

Replaceable Head Type MULTI-DRILLS SMD Type

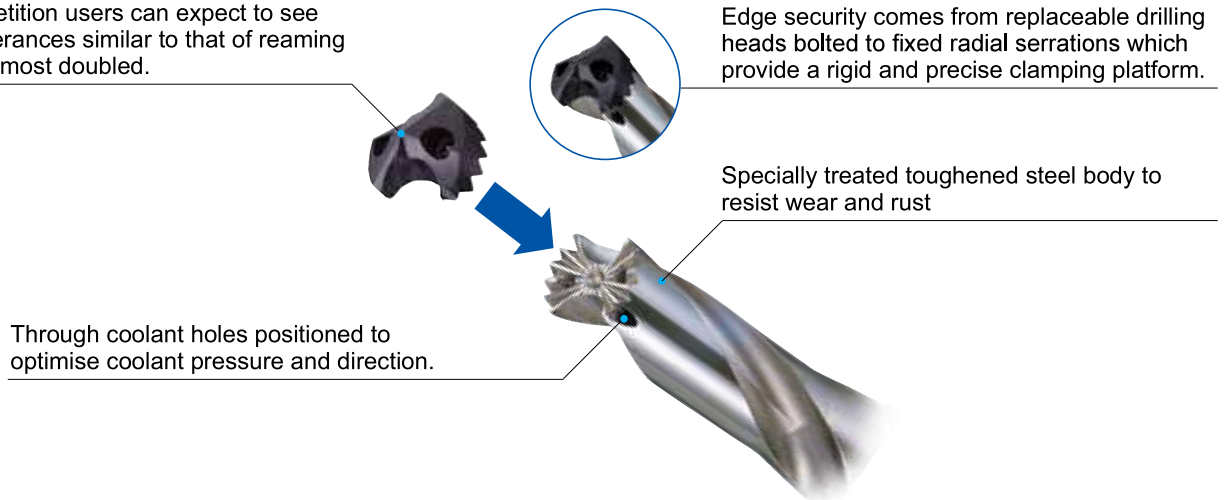
General Features

Fast accurate and ideal for drilling steels, this newly developed drill from SUMITOMO gives similar hole accuracy to that of regrindable drills renowned within the industry as being the ultimate hole making tool.

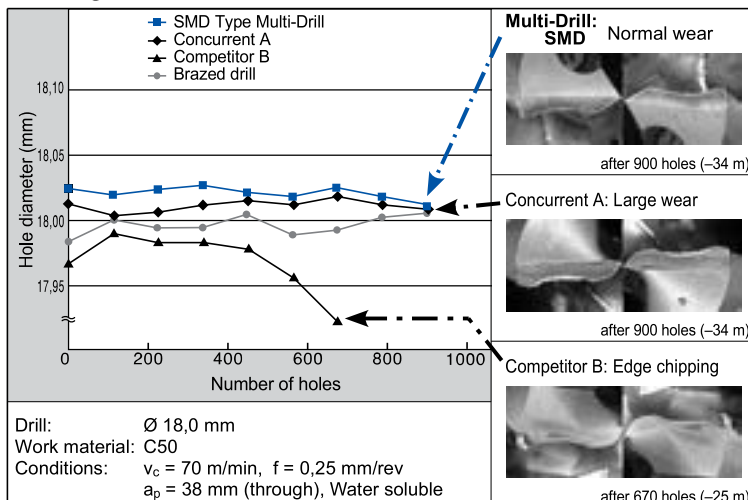


- ## Advantages
- Available in diameters ranging from 12,0–42,5 mm
 - Drilling Depths 1,5–12 x Diameter
 - Optimised heat dissipation via precisely located coolant holes
 - Maximised rigidity from newly developed clamping system
 - High performance drilling of precision holes from solid
 - 3 different types of head for general and smooth cutting (MTL type, MEL type) and new MFS type for drilling in non-flat surfaces.

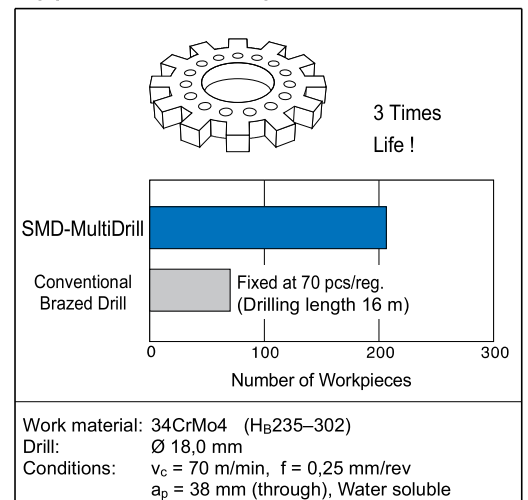
The newly developed tungsten carbide substrate with its ultra hard smooth coating proved that against competition users can expect to see holes with tolerances similar to that of reaming and tool life almost doubled.



Drilling Precision



Application Example

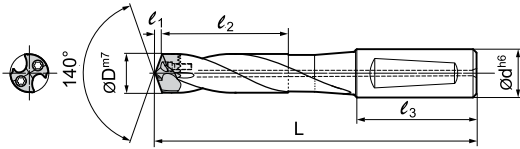


Replaceable Head Type Drill Holder

SMDH Type

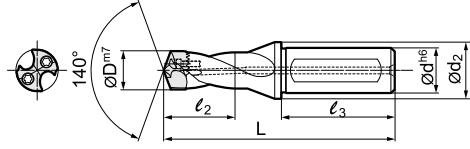
● Holder 3D / 5D / 8D

Shank Type:
Whistle notch type



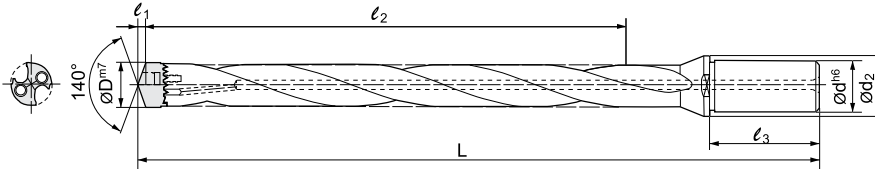
● Holder 1,5D

Shank Type:
Weldon type



● Holder 12D

Shank Type:
Cylindrical type



l_2 = Effective drilling length

■ Holder

(mm)

Dimensions				Cat. No.	Series (1,5D)				Series (3D)				Series (5D)				Series (8D)				Series (12D)				Related Drill Heads DMTL / DMEL	
Drill Head	Shank				Stock	Dimensions			Stock	Dimensions			Stock	Dimensions			Stock	Dimensions			Stock	Dimensions				
Ø D	l ₁	Ø d	l ₃			S	L	l ₂		Ø d ₂	M3	L		l ₂	M5	L		l ₂	M8	L		l ₂	M8	L		l ₂
12,0	2,2	16	48	SMDH 120□□	●	91	25,5	20	●	107,2	43,5	●	132,2	68,5											1200–1249	
12,5	2,3			SMDH 125□□	●	91	25,5	20	●	107,3	43,5	●	132,3	68,5												1250–1299
13,0	2,4			SMDH 130□□	●	92	27,5	20	●	112,4	46,5	●	142,4	73,5												1300–1349
14,0	2,5			SMDH 140□□□	●	96	31,5	20	●	119,0	52,5	●	149,0	81,5	●	194,0	124,5	●	238,5	168,5	20					1350–1450
15,0	2,7	20	50	SMDH 150□□□	●	100	32,0	25	●	129,2	55,0	●	159,2	86,0	●	204,2	133,0	●	253,0	180,0	25					1451–1550
16,0	2,9			SMDH 160□□□	●	103	35,0	25	●	134,4	59,0	●	169,4	92,0		214,4	141,0	●	265,5	192,0	25					1551–1650
17,0	3,1			SMDH 170□□□	●	105	35,5	25	●	139,6	62,5	●	174,6	97,5	●	224,6	150,5	●	278,1	203,5	25					1651–1750
18,0	3,3			SMDH 180□□□	●	107	39,7	25	●	144,8	66,5	●	179,8	103,5	●	229,8	158,5	●	290,5	215,5	25					1751–1850
19,0	3,5	25	56	SMDH 190□□□		115	40,5	30	●	160,1	69,5	●	195,0	108,5	●	255,0	167,5	●	309,1	228,5	30					1851–1950
20,0	3,6			SMDH 200□□□	●	118	43,0	30	●	160,1	73,0	●	200,1	114,0	●	265,1	175,0	●	321,4	240,0	30					1951–2050
21,0	3,8			SMDH 210□□□	●	119	44,0	30	●	160,3	76,0	●	200,3	119,0	●	270,3	184,0	●	333,9	252,0	30					2051–2150
22,0	4,0			SMDH 220□□□	●	121	47,0	30	●	165,1	80,0	●	205,1	125,0	●	275,1	192,0	●	347,0	264,0	30					2151–2280
23,0	4,2	SMDH 230□□□	●	122	46,5	30	●	164,8	82,5	●	214,8	129,5	●	284,8	200,5	●	359,0	275,5	30					2281–2380		
24,0	4,4	32	60	SMDH 240□□□	●	129	49,5	37	●	174,6	86,5	●	224,6	135,5	●	299,6	208,5	●	376,1	284,5	37					2381–2480
25,0	4,6			SMDH 250□□□	●	129	49,0	37	●	174,6	88,0	●	229,6	140,0	●	304,6	217,0	●	388,4	300,0	37					2481–2580
26,0	4,7			SMDH 260□□	●	132	52,0	37	●	179,7	92,0	●	234,7	146,0	●	314,7	225,0									2581–2680
27,0	4,9			SMDH 270□□	●	133	53,0	37	●	179,9	94,0	●	239,9	151,0	●	324,9	234,0									2681–2780
28,0	5,1	SMDH 280□□	●	135	54,5	37	●	185,1	96,5	●	245,1	156,5	●	330,1	241,5									2781–2880		
29,0	5,3	SMDH 290□□	●	136	55,5	37	●	190,3	99,5	●	250,3	161,5	●	340,3	250,5									2881–2980		
30,0	5,5	SMDH 300□□	●	139	58,5	37	●	190,5	104,5	●	260,5	167,5	●	350,5	259,5									2981–3050		

Drill order description example: SMDH210M3, drill heads ⇨ K59/H60

■ Recommended Torque

Screw		Applicable Insert
	(N·m)	
BXD 02208 IP	0,8–1,0	SMDT 1200 – 1550 D M □ L
BXD 02509 IP	0,9–1,2	SMDT 1551 – 1850 D M □ L
BXD 03011 IP	1,8–2,4	SMDT 1851 – 2150 D M □ L
BXD 03512 IP	2,8–3,7	SMDT 2151 – 2480 D M □ L
BXD 04014 IP	4,1–5,5	SMDT 2481 – 2780 D M □ L
BXD 04515 IP	5,0–6,6	SMDT 2781 – 3050 D M □ L

■ Spare Parts

Screw	Wrench	Applicable Holder
BXD 02208 IP	TRDR 08 IP	SMDT 120 – 150 M □
BXD 02509 IP	TRDR 10 IP	SMDT 160 – 180 M □
BXD 03011 IP	TRDR 15 IP	SMDT 190 – 210 M □
BXD 03512 IP	TRDR 15 IP	SMDT 220 – 240 M □
BXD 04014 IP	TRDR 20 IP	SMDT 250 – 270 M □
BXD 04515 IP	TRDR 25 IP	SMDT 280 – 300 M □

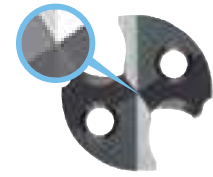
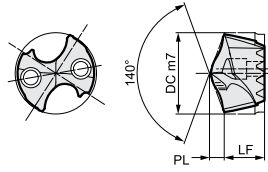


● = Euro stock

Recommended Tightening Torque (N·m)

PVD coated grade: **ACX70**

Type MTL



■ Drill Head (Insert)

● Ø 12,0–15,3 mm

DC (mm)	Cat. No.	Stock	PL	LF
12,0	SMDT 1200 D MTL	●	2,2	6,9
12,1	1210 D MTL	●	2,2	
12,2	1220 D MTL	●	2,2	
12,3	1230 D MTL	●	2,2	
12,4	1240 D MTL	●	2,3	
12,5	SMDT 1250 D MTL	●	2,3	7,1
12,6	1260 D MTL	●	2,3	
12,7	1270 D MTL	●	2,3	
12,8	1280 D MTL	●	2,3	
12,9	1290 D MTL	●	2,3	
13,0	SMDT 1300 D MTL	●	2,4	7,3
13,1	1310 D MTL	●	2,4	
13,2	1320 D MTL	●	2,4	
13,3	1330 D MTL	●	2,4	
13,4	1340 D MTL	●	2,4	
13,5	SMDT 1350 D MTL	●	2,5	7,8
13,6	1360 D MTL	●	2,5	
13,7	1370 D MTL	●	2,5	
13,8	1380 D MTL	●	2,5	
13,9	1390 D MTL	●	2,5	
14,0	1400 D MTL	●	2,5	
14,1	1410 D MTL	●	2,6	
14,2	1420 D MTL	●	2,6	
14,3	1430 D MTL	●	2,6	
14,4	1440 D MTL	●	2,6	
14,5	1450 D MTL	●	2,6	
14,6	SMDT 1460 D MTL	●	2,7	8,3
14,7	1470 D MTL	●	2,7	
14,8	1480 D MTL	●	2,7	
14,9	1490 D MTL	●	2,7	
15,0	1500 D MTL	●	2,7	
15,1	1510 D MTL	●	2,7	
15,2	1520 D MTL	●	2,8	
15,3	1530 D MTL	●	2,8	

● Ø 15,4–18,7 mm

DC (mm)	Cat. No.	Stock	PL	LF
15,4	SMDT 1540 D MTL	●	2,8	8,3
15,5	1550 D MTL	●	2,8	
15,6	SMDT 1560 D MTL	●	2,8	8,7
15,7	1570 D MTL	●	2,9	
15,8	1580 D MTL	●	2,9	
15,9	1590 D MTL	●	2,9	
16,0	1600 D MTL	●	2,9	
16,1	1610 D MTL	●	2,9	
16,2	1620 D MTL	●	2,9	
16,3	1630 D MTL	●	3,0	
16,4	1640 D MTL	●	3,0	
16,5	1650 D MTL	●	3,0	
16,6	SMDT 1660 D MTL	●	3,0	9,2
16,7	1670 D MTL	●	3,0	
16,8	1680 D MTL	●	3,1	
16,9	1690 D MTL	●	3,1	
17,0	1700 D MTL	●	3,1	
17,1	1710 D MTL	●	3,1	
17,2	1720 D MTL	●	3,1	
17,3	1730 D MTL	●	3,1	
17,4	1740 D MTL	●	3,2	
17,5	1750 D MTL	●	3,2	
17,6	SMDT 1760 D MTL	●	3,2	9,6
17,7	1770 D MTL	●	3,2	
17,8	1780 D MTL	●	3,2	
17,9	1790 D MTL	●	3,3	
18,0	1800 D MTL	●	3,3	
18,1	1810 D MTL	●	3,3	
18,2	1820 D MTL	●	3,3	
18,3	1830 D MTL	●	3,3	
18,4	1840 D MTL	●	3,3	
18,5	1850 D MTL	●	3,4	
18,6	SMDT 1860 D MTL	●	3,4	10,1
18,7	1870 D MTL	●	3,4	

● Ø 18,8–30,5 mm

DC (mm)	Cat. No.	Stock	PL	LF	
18,8	SMDT 1880 D MTL	●	3,4	10,1	
18,9	1890 D MTL	●	3,4		
19,0	1900 D MTL	●	3,5		
19,1	1910 D MTL	●	3,5		
19,2	1920 D MTL	●	3,5		
19,3	1930 D MTL	●	3,5		
19,4	1940 D MTL	●	3,5		
19,5	1950 D MTL	●	3,5		
19,6	SMDT 1960 D MTL	●	3,6		10,5
19,7	1970 D MTL	●	3,6		
19,8	1980 D MTL	●	3,6		
19,9	1990 D MTL	●	3,6		
20,0	2000 D MTL	●	3,6		
20,5	SMDT 2050 D MTL	●	3,7		
21,0	SMDT 2100 D MTL	●	3,8	11,0	
21,5	2150 D MTL	●	3,9		
22,0	SMDT 2200 D MTL	●	4,0	11,0	
22,5	2250 D MTL	●	4,1		
23,0	SMDT 2300 D MTL	●	4,2	11,0	
23,5	2350 D MTL	●	4,3		
24,0	SMDT 2400 D MTL	●	4,4	11,0	
24,5	2450 D MTL	●	4,5		
25,0	SMDT 2500 D MTL	●	4,5	11,3	
25,5	2550 D MTL	●	4,6		
26,0	SMDT 2600 D MTL	●	4,7	11,7	
26,5	2650 D MTL	●	4,8		
27,0	SMDT 2700 D MTL	●	4,9	12,2	
27,5	2750 D MTL	●	5,0		
28,0	SMDT 2800 D MTL	●	5,1	12,6	
28,5	2850 D MTL	●	5,2		
29,0	SMDT 2900 D MTL	●	5,3	13,1	
29,5	2950 D MTL	●	5,4		
30,0	SMDT 3000 D MTL	●	5,5	13,5	
30,5	3050 D MTL	●	5,6		

■ Recommended Cutting Conditions

● For using 3 x D and 5 x D type drills

Work material Drill Ø (mm)	General steel (HB250–320)		Harden steel (HRC45)		Nodular cast iron	
	v _c	f	v _c	f	v _c	f
~ 16,0	v _c	70 – 100 – 120	40 – 60 – 90	50 – 60 – 80		
	f	0,15 – 0,2 – 0,3	0,1 – 0,15 – 0,2	0,2 – 0,25 – 0,3		
~ 20,0	v _c	70 – 100 – 120	40 – 70 – 90	50 – 70 – 90		
	f	0,15 – 0,25 – 0,35	0,15 – 0,2 – 0,25	0,2 – 0,25 – 0,35		
~ 30,8	v _c	70 – 100 – 120	40 – 60 – 90	50 – 70 – 90		
	f	0,2 – 0,25 – 0,35	0,15 – 0,2 – 0,25	0,25 – 0,3 – 0,35		

Note: High cutting performance is enhanced when using a high quality machine and rigid set up.

● For using 8 x D and 12 x D type drills

Work material Drill Ø (mm)	General steel (HB250–320)		Harden steel (HRC45)		Nodular cast iron	
	v _c	f	v _c	f	v _c	f
~ 16,0	v _c	50 – 70 – 80	30 – 50 – 70	40 – 50 – 70		
	f	0,15 – 0,2 – 0,3	0,1 – 0,15 – 0,2	0,2 – 0,25 – 0,3		
~ 20,0	v _c	50 – 70 – 80	30 – 50 – 70	40 – 60 – 80		
	f	0,15 – 0,25 – 0,35	0,15 – 0,2 – 0,25	0,2 – 0,25 – 0,35		
~ 25,0 (12D) ~ 30,5 (8D)	v _c	50 – 70 – 80	30 – 50 – 70	40 – 60 – 80		
	f	0,2 – 0,25 – 0,35	0,15 – 0,2 – 0,25	0,25 – 0,3 – 0,35		

[v_c : Cutting Speed (m/min), f : Feed rate (mm/rev), Min - Optimum - Max]

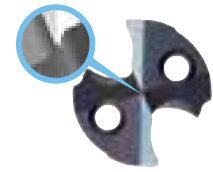
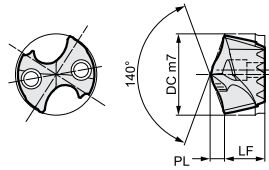
Regrindable Drill Head Insert SMDT... D MEL Type

MEL Type for Smooth Cutting

(Soft Steel, Stainless Steel, Grey Cast Iron)

PVD coated grade: **ACX80**

Type MEL



■ Drill Head (Insert)

● Ø 12,0–15,3 mm

DC (mm)	Cat. No.	Stock	PL	LF
12,0	SMDT 1200 D MEL	●	2,2	6,9
12,1	1210 D MEL	●	2,2	
12,2	1220 D MEL	●	2,2	
12,3	1230 D MEL	●	2,2	
12,4	1240 D MEL	●	2,3	
12,5	SMDT 1250 D MEL	●	2,3	7,1
12,6	1260 D MEL	●	2,3	
12,7	1270 D MEL	●	2,3	
12,8	1280 D MEL	●	2,3	
12,9	1290 D MEL	●	2,3	
13,0	SMDT 1300 D MEL	●	2,4	7,3
13,1	1310 D MEL	●	2,4	
13,2	1320 D MEL	●	2,4	
13,3	1330 D MEL	●	2,4	
13,4	1340 D MEL	●	2,4	
13,5	SMDT 1350 D MEL	●	2,5	7,8
13,6	1360 D MEL	●	2,5	
13,7	1370 D MEL	●	2,5	
13,8	1380 D MEL	●	2,5	
13,9	1390 D MEL	●	2,5	
14,0	1400 D MEL	●	2,5	
14,1	1410 D MEL	●	2,6	
14,2	1420 D MEL	●	2,6	
14,3	1430 D MEL	●	2,6	
14,4	1440 D MEL	●	2,6	
14,5	1450 D MEL	●	2,6	
14,6	SMDT 1460 D MEL	●	2,7	8,3
14,7	1470 D MEL	●	2,7	
14,8	1480 D MEL	●	2,7	
14,9	1490 D MEL	●	2,7	
15,0	1500 D MEL	●	2,7	
15,1	1510 D MEL	●	2,7	
15,2	1520 D MEL	●	2,8	
15,3	1530 D MEL	●	2,8	

● Ø 15,4–18,7 mm

DC (mm)	Cat. No.	Stock	PL	LF
15,4	SMDT 1540 D MEL	●	2,8	8,3
15,5	1550 D MEL	●	2,8	
15,6	SMDT 1560 D MEL	●	2,8	8,7
15,7	1570 D MEL	●	2,9	
15,8	1580 D MEL	●	2,9	
15,9	1590 D MEL	●	2,9	
16,0	1600 D MEL	●	2,9	
16,1	1610 D MEL	●	2,9	
16,2	1620 D MEL	●	2,9	
16,3	1630 D MEL	●	3,0	
16,4	1640 D MEL	●	3,0	
16,5	1650 D MEL	●	3,0	
16,6	SMDT 1660 D MEL	●	3,0	9,2
16,7	1670 D MEL	●	3,0	
16,8	1680 D MEL	●	3,1	
16,9	1690 D MEL	●	3,1	
17,0	1700 D MEL	●	3,1	
17,1	1710 D MEL	●	3,1	
17,2	1720 D MEL	●	3,1	
17,3	1730 D MEL	●	3,1	
17,4	1740 D MEL	●	3,2	
17,5	1750 D MEL	●	3,2	
17,6	SMDT 1760 D MEL	●	3,2	9,6
17,7	1770 D MEL	●	3,2	
17,8	1780 D MEL	●	3,2	
17,9	1790 D MEL	●	3,3	
18,0	1800 D MEL	●	3,3	
18,1	1810 D MEL	●	3,3	
18,2	1820 D MEL	●	3,3	
18,3	1830 D MEL	●	3,3	
18,4	1840 D MEL	●	3,3	
18,5	1850 D MEL	●	3,4	
18,6	SMDT 1860 D MEL	●	3,4	10,1
18,7	1870 D MEL	●	3,4	

● Ø 18,8–30,5 mm

DC (mm)	Cat. No.	Stock	PL	LF	
18,8	SMDT 1880 D MEL	●	3,4	10,1	
18,9	1890 D MEL	●	3,4		
19,0	1900 D MEL	●	3,5		
19,1	1910 D MEL	●	3,5		
19,2	1920 D MEL	●	3,5		
19,3	1930 D MEL	●	3,5		
19,4	1940 D MEL	●	3,5		
19,5	1950 D MEL	●	3,5		
19,6	SMDT 1960 D MEL	●	3,6		10,5
19,7	1970 D MEL	●	3,6		
19,8	1980 D MEL	●	3,6		
19,9	1990 D MEL	●	3,6		
20,0	2000 D MEL	●	3,6		
20,5	SMDT 2050 D MEL	●	3,7		
21,0	SMDT 2100 D MEL	●	3,8	11,0	
21,5	2150 D MEL	●	3,9		
22,0	SMDT 2200 D MEL	●	4,0	11,0	
22,5	2250 D MEL	●	4,1		
23,0	SMDT 2300 D MEL	●	4,2	11,0	
23,5	2350 D MEL	●	4,3		
24,0	SMDT 2400 D MEL	●	4,4	11,0	
24,5	2450 D MEL	●	4,5		
25,0	SMDT 2500 D MEL	●	4,5	11,3	
25,5	2550 D MEL	●	4,6		
26,0	SMDT 2600 D MEL	●	4,7	11,7	
26,5	2650 D MEL	●	4,8		
27,0	SMDT 2700 D MEL	●	4,9	12,2	
27,5	2750 D MEL	●	5,0		
28,0	SMDT 2800 D MEL	●	5,1	12,6	
28,5	2850 D MEL	●	5,2		
29,0	SMDT 2900 D MEL	●	5,3	13,1	
29,5	2950 D MEL	●	5,4		
30,0	SMDT 3000 D MEL	●	5,5	13,5	
30,5	3050 D MEL	●	5,6		

■ Recommended Cutting Conditions

● For using 3 x D and 5 x D type drills

Work material Drill Ø (mm)	Soft steel (-HB250)			Stainless steel (-HB200)			Grey cast iron		
	v_c	f		v_c	f		v_c	f	
~ 16,0	v_c	80 – 100 – 120	50 – 60 – 80	50 – 70 – 90					
	f	0,15 – 0,2 – 0,35	0,1 – 0,15 – 0,2	0,2 – 0,25 – 0,3					
~ 20,0	v_c	80 – 100 – 120	60 – 70 – 90	60 – 80 – 100					
	f	0,15 – 0,25 – 0,35	0,15 – 0,2 – 0,25	0,25 – 0,3 – 0,35					
~ 30,8	v_c	80 – 100 – 120	60 – 70 – 90	60 – 80 – 100					
	f	0,2 – 0,3 – 0,35	0,15 – 0,2 – 0,25	0,2 – 0,35 – 0,40					

● For using 8 x D and 12 x D type drills

Work material Drill Ø (mm)	Soft steel (-HB250)			Stainless steel (-HB200)			Grey cast iron		
	v_c	f		v_c	f		v_c	f	
~ 16,0	v_c	50 – 70 – 80	40 – 50 – 60	40 – 60 – 80					
	f	0,15 – 0,2 – 0,35	0,1 – 0,15 – 0,2	0,2 – 0,25 – 0,3					
~ 20,0	v_c	50 – 70 – 80	40 – 60 – 70	50 – 70 – 90					
	f	0,15 – 0,25 – 0,35	0,15 – 0,2 – 0,25	0,25 – 0,3 – 0,35					
~ 25,0 (12D) ~ 30,5 (8D)	v_c	60 – 70 – 80	40 – 60 – 70	50 – 70 – 90					
	f	0,2 – 0,3 – 0,35	0,15 – 0,2 – 0,25	0,2 – 0,35 – 0,4					

Note: High cutting performance is enhanced when using a high quality machine and rigid set up.

[v_c : Cutting Speed (m/min), f : Feed rate (mm/rev), Min - Optimum - Max]

● = Euro stock

Regrindable Drill Head Insert SMDT... MEL Type

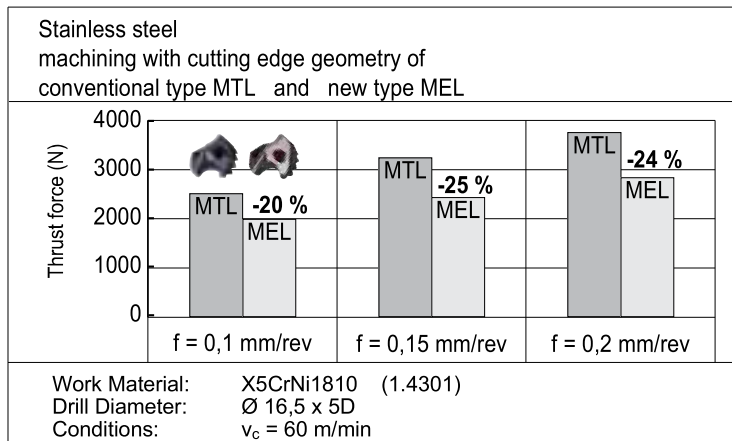
Advantages

- Replaceable and regrindable drill head
- New design decreases cutting force by 25 %
- Ideal for stainless steels - soft steels etc
- Excellent tool life when drilling cast iron
- Improves drilling performance on low powered machines
- Increases productivity

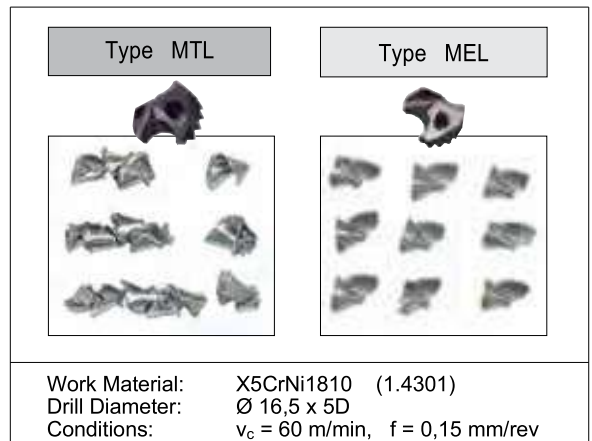


Performance (Stainless steel machining)

Comparison of cutting force

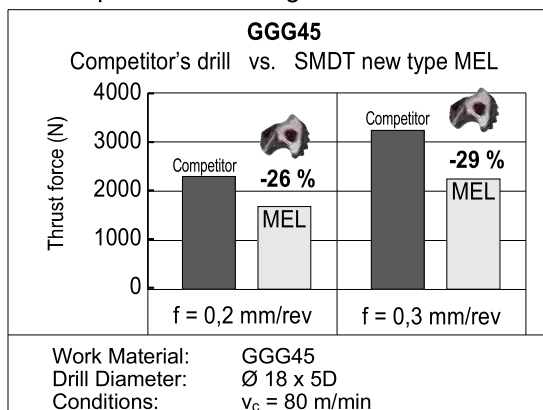


Chip comparison

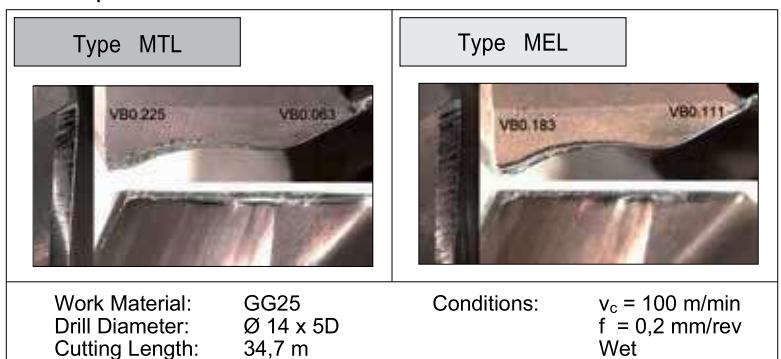


Performance (Cast iron machining)

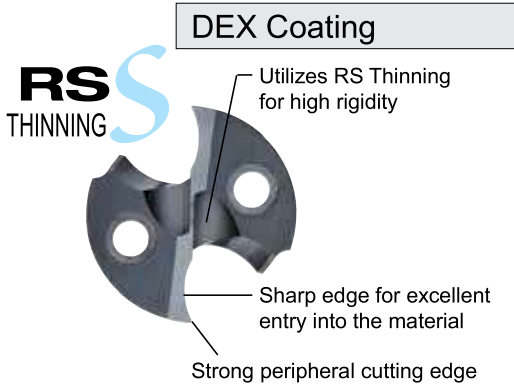
Comparison of cutting force



Comparison of wear resistance



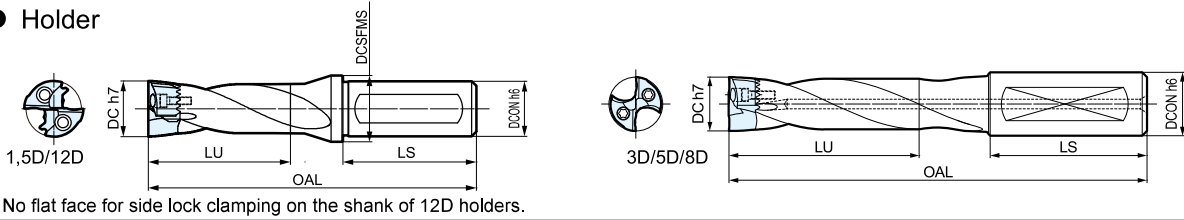
MFS Type Ideal for Drilling in Non-Flat Surfaces and Less Burr



Advantages

- Various Drilling Operations Thanks to a Point Angle of 180°**
 Applicable to high-efficiency spot facing, drilling in 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.

Holder



Holder

Dimensions			Cat. No.	Series (1,5D)			Series (3D)			Series (5D)			Series (8D)			Series (12D)			Related Drill Heads MFS				
Drill Head	Shank			Stock	Dimensions		Stock	Dimensions		Stock	Dimensions		Stock	Dimensions		Stock	Dimensions						
DC	DCON	LS		S	OAL	LU	DCSFMS	M3	OAL	LU	M5	OAL	LU	M8	OAL	LU	12D	OAL		LU	DCSFMS		
12,0	16	48	SMDH 120□□□	●	91	25,5	20	●	107,2	43,5	●	132,2	68,5								1200-1249		
12,5			SMDH 125□□□	●	91	25,5	20	●	107,3	43,5	●	132,3	68,5									1250-1299	
13,0			SMDH 130□□□	●	92	27,5	20	●	112,4	46,5	●	142,4	73,5									1300-1349	
14,0			SMDH 140□□□□	●	96	31,5	20	●	119,0	52,5	●	149,0	81,5	●	194,0	124,5	●	238,5	168,5	20			1350-1450
15,0	20	50	SMDH 150□□□□	●	100	32,0	25	●	129,2	55,0	●	159,2	86,0	●	204,2	133,0	●	253,0	180,0	25		1451-1550	
16,0			SMDH 160□□□□	●	103	35,0	25	●	134,4	59,0	●	169,4	92,0	●	214,4	141,0	●	265,5	192,0	25		1551-1650	
17,0			SMDH 170□□□□	●	105	35,5	25	●	139,6	62,5	●	174,6	97,5	●	224,6	150,5	●	278,1	203,5	25		1651-1750	
18,0			SMDH 180□□□□	●	107	39,7	25	●	144,8	66,5	●	179,8	103,5	●	229,8	158,5	●	290,5	215,5	25		1751-1850	
19,0	25	56	SMDH 190□□□□		115	40,5	30	●	160,1	69,5	●	195,0	108,5	●	255,0	167,5	●	309,1	228,5	30		1851-1950	
20,0			SMDH 200□□□□	●	118	43,0	30	●	160,1	73,0	●	200,1	114,0	●	265,1	175,0	●	321,4	240,0	30		1951-2050	
21,0			SMDH 210□□□□	●	119	44,0	30	●	160,3	76,0	●	200,3	119,0	●	270,3	184,0	●	333,9	252,0	30		2051-2150	
22,0			SMDH 220□□□□	●	121	47,0	30	●	165,1	80,0	●	205,1	125,0	●	275,1	192,0	●	347,0	264,0	30		2151-2280	
23,0	SMDH 230□□□□	●	122	46,5	30	●	164,8	82,5	●	214,8	129,5	●	284,8	200,5	●	359,0	275,5	30		2281-2380			
24,0	32	60	SMDH 240□□□□	●	129	49,5	37	●	174,6	86,5	●	224,6	135,5	●	299,6	208,5	●	376,1	284,5	37		2381-2480	
25,0			SMDH 250□□□□	●	129	49,0	37	●	174,6	88,0	●	229,6	140,0	●	304,6	217,0	●	388,4	300,0	37		2481-2580	
26,0			SMDH 260□□□	●	132	52,0	37	●	179,7	92,0	●	234,7	146,0	●	314,7	225,0							2581-2680
27,0			SMDH 270□□□	●	133	53,0	37	●	179,9	94,0	●	239,9	151,0	●	324,9	234,0							2681-2780
28,0			SMDH 280□□□	●	135	54,5	37	●	185,1	96,5	●	245,1	156,5	●	330,1	241,5							2781-2880
29,0			SMDH 290□□□	●	136	55,5	37	●	190,3	99,5	●	250,3	161,5	●	340,3	250,5							2881-2980
30,0			SMDH 300□□□	●	139	58,5	37	●	190,5	104,5	●	260,5	167,5	●	350,5	259,5							2981-3050

Drill order description example: SMDH210M3, drill heads ⇐ K63

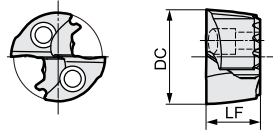
Recommended Torque

Screw		Applicable Insert
	(N·m)	
BXD 02208 IP	0,8-1,0	SMDT 1200 - 1550 MFS
BXD 02509 IP	0,9-1,2	SMDT 1551 - 1850 MFS
BXD 03011 IP	1,8-2,4	SMDT 1851 - 2150 MFS
BXD 03512 IP	2,8-3,7	SMDT 2151 - 2480 MFS
BXD 04014 IP	4,1-5,5	SMDT 2481 - 2780 MFS
BXD 04515 IP	5,0-6,6	SMDT 2781 - 3050 MFS

Spare Parts

Screw	Wrench	Applicable Holder
BXD 02208 IP	TRDR 08 IP	SMDT 120 - 150 □□
BXD 02509 IP	TRDR 10 IP	SMDT 160 - 180 □□
BXD 03011 IP	TRDR 15 IP	SMDT 190 - 210 □□
BXD 03512 IP	TRDR 15 IP	SMDT 220 - 240 □□
BXD 04014 IP	TRDR 20 IP	SMDT 250 - 270 □□
BXD 04515 IP	TRDR 25 IP	SMDT 280 - 300 □□

Type MFS



PVD coated grade: **ACX70**

■ Drill Head (Insert)

● \varnothing 12,0 ~ 21,5 mm

DC (mm)	Cat. No.	Stock	LF (mm)	Applicable Holders
12,0	SMDT 1200 MFS	●	7,1	SMDH120 □□
12,5	SMDT 1250 MFS	●	7,2	SMDH125 □□
13,0	SMDT 1300 MFS	●	7,5	SMDH130 □□
13,5	SMDT 1350 MFS	●		
14,0	SMDT 1400 MFS	●	7,9	SMDH140 □□
14,5	SMDT 1450 MFS	●		
15,0	SMDT 1500 MFS	●	8,3	SMDH150 □□
15,5	SMDT 1550 MFS	●		
16,0	SMDT 1600 MFS	●	8,8	SMDH160 □□
16,5	SMDT 1650 MFS	●		
17,0	SMDT 1700 MFS	●	9,3	SMDH170 □□
17,5	SMDT 1750 MFS	●		
18,0	SMDT 1800 MFS	●	9,8	SMDH180 □□
18,5	SMDT 1850 MFS	●		
19,0	SMDT 1900 MFS	●	10,2	SMDH190 □□
19,5	SMDT 1950 MFS	●		
20,0	SMDT 2000 MFS	●	10,7	SMDH200 □□
20,5	SMDT 2050 MFS	●		
21,0	SMDT 2100 MFS	●	11,2	SMDH210 □□
21,5	SMDT 2150 MFS	●		

● \varnothing 22,0 ~ 30,0 mm

DC (mm)	Cat. No.	Stock	LF (mm)	Applicable Holders
22,0	SMDT 2200 MFS	●	11,2	SMDH220 □□
22,5	SMDT 2250 MFS	●		
23,0	SMDT 2300 MFS	●	11,2	SMDH230 □□
23,5	SMDT 2350 MFS	●		
24,0	SMDT 2400 MFS	●	11,3	SMDH240 □□
24,5	SMDT 2450 MFS	●		
25,0	SMDT 2500 MFS	●	11,7	SMDH250 □□
25,5	SMDT 2550 MFS	●		
26,0	SMDT 2600 MFS	●	12,2	SMDH260 □□
26,5	SMDT 2650 MFS	●		
27,0	SMDT 2700 MFS	●	12,7	SMDH270 □□
27,5	SMDT 2750 MFS	●		
28,0	SMDT 2800 MFS	●	13,2	SMDH280 □□
28,5	SMDT 2850 MFS	●		
29,0	SMDT 2900 MFS	●	13,6	SMDH290 □□
29,5	SMDT 2950 MFS	●		
30,0	SMDT 3000 MFS	●	14,1	SMDH300 □□

■ MFS Type Head Important Notes

Application	No Guide Hole (Solid Workpiece Hole Drilling)	With Guide Hole	Flat Finishing of Hole Bottom
	<p>Flat Surface Non-Flat Surface</p>	<p>Guide Holes</p>	
1,5D Holder	○	○ (Guide Hole not required)	○
3D-12D Holder	X	X	○

■ Recommended Cutting Conditions

v_c : Cutting speed (m/min)
 f : Feed rate (mm/rev)

Work Material		Soft Steel (<250 HB)	General Steel (250-320HB)	Hardened Steel (45HRC)	Stainless Steel (<200 HB)	Gray Cast Iron	Ductile Cast Iron	Aluminum Alloy (*)
Drill Diameter DC (mm)	Cutting Conditions	Min.-Optimum-Max.	Min.-Optimum-Max.	Min.-Optimum-Max.	Min.-Optimum-Max.	Min.-Optimum-Max.	Min.-Optimum-Max.	Min.-Optimum-Max.
- \varnothing 16,0	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
- \varnothing 20,0	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
- \varnothing 30,8	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 on inclined surfaces. The recommended cutting conditions above are for drilling on flat horizontal surfaces. Adjust the feed rate according to the inclination angle when drilling on an inclined surface. Set the feed rate at 70 % or lower when 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 or helical milling.

(*) Inquire about drills specifically for aluminum alloy.

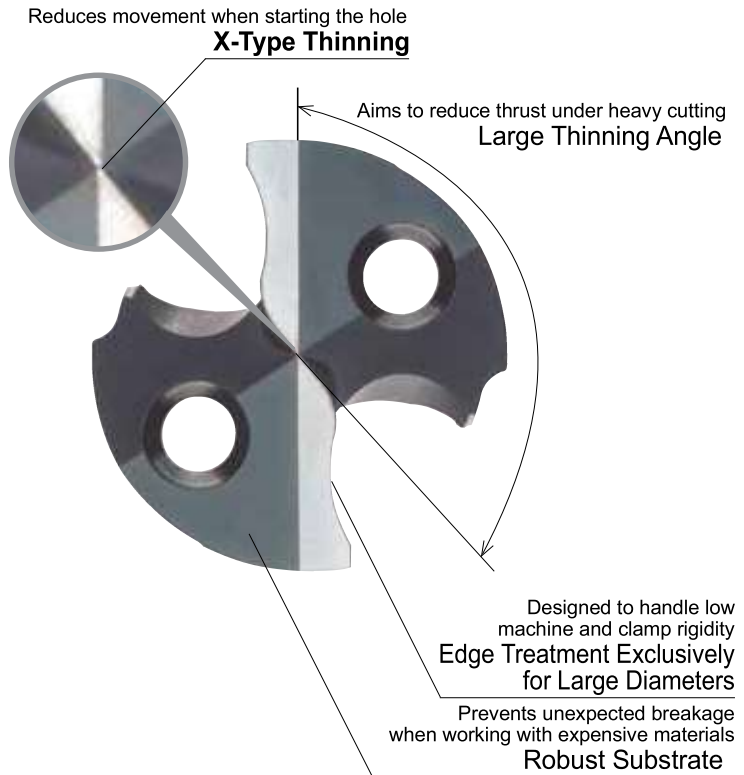
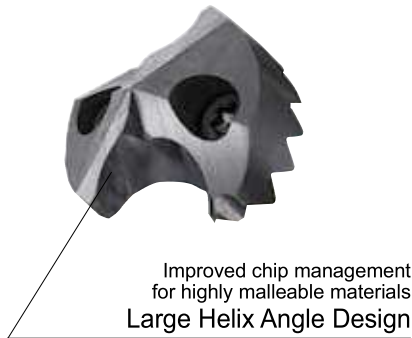
Replaceable Head Type MULTI-DRILLS SMD Type

Large Hole MTL Type

For Large Holes



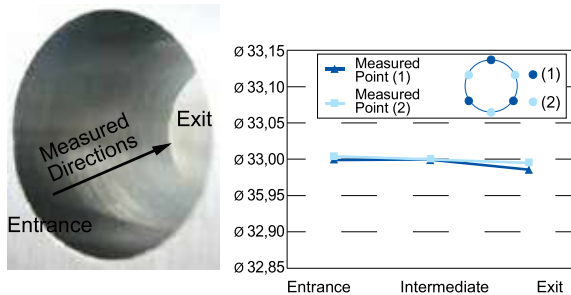
Tool edge design ideal for malleable material used for large casings, etc.
Edge design suitable for malleable material commonly used for large hole drilling.



■ Machined Surface Accuracy

Work Material: St 52-3 (Base substrate for construction use)
Drill Size: Ø 33,0 mm x 5D
Cutting Conditions: $v_c = 120$ m/min, $f = 0,25$ mm/rev
Cutting Environment: Emulsion Type

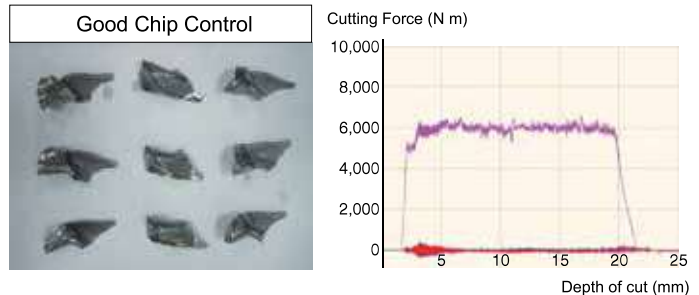
High drilling accuracy with large diameters



■ Cutting Force Comparison (Thrust)

Work Material: St 42-2 (Laminated plates)
Drill Size: Ø 37,5 mm x 5D
Cutting Conditions: $v_c = 90$ m/min, $f = 0,35$ mm/rev
Cutting Environment: Emulsion Type

Stable even when machining laminated plates



■ Recommended Cutting Conditions

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

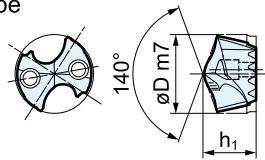
Work Material	Soft Steel (-250 HB)		General Steel (250-320 HB)		Hardened Steel (45 HRC)		Stainless Steel (-200 HB)		Grey Cast Iron		Ductil Cast Iron	
	Drill Ø (mm)	Cutt. Conditions	MTL Type	MTL Type	MTL Type	MTL Type	MTL Type	MTL Type	MTL Type	MTL Type	MTL Type	MTL Type
-36,5		v_c	60-120 (40-80)	60-120 (40-80)	40-80 (30-60)	40-80 (30-60)	40-80 (30-60)	40-80 (30-60)	50-100 (40-90)	50-90 (40-70)	50-90 (40-70)	50-90 (40-70)
		f	0,25-0,4	0,2-0,35	0,15-0,3	0,15-0,25	0,25-0,45	0,25-0,35	0,25-0,45	0,25-0,35	0,25-0,35	0,25-0,35
-42,5		v_c	60-120 (40-80)	60-120 (40-80)	40-80 (30-60)	40-80 (30-60)	40-80 (30-60)	40-80 (30-60)	50-100 (40-90)	50-90 (40-70)	50-90 (40-70)	50-90 (40-70)
		f	0,25-0,4	0,2-0,35	0,15-0,3	0,15-0,25	0,25-0,45	0,25-0,35	0,25-0,45	0,25-0,35	0,25-0,35	0,25-0,35

Note: Where machining and work clamp rigidity are good, conditions may be increased up to the maximum.
For 8D drills, please use feed rates stated within the (). Before drilling 8D holes, a guide hole of similar diameter must be made.

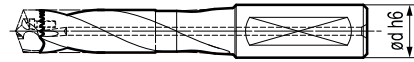
Regrindable Drill Head Insert SMDT... MTL Type

For Large Holes

● Indexable Head MTL Type



● Toolholder

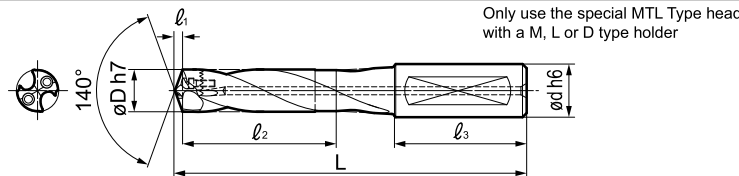


■ Drill Head (\varnothing 31,0–42,5 mm), Grade MTL Type - ACX80

■ Holders M (3D), L (5D), D (8D)

Drill Diameter $\varnothing D$	Heads			Toolholder					
	MTL Type		h_1	M (3D)		L (5D)		D (8D)	
	Cat. No.	Stock		Cat. No.	Stock	Cat. No.	Stock	Cat. No.	Stock
31,0	SMDT 3100 MTL	☐	15,2	SMDH 320 M	○	SMDH 320 L	○	SMDH 320 D	○
31,5	SMDT 3150 MTL	☐							
32,0	SMDT 3200 MTL	○							
32,5	SMDT 3250 MTL	☐	15,2	SMDH 335 M	○	SMDH 335 L	○	SMDH 335 D	○
33,0	SMDT 3300 MTL	○							
33,5	SMDT 3350 MTL	☐							
34,0	SMDT 3400 MTL	○	16,6	SMDH 350 M	○	SMDH 350 L	○	SMDH 350 D	○
34,5	SMDT 3450 MTL	☐							
35,0	SMDT 3500 MTL	○							
35,5	SMDT 3550 MTL	☐	16,4	SMDH 365 M	○	SMDH 365 L	○	SMDH 365 D	○
36,0	SMDT 3600 MTL	○							
36,5	SMDT 3650 MTL	☐							
37,0	SMDT 3700 MTL	○	18,1	SMDH 380 M	○	SMDH 380 L	○	SMDH 380 D	○
37,5	SMDT 3750 MTL	○							
38,0	SMDT 3800 MTL	○							
38,5	SMDT 3850 MTL	☐	17,8	SMDH 395 M	○	SMDH 395 L	○	SMDH 395 D	○
39,0	SMDT 3900 MTL	○							
39,5	SMDT 3950 MTL	☐							
40,0	SMDT 4000 MTL	○	19,5	SMDH 410 M	○	SMDH 410 L	○	SMDH 410 D	○
40,5	SMDT 4050 MTL	○							
41,0	SMDT 4100 MTL	○							
41,5	SMDT 4150 MTL	☐	19,3	SMDH 425 M	○	SMDH 425 L	○	SMDH 425 D	○
42,0	SMDT 4200 MTL	○							
42,5	SMDT 4250 MTL	☐							

● Mounted Figure



Dimensions (mm)		M (3D)		L (5D)		D (8D)		Shank		Cap Screw	Wrench	N·m
Drill Head		Dimensions (mm)		Dimensions (mm)		Dimensions (mm)		Dimensions (mm)				
$\varnothing D$	l_1	l_2	L	l_2	L	l_2	L	l_3	$\varnothing d$			
31,0	5,7	97,9	200,7	163	265,7	257,9	360,7	60	32,0	BXD04515IP	TRDR25IP	5–6,6
31,5												
32,0												
32,5	6,0	103,3	206,0	171,5	276,0	273,3	376,0	60	32,0			
33,0												
33,5												
34,0	6,3	106,8	221,3	182	296,3	287	401,3	70	40,0	BX0515	HD040	7,2
34,5												
35,0												
35,5	6,6	112,3	226,6	187,5	301,6	297,3	411,6	70	40,0			
36,0												
36,5												
37,0	6,8	115,8	231,8	195,8	311,8	310,8	426,8	70	40,0			
37,5												
38,0												
38,5	7,1	121,3	237,1	206,3	322,1	321,3	437,1	70	40,0			
39,0												
39,5												
40,0	7,4	129,8	252,4	209,8	332,4	334,8	457,4	70	40,0			
40,5												
41,0												
41,5	7,6	135,3	257,6	220,3	342,6	345,3	467,6	70	40,0			
42,0												
42,5												