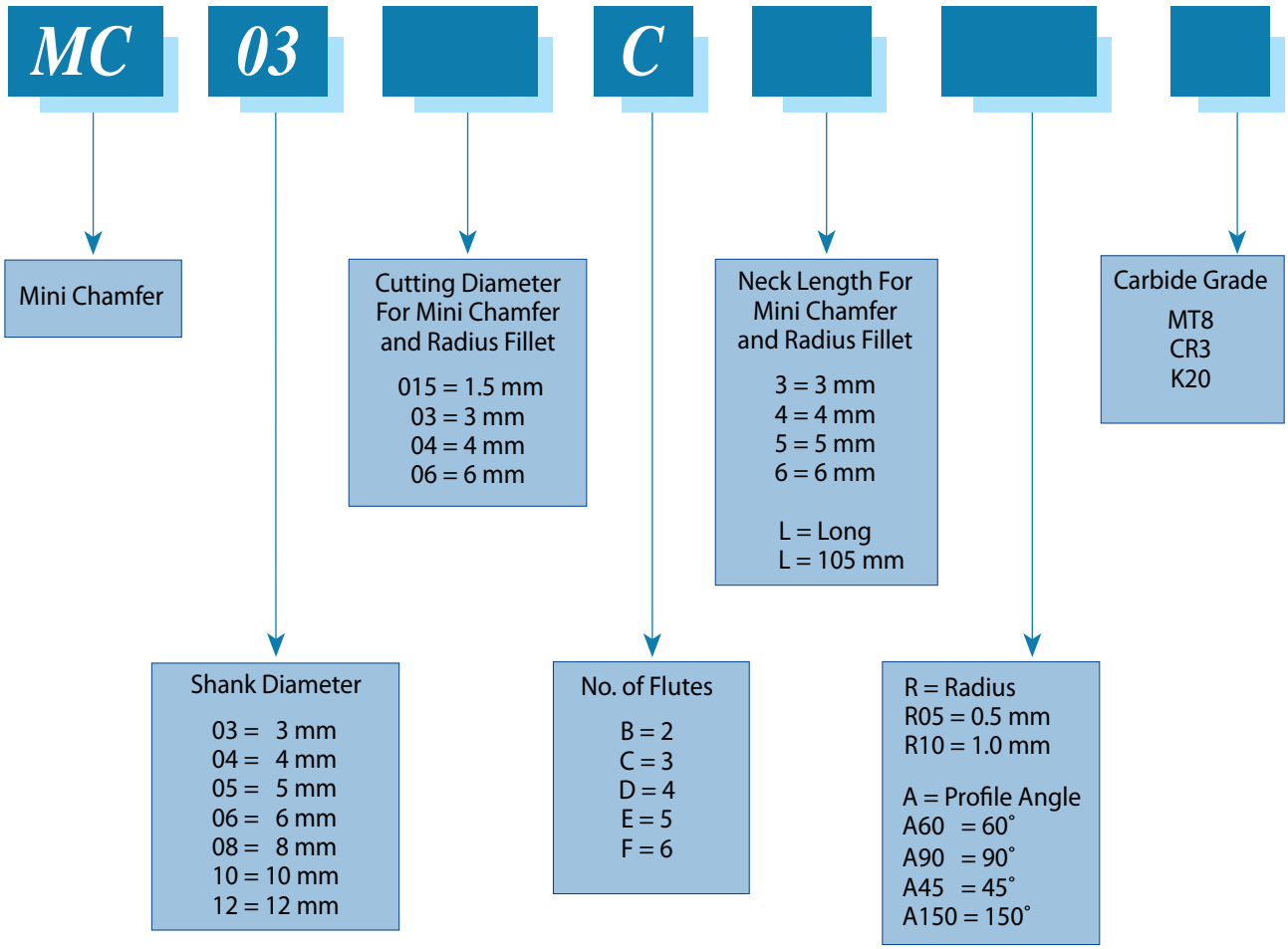
Mini Chamfer and Countersink | B15

Product Identification

Mini Chamfer, Solid Carbide Radius Fillet End-Mills and Countersink

Ordering Codes



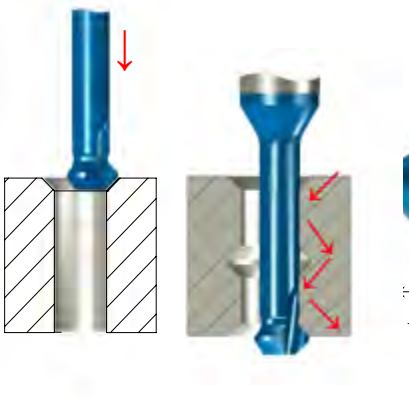
Mini Chamfer

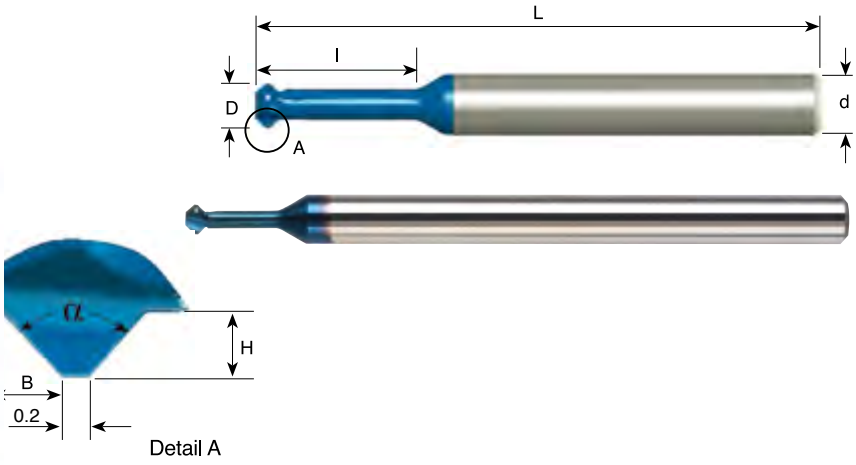
- Optimal for deburring, back chamfering and grooving.
- Double side cutting.
- Spiral flute allows smooth cutting action.

Demonstration

Carbide grade: MT8

Sub-micron grade with advanced PVD triple coating (ISO K10-K20). Extremely high heat resistant and smooth cutting operation, for high performance and normal machining condition.
General purpose for all materials.





90°

Grade	P	M	K	N	S	H
MT8	●	●	●	○	●	≤50 HRc

Ordering Code	d	D	l	H	B	α	No. of Flutes	L
MC 03015 C3 A90	3	1.5	3.8	0.3	0.4	90°	3	39
MC 0302 C5 A90	3	2.0	5.0	0.4	0.5	90°	3	39
MC 03025 C6 A90	3	2.5	6.3	0.5	0.6	90°	3	39
MC 0303 C7 A90	3	3.0	7.5	0.6	0.7	90°	3	39
MC 04035 C9 A90	4	3.5	8.8	0.7	0.8	90°	3	51
MC 0404 C10 A90	4	4.0	10.0	0.8	0.9	90°	3	51
MC 05045 C11 A90	5	4.5	11.3	1.0	1.1	90°	3	51
MC 0505 C12 A90	5	5.0	12.5	1.1	1.2	90°	3	51
MC 06055 C13 A90	6	5.5	13.8	1.2	1.3	90°	3	51
MC 0606 C15 A90	6	6.0	15.0	1.5	1.6	90°	3	51

Order example: MC 0302 C5 A90 MT8

● First choice ○ Alternative

Mini Chamfer and Countersink

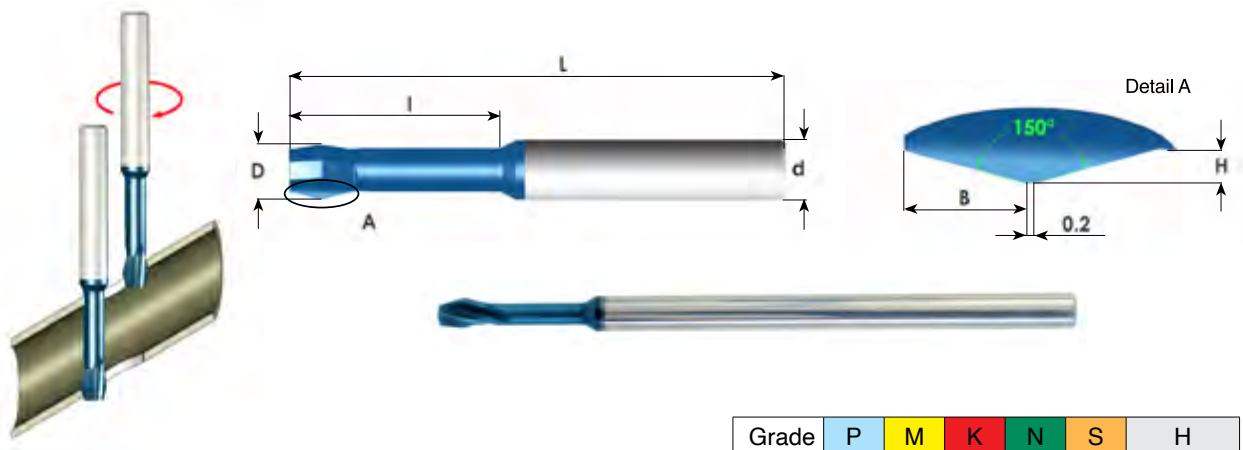
Long Reach 90°

Grade	P	M	K	N	S	H
MT8	●	●	●	○	●	≤50 HRc

Ordering Code	d	D	l	H	B	α	No. of Flutes	L
MC 0303 C12 A90	3	3.0	12.0	0.6	0.7	90°	3	39
MC 04035 C14 A90	4	3.5	14.0	0.7	0.8	90°	3	51
MC 0404 C16 A90	4	4.0	16.0	0.8	0.9	90°	3	51
MC 0404 C16L A90	4	4.0	16.0	0.8	0.9	90°	3	105
MC 05045 C18 A90	5	4.5	18.0	1.0	1.1	90°	3	51
MC 0505 C20 A90	5	5.0	20.0	1.1	1.2	90°	3	51
MC 0505 C20L A90	5	5.0	20.0	1.1	1.2	90°	3	105
MC 06055 C22 A90	6	5.5	22.0	1.2	1.3	90°	3	58
MC 0606 C24 A90	6	6.0	24.0	1.5	1.6	90°	3	58
MC 0606 C24L A90	6	6.0	24.0	1.5	1.6	90°	3	105
MC 0808 D28 A90	8	8.0	28.0	1.6	1.7	90°	4	64
MC 0808 D28L A90	8	8.0	28.0	1.6	1.7	90°	4	105
MC 1010 E35 A90	10	10.0	35.0	1.8	1.9	90°	5	73
MC 1212 F42 A90	12	12.0	42.0	2.1	2.2	90°	6	84

60°

Ordering Code	d	D	l	H	B	α	No. of Flutes	L
MC 0302 C5 A60	3	2.0	5.0	0.4	0.3	60°	3	39
MC 0303 C7 A60	3	3.0	7.5	0.6	0.3	60°	3	39
MC 04035 C9 A60	4	3.5	8.8	0.7	0.5	60°	3	51
MC 0404 C10 A60	4	4.0	10.0	0.8	0.5	60°	3	51
MC 05045 C11 A60	5	4.5	11.3	1.0	0.6	60°	3	51
MC 0505 C12 A60	5	5.0	12.5	1.1	0.7	60°	3	51



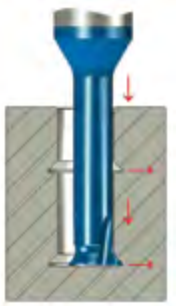
Grade	P	M	K	N	S	H
MT8	●	●	●	○	●	≤50 HRc

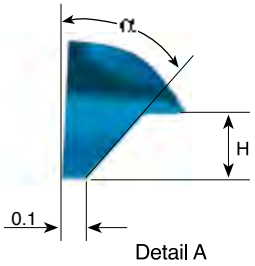
150°

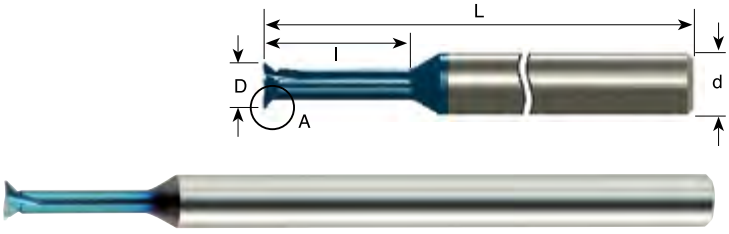
Ordering Code	d	D	l	H	B	No. of Flutes	L
MC 0303 C12 A150	3	3.0	12.0	0.6	2.2	3	39
MC 0404 C16 A150	4	4.0	16.0	0.8	3.0	3	51
MC 0404 C16L A150	4	4.0	16.0	0.8	3.0	3	105
MC 0505 C20 A150	5	5.0	20.0	1.0	3.8	3	51
MC 0505 C20L A150	5	5.0	20.0	1.0	3.8	3	105
MC 0606 C24 A150	6	6.0	24.0	1.0	3.8	3	58
MC 0606 C24L A150	6	6.0	24.0	1.0	3.8	3	105
MC 0808 C28 A150	8	8.0	28.0	1.0	3.8	3	64
MC 0808 C28L A150	8	8.0	28.0	1.0	3.8	3	105

Order example: MC 0303 C12 A150 MT8

● First choice ○ Alternative







Grade	P	M	K	N	S	H
MT8	●	●	●	○	●	≤50 HRc

Dovetail 45°

Ordering Code	d	D	l	H	α	No. of Flutes	L
MC 03015 C4 A45	3	1.5	4.5	0.3	45°	3	39
MC 0302 C6 A45	3	2.0	6.0	0.4	45°	3	39
MC 03025 C7 A45	3	2.5	7.5	0.5	45°	3	39
MC 0303 C12 A45	3	3.0	12.0	0.6	45°	3	39
MC 04035 C14 A45	4	3.5	14.0	0.7	45°	3	51
MC 0404 C16 A45	4	4.0	16.0	0.8	45°	3	51
MC 05045 C18 A45	5	4.5	18.0	1.0	45°	3	51
MC 0505 C20 A45	5	5.0	20.0	1.1	45°	3	51
MC 06055 C22 A45	6	5.5	22.0	1.2	45°	3	58
MC 0606 C24 A45	6	6.0	24.0	1.5	45°	3	58

One side cutting

● First choice ○ Alternative

Order example: MC 0303 C12 A45 MT8

Mini Chamfer Kit

Kit Description: Kit KMC

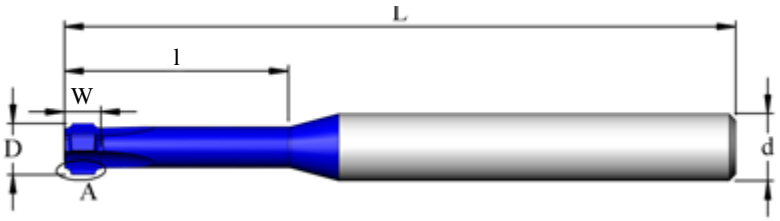
Contents	Qty
MC 0303 C12 A90	1
MC 03025 C6 A90	1
MC 0404 C10 A90	1
MC 04035 C9 A90	1
MC 05045 C11 A90	1
MC 0606 C24 A90	1

Solid Carbide radius fillet End-Mills

Features

- Tools for different radius filleting
- Two, three and four flutes
- Cylindrical shank DIN6535-HA

Carbide grade: CR3
Ultra-Fine carbide grade with high hardness and toughness provides high cutting edge stability and wear resistance.
A New Generation of PVD Coating for High-Performance Cutting Applications.



DETAIL A

Grade	P	M	K	N	S	H
CR3	●	●	●	○	●	≤50 HRc

Ordering Code	d	D	l	R	W	No. of Flutes	L
MC 0302 B8 R02	3	2.0	8.0	0.2	1.4	2	38
MC 03025 B9 R03	3	2.5	9.0	0.3	1.6	2	38
MC 03025 B10 R04	3	2.5	10.0	0.4	2.0	2	38
MC 0303 B12 R05	3	3.0	12.0	0.5	2.2	2	38
MC 0605 C20 R05	6	5.0	20.0	0.5	2.5	3	57
MC 0605 C25 R06	6	5.0	25.0	0.6	2.7	3	57
MC 0606 C30 R08	6	6.0	30.0	0.8	3.3	3	57
MC 08065 C35 R10	8	6.5	35.0	1.0	3.7	3	63
MC 08075 D35 R12	8	7.5	35.0	1.2	4.1	4	63
MC 10085 D35 R15	10	8.5	35.0	1.5	4.9	4	72
MC 1009 D35 R18	10	9.0	35.0	1.8	5.6	4	72
MC 1010 D35 R20	10	10.0	35.0	2.0	6.0	4	72
MC 1211 D35 R25	12	11.0	35.0	2.5	7.5	4	83
MC 1212 D35 R30	12	12.0	35.0	3.0	8.5	4	83

Order example: MC 0303 B12 R05 CR3

● First choice ○ Alternative

Countersink Solid Carbide chamfering End-Mills

Features

- Tools for 45˚ and 30˚ chamfering and deburring
- Four flutes
- Cylindrical shank DIN6535-HA (Weldon shank available upon request)

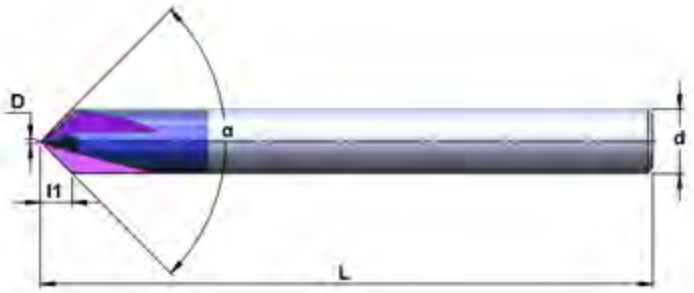
Carbide grades

CR3

Ultra-Fine carbide grade with high hardness and toughness provides high cutting edge stability and wear resistance.
A **New Generation** of PVD Coating for High-Performance Cutting Applications

K20

Uncoated Sub-Micron carbide grade for Aluminum and non-ferrous materials, Stainless Steels and Titanium.



Grade	P	M	K	N	S	H
CR3	●	●	●	○	●	≤58 HRc
K20			●	●	○	

Ordering Code	d	D	l1	L	No. of Flutes	α
MC03 D A60	3	0.2	2.4	38	4	60˚
MC04 D A60	4	0.3	3.2	50		
MC05 D A60	5	0.4	4.0	50		
MC06 D A60	6	0.5	4.8	57		
MC08 D A60	8	0.6	6.4	63		
MC10 D A60	10	0.8	8.0	72		
MC12 D A60	12	1.0	9.5	83		
MC03 D A90	3	0.2	1.4	38	4	90˚
MC04 D A90	4	0.3	1.8	50		
MC05 D A90	5	0.4	2.3	50		
MC06 D A90	6	0.5	2.7	57		
MC08 D A90	8	0.6	3.7	63		
MC10 D A90	10	0.8	4.6	72		
MC12 D A90	12	1.0	5.5	83		

Order example: MC04 D A90 K20

● First choice ○ Alternative

Technical Section

Mini Chamfer
Cutting Data

ISO	Materials	Cutting Speed m/min	Feed mm/tooth Cutting Diameter=D												
			Ø1.5	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø12	Ø14	Ø16
P	Low and Medium Carbon Steels <0.55%C	60 - 120	0.03	0.04	0.05	0.06	0.08	0.09	0.10	0.11	0.11	0.11	0.12	0.13	0.13
	High Carbon Steels ≥0.55%C	60 - 90	0.02	0.04	0.04	0.06	0.06	0.07	0.08	0.09	0.10	0.10	0.11	0.12	0.13
	Alloy Steels, Treated Steels	50 - 80	0.02	0.03	0.04	0.04	0.04	0.05	0.05	0.06	0.06	0.07	0.08	0.09	0.10
M	Stainless Steels - Free Cutting	70 - 100	0.01	0.02	0.03	0.04	0.04	0.04	0.05	0.06	0.06	0.07	0.08	0.08	0.09
	Stainless Steels - Austenitic	60 - 90	0.01	0.02	0.03	0.04	0.04	0.04	0.05	0.06	0.06	0.07	0.08	0.08	0.09
	Cast Steels	70 - 90	0.02	0.03	0.04	0.04	0.04	0.05	0.05	0.06	0.06	0.07	0.08	0.09	0.10
K	Cast Iron	4 0 - 80	0.03	0.04	0.05	0.06	0.08	0.09	0.10	0.11	0.11	0.11	0.12	0.13	0.13
N	Aluminum ≤12%Si, Copper	100 - 200	0.03	0.04	0.05	0.06	0.08	0.09	0.10	0.11	0.11	0.11	0.12	0.13	0.13
	Aluminum >12% Si	60 - 140	0.02	0.02	0.03	0.04	0.04	0.04	0.05	0.06	0.06	0.07	0.08	0.09	0.10
	Synthetics, Duroplastics, Thermoplastics	50 - 200	0.06	0.08	0.08	0.10	0.11	0.13	0.13	0.13	0.13	0.13	0.13	0.14	0.14
S	Nickel Alloys, Titanium Alloys	20 - 40	0.02	0.02	0.03	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.06	0.06
H	Hardened Steel, 45-50 HRc	60 - 70	0.02	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.06	0.06	0.06	0.07	0.08

Solid Carbide radius fillet End-Mills

Application example

Cutting Data

ISO	Materials Class	Cutting Speed Vc (m/min)	Fz [mm/tooth]				
			Ø1-Ø2	Ø3-Ø4	Ø6-Ø8	Ø10-Ø12	Ø16
P	Low & Medium Carbon Steels <0.55%C	60-70	0.010	0.012	0.015	0.020	0.030
	High Carbon Steels ≥0.55%C	40-60	0.010	0.012	0.015	0.020	0.030
	Alloy Steels, Treated Steels	30-40	0.010	0.012	0.013	0.017	0.025
M	Stainless Steel-Free Cutting	20-30	0.007	0.010	0.010	0.015	0.020
	Stainless Steel-Austenitic	20-30	0.007	0.010	0.010	0.015	0.020
	Cast Steels	20-30	0.007	0.010	0.010	0.015	0.020
K	Cast Iron	30-40	0.010	0.012	0.013	0.017	0.025
N	Aluminum ≤6%Si, Copper	70-100	0.012	0.012	0.015	0.020	0.030
	Aluminum >6%Si	90-150	0.012	0.012	0.015	0.020	0.030
	Synthetics, duroplastics, thermoplastics	100-150	0.015	0.025	0.030	0.040	0.050
S	Nickel alloys, Titanium alloys.	15-30	0.007	0.010	0.010	0.015	0.020
H	Hardened Steel, 45-50 HRc	20-40	0.007	0.010	0.013	0.017	0.025

Countersink

Cutting Data

ISO	Materials Class	Cutting Speed Vc (m/min)
P	Low & Medium Carbon Steels <0.55%C	120 - 240
	High Carbon Steels ≥0.55%C	80 - 180
	Alloy Steels, Treated Steels	50 - 120
M	Stainless Steel-Free Cutting	70 - 100
	Stainless Steel-Austenitic	60 - 140
	Cast Steels	70 - 100
K	Cast Iron	80 - 160
N	Aluminum ≤6%Si, Copper	150 - 500
	Aluminum >6%Si	100 - 250
	Synthetics, duroplastics, thermoplastics	80 - 200
S	Nickel alloys, Titanium alloys.	30 - 90
H	Hardened Steel, 45-50 HRc	60 - 70
	Hardened Steel, 51-58 HRc	50 - 60

d	Feed fz mm/tooth
Ø3-Ø4	0.04 - 0.06
Ø5-Ø6	0.05 - 0.07
Ø8	0.06 - 0.08
Ø10	0.07 - 0.10
Ø12	0.08 - 0.15