

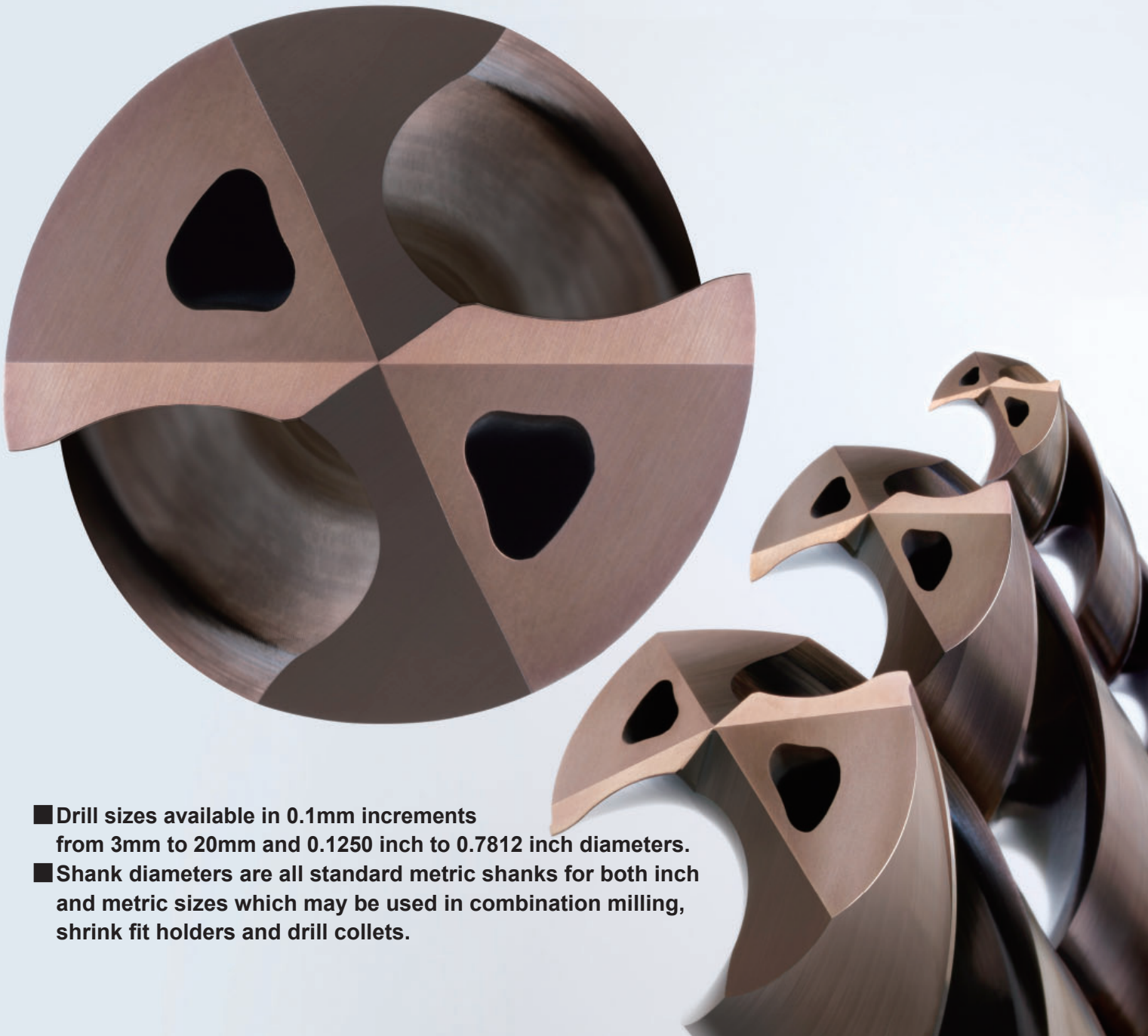
Solid Carbide Drill for Stainless Steel
WSTAR Drill Series

MIMS

Special drill for stainless steels added to the WSTAR series.

Exceeding the bounds of Stainless Steel drilling

Unique triangular shaped “**TRI-Cooling Technology**” coolant hole increases coolant volume, which increases tool life and chip evacuation.



- Drill sizes available in 0.1mm increments from 3mm to 20mm and 0.1250 inch to 0.7812 inch diameters.
- Shank diameters are all standard metric shanks for both inch and metric sizes which may be used in combination milling, shrink fit holders and drill collets.

Solid Carbide Drill for Stainless Steel

WSTAR drill series

MMS

Feature

Unique coolant hole geometry for high productivity & long tool life!

1 Unique coolant hole geometry

Employs new **TRI-cooling** technology. **PAT.P.**
Coolant volume increased by unique hole shape.
(Coolant holes on drills larger than $\varnothing.2362''$)

3 Special margin to reduce cutting resistance

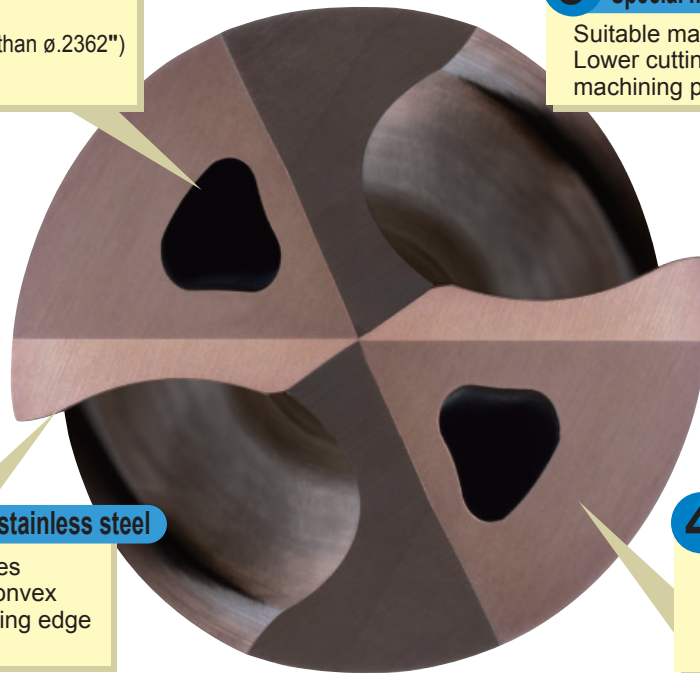
Suitable margin width for stainless steels.
Lower cutting resistance offering higher machining performance.

2 Wavy cutting edge for stainless steel

The concave edge improves sharpness, whereas the convex edge improves overall cutting edge strength.

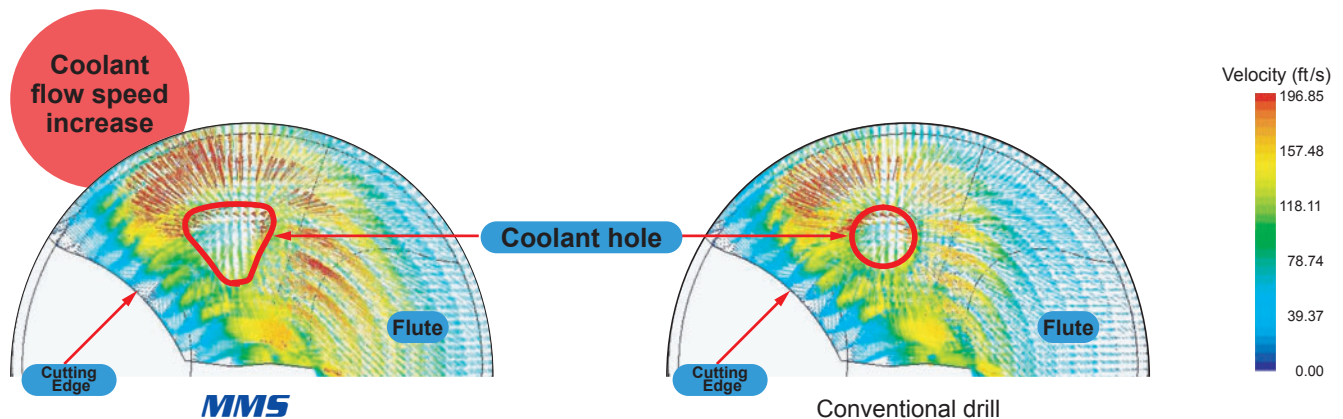
4 New tool grade DP7020

New substrate for stainless steels, with a PVD coating offering improved lubricity.



Compared to conventional drills, coolant volume is doubled.
Improved cooling and longer tool life.

● Coolant flow speed simulation (Rotation 4700 rpm)



Cutting Performance

The MMS drill generates chips that are easily evacuated leading to higher performance.

MMS

| VC(SFM) Feed (inch/rev) | 195 | 260 | 330 |
|-------------------------------|---------------|---------------|---------------|
| .0079" | ○ Workable | ○ Workable | ○ Workable |
| .0118" | ○ Workable | ○ Workable | ○ Workable |
| .0138" | ○ Workable | ○ Breakage | — |



Easy to evacuate
chip geometry

<Cutting conditions>

Drill : ϕ .2402 inch
Work piece : 304
Hole depth : 1.1811 inch (L/D=5)
Coolant : W.S.O
Emission pressure : 435 PSI
Machine : Machining Center

Conventional drill

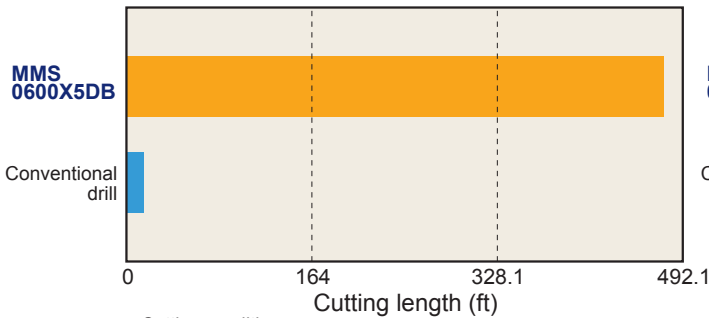
| VC(SFM) Feed (inch/rev) | 195 | 260 | 330 |
|-------------------------------|---------------|---------------|---------------|
| .0079" | ○ Workable | ○ Workable | ○ Workable |
| .0118" | ○ Workable | ○ Breakage | — |
| .0138" | ○ Breakage | — | — |



*Above is an example, for recommended cutting conditions please refer to page 7.

The MMS drill offer longer tool life, and can be used for various stainless steels.

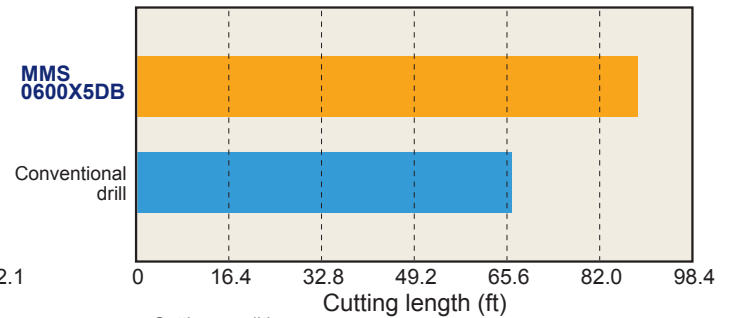
● Austenitic stainless steel



<Cutting conditions>

Drill : ϕ .2362 inch Feed Rate : 37.2 IPM (Non-step)
Work piece: AISI 316L Coolant : W.S.O
Hole depth : 1.1811 inch (L/D=5) Emission pressure : 435 PSI
Cutting speed : 295 SFM Machine : Machining Center
Feed : .0078 inch/rev

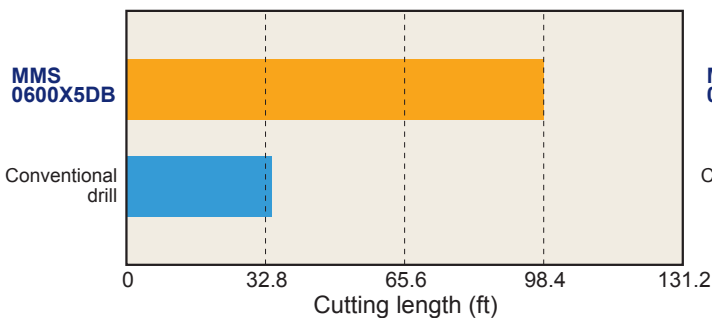
● Martensitic stainless steel



<Cutting conditions>

Drill : ϕ .2362 inch Feed Rate : 13.6 IPM (Non-step)
Work piece: AISI 420 Coolant : W.S.O
Hole depth : 1.1811 inch (L/D=5) Emission pressure : 435 PSI
Cutting speed : 165 SFM Machine : Machining Center
Feed : .0051 inch/rev

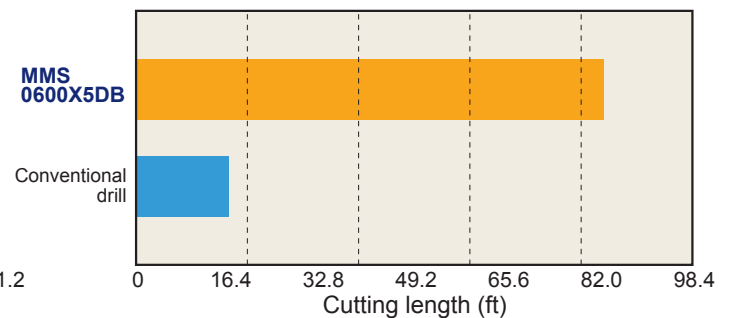
● Duplex steel



<Cutting conditions>

Drill : ϕ .2362 inch Feed Rate : 13.6 IPM (Non-step)
Work piece: AISI 329 Coolant : W.S.O
Hole depth : 1.1811 inch (L/D=5) Emission pressure : 435 PSI
Cutting speed : 165 SFM Machine : Machining Center
Feed : .0051 inch/rev

● PH stainless steel



<Cutting conditions>

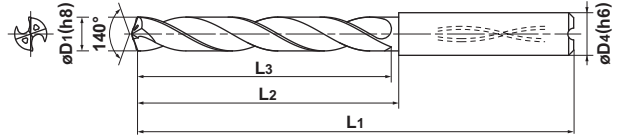
Drill : ϕ .1969 inch Feed Rate : 10 IPM (Non-step)
Work piece: AISI 630(17-4PH) Coolant : W.S.O
Hole depth : .9843 inch (L/D=5) Emission pressure : 435 PSI
Cutting speed : 165 SFM Machine : Machining Center
Feed : .0031 inch/rev

Solid Carbide Drill for Stainless Steel



- New grade DP7020 and a unique margin, developed specifically for stainless steel, complement high flow coolant holes.
- Long drill life and high efficiency drilling in stainless steel.

| Carbon Steel Alloy Steel | Hardened Steel | Stainless Steel | Cast Iron | Light Alloy | Heat Resistant Alloy | D1=3 | 3<D1≤6 | 6<D1≤10 | 10<D1≤18 | 18<D1≤20 | |
|--------------------------|----------------|-----------------|-----------|-------------|----------------------|-------------------|-------------|-------------|-------------|-------------|-------------|
| | | ◎ | | | | D1 Tolerance (mm) | 0 -0.014 | 0 -0.018 | 0 -0.022 | 0 -0.027 | 0 -0.033 |
| | | | | | | D4 Tolerance (mm) | 0 -0.008 | 0 -0.008 | 0 -0.009 | 0 -0.011 | 0 -0.013 |



*When looking at coating the color can vary depending on the direction of viewing. This does not have any effect on the performance of the drill.

| Drill Diameter D1 | | | | | Hole Depth | Coolant (Int./Ext.) | Stock DP7020 | Order Number | Dimensions | | | | | | | |
|-------------------|---------|----------|---------------|------------|------------|---------------------|--------------|--------------|------------|-------|------|-------|------|-------|------|-------|
| Metric (mm) | Decimal | Fraction | Wire / Letter | Tread size | | | | | L3 | L2 | | L1 | | D4 | | |
| | (inch) | | | | | | | | | mm | inch | mm | inch | mm | inch | mm |
| 3.0 | .1181 | | | | 3 | Int. | ● | MMS0300X3DB | 21 | .827 | 23 | .906 | 70 | 2.756 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0300X5DB | 28 | 1.102 | 31 | 1.220 | 78 | 3.071 | 6 | .2362 |
| 3.048 | .1200 | | 31 | | 3 | Int. | ● | 0305X3D060 | 21 | .827 | 23 | .906 | 70 | 2.756 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0305X5D060 | 28 | 1.102 | 31 | 1.220 | 78 | 3.071 | 6 | .2362 |
| 3.1 | .1220 | | | | 3 | Int. | ● | 0310X3DB | 21 | .827 | 23 | .906 | 70 | 2.756 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0310X5DB | 28 | 1.102 | 31 | 1.220 | 78 | 3.071 | 6 | .2362 |
| 3.175 | .1250 | 1/8 | | | 3 | Int. | ● | 0318X3D060 | 21 | .827 | 23 | .906 | 70 | 2.756 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0318X5D060 | 28 | 1.102 | 31 | 1.220 | 78 | 3.071 | 6 | .2362 |
| 3.2 | .1260 | | | | 3 | Int. | ● | 0320X3DB | 21 | .827 | 23 | .906 | 70 | 2.756 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0320X5DB | 28 | 1.102 | 31 | 1.220 | 78 | 3.071 | 6 | .2362 |
| 3.3 | .1299 | | | M4x0.7 | 3 | Int. | ● | 0330X3DB | 21 | .827 | 23 | .906 | 70 | 2.756 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0330X5DB | 28 | 1.102 | 31 | 1.220 | 78 | 3.071 | 6 | .2362 |
| 3.4 | .1339 | | | | 3 | Int. | ● | 0340X3DB | 21 | .827 | 23 | .906 | 70 | 2.756 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0340X5DB | 28 | 1.102 | 31 | 1.220 | 78 | 3.071 | 6 | .2362 |
| 3.5 | .1378 | | | | 3 | Int. | ● | 0350X3DB | 21 | .827 | 23 | .906 | 70 | 2.756 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0350X5DB | 28 | 1.102 | 31 | 1.220 | 78 | 3.071 | 6 | .2362 |
| 3.572 | .1406 | 9/64 | | | 3 | Int. | ● | 0357X3D060 | 22 | .866 | 23 | .906 | 70 | 2.756 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0357X5D060 | 30 | 1.181 | 31 | 1.220 | 78 | 3.071 | 6 | .2362 |
| 3.6 | .1417 | | | | 3 | Int. | ● | 0360X3DB | 22 | .866 | 23 | .906 | 70 | 2.756 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0360X5DB | 30 | 1.181 | 31 | 1.220 | 78 | 3.071 | 6 | .2362 |
| 3.7 | .1457 | | | M4.5x0.75 | 3 | Int. | ● | 0370X3DB | 22 | .866 | 23 | .906 | 70 | 2.756 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0370X5DB | 30 | 1.181 | 31 | 1.220 | 78 | 3.071 | 6 | .2362 |
| 3.8 | .1496 | | 25 | #10-24 | 3 | Int. | ● | 0380X3DB | 22 | .866 | 23 | .906 | 70 | 2.756 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0380X5DB | 30 | 1.181 | 31 | 1.220 | 78 | 3.071 | 6 | .2362 |
| 3.9 | .1535 | | | | 3 | Int. | ● | 0390X3DB | 22 | .866 | 23 | .906 | 70 | 2.756 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0390X5DB | 30 | 1.181 | 31 | 1.220 | 78 | 3.071 | 6 | .2362 |
| 3.969 | .1562 | 5/32 | | | 3 | Int. | ● | 0397X3D060 | 22 | .866 | 23 | .906 | 70 | 2.756 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0397X5D060 | 30 | 1.181 | 31 | 1.220 | 78 | 3.071 | 6 | .2362 |
| 4.0 | .1575 | | | | 3 | Int. | ● | 0400X3DB | 22 | .866 | 23 | .906 | 70 | 2.756 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0400X5DB | 30 | 1.181 | 31 | 1.220 | 78 | 3.071 | 6 | .2362 |
| 4.039 | .1590 | | 21 | #10-32 | 3 | Int. | ● | 0404X3D060 | 24 | .945 | 26 | 1.024 | 73 | 2.874 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0404X5D060 | 33 | 1.299 | 35 | 1.378 | 82 | 3.228 | 6 | .2362 |
| 4.1 | .1614 | | | | 3 | Int. | ● | 0410X3DB | 24 | .945 | 26 | 1.024 | 73 | 2.874 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0410X5DB | 33 | 1.299 | 35 | 1.378 | 82 | 3.228 | 6 | .2362 |
| 4.2 | .1654 | | | M5x0.8 | 3 | Int. | ● | 0420X3DB | 24 | .945 | 26 | 1.024 | 73 | 2.874 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0420X5DB | 33 | 1.299 | 35 | 1.378 | 82 | 3.228 | 6 | .2362 |
| 4.3 | .1693 | | | | 3 | Int. | ● | 0430X3DB | 24 | .945 | 26 | 1.024 | 73 | 2.874 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0430X5DB | 33 | 1.299 | 35 | 1.378 | 82 | 3.228 | 6 | .2362 |

Note) Please contact Mitsubishi Carbide for any geometry that is not in the brochure (e.g. different diameter and length).

● : Inventory maintained.

| Drill Diameter D1 | | | | | Hole Depth l/d | Coolant (Int./Ext.) | Stock DP7020 | Order Number | Dimensions | | | | | | | |
|-------------------|---------|----------|------------------|---------------|-------------------|------------------------|-----------------|---------------|------------|-------|----|-------|----|-------|----|-------|
| Metric (mm) | Decimal | Fraction | Wire / Letter | Tread size | | | | | L3 | | L2 | | L1 | | D4 | |
| | (inch) | | | | | | | | mm | inch | mm | inch | mm | inch | mm | inch |
| 4.366 | .1719 | 11/64 | | | 3 | Int. | ● | MMS0437X3D060 | 24 | .945 | 26 | 1.024 | 73 | 2.874 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0437X5D060 | 33 | 1.299 | 35 | 1.378 | 82 | 3.228 | 6 | .2362 |
| 4.4 | .1732 | | | | 3 | Int. | ● | 0440X3DB | 24 | .945 | 26 | 1.024 | 73 | 2.874 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0440X5DB | 33 | 1.299 | 35 | 1.378 | 82 | 3.228 | 6 | .2362 |
| 4.5 | .1772 | | 16 | #12-24 | 3 | Int. | ● | 0450X3DB | 24 | .945 | 26 | 1.024 | 73 | 2.874 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0450X5DB | 33 | 1.299 | 35 | 1.378 | 82 | 3.228 | 6 | .2362 |
| 4.6 | .1811 | | | | 3 | Int. | ● | 0460X3DB | 25 | .984 | 28 | 1.102 | 75 | 2.953 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0460X5DB | 35 | 1.378 | 38 | 1.496 | 85 | 3.346 | 6 | .2362 |
| 4.7 | .1850 | | 13 | | 3 | Int. | ● | 0470X3DB | 25 | .984 | 28 | 1.102 | 75 | 2.953 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0470X5DB | 35 | 1.378 | 38 | 1.496 | 85 | 3.346 | 6 | .2362 |
| 4.763 | .1875 | 3/16 | | | 3 | Int. | ● | 0476X3D060 | 25 | .984 | 28 | 1.102 | 75 | 2.953 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0476X5D060 | 35 | 1.378 | 38 | 1.496 | 85 | 3.346 | 6 | .2362 |
| 4.8 | .1890 | | | | 3 | Int. | ● | 0480X3DB | 25 | .984 | 28 | 1.102 | 75 | 2.953 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0480X5DB | 35 | 1.378 | 38 | 1.496 | 85 | 3.346 | 6 | .2362 |
| 4.9 | .1929 | | | | 3 | Int. | ● | 0490X3DB | 25 | .984 | 28 | 1.102 | 75 | 2.953 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0490X5DB | 35 | 1.378 | 38 | 1.496 | 85 | 3.346 | 6 | .2362 |
| 5.0 | .1969 | | | M6x1.0 | 3 | Int. | ● | 0500X3DB | 25 | .984 | 28 | 1.102 | 75 | 2.953 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0500X5DB | 35 | 1.378 | 38 | 1.496 | 85 | 3.346 | 6 | .2362 |
| 5.1 | .2008 | | 7 | 1/4-20 | 3 | Int. | ● | 0510X3DB | 28 | 1.102 | 30 | 1.181 | 81 | 3.189 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0510X5DB | 39 | 1.535 | 42 | 1.654 | 89 | 3.504 | 6 | .2362 |
| 5.159 | .2031 | 13/64 | | | 3 | Int. | ● | 0516X3D060 | 28 | 1.102 | 30 | 1.181 | 81 | 3.189 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0516X5D060 | 39 | 1.535 | 42 | 1.654 | 89 | 3.504 | 6 | .2362 |
| 5.2 | .2047 | | | | 3 | Int. | ● | 0520X3DB | 28 | 1.102 | 30 | 1.181 | 81 | 3.189 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0520X5DB | 39 | 1.535 | 42 | 1.654 | 89 | 3.504 | 6 | .2362 |
| 5.3 | .2087 | | | | 3 | Int. | ● | 0530X3DB | 28 | 1.102 | 30 | 1.181 | 81 | 3.189 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0530X5DB | 39 | 1.535 | 42 | 1.654 | 89 | 3.504 | 6 | .2362 |
| 5.4 | .2126 | | 3 | 1/4-28 | 3 | Int. | ● | 0540X3DB | 28 | 1.102 | 30 | 1.181 | 81 | 3.189 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0540X5DB | 39 | 1.535 | 42 | 1.654 | 89 | 3.504 | 6 | .2362 |
| 5.5 | .2165 | | | | 3 | Int. | ● | 0550X3DB | 28 | 1.102 | 30 | 1.181 | 81 | 3.189 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0550X5DB | 39 | 1.535 | 42 | 1.654 | 89 | 3.504 | 6 | .2362 |
| 5.556 | .2188 | 7/32 | | | 3 | Int. | ● | 0556X3D060 | 30 | 1.181 | 30 | 1.181 | 81 | 3.189 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0556X5D060 | 42 | 1.654 | 42 | 1.654 | 89 | 3.504 | 6 | .2362 |
| 5.6 | .2205 | | | | 3 | Int. | ● | 0560X3DB | 30 | 1.181 | 30 | 1.181 | 81 | 3.189 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0560X5DB | 42 | 1.654 | 42 | 1.654 | 89 | 3.504 | 6 | .2362 |
| 5.7 | .2244 | | | | 3 | Int. | ● | 0570X3DB | 30 | 1.181 | 30 | 1.181 | 81 | 3.189 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0570X5DB | 42 | 1.654 | 42 | 1.654 | 89 | 3.504 | 6 | .2362 |
| 5.8 | .2283 | | 1 | | 3 | Int. | ● | 0580X3DB | 30 | 1.181 | 30 | 1.181 | 81 | 3.189 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0580X5DB | 42 | 1.654 | 42 | 1.654 | 89 | 3.504 | 6 | .2362 |
| 5.9 | .2323 | | | | 3 | Int. | ● | 0590X3DB | 30 | 1.181 | 30 | 1.181 | 81 | 3.189 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0590X5DB | 42 | 1.654 | 42 | 1.654 | 89 | 3.504 | 6 | .2362 |
| 5.953 | .2344 | 15/64 | | | 3 | Int. | ● | 0595X3D060 | 30 | 1.181 | 30 | 1.181 | 81 | 3.189 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0595X5D060 | 42 | 1.654 | 42 | 1.654 | 89 | 3.504 | 6 | .2362 |
| 6.0 | .2362 | | | M7x1.0 | 3 | Int. | ● | 0600X3DB | 30 | 1.181 | 30 | 1.181 | 81 | 3.189 | 6 | .2362 |
| | | | | | 5 | Int. | ● | 0600X5DB | 42 | 1.654 | 42 | 1.654 | 89 | 3.504 | 6 | .2362 |
| 6.1 | .2402 | | | | 3 | Int. | ● | 0610X3DB | 33 | 1.299 | 35 | 1.378 | 86 | 3.386 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0610X5DB | 46 | 1.811 | 48 | 1.890 | 95 | 3.740 | 8 | .3150 |
| 6.2 | .2441 | | | | 3 | Int. | ● | 0620X3DB | 33 | 1.299 | 35 | 1.378 | 86 | 3.386 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0620X5DB | 46 | 1.811 | 48 | 1.890 | 95 | 3.740 | 8 | .3150 |

Solid Carbide Drill for Stainless Steel

MMS

| Drill Diameter D1 | | | | | Hole Depth l/d | Coolant (Int./Ext.) | Stock DP7020 | Order Number | Dimensions | | | | | | | |
|-------------------|---------|----------|------------------|---------------|-------------------|------------------------|-----------------|--------------|------------|-------|------|-------|------|-------|------|-------|
| Metric (mm) | Decimal | Fraction | Wire / Letter | Tread size | | | | | L3 | | L2 | | L1 | | D4 | |
| | (inch) | | | | | | | | | mm | inch | mm | inch | mm | inch | mm |
| 6.3 | .2480 | | | | 3 | Int. | ● | MMS0630X3DB | 33 | 1.299 | 35 | 1.378 | 86 | 3.386 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0630X5DB | 46 | 1.811 | 48 | 1.890 | 95 | 3.740 | 8 | .3150 |
| 6.350 | .2500 | 1/4 | E | | 3 | Int. | ● | 0635X3D080 | 33 | 1.299 | 35 | 1.378 | 86 | 3.386 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0635X5D080 | 46 | 1.811 | 48 | 1.890 | 95 | 3.740 | 8 | .3150 |
| 6.4 | .2520 | | | | 3 | Int. | ● | 0640X3DB | 33 | 1.299 | 35 | 1.378 | 86 | 3.386 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0640X5DB | 46 | 1.811 | 48 | 1.890 | 95 | 3.740 | 8 | .3150 |
| 6.5 | .2559 | | | | 3 | Int. | ● | 0650X3DB | 33 | 1.299 | 35 | 1.378 | 86 | 3.386 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0650X5DB | 46 | 1.811 | 48 | 1.890 | 95 | 3.740 | 8 | .3150 |
| 6.528 | .2570 | | F | 5/16-18 | 3 | Int. | ● | 0653X3D080 | 35 | 1.378 | 37 | 1.457 | 90 | 3.543 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0653X5D080 | 49 | 1.929 | 51 | 2.008 | 98 | 3.858 | 8 | .3150 |
| 6.6 | .2598 | | | | 3 | Int. | ● | 0660X3DB | 35 | 1.378 | 37 | 1.457 | 90 | 3.543 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0660X5DB | 49 | 1.929 | 51 | 2.008 | 98 | 3.858 | 8 | .3150 |
| 6.7 | .2638 | | | M8x1.25 | 3 | Int. | ● | 0670X3DB | 35 | 1.378 | 37 | 1.457 | 90 | 3.543 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0670X5DB | 49 | 1.929 | 51 | 2.008 | 98 | 3.858 | 8 | .3150 |
| 6.747 | .2656 | 17/64 | | | 3 | Int. | ● | 0675X3D080 | 35 | 1.378 | 37 | 1.457 | 90 | 3.543 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0675X5D080 | 49 | 1.929 | 51 | 2.008 | 98 | 3.858 | 8 | .3150 |
| 6.8 | .2677 | | | | 3 | Int. | ● | 0680X3DB | 35 | 1.378 | 37 | 1.457 | 90 | 3.543 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0680X5DB | 49 | 1.929 | 51 | 2.008 | 98 | 3.858 | 8 | .3150 |
| 6.9 | .2717 | | I | 5/16-24 | 3 | Int. | ● | 0690X3DB | 35 | 1.378 | 37 | 1.457 | 90 | 3.543 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0690X5DB | 49 | 1.929 | 51 | 2.008 | 98 | 3.858 | 8 | .3150 |
| 7.0 | .2756 | | | M8x1.0 | 3 | Int. | ● | 0700X3DB | 35 | 1.378 | 37 | 1.457 | 90 | 3.543 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0700X5DB | 49 | 1.929 | 51 | 2.008 | 98 | 3.858 | 8 | .3150 |
| 7.1 | .2795 | | | | 3 | Int. | ● | 0710X3DB | 38 | 1.496 | 39 | 1.535 | 90 | 3.543 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0710X5DB | 53 | 2.087 | 56 | 2.205 | 103 | 4.055 | 8 | .3150 |
| 7.144 | .2812 | 9/32 | | | 3 | Int. | ● | 0714X3D080 | 38 | 1.496 | 39 | 1.535 | 90 | 3.543 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0714X5D080 | 53 | 2.087 | 56 | 2.205 | 103 | 4.055 | 8 | .3150 |
| 7.2 | .2835 | | | | 3 | Int. | ● | 0720X3DB | 38 | 1.496 | 39 | 1.535 | 90 | 3.543 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0720X5DB | 53 | 2.087 | 56 | 2.205 | 103 | 4.055 | 8 | .3150 |
| 7.3 | .2874 | | | | 3 | Int. | ● | 0730X3DB | 38 | 1.496 | 39 | 1.535 | 90 | 3.543 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0730X5DB | 53 | 2.087 | 56 | 2.205 | 103 | 4.055 | 8 | .3150 |
| 7.4 | .2913 | | | | 3 | Int. | ● | 0740X3DB | 38 | 1.496 | 39 | 1.535 | 90 | 3.543 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0740X5DB | 53 | 2.087 | 56 | 2.205 | 103 | 4.055 | 8 | .3150 |
| 7.5 | .2953 | | | | 3 | Int. | ● | 0750X3DB | 38 | 1.496 | 39 | 1.535 | 90 | 3.543 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0750X5DB | 53 | 2.087 | 56 | 2.205 | 103 | 4.055 | 8 | .3150 |
| 7.541 | .2969 | 19/64 | | | 3 | Int. | ● | 0754X3D080 | 40 | 1.575 | 40 | 1.575 | 90 | 3.543 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0754X5D080 | 56 | 2.205 | 56 | 2.205 | 103 | 4.055 | 8 | .3150 |
| 7.6 | .2992 | | | | 3 | Int. | ● | 0760X3DB | 40 | 1.575 | 40 | 1.575 | 90 | 3.543 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0760X5DB | 56 | 2.205 | 56 | 2.205 | 103 | 4.055 | 8 | .3150 |
| 7.7 | .3031 | | | | 3 | Int. | ● | 0770X3DB | 40 | 1.575 | 40 | 1.575 | 90 | 3.543 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0770X5DB | 56 | 2.205 | 56 | 2.205 | 103 | 4.055 | 8 | .3150 |
| 7.8 | .3071 | | | | 3 | Int. | ● | 0780X3DB | 40 | 1.575 | 40 | 1.575 | 90 | 3.543 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0780X5DB | 56 | 2.205 | 56 | 2.205 | 103 | 4.055 | 8 | .3150 |
| 7.9 | .3110 | | | | 3 | Int. | ● | 0790X3DB | 40 | 1.575 | 40 | 1.575 | 90 | 3.543 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0790X5DB | 56 | 2.205 | 56 | 2.205 | 103 | 4.055 | 8 | .3150 |
| 7.938 | .3125 | 5/16 | | 3/8-16 | 3 | Int. | ● | 0794X3D080 | 40 | 1.575 | 40 | 1.575 | 90 | 3.543 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0794X5D080 | 56 | 2.205 | 56 | 2.205 | 103 | 4.055 | 8 | .3150 |
| 8.0 | .3150 | | | | 3 | Int. | ● | 0800X3DB | 40 | 1.575 | 40 | 1.575 | 90 | 3.543 | 8 | .3150 |
| | | | | | 5 | Int. | ● | 0800X5DB | 56 | 2.205 | 56 | 2.205 | 103 | 4.055 | 8 | .3150 |

(Note) Please contact Mitsubishi Carbide for any geometry that is not in the brochure (e.g. different diameter and length).

● : Inventory maintained in Japan.

| Drill Diameter D1 | | | | | Hole Depth l/d | Coolant (Int./Ext.) | Stock DP7020 | Order Number | Dimensions | | | | | | | |
|-------------------|---------|----------|------------------|---------------|-------------------|------------------------|-----------------|--------------|------------|-------|----|-------|-----|-------|----|-------|
| Metric (mm) | Decimal | Fraction | Wire / Letter | Tread size | | | | | L3 | | L2 | | L1 | | D4 | |
| | (inch) | | | | | | | | mm | inch | mm | inch | mm | inch | mm | inch |
| 8.1 | .3189 | | | | 3 | Int. | ● | MMS0810X3DB | 43 | 1.693 | 45 | 1.772 | 96 | 3.780 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0810X5DB | 60 | 2.362 | 62 | 2.441 | 113 | 4.449 | 10 | .3937 |
| 8.2 | .3228 | | | | 3 | Int. | ● | 0820X3DB | 43 | 1.693 | 45 | 1.772 | 96 | 3.780 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0820X5DB | 60 | 2.362 | 62 | 2.441 | 113 | 4.449 | 10 | .3937 |
| 8.3 | .3268 | | | | 3 | Int. | ● | 0830X3DB | 43 | 1.693 | 45 | 1.772 | 96 | 3.780 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0830X5DB | 60 | 2.362 | 62 | 2.441 | 113 | 4.449 | 10 | .3937 |
| 8.334 | .3281 | 21/64 | | | 3 | Int. | ● | 0833X3D100 | 43 | 1.693 | 45 | 1.772 | 96 | 3.780 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0833X5D100 | 60 | 2.362 | 62 | 2.441 | 113 | 4.449 | 10 | .3937 |
| 8.4 | .3307 | | | | 3 | Int. | ● | 0840X3DB | 43 | 1.693 | 45 | 1.772 | 96 | 3.780 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0840X5DB | 60 | 2.362 | 62 | 2.441 | 113 | 4.449 | 10 | .3937 |
| 8.433 | .3320 | | Q | 3/8-24 | 3 | Int. | ● | 0843X3D100 | 43 | 1.693 | 45 | 1.772 | 96 | 3.780 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0843X5D100 | 60 | 2.362 | 62 | 2.441 | 113 | 4.449 | 10 | .3937 |
| 8.5 | .3346 | | | M10x1.5 | 3 | Int. | ● | 0850X3DB | 43 | 1.693 | 45 | 1.772 | 96 | 3.780 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0850X5DB | 60 | 2.362 | 62 | 2.441 | 113 | 4.449 | 10 | .3937 |
| 8.6 | .3386 | | | | 3 | Int. | ● | 0860X3DB | 45 | 1.772 | 47 | 1.850 | 101 | 3.976 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0860X5DB | 63 | 2.480 | 65 | 2.559 | 116 | 4.567 | 10 | .3937 |
| 8.7 | .3425 | | | M10x1.25 | 3 | Int. | ● | 0870X3DB | 45 | 1.772 | 47 | 1.850 | 101 | 3.976 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0870X5DB | 63 | 2.480 | 65 | 2.559 | 116 | 4.567 | 10 | .3937 |
| 8.731 | .3438 | 11/32 | | | 3 | Int. | ● | 0873X3D100 | 45 | 1.772 | 47 | 1.850 | 101 | 3.976 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0873X5D100 | 63 | 2.480 | 65 | 2.559 | 116 | 4.567 | 10 | .3937 |
| 8.8 | .3465 | | | | 3 | Int. | ● | 0880X3DB | 45 | 1.772 | 47 | 1.850 | 101 | 3.976 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0880X5DB | 63 | 2.480 | 65 | 2.559 | 116 | 4.567 | 10 | .3937 |
| 8.9 | .3504 | | | | 3 | Int. | ● | 0890X3DB | 45 | 1.772 | 47 | 1.850 | 101 | 3.976 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0890X5DB | 63 | 2.480 | 65 | 2.559 | 116 | 4.567 | 10 | .3937 |
| 9.0 | .3543 | | | | 3 | Int. | ● | 0900X3DB | 45 | 1.772 | 47 | 1.850 | 101 | 3.976 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0900X5DB | 63 | 2.480 | 65 | 2.559 | 116 | 4.567 | 10 | .3937 |
| 9.1 | .3583 | | | | 3 | Int. | ● | 0910X3DB | 48 | 1.890 | 50 | 1.969 | 101 | 3.976 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0910X5DB | 67 | 2.638 | 70 | 2.756 | 121 | 4.764 | 10 | .3937 |
| 9.128 | .3594 | 23/64 | | | 3 | Int. | ● | 0913X3D100 | 48 | 1.890 | 50 | 1.969 | 101 | 3.976 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0913X5D100 | 67 | 2.638 | 70 | 2.756 | 121 | 4.764 | 10 | .3937 |
| 9.2 | .3622 | | | | 3 | Int. | ● | 0920X3DB | 48 | 1.890 | 50 | 1.969 | 101 | 3.976 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0920X5DB | 67 | 2.638 | 70 | 2.756 | 121 | 4.764 | 10 | .3937 |
| 9.3 | .3661 | | | | 3 | Int. | ● | 0930X3DB | 48 | 1.890 | 50 | 1.969 | 101 | 3.976 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0930X5DB | 67 | 2.638 | 70 | 2.756 | 121 | 4.764 | 10 | .3937 |
| 9.347 | .3680 | | U | 7/16-14 | 3 | Int. | ● | 0935X3D100 | 48 | 1.890 | 50 | 1.969 | 101 | 3.976 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0935X5D100 | 67 | 2.638 | 70 | 2.756 | 121 | 4.764 | 10 | .3937 |
| 9.4 | .3701 | | | | 3 | Int. | ● | 0940X3DB | 48 | 1.890 | 50 | 1.969 | 101 | 3.976 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0940X5DB | 67 | 2.638 | 70 | 2.756 | 121 | 4.764 | 10 | .3937 |
| 9.5 | .3740 | | | | 3 | Int. | ● | 0950X3DB | 48 | 1.890 | 50 | 1.969 | 101 | 3.976 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0950X5DB | 67 | 2.638 | 70 | 2.756 | 121 | 4.764 | 10 | .3937 |
| 9.525 | .3750 | 3/8 | | | 3 | Int. | ● | 0953X3D100 | 50 | 1.969 | 50 | 1.969 | 101 | 3.976 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0953X5D100 | 70 | 2.756 | 70 | 2.756 | 121 | 4.764 | 10 | .3937 |
| 9.6 | .3780 | | | | 3 | Int. | ● | 0960X3DB | 50 | 1.969 | 50 | 1.969 | 101 | 3.976 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0960X5DB | 70 | 2.756 | 70 | 2.756 | 121 | 4.764 | 10 | .3937 |
| 9.7 | .3819 | | Tube sheet | | 3 | Int. | ● | 0970X3DB | 50 | 1.969 | 50 | 1.969 | 101 | 3.976 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0970X5DB | 70 | 2.756 | 70 | 2.756 | 121 | 4.764 | 10 | .3937 |
| 9.8 | .3858 | | | | 3 | Int. | ● | 0980X3DB | 50 | 1.969 | 50 | 1.969 | 101 | 3.976 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0980X5DB | 70 | 2.756 | 70 | 2.756 | 121 | 4.764 | 10 | .3937 |

Solid Carbide Drill for Stainless Steel

MMS

| Drill Diameter D1 | | | | | Hole Depth l/d | Coolant (Int./Ext.) | Stock DP7020 | Order Number | Dimensions | | | | | | | |
|-------------------|---------|----------|------------------|---------------|-------------------|------------------------|-----------------|--------------|------------|-------|------|-------|------|-------|------|-------|
| Metric (mm) | Decimal | Fraction | Wire / Letter | Tread size | | | | | L3 | | L2 | | L1 | | D4 | |
| | (inch) | | | | | | | | | mm | inch | mm | inch | mm | inch | mm |
| 9.9 | .3898 | | | | 3 | Int. | ● | MMS0990X3DB | 50 | 1.969 | 50 | 1.969 | 101 | 3.976 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0990X5DB | 70 | 2.756 | 70 | 2.756 | 121 | 4.764 | 10 | .3937 |
| 9.922 | .3906 | 25/64 | | 7/16-20 | 3 | Int. | ● | 0992X3D100 | 50 | 1.969 | 50 | 1.969 | 101 | 3.976 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 0992X5D100 | 70 | 2.756 | 70 | 2.756 | 121 | 4.764 | 10 | .3937 |
| 10.0 | .3937 | | | | 3 | Int. | ● | 1000X3DB | 50 | 1.969 | 50 | 1.969 | 101 | 3.976 | 10 | .3937 |
| | | | | | 5 | Int. | ● | 1000X5DB | 70 | 2.756 | 70 | 2.756 | 121 | 4.764 | 10 | .3937 |
| 10.1 | .3976 | | | | 3 | Int. | ● | 1010X3DB | 53 | 2.087 | 55 | 2.165 | 111 | 4.370 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1010X5DB | 74 | 2.913 | 78 | 3.071 | 134 | 5.276 | 12 | .4724 |
| 10.2 | .4016 | | | M12x1.75 | 3 | Int. | ● | 1020X3DB | 53 | 2.087 | 55 | 2.165 | 111 | 4.370 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1020X5DB | 74 | 2.913 | 78 | 3.071 | 134 | 5.276 | 12 | .4724 |
| 10.3 | .4055 | | | | 3 | Int. | ● | 1030X3DB | 53 | 2.087 | 55 | 2.165 | 111 | 4.370 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1030X5DB | 74 | 2.913 | 78 | 3.071 | 134 | 5.276 | 12 | .4724 |
| 10.319 | .4062 | 13/32 | | | 3 | Int. | ● | 1032X3D120 | 53 | 2.087 | 55 | 2.165 | 111 | 4.370 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1032X5D120 | 74 | 2.913 | 78 | 3.071 | 134 | 5.276 | 12 | .4724 |
| 10.4 | .4094 | | | | 3 | Int. | ● | 1040X3DB | 53 | 2.087 | 55 | 2.165 | 111 | 4.370 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1040X5DB | 74 | 2.913 | 78 | 3.071 | 134 | 5.276 | 12 | .4724 |
| 10.5 | .4134 | | | | 3 | Int. | ● | 1050X3DB | 53 | 2.087 | 55 | 2.165 | 111 | 4.370 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1050X5DB | 74 | 2.913 | 78 | 3.071 | 134 | 5.276 | 12 | .4724 |
| 10.6 | .4173 | | | | 3 | Int. | ● | 1060X3DB | 55 | 2.165 | 56 | 2.205 | 116 | 4.567 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1060X5DB | 77 | 3.031 | 78 | 3.071 | 134 | 5.276 | 12 | .4724 |
| 10.7 | .4213 | | | | 3 | Int. | ● | 1070X3DB | 55 | 2.165 | 56 | 2.205 | 116 | 4.567 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1070X5DB | 77 | 3.031 | 78 | 3.071 | 134 | 5.276 | 12 | .4724 |
| 10.716 | .4219 | 27/64 | | 1/2-13 | 3 | Int. | ● | 1072X3D120 | 55 | 2.165 | 56 | 2.205 | 116 | 4.567 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1072X5D120 | 77 | 3.031 | 78 | 3.071 | 134 | 5.276 | 12 | .4724 |
| 10.8 | .4252 | | | M12X1.25 | 3 | Int. | ● | 1080X3DB | 55 | 2.165 | 56 | 2.205 | 116 | 4.567 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1080X5DB | 77 | 3.031 | 78 | 3.071 | 134 | 5.276 | 12 | .4724 |
| 10.9 | .4291 | | | | 3 | Int. | ● | 1090X3DB | 55 | 2.165 | 56 | 2.205 | 116 | 4.567 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1090X5DB | 77 | 3.031 | 78 | 3.071 | 134 | 5.276 | 12 | .4724 |
| 11.0 | .4331 | | | | 3 | Int. | ● | 1100X3DB | 55 | 2.165 | 56 | 2.205 | 116 | 4.567 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1100X5DB | 77 | 3.031 | 78 | 3.071 | 134 | 5.276 | 12 | .4724 |
| 11.1 | .4370 | | | | 3 | Int. | ● | 1110X3DB | 58 | 2.283 | 60 | 2.362 | 116 | 4.567 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1110X5DB | 81 | 3.189 | 84 | 3.307 | 140 | 5.512 | 12 | .4724 |
| 11.113 | .4375 | 7/16 | | | 3 | Int. | ● | 1111X3D120 | 58 | 2.283 | 60 | 2.362 | 116 | 4.567 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1111X5D120 | 81 | 3.189 | 84 | 3.307 | 140 | 5.512 | 12 | .4724 |
| 11.2 | .4409 | | | | 3 | Int. | ● | 1120X3DB | 58 | 2.283 | 60 | 2.362 | 116 | 4.567 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1120X5DB | 81 | 3.189 | 84 | 3.307 | 140 | 5.512 | 12 | .4724 |
| 11.3 | .4449 | | | | 3 | Int. | ● | 1130X3DB | 58 | 2.283 | 60 | 2.362 | 116 | 4.567 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1130X5DB | 81 | 3.189 | 84 | 3.307 | 140 | 5.512 | 12 | .4724 |
| 11.4 | .4488 | | | | 3 | Int. | ● | 1140X3DB | 58 | 2.283 | 60 | 2.362 | 116 | 4.567 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1140X5DB | 81 | 3.189 | 84 | 3.307 | 140 | 5.512 | 12 | .4724 |
| 11.5 | .4528 | | | | 3 | Int. | ● | 1150X3DB | 58 | 2.283 | 60 | 2.362 | 116 | 4.567 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1150X5DB | 81 | 3.189 | 84 | 3.307 | 140 | 5.512 | 12 | .4724 |
| 11.509 | .4531 | 29/64 | | 1/2-20 | 3 | Int. | ● | 1151X3D120 | 60 | 2.362 | 60 | 2.362 | 116 | 4.567 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1151X5D120 | 84 | 3.307 | 84 | 3.307 | 140 | 5.512 | 12 | .4724 |
| 11.6 | .4567 | | | | 3 | Int. | ● | 1160X3DB | 60 | 2.362 | 60 | 2.362 | 116 | 4.567 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1160X5DB | 84 | 3.307 | 84 | 3.307 | 140 | 5.512 | 12 | .4724 |
| 11.7 | .4606 | | | | 3 | Int. | ● | 1170X3DB | 60 | 2.362 | 60 | 2.362 | 116 | 4.567 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1170X5DB | 84 | 3.307 | 84 | 3.307 | 140 | 5.512 | 12 | .4724 |

Note) Please contact Mitsubishi Carbide for any geometry that is not in the brochure (e.g. different diameter and length).

● : Inventory maintained.

| Drill Diameter D1 | | | | | Hole Depth l/d | Coolant (Int./Ext.) | Stock DP7020 | Order Number | Dimensions | | | | | | | |
|-------------------|---------|----------|------------------|---------------|-------------------|------------------------|-----------------|--------------|------------|-------|----|-------|-----|-------|----|-------|
| Metric (mm) | Decimal | Fraction | Wire / Letter | Tread size | | | | | L3 | | L2 | | L1 | | D4 | |
| | (inch) | | | | | | | | mm | inch | mm | inch | mm | inch | mm | inch |
| 11.8 | .4646 | | | | 3 | Int. | ● | MMS1180X3DB | 60 | 2.362 | 60 | 2.362 | 116 | 4.567 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1180X5DB | 84 | 3.307 | 84 | 3.307 | 140 | 5.512 | 12 | .4724 |
| 11.9 | .4685 | 15/32 | | | 3 | Int. | ● | 1190X3DB | 60 | 2.362 | 60 | 2.362 | 116 | 4.567 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1190X5DB | 84 | 3.307 | 84 | 3.307 | 140 | 5.512 | 12 | .4724 |
| 12.0 | .4724 | | | M14x2.0 | 3 | Int. | ● | 1200X3DB | 60 | 2.362 | 60 | 2.362 | 116 | 4.567 | 12 | .4724 |
| | | | | | 5 | Int. | ● | 1200X5DB | 84 | 3.307 | 84 | 3.307 | 140 | 5.512 | 12 | .4724 |
| 12.1 | .4764 | | | | 3 | Int. | ● | 1210X3DB | 63 | 2.480 | 66 | 2.598 | 122 | 4.803 | 14 | .5512 |
| | | | | | 5 | Int. | ● | 1210X5DB | 88 | 3.465 | 92 | 3.622 | 148 | 5.827 | 14 | .5512 |
| 12.2 | .4803 | | | | 3 | Int. | ● | 1220X3DB | 63 | 2.480 | 66 | 2.598 | 122 | 4.803 | 14 | .5512 |
| | | | | | 5 | Int. | ● | 1220X5DB | 88 | 3.465 | 92 | 3.622 | 148 | 5.827 | 14 | .5512 |
| 12.3 | .4843 | 31/64 | | 9/16-12 | 3 | Int. | ● | 1230X3DB | 63 | 2.480 | 66 | 2.598 | 122 | 4.803 | 14 | .5512 |
| | | | | | 5 | Int. | ● | 1230X5DB | 88 | 3.465 | 92 | 3.622 | 148 | 5.827 | 14 | .5512 |
| 12.4 | .4882 | | | | 3 | Int. | ● | 1240X3DB | 63 | 2.480 | 66 | 2.598 | 122 | 4.803 | 14 | .5512 |
| | | | | | 5 | Int. | ● | 1240X5DB | 88 | 3.465 | 92 | 3.622 | 148 | 5.827 | 14 | .5512 |
| 12.5 | .4921 | | | M14x1.5 | 3 | Int. | ● | 1250X3DB | 63 | 2.480 | 66 | 2.598 | 122 | 4.803 | 14 | .5512 |
| | | | | | 5 | Int. | ● | 1250X5DB | 88 | 3.465 | 92 | 3.622 | 148 | 5.827 | 14 | .5512 |
| 12.6 | .4961 | | | | 3 | Int. | ● | 1260X3DB | 65 | 2.559 | 66 | 2.598 | 122 | 4.803 | 14 | .5512 |
| | | | | | 5 | Int. | ● | 1260X5DB | 91 | 3.583 | 92 | 3.622 | 148 | 5.827 | 14 | .5512 |
| 12.7 | .5000 | 1/2 | | | 3 | Int. | ● | 1270X3DB | 65 | 2.559 | 66 | 2.598 | 122 | 4.803 | 14 | .5512 |
| | | | | | 5 | Int. | ● | 1270X5DB | 91 | 3.583 | 92 | 3.622 | 148 | 5.827 | 14 | .5512 |
| 12.8 | .5039 | | | | 3 | Int. | ● | 1280X3DB | 65 | 2.559 | 66 | 2.598 | 122 | 4.803 | 14 | .5512 |
| | | | | | 5 | Int. | ● | 1280X5DB | 91 | 3.583 | 92 | 3.622 | 148 | 5.827 | 14 | .5512 |
| 12.9 | .5079 | | | | 3 | Int. | ● | 1290X3DB | 65 | 2.559 | 66 | 2.598 | 122 | 4.803 | 14 | .5512 |
| | | | | | 5 | Int. | ● | 1290X5DB | 91 | 3.583 | 92 | 3.622 | 148 | 5.827 | 14 | .5512 |
| 13.0 | .5118 | | | | 3 | Int. | ● | 1300X3DB | 65 | 2.559 | 66 | 2.598 | 122 | 4.803 | 14 | .5512 |
| | | | | | 5 | Int. | ● | 1300X5DB | 91 | 3.583 | 92 | 3.622 | 148 | 5.827 | 14 | .5512 |
| 13.1 | .5157 | 33/64 | | 9/16-18 | 3 | Int. | ● | 1310X3DB | 68 | 2.677 | 70 | 2.756 | 126 | 4.961 | 14 | .5512 |
| | | | | | 5 | Int. | ● | 1310X5DB | 95 | 3.740 | 98 | 3.858 | 154 | 6.063 | 14 | .5512 |
| 13.2 | .5197 | | | | 3 | Int. | ● | 1320X3DB | 68 | 2.677 | 70 | 2.756 | 126 | 4.961 | 14 | .5512 |
| | | | | | 5 | Int. | ● | 1320X5DB | 95 | 3.740 | 98 | 3.858 | 154 | 6.063 | 14 | .5512 |
| 13.3 | .5236 | | | | 3 | Int. | ● | 1330X3DB | 68 | 2.677 | 70 | 2.756 | 126 | 4.961 | 14 | .5512 |
| | | | | | 5 | Int. | ● | 1330X5DB | 95 | 3.740 | 98 | 3.858 | 154 | 6.063 | 14 | .5512 |
| 13.4 | .5276 | | | | 3 | Int. | ● | 1340X3DB | 68 | 2.677 | 70 | 2.756 | 126 | 4.961 | 14 | .5512 |
| | | | | | 5 | Int. | ● | 1340X5DB | 95 | 3.740 | 98 | 3.858 | 154 | 6.063 | 14 | .5512 |
| 13.5 | .5315 | 17/32 | | 5/8-11 | 3 | Int. | ● | 1350X3DB | 68 | 2.677 | 70 | 2.756 | 126 | 4.961 | 14 | .5512 |
| | | | | | 5 | Int. | ● | 1350X5DB | 95 | 3.740 | 98 | 3.858 | 154 | 6.063 | 14 | .5512 |
| 13.6 | .5354 | | | | 3 | Int. | ● | 1360X3DB | 70 | 2.756 | 70 | 2.756 | 126 | 4.961 | 14 | .5512 |
| | | | | | 5 | Int. | ● | 1360X5DB | 98 | 3.858 | 98 | 3.858 | 154 | 6.063 | 14 | .5512 |
| 13.7 | .5394 | | | | 3 | Int. | ● | 1370X3DB | 70 | 2.756 | 70 | 2.756 | 126 | 4.961 | 14 | .5512 |
| | | | | | 5 | Int. | ● | 1370X5DB | 98 | 3.858 | 98 | 3.858 | 154 | 6.063 | 14 | .5512 |
| 13.8 | .5433 | | | | 3 | Int. | ● | 1380X3DB | 70 | 2.756 | 70 | 2.756 | 126 | 4.961 | 14 | .5512 |
| | | | | | 5 | Int. | ● | 1380X5DB | 98 | 3.858 | 98 | 3.858 | 154 | 6.063 | 14 | .5512 |
| 13.891 | .5469 | 35/64 | | | 3 | Int. | ● | 1389X3D140 | 70 | 2.756 | 70 | 2.756 | 126 | 4.961 | 14 | .5512 |
| | | | | | 5 | Int. | ● | 1389X5D140 | 98 | 3.858 | 98 | 3.858 | 154 | 6.063 | 14 | .5512 |
| 13.9 | .5472 | | | | 3 | Int. | ● | 1390X3DB | 70 | 2.756 | 70 | 2.756 | 126 | 4.961 | 14 | .5512 |
| | | | | | 5 | Int. | ● | 1390X5DB | 98 | 3.858 | 98 | 3.858 | 154 | 6.063 | 14 | .5512 |
| 14.0 | .5512 | | | M16x2.0 | 3 | Int. | ● | 1400X3DB | 70 | 2.756 | 70 | 2.756 | 126 | 4.961 | 14 | .5512 |
| | | | | | 5 | Int. | ● | 1400X5DB | 98 | 3.858 | 98 | 3.858 | 154 | 6.063 | 14 | .5512 |

Solid Carbide Drill for Stainless Steel

MMS

| Drill Diameter D1 | | | | | Hole Depth l/d | Coolant (Int./Ext.) | Stock DP7020 | Order Number | Dimensions | | | | | | | |
|-------------------|---------|----------|------------------|---------------|-------------------|------------------------|-----------------|--------------|------------|-------|-----|-------|-----|-------|----|-------|
| Metric (mm) | Decimal | Fraction | Wire / Letter | Tread size | | | | | L3 | | L2 | | L1 | | D4 | |
| | (inch) | | | | | | | | mm | inch | mm | inch | mm | inch | mm | inch |
| 14.1 | .5551 | | | | 3 | Int. | ● | MMS1410X3DB | 73 | 2.874 | 76 | 2.992 | 135 | 5.315 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1410X5DB | 102 | 4.016 | 106 | 4.173 | 165 | 6.496 | 16 | .6299 |
| 14.2 | .5591 | | | | 3 | Int. | ● | 1420X3DB | 73 | 2.874 | 76 | 2.992 | 135 | 5.315 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1420X5DB | 102 | 4.016 | 106 | 4.173 | 165 | 6.496 | 16 | .6299 |
| 14.288 | .5625 | 9/16 | | | 3 | Int. | ● | 1429X3D160 | 73 | 2.874 | 76 | 2.992 | 135 | 5.315 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1429X5D160 | 102 | 4.016 | 106 | 4.173 | 165 | 6.496 | 16 | .6299 |
| 14.3 | .5630 | | | | 3 | Int. | ● | 1430X3DB | 73 | 2.874 | 76 | 2.992 | 135 | 5.315 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1430X5DB | 102 | 4.016 | 106 | 4.173 | 165 | 6.496 | 16 | .6299 |
| 14.4 | .5670 | | | | 3 | Int. | ● | 1440X3DB | 73 | 2.874 | 76 | 2.992 | 135 | 5.315 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1440X5DB | 102 | 4.016 | 106 | 4.173 | 165 | 6.496 | 16 | .6299 |
| 14.5 | .5709 | | | M16x1.5 | 3 | Int. | ● | 1450X3DB | 73 | 2.874 | 76 | 2.992 | 135 | 5.315 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1450X5DB | 102 | 4.016 | 106 | 4.173 | 165 | 6.496 | 16 | .6299 |
| 14.6 | .5748 | | | | 3 | Int. | ● | 1460X3DB | 75 | 2.953 | 76 | 2.992 | 135 | 5.315 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1460X5DB | 105 | 4.134 | 106 | 4.173 | 165 | 6.496 | 16 | .6299 |
| 14.684 | .5781 | 37/64 | | 5/8-18 | 3 | Int. | ● | 1468X3D160 | 75 | 2.953 | 76 | 2.992 | 135 | 5.315 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1468X5D160 | 105 | 4.134 | 106 | 4.173 | 165 | 6.496 | 16 | .6299 |
| 14.7 | .5787 | | | | 3 | Int. | ● | 1470X3DB | 75 | 2.953 | 76 | 2.992 | 135 | 5.315 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1470X5DB | 105 | 4.134 | 106 | 4.173 | 165 | 6.496 | 16 | .6299 |
| 14.8 | .5827 | | | | 3 | Int. | ● | 1480X3DB | 75 | 2.953 | 76 | 2.992 | 135 | 5.315 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1480X5DB | 105 | 4.134 | 106 | 4.173 | 165 | 6.496 | 16 | .6299 |
| 14.9 | .5866 | | | | 3 | Int. | ● | 1490X3DB | 75 | 2.953 | 76 | 2.992 | 135 | 5.315 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1490X5DB | 105 | 4.134 | 106 | 4.173 | 165 | 6.496 | 16 | .6299 |
| 15.0 | .5906 | | | | 3 | Int. | ● | 1500X3DB | 75 | 2.953 | 76 | 2.992 | 135 | 5.315 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1500X5DB | 105 | 4.134 | 106 | 4.173 | 165 | 6.496 | 16 | .6299 |
| 15.081 | .5938 | 19/32 | | | 3 | Int. | ● | 1508X3D160 | 78 | 3.071 | 80 | 3.150 | 139 | 5.472 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1508X5D160 | 109 | 4.291 | 112 | 4.409 | 171 | 6.732 | 16 | .6299 |
| 15.1 | .5945 | | | | 3 | Int. | ● | 1510X3DB | 78 | 3.071 | 80 | 3.150 | 139 | 5.472 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1510X5DB | 109 | 4.291 | 112 | 4.409 | 171 | 6.732 | 16 | .6299 |
| 15.2 | .5984 | | | | 3 | Int. | ● | 1520X3DB | 78 | 3.071 | 80 | 3.150 | 139 | 5.472 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1520X5DB | 109 | 4.291 | 112 | 4.409 | 171 | 6.732 | 16 | .6299 |
| 15.3 | .6024 | | | | 3 | Int. | ● | 1530X3DB | 78 | 3.071 | 80 | 3.150 | 139 | 5.472 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1530X5DB | 109 | 4.291 | 112 | 4.409 | 171 | 6.732 | 16 | .6299 |
| 15.4 | .6063 | | | | 3 | Int. | ● | 1540X3DB | 78 | 3.071 | 80 | 3.150 | 139 | 5.472 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1540X5DB | 109 | 4.291 | 112 | 4.409 | 171 | 6.732 | 16 | .6299 |
| 15.478 | .6094 | 39/64 | | | 3 | Int. | ● | 1548X3D160 | 78 | 3.071 | 80 | 3.150 | 139 | 5.472 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1548X5D160 | 109 | 4.291 | 112 | 4.409 | 171 | 6.732 | 16 | .6299 |
| 15.5 | .6102 | | | M18x2.5 | 3 | Int. | ● | 1550X3DB | 78 | 3.071 | 80 | 3.150 | 139 | 5.472 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1550X5DB | 109 | 4.291 | 112 | 4.409 | 171 | 6.732 | 16 | .6299 |
| 15.6 | .6142 | | | | 3 | Int. | ● | 1560X3DB | 80 | 3.150 | 80 | 3.150 | 139 | 5.472 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1560X5DB | 112 | 4.409 | 112 | 4.409 | 171 | 6.732 | 16 | .6299 |
| 15.7 | .6181 | | | | 3 | Int. | ● | 1570X3DB | 80 | 3.150 | 80 | 3.150 | 139 | 5.472 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1570X5DB | 112 | 4.409 | 112 | 4.409 | 171 | 6.732 | 16 | .6299 |
| 15.8 | .6220 | | | | 3 | Int. | ● | 1580X3DB | 80 | 3.150 | 80 | 3.150 | 139 | 5.472 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1580X5DB | 112 | 4.409 | 112 | 4.409 | 171 | 6.732 | 16 | .6299 |
| 15.875 | .6250 | 5/8 | | | 3 | Int. | ● | 1588X3D160 | 80 | 3.150 | 80 | 3.150 | 139 | 5.472 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1588X5D160 | 112 | 4.409 | 112 | 4.409 | 171 | 6.732 | 16 | .6299 |
| 15.9 | .6260 | | | | 3 | Int. | ● | 1590X3DB | 80 | 3.150 | 80 | 3.150 | 139 | 5.472 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1590X5DB | 112 | 4.409 | 112 | 4.409 | 171 | 6.732 | 16 | .6299 |

(Note) Please contact Mitsubishi Carbide for any geometry that is not in the brochure (e.g. different diameter and length).

● : Inventory maintained. □ : Non stock, produced to order only.

| Drill Diameter D1 | | | | | Hole Depth l/d | Coolant (Int./Ext.) | Stock DP7020 | Order Number | Dimensions | | | | | | | |
|-------------------|---------|----------|------------------|---------------|-------------------|------------------------|-----------------|--------------|------------|-------|-----|-------|-----|-------|----|-------|
| Metric (mm) | Decimal | Fraction | Wire / Letter | Tread size | | | | | L3 | | L2 | | L1 | | D4 | |
| | (inch) | | | | | | | | mm | inch | mm | inch | mm | inch | mm | inch |
| 16.0 | .6299 | | | | 3 | Int. | ● | MMS1600X3DB | 80 | 3.150 | 80 | 3.150 | 139 | 5.472 | 16 | .6299 |
| | | | | | 5 | Int. | ● | 1600X5DB | 112 | 4.409 | 112 | 4.409 | 171 | 6.732 | 16 | .6299 |
| 16.1 | .6339 | | | | 3 | Int. | □ | 1610X3DB | 83 | 3.268 | 86 | 3.386 | 145 | 5.709 | 18 | .7087 |
| | | | | | 5 | Int. | □ | 1610X5DB | 116 | 4.567 | 120 | 4.724 | 179 | 7.047 | 18 | .7087 |
| 16.2 | .6378 | | | | 3 | Int. | □ | 1620X3DB | 83 | 3.268 | 86 | 3.386 | 145 | 5.709 | 18 | .7087 |
| | | | | | 5 | Int. | □ | 1620X5DB | 116 | 4.567 | 120 | 4.724 | 179 | 7.047 | 18 | .7087 |
| 16.272 | .6406 | 41/64 | | | 3 | Int. | ● | 1627X3D180 | 83 | 3.268 | 86 | 3.386 | 145 | 5.709 | 18 | .7087 |
| | | | | | 5 | Int. | ● | 1627X5D180 | 116 | 4.567 | 120 | 4.724 | 179 | 7.047 | 18 | .7087 |
| 16.3 | .6417 | | | | 3 | Int. | □ | 1630X3DB | 83 | 3.268 | 86 | 3.386 | 145 | 5.709 | 18 | .7087 |
| | | | | | 5 | Int. | □ | 1630X5DB | 116 | 4.567 | 120 | 4.724 | 179 | 7.047 | 18 | .7087 |
| 16.4 | .6457 | | | | 3 | Int. | □ | 1640X3DB | 83 | 3.268 | 86 | 3.386 | 145 | 5.709 | 18 | .7087 |
| | | | | | 5 | Int. | □ | 1640X5DB | 116 | 4.567 | 120 | 4.724 | 179 | 7.047 | 18 | .7087 |
| 16.5 | .6496 | | | M18x1.5 | 3 | Int. | ● | 1650X3DB | 83 | 3.268 | 86 | 3.386 | 145 | 5.709 | 18 | .7087 |
| | | | | | 5 | Int. | ● | 1650X5DB | 116 | 4.567 | 120 | 4.724 | 179 | 7.047 | 18 | .7087 |
| 16.6 | .6535 | | | | 3 | Int. | □ | 1660X3DB | 85 | 3.346 | 86 | 3.386 | 145 | 5.709 | 18 | .7087 |
| | | | | | 5 | Int. | □ | 1660X5DB | 119 | 4.685 | 120 | 4.724 | 179 | 7.047 | 18 | .7087 |
| 16.669 | .6562 | 21/32 | | 3/4-10 | 3 | Int. | ● | 1667X3D180 | 85 | 3.346 | 86 | 3.386 | 145 | 5.709 | 18 | .7087 |
| | | | | | 5 | Int. | ● | 1667X5D180 | 119 | 4.685 | 120 | 4.724 | 179 | 7.047 | 18 | .7087 |
| 16.7 | .6575 | | | | 3 | Int. | □ | 1670X3DB | 85 | 3.346 | 86 | 3.386 | 145 | 5.709 | 18 | .7087 |
| | | | | | 5 | Int. | □ | 1670X5DB | 119 | 4.685 | 120 | 4.724 | 179 | 7.047 | 18 | .7087 |
| 16.8 | .6614 | | | | 3 | Int. | □ | 1680X3DB | 85 | 3.346 | 86 | 3.386 | 145 | 5.709 | 18 | .7087 |
| | | | | | 5 | Int. | □ | 1680X5DB | 119 | 4.685 | 120 | 4.724 | 179 | 7.047 | 18 | .7087 |
| 16.9 | .6654 | | | | 3 | Int. | □ | 1690X3DB | 85 | 3.346 | 86 | 3.386 | 145 | 5.709 | 18 | .7087 |
| | | | | | 5 | Int. | □ | 1690X5DB | 119 | 4.685 | 120 | 4.724 | 179 | 7.047 | 18 | .7087 |
| 17.0 | .6693 | | Tube sheet | | 3 | Int. | ● | 1700X3DB | 85 | 3.346 | 86 | 3.386 | 145 | 5.709 | 18 | .7087 |
| | | | | | 5 | Int. | ● | 1700X5DB | 119 | 4.685 | 120 | 4.724 | 179 | 7.047 | 18 | .7087 |
| 17.066 | .6719 | 43/64 | | | 3 | Int. | ● | 1707X3D180 | 88 | 3.465 | 90 | 3.543 | 149 | 5.866 | 18 | .7087 |
| | | | | | 5 | Int. | ● | 1707X5D180 | 123 | 4.843 | 126 | 4.961 | 185 | 7.283 | 18 | .7087 |
| 17.1 | .6732 | | | | 3 | Int. | □ | 1710X3DB | 88 | 3.465 | 90 | 3.543 | 149 | 5.866 | 18 | .7087 |
| | | | | | 5 | Int. | □ | 1710X5DB | 123 | 4.843 | 126 | 4.961 | 185 | 7.283 | 18 | .7087 |
| 17.2 | .6772 | | | | 3 | Int. | □ | 1720X3DB | 88 | 3.465 | 90 | 3.543 | 149 | 5.866 | 18 | .7087 |
| | | | | | 5 | Int. | □ | 1720X5DB | 123 | 4.843 | 126 | 4.961 | 185 | 7.283 | 18 | .7087 |
| 17.3 | .6811 | | | | 3 | Int. | □ | 1730X3DB | 88 | 3.465 | 90 | 3.543 | 149 | 5.866 | 18 | .7087 |
| | | | | | 5 | Int. | □ | 1730X5DB | 123 | 4.843 | 126 | 4.961 | 185 | 7.283 | 18 | .7087 |
| 17.4 | .6850 | | | | 3 | Int. | □ | 1740X3DB | 88 | 3.465 | 90 | 3.543 | 149 | 5.866 | 18 | .7087 |
| | | | | | 5 | Int. | □ | 1740X5DB | 123 | 4.843 | 126 | 4.961 | 185 | 7.283 | 18 | .7087 |
| 17.463 | .6875 | 11/16 | | 3/4-16 | 3 | Int. | ● | 1746X3D180 | 88 | 3.465 | 90 | 3.543 | 149 | 5.866 | 18 | .7087 |
| | | | | | 5 | Int. | ● | 1746X5D180 | 123 | 4.843 | 126 | 4.961 | 185 | 7.283 | 18 | .7087 |
| 17.5 | .6890 | | | M20x2.5 | 3 | Int. | ● | 1750X3DB | 88 | 3.465 | 90 | 3.543 | 149 | 5.866 | 18 | .7087 |
| | | | | | 5 | Int. | ● | 1750X5DB | 123 | 4.843 | 126 | 4.961 | 185 | 7.283 | 18 | .7087 |
| 17.6 | .6929 | | | | 3 | Int. | □ | 1760X3DB | 90 | 3.543 | 90 | 3.543 | 149 | 5.866 | 18 | .7087 |
| | | | | | 5 | Int. | □ | 1760X5DB | 126 | 4.961 | 126 | 4.961 | 185 | 7.283 | 18 | .7087 |
| 17.7 | .6969 | | | | 3 | Int. | □ | 1770X3DB | 90 | 3.543 | 90 | 3.543 | 149 | 5.866 | 18 | .7087 |
| | | | | | 5 | Int. | □ | 1770X5DB | 126 | 4.961 | 126 | 4.961 | 185 | 7.283 | 18 | .7087 |
| 17.8 | .7008 | | | | 3 | Int. | □ | 1780X3DB | 90 | 3.543 | 90 | 3.543 | 149 | 5.866 | 18 | .7087 |
| | | | | | 5 | Int. | □ | 1780X5DB | 126 | 4.961 | 126 | 4.961 | 185 | 7.283 | 18 | .7087 |
| 17.859 | .7031 | 45/64 | | | 3 | Int. | ● | 1786X3D180 | 90 | 3.543 | 90 | 3.543 | 149 | 5.866 | 18 | .7087 |
| | | | | | 5 | Int. | ● | 1786X5D180 | 126 | 4.961 | 126 | 4.961 | 185 | 7.283 | 18 | .7087 |

Solid Carbide Drill for Stainless Steel

MMS

| Drill Diameter D1 | | | | | Hole Depth l/d | Coolant (Int./Ext.) | Stock DP7020 | Order Number | Dimensions | | | | | | | |
|-------------------|---------|----------|------------------|---------------|-------------------|------------------------|-----------------|--------------------|------------|-------|-----|-------|-----|-------|----|-------|
| Metric (mm) | Decimal | Fraction | Wire / Letter | Tread size | | | | | L3 | | L2 | | L1 | | D4 | |
| | (inch) | | | | | | | | mm | inch | mm | inch | mm | inch | mm | inch |
| 17.9 | .7047 | | | | 3 | Int. | □ | MMS1790X3DB | 90 | 3.543 | 90 | 3.543 | 149 | 5.866 | 18 | .7087 |
| | | | | | 5 | Int. | □ | 1790X5DB | 126 | 4.961 | 126 | 4.961 | 185 | 7.283 | 18 | .7087 |
| 18.0 | .7087 | | | | 3 | Int. | ● | 1800X3DB | 90 | 3.543 | 90 | 3.543 | 149 | 5.866 | 18 | .7087 |
| | | | | | 5 | Int. | ● | 1800X5DB | 126 | 4.961 | 126 | 4.961 | 185 | 7.283 | 18 | .7087 |
| 18.1 | .7126 | | | | 3 | Int. | □ | 1810X3DB | 93 | 3.661 | 96 | 3.780 | 157 | 6.181 | 20 | .7874 |
| | | | | | 5 | Int. | □ | 1810X5DB | 130 | 5.118 | 134 | 5.276 | 195 | 7.677 | 20 | .7874 |
| 18.2 | .7165 | | | | 3 | Int. | □ | 1820X3DB | 93 | 3.661 | 96 | 3.780 | 157 | 6.181 | 20 | .7874 |
| | | | | | 5 | Int. | □ | 1820X5DB | 130 | 5.118 | 134 | 5.276 | 195 | 7.677 | 20 | .7874 |
| 18.256 | .7188 | 23/32 | | | 3 | Int. | ● | 1826X3D200 | 93 | 3.661 | 96 | 3.780 | 157 | 6.181 | 20 | .7874 |
| | | | | | 5 | Int. | ● | 1826X5D200 | 130 | 5.118 | 134 | 5.276 | 195 | 7.677 | 20 | .7874 |
| 18.3 | .7205 | | | | 3 | Int. | □ | 1830X3DB | 93 | 3.661 | 96 | 3.780 | 157 | 6.181 | 20 | .7874 |
| | | | | | 5 | Int. | □ | 1830X5DB | 130 | 5.118 | 134 | 5.276 | 195 | 7.677 | 20 | .7874 |
| 18.4 | .7244 | | | | 3 | Int. | □ | 1840X3DB | 93 | 3.661 | 96 | 3.780 | 157 | 6.181 | 20 | .7874 |
| | | | | | 5 | Int. | □ | 1840X5DB | 130 | 5.118 | 134 | 5.276 | 195 | 7.677 | 20 | .7874 |
| 18.5 | .7283 | | | M20x1.5 | 3 | Int. | ● | 1850X3DB | 93 | 3.661 | 96 | 3.780 | 157 | 6.181 | 20 | .7874 |
| | | | | | 5 | Int. | ● | 1850X5DB | 130 | 5.118 | 134 | 5.276 | 195 | 7.677 | 20 | .7874 |
| 18.6 | .7323 | | | | 3 | Int. | □ | 1860X3DB | 95 | 3.740 | 96 | 3.780 | 157 | 6.181 | 20 | .7874 |
| | | | | | 5 | Int. | □ | 1860X5DB | 133 | 5.236 | 134 | 5.276 | 195 | 7.677 | 20 | .7874 |
| 18.654 | .7344 | 47/64 | | | 3 | Int. | ● | 1865X3D200 | 95 | 3.740 | 96 | 3.780 | 157 | 6.181 | 20 | .7874 |
| | | | | | 5 | Int. | ● | 1865X5D200 | 133 | 5.236 | 134 | 5.276 | 195 | 7.677 | 20 | .7874 |
| 18.7 | .7362 | | | | 3 | Int. | □ | 1870X3DB | 95 | 3.740 | 96 | 3.780 | 157 | 6.181 | 20 | .7874 |
| | | | | | 5 | Int. | □ | 1870X5DB | 133 | 5.236 | 134 | 5.276 | 195 | 7.677 | 20 | .7874 |
| 18.8 | .7402 | | | | 3 | Int. | □ | 1880X3DB | 95 | 3.740 | 96 | 3.780 | 157 | 6.181 | 20 | .7874 |
| | | | | | 5 | Int. | □ | 1880X5DB | 133 | 5.236 | 134 | 5.276 | 195 | 7.677 | 20 | .7874 |
| 18.9 | .7441 | | | | 3 | Int. | □ | 1890X3DB | 95 | 3.740 | 96 | 3.780 | 157 | 6.181 | 20 | .7874 |
| | | | | | 5 | Int. | □ | 1890X5DB | 133 | 5.236 | 134 | 5.276 | 195 | 7.677 | 20 | .7874 |
| 19.0 | .7480 | | | | 3 | Int. | ● | 1900X3DB | 95 | 3.740 | 96 | 3.780 | 157 | 6.181 | 20 | .7874 |
| | | | | | 5 | Int. | ● | 1900X5DB | 133 | 5.236 | 134 | 5.276 | 195 | 7.677 | 20 | .7874 |
| 19.050 | .7500 | 3/4 | | | 3 | Int. | ● | 1905X3D200 | 98 | 3.858 | 100 | 3.937 | 161 | 6.339 | 20 | .7874 |
| | | | | | 5 | Int. | ● | 1905X5D200 | 137 | 5.394 | 140 | 5.512 | 201 | 7.913 | 20 | .7874 |
| 19.1 | .7520 | | | | 3 | Int. | □ | 1910X3DB | 98 | 3.858 | 100 | 3.937 | 161 | 6.339 | 20 | .7874 |
| | | | | | 5 | Int. | □ | 1910X5DB | 137 | 5.394 | 140 | 5.512 | 201 | 7.913 | 20 | .7874 |
| 19.2 | .7559 | | | | 3 | Int. | □ | 1920X3DB | 98 | 3.858 | 100 | 3.937 | 161 | 6.339 | 20 | .7874 |
| | | | | | 5 | Int. | □ | 1920X5DB | 137 | 5.394 | 140 | 5.512 | 201 | 7.913 | 20 | .7874 |
| 19.250 | .7579 | | Tube sheet | | 3 | Int. | ● | 1925X3D200 | 98 | 3.858 | 100 | 3.937 | 161 | 6.339 | 20 | .7874 |
| | | | | | 5 | Int. | ● | 1925X5D200 | 137 | 5.394 | 140 | 5.512 | 201 | 7.913 | 20 | .7874 |
| 19.3 | .7598 | | | | 3 | Int. | □ | 1930X3DB | 98 | 3.858 | 100 | 3.937 | 161 | 6.339 | 20 | .7874 |
| | | | | | 5 | Int. | □ | 1930X5DB | 137 | 5.394 | 140 | 5.512 | 201 | 7.913 | 20 | .7874 |
| 19.4 | .7638 | | | | 3 | Int. | □ | 1940X3DB | 98 | 3.858 | 100 | 3.937 | 161 | 6.339 | 20 | .7874 |
| | | | | | 5 | Int. | □ | 1940X5DB | 137 | 5.394 | 140 | 5.512 | 201 | 7.913 | 20 | .7874 |
| 19.447 | .7656 | 49/64 | | 7/8-9 | 3 | Int. | ● | 1945X3D200 | 98 | 3.858 | 100 | 3.937 | 161 | 6.339 | 20 | .7874 |
| | | | | | 5 | Int. | ● | 1945X5D200 | 137 | 5.394 | 140 | 5.512 | 201 | 7.913 | 20 | .7874 |
| 19.5 | .7677 | | | M22x2.5 | 3 | Int. | ● | 1950X3DB | 98 | 3.858 | 100 | 3.937 | 161 | 6.339 | 20 | .7874 |
| | | | | | 5 | Int. | ● | 1950X5DB | 137 | 5.394 | 140 | 5.512 | 201 | 7.913 | 20 | .7874 |
| 19.6 | .7717 | | | | 3 | Int. | □ | 1960X3DB | 100 | 3.937 | 100 | 3.937 | 161 | 6.339 | 20 | .7874 |
| | | | | | 5 | Int. | □ | 1960X5DB | 140 | 5.512 | 140 | 5.512 | 201 | 7.913 | 20 | .7874 |
| 19.7 | .7756 | | | | 3 | Int. | □ | 1970X3DB | 100 | 3.937 | 100 | 3.937 | 161 | 6.339 | 20 | .7874 |
| | | | | | 5 | Int. | □ | 1970X5DB | 140 | 5.512 | 140 | 5.512 | 201 | 7.913 | 20 | .7874 |

Note) Please contact Mitsubishi Carbide for any geometry that is not in the brochure (e.g. different diameter and length).

● : Inventory maintained. □ : Non stock, produced to order only.

| Drill Diameter D1 | | | | | Hole Depth l/d | Coolant (Int./Ext.) | Stock DP7020 | Order Number | Dimensions | | | | | | | |
|-------------------|---------|----------|------------------|---------------|-------------------|------------------------|-------------------------------------|--------------------|------------|-------|-----|-------|-----|-------|----|-------|
| Metric (mm) | Decimal | Fraction | Wire / Letter | Tread size | | | | | L3 | | L2 | | L1 | | D4 | |
| | (inch) | | | | | | | | mm | inch | mm | inch | mm | inch | mm | inch |
| 19.8 | .7795 | | | | 3 | Int. | <input type="checkbox"/> | MMS1980X3DB | 100 | 3.937 | 100 | 3.937 | 161 | 6.339 | 20 | .7874 |
| | | | | | 5 | Int. | <input type="checkbox"/> | 1980X5DB | 140 | 5.512 | 140 | 5.512 | 201 | 7.913 | 20 | .7874 |
| 19.844 | .7812 | 25/32 | | | 3 | Int. | <input checked="" type="checkbox"/> | 1984X3D200 | 100 | 3.937 | 100 | 3.937 | 161 | 6.339 | 20 | .7874 |
| | | | | | 5 | Int. | <input checked="" type="checkbox"/> | 1984X5D200 | 140 | 5.512 | 140 | 5.512 | 201 | 7.913 | 20 | .7874 |
| 19.9 | .7835 | | | | 3 | Int. | <input type="checkbox"/> | 1990X3DB | 100 | 3.937 | 100 | 3.937 | 161 | 6.339 | 20 | .7874 |
| | | | | | 5 | Int. | <input type="checkbox"/> | 1990X5DB | 140 | 5.512 | 140 | 5.512 | 201 | 7.913 | 20 | .7874 |
| 20.0 | .7874 | | | | 3 | Int. | <input checked="" type="checkbox"/> | 2000X3DB | 100 | 3.937 | 100 | 3.937 | 161 | 6.339 | 20 | .7874 |
| | | | | | 5 | Int. | <input checked="" type="checkbox"/> | 2000X5DB | 140 | 5.512 | 140 | 5.512 | 201 | 7.913 | 20 | .7874 |

RECOMMENDED CUTTING CONDITIONS

| Work Material | No | Hardness | Cutting speed (SFM) | Feed (IPR) | | | |
|---------------------------------------|----|----------|---------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| | | | | Drill Diameter D1 | | | |
| | | | | φ.1181"-φ.1535" (φ3.0-φ3.9mm) | φ.1575"-φ.2323" (φ4.0-φ5.9mm) | φ.2362"-φ.3110" (φ6.0-φ7.9mm) | φ.3150"-φ.3898" (φ8.0-φ9.9mm) |
| Ferritic, Martensitic Stainless Steel | 1 | ≤200HB | 197-262-328 | .003-.005-.007 | .004-.006-.008 | .005-.007-.009 | .006-.007-.009 |
| | 2 | >200HB | 131-197-262 | .003-.004-.007 | .004-.005-.008 | .005-.006-.009 | .006-.007-.009 |
| PH Stainless Steel | 3 | <450HB | 131-164-262 | .003-.004-.007 | .004-.005-.008 | .005-.006-.009 | .006-.007-.009 |
| Austenitic Stainless Steel | 4 | ≤200HB | 197-262-328 | .003-.005-.007 | .004-.006-.008 | .005-.007-.009 | .006-.007-.009 |
| | 5 | >200HB | 131-197-262 | .003-.004-.007 | .004-.005-.008 | .005-.006-.009 | .006-.007-.009 |
| Duplex Steel | 6 | ≤280HB | 131-164-262 | .003-.004-.007 | .004-.005-.008 | .005-.006-.009 | .006-.007-.009 |

| Work Material | No | Hardness | Cutting speed (SFM) | Feed (IPR) | | | |
|---------------------------------------|----|----------|---------------------|------------------------------------|------------------------------------|------------------------------------|----------------------|
| | | | | Drill Diameter D1 | | | |
| | | | | φ.3937"-φ.4685" (φ10.0-φ11.9mm) | φ.4724"-φ.6260" (φ12.0-φ15.9mm) | φ.6299"-φ.7835" (φ16.0-φ19.9mm) | φ.7874" (φ20.0mm) |
| Ferritic, Martensitic Stainless Steel | 1 | ≤200HB | 164-197-230 | .006-.008-.009 | .006-.008-.010 | .007-.009-.010 | .007-.009-.011 |
| | 2 | >200HB | 131-164-197 | .006-.007-.009 | .006-.007-.010 | .007-.008-.010 | .007-.008-.011 |
| PH Stainless Steel | 3 | <450HB | 98-131-164 | .006-.007-.009 | .006-.007-.010 | .007-.008-.010 | .007-.008-.011 |
| Austenitic Stainless Steel | 4 | ≤200HB | 164-197-230 | .006-.008-.009 | .006-.008-.010 | .007-.009-.010 | .007-.009-.011 |
| | 5 | >200HB | 131-164-197 | .006-.007-.009 | .006-.007-.010 | .007-.008-.010 | .007-.008-.011 |
| Duplex Steel | 6 | ≤280HB | 98-131-164 | .006-.007-.009 | .006-.007-.010 | .007-.008-.010 | .007-.008-.011 |

(Note 1) Spindle through & high pressure coolant system is recommended to make stable holes.

(Note 2) Emulsion type of water coolant is recommended.

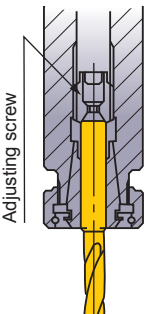
(Note 3) In non water cutting fluid, reduce the cutting speed by 10%-20%.

Stainless Steel Cross Reference List

| Work Material | No | USA | Japan | Germany | |
|---------------------------------------|-----|-----------------|-----------|----------|--------------------|
| | | AISI/SAE | JIS | W-no. | DIN |
| Ferritic, Martensitic Stainless Steel | 1 | 416 | SUS416 | 1.4005 | X12CrS3 |
| | | 410 | SUS410 | 1.4006 | X10Cr13 |
| | | 430 | SUS430 | 1.4016 | X6Cr17 |
| | | 434 | SUS434 | 1.4113 | X6CrMo17 |
| | | 430Ti | SUS430LX | 1.4510 | X6CrTi17 |
| | 409 | — | 1.4512 | X6CrTi12 | |
| | 2 | 420 | SUS420J1 | 1.4021 | X20Cr13 |
| | | 431 | SUS431 | 1.4057 | X20CrNi17-2 |
| 420 | | SUS420J2 | 1.4028 | X30Cr13 | |
| PH Stainless Steel | 3 | 630 (17-4PH) | SUS630 | 1.4542 | X5CrNiCuNb16 4 |
| | | S15500 (15-5PH) | — | 1.4545 | — |
| | | 631 (17-7PH) | SUS631 | 1.4568 | X7CrNiAl17 7 |
| Austenitic Stainless Steel | 4 | 304 | SUS304 | 1.4301 | X5CrNi18 10 |
| | | 305 | SUS305 | 1.4303 | X5CrNi8-12 |
| | | 303 | SUS303 | 1.4305 | X12CrNiS18-9 |
| | | 304L | SUS304L | 1.4307 | X2CrNi19-11 |
| | | 316 | SUS316 | 1.4401 | X5CrNiMo17 12 2 |
| | 5 | 304LN | SUS304LN | 1.4311 | X2CrNiN18 10 |
| | | 316L | SUS316L | 1.4404 | X2CrNiMo17 12 2 |
| | | 316LN | SUS316LN | 1.4406 | X2CrNiMoN17 12 2 |
| | | — | SUS316L | 1.4435 | X2CrNiMo18 14 3 |
| | | 317L | SUS317L | 1.4438 | X2CrNiMo18 15 4 |
| | | N08926 | — | 1.4529 | X1NiCrMoCuN25 20 7 |
| | | 321 | SUS321 | 1.4541 | X6CrNiTi18-10 |
| | | 347 | SUS347 | 1.4550 | X6CrNiNb18-10 |
| Duplex Steel | 6 | — | — | 1.4362 | X2CrNiN23 4 |
| | | S32750 | SCS14A | 1.4410 | X2CrNiMoN25 7 4 |
| | | 329 | SUS329J1 | 1.4460 | X3CrNiMoN27 5 2 |
| | | S31803 | SUS329J3L | 1.4462 | X2CrNiMoN22 5 3 |

Operational Guidance for the MMS Drill

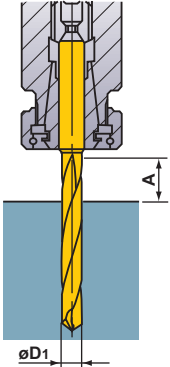
Drill holding



Adjusting screw

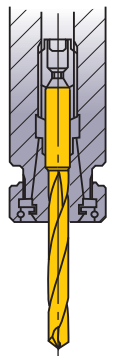
Thrust bearing type collet chuck holds the drill securely.

Drill holding



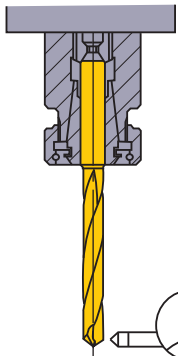
$A : \geq D1 \times 1.5$

Drill Installation



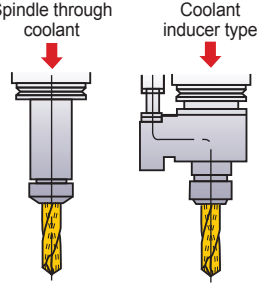
Do not clamp on the flutes.

Installation tolerance



Runout $\leq .001''$

Through Coolant Type



Spindle through coolant

Coolant inducer type

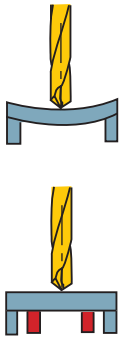
Coolant pressure is approx. 70 - 1015 PSI (0.5 - 7MPa).

Coolant handling

< MMS type >

- 1) Dirt and dust particles in old coolant can clog the oil hole and prevent effective flow. Regular coolant exchange is recommended.
- 2) Small particles of swarf will jam in the oil hole. Use a filter as a preventative measure. When using small diameter drills, use a fine mesh filter.

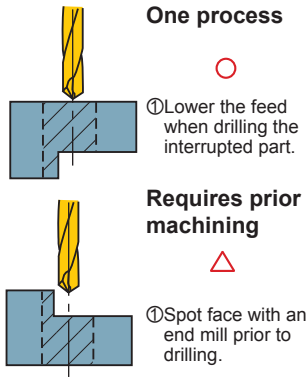
Thin workpieces



If bending occurs

Support the workpiece

Interrupted cutting



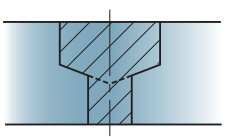
One process

① Lower the feed when drilling the interrupted part.

Requires prior machining

① Spot face with an end mill prior to drilling.

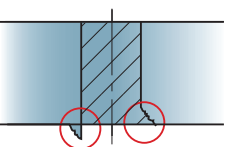
Stepped holes



- ① Divide the machining into two processes.
- ② Drill the larger hole first.

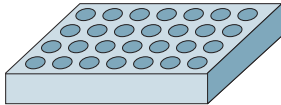
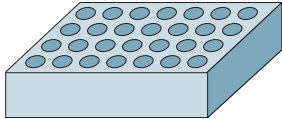
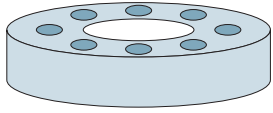
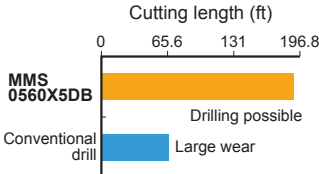
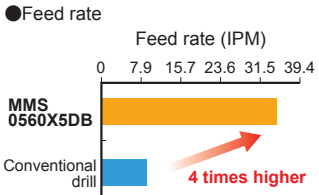
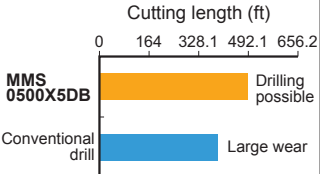
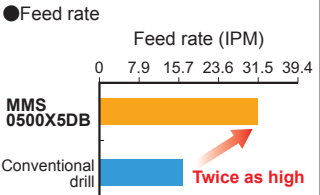
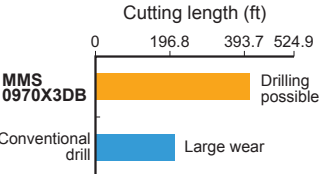
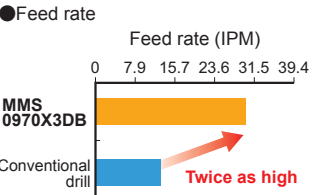
*Tools for chamfering and spot facing can be produced to order.

Burring and workpiece chipping



- ① Lower the feed rate when breaking through.
- ② Add a chamfer.
- ③ Change the point angle.

APPLICATION EXAMPLE

| Drill | | MMS0560X5DB | | MMS0500X5DB | | MMS0970X3DB | |
|--------------------|---------------------------------|--|--------------------|--|--------------------|--|--------------------|
| Work piece | | Austenitic stainless steel AISI 304 Hole depth : .7874 inch  | | PH stainless steel AISI 630 (17-4PH) Hole depth : 1.1811 inch  | | Austenitic stainless steel AISI 304L Hole depth : 1 inch  | |
| Component | | Medical parts | | Spinneret | | Heat exchanger parts | |
| Cutting Conditions | Drill | MMS0560X5DB | Conventional drill | MMS0500X5DB | Conventional drill | MMS0970X3DB | Conventional drill |
| | Cutting Speed (SFM) | 230 | 128 | 210 | 215 | 325 | 230 |
| | Feed (IPR) | 0.0087 | 0.0039 | 0.0079 | 0.0039 | 0.009 | 0.0055 |
| | Revolution (min ⁻¹) | 3979 | 2217 | 4074 | 4210 | 3249 | 2297 |
| | Feed Rate (IPM) | 34.5 | 8.7 | 32 | 16.5 | 29.4 | 12.7 |
| Coolant | | Emulsion | | Emulsion | | Emulsion | |
| Machine | | Machining Center | | Machining Center | | Machining Center | |
| Result | | <p>● Tool life</p>  <p>● Feed rate</p>  | | <p>● Tool life</p>  <p>● Feed rate</p>  | | <p>● Tool life</p>  <p>● Feed rate</p>  | |

Memo

A series of horizontal dashed lines for writing, spanning the width of the page.



Solid Carbide Drill for Stainless steel
WSTAR Drill Series
MIMS

For your safety

●Don't handle inserts and chips without gloves. ●Please machine within the recommended application range and exchange expired tools with new ones in advance of breakage. ●Please use safety covers and wear safety glasses. ●When using compounded cutting oils, please take fire precautions. ●When using rotating tools, please make a trial run to check run-out, vibration and abnormal sounds etc. ●Grinding or heating of cutting tools produces dust and mist. Inhaling large amount of dust or contacting with eyes and skins may harm your body.

MITSUBISHI MATERIALS CORPORATION

MITSUBISHI MATERIALS U.S.A. CORPORATION

Customer Service : 800-523-0800
Technical Service : 800-486-2341

LOS ANGELES HEAD OFFICE
11250 Slater Avenue, Fountain Valley, CA 92708
TEL : 714-352-6100 FAX : 714-668-1320

CHICAGO OFFICE
1314B North Plum Grove Road, Schaumburg, IL 60173
TEL : 847-252-6300 FAX : 847-519-1732

TORONTO OFFICE
6535, Millcreek Drive, Units, 63&64, Mississauga, Ontario L5N 2M2, Canada
TEL : 905-814-0240 FAX : 905-814-0245

MMC METAL DE MEXICO, S.A. DE C.V.
Av. La Cañada No.16, Parque Industrial Bernardo Quintana,
El Marques, Queretaro, CP76246, Mexico
TEL : +52-442-221-6136 FAX : +52-442-221-6134

URL : <http://www.mitsubishicarbide.com>
(Tools specifications subject to change without notice.)

EXP-09-N219
Printed in U.S.A. 10/12