46	92	18	4	FS1800G4M22H01N092
20	24	19,5	52	104	20	4	FS2000G4M24H01N104



			HRC <20			HRC <25			HRC <30			HRC <35			HRC <40			HRC <45			HRC <50			HRC <52		
			1.7131-1.7139			1.4112 - 1.4116			1.7039 - 1.7225			1.5864 - 1.7707			1.7139 - 1.7262			1.8509 - 1.2713			1.2718 - 1.2726			1.2360 - 1.2782		
			1.7149-1.7262			1.4117 - 1.4125			1.7220 - 1.7226			1.6580 - 1.4542			1.7311 - 1.7323			1.2714 - 1.2718			1.2343 - 1.2344			1.2884 - 1.2365		
			Vc=140 m/dk.			Vc=130 m/dk.			Vc=120 m/dk.			Vc=110 m/dk.			Vc=100 m/dk.			Vc=90m/dk.			Vc=80 m/dk.			Vc=70m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	0,4	0,4	0,020	11146	220xZ	0,020	10350	210xZ	0,020	9554	190xZ	0,020	8757	175xZ	0,020	7962	160xZ	0,020	7165	145xZ	0,020	6370	130xZ	0,020	5572	110xZ
5	0,5	0,5	0,025	8917	220xZ	0,025	8280	210xZ	0,025	7643	190xZ	0,025	7006	175xZ	0,025	6369	160xZ	0,025	5732	145xZ	0,025	5095	130xZ	0,025	4458	110xZ
6	0,6	0,6	0,029	7431	220xZ	0,030	6900	210xZ	0,030	6369	190xZ	0,030	5838	175xZ	0,030	5308	160xZ	0,030	4777	145xZ	0,030	4246	130xZ	0,030	3715	110xZ
8	0,8	0,8	0,039	5573	220xZ	0,041	5175	210xZ	0,040	4777	190xZ	0,040	4379	175xZ	0,040	3981	160xZ	0,040	3582	145xZ	0,040	3185	130xZ	0,040	2786	110xZ
10	1,0	1,0	0,049	4458	220xZ	0,051	4140	210xZ	0,050	3822	190xZ	0,050	3503	175xZ	0,050	3185	160xZ	0,050	2866	145xZ	0,050	2548	130xZ	0,050	2229	110xZ
12	1,2	1,2	0,059	3715	220xZ	0,061	3450	210xZ	0,060	3185	190xZ	0,060	2919	175xZ	0,060	2654	160xZ	0,060	2388	145xZ	0,060	2123	130xZ	0,060	1857	110xZ
14	1,4	1,4	0,069	3185	220xZ	0,071	2957	210xZ	0,070	2730	190xZ	0,070	2502	175xZ	0,070	2275	160xZ	0,070	2047	145xZ	0,070	1820	130xZ	0,070	1592	110xZ
16	1,6	1,6	0,079	2787	220xZ	0,081	2587	210xZ	0,080	2388	190xZ	0,080	2189	175xZ	0,080	1990	160xZ	0,080	1791	145xZ	0,080	1592	130xZ	0,080	1393	110xZ
18	1,8	1,8	0,089	2477	220xZ	0,091	2300	210xZ	0,090	2123	190xZ	0,090	1946	175xZ	0,090	1769	160xZ	0,090	1592	145xZ	0,090	1415	130xZ	0,090	1238	110xZ
20	2,0	2,0	0,099	2229	220xZ	0,100	2070	210xZ	0,100	1910	190xZ	0,100	1752	175xZ	0,100	1592	160xZ	0,100	1433	145xZ	0,100	1274	130xZ	0,100	1115	110xZ

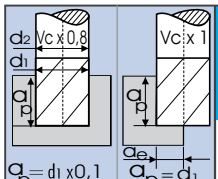


Solid carbide end mills - Moldex Long
VHM - Schaftfräser - Moldex Lang
Fraises en bout carbure - Moldex Longue
Karbür Freze - Moldex Uzun



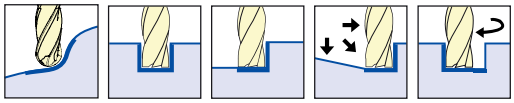
F	S	1000	G	4	M	14	H	01	N	100
END MILL	MG-10	d1	TOOLEX		TOOLEX		35°	0.1x 45°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	Coated Code
4	6	3,8	32	65	4	4	FS0400G4M06H01N065
5	7	4,8	48	80	5	4	FS0500G4M07H01N080
6	8	5,7	48	80	6	4	FS0600G4M08H01N080
8	10	7,6	54	88	8	4	FS0800G4M10H01N088
4	6	3,8	60	100	4	4	FS0400G4M06H01N100
5	7	4,8	60	100	5	4	FS0500G4M07H01N100
6	8	5,7	60	100	6	4	FS0600G4M08H01N100
8	10	7,6	60	100	8	4	FS0800G4M10H01N100
10	14	9,5	60	100	10	4	FS1000G4M14H01N100
12	16	11,5	60	100	12	4	FS1200G4M16H01N100
14	18	13,5	60	100	14	4	FS1400G4M18H01N100
16	20	15,5	60	100	16	4	FS1600G4M20H01N100
18	22	17,5	60	100	18	4	FS1800G4M22H01N100
10	14	9,5	120	165	10	4	FS1000G4M14H01N165
12	16	11,5	120	165	12	4	FS1200G4M16H01N165
14	18	13,5	120	165	14	4	FS1400G4M18H01N165
16	20	15,5	120	165	16	4	FS1600G4M20H01N165
18	22	17,5	120	165	18	4	FS1800G4M22H01N165
20	24	19,5	120	165	20	4	FS2000G4M24H01N165

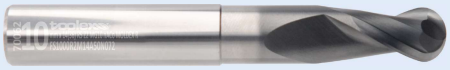


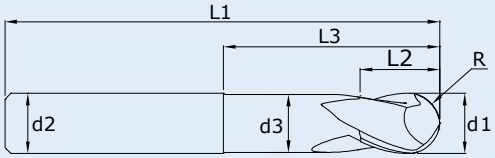
			HRC <20			HRC <25			HRC <30			HRC <35			HRC <40			HRC <45			HRC <50			HRC <52		
			1.7131-1.7139 1.7149-1.7262			1.4112 - 1.4116 1.4117 - 1.4125			1.7039 - 1.7225 1.7220 - 1.7226			1.5864 - 1.7707 1.6580 - 1.4542			1.7139 - 1.7262 1.7311 - 1.7323			1.8509 - 1.2713 1.2714 - 1.2718			1.2718 - 1.2726 1.2343 - 1.2344			1.2360 - 1.2782 1.2884 - 1.2365		
			Vc=125m/dk.			Vc=115m/dk.			Vc=105 m/dk.			Vc=95 m/dk.			Vc=85m/dk.			Vc=75 m/dk.			Vc=65m/dk.			Vc=55m/dk		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	0,4	0,4	0,020	9952	200xZ	0,020	9155	180xZ	0,020	8360	170xZ	0,020	7562	150xZ	0,020	6767	135xZ	0,020	5971	120xZ	0,020	5175	100xZ	0,020	4379	90xZ
5	0,5	0,5	0,025	7962	200xZ	0,025	7324	180xZ	0,025	6688	170xZ	0,025	6050	150xZ	0,025	5414	135xZ	0,025	4777	120xZ	0,024	4140	100xZ	0,025	3503	90xZ
6	0,6	0,6	0,030	6635	200xZ	0,030	6103	180xZ	0,034	5573	170xZ	0,030	5041	150xZ	0,030	4512	135xZ	0,030	3981	120xZ	0,029	3450	100xZ	0,031	2919	90xZ
8	0,8	0,8	0,040	4976	200xZ	0,040	4577	180xZ	0,045	4180	170xZ	0,040	3781	150xZ	0,040	3384	135xZ	0,040	2986	120xZ	0,039	2587	100xZ	0,041	2190	90xZ
10	1,0	1,0	0,050	3981	200xZ	0,050	3662	180xZ	0,050	3344	170xZ	0,050	3025	150xZ	0,050	2707	135xZ	0,050	2388	120xZ	0,049	2070	100xZ	0,051	1752	90xZ
12	1,2	1,2	0,060	3317	200xZ	0,060	3052	180xZ	0,061	2787	170xZ	0,060	2521	150xZ	0,060	2256	135xZ	0,060	1990	120xZ	0,059	1725	100xZ	0,061	1460	90xZ
14	1,4	1,4	0,070	2844	200xZ	0,070	2616	180xZ	0,071	2388	170xZ	0,070	2160	150xZ	0,070	1934	135xZ	0,070	1706	120xZ	0,069	1478	100xZ	0,071	1251	90xZ
16	1,6	1,6	0,080	2488	200xZ	0,080	2289	180xZ	0,081	2090	170xZ	0,080	1890	150xZ	0,080	1692	135xZ	0,080	1493	120xZ	0,079	1294	100xZ	0,081	1095	90xZ
18	1,8	1,8	0,090	2212	200xZ	0,090	2034	180xZ	0,091	1858	170xZ	0,090	1680	150xZ	0,090	1504	135xZ	0,090	1327	120xZ	0,089	1150	100xZ	0,091	973	90xZ
20	2,0	2,0	0,100	1990	200xZ	0,100	1831	180xZ	0,110	1672	170xZ	0,100	1512	150xZ	0,100	1354	135xZ	0,100	1194	120xZ	0,100	1035	100xZ	0,110	876	90xZ

MOLDEX BALL NOSE <52 HRC



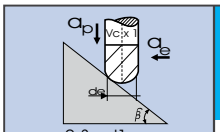
Solid carbide ball nose end mills - Moldex
VHM - Radiusfräser - Moldex
Fraises a rayon carbure - Moldex
Karbür Küre Freze - Moldex





F	S	1000	R	2	M	14	A	50	N	072
END MILL	MG-10	d1	DIN 6528		TOOLEX		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	CNC R	Coated Code
4	6	3,8	25	50	4	2	2	1,986	FS0400R2M06A20N050
5	7	4,8	25	50	5	2	2,50	2,486	FS0500R2M07A25N050
6	8	5,7	28	57	6	2	3	2,986	FS0600R2M08A30N057
8	10	7,6	32	63	8	2	4	3,982	FS0800R2M10A40N063
10	14	9,5	36	72	10	2	5	4,982	FS1000R2M14A50N072
12	16	11,5	42	83	12	2	6	5,977	FS1200R2M16A60N083
14	18	13,5	42	83	14	2	7	6,977	FS1400R2M18A70N083
16	20	15,5	46	92	16	2	8	7,977	FS1600R2M20A80N092
18	22	17,5	46	92	18	2	9	8,977	FS1800R2M22A90N092
20	24	19,5	52	104	20	2	10	9,972	FS2000R2M24A10N104



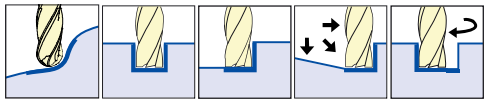
$a_p = 0{,}3 \times d1$

$de = d1 \times \cos\alpha$

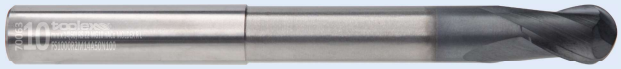
$\sin\alpha = \frac{d1 - 2 \times a_p}{d1}$

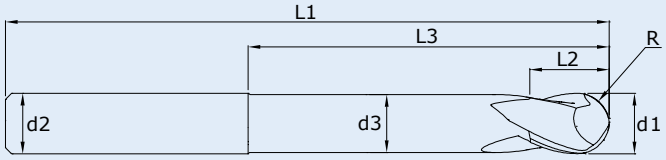
				HRC <20			HRC <25			HRC <30			HRC <35			HRC <40			HRC <45			HRC <50			HRC <52		
				1.7131-1.7139 1.7149-1.7262			1.4112 - 1.4116 1.4117 - 1.4125			1.7039 - 1.7225 1.7220 - 1.7226			1.5864 - 1.7707 1.6580 - 1.4542			1.7139 - 1.7262 1.7311 - 1.7323			1.8509 - 1.2713 1.2714 - 1.2718			1.2718 - 1.2726 1.2343 - 1.2344			1.2360 - 1.2782 1.2884 - 1.2365		
				Vc=150 m/dk.			Vc=140 m/dk.			Vc=130m/dk.			Vc=125 m/dk.			Vc=120m/dk.			Vc=110 m/dk.			Vc=100m/dk.			Vc=90 m/dk.		
d1	de	ap	β	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	3,67	1,2	18,5°	0,041	13016	540xZ	0,041	12149	500xZ	0,041	11280	460xZ	0,039	10847	420xZ	0,035	10413	360xZ	0,034	9545	320xZ	0,032	8678	280xZ	0,031	7810	240xZ
5	4,58	1,5	18,5°	0,052	10430	540xZ	0,051	9735	500xZ	0,051	9039	460xZ	0,048	8692	420xZ	0,043	8344	360xZ	0,042	7649	320xZ	0,040	6954	280xZ	0,038	6258	240xZ
6	5,50	1,8	18,5°	0,062	8685	540xZ	0,062	8106	500xZ	0,061	7527	460xZ	0,058	7238	420xZ	0,052	6948	360xZ	0,050	6369	320xZ	0,048	5791	280xZ	0,046	5211	240xZ
8	7,33	2,4	18,5°	0,083	6517	540xZ	0,082	6083	500xZ	0,081	5648	460xZ	0,077	5431	420xZ	0,069	5214	360xZ	0,067	4779	320xZ	0,064	4345	280xZ	0,061	3910	240xZ
10	9,16	3,0	18,5°	0,103	5215	540xZ	0,103	4867	500xZ	0,102	4520	460xZ	0,097	4346	420xZ	0,086	4172	360xZ	0,084	3824	320xZ	0,080	3477	280xZ	0,077	3129	240xZ
12	11,00	3,6	18,5°	0,124	4343	540xZ	0,123	4053	500xZ	0,122	3764	460xZ	0,116	3619	420xZ	0,103	3474	360xZ	0,100	3185	320xZ	0,097	2895	280xZ	0,092	2605	240xZ
14	12,83	4,2	18,5°	0,145	3723	540xZ	0,144	3475	500xZ	0,142	3227	460xZ	0,135	3103	420xZ	0,121	2978	360xZ	0,117	2730	320xZ	0,113	2482	280xZ	0,107	2234	240xZ
16	14,66	4,8	18,5°	0,166	3258	540xZ	0,164	3041	500xZ	0,163	2824	460xZ	0,155	2715	420xZ	0,138	2607	360xZ	0,134	2390	320xZ	0,129	2172	280xZ	0,123	1955	240xZ
18	16,50	5,4	18,5°	0,186	2895	540xZ	0,185	2702	500xZ	0,183	2509	460xZ	0,174	2413	420xZ	0,155	2316	360xZ	0,151	2123	320xZ	0,145	1930	280xZ	0,138	1737	240xZ
20	18,33	6,0	18,5°	0,207	2606	540xZ	0,205	2432	500xZ	0,203	2258	460xZ	0,193	2172	420xZ	0,173	2085	360xZ	0,167	1911	320xZ	0,161	1738	280xZ	0,153	1564	240xZ

MOLDEX LONG BALL NOSE 52 HRC



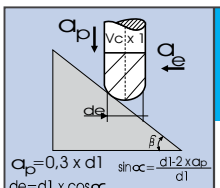
Solid carbide ball nose end mills - Moldex Long
VHM - Radiusfräser - Moldex Lang
Fraises a rayon carbure - Moldex Longue
Karbür Küre Freze - Moldex Uzun





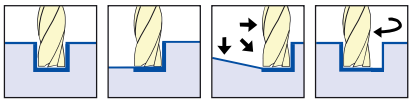
F	S	1000	R	2	M	14	A	50	N	100
END MILL	MG-10	d1	TOOLEX		TOOLEX		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	CNC R	Coated Code
4	6	3,8	48	65	4	2	2	1,986	FS0400R2M06A20N065
5	7	4,8	48	80	5	2	2,5	2,486	FS0500R2M07A25N080
6	8	5,7	48	80	6	2	3	2,986	FS0600R2M08A30N080
8	10	7,6	54	88	8	2	4	3,982	FS0800R2M10A40N088
4	6	3,8	60	100	4	2	2	1,986	FS0400R2M06A20N100
5	7	4,8	60	100	5	2	2,5	2,486	FS0500R2M07A25N100
6	8	5,7	60	100	6	2	3	2,986	FS0600R2M08A30N100
8	10	7,6	60	100	8	2	4	3,982	FS0800R2M10A40N100
10	14	9,5	60	100	10	2	5	4,982	FS1000R2M14A50N100
12	16	11,5	60	100	12	2	6	5,977	FS1200R2M16A60N100
14	18	13,5	60	100	14	2	7	6,977	FS1400R2M18A70N100
16	20	15,5	60	100	16	2	8	7,977	FS1600R2M20A80N100
18	22	17,5	60	100	18	2	9	8,977	FS1800R2M22A90N100
10	14	9,5	120	165	10	2	5	4,982	FS1000R2M14A50N165
12	16	11,5	120	165	12	2	6	5,977	FS1200R2M16A60N165
14	18	13,5	120	165	14	2	7	6,977	FS1400R2M18A70N165
16	20	15,5	120	165	16	2	8	7,977	FS1600R2M20A80N165
18	22	17,5	120	165	18	2	9	8,977	FS1800R2M22A90N165
20	24	19,5	120	165	20	2	10	9,972	FS2000R2M24A10N165

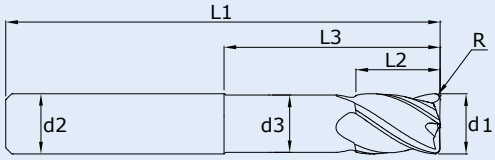


				HRC <20			HRC <25			HRC <30			HRC <35			HRC <40			HRC <45			HRC <50			HRC <52		
				1.7131-1.7139 1.7149-1.7262			1.4112 - 1.4116 1.4117 - 1.4125			1.7039 - 1.7225 1.7220 - 1.7226			1.5864 - 1.7707 1.6580 - 1.4542			1.7139 - 1.7262 1.7311 - 1.7323			1.8509 - 1.2713 1.2714 - 1.2718			1.2718 - 1.2726 1.2343 - 1.2344			1.2360 - 1.2782 1.2884 - 1.2365		
				Vc=130 m/dk.			Vc=120 m/dk.			Vc=110m/dk.			Vc=100 m/dk.			Vc=95 m/dk.			Vc=90m/dk.			Vc=85 m/dk.			Vc=80 m/dk.		
d1	de	ap	β	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	3,67	1,2	18,5°	0,040	11280	450xZ	0,039	10413	410xZ	0,039	9545	370xZ	0,038	8678	330xZ	0,035	8244	290xZ	0,032	7810	250xZ	0,028	7376	210xZ	0,024	6942	170xZ
5	4,58	1,5	18,5°	0,050	9039	450xZ	0,049	8344	410xZ	0,048	7649	370xZ	0,047	6954	330xZ	0,044	6606	290xZ	0,040	6258	250xZ	0,035	5910	210xZ	0,031	5563	170xZ
6	5,50	1,8	18,5°	0,060	7527	450xZ	0,059	6948	410xZ	0,058	6369	370xZ	0,057	5791	330xZ	0,053	5500	290xZ	0,048	5211	250xZ	0,043	4922	210xZ	0,037	4632	170xZ
8	7,33	2,4	18,5°	0,080	5648	450xZ	0,078	5214	410xZ	0,077	4779	370xZ	0,076	4345	330xZ	0,070	4127	290xZ	0,064	3910	250xZ	0,057	3693	210xZ	0,049	3476	170xZ
10	9,16	3,0	18,5°	0,100	4520	450xZ	0,098	4172	410xZ	0,098	3824	370xZ	0,095	3477	330xZ	0,088	3303	290xZ	0,080	3129	250xZ	0,071	2955	210xZ	0,061	2781	170xZ
12	11,00	3,6	18,5°	0,120	3764	450xZ	0,118	3474	410xZ	0,116	3185	370xZ	0,114	2895	330xZ	0,105	2750	290xZ	0,096	2605	250xZ	0,085	2461	210xZ	0,073	2316	170xZ
14	12,83	4,2	18,5°	0,140	3227	450xZ	0,138	2978	410xZ	0,135	2730	370xZ	0,133	2482	330xZ	0,123	2358	290xZ	0,112	2234	250xZ	0,100	2110	210xZ	0,086	1986	170xZ
16	14,66	4,8	18,5°	0,160	2824	450xZ	0,157	2607	410xZ	0,155	2390	370xZ	0,152	2172	330xZ	0,140	2064	290xZ	0,128	1955	250xZ	0,114	1846	210xZ	0,100	1738	170xZ
18	16,50	5,4	18,5°	0,180	2509	450xZ	0,177	2316	410xZ	0,174	2123	370xZ	0,171	1930	330xZ	0,158	1834	290xZ	0,144	1737	250xZ	0,128	1641	210xZ	0,110	1544	170xZ
20	18,33	6,0	18,5°	0,200	2258	450xZ	0,197	2085	410xZ	0,194	1911	370xZ	0,190	1738	330xZ	0,176	1650	290xZ	0,160	1564	250xZ	0,142	1477	210xZ	0,122	1390	170xZ

MOLDEX CORNER - R <52 HRC

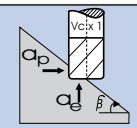


Solid carbide end mills with corner radius - Moldex
VHM - Schaftfräser mit Eckenradius - Moldex
Fraises toriques carbure - Moldex
Karbür Köşe Radyüslü Freze - Moldex



F	S	1000	K	4	M	14	H	20	N	072
END MILL	MG-10	d1	TOOLEX		TOOLEX		35	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	Coated Code
4	6	3,8	25	50	4	4	0.5	FS0400K4M06H05N050
5	7	4,8	25	50	5	4	0.5	FS0500K4M07H05N050
6	8	5,7	28	57	6	4	0.5	FS0600K4M08H05N057
6	8	5,7	28	57	6	4	1.0	FS0600K4M08H10N057
8	10	7,6	32	63	8	4	0.5	FS0800K4M10H05N063
8	10	7,6	32	63	8	4	1.0	FS0800K4M10H10N063
8	10	7,6	32	63	8	4	1.5	FS0800K4M10H15N063
8	10	7,6	32	63	8	4	2.0	FS0800K4M10H20N063
10	14	9,5	36	72	10	4	0.5	FS1000K4M14H05N072
10	14	9,5	36	72	10	4	1.0	FS1000K4M14H10N072
10	14	9,5	36	72	10	4	1.5	FS1000K4M14H15N072
10	14	9,5	36	72	10	4	2.0	FS1000K4M14H20N072
12	16	11,5	42	83	12	4	0.5	FS1200K4M16H05N083
12	16	11,5	42	83	12	4	1.0	FS1200K4M16H10N083
12	16	11,5	42	83	12	4	1.5	FS1200K4M16H15N083
12	16	11,5	42	83	12	4	2.0	FS1200K4M16H20N083
14	18	13,5	42	83	14	4	0.5	FS1400K4M18H05N083
14	18	13,5	42	83	14	4	1,0	FS1400K4M18H10N083
14	18	13,5	42	83	14	4	1.5	FS1400K4M18H15N083
14	18	13,5	42	83	14	4	2,0	FS1400K4M18H20N083
16	20	15,5	46	92	16	4	0.5	FS1600K4M20H05N092
16	20	15,5	46	92	16	4	1.0	FS1600K4M20H10N092
16	20	15,5	46	92	16	4	1.5	FS1600K4M20H15N092
16	20	15,5	46	92	16	4	2.0	FS1600K4M20H20N092

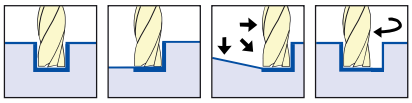


$a_p = 0{,}1 \times d1$

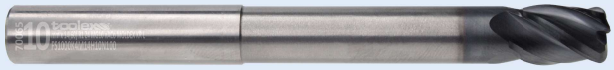
$a_e = \frac{a_p}{tg\ \beta}$

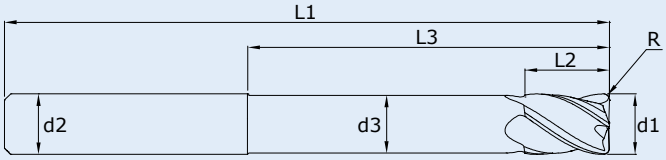
				HRC <20			HRC <25			HRC <30			HRC <35			HRC <40			HRC <45			HRC <50			HRC <52		
				1.7131-1.7139 1.7149-1.7262			1.4112 - 1.4116 1.4117 - 1.4125			1.7039 - 1.7225 1.7220 - 1.7226			1.5864 - 1.7707 1.6580 - 1.4542			1.7139 - 1.7262 1.7311 - 1.7323			1.8509 - 1.2713 1.2714 - 1.2718			1.2718 - 1.2726 1.2343 - 1.2344			1.2360 - 1.2782 1.2884 - 1.2365		
				Vc=150 m/dk.			Vc=140 m/dk.			Vc=135 m/dk.			Vc=125m/dk.			Vc=120m/dk.			Vc=115 m/dk.			Vc=105m/dk.			Vc=100 m/dk.		
d1	β	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	30°	0,4	0,693	0,050	11942	600xZ	0,052	11146	580xZ	0,052	10750	560xZ	0,054	9952	540xZ	0,054	9554	520xZ	0,055	9156	500xZ	0,057	8360	480xZ	0,058	7962	460xZ
5	30°	0,5	0,866	0,063	9554	600xZ	0,065	8917	580xZ	0,065	8600	560xZ	0,068	7962	540xZ	0,068	7643	520xZ	0,068	7325	500xZ	0,072	6688	480xZ	0,072	6370	460xZ
6	30°	0,6	1,039	0,075	7962	600xZ	0,078	7431	580xZ	0,078	7167	560xZ	0,081	6635	540xZ	0,081	6369	520xZ	0,082	6104	500xZ	0,086	5573	480xZ	0,086	5308	460xZ
8	30°	0,8	1,386	0,100	5971	600xZ	0,104	5573	580xZ	0,104	5375	560xZ	0,108	4976	540xZ	0,108	4777	520xZ	0,109	4578	500xZ	0,115	4180	480xZ	0,115	3981	460xZ
10	30°	1,0	1,732	0,125	4777	600xZ	0,130	4459	580xZ	0,130	4300	560xZ	0,135	3981	540xZ	0,135	3822	520xZ	0,136	3662	500xZ	0,144	3344	480xZ	0,144	3185	460xZ
12	30°	1,2	2,078	0,151	3981	600xZ	0,156	3715	580xZ	0,156	3583	560xZ	0,163	3317	540xZ	0,163	3185	520xZ	0,163	3052	500xZ	0,172	2787	480xZ	0,172	2654	460xZ
14	30°	1,4	2,425	0,176	3412	600xZ	0,182	3185	580xZ	0,182	3071	560xZ	0,190	2843	540xZ	0,190	2730	520xZ	0,190	2616	500xZ	0,201	2388	480xZ	0,201	2275	460xZ
16	30°	1,6	2,771	0,200	2986	600xZ	0,208	2787	580xZ	0,208	2687	560xZ	0,217	2488	540xZ	0,217	2388	520xZ	0,218	2289	500xZ	0,230	2090	480xZ	0,230	1990	460xZ
18	30°	1,8	3,118	0,226	2654	600xZ	0,234	2477	580xZ	0,234	2389	560xZ	0,243	2212	540xZ	0,243	2123	520xZ	0,245	2035	500xZ	0,258	1858	480xZ	0,258	1770	460xZ
20	30°	2,0	3,464	0,251	2388	600xZ	0,260	2229	580xZ	0,260	2150	560xZ	0,271	1990	540xZ	0,271	1911	520xZ	0,272	1831	500xZ	0,287	1672	480xZ	0,287	1592	460xZ

MOLDEX LONG CORNER - R <52 HRC



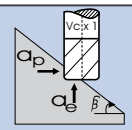
Solid carbide end mills with corner radius - Moldex Long
VHM - Schaftfräser mit Eckenradius - Moldex Lang
Fraises toriques carbure - Moldex Longue
Karbür Köşe Radyüslü Freze - Moldex Uzun





F	S	1000	K	4	M	14	H	20	N	100
END MILL	MG-10	d1	TOOLEX		TOOLEX		35	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	Coated Code
4	6	3,8	32	65	4	4	0,5	FS0400K4M06H05N065
5	7	4,8	32	80	5	4	0,5	FS0500K4M07H05N080
6	8	5,7	34	80	6	4	0,5	FS0600K4M08H05N080
6	8	5,7	34	80	6	4	1,0	FS0600K4M08H10N080
8	10	7,6	44	88	8	4	0,5	FS0800K4M10H05N088
8	10	7,6	44	88	8	4	1,0	FS0800K4M10H10N088
8	10	7,6	44	88	8	4	1,5	FS0800K4M10H15N088
8	10	7,6	44	88	8	4	2,0	FS0800K4M10H20N088
10	14	9,5	60	100	10	4	0,5	FS1000K4M14H05N100
10	14	9,5	60	100	10	4	1,0	FS1000K4M14H10N100
10	14	9,5	60	100	10	4	1,5	FS1000K4M14H15N100
10	14	9,5	60	100	10	4	2,0	FS1000K4M14H20N100
12	16	11,5	70	110	12	4	0,5	FS1200K4M16H05N110
12	16	11,5	70	110	12	4	1,0	FS1200K4M16H10N110
12	16	11,5	70	110	12	4	1,5	FS1200K4M16H15N110
12	16	11,5	70	110	12	4	2,0	FS1200K4M16H20N110
14	18	13,5	70	110	14	4	0,5	FS1400K4M18H05N110
14	18	13,5	70	110	14	4	1,0	FS1400K4M18H10N110
14	18	13,5	70	110	14	4	1,5	FS1400K4M18H15N110
14	18	13,5	70	110	14	4	2,0	FS1400K4M18H20N110
16	20	15,5	70	110	16	4	0,5	FS1600K4M20H05N110
16	20	15,5	70	110	16	4	1,0	FS1600K4M20H10N110
16	20	15,5	70	110	16	4	1,5	FS1600K4M20H15N110
16	20	15,5	70	110	16	4	2,0	FS1600K4M20H20N110

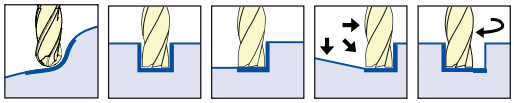


$a_p = 0{,}1 \times d1$

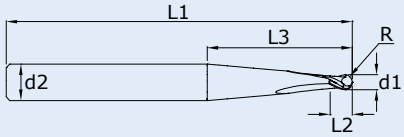
$a_e = \frac{a_p}{tg\ \beta}$

				HRC <20			HRC <25			HRC <30			HRC <35			HRC <40			HRC <45			HRC <50			HRC <52		
				1.7131-1.7139 1.7149-1.7262			1.4112 - 1.4116 1.4117 - 1.4125			1.7039 - 1.7225 1.7220 - 1.7226			1.5864 - 1.7707 1.6580 - 1.4542			1.7139 - 1.7262 1.7311 - 1.7323			1.8509 - 1.2713 1.2714 - 1.2718			1.2718 - 1.2726 1.2343 - 1.2344			1.2360 - 1.2782 1.2884 - 1.2365		
				Vc=130 m/dk.			Vc=125m/dk.			Vc=120m/dk.			Vc=115 m/dk.			Vc=110 m/dk.			Vc=100 m/dk.			Vc=95 m/dk.			Vc=90 m/dk.		
d1	β	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	30°	0,4	0,693	0,052	10350	540xZ	0,053	9952	525xZ	0,053	9554	510xZ	0,055	9156	500xZ	0,055	8757	485xZ	0,059	7962	470xZ	0,060	7562	455xZ	0,061	7165	440xZ
5	30°	0,5	0,866	0,065	8280	540xZ	0,066	7962	525xZ	0,067	7643	510xZ	0,068	7325	500xZ	0,069	7006	485xZ	0,074	6370	470xZ	0,075	6050	455xZ	0,077	5732	440xZ
6	30°	0,6	1,039	0,078	6900	540xZ	0,079	6635	525xZ	0,080	6369	510xZ	0,082	6104	500xZ	0,083	5838	485xZ	0,088	5308	470xZ	0,080	5042	455xZ	0,092	4777	440xZ
8	30°	0,8	1,386	0,104	5175	540xZ	0,105	4976	525xZ	0,107	4777	510xZ	0,109	4578	500xZ	0,110	4379	485xZ	0,118	3981	470xZ	0,110	3781	455xZ	0,123	3582	440xZ
10	30°	1,0	1,732	0,130	4140	540xZ	0,132	3981	525xZ	0,133	3822	510xZ	0,136	3662	500xZ	0,138	3503	485xZ	0,147	3185	470xZ	0,130	3025	455xZ	0,153	2866	440xZ
12	30°	1,2	2,078	0,156	3450	540xZ	0,158	3317	525xZ	0,160	3185	510xZ	0,164	3052	500xZ	0,166	2919	485xZ	0,177	2654	470xZ	0,150	2521	455xZ	0,184	2388	440xZ
14	30°	1,4	2,425	0,183	2957	540xZ	0,185	2844	525xZ	0,187	2730	510xZ	0,191	2616	500xZ	0,194	2502	485xZ	0,206	2275	470xZ	0,160	2161	455xZ	0,215	2047	440xZ
16	30°	1,6	2,771	0,208	2587	540xZ	0,211	2488	525xZ	0,214	2388	510xZ	0,218	2289	500xZ	0,222	2189	485xZ	0,236	1990	470xZ	0,180	1891	455xZ	0,245	1791	440xZ
18	30°	1,8	3,118	0,235	2300	540xZ	0,237	2217	525xZ	0,240	2123	510xZ	0,246	2035	500xZ	0,249	1946	485xZ	0,265	1770	470xZ	0,180	1680	455xZ	0,276	1592	440xZ
20	30°	2,0	3,464	0,260	2070	540xZ	0,264	1990	525xZ	0,267	1911	510xZ	0,273	1831	500xZ	0,275	1751	485xZ	0,295	1592	470xZ	0,200	1512	455xZ	0,307	1433	440xZ

POWER - R BALL NOSE <52 HRC

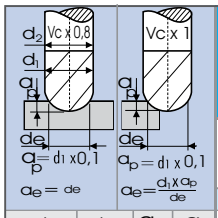


Solid carbide ball nose end mills - Performance Long
VHM - Radiusfräser - Performance Lang
Fraises a rayon carbure - Performance longue
Karbür Küre Freze - Performance Uzun



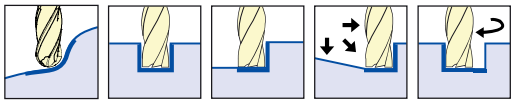
F	S	1000	R	2	N	12	A	50	N	100
END MILL	MG-10	d1	TOOLEX		TOOLEX		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L3	L1	d2(h6)	Z	R	Coated Code
0,50	0,80	4	57	4	2	0,25	FS0050R2N00A02N057
1,00	1,50	12	57	4	2	0,50	FS0100R2N01A05N057
1,50	2,30	12	57	4	2	0,75	FS0150R2N02A07N057
2,00	3,00	12	57	4	2	1,00	FS0200R2N02A10N057
2,50	3,80	12	57	4	2	1,25	FS0250R2N03A12N057
3,00	4,50	12	57	6	2	1,50	FS0300R2N03A15N057
3,50	5,30	12	57	6	2	1,75	FS0350R2N04A17N057
4,00	6,00	12	57	6	2	2,00	FS0400R2N04A20N057
0,50	0,80	8	80	4	2	0,25	FS0050R2N00A02N080
1,00	1,50	20	80	4	2	0,50	FS0100R2N01A05N080
1,50	2,30	20	80	4	2	0,75	FS0150R2N02A07N080
2,00	3,00	20	80	4	2	1,00	FS0200R2N02A10N080
2,50	3,80	20	80	4	2	1,25	FS0250R2N03A12N080
3,00	4,50	20	80	6	2	1,50	FS0300R2N03A15N080
3,50	5,30	20	80	6	2	1,75	FS0350R2N04A17N080
4,00	6,00	20	80	6	2	2,00	FS0400R2N04A20N080
3,00	4,00	52	100	6	2	1,50	FS0300R2N04A15N100
4,00	5,00	52	100	6	2	2,00	FS0400R2N05A20N100
5,00	6,00	52	100	6	2	2,50	FS0500R2N06A25N100
6,00	8,00	52	100	8	2	3,00	FS0600R2N08A30N100
8,00	10,00	48	100	10	2	4,00	FS0800R2N10A40N100
10,00	12,00	43	100	12	2	5,00	FS1000R2N12A50N100
12,00	16,00	63	123	14	2	6,00	FS1200R2N16A60N123
16,00	18,00	80	140	18	2	8,00	FS1600R2N18A80N140

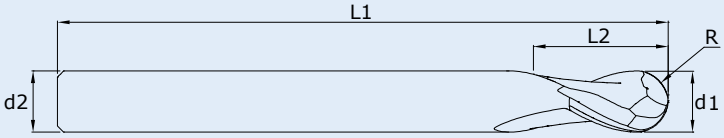


				HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
				1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
				Vc=160m/dk.			Vc=140 m/dk.			Vc=90 m/dk.			Vc=240 m/dk.			Vc=480m/dk.			Vc=300 m/dk.			Vc=90m/dk.			Vc=90m/dk.		
d1	de	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
3	1,8	0,3	0,50	0,026	28308	750xZ	0,026	24770	650xZ	0,028	15923	450xZ	0,035	42463	1500xZ	0,050	60000	3000xZ	0,038	53000	2000xZ	0,025	15923	400xZ	0,026	15923	420xZ
4	2,8	0,4	0,55	0,042	17693	750xZ	0,042	15481	650xZ	0,045	9951	450xZ	0,057	26539	1500xZ	0,056	53078	3000xZ	0,060	33170	2000xZ	0,040	9952	400xZ	0,042	9951	420xZ
5	3,0	0,5	0,83	0,044	16985	750xZ	0,044	14862	650xZ	0,047	9554	450xZ	0,059	25478	1500xZ	0,059	50955	3000xZ	0,063	31845	2000xZ	0,042	9554	400xZ	0,044	9554	420xZ
6	3,6	0,6	1,00	0,053	14154	750xZ	0,053	12385	650xZ	0,056	7962	450xZ	0,071	21231	1500xZ	0,071	42463	3000xZ	0,075	26535	2000xZ	0,050	7962	400xZ	0,053	7962	420xZ
8	4,8	0,8	1,33	0,071	10616	750xZ	0,070	9288	650xZ	0,075	5971	450xZ	0,094	15923	1500xZ	0,094	31847	3000xZ	0,101	19900	2000xZ	0,067	5971	400xZ	0,070	5971	420xZ
10	6,0	1,0	1,66	0,088	8492	750xZ	0,088	7431	650xZ	0,094	4777	450xZ	0,118	12739	1500xZ	0,118	25478	3000xZ	0,126	15923	2000xZ	0,084	4777	400xZ	0,088	4777	420xZ
12	7,2	1,2	2,00	0,106	7077	750xZ	0,105	6192	650xZ	0,113	3981	450xZ	0,141	10616	1500xZ	0,141	21231	3000xZ	0,151	13270	2000xZ	0,101	3981	400xZ	0,106	3981	420xZ
14	8,4	1,4	2,33	0,124	6066	750xZ	0,120	5308	650xZ	0,132	3412	450xZ	0,165	9099	1500xZ	0,165	18198	3000xZ	0,176	11370	2000xZ	0,117	3412	400xZ	0,123	3412	420xZ
16	9,6	1,6	2,66	0,141	5308	750xZ	0,140	4644	650xZ	0,151	2986	450xZ	0,188	7962	1500xZ	0,180	15923	3000xZ	0,201	9952	2000xZ	0,134	2986	400xZ	0,141	2986	420xZ

BALL NOSE <52 HRC

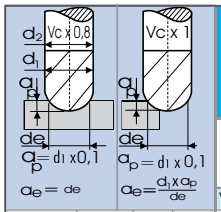


Solid carbide ball nose end mills - Long
VHM - Radiusfräser - Lange
Fraises a rayon carbure - Longue
Karbür Küre Freze - Uzun



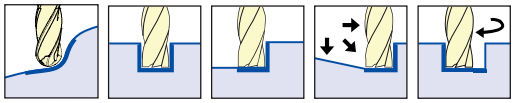
F	E	1000	R	2	C	15	A	50	N	072
END MILL	MG-10	d1	DIN 6528		DIN 6535 HA		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	Coated Code
3	6	40	3	2	1,5	FE0300R2C06A15N040
4	8	50	4	2	2,0	FE0400R2C08A20N050
5	10	50	5	2	2,5	FE0500R2C10A25N050
6	12	57	6	2	3,0	FE0600R2C12A30N057
8	14	63	8	2	4,0	FE0800R2C14A40N063
10	16	72	10	2	5,0	FE1000R2C16A50N072
12	18	83	12	2	6,0	FE1200R2C18A60N083
14	19	83	14	2	7,0	FE1400R2C19A70N083
16	20	92	16	2	8,0	FE1600R2C20A80N092
18	22	92	18	2	9,0	FE1800R2C22A90N092
20	24	104	20	2	10,0	FE2000R2C24A10N104
3	6	65	3	2	1,5	FE0300R2C06A15N065
4	8	65	4	2	2,0	FE0400R2C08A20N065
5	10	80	5	2	2,5	FE0500R2C10A25N080
6	12	80	6	2	3,0	FE0600R2C12A30N080
8	14	88	8	2	4,0	FE0800R2C14A40N088
10	16	100	10	2	5,0	FE1000R2C16A50N100
12	18	100	12	2	6,0	FE1200R2C18A60N100
16	20	100	16	2	8,0	FE1600R2C20A80N100
3	6	100	3	2	1,5	FE0300R2C06A15N100
4	8	100	4	2	2,0	FE0400R2C08A20N100
5	10	100	5	2	2,5	FE0500R2C10A25N100
6	12	100	6	2	3,0	FE0600R2C12A30N100
8	14	100	8	2	4,0	FE0800R2C14A40N100
10	16	130	10	2	5,0	FE1000R2C16A50N130
12	18	130	12	2	6,0	FE1200R2C18A60N130
14	19	130	14	2	7,0	FE1400R2C19A70N130
16	20	130	16	2	8,0	FE1600R2C20A80N130

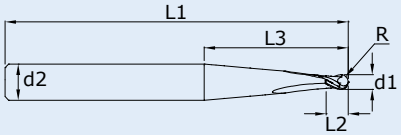


				HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
				1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
				Vc=160m/dk.			Vc=140 m/dk.			Vc=90 m/dk.			Vc=240 m/dk.			Vc=480m/dk.			Vc=300 m/dk.			Vc=90m/dk.			Vc=90m/dk.		
d1	de	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
3	1,8	0,3	0,50	0,026	28308	750xZ	0,026	24770	650xZ	0,028	15923	450xZ	0,035	42463	1500xZ	0,050	60000	3000xZ	0,038	53000	2000xZ	0,025	15923	400xZ	0,026	15923	420xZ
4	2,8	0,4	0,55	0,042	17693	750xZ	0,042	15481	650xZ	0,045	9951	450xZ	0,057	26539	1500xZ	0,056	53078	3000xZ	0,060	33170	2000xZ	0,040	9952	400xZ	0,042	9951	420xZ
5	3,0	0,5	0,83	0,044	16985	750xZ	0,044	14862	650xZ	0,047	9554	450xZ	0,059	25478	1500xZ	0,059	50955	3000xZ	0,063	31845	2000xZ	0,042	9554	400xZ	0,044	9554	420xZ
6	3,6	0,6	1,00	0,053	14154	750xZ	0,053	12385	650xZ	0,056	7962	450xZ	0,071	21231	1500xZ	0,071	42463	3000xZ	0,075	26535	2000xZ	0,050	7962	400xZ	0,053	7962	420xZ
8	4,8	0,8	1,33	0,071	10616	750xZ	0,070	9288	650xZ	0,075	5971	450xZ	0,094	15923	1500xZ	0,094	31847	3000xZ	0,101	19900	2000xZ	0,067	5971	400xZ	0,070	5971	420xZ
10	6,0	1,0	1,66	0,088	8492	750xZ	0,088	7431	650xZ	0,094	4777	450xZ	0,118	12739	1500xZ	0,118	25478	3000xZ	0,126	15923	2000xZ	0,084	4777	400xZ	0,088	4777	420xZ
12	7,2	1,2	2,00	0,106	7077	750xZ	0,105	6192	650xZ	0,113	3981	450xZ	0,141	10616	1500xZ	0,141	21231	3000xZ	0,151	13270	2000xZ	0,101	3981	400xZ	0,106	3981	420xZ
14	8,4	1,4	2,33	0,124	6066	750xZ	0,120	5308	650xZ	0,132	3412	450xZ	0,165	9099	1500xZ	0,165	18198	3000xZ	0,176	11370	2000xZ	0,117	3412	400xZ	0,123	3412	420xZ
16	9,6	1,6	2,66	0,141	5308	750xZ	0,140	4644	650xZ	0,151	2986	450xZ	0,188	7962	1500xZ	0,180	15923	3000xZ	0,201	9952	2000xZ	0,134	2986	400xZ	0,141	2986	420xZ

HARD POWER - R 52 - 68 HRC

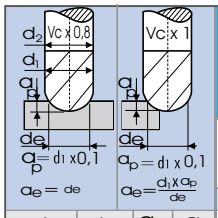


Solid carbide ball nose end mills - Performance Long Hard
VHM - Radiusfräser - Performance Lang Hart
Fraises a rayon carbure - Performance longue Dure
Karbür Küre Freze - Performance Uzun Sert



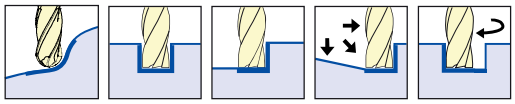
F	H	1000	R	2	N	12	A	50	N	100
END MILL	MG-08	d1	DIN 6528		TOOLEX		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L3	L1	d2(h6)	Z	R	Coated Code
0,50	0,80	4	57	6	2	0,25	FH0050R2N00A02N057
1,00	1,50	12	57	6	2	0,50	FH0100R2N01A05N057
1,50	2,30	12	57	6	2	0,75	FH0150R2N02A07N057
2,00	3,00	12	57	6	2	1,00	FH0200R2N02A10N057
2,50	3,80	12	57	6	2	1,25	FH0250R2N03A12N057
3,00	4,50	12	57	6	2	1,50	FH0300R2N03A15N057
3,50	5,30	12	57	6	2	1,75	FH0350R2N04A17N057
4,00	6,00	12	57	6	2	2,00	FH0400R2N04A20N057
0,50	0,80	8	80	6	2	0,25	FH0050R2N00A02N080
1,00	1,50	20	80	6	2	0,50	FH0100R2N01A05N080
1,50	2,30	20	80	6	2	0,75	FH0150R2N02A07N080
2,00	3,00	20	80	6	2	1,00	FH0200R2N02A10N080
2,50	3,80	20	80	6	2	1,25	FH0250R2N03A12N080
3,00	4,50	20	80	6	2	1,50	FH0300R2N03A15N080
3,50	5,30	20	80	6	2	1,75	FH0350R2N04A17N080
4,00	6,00	20	80	6	2	2,00	FH0400R2N04A20N080
3,00	4,00	52	100	6	2	1,50	FH0300R2N04A15N100
4,00	5,00	52	100	6	2	2,00	FH0400R2N05A20N100
5,00	6,00	52	100	6	2	2,50	FH0500R2N06A25N100
6,00	8,00	52	100	8	2	3,00	FH0600R2N08A30N100
8,00	10,00	48	100	10	2	4,00	FH0800R2N10A40N100
10,00	12,00	43	100	12	2	5,00	FH1000R2N12A50N100
12,00	14,00	63	123	14	2	6,00	FH1200R2N14A40N123
16,00	18,00	80	140	18	2	8,00	FH1600R2N18A80N140

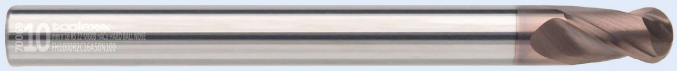


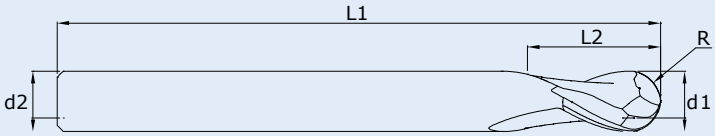
				HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
				1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
				Vc=160m/dk.			Vc=140 m/dk.			Vc=90 m/dk.			Vc=240 m/dk.			Vc=480m/dk.			Vc=300 m/dk.			Vc=90m/dk.			Vc=90m/dk.		
d1	de	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
3	1,8	0,3	0,50	0,026	28308	750xZ	0,026	24770	650xZ	0,028	15923	450xZ	0,035	42463	1500xZ	0,050	60000	3000xZ	0,038	53000	2000xZ	0,025	15923	400xZ	0,026	15923	420xZ
4	2,8	0,4	0,55	0,042	17693	750xZ	0,042	15481	650xZ	0,045	9951	450xZ	0,057	26539	1500xZ	0,056	53078	3000xZ	0,060	33170	2000xZ	0,040	9952	400xZ	0,042	9951	420xZ
5	3,0	0,5	0,83	0,044	16985	750xZ	0,044	14862	650xZ	0,047	9554	450xZ	0,059	25478	1500xZ	0,059	50955	3000xZ	0,063	31845	2000xZ	0,042	9554	400xZ	0,044	9554	420xZ
6	3,6	0,6	1,00	0,053	14154	750xZ	0,053	12385	650xZ	0,056	7962	450xZ	0,071	21231	1500xZ	0,071	42463	3000xZ	0,075	26535	2000xZ	0,050	7962	400xZ	0,053	7962	420xZ
8	4,8	0,8	1,33	0,071	10616	750xZ	0,070	9288	650xZ	0,075	5971	450xZ	0,094	15923	1500xZ	0,094	31847	3000xZ	0,101	19900	2000xZ	0,067	5971	400xZ	0,070	5971	420xZ
10	6,0	1,0	1,66	0,088	8492	750xZ	0,088	7431	650xZ	0,094	4777	450xZ	0,118	12739	1500xZ	0,118	25478	3000xZ	0,126	15923	2000xZ	0,084	4777	400xZ	0,088	4777	420xZ
12	7,2	1,2	2,00	0,106	7077	750xZ	0,105	6192	650xZ	0,113	3981	450xZ	0,141	10616	1500xZ	0,141	21231	3000xZ	0,151	13270	2000xZ	0,101	3981	400xZ	0,106	3981	420xZ
14	8,4	1,4	2,33	0,124	6066	750xZ	0,120	5308	650xZ	0,132	3412	450xZ	0,165	9099	1500xZ	0,165	18198	3000xZ	0,176	11370	2000xZ	0,117	3412	400xZ	0,123	3412	420xZ
16	9,6	1,6	2,66	0,141	5308	750xZ	0,140	4644	650xZ	0,151	2986	450xZ	0,188	7962	1500xZ	0,180	15923	3000xZ	0,201	9952	2000xZ	0,134	2986	400xZ	0,141	2986	420xZ

HARD BALL NOSE 52 - 68 HRC



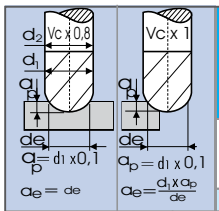
Solid carbide ball nose end mills - Long Hard
VHM - Radiusfräser - Lange Hart
Fraises a rayon carbure - Longue Dure
Karbür Küre Freze - Uzun Sert





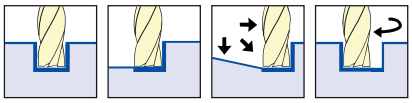
F	H	1000	R	2	C	16	A	50	N	100
END MILL	MG-08	d1	DIN 6528		DIN 6535 HA		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	Coated Code
3	6	40	3	2	1,5	FH0300R2C06A15N040
4	8	50	4	2	2,0	FH0400R2C08A20N050
5	10	50	5	2	2,5	FH0500R2C10A25N050
6	12	57	6	2	3,0	FH0600R2C12A30N057
8	14	63	8	2	4,0	FH0800R2C14A40N063
10	16	72	10	2	5,0	FH1000R2C16A50N072
12	18	83	12	2	6,0	FH1200R2C18A60N083
14	19	83	14	2	7,0	FH1400R2C19A70N083
16	20	92	16	2	8,0	FH1600R2C20A80N092
18	22	92	18	2	9,0	FH1800R2C22A90N092
20	24	104	20	2	10,0	FH2000R2C24A10N104
3	6	65	3	2	1,5	FH0300R2C06A15N065
4	8	65	4	2	2,0	FH0400R2C08A20N065
5	10	80	5	2	2,5	FH0500R2C10A25N080
6	12	80	6	2	3,0	FH0600R2C12A30N080
8	14	88	8	2	4,0	FH0800R2C14A40N088
10	16	100	10	2	5,0	FH1000R2C16A50N100
12	18	100	12	2	6,0	FH1200R2C18A60N100
16	20	100	16	2	8,0	FH1600R2C20A80N100
3	6	100	3	2	1,5	FH0300R2C06A15N100
4	8	100	4	2	2,0	FH0400R2C08A20N100
5	10	100	5	2	2,5	FH0500R2C10A25N100
6	12	100	6	2	3,0	FH0600R2C12A30N100
8	14	100	8	2	4,0	FH0800R2C14A40N100
10	16	130	10	2	5,0	FH1000R2C16A50N130
12	18	130	12	2	6,0	FH1200R2C18A60N130
14	19	130	14	2	7,0	FH1400R2C19A70N130
16	20	130	16	2	8,0	FH1600R2C20A80N130

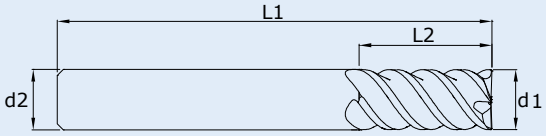


				HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
				1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
				Vc=160m/dk.			Vc=140 m/dk.			Vc=90 m/dk.			Vc=240 m/dk.			Vc=480m/dk.			Vc=300 m/dk.			Vc=90m/dk.			Vc=90m/dk.		
d1	de	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
3	1,8	0,3	0,50	0,026	28308	750xZ	0,026	24770	650xZ	0,028	15923	450xZ	0,035	42463	1500xZ	0,050	60000	3000xZ	0,038	53000	2000xZ	0,025	15923	400xZ	0,026	15923	420xZ
4	2,8	0,4	0,55	0,042	17693	750xZ	0,042	15481	650xZ	0,045	9951	450xZ	0,057	26539	1500xZ	0,056	53078	3000xZ	0,060	33170	2000xZ	0,040	9952	400xZ	0,042	9951	420xZ
5	3,0	0,5	0,83	0,044	16985	750xZ	0,044	14862	650xZ	0,047	9554	450xZ	0,059	25478	1500xZ	0,059	50955	3000xZ	0,063	31845	2000xZ	0,042	9554	400xZ	0,044	9554	420xZ
6	3,6	0,6	1,00	0,053	14154	750xZ	0,053	12385	650xZ	0,056	7962	450xZ	0,071	21231	1500xZ	0,071	42463	3000xZ	0,075	26535	2000xZ	0,050	7962	400xZ	0,053	7962	420xZ
8	4,8	0,8	1,33	0,071	10616	750xZ	0,070	9288	650xZ	0,075	5971	450xZ	0,094	15923	1500xZ	0,094	31847	3000xZ	0,101	19900	2000xZ	0,067	5971	400xZ	0,070	5971	420xZ
10	6,0	1,0	1,66	0,088	8492	750xZ	0,088	7431	650xZ	0,094	4777	450xZ	0,118	12739	1500xZ	0,118	25478	3000xZ	0,126	15923	2000xZ	0,084	4777	400xZ	0,088	4777	420xZ
12	7,2	1,2	2,00	0,106	7077	750xZ	0,105	6192	650xZ	0,113	3981	450xZ	0,141	10616	1500xZ	0,141	21231	3000xZ	0,151	13270	2000xZ	0,101	3981	400xZ	0,106	3981	420xZ
14	8,4	1,4	2,33	0,124	6066	750xZ	0,120	5308	650xZ	0,132	3412	450xZ	0,165	9099	1500xZ	0,165	18198	3000xZ	0,176	11370	2000xZ	0,117	3412	400xZ	0,123	3412	420xZ
16	9,6	1,6	2,66	0,141	5308	750xZ	0,140	4644	650xZ	0,151	2986	450xZ	0,188	7962	1500xZ	0,180	15923	3000xZ	0,201	9952	2000xZ	0,134	2986	400xZ	0,141	2986	420xZ

HARD 52-68 HRC

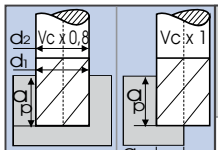


Solid carbide end mills - Hard
VHM - Schaftfräser - Hart
Fraises en bout carbure - Dure
Karbür Freze - Sert



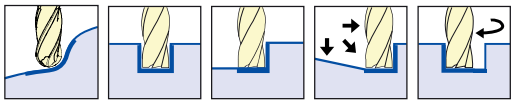
F	H	1000	G	4	C	22	E	01	N	072
END MILL	MG-08	d1	DIN 6528		DIN 6535 HA		55°	0.1x 45°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Coated Code
3	12	40	3	4	FH0300G4C12E01N040
4	11	50	4	4	FH0400G4C11E01N050
5	13	50	5	4	FH0500G4C13E01N050
6	13	57	6	4	FH0600G4C13E01N057
8	19	63	8	4	FH0800G4C19E01N063
10	22	72	10	4	FH1000G4C22E01N072
12	26	83	12	4	FH1200G4C26E01N083
14	26	83	14	4	FH1400G4C26E01N083
16	32	92	16	4	FH1600G4C32E01N092
18	32	92	18	4	FH1800G4C32E01N092
20	38	104	20	4	FH2000G4C38E01N104
25	45	121	25	4	FH2500G4C45E01N121
3	16	65	3	4	FH0300G4C16E01N065
4	18	65	4	4	FH0400G4C18E01N065
5	20	65	5	4	FH0500G4C20E01N065
6	24	68	6	4	FH0600G4C24E01N068
8	38	88	8	4	FH0800G4C38E01N088
10	45	100	10	4	FH1000G4C45E01N100
12	53	110	12	4	FH1200G4C53E01N110
14	53	110	14	4	FH1400G4C53E01N110
16	63	110	16	4	FH1600G4C63E01N110
20	75	141	20	4	FH2000G4C75E01N141
25	90	166	25	4	FH2500G4C90E01N166

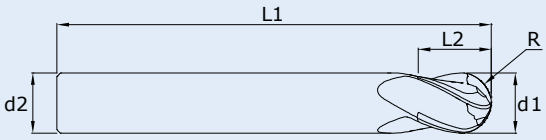


				HRC <50			HRC <53			HRC <56			HRC <59			HRC <61			HRC <63			HRC <65			HRC <68		
				1.5860-1.6587 1.6587-1.7326			1.1520 - 1.1525 1.1545 - 1.1820			1.2002 - 1.2003 1.2082 - 1.2344			1.1563 - 1.2004 1.2056 - 1.2057			1.2365 - 1.2379 1.2601 - 1.2622			1.3343 - 1.3344 1.3348 - 1.3355			1.3302 - 1.3318 1.3333 - 1.3334			1.2067 - 1.3343 1.3344 - 1.3355		
				Vc=200m/dk.			Vc=190m/dk.			Vc=180 m/dk.			Vc=170m/dk.			Vc=160m/dk.			Vc=150m/dk.			Vc=140m/dk.			Vc=130m/dk.		
d1	ap	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	0,04	0,32	0,04	0,025	15925	400xZ	0,022	15127	340xZ	0,019	14331	280xZ	0,016	13535	220xZ	0,013	12739	160xZ	0,010	11942	120xZ	0,007	11146	80xZ	0,003	13800	40xZ
5	0,05	0,40	0,05	0,031	12740	400xZ	0,028	12102	340xZ	0,024	11465	280xZ	0,020	10828	220xZ	0,016	10191	160xZ	0,012	9554	120xZ	0,009	8917	80xZ	0,004	10350	40xZ
6	0,06	0,48	0,06	0,038	10617	400xZ	0,034	10085	340xZ	0,029	9554	280xZ	0,023	9023	220xZ	0,019	8492	160xZ	0,015	7962	120xZ	0,011	7431	80xZ	0,005	8280	40xZ
8	0,08	0,64	0,08	0,050	7962	400xZ	0,045	7564	340xZ	0,039	7166	280xZ	0,033	6767	220xZ	0,025	6369	160xZ	0,020	5971	120xZ	0,014	5573	80xZ	0,006	6900	40xZ
10	0,10	0,80	0,10	0,060	6370	400xZ	0,056	6051	340xZ	0,049	5732	280xZ	0,041	5414	220xZ	0,031	5095	160xZ	0,025	4777	120xZ	0,018	4458	80xZ	0,008	5175	40xZ
12	0,12	0,96	0,12	0,075	5308	400xZ	0,067	5042	340xZ	0,058	4777	280xZ	0,048	4512	220xZ	0,038	4246	160xZ	0,030	3981	120xZ	0,022	3715	80xZ	0,010	4140	40xZ
14	0,14	1,12	0,14	0,088	4550	400xZ	0,078	4322	340xZ	0,068	4095	280xZ	0,057	3867	220xZ	0,044	3640	160xZ	0,035	3412	120xZ	0,025	3185	80xZ	0,012	3450	40xZ
16	0,16	1,28	0,16	0,010	3981	400xZ	0,090	3782	340xZ	0,078	3583	280xZ	0,065	3384	220xZ	0,050	3185	160xZ	0,040	2986	120xZ	0,029	2787	80xZ	0,013	2957	40xZ
18	0,18	1,44	0,18	0,011	3539	400xZ	0,101	3362	340xZ	0,088	3185	280xZ	0,073	3008	220xZ	0,056	2831	160xZ	0,045	2654	120xZ	0,032	2477	80xZ	0,015	2588	40xZ
20	0,20	1,60	0,20	0,125	3185	400xZ	0,112	3025	340xZ	0,098	2866	280xZ	0,081	2707	220xZ	0,063	2548	160xZ	0,050	2388	120xZ	0,036	2229	80xZ	0,019	2070	40xZ

HARD BALL NOSE 52 - 68 HRC

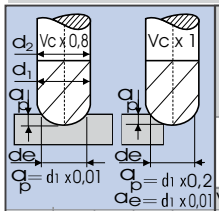


Solid carbide ball nose end mills - Hard
VHM - Radiusfräser - Hart
Fraises a rayon carbure - Dure
Karbür Küre Freze - Sert



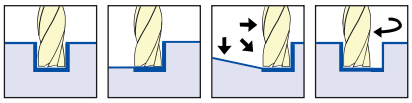
F	H	1000	R	4	C	11	A	50	N	072
END MILL	MG-08	d1	DIN 6528		DIN 6535 HA		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	Coated Code
3	6	40	3	4	1,5	FH0300R4C06A15N040
4	7	50	4	4	2,0	FH0400R4C07A20N050
5	8	50	5	4	2,5	FH0500R4C08A25N050
6	9	57	6	4	3,0	FH0600R4C09A30N057
8	10	63	8	4	4,0	FH0800R4C10A40N063
10	11	72	10	4	5,0	FH1000R4C11A50N072
12	12	83	12	4	6,0	FH1200R4C12A60N083
14	13	83	14	4	7,0	FH1400R4C13A70N083
16	14	92	16	4	8,0	FH1600R4C14A80N092
18	15	92	18	4	9,0	FH1800R4C15A90N092
20	16	104	20	4	10,0	FH2000R4C16A10N104
25	18	121	25	4	12,5	FH2500R4C18A13N121
3	8	65	3	4	1,5	FH0300R4C08A15N065
4	9	65	4	4	2,0	FH0400R4C09A20N065
5	10	65	5	4	2,5	FH0500R4C10A25N065
6	11	68	6	4	3,0	FH0600R4C11A30N068
8	12	88	8	4	4,0	FH0800R4C12A40N088
10	13	110	10	4	5,0	FH1000R4C13A50N110
12	14	110	12	4	6,0	FH1200R4C14A60N110
14	14	110	14	4	7,0	FH1400R4C14A70N110
16	15	110	16	4	8,0	FH1600R4C15A80N110
20	18	141	20	4	10,0	FH2000R4C18A10N141
25	20	166	25	4	12,5	FH2500R4C20A13N166

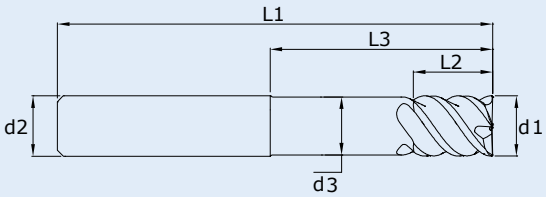


					HRC <50			HRC <53			HRC <56			HRC <59			HRC <61			HRC <63			HRC <65			HRC <68		
					1.5860-1.6587			1.1520 - 1.1525			1.2002 - 1.2003			1.1563 - 1.2004			1.2365 - 1.2379			1.3343 - 1.3344			1.3302 - 1.3318			1.2067 - 1.3343		
					1.6587-1.7326			1.1545 - 1.1820			1.2082 - 1.2344			1.2056 - 1.2057			1.2601 - 1.2622			1.3348 - 1.3355			1.3333 - 1.3334			1.3344 - 1.3355		
					Vc=220 m/dk.			Vc=210m/dk.			Vc=200m/dk.			Vc=190m/dk.			Vc=180m/dk.			Vc=170m/dk.			Vc=160 m/dk.			Vc=150 m/dk.		
d1	ap	ae	ap	de	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	0,04	0,04	0,8	3,2	0,021	21895	450xZ	0,019	20900	390xZ	0,016	19904	330xZ	0,014	18909	270xZ	0,012	17914	210xZ	0,010	16919	170xZ	0,006	15923	100xZ	0,003	14928	50xZ
5	0,05	0,05	1,0	4,0	0,026	17515	450xZ	0,023	16720	390xZ	0,021	15923	330xZ	0,018	15127	270xZ	0,015	14331	210xZ	0,013	13535	170xZ	0,008	12739	100xZ	0,004	11942	50xZ
6	0,06	0,06	1,2	4,8	0,031	14596	450xZ	0,028	13933	390xZ	0,025	13270	330xZ	0,021	12606	270xZ	0,017	11943	210xZ	0,015	11279	170xZ	0,009	10616	100xZ	0,005	9952	50xZ
8	0,08	0,08	1,6	6,4	0,041	10947	450xZ	0,037	10450	390xZ	0,033	9952	330xZ	0,028	9455	270xZ	0,023	8957	210xZ	0,020	8459	170xZ	0,012	7962	100xZ	0,007	7464	50xZ
10	0,10	0,10	2,0	8,0	0,051	8757	450xZ	0,047	8360	390xZ	0,041	7962	330xZ	0,035	7564	270xZ	0,029	7166	210xZ	0,025	6767	170xZ	0,016	6369	100xZ	0,008	5971	50xZ
12	0,12	0,12	2,4	9,6	0062	7298	450xZ	0,056	6966	390xZ	0,050	6635	330xZ	0,043	6303	270xZ	0,035	5971	210xZ	0,030	5640	170xZ	0,019	5308	100xZ	0,010	4976	50xZ
14	0,14	0,14	2,8	11,2	0,072	6255	450xZ	0,065	5971	390xZ	0,058	5687	330xZ	0,050	5403	270xZ	0,041	5118	210xZ	0,035	4834	170xZ	0,022	4550	100xZ	0,011	4265	50xZ
16	0,16	0,16	3,2	12,8	0,082	5473	450xZ	0,075	5225	390xZ	0,066	4976	330xZ	0,057	4727	270xZ	0,047	4478	210xZ	0,040	4230	170xZ	0,025	3981	100xZ	0,013	3732	50xZ
18	0,18	0,18	3,6	14,4	0,092	4865	450xZ	0,084	4644	390xZ	0,075	4423	330xZ	0,064	4202	270xZ	0,053	3981	210xZ	0,045	3760	170xZ	0,028	3539	100xZ	0,015	3317	50xZ
20	0,20	0,20	4,0	16,0	0,103	4379	450xZ	0,093	4180	390xZ	0,083	3981	330xZ	0,071	3782	270xZ	0,058	3583	210xZ	0,050	3384	170xZ	0,031	3185	100xZ	0,017	2986	50xZ

HARDMOLD 52 - 68 HRC

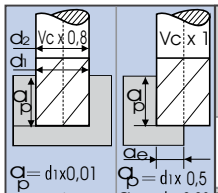


Solid carbide end mills - Hard Mold
VHM - Schaftfräser - Hart Mold
Fraises en bout carbure - Dure Mold
Karbür Freze - Sert Mold



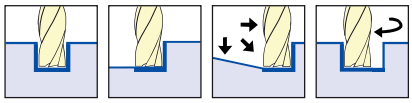
F	H	1000	G	4	M	14	E	01	N	072
END MILL	MG-08	d1	DIN 6528		TOOLEX		55°	0.1x 45°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	Coated Code
4	6	3,8	25	50	4	4	FH0400G4M06E01N050
5	7	4,8	25	50	5	4	FH0500G4M07E01N050
6	8	5,7	28	57	6	4	FH0600G4M08E01N057
8	10	7,6	32	63	8	4	FH0800G4M10E01N063
10	14	9,5	36	72	10	4	FH1000G4M14E01N072
12	16	11,5	42	83	12	4	FH1200G4M16E01N083
14	18	13,5	42	83	14	4	FH1400G4M18E01N083
16	20	15,5	46	92	16	4	FH1600G4M20E01N092
18	22	17,5	46	92	18	4	FH1800G4M22E01N092
20	24	19,5	52	104	20	4	FH2000G4M24E01N104

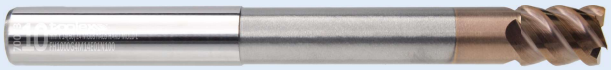


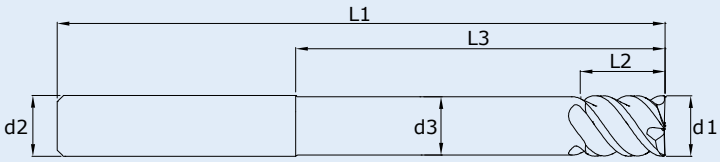
				HRC <50			HRC <53			HRC <56			HRC <59			HRC <61			HRC <63			HRC <65			HRC <68		
				1.5860-1.6587 1.6587-1.7326			1.1520 - 1.1525 1.1545 - 1.1820			1.2002 - 1.2003 1.2082 - 1.2344			1.1563 - 1.2004 1.2056 - 1.2057			1.2365 - 1.2379 1.2601 - 1.2622			1.3343 - 1.3344 1.3348 - 1.3355			1.3302 - 1.3318 1.3333 - 1.3334			1.2067 - 1.3343 1.3344 - 1.3355		
				Vc=200 m/dk.			Vc=190 m/dk.			Vc=180 m/dk.			Vc=170 m/dk.			Vc=160 m/dk.			Vc=150m/dk.			Vc=140 m/dk.			Vc=130 m/dk.		
d1	ap	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	0,04	0,08	2	0,044	15925	700xZ	0,040	15127	600xZ	0,035	14331	500xZ	0,030	13535	400xZ	0,024	12739	300xZ	0,017	11942	200xZ	0,009	11146	100xZ	0,006	13800	80xZ
5	0,05	0,10	2,5	0,055	12740	700xZ	0,050	12102	600xZ	0,044	11465	500xZ	0,037	10828	400xZ	0,030	10191	300xZ	0,021	9554	200xZ	0,011	8917	100xZ	0,008	10350	80xZ
6	0,06	0,12	3	0,066	10617	700xZ	0,060	10085	600xZ	0,052	9554	500xZ	0,044	9023	400xZ	0,035	8492	300xZ	0,025	7962	200xZ	0,013	7431	100xZ	0,010	8280	80xZ
8	0,08	0,16	4	0,088	7962	700xZ	0,080	7564	600xZ	0,070	7166	500xZ	0,059	6767	400xZ	0,047	6369	300xZ	0,033	5971	200xZ	0,018	5573	100xZ	0,012	6900	80xZ
10	0,10	0,20	5	0,110	6370	700xZ	0,100	6051	600xZ	0,087	5732	500xZ	0,074	5414	400xZ	0,059	5095	300xZ	0,042	4777	200xZ	0,022	4458	100xZ	0,015	5175	80xZ
12	0,12	0,24	6	0,132	5308	700xZ	0,120	5042	600xZ	0,105	4777	500xZ	0,089	4512	400xZ	0,071	4246	300xZ	0,050	3981	200xZ	0,027	3715	100xZ	0,019	4140	80xZ
14	0,14	0,28	7	0,154	4550	700xZ	0,139	4322	600xZ	0,122	4095	500xZ	0,103	3867	400xZ	0,082	3640	300xZ	0,059	3412	200xZ	0,031	3185	100xZ	0,023	3450	80xZ
16	0,16	0,32	8	0,176	3981	700xZ	0,159	3782	600xZ	0,140	3583	500xZ	0,118	3384	400xZ	0,094	3185	300xZ	0,067	2986	200xZ	0,036	2787	100xZ	0,027	2957	80xZ
18	0,18	0,36	9	0,198	3539	700xZ	0,178	3362	600xZ	0,157	3185	500xZ	0,133	3008	400xZ	0,106	2831	300xZ	0,075	2654	200xZ	0,040	2477	100xZ	0,031	2588	80xZ
20	0,20	0,40	10	0,220	3185	700xZ	0,198	3025	600xZ	0,175	2866	500xZ	0,148	2707	400xZ	0,118	2548	300xZ	0,084	2388	200xZ	0,045	2229	100xZ	0,039	2070	80xZ

HARDMOLD LONG 52 - 68 HRC



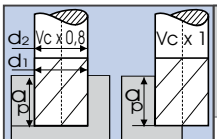
Solid carbide end mills - Hard Mold Long
VHM - Schaftfräser - Hart Mold Lang
Fraises en bout carbure - Dure Mold Longue
Karbür Freze -Sert Mold Uzun





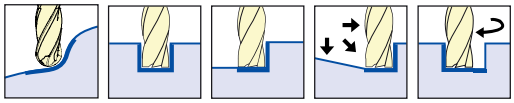
F	H	1000	G	4	M	14	E	01	N	100
END MILL	MG-08	d1	TOOLEX		TOOLEX		55°	0.1x 45°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	Coated Code
4	6	3,8	32	65	4	4	FH0400G4M06E01N065
5	7	4,8	40	80	5	4	FH0500G4M07E01N080
6	8	5,7	40	80	6	4	FH0600G4M08E01N080
8	10	7,6	44	88	8	4	FH0800G4M10E01N088
4	6	3,8	60	100	4	4	FH0400G4M06E01N100
5	7	4,8	60	100	5	4	FH0500G4M07E01N100
6	8	5,7	60	100	6	4	FH0600G4M08E01N100
8	10	7,6	60	100	8	4	FH0800G4M10E01N100
10	14	9,5	60	100	10	4	FH1000G4M14E01N100
12	16	11,5	60	100	12	4	FH1200G4M16E01N100
14	18	13,5	60	100	14	4	FH1400G4M18E01N100
16	20	15,5	60	100	16	4	FH1600G4M20E01N100
18	22	17,5	60	100	18	4	FH1800G4M22E01N100
10	14	9,5	120	165	10	4	FH1000G4M14E01N165
12	16	11,5	120	165	12	4	FH1200G4M16E01N165
14	18	13,5	120	165	14	4	FH1400G4M18E01N165
16	20	15,5	120	165	16	4	FH1600G4M20E01N165
18	22	17,5	120	165	18	4	FH1800G4M22E01N165
20	24	19,5	120	165	20	4	FH2000G4M24E01N165

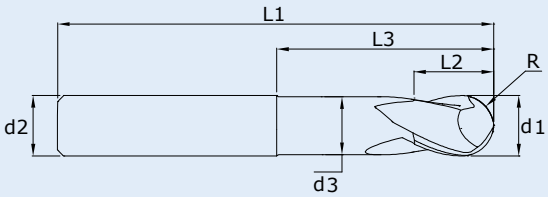


				HRC <50			HRC <53			HRC <56			HRC <59			HRC <61			HRC <63			HRC <65			HRC <68		
				1.5860-1.6587 1.6587-1.7326			1.1520 - 1.1525 1.1545 - 1.1820			1.2002 - 1.2003 1.2082 - 1.2344			1.1563 - 1.2004 1.2056 - 1.2057			1.2365 - 1.2379 1.2601 - 1.2622			1.3343 - 1.3344 1.3348 - 1.3355			1.3302 - 1.3318 1.3333 - 1.3334			1.2067 - 1.3343 1.3344 - 1.3355		
				Vc=160 m/dk.			Vc=150 m/dk.			Vc=140m/dk.			Vc=130 m/dk.			Vc=120 m/dk.			Vc=110 m/dk.			Vc=100m/dk.			Vc=90 m/dk.		
d1	ap	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	0,04	0,08	2	0,031	15923	500xZ	0,029	14928	440xZ	0,031	11146	350xZ	0,020	13800	270xZ	0,022	9554	210xZ	0,017	8757	150xZ	0,011	7962	90xZ	0,007	7165	50xZ
5	0,05	0,10	2,5	0,039	12739	500xZ	0,037	11942	440xZ	0,039	8917	350xZ	0,026	10350	270xZ	0,027	7643	210xZ	0,021	7006	150xZ	0,014	6370	90xZ	0,009	5732	50xZ
6	0,06	0,12	3	0,047	10616	500xZ	0,044	9952	440xZ	0,047	7431	350xZ	0,033	8280	270xZ	0,033	6369	210xZ	0,026	5838	150xZ	0,017	5308	90xZ	0,010	4777	50xZ
8	0,08	0,16	4	0,063	7962	500xZ	0,059	7464	440xZ	0,063	5573	350xZ	0,039	6900	270xZ	0,044	4777	210xZ	0,034	4379	150xZ	0,023	3981	90xZ	0,014	3582	50xZ
10	0,10	0,20	5	0,078	6369	500xZ	0,074	5971	440xZ	0,078	4458	350xZ	0,052	5175	270xZ	0,055	3822	210xZ	0,043	3503	150xZ	0,028	3185	90xZ	0,017	2866	50xZ
12	0,12	0,24	6	0,094	5308	500xZ	0,088	4976	440xZ	0,094	3715	350xZ	0,065	4140	270xZ	0,066	3185	210xZ	0,051	2919	150xZ	0,034	2654	90xZ	0,021	2388	50xZ
14	0,14	0,28	7	0,110	4550	500xZ	0,103	4265	440xZ	0,110	3185	350xZ	0,078	3450	270xZ	0,077	2730	210xZ	0,060	2502	150xZ	0,040	2275	90xZ	0,024	2047	50xZ
16	0,16	0,32	8	0,125	3981	500xZ	0,118	3732	440xZ	0,125	2787	350xZ	0,091	2957	270xZ	0,088	2388	210xZ	0,068	2189	150xZ	0,045	1990	90xZ	0,030	1791	50xZ
18	0,18	0,36	9	0,141	3539	500xZ	0,133	3317	440xZ	0,141	2477	350xZ	0,104	2588	270xZ	0,099	2123	210xZ	0,077	1946	150xZ	0,051	1770	90xZ	0,031	1592	50xZ
20	0,20	0,40	10	0,157	3185	500xZ	0,147	2986	440xZ	0,157	2229	350xZ	0,130	2070	270xZ	0,110	1910	210xZ	0,086	1752	150xZ	0,057	1592	90xZ	0,035	1433	50xZ

HARDMOLD BALL NOSE 52 - 68 HRC

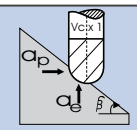


Solid carbide ball nose end mills - Hard Mold
VHM - Radiusfräser - Hart Mold
Fraises a rayon carbure - Dure Mold
Karbür Küre Freze - Sert Mold



F	H	1000	R	2	M	14	A	50	N	072
END MILL	MG-08	d1	DIN 6528		TOOLEX		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	CNC R	Coated Code
4	6	3,8	25	50	4	2	2	1,986	FH0400R2M06A20N050
5	7	4,8	25	50	5	2	2.5	2,486	FH0500R2M07A25N050
6	8	5,7	28	57	6	2	3	2,986	FH0600R2M08A30N057
8	10	7,6	32	63	8	2	4	3,982	FH0800R2M10A40N063
10	14	9,5	36	72	10	2	5	4,982	FH1000R2M14A50N072
12	16	11,5	42	83	12	2	6	5,977	FH1200R2M16A60N083
14	18	13,5	42	83	14	2	7	6,977	FH1400R2M18A70N083
16	20	15,5	46	92	16	2	8	7,977	FH1600R2M20A80N092
18	22	17,5	46	92	18	2	9	8,977	FH1800R2M22A90N092
20	24	19,5	52	104	20	2	10	9,972	FH2000R2M24A10N104

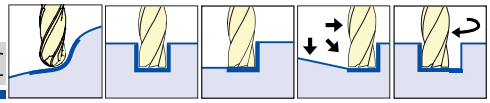


$a_p = 0,1 \times d1$ $\sin\alpha = \frac{d1 - 2 \times a_p}{d1}$

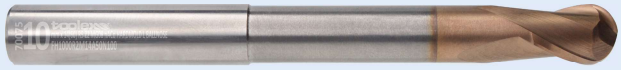
$de = d1 \times \cos\alpha$ $de = \frac{a_p}{tg\,\beta}$

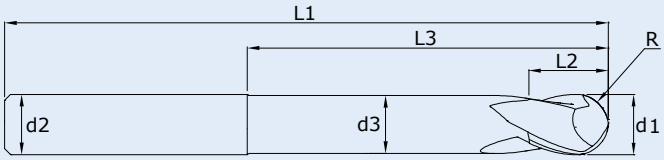
					HRC <50			HRC <53			HRC <56			HRC <59			HRC <61			HRC <63			HRC <65			HRC <68		
					1.5860-1.6587 1.6587-1.7326			1.1520 - 1.1525 1.1545 - 1.1820			1.2002 - 1.2003 1.2082 - 1.2344			1.1563 - 1.2004 1.2056 - 1.2057			1.2365 - 1.2379 1.2601 - 1.2622			1.3343 - 1.3344 1.3348 - 1.3355			1.3302 - 1.3318 1.3333 - 1.3334			1.2067 - 1.3343 1.3344 - 1.3355		
					Vc=130m/dk.			Vc=120m/dk.			Vc=110 m/dk.			Vc=100 m/dk.			Vc=90 m/dk.			Vc=80 m/dk.			Vc=70 m/dk.			Vc=65 m/dk.		
d1	de	β	ae	ap	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	2,4	18,5°	1,02	0,4	0,014	17250	240xZ	0,013	15923	210xZ	0,012	14597	180xZ	0,011	13270	150xZ	0,010	11942	130xZ	0,009	10616	100xZ	0,008	9289	75xZ	0,006	8625	50xZ
5	3,0	18,5°	1,5	0,5	0,017	13800	240xZ	0,016	12738	210xZ	0,015	11677	180xZ	0,014	10616	150xZ	0,014	9553	130xZ	0,012	8493	100xZ	0,010	7431	75xZ	0,007	6900	50xZ
6	3,6	18,5°	1,8	0,6	0,021	11500	240xZ	0,020	10615	210xZ	0,018	9731	180xZ	0,017	8846	150xZ	0,016	7961	130xZ	0,014	7077	100xZ	0,012	6192	75xZ	0,009	5750	50xZ
8	4,8	18,5°	2,4	0,8	0,028	8625	240xZ	0,026	7962	210xZ	0,025	7298	180xZ	0,022	6635	150xZ	0,021	5971	130xZ	0,019	5308	100xZ	0,014	4644	75xZ	0,012	4312	50xZ
10	6,0	18,5°	3,0	1,0	0,035	6900	240xZ	0,033	6369	210xZ	0,031	5839	180xZ	0,028	5308	150xZ	0,027	4777	130xZ	0,024	4246	100xZ	0,019	3715	75xZ	0,014	3450	50xZ
12	7,2	18,5°	3,6	1,2	0,042	5750	240xZ	0,040	5308	210xZ	0,037	4865	180xZ	0,034	4424	150xZ	0,033	3980	130xZ	0,028	3539	100xZ	0,024	3096	75xZ	0,017	2870	50xZ
14	8,4	18,5°	4,2	1,4	0,049	4928	240xZ	0,046	4550	210xZ	0,043	4170	180xZ	0,040	3792	150xZ	0,038	3412	130xZ	0,033	3033	100xZ	0,028	2654	75xZ	0,020	2464	50xZ
16	9,6	18,5°	4,8	1,6	0,056	4312	240xZ	0,053	3981	210xZ	0,049	3649	180xZ	0,045	3318	150xZ	0,043	2985	130xZ	0,037	2654	100xZ	0,032	2322	75xZ	0,023	2156	50xZ
18	10,8	18,5°	5,4	1,8	0,063	3833	240xZ	0,059	3538	210xZ	0,055	3244	180xZ	0,051	2949	150xZ	0,049	2654	130xZ	0,042	2359	100xZ	0,036	2064	75xZ	0,026	1917	50xZ
20	12,0	18,5°	6,0	2,0	0,069	3450	240xZ	0,066	3185	210xZ	0,062	2919	180xZ	0,056	2654	150xZ	0,054	2388	130xZ	0,047	2123	100xZ	0,040	1858	75xZ	0,029	1725	50xZ

HARDMOLD LONG BALL NOSE 52 - 68 HRC



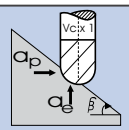
Solid carbide ball nose end mills - Hard Mold Long
VHM - Radiusfräser - Hart Mold Lang
Fraises a rayon carbure - Dure Mold Longue
Karbür Küre Freze - Sert Mold Uzun





F	H	1000	R	2	M	14	A	50	N	100
END MILL	MG-08	d1	TOOLEX		TOOLEX		30°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	CNC R	Coated Code
4	6	3,8	32	65	4	2	2	1,986	FH0400R2M06A20N065
5	7	4,8	40	80	5	2	2.5	2,486	FH0500R2M07A25N080
6	8	5,7	40	80	6	2	3	2,986	FH0600R2M08A30N080
8	10	7,6	44	88	8	2	4	3,982	FH0800R2M10A40N088
4	6	3,8	60	100	4	2	2	1,986	FH0400R2M06A20N100
5	7	4,8	60	100	5	2	2.5	2,486	FH0500R2M07A25N100
6	8	5,7	60	100	6	2	3	2,986	FH0600R2M08A30N100
8	10	7,6	60	100	8	2	4	3,982	FH0800R2M10A40N100
10	14	9,5	60	100	10	2	5	4,982	FH1000R2M14A50N100
12	16	11,5	60	100	12	2	6	5,977	FH1200R2M16A60N100
14	18	13,5	60	100	14	2	7	6,977	FH1400R2M18A70N100
16	20	15,5	60	100	16	2	8	7,977	FH1600R2M20A80N100
18	22	17,5	60	100	18	2	9	8,977	FH1800R2M22A90N100
10	14	9,5	120	165	10	2	5	4,982	FH1000R2M14A50N165
12	16	11,5	120	165	12	2	6	5,977	FH1200R2M16A60N165
14	18	13,5	120	165	14	2	7	6,977	FH1400R2M18A70N165
16	20	15,5	120	165	16	2	8	7,977	FH1600R2M20A80N165
18	22	17,5	120	165	18	2	9	8,977	FH1800R2M22A90N165
20	24	19,5	120	165	20	2	10	9,972	FH2000R2M24A10N165

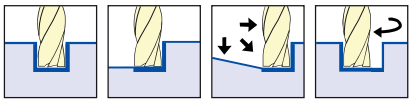


$a_p = 0{,}1 \times d1$ $\quad \sin\alpha = \frac{d1 - 2 \times a_p}{d1}$

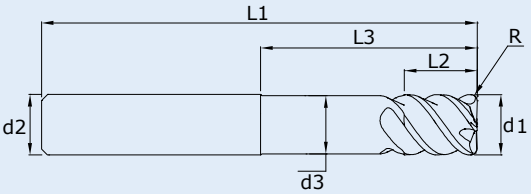
$de = d1 \times \cos\alpha$ $\quad a_e = \frac{a_p}{tg\,\beta}$

					HRC <50			HRC <53			HRC <56			HRC <59			HRC <61			HRC <63			HRC <65			HRC <68		
					1.5860-1.6587 1.6587-1.7326			1.1520 - 1.1525 1.1545 - 1.1820			1.2002 - 1.2003 1.2082 - 1.2344			1.1563 - 1.2004 1.2056 - 1.2057			1.2365 - 1.2379 1.2601 - 1.2622			1.3343 - 1.3344 1.3348 - 1.3355			1.3302 - 1.3318 1.3333 - 1.3334			1.2067 - 1.3343 1.3344 - 1.3355		
					Vc=105m/dk.			Vc=95 m/dk.			Vc=85 m/dk.			Vc=75 m/dk.			Vc=70 m/dk.			Vc=65 m/dk.			Vc=60 m/dk.			Vc=55 m/dk.		
d1	de	β	ae	ap	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	2,4	18,5°	1,2	0,4	0,020	13933	280xZ	0,019	12606	245xZ	0,018	11279	210xZ	0,017	9952	175xZ	0,015	9289	140xZ	0,012	8625	105xZ	0,009	7962	70xZ	0,005	7298	35xZ
5	3,0	18,5°	1,5	0,5	0,025	11147	280xZ	0,024	10085	245xZ	0,023	9023	210xZ	0,022	7962	175xZ	0,019	7431	140xZ	0,016	5951	105xZ	0,011	6369	70xZ	0,006	5839	35xZ
6	3,6	18,5°	1,8	0,6	0,030	9289	280xZ	0,029	8404	245xZ	0,028	7519	210xZ	0,026	6635	175xZ	0,023	6192	140xZ	0,018	5750	105xZ	0,013	5308	70xZ	0,007	4865	35xZ
8	4,8	18,5°	2,4	0,8	0,040	6967	280xZ	0,039	6303	245xZ	0,037	5640	210xZ	0,035	4976	175xZ	0,030	4644	140xZ	0,024	4312	105xZ	0,017	3981	70xZ	0,010	3649	35xZ
10	6,0	18,5°	3,0	1,0	0,050	5573	280xZ	0,048	5042	245xZ	0,046	4512	210xZ	0,044	3981	175xZ	0,038	3715	140xZ	0,030	3450	105xZ	0,022	3185	70xZ	0,012	2919	35xZ
12	7,2	18,5°	3,6	1,2	0,060	4644	280xZ	0,058	4202	245xZ	0,056	3760	210xZ	0,053	3317	175xZ	0,045	3096	140xZ	0,036	2875	105xZ	0,026	2659	70xZ	0,014	2433	35xZ
14	8,4	18,5°	4,2	1,4	0,070	3981	280xZ	0,068	3602	245xZ	0,065	3223	210xZ	0,061	2843	175xZ	0,053	2654	140xZ	0,043	2464	105xZ	0,031	2275	70xZ	0,017	2085	35xZ
16	9,6	18,5°	4,8	1,6	0,080	3483	280xZ	0,078	3152	245xZ	0,074	2820	210xZ	0,070	2488	175xZ	0,060	2322	140xZ	0,049	2156	105xZ	0,035	1990	70xZ	0,019	1825	35xZ
18	10,8	18,5°	5,4	1,8	0,090	3096	280xZ	0,087	2801	245xZ	0,084	2506	210xZ	0,079	2212	175xZ	0,068	2064	140xZ	0,055	1917	105xZ	0,040	1769	70xZ	0,022	1622	35xZ
20	12,0	18,5°	6,0	2,0	0,100	2787	280xZ	0,097	2521	245xZ	0,093	2256	210xZ	0,088	1990	175xZ	0,075	1858	140xZ	0,061	1725	105xZ	0,044	1592	70xZ	0,024	1460	35xZ

HARDMOLD CORNER - R 52-68 HRC

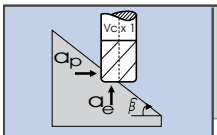


Solid carbide end mills with corner radius - Hard Mold
VHM - Schaftfräser mit Eckenradius - Hart Mold
Fraises toriques carbure - Dure Mold
Karbür Köşe Radyüslü Freze - Sert Mold



F	H	1000	K	4	M	14	E	20	N	072
END MILL	MG-08	d1	TOOLEX		TOOLEX		55°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	With Neck Coated Code	Without Neck Coated Code
4	6	3,8	25	50	4	4	0,5	FH0400K4M06E05N050	FH0400K4C06E05N050
5	7	4,8	25	50	5	4	0,5	FH0500K4M07E05N050	FH0500K4C07E05N050
6	8	5,7	28	57	6	4	0,5	FH0600K4M08E05N057	FH0600K4C08E05N057
6	8	5,7	28	57	6	4	1,0	FH0600K4M08E10N057	FH0600K4C08E10N057
8	10	7,6	32	63	8	4	0,5	FH0800K4M10E05N063	FH0800K4C10E05N063
8	10	7,6	32	63	8	4	1,0	FH0800K4M10E10N063	FH0800K4C10E10N063
8	10	7,6	32	63	8	4	1,5	FH0800K4M10E15N063	FH0800K4C10E15N063
8	10	7,6	32	63	8	4	2,0	FH0800K4M10E20N063	FH0800K4C10E20N063
10	14	9,5	36	72	10	4	0,5	FH1000K4M14E05N072	FH1000K4C14E05N072
10	14	9,5	36	72	10	4	1,0	FH1000K4M14E10N072	FH1000K4C14E10N072
10	14	9,5	36	72	10	4	1,5	FH1000K4M14E15N072	FH1000K4C14E15N072
10	14	9,5	36	72	10	4	2,0	FH1000K4M14E20N072	FH1000K4C14E20N072
12	16	11,5	42	83	12	4	0,5	FH1200K4M16E05N083	FH1200K4C16E05N083
12	16	11,5	42	83	12	4	1,0	FH1200K4M16E10N083	FH1200K4C16E10N083
12	16	11,5	42	83	12	4	1,5	FH1200K4M16E15N083	FH1200K4C16E15N083
12	16	11,5	42	83	12	4	2,0	FH1200K4M16E20N083	FH1200K4C16E20N083
14	18	13,5	42	83	14	4	0,5	FH1400K4M18E05N083	FH1400K4C18E05N083
14	18	13,5	42	83	14	4	1,0	FH1400K4M18E10N083	FH1400K4C18E10N083
14	18	13,5	42	83	14	4	1,5	FH1400K4M18E15N083	FH1400K4C18E15N083
14	18	13,5	42	83	14	4	2,0	FH1400K4M18E20N083	FH1400K4C18E20N083
16	20	15,5	46	92	16	4	0,5	FH1600K4M20E05N092	FH1600K4C20E05N092
16	20	15,5	46	92	16	4	1,0	FH1600K4M20E10N092	FH1600K4C20E10N092
16	20	15,5	46	92	16	4	1,5	FH1600K4M20E15N092	FH1600K4C20E15N092
16	20	15,5	46	92	16	4	2,0	FH1600K4M20E20N092	FH1600K4C20E20N092

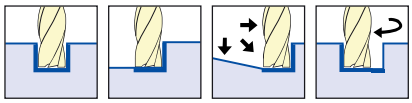


$a_p = 0{,}1 \times d1$

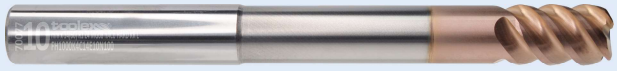
$a_e = \frac{a_p}{tg\ \beta}$

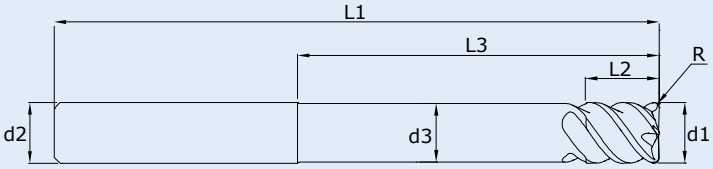
				HRC <50			HRC <53			HRC <56			HRC <59			HRC <61			HRC <63			HRC <65			HRC <68		
				1.5860-1.6587 1.6587-1.7326			1.1520 - 1.1525 1.1545 - 1.1820			1.2002 - 1.2003 1.2082 - 1.2344			1.1563 - 1.2004 1.2056 - 1.2057			1.2365 - 1.2379 1.2601 - 1.2622			1.3343 - 1.3344 1.3348 - 1.3355			1.3302 - 1.3318 1.3333 - 1.3334			1.2067 - 1.3343 1.3344 - 1.3355		
				Vc=200 m/dk.			Vc=190 m/dk.			Vc=180m/dk.			Vc=170 m/dk.			Vc=160m/dk.			Vc=150 m/dk.			Vc=140 m/dk.			Vc=130 m/dk.		
d1	β	ae	ap	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	30°	0,693	0,4	0,044	15925	700xZ	0,040	15127	600xZ	0,035	14331	500xZ	0,030	13535	400xZ	0,024	12739	300xZ	0,017	11924	200xZ	0,009	11146	100xZ	0,006	13800	80xZ
5	30°	0,866	0,5	0,055	12740	700xZ	0,050	12102	600xZ	0,044	11465	500xZ	0,037	10828	400xZ	0,030	10191	300xZ	0,021	9554	200xZ	0,011	8917	100xZ	0,008	10350	80xZ
6	30°	1,039	0,6	0,066	10617	700xZ	0,060	10085	600xZ	0,052	9554	500xZ	0,044	9023	400xZ	0,035	8492	300xZ	0,025	7962	200xZ	0,013	7431	100xZ	0,010	8280	80xZ
8	30°	1,386	0,8	0,088	7962	700xZ	0,080	7564	600xZ	0,070	7166	500xZ	0,059	6767	400xZ	0,047	6369	300xZ	0,033	5971	200xZ	0,018	5573	100xZ	0,012	6900	80xZ
10	30°	1,732	1,0	0,110	6370	700xZ	0,100	6051	600xZ	0,087	5732	500xZ	0,074	5414	400xZ	0,059	5095	300xZ	0,042	4777	200xZ	0,022	4458	100xZ	0,015	5175	80xZ
12	30°	2,078	1,2	0,132	5308	700xZ	0,120	5042	600xZ	0,105	4777	500xZ	0,089	4512	400xZ	0,071	4246	300xZ	0,050	3981	200xZ	0,027	3715	100xZ	0,019	4140	80xZ
14	30°	2,425	1,4	0,154	4550	700xZ	0,139	4322	600xZ	0,122	4095	500xZ	0,103	3867	400xZ	0,082	3640	300xZ	0,059	3412	200xZ	0,031	3185	100xZ	0,023	3450	80xZ
16	30°	2,771	1,6	0,176	3981	700xZ	0,159	3782	600xZ	0,140	3583	500xZ	0,118	3384	400xZ	0,094	3185	300xZ	0,067	2986	200xZ	0,036	2787	100xZ	0,027	2957	80xZ
18	30°	3,118	1,8	0,198	3539	700xZ	0,178	3362	600xZ	0,157	3185	500xZ	0,133	3008	400xZ	0,106	2831	300xZ	0,075	2654	200xZ	0,040	2477	100xZ	0,031	2588	80xZ
20	30°	3,464	2,0	0,220	3185	700xZ	0,198	3025	600xZ	0,175	2866	500xZ	0,148	2707	400xZ	0,118	2548	300xZ	0,084	2388	200xZ	0,045	2229	100xZ	0,039	2070	80xZ

HARDMOLD LONG CORNER-R 52 - 68 HRC



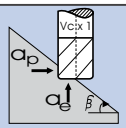
Solid carbide end mills with corner radius - Hard Mold Long
VHM - Schaftfräser mit Eckenradius - Hart Mold Lang
Fraises toriques carbure - Dure Mold Longue
Karbür Köşe Radyüslü Freze - Sert Mold Uzun





F	H	1000	K	4	M	14	E	20	N	100
END MILL	MG-08	d1	TOOLEX		TOOLEX		55°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	With Neck Coated Code	Without Neck Coated Code
4	6	3,8	32	65	4	4	0,5	FH0400K4M06E05N065	FH0400K4C06E05N065
5	7	4,8	32	80	5	4	0,5	FH0500K4M07E05N080	FH0500K4C07E05N080
6	8	5,7	34	80	6	4	0,5	FH0600K4M08E05N080	FH0600K4C08E05N080
6	8	5,7	34	80	6	4	1,0	FH0600K4M08E10N080	FH0600K4C08E10N080
8	10	7,6	44	88	8	4	0,5	FH0800K4M10E05N088	FH0800K4C10E05N088
8	10	7,6	44	88	8	4	1,0	FH0800K4M10E10N088	FH0800K4C10E10N088
8	10	7,6	44	88	8	4	1,5	FH0800K4M10E15N088	FH0800K4C10E15N088
8	10	7,6	44	88	8	4	2,0	FH0800K4M10E20N088	FH0800K4C10E20N088
10	14	9,5	60	100	10	4	0,5	FH1000K4M14E05N100	FH1000K4C14E05N100
10	14	9,5	60	100	10	4	1,0	FH1000K4M14E10N100	FH1000K4C14E10N100
10	14	9,5	60	100	10	4	1,5	FH1000K4M14E15N100	FH1000K4C14E15N100
10	14	9,5	60	100	10	4	2,0	FH1000K4M14E20N100	FH1000K4C14E20N100
12	16	11,5	70	110	12	4	0,5	FH1200K4M16E05N110	FH1200K4C16E05N110
12	16	11,5	70	110	12	4	1,0	FH1200K4M16E10N110	FH1200K4C16E10N110
12	16	11,5	70	110	12	4	1,5	FH1200K4M16E15N110	FH1200K4C16E15N110
12	16	11,5	70	110	12	4	2,0	FH1200K4M16E20N110	FH1200K4C16E20N110
14	18	13,5	70	110	14	4	0,5	FH1400K4M18E05N110	FH1400K4C18E05N110
14	8	13,5	70	110	14	4	1,0	FH1400K4M18E10N110	FH1400K4C18E10N110
14	18	13,5	70	110	14	4	1,5	FH1400K4M18E15N110	FH1400K4C18E15N110
14	18	13,5	70	110	14	4	2,0	FH1400K4M18E20N110	FH1400K4C18E20N110
16	20	15,5	70	110	16	4	0,5	FH1600K4M20E05N110	FH1600K4C20E05N110
16	20	15,5	70	110	16	4	1,0	FH1600K4M20E10N110	FH1600K4C20E10N110
16	20	15,5	70	110	16	4	1,5	FH1600K4M20E15N110	FH1600K4C20E15N110
16	20	15,5	70	110	16	4	2,0	FH1600K4M20E20N110	FH1600K4C20E20N110

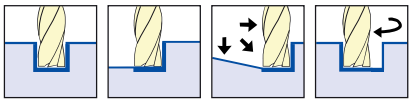


$a_p = 0{,}1 \times d1$

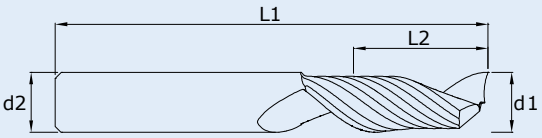
$a_e = \frac{a_p}{tg\ \beta}$

				HRC <50			HRC <53			HRC <56			HRC <59			HRC <61			HRC <63			HRC <65			HRC <68		
				1.5860-1.6587 1.6587-1.7326			1.1520 - 1.1525 1.1545 - 1.1820			1.2002 - 1.2003 1.2082 - 1.2344			1.1563 - 1.2004 1.2056 - 1.2057			1.2365 - 1.2379 1.2601 - 1.2622			1.3343 - 1.3344 1.3348 - 1.3355			1.3302 - 1.3318 1.3333 - 1.3334			1.2067 - 1.3343 1.3344 - 1.3355		
				Vc=160m/dk.			Vc=150 m/dk.			Vc=140 m/dk.			Vc=130 m/dk.			Vc=120 m/dk.			Vc=110 m/dk.			Vc=100m/dk.			Vc=90 m/dk.		
d1	β	ae	ap	Fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	30°	0,693	0,4	0,031	15923	500xZ	0,029	14928	440xZ	0,031	11146	350xZ	0,020	13800	270xZ	0,022	9554	210xZ	0,017	8757	150xZ	0,011	7962	90xZ	0,007	7165	50xZ
5	30°	0,866	0,5	0,039	12739	500xZ	0,037	11942	440xZ	0,039	8917	350xZ	0,026	10350	270xZ	0,027	7643	210xZ	0,021	7006	150xZ	0,014	6370	90xZ	0,009	5732	50xZ
6	30°	1,039	0,6	0,047	10616	500xZ	0,044	9952	440xZ	0,047	7431	350xZ	0,033	8280	270xZ	0,033	6369	210xZ	0,026	5838	150xZ	0,017	5308	90xZ	0,010	4777	50xZ
8	30°	1,386	0,8	0,063	7962	500xZ	0,059	7464	440xZ	0,063	5573	350xZ	0,039	6900	270xZ	0,044	4777	210xZ	0,034	4379	150xZ	0,023	3981	90xZ	0,014	3582	50xZ
10	30°	1,732	1,0	0,078	6369	500xZ	0,074	5971	440xZ	0,078	4458	350xZ	0,052	5175	270xZ	0,055	3822	210xZ	0,043	3503	150xZ	0,028	3185	90xZ	0,017	2866	50xZ
12	30°	2,078	1,2	0,094	5308	500xZ	0,088	4976	440xZ	0,094	3715	350xZ	0,065	4140	270xZ	0,066	3185	210xZ	0,051	2919	150xZ	0,034	2654	90xZ	0,021	2388	50xZ
14	30°	2,425	1,4	0,110	4550	500xZ	0,103	4265	440xZ	0,110	3185	350xZ	0,078	3450	270xZ	0,077	2730	210xZ	0,060	2502	150xZ	0,040	2275	90xZ	0,024	2047	50xZ
16	30°	2,771	1,6	0,125	3981	500xZ	0,118	3732	440xZ	0,125	2787	350xZ	0,091	2957	270xZ	0,088	2388	210xZ	0,068	2189	150xZ	0,045	1990	90xZ	0,030	1791	50xZ
18	30°	3,118	1,8	0,141	3539	500xZ	0,133	3317	440xZ	0,141	2477	350xZ	0,104	2588	270xZ	0,099	2123	210xZ	0,077	1946	150xZ	0,051	1770	90xZ	0,031	1592	50xZ
20	30°	3,464	2,0	0,157	3185	500xZ	0,147	2986	440xZ	0,157	2229	350xZ	0,130	2070	270xZ	0,110	1910	210xZ	0,086	1752	150xZ	0,057	1592	90xZ	0,035	1433	50xZ

ALU

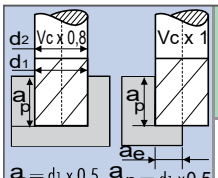


Solid carbide end mills - Alu Z1
VHM - Schaftfräser - Alu Z1
Fraises en bout carbure - Alu Z1
Karbür Freze - Alu Z1



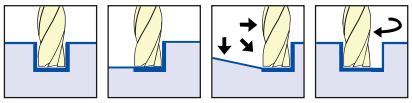
F	G	1000	G	1	C	22	R	00	D	072
END MILL	MG-07	d1	TOOLEX		DIN 6535 HA		40		DRYCUT	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Coated Code
1	4	40	3	1	FG0100G1C04R00B040	FG0100G1C04R00D040
2	6	40	3	1	FG0200G1C06R00B040	FG0200G1C06R00D040
3	14	40	3	1	FG0300G1C14R00B040	FG0300G1C14R00D040
4	15	50	4	1	FG0400G1C15R00B050	FG0400G1C15R00D050
5	16	50	5	1	FG0500G1C16R00B050	FG0500G1C16R00D050
6	18	57	6	1	FG0600G1C18R00B057	FG0600G1C18R00D057
8	20	63	8	1	FG0800G1C20R00B063	FG0800G1C20R00D063
10	22	72	10	1	FG1000G1C22R00B072	FG1000G1C22R00D072
12	26	83	12	1	FG1200G1C26R00B083	FG1200G1C26R00D083
3	16	65	3	1	FG0300G1C16R00B065	FG0300G1C16R00D065
4	18	65	4	1	FG0400G1C18R00B065	FG0400G1C18R00D065
5	20	65	5	1	FG0500G1C20R00B065	FG0500G1C20R00D065
6	24	68	6	1	FG0600G1C24R00B068	FG0600G1C24R00D068
8	38	88	8	1	FG0800G1C38R00B088	FG0800G1C38R00D088
10	45	100	10	1	FG1000G1C45R00B100	FG1000G1C45R00D100
12	53	110	12	1	FG1200G1C53R00B110	FG1200G1C53R00D110

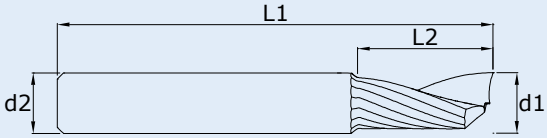


			AL			CU			GRAPHIT		
			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598					
			Vc=300 m/dk.			Vc=220 m/dk.			Vc=500 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf
3	1,5	0,30	0,030	31847	955	0,030	23355	701	0,030	53079	1592
4	2,0	0,40	0,040	23885	955	0,040	17516	701	0,040	39809	1592
5	2,5	0,50	0,050	19108	955	0,050	14013	701	0,050	31847	1592
6	3,0	0,60	0,060	15924	955	0,060	11677	701	0,060	26539	1592
8	4,0	0,80	0,070	11943	836	0,070	8758	613	0,070	19904	1393
10	5,0	1,00	0,080	9554	764	0,080	7006	561	0,080	15924	1274
12	6,0	1,20	0,090	7962	717	0,090	5839	525	0,090	13270	1194

FLEX

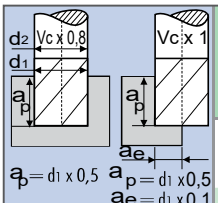


Solid carbide end mills - Flex Z1
VHM - Schaftfräser - Flex Z1
Fraises en bout carbure - Flex Z1
Karbür Freze - Flex Z1



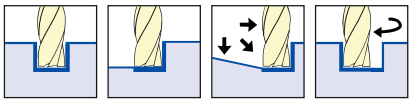
F	G	1000	G	1	C	22	R	00	D	072
END MILL	MG-07	d1	TOOLEX		DIN 6535 HA		25		DRYCUT	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Coated Code
1	4	40	3	1	FG0100G1C04F00B040	FG0100G1C04F00D040
2	6	40	3	1	FG0200G1C06F00B040	FG0200G1C06F00D040
3	14	40	3	1	FG0300G1C14F00B040	FG0300G1C14F00D040
4	15	50	4	1	FG0400G1C15F00B050	FG0400G1C15F00D050
5	16	50	5	1	FG0500G1C16F00B050	FG0500G1C16F00D050
6	18	57	6	1	FG0600G1C18F00B057	FG0600G1C18F00D057
8	20	63	8	1	FG0800G1C20F00B063	FG0800G1C20F00D063
10	22	72	10	1	FG1000G1C22F00B072	FG1000G1C22F00D072
12	26	83	12	1	FG1200G1C26F00B083	FG1200G1C26F00D083
3	16	65	3	1	FG0300G1C16F00B065	FG0300G1C16F00D065
4	18	65	4	1	FG0400G1C18F00B065	FG0400G1C18F00D065
5	20	65	5	1	FG0500G1C20F00B065	FG0500G1C20F00D065
6	24	68	6	1	FG0600G1C24F00B068	FG0600G1C24F00D068
8	38	88	8	1	FG0800G1C38F00B088	FG0800G1C38F00D088
10	45	100	10	1	FG1000G1C45F00B100	FG1000G1C45F00D100
12	53	110	12	1	FG1200G1C53F00B110	FG1200G1C53F00D110

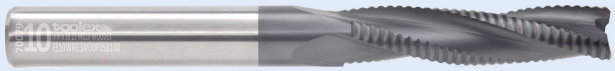


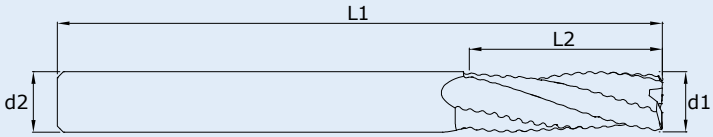
			AL			CU			GRAPHIT			FLEX		
			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598								
			Vc=300 m/dk.			Vc=220 m/dk.			Vc=500 m/dk.			Vc=500 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
3	1,5	0,30	0,030	31847	955	0,030	23355	701	0,030	53079	1592	0,030	53079	1592
4	2,0	0,40	0,040	23885	955	0,040	17516	701	0,040	39809	1592	0,040	39809	1592
5	2,5	0,50	0,050	19108	955	0,050	14013	701	0,050	31847	1592	0,050	31847	1592
6	3,0	0,60	0,060	15924	955	0,060	11677	701	0,060	26539	1592	0,060	26539	1592
8	4,0	0,80	0,070	11943	836	0,070	8758	613	0,070	19904	1393	0,070	19904	1393
10	5,0	1,00	0,080	9554	764	0,080	7006	561	0,080	15924	1274	0,080	15924	1274
12	6,0	1,20	0,090	7962	717	0,090	5839	525	0,090	13270	1194	0,090	13270	1194

WR WOODEX



Solid carbide roughing end mills for wood - Woodex
VHM - Schruppfräser für Holz - Woodex
Fraises d'ebauche en bout carbure pour bois - Woodex
Karbür Ağac Freze - Woodex



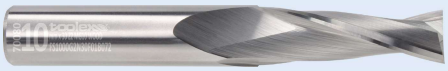


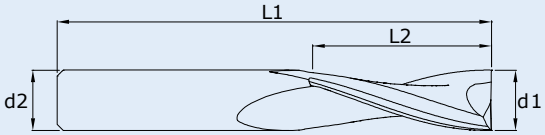
F	S	10WR	G	3	M	30	F	05	B	100
END MILL	MG-10	d1	TOOLEX		TOOLEX		20°	d1x0.05 45°		
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	UNCOATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code
10	30	100	10	3	FS10WRG3M30F05B100
12	32	80	12	3	FS12WRG3M32F06B080
12	52	100	12	3	FS12WRG3M52F06B100
14	52	100	14	3	FS14WRG3M52F07B100
16	42	100	16	3	FS16WRG3M42F08B100
16	72	100	16	3	FS16WRG3M72F08B100
18	72	120	18	3	FS18WRG3M72F09B120
20	52	100	20	3	FS20WRG3M52F10B100
20	102	150	20	3	FS20WRG3M10F10B150
14	100	150	14	3	FS14WRG3M10F07B150
16	100	150	16	3	FS16WRG3M10F08B150
14	42	100	14	3	FS14WRG3M42F07B100
16	52	100	16	3	FS16WRG3M52F08B100

WOOD

Solid carbide Wood end mills -Wood
VHM - Schaftfräser für Holz -Wood
Fraises en bout carbure pour bois -Wood
Karbür Ağac Freze -Wood

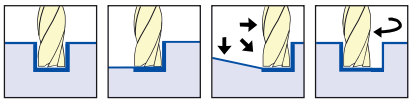




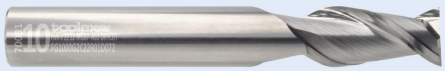
F	S	1000	G	2	N	30	F	01	B	072
END MILL	MG-10	d1	TOOLEX		TOOLEX		20°	0.1x45°		
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	UNCOATED	FULL LENGTH

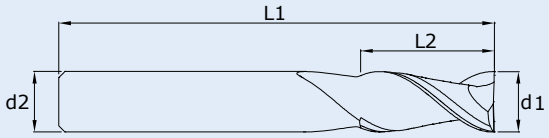
d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code
2	15	57	6	2	FS0200G2N15F01B057
3	15	57	6	2	FS0300G2N15F01B057
4	20	57	6	2	FS0400G2N20F01B057
5	20	57	6	2	FS0500G2N20F01B057
6	25	57	6	2	FS0600G2N25F01B057
8	25	63	8	2	FS0800G2N25F01B063
10	30	72	10	2	FS1000G2N30F01B072
12	40	83	12	2	FS1200G2N40F01B083
14	40	100	14	2	FS1400G2N40F01B100
16	50	100	16	2	FS1600G2N50F01B100
18	50	100	18	2	FS1800G2N50F01B100
20	50	100	20	2	FS2000G2N50F01B100

ALU



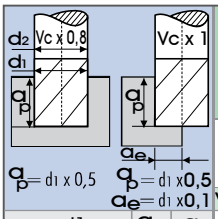
Solid carbide end mills - Alu
VHM - Schaftfräser - Alu
Fraises en bout carbure - Alu
Karbür Freze - Alu





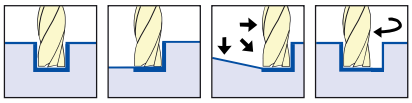
F	G	1000	G	2	C	22	R	01	D	072
END MILL	MG-07	d1	TOOLEX		DIN 6535 HA		40°	0.1x 45°	DRYCUT	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Coated Code
3	8	40	3	2-3	FG0300G2C12R01B040	FG0300G2C12R01D040
4	11	50	4	2-3	FG0400G2C11R01B050	FG0400G2C11R01D050
5	13	50	5	2-3	FG0500G2C13R01B050	FG0500G2C13R01D050
6	13	57	6	2-3	FG0600G2C13R01B057	FG0600G2C13R01D057
8	19	63	8	2-3	FG0800G2C19R01B063	FG0800G2C19R01D063
10	22	72	10	2-3	FG1000G2C22R01B072	FG1000G2C22R01D072
12	26	83	12	2-3	FG1200G2C26R01B083	FG1200G2C26R01D083
14	26	83	14	2-3	FG1400G2C26R01B083	FG1400G2C26R01D083
16	32	92	16	2-3	FG1600G2C32R01B092	FG1600G2C32R01D092
18	32	92	18	2-3	FG1800G2C32R01B092	FG1800G2C32R01D092
20	38	104	20	2-3	FG2000G2C38R01B104	FG2000G2C38R01D104
3	16	65	3	2-3	FG0300G2C16R01B065	FG0300G2C16R01D065
4	18	65	4	2-3	FG0400G2C18R01B065	FG0400G2C18R01D065
5	20	65	5	2-3	FG0500G2C20R01B065	FG0500G2C20R01D065
6	24	68	6	2-3	FG0600G2C24R01B068	FG0600G2C24R01D068
8	38	88	8	2-3	FG0800G2C38R01B088	FG0800G2C38R01D088
10	45	100	10	2-3	FG1000G2C45R01B100	FG1000G2C45R01D100
12	53	110	12	2-3	FG1200G2C53R01B110	FG1200G2C53R01D110
14	53	110	14	2-3	FG1400G2C53R01B110	FG1400G2C53R01D110
16	63	110	16	2-3	FG1600G2C63R01B110	FG1600G2C63R01D110
18	63	110	18	2-3	FG1800G2C63R01B110	FG1800G2C63R01D110
20	75	141	20	2-3	FG2000G2C75R01B141	FG2000G2C75R01D141

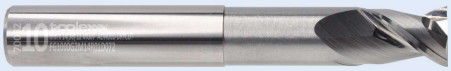


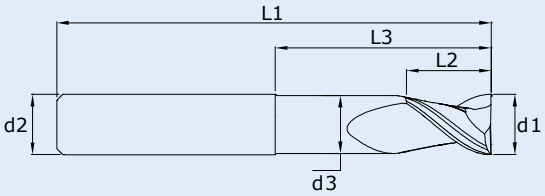
			AL			CU			GRAPHIT		
			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598					
			Vc=300 m/dk.			Vc=220 m/dk.			Vc=400 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf
3	1,5	0,60	0,020	31847	637xZ	0,010	23355	234xZ	0,020	42463	849xZ
4	2,0	0,70	0,090	23885	2150xZ	0,080	17516	1401xZ	0,090	31847	2866xZ
5	2,5	0,80	0,100	19108	1911xZ	0,090	14013	1261xZ	0,100	25478	2548xZ
6	3,0	0,90	0,120	15924	1911xZ	0,100	11677	1168xZ	0,120	21231	2548xZ
8	4,0	1,00	0,150	11943	1791xZ	0,120	8758	1051xZ	0,150	15924	2389xZ
10	5,0	1,20	0,180	9554	1720xZ	0,140	7006	981xZ	0,180	12739	2293xZ
12	6,0	1,40	0,200	7962	1592xZ	0,160	5839	934xZ	0,200	10616	2123xZ
14	7,0	1,60	0,220	6824	1501xZ	0,180	5005	901xZ	0,220	9099	2002xZ
16	8,0	1,80	0,250	5971	1493xZ	0,200	4379	876xZ	0,250	7962	1990xZ
18	9,0	2,00	0,280	5308	1486xZ	0,220	3892	856xZ	0,280	7077	1982xZ
20	10,0	2,20	0,300	4777	1433xZ	0,240	3503	841xZ	0,300	6369	1911xZ

ALMOLD



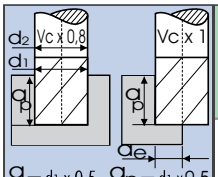
Solid carbide end mills - Almold
VHM - Schaftfräser - Almold
Fraises en bout carbure - Almold
Karbür Freze - Almold



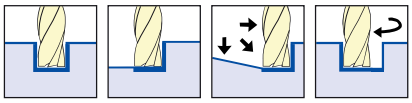


F	G	1000	G	2	M	14	R	01	D	072
END MILL	MG-07	d1	DIN 6528		TOOLEX		40°	0.1x 45°	DRYCUT	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

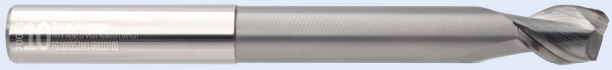
d1(e8)	L2	d3	L3	L1	d2(h6)	Z	Uncoated	Coated Code
4	6	3,8	25	50	4	2-3	FG0400G2M06R01B050	FG0400G2M06R01D050
5	7	4,8	25	50	5	2-3	FG0500G2M07R01B050	FG0500G2M07R01D050
6	8	5,7	28	57	6	2-3	FG0600G2M08R01B057	FG0600G2M08R01D057
8	10	7,6	32	63	8	2-3	FG0800G2M10R01B063	FG0800G2M10R01D063
10	14	9,5	36	72	10	2-3	FG1000G2M14R01B072	FG1000G2M14R01D072
12	16	11,5	42	83	12	2-3	FG1200G2M16R01B083	FG1200G2M16R01D083
14	18	13,5	42	83	14	2-3	FG1400G2M18R01B083	FG1400G2M18R01D083
16	20	15,5	46	92	16	2-3	FG1600G2M20R01B092	FG1600G2M20R01D092
18	22	17,5	46	92	18	2-3	FG1800G2M22R01B092	FG1800G2M22R01D092
20	24	19,5	52	104	20	2-3	FG2000G2M24R01B104	FG2000G2M24R01D104

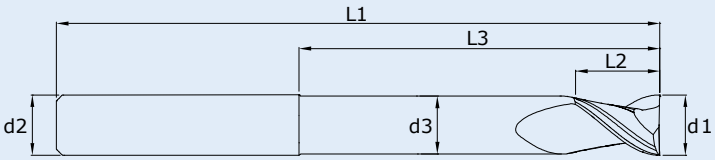


			AL			CU			GRAPHIT		
			1.7139 - 1.7262 1.7311 - 1.7323			1.8509 - 1.2713 1.2714 - 1.2718					
			Vc=350 m/dk.			Vc=300 m/dk.			Vc=500 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	2,0	0,40	0,050	27866	2787	0,040	23885	1911	0,050	39809	3981
5	2,5	0,50	0,060	22293	2675	0,050	19108	1911	0,060	31847	3822
6	3,0	0,60	0,070	18577	2601	0,065	15924	2070	0,070	26539	3715
8	4,0	0,80	0,100	13933	2787	0,080	11943	1911	0,100	19904	3981
10	5,0	1,00	0,120	11146	2675	0,110	9554	2102	0,120	15924	3822
12	6,0	1,20	0,120	9289	2229	0,110	7962	1752	0,120	13270	3185
14	7,0	1,40	0,140	7962	2229	0,120	6824	1638	0,140	11374	3185
16	8,0	1,60	0,160	6967	2229	0,140	5971	1672	0,160	9952	3185
18	9,0	1,80	0,180	6192	2229	0,160	5308	1699	0,180	8846	3185
20	10,0	2,00	0,200	5573	2229	0,180	4777	1720	0,200	7962	3185



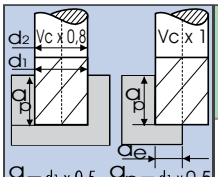
Solid carbide end mills - Almold long
VHM - Schaftfräser - Almold Lang
Fraises en bout carbure - Almold Longue
Karbür Freze - Almold Uzun





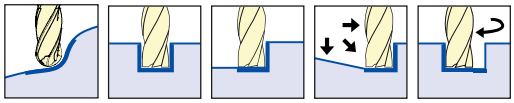
F	G	1000	G	2	M	14	R	01	D	100
END MILL	MG-07	d1	TOOLEX		TOOLEX		40°	0.1x 45°	DRYCUT	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	Uncoated Code	Coated Code
4	6	3,8	32	65	4	2-3	FG0400G2M06R01B065	FG0400G2M06R01D065
5	7	4,8	40	80	5	2-3	FG0500G2M07R01B080	FG0500G2M07R01D080
6	8	5,7	40	80	6	2-3	FG0600G2M08R01B080	FG0600G2M08R01D080
8	10	7,6	44	88	8	2-3	FG0800G2M10R01B088	FG0800G2M10R01D088
4	6	3,8	60	100	4	2-3	FG0400G2M06R01B100	FG0400G2M06R01D100
5	7	4,8	60	100	5	2-3	FG0500G2M07R01B100	FG0500G2M07R01D100
6	8	5,7	60	100	6	2-3	FG0600G2M08R01B100	FG0600G2M08R01D100
8	10	7,6	60	100	8	2-3	FG0800G2M10R01B100	FG0800G2M10R01D100
10	14	9,5	60	100	10	2-3	FG1000G2M14R01B100	FG1000G2M14R01D100
12	16	11,5	60	100	12	2-3	FG1200G2M16R01B100	FG1200G2M16R01D100
14	18	13,5	60	100	14	2-3	FG1400G2M18R01B100	FG1400G2M18R01D100
16	20	15,5	60	100	16	2-3	FG1600G2M20R01B100	FG1600G2M20R01D100
18	22	17,5	60	100	18	2-3	FG1800G2M22R01B100	FG1800G2M22R01D100
10	14	9,5	120	165	10	2-3	FG1000G2M14R01B165	FG1000G2M14R01D165
12	16	11,5	120	165	12	2-3	FG1200G2M16R01B165	FG1200G2M16R01D165
14	18	13,5	120	165	14	2-3	FG1400G2M18R01B165	FG1400G2M18R01D165
16	20	15,5	120	165	16	2-3	FG1600G2M20R01B165	FG1600G2M20R01D165
18	22	17,5	120	165	18	2-3	FG1800G2M22R01B165	FG1800G2M22R01D165
20	24	19,5	120	165	20	2-3	FG2000G2M24R01B165	FG2000G2M24R01D165

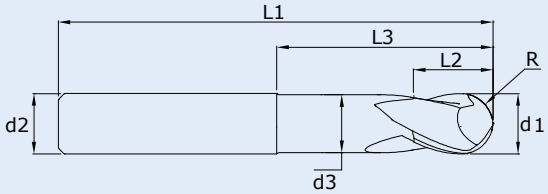


			AL			CU			GRAPHIT		
			1.7139 - 1.7262 1.7311 - 1.7323			1.8509 - 1.2713 1.2714 - 1.2718					
			Vc=300 m/dk.			Vc=250 m/dk.			Vc=450 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	2,0	0,40	0,050	23885	2389	0,040	19904	1592	0,050	35828	3583
5	2,5	0,50	0,060	19108	2293	0,050	15924	1592	0,060	28662	3439
6	3,0	0,60	0,070	15924	2229	0,050	13270	1327	0,070	23885	3344
8	4,0	0,80	0,100	11943	2389	0,080	9952	1592	0,100	17914	3583
10	5,0	1,00	0,120	9554	2293	0,110	7962	1752	0,120	14331	3439
12	6,0	1,20	0,120	7962	1911	0,110	6635	1460	0,120	11943	2866
14	7,0	1,40	0,140	6824	1911	0,120	5687	1365	0,140	10237	2866
16	8,0	1,60	0,160	5971	1911	0,140	4976	1393	0,160	8957	2866
18	9,0	1,80	0,180	5308	1911	0,160	4423	1415	0,180	7962	2866
20	10,0	2,00	0,200	4777	1911	0,180	3981	1433	0,200	7166	2866

ALMOLD BALL NOSE

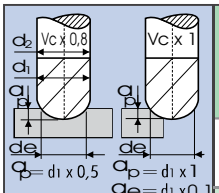


Solid carbide ball nose end mills - Almold
VHM - Radiusfräser - Almold
Fraises a rayon carbure - Almold
Karbür Küre Freze - Almold



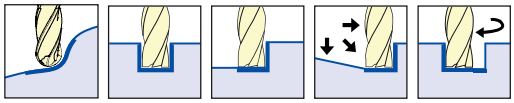
F	G	1000	R	2	M	14	A	50	D	072
END MILL	MG-07	d1	DIN 6528		TOOLEX		30°	R	DRYCUT	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	CNC R	Uncoated Code	Coated Code
4	6	3,8	25	50	4	2	2	1,986	FG0400R2M06A20B050	FG0400R2M06A20D050
5	7	4,8	25	50	5	2	2.5	2,486	FG0500R2M07A25B050	FG0500R2M07A25D050
6	8	5,7	28	57	6	2	3	2,986	FG0600R2M08A30B057	FG0600R2M08A30D057
8	10	7,6	32	63	8	2	4	3,982	FG0800R2M10A40B063	FG0800R2M10A40D063
10	14	9,5	36	72	10	2	5	4,982	FG1000R2M14A50B072	FG1000R2M14A50D072
12	16	11,5	42	83	12	2	6	5,977	FG1200R2M16A60B083	FG1200R2M16A60D083
14	18	13,5	42	83	14	2	7	6,977	FG1400R2M18A70B083	FG1400R2M18A70D083
16	20	15,5	46	92	16	2	8	7,977	FG1600R2M20A80B092	FG1600R2M20A80D092
18	22	17,5	46	92	18	2	9	8,977	FG1800R2M22A90B092	FG1800R2M22A90D092
20	24	19,5	52	104	20	2	10	9,972	FG2000R2M24A10B104	FG2000R2M24A10D104

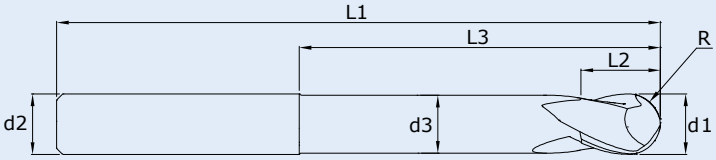


			AL			CU			GRAPHIT		
			1.7139 - 1.7262 1.7311 - 1.7323			1.8509 - 1.2713 1.2714 - 1.2718					
			Vc=450 m/dk.			Vc=400 m/dk.			Vc=600 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	2,0	0,40	0,040	35828	2866	0,030	31847	1911	0,040	47771	3822
5	2,5	0,50	0,050	28662	2866	0,040	25478	2038	0,050	38217	3822
6	3,0	0,60	0,060	23885	2866	0,050	21231	2123	0,060	31847	3822
8	4,0	0,80	0,080	17914	2866	0,070	15924	2229	0,080	23885	3822
10	5,0	1,00	0,100	14331	2866	0,090	12739	2293	0,100	19108	3822
12	6,0	1,20	0,120	11943	2866	0,110	10616	2335	0,120	15924	3822
14	7,0	1,40	0,140	10237	2866	0,120	9099	2184	0,140	13649	3822
16	8,0	1,60	0,160	8957	2866	0,140	7962	2229	0,160	11943	3822
18	9,0	1,80	0,180	7962	2866	0,160	7077	2265	0,180	10616	3822
20	10,0	2,00	0,200	7166	2866	0,180	6369	2293	0,200	9554	3822

ALMOLD LONG BALL NOSE

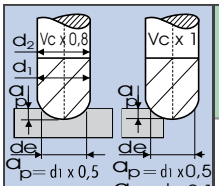


Solid carbide ball nose end mills - Almold Long
VHM - Radiusfräser - Almold Lang
Fraises a rayon carbure - Almold Longue
Karbür Küre Freze - Almold Uzun



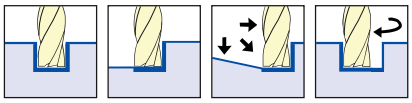
F	G	1000	R	2	M	14	A	50	D	100
END MILL	MG-07	d1	TOOLEX		TOOLEX		30°	R	DRYCUT	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	CNC R	Uncoated Code	Coated Code
4	6	3,8	48	65	4	2	2	1,986	FG0400R2M06A20B065	FG0400R2M06A20D065
5	7	4,8	48	80	5	2	2.5	2,486	FG0500R2M07A25B080	FG0500R2M07A25D080
6	8	5,7	48	80	6	2	3	2,986	FG0600R2M08A30B080	FG0600R2M08A30D080
8	10	7,6	54	88	8	2	4	3,982	FG0800R2M10A40B088	FG0800R2M10A40D088
4	6	3,8	60	100	4	2	2	1,986	FG0400R2M06A20B100	FG0400R2M06A20D100
5	7	4,8	60	100	5	2	2.5	2,486	FG0500R2M07A25B100	FG0500R2M07A25D100
6	8	5,7	60	100	6	2	3	2,986	FG0600R2M08A30B100	FG0600R2M08A30D100
8	10	7,6	60	100	8	2	4	3,982	FG0800R2M10A40B100	FG0800R2M10A40D100
10	14	9,5	60	100	10	2	5	4,982	FG1000R2M14A50B100	FG1000R2M14A50D100
12	16	11,5	60	100	12	2	6	5,977	FG1200R2M16A60B100	FG1200R2M16A60D100
14	18	13,5	60	100	14	2	7	6,977	FG1400R2M18A70B100	FG1400R2M18A70D100
16	20	15,5	60	100	16	2	8	7,977	FG1600R2M20A80B100	FG1600R2M20A80D100
18	22	17,5	60	100	18	2	9	8,977	FG1800R2M22A90B100	FG1800R2M22A90D100
10	14	9,5	120	165	10	2	5	4,982	FG1000R2M14A50B165	FG1000R2M14A50D165
12	16	11,5	120	165	12	2	6	5,977	FG1200R2M16A60B165	FG1200R2M16A60D165
14	18	13,5	120	165	14	2	7	6,977	FG1400R2M18A70B165	FG1400R2M18A70D165
16	20	15,5	120	165	16	2	8	7,977	FG1600R2M20A80B165	FG1600R2M20A80D165
18	22	17,5	120	165	18	2	9	8,977	FG1800R2M22A90B165	FG1800R2M22A90D165
20	24	19,5	120	165	20	2	10	9,972	FG2000R2M24A10B165	FG2000R2M24A10D165

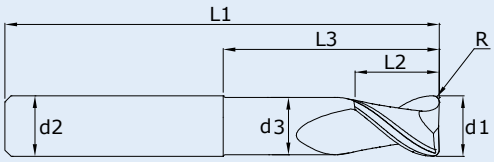


			AL			CU			GRAPHIT		
			1.7139 - 1.7262 1.7311 - 1.7323			1.8509 - 1.2713 1.2714 - 1.2718					
			Vc=450 m/dk.			Vc=400 m/dk.			Vc=600 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	2,0	0,40	0,040	31847	2548	0,030	27866	1672	0,040	43790	3503
5	2,5	0,50	0,050	25478	2548	0,040	22293	1783	0,050	35032	3503
6	3,0	0,60	0,060	21231	2548	0,050	18577	1858	0,060	29193	3503
8	4,0	0,80	0,080	15924	2548	0,070	13933	1951	0,080	21895	3503
10	5,0	1,00	0,100	12739	2548	0,090	11146	2006	0,100	17516	3503
12	6,0	1,20	0,120	10616	2548	0,110	9289	2044	0,120	14597	3503
14	7,0	1,40	0,140	9099	2548	0,120	7962	1911	0,140	12511	3503
16	8,0	1,60	0,160	7962	2548	0,140	6967	1951	0,160	10947	3503
18	9,0	1,80	0,180	7077	2548	0,160	6192	1982	0,180	9731	3503
20	10,0	2,00	0,200	6369	2548	0,180	5573	2006	0,200	8758	3503

ALMOLD CORNER - R

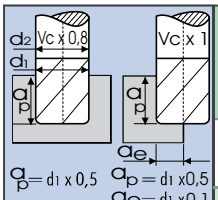


Solid carbide end mills with corner radius - Almold
VHM - Schaftfräser mit Eckenradius - Almold
Fraises toriques carbure - Almold
Karbür Köşe Radyüslü Freze - Almold



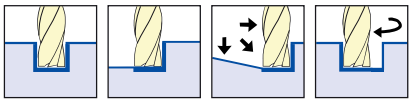
F	G	1000	K	2	M	14	R	20	D	072
END MILL	MG-07	d1	TOOLEX		TOOLEX		40°	R	DRYCUT	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	With Neck Coated Code	Without NeckCoated Code
4	6	3,8	25	50	4	2	0,5	FG0400K2M06R05D050	FG0400K2C06R05D050
5	7	4,8	25	50	5	2	0,5	FG0500K2M07R05D050	FG0500K2C07R05D050
6	8	5,7	28	57	6	2	0,5	FG0600K2M08R05D057	FG0600K2C08R05D057
6	8	5,7	28	57	6	2	1,0	FG0600K2M08R10D057	FG0600K2C08R10D057
8	10	7,6	32	63	8	2	0,5	FG0800K2M10R05D063	FG0800K2C10R05D063
8	10	7,6	32	63	8	2	1,0	FG0800K2M10R10D063	FG0800K2C10R10D063
8	10	7,6	32	63	8	2	1,5	FG0800K2M10R15D063	FG0800K2C10R15D063
8	10	7,6	32	63	8	2	2,0	FG0800K2M10R20D063	FG0800K2C10R20D063
10	14	9,5	36	72	10	2	0,5	FG1000K2M14R05D072	FG1000K2C14R05D072
10	14	9,5	36	72	10	2	1,0	FG1000K2M14R10D072	FG1000K2C14R10D072
10	14	9,5	36	72	10	2	1,5	FG1000K2M14R15D072	FG1000K2C14R15D072
10	14	9,5	36	72	10	2	2,0	FG1000K2M14R20D072	FG1000K2C14R20D072
12	16	11,5	42	83	12	2	0,5	FG1200K2M16R05D083	FG1200K2C16R05D083
12	16	11,5	42	83	12	2	1,0	FG1200K2M16R10D083	FG1200K2C16R10D083
12	16	11,5	42	83	12	2	1,5	FG1200K2M16R15D083	FG1200K2C16R15D083
12	16	11,5	42	83	12	2	2,0	FG1200K2M16R20D083	FG1200K2C16R20D083
14	18	13,5	42	83	14	2	0,5	FG1400K2M18R05D083	FG1400K2C18R05D083
14	18	13,5	42	83	14	2	1,0	FG1400K2M18R10D083	FG1400K2C18R10D083
14	18	13,5	42	83	14	2	1,5	FG1400K2M18R15D083	FG1400K2C18R15D083
14	18	13,5	42	83	14	2	2,0	FG1400K2M18R20D083	FG1400K2C18R20D083
16	20	15,5	46	92	16	2	0,5	FG1600K2M20R05D092	FG1600K2C20R05D092
16	20	15,5	46	92	16	2	1,0	FG1600K2M20R10D092	FG1600K2C20R10D092
16	20	15,5	46	92	16	2	1,5	FG1600K2M20R15D092	FG1600K2C20R15D092
16	20	15,5	46	92	16	2	2,0	FG1600K2M20R20D092	FG1600K2C20R20D092

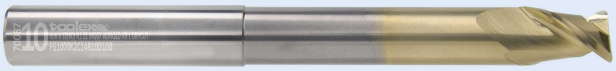


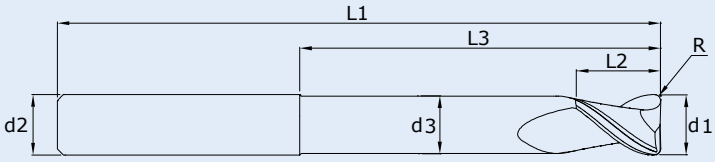
			AL			CU			GRAPHIT		
			1.7139 - 1.7262 1.7311 - 1.7323			1.8509 - 1.2713 1.2714 - 1.2718					
			Vc=350 m/dk.			Vc=300 m/dk.			Vc=500 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	2,0	0,40	0,050	35828	3583	0,040	27866	2229	0,050	43790	4379
5	2,5	0,50	0,060	28662	3439	0,050	22293	2229	0,060	35032	4204
6	3,0	0,60	0,070	23885	3344	0,050	18577	1858	0,070	29193	4087
8	4,0	0,80	0,100	17914	3583	0,080	13933	2229	0,100	21895	4379
10	5,0	1,00	0,120	14331	3439	0,110	11146	2452	0,120	17516	4204
12	6,0	1,20	0,120	11943	2866	0,110	9289	2044	0,120	14597	3503
14	7,0	1,40	0,140	10237	2866	0,120	7962	1911	0,140	12511	3503
16	8,0	1,60	0,160	8957	2866	0,140	6967	1951	0,160	10947	3503
18	9,0	1,80	0,180	7962	2866	0,160	6192	1982	0,180	9731	3503
20	10,0	2,00	0,200	7166	2866	0,180	5573	2006	0,200	8758	3503

ALMOLD LONG CORNER - R



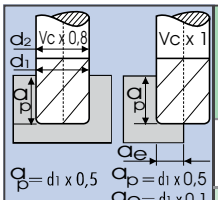
Solid carbide end mills with corner radius - Almold Long
VHM - Schaftfräser mit Eckenradius - Almold Lang
Fraises toriques carbure - Almold Longue
Karbür Köşe Radyüslü Freze - Almold Uzun





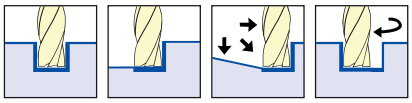
F	G	1000	K	2	M	14	R	20	D	100
END MILL	MG-07	d1	TOOLEX		TOOLEX		40°	R	DRYCUT	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	With Neck Coated Code	Without Neck Coated Code
4	6	3,8	32	65	4	2	0,5	FG0400K2M06R05D065	FG0400K2C06R05D065
5	7	4,8	40	80	5	2	0,5	FG0500K2M07R05D080	FG0500K2C07R05D080
6	8	5,7	40	80	6	2	0,5	FG0600K2M08R05D080	FG0600K2C08R05D080
6	8	5,7	40	80	6	2	1,0	FG0600K2M08R10D080	FG0600K2C08R10D080
8	10	7,6	44	88	8	2	0,5	FG0800K2M10R05D088	FG0800K2C10R05D088
8	10	7,6	44	88	8	2	1,0	FG0800K2M10R10D088	FG0800K2C10R10D088
8	10	7,6	44	88	8	2	1,5	FG0800K2M10R15D088	FG0800K2C10R15D088
8	10	7,6	44	88	8	2	2,0	FG0800K2M10R20D088	FG0800K2C10R20D088
10	14	9,5	60	100	10	2	0,5	FG1000K2M14R05D100	FG1000K2C14R05D100
10	14	9,5	60	100	10	2	1,0	FG1000K2M14R10D100	FG1000K2C14R10D100
10	14	9,5	60	100	10	2	1,5	FG1000K2M14R15D100	FG1000K2C14R15D100
10	14	9,5	60	100	10	2	2,0	FG1000K2M14R20D100	FG1000K2C14R20D100
12	16	11,5	70	110	12	2	0,5	FG1200K2M16R05D110	FG1200K2C16R05D110
12	16	11,5	70	110	12	2	1,0	FG1200K2M16R10D110	FG1200K2C16R10D110
12	16	11,5	70	110	12	2	1,5	FG1200K2M16R15D110	FG1200K2C16R15D110
12	16	11,5	70	110	12	2	2,0	FG1200K2M16R20D110	FG1200K2C16R20D110
14	18	13,5	70	110	14	2	0,5	FG1400K2M18R05D110	FG1400K2C18R05D110
14	18	13,5	70	110	14	2	1,0	FG1400K2M18R10D110	FG1400K2C18R10D110
14	18	13,5	70	110	14	2	1,5	FG1400K2M18R15D110	FG1400K2C18R15D110
14	18	13,5	70	110	14	2	2,0	FG1400K2M18R20D110	FG1400K2C18R20D110
16	20	15,5	70	110	16	2	0,5	FG1600K2M20R05D110	FG1600K2C20R05D110
16	20	15,5	70	110	16	2	1,0	FG1600K2M20R10D110	FG1600K2C20R10D110
16	20	15,5	70	110	16	2	2,0	FG1600K2M20R20D110	FG1600K2C20R20D110
16	20	15,5	70	110	16	2	3,0	FG1600K2M20R30D110	FG1600K2C20R30D110

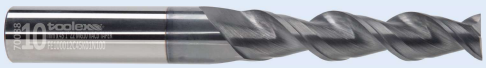


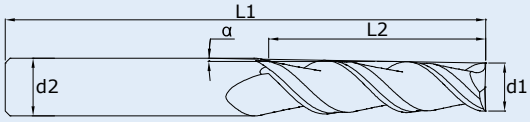
			AL			CU			GRAPHIT		
			1.7139 - 1.7262 1.7311 - 1.7323			1.8509 - 1.2713 1.2714 - 1.2718					
			Vc=350 m/dk.			Vc=300 m/dk.			Vc=500 m/dk.		
d1	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	2,0	0,40	0,050	23885	2389	0,040	19904	1592	0,050	35828	3583
5	2,5	0,50	0,060	19108	2293	0,050	15924	1592	0,060	28662	3439
6	3,0	0,60	0,070	15924	2229	0,050	13270	1327	0,070	23885	3344
8	4,0	0,80	0,100	11943	2389	0,080	9952	1592	0,100	17914	3583
10	5,0	1,00	0,120	9554	2293	0,110	7962	1752	0,120	14331	3439
12	6,0	1,20	0,120	7962	1911	0,110	6635	1460	0,120	11943	2866
14	7,0	1,40	0,140	6824	1911	0,120	5687	1365	0,140	10237	2866
16	8,0	1,60	0,160	5971	1911	0,140	4976	1393	0,160	8957	2866
18	9,0	1,80	0,180	5308	1911	0,160	4423	1415	0,180	7962	2866
20	10,0	2,00	0,200	4777	1911	0,180	3981	1433	0,200	7166	2866

TAPER <52 HRC



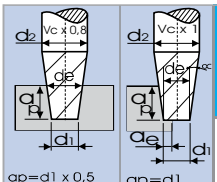
Solid carbide conical end millls - Taper
VHM - Konischer Schaftfräser - Taper
Fraises Cônique en bout carbure - Taper
Karbür Konik Freze - Taper



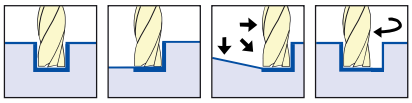


F	E	1000	2	2	C	45	K	01	N	100
END MILL	MG-10	d1	TOOLEX		DIN 6535 HA		45°	0.1x 45°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	TAPER	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

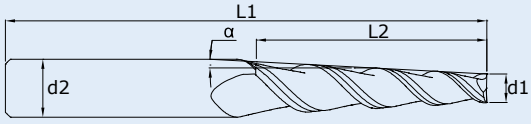
d1(e8)	L2	L1	d2(h6)	Z	∝	d3	Uncoated Code	Coated Code
2	20	65	3	2	30'	2,35	FE0200Y2C20K01B065	FE0200Y2C20K01N065
3	25	65	4	2	30'	3,45	FE0300Y2C25K01B065	FE0300Y2C25K01N065
4	30	65	5	2	30'	4,50	FE0400Y2C30K01B065	FE0400Y2C30K01N065
5	30	68	6	2	30'	5,50	FE0500Y2C30K01B068	FE0500Y2C30K01N068
6	40	88	8	2	30'	6,80	FE0600Y2C40K01B088	FE0600Y2C40K01N088
8	45	100	10	2	30'	8,80	FE0800Y2C45K01B100	FE0800Y2C45K01N100
10	45	100	12	2	30'	10,80	FE1000Y2C45K01B100	FE1000Y2C45K01N100
12	45	100	14	2	30'	12,80	FE1200Y2C45K01B100	FE1200Y2C45K01N100
2	20	65	3	2	1°	2,70	FE020012C20K01B065	FE020012C20K01N065
3	28	65	4	2	1°	4,00	FE030012C28K01B065	FE030012C28K01N065
4	28	65	5	2	1°	5,00	FE040012C28K01B065	FE040012C28K01N065
5	28	68	6	2	1°	6,00	FE050012C28K01B068	FE050012C28K01N068
6	40	88	8	2	1°	7,40	FE060012C40K01B088	FE060012C40K01N088
8	45	100	10	2	1°	9,60	FE080012C45K01B100	FE080012C45K01N100
10	45	100	12	2	1°	11,60	FE100012C45K01B100	FE100012C45K01N100
12	45	100	14	2	1°	13,60	FE120012C45K01B100	FE120012C45K01N100
2	19	65	3	2	1°.30'	3,00	FE0200B2C19K01B065	FE0200B2C19K01N065
3	19	65	4	2	1°.30'	4,30	FE0300B2C19K01B065	FE0300B2C19K01N065
4	19	68	5	2	1°.30'	5,60	FE0400B2C19K01B068	FE0400B2C19K01N068
5	38	68	6	2	1°.30'	7,00	FE0500B2C19K01B068	FE0500B2C19K01N068
6	45	88	8	2	1°.30'	8,00	FE0600B2C38K01B088	FE0600B2C38K01N088
8	45	100	10	2	1°.30'	10,00	FE0800B2C38K01B100	FE0800B2C38K01N100
10	45	100	12	2	1°.30'	12,00	FE1000B2C38K01B100	FE1000B2C38K01N100
12	45	100	14	2	1°.30'	14,00	FE1200B2C38K01B100	FE1200B2C38K01N100



				HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
				1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
				Vc=80m/dk.			Vc=70 m/dk.			Vc=50 m/dk.			Vc=100 m/dk.			Vc=300 m/dk.			Vc=240 m/dk.			Vc=50 m/dk.			Vc=50 m/dk.		
d1	∝	ap	de	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
2	1°	1	2,035	0,025	12520	310x Z	0,025	10955	270x Z	0,018	7825	140x Z	0,040	15650	625x Z	0,050	46948	2350x Z	0,040	37559	1500x Z	0,018	7825	140x Z	0,015	7825	115x Z
3	1°	1,5	3,052	0,037	8348	310x Z	0,037	7304	270x Z	0,027	5218	140x Z	0,060	10435	625x Z	0,075	31304	2350x Z	0,060	25044	1500x Z	0,027	5218	140x Z	0,022	5218	115x Z
4	1°	2	4,070	0,050	6260	310x Z	0,049	5477	270x Z	0,036	3912	140x Z	0,080	7825	625x Z	0,100	23474	2350x Z	0,080	18780	1500x Z	0,036	3912	140x Z	0,029	3912	115x Z
5	1°	2,5	5,087	0,062	5008	310x Z	0,061	4451	270x Z	0,045	3130	140x Z	0,100	6260	625x Z	0,125	18781	2350x Z	0,100	15025	1500x Z	0,045	3130	140x Z	0,037	3130	115x Z
6	1°	3	6,105	0,074	4173	310x Z	0,074	3652	270x Z	0,054	2608	140x Z	0,120	5216	625x Z	0,150	15650	2350x Z	0,120	12520	1500x Z	0,054	2608	140x Z	0,044	2608	115x Z
8	1°	4	8,140	0,099	3130	310x Z	0,098	2739	270x Z	0,072	1956	140x Z	0,160	3912	625x Z	0,200	11737	2350x Z	0,160	9390	1500x Z	0,072	1956	140x Z	0,059	1956	115x Z
10	1°	5	10,175	0,124	2504	310x Z	0,123	2191	270x Z	0,089	1565	140x Z	0,200	3130	625x Z	0,250	9390	2350x Z	0,200	7512	1500x Z	0,089	1565	140x Z	0,073	1565	115x Z
12	1°	6	12,209	0,148	2087	310x Z	0,148	1826	270x Z	0,107	1304	140x Z	0,240	2608	625x Z	0,300	7825	2350x Z	0,240	6260	1500x Z	0,107	1304	140x Z	0,088	1304	115x Z

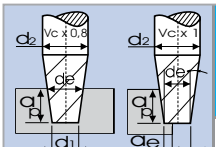


Solid carbide conical end millls - Taper
VHM - Konischer Schaftfräser - Taper
Fraises Cônique en bout carbure - Taper
Karbür Konik Freze - Taper



F	E	1000	5	2	C	45	K	01	N	100
END MILL	MG-10	d1	TOOLEX		DIN 6535 HA		45°	0.1x 45°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	TAPER	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	α	d3	Uncoated Code	Coated Code
2	20	65	4	2	2°	3,40	FE020022C20K01B065	FE020022C20K01N065
3	28	65	5	2	2°	5,00	FE030022C28K01B065	FE030022C28K01N065
4	28	68	6	2	2°	6,00	FE040022C28K01B068	FE040022C28K01N068
5	42	88	8	2	2°	8,00	FE050022C42K01B088	FE050022C42K01N088
6	45	100	10	2	2°	9,14	FE060022C45K01B100	FE060022C45K01N100
8	45	100	12	2	2°	11,14	FE080022C45K01B100	FE080022C45K01N100
10	45	100	14	2	2°	13,14	FE100022C45K01B100	FE100022C45K01N100
12	45	100	16	2	2°	15,14	FE120022C45K01B100	FE120022C45K01N100
2	19	65	5	2	3°	4,00	FE020032C19K01B065	FE020032C19K01N065
3	28	68	6	2	3°	6,00	FE030032C28K01B068	FE030032C28K01N068
4	38	88	8	2	3°	8,00	FE040032C38K01B088	FE040032C38K01N088
5	48	100	10	2	3°	10,00	FE050032C48K01B100	FE050032C48K01N100
6	48	100	12	2	3°	11,00	FE060032C48K01B100	FE060032C48K01N100
8	48	100	14	2	3°	13,00	FE080032C48K01B100	FE080032C48K01N100
10	48	100	16	2	3°	15,00	FE100032C48K01B100	FE100032C48K01N100
12	48	100	18	2	3°	17,00	FE120032C48K01B100	FE120032C48K01N100
2	20	68	6	2	5°	5,50	FE020052C20K01B068	FE020052C20K01N068
3	28	88	8	2	5°	8,00	FE030052C28K01B088	FE030052C28K01N088
4	34	100	10	2	5°	10,00	FE040052C34K01B100	FE040052C34K01N100
5	40	100	12	2	5°	12,00	FE050052C40K01B100	FE050052C40K01N100
6	45	100	14	2	5°	14,00	FE060052C45K01B100	FE060052C45K01N100
8	45	100	16	2	5°	16,00	FE080052C45K01B100	FE080052C45K01N100
10	45	100	18	2	5°	18,00	FE100052C45K01B100	FE100052C45K01N100
12	45	100	20	2	5°	20,00	FE120052C45K01B100	FE120052C45K01N100

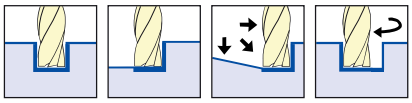


ap=d1 x 0,5
ae=d1

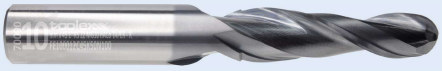
ap=d1
ae=d1 x 0,5

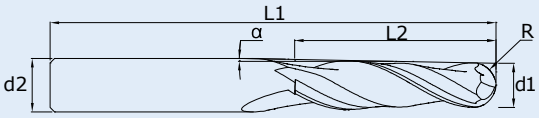
				HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
				1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
				Vc=83m/dk.			Vc=72 m/dk.			Vc=52 m/dk.			Vc=103 m/dk.			Vc=310 m/dk.			Vc=248 m/dk.			Vc=52 m/dk.			Vc=52 m/dk.		
d1	α	ap	de	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
2	3°	1	2,105	0,025	12520	310x Z	0,025	10955	270x Z	0,018	7825	140x Z	0,040	15650	625x Z	0,050	46948	2350x Z	0,040	37559	1500x Z	0,018	7825	140x Z	0,015	7825	115x Z
3	3°	1,5	3,157	0,037	8348	310x Z	0,037	7304	270x Z	0,027	5218	140x Z	0,060	10435	625x Z	0,075	31304	2350x Z	0,060	25044	1500x Z	0,027	5218	140x Z	0,022	5218	115x Z
4	3°	2	4,120	0,050	6260	310x Z	0,049	5477	270x Z	0,036	3912	140x Z	0,080	7825	625x Z	0,100	23474	2350x Z	0,080	18780	1500x Z	0,036	3912	140x Z	0,029	3912	115x Z
5	3°	2,5	5,262	0,062	5008	310x Z	0,061	4451	270x Z	0,045	3130	140x Z	0,100	6260	625x Z	0,125	18781	2350x Z	0,100	15025	1500x Z	0,045	3130	140x Z	0,037	3130	115x Z
6	3°	3	6,314	0,074	4173	310x Z	0,074	3652	270x Z	0,054	2608	140x Z	0,120	5216	625x Z	0,150	15650	2350x Z	0,120	12520	1500x Z	0,054	2608	140x Z	0,044	2608	115x Z
8	3°	4	8,420	0,099	3130	310x Z	0,098	2739	270x Z	0,072	1956	140x Z	0,160	3912	625x Z	0,200	11737	2350x Z	0,160	9390	1500x Z	0,072	1956	140x Z	0,059	1956	115x Z
10	3°	5	10,524	0,124	2504	310x Z	0,123	2191	270x Z	0,089	1565	140x Z	0,200	3130	625x Z	0,250	9390	2350x Z	0,200	7512	1500x Z	0,089	1565	140x Z	0,073	1565	115x Z
12	3°	6	12,630	0,148	2087	310x Z	0,148	1826	270x Z	0,107	1304	140x Z	0,240	2608	625x Z	0,300	7825	2350x Z	0,240	6260	1500x Z	0,107	1304	140x Z	0,088	1304	115x Z

TAPER <52 HRC



Solid carbide conical ball nose end millls - Taper
VHM - Konischer Radiusfräser - Taper
Fraises Cônique a rayon carbure - Taper
Karbür Konik Küre Freze - Taper

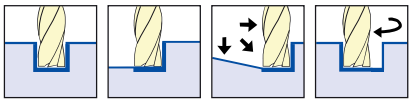




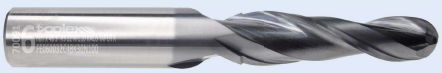
F	E	1000	1	2	C	45	K	50	N	100
END MILL	MG-10	d1	TOOLEX		DIN 6535 HA		45°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	TAPER	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

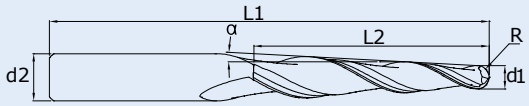
d1(e8)	L2	L1	d2(h6)	Z	R	∝	d3	Uncoated Code	Coated Code
2	20	65	3	2	1	30'	2,35	FE0200Y2C20K10B065	FE0200Y2C20K10N065
3	25	65	4	2	1,5	30'	3,45	FE0300Y2C25K15B065	FE0300Y2C25K15N065
4	30	65	5	2	2	30'	4,50	FE0400Y2C30K20B065	FE0400Y2C30K20N065
5	30	68	6	2	2,5	30'	5,50	FE0500Y2C30K25B068	FE0500Y2C30K25N068
6	40	88	8	2	3	30'	6,80	FE0600Y2C40K30B088	FE0600Y2C40K30N088
8	45	100	10	2	4	30'	8,80	FE0800Y2C45K40B100	FE0800Y2C45K40N100
10	45	100	12	2	5	30'	10,80	FE1000Y2C45K50B100	FE1000Y2C45K50N100
12	45	100	14	2	6	30'	12,80	FE1200Y2C45K60B100	FE1200Y2C45K60N100
2	19	65	3	2	1	1°	2,66	FE020012C19K10B065	FE020012C19K10N065
3	28	65	4	2	1,5	1°	4,00	FE030012C28K15B065	FE030012C28K15N065
4	28	65	5	2	2	1°	5,00	FE040012C28K20B065	FE040012C28K20N065
5	28	68	6	2	2,5	1°	6,00	FE050012C28K25B068	FE050012C28K25N068
6	40	88	8	2	3	1°	7,40	FE060012C40K30B088	FE060012C40K30N088
8	45	100	10	2	4	1°	9,60	FE080012C45K40B100	FE080012C45K40N100
10	45	100	12	2	5	1°	11,60	FE100012C45K50B100	FE100012C45K50N100
12	45	100	14	2	6	1°	13,60	FE120012C45K60B100	FE120012C45K60N100
2	20	65	3	2	1	1°.30'	3,00	FE0200B2C20K10B065	FE0200B2C20K10N065
3	28	65	4	2	1,5	1°.30'	4,30	FE0300B2C28K15B065	FE0300B2C28K15N065
4	34	68	5	2	2	1°.30'	5,60	FE0400B2C34K20B068	FE0400B2C34K20N068
5	40	88	6	2	2,5	1°.30'	7,00	FE0500B2C40K25B088	FE0500B2C40K25N088
6	45	88	8	2	3	1°.30'	8,00	FE0600B2C45K30B088	FE0600B2C45K30N088
8	45	100	10	2	4	1°.30'	10,00	FE0800B2C45K40B100	FE0800B2C45K40N100
10	45	100	12	2	5	1°.30'	12,00	FE1000B2C45K50B100	FE1000B2C45K50N100
12	45	100	14	2	6	1°.30'	14,00	FE1200B2C45K60B100	FE1200B2C45K60N100

TAPER <52 HRC



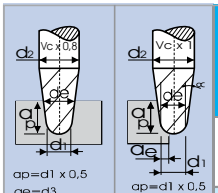
Solid carbide conical ball nose end millls Taper
VHM - Konischer Radiusfräser - Taper
Fraises Cônique a rayon carbure - Taper
Karbür Konik Küre Freze - Taper





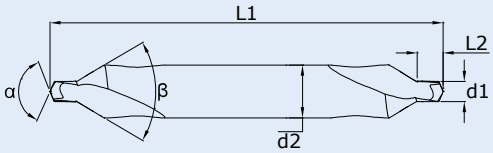
F	E	1000	2	2	C	45	K	50	N	100
END MILL	MG-10	d1	TOOLEX		DIN 6535 HA		45°	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	TAPER	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	α	d3	Uncoated Code	Coated Code
2	20	65	4	2	1	2°	3,32	FE020022C20K10B065	FE020022C20K10N065
3	28	65	5	2	1,5	2°	5,00	FE030022C28K15B065	FE030022C28K15N065
4	28	68	6	2	2	2°	6,00	FE040022C28K20B068	FE040022C28K20N068
5	42	88	8	2	2,5	2°	8,00	FE050022C42K25B088	FE050022C42K25N088
6	45	100	10	2	3	2°	9,14	FE060022C45K30B100	FE060022C45K30N100
8	45	100	12	2	4	2°	11,14	FE080022C45K40B100	FE080022C45K40N100
10	45	100	14	2	5	2°	13,14	FE100022C45K50B100	FE100022C45K50N100
12	45	100	16	2	6	2°	15,14	FE120022C45K60B100	FE120022C45K60N100
2	19	65	4	2	1	3°	4,00	FE020032C19K10B065	FE020032C19K10N065
3	28	68	6	2	1,5	3°	6,00	FE030032C28K15B068	FE030032C28K15N068
4	38	88	8	2	2	3°	8,00	FE040032C38K20B088	FE040032C38K20N088
5	48	100	10	2	2,5	3°	10,00	FE050032C48K25B100	FE050032C48K25N100
6	48	100	12	2	3	3°	11,00	FE060032C48K30B100	FE060032C48K30N100
8	48	100	14	2	4	3°	13,00	FE080032C48K40B100	FE080032C48K40N100
10	48	100	16	2	5	3°	15,00	FE100032C48K50B100	FE100032C48K50N100
12	48	100	18	2	6	3°	17,00	FE120032C48K60B100	FE120032C48K60N100
2	20	65	6	2	1	5°	5,32	FE020052C20K10B065	FE020052C20K10N065
3	28	88	8	2	1,5	5°	8,00	FE030052C28K15B088	FE030052C28K15N088
4	34	100	10	2	2	5°	10,00	FE040052C34K20B100	FE040052C34K20N100
5	40	100	12	2	2,5	5°	12,00	FE050052C40K25B100	FE050052C40K25N100
6	45	100	14	2	3	5°	14,00	FE060052C45K30B100	FE060052C45K30N100
8	45	100	16	2	4	5°	16,00	FE080052C45K40B100	FE080052C45K40N100
10	45	100	18	2	5	5°	18,00	FE100052C45K50B100	FE100052C45K50N100
12	45	100	20	2	6	5°	20,00	FE120052C45K60B100	FE120052C45K60N100



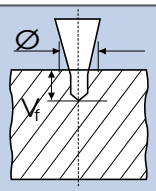
				HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
				1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
				Vc=80m/dk.			Vc=70m/dk.			Vc=50m/dk.			Vc=100 m/dk.			Vc=300m/dk.			Vc=240m/dk.			Vc=60 m/dk.			Vc=50 m/dk.		
d1	α	ap	ae	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
2	1°	1	2,035	0,025	12520	310 x Z	0,025	10955	270 x Z	0,018	7825	140 x Z	0,040	15650	625x Z	0,050	46948	2350x Z	0,040	375591	500 x Z	0,018	7825	140 x Z	0,015	7825	115x Z
3	1°	1,5	3,052	0,037	8348	310 x Z	0,037	7304	270 x Z	0,027	5218	140 x Z	0,060	10435	625x Z	0,075	31304	2350x Z	0,060	250441	500 x Z	0,027	5218	140 x Z	0,022	5218	115x Z
4	1°	2	4,070	0,050	6260	310 x Z	0,049	5477	270 x Z	0,036	3912	140 x Z	0,080	7825	625x Z	0,100	23474	2350x Z	0,080	187801	500 x Z	0,036	3912	140 x Z	0,029	3912	115x Z
5	1°	2,5	5,087	0,062	5008	310 x Z	0,061	4451	270 x Z	0,045	3130	140 x Z	0,100	6260	625x Z	0,125	18781	2350x Z	0,100	150251	500 x Z	0,045	3130	140 x Z	0,037	3130	115x Z
6	1°	3	6,105	0,074	4173	310 x Z	0,074	3652	270 x Z	0,054	2608	140 x Z	0,120	5216	625x Z	0,150	15650	2350x Z	0,120	125201	500 x Z	0,054	2608	140 x Z	0,044	2608	115x Z
8	1°	4	8,140	0,099	3130	310 x Z	0,098	2739	270 x Z	0,072	1956	140 x Z	0,160	3912	625x Z	0,200	11737	2350x Z	0,160	7390	500 x Z	0,072	1956	140 x Z	0,059	1956	115x Z
10	1°	5	10,175	0,124	2504	310 x Z	0,123	2191	270 x Z	0,089	1565	140 x Z	0,200	3130	625x Z	0,250	9390	2350x Z	0,200	7512	500 x Z	0,089	1565	140 x Z	0,073	1565	115x Z
12	1°	6	12,209	0,148	2087	310 x Z	0,148	1826	270 x Z	0,107	1304	140 x Z	0,240	2608	625x Z	0,300	7825	2350x Z	0,240	6260	500 x Z	0,107	1304	140 x Z	0,088	1304	115x Z

Solid carbide Center drills
VHM - Zentrierbohrer
Mèche a Centrer carbure
Karbür Punta Matkab



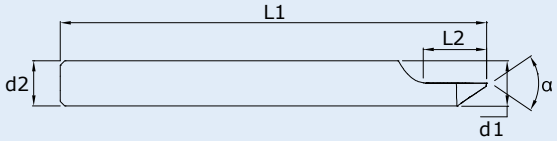
P	S	0400	T	2	C	05	F	60	N	056
CENTER DRILL	MG-10	d1	TOOLEX		DIN 6535 HA		20°	60°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE ANGEL	COATED	FULL LENGTH

d_1(e8)	L_2	L_1	d_2(h6)	Z	β	Uncoated Code	Coated Code
1,00	1,3	40	3	2	60°	PS0100T2C01F60B040	PS0100T2C01F60N040
1,25	1,6	40	3	2	60°	PS0125T2C02F60B040	PS0125T2C02F60N040
1,60	2,0	40	4	2	60°	PS0160T2C02F60B040	PS0160T2C02F60N040
2,00	2,5	40	5	2	60°	PS0200T2C02F60B040	PS0200T2C02F60N040
2,50	3,1	45	6	2	60°	PS0250T2C03F60B045	PS0250T2C03F60N045
3,15	3,9	50	8	2	60°	PS0315T2C04F60B050	PS0315T2C04F60N050
4,00	5,0	56	10	2	60°	PS0400T2C05F60B056	PS0400T2C05F60N056
5,00	6,3	63	12	2	60°	PS0500T2C06F60B063	PS0500T2C06F60N063
6,30	8,0	71	16	2	60°	PS0630T2C08F60B071	PS0630T2C08F60N071
8,00	10,1	80	20	2	60°	PS0800T2C10F60B080	PS0800T2C10F60N080



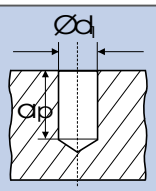
	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=130 m/dk.			Vc=130 m/dk.			Vc=70 m/dk.			Vc=120 m/dk.			Vc=300 m/dk.			Vc=220 m/dk.			Vc=50 m/dk.			Vc=40 m/dk.		
d_1	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
2	0,02	4777	191	0,006	3980	47	0,003	3388	14	0,01	4378	87	0,05	11942	119	0,02	9554	82	0,003	1592	9	0,002	1273	5
3	0,03	3184	191	0,008	2653	42	0,004	1592	12	0,01	2919	58	0,08	7961	127	0,03	6369	82	0,006	1061	12	0,003	849	5
4	0,04	2384	191	0,010	1990	39	0,004	1194	9	0,02	2189	87	0,10	5971	119	0,04	4777	82	0,009	796	14	0,004	636	5
5	0,04	1910	152	0,010	1592	31	0,005	955	9	0,02	1751	70	0,14	4777	133	0,05	3821	82	0,010	636	12	0,005	509	5
6	0,05	1592	159	0,012	1326	31	0,006	796	9	0,03	1459	87	0,18	3980	143	0,06	3184	82	0,010	530	10	0,005	424	4
7	0,05	1364	136	0,015	1137	34	0,007	682	9	0,03	1251	75	0,22	3412	150	0,06	2729	82	0,010	454	9	0,006	363	4
8	0,06	1194	143	0,018	995	35	0,008	597	9	0,04	1094	87	0,25	2985	149	0,07	2388	82	0,012	398	9	0,006	318	3

Solid carbide pantograph
VHM - Pantograph
Forets a pantographe
Karbür Pantograf



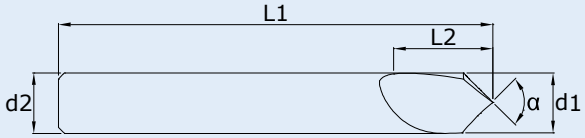
P	S	0600	P	1	C	07	G	60	N	057
NC Bohrer	MG-10	d1	TOOLEX		DIN 6535 HA		0°	60°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE ANGEL	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	α	Coated Code
3	4	40	3	1	60°	PS0300P1C04G60N040
3	4	100	3	1	60°	PS0300P1C04G60N100
4	5	50	4	1	60°	PS0400P1C05G60N050
4	5	100	4	1	60°	PS0400P1C05G60N100
6	7	57	6	1	60°	PS0600P1C07G60N057
6	7	100	6	1	60°	PS0600P1C07G60N100
3	4	40	3	1	90°	PS0300P1C04G90N040
3	4	100	3	1	90°	PS0300P1C04G90N100
4	5	50	4	1	90°	PS0400P1C05G90N050
4	5	100	4	1	90°	PS0400P1C05G90N100
6	7	57	6	1	90°	PS0600P1C07G90N057
6	7	100	6	1	90°	PS0600P1C07G90N100



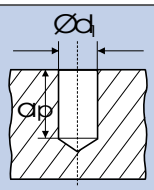
	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=130 m/dk.			Vc=130 m/dk.			Vc=70 m/dk.			Vc=120 m/dk.			Vc=300 m/dk.			Vc=220 m/dk.			Vc=50 m/dk.			Vc=40 m/dk.		
d1	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	0,04	5175	414	0,010	4379	88	0,004	2787	22	0,02	4777	191	0,10	11943	2389	0,04	8758	701	0,009	1990	36	0,004	1592	13
5	0,04	4140	331	0,010	3503	70	0,005	2229	22	0,02	3822	153	0,14	9554	2675	0,05	7006	701	0,010	1592	32	0,005	1274	13
6	0,05	3450	345	0,012	2919	70	0,006	1858	22	0,03	3185	191	0,18	7962	2866	0,06	5839	701	0,010	1327	27	0,005	1062	11
7	0,05	2957	296	0,015	2502	75	0,007	1592	22	0,03	2730	164	0,22	6824	3003	0,06	5005	601	0,010	1137	23	0,006	910	11
8	0,06	2588	311	0,018	2190	79	0,008	1393	22	0,04	2389	191	0,25	5971	2986	0,07	4379	613	0,012	995	24	0,006	796	10
10	0,07	2070	290	0,020	1752	70	0,010	1115	22	0,05	1911	191	0,34	4777	3248	0,08	3503	561	0,015	796	24	0,007	637	9
12	0,08	1725	276	0,030	1460	88	0,020	929	37	0,06	1592	191	0,42	3981	3344	0,10	2919	584	0,018	664	24	0,008	531	9
14	0,09	1479	266	0,035	1251	88	0,030	796	48	0,07	1365	191	0,50	3412	3412	0,15	2502	751	0,020	569	23	0,009	455	9
16	0,10	1294	259	0,040	1095	88	0,040	697	56	0,08	1194	191	0,58	2986	3463	0,20	2190	876	0,020	498	20	0,010	398	8
18	0,10	1150	230	0,045	973	88	0,040	619	50	0,08	1062	170	0,62	2654	3291	0,20	1946	779	0,024	442	21	0,012	354	9
20	0,10	1035	207	0,045	876	79	0,050	557	56	0,09	955	172	0,66	2389	3153	0,25	1752	876	0,028	398	22	0,012	319	8

Solid carbide NCEX drills
VHM - NCEX Bohrer
Forets a pointer NCEX
Karbür NCEX Matkap



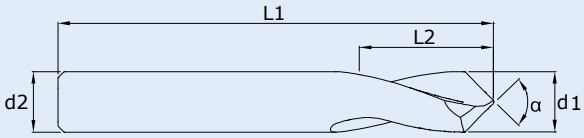
N	S	1000	T	1	C	16	F	90	N	072
NC Bohrer	MG-10	d1	TOOLEX		DIN 6535 HA		20°	90°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE ANGEL	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	α	Uncoated Code	Coated Code
4	6	50	4	1	90°	NS0400T1C06F90B050	NS0400T1C06F90N050
5	8	50	5	1	90°	NS0500T1C08F90B050	NS0500T1C08F90N050
6	10	57	6	1	90°	NS0600T1C10F90B057	NS0600T1C10F90N057
8	12	63	8	1	90°	NS0800T1C12F90B063	NS0800T1C12F90N063
10	16	72	10	1	90°	NS1000T1C16F90B072	NS1000T1C16F90N072
12	18	83	12	1	90°	NS1200T1C18F90B083	NS1200T1C18F90N083
16	20	92	16	1	90°	NS1600T1C20F90B092	NS1600T1C20F90N092
20	22	104	20	1	90°	NS2000T1C22F90B104	NS2000T1C22F90N104
4	6	50	4	1	120°	NS0400T1C06F12B050	NS0400T1C06F12N050
5	8	50	5	1	120°	NS0500T1C08F12B050	NS0500T1C08F12N050
6	10	57	6	1	120°	NS0600T1C10F12B057	NS0600T1C10F12N057
8	12	63	8	1	120°	NS0800T1C12F12B063	NS0800T1C12F12N063
10	16	72	10	1	120°	NS1000T1C16F12B072	NS1000T1C16F12N072
12	18	83	12	1	120°	NS1200T1C18F12B083	NS1200T1C18F12N083
16	20	92	16	1	120°	NS1600T1C20F12B092	NS1600T1C20F12N092
20	22	104	20	1	120°	NS2000T1C22F12B104	NS2000T1C22F12N104



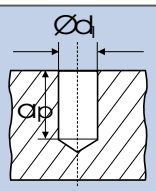
	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=130 m/dk.			Vc=130 m/dk.			Vc=70 m/dk.			Vc=120 m/dk.			Vc=300 m/dk.			Vc=220 m/dk.			Vc=50 m/dk.			Vc=40 m/dk.		
d1	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	0,04	5175	414	0,010	4379	88	0,004	2787	22	0,02	4777	191	0,10	11943	2389	0,04	8758	701	0,009	1990	36	0,004	1592	13
5	0,04	4140	331	0,010	3503	70	0,005	2229	22	0,02	3822	153	0,14	9554	2675	0,05	7006	701	0,010	1592	32	0,005	1274	13
6	0,05	3450	345	0,012	2919	70	0,006	1858	22	0,03	3185	191	0,18	7962	2866	0,06	5839	701	0,010	1327	27	0,005	1062	11
7	0,05	2957	296	0,015	2502	75	0,007	1592	22	0,03	2730	164	0,22	6824	3003	0,06	5005	601	0,010	1137	23	0,006	910	11
8	0,06	2588	311	0,018	2190	79	0,008	1393	22	0,04	2389	191	0,25	5971	2986	0,07	4379	613	0,012	995	24	0,006	796	10
10	0,07	2070	290	0,020	1752	70	0,010	1115	22	0,05	1911	191	0,34	4777	3248	0,08	3503	561	0,015	796	24	0,007	637	9
12	0,08	1725	276	0,030	1460	88	0,020	929	37	0,06	1592	191	0,42	3981	3344	0,10	2919	584	0,018	664	24	0,008	531	9
14	0,09	1479	266	0,035	1251	88	0,030	796	48	0,07	1365	191	0,50	3412	3412	0,15	2502	751	0,020	569	23	0,009	455	9
16	0,10	1294	259	0,040	1095	88	0,040	697	56	0,08	1194	191	0,58	2986	3463	0,20	2190	876	0,020	498	20	0,010	398	8
18	0,10	1150	230	0,045	973	88	0,040	619	50	0,08	1062	170	0,62	2654	3291	0,20	1946	779	0,024	442	21	0,012	354	9
20	0,10	1035	207	0,045	876	79	0,050	557	56	0,09	955	172	0,66	2389	3153	0,25	1752	876	0,028	398	22	0,012	319	8

Solid carbide NC drills
VHM - NC Bohrer
Forets a pointer NC
Karbür NC Matkap



N	S	1000	T	2	C	22	F	90	N	072
NC Bohrer	MG-10	d1	TOOLEX		DIN 6535 HA		20°	90°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE ANGEL	COATED	FULL LENGTH

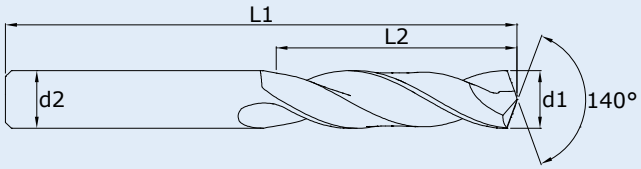
d1(e8)	L2	L1	d2(h6)	Z	∡	Uncoated Code	Coated Code
4	11	50	4	2	90 °	NS0400T2C11F90B050	NS0400T2C11F90N050
5	13	50	5	2	90 °	NS0500T2C13F90B050	NS0500T2C13F90N050
6	13	57	6	2	90 °	NS0600T2C13F90B057	NS0600T2C13F90N057
8	19	63	8	2	90 °	NS0800T2C19F90B063	NS0800T2C19F90N063
10	22	72	10	2	90 °	NS1000T2C22F90B072	NS1000T2C22F90N072
12	26	83	12	2	90 °	NS1200T2C26F90B083	NS1200T2C26F90N083
14	26	83	14	2	90 °	NS1400T2C26F90B083	NS1400T2C26F90N083
16	32	92	16	2	90 °	NS1600T2C32F90B092	NS1600T2C32F90N092
18	32	92	18	2	90 °	NS1800T2C32F90B092	NS1800T2C32F90N092
20	38	104	20	2	90 °	NS2000T2C38F90B104	NS2000T2C38F90N104
4	11	50	4	2	120 °	NS0400T2C11F12B050	NS0400T2C11F12N050
5	13	50	5	2	120 °	NS0500T2C13F12B050	NS0500T2C13F12N050
6	13	57	6	2	120 °	NS0600T2C13F12B057	NS0600T2C13F12N057
8	19	63	8	2	120 °	NS0800T2C19F12B063	NS0800T2C19F12N063
10	22	72	10	2	120 °	NS1000T2C22F12B072	NS1000T2C22F12N072
12	26	83	12	2	120 °	NS1200T2C26F12B083	NS1200T2C26F12N083
14	26	83	14	2	120 °	NS1400T2C26F12B083	NS1400T2C26F12N083
16	32	92	16	2	120 °	NS1600T2C32F12B092	NS1600T2C32F12N092
18	32	92	18	2	120 °	NS1800T2C32F12B092	NS1800T2C32F12N092
20	38	104	20	2	120 °	NS2000T2C38F12B104	NS2000T2C38F12N104



	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=130 m/dk.			Vc=130 m/dk.			Vc=70 m/dk.			Vc=120 m/dk.			Vc=300 m/dk.			Vc=220 m/dk.			Vc=50 m/dk.			Vc=40 m/dk.		
d1	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
4	0,04	5175	414	0,010	4379	88	0,004	2787	22	0,02	4777	191	0,10	11943	2389	0,04	8758	701	0,009	1990	36	0,004	1592	13
5	0,04	4140	331	0,010	3503	70	0,005	2229	22	0,02	3822	153	0,14	9554	2675	0,05	7006	701	0,010	1592	32	0,005	1274	13
6	0,05	3450	345	0,012	2919	70	0,006	1858	22	0,03	3185	191	0,18	7962	2866	0,06	5839	701	0,010	1327	27	0,005	1062	11
7	0,05	2957	296	0,015	2502	75	0,007	1592	22	0,03	2730	164	0,22	6824	3003	0,06	5005	601	0,010	1137	23	0,006	910	11
8	0,06	2588	311	0,018	2190	79	0,008	1393	22	0,04	2389	191	0,25	5971	2986	0,07	4379	613	0,012	995	24	0,006	796	10
10	0,07	2070	290	0,020	1752	70	0,010	1115	22	0,05	1911	191	0,34	4777	3248	0,08	3503	561	0,015	796	24	0,007	637	9
12	0,08	1725	276	0,030	1460	88	0,020	929	37	0,06	1592	191	0,42	3981	3344	0,10	2919	584	0,018	664	24	0,008	531	9
14	0,09	1479	266	0,035	1251	88	0,030	796	48	0,07	1365	191	0,50	3412	3412	0,15	2502	751	0,020	569	23	0,009	455	9
16	0,10	1294	259	0,040	1095	88	0,040	697	56	0,08	1194	191	0,58	2986	3463	0,20	2190	876	0,020	498	20	0,010	398	8
18	0,10	1150	230	0,045	973	88	0,040	619	50	0,08	1062	170	0,62	2654	3291	0,20	1946	779	0,024	442	21	0,012	354	9
20	0,10	1035	207	0,045	876	79	0,050	557	56	0,09	955	172	0,66	2389	3153	0,25	1752	876	0,028	398	22	0,012	319	8

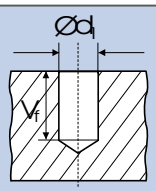
d1=d2

Solid carbide drills
VHM - Bohrer
Forets Hélicoïdaux
Karbür Matkap



B	E	1000	X	2	C	43	A	S6	N	089
DRILL	MG-10	d1	DIN 6939		DIN 6535 HA		30°	140°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE FORM	COATED	FULL LENGTH

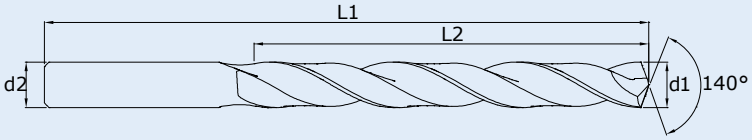
d1(h9)	L2	L1	d2(h6)	Z	Uncoated Code	Coated Code
2	12	40	2	2	BE0200X2C12AS6B040	BE0200X2C12AS6N040
2.5	14	43	2.5	2	BE0250X2C14AS6B043	BE0250X2C14AS6N043
3	16	46	3	2	BE0300X2C16AS6B046	BE0300X2C16AS6N046
3.3	16	46	3.3	2	BE0330X2C16AS6B046	BE0330X2C16AS6N046
3.5	20	52	3.5	2	BE0350X2C20AS6B052	BE0350X2C20AS6N052
4	22	55	4	2	BE0400X2C22AS6B055	BE0400X2C22AS6N055
4.2	22	55	4.2	2	BE0420X2C22AS6B055	BE0420X2C22AS6N055
4.5	24	58	4.5	2	BE0450X2C24AS6B058	BE0450X2C24AS6N058
5	26	62	5	2	BE0500X2C26AS6B062	BE0500X2C26AS6N062
5.5	28	66	5.5	2	BE0550X2C28AS6B066	BE0550X2C28AS6N066
6	28	66	6	2	BE0600X2C28AS6B066	BE0600X2C28AS6N066
6.5	31	70	6.5	2	BE0650X2C31AS6B070	BE0650X2C31AS6N070
6.8	31	70	6.8	2	BE0680X2C31AS6B070	BE0680X2C31AS6N070
7	34	74	7	2	BE0700X2C34AS6B074	BE0700X2C34AS6N074
7.5	34	74	7.5	2	BE0750X2C34AS6B074	BE0750X2C34AS6N074
8	37	79	8	2	BE0800X2C37AS6B079	BE0800X2C37AS6N079
8.5	37	79	8.5	2	BE0850X2C37AS6B079	BE0850X2C37AS6N079
9	40	84	9	2	BE0900X2C40AS6B084	BE0900X2C40AS6N084
9.5	40	84	9.5	2	BE0950X2C40AS6B084	BE0950X2C40AS6N084
10	43	89	10	2	BE1000X2C43AS6B089	BE1000X2C43AS6N089
10.2	43	89	10.2	2	BE1020X2C43AS6B089	BE1020X2C43AS6N089
10.5	43	89	10.5	2	BE1050X2C43AS6B089	BE1050X2C43AS6N089
11	47	95	11	2	BE1100X2C47AS6B095	BE1100X2C47AS6N095
11.5	47	95	11.5	2	BE1150X2C47AS6B095	BE1150X2C47AS6N095
12	51	102	12	2	BE1200X2C51AS6B102	BE1200X2C51AS6N102
12.5	51	102	12.5	2	BE1250X2C51AS6B102	BE1250X2C51AS6N102
13	51	102	13	2	BE1300X2C51AS6B102	BE1300X2C51AS6N102
13.5	51	102	13.5	2	BE1350X2C51AS6B102	BE1350X2C51AS6N102
14	54	107	14	2	BE1400X2C54AS6B107	BE1400X2C54AS6N107
15	56	111	15	2	BE1500X2C56AS6B111	BE1500X2C56AS6N111
16	58	115	16	2	BE1600X2C58AS6B115	BE1600X2C58AS6N115
18	62	123	18	2	BE1800X2C62AS6B123	BE1800X2C62AS6N123
20	66	131	20	2	BE2000X2C66AS6B131	BE2000X2C66AS6N131



	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=130 m/dk.			Vc=110 m/dk.			Vc=70 m/dk.			Vc=120 m/dk.			Vc=300 m/dk.			Vc=220 m/dk.			Vc=50 m/dk.			Vc=40 m/dk.		
d1	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
2	0,02	10350	414	0,006	8758	105	0,003	5573	33	0,01	9554	191	0,05	23885	2389	0,02	17516	701	0,003	3981	24	0,002	3185	13
3	0,03	6900	414	0,008	5839	93	0,004	3716	30	0,01	6369	127	0,08	15924	2548	0,03	11677	701	0,006	2654	32	0,003	2123	13
4	0,04	5175	414	0,010	4379	88	0,004	2787	22	0,02	4777	191	0,10	11943	2389	0,04	8758	701	0,009	1990	36	0,004	1592	13
5	0,04	4140	331	0,010	3503	70	0,005	2229	22	0,02	3822	153	0,14	9554	2675	0,05	7006	701	0,010	1592	32	0,005	1274	13
6	0,05	3450	345	0,012	2919	70	0,006	1858	22	0,03	3185	191	0,18	7962	2866	0,06	5839	701	0,010	1327	27	0,005	1062	11
7	0,05	2957	296	0,015	2502	75	0,007	1592	22	0,03	2730	164	0,22	6824	3003	0,06	5005	601	0,010	1137	23	0,006	910	11
8	0,06	2588	311	0,018	2190	79	0,008	1393	22	0,04	2389	191	0,25	5971	2986	0,07	4379	613	0,012	995	24	0,006	796	10
10	0,07	2070	290	0,020	1752	70	0,010	1115	22	0,05	1911	191	0,34	4777	3248	0,08	3503	561	0,015	796	24	0,007	637	9
12	0,08	1725	276	0,030	1592	88	0,020	929	37	0,06	1592	191	0,42	3981	3344	0,10	2919	584	0,018	664	24	0,008	531	9
14	0,09	1479	266	0,035	1251	88	0,030	796	48	0,07	1365	191	0,50	3412	3412	0,15	2502	751	0,020	569	23	0,009	455	8
16	0,10	1294	259	0,040	1095	88	0,040	697	56	0,08	1194	191	0,58	2986	3463	0,20	2190	876	0,020	498	20	0,010	398	8
18	0,10	1150	230	0,045	973	88	0,040	619	50	0,08	1062	170	0,62	2654	3291	0,20	1946	779	0,024	442	21	0,012	354	9
20	0,10	1035	207	0,045	876	79	0,050	557	56	0,09	955	172	0,66	2389	3153	0,25	1752	876	0,028	398	22	0,012	319	8

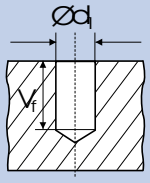
d1=d2

Solid carbide drills Long
VHM - Bohrer Lang
Forets Hélicoïdaux Longue
Karbür Matkap Uzun



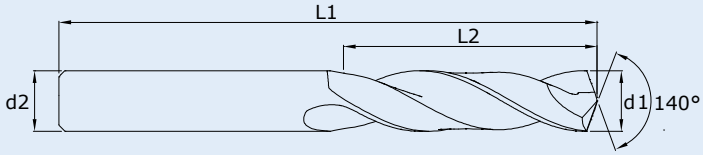
B	E	1000	Z	2	C	87	A	S6	N	133
DRILL	MG-10	d1	DIN 338		DIN 6535 HA		30°	140°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE ANGEL	COATED	FULL LENGTH

d1(h9)	L2	L1	d2(h6)	Z	Uncoated Code	Coated Code
2,0	24	49	2,0	2	BE0200Z2C24AS6B049	BE0200Z2C24AS6N049
2,5	30	57	2,5	2	BE0250Z2C30AS6B057	BE0250Z2C30AS6N057
3,0	33	61	3,0	2	BE0300Z2C33AS6B061	BE0300Z2C33AS6N061
3,3	33	61	3,3	2	BE0330Z2C33AS6B061	BE0330Z2C33AS6N061
3,5	39	70	3,5	2	BE0350Z2C39AS6B070	BE0350Z2C39AS6N070
4,0	43	75	4,0	2	BE0400Z2C43AS6B075	BE0400Z2C43AS6N075
4,2	43	75	4,5	2	BE0420Z2C43AS6B075	BE0420Z2C43AS6N075
4,5	47	80	4,5	2	BE0450Z2C47AS6B080	BE0450Z2C47AS6N080
5,0	52	86	5,0	2	BE0500Z2C52AS6B086	BE0500Z2C52AS6N086
5,5	57	93	5,5	2	BE0550Z2C57AS6B093	BE0550Z2C57AS6N093
6,0	57	93	6,0	2	BE0600Z2C57AS6B093	BE0600Z2C57AS6N093
6,5	63	101	6,5	2	BE0650Z2C63AS6B101	BE0650Z2C63AS6N101
6,8	63	101	7,0	2	BE0680Z2C63AS6B101	BE0680Z2C63AS6N101
7,0	69	109	7,0	2	BE0700Z2C69AS6B109	BE0700Z2C69AS6N109
7,5	69	109	7,5	2	BE0750Z2C69AS6B109	BE0750Z2C69AS6N109
8,0	75	117	8,0	2	BE0800Z2C75AS6B117	BE0800Z2C75AS6N117
8,5	75	117	8,5	2	BE0850Z2C75AS6B117	BE0850Z2C75AS6N117
9,0	81	125	9,0	2	BE0900Z2C81AS6B125	BE0900Z2C81AS6N125
9,5	81	125	9,5	2	BE0950Z2C81AS6B125	BE0950Z2C81AS6N125
10,0	87	133	10,0	2	BE1000Z2C87AS6B133	BE1000Z2C87AS6N133
10,2	87	133	10,5	2	BE1020Z2C87AS6B133	BE1020Z2C87AS6N133
10,5	87	133	10,5	2	BE1050Z2C87AS6B133	BE1050Z2C87AS6N133
11,0	94	142	11,0	2	BE1100Z2C94AS6B142	BE1100Z2C94AS6N142
11,5	94	142	11,5	2	BE1150Z2C94AS6B142	BE1150Z2C94AS6N142
12,0	101	151	12,0	2	BE1200Z2C10AS6B151	BE1200Z2C10AS6N151
12,5	101	151	12,5	2	BE1250Z2C10AS6B151	BE1250Z2C10AS6N151
13,0	101	151	13,0	2	BE1300Z2C10AS6B151	BE1300Z2C10AS6N151
13,5	101	151	13,5	2	BE1350Z2C10AS6B151	BE1350Z2C10AS6N151
14,0	120	175	14,0	2	BE1400Z2C20AS6B175	BE1400Z2C20AS6N175
15,0	120	175	15,0	2	BE1500Z2C20AS6B175	BE1500Z2C20AS6N175
16,0	120	175	16,0	2	BE1600Z2C20AS6B175	BE1600Z2C20AS6N175
18,0	120	175	18,0	2	BE1800Z2C20AS6B175	BE1800Z2C20AS6N175
20,0	120	175	20,0	2	BE2000Z2C20AS6B175	BE2000Z2C20AS6N175



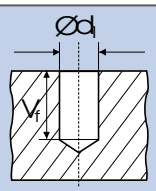
	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=130 m/dk.			Vc=110 m/dk.			Vc=70 m/dk.			Vc=120 m/dk.			Vc=300 m/dk.			Vc=220 m/dk.			Vc=50 m/dk.			Vc=40 m/dk.		
d1	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
2	0,02	10350	414	0,006	8758	105	0,003	5573	33	0,01	9554	191	0,05	23885	2389	0,02	17516	701	0,003	3981	24	0,002	3185	13
3	0,03	6900	414	0,008	5839	93	0,004	3716	30	0,01	6369	127	0,08	15924	2548	0,03	11677	701	0,006	2654	32	0,003	2123	13
4	0,04	5175	414	0,010	4379	88	0,004	2787	22	0,02	4777	191	0,10	11943	2389	0,04	8758	701	0,009	1990	36	0,004	1592	13
5	0,04	4140	331	0,010	3503	70	0,005	2229	22	0,02	3822	153	0,14	9554	2675	0,05	7006	701	0,010	1592	32	0,005	1274	13
6	0,05	3450	345	0,012	2919	70	0,006	1858	22	0,03	3185	191	0,18	7962	2866	0,06	5839	701	0,010	1327	27	0,005	1062	11
7	0,05	2957	296	0,015	2502	75	0,007	1592	22	0,03	2730	164	0,22	6824	3003	0,06	5005	601	0,010	1137	23	0,006	910	11
8	0,06	2588	311	0,018	2190	79	0,008	1393	22	0,04	2389	191	0,25	5971	2986	0,07	4379	613	0,012	995	24	0,006	796	10
10	0,07	2070	290	0,020	1752	70	0,010	1115	22	0,05	1911	191	0,34	4777	3248	0,08	3503	561	0,015	796	24	0,007	637	9
12	0,08	1725	276	0,030	1592	88	0,020	929	37	0,06	1592	191	0,42	3981	3344	0,10	2919	584	0,018	664	24	0,008	531	9
14	0,09	1479	266	0,035	1251	88	0,030	796	48	0,07	1365	191	0,50	3412	3412	0,15	2502	751	0,020	569	23	0,009	455	8
16	0,10	1294	259	0,040	1095	88	0,040	697	56	0,08	1194	191	0,58	2986	3463	0,20	2190	876	0,020	498	20	0,010	398	8
18	0,10	1150	230	0,045	973	88	0,040	619	50	0,08	1062	170	0,62	2654	3291	0,20	1946	779	0,024	442	21	0,012	354	9
20	0,10	1035	207	0,045	876	79	0,050	557	56	0,09	955	172	0,66	2389	3153	0,25	1752	876	0,028	398	22	0,012	319	8

Solid carbide 3D drills
VHM - 3D Bohrer
Forets Hélicoïdaux 3D en carbure
Karbür 3D Matkap



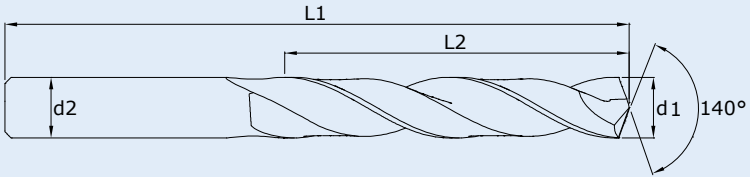
B	E	1000	U	2	C	47	A	S6	N	89	C
DRILL	MG-10	d1	DIN 6537K 3D		DIN 6535 HA		30°	140°	nACo Multilayer		
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE ANGEL	COATED	FULL LENGTH	WATER HOLE

d1(m7)	L2	L1	d2(h6)	Z	Coated Code	Coolant Holes Coated Code
3,0	20	62	6	2	BE0300U2C20AS6N062	
3,3	20	62	6	2	BE0330U2C20AS6N062	
3,5	20	62	6	2	BE0350U2C20AS6N062	
4,0	24	66	6	2	BE0400U2C24AS6N066	
4,2	24	66	6	2	BE0420U2C24AS6N066	
4,5	24	66	6	2	BE0450U2C24AS6N066	
5,0	28	66	6	2	BE0500U2C28AS6N066	
6,0	28	66	6	2	BE0600U2C28AS6N066	BE0600U2C28AS6N066C
6.5	34	79	8	2	BE0650U2C34AS6N079	BE0650U2C34AS6N079C
6.8	34	79	8	2	BE0680U2C34AS6N079	BE0680U2C34AS6N079C
7,0	34	79	8	2	BE0700U2C34AS6N079	BE0700U2C34AS6N079C
7.5	41	79	8	2	BE0750U2C41AS6N079	BE0750U2C41AS6N079C
8,0	41	79	8	2	BE0800U2C41AS6N079	BE0800U2C41AS6N079C
8.5	47	79	10	2	BE0850U2C47AS6N079	BE0850U2C47AS6N079C
9,0	47	89	10	2	BE0900U2C47AS6N089	BE0900U2C47AS6N089C
9.5	47	89	10	2	BE0950U2C47AS6N089	BE0950U2C47AS6N089C
10,0	47	89	10	2	BE1000U2C47AS6N089	BE1000U2C47AS6N089C
10,2	55	102	12	2	BE1020U2C55AS6N102	BE1020U2C55AS6N102C
10,5	55	102	12	2	BE1050U2C55AS6N102	BE1050U2C55AS6N102C
11,0	55	102	12	2	BE1100U2C55AS6N102	BE1100U2C55AS6N102C
11.5	55	102	12	2	BE1150U2C55AS6N102	BE1150U2C55AS6N102C
12,0	55	102	12	2	BE1200U2C55AS6N102	BE1200U2C55AS6N102C
12.5	60	107	14	2	BE1250U2C60AS6N107	BE1250U2C60AS6N107C
13,0	60	107	14	2	BE1300U2C60AS6N107	BE1300U2C60AS6N107C
13.5	60	107	14	2	BE1350U2C60AS6N107	BE1350U2C60AS6N107C
14,0	60	107	14	2	BE1400U2C60AS6N107	BE1400U2C60AS6N107C
14.5	65	115	16	2	BE1450U2C65AS6N115	BE1450U2C65AS6N115C
15,0	65	115	16	2	BE1500U2C65AS6N115	BE1500U2C65AS6N115C
16,0	65	115	16	2	BE1600U2C65AS6N115	BE1600U2C65AS6N115C
17,0	73	123	18	2	BE1700U2C73AS6N123	BE1700U2C73AS6N123C
18,0	73	123	18	2	BE1800U2C73AS6N123	BE1800U2C73AS6N123C
19,0	79	131	20	2	BE1900U2C79AS6N131	BE1900U2C79AS6N131C
20,0	79	132	20	2	BE2000U2C79AS6N132	BE2000U2C79AS6N132C



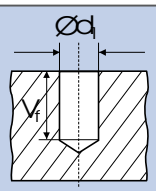
	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=100 m/dk.			Vc=80 m/dk.			Vc=70 m/dk.			Vc=130 m/dk.			Vc=300 m/dk.			Vc=210 m/dk.			Vc=60 m/dk.			Vc=45 m/dk.		
d1	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
5	0,04	4140	331	0,010	3503	70	0,005	2229	22	0,02	3822	153	0,14	9554	2675	0,05	7006	701	0,010	1592	32	0,005	1274	13
6	0,05	3450	345	0,012	2919	70	0,006	1858	22	0,03	3185	191	0,18	7962	2866	0,06	5839	701	0,010	1327	27	0,005	1062	11
7	0,05	2957	296	0,015	2502	75	0,007	1592	22	0,03	2730	164	0,22	6824	3003	0,06	5005	601	0,010	1137	23	0,006	910	11
8	0,06	2588	311	0,018	2190	79	0,008	1393	22	0,04	2389	191	0,25	5971	2986	0,07	4379	613	0,012	995	24	0,006	796	10
9	0,06	2300	276	0,020	1946	78	0,009	1239	22	0,04	2123	170	0,30	5308	3185	0,07	3892	545	0,012	885	21	0,007	708	10
10	0,07	2070	290	0,020	1752	70	0,010	1115	22	0,05	1911	191	0,34	4777	3248	0,08	3503	561	0,015	796	24	0,007	637	9
12	0,08	1725	276	0,030	1460	88	0,020	929	37	0,06	1592	191	0,42	3981	3344	0,10	2919	584	0,018	664	24	0,008	531	9
13	0,08	1592	255	0,030	1347	81	0,020	857	34	0,06	1470	176	0,46	3675	3381	0,10	2695	539	0,018	612	22	0,009	490	9
14	0,09	1479	266	0,035	1251	88	0,030	796	48	0,07	1365	191	0,50	3412	3412	0,15	2502	751	0,020	569	23	0,009	455	8
15	0,09	1380	248	0,040	1168	93	0,030	743	45	0,07	1274	178	0,54	3185	3440	0,15	2336	701	0,020	531	21	0,010	425	9
16	0,10	1294	259	0,040	1095	88	0,040	697	56	0,08	1194	191	0,58	2986	3463	0,20	2190	876	0,020	498	20	0,010	398	8
18	0,10	1150	230	0,045	973	88	0,040	619	50	0,08	1062	170	0,62	2654	3291	0,20	1946	779	0,024	442	21	0,012	354	9
20	0,10	1035	207	0,045	876	79	0,050	557	56	0,09	955	172	0,66	2389	3153	0,25	1752	876	0,028	398	22	0,012	319	8

Solid carbide 5D drills
VHM - 5D Bohrer
Forets Hélicoïdaux 5D en carbure
Karbür 5D Matkap



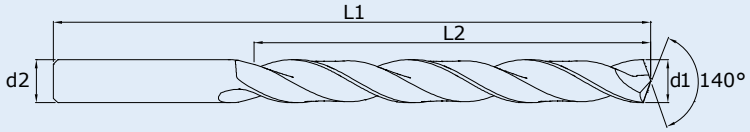
B	E	1000	B	2	C	61	A	S6	N	103	C
DRILL	MG-10	d1	DIN 6537K 5D		DIN 6535 HA		30°	140°	nACo Multilayer		
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE ANGEL	COATED	FULL LENGTH	WATER HOLE

d1(m7)	L2	L1	d2(h6)	Z	CoatedCode	Coolant Holes Coated Code
4,20	36	74	6	2	BE0420B2C36AS6N074	
4,50	36	74	6	2	BE0450B2C36AS6N074	
5,00	44	82	6	2	BE0500B2C44AS6N082	
5,50	44	82	6	2	BE0550B2C44AS6N082	
6,00	44	82	6	2	BE0600B2C44AS6N082	BE0600B2C44AS6N082C
6,50	53	91	8	2	BE0650B2C53AS6N091	BE0650B2C53AS6N091C
6,80	53	91	8	2	BE0680B2C53AS6N091	BE0680B2C53AS6N091C
7,00	53	91	8	2	BE0700B2C53AS6N091	BE0700B2C53AS6N091C
7,50	53	91	8	2	BE0750B2C53AS6N091	BE0750B2C53AS6N091C
8,00	53	91	8	2	BE0800B2C53AS6N091	BE0800B2C53AS6N091C
8,50	61	103	10	2	BE0850B2C61AS6N103	BE0850B2C61AS6N103C
9,00	61	103	10	2	BE0900B2C61AS6N103	BE0900B2C61AS6N103C
9,50	61	103	10	2	BE0950B2C61AS6N103	BE0950B2C61AS6N103C
10,00	61	103	10	2	BE1000B2C61AS6N103	BE1000B2C61AS6N103C
10,20	71	118	12	2	BE1020B2C71AS6N118	BE1020B2C71AS6N118C
10,50	71	118	12	2	BE1050B2C71AS6N118	BE1050B2C71AS6N118C
11,00	71	118	12	2	BE1100B2C71AS6N118	BE1100B2C71AS6N118C
11,50	71	118	12	2	BE1150B2C71AS6N118	BE1150B2C71AS6N118C
12,00	71	118	12	2	BE1200B2C71AS6N118	BE1200B2C71AS6N118C
12,50	77	124	14	2	BE1250B2C77AS6N124	BE1250B2C77AS6N124C
13,00	77	124	14	2	BE1300B2C77AS6N124	BE1300B2C77AS6N124C
13,50	77	124	14	2	BE1350B2C77AS6N124	BE1350B2C77AS6N124C
14,00	77	124	14	2	BE1400B2C77AS6N124	BE1400B2C77AS6N124C
14,50	83	133	16	2	BE1450B2C83AS6N133	BE1450B2C83AS6N133C
15,00	83	133	16	2	BE1500B2C83AS6N133	BE1500B2C83AS6N133C
16,00	83	133	16	2	BE1600B2C83AS6N133	BE1600B2C83AS6N133C
17,00	93	143	18	2	BE1700B2C93AS6N143	BE1700B2C93AS6N143C
18,00	93	143	18	2	BE1800B2C93AS6N143	BE1800B2C93AS6N143C
19,00	101	153	20	2	BE1900B2C10AS6N153	BE1900B2C10AS6N153C
20,00	101	153	20	2	BE2000B2C10AS6N153	BE2000B2C10AS6N153C



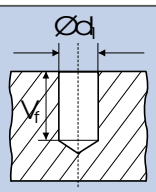
	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=100 m/dk.			Vc=80 m/dk.			Vc=70 m/dk.			Vc=130 m/dk.			Vc=300 m/dk.			Vc=210 m/dk.			Vc=60 m/dk.			Vc=45 m/dk.		
d1	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
5	0,04	4140	331	0,010	3503	70	0,005	2229	22	0,02	3822	153	0,14	9554	2675	0,05	7006	701	0,010	1592	32	0,005	1274	13
6	0,05	3450	345	0,012	2919	70	0,006	1858	22	0,03	3185	191	0,18	7962	2866	0,06	5839	701	0,010	1327	27	0,005	1062	11
7	0,05	2957	296	0,015	2502	75	0,007	1592	22	0,03	2730	164	0,22	6824	3003	0,06	5005	601	0,010	1137	23	0,006	910	11
8	0,06	2588	311	0,018	2190	79	0,008	1393	22	0,04	2389	191	0,25	5971	2986	0,07	4379	613	0,012	995	24	0,006	796	10
9	0,06	2300	276	0,020	1946	78	0,009	1239	22	0,04	2123	170	0,30	5308	3185	0,07	3892	545	0,012	885	21	0,007	708	10
10	0,07	2070	290	0,020	1752	70	0,010	1115	22	0,05	1911	191	0,34	4777	3248	0,08	3503	561	0,015	796	24	0,007	637	9
12	0,08	1725	276	0,030	1460	88	0,020	929	37	0,06	1592	191	0,42	3981	3344	0,10	2919	584	0,018	664	24	0,008	531	9
13	0,08	1592	255	0,030	1347	81	0,020	857	34	0,06	1470	176	0,46	3675	3381	0,10	2695	539	0,018	612	22	0,009	490	9
14	0,09	1479	266	0,035	1251	88	0,030	796	48	0,07	1365	191	0,50	3412	3412	0,15	2502	751	0,020	569	23	0,009	455	8
15	0,09	1380	248	0,040	1168	93	0,030	743	45	0,07	1274	178	0,54	3185	3440	0,15	2336	701	0,020	531	21	0,010	425	9
16	0,10	1294	259	0,040	1095	88	0,040	697	56	0,08	1194	191	0,58	2986	3463	0,20	2190	876	0,020	498	20	0,010	398	8
18	0,10	1150	230	0,045	973	88	0,040	619	50	0,08	1062	170	0,62	2654	3291	0,20	1946	779	0,024	442	21	0,012	354	9
20	0,10	1035	207	0,045	876	79	0,050	557	56	0,09	955	172	0,66	2389	3153	0,25	1752	876	0,028	398	22	0,012	319	8

Solid carbide 7D drills
VHM - 7D Bohrer
Forets Hélicoïdaux 7D en carbure
Karbür 7D Matkap



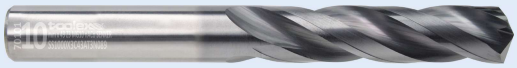
B	E	1000	y	2	C	95	A	S6	N	139	C
DRILL	MG-10	d1	DIN 6537K 7D		DIN 6535 HA		30°	140°	nACo Multilayer		
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE ANGEL	COATED	FULL LENGTH	WATER HOLE

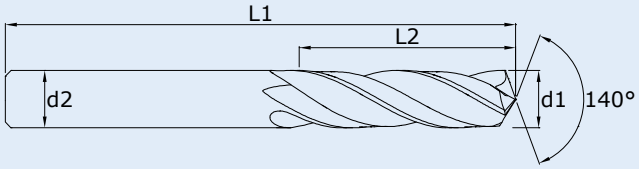
d1(m7)	L2	L1	d2(h6)	Z	Coated Code	Coolant Holes Coated Code
5,0	50	90	6	2	BE0500Y2C50AS6N090	
5.5	57	97	6	2	BE0550Y2C57AS6N097	
6,0	57	97	6	2	BE0600Y2C57AS6N097	BE0600Y2C57AS6N097C
6.5	58	106	8	2	BE0650Y2C58AS6N106	BE0650Y2C58AS6N106C
6.8	58	106	8	2	BE0680Y2C58AS6N106	BE0680Y2C58AS6N106C
7,0	76	116	8	2	BE0700Y2C76AS6N116	BE0700Y2C76AS6N116C
7.5	76	116	8	2	BE0750Y2C76AS6N116	BE0750Y2C76AS6N116C
8,0	76	116	8	2	BE0800Y2C76AS6N116	BE0800Y2C76AS6N116C
8.5	87	131	10	2	BE0850Y2C87AS6N131	BE0850Y2C87AS6N131C
9,0	87	131	10	2	BE0900Y2C87AS6N131	BE0900Y2C87AS6N131C
9.5	95	139	10	2	BE0950Y2C95AS6N139	BE0950Y2C95AS6N139C
10,0	95	139	10	2	BE1000Y2C95AS6N139	BE1000Y2C95AS6N139C
10.2	95	139	12	2	BE1020Y2C95AS6N139	BE1020Y2C95AS6N139C
10.5	106	155	12	2	BE1050Y2C06AS6N155	BE1050Y2C06AS6N155C
11,0	106	155	12	2	BE1100Y2C06AS6N155	BE1100Y2C06AS6N155C
11.5	114	163	12	2	BE1150Y2C14AS6N163	BE1150Y2C14AS6N163C
12,0	114	163	12	2	BE1200Y2C14AS6N163	BE1200Y2C14AS6N163C
12.5	120	170	14	2	BE1250Y2C20AS6N170	BE1250Y2C20AS6N170C
13,0	120	170	14	2	BE1300Y2C20AS6N170	BE1300Y2C20AS6N170C
13.5	120	170	14	2	BE1350Y2C20AS6N170	BE1350Y2C20AS6N170C
14,0	120	170	14	2	BE1400Y2C20AS6N170	BE1400Y2C20AS6N170C
14.5	132	182	16	2	BE1450Y2C32AS6N182	BE1450Y2C32AS6N182C
15,0	132	182	16	2	BE1500Y2C32AS6N182	BE1500Y2C32AS6N182C
16,0	132	182	16	2	BE1600Y2C32AS6N182	BE1600Y2C32AS6N182C
17,0	146	195	18	2	BE1700Y2C46AS6N195	BE1700Y2C46AS6N195C
18,0	146	195	18	2	BE1800Y2C46AS6N195	BE1800Y2C46AS6N195C



	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=100 m/dk.			Vc=80 m/dk.			Vc=70 m/dk.			Vc=130 m/dk.			Vc=300 m/dk.			Vc=210 m/dk.			Vc=60 m/dk.			Vc=45 m/dk.		
d1	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
5	0,04	4140	331	0,010	3503	70	0,005	2229	22	0,02	3822	153	0,14	9554	2675	0,05	7006	701	0,010	1592	32	0,005	1274	13
6	0,05	3450	345	0,012	2919	70	0,006	1858	22	0,03	3185	191	0,18	7962	2866	0,06	5839	701	0,010	1327	27	0,005	1062	11
7	0,05	2957	296	0,015	2502	75	0,007	1592	22	0,03	2730	164	0,22	6824	3003	0,06	5005	601	0,010	1137	23	0,006	910	11
8	0,06	2588	311	0,018	2190	79	0,008	1393	22	0,04	2389	191	0,25	5971	2986	0,07	4379	613	0,012	995	24	0,006	796	10
9	0,06	2300	276	0,020	1946	78	0,009	1239	22	0,04	2123	170	0,30	5308	3185	0,07	3892	545	0,012	885	21	0,007	708	10
10	0,07	2070	290	0,020	1752	70	0,010	1115	22	0,05	1911	191	0,34	4777	3248	0,08	3503	561	0,015	796	24	0,007	637	9
12	0,08	1725	276	0,030	1460	88	0,020	929	37	0,06	1592	191	0,42	3981	3344	0,10	2919	584	0,018	664	24	0,008	531	9
13	0,08	1592	255	0,030	1347	81	0,020	857	34	0,06	1470	176	0,46	3675	3381	0,10	2695	539	0,018	612	22	0,009	490	9
14	0,09	1479	266	0,035	1251	88	0,030	796	48	0,07	1365	191	0,50	3412	3412	0,15	2502	751	0,020	569	23	0,009	455	8
15	0,09	1380	248	0,040	1168	93	0,030	743	45	0,07	1274	178	0,54	3185	3440	0,15	2336	701	0,020	531	21	0,010	425	9
16	0,10	1294	259	0,040	1095	88	0,040	697	56	0,08	1194	191	0,58	2986	3463	0,20	2190	876	0,020	498	20	0,010	398	8
18	0,10	1150	230	0,045	973	88	0,040	619	50	0,08	1062	170	0,62	2654	3291	0,20	1946	779	0,024	442	21	0,012	354	9
20	0,10	1035	207	0,045	876	79	0,050	557	56	0,09	955	172	0,66	2389	3153	0,25	1752	876	0,028	398	22	0,012	319	8

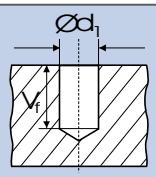
Solid carbide Senker
VHM - Senker
Perçeur en carbure
Karbür Senker





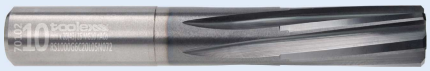
S	S	1000	X	3	C	43	A	T3	N	089
SENKER	MG-10	d1	DIN 6539		DIN 6535 HA		30°	140°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE FORM	COATED	FULL LENGTH

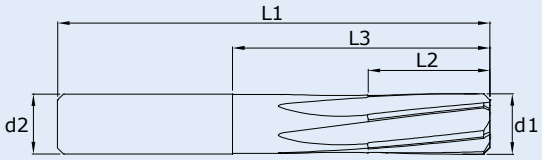
d1(h9)	L2	L1	d2(h6)	Z	Uncoated Code	Coated Code
2,00	12	38	2,00	3	SS0200X3C12AT3B038	SS0200X3C12AT3N038
2,50	14	43	2,50	3	SS0250X3C14AT3B043	SS0250X3C14AT3N043
2,90	16	46	3,00	3	SS0290X3C16AT3B046	SS0290X3C16AT3N046
3,00	16	46	3,00	3	SS0300X3C16AT3B046	SS0300X3C16AT3N046
3,50	20	52	3,50	3	SS0350X3C20AT3B052	SS0350X3C20AT3N052
3,90	22	55	4,00	3	SS0390X3C22AT3B055	SS0390X3C22AT3N055
4,00	22	55	4,00	3	SS0400X3C22AT3B055	SS0400X3C22AT3N055
4,50	24	58	4,50	3	SS0450X3C24AT3B058	SS0450X3C24AT3N058
4,85	26	62	5,00	3	SS0485X3C26AT3B062	SS0485X3C26AT3N062
5,00	26	62	5,00	3	SS0500X3C26AT3B062	SS0500X3C26AT3N062
5,50	28	66	5,50	3	SS0550X3C28AT3B066	SS0550X3C28AT3N066
5,85	28	66	6,00	3	SS0585X3C28AT3B066	SS0585X3C28AT3N066
6,00	28	66	6,00	3	SS0600X3C28AT3B066	SS0600X3C28AT3N066
6,50	31	70	6,50	3	SS0650X3C31AT3B070	SS0650X3C31AT3N070
7,00	34	74	7,00	3	SS0700X3C34AT3B074	SS0700X3C34AT3N074
7,50	34	74	7,50	3	SS0750X3C34AT3B074	SS0750X3C34AT3N074
7,85	37	79	8,00	3	SS0785X3C37AT3B079	SS0785X3C37AT3N079
8,00	37	79	8,00	3	SS0800X3C37AT3B079	SS0800X3C37AT3N079
8,50	37	79	8,50	3	SS0850X3C37AT3B079	SS0850X3C37AT3N079
9,00	40	84	9,00	3	SS0900X3C40AT3B084	SS0900X3C40AT3N084
9,50	40	84	9,50	3	SS0950X3C40AT3B084	SS0950X3C40AT3N084
9,85	43	89	10,00	3	SS0985X3C43AT3B089	SS0985X3C43AT3N089
10,00	43	89	10,00	3	SS1000X3C43AT3B089	SS1000X3C43AT3N089
10,50	43	89	10,50	3	SS1050X3C43AT3B089	SS1050X3C43AT3N089
11,00	47	95	11,00	3	SS1100X3C47AT3B095	SS1100X3C47AT3N095
11,50	47	95	11,50	3	SS1150X3C47AT3B095	SS1150X3C47AT3N095
11,80	51	102	12,00	3	SS1180X3C51AT3B102	SS1180X3C51AT3N102
12,00	51	102	12,00	3	SS1200X3C51AT3B102	SS1200X3C51AT3N102
12,50	51	102	12,50	3	SS1250X3C51AT3B102	SS1250X3C51AT3N102
13,00	51	102	13,00	3	SS1300X3C51AT3B102	SS1300X3C51AT3N102
13,50	51	102	13,50	3	SS1350X3C51AT3B102	SS1350X3C51AT3N102
13,80	54	107	14,00	3	SS1380X3C54AT3B107	SS1380X3C54AT3N107
14,00	54	107	14,00	3	SS1400X3C54AT3B107	SS1400X3C54AT3N107
15,00	56	111	15,00	3	SS1500X3C56AT3B111	SS1500X3C56AT3N111
15,80	58	115	16,00	3	SS1580X3C58AT3B115	SS1580X3C58AT3N115
16,00	58	115	16,00	3	SS1600X3C58AT3B115	SS1600X3C58AT3N115
18,00	62	123	18,00	3	SS1800X3C62AT3B123	SS1800X3C62AT3N123
20,00	66	131	20,00	3	SS2000X3C66AT3B131	SS2000X3C66AT3N131



	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=130 m/dk.			Vc=110 m/dk.			Vc=70 m/dk.			Vc=120 m/dk.			Vc=300 m/dk.			Vc=220 m/dk.			Vc=50 m/dk.			Vc=40 m/dk.		
d1	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
2	0,02	10350	414	0,006	8758	105	0,003	5573	33	0,01	9554	191	0,05	23885	2389	0,02	17516	701	0,003	3981	24	0,002	3185	13
3	0,03	6900	414	0,008	5839	93	0,004	3716	30	0,01	6369	127	0,08	15924	2548	0,03	11677	701	0,006	2654	32	0,003	2123	13
4	0,04	5175	414	0,010	4379	88	0,004	2787	22	0,02	4777	191	0,10	11943	2389	0,04	8758	701	0,009	1990	36	0,004	1592	13
5	0,04	4140	331	0,010	3503	70	0,005	2229	22	0,02	3822	153	0,14	9554	2675	0,05	7006	701	0,010	1592	32	0,005	1274	13
6	0,05	3450	345	0,012	2919	70	0,006	1858	22	0,03	3185	191	0,18	7962	2866	0,06	5839	701	0,010	1327	27	0,005	1062	11
7	0,05	2957	296	0,015	2502	75	0,007	1592	22	0,03	2730	164	0,22	6824	3003	0,06	5005	601	0,010	1137	23	0,006	910	11
8	0,06	2588	311	0,018	2190	79	0,008	1393	22	0,04	2389	191	0,25	5971	2986	0,07	4379	613	0,012	995	24	0,006	796	10
10	0,07	2070	290	0,020	1752	70	0,010	1115	22	0,05	1911	191	0,34	4777	3248	0,08	3503	561	0,015	796	24	0,007	637	9
12	0,08	1725	276	0,030	1592	88	0,020	929	37	0,06	1592	191	0,42	3981	3344	0,10	2919	584	0,018	664	24	0,008	531	9
14	0,09	1479	266	0,035	1251	88	0,030	796	48	0,07	1365	191	0,50	3412	3412	0,15	2502	751	0,020	569	23	0,009	455	8
16	0,10	1294	259	0,040	1095	88	0,040	697	56	0,08	1194	191	0,58	2986	3463	0,20	2190	876	0,020	498	20	0,010	398	8
18	0,10	1150	230	0,045	973	88	0,040	619	50	0,08	1062	170	0,62	2654	3291	0,20	1946	779	0,024	442	21	0,012	354	9
20	0,10	1035	207	0,045	876	79	0,050	557	56	0,09	955	172	0,66	2389	3153	0,25	1752	876	0,028	398	22	0,012	319	8

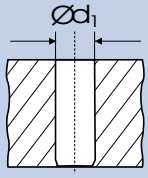
Solid carbide reamer
VHM - Reibahlen
Alésoirs en carbure
Karbür Rayba





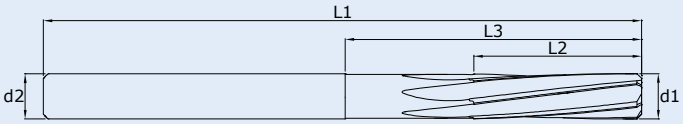
R	S	1000	G	6	C	24	L	05	N	072
REAMBER	MG-10	d1	TOOLEX		DIN 6535 HA			0.5x 45°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE FORM	COATED	FULL LENGTH

d1(H7)	L2	L3	L1	d2(h6)	Z	Uncoated Code	Coated Code
3	6	20	40	3	4	RS0300G4C06L01B040	RS0300G4C06L01N040
4	8	30	50	4	4	RS0400G4C08L02B050	RS0400G4C08L02N050
5	10	30	50	5	6	RS0500G6C10L03B050	RS0500G6C10L03N050
6	12	37	57	6	6	RS0600G6C12L03B057	RS0600G6C12L03N057
7	14	37	57	7	6	RS0700G6C14L04B057	RS0700G6C14L04N057
8	16	43	63	8	6	RS0800G6C16L04B063	RS0800G6C16L04N063
9	18	43	63	9	6	RS0900G6C18L05B063	RS0900G6C18L05N063
10	20	43	72	10	6	RS1000G6C20L05B072	RS1000G6C20L05N072
11	20	43	72	11	6	RS1100G6C20L06B072	RS1100G6C20L06N072
12	24	48	83	12	6	RS1200G6C24L06B083	RS1200G6C24L06N083
13	24	48	83	13	6	RS1300G6C24L07B083	RS1300G6C24L07N083
14	24	48	83	14	6	RS1400G6C24L07B083	RS1400G6C24L07N083
15	24	48	83	15	6	RS1500G6C24L08B083	RS1500G6C24L08N083
16	24	48	92	16	8	RS1600G8C24L08B092	RS1600G8C24L08N092
18	24	48	92	18	8	RS1800G8C24L09B092	RS1800G8C24L09N092
20	24	48	104	20	8	RS2000G8C24L10B104	RS2000G8C24L10N104



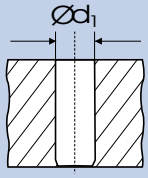
	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=22 m/dk.			Vc=15 m/dk.			Vc=15 m/dk.			Vc=20 m/dk.			Vc=50 m/dk.			Vc=40 m/dk.			Vc=12 m/dk.			Vc=10 m/dk.		
d1	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
3	0,15	2335	350	0,15	1600	240	0,15	1600	240	0,15	2123	240	0,15	5307	796	0,15	4246	636	0,15	1273	190	0,15	1061	159
4	0,15	1751	262	0,15	1200	180	0,15	1200	180	0,15	1592	180	0,15	3980	597	0,15	3184	477	0,15	955	143	0,15	796	119
5	0,15	1401	210	0,15	960	144	0,15	960	144	0,15	1273	144	0,15	3184	477	0,15	2547	382	0,15	764	114	0,15	636	95
6	0,20	1167	233	0,20	800	160	0,20	800	160	0,20	1061	160	0,20	2653	503	0,20	1819	363	0,20	545	109	0,20	454	90
8	0,20	875	175	0,20	600	120	0,20	600	120	0,20	796	120	0,20	1990	398	0,20	1592	318	0,20	477	95	0,20	398	76
9	0,20	778	155	0,20	550	110	0,20	550	110	0,20	707	110	0,20	1769	353	0,20	1415	283	0,20	424	84	0,20	353	70
10	0,20	700	140	0,20	500	100	0,20	500	100	0,20	636	100	0,20	1592	318	0,20	1273	254	0,20	382	76	0,20	318	63
11	0,25	636	159	0,20	450	90	0,25	450	112	0,25	579	112	0,25	1447	361	0,25	1158	289	0,25	347	86	0,25	289	72
12	0,25	583	145	0,20	400	80	0,25	400	100	0,25	530	100	0,25	1326	331	0,25	1061	265	0,25	318	79	0,25	265	66
14	0,25	500	125	0,20	350	70	0,25	350	87	0,25	454	87	0,25	1137	284	0,25	909	227	0,25	272	68	0,25	227	56
16	0,25	437	109	0,20	300	60	0,25	300	75	0,25	398	75	0,25	995	248	0,25	796	199	0,25	238	59	0,25	119	29
18	0,25	389	97	0,20	270	54	0,25	270	67	0,25	353	67	0,25	884	221	0,25	707	176	0,25	212	53	0,25	176	44
20	0,25	350	87	0,20	240	48	0,25	240	60	0,25	318	60	0,25	796	199	0,25	636	159	0,25	191	47	0,25	159	39

Solid carbide reamer - Long
VHM - Reibahlen - Lang
Alésoirs en carbure - Longue
Karbür Rayba - Uzun



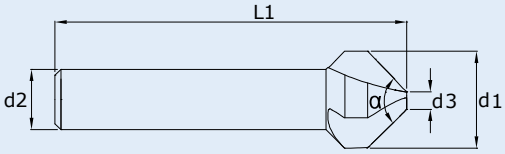
R	S	1000	G	6	C	38	L	05	N	133
REAMBER	MG-10	d1	TOOLEX		DIN 6535 HA			0.5x 45°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE FORM	COATED	FULL LENGTH

d1(H7)	L2	L3	L1	d2(h6)	Z	Uncoated Code	Coated Code
3	12	40	61	3	4	RS0300G4C12L01B061	RS0300G4C12L01N061
4	16	50	75	4	4	RS0400G4C16L02B075	RS0400G4C16L02N075
5	20	56	86	5	6	RS0500G6C20L03B086	RS0500G6C20L03N086
6	24	56	93	6	6	RS0600G6C24L03B093	RS0600G6C24L03N093
7	28	62	109	7	6	RS0700G6C28L04B109	RS0700G6C28L04N109
8	32	66	117	8	6	RS0800G6C32L04B117	RS0800G6C32L04N117
9	36	66	125	9	6	RS0900G6C36L05B125	RS0900G6C36L05N125
10	38	66	133	10	6	RS1000G6C38L05B133	RS1000G6C38L05N133
11	41	70	142	11	6	RS1100G6C41L06B142	RS1100G6C41L06N142
12	44	75	151	12	6	RS1200G6C44L06B151	RS1200G6C44L06N151
13	44	75	151	13	6	RS1300G6C44L07B151	RS1300G6C44L07N151
14	47	80	160	14	6	RS1400G6C47L07B160	RS1400G6C47L07N160
15	50	80	165	15	6	RS1500G6C50L08B165	RS1500G6C50L08N165
16	52	80	165	16	8	RS1600G8C52L08B165	RS1600G8C52L08N165
18	56	80	165	18	8	RS1800G8C56L09B165	RS1800G8C56L09N165
20	60	80	165	20	8	RS2000G8C60L10B165	RS2000G8C60L10N165



	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=22 m/dk.			Vc=15 m/dk.			Vc=15 m/dk.			Vc=20 m/dk.			Vc=50 m/dk.			Vc=40 m/dk.			Vc=12 m/dk.			Vc=10 m/dk.		
d1	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
3	0,15	2335	350	0,15	1600	240	0,15	1600	240	0,15	2123	240	0,15	5307	796	0,15	4246	636	0,15	1273	190	0,15	1061	159
4	0,15	1751	262	0,15	1200	180	0,15	1200	180	0,15	1592	180	0,15	3980	597	0,15	3184	477	0,15	955	143	0,15	796	119
5	0,15	1401	210	0,15	960	144	0,15	960	144	0,15	1273	144	0,15	3184	477	0,15	2547	382	0,15	764	114	0,15	636	95
6	0,20	1167	233	0,20	800	160	0,20	800	160	0,20	1061	160	0,20	2653	503	0,20	1819	363	0,20	545	109	0,20	454	90
8	0,20	875	175	0,20	600	120	0,20	600	120	0,20	796	120	0,20	1990	398	0,20	1592	318	0,20	477	95	0,20	398	76
9	0,20	778	155	0,20	550	110	0,20	550	110	0,20	707	110	0,20	1769	353	0,20	1415	283	0,20	424	84	0,20	353	70
10	0,20	700	140	0,20	500	100	0,20	500	100	0,20	636	100	0,20	1592	318	0,20	1273	254	0,20	382	76	0,20	318	63
11	0,25	636	159	0,20	450	90	0,25	450	112	0,25	579	112	0,25	1447	361	0,25	1158	289	0,25	347	86	0,25	289	72
12	0,25	583	145	0,20	400	80	0,25	400	100	0,25	530	100	0,25	1326	331	0,25	1061	265	0,25	318	79	0,25	265	66
14	0,25	500	125	0,20	350	70	0,25	350	87	0,25	454	87	0,25	1137	284	0,25	909	227	0,25	272	68	0,25	227	56
16	0,25	437	109	0,20	300	60	0,25	300	75	0,25	398	75	0,25	995	248	0,25	796	199	0,25	238	59	0,25	119	29
18	0,25	389	97	0,20	270	54	0,25	270	67	0,25	353	67	0,25	884	221	0,25	707	176	0,25	212	53	0,25	176	44
20	0,25	350	87	0,20	240	48	0,25	240	60	0,25	318	60	0,25	796	199	0,25	636	159	0,25	191	47	0,25	159	39

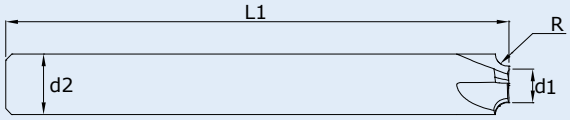
Solid carbide countersinker
VHM - Kegelsenker
Fraises Coniques en carbure
Karbür Havşa Freze



H	S	1040	T	3	C	03	G	90	N	050
COUNTER	MG-10	d1	TOOLEX		DIN 6535 HA		DÜZ KANAL	90°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE ANGEL	COATED	FULL LENGTH

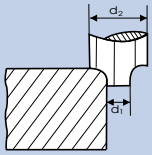
d1	∝	d3	L1	d2	Z	Uncoated Code	Coated Code
6,3	90°	2,0	45	5	3	HS0630T3C02G90B045	HS0630T3C02G90N045
8,3	90°	2,0	50	6	3	HS0830T3C02G90B050	HS0830T3C02G90N050
10,4	90°	2,5	50	6	3	HS1040T3C03G90B050	HS1040T3C03G90N050
12,4	90°	2,8	56	8	3	HS1240T3C03G90B056	HS1240T3C03G90N056
15,0	90°	3,2	60	10	3	HS1500T3C04G90B060	HS1500T3C04G90N060
16,5	90°	3,2	60	10	3	HS1650T3C04G90B060	HS1650T3C04G90N060
20,5	90°	3,5	63	10	3	HS2050T3C04G90B063	HS2050T3C04G90N063
25,0	90°	3,8	67	10	3	HS2500T3C04G90B067	HS2500T3C04G90N067
31,0	90°	4,2	71	12	3	HS3100T3C05G90B071	HS3100T3C05G90N071

Solid carbide corner rounding cutters
VHM - Viertelkreisfräser
Fraises au quart de cercle en carbure
Karbür Dış Köşe Freze



I	S	0350	T	4	C	10	G	35	N	092
INNER RADIUS CUTTER	MG-10	R	TOOLEX		DIN 6535 HA		DÜZ KANAL	R	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

R	d1	L1	d2	Z	R	Uncoated Code	Coated Code
0,5	7	63	8	4	0,5	IS0050T4C07G05B063	IS0050T4C07G05N063
1,0	6	63	8	4	1,0	IS0100T4C06G10B063	IS0100T4C06G10N063
1,5	7	72	10	4	1,5	IS0150T4C07G15B072	IS0150T4C07G15N072
2,0	6	83	10	4	2,0	IS0200T4C06G20B083	IS0200T4C06G20N083
2,5	7	83	12	4	2,5	IS0250T4C07G25B083	IS0250T4C07G25N083
3,0	6	83	12	4	3,0	IS0300T4C06G30B083	IS0300T4C06G30N083
3,5	9	92	16	4	3,5	IS0350T4C09G35B092	IS0350T4C09G35N092
4,0	8	92	16	4	4,0	IS0400T4C08G40B092	IS0400T4C08G40N092
4,5	7	92	16	4	4,5	IS0450T4C07G45B092	IS0450T4C07G45N092
5,0	10	104	20	4	5,0	IS0500T4C10G50B104	IS0500T4C10G50N104
6,0	8	104	20	4	6,0	IS0600T4C08G60B104	IS0600T4C08G60N104

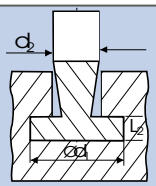


	HRC 20-30			HRC 30-40			M INOX			K GG			N AL			N CU			O TITAN			H < 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=12 m/dk.			Vc=10 m/dk.			Vc=9 m/dk.			Vc=15 m/dk.			Vc=25 m/dk.			Vc=25 m/dk.			Vc=8 m/dk.			Vc=7 m/dk.		
d1	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
9	0,040	425	17xZ	0,030	350	11xZ	0,020	320	7xZ	0,040	530	21xZ	0,05	885	44xZ	0,05	885	44xZ	0,010	280	3xZ	0,008	250	2xZ
11	0,045	350	16xZ	0,035	290	10xZ	0,025	260	7xZ	0,045	435	20xZ	0,08	725	58xZ	0,08	725	58xZ	0,012	230	3xZ	0,010	200	2xZ
13	0,050	295	15xZ	0,040	245	10xZ	0,030	220	7xZ	0,050	370	19xZ	0,10	610	61xZ	0,10	610	61xZ	0,015	195	3xZ	0,012	170	2xZ
17	0,055	225	12xZ	0,045	190	9xZ	0,035	170	6xZ	0,055	280	16xZ	0,12	470	57xZ	0,12	470	57xZ	0,017	150	3xZ	0,014	130	2xZ
21	0,060	180	11xZ	0,050	150	8xZ	0,040	140	6xZ	0,060	230	14xZ	0,15	380	57xZ	0,15	380	57xZ	0,020	120	3xZ	0,015	105	2xZ

Solid carbide T Slotting End mills
VHM - T - Fräser
Fraises "T" en carbure
Karbür T Freze

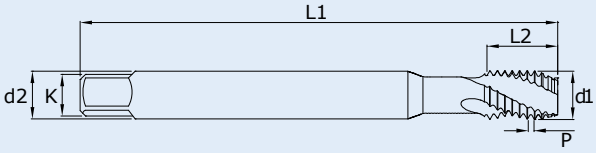
T	S	3250	G	2	C	06	B	00	N	071
T-SLOT END MILL	MG-10		DIN 850		DIN 1835		15°	0°	nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Coated Code
4,5	1	50	6	6	TS0450G6C01G00B050	TS0450G6C01G00N050
7,5	1,5	50	6	6	TS0750G6C15G00B050	TS0750G6C15G00N050
7,5	2	50	6	6	TS0750G6C02G00B050	TS0750G6C02G00N050
10,5	2	50	6	6	TS1050G6C02G00B050	TS1050G6C02G00N050
10,5	2,5	50	6	6	TS1050G6C25G00B050	TS1050G6C25G00N050
10,5	3	50	6	6	TS1050G6C03G00B050	TS1050G6C03G00N050
13,5	3	56	10	8	TS1350G8C03G00B056	TS1350G8C03G00N056
13,5	4	56	10	8	TS1350G8C04G00B056	TS1350G8C04G00N056
16,5	3	56	10	8	TS1650G8C03G00B056	TS1650G8C03G00N056
16,5	4	56	10	8	TS1650G8C04G00B056	TS1650G8C04G00N056
16,5	5	56	10	8	TS1650G8C05G00B056	TS1650G8C05G00N056
19,5	3	63	10	10	TS1950G0C03G00B063	TS1950G0C03G00N063
19,5	4	63	10	10	TS1950G0C04G00B063	TS1950G0C04G00N063
19,5	5	63	10	10	TS1950G0C05G00B063	TS1950G0C05G00N063
22,5	4	63	10	10	TS2250G0C04G00B063	TS2250G0C04G00N063
22,5	5	63	10	10	TS2250G0C05G00B063	TS2250G0C05G00N063
22,5	6	63	10	10	TS2250G0C06G00B063	TS2250G0C06G00N063
25,5	5	63	10	10	TS2550G0C05G00B063	TS2550G0C05G00N063
25,5	6	63	10	10	TS2550G0C06G00B063	TS2550G0C06G00N063
25,5	7	63	10	10	TS2550G0C07G00B063	TS2550G0C07G00N063
25,5	8	63	10	10	TS2550G0C08G00B063	TS2550G0C08G00N063
28,5	5	63	10	10	TS2850G0C05G00B063	TS2850G0C05G00N063
28,5	6	63	10	10	TS2850G0C06G00B063	TS2850G0C06G00N063
28,5	7	63	10	10	TS2850G0C07G00B063	TS2850G0C07G00N063
28,5	8	63	10	10	TS2850G0C08G00B063	TS2850G0C08G00N063
32,5	5	71	12	12	TS3250G2C05G00B071	TS3250G2C05G00N071
32,5	6	71	12	12	TS3250G2C06G00B071	TS3250G2C06G00N071
32,5	8	71	12	12	TS3250G2C08G00B071	TS3250G2C08G00N071
45,5	10	71	12	12	TS4550G2C10G00B071	TS4550G2C10G00N071



	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=80 m/dk.			Vc=70 m/dk.			Vc=50 m/dk.			Vc=60 m/dk.			Vc=150 m/dk.			Vc=120 m/dk.			Vc=40 m/dk.			Vc=30 m/dk.		
d1 x L2	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
13.5 x 4	0,003	1885	5xZ	0,003	1650	5xZ	0,003	1180	4xZ	0,003	1415	4xZ	0,003	3540	11xZ	0,003	2830	9xZ	0,003	945	3xZ	0,003	710	2xZ
16.5 x 5	0,003	1545	5xZ	0,003	1350	4xZ	0,003	970	3xZ	0,003	1160	4xZ	0,003	2900	9xZ	0,003	2320	7xZ	0,003	770	3xZ	0,003	580	2xZ
19.5 x 5	0,004	1305	5xZ	0,004	1145	5xZ	0,004	820	3xZ	0,004	980	4xZ	0,004	2450	10xZ	0,004	1960	8xZ	0,004	650	3xZ	0,004	490	2xZ
22.5 x 6	0,005	1135	6xZ	0,005	990	5xZ	0,005	710	4xZ	0,005	850	4xZ	0,005	2120	11xZ	0,005	1700	9xZ	0,005	570	3xZ	0,005	430	2xZ
25.5 x 8	0,006	1000	6xZ	0,006	875	5xZ	0,006	625	4xZ	0,006	750	5xZ	0,006	1870	11xZ	0,006	1500	9xZ	0,006	500	13xZ	0,006	380	3xZ
28.5 x 8	0,008	900	7xZ	0,008	785	6xZ	0,008	560	5xZ	0,008	670	5xZ	0,008	1680	14xZ	0,008	1340	11xZ	0,008	450	4xZ	0,008	340	3xZ
32.5 x 8	0,010	785	8xZ	0,010	690	7xZ	0,010	500	5xZ	0,010	590	6xZ	0,010	1470	15xZ	0,010	1180	12xZ	0,010	400	4xZ	0,010	300	3xZ

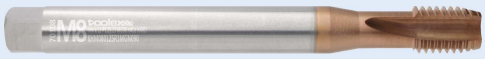
Solid carbide Taps - Alu
VHM - Gewindebohrer - Alu
Taraud en carbure - Alu
Karbür Kılavuz - Alu

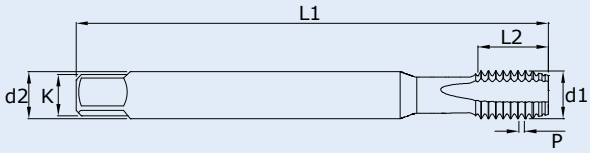


K	G	M	100	150	R	1	M	A	N	100
TAP	MG-07	DIN 371	d1	P				30°	nACo Multilayer	
TYPE	QUALITY	NORM	DIAMETER	PITCH	RIGHT		MACHINE	HELICAL	COATED	FULL LENGTH

M(d1)	P	L1	L2	d2(h6)	K	Z	Uncoated Code	Coated Code
M4	0,70	63	7	4,5	3,4	3	KGM040070R1MAB063	KGM040070R1MAN063
M5	0,80	70	9	6,0	4,9	3	KGM050080R1MAB070	KGM050080R1MAN070
M6	1,00	80	10	6,0	4,9	3	KGM060100R1MAB080	KGM060100R1MAN080
M8	1,25	90	12	8,0	6,2	3	KGM080125R1MAB090	KGM080125R1MAN090
M10	1,50	100	14	10,0	8,0	3	KGM100150R1MAB100	KGM100150R1MAN100
M12	1,75	110	16	12,0	9,0	3	KGM120175R1MAB110	KGM120175R1MAN110

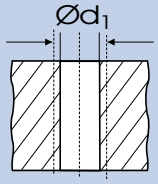
Solid carbide Taps - Hard
VHM - Gewindebohrer - Hart
Taraud en carbure - Dure
Karbür Kılavuz - Sert





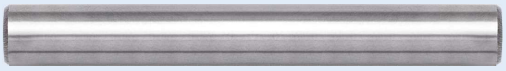
K	H	M	100	150	R	1	M	G	N	100
TAP	MG-08	DIN 371	d1	P				0°	nACo Multilayer	
TYPE	QUALITY	NORM	DIAMETER	PITCH	RIGHT		MACHINE	HELICAL	COATED	FULL LENGTH

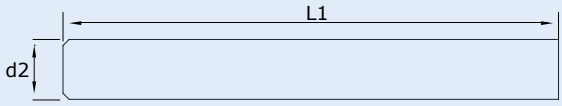
M(d1)	P	L1	L2	d2(h6)	K	Z	Coated Code
M4	0,70	63	7	4,5	3,4	3	KHM040070R1MGN063
M5	0,80	70	9	6,0	4,9	3	KHM050080R1MGN070
M6	1,00	80	10	6,0	4,9	3	KHM060100R1MGN080
M8	1,25	90	12	8,0	6,2	3	KHM080125R1MGN090
M10	1,50	100	14	10,0	8,0	3	KHM100150R1MGN100
M12	1,75	110	16	12,0	9,0	3	KHM120175R1MGN110



	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
										0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598						1.3255 1.3265 1.3333		
										Vc=60 m/dk.			Vc=80 m/dk.			Vc=55 m/dk.						Vc=15 m/dk.		
d1										n	P	Vf	n	P	Vf	n	P	Vf				n	P	Vf
4										4750	0,70	3325	6350	0,70	4445	4300	0,70	3010				1200	0,70	840
5										3800	0,80	3040	5100	0,80	4080	3500	0,80	2800				950	0,80	760
6										3180	1,00	3180	4250	1,00	4250	3000	1,00	3000				800	1,00	800
8										2388	1,25	2985	3100	1,25	3875	2200	1,25	2750				600	1,25	750
10										1910	1,50	2865	2500	1,50	3750	1750	1,50	2625				500	1,50	750
12										1590	1,75	2782	2100	1,75	3675	1450	1,75	2537				400	1,75	700

Solid Carbide Rods
Hartmetall - Rundstäbe
Tiges de Carbure
Karbür Çubuk

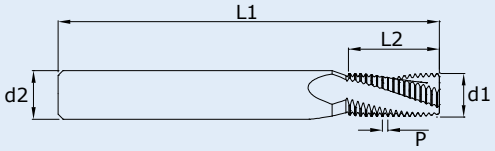




H	M	P	100	100	10	H6				
HARD	METAL		d1		MG-10					
NORM	FLUTES	PANTOGRAF	DIAMETER	TOTAL	QUALITY	TOLERANCE				

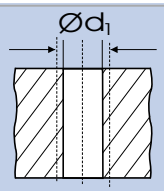
d1(h9)	TOTAL LENGHT			Code
2	100	2 x 100	HM Tiges de Carbure	HMS0200100G
3	100	3 x 100	HM Tiges de Carbure	HMS0300100G
4	100	4 x 100	HM Tiges de Carbure	HMS0400100G
5	100	5 x 100	HM Tiges de Carbure	HMS0500100G
6	100	6 x 100	HM Tiges de Carbure	HMS0600100G
8	100	8 x 100	HM Tiges de Carbure	HMS0800100G
10	100	10 x 100	HM Tiges de Carbure	HMS1000100G
12	100	12 x 100	HM Tiges de Carbure	HMS1200100G
14	100	14 x 100	HM Tiges de Carbure	HMS1400100G
16	100	16 x 100	HM Tiges de Carbure	HMS1600100G
18	100	18 x 100	HM Tiges de Carbure	HMS1800100G
20	100	20 x 100	HM Tiges de Carbure	HMS2000100G

Solid Carbide Thread Milling Cutters
VHM - Gewindefräser
Fraises À Fileter
Karbür Vida Freze



V	S	M	100	150	R	M	F		N	063
TAP	MG-10	DIN 371	d1	P			20°		nACo Multilayer	
TYPE	QUALITY	NORM	DIAMETER	PITCH	RIGHT	MACHINE	HELICAL		COATED	FULL LENGTH

M	P	d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Coated Code
M5	0,80	3	8	42	4	4	VSM050080RMFB042	VSM050080RMFN042
M6	1,00	4	9	57	6	4	VSM060100RMFB057	VSM060100RMFN057
M8	1,25	5	12	57	6	4	VSM080125RMFB057	VSM080125RMFN057
M10	1,50	7	15	63	8	4	VSM100150RMFB063	VSM100150RMFN063
M12	1,75	8	19	72	10	4	VSM120175RMFB072	VSM120175RMFN072
M16	2,00	10	24	72	10	5	VSM160200RMFB072	VSM160200RMFN072



	HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2 1.0060-2 1.0070-2			1.5864 16580 1.7225			1.4405 1.4460 1.4505			0.6035 0.7080 0.8055			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065			1.3255 1.3265 1.3333		
	Vc=60 m/dk.			Vc=40 m/dk.			Vc=50 m/dk.			Vc=70 m/dk.			Vc=140 m/dk.			Vc=90 m/dk.			Vc=40 m/dk.			Vc=15 m/dk.		
d1	Fn	n	Vf	Fn	n	Vf	Fn	n	Vf	Fn	n	Vf	Fn	n	Vf	Fn	n	Vf	Fn	n	Vf	Fn	n	Vf
5	0,04	3800	152	0,02	2500	50	0,02	3100	62	0,04	4500	180	0,06	8100	486	0,05	5750	280	0,02	2500	50	0,01	1000	10
6	0,04	3000	120	0,02	2000	40	0,02	2750	55	0,05	3700	185	0,08	7500	600	0,06	4750	280	0,02	2000	40	0,01	800	10
8	0,06	2508	150	0,03	1600	48	0,03	2000	60	0,07	2750	205	0,12	5500	660	0,07	3600	250	0,03	1600	48	0,015	600	8
10	0,06	2000	120	0,04	1250	50	0,04	1600	64	0,09	2300	207	0,14	4500	722	0,09	2900	260	0,04	1250	50	0,015	500	9
12	0,08	1600	128	0,05	1000	50	0,06	1350	81	0,11	1850	203	0,16	4000	640	0,10	2400	240	0,05	100	50	0,03	400	12
16	0,1	1200	120	0,07	800	56	0,08	1000	90	0,14	1400	196	0,20	2750	550	0,12	1800	250	0,07	800	56	0,04	300	12

REGISTERED TRADEMARKS

T.C.
TÜRK PATENT ENSTİTÜSÜ

MARKA TESCİL BELGESİ

Marka No : 2005 58047 - Ticaret

WAVE

Marka Sahibi : PİKSAN CNC METAL İŞLEME SANAYİ VE TİCARET LİMİTED ŞİRKETİ TÜRKİYE CUMHURİYETİ İmes Sanayi Sitesi E Blok 501 Sk. No:4 Yukarı Dudullu/Ümraniye İSTANBUL

Emtiası : 07 İlişiktedir.

Markaların Korunması Hakkında 556 Sayılı Kanun Hükmü Kararnameye göre 30/12/2005 tarihinden itibaren ON YIL müdd tescil edilmiştir.

Kutay KUMBASA Enstitü Başkanı Markalar Dairesi Ba

TÜRK PATENT [ ] ENSTİTÜSÜ

T.C.
TÜRK PATENT ENSTİTÜSÜ

MARKA TESCİL BELGESİ

Marka No : 2005 58045 - Ticaret

toolex

Marka Sahibi : PİKSAN CNC METAL İŞLEME SANAYİ VE TİCARET LİMİTED ŞİRKETİ TÜRKİYE CUMHURİYETİ İmes Sanayi Sitesi E Blok 501 Sk. No:4 Yukarı Dudullu/Ümraniye İSTANBUL

Emtiası : 07 İlişiktedir.

Markaların Korunması Hakkında 556 Sayılı Kanun Hükmünde Kararnameye göre 30/12/2005 tarihinden itibaren ON YIL müddetle tescil edilmiştir.

Kutay KUMBASAR Enstitü Başkanı a. Markalar Dairesi Başkanı

TÜRK PATENT [ ] ENSTİTÜSÜ

T.C.
TÜRK PATENT ENSTİTÜSÜ

MARKA TESCİL BELGESİ

Marka No : 2005 58044 - Ticaret

MOLDEX

Marka Sahibi : PİKSAN CNC METAL İŞLEME SANAYİ VE TİCARET LİMİTED ŞİRKETİ TÜRKİYE CUMHURİYETİ İmes Sanayi Sitesi E Blok 501 Sk. No:4 Yukarı Dudullu/Ümraniye İSTANBUL

Emtiası : 07 İlişiktedir.

Markaların Korunması Hakkında 556 Sayılı Kanun Hükmünde Kararnameye göre 30/12/2005 tarihinden itibaren ON YIL müddetle tescil edilmiştir.

Kutay KUMBASAR Enstitü Başkanı a. Markalar Dairesi Başkanı

TÜRK PATENT [ ] ENSTİTÜSÜ

T.C.
TÜRK PATENT ENSTİTÜSÜ

MARKA TESCİL BELGESİ

Marka No : 2005 58043 - Ticaret

HARD

Marka Sahibi : PİKSAN CNC METAL İ TİCARET LİMİTED ŞİR TÜRKİYE CUMHURİYİ İmes Sanayi Sitesi E Blok Dudullu/Ümraniye İSTAN

Emtiası : 07 İlişiktedir.

Markaların Korunması Hakkın Kararnameye göre 30/12/2005 tarihin 17/06/2008 tarihinde tescil edilmiştir.

TÜRK PATENT [ ] ENST

T.C.
TÜRK PATENT ENSTİTÜSÜ

MARKA TESCİL BELGESİ

Marka No : 2005 58046 - Ticaret

DIAGONAL

Marka Sahibi : PİKSAN CNC MET TİCARET LİMİTE TÜRKİYE CUMHU İmes Sanayi Sitesi I Dudullu/Ümraniye

: 07 İlişiktedir.

Markaların Ko arnameye göre 7 l edilmiştir.

TÜRK P

T.C.
TÜRK PATENT ENSTİTÜSÜ

MARKA TESCİL BELGESİ

Marka No : 2005 58042 - Ticaret

ALM

Marka Sahibi : PİKSAN CNC MET TİCARET LİMİTEI TÜRKİYE CUMHUI İmes Sanayi Sitesi E Dudullu/Ümraniye İS

Emtiası : 07 İlişiktedir.

Markaların Korunmas Kararnameye göre 30/12/20 17/06/2008 tarihinde tescil e

TÜRK PATENT [

T.C.
TÜRK PATENT ENSTİTÜSÜ

MARKA TESCİL BELGESİ

Marka No : 2006 19165 - Ticaret - Hizmet

PIKSAN

Marka Sahibi : PİKSAN CNC METAL İŞLEME SANAYİ VE TİCARET LİMİTED ŞİRKETİ TÜRKİYE CUMHURİYETİ İmes Sanayi Sitesi E Blok 501 Sk. No:4 Yukarı Dudullu/Ümraniye İSTANBUL

Emtiası : 07 , 40 İlişiktedir.

Markaların Korunması Hakkında 556 Sayılı Kanun Hükmünde Kararnameye göre 27/04/2006 tarihinden itibaren ON YIL müddetle tescil edilmiştir.

Kutay KUMBASAR Enstitü Başkanı a. Markalar Dairesi Başkanı

TÜRK PATENT [ ] ENSTİTÜSÜ

T.C.
TÜRK PATENT ENSTİTÜSÜ

MARKA TESCİL BELGESİ

Marka No : 2005 58049 - Ticaret

PERFEX

Marka Sahibi : PİKSAN CNC METAL İŞLEME SANAYİ VE TİCARET LİMİTED ŞİRKETİ TÜRKİYE CUMHURİYETİ İmes Sanayi Sitesi E Blok 501 Sk. No:4 Yukarı Dudullu/Ümraniye İSTANBUL

Emtiası : 07 İlişiktedir.

Markaların Korunması Hakkında 556 Sayılı Kanun Hükmünde Kararnameye göre 30/12/2005 tarihinden itibaren ON YIL müddetle tescil edilmiştir.

Kutay KUMBASAR Enstitü Başkanı a. Markalar Dairesi Başkanı

TÜRK PATENT [ ] ENSTİTÜSÜ

BUREAU VERITAS
Certification

PİKSAN CNC METAL İŞLEME SANAYİ VE TİCARET LTD. ŞTİ.

ÇERKEŞLİ OSB MAHALLESİ İMES BULVARI NO: 4
41455 DİLOVASI, KOCAELİ, TURKEY

Bureau Veritas Certification Holding SAS – UK Branch certify that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below

Standard

ISO 9001:2015

Scope of certification

MANUFACTURING OF HOT FORGED AND MACHINED STEEL AND ALUMINIUM PARTS

Original cycle start date **10 June 2020**

Expiry date of previous cycle: **N/A***

Certification / Recertification Audit date: **04 March 2020**

Certification / Recertification cycle start date: **10 June 2020**

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: **09 June 2023**

Certificate No: **TR009515** Version No: 1 Revision date: **10 June 2020**

İBRAHİM TAGAY
Signed on behalf of
BVCH SAS UK Branch

Certification body address: 5th floor, 66 Prescot Street, London, E1 8HG, United Kingdom
Local office: Esas Maltepe Ofispark Altayçeşme Mah. Çamlı Sok. No: 21 Kat: 8 34843 Maltepe, İstanbul, Turkey
Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organization
To check this certificate validity please call +90 216 518 40 50

** Not Applicable*

UKAS Certificate Template single site rev3.5 1 / 1 February 05, 2020

BUREAU VERITAS
Certification

Certificate of Approval

Awarded to

PİKSAN CNC METAL İŞLEME SAN. VE TİC. LTD. ŞTİ.

Çerkeşli OSB Mah. İmes Bulvarı No:4
41455 - Kocaeli - Turkey

ıu Veritas Certification certify that the Quality Management System of the above organisation has been audited and found to be in accordance with the requirements of

IATF 16949 - First Edition

and the applicable customer specific requirements

SCOPE
Manufacturing

PERMITTED EXCLUSION(S)
8.3 - Design and development of products and services

PRODUCT(S) DELIVERED
Hot forged and machined steel and aluminum parts

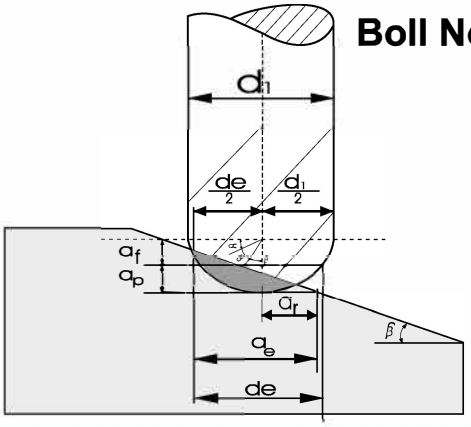
Date of certification: 10 June 2020
Date of expiration: 09 June 2023
IATF Certificate N°: 368507

*Bureau Veritas Certification Certificate N°:*TUR-22104/TS

For Bureau Veritas Certification Holding, Le Triangle de l'Arche, 8 Cours du Triangle - 92800 Puteaux - France
(The official document is in English. Any translations of this document shall be used for reference only.)

Page 1 of 1

Boll Nose End Mill

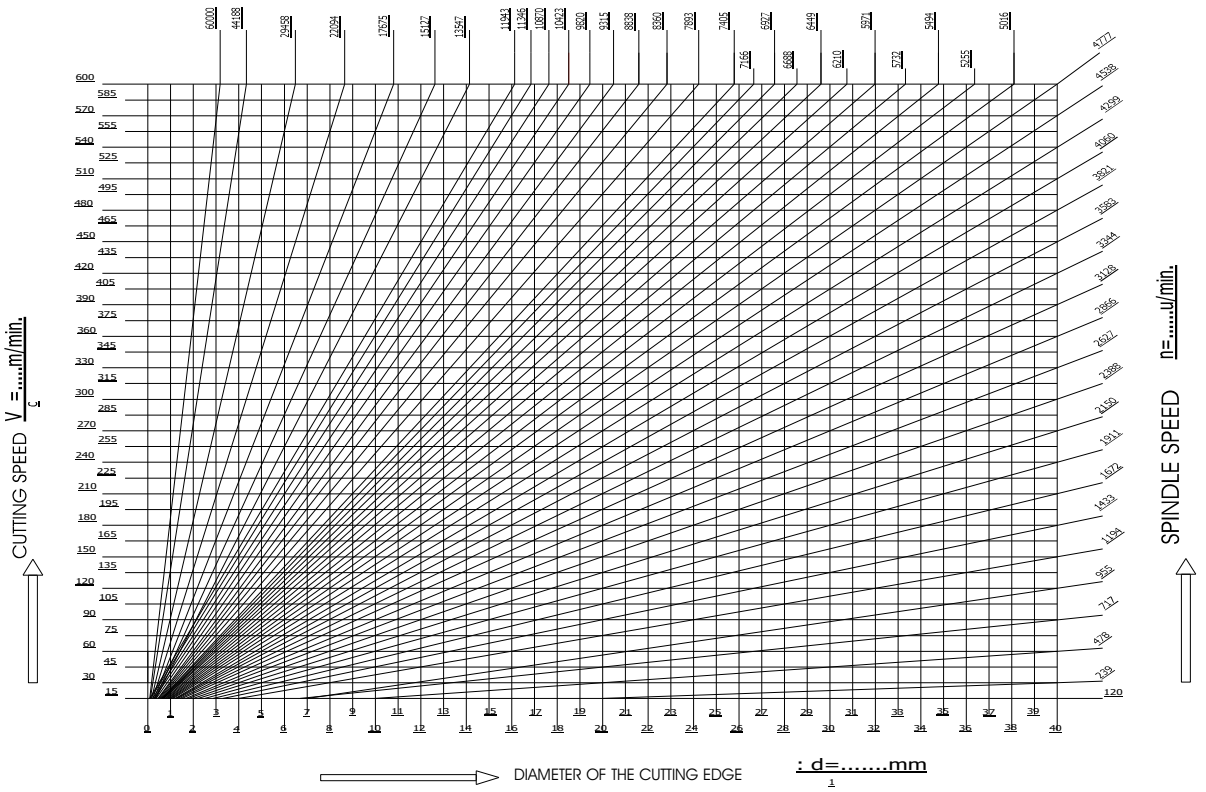


Working Material

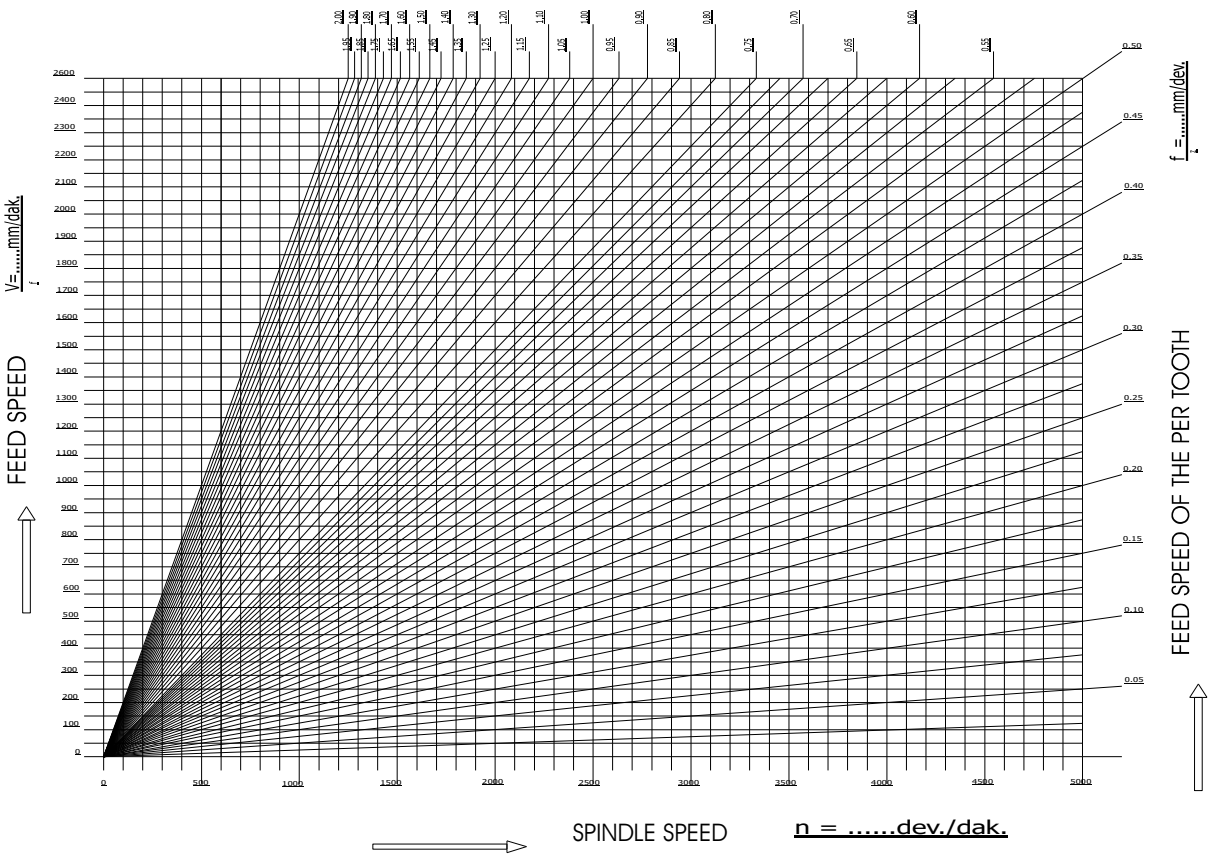
FORMULAS		
$tg\ \beta = \frac{a_p}{a_e}$	$a_e = \frac{a_p}{tg\ \beta}$	$\cos \alpha = \frac{de}{d_1}$
$\alpha = 90° - (\gamma + \beta)$	$\alpha = 90° - (\sin \frac{d1 - 2 \times ap}{d1} + \beta)$	
$a_f = \frac{d1 - 2 \times ap}{2}$	$a_r = \frac{2 \times ae - de}{2}$	
$de = 2 \times (ae - ar)$ **Milling with ball nose end mill on slope plane**		
$de = 2 \times \sqrt{ap \times (d1 - ap)}$ **Milling with ball nose end mill on horizontal plane**		
$Vc = \frac{\pi . d1 . n}{1000}$	$n = \frac{1000 \cdot Vc}{\pi . d1}$	
$Vf = fz.n.z$	$n = \frac{Vf}{fz.z}$	
$n = \frac{1000 \cdot Vc}{\pi . de}$ **Milling with ball nose end mill**	$n = \frac{1000 \cdot Vc}{\pi . d3}$ **Milling with taper end mill**	

Meaning Of Symbols	
d1	Diameter of the cutting edge
dk	Maximum cutting diameter of taper end mill
de	Maximum cutting diameter of ball nose end mill
z	Number of flutes
α	taper angle
β	Slope engle of working material
ap	Cutting depth
ae	Cutting width
Vc	Cutting speed
n	Spindle speed
fz	Feed per tooth
Vf	Table feed
d3	Maximum cutting diameter of taper end mill

FEED SPEEDS VALLIES DIAGRAM OF THE END MILL



CUTTING VALLIES DIAGRAM OF THE END MILL



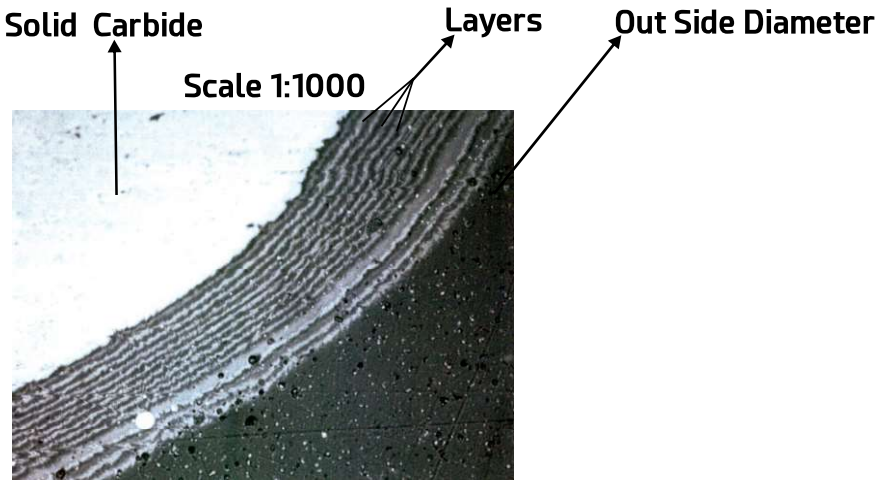
PVD Coating

Hard ceramic thin film coatings deposited by PVD technique under vacuum environment by plasma. (Physical Vapor Deposition) Arc provides increasing tool life up to 10 times related to their superior hardness, low surface friction coefficient and high temperature resistance

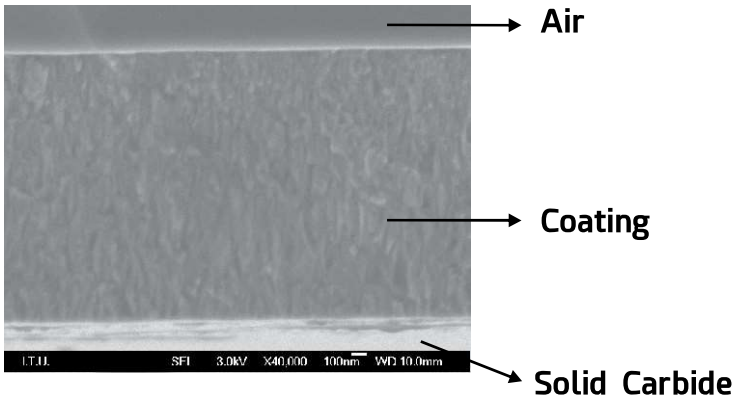
		AlTiN Multilayer nano	AlCrSiN Multilayer	DryCut	AlTiN	TiAlN	TiCN	TiN
Color		Dark Violet	Silver	Anthracite	Black - Grey	Anthracite	Violet - Grey	Gold
Oxidation temp.	(°C)	1100	1100	900	1000	850	400	600
Hardness	(HV)	5100	3000	3300	4000	3200	3700	3200
Coefficient of friction	(dry)	0.5	0.4	0.2	0.60	0.75	0.50	0.65
Thickness	(µm)	1.5 - 2.0	3 - 5	2 - 3	2 - 3	2 - 4	1 - 4	1 - 4
Young Modül	(GPa)	380	320	360	520	500	500	500
Coating Structure		Multilayer	Multilayer	Graded	Monolayer	Monolayer	Graded	Monolayer

Multilayer Coating

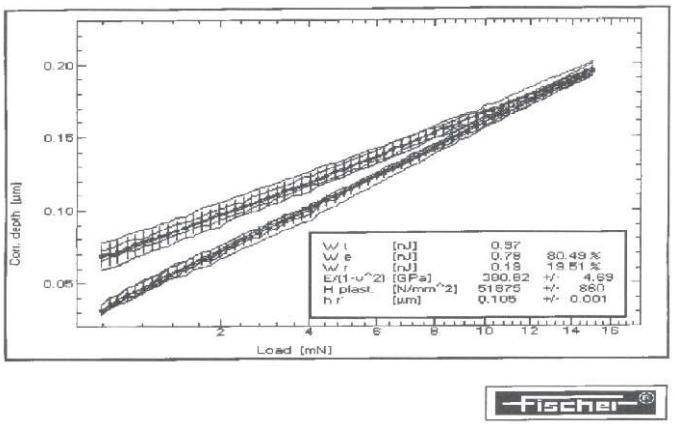
The sandwich- type multilayer AlTiN coating which is a new - generation coating type has got both excellent hardness because of its lower grain size and excellent toughness and cracking resistance because of its flexible sub-layers all together.



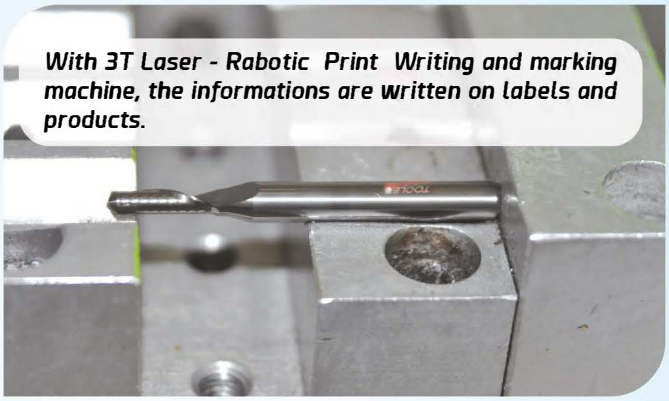
Coating Thickness



Coating Hardness Report



You see the working on solid carbide cutting tools with some of our grinding machines, before the production. Preliminary grinding process is also done with step and special measurement of solid carbide cutting tools in this unit.



With 3T Laser - Rabotic Print Writing and marking machine, the informations are written on labels and products.

Some of our quality department measuring machines are for the highest perfection quality control.

Haimer, Zoller genius 3m, Trimos, PWB 250 machines

Zoller genius 3m, another one of our quality steps.

Haimer, one of our quality steps.

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