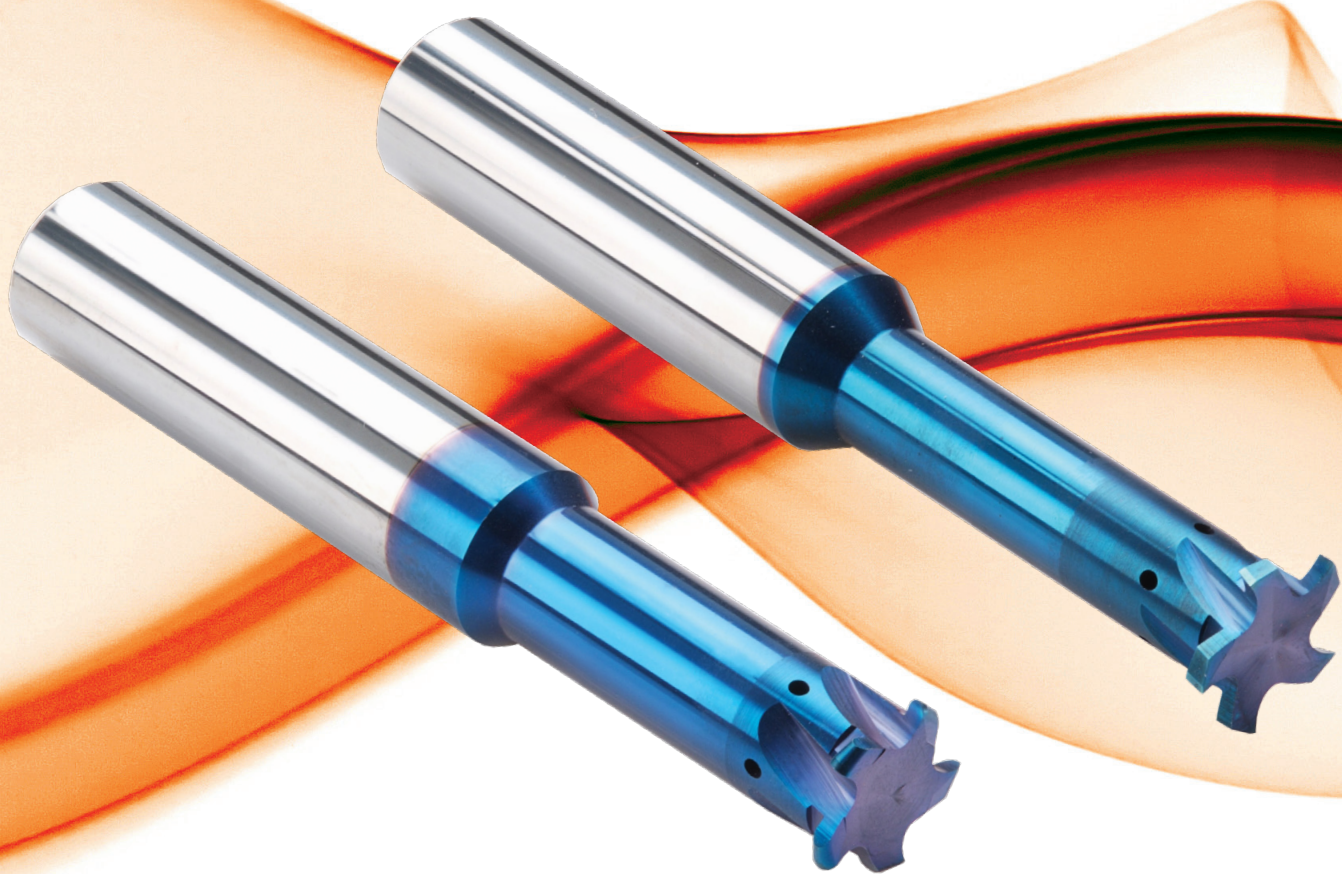


# Solid Carbide Grooving Tools | B13



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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through the flutes

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Full Radius Groove Milling with internal  
coolant through the flutes  
Deep Groove Milling  
Technical Section

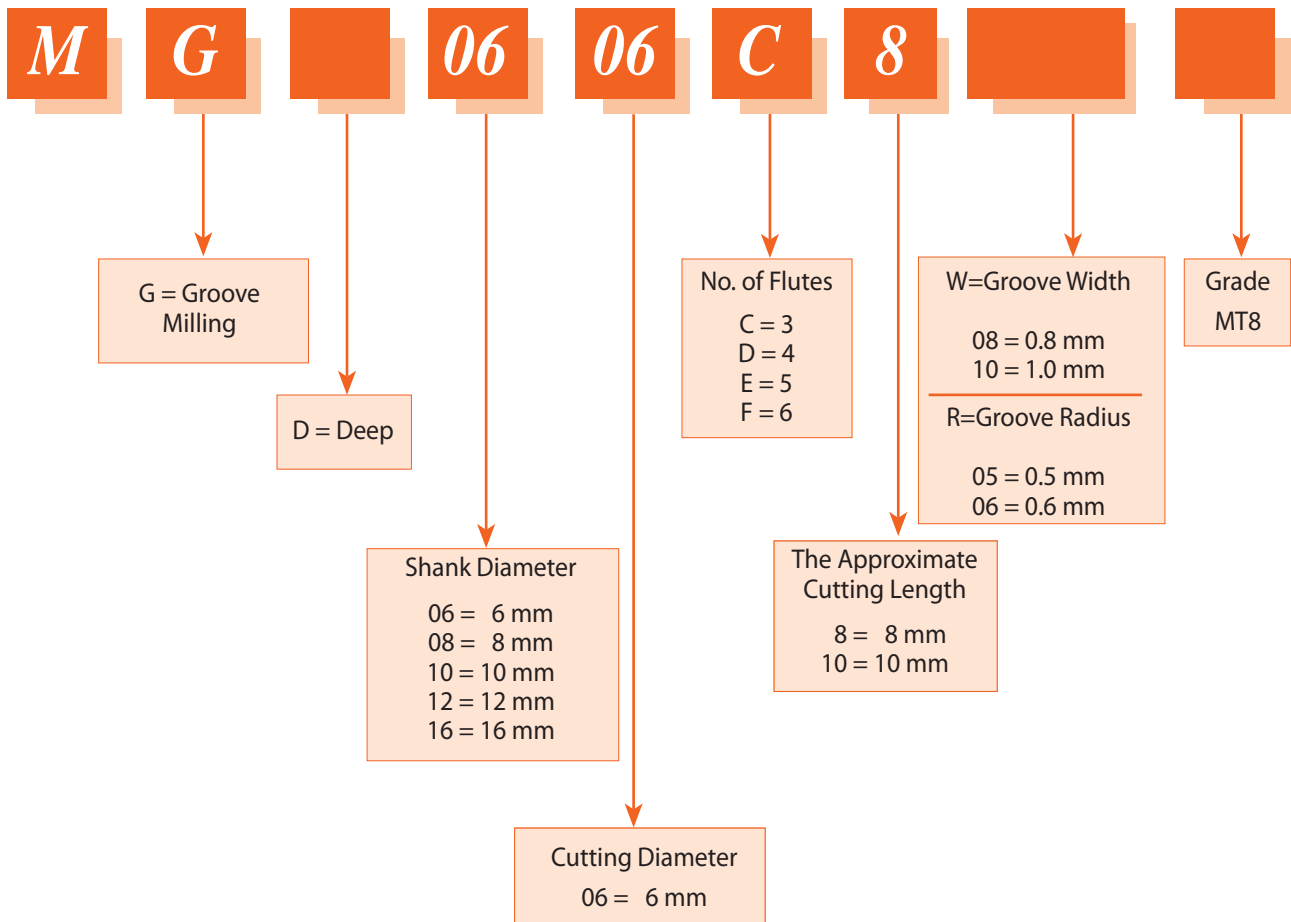
4

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## Product Identification

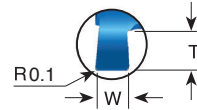
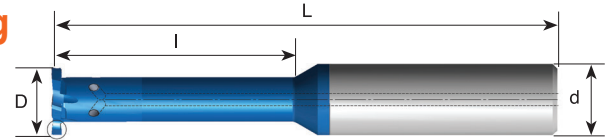
### Groove Milling Ordering Codes



## Groove Milling

with internal coolant through the flutes

Same Tool for Internal and External Grooving



For grooving deep parts

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

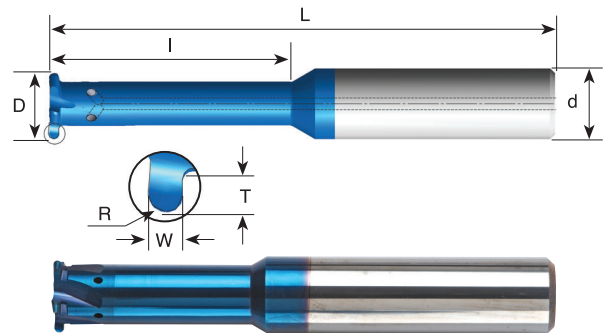
Order example: MG 10098D20 W12 MT8

\* 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<br>± 0.02 | T<br>Max. | Groove<br>Dia. (min.) | Ordering Code           | d  | D    | No. of<br>Flutes | I    | L   |
|------|-------------|-----------|-----------------------|-------------------------|----|------|------------------|------|-----|
| 0.5  | 1.00        | 0.6       | $\phi > 4$            | <b>*MG 0604 C4 R05</b>  | 6  | 4.0  | 3                | 4.2  | 51  |
| 0.5  | 1.00        | 0.8       | $\phi > 6$            | <b>MG 0606 C8 R05</b>   | 6  | 6.0  | 3                | 8.0  | 58  |
| 0.75 | 1.50        | 1.0       | $\phi > 6$            | <b>*MG 0606 C7 R075</b> | 6  | 6.0  | 3                | 7.0  | 58  |
| 0.5  | 1.00        | 1.0       | $\phi \geq 8.8$       | <b>MG 10088 D16 R05</b> | 10 | 8.8  | 4                | 16.0 | 73  |
| 0.6  | 1.20        | 1.0       | $\phi \geq 10$        | <b>MG 1010 D20 R06</b>  | 10 | 10.0 | 4                | 20.0 | 73  |
| 0.75 | 1.50        | 2.0       | $\phi \geq 10$        | <b>MG 1010 D20 R075</b> | 10 | 10.0 | 4                | 20.0 | 73  |
| 1.00 | 2.00        | 2.0       | $\phi \geq 10$        | <b>MG 1010 D20 R10</b>  | 10 | 10.0 | 4                | 20.0 | 73  |
| 0.9  | 1.80        | 1.4       | $\phi \geq 12$        | <b>MG 1212 D30 R09</b>  | 12 | 12.0 | 4                | 30.0 | 84  |
| 1.0  | 2.00        | 1.6       | $\phi \geq 16$        | <b>MG 1616 E40 R10</b>  | 16 | 16.0 | 5                | 40.0 | 101 |
| 1.5  | 3.00        | 2.2       | $\phi \geq 16$        | <b>MG 1616 E40 R15</b>  | 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<br>± 0.02 | R   | T<br>(max.) | Groove Dia.<br>(min.) | d  | D    | No. of<br>Flutes | L   |
|------------------------|-------------|-----|-------------|-----------------------|----|------|------------------|-----|
| <b>MGD 10195 F W15</b> | 1.5         | 0.1 | 4.5         | $\phi > 19.5$         | 10 | 19.5 | 6                | 128 |
| <b>MGD 10195 F W20</b> | 2.0         | 0.1 | 4.5         | $\phi > 19.5$         | 10 | 19.5 | 6                | 128 |
| <b>MGD 10195 F W30</b> | 3.0         | 0.1 | 4.5         | $\phi > 19.5$         | 10 | 19.5 | 6                | 128 |
| <b>MGD 10195 F W35</b> | 3.5         | 0.1 | 4.5         | $\phi > 19.5$         | 10 | 19.5 | 6                | 128 |
| <b>MGD 10195 F W40</b> | 4.0         | 0.1 | 4.5         | $\phi > 19.5$         | 10 | 19.5 | 6                | 128 |
| <b>MGD 10195 F W50</b> | 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<br>m/min | Feed mm/tooth<br>Cutting Diameter=D |      |      |      |      |      |      |      |      |      |      |      |      |
|----------|------------------------------------------|------------------------|-------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
|          |                                          |                        | Ø1.5                                | Ø2   | Ø3   | Ø4   | Ø5   | Ø6   | Ø7   | Ø8   | Ø9   | Ø10  | Ø12  | Ø14  | Ø16  |
| <b>P</b> | 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 |
| <b>M</b> | 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 |
| <b>K</b> | 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 |
| <b>N</b> | 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 |
| <b>S</b> | 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 |
| <b>H</b> | 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 |