

MULTIDRILL

NEXEO MDE Series

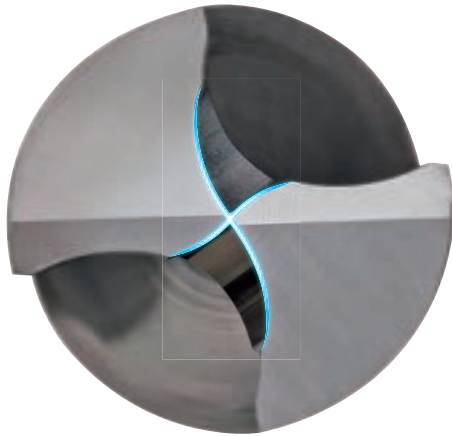
Rev. 6

Innovative General-Purpose Drills - Next for Everyone -

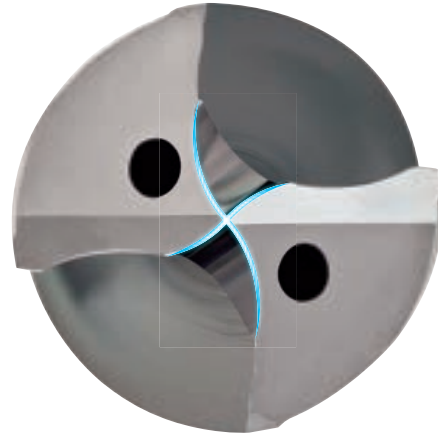


Suitable for a wide range of Materials, from high-carbon steels and die steels to stainless steels. Stable Drilling for small machining center and lathes.

RX Thinning + Arc Shaped Cutting Lip



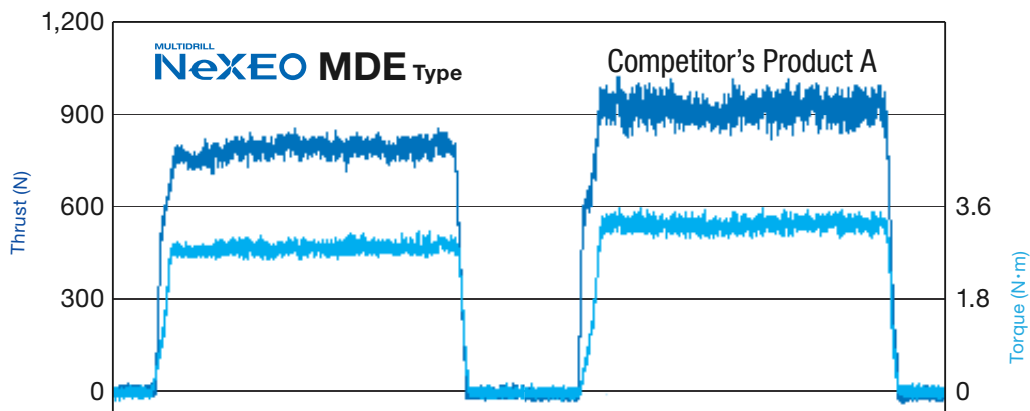
External Coolant Supply



Internal Coolant Supply

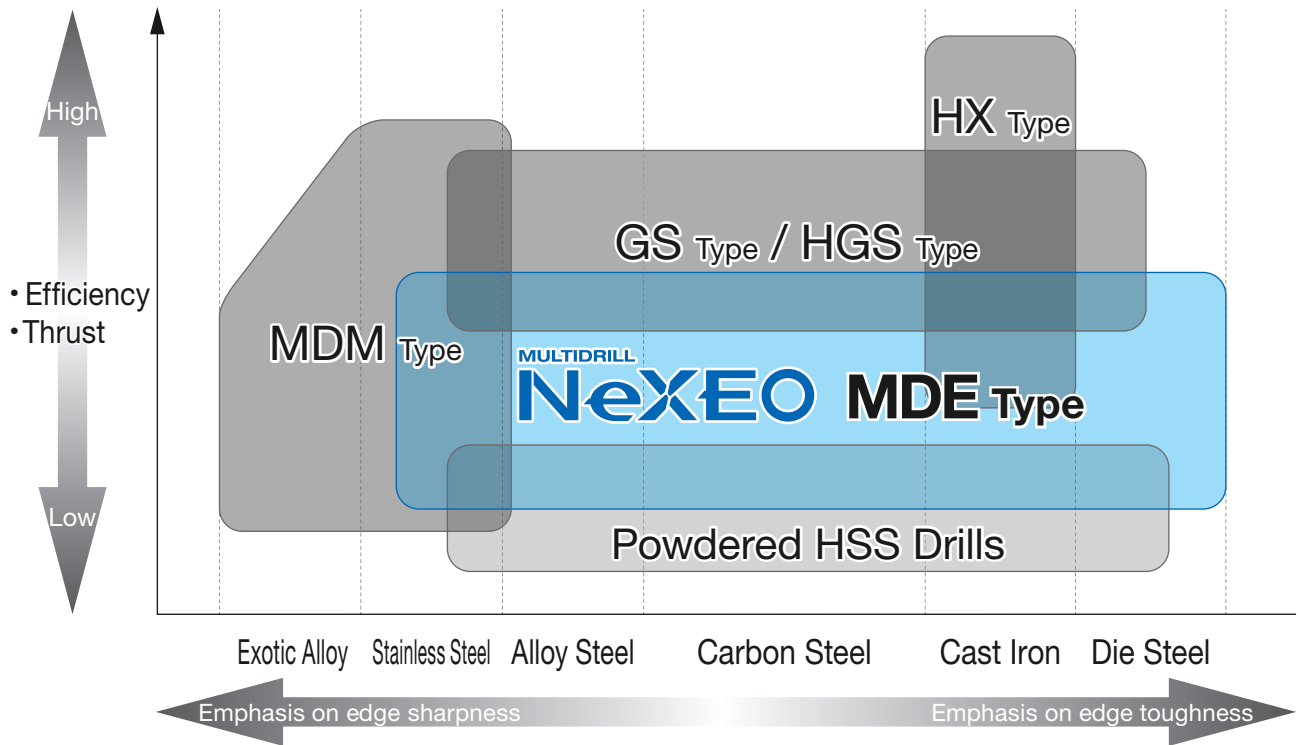
Low resistance chip breaking

- RX thinning reduces thrust.
- Also ideal for small machining centres and small lathes.



Work Material: S50C, Diameter: ø8 mm, Hole Depth: 5D,
 Cutting Conditions: $v_c=80$ m/min, $f=0.15$ mm/rev, $H=38$ mm (through), internal coolant supply (water soluble)

for a wide range of conditions



● Good Chip Control with the New Arc-Shaped Edge



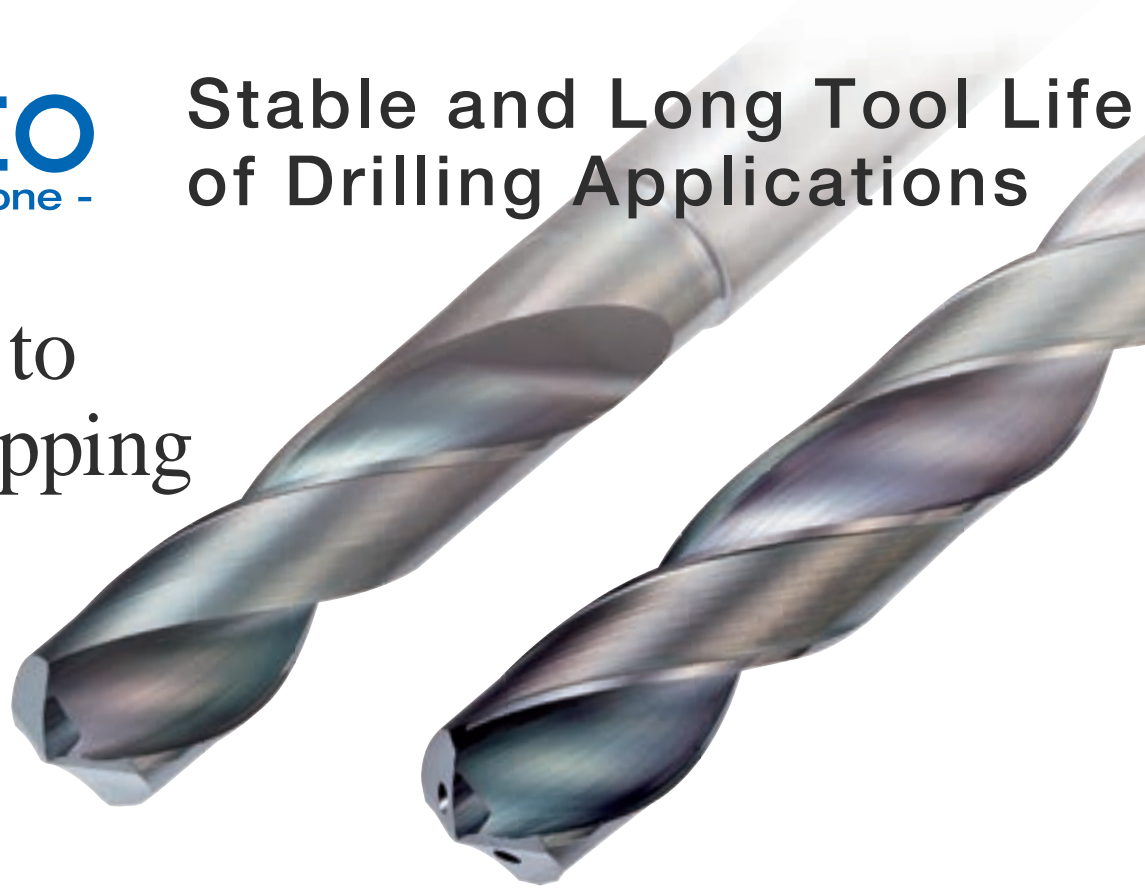
Chips are cut into fine pieces



Long chips

Work Material: S50C, Diameter: $\varnothing 9$ mm, Hole Depth: 5D,
Cutting Conditions: $v_c=80$ m/min, $f=0.15$ mm/rev, internal coolant supply (water soluble)

Resistant to Edge Chipping



General-purpose grade

ACT100

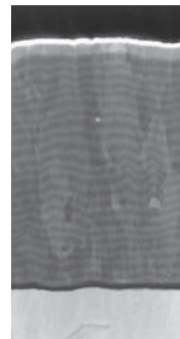
- **Fine-grained Carbide Substrate**

Featuring both wear and fracture resistance!

- **NX Coating**

Absotech™ technology for high quality, high hardness, high strength and excellent wear resistance and thermal resistance.

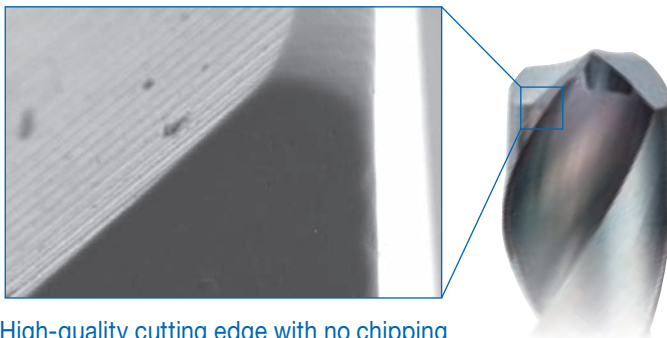
- **High-quality edge provides stable tool life**



TiAlCrSi-based Super Multi-Layered Coated Carbide
 Hardness HV: 46 GPa
 Starting Temperature For Oxidisation: 1,100°C

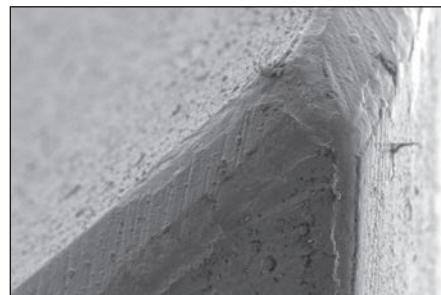
Highly Adhesive Layer

MULTIDRILL
NEXEO MDE Type



High-quality cutting edge with no chipping

Competitor's Product A



Chipping in edge coating

Across a Wide Range

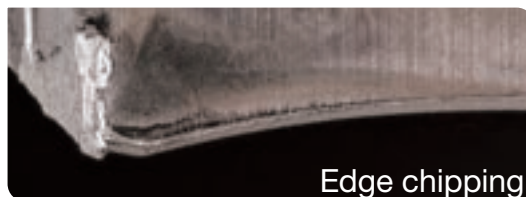
Strong Edge even for

High Carbon Steel Drilling

MULTIDRILL
NeXEO MDE Type



Competitor's Product B



Edge chipping

Work Material: S50C, Cutting Conditions: $v_c=80$ m/min, $f=0.15$ mm/rev, internal coolant supply (water soluble)

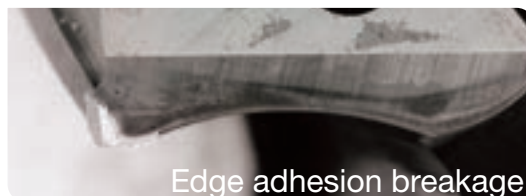
Strong Edge even for

Alloy Steel Drilling

MULTIDRILL
NeXEO MDE Type



Competitor's Product C



Edge adhesion breakage

Work Material: SCM415, Cutting Conditions: $v_c=110$ m/min, $f=0.2$ mm/rev, internal coolant supply (water soluble)

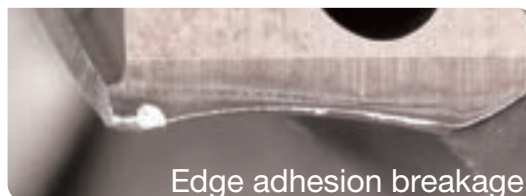
Strong Edge even for

Stainless Steel Drilling

MULTIDRILL
NeXEO MDE Type

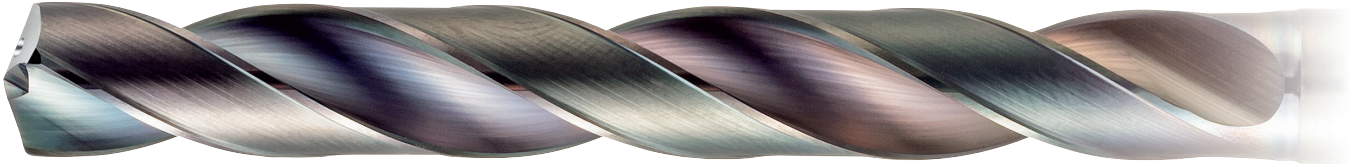


Competitor's Product D



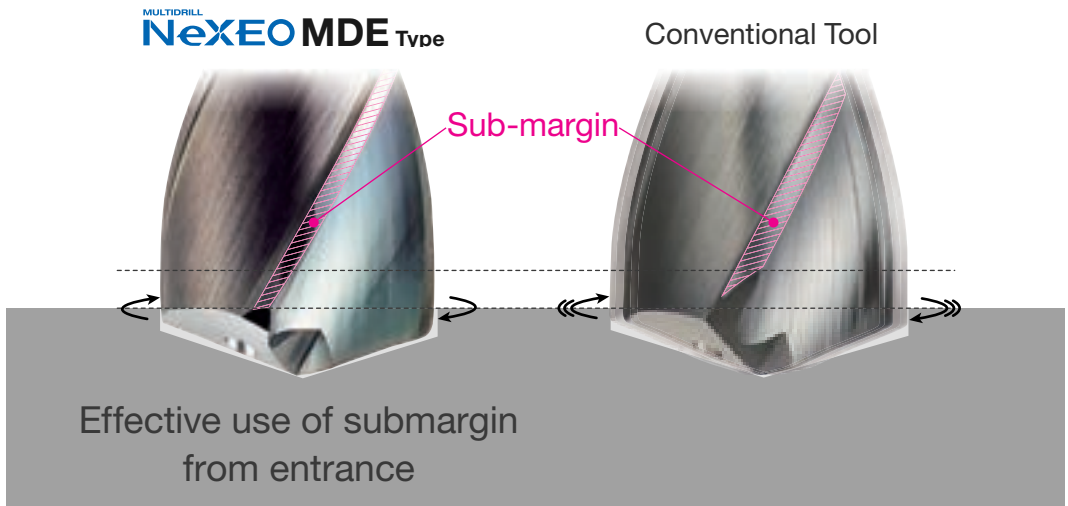
Edge adhesion breakage

Work Material: SUS304, Cutting Conditions: $v_c=60$ m/min, $f=0.1$ mm/rev, internal coolant supply (water soluble)

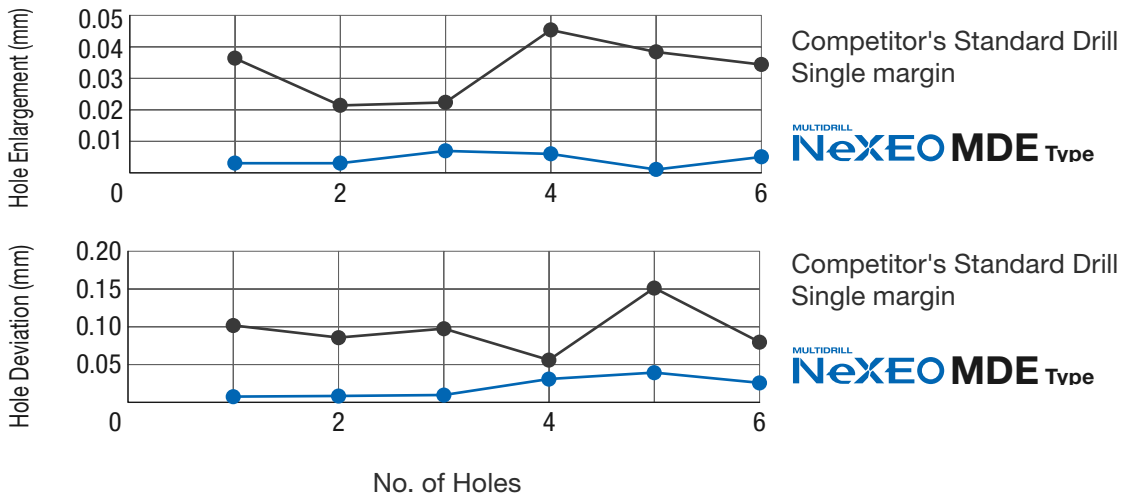


Internal Coolant Supply: Double Margin

●Special double margin for good hole precision (internal coolant supply)

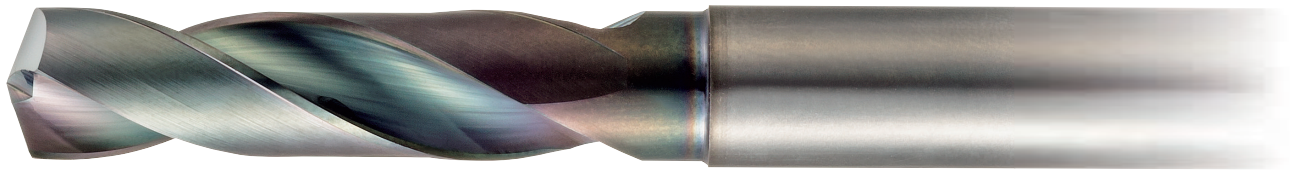


●Comparison of hole precision (die steel drilling)



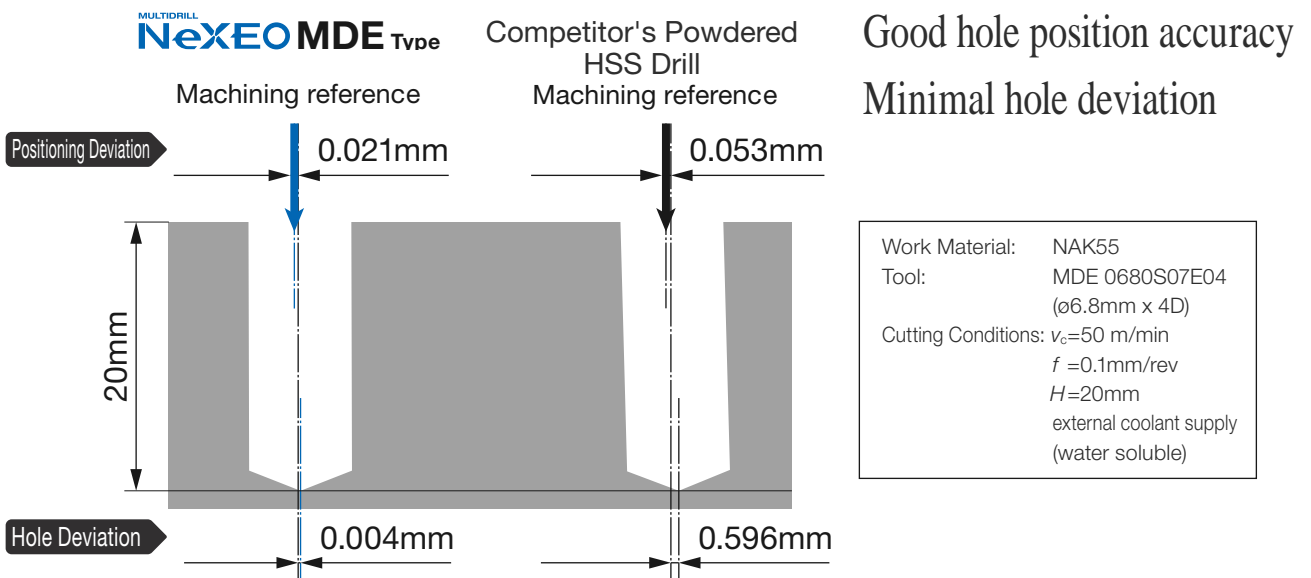
Work Material: DH31S (49HRC), Tool: MDE 0800S08H05 (ø8mm×5D) with hole
 Cutting Conditions: $v_c=17$ m/min, $f=0.07$ mm/rev, internal coolant supply (water soluble)

and high quality

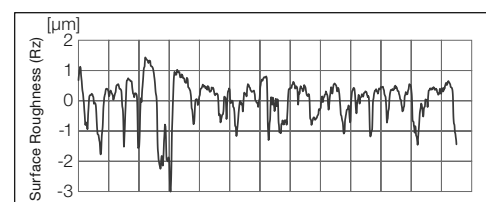
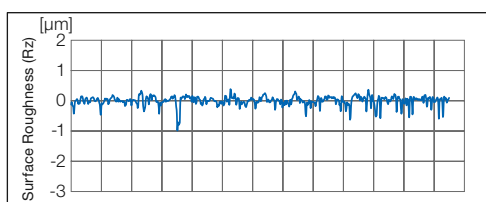
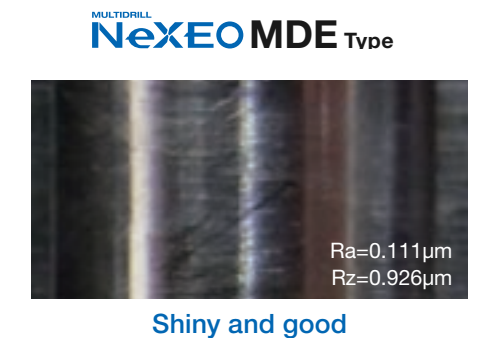


External Coolant Supply: Single Margin

● Compared to powdered HSS drill, good hole precision (die steel drilling)

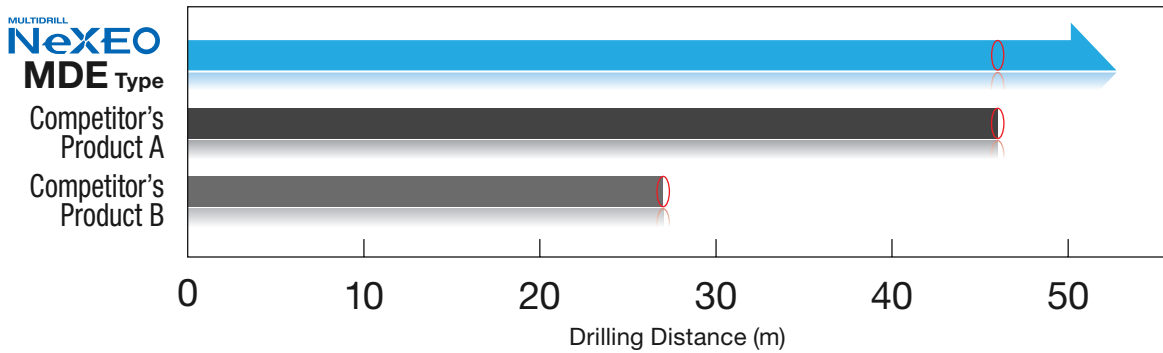


● Comparison of hole wall



●Application Example: High Carbon Steel

ACT100 grade achieves high wear resistance and peripheral edge breakage resistance

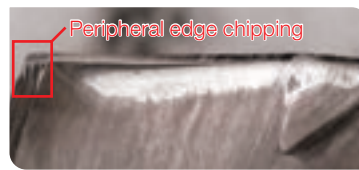


MULTIDRILL NeXEO MDE T_{vpe}



After drilling 46m

Competitor's Product A



After drilling 46m

Competitor's Product B



After drilling 27m

Work Material: S50C, Machine: BT30 vertical machining centre
 Tool: MDE 0800S08H05 (ø8mm×5D) with hole
 Cutting Conditions: $v_c=80$ m/min, $f=0.15$ mm/rev, $H=38$ mm (through), internal coolant supply (water soluble)

●Application Example: Low Carbon Steel

Good chip control in low carbon steel drilling

MULTIDRILL NeXEO MDE T_{vpe}



Chips are cut into fine pieces

Conventional Product A

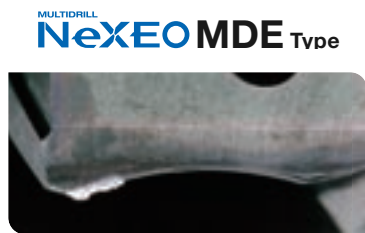
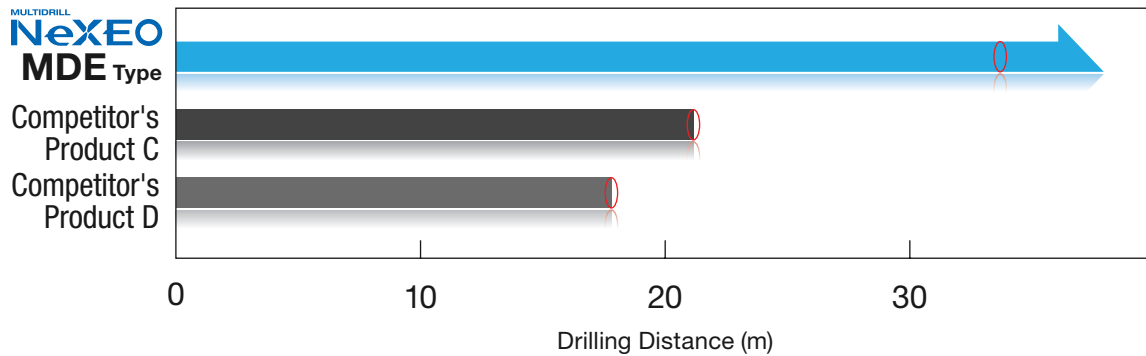


Long chips

Work Material: SM material (machine tools frame parts), Machine: Large bridge-type M/C
 Tool: MDE 1150S12H05 (ø11.5mm×5D) with hole
 Cutting Conditions: $v_c=100$ m/min, $f=0.25$ mm/rev, internal coolant supply (water soluble), drilling distance: approx. 20 m pre 30 min

●Application Example: Ultra-hard Alloy Steel

Grade **ACT100** and new edge design prevent workpiece adhesion chipping



After drilling 34m Small adhesion



After drilling 21m

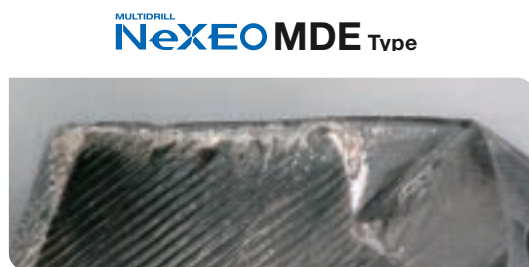


After drilling 18m

Work Material: SCM440H (30HRC), Machine: BT30 vertical machining centre
 Tool: MDE 0800S08H05 ($\phi 8\text{mm} \times 5D$) with hole
 Cutting Conditions: $v_c=80$ m/min, $f=0.15$ mm/rev, $H=40$ mm (through), internal coolant supply (water soluble)

●Application Example: Stainless Steel

Stable drilling of stainless steel on a lathe



Work Material: SUS310, Machine: NC lathe (rotating work material)
 Tool: MDE 0350S04H05 ($\phi 3.5\text{mm} \times 5D$) with hole
 Cutting Conditions: $v_c=40$ m/min, $f=0.05$ mm/rev, $H=14$ mm, internal coolant supply (non-water-soluble), No. of workpieces 5,000

●Application Example: Ductile Cast Iron

NX coating reduces margin damage and rake face wear



Work Material: FCD450, Machine: M/C HSK63
 Tool: MDE 079S08H05 ($\phi 7.9$ mm $\times 5$ D) with hole
 Cutting Conditions: $v_c=70$ m/min $f=0.1$ mm/rev, $H=40$ mm (through), internal coolant supply (water soluble), drilling distance: 64m

●Application Example: Frequency of Replacement Compared to Powdered HSS Drill

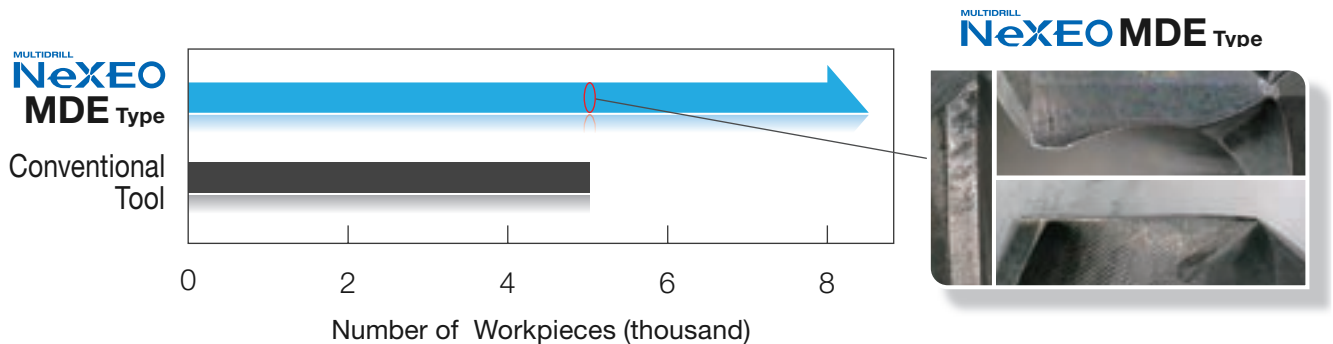
Long tool life approx. 10 times longer than powdered HSS drill



Material: S15C (automobile parts), Machine: BT30 small machining centre	Comp's Product B powdered HSS drill ($\phi 6.8$ mm $\times 4$ D)
Tool: MDE 0680S07E04 ($\phi 6.8$ mm $\times 4$ D)	$v_c=40$ m/min, $f=0.15$ mm/rev
Cutting Conditions: $v_c=60$ m/min, $f=0.15$ mm/rev,	external coolant supply (non-water-soluble),
external coolant supply (non-water soluble),	No. of Workpieces: 1,200 holes
No. of Workpieces: 12,000 holes	

●Application Example: Stainless Steel, Small Lathe

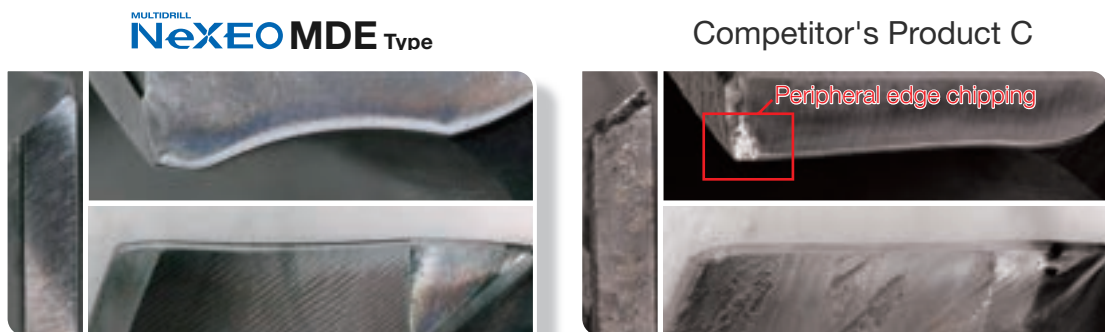
Low resistance, good chip control and long, stable tool life



Work Material: SUS316L (95 to 100HRB) (plugs), Machine: Automatic CNC lathe (workpiece rotates)
 Tool: MDE 0680S07E2 (ø6.8 mm×2D)
 Cutting Conditions: $v_c=50$ m/min, $f=0.09$ mm/rev, external coolant supply (non-water-soluble)

●Application Example: High Carbon Steel, Small Machining Centre

Achieves long, stable tool life even with low feed drilling of high carbon steel



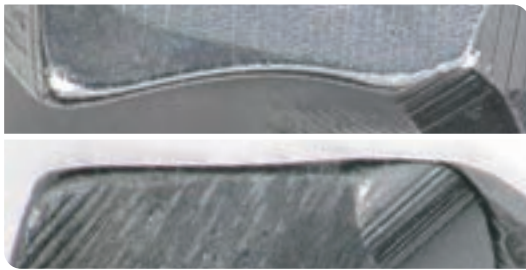
Work Material: S48C, Machine: BT30 small machining centre
 Tool: MDE 0830S07E4 (ø8.3 mm×4D)
 Cutting Conditions: $v_c=30$ m/min, $f=0.08$ mm/rev, external coolant supply (water soluble), No. of Workpieces: 150

Series expansion of small diameter drills!!

Diameter : ϕ 1.0mm to 2.9mm

●Application Example: Low Carbon Steel

マルチドリル ネクシオ
NexEO MDE型



After drilling 900 holes

Competitor's Product A

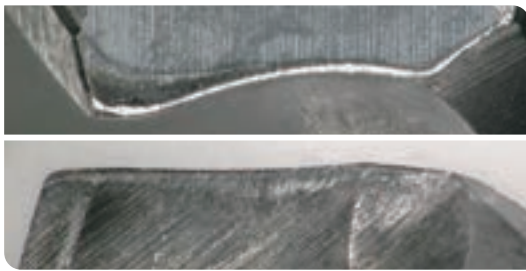


After drilling 900 holes

Work Material: SCM415, Machine: BT30 vertical machining centre
 Tool: MDE 0100S03H05 (ϕ 1.0mm \times 5D) with hole
 Cutting Conditions: $v_c=40$ m/min, $f=0.04$ mm/rev, $H=5$ mm (through), internal coolant supply (water soluble)

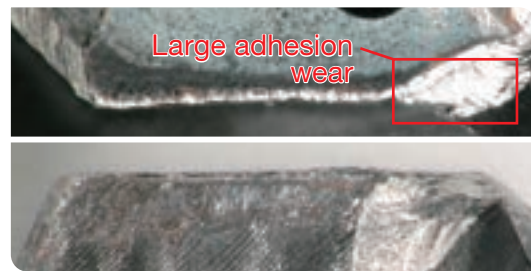
●Application Example: Stainless Steel

マルチドリル ネクシオ
NexEO MDE型



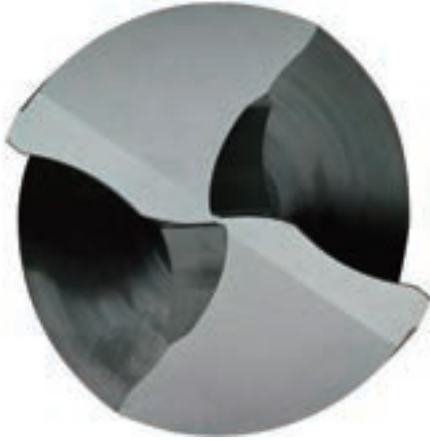
After drilling 3,840 holes

Conventional Product A



After drilling 3,840 holes

Work Material: SUS304, Machine: BT30 vertical machining centre
 Tool: MDE 0200S03H05 (ϕ 2.0mm \times 5D) with hole
 Cutting Conditions: $v_c=40$ m/min, $f=0.04$ mm/rev, $H=10$ mm (through), internal coolant supply (water soluble)



Further reduces resistance with overlap thinning, suppressing wear in hub drilling.
 Excellent for shallow holes

*L/D=2 sizes only

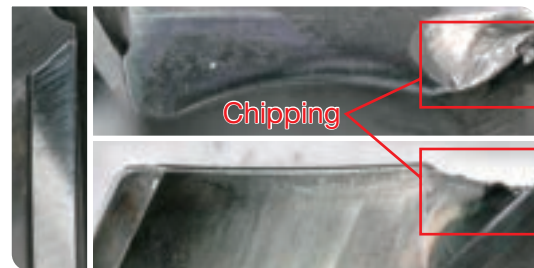
●Application Example: Hole for Press-fitting Bolt in Inner Shaft of Hub

マルチドリル ネクシオ
NexEO MDE型



After drilling 2,500 workpieces
 (5 holes per workpiece)

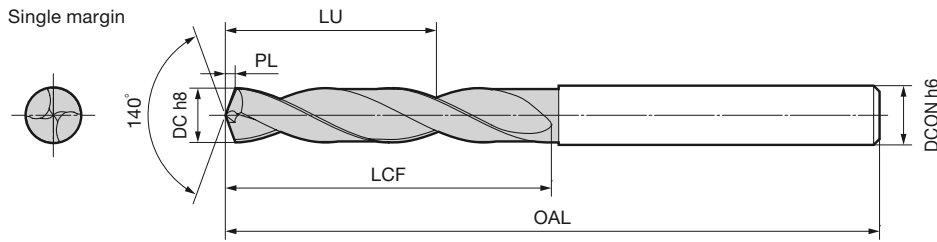
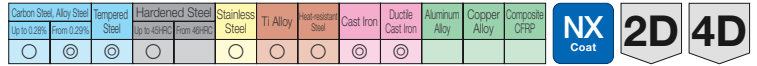
Conventional Product B



After drilling 1,000 workpieces
 (5 holes per workpiece)

Work Material: equivalent to S55C, Machine: Vertical machining centre
 Tool: MDE 1397S14E02H (ø13.97mm×2D)
 Cutting Conditions: $v_c=75\text{m/min}$, $f=0.2\text{mm/rev}$, $H=15\text{mm}$ (through), external coolant supply (water soluble)

●MDE-E Type (External Coolant Supply)



●Diameter: ø13.1 to 15.2 mm

Diameter DC (mm)	Hole Depth (L/D)	Stock	Cat. No.	Dimensions (mm)					Standard Price (JPY)
				Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia DCON	
13.1	2	●	MDE 1310S14E02	32.8	52.4	107.4	2.4	14.0	12,700
	4	●	MDE 1310S14E04	66.8	86.4	149.4	2.4	14.0	14,600
13.2	2	●	MDE 1320S14E02	32.6	52.4	107.4	2.4	14.0	12,700
	4	●	MDE 1320S14E04	66.6	86.4	149.4	2.4	14.0	14,600
13.3	2	●	MDE 1330S14E02	32.5	52.4	107.4	2.4	14.0	12,700
	4	●	MDE 1330S14E04	66.5	86.4	149.4	2.4	14.0	14,600
13.4	2	●	MDE 1340S14E02	32.3	52.4	107.4	2.4	14.0	12,700
	4	●	MDE 1340S14E04	66.3	86.4	149.4	2.4	14.0	14,600
13.5	2	●	MDE 1350S14E02	32.3	52.5	107.5	2.5	14.0	12,700
	4	●	MDE 1350S14E04	66.3	86.5	149.5	2.5	14.0	14,600
13.6	2	●	MDE 1360S14E02	34.1	54.5	107.5	2.5	14.0	13,000
	4	●	MDE 1360S14E04	68.1	88.5	149.5	2.5	14.0	15,200
13.7	2	●	MDE 1370S14E02	34.0	54.5	107.5	2.5	14.0	13,000
	4	●	MDE 1370S14E04	68.0	88.5	149.5	2.5	14.0	15,200
13.8	2	●	MDE 1380S14E02	33.8	54.5	107.5	2.5	14.0	13,000
	4	●	MDE 1380S14E04	67.8	88.5	149.5	2.5	14.0	15,200
13.9	2	●	MDE 1390S14E02	33.7	54.5	107.5	2.5	14.0	13,000
	4	●	MDE 1390S14E04	67.7	88.5	149.5	2.5	14.0	15,200
14.0	2	●	MDE 1400S14E02	33.5	54.5	107.5	2.5	14.0	13,000
	4	●	MDE 1400S14E04	67.5	88.5	149.5	2.5	14.0	15,200
14.1	2	●	MDE 1410S15E02	33.5	54.6	110.6	2.6	15.0	16,300
	4	●	MDE 1410S15E04	70.5	91.6	155.6	2.6	15.0	18,900
14.2	2	●	MDE 1420S15E02	33.3	54.6	110.6	2.6	15.0	16,300
	4	●	MDE 1420S15E04	70.3	91.6	155.6	2.6	15.0	18,900
14.3	2	●	MDE 1430S15E02	33.2	54.6	110.6	2.6	15.0	16,300
	4	●	MDE 1430S15E04	70.2	91.6	155.6	2.6	15.0	18,900
14.4	2	●	MDE 1440S15E02	33.0	54.6	110.6	2.6	15.0	16,300
	4	●	MDE 1440S15E04	70.0	91.6	155.6	2.6	15.0	18,900
14.5	2	●	MDE 1450S15E02	32.9	54.6	110.6	2.6	15.0	16,300
	4	●	MDE 1450S15E04	69.9	91.6	155.6	2.6	15.0	18,900
14.6	2	●	MDE 1460S15E02	33.8	55.7	110.7	2.7	15.0	16,800
	4	●	MDE 1460S15E04	71.8	93.7	155.7	2.7	15.0	19,500
14.7	2	●	MDE 1470S15E02	33.7	55.7	110.7	2.7	15.0	16,800
	4	●	MDE 1470S15E04	71.7	93.7	155.7	2.7	15.0	19,500
14.8	2	●	MDE 1480S15E02	33.5	55.7	110.7	2.7	15.0	16,800
	4	●	MDE 1480S15E04	71.5	93.7	155.7	2.7	15.0	19,500
14.9	2	●	MDE 1490S15E02	33.4	55.7	110.7	2.7	15.0	16,800
	4	●	MDE 1490S15E04	71.4	93.7	155.7	2.7	15.0	19,500
15.0	2	●	MDE 1500S15E02	33.2	55.7	110.7	2.7	15.0	16,800
	4	●	MDE 1500S15E04	71.2	93.7	155.7	2.7	15.0	19,500
15.1	2	●	MDE 1510S16E02	33.1	55.7	114.7	2.7	16.0	17,400
	4	●	MDE 1510S16E04	74.1	96.7	162.7	2.7	16.0	20,100
15.2	2	●	MDE 1520S16E02	33.0	55.8	114.8	2.8	16.0	17,400
	4	●	MDE 1520S16E04	74.0	96.8	162.8	2.8	16.0	20,100

Grade ACT100

●Diameter: ø15.3 to 20.0 mm

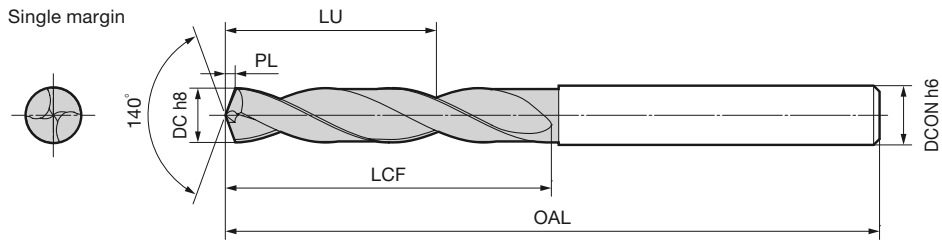
Diameter DC (mm)	Hole Depth (L/D)	Stock	Cat. No.	Dimensions (mm)					Standard Price (JPY)
				Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia DCON	
15.3	2	●	MDE 1530S16E02	32.9	55.8	114.8	2.8	16.0	17,400
	4	●	MDE 1530S16E04	73.9	96.8	162.8	2.8	16.0	20,100
15.4	2	●	MDE 1540S16E02	32.7	55.8	114.8	2.8	16.0	17,400
	4	●	MDE 1540S16E04	73.7	96.8	162.8	2.8	16.0	20,100
15.5	2	●	MDE 1550S16E02	32.6	55.8	114.8	2.8	16.0	17,400
	4	●	MDE 1550S16E04	73.6	96.8	162.8	2.8	16.0	20,100
15.6	2	●	MDE 1560S16E02	34.4	57.8	114.8	2.8	16.0	17,800
	4	●	MDE 1560S16E04	75.4	98.8	162.8	2.8	16.0	20,700
15.7	2	●	MDE 1570S16E02	34.4	57.9	114.9	2.9	16.0	17,800
	4	●	MDE 1570S16E04	75.4	98.9	162.9	2.9	16.0	20,700
15.8	2	●	MDE 1580S16E02	34.2	57.9	114.9	2.9	16.0	17,800
	4	●	MDE 1580S16E04	75.2	98.9	162.9	2.9	16.0	20,700
15.9	2	●	MDE 1590S16E02	34.1	57.9	114.9	2.9	16.0	17,800
	4	●	MDE 1590S16E04	75.1	98.9	162.9	2.9	16.0	20,700
16.0	2	●	MDE 1600S16E02	33.9	57.9	114.9	2.9	16.0	17,800
	4	●	MDE 1600S16E04	74.9	98.9	162.9	2.9	16.0	20,700
16.5	2	●	MDE 1650S17E02	34.3	59.0	119.0	3.0	17.0	19,400
	4	●	MDE 1650S17E04	76.3	101.0	170.0	3.0	17.0	23,400
16.8	4	●	MDE 1680S17E04	75.9	101.1	170.1	3.1	17.0	25,300
	17.0	2	●	MDE 1700S17E02	34.6	60.1	119.1	3.1	17.0
4		●	MDE 1700S17E04	75.7	101.2	170.2	3.2	17.0	25,300
17.5	2	●	MDE 1750S18E02	35.0	61.2	123.2	3.2	18.0	22,600
	4	●	MDE 1750S18E04	77.0	103.2	170.2	3.2	18.0	27,500
18.0	2	●	MDE 1800S18E02	35.3	62.3	123.3	3.3	18.0	24,300
	4	●	MDE 1800S18E04	78.3	105.3	170.3	3.3	18.0	29,800
18.5	2	●	MDE 1850S19E02	34.7	62.4	126.4	3.4	19.0	25,700
	4	●	MDE 1850S19E04	79.7	107.4	182.4	3.4	19.0	32,500
19.0	2	●	MDE 1900S19E02	35.0	63.5	126.5	3.5	19.0	27,500
	4	●	MDE 1900S19E04	80.9	109.4	182.4	3.4	19.0	33,700
19.5	2	●	MDE 1950S20E02	35.3	64.5	130.5	3.5	20.0	29,200
	4	●	MDE 1950S20E04	84.3	113.5	182.5	3.5	20.0	34,500
19.7	4	●	MDE 1970S20E04	88.1	117.6	182.6	3.6	20.0	35,500
	20.0	2	●	MDE 2000S20E02	35.6	65.6	130.6	3.6	20.0
4		●	MDE 2000S20E04	87.6	117.6	182.6	3.6	20.0	35,500

Grade ACT100

●mark: Standard stocked item

●MDE-E Type for Hub Drilling (External Coolant Supply)

Carbon Steel, Alloy Steel Up to 0.22% Ni	Tempered Steel From 0.22% Ni	Hardened Steel Up to 45HRC	Stainless Steel From 45HRC	Ti Alloy	Heat-treated Steel	Cast Iron	Ductile Cast Iron	Aluminum Alloy	Copper Alloy	Composite CFRP	NX Coat	2D
○	◎	◎	○	○	○	○	◎	◎	○	○		



●Diameter: ø8.80 to 13.97 mm

Diameter DC (mm)	Hole Depth (L/D)	Stock	Cat. No.	Dimensions (mm)					Standard Price (JPY)
				Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia. DCON	
8.80	2	●	MDE 0880S09E02H	26.4	39.6	83.6	1.6	9.0	8,780
10.00	2	●	MDE 1000S10E02H	27.8	42.8	88.8	1.8	10.0	9,630
10.80	2	●	MDE 1080S11E02H	30.8	47.0	95.0	2.0	11.0	10,500
12.04	2	●	MDE 1204S13E02H	31.1	49.2	102.2	2.2	13.0	11,800
12.52	2	●	MDE 1252S13E02H	32.4	51.3	102.3	2.3	13.0	12,100
13.85	2	●	MDE 1385S14E02H	33.7	54.5	107.5	2.5	14.0	13,000
13.92	2	●	MDE 1392S14E02H	33.5	54.5	107.5	2.5	14.0	13,000
13.97	2	●	MDE 1397S14E02H	33.5	54.5	107.5	2.5	14.0	13,000

Grade ACT100

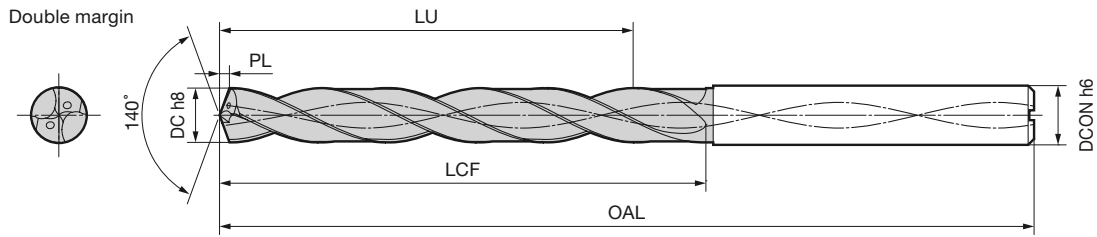
● Recommended Cutting Conditions (MDE-E Type, External Coolant Supply, 2D/4D) Includes Hub drilling

Work Material		Mild Steel/Low Carbon Steel SS400/S15C up to 160HB		Carbon Steel S35C/S50C up to 230HB		Alloy Steel SCM/SCr 20 to 30HRC		Alloy Steel SCM/SCr 30 to 38HRC	
Cutting speed	Dia. <ø3	30 to 80m/min		30 to 80m/min		30 to 80m/min		30 to 80m/min	
	Dia. ≥ø3	60 to 100m/min		60 to 120m/min		50 to 100m/min		40 to 80m/min	
Diameter DC		Spindle speed (min ⁻¹)	Feed rate (mm/rev)	Spindle speed (min ⁻¹)	Feed rate (mm/rev)	Spindle speed (min ⁻¹)	Feed rate (mm/rev)	Spindle speed (min ⁻¹)	Feed rate (mm/rev)
ø1.0		9,500	0.02 to 0.04	9,500	0.02 to 0.04	9,500	0.02 to 0.04	9,500	0.02 to 0.03
ø1.5		8,500	0.03 to 0.06	8,500	0.03 to 0.06	8,500	0.03 to 0.06	8,500	0.03 to 0.06
ø2.0		9,000	0.04 to 0.08	8,000	0.04 to 0.08	8,000	0.04 to 0.08	8,000	0.04 to 0.08
ø2.5		9,500	0.04 to 0.08	9,000	0.04 to 0.08	8,500	0.04 to 0.08	7,600	0.04 to 0.08
ø3.0		8,500	0.05 to 0.12	8,500	0.05 to 0.12	7,500	0.05 to 0.12	6,400	0.05 to 0.12
ø4.0		6,400	0.07 to 0.17	6,400	0.07 to 0.17	5,600	0.07 to 0.17	4,800	0.07 to 0.17
ø5.0		5,100	0.08 to 0.20	5,100	0.08 to 0.20	4,500	0.08 to 0.20	3,900	0.08 to 0.20
ø6.0		4,300	0.10 to 0.20	4,300	0.10 to 0.20	3,800	0.10 to 0.20	3,200	0.10 to 0.20
ø7.0		3,700	0.12 to 0.23	3,700	0.12 to 0.23	3,200	0.12 to 0.23	2,800	0.12 to 0.23
ø8.0		3,200	0.15 to 0.25	3,200	0.15 to 0.25	2,800	0.15 to 0.25	2,400	0.15 to 0.25
ø9.0		2,900	0.17 to 0.25	2,900	0.17 to 0.25	2,500	0.17 to 0.25	2,200	0.17 to 0.25
ø10.0		2,600	0.18 to 0.28	2,600	0.18 to 0.28	2,300	0.18 to 0.28	2,000	0.18 to 0.28
ø11.0		2,400	0.20 to 0.30	2,400	0.20 to 0.30	2,100	0.20 to 0.30	1,800	0.20 to 0.30
ø12.0		2,200	0.20 to 0.30	2,200	0.20 to 0.30	1,900	0.20 to 0.30	1,600	0.20 to 0.30
ø14.0		1,900	0.20 to 0.30	1,900	0.20 to 0.30	1,600	0.20 to 0.30	1,400	0.20 to 0.30
ø16.0		1,600	0.20 to 0.30	1,600	0.20 to 0.30	1,400	0.20 to 0.30	1,200	0.20 to 0.30
ø18.0		1,500	0.20 to 0.30	1,500	0.20 to 0.30	1,300	0.20 to 0.30	1,100	0.20 to 0.30
ø20.0		1,300	0.20 to 0.30	1,300	0.20 to 0.30	1,200	0.20 to 0.30	1,000	0.20 to 0.30
High-efficiency Product		GS Type		GS Type		GS Type		GS Type	

Work Material		Cast Iron FC250 to 280HB		Ductile Cast Iron FCD450/FCD600 to 270HB		Stainless Steel (oil-based drilling) SUS304/SUS410 to 200HB		Special Steel/Pre-hardened Steel SKS2/SKD61 (non-tempered) 30 to 38 HRC	
Cutting speed	Dia. <ø3	30 to 80m/min		30 to 80m/min		20 to 50m/min		30 to 60m/min	
	Dia. ≥ø3	60 to 100m/min		50 to 100m/min		20 to 50m/min		30 to 60m/min	
Diameter DC		Spindle speed (min ⁻¹)	Feed rate (mm/rev)	Spindle speed (min ⁻¹)	Feed rate (mm/rev)	Spindle speed (min ⁻¹)	Feed rate (mm/rev)	Spindle speed (min ⁻¹)	Feed rate (mm/rev)
ø1.0		9,500	0.02 to 0.04	9,500	0.02 to 0.04	9,500	0.02 to 0.03	9,500	0.02 to 0.03
ø1.5		8,500	0.03 to 0.06	8,500	0.03 to 0.06	8,500	0.02 to 0.05	8,500	0.02 to 0.04
ø2.0		8,000	0.04 to 0.08	8,000	0.04 to 0.08	6,300	0.03 to 0.06	7,100	0.03 to 0.06
ø2.5		9,000	0.04 to 0.08	8,500	0.04 to 0.08	5,100	0.03 to 0.07	5,700	0.03 to 0.06
ø3.0		8,500	0.06 to 0.15	7,500	0.05 to 0.12	4,300	0.05 to 0.10	5,400	0.05 to 0.12
ø4.0		6,400	0.08 to 0.18	5,600	0.07 to 0.17	3,200	0.05 to 0.10	4,000	0.07 to 0.17
ø5.0		5,100	0.10 to 0.20	4,500	0.08 to 0.20	2,600	0.06 to 0.15	3,200	0.08 to 0.20
ø6.0		4,300	0.12 to 0.23	3,800	0.10 to 0.20	2,200	0.06 to 0.15	2,700	0.10 to 0.20
ø7.0		3,700	0.12 to 0.23	3,200	0.12 to 0.23	1,900	0.06 to 0.18	2,300	0.10 to 0.20
ø8.0		3,200	0.18 to 0.25	2,800	0.15 to 0.25	1,600	0.06 to 0.20	2,000	0.12 to 0.25
ø9.0		2,900	0.17 to 0.25	2,500	0.17 to 0.25	1,500	0.08 to 0.20	1,800	0.12 to 0.25
ø10.0		2,600	0.18 to 0.28	2,300	0.18 to 0.28	1,300	0.08 to 0.20	1,600	0.12 to 0.25
ø11.0		2,400	0.20 to 0.30	2,100	0.20 to 0.30	1,200	0.08 to 0.20	1,500	0.15 to 0.30
ø12.0		2,200	0.20 to 0.30	1,900	0.20 to 0.30	1,100	0.10 to 0.25	1,400	0.15 to 0.30
ø14.0		1,900	0.20 to 0.30	1,600	0.20 to 0.30	1,000	0.10 to 0.25	1,200	0.15 to 0.30
ø16.0		1,600	0.20 to 0.30	1,400	0.20 to 0.30	800	0.10 to 0.25	1,000	0.15 to 0.30
ø18.0		1,500	0.20 to 0.30	1,300	0.20 to 0.30	800	0.10 to 0.25	900	0.15 to 0.30
ø20.0		1,300	0.20 to 0.30	1,200	0.20 to 0.30	700	0.10 to 0.25	800	0.15 to 0.30
High-efficiency Product		GS Type		GS Type		GS Type		GS Type	

1. The recommended cutting conditions below are for cases where a water soluble coolant is used (excluding drilling of stainless steel).
2. Supply sufficient water soluble coolant to the cutting edge.
3. If using non-water-soluble coolant, reduce the cutting speed by 20-30% and ensure that sufficient coolant is supplied.
4. When mounting the drill in the collet, make sure that runout around the cutting edge is no greater than 0.02mm.
5. Make sure the flute does not enter the collet.
6. If the surface of the workpiece is abnormally shaped (tilted, interrupted etc.), reduce the feed rate to about half when feeding the drill in the workpiece.
* If stable drilling is still not possible, pre-machining of the flat surface with the MDF Flat MULTIDRILL is recommended.
7. When performing interrupted through drilling, reduce the feed rate to about half the feed rate used prior to this process.

MDE-H Type (Internal Coolant Supply)



● Diameter: $\phi 1.0$ to 2.4 mm

Diameter DC (mm)	Hole Depth (LD)	Stock	Cat. No.	Dimensions (mm)					Standard Price (JPY)
				Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia DCON	
1.0	3	●	MDE 0100S03H03	6.7	8.2	57.2	0.2	3.0	8,580
	5	●	MDE 0100S03H05	8.7	10.2	59.2	0.2	3.0	11,900
	8	●	MDE 0100S03H08	11.7	13.2	62.2	0.2	3.0	14,100
1.1	3	●	MDE 0110S03H03	6.6	8.2	57.2	0.2	3.0	8,580
	5	●	MDE 0110S03H05	8.6	10.2	59.2	0.2	3.0	11,900
	8	●	MDE 0110S03H08	12.6	14.2	62.2	0.2	3.0	14,100
1.2	3	●	MDE 0120S03H03	7.4	9.2	57.2	0.2	3.0	8,580
	5	●	MDE 0120S03H05	9.4	11.2	59.2	0.2	3.0	11,900
	8	●	MDE 0120S03H08	13.4	15.2	62.2	0.2	3.0	14,100
1.3	3	●	MDE 0130S03H03	7.3	9.2	57.2	0.2	3.0	8,580
	5	●	MDE 0130S03H05	10.3	12.2	59.2	0.2	3.0	11,900
	8	●	MDE 0130S03H08	14.3	16.2	62.2	0.2	3.0	14,100
1.4	3	●	MDE 0140S03H03	8.2	10.3	57.3	0.3	3.0	8,580
	5	●	MDE 0140S03H05	11.2	13.3	59.3	0.3	3.0	11,900
	8	●	MDE 0140S03H08	15.2	17.3	62.3	0.3	3.0	14,100
1.5	3	●	MDE 0150S03H03	9.1	11.3	57.3	0.3	3.0	8,580
	5	●	MDE 0150S03H05	12.1	14.3	59.3	0.3	3.0	11,900
	8	●	MDE 0150S03H08	16.1	18.3	62.3	0.3	3.0	14,100
1.6	3	●	MDE 0160S03H03	8.9	11.3	59.3	0.3	3.0	8,580
	5	●	MDE 0160S03H05	11.9	14.3	62.3	0.3	3.0	11,900
	8	●	MDE 0160S03H08	16.9	19.3	67.3	0.3	3.0	14,100
1.7	3	●	MDE 0170S03H03	9.8	12.3	59.3	0.3	3.0	8,580
	5	●	MDE 0170S03H05	12.8	15.3	62.3	0.3	3.0	11,900
	8	●	MDE 0170S03H08	17.8	20.3	67.3	0.3	3.0	14,100
1.8	3	●	MDE 0180S03H03	9.6	12.3	59.3	0.3	3.0	8,580
	5	●	MDE 0180S03H05	13.6	16.3	62.3	0.3	3.0	11,900
	8	●	MDE 0180S03H08	18.6	21.3	67.3	0.3	3.0	14,100
1.9	3	●	MDE 0190S03H03	10.5	13.3	59.3	0.3	3.0	8,580
	5	●	MDE 0190S03H05	14.5	17.3	62.3	0.3	3.0	11,900
	8	●	MDE 0190S03H08	19.5	22.3	70.3	0.3	3.0	14,100
2.0	3	●	MDE 0200S03H03	11.4	14.4	59.4	0.4	3.0	8,580
	5	●	MDE 0200S03H05	15.4	18.4	62.4	0.4	3.0	11,900
	8	●	MDE 0200S03H08	21.4	24.4	70.4	0.4	3.0	14,100
2.1	3	●	MDE 0210S03H03	11.3	14.4	59.4	0.4	3.0	8,580
	5	●	MDE 0210S03H05	15.3	18.4	62.4	0.4	3.0	11,900
	8	●	MDE 0210S03H08	22.3	25.4	70.4	0.4	3.0	14,100
2.2	3	●	MDE 0220S03H03	12.1	15.4	59.4	0.4	3.0	8,580
	5	●	MDE 0220S03H05	16.1	19.4	62.4	0.4	3.0	11,900
	8	●	MDE 0220S03H08	23.1	26.4	70.4	0.4	3.0	14,100
2.3	3	●	MDE 0230S03H03	12.0	15.4	63.4	0.4	3.0	8,580
	5	●	MDE 0230S03H05	17.0	20.4	68.4	0.4	3.0	11,900
	8	●	MDE 0230S03H08	24.0	27.4	75.4	0.4	3.0	14,100
2.4	3	●	MDE 0240S03H03	12.8	16.4	63.4	0.4	3.0	8,580
	5	●	MDE 0240S03H05	17.8	21.4	68.4	0.4	3.0	11,900
	8	●	MDE 0240S03H08	24.8	28.4	75.4	0.4	3.0	14,100

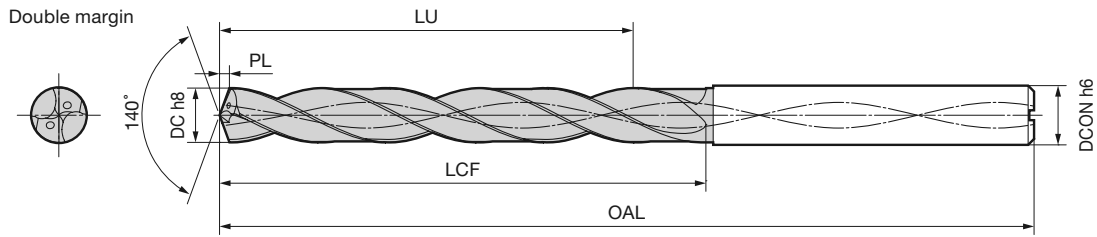
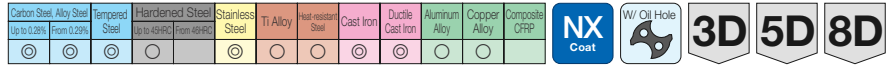
Grade ACT100

● Diameter: $\phi 2.5$ to 3.7 mm

Diameter DC (mm)	Hole Depth (LD)	Stock	Cat. No.	Dimensions (mm)					Standard Price (JPY)
				Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia DCON	
2.5	3	●	MDE 0250S03H03	13.8	17.5	63.5	0.5	3.0	8,580
	5	●	MDE 0250S03H05	18.8	22.5	68.5	0.5	3.0	11,900
	8	●	MDE 0250S03H08	25.8	29.5	75.5	0.5	3.0	14,100
2.6	3	●	MDE 0260S03H03	13.6	17.5	63.5	0.5	3.0	8,580
	5	●	MDE 0260S03H05	18.6	22.5	68.5	0.5	3.0	11,900
	8	●	MDE 0260S03H08	26.6	30.5	75.5	0.5	3.0	14,100
2.7	3	●	MDE 0270S03H03	14.5	18.5	68.5	0.5	3.0	8,580
	5	●	MDE 0270S03H05	19.5	23.5	78.5	0.5	3.0	11,900
	8	●	MDE 0270S03H08	27.5	31.5	81.5	0.5	3.0	14,100
2.76	5	●	MDE0276S03H05	20.3	24.5	78.5	0.5	3.0	11,900
2.78	5	●	MDE0278S03H05	20.3	24.5	78.5	0.5	3.0	11,900
2.8	3	●	MDE 0280S03H03	14.3	18.5	68.5	0.5	3.0	8,580
	5	●	MDE 0280S03H05	20.3	24.5	78.5	0.5	3.0	11,900
	8	●	MDE 0280S03H08	28.3	32.5	81.5	0.5	3.0	14,100
2.9	3	●	MDE 0290S03H03	15.2	19.5	68.5	0.5	3.0	8,580
	5	●	MDE 0290S03H05	21.2	25.5	78.5	0.5	3.0	11,900
	8	●	MDE 0290S03H08	29.2	33.5	81.5	0.5	3.0	14,100
3.0	3	●	MDE 0300S03H03	14.0	18.5	68.5	0.5	3.0	8,580
	5	●	MDE 0300S03H05	24.0	28.5	78.5	0.5	3.0	11,900
	8	●	MDE 0300S03H08	29.0	33.5	81.5	0.5	3.0	14,100
3.1	3	●	MDE 0310S04H03	16.0	20.6	72.6	0.6	4.0	9,330
	5	●	MDE 0310S04H05	28.0	32.6	86.6	0.6	4.0	12,100
	8	●	MDE 0310S04H08	34.5	39.1	92.6	0.6	4.0	14,400
3.2	3	●	MDE 0320S04H03	15.8	20.6	72.6	0.6	4.0	9,330
	5	●	MDE 0320S04H05	27.8	32.6	86.6	0.6	4.0	12,100
	8	●	MDE 0320S04H08	34.3	39.1	92.6	0.6	4.0	14,400
3.3	3	●	MDE 0330S04H03	15.7	20.6	72.6	0.6	4.0	9,330
	5	●	MDE 0330S04H05	27.7	32.6	86.6	0.6	4.0	12,100
	8	●	MDE 0330S04H08	34.2	39.1	92.6	0.6	4.0	14,400
3.4	3	●	MDE 0340S04H03	15.5	20.6	72.6	0.6	4.0	9,330
	5	●	MDE 0340S04H05	27.5	32.6	86.6	0.6	4.0	12,100
	8	●	MDE 0340S04H08	34.0	39.1	92.6	0.6	4.0	14,400
3.5	3	●	MDE 0350S04H03	15.4	20.6	72.6	0.6	4.0	9,330
	5	●	MDE 0350S04H05	27.4	32.6	86.6	0.6	4.0	12,100
	8	●	MDE 0350S04H08	33.9	39.1	92.6	0.6	4.0	14,400
3.6	3	●	MDE 0360S04H03	17.8	23.2	72.7	0.7	4.0	9,500
	5	●	MDE 0360S04H05	31.3	36.7	86.7	0.7	4.0	12,200
	8	●	MDE 0360S04H08	39.3	44.7	92.7	0.7	4.0	14,400
3.66	5	●	MDE 0366S04H05	31.2	36.7	86.7	0.7	4.0	12,200
3.68	5	●	MDE 0368S04H05	31.2	36.7	86.7	0.7	4.0	12,200
3.7	3	●	MDE 0370S04H03	17.7	23.2	72.7	0.7	4.0	9,500
	5	●	MDE 0370S04H05	31.2	36.7	86.7	0.7	4.0	12,200
	8	●	MDE 0370S04H08	39.2	44.7	92.7	0.7	4.0	14,400

Grade ACT100

●MDE-H Type (Internal Coolant Supply)



●Diameter: ø3.8 to 5.1 mm

Diameter DC (mm)	Hole Depth (LD)	Stock	Cat. No.	Dimensions (mm)					Standard Price (JPY)
				Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia DCON	
3.8	3	●	MDE 0380S04H03	17.5	23.2	72.7	0.7	4.0	9,500
	5	●	MDE 0380S04H05	31.0	36.7	86.7	0.7	4.0	12,200
	8	●	MDE 0380S04H08	39.0	44.7	92.7	0.7	4.0	14,400
3.9	3	●	MDE 0390S04H03	17.4	23.2	72.7	0.7	4.0	9,500
	5	●	MDE 0390S04H05	30.9	36.7	86.7	0.7	4.0	12,200
	8	●	MDE 0390S04H08	38.9	44.7	92.7	0.7	4.0	14,400
4.0	3	●	MDE 0400S04H03	17.2	23.2	72.7	0.7	4.0	9,500
	5	●	MDE 0400S04H05	30.7	36.7	86.7	0.7	4.0	12,200
	8	●	MDE 0400S04H08	38.7	44.7	92.7	0.7	4.0	14,400
4.1	3	●	MDE 0410S05H03	19.6	25.7	80.7	0.7	5.0	10,400
	5	●	MDE 0410S05H05	34.6	40.7	98.7	0.7	5.0	12,700
	8	●	MDE 0410S05H08	44.1	50.2	105.7	0.7	5.0	15,000
4.2	3	●	MDE 0420S05H03	19.5	25.8	80.8	0.8	5.0	10,400
	5	●	MDE 0420S05H05	34.5	40.8	98.8	0.8	5.0	12,700
	8	●	MDE 0420S05H08	44.0	50.3	105.8	0.8	5.0	15,000
4.3	3	●	MDE 0430S05H03	19.4	25.8	80.8	0.8	5.0	10,400
	5	●	MDE 0430S05H05	34.4	40.8	98.8	0.8	5.0	12,700
	8	●	MDE 0430S05H08	43.9	50.3	105.8	0.8	5.0	15,000
4.4	3	●	MDE 0440S05H03	19.2	25.8	80.8	0.8	5.0	10,400
	5	●	MDE 0440S05H05	34.2	40.8	98.8	0.8	5.0	12,700
	8	●	MDE 0440S05H08	43.7	50.3	105.8	0.8	5.0	15,000
4.5	3	●	MDE 0450S05H03	19.1	25.8	80.8	0.8	5.0	10,400
	5	●	MDE 0450S05H05	34.1	40.8	98.8	0.8	5.0	12,700
	8	●	MDE 0450S05H08	43.6	50.3	105.8	0.8	5.0	15,000
4.6	3	●	MDE 0460S05H03	21.4	28.3	80.8	0.8	5.0	11,100
	5	●	MDE 0460S05H05	37.9	44.8	98.8	0.8	5.0	12,900
	8	●	MDE 0460S05H08	48.9	55.8	105.8	0.8	5.0	15,200
4.62	5	●	MDE 0462S05H05	37.9	44.8	98.8	0.8	5.0	12,900
4.64	5	●	MDE 0464S05H05	37.9	44.8	98.8	0.8	5.0	12,900
4.7	3	●	MDE 0470S05H03	21.4	28.4	80.9	0.9	5.0	11,100
	5	●	MDE 0470S05H05	37.9	44.9	98.9	0.9	5.0	12,900
	8	●	MDE 0470S05H08	48.9	55.9	105.9	0.9	5.0	15,200
4.8	3	●	MDE 0480S05H03	21.2	28.4	80.9	0.9	5.0	11,100
	5	●	MDE 0480S05H05	37.7	44.9	98.9	0.9	5.0	12,900
	8	●	MDE 0480S05H08	48.7	55.9	105.9	0.9	5.0	15,200
4.9	3	●	MDE 0490S05H03	21.1	28.4	80.9	0.9	5.0	11,100
	5	●	MDE 0490S05H05	37.6	44.9	98.9	0.9	5.0	12,900
	8	●	MDE 0490S05H08	48.6	55.9	105.9	0.9	5.0	15,200
5.0	3	●	MDE 0500S05H03	20.9	28.4	80.9	0.9	5.0	11,100
	5	●	MDE 0500S05H05	37.4	44.9	98.9	0.9	5.0	12,900
	8	●	MDE 0500S05H08	48.4	55.9	105.9	0.9	5.0	15,200
5.1	3	●	MDE 0510S06H03	20.8	28.4	82.9	0.9	6.0	11,900
	5	●	MDE 0510S06H05	37.3	44.9	100.9	0.9	6.0	13,500
	8	●	MDE 0510S06H08	53.8	61.4	118.9	0.9	6.0	15,800

Grade ACT100

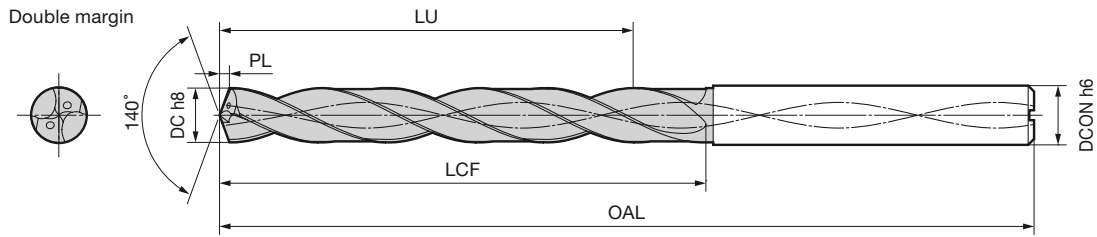
●Diameter: ø5.2 to 6.5 mm

Diameter DC (mm)	Hole Depth (LD)	Stock	Cat. No.	Dimensions (mm)					Standard Price (JPY)
				Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia DCON	
5.2	3	●	MDE 0520S06H03	20.6	28.4	82.9	0.9	6.0	11,900
	5	●	MDE 0520S06H05	37.1	44.9	100.9	0.9	6.0	13,500
	8	●	MDE 0520S06H08	53.6	61.4	118.9	0.9	6.0	15,800
5.3	3	●	MDE 0530S06H03	20.6	28.5	83.0	1.0	6.0	11,900
	5	●	MDE 0530S06H05	37.1	45.0	101.0	1.0	6.0	13,500
	8	●	MDE 0530S06H08	53.6	61.5	119.0	1.0	6.0	15,800
5.4	3	●	MDE 0540S06H03	20.4	28.5	83.0	1.0	6.0	11,900
	5	●	MDE 0540S06H05	36.9	45.0	101.0	1.0	6.0	13,500
	8	●	MDE 0540S06H08	53.4	61.5	119.0	1.0	6.0	15,800
5.5	3	●	MDE 0550S06H03	20.3	28.5	83.0	1.0	6.0	11,900
	5	●	MDE 0550S06H05	36.8	45.0	101.0	1.0	6.0	13,500
	8	●	MDE 0550S06H08	53.3	61.5	119.0	1.0	6.0	15,800
5.52	5	●	MDE 0552S06H05	40.6	49.0	101.0	1.0	6.0	13,900
5.54	5	●	MDE 0554S06H05	40.6	49.0	101.0	1.0	6.0	13,900
5.6	3	●	MDE 0560S06H03	22.6	31.0	83.0	1.0	6.0	12,000
	5	●	MDE 0560S06H05	40.6	49.0	101.0	1.0	6.0	13,900
	8	●	MDE 0560S06H08	58.6	67.0	119.0	1.0	6.0	16,300
5.7	3	●	MDE 0570S06H03	22.5	31.0	83.0	1.0	6.0	12,000
	5	●	MDE 0570S06H05	40.5	49.0	101.0	1.0	6.0	13,900
	8	●	MDE 0570S06H08	58.5	67.0	119.0	1.0	6.0	16,300
5.8	3	●	MDE 0580S06H03	22.4	31.1	83.1	1.1	6.0	12,000
	5	●	MDE 0580S06H05	40.4	49.1	101.1	1.1	6.0	13,900
	8	●	MDE 0580S06H08	58.4	67.1	119.1	1.1	6.0	16,300
5.9	3	●	MDE 0590S06H03	22.3	31.1	83.1	1.1	6.0	12,000
	5	●	MDE 0590S06H05	40.3	49.1	101.1	1.1	6.0	13,900
	8	●	MDE 0590S06H08	58.3	67.1	119.1	1.1	6.0	16,300
6.0	3	●	MDE 0600S06H03	22.1	31.1	83.1	1.1	6.0	12,000
	5	●	MDE 0600S06H05	40.1	49.1	101.1	1.1	6.0	13,900
	8	●	MDE 0600S06H08	58.1	67.1	119.1	1.1	6.0	16,300
6.1	3	●	MDE 0610S07H03	24.5	33.6	89.1	1.1	7.0	12,900
	5	●	MDE 0610S07H05	44.0	53.1	110.1	1.1	7.0	14,600
	8	●	MDE 0610S07H08	63.5	72.6	131.1	1.1	7.0	17,200
6.2	3	●	MDE 0620S07H03	24.3	33.6	89.1	1.1	7.0	12,900
	5	●	MDE 0620S07H05	43.8	53.1	110.1	1.1	7.0	14,600
	8	●	MDE 0620S07H08	63.3	72.6	131.1	1.1	7.0	17,200
6.3	3	●	MDE 0630S07H03	24.2	33.6	89.1	1.1	7.0	12,900
	5	●	MDE 0630S07H05	43.7	53.1	110.1	1.1	7.0	14,600
	8	●	MDE 0630S07H08	63.2	72.6	131.1	1.1	7.0	17,200
6.4	3	●	MDE 0640S07H03	24.1	33.7	89.2	1.2	7.0	12,900
	5	●	MDE 0640S07H05	43.6	53.2	110.2	1.2	7.0	14,600
	8	●	MDE 0640S07H08	63.1	72.7	131.2	1.2	7.0	17,200
6.5	3	●	MDE 0650S07H03	24.0	33.7	89.2	1.2	7.0	12,900
	5	●	MDE 0650S07H05	43.5	53.2	110.2	1.2	7.0	14,600
	8	●	MDE 0650S07H08	63.0	72.7	131.2	1.2	7.0	17,200

Grade ACT100

●mark: Standard stocked item

MDE-H Type (Internal Coolant Supply)



● Diameter: ø6.6 to 7.8 mm

Diameter DC (mm)	Hole Depth (LD)	Stock	Cat. No.	Dimensions (mm)					Standard Price (JPY)
				Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia DCON	
6.6	3	●	MDE 0660S07H03	26.3	36.2	89.2	1.2	7.0	13,100
	5	●	MDE 0660S07H05	47.3	57.2	110.2	1.2	7.0	15,000
	8	●	MDE 0660S07H08	68.3	78.2	131.2	1.2	7.0	17,400
6.7	3	●	MDE 0670S07H03	26.2	36.2	89.2	1.2	7.0	13,100
	5	●	MDE 0670S07H05	47.2	57.2	110.2	1.2	7.0	15,000
	8	●	MDE 0670S07H08	68.2	78.2	131.2	1.2	7.0	17,400
6.8	3	●	MDE 0680S07H03	26.0	36.2	89.2	1.2	7.0	13,100
	5	●	MDE 0680S07H05	47.0	57.2	110.2	1.2	7.0	15,000
	8	●	MDE 0680S07H08	68.0	78.2	131.2	1.2	7.0	17,400
6.9	3	●	MDE 0690S07H03	26.0	36.3	89.3	1.3	7.0	13,100
	5	●	MDE 0690S07H05	47.0	57.3	110.3	1.3	7.0	15,000
	8	●	MDE 0690S07H08	68.0	78.3	131.3	1.3	7.0	17,400
7.0	3	●	MDE 0700S07H03	25.8	36.3	89.3	1.3	7.0	13,100
	5	●	MDE 0700S07H05	46.8	57.3	110.3	1.3	7.0	15,000
	8	●	MDE 0700S07H08	67.8	78.3	131.3	1.3	7.0	17,400
7.1	3	●	MDE 0710S08H03	28.2	38.8	95.3	1.3	8.0	14,200
	5	●	MDE 0710S08H05	50.7	61.3	119.3	1.3	8.0	16,200
	8	●	MDE 0710S08H08	73.2	83.8	143.3	1.3	8.0	18,600
7.2	3	●	MDE 0720S08H03	28.0	38.8	95.3	1.3	8.0	14,200
	5	●	MDE 0720S08H05	50.5	61.3	119.3	1.3	8.0	16,200
	8	●	MDE 0720S08H08	73.0	83.8	143.3	1.3	8.0	18,600
7.3	3	●	MDE 0730S08H03	27.9	38.8	95.3	1.3	8.0	14,200
	5	●	MDE 0730S08H05	50.4	61.3	119.3	1.3	8.0	16,200
	8	●	MDE 0730S08H08	72.9	83.8	143.3	1.3	8.0	18,600
7.36	5	●	MDE 0736S08H05	50.2	61.3	119.3	1.3	8.0	16,200
7.38	5	●	MDE 0738S08H05	50.2	61.3	119.3	1.3	8.0	16,200
7.4	3	●	MDE 0740S08H03	27.7	38.8	95.3	1.3	8.0	14,200
	5	●	MDE 0740S08H05	50.2	61.3	119.3	1.3	8.0	16,200
	8	●	MDE 0740S08H08	72.7	83.8	143.3	1.3	8.0	18,600
7.5	3	●	MDE 0750S08H03	27.7	38.9	95.4	1.4	8.0	14,200
	5	●	MDE 0750S08H05	50.2	61.4	119.4	1.4	8.0	16,200
	8	●	MDE 0750S08H08	72.7	83.9	143.4	1.4	8.0	18,600
7.52	5	●	MDE 0752S08H05	54.0	65.4	119.4	1.4	8.0	16,600
7.54	5	●	MDE 0754S08H05	54.0	65.4	119.4	1.4	8.0	16,600
7.6	3	●	MDE 0760S08H03	30.0	41.4	95.4	1.4	8.0	14,500
	5	●	MDE 0760S08H05	54.0	65.4	119.4	1.4	8.0	16,600
	8	●	MDE 0760S08H08	78.0	89.4	143.4	1.4	8.0	18,900
7.7	3	●	MDE 0770S08H03	29.9	41.4	95.4	1.4	8.0	14,500
	5	●	MDE 0770S08H05	53.9	65.4	119.4	1.4	8.0	16,600
	8	●	MDE 0770S08H08	77.9	89.4	143.4	1.4	8.0	18,900
7.8	3	●	MDE 0780S08H03	29.7	41.4	95.4	1.4	8.0	14,500
	5	●	MDE 0780S08H05	53.7	65.4	119.4	1.4	8.0	16,600
	8	●	MDE 0780S08H08	77.7	89.4	143.4	1.4	8.0	18,900

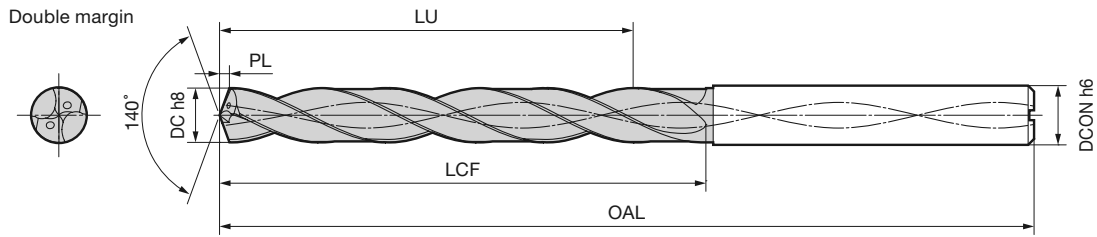
Grade ACT100

● Diameter: ø7.9 to 9.2 mm

Diameter DC (mm)	Hole Depth (LD)	Stock	Cat. No.	Dimensions (mm)					Standard Price (JPY)
				Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia DCON	
7.9	3	●	MDE 0790S08H03	29.6	41.4	95.4	1.4	8.0	14,500
	5	●	MDE 0790S08H05	53.6	65.4	119.4	1.4	8.0	16,600
	8	●	MDE 0790S08H08	77.6	89.4	143.4	1.4	8.0	18,900
8.0	3	●	MDE 0800S08H03	29.5	41.5	95.5	1.5	8.0	14,500
	5	●	MDE 0800S08H05	53.5	65.5	119.5	1.5	8.0	16,600
	8	●	MDE 0800S08H08	77.5	89.5	143.5	1.5	8.0	18,900
8.1	3	●	MDE 0810S09H03	31.9	44.0	101.5	1.5	9.0	15,600
	5	●	MDE 0810S09H05	57.4	69.5	128.5	1.5	9.0	17,800
	8	●	MDE 0810S09H08	82.9	95.0	155.5	1.5	9.0	19,800
8.2	3	●	MDE 0820S09H03	31.7	44.0	101.5	1.5	9.0	15,600
	5	●	MDE 0820S09H05	57.2	69.5	128.5	1.5	9.0	17,800
	8	●	MDE 0820S09H08	82.7	95.0	155.5	1.5	9.0	19,800
8.3	3	●	MDE 0830S09H03	31.6	44.0	101.5	1.5	9.0	15,600
	5	●	MDE 0830S09H05	57.1	69.5	128.5	1.5	9.0	17,800
	8	●	MDE 0830S09H08	82.6	95.0	155.5	1.5	9.0	19,800
8.4	3	●	MDE 0840S09H03	31.4	44.0	101.5	1.5	9.0	15,600
	5	●	MDE 0840S09H05	56.9	69.5	128.5	1.5	9.0	17,800
	8	●	MDE 0840S09H08	82.4	95.0	155.5	1.5	9.0	19,800
8.5	3	●	MDE 0850S09H03	31.3	44.0	101.5	1.5	9.0	15,600
	5	●	MDE 0850S09H05	56.8	69.5	128.5	1.5	9.0	17,800
	8	●	MDE 0850S09H08	82.3	95.0	155.5	1.5	9.0	19,800
8.6	3	●	MDE 0860S09H03	33.7	46.6	101.6	1.6	9.0	15,800
	5	●	MDE 0860S09H05	60.7	73.6	128.6	1.6	9.0	18,200
	8	●	MDE 0860S09H08	87.7	100.6	155.6	1.6	9.0	20,000
8.7	3	●	MDE 0870S09H03	33.6	46.6	101.6	1.6	9.0	15,800
	5	●	MDE 0870S09H05	60.6	73.6	128.6	1.6	9.0	18,200
	8	●	MDE 0870S09H08	87.6	100.6	155.6	1.6	9.0	20,000
8.8	3	●	MDE 0880S09H03	33.4	46.6	101.6	1.6	9.0	15,800
	5	●	MDE 0880S09H05	60.4	73.6	128.6	1.6	9.0	18,200
	8	●	MDE 0880S09H08	87.4	100.6	155.6	1.6	9.0	20,000
8.9	3	●	MDE 0890S09H03	33.3	46.6	101.6	1.6	9.0	15,800
	5	●	MDE 0890S09H05	60.3	73.6	128.6	1.6	9.0	18,200
	8	●	MDE 0890S09H08	87.3	100.6	155.6	1.6	9.0	20,000
9.0	3	●	MDE 0900S09H03	33.1	46.6	101.6	1.6	9.0	15,800
	5	●	MDE 0900S09H05	60.1	73.6	128.6	1.6	9.0	18,200
	8	●	MDE 0900S09H08	87.1	100.6	155.6	1.6	9.0	20,000
9.1	3	●	MDE 0910S10H03	35.6	49.2	107.7	1.7	10.0	16,900
	5	●	MDE 0910S10H05	64.1	77.7	137.7	1.7	10.0	19,400
	8	●	MDE 0910S10H08	92.6	106.2	167.7	1.7	10.0	22,800
9.2	3	●	MDE 0920S10H03	35.4	49.2	107.7	1.7	10.0	16,900
	5	●	MDE 0920S10H05	63.9	77.7	137.7	1.7	10.0	19,400
	8	●	MDE 0920S10H08	92.4	106.2	167.7	1.7	10.0	22,800

Grade ACT100

●MDE-H Type (Internal Coolant Supply)



●Diameter: ø14.6 to 15.9 mm

Diameter DC (mm)	Hole Depth (L/D)	Stock	Cat. No.	Dimensions (mm)					Standard Price (JPY)
				Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia DCON	
14.6	3	●	MDE 1460S15H03	55.8	77.7	142.7	2.7	15.0	26,300
	5	●	MDE 1460S15H05	100.8	122.7	187.7	2.7	15.0	29,900
	8	●	MDE 1460S15H08	145.8	167.7	232.7	2.7	15.0	45,400
14.7	3	●	MDE 1470S15H03	55.7	77.7	142.7	2.7	15.0	26,300
	5	●	MDE 1470S15H05	100.7	122.7	187.7	2.7	15.0	29,900
	8	●	MDE 1470S15H08	145.7	167.7	232.7	2.7	15.0	45,400
14.8	3	●	MDE 1480S15H03	55.5	77.7	142.7	2.7	15.0	26,300
	5	●	MDE 1480S15H05	100.5	122.7	187.7	2.7	15.0	29,900
	8	●	MDE 1480S15H08	145.5	167.7	232.7	2.7	15.0	45,400
14.9	3	●	MDE 1490S15H03	55.4	77.7	142.7	2.7	15.0	26,300
	5	●	MDE 1490S15H05	100.4	122.7	187.7	2.7	15.0	29,900
	8	●	MDE 1490S15H08	145.4	167.7	232.7	2.7	15.0	45,400
15.0	3	●	MDE 1500S15H03	55.2	77.7	142.7	2.7	15.0	26,300
	5	●	MDE 1500S15H05	100.2	122.7	187.7	2.7	15.0	29,900
	8	●	MDE 1500S15H08	145.2	167.7	232.7	2.7	15.0	45,400
15.1	3	●	MDE 1510S16H03	57.6	80.2	148.7	2.7	16.0	27,400
	5	●	MDE 1510S16H05	104.1	126.7	196.7	2.7	16.0	31,400
	8	●	MDE 1510S16H08	150.6	173.2	244.7	2.7	16.0	50,700
15.2	3	●	MDE 1520S16H03	57.5	80.3	148.8	2.8	16.0	27,400
	5	●	MDE 1520S16H05	104.0	126.8	196.8	2.8	16.0	31,400
	8	●	MDE 1520S16H08	150.5	173.3	244.8	2.8	16.0	50,700
15.3	3	●	MDE 1530S16H03	57.4	80.3	148.8	2.8	16.0	27,400
	5	●	MDE 1530S16H05	103.9	126.8	196.8	2.8	16.0	31,400
	8	●	MDE 1530S16H08	150.4	173.3	244.8	2.8	16.0	50,700
15.4	3	●	MDE 1540S16H03	57.2	80.3	148.8	2.8	16.0	27,400
	5	●	MDE 1540S16H05	103.7	126.8	196.8	2.8	16.0	31,400
	8	●	MDE 1540S16H08	150.2	173.3	244.8	2.8	16.0	50,700
15.5	3	●	MDE 1550S16H03	57.1	80.3	148.8	2.8	16.0	27,400
	5	●	MDE 1550S16H05	103.6	126.8	196.8	2.8	16.0	31,400
	8	●	MDE 1550S16H08	150.1	173.3	244.8	2.8	16.0	50,700
15.6	3	●	MDE 1560S16H03	59.4	82.8	148.8	2.8	16.0	27,800
	5	●	MDE 1560S16H05	107.4	130.8	196.8	2.8	16.0	31,800
	8	●	MDE 1560S16H08	155.4	178.8	244.8	2.8	16.0	51,200
15.7	3	●	MDE 1570S16H03	59.4	82.9	148.9	2.9	16.0	27,800
	5	●	MDE 1570S16H05	107.4	130.9	196.9	2.9	16.0	31,800
	8	●	MDE 1570S16H08	155.4	178.9	244.9	2.9	16.0	51,200
15.8	3	●	MDE 1580S16H03	59.2	82.9	148.9	2.9	16.0	27,800
	5	●	MDE 1580S16H05	107.2	130.9	196.9	2.9	16.0	31,800
	8	●	MDE 1580S16H08	155.2	178.9	244.9	2.9	16.0	51,200
15.9	3	●	MDE 1590S16H03	59.1	82.9	148.9	2.9	16.0	27,800
	5	●	MDE 1590S16H05	107.1	130.9	196.9	2.9	16.0	31,800
	8	●	MDE 1590S16H08	155.1	178.9	244.9	2.9	16.0	51,200

Grade ACT100

●Diameter: ø16.0 to 20.0 mm

Diameter DC (mm)	Hole Depth (L/D)	Stock	Cat. No.	Dimensions (mm)					Standard Price (JPY)
				Effective Length LU	Flute Length LCF	Overall Length OAL	Tip PL	Shank Dia DCON	
16.0	3	●	MDE 1600S16H03	58.9	82.9	148.9	2.9	16.0	27,800
	5	●	MDE 1600S16H05	106.9	130.9	196.9	2.9	16.0	31,800
	8	●	MDE 1600S16H08	154.9	178.9	244.9	2.9	16.0	51,200
16.5	3	●	MDE 1650S17H03	60.8	85.5	155.0	3.0	17.0	30,500
	5	●	MDE 1650S17H05	110.3	135.0	206.0	3.0	17.0	38,100
17.0	3	●	MDE 1700S17H03	62.6	88.1	155.1	3.1	17.0	30,800
	5	●	MDE 1700S17H05	113.6	139.1	206.1	3.1	17.0	38,500
17.5	3	●	MDE 1750S18H03	64.5	90.7	161.2	3.2	18.0	35,900
	5	●	MDE 1750S18H05	116.9	143.2	217.3	3.2	18.0	44,700
18.0	3	●	MDE 1800S18H03	66.3	93.3	161.3	3.3	18.0	36,300
	5	●	MDE 1800S18H05	120.3	147.3	217.3	3.3	18.0	45,100
18.5	3	●	MDE 1850S19H03	68.2	95.9	167.4	3.4	19.0	41,500
	5	●	MDE 1850S19H05	123.6	151.4	224.4	3.4	19.0	51,300
19.0	3	●	MDE 1900S19H03	70.0	98.5	167.5	3.5	19.0	41,800
	5	●	MDE 1900S19H05	127.0	155.5	224.5	3.5	19.0	51,700
19.5	3	●	MDE 1950S20H03	71.8	101.0	173.5	3.5	20.0	46,900
	5	●	MDE 1950S20H05	130.3	159.5	233.5	3.5	20.0	57,900
20.0	3	●	MDE 2000S20H03	73.6	103.6	173.6	3.6	20.0	47,300
	5	●	MDE 2000S20H05	133.6	163.6	233.6	3.6	20.0	58,300

Grade ACT100

●mark: Standard stocked item

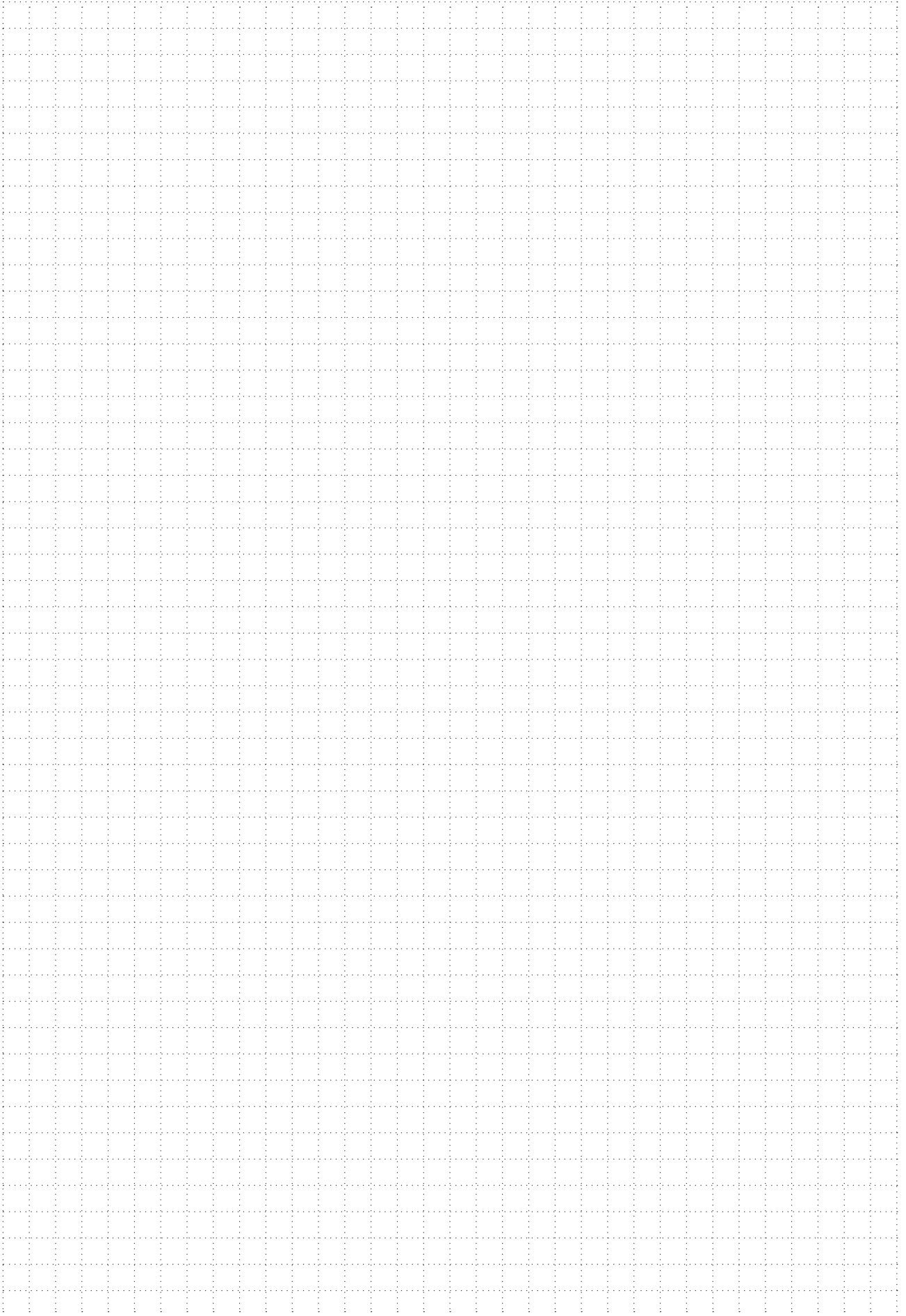
● Recommended Cutting Conditions (MDE-H Type, Internal Coolant Supply, 3D/5D/8D)

Work Material		Mild Steel/Low Carbon Steel SS400/S15C up to 160HB		Carbon Steel S35C/S50C up to 230HB		Alloy Steel SCM/SCr 20 to 30HRC		Alloy Steel SCM/SCr 30 to 38HRC	
Cutting speed	Dia. <ø3	30 to 80m/min		30 to 80m/min		30 to 80m/min		30 to 80m/min	
	Dia. ≥ø3	60 to 100m/min		60 to 120m/min		50 to 100m/min		40 to 80m/min	
Diameter DC		Spindle speed (min ⁻¹)	Feed rate (mm/rev)	Spindle speed (min ⁻¹)	Feed rate (mm/rev)	Spindle speed (min ⁻¹)	Feed rate (mm/rev)	Spindle speed (min ⁻¹)	Feed rate (mm/rev)
ø1.0		9,500	0.02 to 0.04	9,500	0.02 to 0.04	9,500	0.02 to 0.04	9,500	0.02 to 0.03
ø1.5		8,500	0.03 to 0.06	8,500	0.03 to 0.06	8,500	0.03 to 0.06	8,500	0.03 to 0.06
ø2.0		9,000	0.04 to 0.08	8,000	0.04 to 0.08	8,000	0.04 to 0.08	8,000	0.04 to 0.08
ø2.5		9,500	0.04 to 0.08	9,000	0.04 to 0.08	8,500	0.04 to 0.08	7,600	0.04 to 0.08
ø3.0		9,600	0.05 to 0.12	8,500	0.05 to 0.12	7,500	0.05 to 0.12	6,400	0.05 to 0.12
ø4.0		7,200	0.07 to 0.17	6,400	0.07 to 0.17	5,600	0.07 to 0.17	4,800	0.07 to 0.17
ø5.0		5,800	0.08 to 0.20	5,100	0.08 to 0.20	4,500	0.08 to 0.20	3,900	0.08 to 0.20
ø6.0		4,800	0.10 to 0.20	4,300	0.10 to 0.20	3,800	0.10 to 0.20	3,200	0.10 to 0.20
ø7.0		4,100	0.12 to 0.23	3,700	0.12 to 0.23	3,200	0.12 to 0.23	2,800	0.12 to 0.23
ø8.0		3,600	0.12 to 0.25	3,200	0.12 to 0.25	2,800	0.12 to 0.25	2,400	0.12 to 0.25
ø9.0		3,200	0.14 to 0.25	2,900	0.14 to 0.25	2,500	0.14 to 0.25	2,200	0.14 to 0.25
ø10.0		2,900	0.16 to 0.28	2,600	0.16 to 0.28	2,300	0.16 to 0.28	2,000	0.16 to 0.28
ø11.0		2,700	0.18 to 0.30	2,400	0.18 to 0.30	2,100	0.18 to 0.30	1,800	0.18 to 0.30
ø12.0		2,400	0.20 to 0.30	2,200	0.20 to 0.30	1,900	0.20 to 0.30	1,600	0.20 to 0.30
ø14.0		2,100	0.20 to 0.30	1,900	0.20 to 0.30	1,600	0.20 to 0.30	1,400	0.20 to 0.30
ø16.0		1,800	0.20 to 0.30	1,600	0.20 to 0.30	1,400	0.20 to 0.30	1,200	0.20 to 0.30
ø18.0		1,600	0.20 to 0.30	1,500	0.20 to 0.30	1,300	0.20 to 0.30	1,100	0.20 to 0.30
ø20.0		1,500	0.20 to 0.30	1,300	0.20 to 0.30	1,200	0.20 to 0.30	1,000	0.20 to 0.30
High-efficiency Product		HGS Type		HGS Type		HGS Type		HGS Type	

Work Material		Cast Iron FC250 to 280HB		Ductile Cast Iron FCD450/FCD600 to 270HB		Stainless Steel (oil-based drilling) SUS304/SUS410 to 200HB		Special Steel/Pre-hardened Steel SKS2/SKD61 (non-tempered) 30 to 38 HRC	
Cutting speed	Dia. <ø3	30 to 80m/min		30 to 80m/min		20 to 50m/min		30 to 60m/min	
	Dia. ≥ø3	60 to 100m/min		50 to 100m/min		20 to 50m/min		30 to 60m/min	
Diameter DC		Spindle speed (min ⁻¹)	Feed rate (mm/rev)	Spindle speed (min ⁻¹)	Feed rate (mm/rev)	Spindle speed (min ⁻¹)	Feed rate (mm/rev)	Spindle speed (min ⁻¹)	Feed rate (mm/rev)
ø1.0		9,500	0.02 to 0.04	9,500	0.02 to 0.04	9,500	0.02 to 0.03	9,500	0.02 to 0.03
ø1.5		8,500	0.03 to 0.06	8,500	0.03 to 0.06	8,500	0.02 to 0.05	8,500	0.02 to 0.04
ø2.0		8,000	0.04 to 0.08	8,000	0.04 to 0.08	8,000	0.03 to 0.06	7,100	0.03 to 0.06
ø2.5		9,000	0.04 to 0.08	8,500	0.04 to 0.08	7,600	0.03 to 0.07	5,700	0.03 to 0.06
ø3.0		8,500	0.06 to 0.15	7,500	0.05 to 0.12	6,400	0.05 to 0.12	4,800	0.05 to 0.10
ø4.0		6,400	0.08 to 0.18	5,600	0.07 to 0.17	4,800	0.07 to 0.17	3,600	0.06 to 0.13
ø5.0		5,100	0.10 to 0.20	4,500	0.08 to 0.20	3,900	0.08 to 0.20	2,900	0.07 to 0.15
ø6.0		4,300	0.12 to 0.23	3,800	0.10 to 0.20	3,200	0.10 to 0.20	2,400	0.08 to 0.18
ø7.0		3,700	0.12 to 0.23	3,200	0.12 to 0.23	2,800	0.10 to 0.23	2,100	0.10 to 0.20
ø8.0		3,200	0.18 to 0.25	2,800	0.12 to 0.25	2,400	0.10 to 0.20	1,800	0.12 to 0.22
ø9.0		2,900	0.17 to 0.25	2,500	0.14 to 0.25	2,200	0.12 to 0.23	1,600	0.14 to 0.22
ø10.0		2,600	0.18 to 0.28	2,300	0.16 to 0.28	2,000	0.12 to 0.23	1,500	0.16 to 0.25
ø11.0		2,400	0.20 to 0.30	2,100	0.18 to 0.30	1,800	0.15 to 0.25	1,400	0.18 to 0.28
ø12.0		2,200	0.20 to 0.30	1,900	0.20 to 0.30	1,600	0.15 to 0.25	1,200	0.18 to 0.28
ø14.0		1,900	0.20 to 0.30	1,600	0.20 to 0.30	1,400	0.15 to 0.25	1,100	0.18 to 0.30
ø16.0		1,600	0.20 to 0.30	1,400	0.20 to 0.30	1,200	0.15 to 0.25	900	0.18 to 0.30
ø18.0		1,500	0.20 to 0.30	1,300	0.20 to 0.30	1,100	0.15 to 0.25	800	0.18 to 0.30
ø20.0		1,300	0.20 to 0.30	1,200	0.20 to 0.30	1,000	0.15 to 0.25	720	0.18 to 0.30
High-efficiency Product		HX Type (HY Type)		HX Type (HY Type)		MDM Type		HGS Type	

1. The recommended cutting conditions below are for cases where a water soluble coolant is used.
2. MQL coolant is also usable. Note that external mixing MQL equipment may not generate MQL with a shank diameter (DCON) of ø16mm or more.
3. When mounting the drill in the collet, make sure that runout around the cutting edge is no greater than 0.02mm.
4. Make sure the flute does not enter the collet.
5. If the surface of the workpiece is abnormally shaped (tilted, interrupted etc.), reduce the feed rate to about half when feeding the drill in the workpiece.
* If stable drilling is still not possible, pre-machining of the flat surface with the MDF Flat MULTIDRILL is recommended.
6. When performing interrupted through drilling, reduce the feed rate to about half the feed rate used prior to this process.

MEMO





- Very hot or lengthy chips may be discharged while the machine is in operation. Therefore, machine guards, safety goggles or other protective covers must be used. Fire safety precautions must also be considered.

< SAFETY NOTES >

- Please handle with care as this product has sharp edges.
- Improper cutting conditions or mis-handling of the tool may result in breakages or projectiles. Therefore, please use the tool within its recommended conditions.

- When using non-water soluble cutting oil, precautions against fire must be taken and please ensure that a fire extinguisher is placed near the machine.

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