

Volume 14



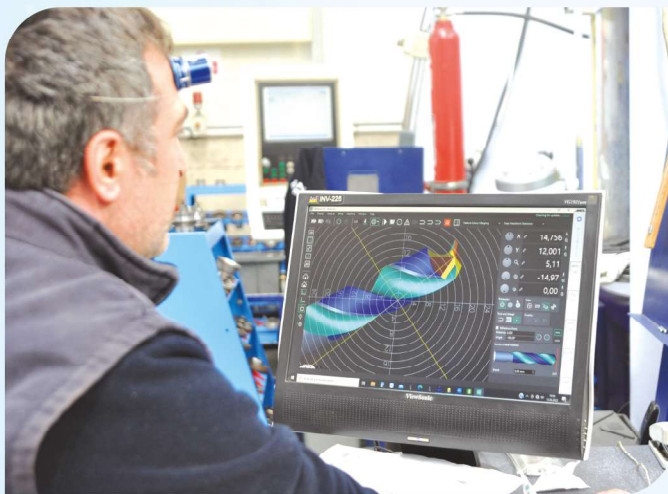
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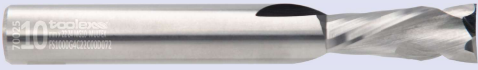
PIKSAN®
CNC METAL MACHINING

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)



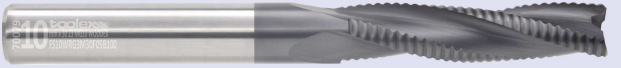
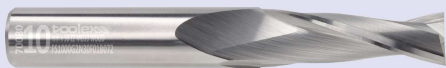
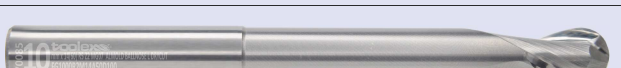
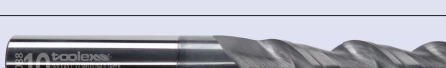
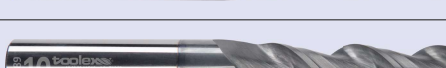
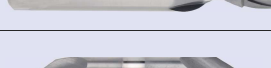
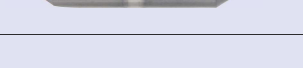
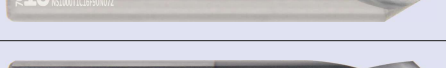
Type Type Tip	Quality Qualität Kalite	Diameter Durchmesser Diametre Çap	Norm Norm Norme Norm	Flutes Zähne Zahl Dents Diş	Shaft Type Schafttyp Queue Type Şaft Tipi	Cutting Length Schneidlänge Longeur de coupe Kesici Boyu	Helix Angle Drall winkel Angle d' Helice Helis Açısı	Edge Form Stirnform Form de Centre Uç Formu	Coated Beschichtung Revetement Kaplama	Full Length Ganze Länge 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		DIN 6528		DIN 6535 HA				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 Hélicoïdaux	NG-07		DIN 6528		TOOLEX				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		TOOLEX		DIN 6535 HB				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
SEKNER Senker Perçeur	MG-10		TOOLEX		DIN 6535 HB				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			TOOLEX		DIN 6535 HE				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				DRY CUT		
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				AlCrSiN		
TYPE		DIAMETER	DRILL NORM	FLUTES	SHAFT TYPE		HELICAL	PITCH	COATED		
K		10WR	U	12	S		G				
TAP Gewindebohrer Taraud			DIN 6537K 3 D								
TYPE		DIAMETER	DRILL NORM	FLUTES	SHAFT TYPE		HELICAL				
V		10HF	B		D		S				
THREAD MILLING CUTTER Gewindefräser Fraises À Fileter			5 D								
TYPE		DIAMETER	DRILL NORM		SHAFT TYPE		HELICAL				
I		10NF	Y		N		K				
INNER RADIUS CUTTER Kantenabrundfräser			DIN 6537K 7 D								
TYPE		DIAMETER	DRILL NORM		SHAFT TYPE		HELICAL				
H		10WF	T				C	H			
COUNTER Kegelsenker Fraises coniques			TOOLEX								
TYPE		DIAMETER	DRILL NORM				HELICAL	HELICAL			

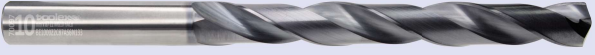
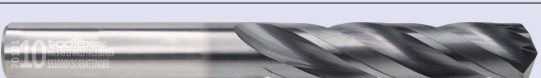
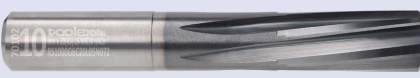
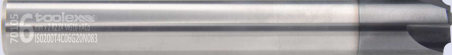
PAGE SEITE PAGE SAYFA	DESCRIPTION / BESCHREIBUNG DESCRIPTION / AÇIKLAMA	NORM NORM NORME NORM	FLUTES ZÄHNE DENTS DIŞ	HELIX ANGE DRALL WINKEL HELİCE HELİS AÇISI	PRODUCT / PRODUKT / PRODUCTION / ÜRÜN
1	Solid carbide end mills VHM - Schafffräser Fraises en bout carbure Karbür Freze	STANDART DIN 6528	2-3-4	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 - Schafffräser - 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 - Schafffräser - 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 - Fourrex VHM - Fourrexfräser Fraises en bout carbure - Fourrex Karbür Fourrex Freze	FOUREX TOOLEX	4		
9	Solid carbide end mills - Pentex VHM - Schafffräser - Pentex Fraises en bout carbure - Pentex Karbür Freze - Pentex	PENTEX TOOLEX	5		
10	Solid carbide end mills - Perfix VHM - Schafffräser - Perfix Fraises en bout carbure - Perfix Karbür Freze - Perfix	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'ébauche 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'ébauche NR Karbür Kaba Talaş Freze NR	ROUGH NR DIN 6528	4	40°	
14	Solid carbide roughing end mills NF VHM - Schruppfräser NF Fraises d'ébauche 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 - Schafffräser - Pyramid Fraises en bout carbure - Pyramid Karbür Freze - Pyramid	PYRAMID TOOLEX	9		

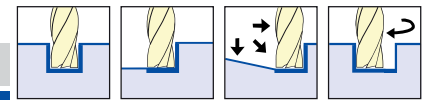
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18	Solid carbide end mills - Multex VHM - Schaftfräser - Multex Fraises en bout carbure - Multex Karbür Freze - Multex	MULTEX DIN 6528	2-3-4	30°	
19	Solid carbide end mills - Micro VHM - Schaftfräser - Micro Fraises en bout carbure - Micro Karbür Freze - 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 Longue 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 Longue 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 Longue 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 Longue 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 Longue Fraises a rayon 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 - Schafffräser 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 - Schafffräser - 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 - Schafffräser - Alu Mini Long 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 Long 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 - Schafffräser 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 - Schafffräser mit Eckenradius - Alu Mini Long 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 - Schafffräser - 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 - Schafffräser - Mini Hart Long 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 Long 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 - Schafffräser 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 - Schafffräser mit Eckenradius - Mini Hart Long 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 - Schafffräser 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 - Schafffräser mit Eckenradius Fraises toriques carbure Karbür Köşe Radyüslü Freze	CORNER - R TOOLEX	4	30°	
52	Solid carbide end mills with corner radius - Long VHM - Schafffräser mit Eckenradius - Long Fraises toriques carbure - Longue Karbür Köşe Radyüslü Freze - Uzun	LONG CORNER - R TOOLEX	4	30°	
53	Solid carbide end mills - Moldex VHM - Schafffräser - Moldex Fraises en bout carbure - Moldex Karbür Freze - Moldex	MOLDEX TOOLEX	4	35°	

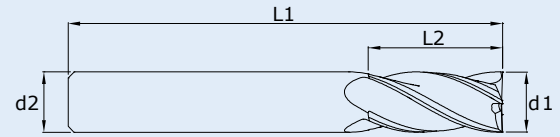
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54	Solid carbide end mills - Moldex Long VHM - Schafffräser - Moldex Lang Fraises en bout carbure - Moldex Longue Karbür Freze - Moldex Uzun	MOLDEX LONG TOOLEX	4	35°	
55	Solid carbide ball nose end mills - Moldex VHM - Radiusfräser - Moldex Fraises 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 - Schafffräser 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 - Schafffräser 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 - Schafffräser - 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 - Schafffräser - 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 - Schafffräser - 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 - Schafffräser 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 - Schafffräser 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 - Schafffräser - Alu Z1 Fraises en bout carbure - Alu Z1 Karbür Freze - Alu Z1	ALU TOOLEX	1	40°	

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72	Solid carbide end mills - Flex Z1 VHM - Schaftfräser - Flex Z1 Fraises en bout carbure - Flex Z1 Karbür Freze - Flex Z1	TOOLEX	1	25°	
73	Solid carbide roughing end mills for wood - Woodex VHM - Schruppfräser für Holz - Woodex Fraises d'ébauche en bout carbure pour bois - Woodex Karbür Ağac Freze - 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	TOOLEX	2	20°	
74	Solid carbide end mills - Alu VHM - Schaftfräser - Alu Fraises en bout carbure - Alu Karbür Freze - Alu	TOOLEX	2	40°	
75	Solid carbide end mills - Almol VHM - Schaftfräser - Almol Fraises en bout carbure - Almol Karbür Freze - Almol	DIN 6528	2	40°	
76	Solid carbide end mills - Almol long VHM - Schaftfräser - Almol Lang Fraises en bout carbure - Almol Longue Karbür Freze - Almol Uzun	TOOLEX	2	40°	
77	Solid carbide ball nose end mills - Almol VHM - Radiusfräser - Almol Fraises a rayon carbure - Almol Karbür Küre Freze - Almol	DIN 6528	2	30°	
78	Solid carbide ball nose end mills - Almol Long VHM - Radiusfräser - Almol Lang Fraises a rayon carbure - Almol Longue Karbür Küre Freze - Almol Uzun	TOOLEX	2-4	40°	
79	Solid carbide end mills with corner radius - Almol VHM - Schaftfräser mit Eckenradius - Almol Fraises toriques carbure - Almol Karbür Köşe Radyüslü Freze - Almol	TOOLEX	2-4	40°	
80	Solid carbide end mills with corner radius - Almol Long VHM - Schaftfräser mit Eckenradius - Almol Lang Fraises toriques carbure - Almol Longue Karbür Köşe Radyüslü Freze - Almol Uzun	TOOLEX	2	40°	
81	Solid carbide conical end mills - Taper VHM - Konischer Schaftfräser - Taper Fraises Cônica en bout carbure - Taper Karbür Konik Freze - Taper	TOOLEX	2	45°	
82	Solid carbide conical end mills - Taper VHM - Konischer Schaftfräser - Taper Fraises Cônica en bout carbure - Taper Karbür Konik Freze - Taper	TOOLEX	2	45°	
83	Solid carbide conical ball nose end mills - Taper VHM - Konischer Radiusfräser - Taper Fraises Cônica a rayon carbure - Taper Karbür Konik Küre Freze - Taper	TOOLEX	2	45°	
84	Solid carbide conical ball nose end mills - Taper VHM - Konischer Radiusfräser - Taper Fraises Cônica a rayon carbure - Taper Karbür Konik Küre Freze - Taper	TOOLEX	2	45°	
85	Solid carbide Center drills VHM - Zentrierbohrer Mèche a Centrer carbure Karbür Punta Matkab	TOOLEX	2	20°	
86	Solid carbide pantograph VHM - Pantograph Forets a pantographe Karbür Pantograf	TOOLEX	1	0°	
87	Solid carbide NCEX drills VHM - NCEX Bohrer Forets a pointer NCEX Karbür NCEX Matkap	TOOLEX	1	20°	
88	Solid carbide NC drills VHM - NC Bohrer Forets a pointer NC Karbür NC Matkap	TOOLEX	2	20°	

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



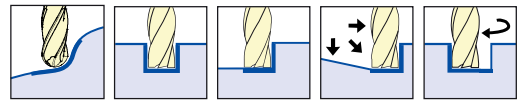
Solid carbide end mills
VHM - Schaftfräser
Fraises en bout carbure
Karbür Freze



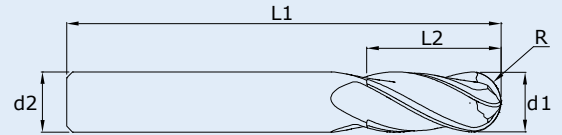
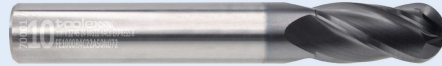
F	E	1000	G	4	C	22	A	00	N	072
END MILL	MG-10		DIN 6528							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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	

d1		d2		Vc x 0.8		Vc x 1		HRC 20-30		HRC 30-40		INOX		GG		AL		CU		TITAN		< 52 HRC	
Qp	Qe	Qp	Qe	Qp	Qe	Qp	Qe	Qp	Qe	Qp	Qe	Qp	Qe	Qp	Qe	Qp	Qe	Qp	Qe	Qp	Qe	Qp	Qe
1.0050-2	1.0060-2	1.0070-2	1.0080-2	1.0090-2	1.0100-2	1.0110-2	1.0120-2	1.0130-2	1.0140-2	1.0150-2	1.0160-2	1.0170-2	1.0180-2	1.0190-2	1.0200-2	1.0210-2	1.0220-2	1.0230-2	1.0240-2	1.0250-2	1.0260-2	1.0270-2	1.0280-2
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.	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.	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.
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	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	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	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	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	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	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	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	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	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	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	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	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	55xZ



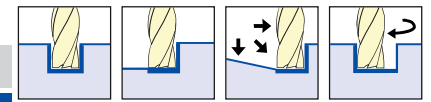
Solid carbide ball nose end mills
VHM - Radiusfräser
Fraises a rayon carbure
Karbür Küre Freze



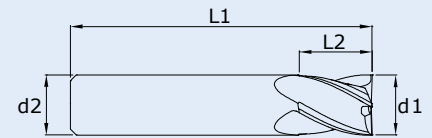
F	E	1000	R	4	C	22	A	50	N	072
END MILL	MG-10		DIN 6528		DIN 6535 HA				nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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	

				1.0050-2 1.0060-2 1.0070-2			1.5864 1.6580 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	d2	d3	d4	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

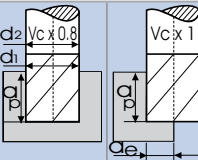
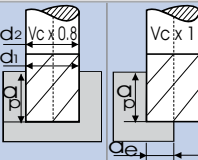


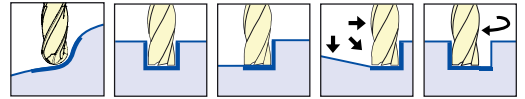
Solid carbide end mills - Short
VHM - Schaftfräser - Kurz
Fraises en bout carbure - Court
Karbür Freze - Kisa



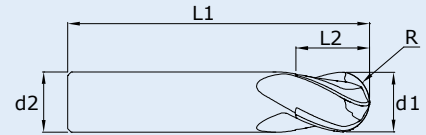
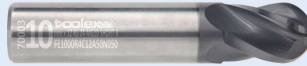
F	E	1000	G	4	C	12	A	00	N	050
END MILL	MG-10		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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 1.6580 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			



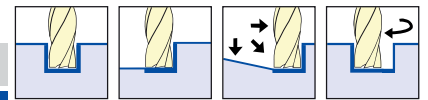
Solid carbide ball nose end mills - Short
VHM - Radiusfräser - Kurz
Fraises a rayon carbure - Court
Karbür Küre Freze - Kısa



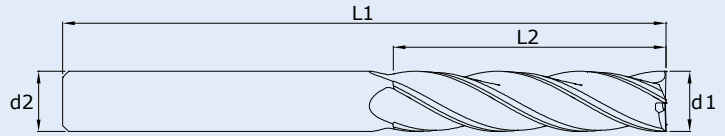
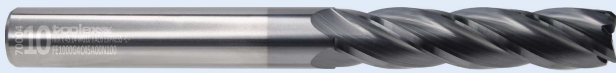
F	E	1000	R	4	C	12	A	50	N	050
END MILL	MG-10		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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	

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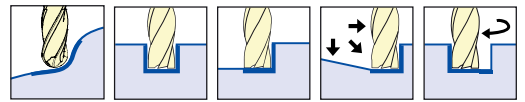
Solid carbide end mills - Long
VHM - Schaftfräser - Lang
Fraises en bout carbure - Longue
Karbür Freze - Uzun



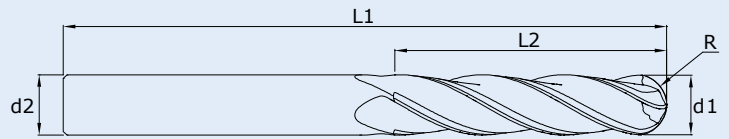
F	E	1000	G	4	C	45	A	00	N	100
END MILL	MG-10		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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 1.6580 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									
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



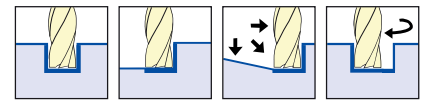
Solid carbide ball nose end mills - Long
VHM - Radiusfräser - Lang
Fraises a rayon carbure - Longue
Karbür Küre Freze - Uzun



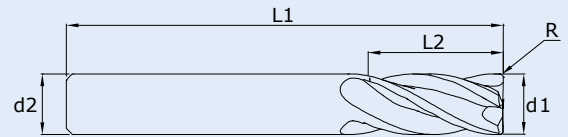
F	E	1000	R	4	C	45	A	50	N	100
END MILL	MG-10		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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	

				HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC						
1.0050-2 1.0060-2 1.0070-2				1.5864 1.6580 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	
3	3	1,5	1,5	0,017	10616	180xZ	0,018	8492	150xZ	0,021	5838	125xZ	0,051	12738	650xZ	0,0393	1846	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	0,0522	3385	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	0,0651	9108	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	0,0781	5923	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				



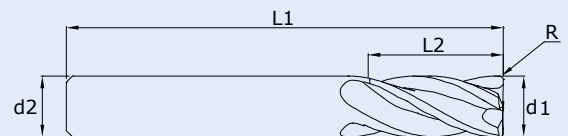
Solid carbide end mills - Wave
Fraises en bout carbure - D'onde
VHM - Wellenfräse
Karbür Dalga Freze



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

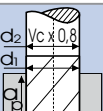
d1(e8)	L2	L1	d2(h6)	Z	R	Coated Code	Price (Euro)
6	13	57	6	4	0,30	FS06NWG4C13A03N057	
8	19	63	8	4	0,40	FS08NWG4C19A04N063	
10	22	72	10	4	0,50	FS10NWG4C22A05N072	
12	26	83	12	4	0,60	FS12NWG4C26A06N083	
14	26	83	14	4	0,70	FS14NWG4C26A07N083	
16	32	92	16	4	0,80	FS16NWG4C32A08N092	
18	32	92	18	4	0,90	FS18NWG4C32A09N092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

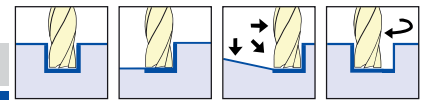
NX
WAVE INOX <52 HRC



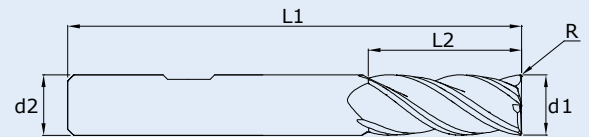
F	I	10NX	G	4	C	22	A	05	N	072
END MILL	MG-10		DIN 6528		DIN 6535 HA				nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	Coated Code	Price (Euro)
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						
$a_p = d_1 \times 0,5$ $a_e = d_1$				$a_p = d_1$ $a_e = d_1 \times 0,5$				1.0050-2 1.0060-2 1.0070-2			1.5864 1.6580 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		
$V_c = 120 \text{ m/dk.}$				$V_c = 90 \text{ m/dk.}$				$V_c = 65 \text{ m/dk.}$			$V_c = 130 \text{ m/dk.}$			$V_c = 320 \text{ m/dk.}$			$V_c = 200 \text{ m/dk.}$			$V_c = 50 \text{ m/dk.}$			$V_c = 50 \text{ m/dk.}$								
d_1	a_p	a_e	f_z	n	V_f	f_z	n	V_f	f_z	n	V_f	f_z	n	V_f	f_z	n	V_f	f_z	n	V_f	f_z	n	V_f	f_z	n	V_f					
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					



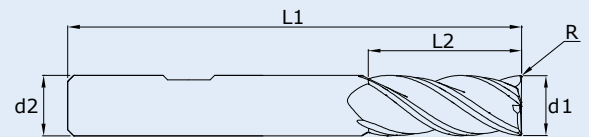
Solid carbide end mills - Fourex
VHM - Fourexfräser
Fraises en bout carbure - Fourex
Karbür Fourex Freze



F	S	1000	G	4	W	22	S	05	N	072
END MILL	MG-10		DIN 6528							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

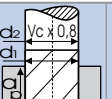
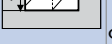
d1(e8)	L2	L1	d2(h6)	Z	R	Uncoated Code	Price (Euro)
3	5	57	6	4	0,15	FS0300G4W05S02N057	
4	7	57	6	4	0,20	FS0400G4W07S02N057	
5	8	57	6	4	0,25	FS0500G4W08S02N057	
6	10	57	6	4	0,30	FS0600G4W10S03N057	
8	16	63	8	4	0,40	FS0800G4W16S04N063	
10	22	72	10	4	0,50	FS1000G4W22S05N072	
12	26	83	12	4	0,60	FS1200G4W26S06N083	
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	

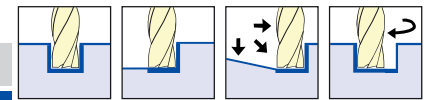
FOUREX INOX <52 HRC



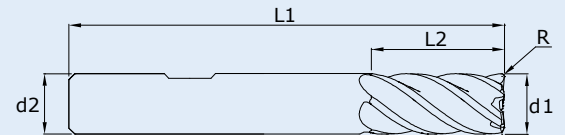
F	I	1000	G	4	W	22	S	05	N	072
END MILL	MG-10		DIN 6528							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	Uncoated Code	Price (Euro)
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 1.6580 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		
$a_p = d_1 \times 0,5$ $a_e = d_1$				$a_e = d_1 \times 0,5$				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	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	886	65xZ	0,062	886	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					



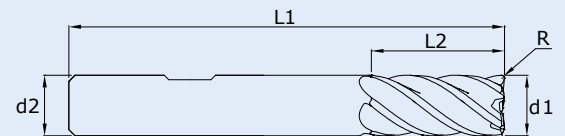
Solid carbide end mills - Pentex
VHM - Schaftfräser - Pentex
Fraises en bout carbure - Pentex
Karbür Freze - Pentex



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

d1(e8)	L2	L1	d2(h6)	Z	R	Uncoated Code	Price (Euro)
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	

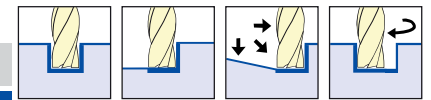
PENTEX INOX <52 HRC



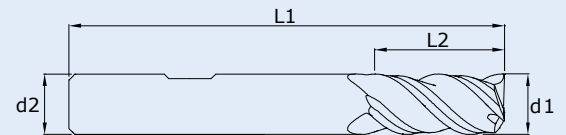
F	I	1000	G	5	W	22	S	05	N	072
END MILL	MG-10		DIN 6528							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	Uncoated Code	Price (Euro)
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	

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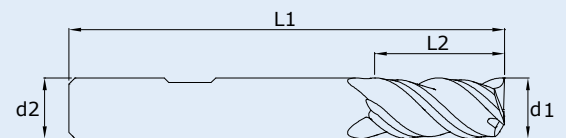


Solid carbide end mills - Perfex
VHM - Schaftfräser - Perfex
Fraises en bout carbure - Perfex
Karbür Freze - Perfex



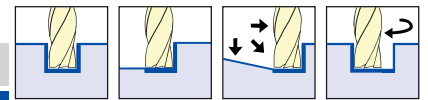
F	S	1000	G	3	W	22	D	01	N	072
END MILL	MG-10		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH
d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)		
2	3	57	6	3	FS0200G3W03D01B057		FS0200G3W03D01N057			
3	5	57	6	3	FS0300G3W05D01B057		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

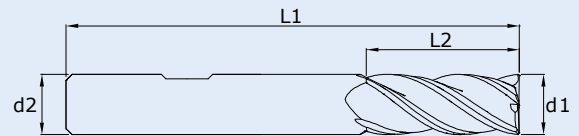


F	I	1000	G	3	W	22	D	01	N	072
END MILL	MG-10		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH
d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)		
2	3	57	6	3	FI0200G3W03D01B057		FI0200G3W03D01N057			
3	5	57	6	3	FI0300G3W05D01B057		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			

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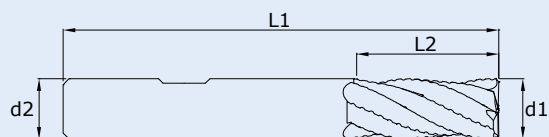
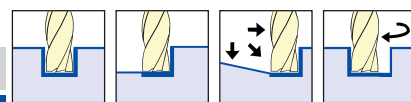
Solid carbide end mills - Diagonal
VHM - Kreuzfräser
Fraises en bout - Diagonal
Karbür Diagonal Freze



F	S	1000	G	4	W	22	S	01	N	072
END MILL	MG-10		DIN 6528							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

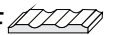
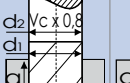
d1(e8)	L2	L1	d2(h6)	Z	Coated Code	Price (Euro)
3	5	57	6	4	FS0300G4W05S01N057	
4	7	57	6	4	FS0400G4W07S01N057	
5	8	57	6	4	FS0500G4W08S01N057	
6	10	57	6	4	FS0600G4W10S01N057	
8	16	63	8	4	FS0800G4W16S01N063	
10	22	72	10	4	FS1000G4W22S01N072	
12	26	83	12	4	FS1200G4W26S01N083	
14	26	83	14	4	FS1400G4W26S01N083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

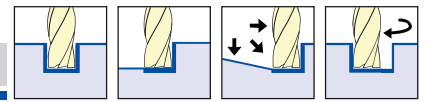
				HRC 20-30		HRC 30-40		INOX		GG		AL		CU		TITAN		< 52 HRC								
1.0050-2 1.0060-2 1.0070-2		1.5864 1.6580 1.7225		1.4405 1.4460 1.4505		0.6035 0.7080 0.8055		3.2151 3.2373 3.2382		2.1247 2.0580 2.0598		3.7035 3.7055 3.7065		1.3255 1.3265 1.3333												
ap = d1 x 0,5 ae = d1		ap = d1 x 0,5 Vc = 120 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						
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	65 xZ	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	65 xZ	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	65 xZ	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	65 xZ	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	65 xZ	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	65 xZ	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	65 xZ	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	65 xZ	0,069	796	55xZ



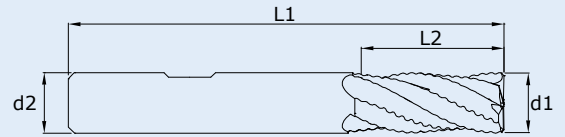
F	S	10NF	G	4	W	22	A	05	N	072
END MILL	MG-10		DIN 6527							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	x45°	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
6	13	57	6	0,30	4	FS06NFG4W13A03B057		FS06NFG4W13A03N057	
7	16	60	7	0,35	4	FS07NFG4W16A03B060		FS07NFG4W16A03N060	
8	19	63	8	0,40	4	FS08NFG4W19A04B063		FS08NFG4W19A04N063	
9	19	67	9	0,45	4	FS09NFG4W19A04B067		FS09NFG4W19A04N067	
10	22	72	10	0,50	4	FS10NFG4W22A05B072		FS10NFG4W22A05N072	
12	26	83	12	0,60	4	FS12NFG4W26A06B083		FS12NFG4W26A06N083	
14	26	83	14	0,70	4	FS14NFG4W26A07B083		FS14NFG4W26A07N083	
16	32	92	16	0,80	4	FS16NFG4W32A08B092		FS16NFG4W32A08N092	
18	32	92	18	0,90	4	FS18NFG4W32A09B092		FS18NFG4W32A09N092	
20	38	104	20	1,00	4	FS20NFG4W38A10B104		FS20NFG4W38A10N104	
6	24	68	6	0,30	4	FS06NFG4W24A03B068		FS06NFG4W24A03N068	
8	38	88	8	0,40	4	FS08NFG4W38A04B088		FS08NFG4W38A04N088	
10	45	100	10	0,50	4	FS10NFG4W45A05B100		FS10NFG4W45A05N100	
12	53	110	12	0,60	4	FS12NFG4W53A06B110		FS12NFG4W53A06N110	
14	53	110	14	0,70	4	FS14NFG4W53A07B110		FS14NFG4W53A07N110	
16	63	110	16	0,80	4	FS16NFG4W63A08B110		FS16NFG4W63A08N110	
18	63	110	18	0,90	4	FS18NFG4W63A09B110		FS18NFG4W63A09N110	
20	75	141	20	1,00	4	FS20NFG4W75A10B141		FS20NFG4W75A10N141	

			NF 				NF 				HF 				NF 				WF 				WF 				HF 				HF 			
 d_1 d_p a_e $p_d = d_1 \times 0,5$ $a_e = d_1$			 $Vc \times 0,8$ $Vc \times 1$ a_e $p_d = d_1 \times 0,5$ $a_e = d_1 \times 0,5$			HRC 20-30		HRC 30-40		INOX		GG		AL		CU		TITAN		< 52 HRC														
			1.0050-2 1.0060-2 1.0070-2				1.5864 1.6580 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	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	50 xZ	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	50 xZ	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	50 xZ	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	50 xZ	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	50 xZ	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	50 xZ	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	50 xZ	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	50 xZ	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	50 xZ	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	50 xZ	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	50 xZ	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	50 xZ	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	50 xZ	0,117	341	40xZ								



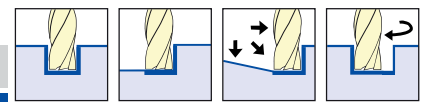
Solid carbide roughing end mills NR
VHM - Schruppfräser NR
Fraises d'ébauche NR
Karbür Kaba Talaş Freze NR



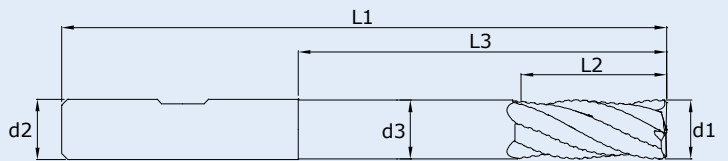
F	S	10NR	G	4	W	22	R	05	N	072
END MILL	MG-10		DIN 6527							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	x45°	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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			1.5864			1.4405			0.6035			3.2151			2.1247			3.7035			1.3255								
1.0060-2			1.6580			1.4460			0.7080			3.2373			2.0580			3.7055			1.3265								
1.0070-2			1.7225			1.4505			0.8055			3.2382			2.0598			3.7065			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						
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			

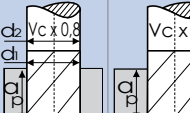
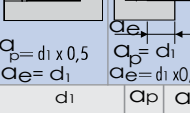


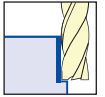
Solid carbide roughing end mills NF
VHM - Schruffräser NF
Fraises d'ébauche NF
Karbür Kaba Talaş Freze NF



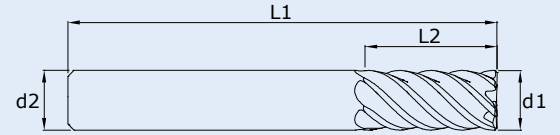
F	S	10NF	G	4	M	24	R	05	N	100
END MILL	MG-10		TOOLEX		TOOLEX				nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	x45°	d2(h6)	Z	Coated Code	Price (Euro)
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		
$a_p = d_1 \times 0,5$ $a_e = d_1$		$a_p = d_1$ $a_e = d_1 \times 0,5$		1.0050-2 1.0060-2 1.0070-2		1.5864 1.6580 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
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
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
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
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
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
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
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
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



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

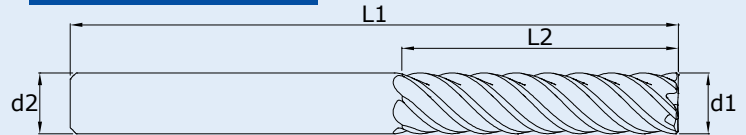
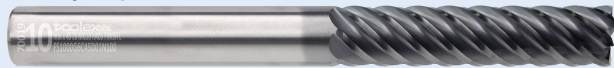


F	S	1000	G	6	C	22	D	01	N	072
END MILL	MG-10		DIN 6528		DIN 6535 HA				nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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	

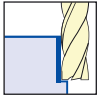
Solid carbide finishing end mills - Long
VHM - Schlichtfräser - Lang
Fraise de finition carbure - Longue
Karbür Çok Ağzlı Freze - Uzun

FINISH LONG <52 HRC

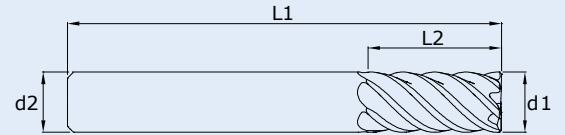


d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
6	24	68	6	6	FS0600G6C24D01B068		FS0600G6C24D01N068	
8	38	88	8	6	FS0800G6C38D01B088		FS0800G6C38D01N088	
10	45	100	10	6	FS1000G6C45D01B100		FS1000G6C45D01N100	
12	53	110	12	6	FS1200G6C53D01B110		FS1200G6C53D01N110	
16	63	110	16	6	FS1600G6C63D01B110		FS1600G6C63D01N110	
20	75	141	20	8	FS2000G8C75D01B141		FS2000G8C75D01N141	
25	90	165	25	10	FS2500GOC90D01B165		FS2500GOC90D01N165	

						HRC 20-30			HRC 30-40			GG			< 52 HRC		
$a_p = d_1 \times 0,1$ $a_e = d_1$			$a_e = d_1 \times 0,1$			1.0050-2 1.0060-2 1.0070-2			1.5864 1.6580 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	fz	n	Vf
6	6	6	0,015	6900	100 xZ	0,015	5308	80 xZ	0,020	6370	130 xZ	0,009	3185	30 xZ			
8	8	8	0,019	5175	100 xZ	0,020	3981	80 xZ	0,027	4777	130 xZ	0,013	2390	30 xZ			
10	10	10	0,024	4140	100 xZ	0,025	3185	80 xZ	0,034	3822	130 xZ	0,016	1910	30 xZ			
12	12	12	0,029	3450	100 xZ	0,030	2654	80 xZ	0,041	3185	130 xZ	0,019	1592	30 xZ			
14	14	14	0,034	2957	100 xZ	0,035	2275	80 xZ	0,048	2730	130 xZ	0,022	1365	30 xZ			
16	16	16	0,038	2588	100 xZ	0,040	1990	80 xZ	0,054	2390	130 xZ	0,025	1194	30 xZ			
18	18	18	0,043	2300	100 xZ	0,045	1770	80 xZ	0,061	2123	130 xZ	0,028	1062	30 xZ			
20	20	20	0,048	2070	100 xZ	0,050	1592	80 xZ	0,068	1911	130 xZ	0,031	955	30 xZ			
25	25	25	0,060	1656	100 xZ	0,063	1274	80 xZ	0,085	1530	130 xZ	0,039	765	30 xZ			



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

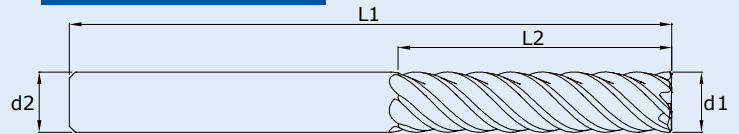


F	I	1000	G	6	C	22	D	01	N	072
END MILL	MG-10		DIN 6928		DIN 6535 HA				nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

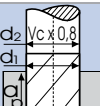
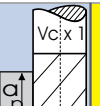
d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
6	13	57	6	6	FI0600G6C13D01B057		FI0600G6C13D01N057	
8	19	63	8	6	FI0800G6C19D01B063		FI0800G6C19D01N063	
10	22	72	10	6	FI1000G6C22D01B072		FI1000G6C22D01N072	
12	26	83	12	6	FI1200G6C26D01B083		FI1200G6C26D01N083	
14	26	83	14	6	FI1400G6C26D01B083		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	

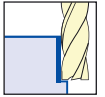
Solid carbide finishing end mills - Inox Long
VHM - Schlichtfräser - Inox Lang
Fraise de finition carbure - Inox Longue
Karbür Çok Ağızlı Freze - Inox Uzun

FINISH INOX <52 HRC



d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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		
$a_p = d_1 \times 0,1$ $a_e = d_1$			$a_p = d_1$ $a_e = d_1 \times 0,1$			1.4405 1.4460 1.4505			3.2151 3.2373 3.2382			2.1247 2.0580 2.0598			3.7035 3.7055 3.7065		
$Vc = 60 \text{ m/dk.}$			$Vc = 300 \text{ m/dk.}$			$Vc = 200 \text{ m/dk.}$			$Vc = 60 \text{ m/dk.}$								
d_1	a_p	a_e	fz	n	V_f	fz	n	V_f	fz	n	V_f	fz	n	V_f	fz	n	V_f
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			



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

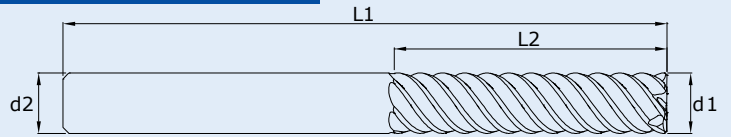


F	H	1000	G	6	C	22	E	01	N	072
END MILL	MG-08		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Coated Code	Price (Euro)
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	

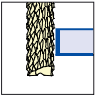
Solid carbide finishing end mills - Hard Long
VHM - Schlichtfräser - Hart Lang
Fraise de finition carbure - Dure Longue
Karbür Çok Ağızlı Freze -Sert Uzun

FINISH HARD LONG 52 - 68 HRC

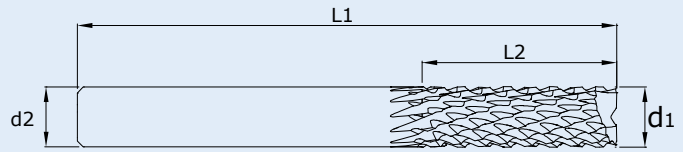
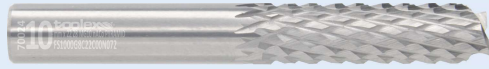


d1(e8)	L2	L1	d2(h6)	Z	Coated Code	Price (Euro)
6	24	68	6	6	FH0600G6C24E01N068	
8	38	88	8	6	FH0800G6C38E01N088	
10	45	100	10	6	FH1000G6C45E01N100	
12	53	110	12	6	FH1200G6C53E01N110	
16	63	110	16	6	FH1600G6C63E01N110	
20	75	141	20	8	FH2000G8C75E01N141	
25	90	165	25	10	FH2500G0C90E01N165	

						HRC <50	HRC <53	HRC <56	HRC <59	HRC <61	HRC <63	HRC <65	HRC <68													
1.5860-1.6587 1.6587-1.7326			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=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			
6	0,6	0,6	0,011	3450	40 xZ	0,009	3185	30xZ	0,009	2919	26xZ	0,009	2654	24xZ	0,009	2388	22xZ	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



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

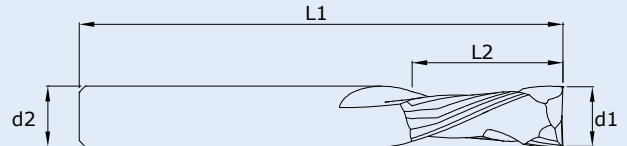


F	S	1000	G	9	C	22	C	00	N	072
END MILL	MG-10		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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	

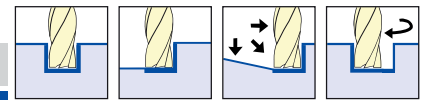
MULTEX <52 HRC

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

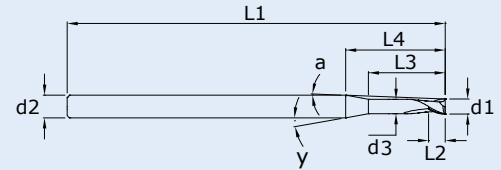


F	S	1000	G	2	C	22	C	00	D	072
END MILL	MG-10		DIN 6528							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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	



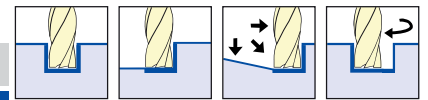
Solid carbide end mills - Micro
VHM - Schaftfräser - Micro
Fraises en bout carbure - Micro
Karbür Freze - Micro



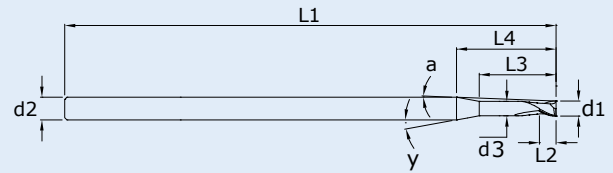
F	E	0100	G	2	K	40	A	00	N	020
END MILL	MG-10		DIN 6528		DIN 6535 HA				nAco Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CHAMFER	COATED	FLUTE LENGTH

d1(±0.003/0.005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Coated Code	Price (Euro)
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	

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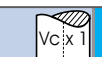


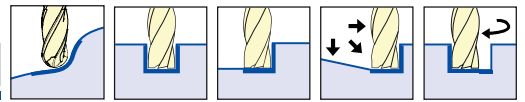
Solid carbide end mills - Micro Long
VHM - Schaftfräser - Micro Lang
Fraises en bout carbure - Micro Longue
Karbür Freze - Micro Uzun



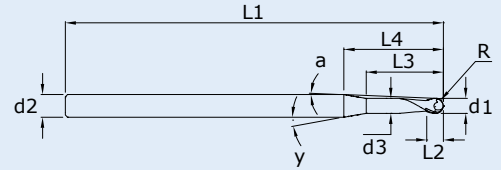
F	E	0100	G	2	K	65	A	00	N	020
END MILL	MG-10		DIN 6528		DIN 6535 HA				nAco Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CHAMFER	COATED	FLUTE LENGTH

d1 (±0.003/0.005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Coated Code	Price (Euro)
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					
$a_p = d_1 \times 0,1$ $a_e = d_1$		$a_p = d_1 \times 0,1$ $a_e = d_1$		1.0050-2 1.0060-2 1.0070-2		1.5864 1.6580 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					
$V_c = 120 \text{ m/dk.}$		$V_c = 80 \text{ m/dk.}$		$V_c = 60 \text{ m/dk.}$		$V_c = 200 \text{ m/dk.}$		$V_c = 460 \text{ m/dk.}$		$V_c = 230 \text{ m/dk.}$		$V_c = 60 \text{ m/dk.}$		$V_c = 50 \text{ m/dk.}$									
d1	ap	ae	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	0,007	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	0,015	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	0,023	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	0,031	9600	400x2	0,033	8000	300x2
																				</			



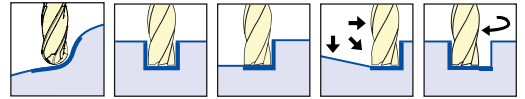
Solid carbide ball nose end mills - Micro
VHM - Radiusfräser - Micro
Fraises a rayon carbure - Micro
Karbür Küre Freze - Micro



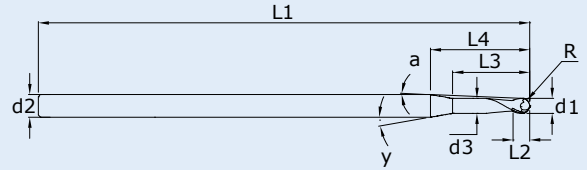
F	E	0100	R	2	K	40	A	50	N	020
END MILL	MG-10		DIN 6528		DIN 6535 HA				nAco Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	RADIUS	COATED	FLUTE LENGTH

d1(±0.003/0.005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	R	Coated Code	Price (Euro)
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	

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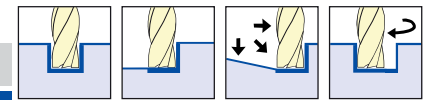
Solid carbide ball nose end mills - Micro Long
VHM - Radiusfräser - Micro Lang
Fraises a rayon carbure - Micro Longue
Karbür Küre Freze - Micro Uzun



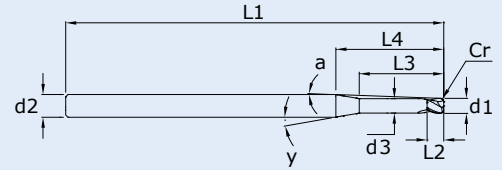
F	E	0100	R	2	K	65	A	50	N	020
END MILL	MG-10		DIN 6528		DIN 6535 HA				nAco Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	RADIUS	COATED	FLUTE LENGTH

d1 (+0.003/-0.005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	R	Coated Code	Price (Euro)
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															
$d_p = d_1 \times 0,1$ $d_e = d_1$	$d_p = d_1$ $d_e = d_1 \times 0,1$	1.0050-2	1.5864	1.4405	0.6035	3.2151	2.1247	3.7035	1.3255																	
		1.0060-2	1.6580	1.4460	0.7080	3.2373	2.0580	3.7055	1.3265																	
		1.0070-2	1.7225	1.4505	0.8055	3.2382	2.0598	3.7065	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							
d1	ap	ae	0,09	60000	1000x2	0,11	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
0,5	0,05	0,05	0,019	60000	1000x2	0,021	51200	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
1,0	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



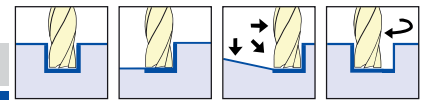
Solid carbide end mills with corner radius - Micro
VHM - Schaftfräser mit Eckenradius - Micro
Fraises toriques carbure - Micro
Karbür Köşe Radyüslü Freze - Micro



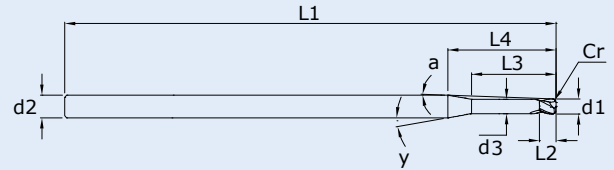
F	E	0100	K	2	K	40	A	20	N	020
END MILL	MG-10		TOOLEX							
TYPE	QUALITY	DIAMETER	CORNER RADIUS	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CORNER RADIUS	COATED	FLUTE LENGTH

d1(+0,003/-0,005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Cr	Coated Code	Price (Euro)
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	

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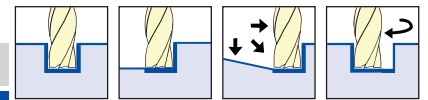
Solid carbide end mills with corner radius - Micro Long
VHM - Schaftfräser mit Eckenradius - Micro Lang
Fraises toriques carbure - Micro Longue
Karbür Köşe Radyüslü Freze -Micro Uzun



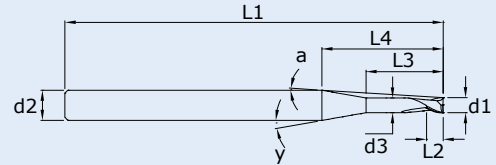
F	E	0100	K	2	K	65	A	20	N	020
END MILL	MG-10		TOOLEX		DIN 6535 HA				nA Co Multilayer	
TYPE	QUALITY	DIAMETER	CORNER RADIUS	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CORNER RADIUS	COATED	FLUTE LENGTH

d1 (±0.003/0.005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Cr	Coated Code	Price (Euro)
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								
$a_p = d_1 \times 0,1$ $a_{e} = d_1$	$a_p = d_1$ $a_{e} = d_1 \times 0,1$	1.0050-2 1.0060-2 1.0070-2	1.5864 1.6580 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
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
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
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
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



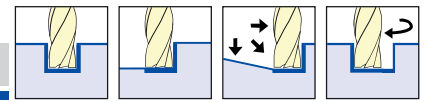
Solid carbide end mills - Mini
VHM - Schaftfräser - Mini
Fraises en bout carbure - Mini
Karbür Freze - Mini



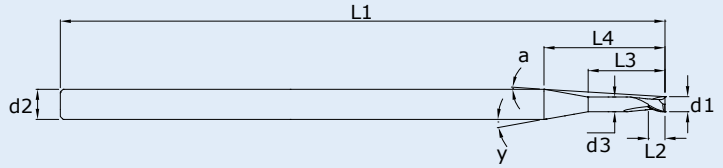
F	E	0100	G	2	N	50	A	00	N	020
END MILL	MG-10		DIN 6528		DIN 6535 HA				nA Co Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CHAMFER	COATED	FLUTE LENGTH

d1 (±0.003/0.005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Coated Code	Price (Euro)
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		
$a_p = d_1 \times 0,1$ $a_e = d_1$			$a_p = d_1$ $a_e = d_1 \times 0,1$			1.0050-2 1.0060-2 1.0070-2			1.5864 1.6580 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		
$V_c = 120 \text{ m/dk.}$			$V_c = 80 \text{ m/dk.}$			$V_c = 60 \text{ m/dk.}$			$V_c = 200 \text{ m/dk.}$			$V_c = 460 \text{ m/dk.}$			$V_c = 230 \text{ m/dk.}$			$V_c = 60 \text{ m/dk.}$			$V_c = 50 \text{ m/dk.}$								
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	fz	n	Vf
0.5	0.05	0.05	0.009	60000	1080	0.011	51200	1126	0.021	38400	845	0.007	60000	840	0.016	60000	1920	0.010	60000	1200	0.007	38400	538	0.008	32000	512	0.011	51200	1126
1.0	0.10	0.10	0.016	38400	1229	0.023	25600	1178	0.031	19200	806	0.013	60000	1560	0.016	60000	1920	0.013	60000	1560	0.015	19200	576	0.016	16000	512	0.023	25600	1178
1.5	0.15	0.15	0.023	25600	1178	0.035	17067	1195	0.041	12800	794	0.019	42600	1618	0.016	60000	1920	0.016	49000	1568	0.023	12800	589	0.024	10600	509	0.041	12800	794
2.0	0.20	0.20	0.031	19200	2381	0.047	12800	2406	0.053	9600	1613	0.025	32000	3200	0.016	60000	3840	0.022	36800	3238	0.031	9600	1190	0.033	8000	1056	0.053	9600	1613
2.5	0.25	0.25	0.039	15360	2396	0.059	10240	2417	0.064	7680	1628	0.031	25600	3174	0.016	58800	3763	0.028	29400	3292	0.039	7600	1186	0.042	6400	1075	0.064	7680	1628
3.0	0.30	0.30	0.047	12800	2406	0.071	8533	2423	0.076	6400	1638	0.037	21300	3152	0.016	49000	3136	0.034	24500	3332	0.047	6400	1203	0.052	5300	1102	0.071	8533	2423



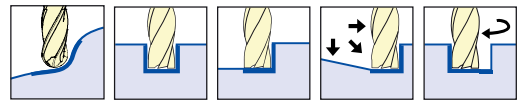
Solid carbide end mills - Mini Long
VHM - Schaftfräser - Mini Lang
Fraises en bout carbure - Mini Longue
Karbür Freze - Mini Uzun



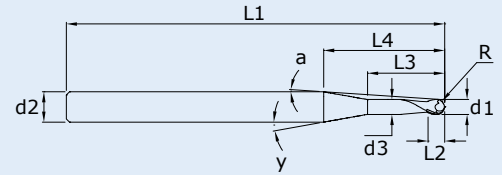
F	E	0100	G	2	N	80	A	00	N	020
END MILL	MG-10		DIN 6528		DIN 6535 HA				nA Co Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CHAMFER	COATED	FLUTE LENGTH

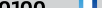
d1 (±0.003/0.005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Coated Code	Price (Euro)
0.2	0.3	0.4	15.98	0.19	80	4	2	7.00°	6.78°	FE0020G2N80A00N004	
0.2	0.3	0.8	16.38	0.19	80	4	2	7.00°	6.62°	FE0020G2N80A00N008	
0.2	0.3	1.2	12.08	0.19	80	4	2	10.00°	8.94°	FE0020G2N80A00N012	
0.2	0.3	2.0	12.88	0.19	80	4	2	10.00°	8.39°	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	

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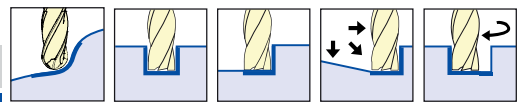
Solid carbide ball nose end mills - Mini
VHM - Radiusfräser - Mini
Fraises a rayon carbure - Mini
Karbür Küre Freze - Mini



F	E	0100	R	2	N	50	A	50	N	020
END MILL	MG-10		DIN 6928							
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	Price (Euro)
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	

3,0		4,5		20,0		24,34		2,03		50		4		2		10,00		1,17		1,50		F20500K2N50A15N200				
				HRC 20-30		HRC 30-40		INOX		GG		AL		CU		TITAN		< 52 HRC								
$a_p = d_1 \times 0,1$ $a_e = d_1$																										
				1.0050-2		1.5864		1.4405		0.6035		3.2151		2.1247		3.7035		1.3255								
				1.0060-2		1.6580		1.4460		0.7080		3.2373		2.0580		3.7055		1.3265								
				1.0070-2		1.7225		1.4505		0.8055		3.2382		2.0598		3.7065		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	1200	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	1560	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	1568	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

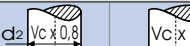


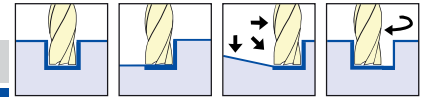
Solid carbide ball nose end mills - Mini Long
VHM - Radiusfräser - Mini Lang
Fraises a rayon carbure - Mini Longue
Karbür Küre Freze - Mini Uzun



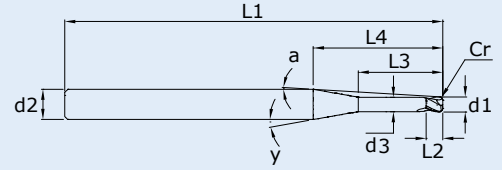
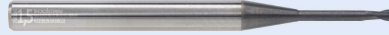
F	E	0100	R	2	N	80	A	50	N	020
END MILL	MG-10		DIN 6928		DIN 6535 HA				nACo Multilayer	
TYPE	QUALITY	DIAMETER	BALL NOSE	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	RADIUS	COATED	FLUTE LENGTH

d1(±0.003/0.005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	R	Coated Code	Price (Euro)
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	

																							
																							
1.0050-2			1.5864			1.4405			0.6035			3.2151			2.1247			3.7035			1.3255		
1.0060-2			1.6580			1.4460			0.7080			3.2373			2.0580			3.7055			1.3265		
1.0070-2			1.7225			1.4505			0.8055			3.2382			2.0598			3.7065			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
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
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
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
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
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
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

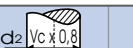


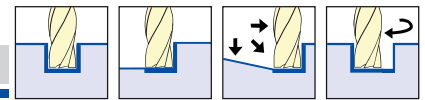
Solid carbide end mills with corner radius - Mini
VHM - Schaftfräser mit Eckenradius - Mini
Fraises toriques carbure - Mini
Karbür Köşe Radyüslü Freze - Mini



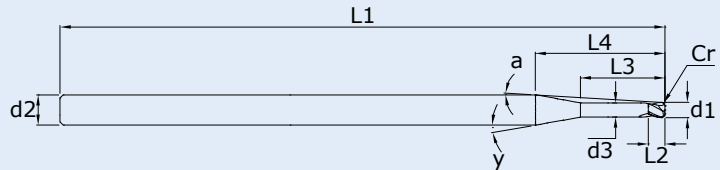
F	E	0100	K	2	N	50	A	20	N	020
END MILL	MG-10		TOOLEX							
TYPE	QUALITY	DIAMETER	CORNER RADIUS	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CORNER RADIUS	COATED	FLUTE LENGTH

d1 (+0.003 / -0.005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Cr	Coated Code	Price (Euro)
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	

																													
$a_p = d_1 \times 0,1$ $a_e = d_1$			$a_p = d_1$ $a_e = d_1 \times 0,1$			1.0050-2 1.0060-2 1.0070-2			1.5864 1.6580 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	7680	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			



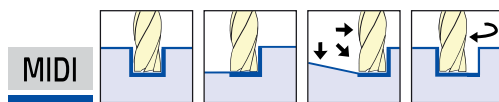
Solid carbide end mills with corner radius - Mini Long
VHM - Schaftfräser mit Eckenradius - Mini Lang
Fraises toriques carbure - Mini Longue
Karbür Köşe Radyüslü Freze - Mini Uzun



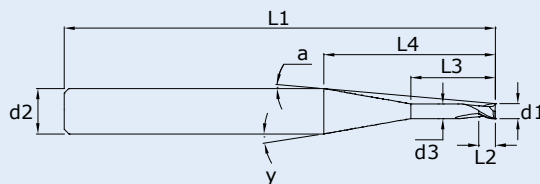
F	E	0100	K	2	N	50	A	20	N	020
END MILL	MG-10		TOOLEX							
TYPE	QUALITY	DIAMETER	CORNER RADIUS	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CORNER RADIUS	COATED	FLUTE LENGTH

d1 (+0.003/-0.005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Cr	Coated Code	Price (Euro)
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	

d1		Vc		HRC 20-30		HRC 30-40		INOX		GG		AL		CU		TITAN		< 52 HRC	
a _p = d1 x 0,1	a _e = d1 x 0,1	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	a _p	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf	fz	n	Vf
0.5	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
1.0	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
1.5	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
2.0	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
2.5	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
3.0	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



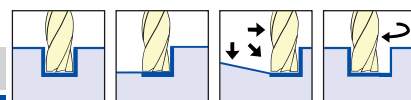
Solid carbide end mills - Midi
VHM - Schaftfräser - Midi
Fraises en bout carbure - Midi
Karbür Freze - Midi



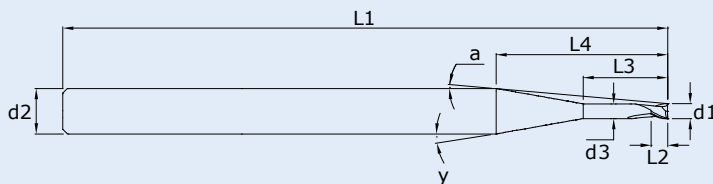
F	E	0100	G	2	D	57	A	00	N	020
END MILL	MG-10 MG-08		DIN 6528		DIN 6535 HA				nAco Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CHAMFER	COATED	FLUTE LENGTH

d1(±0.003/0.005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	<52 HRC	Price (Euro)	52 - 68 HRC	Price (Euro)
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	

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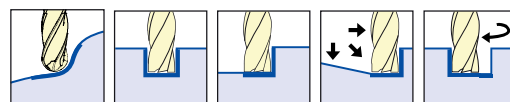
Solid carbide end mills - Midi Long
VHM - Schaftfräser - Midi Lang
Fraises en bout carbure - Midi Longue
Karbür Freze - Midi Uzun



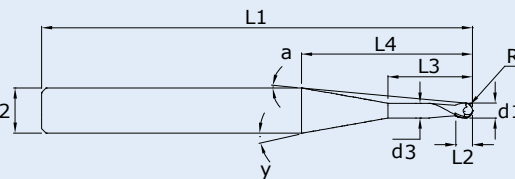
F	E	0100	G	2	D	80	A	00	N	020
END MILL	MG-10 MG-08		DIN 6528							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CHAMFER	COATED	FLUTE LENGTH

d1(±0.003 0,005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	<52 HRC	Price (Euro)	52 - 68 HRC	Price (Euro)
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						
$\alpha_p - d_1 \times 0,1$ $a_e = d_1$				$\alpha_p - d_1 \times 0,1$ $a_e = d_1 \times 0,1$				1.0050-2 1.0060-2 1.0070-2			1.5864 1.6580 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	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					



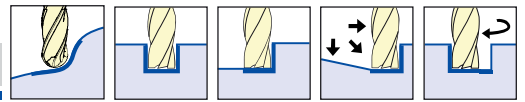
Solid carbide ball nose end mills - Midi
VHM - Radiusfräser - Midi
Fraises a rayon carbure - Midi
Karbür Küre Freze - Midi



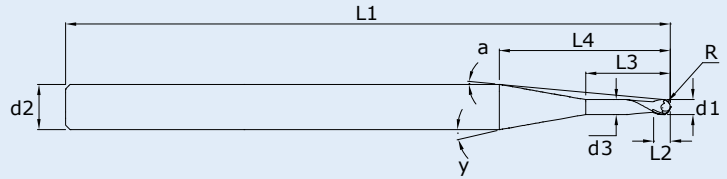
F	E	0100	R	2	D	57	A	50	N	020
END MILL	MG-10 MG-08		DIN 6928							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	RADIUS	COATED	FLUTE LENGTH

d1(±0.003/0.005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	R	<52 HRC	Price (Euro)	52 - 68 HRC	Price (Euro)
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						
$a_{Dp} = d_1 \times 0,1$ $a_{De} = d_1$				1.0050-2 1.0060-2 1.0070-2	1.5864 1.6580 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						
		$Vc = 120 \text{ m/dk.}$		$Vc = 80 \text{ m/dk.}$		$Vc = 60 \text{ m/dk.}$		$Vc = 200 \text{ m/dk.}$		$Vc = 460 \text{ m/dk.}$		$Vc = 230 \text{ m/dk.}$		$Vc = 60 \text{ m/dk.}$		$Vc = 50 \text{ m/dk.}$	
d_1	a_{Dp}	a_{De}	fz	n	V_f	fz	n	V_f	fz	n	V_f	fz	n	V_f	fz	n	V_f
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
1.0	0.10	0.10	0.016	38400	1229	0.023	25600	1178	0.021	19200	806	0.013	60000	1560	0.010	60000	1560
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
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
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
5.0	0.50	0.50	0.085	7200	1293	0.071	5100	1214	0.111	3800	844	0.061	12800	1562	0.016	49000	941
															0.046	18400	1693
															0.030	3800	600
															0.037	4800	605
															0.072	4000	576
															0.094	3200	600
					</												

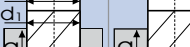
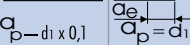
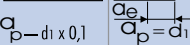
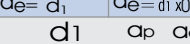
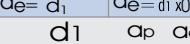


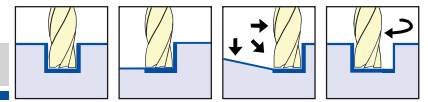
Solid carbide ball nose end mills - Midi Long
VHM - Radiusfräser - Midi Lang
Fraises arçon carbure - Midi Longue
Karbür Küre Freze - Midi Uzun



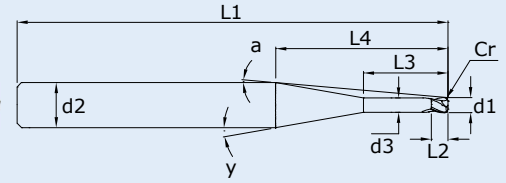
F	E	0100	R	2	D	80	A	50	N	020
END MILL	MG-10 MG-08		DIN 6928		DIN 6535 HA				nAco Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	RADIUS	COATED	FLUTE LENGTH

d1 (+0.003/-0.005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	R	<52 HRC	Price (Euro)	52 - 68 HRC	Price (Euro)
0.2	0.3	0.4	24.20	0.19	80	6	2	7.00°	6.83°	0.10	FE0020R2D80A10N004		FE0020R2D80A10N004	
0.2	0.3	0.8	24.60	0.19	80	6	2	7.00°	6.72°	0.10	FE0020R2D80A10N008		FE0020R2D80A10N008	
0.2	0.3	1.2	17.75	0.19	80	6	2	10.00°	9.27°	0.10	FE0020R2D80A10N012		FE0020R2D80A10N012	
0.3	0.5	0.6	23.97	0.29	80	6	2	7.00°	6.78°	0.15	FE0030R2D80A15N006		FE0030R2D80A15N006	
0.3	0.5	1.2	17.52	0.29	80	6	2	10.00°	9.24°	0.15	FE0030R2D80A15N012		FE0030R2D80A15N012	
0.3	0.5	2.4	18.72	0.29	80	6	2	10.00°	8.65°	0.15	FE0030R2D80A15N024		FE0030R2D80A15N024	
0.4	0.6	0.8	23.80	0.38	80	6	2	7.00°	6.70°	0.20	FE0040R2D80A20N008		FE0040R2D80A20N008	
0.4	0.6	1.6	17.68	0.38	80	6	2	10.00°	8.99°	0.20	FE0040R2D80A20N016		FE0040R2D80A20N016	
0.4	0.6	3.2	19.28	0.38	80	6	2	10.00°	8.26°	0.20	FE0040R2D80A20N032		FE0040R2D80A20N032	
0.5	0.8	1.0	23.65	0.48	80	6	2	7.00°	6.63°	0.25	FE0050R2D80A25N010		FE0050R2D80A25N010	
0.5	0.8	2.0	17.85	0.48	80	6	2	10.00°	8.75°	0.25	FE0050R2D80A25N020		FE0050R2D80A25N020	
0.5	0.8	4.0	19.85	0.48	80	6	2	10.00°	7.88°	0.25	FE0050R2D80A25N040		FE0050R2D80A25N040	
0.6	0.9	1.2	23.49	0.57	80	6	2	7.00°	6.55°	0.30	FE0060R2D80A30N012		FE0060R2D80A30N012	
0.6	0.9	2.0	17.62	0.57	80	6	2	10.00°	8.71°	0.30	FE0060R2D80A30N020		FE0060R2D80A30N020	
0.6	0.9	4.0	19.62	0.57	80	6	2	10.00°	7.83°	0.30	FE0060R2D80A30N040		FE0060R2D80A30N040	
0.7	1.1	1.4	23.34	0.67	80	6	2	7.00°	6.47°	0.35	FE0070R2D80A35N014		FE0070R2D80A35N014	
0.7	1.1	2.5	17.95	0.67	80	6	2	10.00°	8.39°	0.35	FE0070R2D80A35N025		FE0070R2D80A35N025	
0.8	1.2	1.6	16.75	0.76	80	6	2	10.00°	8.82°	0.40	FE0080R2D80A40N016		FE0080R2D80A40N016	
0.8	1.2	3.0	18.15	0.76	80	6	2	10.00°	8.15°	0.40	FE0080R2D80A40N030		FE0080R2D80A40N030	
0.8	1.2	6.0	21.15	0.76	80	6	2	10.00°	7.00°	0.40	FE0080R2D80A40N060		FE0080R2D80A40N060	
1.0	1.5	2.0	16.70	0.95	80	6	2	10.00°	8.51°	0.50	FE0100R2D80A50N020		FE0100R2D80A50N020	
1.0	1.5	4.0	18.70	0.95	80	6	2	10.00°	7.61°	0.50	FE0100R2D80A50N040		FE0100R2D80A50N040	
1.0	1.5	8.0	22.70	0.95	80	6	2	10.00°	6.28°	0.50	FE0100R2D80A50N080		FE0100R2D80A50N080	
1.0	1.5	12.0	26.70	0.95	80	6	2	10.00°	5.34°	0.50	FE0100R2D80A50N120		FE0100R2D80A50N120	
1.0	1.5	16.0	30.70	0.95	80	6	2	10.00°	4.65°	0.50	FE0100R2D80A50N160		FE0100R2D80A50N160	
1.0	1.5	20.0	34.70	0.95	80	6	2	10.00°	4.12°	0.50	FE0100R2D80A50N200		FE0100R2D80A50N200	
1.2	1.8	2.0	16.22	1.14	80	6	2	10.00°	8.41°	0.60	FE0120R2D80A60N020		FE0120R2D80A60N020	
1.2	1.8	4.0	18.22	1.14	80	6	2	10.00°	7.81°	0.60	FE0120R2D80A60N040		FE0120R2D80A60N040	
1.5	2.3	4.0	17.52	1.43	80	6	2	10.00°	5.96°	0.75	FE0150R2D80A75N040		FE0150R2D80A75N040	
1.5	2.3	8.0	21.52	1.43	80	6	2	10.00°	5.03°	0.75	FE0150R2D80A75N080		FE0150R2D80A75N080	
1.5	2.3	12.0	25.52	1.43	80	6	2	10.00°	4.35°	0.75	FE0150R2D80A75N120		FE0150R2D80A75N120	
2.0	3.0	4.0	16.35	1.90	80	6	2	10.00°	6.97°	1.00	FE0200R2D80A10N040		FE0200R2D80A10N040	
2.0	3.0	8.0	20.35	1.90	80	6	2	10.00°	5.61°	1.00	FE0200R2D80A10N080		FE0200R2D80A10N080	
2.0	3.0	12.0	24.35	1.90	80	6	2	10.00°	4.69°	1.00	FE0200R2D80A10N120		FE0200R2D80A10N120	
2.0	3.0	16.0	28.35	1.90	80	6	2	10.00°	4.03°	1.00	FE0200R2D80A10N160		FE0200R2D80A10N160	
2.0	3.0	20.0	32.35	1.90	80	6	2	10.00°	3.53°	1.00	FE0200R2D80A10N200		FE0200R2D80A10N200	
2.5	3.8	5.0	16.18	2.38	80	6	2	10.00°	6.17°	1.25	FE0250R2D80A13N050		FE0250R2D80A13N050	
2.5	3.8	8.0	19.18	2.38	80	6	2	10.00°	5.21°	1.25	FE0250R2D80A13N080		FE0250R2D80A13N080	
2.5	3.8	12.0	23.18	2.38	80	6	2	10.00°	4.31°	1.25	FE0250R2D80A13N120		FE0250R2D80A13N120	
3.0	4.5	6.0	16.01	2.90	80	6	2	10.00°	5.35°	1.50	FE0300R2D80A15N060		FE0300R2D80A15N060	
3.0	4.5	8.0	18.01	2.90	80	6	2	10.00°	4.76°	1.50	FE0300R2D80A15N080		FE0300R2D80A15N080	
3.0	4.5	12.0	22.01	2.90	80	6	2	10.00°	3.89°	1.50	FE0300R2D80A15N120		FE0300R2D80A15N120	
3.0	4.5	16.0	26.01	2.90	80	6	2	10.00°	3.30°	1.50	FE0300R2D80A15N160		FE0300R2D80A15N160	
3.0	4.5	20.0	30.01	2.90	80	6	2	10.00°	2.86°	1.50	FE0300R2D80A15N200		FE0300R2D80A15N200	
3.5	5.3	6.00	14.83	3.33	80	6	2	10.00°	4.81°	1.75	FE0350R2D80A18N060		FE0350R2D80A18N060	
4.0	6.0	6.00	13.68	3.80	80	6	2	10.00°	4.18°	2.00	FE0400R2D80A20N060		FE0400R2D80A20N060	
4.0	6.0	8.00	15.68	3.80	80	6	2	10.00°	3.64°	2.00	FE0400R2D80A20N080		FE0400R2D80A20N080	
4.0	6.0	12.00	19.68	3.80	80	6	2	10.00°	2.90°	2.00	FE0400R2D80A20N120		FE0400R2D80A20N120	
4.0	6.0	16.00	23.68	3.80	80	6	2	10.00°	2.41°	2.00	FE0400R2D80A20N160		FE0400R2D80A20N160	
4.5	6.8	7.00	13.51	4.28	80	6	2	10.00°	3.17°	2.25	FE0450R2D80A23N070		FE0450R2D80A23N070	
4.5	6.8	12.00	18.51	4.28	80	6	2	10.00°	2.32°	2.25	FE0450R2D80A23N120		FE0450R2D80A23N120	
5.0	7.5	8.00	13.34	4.75	80	6	2	10.00°	2.14°	2.50	FE0500R2D80A25N080		FE0500R2D80A25N080	
5.0	7.5	12.00	17.34	4.75	80	6	2	10.00°	1.65°	2.50	FE0500R2D80A25N120		FE0500R2D80A25N120	
5.0	7.5	16.00	21.34	4.75	80	6	2	10.00°	1.34°	2.50	FE0500R2D80A25N160		FE0500R2D80A25N160	
5.0	7.5	20.00	25.34	4.75	80	6	2	10.00°	1.13°	2.50	FE0500R2D80A25N200		FE0500R2D80A25N200	

																																
						1.0050-2			1.5864			1.4405			0.6035			3.2151			2.1247			3.7035			1.3255					
						1.0060-2			1.6580			1.4460			0.7080			3.2373			2.0580			3.7055			1.3265					
						1.0070-2			1.7225			1.4505			0.8055			3.2382			2.0598			3.7065			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		
						0.5			0.05			0.05			0.009			60000			1080			0.011			51200			1126		
						1.0			0.10			0.10			0.016			38400			1229			0.023			25600			1178		
						2.0			0.20			0.20			0.031			19200			1190			0.035			12800			1203		
						3.0			0.30			0.30			0.047			12800			1203			0.047			8500			1207		
						4.0			0.40			0.40			0.065			9600			1248			0.059			6400			1216		
						5.0			0.50			0.50			0.085			7600			1292			0.071			5100			1214		

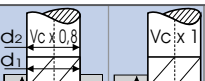


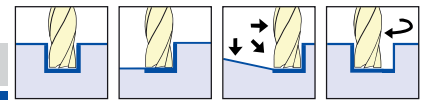
Solid carbide end mills with corner radius - Midi
VHM - Schaftfräser mit Eckenradius - Midi
Fraises toriques carbure - Midi
Karbür Köşe Radyüslü Freze - Midi



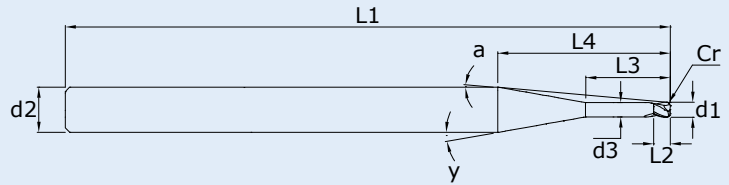
F	E	0100	K	2	D	57	A	20	N	020
END MILL	MG-10 MG-08		TOOLEX							
TYPE	QUALITY	DIAMETER	CORNER RADIUS	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CORNER RADIUS	COATED	FLUTE LENGTH

d1 (±0.003, 0.005)	L2	L3	L4	d3	L1	d2 (h6)	Z	y°	a°	Cr	<52 HRC	Price (Euro)	52 - 68 HRC	Price (Euro)
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			1.5864			1.4405			0.6035			3.2151			2.1247			3.7035			1.3255								
1.0060-2			1.6580			1.4460			0.7080			3.2373			2.0580			3.7055			1.3265								
1.0070-2			1.7225			1.4505			0.8055			3.2382			2.0598			3.7065			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	a _p	a _e	fz	n	V _f	fz	n	V _f	fz	n	V _f	fz	n	V _f	fz	n	V _f	fz	n	V _f	fz	n	V _f	fz	n	V _f	fz	n	V _f
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	0.046	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	3368	0.063	4800	1210	0.072	4000	1152			
5.0	0.50	0.50	0.085	7680	2584	0.071	5400	2438	0.131	3800	1687	0.064	12000	3136	0.016	49000	1882	0.046	14700	3528	0.072	3800	1204	0.082	3200	1203			

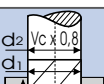
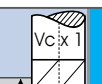


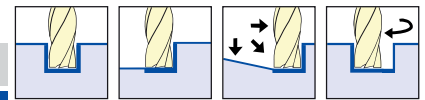
Solid carbide end mills with corner radius - Midi Long
VHM - Schaftfräser mit Eckenradius - Midi Lang
Fraises toriques carbure - Midi Longue
Karbür Köşe Radyüslü Freze - Midi Uzun



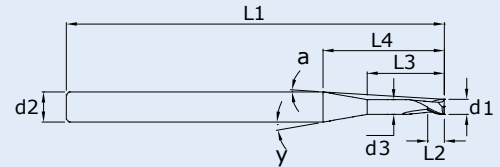
F	E	0100	K	2	D	80	A	20	N	020
END MILL	MG-10 MG-08		TOOLEX							
TYPE	QUALITY	DIAMETER	CORNER RADIUS	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CORNER RADIUS	COATED	FLUTE LENGTH

d1(±0.003/0.005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Cr	<52 HRC	Price (Euro)	52 - 68 HRC	Price (Euro)
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		
$a_p = d_1 \times 0,1$ $a_e = d_1$			$a_p = d_1 \times 0,1$ $a_e = d_1 \times 0,1$			1.0050-2 1.0060-2 1.0070-2			1.5864 1.6580 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		
$V_c = 120 \text{ m/dk.}$			$V_c = 80 \text{ m/dk.}$			$V_c = 60 \text{ m/dk.}$			$V_c = 200 \text{ m/dk.}$			$V_c = 460 \text{ m/dk.}$			$V_c = 230 \text{ m/dk.}$			$V_c = 60 \text{ m/dk.}$			$V_c = 50 \text{ m/dk.}$								
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			



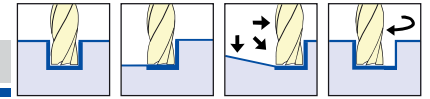
Solid carbide end mills - Alu Mini
VHM - Schaftfräser - Alu Mini
Fraises en bout carbure - Alu Mini
Karbür Freze - Alu Mini



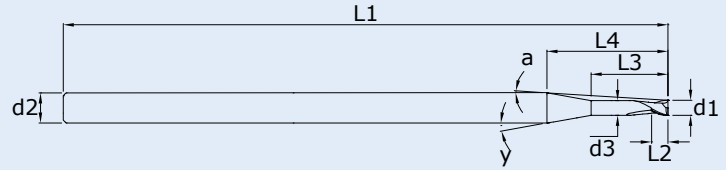
F	G	0100	G	2	N	50	A	00	D	020
END MILL	MG-07		DIN 6528		DIN 6535 HA				DRY CUT	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CHAMFER	COATED	FLUTE LENGTH

d1 (±0.003/0.005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Coated Code	Price (Euro)
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	
0.6	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			
$a_p = d_1 \times 0,1$ $a_e = d_1$			$a_p = d_1$ $a_e = d_1 \times 0,1$			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



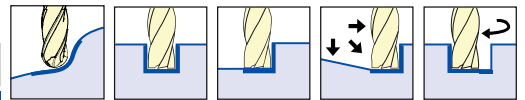
Solid carbide end mills - Alu Mini Long
VHM - Schaftfräser - Alu Mini Lang
Fraises en bout carbure - Alu Mini Longue
Karbür Freze - Alu Mini Uzun



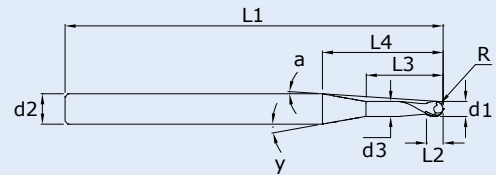
F	G	0100	G	2	N	80	A	00	D	020
END MILL	MG-07		DIN 6528		DIN 6535 HA				DRY CUT	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CHAMFER	COATED	FLUTE LENGTH

d1 (+0,003 / -0,005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Coated Code	Price (Euro)
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			2.1247								
3.2373			2.0580								
3.2382			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



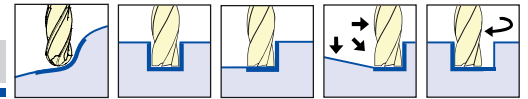
Solid carbide ball nose end mills - Alu Mini
VHM - Radiusfräser - Alu Mini
Fraises a rayon carbure - Alu Mini
Karbür Küre Freze - Alu Mini



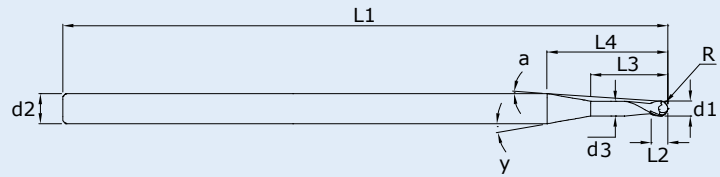
F	G	0100	R	2	N	50	A	50	D	020
END MILL	MG-07		DIN 6928		DIN 6535 HA				DRY CUT	
TYPE	QUALITY	DIAMETER	BALL NOSE	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	RADIUS	COATED	FLUTE LENGTH

d1(+0.003/-0.005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	R	Coated Code	Price (Euro)
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	2.1247					
$a_p = d_1 \times 0,1$			$a_e = d_1$			3.2373	2.0580					
$a_e = d_1$			$a_p = d_1 \times 0,1$			3.2382	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	



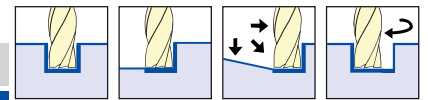
Solid carbide ball nose end mills - Alu Mini Long
VHM - Radiusfräser - Alu Mini Lang
Fraises a rayon carbure - Alu Mini Longue
Karbür Küre Freze - Alu Mini Uzun



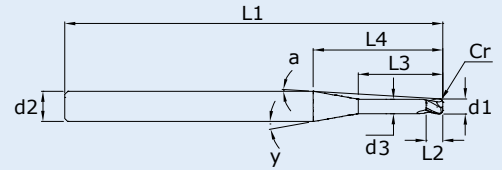
F	G	0100	R	2	N	80	A	50	D	020
END MILL	MG-07		DIN 6928		DIN 6535 HA				DRY CUT	
TYPE	QUALITY	DIAMETER	BALL NOSE	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	RADIUS	COATED	FLUTE LENGTH

d1 (±0.003/0.005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	R	Coated Code	Price (Euro)
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	20.0	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		
$a_p = d_1 \times 0,1$ $a_e = d_1$				3.2151 3.2373 3.2382			2.1247 2.0580 2.0598					
$a_p = d_1$ $a_e = d_1 \times 0,1$				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	



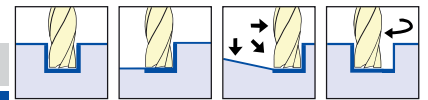
Solid carbide end mills with corner radius - Alu Mini
VHM - Schaftfräser mit Eckenradius - Alu Mini
Fraises toriques carbure - Alu Mini
Karbür Köşe Radyüslü Freze - Alu Mini



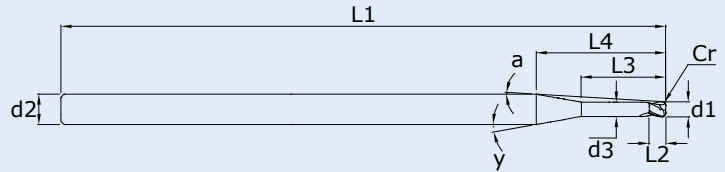
F	G	0100	K	2	N	50	A	20	D	020
END MILL	MG-07		TOOLEX						DRY CUT	
TYPE	QUALITY	DIAMETER	CORNER RADIUS	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CORNER RADIUS	COATED	FLUTE LENGTH

d1(±0.003/0.005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Cr	Coated Code	Price (Euro)
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		
$a_p = d_1 \times 0,1$ $a_e = d_1$		$a_p = d_1$ $a_e = d_1 \times 0,1$		3.2151	2.1247							
				3.2373	2.0580							
				3.2382	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	



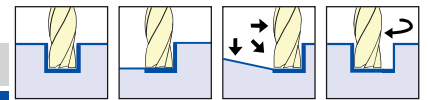
Solid carbide end mills with corner radius - Alu Mini Long
VHM - Schaftfräser mit Eckenradius - Alu Mini Lang
Fraises toriques carbure - Alu Mini Longue
Karbür Köşe Radyüslü Freze - Alu Mini Uzun



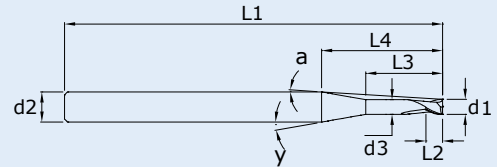
F	G	0100	K	2	N	80	A	20	D	020
END MILL	MG-07		TOOLEX							
TYPE	QUALITY	DIAMETER	CORNER RADIUS	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CORNER RADIUS	COATED	FLUTE LENGTH

d1(±0.003/0.005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Cr	Coated Code	Price (Euro)
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	10,00°	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	

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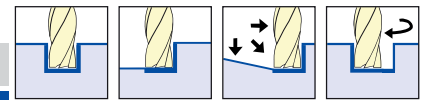
Solid carbide end mills - Mini Hard
VHM - Schaftfräser - Mini Hart
Fraises en bout carbure - Mini Dure
Karbür Freze - Mini Sert



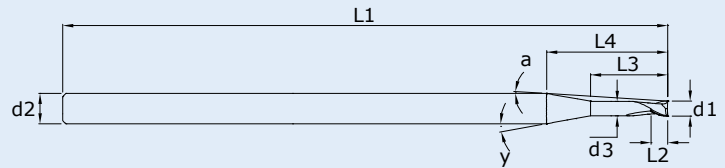
F	H	0100	G	2	N	50	A	00	N	020
END MILL	MG-08		DIN 6528		DIN 6535 HA				nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CHAMFER	COATED	FLUTE LENGTH

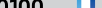
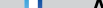
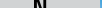
d1 (+0.003/-0.005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Coated Code	Price (Euro)
0.2	0.3	0.4	16.00	0.19	50	4	2	7.00°	6.78°	FH0020G2N50A00N004	
0.2	0.3	0.8	16.38	0.19	50	4	2	7.00°	6.62°	FH0020G2N50A00N008	
0.2	0.3	1.2	12.08	0.19	50	4	2	10.00°	8.94°	FH0020G2N50A00N012	
0.2	0.3	2.0	12.88	0.19	50	4	2	10.00°	8.39°	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	

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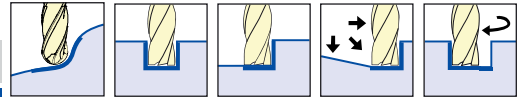
Solid carbide end mills - Mini Hard Long
VHM - Schaftfräser - Mini Hart Lang
Fraises en bout carbure - Mini Dure Longue
Karbür Freze - Mini Sert Uzun



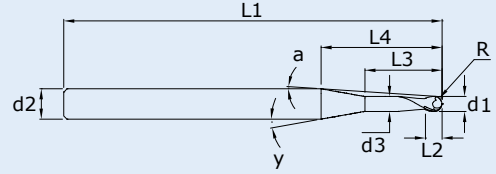
F	H	0100	G	2	N	80	A	00	N	020
END MILL	MG-08		DIN 6528							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CHAMFER	COATED	FLUTE LENGTH

d1(±0,003 0,005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Coated Code	Price (Euro)
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	

[illegible]



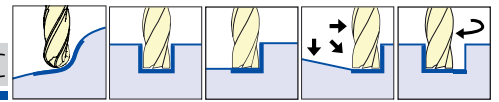
Solid carbide ball nose end mills - Mini Hard
VHM - Radiusfräser - Mini Hart
Fraises a rayon carbure - Mini Dure
Karbür Küre Freze - Mini Sert



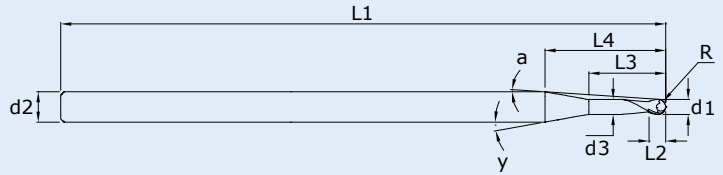
F	H	0100	R	2	N	50	A	50	N	020
END MILL	MG-08		DIN 6928		DIN 6535 HA				nACo Multilayer	
TYPE	QUALITY	DIAMETER	BALL NOSE	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	RADIUS	COATED	FLUTE LENGTH

d1(+0.003/-0.005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	R	Coated Code	Price (Euro)
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	

d1		d1 x 0.1		d1 x 0.1		d1 x 0.1		d1 x 0.1		d1 x 0.1		d1 x 0.1		d1 x 0.1		d1 x 0.1	
d1	ap	ae	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
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
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
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
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
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

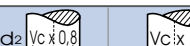


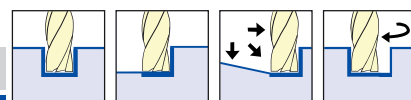
Solid carbide ball nose end mills - Mini Hard Long
VHM - Radiusfräser - Mini Hart Lang
Fraises a rayon carbure - Mini Dure Longue
Karbür Küre Freze - Mini Sert Uzun



F	H	0100	R	2	N	80	A	50	N	020
END MILL	MG-08		DIN 6928		DIN 6535 HA				nA Co 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	Price (Euro)
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		
$a_p = d_1 \times 0,1$ $a_e = d_1$			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		
$V_c = 45 \text{ m/dk.}$			$V_c = 42 \text{ m/dk.}$			$V_c = 39 \text{ m/dk.}$			36m/dk.			$V_c = 33 \text{ m/dk.}$			$V_c = 30 \text{ m/dk.}$			$V_c = 27 \text{ m/dk.}$			$V_c = 24 \text{ m/dk.}$					
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	0.008	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

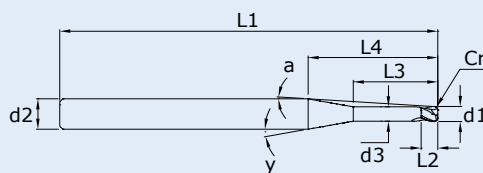


Solid carbide end mills with corner radius - Mini Hard

VHM - Schaftfräser mit Eckenradius - Mini Hart

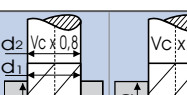
Fraises toriques carbure - Mini Dure

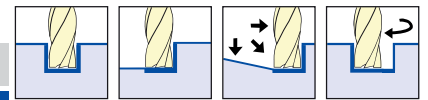
Karbür Köse Radvüslü Freze - Mini Sert



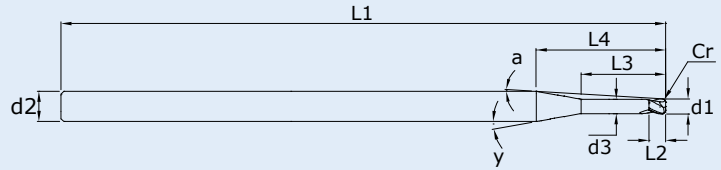
F	H	Ø100	K	2	N	50	A	20	N	Ø20
END MILL	MG-08		TOOLEX							
TYPE	QUALITY	DIAMETER	CORNER RADIUS	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CORNER RADIUS	COATED	FLUTE LENGTH

d1(±0,003 ±0,005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Cr	Coated Code	Price (Euro)
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	

			HRC <50			HRC <53			HRC <56			HRC <59			HRC <61			HRC <63			HRC <65			HRC <68					
$a_p = d_1 \times 0,1$ $a_e = d_1$			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					
$Vc = 45 \text{ m/dk.}$			$Vc = 42 \text{ m/dk.}$			$Vc = 39 \text{ m/dk.}$			36 m/dk.			$Vc = 33 \text{ m/dk.}$			$Vc = 30 \text{ m/dk.}$			$Vc = 27 \text{ m/dk.}$			$Vc = 24 \text{ m/dk.}$								
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	fz	n	Vf
0.5	0.5	0.05	0.006	28800	346	0.005	26880	269	0.006	24960	200	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	0.008	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			



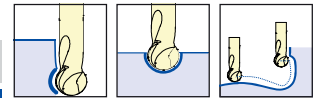
Solid carbide end mills with corner radius - Mini Hard Long
VHM - Schaftfräser mit Eckenradius - Mini Hart Lang
Fraises toriques carbure - Mini Dure Longue
Karbür Köşe Radyüslü Freze - Mini Sert Uzun



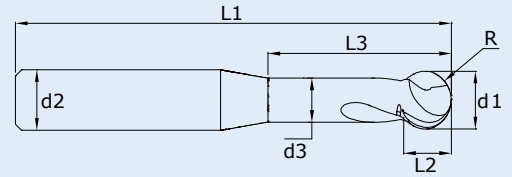
F	H	0100	K	2	N	80	A	20	N	020
END MILL	MG-08		TOOLEX							
TYPE	QUALITY	DIAMETER	CORNER RADIUS	FLUTES	SHAFT TYPE	FULL LENGTH	HELICAL	CORNER RADIUS	COATED	FLUTE LENGTH

d1(±0.003/0.005)	L2	L3	L4	d3	L1	d2(h6)	Z	y°	a°	Cr	Coated Code	Price (Euro)
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 1.6587-1.7326	1.1520-1.1525 1.1545-1.1820	1.2002-1.2.003 1.2082-1.2.344	1.1563-1.2.004 1.2056-1.2.057	1.2365-1.2.379 1.2601-1.2.622	1.3343-1.3.344 1.3348-1.3.355	1.3302-1.3.318 1.3333-1.3.334	1.2067-1.3.343 1.3344-1.3.355											
		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
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
1.0	1.0	0.10	0.009	14400	259	0.009	13440	242	0.007	12480	225	0.007	11520	161	0.007	10560	148	0.006	9600	115
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
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
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
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



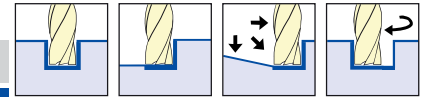
Solid carbide ball nose end mills - Ballcut 270°
VHM - Radiusfräser - Ballcut 270°
Fraises a rayon carbure - Ballcut 270°
Karbür Küre Freze - Ballcut 270°



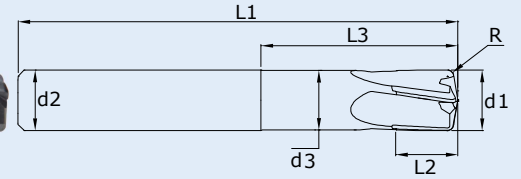
F	S	1000	R	2	C	22	A	50	N	072
END MILL	MG-10		DIN 6528							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L3	L4	L1	d2(h6)	Z	R	Coated Code	Price (Euro)
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	

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



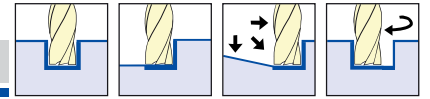
Solid carbide end mills with corner radius - High speed Torus
VHM - Schaftfräser mit Eckenradius - High speed Torus
Fraises toriques carbure - High speed Torus
Karbür Köşe Radyüslü Freze - High speed Torus



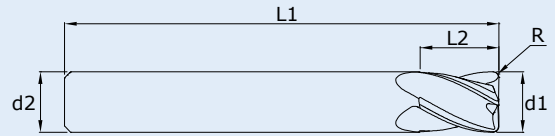
F	S	1000	T	4	C	10	G	10	N	072
END MILL	MG-10		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	Coated Code	Price (Euro)
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 1.6580 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	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	



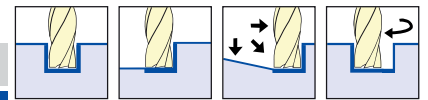
Solid carbide end mills with corner radius
VHM - Schaftfräser mit Eckenradius
Fraises toriques carbure
Karbür Köşe Radyüslü Freze



F	E	1000	K	4	C	13	A	20	N	072
END MILL	MG-10		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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																
$a_p = d_1 \times 0,5$ $a_e = d_1$			$a_p = d_1$ $a_e = d_1 \times 0,5$			1.0050-2 1.0060-2 1.0070-2	1.5864 1.6580 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
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			



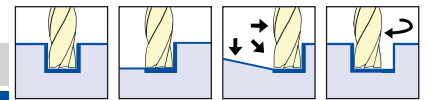
Solid carbide end mills with corner radius - Long
VHM - Schaftfräser mit Eckenradius - Lang
Fraises toriques carbure - Longue
Karbür Köşe Radyüslü Freze - Uzun



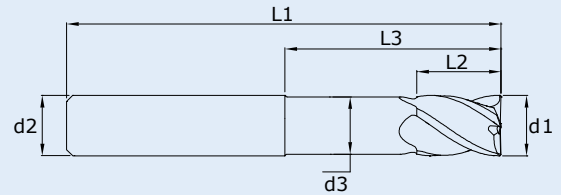
F	E	1000	K	4	C	22	A	20	N	100
END MILL	MG-10		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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 1.6580 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			



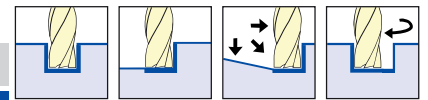
Solid carbide end mills - Moldex
VHM - Schaftfräser - Moldex
Fraises en bout carbure - Moldex
Karbür Freze - Moldex



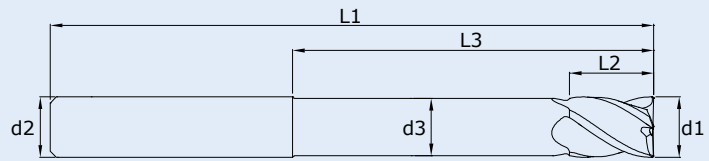
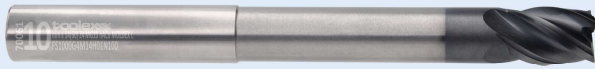
F	S	1000	G	4	M	14	H	01	N	072
END MILL	MG-10		DIN 6528							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	Coated Code	Price (Euro)
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



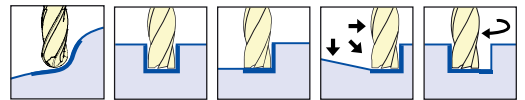
Solid carbide end mills - Moldex Long
VHM - Schaftfräser - Moldex Lang
Fraises en bout carbure - Moldex Longue
Karbür Freze - Moldex Uzun



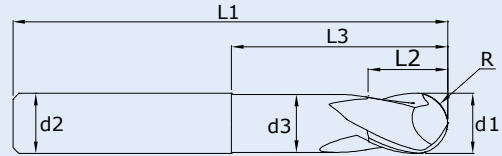
F	S	1000	G	4	M	14	H	01	N	100
END MILL	MG-10		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	Coated Code	Price (Euro)
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			1.2718-1.2726 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	apae	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



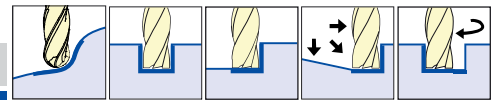
Solid carbide ball nose end mills - Moldex
VHM - Radiusfräser - Moldex
Fraises a rayon carbure - Moldex
Karbür Küre Freze - Moldex



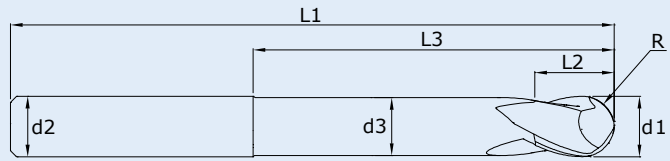
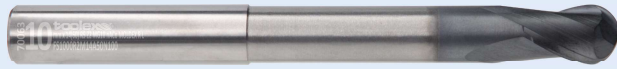
F	S	1000	R	2	M	14	A	50	N	072
END MILL	MG-10		DIN 6528						nAco Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	CNC R	Coated Code	Price (Euro)
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	

				HRC <20	HRC <25	HRC <30	HRC <35	HRC <40	HRC <45	HRC <50	HRC <52																
$a_p=0,3 \times d1$ $de=d1 \times \cos \alpha$ $\sin \alpha = \frac{d1-2 \times a_p}{d1}$				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									
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



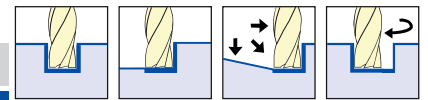
Solid carbide ball nose end mills - Moldex Long
VHM - Radiusfräser - Moldex Lang
Fraises à rayon carbure - Moldex Longue
Karbür Küre Freze - Moldex Uzun



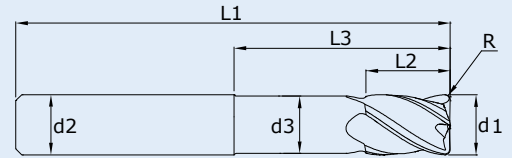
F	S	1000	R	2	M	14	A	50	N	100
END MILL	MG-10		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	CNC R	Coated Code	Price (Euro)
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	
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	
20	24	19,5	120	165	20	2	10	9,972	FS2000R2M24A10N165	
22	26	21,5	120	165	22	2	11	10,972	FS2200R2M26A11N165	
25	30	25,5	120	165	25	2	13	12,972	FS2500R2M30A13N165	
28	34	29,5	120	165	28	2	15	14,972	FS2800R2M34A15N165	
32	40	35,5	120	165	32	2	18	17,972	FS3200R2M40A18N165	
36	46	41,5	120	165	36	2	21	20,972	FS3600R2M46A21N165	
40	52	47,5	120	165	40	2	24	23,972	FS4000R2M52A24N165	
45	60	55,5	120	165	45	2	28	28,972	FS4500R2M60A28N165	
50	70	65,5	120	165	50	2	34	34,972	FS5000R2M70A34N165	
55	80	75,5	120	165	55	2	40	40,972	FS5500R2M80A40N165	
60	90	85,5	120	165	60	2	46	46,972	FS6000R2M90A46N165	
65	100	95,5	120	165	65	2	52	52,972	FS6500R2M100A52N165	
70	110	105,5	120	165	70	2	58	58,972	FS7000R2M110A58N165	
75	120	115,5	120	165	75	2	64	64,972	FS7500R2M120A64N165	
80	130	125,5	120	165	80	2	70	70,972	FS8000R2M130A70N165	
85	140	135,5	120	165	85	2	76	76,972	FS8500R2M140A76N165	
90	150	145,5	120	165	90	2	82	82,972	FS9000R2M150A82N165	
95	160	155,5	120	165	95	2	88	88,972	FS9500R2M160A88N165	
100	170	165,5	120	165	100	2	94	94,972	FS10000R2M170A94N165	

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

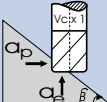


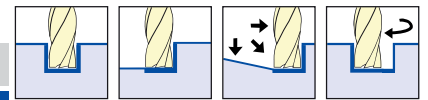
Solid carbide end mills with corner radius - Moldex
VHM - Schaftfräser mit Eckenradius - Moldex
Fraises toriques carbure - Moldex
Karbür Köşe Radyüslü Freze - Moldex



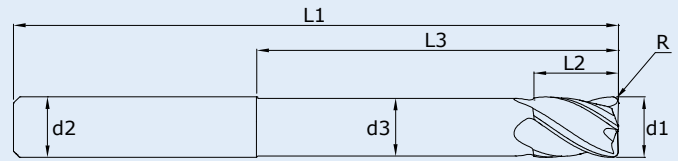
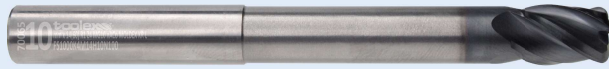
F	S	1000	K	4	M	14	H	20	N	072
END MILL	MG-10		TOOLEX		TOOLEX				nAco Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	Coated Code	Price (Euro)
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	

				HRC <20			HRC <25			HRC <30			HRC <35			HRC <40			HRC <45			HRC <50			HRC <52		
$a_p = 0,1 \times d_1$ $a_e = \frac{a_p}{\tan \beta}$				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



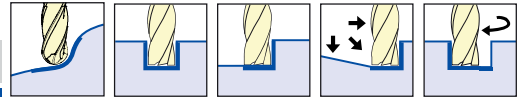
Solid carbide end mills with corner radius - Moldex Long
VHM - Schaftfräser mit Eckenradius - Moldex Lang
Fraises toriques carbure - Moldex Longue
Karbür Köşe Radyüslü Freze - Moldex Uzun



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

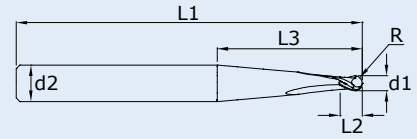
d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	Coated Code	Price (Euro)
4	6	3,8	32	65	4	4	0,5	FS0400K4M06H05N065	
5	7	4,8	32	80	5	4	0,5	FS0500K4M07H05N080	
6	8	5,7	34	80	6	4	0,5	FS0600K4M08H05N080	
6	8	5,7	34	80	6	4	1,0	FS0600K4M08H10N080	
8	10	7,6	44	88	8	4	0,5	FS0800K4M10H05N088	
8	10	7,6	44	88	8	4	1,0	FS0800K4M10H10N088	
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	

				HRC <20			HRC <25			HRC <30			HRC <35			HRC <40			HRC <45			HRC <50			HRC <52		
$a_p = 0,1 \times d1$ $a_e = \frac{a_p}{\tan \beta}$				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



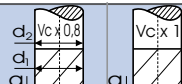
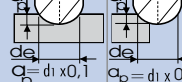
emreden teknik resmi düzeltmesini iste

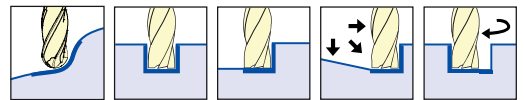
Solid carbide ball nose end mills - Performance Long
VHM - Radiusfräser - Performance Lang
Fraises a rayon carbure - Performance longue
Karbür Küre Freze - Performance Uzun



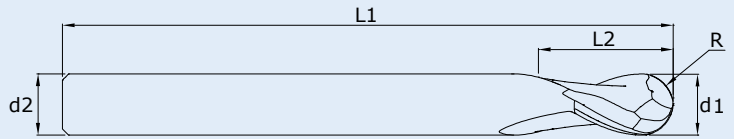
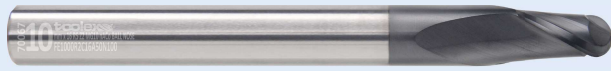
F	S	1000	R	2	N	12	A	50	N	100
END MILL	MG-10		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(ø8)	L2	L3	L1	d2(h6)	Z	R	Coated Code	Price (Euro)
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 1.6580 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				

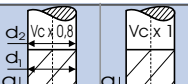
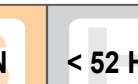


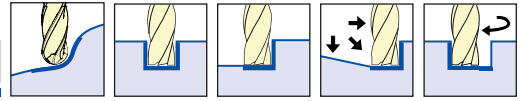
Solid carbide ball nose end mills - Long
VHM - Radiusfräser - Lange
Fraises a rayon carbure - Longue
Karbür Küre Freze - Uzun



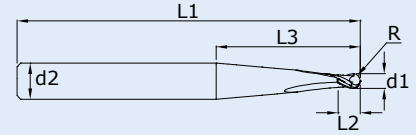
F	E	1000	R	2	C	15	A	50	N	072
END MILL	MG-10		DIN 6528		DIN 6535 HA				nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	Coated Code	Price (Euro)
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	

																											
				1.0050-2 1.0060-2 1.0070-2			1.5864 1.6580 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



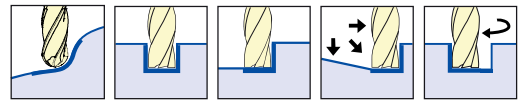
Solid carbide ball nose end mills - Performance Long Hard
VHM - Radiusfräser - Performance Lang Hart
Fraises a rayon carbure - Performance longue Dure
Karbür Küre Freze - Performance Uzun Sert



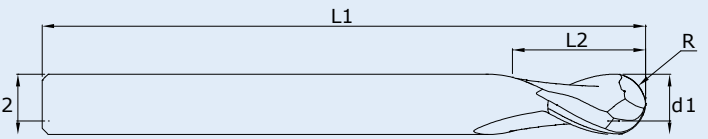
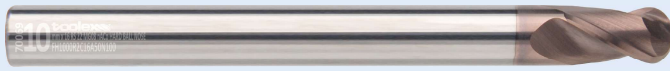
F	H	1000	R	2	N	12	A	50	N	100
END MILL	MG-08		DIN 6528							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

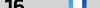
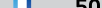
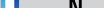
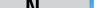
d1(e8)	L2	L3	L1	d2(h6)	Z	R	Coated Code	Price (Euro)
0,50	0,80	4	57	6	2	0,25	FH0050R2N00A02N057	
1,00	1,50	12	57	6	2	0,50	FH0100R2N01A05N057	
1,50	2,30	12	57	6	2	0,75	FH0150R2N02A07N057	
2,00	3,00	12	57	6	2	1,00	FH0200R2N02A10N057	
2,50	3,80	12	57	6	2	1,25	FH0250R2N03A12N057	
3,00	4,50	12	57	6	2	1,50	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 1.6580 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	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								



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

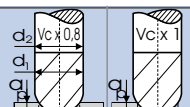


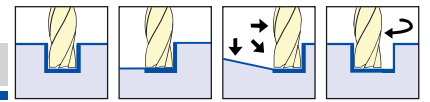
F	H	1000	R	2	C	16	A	50	N	100
END MILL	MG-08		DIN 6528							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	Coated Code	Price (Euro)
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	

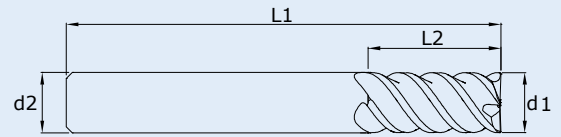
3	6	65	3	2	1,5	FH0300R2C06A15N065
4	8	65	4	2	2,0	FH0400R2C08A20N065
5	10	80	5	2	2,5	FH0500R2C10A25N080
6	12	80	6	2	3,0	FH0600R2C12A30N080
8	14	88	8	2	4,0	FH0800R2C14A40N088
10	16	100	10	2	5,0	FH1000R2C16A50N100
12	18	100	12	2	6,0	FH1200R2C18A60N100
16	20	100	16	2	8,0	FH1600R2C20A80N100

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

																							
				1.0050-2 1.0060-2 1.0070-2		1.5864 1.6580 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	dP	ae	fz	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	530002000xZ	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	331702000xZ	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	318452000xZ	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	265352000xZ	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	199002000xZ	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	159232000xZ	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	132702000xZ	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	113702000xZ	0,117	3412 400xZ	0,123	3412 420xZ				
16	9,6	1,6	2,66	0,141	5038 750xZ	0,140	4644 650xZ	0,151	2986 450xZ	0,180	7962 1500xZ	0,180	15923 3000xZ	0,201	99522000xZ	0,134	2986 400xZ	0,141	2986 420xZ				

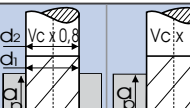


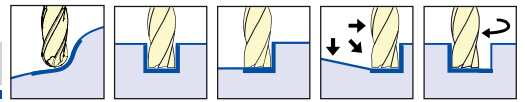
Solid carbide end mills - Hard
VHM - Schaftfräser - Hart
Fraises en bout carbure - Dure
Karbür Freze - Sert



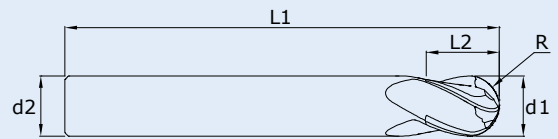
F	H	1000	G	4	C	22	E	01	N	072
END MILL	MG-08		DIN 6528							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Coated Code	Price (Euro)
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 Vc=200m/dk.				1.1520 - 1.1525 1.1545 - 1.1820 Vc=190m/dk.				1.2002 - 1.2003 1.2082 - 1.2344 Vc=180 m/dk.				1.1563 - 1.2004 1.2056 - 1.2057 Vc=170m/dk.				1.2365 - 1.2379 1.2601 - 1.2622 Vc=160m/dk.				1.3343 - 1.3344 1.3348 - 1.3355 Vc=150m/dk.				1.3302 - 1.3318 1.3333 - 1.3334 Vc=140m/dk.				1.2067 - 1.3343 1.3344 - 1.3355 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	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	3718	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								



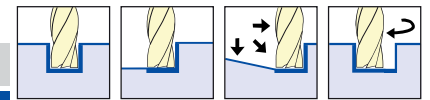
Solid carbide ball nose end mills - Hard
VHM - Radiusfräser - Hart
Fraises a rayon carbure - Dure
Karbür Küre Freze - Sert



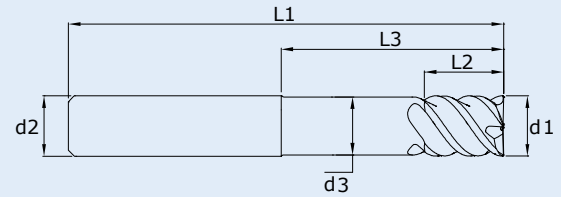
F	H	1000	R	4	C	11	A	50	N	072
END MILL	MG-08		DIN 6528		DIN 6535 HA				nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	Coated Code	Price (Euro)
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	

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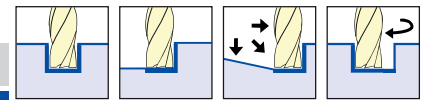
Solid carbide end mills - Hard Mold
VHM - Schaftfräser - Hart Mold
Fraises en bout carbure - Dure Mold
Karbür Freze - Sert Mold



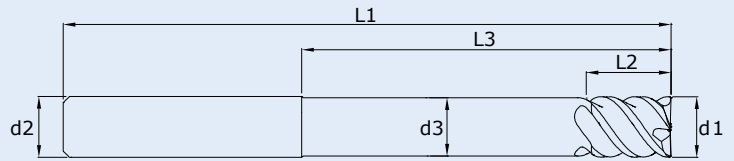
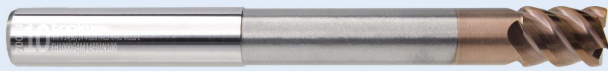
F	H	1000	G	4	M	14	E	01	N	072
END MILL	MG-08		DIN 6528							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	Coated Code	Price (Euro)
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
Vc=200 m/dk.				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=190 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
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



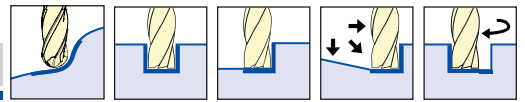
Solid carbide end mills - Hard Mold Long
VHM - Schaftfräser - Hart Mold Lang
Fraises en bout carbure - Dure Mold Longue
Karbür Freze - Sert Mold Uzun



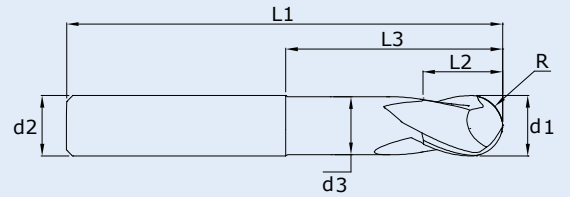
F	H	1000	G	4	M	14	E	01	N	100
END MILL	MG-08		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(ø8)	L2	d3	L3	L1	d2(h6)	Z	Coated Code	Price (Euro)
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
Vc=160 m/dk.		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=150 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
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



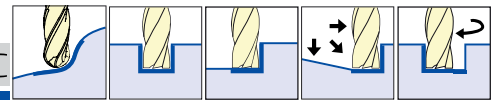
Solid carbide ball nose end mills - Hard Mold
VHM - Radiusfräser - Hart Mold
Fraises a rayon carbure - Dure Mold
Karbür Küre Freze - Sert Mold



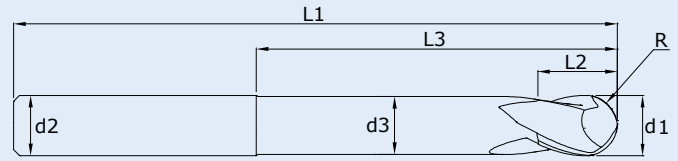
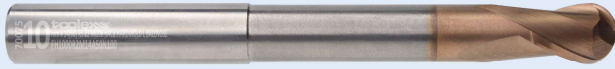
F	H	1000	R	2	M	14	A	50	N	072
END MILL	MG-08		DIN 6528		TOOLEX				nAco Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	CNC R	Coated Code	Price (Euro)
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	

$\alpha_p = 0,1 \times d1$$\sin \alpha_c = \frac{d1 \times \alpha_p}{d1}$$de = d1 \times \cos \alpha_c$$de = \frac{d1}{\tan \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	αe	αp	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



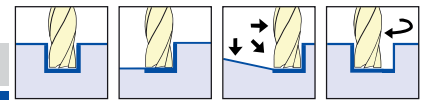
Solid carbide ball nose end mills - Hard Mold Long
VHM - Radiusfräser - Hart Mold Lang
Fraises a rayon carbure - Dure Mold Longue
Karbür Küre Freze - Sert Mold Uzun



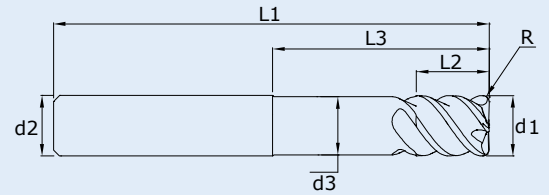
F	H	1000	R	2	M	14	A	50	N	100
END MILL	MG-08		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	CNC R	Coated Code	Price (Euro)
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	

	HRC <50			HRC <53			HRC <56			HRC <59			HRC <61			HRC <63			HRC <65			HRC <68			
$a_p=0,1 \times d1$ $\sin \alpha = \frac{d1-2 \times a_p}{d1}$ $d_e=d1 \times \cos \alpha$ $a_e = \frac{a_p}{\tan \beta}$	1.5860-1.6587 1.6587-1.7326 Vc = 105m/dk.			1.1520 - 1.1525 1.1545 - 1.1820 Vc = 95 m/dk.			1.2002 - 1.2003 1.2082 - 1.2344 Vc = 85 m/dk.			1.1563 - 1.2004 1.2056 - 1.2057 Vc = 75 m/dk.			1.2365 - 1.2379 1.2601 - 1.2622 Vc = 70 m/dk.			1.3343 - 1.3344 1.3348 - 1.3355 Vc = 65 m/dk.			1.3302 - 1.3318 1.3333 - 1.3334 Vc = 60 m/dk.			1.2067 - 1.3343 1.3344 - 1.3355 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
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
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
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
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
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
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
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
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
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
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



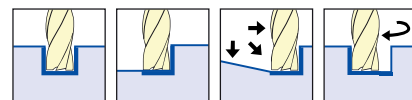
Solid carbide end mills with corner radius - Hard Mold
VHM - Schaftfräser mit Eckenradius - Hart Mold
Fraises toriques carbure - Dure Mold
Karbür Küşe Radyüslü Freze - Sert Mold



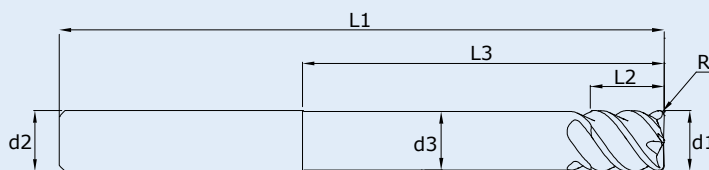
F	H	1000	K	4	M	14	E	20	N	072
END MILL	MG-08		TOOLEX		TOOLEX				nAco Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	With Neck Coated Code	Price (Euro)	Without Neck Coated Code	Price (Euro)
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	

				HRC <50			HRC <53			HRC <56			HRC <59			HRC <61			HRC <63			HRC <65			HRC <68		
$a_p = 0,1 \times d1$ $a_e = \frac{a_p}{\text{tg } \beta}$				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

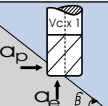


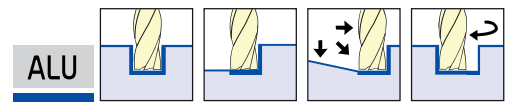
Solid carbide end mills with corner radius - Hard Mold Long
VHM - Schaftfräser mit Eckenradius - Hart Mold Lang
Fraises toriques carbure - Dure Mold Longue
Karbür Köşe Radyüslü Freze - Sert Mold Uzun



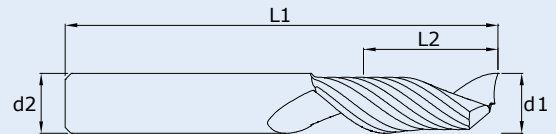
F	H	1000	K	4	M	14	E	20	N	100
END MILL	MG-08		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	With Neck Coated Code	Price (Euro)	Without Neck Coated Code	Price (Euro)
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	

				HRC <50			HRC <53			HRC <56			HRC <59			HRC <61			HRC <63			HRC <65			HRC <68		
$\alpha_p = 0,1 \times d1$ $\alpha_e = \frac{\alpha_p}{\text{tg } \beta}$				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=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	αe	αp	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



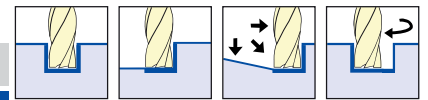
Solid carbide end mills - Alu Z1
VHM - Schaftfräser - Alu Z1
Fraises en bout carbure - Alu Z1
Karbür Freze - Alu Z1



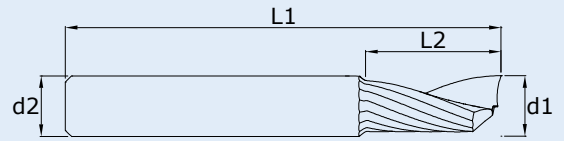
F	G	1000	G	1	C	22	R	00	D	072
END MILL	MG-07		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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



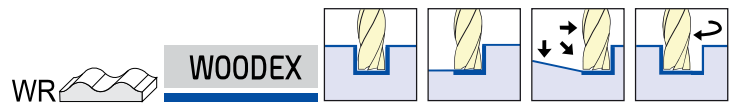
Solid carbide end mills - Flex Z1
VHM - Schaftfräser - Flex Z1
Fraises en bout carbure - Flex Z1
Karbür Freze - Flex Z1



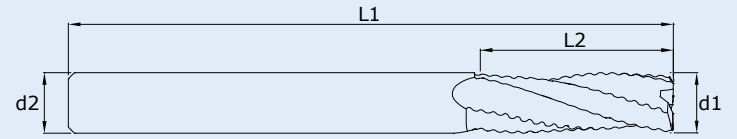
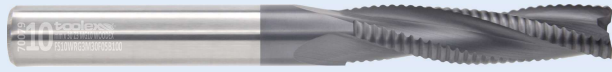
F	G	1000	G	1	C	22	R	00	D	072
END MILL	MG-07		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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



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

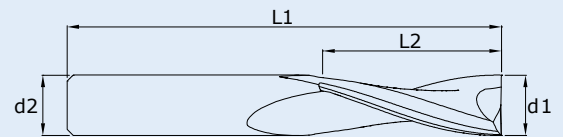
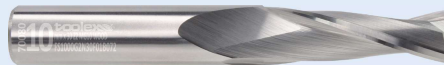


F	S	10WR	G	3	M	30	F	05	B	100
END MILL	MG-10		TOOLEX		TOOLEX					
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	UNCOATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Price (Euro)
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	

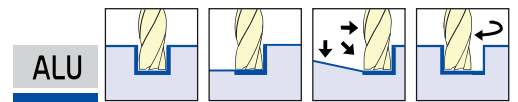
WOOD

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

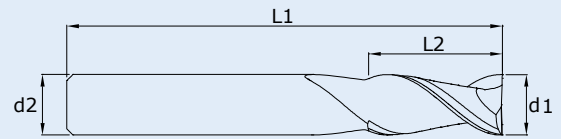
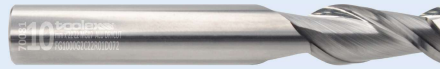


F	S	1000	G	2	N	30	F	01	B	072
END MILL	MG-10		TOOLEX		TOOLEX					
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	UNCOATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Price (Euro)
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	

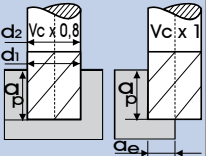


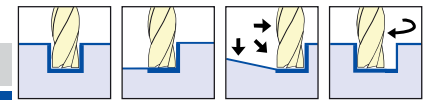
Solid carbide end mills - Alu
VHM - Schaftfräser - Alu
Fraises en bout carbure - Alu
Karbür Freze - Alu



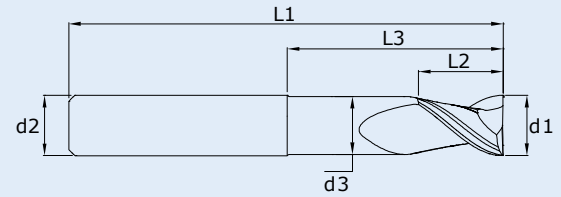
F	G	1000	G	2	C	22	R	01	D	072
END MILL	MG-07		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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	

											
$a_p = d_1 \times 0,5$			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			
3	1,5	0,60	0,02031847	637xZ	0,01023355	234xZ	0,020	42463	849xZ		
4	2,0	0,70	0,09023885	2150xZ	0,08017516	1401xZ	0,090	31847	2866xZ		
5	2,5	0,80	0,10019108	1911xZ	0,09014013	1261xZ	0,100	25478	2548xZ		
6	3,0	0,90	0,12015924	1911xZ	0,10011677	1168xZ	0,120	21231	2548xZ		
8	4,0	1,00	0,15011943	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



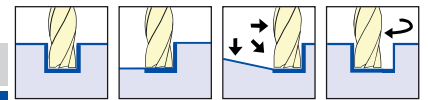
Solid carbide end mills - Almold
VHM - Schaftfräser - Almold
Fraises en bout carbure - Almold
Karbür Freze - Almold



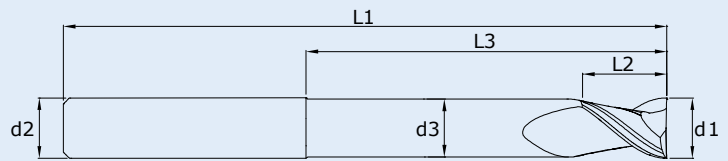
F	G	1000	G	2	M	14	R	01	D	072
END MILL	MG-07		DIN 6528							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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		
$V_c \times 0,8$			1.7139 - 1.7262			1.8509 - 1.2713					
$V_c \times 1$			1.7311 - 1.7323			1.2714 - 1.2718					
$V_c = 350 \text{ m/dk}$			$V_c = 300 \text{ m/dk}$			$V_c = 500 \text{ m/dk}$					
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	



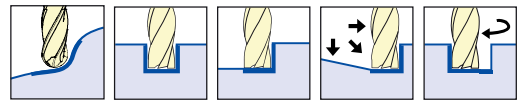
Solid carbide end mills - Almolong
VHM - Schaftfräser - Almolong Lang
Fraises en bout carbure - Almolong Longue
Karbür Freze - Almolong Uzun



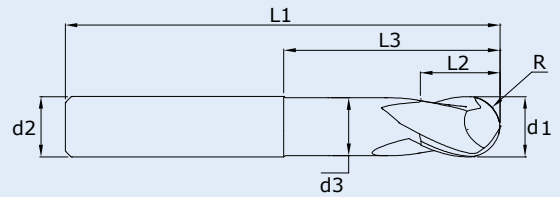
F	G	1000	G	2	M	14	R	01	D	100
END MILL	MG-07		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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	

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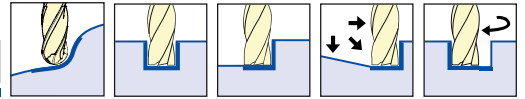
Solid carbide ball nose end mills - Almold
VHM - Radiusfräser - Almold
Fraises a rayon carbure - Almold
Karbür Küre Freze - Almold



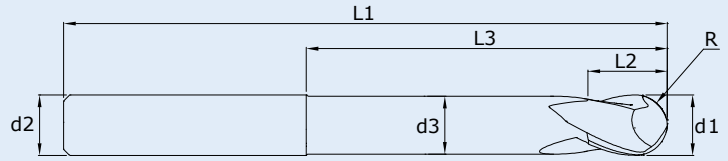
F	G	1000	R	2	M	14	A	50	D	072
END MILL	MG-07		DIN 6528							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	CNC R	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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



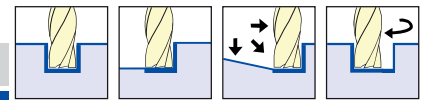
Solid carbide ball nose end mills - Almold Long
VHM - Radiusfräser - Almold Lang
Fraises a rayon carbure - Almold Longue
Karbür Küre Freze - Almold Uzun



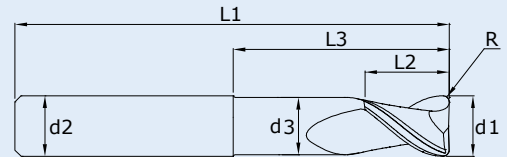
F	G	1000	R	2	M	14	A	50	D	100
END MILL	MG-07		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	CNC R	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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



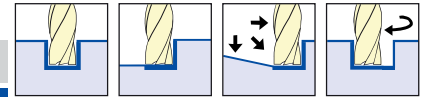
Solid carbide end mills with corner radius - Almold
VHM - Schaftfräser mit Eckenradius - Almold
Fraises toriques carbure - Almold
Karbür Köşe Radyüslü Freze - Almold



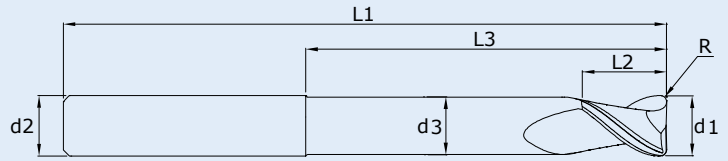
F	G	1000	K	2	M	14	R	20	D	072
END MILL	MG-07		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	With Neck Coated Code	Price (Euro)	Without NeckCoated Code	Price (Euro)
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
4	2,0	0,40	0,050	35828	3583
5	2,5	0,50	0,060	28662	3439
6	3,0	0,60	0,070	23885	3344
8	4,0	0,80	0,100	17914	3583
10	5,0	1,00	0,120	14331	3439
12	6,0	1,20	0,120	11943	2866
14	7,0	1,40	0,140	10237	2866
16	8,0	1,60	0,160	8957	2866
18	9,0	1,80	0,180	7962	2866
20	10,0	2,00	0,200	7166	2866



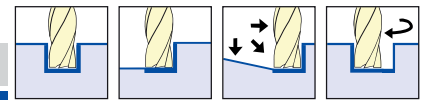
Solid carbide end mills with corner radius - Almolong
VHM - Schaftfräser mit Eckenradius - Almolong
Fraises toriques carbure - Almolongue
Karbür Köşe Radyüslü Freze - Almolong Uzun



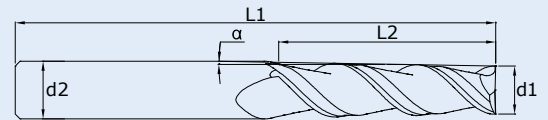
F	G	1000	K	2	M	14	R	20	D	100
END MILL	MG-07		TOOLEX						DRY CUT	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	d3	L3	L1	d2(h6)	Z	R	With Neck Coated Code	Price (Euro)	Without Neck Coated Code	Price (Euro)
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	1.8509 - 1.2713				
1.7311 - 1.7323	1.2714 - 1.2718				
Vc=350 m/dk.	Vc=300 m/dk.	Vc=500 m/dk.			
d1	ap	ae	fz	n	Vf
4	2,0	0,40	0,050	23885	2389
5	2,5	0,50	0,060	19108	2293
6	3,0	0,60	0,070	15924	2229
8	4,0	0,80	0,100	11943	2389
10	5,0	1,00	0,120	9554	2293
12	6,0	1,20	0,120	7962	1911
14	7,0	1,40	0,140	6824	1911
16	8,0	1,60	0,160	5971	1911
18	9,0	1,80	0,180	5308	1911
20	10,0	2,00	0,200	4777	1911



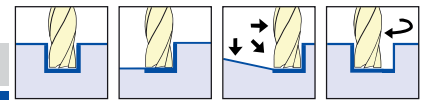
Solid carbide conical end mills - Taper
VHM - Konischer Schaftfräser - Taper
Fraises Cône en bout carbure - Taper
Karbür Konik Freze - Taper



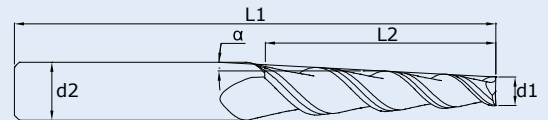
F	E	1000	2	2	C	45	K	01	N	100
END MILL	MG-10		TOOLEX							
TYPE	QUALITY	DIAMETER	TAPER	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	α	d3	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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 1.6580 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	α	ap	de	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	



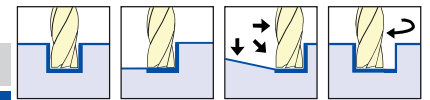
Solid carbide conical end mills - Taper
VHM - Konischer Schaftfräser - Taper
Fraises Cône en bout carbure - Taper
Karbür Konik Freze - Taper



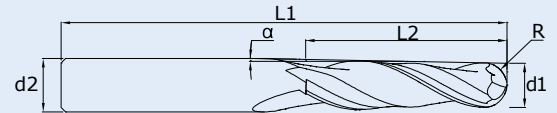
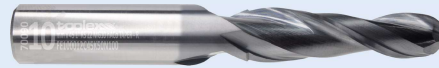
F	E	1000	5	2	C	45	K	01	N	100
END MILL	MG-10		TOOLEX							
TYPE	QUALITY	DIAMETER	TAPER	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	α	d3	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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	

				HRC 20-30			HRC 30-40			INOX			GG			AL			CU			TITAN			< 52 HRC		
$ap=d1 \times 0,5$ $ae=d1$				1.0050-2			1.5864			1.4405			0.6035			3.2151			2.1247			3.7035			1.3255		
				1.0060-2			1.6580			1.4460			0.7080			3.2373			2.0580			3.7055			1.3265		
				1.0070-2			1.7225			1.4505			0.8055			3.2382			2.0598			3.7065			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

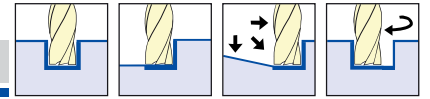


Solid carbide conical ball nose end mills - Taper
VHM - Konischer Radiusfräser - Taper
Fraises Cône à rayon carbure - Taper
Karbür Konik Küre Freze - Taper

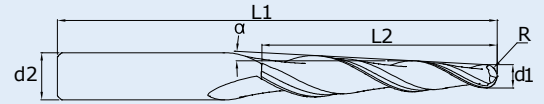
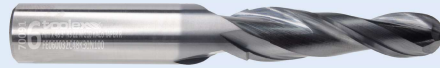


F	E	1000	1	2	C	45	K	50	N	100
END MILL	MG-10		TOOLEX							
TYPE	QUALITY	DIAMETER	TAPER	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	∞	d3	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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	



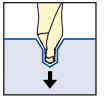
Solid carbide conical ball nose end mills Taper
VHM - Konischer Radiusfräser - Taper
Fraises Cône à rayon carbure - Taper
Karbür Konik Küre Freze - Taper



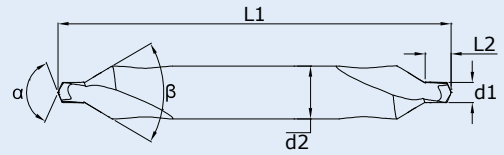
F	E	1000	2	2	C	45	K	50	N	100
END MILL	MG-10		TOOLEX							
TYPE	QUALITY	DIAMETER	TAPER	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	R	α	d3	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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	

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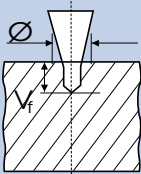


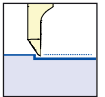
Solid carbide Center drills
VHM - Zentrierbohrer
Mèche a Centrer carbure
Karbür Punta Matkab



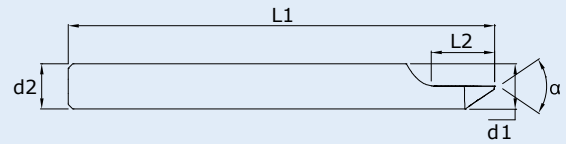
P	S	0400	T	2	C	05	F	60	N	056
CENTER DRILL	MG-10		TOOLEX		DIN 6535 HA				nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE ANGEL	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	β	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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 1.6580 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
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



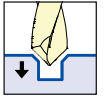
Solid carbide pantograph
VHM - Pantograph
Forets a pantographie
Karbür Pantograf



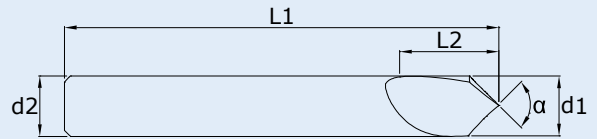
P	S	0600	P	1	C	07	G	60	N	057
NC Bohrer	MG-10		TOOLEX						nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE ANGEL	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	∞	Coated Code	Price (Euro)
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 1.6580 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



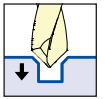
Solid carbide NCEX drills
VHM - NCEX Bohrer
Forets a pointer NCEX
Karbür NCEX Matkap



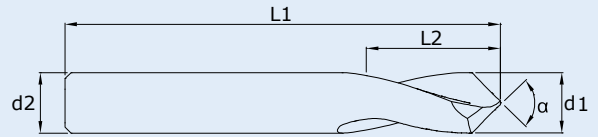
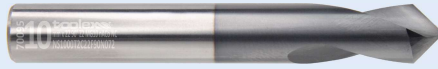
N	S	1000	T	1	C	16	F	90	N	072
NC Bohrer	MG-10		TOOLEX						nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE ANGEL	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	∞	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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 1.6580 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



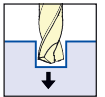
Solid carbide NC drills
VHM - NC Bohrer
Forets a pointer NC
Karbür NC Matkap



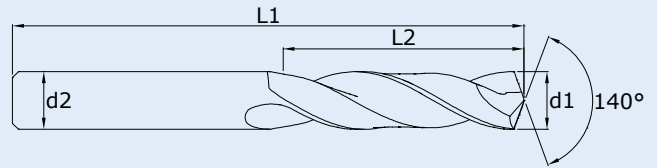
N	S	1000	T	2	C	22	F	90	N	072
NC Bohrer	MG-10		TOOLEX						nAco Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE ANGEL	COATED	FULL LENGTH

d1(e8)	L2	L1	d2(h6)	Z	∞	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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 1.6580 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



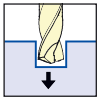
Solid carbide drills
VHM - Bohrer
Forets Hélicoïdaux
Karbür Matkap



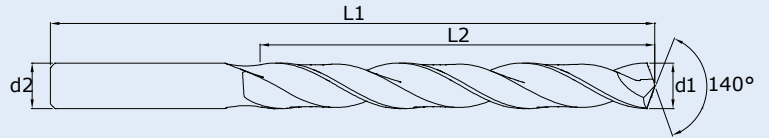
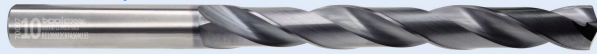
B	E	1000	X	2	C	43	A	S6	N	089
DRILL	MG-10		DIN 6939							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE FORM	COATED	FULL LENGTH

d1(h9)	L2	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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 1.6580 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	0,0217516 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	0,0311677 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

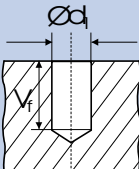


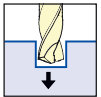
Solid carbide drills Long
VHM - Bohrer Lang
Forets Hélicoïdaux Longue
Karbür Matkap Uzun



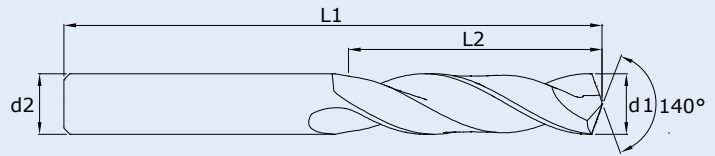
B	E	1000	Z	2	C	87	A	S6	N	133
DRILL	MG-10		DIN 338		DIN 6535 HA				nAco Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE ANGEL	COATED	FULL LENGTH

d1(h9)	L2	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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	4,2	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	10,2	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			1.5864			1.4405			0.6035			3.2151			2.1247			3.7035			1.3255		
	1.0060-2			1.6580			1.4460			0.7080			3.2373			2.0580			3.7055			1.3265		
	1.0070-2			1.7225			1.4505			0.8055			3.2382			2.0598			3.7065			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



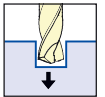
Solid carbide 3D drills
VHM - 3D Bohrer
Forets Hélicoïdaux 3D en carbure
Karbür 3D Matkap



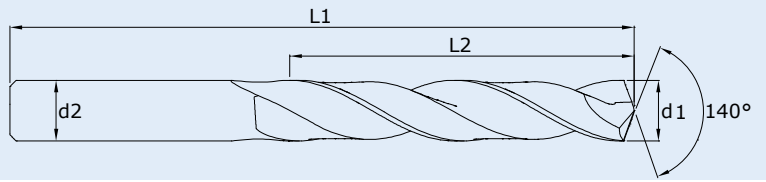
B	E	1000	U	2	C	47	A	S6	N	89	C
DRILL	MG-10		DIN 6537K 3D		DIN 6535 HA				nAco Multilayer		
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE ANGEL	COATED	FULL LENGTH	WATER HOLE

d1(m7)	L2	L1	d2(h6)	Z	Coated Code	Price (Euro)	Coolant Holes Coated Code	Price (Euro)
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 1.6580 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
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



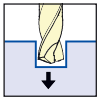
Solid carbide 5D drills
VHM - 5D Bohrer
Forets Hélicoïdaux 5D en carbure
Karbür 5D Matkap



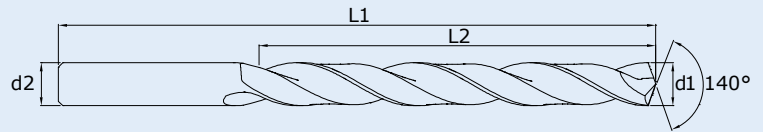
B	E	1000	B	2	C	61	A	S6	N	103	C
DRILL	MG-10		DIN 6537K 5D		DIN 6535 HA				nAco Multilayer		
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE ANGEL	COATED	FULL LENGTH	WATER HOLE

d1(m7)	L2	L1	d2(h6)	Z	CoatedCode	Price(Euro)	Coolant Holes Coated Code	Price(Euro)
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 1.5880 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



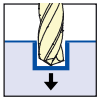
Solid carbide 7D drills
VHM - 7D Bohrer
Forets Hélicoïdaux 7D en carbure
Karbür 7D Matkap



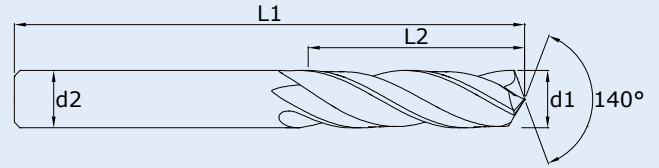
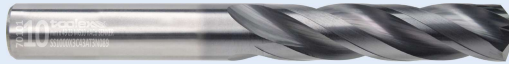
B	E	1000	y	2	C	95	A	S6	N	139	C
DRILL	MG-10		DIN 6537K 7D		DIN 6535 HA				nACo Multilayer		
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE ANGEL	COATED	FULL LENGTH	WATER HOLE

d1(m7)	L2	L1	d2(h6)	Z	Coated Code	Price (Euro)	Coolant Holes Coated Code	Price (Euro)
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 1.6580 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
5	0,044140	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	0,053450	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	0,052957	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	0,062588	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	0,062300	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	0,072070	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	0,081725	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	0,081592	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	0,091479	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	0,091380	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	0,101294	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	0,101150	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	0,101035	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	

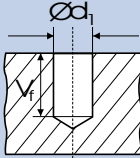


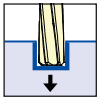
Solid carbide Senker
VHM - Senker
Perçeur en carbure
Karbür Senker



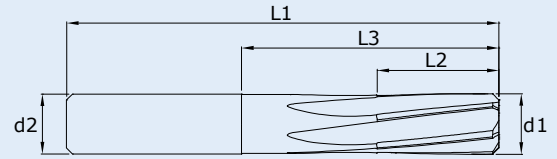
S	S	1000	X	3	C	43	A	T3	N	089
SENKER	MG-10		DIN 6539		DIN 6535 HA				nAco Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE FORM	COATED	FULL LENGTH

d1(h9)	L2	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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 1.6580 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
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

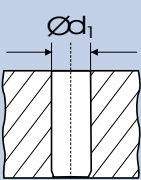


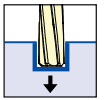
Solid carbide reamer
VHM - Reibahlen
Alésours en carbure
Karbür Rayba



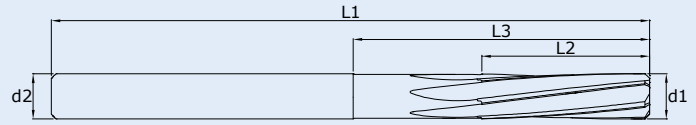
R	S	1000	G	6	C	24	L	05	N	072
REAMER	MG-10		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE FORM	COATED	FULL LENGTH

d1(H7)	L2	L3	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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 1.6580 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
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



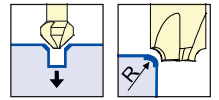
Solid carbide reamer - Long
VHM - Reibahlen - Lang
Alésioirs en carbure - Longue
Karbür Rayba - Uzun



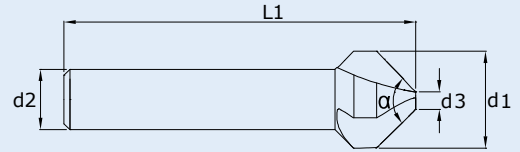
R	S	1000	G	6	C	38	L	05	N	133
REAMER	MG-10		TOOLEX							
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	EDGE FORM	COATED	FULL LENGTH

d1(H7)	L2	L3	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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 1.6580 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



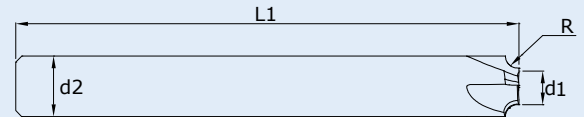
Solid carbide countersinker
VHM - Kegelsenker
Fraises Coniques en carbure
Karbür Havşa Freze



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

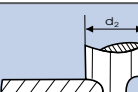
d1	∞	d3	L1	d2	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
6,3	90°	2,0	45	5	3	HS0630T3C02G90B045		HS0630T3C02G90N045	
8,3	90°	2,0	50	6	3	HS0830T3C02G90B050		HS0830T3C02G90N050	
10,4	90°	2,5	50	6	3	HS1040T3C03G90B050		HS1040T3C03G90N050	
12,4	90°	2,8	56	8	3	HS1240T3C03G90B056		HS1240T3C03G90N056	
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		TOOLEX		DIN 6535 HA				nACo Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	RADIUS	COATED	FULL LENGTH

R	d1	L1	d2	Z	R	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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			INOX			GG			AL			CU			TITAN			< 52 HRC		
	1.0050-2			1.5864			1.4405			0.6035			3.2151			2.1247			3.7035			1.3255		
	1.0060-2			1.6580			1.4460			0.7080			3.2373			2.0580			3.7055			1.3265		
	1.0070-2			1.7225			1.4505			0.8055			3.2382			2.0598			3.7065			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



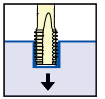
Solid carbide T Slotting End mills
VHM - T - Fräser
Fraises "T" en carbure
Karbür T Freze



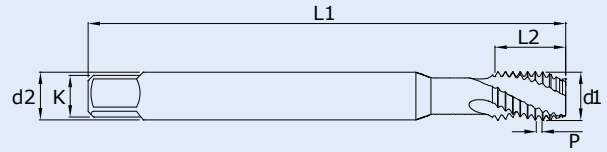
T	S	3250	G	2	C	06	B	00	N	071
T-SLOT END MILL	MG-10		DIN 850		DIN 1835				nAco Multilayer	
TYPE	QUALITY	DIAMETER	NORM	FLUTES	SHAFT TYPE	FLUTE LENGTH	HELICAL	CHAMFER	COATED	FULL LENGTH

d1(ø8)	L2	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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 1.6580 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



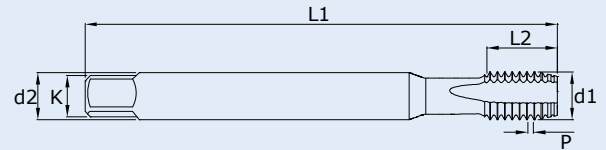
Solid carbide Taps - Alu
VHM - Gewindebohrer - Alu
Taraud en carbure - Alu
Karbür Kılavuz - Alu



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

M(d1)	P	L1	L2	d2(h6)	K	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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	

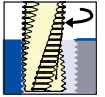
Solid carbide Taps - Hard
VHM - Gewindebohrer - Hart
Taraud en carbure - Dure
Karbür Kılavuz - Sert



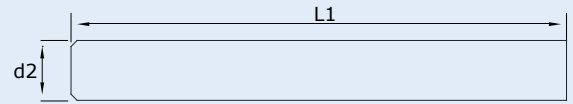
K	H	M	100	150	R	1	M	G	N	100
TAP	MG-08	DIN 371								
TYPE	QUALITY	NORM	DIAMETER	PITCH	RIGHT		MACHINE	HELICAL	COATED	FULL LENGTH

M(d1)	P	L1	L2	d2(h6)	K	Z	Coated Code	Price (Euro)
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



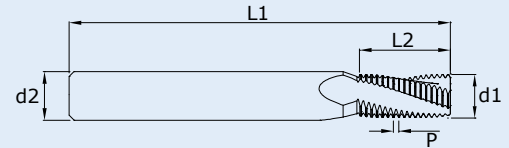
Solid Carbide Rods
Hartmetall - Rundstäbe
Tiges de Carbure
Karbür Çubuk



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

d1(h9)	TOTAL LENGHT				Code	Price (Euro)
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	

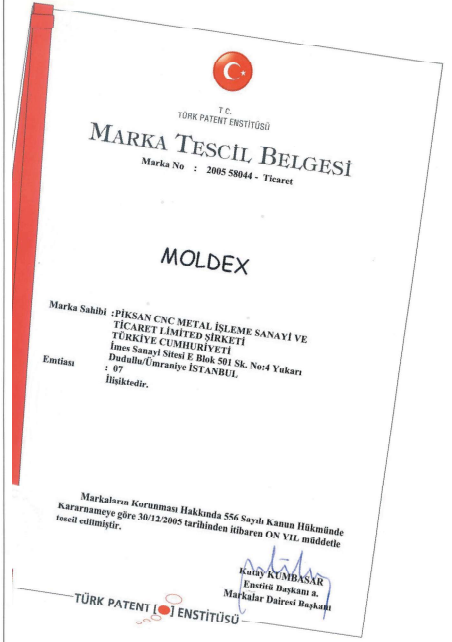
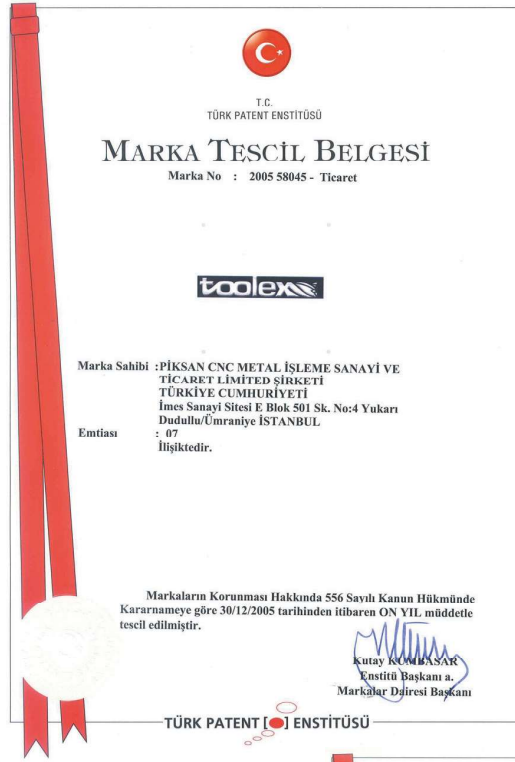
Solid Carbide Thread Milling Cutters
VHM - Gewindefräser
Fraises À Fileter
Karbür Vida Freze



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

M	P	d1(e8)	L2	L1	d2(h6)	Z	Uncoated Code	Price (Euro)	Coated Code	Price (Euro)
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 1.6580 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



BUREAU VERITAS
Certification



**PIKSAN 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**

Signature

İBRAHİM TAGAY
Signed on behalf of
BVCH SAS UK Branch

Certification body address: 5th floor, 66 Prescott Street, London, E1 8HG, United Kingdom
Local office: Esas Maltepe Ofisapark 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

**PIKSAN CNC METAL İŞLEME SAN. VE
TİC. LTD. ŞTİ.**

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

Bureau 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

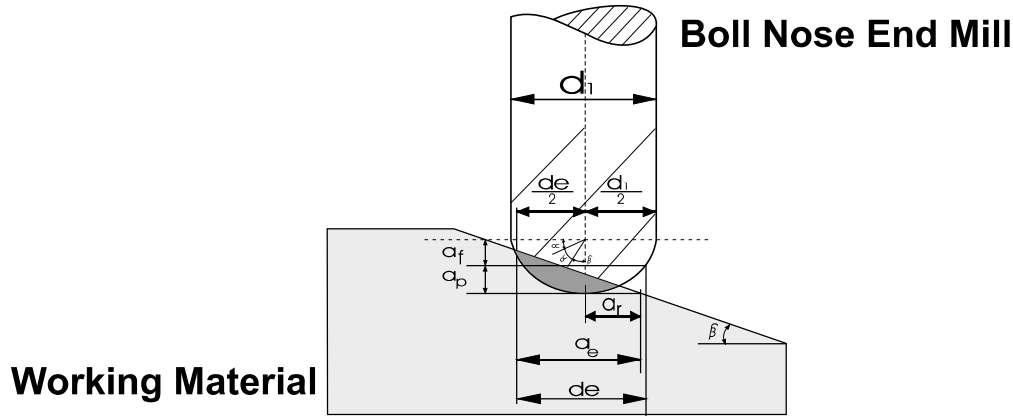
IATF Certificate N°: 368507

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

Signature

For Bureau Veritas Certification Holding, Le Triangle de l'Asie, 8 Cours du Triangle, 92008 Puteaux, France
(The official document is in English. Any translations of this document shall be used for reference only.)

Page 1 of 1



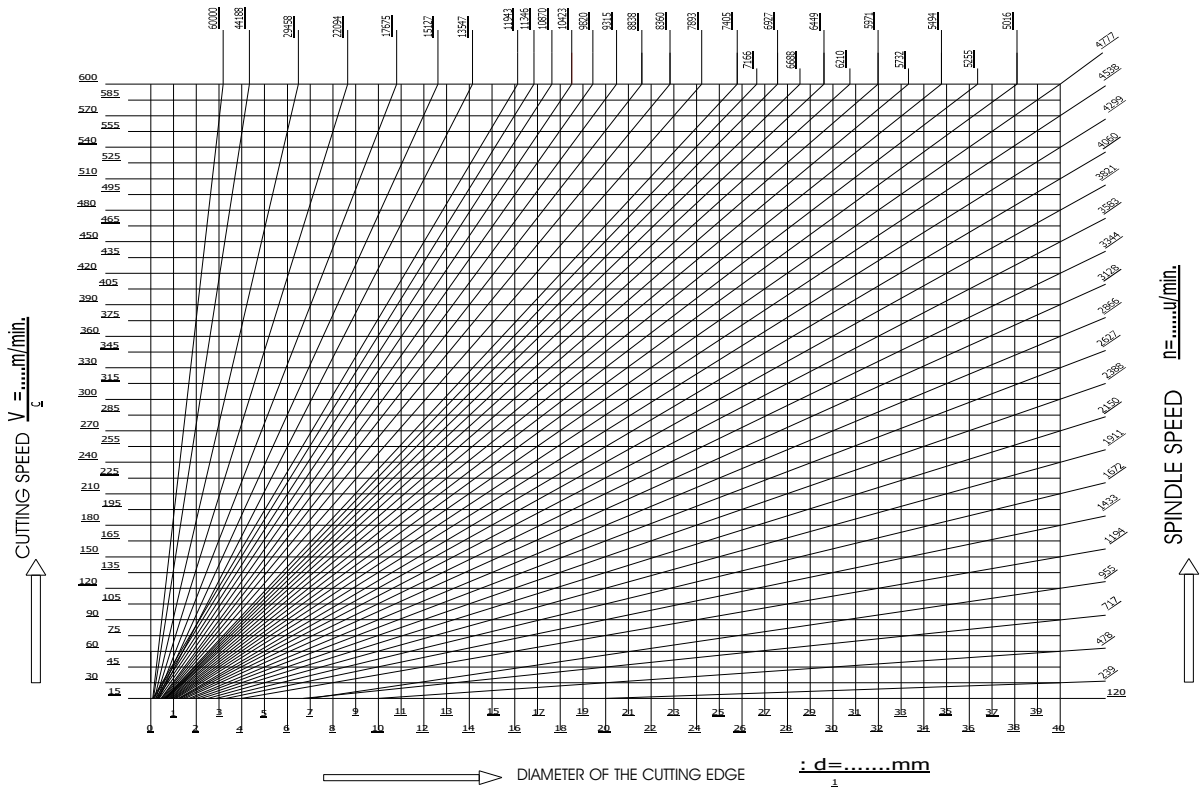
FORMULAS

$\tan \beta = \frac{a_p}{a_e}$	$a_e = \frac{a_p}{\tan \beta}$	$\cos \alpha = \frac{d_e}{d_1}$
$\alpha = 90^\circ - (\gamma + \beta)$	$\alpha = 90^\circ - (\sin \frac{d_1 - 2 \times a_p}{d_1} + \beta)$	
$a_f = \frac{d_1 - 2 \times a_p}{2}$	$a_r = \frac{2 \times a_e - d_e}{2}$	
$d_e = 2 \times (a_e - a_r)$ Milling with ball nose end mill on slope plane		
$d_e = 2 \times \sqrt{a_p \times (d_1 - a_p)}$ Milling with ball nose end mill on horizontal plane		
$V_c = \frac{\pi \cdot d_1 \cdot n}{1000}$	$n = \frac{1000 \cdot V_c}{\pi \cdot d_1}$	
$V_f = f_z \cdot n \cdot z$	$n = \frac{V_f}{f_z \cdot z}$	
$n = \frac{1000 \cdot V_c}{\pi \cdot d_e}$ Milling with ball nose end mill	$n = \frac{1000 \cdot V_c}{\pi \cdot d_3}$ Milling with taper end mill	

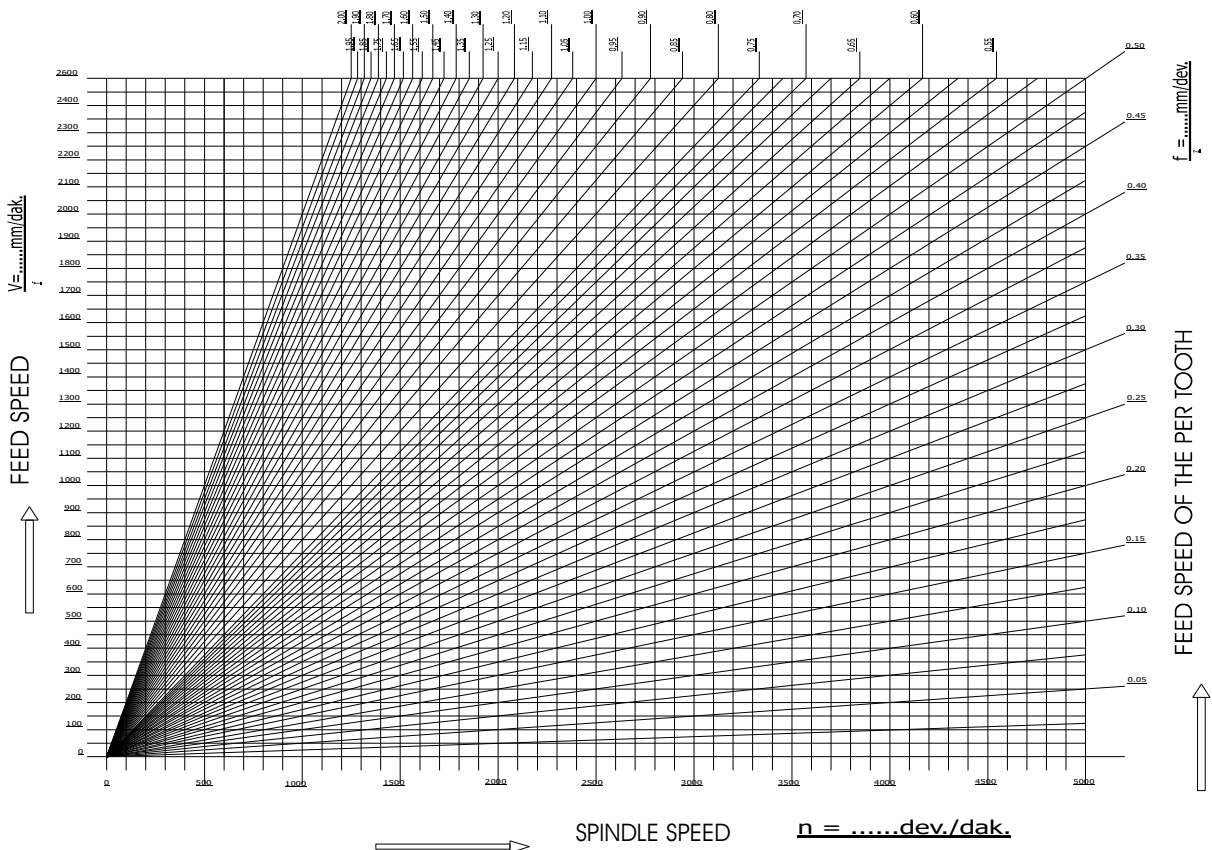
Meaning Of Symbols

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 angle 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



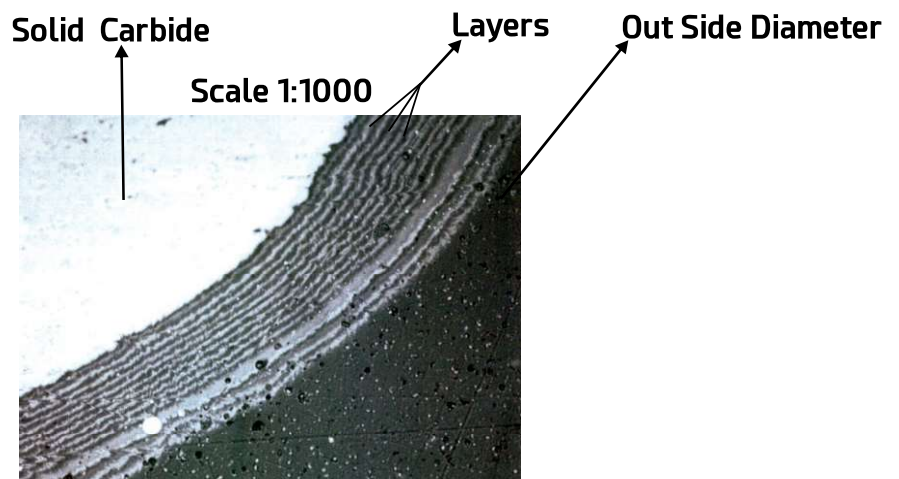
PVD Coating

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

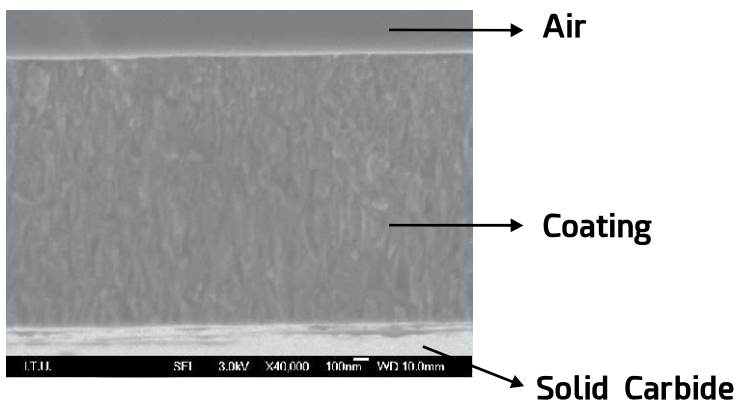
	AlTiN Multilayer nano	AlCrSiN Multilayer	DryCut	AlTiN	TiAlN	TiCN	TiN
Color	Dark Violet	Silver	Anthracite	Black - Grey	Anthracite	Violet - Grey	Gold
Oxidation temp. (°C)	1100	1100	900	1000	850	400	600
Hardness (HV)	5100	3000	3300	4000	3200	3700	3200
Coefficient of friction (dry)	0.5	0.4	0.2	0.60	0.75	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

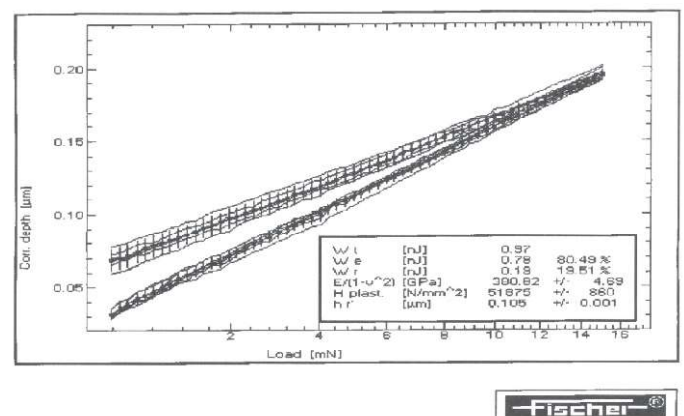
The sandwich- type multilayer AlTiN coating which is a new - generation coating type has got both excellent hardness because of its lower grain size and excellent toughness and cracking resistance because of its flexible sub-layers all together.



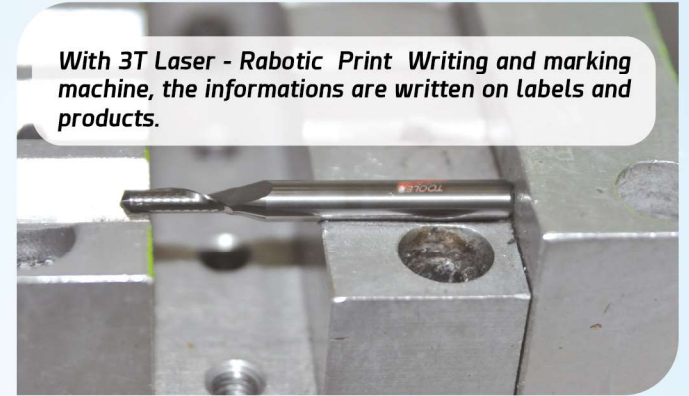
Coating Thickness



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.



Some of our quality department measuring machines are Haimer, Zoller genius 3m, Trimos, PWB 250 machines for the highest perfection quality control.



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



Haimer, one of our quality steps.



toolex®

END MILL - DRILL - REAMER



PIKSAN®
CNC METAL MACHINING

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

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