

Demonstration

For Grooving Deep Parts

Advantages

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 conditions. General purpose for all materials.

- Enables machining in deep holes.
- Coolant through the flutes is very effective for deep holes.
- Spiral flutes allow smooth cutting action.
- Longer tool life due to special multi-layer coating.
- Shorter machining time due to multi (3 to 5) flutes.

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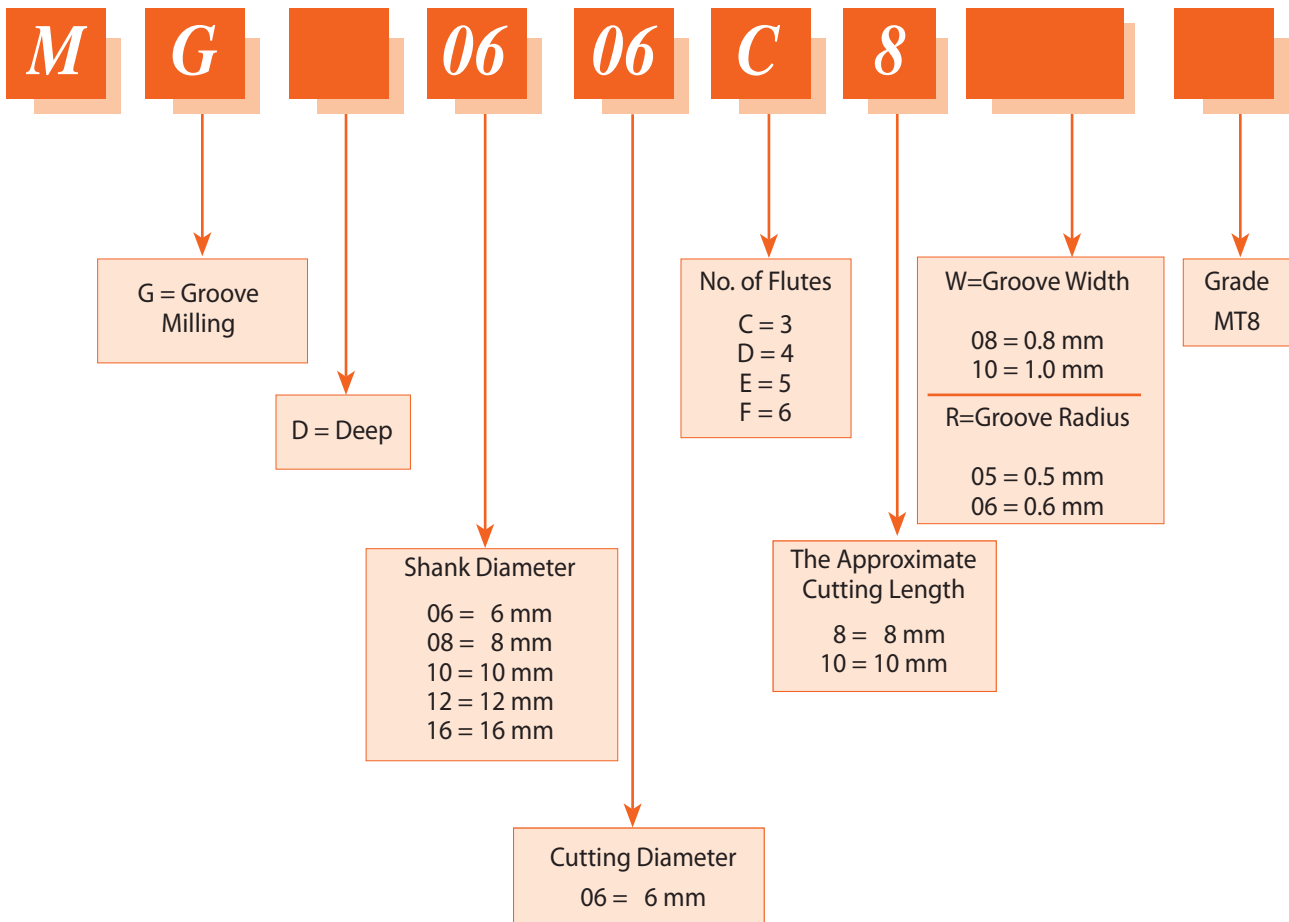
Product Identification
Groove Milling with internal coolant
through the flutes

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Full Radius Groove Milling with internal
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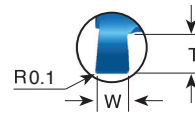
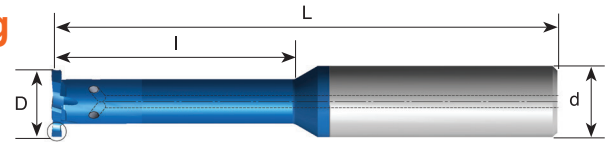
Product Identification Groove Milling Ordering Codes



Groove Milling

with internal coolant through the flutes

Same Tool for Internal and External Grooving



For grooving deep parts

W ± 0.02	T Max.	Groove Dia. (min.) mm	Ordering Code	d	D	No. of Flutes	l	L
0.50	0.6	∅ > 4	*MG 0604 C4 W05	6	4.0	3	4.2	51
1.00	0.6	∅ > 4	*MG 0604 C4 W10	6	4.0	3	4.2	51
0.80	0.8	∅ > 6	MG 0606 C8 W08	6	6.0	3	8.0	58
1.00	1.0	∅ > 6	*MG 0606 C7 W10	6	6.0	3	7.0	58
1.50	1.0	∅ > 6	*MG 0606 C7 W15	6	6.0	3	7.0	58
1.00	1.2	∅ ≥ 7.8	MG 08078 D10 W10	8	7.8	4	10.0	64
1.50	1.5	∅ ≥ 7.8	MG 08078 D15 W15	8	7.8	4	15.0	64
2.00	1.5	∅ ≥ 7.8	MG 08078 D15 W20	8	7.8	4	15.0	64
1.20	1.4	∅ ≥ 9.8	MG 10098 D20 W12	10	9.8	4	20.0	73
1.50	2.0	∅ ≥ 9.8	MG 10098 D20 W15	10	9.8	4	20.0	73
2.00	2.0	∅ ≥ 9.8	MG 10098 D20 W20	10	9.8	4	20.0	73
1.50	2.2	∅ ≥ 12	MG 1212 E30 W15	12	12.0	5	30.0	84
2.00	2.2	∅ ≥ 12	MG 1212 E30 W20	12	12.0	5	30.0	84
3.00	2.2	∅ ≥ 12	MG 1212 E30 W30	12	12.0	5	30.0	84
1.40	1.8	∅ ≥ 16	MG 1616 E30 W14	16	16.0	5	30.0	101
1.70	2.0	∅ ≥ 16	MG 1616 E40 W17	16	16.0	5	40.0	101
1.95	2.2	∅ ≥ 16	MG 1616 E45 W19	16	16.0	5	45.0	101

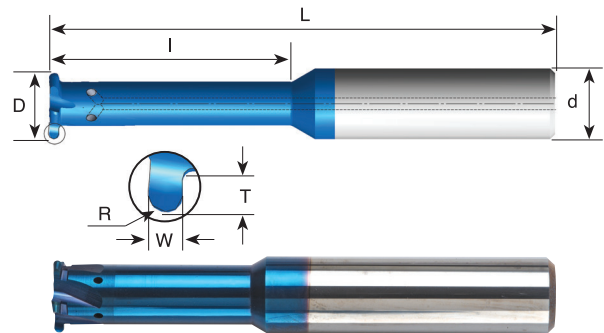
Order example: MG 10098D20 W12 MT8

* Tools without coolant

Full Radius Groove Milling

with internal coolant through the flutes

***Same Tool for Internal and External Grooving**



For grooving deep parts

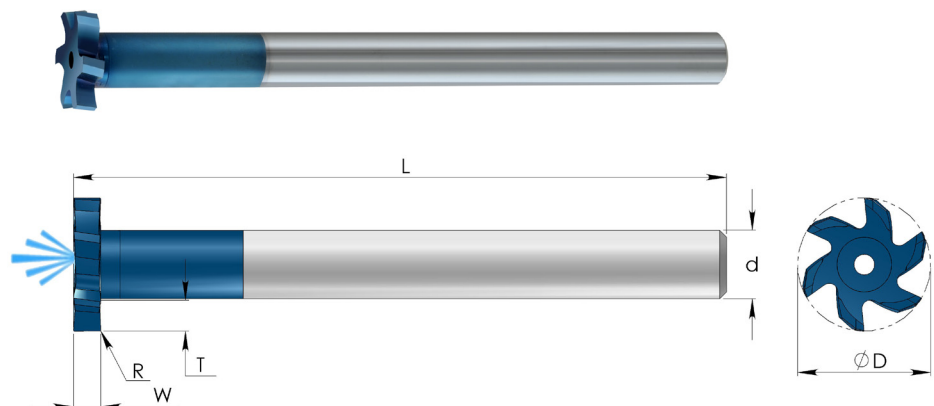
R	W ± 0.02	T Max.	Groove Dia. (min.)	Ordering Code	d	D	No. of Flutes	I	L
0.5	1.00	0.6	$\phi > 4$	*MG 0604 C4 R05	6	4.0	3	4.2	51
0.5	1.00	0.8	$\phi > 6$	MG 0606 C8 R05	6	6.0	3	8.0	58
0.75	1.50	1.0	$\phi > 6$	*MG 0606 C7 R075	6	6.0	3	7.0	58
0.5	1.00	1.0	$\phi \geq 8.8$	MG 10088 D16 R05	10	8.8	4	16.0	73
0.6	1.20	1.0	$\phi \geq 10$	MG 1010 D20 R06	10	10.0	4	20.0	73
0.75	1.50	2.0	$\phi \geq 10$	MG 1010 D20 R075	10	10.0	4	20.0	73
1.00	2.00	2.0	$\phi \geq 10$	MG 1010 D20 R10	10	10.0	4	20.0	73
0.9	1.80	1.4	$\phi \geq 12$	MG 1212 D30 R09	12	12.0	4	30.0	84
1.0	2.00	1.6	$\phi \geq 16$	MG 1616 E40 R10	16	16.0	5	40.0	101
1.5	3.00	2.2	$\phi \geq 16$	MG 1616 E40 R15	16	16.0	5	40.0	101

Order example: MG 1010 D20 R06 MT8

* Tools without coolant

Deep Groove Milling

with internal coolant bore



Ordering Code	W ± 0.02	R	T (max.)	Groove Dia. (min.)	d	D	No. of Flutes	L
MGD 10195 F W15	1.5	0.1	4.5	$\phi > 19.5$	10	19.5	6	128
MGD 10195 F W20	2.0	0.1	4.5	$\phi > 19.5$	10	19.5	6	128
MGD 10195 F W30	3.0	0.1	4.5	$\phi > 19.5$	10	19.5	6	128
MGD 10195 F W35	3.5	0.1	4.5	$\phi > 19.5$	10	19.5	6	128
MGD 10195 F W40	4.0	0.1	4.5	$\phi > 19.5$	10	19.5	6	128
MGD 10195 F W50	5.0	0.1	4.5	$\phi > 19.5$	10	19.5	6	128

* Same tool for internal and external grooving

Technical Section

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	40 - 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, ≤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