

SEC-MULTIDRILL **SMD** Series

Rev.23



- Flanged Holder Lineup Expanded by 148 Items Expansion
- New MSL Type Head, Ideal for Mild Steel and Stainless Steel Drilling New
- Supports Deep Holes and Long Overhang Drilling with 12D Holder
- Cutting Edge Selectable by Application
- Regrindable Cutting Edge (excluding MFS Type)

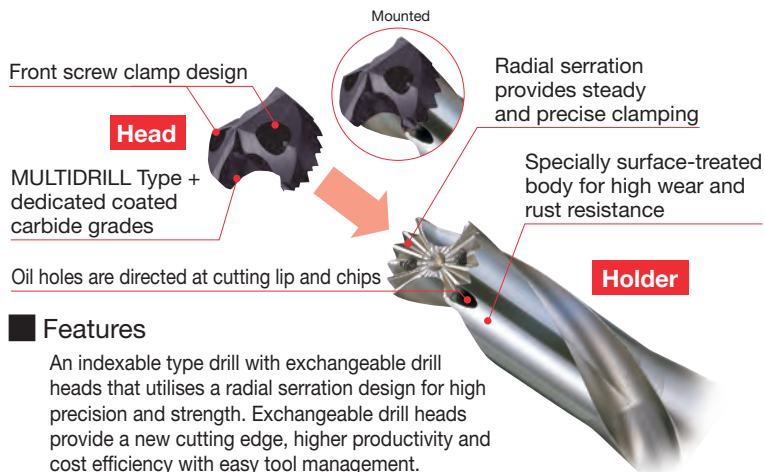
Diameter Lineup (Drill Heads)

MTL	ø12.0 to ø42.5mm	P	M	K	N	S	H
MSL	ø12.0 to ø30.8mm*	P	M	K	N	S	H
MFS	ø12.0 to ø30.0mm	P	M	K	N	S	H
MB	ø24.5 to ø26.7mm	P	M	K	N	S	H

*MSL Type ø19.6 to ø30.8mm is planned stock.



MSL Type



Features

An indexable type drill with exchangeable drill heads that utilizes a radial serration design for high precision and strength. Exchangeable drill heads provide a new cutting edge, higher productivity and cost efficiency with easy tool management. Regrinding allowance of 1.5mm to 3mm makes further tool cost reductions possible.

* Regrinding is available only for MTL/MSL/MEL/MB

Product Range

Head	Applications	L/D: Holder Type	DC Range
MTL Type	General Steel	1.5 : -1.5D(F) Type / S Type	-1.5D(F) to -12D Type / S Type
		3 : M Type / -3D(F) Type	ø12.0 to ø30.8
		5 : L Type / -5D(F) Type	M Type / L Type
		8 : D Type / -8D(F) Type	ø12.0 to ø42.5
MSL Type	SUS SS FC	1.5 : -1.5D(F) Type / S Type	-1.5D(F) to -12D Type / M Type / L Type / S Type
		3 : M Type / -3D(F) Type	ø12.0 to ø30.8
		5 : L Type / -5D(F) Type	
		8 : D Type / -8D(F) Type	D Type
MFS Type	Spot Facing	1.5 : -1.5D(F) Type / S Type	ø12.0 to ø30.0
		MB Type	
MB Type	Bridge	3 : B3 Type	ø24.5 to ø26.7

*MFS Type can also be used with 3D, 5D, 8D, and 12D holders. S Type holder has been changed to -1.5D(F) Type.

MFS Type P16 MB Type P24

Tool Life and Cost

Comparison of Tool Life

Tool Comparison for Drilling of 1,000 Workpieces

Results

For regrinding purposes, brazed drills are only used up to 50-70% of their actual tool life potential. SEC-MULTIDRILL MTL Type can be used up to 100%!

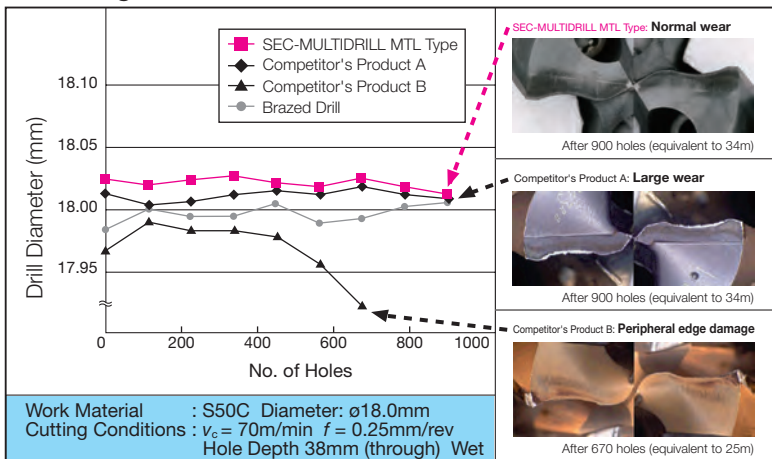
SEC-MULTIDRILL MTL Type offers:
Double the tool life of brazed drills!
Shorter tool change time!

Workpiece Example and Cutting Conditions

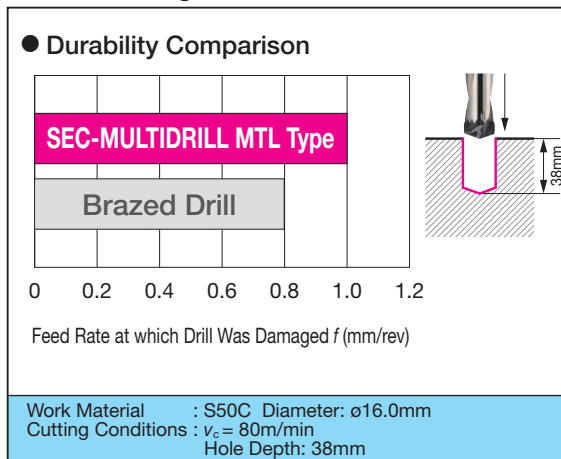
Hole dia.: ø18.0mm, depth: 50mm

SEC-MULTIDRILL MTL Type
Head: SMDT1800MTL
Holder: SMDH180M
Work Material: S50C (Machine Component), Wet

Drilling Precision

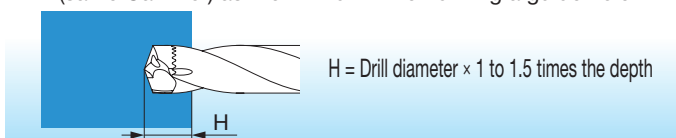


Tool Strength

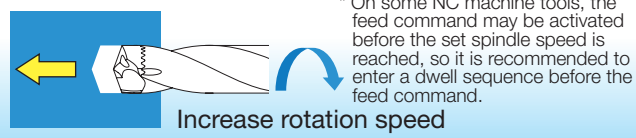
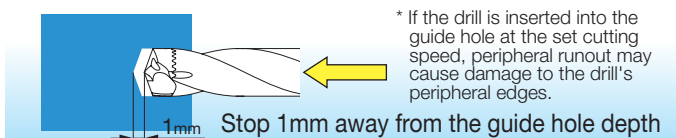


Recommended Drilling Method for 12D Type: Use a hydro chuck, milling chuck or collet chuck to hold the 12D drill body

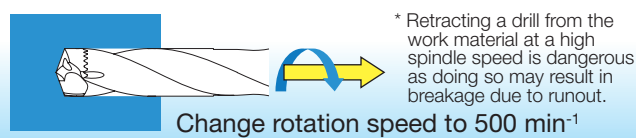
- (1) SMDH000-1.5D(F) Type (1.5D Holder) + MTL Type (head) to drill a guide hole
 - Use a 1.5D drill body and a drill head with the same diameter (same Cat. No.) as the 12D drill when drilling a guide hole.
- (2) Feed the SMDH000-12D (12D holder) + MTL Type (head) through the guide hole at a low spindle speed
 - Spindle speed: 500min⁻¹ ● Feed rate: 1,000 to 2,000mm/min
- (3) Increase spindle speed until the set spindle speed is reached, then start drilling
- (4) After drilling, rotation speed is reduced and the drill is retracted from the work material
 - Spindle speed: 500min⁻¹ ● Feed rate: 1,000 to 2,000mm/min



- (2) Feed the SMDH000-12D (12D holder) + MTL Type (head) through the guide hole at a low spindle speed
- Spindle speed: 500min⁻¹ ● Feed rate: 1,000 to 2,000mm/min

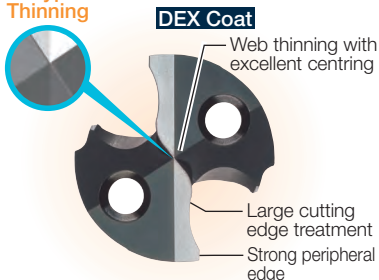


- (4) After drilling, rotation speed is reduced and the drill is retracted from the work material
- Spindle speed: 500min⁻¹ ● Feed rate: 1,000 to 2,000mm/min



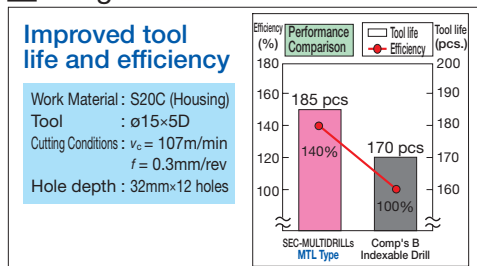
MTL Type Suitable for high-efficiency drilling of general steel

X-Type Thinning



- **Excellent cutting edge strength**
Large edge treatment is used to reduce fracture of the cutting edge.
- **Stable machined hole accuracy**
X Type thinning achieves excellent centring on drill entry and stable drilling.

Longer Tool Life

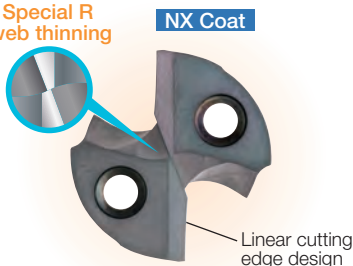


Drilling Precision



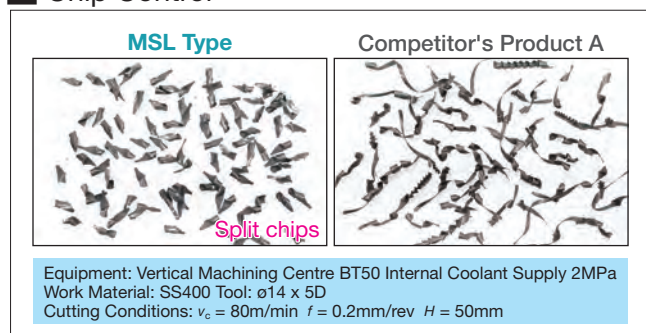
New MSL Type Stable drilling of mild steel, stainless steel, etc.

Special R web thinning

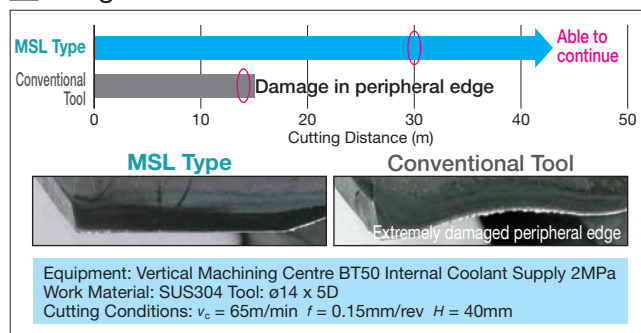


- **Overwhelming cutting edge sharpness in mild steel and SUS drilling**
Newly designed linear cutting edge and special R web thinning enable improved chip evacuation and stable drilling.
- **Stable long tool life**
NX Coat based on ABSOTECH™ technology for improved fracture resistance and adhesion resistance.

Chip Control



Longer Tool Life



Recommended Cutting Conditions (MSL Type / MTL Type) v_c : Cutting Speed (m/min), f : Feed Rate (mm/rev)

Work Material	Mild Steel (up to 250HB)	General Steel (250 to 320HB)			Hardened Steel (45HRC)	Stainless Steel (up to 200HB)	Gray Cast Iron	Ductile Cast Iron	Aluminum Alloy
Recommended Head	MSL Type	MTL Type	MSL Type	MTL Type	MSL Type	MTL Type / MSL Type	MTL Type / MSL Type	(Special Cutting Edge)*	
Dia. DC (mm)	Min. - Optimum - Max.	Min. - Optimum - Max.	Min. - Optimum - Max.	Min. - Optimum - Max.	Min. - Optimum - Max.	Min. - Optimum - Max.	Min. - Optimum - Max.	Min. - Optimum - Max.	
up to $\phi 16.0$	v_c	80-100-120 (50-70-80)	70-100-120 (50-70-80)	70-100-120 (50-70-80)	40-60-90 (30-50-70)	30-50-70 (30-40-50)	50-70-90 (40-60-80)	50-60-80 (40-50-70)	200-240-260 (180-200-240)
	f	0.15-0.20-0.25	0.15-0.20-0.30	0.10-0.15-0.20	0.10-0.15-0.20	0.10-0.15-0.20	0.20-0.25-0.30	0.20-0.25-0.30	0.35-0.45-0.55
up to $\phi 20.0$	v_c	80-100-120 (50-70-80)	70-100-120 (50-70-80)	70-100-120 (50-70-80)	40-60-90 (30-50-70)	30-50-70 (30-40-50)	60-80-100 (50-70-90)	50-70-90 (40-60-80)	200-240-260 (180-200-240)
	f	0.15-0.25-0.30	0.20-0.25-0.35	0.15-0.20-0.25	0.15-0.20-0.25	0.10-0.17-0.25	0.20-0.30-0.35	0.20-0.25-0.35	0.35-0.50-0.60
up to $\phi 30.8$	v_c	80-100-120 (50-70-80)	70-100-120 (50-70-80)	70-100-120 (50-70-80)	40-60-90 (30-50-70)	30-50-70 (30-40-50)	60-80-100 (50-70-90)	50-70-90 (40-60-80)	200-240-260 (180-200-240)
	f	0.20-0.25-0.30	0.20-0.25-0.35	0.15-0.20-0.25	0.15-0.20-0.25	0.10-0.17-0.25	0.20-0.30-0.40	0.25-0.30-0.35	0.35-0.50-0.60
Recommended Head	Large Diameter MTL Type ($\phi 31.0$ up)								
$\phi 31.0$ to $\phi 42.5$	v_c	40-60-120 (30-35-80)	60-80-120 (40-50-80)	40-50-80 (30-40-60)	40-50-80 (30-40-60)	30-50-70 (30-40-50)	50-70-100 (40-60-90)	50-60-90 (40-50-70)	200-240-260
	f	0.25-0.30-0.45	0.25-0.30-0.40	0.15-0.25-0.30	0.15-0.25-0.30	0.15-0.20-0.25	0.25-0.35-0.45	0.25-0.30-0.35	0.35-0.50-0.60

Note: Where machine and work clamp rigidity are good, conditions may be increased up to the maximum.

For stainless steel, we recommend feed $f = 0.1$ to 0.15mm/rev for entry to hole depth up to $0.5 \times DC$.

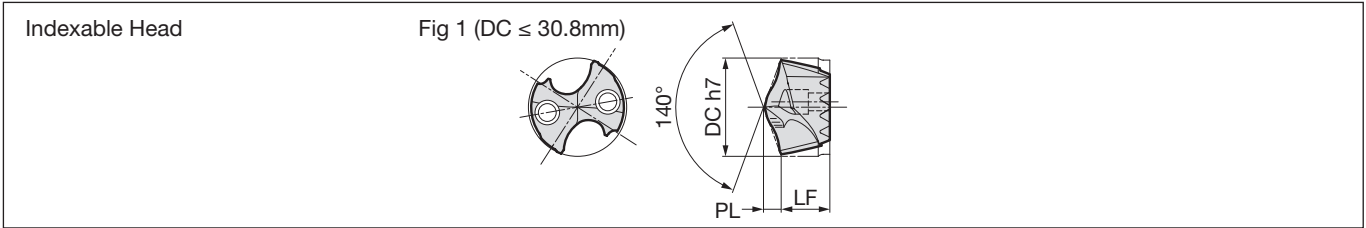
For 8D and 12D drills, use the cutting speeds in parentheses as a guideline. Before drilling 8D and 12D holes, a guide hole of a similar diameter is recommended.

The values in red have been changed from Rev. 22 and the 2021-2022 General Catalogue.

(*) Inquire if you require special drill heads for aluminum alloy.



*For h7 tolerance, refer to Chapter N References in the General Catalogue.



Indexable Head MTL Type Diameter ø12.0 to 17.3mm Dimensions (mm)

Dia. DC	Stock	Cat. No.	Shoulder Length LF	Tip PL	Applicable Holders	Fig			
12.0	●	SMDT 1200 MTL	6.9	2.2	SMDH120□	1			
12.1	●	SMDT 1210 MTL				1			
12.2	●	SMDT 1220 MTL		1					
12.3	●	SMDT 1230 MTL		1					
12.4	●	SMDT 1240 MTL		2.3		1			
12.5	●	SMDT 1250 MTL	7.1	2.3	SMDH125□	1			
12.6	●	SMDT 1260 MTL				1			
12.7	●	SMDT 1270 MTL				1			
12.8	●	SMDT 1280 MTL				1			
12.9	●	SMDT 1290 MTL				1			
13.0	●	SMDT 1300 MTL	7.3	2.4	SMDH130□	1			
13.1	●	SMDT 1310 MTL				1			
13.2	●	SMDT 1320 MTL				1			
13.3	●	SMDT 1330 MTL				1			
13.4	●	SMDT 1340 MTL				1			
13.5	●	SMDT 1350 MTL				1			
13.6	●	SMDT 1360 MTL	7.8	2.5	SMDH140□	1			
13.7	●	SMDT 1370 MTL				1			
13.8	●	SMDT 1380 MTL				1			
13.9	●	SMDT 1390 MTL				1			
14.0	●	SMDT 1400 MTL				1			
14.1	●	SMDT 1410 MTL				1			
14.2	●	SMDT 1420 MTL				1			
14.3	●	SMDT 1430 MTL				1			
14.4	●	SMDT 1440 MTL				1			
14.5	●	SMDT 1450 MTL				1			
14.6	●	SMDT 1460 MTL	8.3	2.7	SMDH150□	1			
14.7	●	SMDT 1470 MTL				1			
14.8	●	SMDT 1480 MTL				1			
14.9	●	SMDT 1490 MTL				1			
15.0	●	SMDT 1500 MTL				1			
15.1	●	SMDT 1510 MTL				1			
15.2	●	SMDT 1520 MTL				1			
15.3	●	SMDT 1530 MTL				1			
15.4	●	SMDT 1540 MTL				1			
15.5	●	SMDT 1550 MTL				1			
15.6	●	SMDT 1560 MTL	8.7	2.8	SMDH160□	1			
15.7	●	SMDT 1570 MTL				1			
15.8	●	SMDT 1580 MTL				1			
15.9	●	SMDT 1590 MTL				1			
16.0	●	SMDT 1600 MTL				1			
16.1	●	SMDT 1610 MTL				1			
16.2	●	SMDT 1620 MTL				1			
16.3	●	SMDT 1630 MTL				1			
16.4	●	SMDT 1640 MTL				1			
16.5	●	SMDT 1650 MTL				1			
16.6	●	SMDT 1660 MTL	9.2	3.0	SMDH170□	1			
16.7	●	SMDT 1670 MTL				1			
16.8	●	SMDT 1680 MTL				1			
16.9	●	SMDT 1690 MTL				1			
17.0	●	SMDT 1700 MTL				1			
17.1	●	SMDT 1710 MTL				1			
17.2	●	SMDT 1720 MTL				1			
17.3	●	SMDT 1730 MTL				1			
							3.1		1

Grade: ACX70 (Diameter DC: 12.0 to 30.8) ACX80 (Diameter DC: 30.9 to 42.5)

Recommended Cutting Conditions **P3** Applicable Holders **P10**

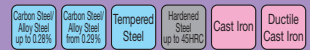
Indexable Head MTL Type Diameter ø17.4 to 22.7mm Dimensions (mm)

Dia. DC	Stock	Cat. No.	Shoulder Length LF	Tip PL	Applicable Holders	Fig
17.4	●	SMDT 1740 MTL	9.2	3.2	SMDH170□	1
17.5	●	SMDT 1750 MTL				1
17.6	●	SMDT 1760 MTL	9.6	3.2	SMDH180□	1
17.7	●	SMDT 1770 MTL				1
17.8	●	SMDT 1780 MTL				1
17.9	●	SMDT 1790 MTL		1		
18.0	●	SMDT 1800 MTL		1		
18.1	●	SMDT 1810 MTL		1		
18.2	●	SMDT 1820 MTL		1		
18.3	●	SMDT 1830 MTL	3.3	1		
18.4	●	SMDT 1840 MTL		1		
18.5	●	SMDT 1850 MTL		1		
18.6	●	SMDT 1860 MTL	10.1	3.4	SMDH190□	1
18.7	●	SMDT 1870 MTL				1
18.8	●	SMDT 1880 MTL				1
18.9	●	SMDT 1890 MTL		1		
19.0	●	SMDT 1900 MTL		1		
19.1	●	SMDT 1910 MTL		1		
19.2	●	SMDT 1920 MTL		1		
19.3	●	SMDT 1930 MTL		1		
19.4	●	SMDT 1940 MTL		1		
19.5	●	SMDT 1950 MTL		1		
19.6	●	SMDT 1960 MTL	10.5	3.5	SMDH200□	1
19.7	●	SMDT 1970 MTL				1
19.8	●	SMDT 1980 MTL				1
19.9	●	SMDT 1990 MTL		1		
20.0	●	SMDT 2000 MTL		1		
20.1	●	SMDT 2010 MTL		1		
20.2	●	SMDT 2020 MTL		1		
20.3	●	SMDT 2030 MTL		1		
20.4	●	SMDT 2040 MTL		1		
20.5	●	SMDT 2050 MTL		1		
20.6	●	SMDT 2060 MTL	11.0	3.6	SMDH210□	1
20.7	●	SMDT 2070 MTL				1
20.8	●	SMDT 2080 MTL				1
20.9	●	SMDT 2090 MTL		1		
21.0	●	SMDT 2100 MTL		1		
21.1	●	SMDT 2110 MTL		1		
21.2	●	SMDT 2120 MTL		1		
21.3	●	SMDT 2130 MTL		1		
21.4	●	SMDT 2140 MTL		1		
21.5	●	SMDT 2150 MTL		1		
21.6	●	SMDT 2160 MTL	11.0	3.7	SMDH220□	1
21.7	●	SMDT 2170 MTL				1
21.8	●	SMDT 2180 MTL				1
21.9	●	SMDT 2190 MTL		1		
22.0	●	SMDT 2200 MTL		1		
22.1	●	SMDT 2210 MTL		1		
22.2	●	SMDT 2220 MTL		1		
22.3	●	SMDT 2230 MTL		1		
22.4	●	SMDT 2240 MTL		1		
22.5	●	SMDT 2250 MTL		1		
22.6	●	SMDT 2260 MTL	4.0	1		
22.7	●	SMDT 2270 MTL		1		
			4.1	1		
				1		

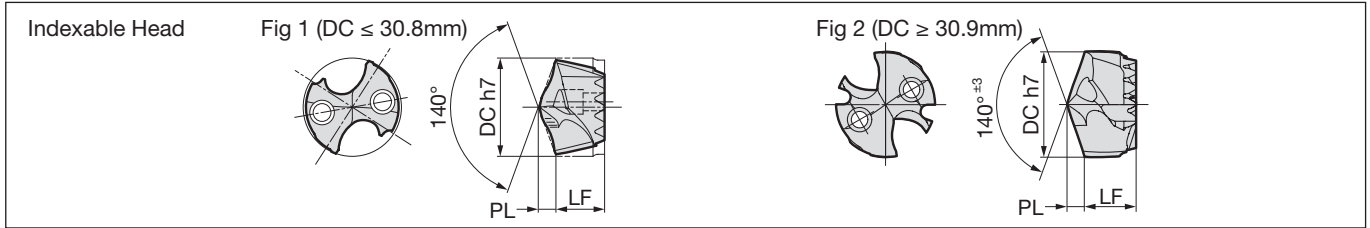
Grade: ACX70 (Diameter DC: 12.0 to 30.8) ACX80 (Diameter DC: 30.9 to 42.5)

Recommended Cutting Conditions **P3** Applicable Holders **P10**

SMD Type (Internal Coolant Supply)



*For h7 tolerance, refer to Chapter N References in the General Catalogue.



Indexable Head MTL Type Diameter ø22.8 to 28.1mm Dimensions (mm)

Dia. DC	Stock	Cat. No.	Shoulder Length LF	Tip PL	Applicable Holders	Fig		
22.8	●	SMDT 2280 MTL	11.0	4.1	SMDH220□	1		
22.9	●	SMDT 2290 MTL	11.0	4.2	SMDH230□	1		
23.0	●	SMDT 2300 MTL				1		
23.1	●	SMDT 2310 MTL				1		
23.2	●	SMDT 2320 MTL				1		
23.3	●	SMDT 2330 MTL				1		
23.4	●	SMDT 2340 MTL				1		
23.5	●	SMDT 2350 MTL				1		
23.6	●	SMDT 2360 MTL	4.3	SMDH230□	1			
23.7	●	SMDT 2370 MTL			1			
23.8	●	SMDT 2380 MTL	11.0	4.3	SMDH240□	1		
23.9	●	SMDT 2390 MTL				1		
24.0	●	SMDT 2400 MTL				1		
24.1	●	SMDT 2410 MTL				1		
24.2	●	SMDT 2420 MTL				4.4	SMDH240□	1
24.3	●	SMDT 2430 MTL						1
24.4	●	SMDT 2440 MTL				1		
24.5	●	SMDT 2450 MTL				1		
24.6	●	SMDT 2460 MTL				4.5	SMDH240□	1
24.7	●	SMDT 2470 MTL						1
24.8	●	SMDT 2480 MTL	11.3	4.5	SMDH250□	1		
24.9	●	SMDT 2490 MTL				1		
25.0	●	SMDT 2500 MTL				1		
25.1	●	SMDT 2510 MTL				1		
25.2	●	SMDT 2520 MTL				4.6	SMDH250□	1
25.3	●	SMDT 2530 MTL						1
25.4	●	SMDT 2540 MTL				1		
25.5	●	SMDT 2550 MTL				1		
25.6	●	SMDT 2560 MTL				4.7	SMDH250□	1
25.7	●	SMDT 2570 MTL						1
25.8	●	SMDT 2580 MTL	11.7	4.7	SMDH260□	1		
25.9	●	SMDT 2590 MTL				1		
26.0	●	SMDT 2600 MTL				1		
26.1	●	SMDT 2610 MTL				1		
26.2	●	SMDT 2620 MTL				4.8	SMDH260□	1
26.3	●	SMDT 2630 MTL						1
26.4	●	SMDT 2640 MTL				1		
26.5	●	SMDT 2650 MTL				1		
26.6	●	SMDT 2660 MTL				4.9	SMDH260□	1
26.7	●	SMDT 2670 MTL						1
26.8	●	SMDT 2680 MTL	12.2	4.9	SMDH270□	1		
26.9	●	SMDT 2690 MTL				1		
27.0	●	SMDT 2700 MTL				1		
27.1	●	SMDT 2710 MTL				1		
27.2	●	SMDT 2720 MTL				5.0	SMDH270□	1
27.3	●	SMDT 2730 MTL						1
27.4	●	SMDT 2740 MTL				1		
27.5	●	SMDT 2750 MTL				1		
27.6	●	SMDT 2760 MTL				1		
27.7	●	SMDT 2770 MTL				5.1	SMDH270□	1
27.8	●	SMDT 2780 MTL	1					
27.9	●	SMDT 2790 MTL	12.6	5.1	SMDH280□	1		
28.0	●	SMDT 2800 MTL				1		
28.1	●	SMDT 2810 MTL				1		

Grade: ACX70 (Diameter DC: 12.0 to 30.8) ACX80 (Diameter DC: 30.9 to 42.5)

Recommended Cutting Conditions **P3** Applicable Holders **P10**

Indexable Head MTL Type Diameter ø28.2 to 42.5mm Dimensions (mm)

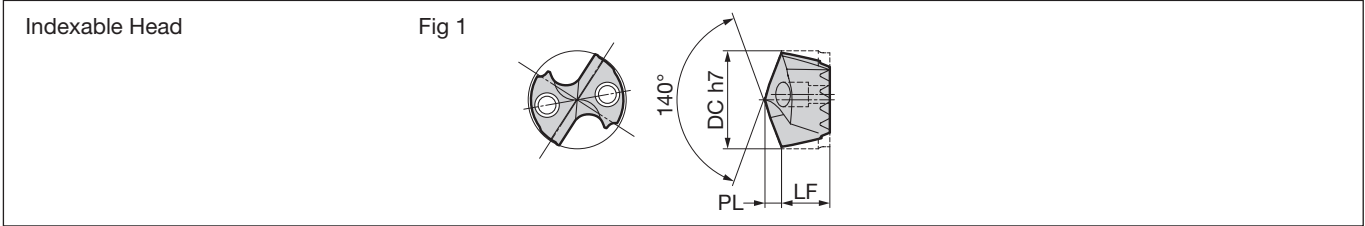
Dia. DC	Stock	Cat. No.	Shoulder Length LF	Tip PL	Applicable Holders	Fig		
28.2	●	SMDT 2820 MTL	12.6	5.1	SMDH280□	1		
28.3	●	SMDT 2830 MTL		5.2		SMDH280□	1	
28.4	●	SMDT 2840 MTL					1	
28.5	●	SMDT 2850 MTL		5.3		SMDH280□	1	
28.6	●	SMDT 2860 MTL					1	
28.7	●	SMDT 2870 MTL					1	
28.8	●	SMDT 2880 MTL		13.1		5.3	SMDH290□	1
28.9	●	SMDT 2890 MTL	1					
29.0	●	SMDT 2900 MTL	1					
29.1	●	SMDT 2910 MTL	1					
29.2	●	SMDT 2920 MTL	5.4		SMDH290□			1
29.3	●	SMDT 2930 MTL						1
29.4	●	SMDT 2940 MTL	1					
29.5	●	SMDT 2950 MTL	5.4		SMDH290□			1
29.6	●	SMDT 2960 MTL						1
29.7	●	SMDT 2970 MTL						1
29.8	●	SMDT 2980 MTL	13.5	5.4	SMDH300□	1		
29.9	●	SMDT 2990 MTL				1		
30.0	●	SMDT 3000 MTL				5.5	SMDH300□	1
30.1	●	SMDT 3010 MTL						1
30.2	●	SMDT 3020 MTL				5.5	SMDH300□	1
30.3	●	SMDT 3030 MTL						1
30.4	●	SMDT 3040 MTL						1
30.5	●	SMDT 3050 MTL				5.6	SMDH300□	1
30.6	●	SMDT 3060 MTL						1
30.7	●	SMDT 3070 MTL				5.6	SMDH300□	1
30.8	●	SMDT 3080 MTL	1					
31.0	●	SMDT 3100 MTL	15.4	5.6	SMDH320□	2		
31.5	●	SMDT 3150 MTL	15.3	5.7		2		
32.0	●	SMDT 3200 MTL	15.2	5.8	SMDH335□	2		
32.5	●	SMDT 3250 MTL	15.1	5.9		2		
33.0	●	SMDT 3300 MTL	15.0	6.0	SMDH335□	2		
33.5	●	SMDT 3350 MTL	14.9	6.1		2		
34.0	●	SMDT 3400 MTL	16.8	6.2	SMDH350□	2		
34.5	●	SMDT 3450 MTL	16.7	6.3		2		
35.0	●	SMDT 3500 MTL	16.6	6.4	SMDH350□	2		
35.5	●	SMDT 3550 MTL	16.5	6.5		2		
36.0	●	SMDT 3600 MTL	16.4	6.6	SMDH365□	2		
36.5	●	SMDT 3650 MTL				2		
37.0	●	SMDT 3700 MTL	18.3	6.7	SMDH380□	2		
37.5	●	SMDT 3750 MTL	18.2	6.8		2		
38.0	●	SMDT 3800 MTL	18.1	6.9	SMDH380□	2		
38.5	●	SMDT 3850 MTL	18.0	7.0		2		
39.0	●	SMDT 3900 MTL	17.9	7.1	SMDH395□	2		
39.5	●	SMDT 3950 MTL	17.8	7.2		2		
40.0	●	SMDT 4000 MTL	19.7	7.3	SMDH410□	2		
40.5	●	SMDT 4050 MTL	19.6	7.4		2		
41.0	●	SMDT 4100 MTL	19.5	7.5	SMDH410□	2		
41.5	●	SMDT 4150 MTL	19.4	7.6		SMDH425□	2	
42.0	●	SMDT 4200 MTL			2			
42.5	●	SMDT 4250 MTL	19.3	7.7	SMDH425□	2		

Grade: ACX70 (Diameter DC: 12.0 to 30.8) ACX80 (Diameter DC: 30.9 to 42.5)

Recommended Cutting Conditions **P3** Applicable Holders **P10**



*For h7 tolerance, refer to Chapter N References in the General Catalogue.



Indexable Head MSL Type Diameter ϕ 12.0 to 17.3mm Dimensions (mm)

Dia. DC	Stock	Cat. No.	Shoulder Length LF	Tip PL	Applicable Holders	Fig	
12.0	●	SMDT 1200 MSL	6.9	2.2	SMDH120□	1	
12.1	●	SMDT 1210 MSL				1	
12.2	●	SMDT 1220 MSL		1			
12.3	●	SMDT 1230 MSL		1			
12.4	●	SMDT 1240 MSL		2.3		1	
12.5	●	SMDT 1250 MSL	7.1	2.3	SMDH125□	1	
12.6	●	SMDT 1260 MSL				1	
12.7	●	SMDT 1270 MSL				1	
12.8	●	SMDT 1280 MSL				1	
12.9	●	SMDT 1290 MSL				1	
13.0	●	SMDT 1300 MSL	7.3	2.4	SMDH130□	1	
13.1	●	SMDT 1310 MSL				1	
13.2	●	SMDT 1320 MSL				1	
13.3	●	SMDT 1330 MSL				1	
13.4	●	SMDT 1340 MSL				1	
13.5	●	SMDT 1350 MSL				1	
13.6	●	SMDT 1360 MSL	7.8	2.5	SMDH140□	1	
13.7	●	SMDT 1370 MSL				1	
13.8	●	SMDT 1380 MSL				1	
13.9	●	SMDT 1390 MSL				1	
14.0	●	SMDT 1400 MSL				1	
14.1	●	SMDT 1410 MSL		1			
14.2	●	SMDT 1420 MSL		2.6			1
14.3	●	SMDT 1430 MSL				1	
14.4	●	SMDT 1440 MSL				1	
14.5	●	SMDT 1450 MSL				1	
14.6	●	SMDT 1460 MSL	8.3		2.7	SMDH150□	1
14.7	●	SMDT 1470 MSL		1			
14.8	●	SMDT 1480 MSL		1			
14.9	●	SMDT 1490 MSL		1			
15.0	●	SMDT 1500 MSL		1			
15.1	●	SMDT 1510 MSL		1			
15.2	●	SMDT 1520 MSL		2.8			1
15.3	●	SMDT 1530 MSL			1		
15.4	●	SMDT 1540 MSL			1		
15.5	●	SMDT 1550 MSL			1		
15.6	●	SMDT 1560 MSL	8.7		2.8	SMDH160□	1
15.7	●	SMDT 1570 MSL		1			
15.8	●	SMDT 1580 MSL		1			
15.9	●	SMDT 1590 MSL		1			
16.0	●	SMDT 1600 MSL		1			
16.1	●	SMDT 1610 MSL		2.9			1
16.2	●	SMDT 1620 MSL			1		
16.3	●	SMDT 1630 MSL			1		
16.4	●	SMDT 1640 MSL			1		
16.5	●	SMDT 1650 MSL			1		
16.6	●	SMDT 1660 MSL	9.2	3.0	SMDH170□	1	
16.7	●	SMDT 1670 MSL				1	
16.8	●	SMDT 1680 MSL				1	
16.9	●	SMDT 1690 MSL				1	
17.0	●	SMDT 1700 MSL				3.1	
17.1	●	SMDT 1710 MSL		1			
17.2	●	SMDT 1720 MSL		1			
17.3	●	SMDT 1730 MSL		1			

Grade: ACT100 Recommended Cutting Conditions **P3** Applicable Holders **P10**

Indexable Head MSL Type Diameter ϕ 17.4 to 22.7mm Dimensions (mm)

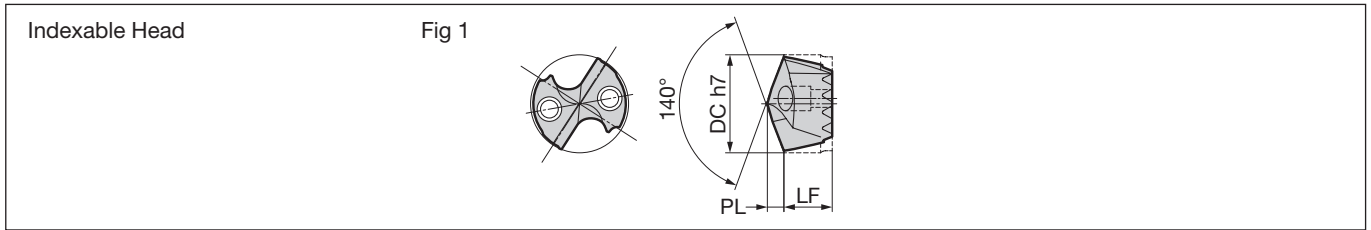
Dia. DC	Stock	Cat. No.	Shoulder Length LF	Tip PL	Applicable Holders	Fig	
17.4	●	SMDT 1740 MSL	9.2	3.2	SMDH170□	1	
17.5	●	SMDT 1750 MSL				1	
17.6	●	SMDT 1760 MSL	9.6	3.2	SMDH180□	1	
17.7	●	SMDT 1770 MSL				1	
17.8	●	SMDT 1780 MSL				1	
17.9	●	SMDT 1790 MSL		3.3		1	
18.0	●	SMDT 1800 MSL				1	
18.1	●	SMDT 1810 MSL				1	
18.2	●	SMDT 1820 MSL	3.4	1			
18.3	●	SMDT 1830 MSL		1			
18.4	●	SMDT 1840 MSL		1			
18.5	●	SMDT 1850 MSL		1			
18.6	●	SMDT 1860 MSL		10.1	3.4	SMDH190□	1
18.7	●	SMDT 1870 MSL	1				
18.8	●	SMDT 1880 MSL	1				
18.9	●	SMDT 1890 MSL	1				
19.0	●	SMDT 1900 MSL	3.5				1
19.1	●	SMDT 1910 MSL			1		
19.2	●	SMDT 1920 MSL			1		
19.3	●	SMDT 1930 MSL			1		
19.4	●	SMDT 1940 MSL			1		
19.5	●	SMDT 1950 MSL	10.5		3.6		SMDH200□
19.6	○	SMDT 1960 MSL		1			
19.7	○	SMDT 1970 MSL		1			
19.8	○	SMDT 1980 MSL		1			
19.9	○	SMDT 1990 MSL		1			
20.0	○	SMDT 2000 MSL		3.7	1		
20.1	○	SMDT 2010 MSL			1		
20.2	○	SMDT 2020 MSL			1		
20.3	○	SMDT 2030 MSL			1		
20.4	○	SMDT 2040 MSL			1		
20.5	○	SMDT 2050 MSL	11.0	3.8	SMDH210□	1	
20.6	○	SMDT 2060 MSL				1	
20.7	○	SMDT 2070 MSL				1	
20.8	○	SMDT 2080 MSL				1	
20.9	○	SMDT 2090 MSL				3.9	1
21.0	○	SMDT 2100 MSL		1			
21.1	○	SMDT 2110 MSL		1			
21.2	○	SMDT 2120 MSL		1			
21.3	○	SMDT 2130 MSL		4.0			1
21.4	○	SMDT 2140 MSL				1	
21.5	○	SMDT 2150 MSL	1				
21.6	○	SMDT 2160 MSL	11.0		3.9	SMDH220□	1
21.7	○	SMDT 2170 MSL					1
21.8	○	SMDT 2180 MSL		1			
21.9	○	SMDT 2190 MSL		4.1			1
22.0	○	SMDT 2200 MSL					1
22.1	○	SMDT 2210 MSL			1		
22.2	○	SMDT 2220 MSL			1		
22.3	○	SMDT 2230 MSL			4.1		1
22.4	○	SMDT 2240 MSL		1			
22.5	○	SMDT 2250 MSL		1			
22.6	○	SMDT 2260 MSL	1				
22.7	○	SMDT 2270 MSL	1				

Grade: ACT100 Recommended Cutting Conditions **P3** Applicable Holders **P10**

● mark: Standard stocked item (expanded item) ○ mark: Stock or planned stock (please confirm stock availability)



*For h7 tolerance, refer to Chapter N References in the General Catalogue.



Indexable Head MSL Type Diameter ϕ 22.8 to 28.1mm Dimensions (mm)

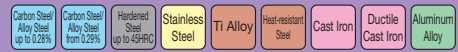
Dia. DC	Stock	Cat. No.	Shoulder Length LF	Tip PL	Applicable Holders	Fig	
22.8	○	SMDT 2280 MSL	11.0	4.1	SMDH220□	1	
22.9	○	SMDT 2290 MSL	11.0	4.2	SMDH230□	1	
23.0	○	SMDT 2300 MSL				1	
23.1	○	SMDT 2310 MSL				1	
23.2	○	SMDT 2320 MSL				1	
23.3	○	SMDT 2330 MSL				1	
23.4	○	SMDT 2340 MSL				1	
23.5	○	SMDT 2350 MSL				1	
23.6	○	SMDT 2360 MSL	4.3	SMDH230□	1		
23.7	○	SMDT 2370 MSL			1		
23.8	○	SMDT 2380 MSL	1				
23.9	○	SMDT 2390 MSL	11.0	4.3	SMDH240□	1	
24.0	○	SMDT 2400 MSL		1			
24.1	○	SMDT 2410 MSL		1			
24.2	○	SMDT 2420 MSL		4.4		SMDH240□	1
24.3	○	SMDT 2430 MSL					1
24.4	○	SMDT 2440 MSL		1			
24.5	○	SMDT 2450 MSL		1			
24.6	○	SMDT 2460 MSL		4.5		SMDH240□	1
24.7	○	SMDT 2470 MSL					1
24.8	○	SMDT 2480 MSL		1			
24.9	○	SMDT 2490 MSL	11.3	4.5	SMDH250□	1	
25.0	○	SMDT 2500 MSL		1			
25.1	○	SMDT 2510 MSL		1			
25.2	○	SMDT 2520 MSL		4.6		SMDH250□	1
25.3	○	SMDT 2530 MSL					1
25.4	○	SMDT 2540 MSL		1			
25.5	○	SMDT 2550 MSL		1			
25.6	○	SMDT 2560 MSL		4.7		SMDH250□	1
25.7	○	SMDT 2570 MSL					1
25.8	○	SMDT 2580 MSL		1			
25.9	○	SMDT 2590 MSL	11.7	4.7	SMDH260□	1	
26.0	○	SMDT 2600 MSL		1			
26.1	○	SMDT 2610 MSL		1			
26.2	○	SMDT 2620 MSL		1			
26.3	○	SMDT 2630 MSL		4.8		SMDH260□	1
26.4	○	SMDT 2640 MSL					1
26.5	○	SMDT 2650 MSL		1			
26.6	○	SMDT 2660 MSL		1			
26.7	○	SMDT 2670 MSL		4.9		SMDH260□	1
26.8	○	SMDT 2680 MSL					1
26.9	○	SMDT 2690 MSL	12.2	4.9	SMDH270□	1	
27.0	○	SMDT 2700 MSL		1			
27.1	○	SMDT 2710 MSL		1			
27.2	○	SMDT 2720 MSL		1			
27.3	○	SMDT 2730 MSL		5.0		SMDH270□	1
27.4	○	SMDT 2740 MSL					1
27.5	○	SMDT 2750 MSL		1			
27.6	○	SMDT 2760 MSL		1			
27.7	○	SMDT 2770 MSL		1			
27.8	○	SMDT 2780 MSL		5.1		SMDH270□	1
27.9	○	SMDT 2790 MSL	12.6	5.1	SMDH280□	1	
28.0	○	SMDT 2800 MSL				1	
28.1	○	SMDT 2810 MSL				1	

Grade: ACT100 Recommended Cutting Conditions **P3** Applicable Holders **P10**

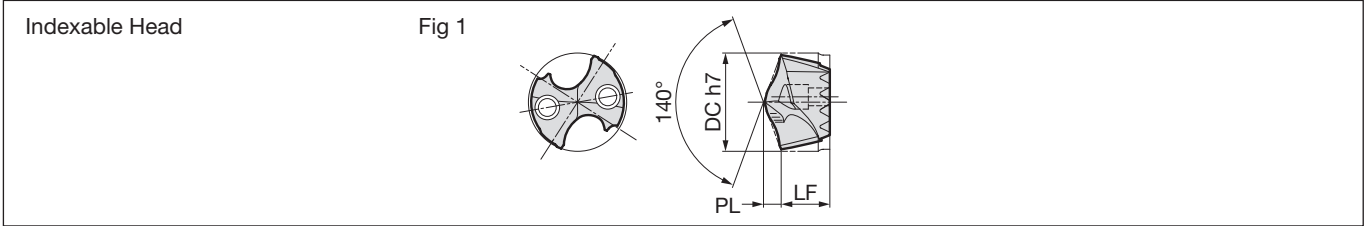
Indexable Head MSL Type Diameter ϕ 28.2 to 30.8mm Dimensions (mm)

Dia. DC	Stock	Cat. No.	Shoulder Length LF	Tip PL	Applicable Holders	Fig	
28.2	○	SMDT 2820 MSL	12.6	5.1	SMDH280□	1	
28.3	○	SMDT 2830 MSL		1			
28.4	○	SMDT 2840 MSL		1			
28.5	○	SMDT 2850 MSL		5.2		SMDH280□	1
28.6	○	SMDT 2860 MSL					1
28.7	○	SMDT 2870 MSL		1			
28.8	○	SMDT 2880 MSL		1			
28.9	○	SMDT 2890 MSL	13.1	5.3	SMDH290□	1	
29.0	○	SMDT 2900 MSL				1	
29.1	○	SMDT 2910 MSL				1	
29.2	○	SMDT 2920 MSL				1	
29.3	○	SMDT 2930 MSL				1	
29.4	○	SMDT 2940 MSL		5.4		SMDH290□	1
29.5	○	SMDT 2950 MSL					1
29.6	○	SMDT 2960 MSL		1			
29.7	○	SMDT 2970 MSL		1			
29.8	○	SMDT 2980 MSL		1			
29.9	○	SMDT 2990 MSL	13.5	5.4	SMDH300□	1	
30.0	○	SMDT 3000 MSL		1			
30.1	○	SMDT 3010 MSL		5.5		SMDH300□	1
30.2	○	SMDT 3020 MSL					1
30.3	○	SMDT 3030 MSL		1			
30.4	○	SMDT 3040 MSL		5.6		SMDH300□	1
30.5	○	SMDT 3050 MSL					1
30.6	○	SMDT 3060 MSL		1			
30.7	○	SMDT 3070 MSL		1			
30.8	○	SMDT 3080 MSL		1			

Grade: ACT100 Recommended Cutting Conditions **P3** Applicable Holders **P10**



*For h7 tolerance, refer to Chapter N References in the General Catalogue.



Indexable Head MEL Type Diameter ϕ 12.0 to 17.3mm Dimensions (mm)

Dia. DC	Stock	Cat. No.	Shoulder Length LF	Tip PL	Applicable Holders	Fig
12.0	▲	SMDT 1200 MEL	6.9	2.2	SMDH120□	1
12.1	▲	SMDT 1210 MEL				1
12.2	▲	SMDT 1220 MEL		1		
12.3	▲	SMDT 1230 MEL		1		
12.4	▲	SMDT 1240 MEL		2.3		1
12.5	▲	SMDT 1250 MEL	7.1	2.3	SMDH125□	1
12.6	▲	SMDT 1260 MEL				1
12.7	▲	SMDT 1270 MEL				1
12.8	▲	SMDT 1280 MEL				1
12.9	▲	SMDT 1290 MEL				1
13.0	▲	SMDT 1300 MEL	7.3	2.4	SMDH130□	1
13.1	▲	SMDT 1310 MEL				1
13.2	▲	SMDT 1320 MEL				1
13.3	▲	SMDT 1330 MEL				1
13.4	▲	SMDT 1340 MEL				1
13.5	▲	SMDT 1350 MEL				1
13.6	▲	SMDT 1360 MEL	7.8	2.5	SMDH140□	1
13.7	▲	SMDT 1370 MEL				1
13.8	▲	SMDT 1380 MEL				1
13.9	▲	SMDT 1390 MEL				1
14.0	▲	SMDT 1400 MEL				1
14.1	▲	SMDT 1410 MEL		1		
14.2	▲	SMDT 1420 MEL		2.6		1
14.3	▲	SMDT 1430 MEL				1
14.4	▲	SMDT 1440 MEL				1
14.5	▲	SMDT 1450 MEL				1
14.6	▲	SMDT 1460 MEL	8.3		2.7	SMDH150□
14.7	▲	SMDT 1470 MEL		1		
14.8	▲	SMDT 1480 MEL		1		
14.9	▲	SMDT 1490 MEL		1		
15.0	▲	SMDT 1500 MEL		1		
15.1	▲	SMDT 1510 MEL		1		
15.2	▲	SMDT 1520 MEL		2.8	1	
15.3	▲	SMDT 1530 MEL			1	
15.4	▲	SMDT 1540 MEL			1	
15.5	▲	SMDT 1550 MEL			1	
15.6	▲	SMDT 1560 MEL	8.7		2.8	SMDH160□
15.7	▲	SMDT 1570 MEL		1		
15.8	▲	SMDT 1580 MEL		1		
15.9	▲	SMDT 1590 MEL		1		
16.0	▲	SMDT 1600 MEL		1		
16.1	▲	SMDT 1610 MEL		2.9	1	
16.2	▲	SMDT 1620 MEL			1	
16.3	▲	SMDT 1630 MEL			1	
16.4	▲	SMDT 1640 MEL			1	
16.5	▲	SMDT 1650 MEL			1	
16.6	▲	SMDT 1660 MEL	9.2	3.0	SMDH170□	1
16.7	▲	SMDT 1670 MEL				1
16.8	▲	SMDT 1680 MEL				1
16.9	▲	SMDT 1690 MEL				1
17.0	▲	SMDT 1700 MEL				3.1
17.1	▲	SMDT 1710 MEL		1		
17.2	▲	SMDT 1720 MEL		1		
17.3	▲	SMDT 1730 MEL		1		

Grade: ACX80 Recommended Cutting Conditions Applicable Holders

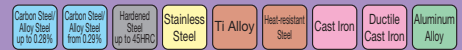
Indexable Head MEL Type Diameter ϕ 17.4 to 22.7mm Dimensions (mm)

Dia. DC	Stock	Cat. No.	Shoulder Length LF	Tip PL	Applicable Holders	Fig	
17.4	▲	SMDT 1740 MEL	9.2	3.2	SMDH170□	1	
17.5	▲	SMDT 1750 MEL				1	
17.6	▲	SMDT 1760 MEL	9.6	3.2	SMDH180□	1	
17.7	▲	SMDT 1770 MEL				1	
17.8	▲	SMDT 1780 MEL		1			
17.9	▲	SMDT 1790 MEL		1			
18.0	▲	SMDT 1800 MEL		1			
18.1	▲	SMDT 1810 MEL		3.3		1	
18.2	▲	SMDT 1820 MEL	1				
18.3	▲	SMDT 1830 MEL	3.4	1			
18.4	▲	SMDT 1840 MEL		1			
18.5	▲	SMDT 1850 MEL		1			
18.6	▲	SMDT 1860 MEL	10.1	3.4	SMDH190□	1	
18.7	▲	SMDT 1870 MEL				1	
18.8	▲	SMDT 1880 MEL				1	
18.9	▲	SMDT 1890 MEL				1	
19.0	▲	SMDT 1900 MEL				3.5	1
19.1	▲	SMDT 1910 MEL					1
19.2	▲	SMDT 1920 MEL	1				
19.3	▲	SMDT 1930 MEL	1				
19.4	▲	SMDT 1940 MEL	1				
19.5	▲	SMDT 1950 MEL	1				
19.6	▲	SMDT 1960 MEL	10.5	3.6	SMDH200□	1	
19.7	▲	SMDT 1970 MEL				1	
19.8	▲	SMDT 1980 MEL				1	
19.9	▲	SMDT 1990 MEL				1	
20.0	▲	SMDT 2000 MEL				3.7	1
20.1	▲	SMDT 2010 MEL		1			
20.2	▲	SMDT 2020 MEL		1			
20.3	▲	SMDT 2030 MEL		1			
20.4	▲	SMDT 2040 MEL		1			
20.5	▲	SMDT 2050 MEL		11.0		3.8	SMDH210□
20.6	▲	SMDT 2060 MEL	1				
20.7	▲	SMDT 2070 MEL	1				
20.8	▲	SMDT 2080 MEL	1				
20.9	▲	SMDT 2090 MEL	1				
21.0	▲	SMDT 2100 MEL	3.9		1		
21.1	▲	SMDT 2110 MEL		1			
21.2	▲	SMDT 2120 MEL		1			
21.3	▲	SMDT 2130 MEL		1			
21.4	▲	SMDT 2140 MEL		1			
21.5	▲	SMDT 2150 MEL	11.0	3.9	SMDH220□	1	
21.6	▲	SMDT 2160 MEL				1	
21.7	▲	SMDT 2170 MEL				1	
21.8	▲	SMDT 2180 MEL				4.0	1
21.9	▲	SMDT 2190 MEL					1
22.0	▲	SMDT 2200 MEL		1			
22.1	▲	SMDT 2210 MEL		4.1			1
22.2	▲	SMDT 2220 MEL					1
22.3	▲	SMDT 2230 MEL				1	
22.4	▲	SMDT 2240 MEL				1	
22.5	▲	SMDT 2250 MEL	1				
22.6	▲	SMDT 2260 MEL	1				
22.7	▲	SMDT 2270 MEL	1				

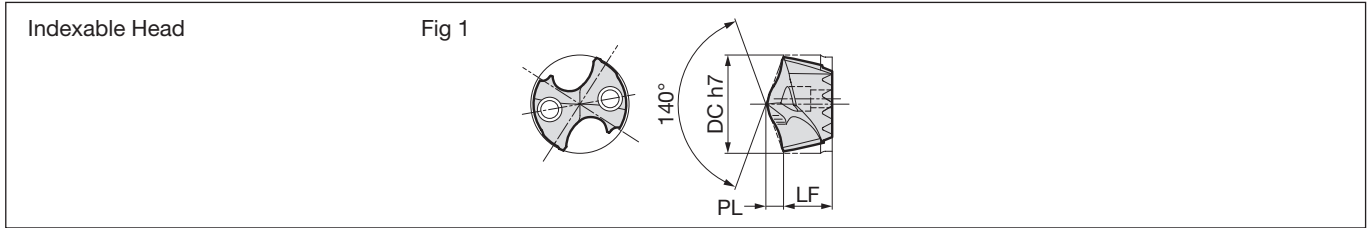
Grade: ACX80 Recommended Cutting Conditions Applicable Holders

▲ mark: To be replaced by a new product, made to order or discontinued (please confirm stock availability).

SMD Type (Internal Coolant Supply)



*For h7 tolerance, refer to Chapter N References in the General Catalogue.



Indexable Head MEL Type Diameter ϕ 22.8 to 28.1mm Dimensions (mm)

Dia. DC	Stock	Cat. No.	Shoulder Length LF	Tip PL	Applicable Holders	Fig
22.8	▲	SMDT 2280 MEL	11.0	4.1	SMDH220□	1
22.9	▲	SMDT 2290 MEL	11.0	4.2	SMDH230□	1
23.0	▲	SMDT 2300 MEL				1
23.1	▲	SMDT 2310 MEL				1
23.2	▲	SMDT 2320 MEL				1
23.3	▲	SMDT 2330 MEL				1
23.4	▲	SMDT 2340 MEL				1
23.5	▲	SMDT 2350 MEL				1
23.6	▲	SMDT 2360 MEL				1
23.7	▲	SMDT 2370 MEL				1
23.8	▲	SMDT 2380 MEL				1
23.9	▲	SMDT 2390 MEL	11.0	4.3	SMDH240□	1
24.0	▲	SMDT 2400 MEL				1
24.1	▲	SMDT 2410 MEL				1
24.2	▲	SMDT 2420 MEL				1
24.3	▲	SMDT 2430 MEL				1
24.4	▲	SMDT 2440 MEL				1
24.5	▲	SMDT 2450 MEL				1
24.6	▲	SMDT 2460 MEL				1
24.7	▲	SMDT 2470 MEL				1
24.8	▲	SMDT 2480 MEL				1
24.9	▲	SMDT 2490 MEL	11.3	4.5	SMDH250□	1
25.0	▲	SMDT 2500 MEL				1
25.1	▲	SMDT 2510 MEL				1
25.2	▲	SMDT 2520 MEL				1
25.3	▲	SMDT 2530 MEL				1
25.4	▲	SMDT 2540 MEL				1
25.5	▲	SMDT 2550 MEL				1
25.6	▲	SMDT 2560 MEL				1
25.7	▲	SMDT 2570 MEL				1
25.8	▲	SMDT 2580 MEL				1
25.9	▲	SMDT 2590 MEL	11.7	4.7	SMDH260□	1
26.0	▲	SMDT 2600 MEL				1
26.1	▲	SMDT 2610 MEL				1
26.2	▲	SMDT 2620 MEL				1
26.3	▲	SMDT 2630 MEL				1
26.4	▲	SMDT 2640 MEL				1
26.5	▲	SMDT 2650 MEL				1
26.6	▲	SMDT 2660 MEL				1
26.7	▲	SMDT 2670 MEL				1
26.8	▲	SMDT 2680 MEL				1
26.9	▲	SMDT 2690 MEL	12.2	4.9	SMDH270□	1
27.0	▲	SMDT 2700 MEL				1
27.1	▲	SMDT 2710 MEL				1
27.2	▲	SMDT 2720 MEL				1
27.3	▲	SMDT 2730 MEL				1
27.4	▲	SMDT 2740 MEL				1
27.5	▲	SMDT 2750 MEL				1
27.6	▲	SMDT 2760 MEL				1
27.7	▲	SMDT 2770 MEL				1
27.8	▲	SMDT 2780 MEL				1
27.9	▲	SMDT 2790 MEL	12.6	5.1	SMDH280□	1
28.0	▲	SMDT 2800 MEL				1
28.1	▲	SMDT 2810 MEL				1

Grade: ACX80 Recommended Cutting Conditions **P3** Applicable Holders **P10**

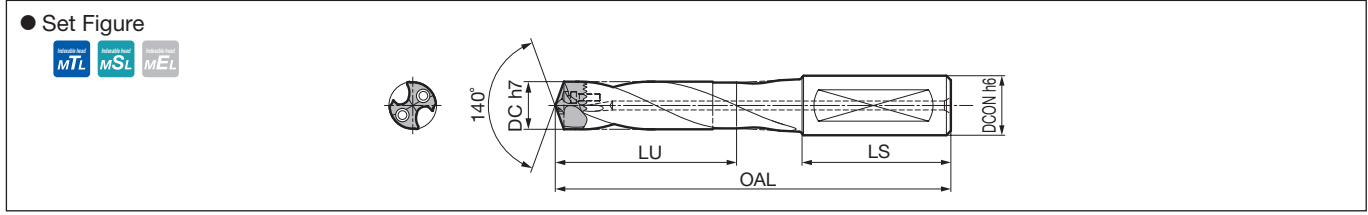
Indexable Head MEL Type Diameter ϕ 28.2 to 30.8mm Dimensions (mm)

Dia. DC	Stock	Cat. No.	Shoulder Length LF	Tip PL	Applicable Holders	Fig
28.2	▲	SMDT 2820 MEL	12.6	5.1	SMDH280□	1
28.3	▲	SMDT 2830 MEL		1		
28.4	▲	SMDT 2840 MEL		1		
28.5	▲	SMDT 2850 MEL		1		
28.6	▲	SMDT 2860 MEL		1		
28.7	▲	SMDT 2870 MEL		1		
28.8	▲	SMDT 2880 MEL		1		
28.9	▲	SMDT 2890 MEL		13.1		5.3
29.0	▲	SMDT 2900 MEL	1			
29.1	▲	SMDT 2910 MEL	1			
29.2	▲	SMDT 2920 MEL	1			
29.3	▲	SMDT 2930 MEL	1			
29.4	▲	SMDT 2940 MEL	1			
29.5	▲	SMDT 2950 MEL	1			
29.6	▲	SMDT 2960 MEL	1			
29.7	▲	SMDT 2970 MEL	1			
29.8	▲	SMDT 2980 MEL	1			
29.9	▲	SMDT 2990 MEL	13.5	5.4	SMDH300□	1
30.0	▲	SMDT 3000 MEL				1
30.1	▲	SMDT 3010 MEL				1
30.2	▲	SMDT 3020 MEL				1
30.3	▲	SMDT 3030 MEL				1
30.4	▲	SMDT 3040 MEL				1
30.5	▲	SMDT 3050 MEL				1
30.6	▲	SMDT 3060 MEL				1
30.7	▲	SMDT 3070 MEL				1
30.8	▲	SMDT 3080 MEL				1

Grade: ACX80 Recommended Cutting Conditions **P3** Applicable Holders **P10**

MTL Carbon Steel Alloy Steel up to 235N Hardened Steel up to 65HRC	Cast Iron Ductile Cast Iron
MSL Carbon Steel Alloy Steel up to 235N	Stainless Steel Cast Iron Ductile Cast Iron Aluminum Alloy
MEL Carbon Steel Alloy Steel up to 235N	Hardened Steel up to 65HRC Stainless Steel Ti Alloy Heat-resistant Steel Cast Iron Ductile Cast Iron Aluminum Alloy

*For h6 and h7 tolerances, refer to Chapter N References in the General Catalogue.



Body ø12.0 to 29.8mm Dimensions with MTL Type / MSL Type / MEL Type Set Dimensions (mm) **Parts**

Dia. DC	Hole Depth (L/D)	Cat. No.	Stock	Effective Length LU	Overall Length OAL	Shank LS	Shank Dia. DCON	Indexable Head	Fig	Cap Screw		Wrench
12.0 ≤ D < 12.5	3	SMDH 120M	●	42	107	48	16	MTL/MSL MEL	1	BXD02208IP	0.75 to 1.00	TRDR08IP
	5	SMDH 120L	●	67	132							
12.5 ≤ D < 13.0	3	SMDH 125M	●	44	107	48	16	MTL/MSL MEL	1	BXD02208IP	0.75 to 1.00	TRDR08IP
	5	SMDH 125L	●	69	132							
13.0 ≤ D < 13.5	3	SMDH 130M	●	45	112	48	16	MTL/MSL MEL	1	BXD02208IP	0.75 to 1.00	TRDR08IP
	5	SMDH 130L	●	72	142							
13.5 ≤ D ≤ 14.5	3	SMDH 140M	●	51	119	48	16	MTL/MSL MEL	1	BXD02208IP	0.75 to 1.00	TRDR08IP
	5	SMDH 140L	●	80	149							
	8	SMDH 140D	●	123	194							
14.5 < D ≤ 15.5	3	SMDH 150M	●	54	129	50	20	MTL/MSL MEL	1	BXD02208IP	0.75 to 1.00	TRDR08IP
	5	SMDH 150L	●	85	159							
	8	SMDH 150D	●	131	204							
15.5 < D ≤ 16.5	3	SMDH 160M	●	57	134	50	20	MTL/MSL MEL	1	BXD02509IP	0.93 to 1.24	TRDR10IP
	5	SMDH 160L	●	90	169							
	8	SMDH 160D	●	140	214							
16.5 < D ≤ 17.5	3	SMDH 170M	●	60	140	50	20	MTL/MSL MEL	1	BXD02509IP	0.93 to 1.24	TRDR10IP
	5	SMDH 170L	●	95	175							
	8	SMDH 170D	●	148	225							
17.5 < D ≤ 18.5	3	SMDH 180M	●	63	145	50	20	MTL/MSL MEL	1	BXD02509IP	0.93 to 1.24	TRDR10IP
	5	SMDH 180L	●	100	180							
	8	SMDH 180D	●	156	230							
18.5 < D ≤ 19.5	3	SMDH 190M	●	67	160	56	25	MTL/MSL MEL	1	BXD03011IP	1.83 to 2.44	TRDR15IP
	5	SMDH 190L	●	106	195							
	8	SMDH 190D	●	164	255							
19.5 < D ≤ 20.5	3	SMDH 200M	●	70	160	56	25	MTL/MSL MEL	1	BXD03011IP	1.83 to 2.44	TRDR15IP
	5	SMDH 200L	●	111	200							
	8	SMDH 200D	●	172	265							
20.5 < D ≤ 21.5	3	SMDH 210M	●	73	160	56	25	MTL/MSL MEL	1	BXD03011IP	1.83 to 2.44	TRDR15IP
	5	SMDH 210L	●	116	200							
	8	SMDH 210D	●	180	270							
21.5 < D ≤ 22.8	3	SMDH 220M	●	77	165	56	25	MTL/MSL MEL	1	BXD03512IP	2.79 to 3.72	TRDR15IP
	5	SMDH 220L	●	123	205							
	8	SMDH 220D	●	191	275							
22.8 < D ≤ 23.8	3	SMDH 230M	●	80	165	56	25	MTL/MSL MEL	1	BXD03512IP	2.79 to 3.72	TRDR15IP
	5	SMDH 230L	●	128	215							
	8	SMDH 230D	●	199	285							
23.8 < D ≤ 24.8	3	SMDH 240M	●	83	175	60	32	MTL/MSL MEL	1	BXD03512IP	2.79 to 3.72	TRDR15IP
	5	SMDH 240L	●	133	225							
	8	SMDH 240D	●	207	300							
24.8 < D ≤ 25.8	3	SMDH 250M	●	87	175	60	32	MTL/MSL MEL	1	BXD04014IP	4.14 to 5.52	TRDR20IP
	5	SMDH 250L	●	138	230							
	8	SMDH 250D	●	216	305							
25.8 < D ≤ 26.8	3	SMDH 260M	●	90	180	60	32	MTL/MSL MEL	1	BXD04014IP	4.14 to 5.52	TRDR20IP
	5	SMDH 260L	●	143	235							
	8	SMDH 260D	●	224	315							
26.8 < D ≤ 27.8	3	SMDH 270M	●	93	180	60	32	MTL/MSL MEL	1	BXD04014IP	4.14 to 5.52	TRDR20IP
	5	SMDH 270L	●	149	240							
	8	SMDH 270D	●	232	325							
27.8 < D ≤ 28.8	3	SMDH 280M	●	96	185	60	32	MTL/MSL MEL	1	BXD04515IP	4.98 to 6.64	TRDR25IP
	5	SMDH 280L	●	154	245							
	8	SMDH 280D	●	240	330							
28.8 < D ≤ 29.8	3	SMDH 290M	●	99	190	60	32	MTL/MSL MEL	1	BXD04515IP	4.98 to 6.64	TRDR25IP
	5	SMDH 290L	●	159	250							
	8	SMDH 290D	●	248	340							

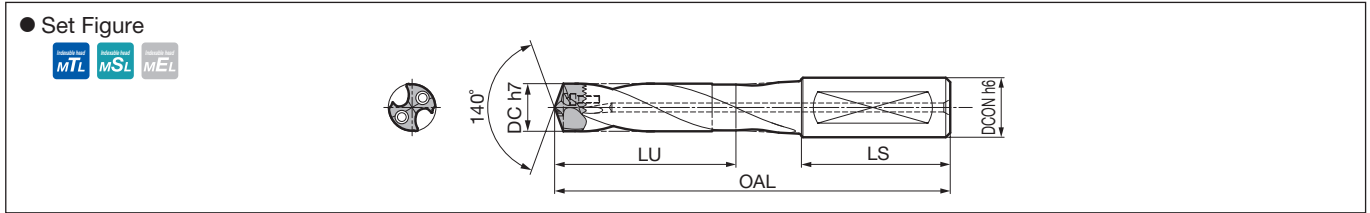
Recommended Cutting Conditions MTL Type Head MSL Type Head MEL Type Head Recommended Tightening Torque (N·m)

● mark: Standard stocked item

MTL Carbon Steel Alloy Steel up to 0.25% Cobalt Steel Alloy Steel from 1.25%	Tempered Steel	Cast Iron	Ductile Cast Iron
MSL Carbon Steel Alloy Steel up to 0.25%	Stainless Steel	Ti Alloy	Heat-resistant Steel
MEL Carbon Steel Alloy Steel up to 0.25%	Hardened Steel up to 62HRC	Stainless Steel	Ti Alloy
	Heat-resistant Steel	Cast Iron	Ductile Cast Iron
	Aluminum Alloy		



*For h6 and h7 tolerances, refer to Chapter N References in the General Catalogue.

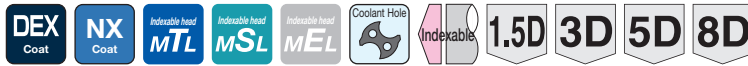
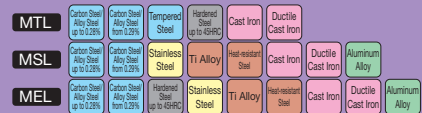


Body ø29.8 to 42.5mm Dimensions with MTL Type / MSL Type / MEL Type Set Dimensions (mm) **Parts**

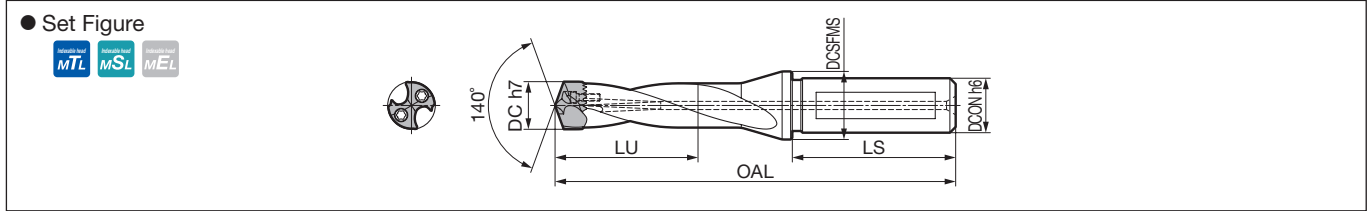
Dia. DC	Hole Depth (L/D)	Cat. No.	Stock	Effective Length LU	Overall Length OAL	Shank LS	Shank Dia. DCON	Indexable Head	Fig	Cap Screw		Wrench
29.8 < D ≤ 30.8	3	SMDH 300M	●	103	190	60	32	MTL/MSL MEL	1	BXD04515IP	4.98 to 6.64	TRDR25IP
	5	SMDH 300L	●	164	260							
	8	SMDH 300D	●	257	350							
30.8 < D ≤ 32.0	3	SMDH 320M	●	106	201	60	32	MTL	1	BXD04515IP	4.98 to 6.64	TRDR25IP
	5	SMDH 320L	●	170	266							
	8	SMDH 320D	●	266	361							
32.0 < D ≤ 33.5	3	SMDH 335M	●	111	206	60	32	MTL	1	BXD04515IP	4.98 to 6.64	TRDR25IP
	5	SMDH 335L	●	178	276							
	8	SMDH 335D	●	279	376							
33.5 < D ≤ 35.0	3	SMDH 350M	●	116	221	70	40	MTL	1	BX0515	7.2	HD040
	5	SMDH 350L	●	186	296							
	8	SMDH 350D	●	291	401							
35.0 < D ≤ 36.5	3	SMDH 365M	●	121	227	70	40	MTL	1	BX0515	7.2	HD040
	5	SMDH 365L	●	194	302							
	8	SMDH 365D	●	303	412							
36.5 < D ≤ 38.0	3	SMDH 380M	●	125	232	70	40	MTL	1	BX0515	7.2	HD040
	5	SMDH 380L	●	201	312							
	8	SMDH 380D	●	315	427							
38.0 < D ≤ 39.5	3	SMDH 395M	●	130	237	70	40	MTL	1	BX0515	7.2	HD040
	5	SMDH 395L	●	209	322							
	8	SMDH 395D	●	328	437							
39.5 < D ≤ 41.0	3	SMDH 410M	●	135	252	70	40	MTL	1	BX0515	7.2	HD040
	5	SMDH 410L	●	217	332							
	8	SMDH 410D	●	340	457							
41.0 < D ≤ 42.5	3	SMDH 425M	●	140	258	70	40	MTL	1	BX0515	7.2	HD040
	5	SMDH 425L	●	225	343							
	8	SMDH 425D	●	352	468							

Recommended Cutting Conditions **MTL Type Head** **MSL Type Head** **MEL Type Head** Recommended Tightening Torque (N·m)

● mark: Standard stocked item



*For h6 and h7 tolerances, refer to Chapter N References in the General Catalogue.



Body ø12.0 to 24.8mm Dimensions with MTL Type / MSL Type / MEL Type Set

Dimensions (mm)

Parts

Dia. DC	Hole Depth (L/D)	Cat. No.	Stock	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Indexable Head	Fig	Cap Screw		Wrench
											Fig	N·m	Fig
12.0 ≤ D < 12.5	1.5	SMDH 120-1.5DF	●	23	91	48	20	16	MTL/ MSL MEL	1	BXD02208IPC	0.75 to 1.00	TRDR08IP
	3	SMDH 120-3DF	●	42	107								
	5	SMDH 120-5DF	●	67	132								
	8	SMDH 120-8DF	●	98	164								
12.5 ≤ D < 13.0	1.5	SMDH 125-1.5DF	●	24	91	48	20	16	MTL/ MSL MEL	1	BXD02208IPC	0.75 to 1.00	TRDR08IP
	3	SMDH 125-3DF	●	44	107								
	5	SMDH 125-5DF	●	69	132								
	8	SMDH 125-8DF	●	102	170								
13.0 ≤ D < 13.5	1.5	SMDH 130-1.5DF	●	25	92	48	20	16	MTL/ MSL MEL	1	BXD02208IPC	0.75 to 1.00	TRDR08IP
	3	SMDH 130-3DF	●	45	112								
	5	SMDH 130-5DF	●	72	142								
	8	SMDH 130-8DF	●	106	178								
13.5 ≤ D ≤ 14.5	1.5	SMDH 140-1.5DF	●	29	96	48	20	16	MTL/ MSL MEL	1	BXD02208IPC	0.75 to 1.00	TRDR08IP
	3	SMDH 140-3DF	●	51	119								
	5	SMDH 140-5DF	●	80	149								
	8	SMDH 140-8DF	●	123	194								
14.5 < D ≤ 15.5	1.5	SMDH 150-1.5DF	●	31	100	50	25	20	MTL/ MSL MEL	1	BXD02208IPC	0.75 to 1.00	TRDR08IP
	3	SMDH 150-3DF	●	54	129								
	5	SMDH 150-5DF	●	85	159								
	8	SMDH 150-8DF	●	131	204								
15.5 < D ≤ 16.5	1.5	SMDH 160-1.5DF	●	32	103	50	25	20	MTL/ MSL MEL	1	BXD02509IPC	0.93 to 1.24	TRDR10IP
	3	SMDH 160-3DF	●	57	134								
	5	SMDH 160-5DF	●	90	169								
	8	SMDH 160-8DF	●	140	214								
16.5 < D ≤ 17.5	1.5	SMDH 170-1.5DF	●	34	104	50	25	20	MTL/ MSL MEL	1	BXD02509IPC	0.93 to 1.24	TRDR10IP
	3	SMDH 170-3DF	●	60	140								
	5	SMDH 170-5DF	●	95	175								
	8	SMDH 170-8DF	●	148	225								
17.5 < D ≤ 18.5	1.5	SMDH 180-1.5DF	●	36	107	50	25	20	MTL/ MSL MEL	1	BXD02509IPC	0.93 to 1.24	TRDR10IP
	3	SMDH 180-3DF	●	63	145								
	5	SMDH 180-5DF	●	100	180								
	8	SMDH 180-8DF	●	156	230								
18.5 < D ≤ 19.5	1.5	SMDH 190-1.5DF	●	37	115	56	30	25	MTL/ MSL MEL	1	BXD03011IPC	1.83 to 2.44	TRDR15IP
	3	SMDH 190-3DF	●	67	160								
	5	SMDH 190-5DF	●	106	195								
	8	SMDH 190-8DF	●	164	255								
19.5 < D ≤ 20.5	1.5	SMDH 200-1.5DF	●	39	118	56	30	25	MTL/ MSL MEL	1	BXD03011IPC	1.83 to 2.44	TRDR15IP
	3	SMDH 200-3DF	●	70	160								
	5	SMDH 200-5DF	●	111	200								
	8	SMDH 200-8DF	●	172	265								
20.5 < D ≤ 21.5	1.5	SMDH 210-1.5DF	●	41	119	56	30	25	MTL/ MSL MEL	1	BXD03011IPC	1.83 to 2.44	TRDR15IP
	3	SMDH 210-3DF	●	73	160								
	5	SMDH 210-5DF	●	116	200								
	8	SMDH 210-8DF	●	180	270								
21.5 < D ≤ 22.8	1.5	SMDH 220-1.5DF	●	43	121	56	30	25	MTL/ MSL MEL	1	BXD03512IPC	2.79 to 3.72	TRDR15IP
	3	SMDH 220-3DF	●	77	165								
	5	SMDH 220-5DF	●	123	205								
	8	SMDH 220-8DF	●	191	275								
22.8 < D ≤ 23.8	1.5	SMDH 230-1.5DF	●	45	122	56	30	25	MTL/ MSL MEL	1	BXD03512IPC	2.79 to 3.72	TRDR15IP
	3	SMDH 230-3DF	●	80	165								
	5	SMDH 230-5DF	●	128	215								
	8	SMDH 230-8DF	●	199	285								
23.8 < D ≤ 24.8	1.5	SMDH 240-1.5DF	●	46	129	60	37	32	MTL/ MSL MEL	1	BXD03512IPC	2.79 to 3.72	TRDR15IP
	3	SMDH 240-3DF	●	83	175								
	5	SMDH 240-5DF	●	133	225								
	8	SMDH 240-8DF	●	207	300								

Recommended Cutting Conditions P3 MTL Type Head P4 MSL Type Head P6 MEL Type Head P8 Recommended Tightening Torque (N·m)

*The SMDH000S Holder Cat. No. has been changed to SMDH000-1.5DF. The specifications have not changed.

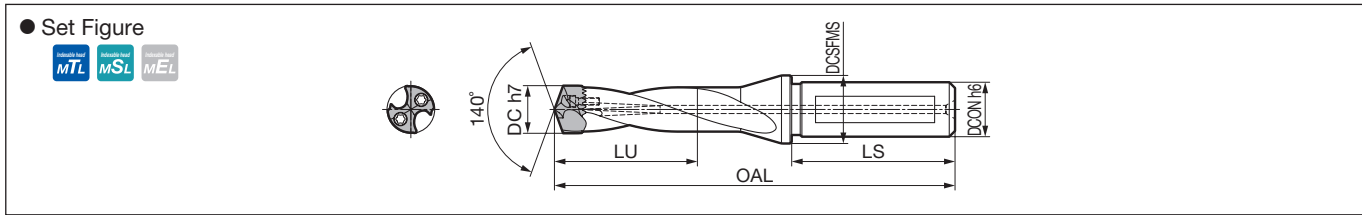
● mark: Standard stocked item ● mark: Standard stocked item (expanded item)

Expansion

MTL Carbon Steel Alloy Steel up to 0.25%	Carbon Steel Alloy Steel from 1.25%	Tempered Steel	Hardened Steel up to 65HRC	Cast Iron	Ductile Cast Iron
MSL Carbon Steel Alloy Steel up to 0.25%	Carbon Steel Alloy Steel from 1.25%	Stainless Steel	Ti Alloy	Heat-resistant Steel	Cast Iron
MEL Carbon Steel Alloy Steel up to 0.25%	Carbon Steel Alloy Steel from 1.25%	Hardened Steel up to 65HRC	Stainless Steel	Ti Alloy	Heat-resistant Steel



*For h6 and h7 tolerances, refer to Chapter N References in the General Catalogue.



Body ø24.8 to 30.8mm Dimensions with MTL Type / MSL Type / MEL Type Set

Dimensions (mm)

Parts

Dia. DC	Hole Depth (L/D)	Cat. No.	Stock	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Indexable Head	Fig	Cap Screw		Wrench
24.8 < D ≤ 25.8	1.5	SMDH 250-1.5DF	● 48	129	60	37	32	MTL/ MSL MEL	1	1	BXD04014IPC	4.14 to 5.52	TRDR20IP
	3	SMDH 250-3DF	● 87	175									
	5	SMDH 250-5DF	● 138	230									
	8	SMDH 250-8DF	● 216	305									
25.8 < D ≤ 26.8	1.5	SMDH 260-1.5DF	● 50	132	60	37	32	MTL/ MSL MEL	1	1	BXD04014IPC	4.14 to 5.52	TRDR20IP
	3	SMDH 260-3DF	● 90	180									
	5	SMDH 260-5DF	● 143	235									
	8	SMDH 260-8DF	● 224	315									
26.8 < D ≤ 27.8	1.5	SMDH 270-1.5DF	● 51	133	60	37	32	MTL/ MSL MEL	1	1	BXD04014IPC	4.14 to 5.52	TRDR20IP
	3	SMDH 270-3DF	● 93	180									
	5	SMDH 270-5DF	● 149	240									
	8	SMDH 270-8DF	● 232	325									
27.8 < D ≤ 28.8	1.5	SMDH 280-1.5DF	● 53	134	60	37	32	MTL/ MSL MEL	1	1	BXD04515IPC	4.98 to 6.64	TRDR25IP
	3	SMDH 280-3DF	● 96	185									
	5	SMDH 280-5DF	● 154	245									
	8	SMDH 280-8DF	● 240	330									
28.8 < D ≤ 29.8	1.5	SMDH 290-1.5DF	● 55	136	60	37	32	MTL/ MSL MEL	1	1	BXD04515IPC	4.98 to 6.64	TRDR25IP
	3	SMDH 290-3DF	● 99	190									
	5	SMDH 290-5DF	● 159	250									
	8	SMDH 290-8DF	● 248	340									
29.8 < D ≤ 30.8	1.5	SMDH 300-1.5DF	● 56	139	60	37	32	MTL/ MSL MEL	1	1	BXD04515IPC	4.98 to 6.64	TRDR25IP
	3	SMDH 300-3DF	● 103	190									
	5	SMDH 300-5DF	● 164	260									
	8	SMDH 300-8DF	● 257	350									

Recommended Cutting Conditions MTL Type Head MSL Type Head MEL Type Head Recommended Tightening Torque (N·m)

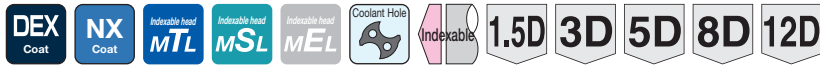
*The SMDH000S Holder Cat. No. has been changed to SMDH000-1.5DF. The specifications have not changed.

Conversion Chart of New and Old Cat. Nos.

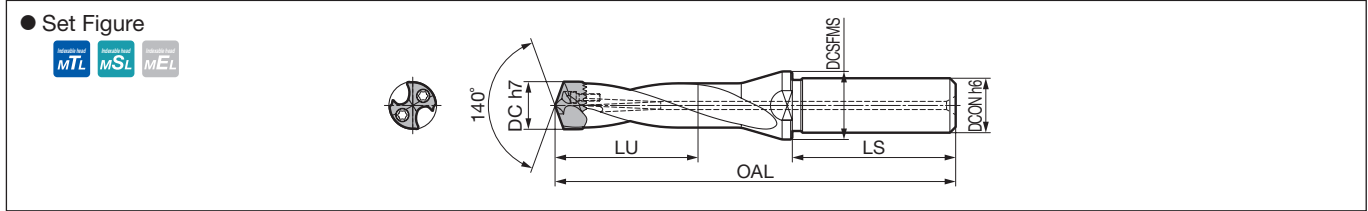
Old Cat. No.	New Cat. No.
SMDH 120S	SMDH 120-1.5DF
SMDH 125S	SMDH 125-1.5DF
SMDH 130S	SMDH 130-1.5DF
SMDH 140S	SMDH 140-1.5DF
SMDH 150S	SMDH 150-1.5DF
SMDH 160S	SMDH 160-1.5DF
SMDH 170S	SMDH 170-1.5DF
SMDH 180S	SMDH 180-1.5DF
SMDH 190S	SMDH 190-1.5DF
SMDH 200S	SMDH 200-1.5DF
SMDH 210S	SMDH 210-1.5DF
SMDH 220S	SMDH 220-1.5DF
SMDH 230S	SMDH 230-1.5DF
SMDH 240S	SMDH 240-1.5DF
SMDH 250S	SMDH 250-1.5DF
SMDH 260S	SMDH 260-1.5DF
SMDH 270S	SMDH 270-1.5DF
SMDH 280S	SMDH 280-1.5DF
SMDH 290S	SMDH 290-1.5DF
SMDH 300S	SMDH 300-1.5DF

*Either BXD000000IPC (with anti-loosening coating) or the old Cat. No. BXD000000IP can be used as the cap screw.

MTL	Carbon Steel Alloy Steel up to 2.2%Ni	Carbon Steel Alloy Steel from 12%Ni	Tempered Steel	Hardened Steel up to 65HRC	Cast Iron	Ductile Cast Iron
MSL	Carbon Steel Alloy Steel up to 2.2%Ni	Carbon Steel Alloy Steel from 12%Ni	Stainless Steel	Ti Alloy	Heat-resistant Steel	Ductile Cast Iron Aluminum Alloy
MEL	Carbon Steel Alloy Steel up to 2.2%Ni	Carbon Steel Alloy Steel from 12%Ni	Hardened Steel up to 65HRC	Stainless Steel	Ti Alloy	Heat-resistant Steel Ductile Cast Iron Aluminum Alloy



*For h6 and h7 tolerances, refer to Chapter N References in the General Catalogue.



Body ø12.0 to 21.5mm Dimensions with MTL Type / MSL Type / MEL Type Set Dimensions (mm)

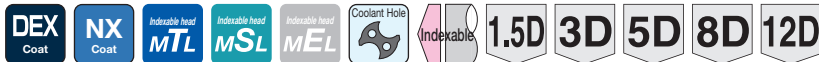
Parts

Dia. DC	Hole Depth (L/D)	Cat. No.	Stock	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Indexable Head	Fig	Cap Screw		Wrench
												N·m	
12.0 ≤ D < 12.5	1.5	SMDH 120-1.5D	●	23	91	48	20	16	MTL/ MSL MEL	1	BXD02208IPC	0.75 to 1.00	TRDR08IP
	3	SMDH 120-3D	●	42	107								
	5	SMDH 120-5D	●	67	132								
	8	SMDH 120-8D	●	98	164								
	12	SMDH 120-12D	●	146	213								
12.5 ≤ D < 13.0	1.5	SMDH 125-1.5D	●	24	91	48	20	16	MTL/ MSL MEL	1	BXD02208IPC	0.75 to 1.00	TRDR08IP
	3	SMDH 125-3D	●	44	107								
	5	SMDH 125-5D	●	69	132								
	8	SMDH 125-8D	●	102	170								
	12	SMDH 125-12D	●	152	219								
13.0 ≤ D < 13.5	1.5	SMDH 130-1.5D	●	25	92	48	20	16	MTL/ MSL MEL	1	BXD02208IPC	0.75 to 1.00	TRDR08IP
	3	SMDH 130-3D	●	45	112								
	5	SMDH 130-5D	●	72	142								
	8	SMDH 130-8D	●	106	178								
	12	SMDH 130-12D	●	158	226								
13.5 ≤ D ≤ 14.5	1.5	SMDH 140-1.5D	●	29	96	48	20	16	MTL/ MSL MEL	1	BXD02208IPC	0.75 to 1.00	TRDR08IP
	3	SMDH 140-3D	●	51	119								
	5	SMDH 140-5D	●	80	149								
	8	SMDH 140-8D	●	123	194								
	12	SMDH 140-12D	●	170	239								
14.5 < D ≤ 15.5	1.5	SMDH 150-1.5D	●	31	100	50	25	20	MTL/ MSL MEL	1	BXD02208IPC	0.75 to 1.00	TRDR08IP
	3	SMDH 150-3D	●	54	129								
	5	SMDH 150-5D	●	85	159								
	8	SMDH 150-8D	●	131	204								
	12	SMDH 150-12D	●	182	253								
15.5 < D ≤ 16.5	1.5	SMDH 160-1.5D	●	32	103	50	25	20	MTL/ MSL MEL	1	BXD02509IPC	0.93 to 1.24	TRDR10IP
	3	SMDH 160-3D	●	57	134								
	5	SMDH 160-5D	●	90	169								
	8	SMDH 160-8D	●	140	214								
	12	SMDH 160-12D	●	195	266								
16.5 < D ≤ 17.5	1.5	SMDH 170-1.5D	●	34	104	50	25	20	MTL/ MSL MEL	1	BXD02509IPC	0.93 to 1.24	TRDR10IP
	3	SMDH 170-3D	●	60	140								
	5	SMDH 170-5D	●	95	175								
	8	SMDH 170-8D	●	148	225								
	12	SMDH 170-12D	●	207	278								
17.5 < D ≤ 18.5	1.5	SMDH 180-1.5D	●	36	107	50	25	20	MTL/ MSL MEL	1	BXD02509IPC	0.93 to 1.24	TRDR10IP
	3	SMDH 180-3D	●	63	145								
	5	SMDH 180-5D	●	100	180								
	8	SMDH 180-8D	●	156	230								
	12	SMDH 180-12D	●	219	290								
18.5 < D ≤ 19.5	1.5	SMDH 190-1.5D	●	37	115	56	30	25	MTL/ MSL MEL	1	BXD03011IPC	1.83 to 2.44	TRDR15IP
	3	SMDH 190-3D	●	67	160								
	5	SMDH 190-5D	●	106	195								
	8	SMDH 190-8D	●	164	255								
	12	SMDH 190-12D	●	231	309								
19.5 < D ≤ 20.5	1.5	SMDH 200-1.5D	●	39	118	56	30	25	MTL/ MSL MEL	1	BXD03011IPC	1.83 to 2.44	TRDR15IP
	3	SMDH 200-3D	●	70	160								
	5	SMDH 200-5D	●	111	200								
	8	SMDH 200-8D	●	172	265								
	12	SMDH 200-12D	●	243	321								
20.5 < D ≤ 21.5	1.5	SMDH 210-1.5D	●	41	119	56	30	25	MTL/ MSL MEL	1	BXD03011IPC	1.83 to 2.44	TRDR15IP
	3	SMDH 210-3D	●	73	160								
	5	SMDH 210-5D	●	116	200								
	8	SMDH 210-8D	●	180	270								
	12	SMDH 210-12D	●	255	334								

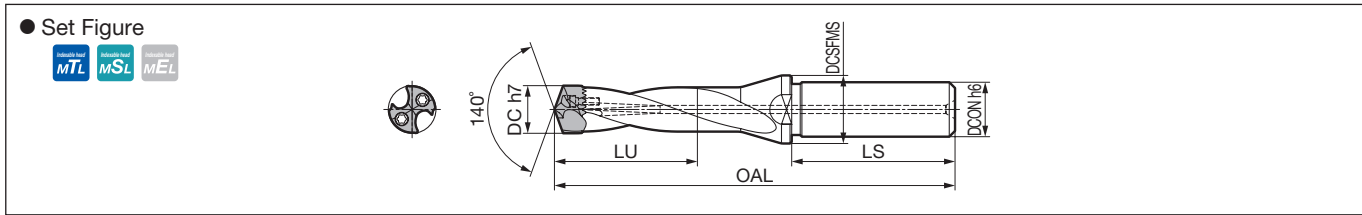
Recommended Cutting Conditions MTL Type Head MSL Type Head MEL Type Head

Recommended Tightening Torque (N·m)

MTL	Carbon Steel Alloy Steel up to 0.25%	Carbon Steel Alloy Steel from 0.25%	Tempered Steel	Hardened Steel up to 65HRC	Cast Iron	Ductile Cast Iron
MSL	Carbon Steel Alloy Steel up to 0.25%	Carbon Steel Alloy Steel from 0.25%	Stainless Steel	Ti Alloy	Heat-resistant Steel	Cast Iron
MEL	Carbon Steel Alloy Steel up to 0.25%	Carbon Steel Alloy Steel from 0.25%	Hardened Steel up to 65HRC	Stainless Steel	Ti Alloy	Heat-resistant Steel



*For h6 and h7 tolerances, refer to Chapter N References in the General Catalogue.



Body ø21.5 to 30.8mm Dimensions with MTL Type / MSL Type / MEL Type Set

Dimensions (mm)

Parts

Dia. DC	Hole Depth (L/D)	Cat. No.	Stock	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Indexable Head	Fig	Cap Screw		Wrench
21.5 < D ≤ 22.8	1.5	SMDH 220-1.5D	●	43	121	56	30	25	MTL/ MSL MEL	1	BXD03512IPC	2.79 to 3.72	TRDR15IP
	3	SMDH 220-3D	●	77	165								
	5	SMDH 220-5D	●	123	205								
	8	SMDH 220-8D	●	191	275								
	12	SMDH 220-12D	●	268	347								
22.8 < D ≤ 23.8	1.5	SMDH 230-1.5D	●	45	122	56	30	25	MTL/ MSL MEL	1	BXD03512IPC	2.79 to 3.72	TRDR15IP
	3	SMDH 230-3D	●	80	165								
	5	SMDH 230-5D	●	128	215								
	8	SMDH 230-8D	●	199	285								
	12	SMDH 230-12D	●	280	359								
23.8 < D ≤ 24.8	1.5	SMDH 240-1.5D	●	46	129	60	37	32	MTL/ MSL MEL	1	BXD03512IPC	2.79 to 3.72	TRDR15IP
	3	SMDH 240-3D	●	83	175								
	5	SMDH 240-5D	●	133	225								
	8	SMDH 240-8D	●	207	300								
	12	SMDH 240-12D	●	292	376								
24.8 < D ≤ 25.8	1.5	SMDH 250-1.5D	●	48	129	60	37	32	MTL/ MSL MEL	1	BXD04014IPC	4.14 to 5.52	TRDR20IP
	3	SMDH 250-3D	●	87	175								
	5	SMDH 250-5D	●	138	230								
	8	SMDH 250-8D	●	216	305								
	12	SMDH 250-12D	●	304	388								
25.8 < D ≤ 26.8	1.5	SMDH 260-1.5D	●	50	132	60	37	32	MTL/ MSL MEL	1	BXD04014IPC	4.14 to 5.52	TRDR20IP
	3	SMDH 260-3D	●	90	180								
	5	SMDH 260-5D	●	143	235								
	8	SMDH 260-8D	●	224	315								
	12	SMDH 260-12D	●	316	401								
26.8 < D ≤ 27.8	1.5	SMDH 270-1.5D	●	51	133	60	37	32	MTL/ MSL MEL	1	BXD04014IPC	4.14 to 5.52	TRDR20IP
	3	SMDH 270-3D	●	93	180								
	5	SMDH 270-5D	●	149	240								
	8	SMDH 270-8D	●	232	325								
	12	SMDH 270-12D	●	329	413								
27.8 < D ≤ 28.8	1.5	SMDH 280-1.5D	●	53	134	60	37	32	MTL/ MSL MEL	1	BXD04515IPC	4.98 to 6.64	TRDR25IP
	3	SMDH 280-3D	●	96	185								
	5	SMDH 280-5D	●	154	245								
	8	SMDH 280-8D	●	240	330								
	12	SMDH 280-12D	●	341	426								
28.8 < D ≤ 29.8	1.5	SMDH 290-1.5D	●	55	136	60	37	32	MTL/ MSL MEL	1	BXD04515IPC	4.98 to 6.64	TRDR25IP
	3	SMDH 290-3D	●	99	190								
	5	SMDH 290-5D	●	159	250								
	8	SMDH 290-8D	●	248	340								
	12	SMDH 290-12D	●	353	438								
29.8 < D ≤ 30.8	1.5	SMDH 300-1.5D	●	56	139	60	37	32	MTL/ MSL MEL	1	BXD04515IPC	4.98 to 6.64	TRDR25IP
	3	SMDH 300-3D	●	103	190								
	5	SMDH 300-5D	●	164	260								
	8	SMDH 300-8D	●	257	350								
	12	SMDH 300-12D	●	365	451								

Recommended Cutting Conditions P3

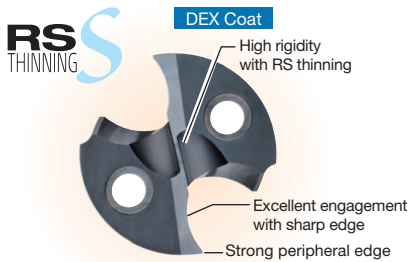
MTL Type Head P4

MSL Type Head P6

MEL Type Head P8

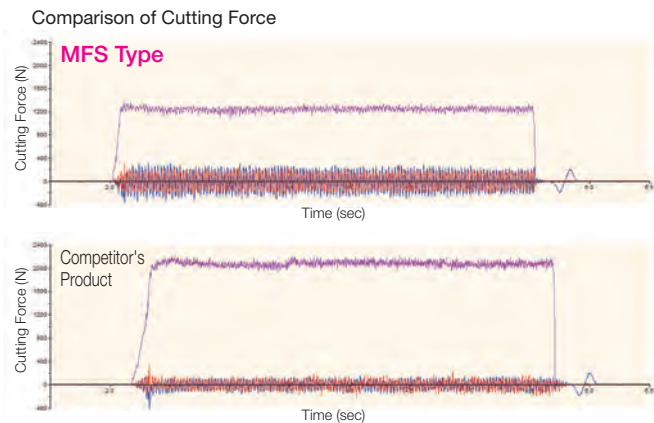
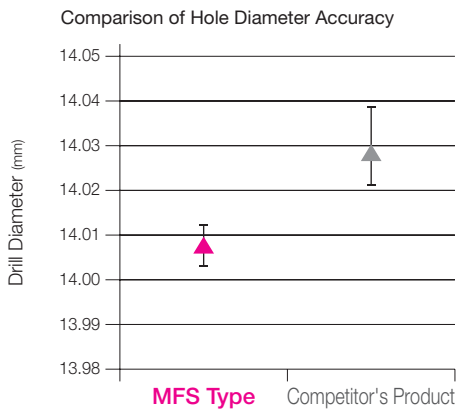
Recommended Tightening Torque (N-m)

MFS Type Ideal for drilling on non-flat surfaces and burr control



- **Suited to various types of drilling thanks to a point angle of 180°**
Supports high-efficiency spot facing, drilling on non-flat surfaces such as inclined and cylindrical surfaces, and interrupted drilling. Also reduces burrs at the hole exit.
- **Improves machining stability**
Achieves high rigidity by employing RS thinning, which ensures thick web at the bottom.

Performance



Tool : SMDH140-1.5DF + SMDT1400MFS
 Work Material : S50C
 Cutting Conditions : $v_c = 100\text{mm/min}$ $f = 0.15\text{mm/rev}$ Hole depth 21mm Wet

Precautions when Using MFS Type Heads

Application	No guide hole (direct drilling)		With guide hole		Flat Finishing of Hole Bottom
	Flat surface	Non-flat surface	Guide Holes		
1.5D holder	○	○	○ (guide hole not needed)	○	○
3D to 12D holders	×	×	×	×	○

Recommended Cutting Conditions (MFS Type)

v_c : Cutting Speed (m/min) f : Feed Rate (mm/rev)

Work Material	Dia. DC (mm)	Cutting Conditions	Mild Steel (up to 250HB)	General Steel (250 to 320HB)	Hardened Steel (45HRC)	Stainless Steel (up to 200HB)	Gray Cast Iron	Ductile Cast Iron	Aluminum Alloy*
			Min. - Optimum - Max.	Min. - Optimum - Max.	Min. - Optimum - Max.	Min. - Optimum - Max.	Min. - Optimum - Max.	Min. - Optimum - Max.	Min. - Optimum - Max.
ø16.0		v_c	60-100-120	70-100-120	40-60-90	50-60-80	50-70-90	50-60-80	200-240-260
		f	0.15-0.20-0.35	0.15-0.20-0.30	0.10-0.15-0.20	0.10-0.15-0.20	0.20-0.25-0.30	0.20-0.25-0.30	0.35-0.45-0.55
ø20.0		v_c	80-100-120	70-100-120	40-60-90	60-70-90	60-80-100	50-70-90	200-240-260
		f	0.15-0.25-0.35	0.15-0.25-0.35	0.15-0.20-0.25	0.15-0.20-0.25	0.20-0.30-0.35	0.20-0.25-0.35	0.35-0.50-0.60
ø30.8		v_c	80-100-120	70-100-120	40-60-90	60-70-90	60-80-100	50-70-90	200-240-260
		f	0.20-0.30-0.35	0.20-0.25-0.35	0.15-0.20-0.25	0.15-0.20-0.25	0.20-0.30-0.40	0.25-0.30-0.35	0.35-0.50-0.60

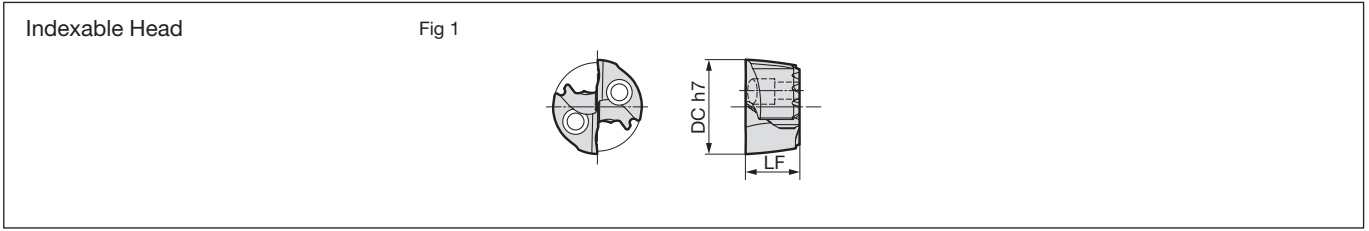
Note: The recommended hole depth is 2 x DC. The depth is measured from the highest point of the hole when drilling in inclined surfaces. The recommended cutting conditions are those for drilling in flat horizontal surfaces. Adjust the feed rate according to the inclination angle when drilling in an inclined surface. Set the feed rate at 70% or lower when the inclination angle is 30° or less. Set the feed rate at 50% or lower when the inclination angle is larger than 30°. This product is a drilling tool. Do not use it for traverse cutting or helical milling.

(*) Inquire if you require special drill heads for aluminum alloy.

SMD Type (Internal Coolant Supply)



*For h7 tolerance, refer to Chapter N References in the General Catalogue.



Indexable Head MFS Type Diameter \varnothing 12.0 to 21.5mm Dimensions (mm)

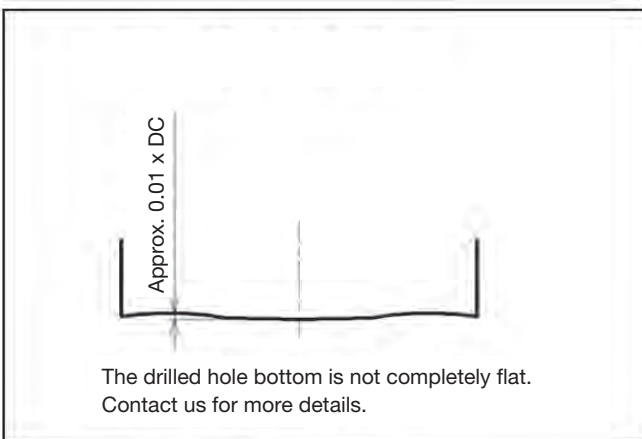
Dia. DC	Stock	Cat. No.	Shoulder Length LF	Applicable Holders	Fig
12.0	●	SMDT 1200 MFS	7.1	SMDH120□	1
12.5	●	SMDT 1250 MFS	7.2	SMDH125□	1
13.0	●	SMDT 1300 MFS	7.5	SMDH130□	1
13.5	●	SMDT 1350 MFS			1
14.0	●	SMDT 1400 MFS	7.9	SMDH140□	1
14.5	●	SMDT 1450 MFS			1
15.0	●	SMDT 1500 MFS	8.3	SMDH150□	1
15.5	●	SMDT 1550 MFS			1
16.0	●	SMDT 1600 MFS	8.8	SMDH160□	1
16.5	●	SMDT 1650 MFS			1
17.0	●	SMDT 1700 MFS	9.3	SMDH170□	1
17.5	●	SMDT 1750 MFS			1
18.0	●	SMDT 1800 MFS	9.8	SMDH180□	1
18.5	●	SMDT 1850 MFS			1
19.0	●	SMDT 1900 MFS	10.2	SMDH190□	1
19.5	●	SMDT 1950 MFS			1
20.0	●	SMDT 2000 MFS	10.7	SMDH200□	1
20.5	●	SMDT 2050 MFS			1
21.0	●	SMDT 2100 MFS	11.2	SMDH210□	1
21.5	●	SMDT 2150 MFS			1

Grade: ACX70 Recommended Cutting Conditions **P16** Applicable Holders **P18**

Indexable Head MFS Type Diameter \varnothing 22.0 to 30.0mm Dimensions (mm)

Dia. DC	Stock	Cat. No.	Shoulder Length LF	Applicable Holders	Fig
22.0	●	SMDT 2200 MFS			1
22.5	●	SMDT 2250 MFS	11.2	SMDH220□	1
23.0	●	SMDT 2300 MFS			1
23.5	●	SMDT 2350 MFS	11.2	SMDH230□	1
24.0	●	SMDT 2400 MFS			1
24.5	●	SMDT 2450 MFS	11.3	SMDH240□	1
25.0	●	SMDT 2500 MFS			1
25.5	●	SMDT 2550 MFS	11.7	SMDH250□	1
26.0	●	SMDT 2600 MFS			1
26.5	●	SMDT 2650 MFS	12.2	SMDH260□	1
27.0	●	SMDT 2700 MFS			1
27.5	●	SMDT 2750 MFS	12.7	SMDH270□	1
28.0	●	SMDT 2800 MFS			1
28.5	●	SMDT 2850 MFS	13.2	SMDH280□	1
29.0	●	SMDT 2900 MFS			1
29.5	●	SMDT 2950 MFS	13.6	SMDH290□	1
30.0	●	SMDT 3000 MFS	14.1	SMDH300□	1

Grade: ACX70 Recommended Cutting Conditions **P16** Applicable Holders **P18**

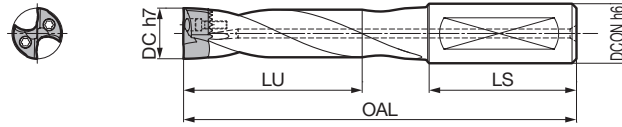


● mark: Standard stocked item



*For h6 and h7 tolerances, refer to Chapter N References in the General Catalogue.

● Set Figure



Body ø12.0 to 29.8mm Dimensions with MFS Type Set

Dimensions (mm)

Parts

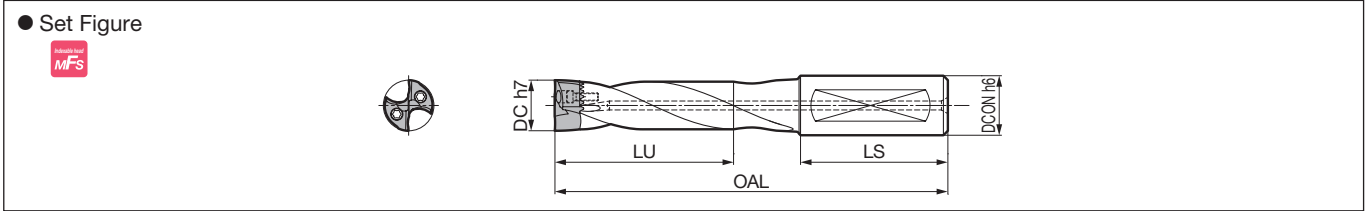
Dia. DC	Hole Depth (L/D)	Cat. No.	Stock	Effective Length LU	Overall Length OAL	Shank LS	Shank Dia. DCON	Indexable Head	Fig	Cap Screw		Wrench
12.0 ≤ D < 12.5	3	SMDH 120M	●	40	105	48	16	MFS	1	BXD02208IP	0.75 to 1.00	TRDR08IP
	5	SMDH 120L	●	65	130							
12.5 ≤ D < 13.0	3	SMDH 125M	●	41	105	48	16	MFS	1	BXD02208IP	0.75 to 1.00	TRDR08IP
	5	SMDH 125L	●	67	130							
13.0 ≤ D < 13.5	3	SMDH 130M	●	43	110	48	16	MFS	1	BXD02208IP	0.75 to 1.00	TRDR08IP
	5	SMDH 130L	●	70	140							
13.5 ≤ D ≤ 14.5	3	SMDH 140M	●	48	117	48	16	MFS	1	BXD02208IP	0.75 to 1.00	TRDR08IP
	5	SMDH 140L	●	77	147							
	8	SMDH 140D	●	121	192							
14.5 < D ≤ 15.5	3	SMDH 150M	●	51	127	50	20	MFS	1	BXD02208IP	0.75 to 1.00	TRDR08IP
	5	SMDH 150L	●	82	157							
	8	SMDH 150D	●	129	202							
15.5 < D ≤ 16.5	3	SMDH 160M	●	54	132	50	20	MFS	1	BXD02509IP	0.93 to 1.24	TRDR10IP
	5	SMDH 160L	●	87	167							
	8	SMDH 160D	●	137	212							
16.5 < D ≤ 17.5	3	SMDH 170M	●	57	137	50	20	MFS	1	BXD02509IP	0.93 to 1.24	TRDR10IP
	5	SMDH 170L	●	92	172							
	8	SMDH 170D	●	145	222							
17.5 < D ≤ 18.5	3	SMDH 180M	●	60	142	50	20	MFS	1	BXD02509IP	0.93 to 1.24	TRDR10IP
	5	SMDH 180L	●	97	177							
	8	SMDH 180D	●	153	227							
18.5 < D ≤ 19.5	3	SMDH 190M	●	63	157	56	25	MFS	1	BXD03011IP	1.83 to 2.44	TRDR15IP
	5	SMDH 190L	●	102	192							
	8	SMDH 190D	●	161	252							
19.5 < D ≤ 20.5	3	SMDH 200M	●	66	157	56	25	MFS	1	BXD03011IP	1.83 to 2.44	TRDR15IP
	5	SMDH 200L	●	107	197							
	8	SMDH 200D	●	169	262							
20.5 < D ≤ 21.5	3	SMDH 210M	●	69	157	56	25	MFS	1	BXD03011IP	1.83 to 2.44	TRDR15IP
	5	SMDH 210L	●	112	197							
	8	SMDH 210D	●	177	267							
21.5 < D ≤ 22.8	3	SMDH 220M	●	73	161	56	25	MFS	1	BXD03512IP	2.79 to 3.72	TRDR15IP
	5	SMDH 220L	●	119	201							
	8	SMDH 220D	●	187	271							
22.8 < D ≤ 23.8	3	SMDH 230M	●	76	161	56	25	MFS	1	BXD03512IP	2.79 to 3.72	TRDR15IP
	5	SMDH 230L	●	124	211							
	8	SMDH 230D	●	195	281							
23.8 < D ≤ 24.8	3	SMDH 240M	●	79	170	60	32	MFS	1	BXD03512IP	2.79 to 3.72	TRDR15IP
	5	SMDH 240L	●	129	220							
	8	SMDH 240D	●	203	295							
24.8 < D ≤ 25.8	3	SMDH 250M	●	82	170	60	32	MFS	1	BXD04014IP	4.14 to 5.52	TRDR20IP
	5	SMDH 250L	●	134	225							
	8	SMDH 250D	●	211	300							
25.8 < D ≤ 26.8	3	SMDH 260M	●	85	175	60	32	MFS	1	BXD04014IP	4.14 to 5.52	TRDR20IP
	5	SMDH 260L	●	139	230							
	8	SMDH 260D	●	219	310							
26.8 < D ≤ 27.8	3	SMDH 270M	●	88	175	60	32	MFS	1	BXD04014IP	4.14 to 5.52	TRDR20IP
	5	SMDH 270L	●	144	235							
	8	SMDH 270D	●	227	320							
27.8 < D ≤ 28.8	3	SMDH 280M	●	91	180	60	32	MFS	1	BXD04515IP	4.98 to 6.64	TRDR25IP
	5	SMDH 280L	●	149	240							
	8	SMDH 280D	●	235	325							
28.8 < D ≤ 29.8	3	SMDH 290M	●	94	185	60	32	MFS	1	BXD04515IP	4.98 to 6.64	TRDR25IP
	5	SMDH 290L	●	154	245							
	8	SMDH 290D	●	243	335							

Recommended Cutting Conditions MFS Type Head

Recommended Tightening Torque (N·m)



*For h6 and h7 tolerances, refer to Chapter N References in the General Catalogue.



Body ø29.8 to 30.8mm Dimensions with MFS Type Set Dimensions (mm)

Parts

Dia. DC	Hole Depth (L/D)	Cat. No.	Stock	Effective Length LU	Overall Length OAL	Shank LS	Shank Dia. DCON	Indexable Head	Fig	Cap Screw		Wrench
29.8 < D ≤ 30.8	3	SMDH 300M	●	97	185	60	32	MFS	1			
	5	SMDH 300L	●	159	255							
	8	SMDH 300D	●	251	345							

Recommended Cutting Conditions P16 MFS Type Head P17

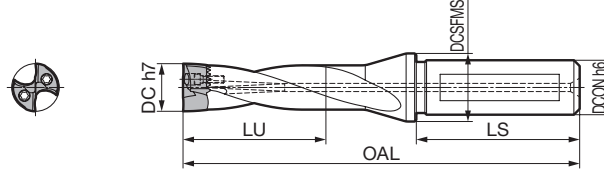
Recommended Tightening Torque (N·m)

4.98 to 6.64



*For h6 and h7 tolerances, refer to Chapter N References in the General Catalogue.

● Set Figure



Body ø12.0 to 24.8mm Dimensions with MFS Type Set

Dimensions (mm)

Parts

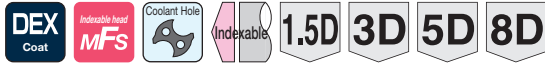
Dia. DC	Hole Depth (L/D)	Cat. No.	Stock	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Indexable Head	Fig	Cap Screw		Wrench
12.0 ≤ D < 12.5	1.5	SMDH 120-1.5DF	●	21	89	48	20	16	MFS	1	BXD02208IPC	0.75 to 1.00	TRDR08IP
	3	SMDH 120-3DF	●	40	105								
	5	SMDH 120-5DF	●	65	130								
	8	SMDH 120-8DF	●	96	162								
12.5 ≤ D < 13.0	1.5	SMDH 125-1.5DF	●	22	89	48	20	16	MFS	1	BXD02208IPC	0.75 to 1.00	TRDR08IP
	3	SMDH 125-3DF	●	41	105								
	5	SMDH 125-5DF	●	67	130								
	8	SMDH 125-8DF	●	100	168								
13.0 ≤ D < 13.5	1.5	SMDH 130-1.5DF	●	23	90	48	20	16	MFS	1	BXD02208IPC	0.75 to 1.00	TRDR08IP
	3	SMDH 130-3DF	●	43	110								
	5	SMDH 130-5DF	●	70	140								
	8	SMDH 130-8DF	●	104	176								
13.5 ≤ D ≤ 14.5	1.5	SMDH 140-1.5DF	●	26	94	48	20	16	MFS	1	BXD02208IPC	0.75 to 1.00	TRDR08IP
	3	SMDH 140-3DF	●	48	117								
	5	SMDH 140-5DF	●	77	147								
	8	SMDH 140-8DF	●	121	192								
14.5 < D ≤ 15.5	1.5	SMDH 150-1.5DF	●	28	97	50	25	20	MFS	1	BXD02208IPC	0.75 to 1.00	TRDR08IP
	3	SMDH 150-3DF	●	51	127								
	5	SMDH 150-5DF	●	82	157								
	8	SMDH 150-8DF	●	129	202								
15.5 < D ≤ 16.5	1.5	SMDH 160-1.5DF	●	29	100	50	25	20	MFS	1	BXD02509IPC	0.93 to 1.24	TRDR10IP
	3	SMDH 160-3DF	●	54	132								
	5	SMDH 160-5DF	●	87	167								
	8	SMDH 160-8DF	●	137	212								
16.5 < D ≤ 17.5	1.5	SMDH 170-1.5DF	●	31	101	50	25	20	MFS	1	BXD02509IPC	0.93 to 1.24	TRDR10IP
	3	SMDH 170-3DF	●	57	137								
	5	SMDH 170-5DF	●	92	172								
	8	SMDH 170-8DF	●	145	222								
17.5 < D ≤ 18.5	1.5	SMDH 180-1.5DF	●	32	104	50	25	20	MFS	1	BXD02509IPC	0.93 to 1.24	TRDR10IP
	3	SMDH 180-3DF	●	60	142								
	5	SMDH 180-5DF	●	97	177								
	8	SMDH 180-8DF	●	153	227								
18.5 < D ≤ 19.5	1.5	SMDH 190-1.5DF	●	34	111	56	30	25	MFS	1	BXD03011IPC	1.83 to 2.44	TRDR15IP
	3	SMDH 190-3DF	●	63	157								
	5	SMDH 190-5DF	●	102	192								
	8	SMDH 190-8DF	●	161	252								
19.5 < D ≤ 20.5	1.5	SMDH 200-1.5DF	●	35	114	56	30	25	MFS	1	BXD03011IPC	1.83 to 2.44	TRDR15IP
	3	SMDH 200-3DF	●	66	157								
	5	SMDH 200-5DF	●	107	197								
	8	SMDH 200-8DF	●	169	262								
20.5 < D ≤ 21.5	1.5	SMDH 210-1.5DF	●	37	116	56	30	25	MFS	1	BXD03011IPC	1.83 to 2.44	TRDR15IP
	3	SMDH 210-3DF	●	69	157								
	5	SMDH 210-5DF	●	112	197								
	8	SMDH 210-8DF	●	177	267								
21.5 < D ≤ 22.8	1.5	SMDH 220-1.5DF	●	39	117	56	30	25	MFS	1	BXD03512IPC	2.79 to 3.72	TRDR15IP
	3	SMDH 220-3DF	●	73	161								
	5	SMDH 220-5DF	●	119	201								
	8	SMDH 220-8DF	●	187	271								
22.8 < D ≤ 23.8	1.5	SMDH 230-1.5DF	●	40	118	56	30	25	MFS	1	BXD03512IPC	2.79 to 3.72	TRDR15IP
	3	SMDH 230-3DF	●	76	161								
	5	SMDH 230-5DF	●	124	211								
	8	SMDH 230-8DF	●	195	281								
23.8 < D ≤ 24.8	1.5	SMDH 240-1.5DF	●	42	124	60	37	32	MFS	1	BXD03512IPC	2.79 to 3.72	TRDR15IP
	3	SMDH 240-3DF	●	79	170								
	5	SMDH 240-5DF	●	129	220								
	8	SMDH 240-8DF	●	203	295								

Recommended Cutting Conditions P16 MFS Type Head P17

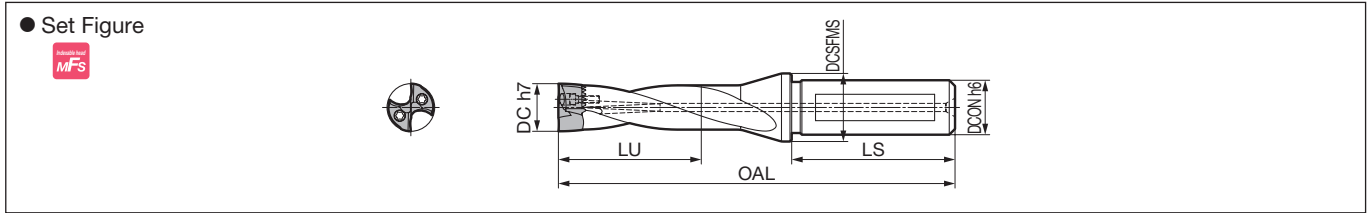
Recommended Tightening Torque (N-m)

*The SMDH000S Holder Cat. No. has been changed to SMDH000-1.5DF. The specifications have not changed.

● mark: Standard stocked item ● mark: Standard stocked item (expanded item)



*For h6 and h7 tolerances, refer to Chapter N References in the General Catalogue.



Body ø24.8 to 30.8mm Dimensions with MFS Type Set Dimensions (mm) **Parts**

Dia. DC	Hole Depth (L/D)	Cat. No.	Stock	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Indexable Head	Fig	Cap Screw		Wrench
24.8 < D ≤ 25.8	1.5	SMDH 250-1.5DF	●	43	125	60	37	32	MFS	1	BXD04014IPC	4.14 to 5.52	TRDR20IP
	3	SMDH 250-3DF	●	82	170								
	5	SMDH 250-5DF	●	134	225								
	8	SMDH 250-8DF	●	211	300								
25.8 < D ≤ 26.8	1.5	SMDH 260-1.5DF	●	45	127	60	37	32	MFS	1	BXD04014IPC	4.14 to 5.52	TRDR20IP
	3	SMDH 260-3DF	●	85	175								
	5	SMDH 260-5DF	●	139	230								
	8	SMDH 260-8DF	●	219	310								
26.8 < D ≤ 27.8	1.5	SMDH 270-1.5DF	●	46	128	60	37	32	MFS	1	BXD04014IPC	4.14 to 5.52	TRDR20IP
	3	SMDH 270-3DF	●	88	175								
	5	SMDH 270-5DF	●	144	235								
	8	SMDH 270-8DF	●	227	320								
27.8 < D ≤ 28.8	1.5	SMDH 280-1.5DF	●	48	129	60	37	32	MFS	1	BXD04515IPC	4.98 to 6.64	TRDR25IP
	3	SMDH 280-3DF	●	91	180								
	5	SMDH 280-5DF	●	149	240								
	8	SMDH 280-8DF	●	235	325								
28.8 < D ≤ 29.8	1.5	SMDH 290-1.5DF	●	49	131	60	37	32	MFS	1	BXD04515IPC	4.98 to 6.64	TRDR25IP
	3	SMDH 290-3DF	●	94	185								
	5	SMDH 290-5DF	●	154	245								
	8	SMDH 290-8DF	●	243	335								
29.8 < D ≤ 30.8	1.5	SMDH 300-1.5DF	●	51	133	60	37	32	MFS	1	BXD04515IPC	4.98 to 6.64	TRDR25IP
	3	SMDH 300-3DF	●	97	185								
	5	SMDH 300-5DF	●	159	255								
	8	SMDH 300-8DF	●	251	345								

Recommended Cutting Conditions MFS Type Head

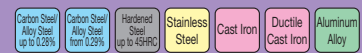
Recommended Tightening Torque (N·m)

*The SMDH000S Holder Cat. No. has been changed to SMDH000-1.5DF. The specifications have not changed.

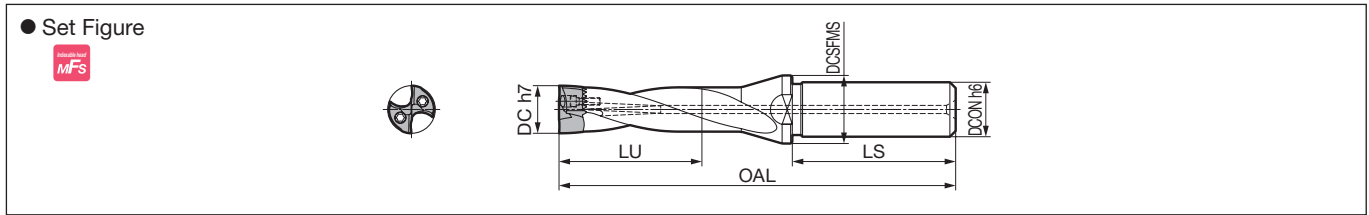
Conversion Chart of New and Old Cat. Nos.

Old Cat. No.	New Cat. No.
SMDH 120S	SMDH 120-1.5DF
SMDH 125S	SMDH 125-1.5DF
SMDH 130S	SMDH 130-1.5DF
SMDH 140S	SMDH 140-1.5DF
SMDH 150S	SMDH 150-1.5DF
SMDH 160S	SMDH 160-1.5DF
SMDH 170S	SMDH 170-1.5DF
SMDH 180S	SMDH 180-1.5DF
SMDH 190S	SMDH 190-1.5DF
SMDH 200S	SMDH 200-1.5DF
SMDH 210S	SMDH 210-1.5DF
SMDH 220S	SMDH 220-1.5DF
SMDH 230S	SMDH 230-1.5DF
SMDH 240S	SMDH 240-1.5DF
SMDH 250S	SMDH 250-1.5DF
SMDH 260S	SMDH 260-1.5DF
SMDH 270S	SMDH 270-1.5DF
SMDH 280S	SMDH 280-1.5DF
SMDH 290S	SMDH 290-1.5DF
SMDH 300S	SMDH 300-1.5DF

*Either BXD000000IPC (with anti-loosening coating) or the old Cat. No. BXD000000IP can be used as the cap screw.



*For h6 and h7 tolerances, refer to Chapter N References in the General Catalogue.



■ Body ø12.0 to 21.5mm Dimensions with MFS Type Set Dimensions (mm) ■ Parts

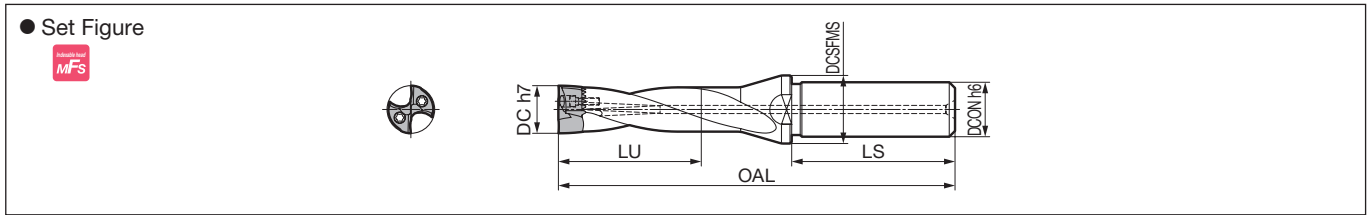
Dia. DC	Hole Depth (L/D)	Cat. No.	Stock	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Indexable Head	Fig	Cap Screw		Wrench
12.0 ≤ D < 12.5	1.5	SMDH 120-1.5D	●	21	89	48	20	16	MFS	1	BXD02208IPC	0.75 to 1.00	TRDR08IP
	3	SMDH 120-3D	●	40	105								
	5	SMDH 120-5D	●	65	130								
	8	SMDH 120-8D	●	96	162								
	12	SMDH 120-12D	●	144	211								
12.5 ≤ D < 13.0	1.5	SMDH 125-1.5D	●	22	89	48	20	16	MFS	1	BXD02208IPC	0.75 to 1.00	TRDR08IP
	3	SMDH 125-3D	●	41	105								
	5	SMDH 125-5D	●	67	130								
	8	SMDH 125-8D	●	100	168								
	12	SMDH 125-12D	●	150	217								
13.0 ≤ D < 13.5	1.5	SMDH 130-1.5D	●	23	90	48	20	16	MFS	1	BXD02208IPC	0.75 to 1.00	TRDR08IP
	3	SMDH 130-3D	●	43	110								
	5	SMDH 130-5D	●	70	140								
	8	SMDH 130-8D	●	104	176								
	12	SMDH 130-12D	●	156	223								
13.5 ≤ D ≤ 14.5	1.5	SMDH 140-1.5D	●	26	94	48	20	16	MFS	1	BXD02208IPC	0.75 to 1.00	TRDR08IP
	3	SMDH 140-3D	●	48	117								
	5	SMDH 140-5D	●	77	147								
	8	SMDH 140-8D	●	121	192								
	12	SMDH 140-12D	●	168	236								
14.5 < D ≤ 15.5	1.5	SMDH 150-1.5D	●	28	97	50	25	20	MFS	1	BXD02208IPC	0.75 to 1.00	TRDR08IP
	3	SMDH 150-3D	●	51	127								
	5	SMDH 150-5D	●	82	157								
	8	SMDH 150-8D	●	129	202								
	12	SMDH 150-12D	●	180	250								
15.5 < D ≤ 16.5	1.5	SMDH 160-1.5D	●	29	100	50	25	20	MFS	1	BXD02509IPC	0.93 to 1.24	TRDR10IP
	3	SMDH 160-3D	●	54	132								
	5	SMDH 160-5D	●	87	167								
	8	SMDH 160-8D	●	137	212								
	12	SMDH 160-12D	●	192	263								
16.5 < D ≤ 17.5	1.5	SMDH 170-1.5D	●	31	101	50	25	20	MFS	1	BXD02509IPC	0.93 to 1.24	TRDR10IP
	3	SMDH 170-3D	●	57	137								
	5	SMDH 170-5D	●	92	172								
	8	SMDH 170-8D	●	145	222								
	12	SMDH 170-12D	●	204	275								
17.5 < D ≤ 18.5	1.5	SMDH 180-1.5D	●	32	104	50	25	20	MFS	1	BXD02509IPC	0.93 to 1.24	TRDR10IP
	3	SMDH 180-3D	●	60	142								
	5	SMDH 180-5D	●	97	177								
	8	SMDH 180-8D	●	153	227								
	12	SMDH 180-12D	●	216	287								
18.5 < D ≤ 19.5	1.5	SMDH 190-1.5D	●	34	111	56	30	25	MFS	1	BXD03011IPC	1.83 to 2.44	TRDR15IP
	3	SMDH 190-3D	●	63	157								
	5	SMDH 190-5D	●	102	192								
	8	SMDH 190-8D	●	161	252								
	12	SMDH 190-12D	●	228	306								
19.5 < D ≤ 20.5	1.5	SMDH 200-1.5D	●	35	114	56	30	25	MFS	1	BXD03011IPC	1.83 to 2.44	TRDR15IP
	3	SMDH 200-3D	●	66	157								
	5	SMDH 200-5D	●	107	197								
	8	SMDH 200-8D	●	169	262								
	12	SMDH 200-12D	●	240	318								
20.5 < D ≤ 21.5	1.5	SMDH 210-1.5D	●	37	116	56	30	25	MFS	1	BXD03011IPC	1.83 to 2.44	TRDR15IP
	3	SMDH 210-3D	●	69	157								
	5	SMDH 210-5D	●	112	197								
	8	SMDH 210-8D	●	177	267								
	12	SMDH 210-12D	●	252	330								

Recommended Cutting Conditions MFS Type Head

Recommended Tightening Torque (N·m)



*For h6 and h7 tolerances, refer to Chapter N References in the General Catalogue.



Body ø21.5 to 30.8mm Dimensions with MFS Type Set

Dimensions (mm)

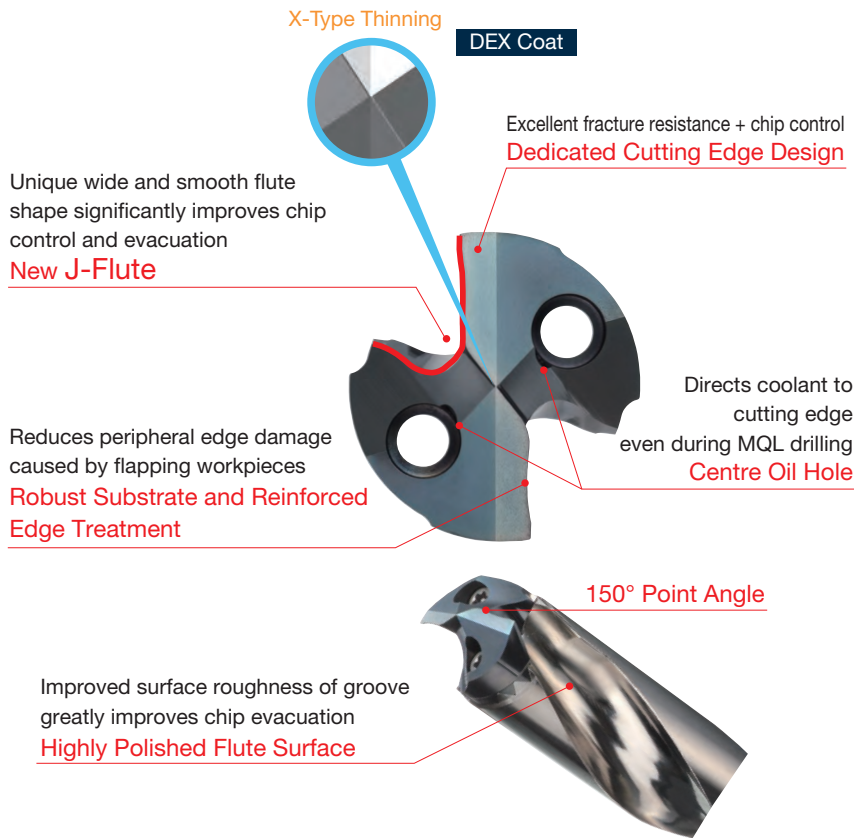
Parts

Dia. DC	Hole Depth (L/D)	Cat. No.	Stock	Effective Length LU	Overall Length OAL	Shank LS	Flange Dia. DCSFMS	Shank Dia. DCON	Indexable Head	Fig	Cap Screw		Wrench
21.5 < D ≤ 22.8	1.5	SMDH 220-1.5D	●	39	117	56	30	25	MFS	1	BXD03512IPC	2.79 to 3.72	TRDR15IP
	3	SMDH 220-3D	●	73	161								
	5	SMDH 220-5D	●	119	201								
	8	SMDH 220-8D	●	187	271								
	12	SMDH 220-12D	●	264	343								
22.8 < D ≤ 23.8	1.5	SMDH 230-1.5D	●	40	118	56	30	25	MFS	1	BXD03512IPC	2.79 to 3.72	TRDR15IP
	3	SMDH 230-3D	●	76	161								
	5	SMDH 230-5D	●	124	211								
	8	SMDH 230-8D	●	195	281								
	12	SMDH 230-12D	●	276	355								
23.8 < D ≤ 24.8	1.5	SMDH 240-1.5D	●	42	124	60	37	32	MFS	1	BXD03512IPC	2.79 to 3.72	TRDR15IP
	3	SMDH 240-3D	●	79	170								
	5	SMDH 240-5D	●	129	220								
	8	SMDH 240-8D	●	203	295								
	12	SMDH 240-12D	●	288	372								
24.8 < D ≤ 25.8	1.5	SMDH 250-1.5D	●	43	125	60	37	32	MFS	1	BXD04014IPC	4.14 to 5.52	TRDR20IP
	3	SMDH 250-3D	●	82	170								
	5	SMDH 250-5D	●	134	225								
	8	SMDH 250-8D	●	211	300								
	12	SMDH 250-12D	●	300	384								
25.8 < D ≤ 26.8	1.5	SMDH 260-1.5D	●	45	127	60	37	32	MFS	1	BXD04014IPC	4.14 to 5.52	TRDR20IP
	3	SMDH 260-3D	●	85	175								
	5	SMDH 260-5D	●	139	230								
	8	SMDH 260-8D	●	219	310								
	12	SMDH 260-12D	●	312	396								
26.8 < D ≤ 27.8	1.5	SMDH 270-1.5D	●	46	128	60	37	32	MFS	1	BXD04014IPC	4.14 to 5.52	TRDR20IP
	3	SMDH 270-3D	●	88	175								
	5	SMDH 270-5D	●	144	235								
	8	SMDH 270-8D	●	227	320								
	12	SMDH 270-12D	●	324	408								
27.8 < D ≤ 28.8	1.5	SMDH 280-1.5D	●	48	129	60	37	32	MFS	1	BXD04515IPC	4.98 to 6.64	TRDR25IP
	3	SMDH 280-3D	●	91	180								
	5	SMDH 280-5D	●	149	240								
	8	SMDH 280-8D	●	235	325								
	12	SMDH 280-12D	●	336	421								
28.8 < D ≤ 29.8	1.5	SMDH 290-1.5D	●	49	131	60	37	32	MFS	1	BXD04515IPC	4.98 to 6.64	TRDR25IP
	3	SMDH 290-3D	●	94	185								
	5	SMDH 290-5D	●	154	245								
	8	SMDH 290-8D	●	243	335								
	12	SMDH 290-12D	●	348	433								
29.8 < D ≤ 30.8	1.5	SMDH 300-1.5D	●	51	133	60	37	32	MFS	1	BXD04515IPC	4.98 to 6.64	TRDR25IP
	3	SMDH 300-3D	●	97	185								
	5	SMDH 300-5D	●	159	255								
	8	SMDH 300-8D	●	251	345								
	12	SMDH 300-12D	●	360	445								

Recommended Cutting Conditions MFS Type Head

Recommended Tightening Torque (N-m)

MB Type Ideal for drilling rolled steels for welded structures for bridge (single layer and stacked)



Chip Evacuation

MB Type for Bridge Good chip control



Work Material: SM490YB
Cutting Conditions: $v_c=87\text{m/min}, f=0.29\text{mm/rev}$

Competitor's Product Elongated chips



Work Material: SM490YB
Cutting Conditions: $v_c=87\text{m/min}, f=0.29\text{mm/rev}$

Cutting Length Comparison for MB Type

Case	Current Tool	Tool Life Comparison (Cutting Length)		Cutting Conditions
1	Comp's A Indexable Head Drill	MB Type 42m	Comp's A 17m	$v_c = 46\text{m/min}$ $f = 0.35\text{mm/rev}$ Coolant: MQL
2	Comp's B Indexable Head Drill	MB Type 87m	Comp's B 50m	$v_c = 56\text{m/min}$ $f = 0.30\text{mm/rev}$ Coolant: MQL
3	Comp's C Brazed Drill	MB Type 95m	Comp's C 32m	$v_c = 54\text{m/min}$ $f = 0.30\text{mm/rev}$ Coolant: MQL
4	Comp's D Indexable Head Drill	MB Type 120m	Comp's D 70m	$v_c = 60\text{m/min}$ $f = 0.30\text{mm/rev}$ Coolant: MQL

1.7 to 3 times
the current tool life

Tool Cost
Major Potential Savings

Recommended Cutting Conditions (MB Type)

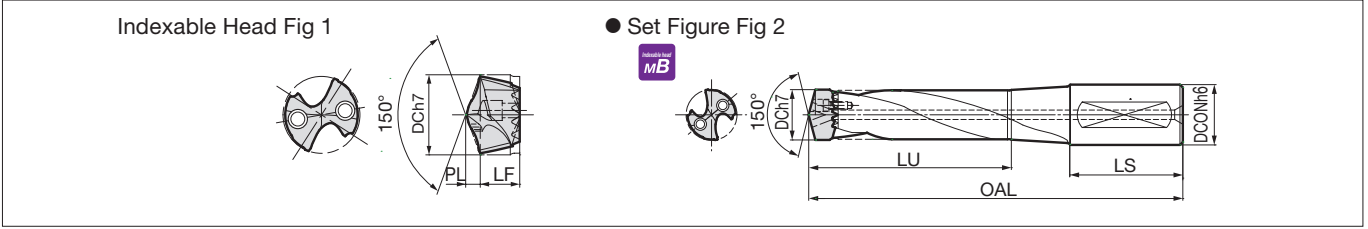
v_c : Cutting Speed (m/min) f : Feed Rate (mm/rev)

Work Material	Rolled Steel for Welded Structures SS400	Rolled Steel for Welded Structures SM490	Rolled Steel for Welded Structures SM520	Rolled Steel for Welded Structures SM570
Dia. DC (mm)	Min. - Optimum - Max.			
Cutting Conditions	Min. - Optimum - Max.			
$\phi 24.5$ to $\phi 26.7$	v_c	60-70-80	55-65-75	55-65-75
	f	0.20-0.30-0.40	0.20-0.30-0.40	0.20-0.25-0.35

SMD Type for Bridge (Internal Coolant Supply)



Only use the special MB type head with a B3 type holder. *For h6 and h7 tolerances, refer to Chapter N References in the General Catalogue.



Indexable Head MB Type Diameter $\phi 24.5/24.7$ mm Dimensions (mm)

Dia. DC	Stock	Cat. No.	Shoulder Length LF	Tip PL	Applicable Holders	Fig
24.5	●	SMDT 2450 MB	10.8	3.3	SMDH 240B3	1
24.7	●	SMDT 2470 MB				1

Grade: ACX80

Indexable Head MB Type Diameter $\phi 26.5/26.7$ mm Dimensions (mm)

Dia. DC	Stock	Cat. No.	Shoulder Length LF	Tip PL	Applicable Holders	Fig
26.5	●	SMDT 2650 MB	11.7	3.6	SMDH 260B3	1
26.7	●	SMDT 2670 MB				1

Grade: ACX80

*Because the calculation method has been changed, the dimensions above are different from those listed in Tooling News No. 435 "SEC-MULTIDRILL SMD Type" Rev. 21 and in the 19-20 General Catalogue, but the specifications have not changed.

Body $\phi 23.8$ to 26.8 mm Dimensions with MB Type Set Dimensions (mm)

Dia. DC	Hole Depth (L/D)	Cat. No.	Stock	Effective Length LU	Overall Length OAL	Shank LS	Shank Dia. DCON	Indexable Head	Fig	Parts		
										Cap Screw	Wrench	
23.8 < D ≤ 24.8	3	SMDH 240B3	●	84	173	60	32	MB	2	BXD03512IP	2.79 to 3.72	TRDR15IP
25.8 < D ≤ 26.8	3	SMDH 260B3	●	90	179				2	BXD04014IP	4.14 to 5.52	TRDR20IP

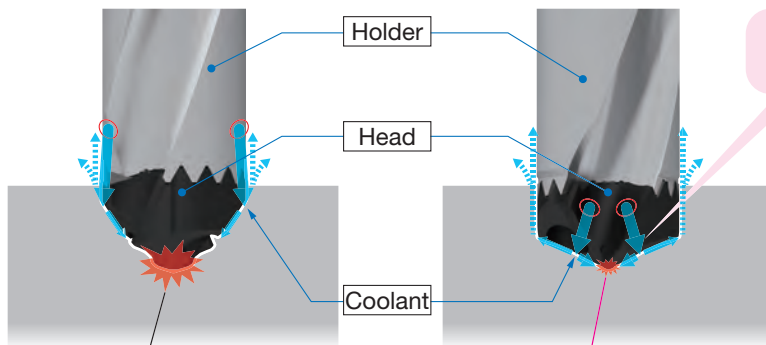
Inquire about production of holders not listed in stock.

Recommended Tightening Torque (N·m)

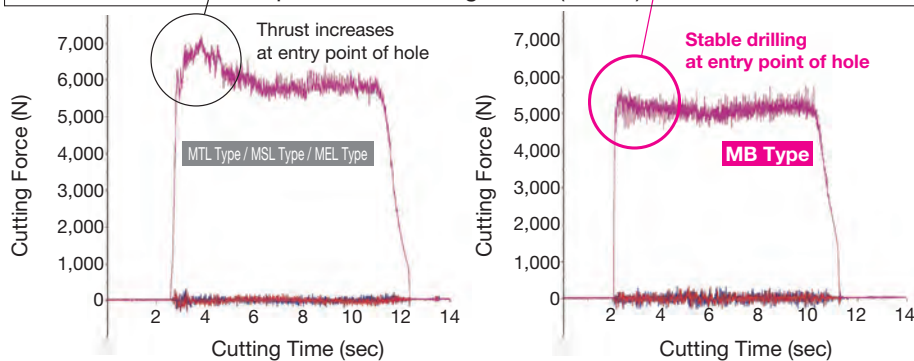
Coolant for Greater Lubricity

MTL Type / MSL Type / MEL Type

MB Type



Comparison of Cutting Force (Thrust)



Work Material: SS400 Diameter: $\phi 24.7$ mm Cutting Conditions: $v_c=70$ m/min $f=0.35$ mm/rev Coolant: MQL

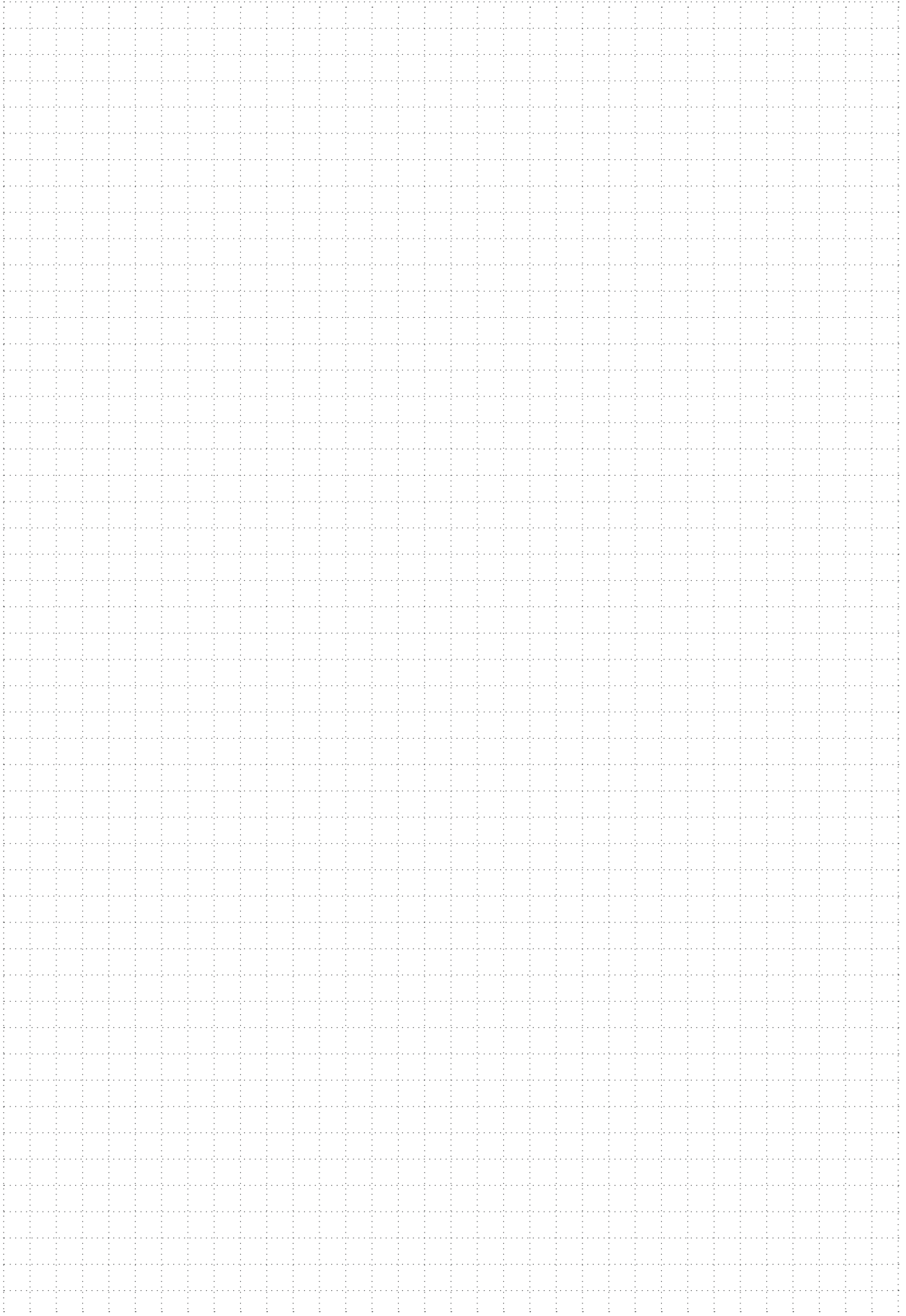
*Due to the difference in oil hole positions and flute shapes, MTL Type / MSL Type / MEL Type drill heads are not compatible to use with B3 Type drill holders (for bridge) and similarly, MB Type drill heads (for bridge) are not compatible for use with -1.5D(F) to -12D Type / M Type / L Type / D Type drill holders.

● mark: Standard stocked item

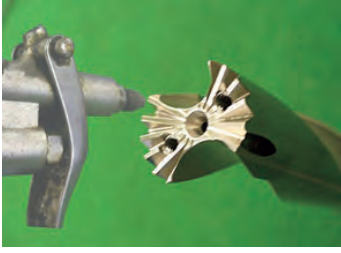
MEMO

A large grid of dotted lines for writing a memo. The grid consists of 20 columns and 30 rows of small squares, providing a structured space for text entry.

MEMO



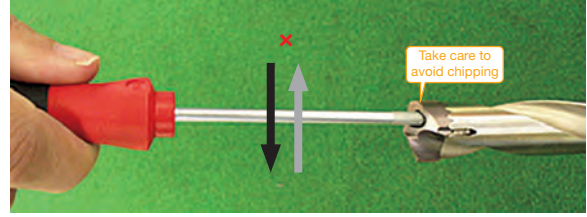
Head Replacement Instructions



(1) Remove the used head and remove any foreign matter from the serrated part on the holder using an air blower.



(2) Use a wire brush to remove any foreign matter that could not be removed with the air blower.



- (3) Take care when tightening the head, as the area around the hole may be chipped if the wrench wavers.
- (4) Screws should be replaced before they start to show signs of marked wear or shape deformation.
- (5) Use the recommended tightening torque as a guide for tightening force.

⚠️ Precautions for Use

- When the drill will be out of use for long periods, we recommend storing the head and holder separately.
- Due to the difference in oil hole positions and flute shapes, MTL Type / MSL Type / MEL Type drill heads are not compatible to use with B3 Type drill holders and similarly, MB Type drill heads are not compatible for use with -1.5D(F) to -12D Type / M Type / L Type / D Type drill holders.

* The S Type name has been changed to -1.5DF Type.

Sumitomo Electric Cutting Tools Official Apps for iOS/Android



Cutting calculation App

SumiTool Calculator



Grade & chipbreaker comparison App

SumiTool Converter



< SAFETY NOTES >



- 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.

- 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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