K

SUMITOMO
CARBIDE - CBN - DIAMOND

22|23

DRILLING TOOLS

Multi-Drills | Solid Type Drills | Flat Drills | Deep Hole Drills | Brazed Type Drills | Replaceable Head Type Drills | Insert Type Drills

SUMITOMO ELECTRIC GROUP

Multi-Drills

K

K1–K68

Multi-Drill Series

General Features

MultiDrill series is Sumitomo's original brand of high performance drills that have a special cutting edge design coupled with an advance carbide substrate.
The series has a comprehensive selection of diameters and drill lengths to cover a wide range of work materials and require-ments, providing high efficiency, high precision and cost effectiveness.

Solid Carbide Type Multi-Drills Selection

	SDP ...	**SDM ...**	**MDW ...**	**MDF ...**	**MDW ... ○○○**			**MLDH**	**MDUS / MDSS**	**MDS ...**
Type	...U3/5/7 **-HAK** (DIN)	...U3/5 **-HAK** (DIN)	**GS** 2/4	...S2D, L2D ...H3D, H5D	... **PHT**	... **XHGS** ... **XHTA**	... **NHGS**	... P / L	–	... **SDC**
Page	⇨ K 6–13	⇨ K 14–19	⇨ K20–23	⇨ K24–31	⇨ K32–35		⇨ K36–37	⇨ K38–39	⇨ K40	⇨ K41
					 Pilot drill			 Pilot drill		
Application	P K	P M	P	P	P M K N		N	P M K	P M K H	N
Form	m7 drill DIN type		h8 drill cylindric	h8 drill cylindric	Extra long DIN type		Super Multi-Drill	Long Micro Drill	Mini Multi-Drill	Diamond Coated
Length (The ratio to øD)	3D/5D/7D	3D / 5D	2 / 4D	S2D/ L2D	3D	10D–30D	3D / 5D / 10D	5/12/20/30 D	10D	3D
Coolant holes	Yes		No	No	Yes		Yes	Yes	No	No
Coating	AlCrTiN		DEX (TiAlCr/TiSi)	PVD	TiAlN	–	DLC	TiAlN	TiAlN / ZX	SUMIDIA
Diameter range	3,0–16,0		2,0–16,0	0,3–20,0	4,0–8,0	3,0–12,0	3,0–16,0	0,8–2,0	0,03–1,0	2,0–10,0

Advantages

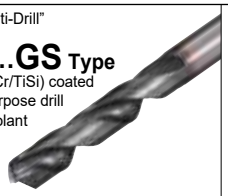
- Unique curved flute design with proven enhanced chip formation and removal, resulting in better hole accuracy.
- High speed and high efficient drilling is made possible with the combination of a special substrate with an advanced PVD coating. (10x tool life of HSS drills, 5x the efficiency)
- Wide selection range (Diameter: 0,03–65 mm, Drilling depths L/D: 2–30)
- Other diameters and length can be asked and offered

Brazed Carbide Type and Insert Type Multi-Drills Selection

	SMD … ⇨ K43		**WDX** …○○ **WAS** ….-.. ⇨ K65	**PDL** …○○	**PCT** …○○
Type	 **SMDT …(D) MTL**	⇨ K45, K59			
Page	 **SMDT …D MEL**	⇨ K46–47	⇨ K52–66	⇨ K66–68	⇨ K67–68
	 **SMDT … MFS**	⇨ K49			
	 **SMDH …M-3/5/8**	⇨ K44, K48			
	SMDH …M / L / D	⇨ K51			
					
Application	P M K		P M K N		
Form	SMDT type carbide head		Indexable insert drill	Straight flute insert drill	Insert mill
Length (The ratio to øD)	1.5D / 3D / 5D / 8D / 12D		2D / 3D / 4D / 5D	2D / 3D	3D / 5D
Coolant holes	Yes		Yes		
Coating	TiAlN		WDXT type insert		
Diameter range	12,0–42,5		13,0–65,0	16,0–40,0	

Selection Guide

● According to Drill Types / Applications

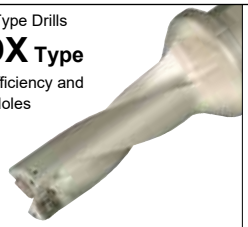
Application	General ⟷ Special		
Solid Type	m7 DIN Type "Super Multi-Drill" **SDP...U HAK Type** AlCrTiN coated general purpose drill with coolant holes  Ø 3,0–16 mm L/D: 3, 5, 7 ⇨ K6–13	"Super Multi-Drill" **MDW...GS Type** DEX (TiAlCr/TiSi) coated general purpose drill without coolant holes  Ø 2,0–16 mm L/D:–2, –4 ⇨ K20–23	—
"Super Multi-Drill" **MDS / MDW** Type	—	—	"Super Multi-Drill" **MDS...D Type** Hardened Steel Exotic Metals  Ø 1,0–16,1 mm L/D: –3 (Stock in Japan)

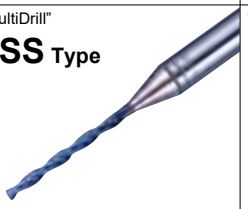
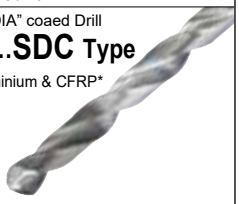
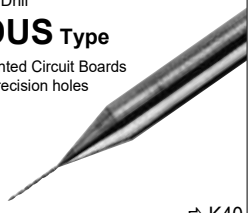
■ Recommended Cutting Conditions by Work Materials

Drill \ Work	Steel	Stainless Steel	Cast Iron	Non-ferrous Metalls
Solid Type **SDP...U HAK MDW...GS**	50 — 120 (0,2 — 0,35)	15 — 70 (0,1 — 0,2)	50 — 110 (0,2 — 0,35)	—

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

● According to Drill Types / Applications

Application	General ⟷ Special		
Indexable Drills	Insert Type Drills **WDX Type** High Efficiency and Deep Holes  Ø 13,0–65,0 mm L/D: 2, 3, 4, 5 ➪ K52–64	Replaceable Head Type Drills **SMD Type**  Ø 12,0–42,5 mm L/D: 3, 5, 8 ➪ K43–51	"Multi-Function" Types **PDL & PCT** Plunge Drills and Plunge Mills  Ø 16,0–40,0 mm L/D: 2, 3, 5 ➪ K66–68

Application	Deep Hole	Very Small Hole	Precision Hole
Special Purpose Drills	"Super Long Multi-Drill" **MDW...XHGS/XHTA Type** New General Purpose Deep Hole Drill  Ø 4,0–12,0 mm L/D: 10/15/20/25/30 ➪ K32–35	"Long Micro Drill" **MLDH... P/L Type** "P" type for pilot hole  Ø 0,8–2,0 mm L/D: 5/12/20/30 ➪ K38–39	AURORA-Coat Drill **MDW...NHGS Type** For Aluminium Alloy  Ø 3,0–16,0 mm L/D: 3 / 5 / 10 ➪ K36–37
	—	"Mini-MultiDrill" **MDSS Type**  Ø 0,20–1,00 mm L/D: 10 ➪ K40	"SUMI-DIA" coaed Drill **MDS...SDC Type** For Aluminium & CFRP*  CFRP* (Carbon FibreReinforced Plastic) Ø 2–10 mm L/D: –3 ➪ K41
	—	"Micro Drill" **MDUS Type** For Printed Circuit Boards High precision holes  Ø 0,05–0,19 mm L/D: –8 ➪ K40	—

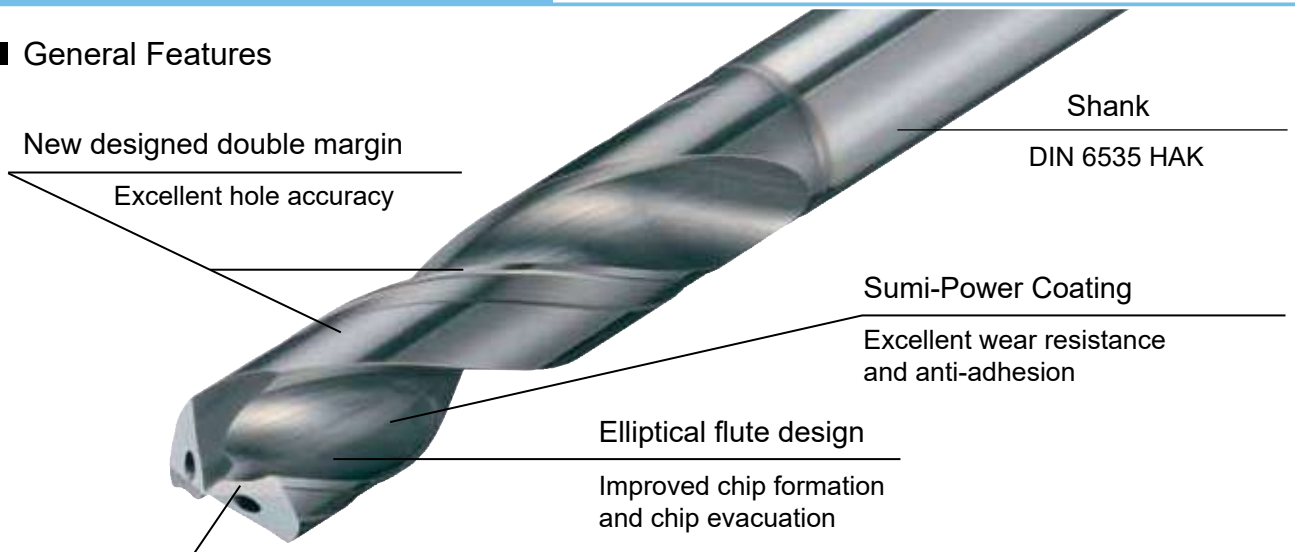
■ Recommended Cutting Conditions by Work Materials

Drill \ Work	Steel	Stainless Steel	Cast Iron	Non-ferrous Metalls
SMD (Ø 20)	50 ▬ 120 0,12 ⊢ 0,35	50 ▬ 90 0,1 ⊢ 0,25	50 ▬ 100 0,2 ⊢ 0,45	100 ▬ 180 0,2 ⊢ 0,4
WDX (Ø 18)	100 ▬ 220 0,15 ⊢ 0,25	80 ▬ 180 0,06 ⊢ 0,18	120 ▬ 200 0,1 ⊢ 0,32	100 ▬ 200 0,1 ⊢ 0,25
MDW...XHT (Ø 5)	80 ▬ 120 0,15 ⊢ 0,25	30 ▬ 60 0,08 ⊢ 0,15	50 ▬ 90 0,15 ⊢ 0,3	80 ▬ 160 0,12 ⊢ 0,35

▬ Cutting speed v_c (m/min)
⊢ Feed f (mm/rev)

SDP Type (DIN)

General Features

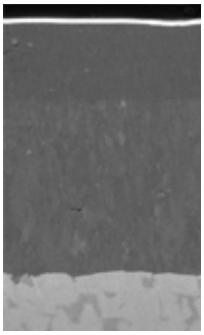


Stock Size

Ø 3,0 – Ø 12,0
Increment 0,1 mm

Ø 12,1 – Ø 16,0
Standard diameter

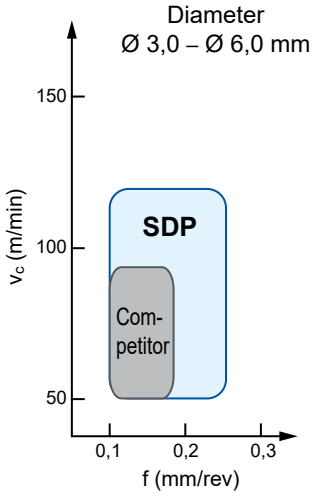
Coating Structure

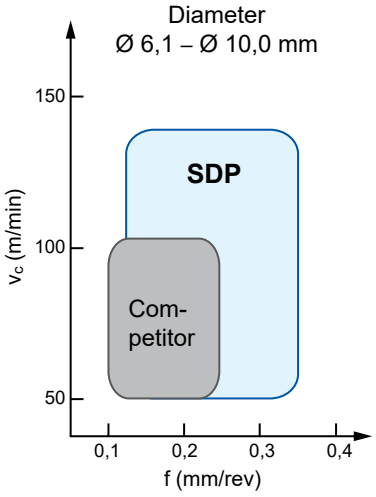


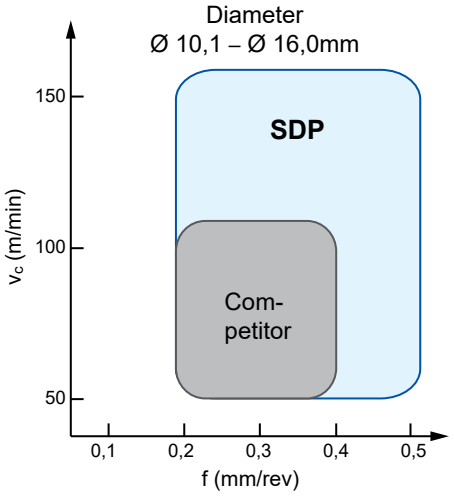
Advantages

- The specific and optimum solution for a wide range of application conditions
- Top performance parameters, maximum feed and stable long tool life
- Double margin design for high-precision holes
- Good balance of high wear resistance and toughness
- Curved cutting edge - ideal for removing chips
- Reliable and high productivity performance

Application Range







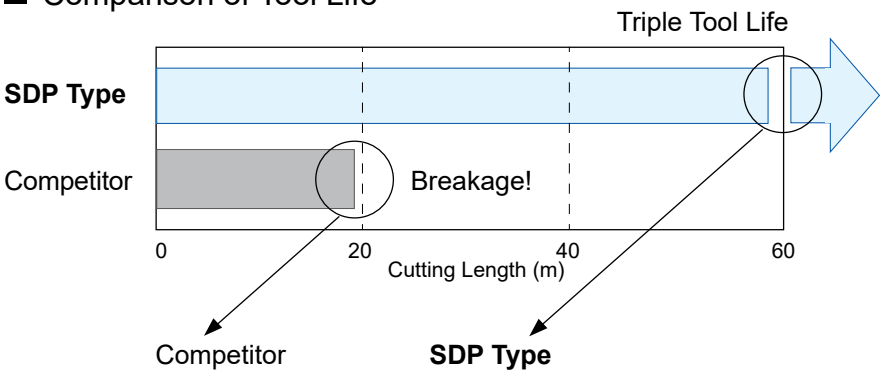
Maximum Feed Rate Result

Feed Rate (mm/rev)	0,30	0,40	0,50	0,55	0,60	0,65	0,70	0,75	0,80
SDP Type	OK	OK	OK	OK	OK	OK	OK	OK	
Competitor	OK	Breakage!							

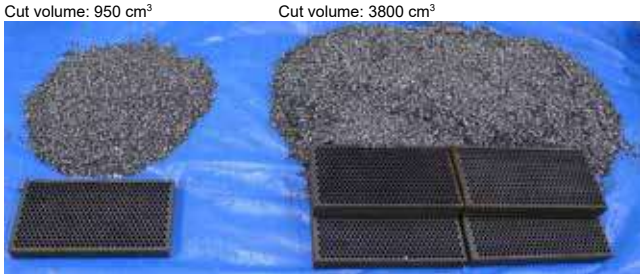
Internal test conditions

Drill:	Ø 4, L/D = 5
Work Material:	Carbon Steel (C50)
Cutting Data:	v_c = 80 m/rev, a_p = 18 mm

Comparison of Tool Life



Competitor: Cut volume: 950 cm³ — SDP Type: Cut volume: 3800 cm³

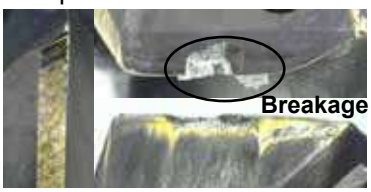


500 Holes — Work: C50, Drill Dia: 8 mm, L/D = 5 — 2000 Holes

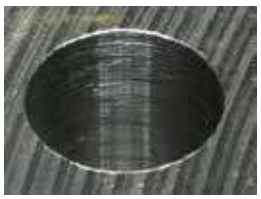
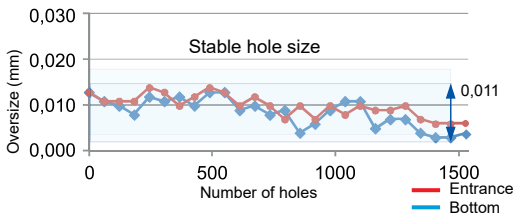
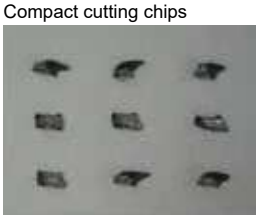
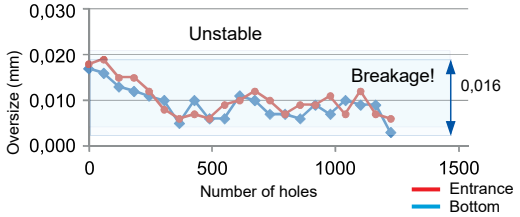
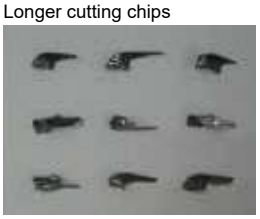
Drill:	Ø 8, L/D = 5
Work Material:	Carbon Steel (C50)
Cutting Data:	v_c=80m/min, f=0,15mm/rev, a_p=38mm, Through hole, Internal coolant

SDP Type

Competitor

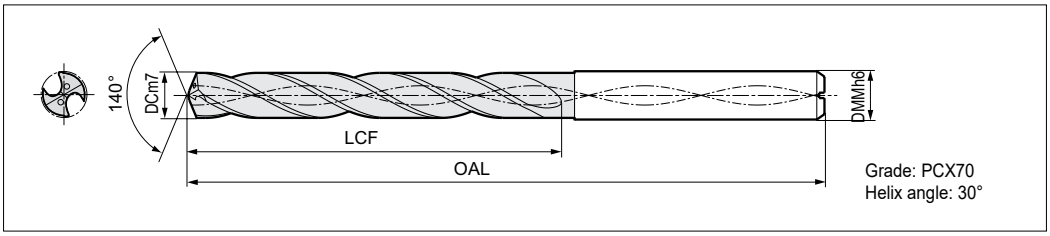


Excellent Hole Accuracy

	Hole Accuracy	Chip Shape
SDP Type	 	Compact cutting chips 
Competitor	 	Longer cutting chips 

Drill:	Ø 8, L/D = 5
Workpiece:	Carbon Steel (C50)
Cutting Data:	v_c=80m/min, f=0,25mm/rev, a_p=24mm, Blind-hole, Internal coolant

■ Solid Carbide Drill with Internal Coolant Supply, Ø 3,0–5,6 mm, 3D / 5D /7D



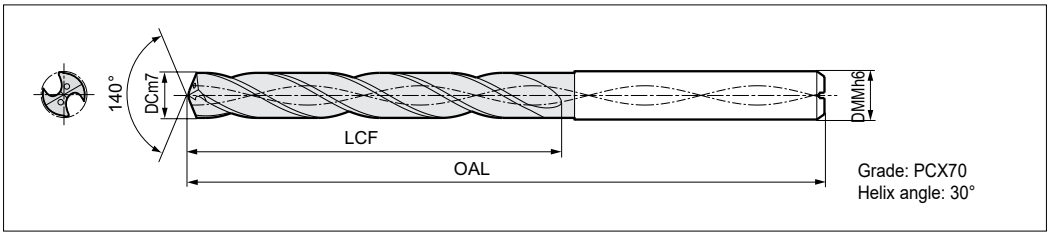
DC	L/D	Cat. No.	Stock	LU	LCF	OAL	PL	DCON
3,0	3	SDP 0300 U3 HAK	●	15,0	19,5	61,5	0,5	6,0
	5	0300 U5 HAK	●	22,0	26,5	65,5		
	7	0300 U7 HAK	●	26,0	30,5	69,5		
3,1	3	SDP 0310 U3 HAK	●	15,0	19,6	61,6	0,6	6,0
	5	0310 U5 HAK	●	22,0	26,6	65,6		
	7	0310 U7 HAK	●	26,0	30,6	69,6		
3,2	3	SDP 0320 U3 HAK	●	14,8	19,6	61,6	0,6	6,0
	5	0320 U5 HAK	●	21,8	26,6	65,6		
	7	0320 U7 HAK	●	25,8	30,6	69,6		
3,25	3	SDP 0325 U3 HAK	●	14,7	19,6	61,6	0,6	6,0
	5	0325 U5 HAK	●	21,7	26,6	65,6		
	7	0325 U7 HAK	●	25,7	30,6	69,6		
3,3	3	SDP 0330 U3 HAK	●	14,7	19,6	61,6	0,6	6,0
	5	0330 U5 HAK	●	21,7	26,6	65,6		
	7	0330 U7 HAK	●	25,7	30,6	69,6		
3,4	3	SDP 0340 U3 HAK	●	14,5	19,6	61,6	0,6	6,0
	5	0340 U5 HAK	●	21,5	26,6	65,6		
	7	0340 U7 HAK	●	31,0	36,1	74,6		
3,5	3	SDP 0350 U3 HAK	●	14,4	19,6	61,6	0,6	6,0
	5	0350 U5 HAK	●	21,4	26,6	65,6		
	7	0350 U7 HAK	●	30,9	36,1	74,6		
3,6	3	SDP 0360 U3 HAK	●	14,3	19,7	61,7	0,7	6,0
	5	0360 U5 HAK	●	21,3	26,7	65,7		
	7	0360 U7 HAK	●	30,8	36,2	74,7		
3,7	3	SDP 0370 U3 HAK	●	14,2	19,7	61,7	0,7	6,0
	5	0370 U5 HAK	●	21,2	26,7	65,7		
	7	0370 U7 HAK	●	30,7	36,2	74,7		
3,8	3	SDP 0380 U3 HAK	●	18,0	23,7	65,7	0,7	6,0
	5	0380 U5 HAK	●	30,0	35,7	73,7		
	7	0380 U7 HAK	●	32,5	38,2	74,7		
3,9	3	SDP 0390 U3 HAK	●	17,9	23,7	65,7	0,7	6,0
	5	0390 U5 HAK	●	29,9	35,7	73,7		
	7	0390 U7 HAK	●	32,4	38,2	74,7		
4,0	3	SDP 0400 U3 HAK	●	17,7	23,7	65,7	0,7	6,0
	5	0400 U5 HAK	●	29,7	35,7	73,7		
	7	0400 U7 HAK	●	32,2	38,2	74,7		
4,1	3	SDP 0410 U3 HAK	●	17,6	23,7	65,7	0,7	6,0
	5	0410 U5 HAK	●	29,6	35,7	73,7		
	7	0410 U7 HAK	●	32,1	38,2	74,7		
4,2	3	SDP 0420 U3 HAK	●	17,5	23,8	65,8	0,8	6,0
	5	0420 U5 HAK	●	29,5	35,8	73,8		
	7	0420 U7 HAK	●	32,0	38,3	74,8		
4,3	3	SDP 0430 U3 HAK	●	17,4	23,8	65,8	0,8	6,0
	5	0430 U5 HAK	●	29,4	35,8	73,8		
	7	0430 U7 HAK	●	40,4	46,8	84,8		

DC	L/D	Cat. No.	Stock	LU	LCF	OAL	PL	DCON
4,4	3	SDP 0440 U3 HAK	●	17,2	23,8	65,8	0,8	6,0
	5	0440 U5 HAK	●	29,2	35,8	73,8		
	7	0440 U7 HAK	●	40,2	46,8	84,8		
4,5	3	SDP 0450 U3 HAK	●	17,1	23,8	65,8	0,8	6,0
	5	0450 U5 HAK	●	29,1	35,8	73,8		
	7	0450 U7 HAK	●	40,1	46,8	84,8		
4,6	3	SDP 0460 U3 HAK	●	16,9	23,8	65,8	0,8	6,0
	5	0460 U5 HAK	●	28,9	35,8	73,8		
	7	0460 U7 HAK	●	39,9	46,8	84,8		
4,65	3	SDP 0465 U3 HAK	●	16,8	23,8	65,8	0,8	6,0
	5	0465 U5 HAK	●	28,8	35,8	73,8		
	7	0465 U7 HAK	●	39,8	46,8	84,8		
4,7	3	SDP 0470 U3 HAK	●	16,9	23,9	65,9	0,9	6,0
	5	0470 U5 HAK	●	28,9	35,9	73,9		
	7	0470 U7 HAK	●	39,9	46,9	84,9		
4,8	3	SDP 0480 U3 HAK	●	20,7	27,9	65,9	0,9	6,0
	5	0480 U5 HAK	●	36,7	43,9	81,9		
	7	0480 U7 HAK	●	44,7	51,9	89,		
4,9	3	SDP 0490 U3 HAK	●	20,6	27,9	65,9	0,9	6,0
	5	0490 U5 HAK	●	36,6	43,9	81,9		
	7	0490 U7 HAK	●	44,6	51,9	89,9		
5,0	3	SDP 0500 U3 HAK	●	20,4	27,9	65,9	0,9	6,0
	5	0500 U5 HAK	●	36,4	43,9	81,9		
	7	0500 U7 HAK	●	44,4	51,9	89,9		
5,1	3	SDP 0510 U3 HAK	●	20,3	27,9	65,9	0,9	6,0
	5	0510 U5 HAK	●	36,3	43,9	81,9		
	7	0510 U7 HAK	●	44,3	51,9	89,9		
5,2	3	SDP 0520 U3 HAK	●	20,1	27,9	65,9	0,9	6,0
	5	0520 U5 HAK	●	36,1	43,9	81,9		
	7	0520 U7 HAK	●	44,1	51,9	89,9		
5,3	3	SDP 0530 U3 HAK	●	20,1	28,0	66,0	1,0	6,0
	5	0530 U5 HAK	●	36,1	44,0	82,0		
	7	0530 U7 HAK	●	44,1	52,0	90,0		
5,4	3	SDP 0540 U3 HAK	●	19,9	28,0	66,0	1,0	6,0
	5	0540 U5 HAK	●	35,9	44,0	82,0		
	7	0540 U7 HAK	●	50,9	59,0	97,0		
5,5	3	SDP 0550 U3 HAK	●	19,8	28,0	66,0	1,0	6,0
	5	0550 U5 HAK	●	35,8	44,0	82,0		
	7	0550 U7 HAK	●	50,8	59,0	97,0		
5,55	3	SDP 0555 U3 HAK	●	19,7	28,0	66,0	1,0	6,0
	5	0555 U5 HAK	●	35,7	44,0	82,0		
	7	0555 U7 HAK	●	50,7	59,0	97,0		
5,6	3	SDP 0560 U3 HAK	●	19,6	28,0	66,0	1,0	6,0
	5	0560 U5 HAK	●	35,6	44,0	82,0		
	7	0560 U7 HAK	●	50,6	59,0	97,0		

※ Remarks:
Non-Stock Items will be required minimum order quantity for 30 pcs.

● = Euro stock

■ Solid Carbide Drill with Internal Coolant Supply, Ø 5,7–8,6 mm, 3D / 5D / 7D

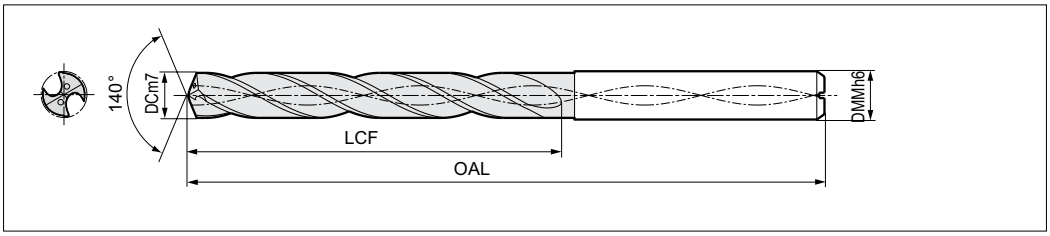


DC	L/D	Cat. No.	Stock	LU	LCF	OAL	PL	DCON
5,7	3	SDP 0570 U3 HAK	●	19,5	28,0	66,0	1,0	6,0
	5	0570 U5 HAK	●	35,5	44,0	82,0		
	7	0570 U7 HAK	●	50,5	59,0	97,0		
5,8	3	SDP 0580 U3 HAK	●	19,4	28,1	66,1	1,1	6,0
	5	0580 U5 HAK	●	35,4	44,1	82,1		
	7	0580 U7 HAK	●	50,4	59,1	97,1		
5,9	3	SDP 0590 U3 HAK	●	19,3	28,1	66,1	1,1	6,0
	5	0590 U5 HAK	●	35,3	44,1	82,1		
	7	0590 U7 HAK	●	50,3	59,1	97,1		
6,0	3	SDP 0600 U3 HAK	●	19,1	28,1	66,1	1,1	6,0
	5	0600 U5 HAK	●	35,1	44,1	82,1		
	7	0600 U7 HAK	●	50,1	59,1	97,1		
6,1	3	SDP 0610 U3 HAK	●	25,0	34,1	79,1	1,1	8,0
	5	0610 U5 HAK	●	44,0	53,1	91,1		
	7	0610 U7 HAK	●	59,0	68,1	106,1		
6,2	3	SDP 0620 U3 HAK	●	24,8	34,1	79,1	1,1	8,0
	5	0620 U5 HAK	●	43,8	53,1	91,1		
	7	0620 U7 HAK	●	58,8	68,1	106,1		
6,3	3	SDP 0630 U3 HAK	●	24,7	34,1	79,1	1,1	8,0
	5	0630 U5 HAK	●	43,7	53,1	91,1		
	7	0630 U7 HAK	●	58,7	68,1	106,1		
6,4	3	SDP 0640 U3 HAK	●	24,6	34,2	79,2	1,2	8,0
	5	0640 U5 HAK	●	43,6	53,2	91,2		
	7	0640 U7 HAK	●	58,6	68,2	106,2		
6,5	3	SDP 0650 U3 HAK	●	24,5	34,2	79,2	1,2	8,0
	5	0650 U5 HAK	●	43,5	53,2	91,2		
	7	0650 U7 HAK	●	58,5	68,2	106,2		
6,6	3	SDP 0660 U3 HAK	●	24,3	34,2	79,2	1,2	8,0
	5	0660 U5 HAK	●	43,3	53,2	91,2		
	7	0660 U7 HAK	●	58,3	68,2	106,2		
6,7	3	SDP 0670 U3 HAK	●	24,2	34,2	79,2	1,2	8,0
	5	0670 U5 HAK	●	43,2	53,2	91,2		
	7	0670 U7 HAK	●	58,2	68,2	106,2		
6,8	3	SDP 0680 U3 HAK	●	24,0	34,2	79,2	1,2	8,0
	5	0680 U5 HAK	●	43,0	53,2	91,2		
	7	0680 U7 HAK	●	58,0	68,2	106,2		
6,9	3	SDP 0690 U3 HAK	●	24,0	34,3	79,3	1,3	8,0
	5	0690 U5 HAK	●	43,0	53,3	91,3		
	7	0690 U7 HAK	●	68,0	78,3	116,3		
7,0	3	SDP 0700 U3 HAK	●	23,8	34,3	79,3	1,3	8,0
	5	0700 U5 HAK	●	42,8	53,3	91,3		
	7	0700 U7 HAK	●	67,8	78,3	116,3		
7,1	3	SDP 0710 U3 HAK	●	29,7	40,3	79,3	1,3	8,0
	5	0710 U5 HAK	●	42,7	53,3	91,3		
	7	0710 U7 HAK	●	67,7	78,3	116,3		

DC	L/D	Cat. No.	Stock	LU	LCF	OAL	PL	DCON
7,2	3	SDP 0720 U3 HAK	●	29,5	40,3	79,3	1,3	8,0
	5	0720 U5 HAK	●	42,5	53,3	91,3		
	7	0720 U7 HAK	●	67,5	78,3	116,3		
7,3	3	SDP 0730 U3 HAK	●	29,4	40,3	79,3	1,3	8,0
	5	0730 U5 HAK	●	42,4	53,3	91,3		
	7	0730 U7 HAK	●	67,4	78,3	116,3		
7,4	3	SDP 0740 U3 HAK	●	29,2	40,3	79,3	1,3	8,0
	5	0740 U5 HAK	●	42,2	53,3	91,3		
	7	0740 U7 HAK	●	67,2	78,3	116,3		
7,5	3	SDP 0750 U3 HAK	●	29,2	40,4	79,4	1,4	8,0
	5	0750 U5 HAK	●	42,2	53,4	91,4		
	7	0750 U7 HAK	●	67,2	78,4	116,4		
7,6	3	SDP 0760 U3 HAK	●	29,0	40,4	79,4	1,4	8,0
	5	0760 U5 HAK	●	42,0	53,4	91,4		
	7	0760 U7 HAK	●	67,0	78,4	116,4		
7,7	3	SDP 0770 U3 HAK	●	28,9	40,4	79,4	1,4	8,0
	5	0770 U5 HAK	●	41,9	53,4	91,4		
	7	0770 U7 HAK	●	66,9	78,4	116,4		
7,8	3	SDP 0780 U3 HAK	●	28,7	40,4	79,4	1,4	8,0
	5	0780 U5 HAK	●	41,7	53,4	91,4		
	7	0780 U7 HAK	●	66,7	78,4	116,4		
7,9	3	SDP 0790 U3 HAK	●	28,6	40,4	79,4	1,4	8,0
	5	0790 U5 HAK	●	41,6	53,4	91,4		
	7	0790 U7 HAK	●	66,6	78,4	116,4		
8,0	3	SDP 0800 U3 HAK	●	28,5	40,5	79,5	1,5	8,0
	5	0800 U5 HAK	●	41,5	53,5	91,5		
	7	0800 U7 HAK	●	66,5	78,5	116,5		
8,1	3	SDP 0810 U3 HAK	●	34,4	46,5	88,5	1,5	10,0
	5	0810 U5 HAK	●	48,4	60,5	102,5		
	7	0810 U7 HAK	●	76,4	88,5	130,5		
8,2	3	SDP 0820 U3 HAK	●	34,2	46,5	88,5	1,5	10,0
	5	0820 U5 HAK	●	48,2	60,5	102,5		
	7	0820 U7 HAK	●	76,2	88,5	130,5		
8,3	3	SDP 0830 U3 HAK	●	34,1	46,5	88,5	1,5	10,0
	5	0830 U5 HAK	●	48,1	60,5	102,5		
	7	0830 U7 HAK	●	76,1	88,5	130,5		
8,4	3	SDP 0840 U3 HAK	●	33,9	46,5	88,5	1,5	10,0
	5	0840 U5 HAK	●	47,9	60,5	102,5		
	7	0840 U7 HAK	●	75,9	88,5	130,5		
8,5	3	SDP 0850 U3 HAK	●	33,8	46,5	88,5	1,5	10,0
	5	0850 U5 HAK	●	47,8	60,5	102,5		
	7	0850 U7 HAK	●	75,8	88,5	130,5		
8,6	3	SDP 0860 U3 HAK	●	33,7	46,6	88,6	1,6	10,0
	5	0860 U5 HAK	●	47,7	60,6	102,6		
	7	0860 U7 HAK	●	75,7	88,6	130,6		

※ Remarks:
Non-Stock Items will be required minimum order quantity for 30 pcs.

■ Solid Carbide Drill with Internal Coolant Supply, Ø 8,7–11,5 mm, 3D / 5D /7D



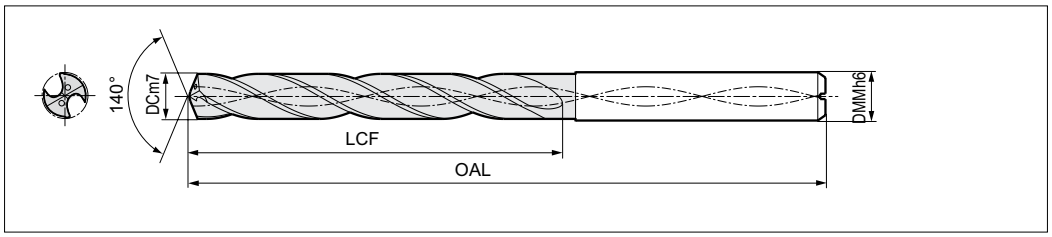
DC	L/D	Cat. No.	Stock	LU	LCF	OAL	PL	DCON
8,7	3	SDP 0870 U3 HAK	●	33,6	46,6	88,6	1,6	10,0
	5	0870 U5 HAK	●	47,6	60,6	102,6		
	7	0870 U7 HAK	●	75,6	88,6	130,6		
8,8	3	SDP 0880 U3 HAK	●	33,4	46,6	88,6	1,6	10,0
	5	0880 U5 HAK	●	47,4	60,6	102,6		
	7	0880 U7 HAK	●	75,4	88,6	130,6		
8,9	3	SDP 0890 U3 HAK	●	33,3	46,6	88,6	1,6	10,0
	5	0890 U5 HAK	●	47,3	60,6	102,6		
	7	0890 U7 HAK	●	75,3	88,6	130,6		
9,0	3	SDP 0900 U3 HAK	●	33,1	46,6	88,6	1,6	10,0
	5	0900 U5 HAK	●	47,1	60,6	102,6		
	7	0900 U7 HAK	●	75,1	88,6	130,6		
9,1	3	SDP 0910 U3 HAK	●	33,1	46,7	88,7	1,7	10,0
	5	0910 U5 HAK	●	47,1	60,7	102,7		
	7	0910 U7 HAK	●	83,1	96,7	138,7		
9,2	3	SDP 0920 U3 HAK	●	32,9	46,7	88,7	1,7	10,0
	5	0920 U5 HAK	●	46,9	60,7	102,7		
	7	0920 U7 HAK	●	82,9	96,7	138,7		
9,25	3	SDP 0925 U3 HAK	●	32,8	46,7	88,7	1,7	10,0
	5	0925 U5 HAK	●	46,8	60,7	102,7		
	7	0925 U7 HAK	●	82,8	96,7	138,7		
9,3	3	SDP 0930 U3 HAK	●	32,8	46,7	88,7	1,7	10,0
	5	0930 U5 HAK	●	46,8	60,7	102,7		
	7	0930 U7 HAK	●	82,8	96,7	138,7		
9,4	3	SDP 0940 U3 HAK	●	32,6	46,7	88,7	1,7	10,0
	5	0940 U5 HAK	●	46,6	60,7	102,7		
	7	0940 U7 HAK	●	82,6	96,7	138,7		
9,5	3	SDP 0950 U3 HAK	●	32,5	46,7	88,7	1,7	10,0
	5	0950 U5 HAK	●	46,5	60,7	102,7		
	7	0950 U7 HAK	●	82,5	96,7	138,7		
9,6	3	SDP 0960 U3 HAK	●	32,3	46,7	88,7	1,7	10,0
	5	0960 U5 HAK	●	46,3	60,7	102,7		
	7	0960 U7 HAK	●	82,3	96,7	138,7		
9,7	3	SDP 0970 U3 HAK	●	32,3	46,8	88,8	1,8	10,0
	5	0970 U5 HAK	●	46,3	60,8	102,8		
	7	0970 U7 HAK	●	82,3	96,8	138,8		
9,8	3	SDP 0980 U3 HAK	●	32,1	46,8	88,8	1,8	10,0
	5	0980 U5 HAK	●	46,1	60,8	102,8		
	7	0980 U7 HAK	●	82,1	96,8	138,8		
9,9	3	SDP 0990 U3 HAK	●	32,0	46,8	88,8	1,8	10,0
	5	0990 U5 HAK	●	46,0	60,8	102,8		
	7	0990 U7 HAK	●	82,0	96,8	138,8		
10,0	3	SDP 1000 U3 HAK	●	31,8	46,8	88,8	1,8	10,0
	5	1000 U5 HAK	●	45,8	60,8	102,8		
	7	1000 U7 HAK	●	81,8	96,8	138,8		

DC	L/D	Cat. No.	Stock	LU	LCF	OAL	PL	DCON
10,1	3	SDP 1010 U3 HAK	●	39,7	54,8	101,8	1,8	12,0
	5	1010 U5 HAK	●	55,7	70,8	117,8		
	7	1010 U7 HAK	●	92,7	107,8	154,8		
10,2	3	SDP 1020 U3 HAK	●	39,6	54,9	101,9	1,9	12,0
	5	1020 U5 HAK	●	55,6	70,9	117,9		
	7	1020 U7 HAK	●	92,6	107,9	154,9		
10,3	3	SDP 1030 U3 HAK	●	39,5	54,9	101,9	1,9	12,0
	5	1030 U5 HAK	●	55,5	70,9	117,9		
	7	1030 U7 HAK	●	92,5	107,9	154,9		
10,4	3	SDP 1040 U3 HAK	●	39,3	54,9	101,9	1,9	12,0
	5	1040 U5 HAK	●	55,3	70,9	117,9		
	7	1040 U7 HAK	●	92,3	107,9	154,9		
10,5	3	SDP 1050 U3 HAK	●	39,2	54,9	101,9	1,9	12,0
	5	1050 U5 HAK	●	55,2	70,9	117,9		
	7	1050 U7 HAK	●	92,2	107,9	154,9		
10,6	3	SDP 1060 U3 HAK	●	39,0	54,9	101,9	1,9	12,0
	5	1060 U5 HAK	●	55,0	70,9	117,9		
	7	1060 U7 HAK	●	92,0	107,9	154,9		
10,7	3	SDP 1070 U3 HAK	●	38,9	54,9	101,9	1,9	12,0
	5	1070 U5 HAK	●	54,9	70,9	117,9		
	7	1070 U7 HAK	●	91,9	107,9	154,9		
10,8	3	SDP 1080 U3 HAK	●	38,8	55,0	102,0	2,0	12,0
	5	1080 U5 HAK	●	54,8	71,0	118,0		
	7	1080 U7 HAK	●	91,8	108,0	155,0		
10,9	3	SDP 1090 U3 HAK	●	38,7	55,0	102,0	2,0	12,0
	5	1090 U5 HAK	●	54,7	71,0	118,0		
	7	1090 U7 HAK	●	91,7	108,0	155,0		
11,0	3	SDP 1100 U3 HAK	●	38,5	55,0	102,0	2,0	12,0
	5	1100 U5 HAK	●	54,5	71,0	118,0		
	7	1100 U7 HAK	●	91,5	108,0	155,0		
11,1	3	SDP 1110 U3 HAK	●	38,4	55,0	102,0	2,0	12,0
	5	1110 U5 HAK	●	54,4	71,0	118,0		
	7	1110 U7 HAK	●	99,4	116,0	163,0		
11,2	3	SDP 1120 U3 HAK	●	38,2	55,0	102,0	2,0	12,0
	5	1120 U5 HAK	●	54,2	71,0	118,0		
	7	1120 U7 HAK	●	99,2	116,0	163,0		
11,3	3	SDP 1130 U3 HAK	●	38,2	55,1	102,1	2,1	12,0
	5	1130 U5 HAK	●	54,2	71,1	118,1		
	7	1130 U7 HAK	●	99,2	116,1	163,1		
11,4	3	SDP 1140 U3 HAK	●	38,0	55,1	102,1	2,1	12,0
	5	1140 U5 HAK	●	54,0	71,1	118,1		
	7	1140 U7 HAK	●	99,0	116,1	163,1		
11,5	3	SDP 1150 U3 HAK	●	37,9	55,1	102,1	2,1	12,0
	5	1150 U5 HAK	●	53,9	71,1	118,1		
	7	1150 U7 HAK	●	98,9	116,1	163,1		

※ Remarks:
Non-Stock Items will be required minimum order quantity for 30 pcs.

● = Euro stock
❑ = Delivery on request

■ Solid Carbide Drill with Internal Coolant Supply, Ø 11,6–14,5 mm, 3D / 5D / 7D

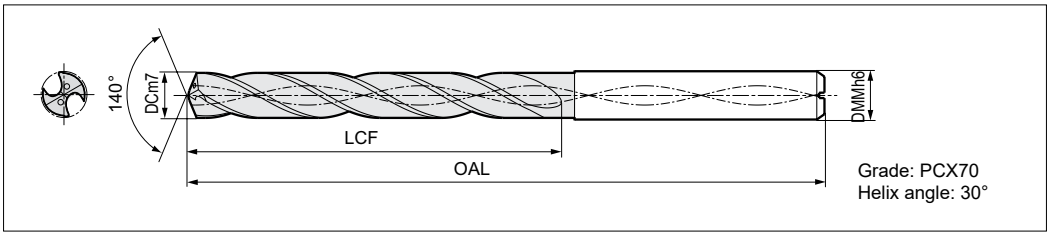


DC	L/D	Cat. No.	Stock	LU	LCF	OAL	PL	DCON
11,6	3	SDP 1160 U3 HAK	●	37,7	55,1	102,1	2,1	12,0
	5	1160 U5 HAK	●	53,7	71,1	118,1		
	7	1160 U7 HAK	●	98,7	116,1	163,1		
11,7	3	SDP 1170 U3 HAK	●	37,6	55,1	102,1	2,1	12,0
	5	1170 U5 HAK	●	53,6	71,1	118,1		
	7	1170 U7 HAK	●	98,6	116,1	163,1		
11,8	3	SDP 1180 U3 HAK	●	37,4	55,1	102,1	2,1	12,0
	5	1180 U5 HAK	●	53,4	71,1	118,1		
	7	1180 U7 HAK	●	98,4	116,1	163,1		
11,9	3	SDP 1190 U3 HAK	●	37,4	55,2	102,2	2,2	12,0
	5	1190 U5 HAK	●	53,4	71,2	118,2		
	7	1190 U7 HAK	●	98,4	116,2	163,2		
12,0	3	SDP 1200 U3 HAK	●	37,2	55,2	102,2	2,2	12,0
	5	1200 U5 HAK	●	53,2	71,2	118,2		
	7	1200 U7 HAK	●	98,2	116,2	163,2		
12,1	3	SDP 1210 U3 HAK	❑	42,1	60,2	107,2	2,2	14,0
	5	1210 U5 HAK	●	59,1	77,2	124,2		
	7	1210 U7 HAK	❑	117,1	135,2	182,2		
12,2	3	SDP 1220 U3 HAK	●	41,9	60,2	107,2	2,2	14,0
	5	1220 U5 HAK	●	58,9	77,2	124,2		
	7	1220 U7 HAK	●	116,9	135,2	182,2		
12,3	3	SDP 1230 U3 HAK	❑	41,8	60,2	107,2	2,2	14,0
	5	1230 U5 HAK	●	58,8	77,2	124,2		
	7	1230 U7 HAK	❑	116,8	135,2	182,2		
12,4	3	SDP 1240 U3 HAK	❑	41,7	60,3	107,3	2,3	14,0
	5	1240 U5 HAK	●	58,7	77,3	124,3		
	7	1240 U7 HAK	❑	116,7	135,3	182,3		
12,5	3	SDP 1250 U3 HAK	●	41,6	60,3	107,3	2,3	14,0
	5	1250 U5 HAK	●	58,6	77,3	124,3		
	7	1250 U7 HAK	●	116,6	135,3	182,3		
12,6	3	SDP 1260 U3 HAK	❑	41,4	60,3	107,3	2,3	14,0
	5	1260 U5 HAK	●	58,4	77,3	124,3		
	7	1260 U7 HAK	❑	116,4	135,3	182,3		
12,7	3	SDP 1270 U3 HAK	❑	41,3	60,3	107,3	2,3	14,0
	5	1270 U5 HAK	●	58,3	77,3	124,3		
	7	1270 U7 HAK	❑	116,3	135,3	182,3		
12,8	3	SDP 1280 U3 HAK	❑	41,1	60,3	107,3	2,3	14,0
	5	1280 U5 HAK	●	58,1	77,3	124,3		
	7	1280 U7 HAK	❑	116,3	135,3	182,3		
12,9	3	SDP 1290 U3 HAK	❑	41,0	60,3	107,3	2,3	14,0
	5	1290 U5 HAK	●	58,0	77,3	124,3		
	7	1290 U7 HAK	❑	116,0	135,3	182,3		
13,0	3	SDP 1300 U3 HAK	●	40,9	60,4	107,4	2,4	14,0
	5	1300 U5 HAK	●	57,9	77,4	124,4		
	7	1300 U7 HAK	●	115,9	135,4	182,4		

DC	L/D	Cat. No.	Stock	LU	LCF	OAL	PL	DCON
13,1	3	SDP 1310 U3 HAK	❑	40,8	60,4	107,4	2,4	14,0
	5	1310 U5 HAK	●	57,8	77,4	124,4		
	7	1310 U7 HAK	❑	115,8	135,4	182,4		
13,2	3	SDP 1320 U3 HAK	❑	40,6	60,4	107,4	2,4	14,0
	5	1320 U5 HAK	●	57,6	77,4	124,4		
	7	1320 U7 HAK	❑	115,6	135,4	182,4		
13,3	3	SDP 1330 U3 HAK	❑	40,5	60,4	107,4	2,4	14,0
	5	1330 U5 HAK	●	57,5	77,4	124,4		
	7	1330 U7 HAK	❑	115,5	135,4	182,4		
13,4	3	SDP 1340 U3 HAK	❑	40,3	60,4	107,4	2,4	14,0
	5	1340 U7 HAK	●	57,3	77,4	124,4		
	7	1340 U7 HAK	❑	115,3	135,4	182,4		
13,5	3	SDP 1350 U3 HAK	●	40,3	60,5	107,5	2,5	14,0
	5	1350 U5 HAK	●	57,3	77,5	124,5		
	7	1350 U7 HAK	●	115,3	135,5	182,5		
13,6	3	SDP 1360 U3 HAK	❑	40,1	60,5	107,5	2,5	14,0
	5	1360 U5 HAK	●	57,1	77,5	124,5		
	7	1360 U7 HAK	❑	115,1	135,5	182,5		
13,7	3	SDP 1370 U3 HAK	●	40,0	60,5	107,5	2,5	14,0
	5	1370 U5 HAK	●	57,0	77,5	124,5		
	7	1370 U7 HAK	●	115,0	135,5	182,5		
13,8	3	SDP 1380 U3 HAK	❑	39,8	60,5	107,5	2,5	14,0
	5	1380 U5 HAK	●	56,8	77,5	124,5		
	7	1380 U7 HAK	❑	114,8	135,5	182,5		
13,9	3	SDP 13900 U3 HAK	❑	39,7	60,5	107,5	2,5	14,0
	5	1390 U5 HAK	●	56,7	77,5	124,5		
	7	1390 U7 HAK	❑	114,7	135,5	182,5		
14,0	3	SDP 1400 U3 HAK	●	39,5	60,5	107,5	2,5	14,0
	5	1400 U5 HAK	●	56,5	77,5	124,5		
	7	1400 U7 HAK	●	114,5	135,5	182,5		
14,1	3	SDP 1410 U3 HAK	❑	43,5	64,6	114,6	2,6	16,0
	5	1410 U5 HAK	●	61,5	82,6	132,6		
	7	1410 U7 HAK	❑	132,5	153,6	203,6		
14,2	3	SDP 1420 U3 HAK	●	43,3	64,6	114,6	2,6	16,0
	5	1420 U5 HAK	●	61,3	82,6	132,6		
	7	1420 U7 HAK	●	132,3	153,6	203,6		
14,3	3	SDP 1430 U3 HAK	❑	43,2	64,6	114,6	2,6	16,0
	5	1430 U5 HAK	●	61,2	82,6	132,6		
	7	1430 U7 HAK	❑	132,2	153,6	203,6		
14,4	3	SDP 1440 U3 HAK	❑	43,0	64,6	114,6	2,6	16,0
	5	1440 U5 HAK	●	61,0	82,6	132,6		
	7	1440 U7 HAK	❑	132,0	153,6	203,6		
14,5	3	SDP 1450 U3 HAK	●	42,9	64,6	114,6	2,6	16,0
	5	1450 U5 HAK	●	60,9	82,6	132,6		
	7	1450 U7 HAK	●	131,9	153,6	203,6		

※ Remarks:
❑ Non-Stock Items will be required minimum order quantity for 30 pcs.

■ Solid Carbide Drill with Internal Coolant Supply, Ø 14,6–16,0 mm, 3D / 5D / 7D



DC	L/D	Cat. No.	Stock	LU	LCF	OAL	PL	DCON
14,6	3	SDP 1460 U3 HAK	❑	42,8	64,7	114,7	2,7	16,0
	5	1460 U5 HAK	●	60,8	82,7	132,7		
	7	1460 U7 HAK	❑	131,8	153,7	203,7		
14,7	3	SDP 1470 U3 HAK	●	42,7	64,7	114,7	2,7	16,0
	5	1470 U5 HAK	●	60,7	82,7	132,7		
	7	1470 U7 HAK	●	131,7	153,7	203,7		
14,8	3	SDP 1480 U3 HAK	❑	42,5	64,7	114,7	2,7	16,0
	5	1480 U5 HAK	●	60,5	82,7	132,7		
	7	1480 U7 HAK	❑	131,5	153,7	203,7		
14,9	3	SDP 1490 U3 HAK	❑	42,4	64,7	114,7	2,7	16,0
	5	1490 U5 HAK	●	60,4	82,7	132,7		
	7	1490 U7 HAK	❑	131,4	153,7	203,7		
15,0	3	SDP 1500 U3 HAK	●	42,2	64,7	114,7	2,7	16,0
	5	1500 U5 HAK	●	60,2	82,7	132,7		
	7	1500 U7 HAK	●	131,2	153,7	203,7		
15,1	3	SDP 1510 U3 HAK	❑	42,1	64,7	114,7	2,7	16,0
	5	1510 U5 HAK	●	60,1	82,7	132,7		
	7	1510 U7 HAK	❑	131,1	153,7	203,7		
15,2	3	SDP 1520 U3 HAK	●	42,0	64,8	114,8	2,8	16,0
	5	1520 U5 HAK	●	60,0	82,8	132,8		
	7	1520 U7 HAK	●	131,0	153,8	203,8		
15,3	3	SDP 1530 U3 HAK	❑	41,9	64,8	114,8	2,8	16,0
	5	1530 U5 HAK	●	59,9	82,8	132,8		
	7	1530 U7 HAK	❑	130,9	153,8	203,8		
15,4	3	SDP 1540 U3 HAK	❑	41,7	64,8	114,8	2,8	16,0
	5	1540 U5 HAK	●	59,7	82,8	132,8		
	7	1540 U7 HAK	❑	130,7	153,8	203,8		
15,5	3	SDP 1550 U3 HAK	●	41,6	64,8	114,8	2,8	16,0
	5	1550 U5 HAK	●	59,6	82,8	132,8		
	7	1550 U7 HAK	●	130,6	153,8	203,8		
15,6	3	SDP 1560 U3 HAK	❑	41,4	64,8	114,8	2,8	16,0
	5	1560 U5 HAK	●	59,4	82,8	132,8		
	7	1560 U7 HAK	❑	130,4	153,8	203,8		
15,7	3	SDP 1570 U3 HAK	●	41,4	64,9	114,9	2,9	16,0
	5	1570 U5 HAK	●	59,4	82,9	132,9		
	7	1570 U7 HAK	●	130,4	153,9	203,9		
15,8	3	SDP 1580 U3 HAK	❑	41,2	64,9	114,9	2,9	16,0
	5	1580 U5 HAK	●	59,2	82,9	132,9		
	7	1580 U7 HAK	❑	130,2	153,9	203,9		
15,9	3	SDP 1590 U3 HAK	❑	41,1	64,9	114,9	2,9	16,0
	5	1590 U5 HAK	●	59,1	82,9	132,9		
	7	1590 U7 HAK	❑	130,1	153,9	203,9		
16,0	3	SDP 1600 U3 HAK	●	40,9	64,9	114,9	2,9	16,0
	5	1600 U5 HAK	●	58,9	82,9	132,9		
	7	1600 U7 HAK	●	129,9	153,9	203,9		

※ Remarks:
❑ Non-Stock Items will be required minimum order quantity for 30 pcs.

● = Euro stock
❑ = Delivery on request

Recommended Cutting Conditions

Material Group						SDP_____U_HAK PCX70					
						Ø 3,0–6,0 mm		Ø 6,1–10,0 mm		Ø 10,1–16,0 mm	
ISO 513	Work Material	Type/ Structure	R_m N/mm²	Hardness HB30	Fitness	v_c=m/min	Feed rate (mm/rev)	v_c=m/min	Feed rate (mm/rev)	v_c=m/min	Feed rate (mm/rev)
P	Carbon steel Cast steel	free cutting steel construction steel case-hardened steel heat-treatable steel spring steel	420	125	◎	50–**80**–120	0,15–**0,20**–0,31	70–**110**–140	0,20–**0,25**–0,42	80–**120**–160	0,25–**0,30**–0,53
			650	190	◎	50–**80**–120	0,15–**0,20**–0,31	70–**110**–140	0,20–**0,25**–0,42	80–**120**–160	0,25–**0,30**–0,53
			850	250	◎	50–**80**–120	0,15–**0,20**–0,31	70–**110**–140	0,20–**0,25**–0,42	80–**120**–160	0,25–**0,30**–0,53
			750	270	◎	50–**80**–120	0,15–**0,20**–0,31	70–**110**–140	0,20–**0,25**–0,42	80–**120**–160	0,25–**0,30**–0,50
			1000	300	◎	10–**20**–30	0,05–**0,06**–0,11	15–**22**–30	0,08–**0,09**–0,14	20–**28**–35	0,08–**0,09**–0,16
	Low alloy steel Cast steel	case-hardened steel heat-treatable steel bearing steel nitriding steel cold work steel	600	180	◎	50–**70**–90	0,10–**0,14**–0,24	60–**80**–110	0,15–**0,20**–0,32	70–**100**–120	0,20–**0,25**–0,40
			930	275	◎	45–**65**–85	0,10–**0,14**–0,24	60–**80**–110	0,15–**0,22**–0,34	65–**95**–120	0,20–**0,25**–0,37
			1000	300	○	40–**60**–80	0,10–**0,15**–0,26	60–**80**–110	0,15–**0,20**–0,32	60–**90**–120	0,20–**0,25**–0,37
			1200	350	◎	35–**55**–75	0,10–**0,15**–0,26	55–**75**–110	0,15–**0,22**–0,32	55–**80**–110	0,20–**0,27**–0,38
	High alloy steel	tool steel hot work steel	680	200	○	30–**40**–50	0,10–**0,15**–0,25	30–**40**–50	0,12–**0,20**–0,28	30–**40**–50	0,12–**0,20**–0,32
			1100	325	○	20–**30**–40	0,10–**0,12**–0,23	20–**30**– 40	0,12–**0,15**–0,27	20–**30**–40	0,14–**0,18**–0,32
M	Stainless steel Cast steel	martensitic/ferritic	680	200	○	40–**55**–70	0,08–**0,10**–0,21	40–**60**–75	0,10–**0,12**–0,25	50–**70**–80	0,10–**0,12**–0,25
		martensitic	820	240	⊙	30–**45**–60	0,08–**0,10**–0,20	40–**60**–70	0,10–**0,12**–0,24	50–**60**–80	0,10–**0,12**–0,24
		austenitic	600	180	⊙	30–**45**–60	0,08–**0,10**–0,20	40–**60**–70	0,10–**0,12**–0,24	50–**60**–80	0,10–**0,12**–0,24
		Duplex	740	230	⊙	30–**45**–60	0,06–**0,08**–0,18	40–**60**–70	0,08–**0,10**–0,23	50–**60**–80	0,10–**0,10**–0,23
K	Cast iron GG	ferritic/pearlitic		180	◎	50–**70**–90	0,15–**0,20**–0,36	60–**80**–100	0,20–**0,25**–0,40	70–**100**–120	0,25–**0,30**–0,42
		pearlitic		260	◎	40–**60**–80	0,15–**0,20**–0,36	50–**70**–90	0,20–**0,25**–0,40	60–**80**–100	0,25–**0,30**–0,42
	Cast iron GGG	ferritic		160	◎	50–**70**–90	0,15–**0,18**–0,31	60–**80**–100	0,20–**0,25**–0,40	70–**100**–120	0,25–**0,30**–0,42
		pearlitic		250	◎	40–**60**–80	0,15–**0,18**–0,31	50–**70**–90	0,20–**0,25**–0,40	70–**80**–100	0,25–**0,30**–0,42
S	Heat resisting alloys	Fe-based			○	10–**20**–30	0,08–**0,09**–0,13	15–**22**–32	0,08–**0,10**–0,15	20–**28**–35	0,10–**0,12**–0,19
		Ni / Co-based			○	10–**20**–30	0,08–**0,09**–0,13	15–**22**–32	0,08–**0,10**–0,15	20–**28**–35	0,10–**0,12**–0,19
	Titanium Titanium alloys	pure Titanium	430								
		Ti-Basis			○	10–**20**–30	0,05–**0,06**–0,12	15–**22**–32	0,08–**0,09**–0,17	20–**28**–35	0,08–**0,09**–0,17
N	Aluminium Al-wrought alloys	pure aluminium									
		wrought alloys									
	Aluminium Cast alloys	Si ≤ 12%									
		Si ≥ 12%			⊙	70–**90**–100	0,15–**0,20**–0,25	80–**100**–120	0,20–**0,25**–0,30	100–**120**–140	0,25–**0,30**–0,35
		Al - Mg alloys									
	Zinc die-cast	Zn alloys									
	Copper alloys	Copper									
		Brass			○	80–**100**–120	0,15–**0,20**–0,25	110–**130**–180	0,20–**0,25**–0,30	160–**180**–200	0,25–**0,30**–0,35
		Bronze									
H	Hardened steel	45 HRC			○	10–**20**–30	0,08–**0,09**–0,10	15–**22**–32	0,08–**0,10**–0,12	20–**28**–35	0,12–**0,15**–0,20
		55 HRC									
		60 HRC									
		> 60 HRC									

◎ Preferred choice ○ Suitable ⊙ Possible

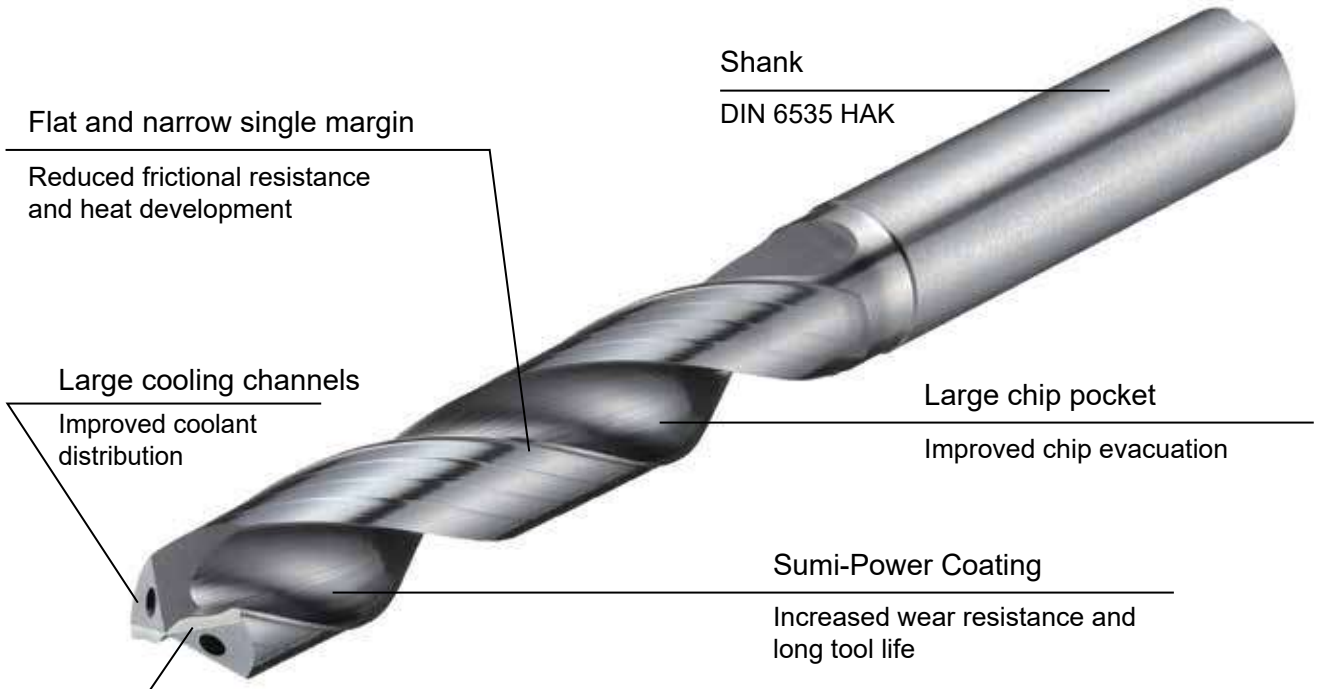
SDP-Identification

SDP **0800** **U** **3** **HAK** PCX70

- **SDP**: **S**umi-**D**rill **P**ower Type
- **0800**: Drill Diameter 8,0 mm
- **U**: Universal
- **3**: Drilling Depth 3D/5D/7D
- **HAK**: DIN 6535 Form HAK
- PCX70: Grade

SDM Type

General Features



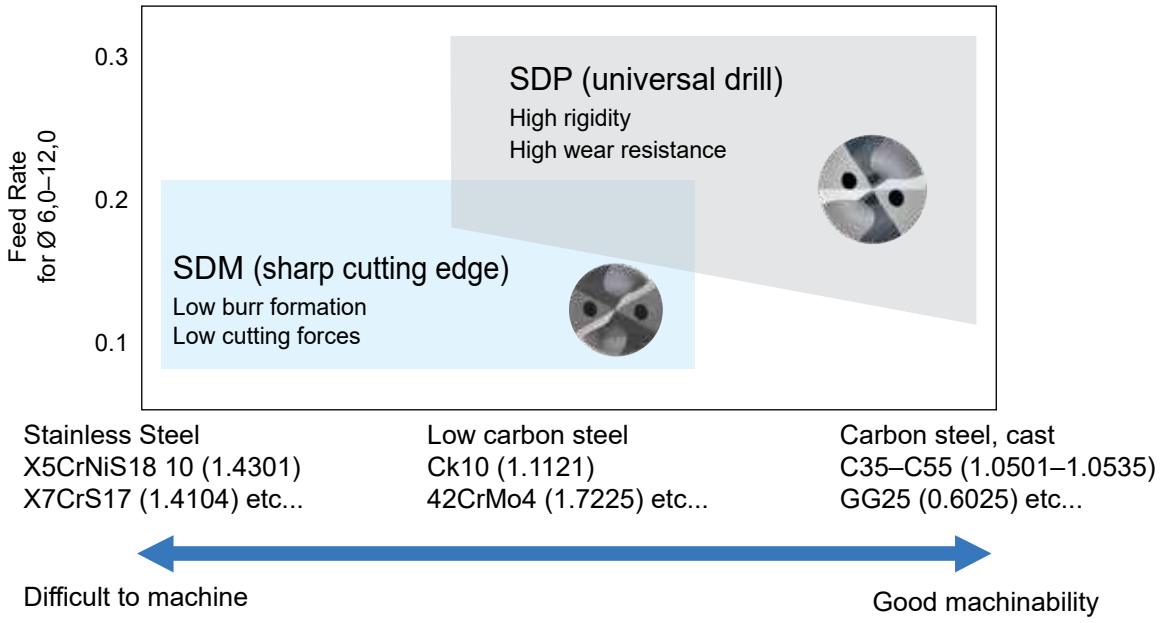
Stock Size

Ø 3,0 – Ø 12,0
Increment 0,1 mm

Ø 12,1 – Ø 16,0
Standard diameter

Advantages

- High process reliability in stainless steel and low carbon steel
- Can be used on low-performance machines! (→avoids overload!)
- High surface quality in the bore
- Sharp cutting edge
- High adhesion resistance by Sumi-Power Coating



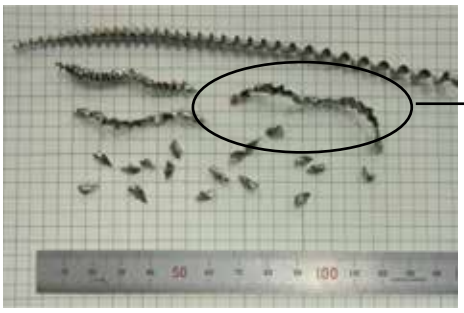
Chip Control

Drill:	Ø 8 mm, L/D = 5
Work Material:	X5CrNiS18 10 (1.4301)
Cutting D ata:	v_c=60m/min, f=0,10mm/rev, a_p=19mm Internal coolant (2,0MPa)

SDM

Short chips,
good chip evacuation

Competitor A



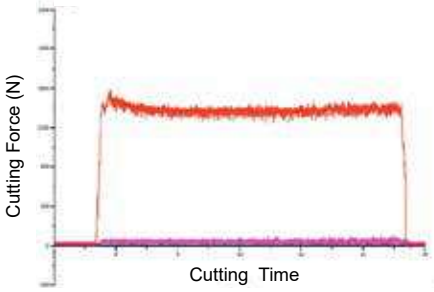
Partial long chips,
risk of tool breakage
by poor chip evacuation

Optimal Cutting Forces

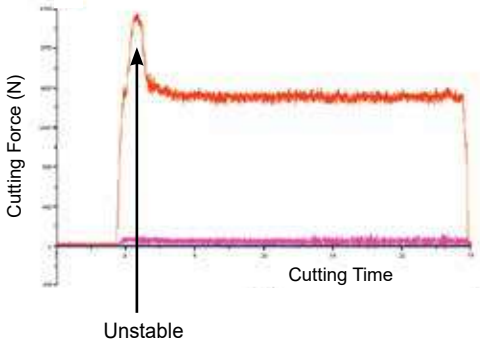
Drill:	Ø 8 mm, L/D = 5
Work Material:	X5CrNiS18 10 (1.4301)
Cutting Data:	v_c=60m/min, f=0,20mm/rev, a_p=40mm Internal coolant (2,0MPa)

10 % lower than competitor A

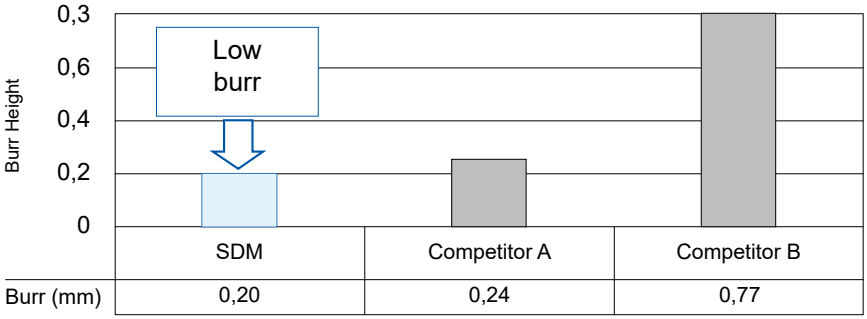
SDM



Competitor



Low Burr Formation



Drill:	Ø 8 mm, L/D = 5
Work Material:	X5CrNiS18 10 (1.4301)
Cutting Data:	v_c=60m/min, f=0,20mm/rev, a_p=40mm Internal coolant (2,0MPa)

SDM Competitor A Competitor B

Recommended Cutting Conditions

Material Group						SDM_____U_HAK PCX70					
ISO 513	Work Material	Type/ Structure	R_m N/mm²	Hardness HB30	Fitness	Ø 3,0–6,0 mm		Ø 6,1–10,0 mm		Ø 10,1–16,0 mm	
						v_c=m/min	Feed rate (mm/rev)	v_c=m/min	Feed rate (mm/rev)	v_c=m/min	Feed rate (mm/rev)
P	Carbon steel Cast steel	free cutting steel construction steel case-hardened steel heat-treatable steel spring steel	420	125	○	80–**100**–120	0,08–**0,11**–0,14	80–**100**–120	0,10–**0,15**–0,20	80–**100**–120	0,20–**0,25**–0,30
			650	190	○	80–**100**–120	0,08–**0,11**–0,14	80–**100**–120	0,10–**0,15**–0,20	80–**100**–120	0,20–**0,25**–0,30
			850	250	○	80–**100**–120	0,08–**0,11**–0,14	80–**100**–120	0,10–**0,15**–0,20	80–**100**–120	0,20–**0,25**–0,30
			750	270	○	40–**60**–100	0,08–**0,10**–0,12	40–**60**–100	0,10–**0,12**–0,16	40–**60**–100	0,15–**0,17**–0,20
			1000	300							
	Low alloy steel Cast steel	case-hardened steel heat-treatable steel bearing steel nitriding steel cold work steel	600	180	○	80–**100**–120	0,08–**0,11**–0,14	80–**100**–120	0,10–**0,15**–0,20	80–**100**–120	0,20–**0,25**–0,30
			930	275	○	40–**60**–100	0,08–**0,10**–0,12	40–**60**–100	0,10–**0,12**–0,16	40–**60**–100	0,15–**0,17**–0,20
			1000	300							
			1200	350							
	High alloy steel / Cast steel	tool steel hot work steel	680	200	○	40–**60**–100	0,08–**0,10**–0,12	40–**60**–100	0,10–**0,12**–0,16	40–**60**–100	0,15–**0,17**–0,20
			1100	325							
M	Stainless steel Cast steel	martensitic/ferritic	680	200	◉	40–**60**–100	0,08–**0,10**–0,12	40–**60**–100	0,10–**0,14**–0,18	40–**60**–100	0,15–**0,20**–0,25
		martensitic/ferritic		>200	◉	30–**50**–80	0,08–**0,10**–0,12	30–**50**–80	0,10–**0,14**–0,18	30–**50**–80	0,15–**0,20**–0,25
		martensitic	820	240	◉	30–**50**–80	0,08–**0,10**–0,12	30–**50**–80	0,10–**0,14**–0,18	30–**50**–80	0,15–**0,20**–0,25
		austenitic	600	180	◉	40–**60**–100	0,08–**0,10**–0,12	40–**60**–100	0,10–**0,14**–0,18	40–**60**–100	0,15–**0,20**–0,25
		austenitic		>200	◉	30–**50**–80	0,08–**0,10**–0,12	30–**50**–80	0,10–**0,14**–0,18	30–**50**–80	0,15–**0,20**–0,25
		Duplex	740	230	◉	30–**45**–70	0,08–**0,10**–0,12	30–**45**–70	0,10–**0,14**–0,18	30–**45**–70	0,15–**0,20**–0,25
		Precipation hardened		≤450	◉	30–**45**–70	0,08–**0,10**–0,12	30–**45**–70	0,10–**0,14**–0,18	30–**45**–70	0,15–**0,20**–0,25
K	Cast iron GG	ferritic/pearlitic		180							
		pearlitic		260							
	Cast iron GGG	ferritic		160							
		pearlitic		250							
S	Heat resisting alloys	Fe-based			○	20–**30**–40	0,06–**0,08**–0,10	20–**30**–40	0,08–**0,10**–0,12	20–**30**–40	0,10–**0,12**–0,15
		Ni / Co-based			○	20–**30**–40	0,06–**0,08**–0,10	20–**30**–40	0,08–**0,10**–0,12	20–**30**–40	0,10–**0,12**–0,15
	Titanium Titanium alloys	pure Titanium	430								
		Ti-Basis			○	20–**30**–40	0,06–**0,08**–0,10	20–**30**–40	0,08–**0,10**–0,12	20–**30**–40	0,10–**0,12**–0,15
N	Aluminium	pure aluminium									
		wrought alloys									
	Aluminium Cast alloys	Si ≤ 12%									
		Si ≥ 12%									
		Al - Mg alloys									
	Zinc die-cast	Zn alloys									
	Copper alloys	Copper									
		Brass									
		Bronze									
H	Hardened steel	45 HRC									
		55 HRC									
		60 HRC									
		>60 HRC									

◉ Preferred choice ○ Possible

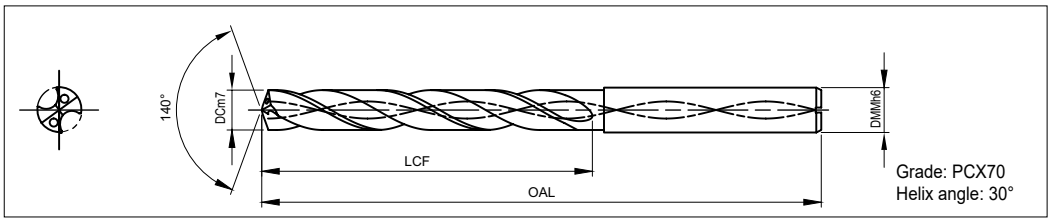
SDM-Identification

SDM **0800** **U** **3** **HAK** PCX70

- **SDM**: **S**umi-**D**rill **M** (ISO-Code)
- **0800**: Drill Diameter 8,0 mm
- **U**: Universal
- **3**: Drilling Depth 3D/5D
- **HAK**: DIN 6535 Form HAK
- PCX70: Grade

● = Euro stock
❑ = Delivery on request

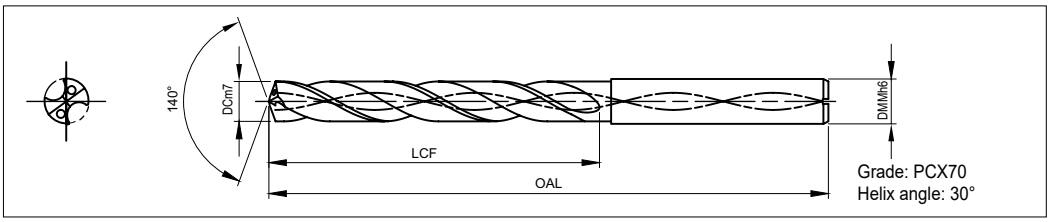
■ Solid Carbide Drill with Internal Coolant Supply, Ø 3,0–7,5 mm, 3D / 5D



DC (mm)	DMM (mm)	Cat. No. (L/D) 3/5	3D Type			5D Type		
			Stock	Dimensions (mm)		Stock	Dimensions (mm)	
			3	OAL	LCF	5	OAL	LCF
3,0	6	SDM 0300 U □ HAK	●	62	17	●	66	24
3,1		SDM 0310 U □ HAK	●			●		
3,2		SDM 0320 U □ HAK	●			●		
3,25		SDM 0325 U □ HAK	❑			❑		
3,3		SDM 0330 U □ HAK	●			●		
3,4		SDM 0340 U □ HAK	●			●		
3,5		SDM 0350 U □ HAK	●			●		
3,6		SDM 0360 U □ HAK	●			●		
3,7		SDM 0370 U □ HAK	●			●		
3,8		SDM 0380 U □ HAK	●	66	21	●	74	33
3,9		SDM 0390 U □ HAK	●			●		
4,0		SDM 0400 U □ HAK	●			●		
4,1		SDM 0410 U □ HAK	●			●		
4,2		SDM 0420 U □ HAK	●			●		
4,3		SDM 0430 U □ HAK	●			●		
4,4		SDM 0440 U □ HAK	●			●		
4,5		SDM 0450 U □ HAK	●			●		
4,6		SDM 0460 U □ HAK	●			●		
4,65		SDM 0465 U □ HAK	❑			❑		
4,7		SDM 0470 U □ HAK	●			●		
4,8		SDM 0480 U □ HAK	●		25	●	82	41
4,9		SDM 0490 U □ HAK	●			●		
5,0		SDM 0500 U □ HAK	●			●		
5,1		SDM 0510 U □ HAK	●			●		
5,2		SDM 0520 U □ HAK	●			●		
5,3		SDM 0530 U □ HAK	●			●		
5,4		SDM 0540 U □ HAK	●			●		
5,5		SDM 0550 U □ HAK	●			●		
5,55		SDM 0555 U □ HAK	❑			❑		
5,6		SDM 0560 U □ HAK	●			●		
5,7		SDM 0570 U □ HAK	●			●		
5,8		SDM 0580 U □ HAK	●			●		
5,9		SDM 0590 U □ HAK	●			●		
6,0		SDM 0600 U □ HAK	●			●		
6,1	8	SDM 0610 U □ HAK	●	79	31	●	91	50
6,2		SDM 0620 U □ HAK	●			●		
6,3		SDM 0630 U □ HAK	●			●		
6,4		SDM 0640 U □ HAK	●			●		
6,5		SDM 0650 U □ HAK	●			●		
6,6		SDM 0660 U □ HAK	●			●		
6,7		SDM 0670 U □ HAK	●			●		
6,8		SDM 0680 U □ HAK	●			●		
6,9		SDM 0690 U □ HAK	●			●		
7,0		SDM 0700 U □ HAK	●			●		
7,1		SDM 0710 U □ HAK	●		37	●		
7,2		SDM 0720 U □ HAK	●			●		
7,3		SDM 0730 U □ HAK	●			●		
7,4		SDM 0740 U □ HAK	●			●		
7,5		SDM 0750 U □ HAK	●			●		

SDM Type

■ Solid Carbide Drill with Internal Coolant Supply, Ø 7,6–12,0 mm, 3D / 5D

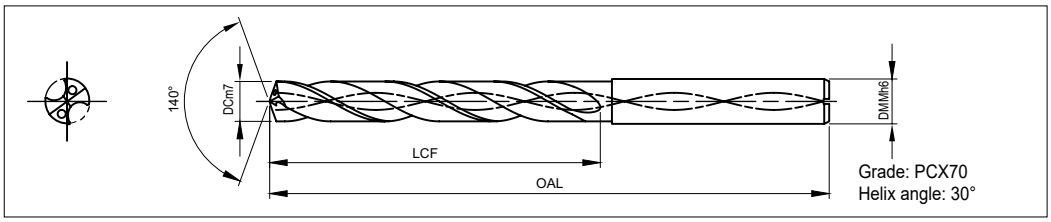


DC (mm)	DMM (mm)	Cat. No. (L/D) 3/5	3D Type			5D Type		
			Stock	Dimensions (mm)		Stock	Dimensions (mm)	
			3	OAL	LCF	5	OAL	LCF
7,6	8	SDM 0760 U □ HAK	●	79	37	●	91	50
7,7		SDM 0770 U □ HAK	●			●		
7,8		SDM 0780 U □ HAK	●			●		
7,9		SDM 0790 U □ HAK	●			●		
8,0		SDM 0800 U □ HAK	●			●		
8,1	10	SDM 0810 U □ HAK	●	89	43	●	103	57
8,2		SDM 0820 U □ HAK	●			●		
8,3		SDM 0830 U □ HAK	●			●		
8,4		SDM 0840 U □ HAK	●			●		
8,5		SDM 0850 U □ HAK	●			●		
8,6		SDM 0860 U □ HAK	●			●		
8,7		SDM 0870 U □ HAK	●			●		
8,8		SDM 0880 U □ HAK	●			●		
8,9		SDM 0890 U □ HAK	●			●		
9,0		SDM 0900 U □ HAK	●			●		
9,1		SDM 0910 U □ HAK	●			●		
9,2		SDM 0920 U □ HAK	●			●		
9,25		SDM 0925 U □ HAK	❑			❑		
9,3		SDM 0930 U □ HAK	●			●		
9,4		SDM 0940 U □ HAK	●			●		
9,5		SDM 0950 U □ HAK	●			●		
9,6		SDM 0960 U □ HAK	●			●		
9,7		SDM 0970 U □ HAK	●			●		
9,8		SDM 0980 U □ HAK	●			●		
9,9		SDM 0990 U □ HAK	●			●		
10,0		SDM 1000 U □ HAK	●			●		
10,1	12	SDM 1010 U □ HAK	●	102	51	●	118	67
10,2		SDM 1020 U □ HAK	●			●		
10,3		SDM 1030 U □ HAK	●			●		
10,4		SDM 1040 U □ HAK	●			●		
10,5		SDM 1050 U □ HAK	●			●		
10,6		SDM 1060 U □ HAK	●			●		
10,7		SDM 1070 U □ HAK	●			●		
10,8		SDM 1080 U □ HAK	●			●		
10,9		SDM 1090 U □ HAK	●			●		
11,0		SDM 1100 U □ HAK	●			●		
11,1		SDM 1110 U □ HAK	●			●		
11,2		SDM 1120 U □ HAK	●			●		
11,3		SDM 1130 U □ HAK	●			●		
11,4		SDM 1140 U □ HAK	●			●		
11,5		SDM 1150 U □ HAK	●			●		
11,6		SDM 1160 U □ HAK	●			●		
11,7		SDM 1170 U □ HAK	●			●		
11,8		SDM 1180 U □ HAK	●			●		
11,9		SDM 1190 U □ HAK	●			●		
12,0		SDM 1200 U □ HAK	●			●		

● = Euro stock
❑ = Delivery on request

SDM Type

■ Solid Carbide Drill with Internal Coolant Supply, Ø 12,0–16,0 mm, 3D / 5D



DC (mm)	DMM (mm)	Cat. No. (L/D) 3/5	3D Type			5D Type		
			Stock	Dimensions (mm)		Stock	Dimensions (mm)	
			3	OAL	LCF	5	OAL	LCF
12,1	14	SDM 1210 U □ HAK	❑	107	56	❑	124	73
12,2		SDM 1220 U □ HAK	❑			❑		
12,3		SDM 1230 U □ HAK	❑			❑		
12,4		SDM 1240 U □ HAK	❑			❑		
12,5		SDM 1250 U □ HAK	●			●		
12,6		SDM 1260 U □ HAK	❑			❑		
12,7		SDM 1270 U □ HAK	❑			❑		
12,8		SDM 1280 U □ HAK	❑			❑		
12,9		SDM 1290 U □ HAK	❑			❑		
13,0		SDM 1300 U □ HAK	●			●		
13,1		SDM 1310 U □ HAK	❑			❑		
13,2		SDM 1320 U □ HAK	❑			❑		
13,3		SDM 1330 U □ HAK	❑			❑		
13,4		SDM 1340 U □ HAK	❑			❑		
13,5		SDM 1350 U □ HAK	●			●		
13,6		SDM 1360 U □ HAK	❑			❑		
13,7		SDM 1370 U □ HAK	❑			❑		
13,8		SDM 1380 U □ HAK	❑			❑		
13,9		SDM 1390 U □ HAK	❑			❑		
14,0		SDM 1400 U □ HAK	●			●		
14,1	16	SDM 1410 U □ HAK	❑	115	60	❑	133	78
14,2		SDM 1420 U □ HAK	❑			❑		
14,3		SDM 1430 U □ HAK	❑			❑		
14,4		SDM 1440 U □ HAK	❑			❑		
14,5		SDM 1450 U □ HAK	●			●		
14,6		SDM 1460 U □ HAK	❑			❑		
14,7		SDM 1470 U □ HAK	❑			❑		
14,8		SDM 1480 U □ HAK	❑			❑		
14,9		SDM 1490 U □ HAK	❑			❑		
15,0		SDM 1500 U □ HAK	●			●		
15,1		SDM 1510 U □ HAK	❑			❑		
15,2		SDM 1520 U □ HAK	❑			❑		
15,3		SDM 1530 U □ HAK	❑			❑		
15,4		SDM 1540 U □ HAK	❑			❑		
15,5		SDM 1550 U □ HAK	●			●		
15,6		SDM 1560 U □ HAK	❑			❑		
15,7		SDM 1570 U □ HAK	❑			❑		
15,8		SDM 1580 U □ HAK	❑			❑		
15,9		SDM 1590 U □ HAK	❑			❑		
16,0		SDM 1600 U □ HAK	●			●		

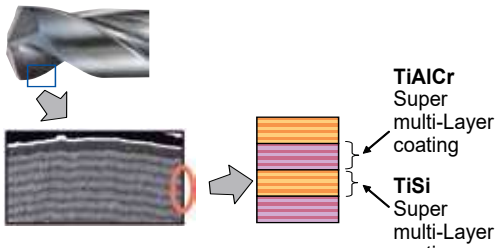
DEX Coating

General Features

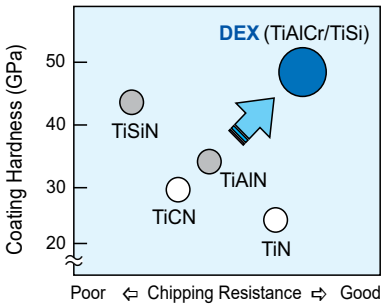
- Sumitomo Electric Hardmetal's next-generation drill coating utilises nano-coating technology to provide more than double the tool life of conventional coatings.
- Silicon and chrome improve usure, heat, and adhesion resistance.
- New super multi-layered structure offers significantly improved chip resistance (coating strength).

Characteristics

- Coating Design
  World's first combined super multi-layered coating is made from alternate layers of super multilayered substrates.



- Characteristics of Films



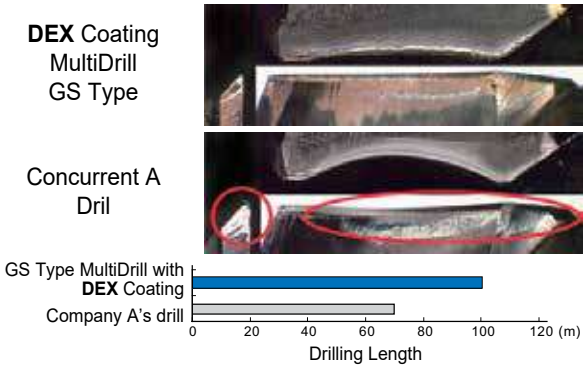
DEX Coat Application Examples

- MultiDrill GS Type Drilling Examples

Comparison of Usure Resistance

Edge Usure Comparison for 70 m Drilling

Shoulder and rake face feature improved usure resistance enabling long tool life.

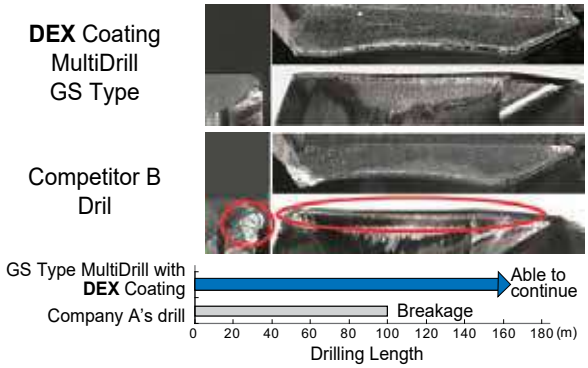


Tool:	MDW 0800 GS4
Work Material:	C50 (HB200)
Cutting Conditions:	v_c = 70 m/min, f = 0,25 mm/rev, a_p = 32 mm External coolant (Water soluble)

Comparison of Adhesion Resistance

Edge Usure Comparison for 100 m Drilling

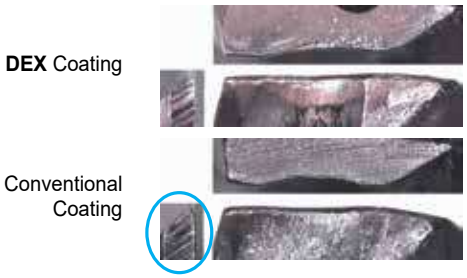
Offers significantly improved fracture resistance to counter problems caused by shoulder and flute adhesion in soft steel drilling.



Tool:	MDW 0600 GS4
Work Material:	15CrMo5 (HB120)
Cutting Conditions:	v_c = 60 m/min, f = 0,18 mm/rev, a_p = 18 mm External coolant (Water soluble)

- Long MultiDrill XHT Type Drilling Examples

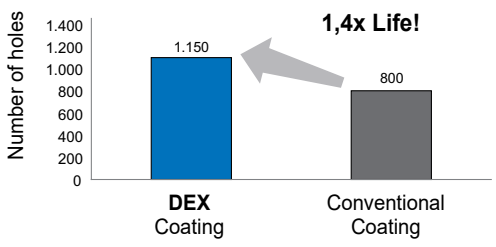
Reduced margin usure during deep hole MQL drilling increases number of regrinds.



Tool:	MDW 0497 XHT20 (Ø 4,97 L/D = 29)
Work Material:	42CrMo4 (HB275) Crank Shaft
Cutting Conditions:	v_c= 70 m/min, f = 0,23 mm/rev, a_p = 75 mm MQL

- MultiDrill SMD Type Drilling Examples

Offers longer tool life with SEC MultiDrills as well.



Tool:	SMDH 210 M (Ø 21,0)
Work Material:	36Mn5 (HB350) Construction Mashine Componemt
Cutting Conditions:	v_c = 60 m/min, f = 0,25 mm/rev, a_p = 25 mm Water soluble Coolant

SUPER MULTI-DRILLS
GS Type

General Features

Super MultiDrill GS types are solid carbide drills that employ a new flute design and wide chip pocket to achieve excellent chip management and evacuation.
DEX coating enables stable and long tool life over a wide range of work materials and applications.

Characteristics and Applications

- **Long tool life**
  New cutting edge design and special DEX coating provide long tool life with a wide variety of work materials.
- **Stable chip evacuation**
  New flute shape significantly improves chip management and evacuation.
- **Quiet cutting and stable cutting resistance**
  Stable drilling with little wobble even in small machine applications.
- **Environmentally-friendly**
  Compatible with the MQL (Minimum Quantity Lubrication) system.

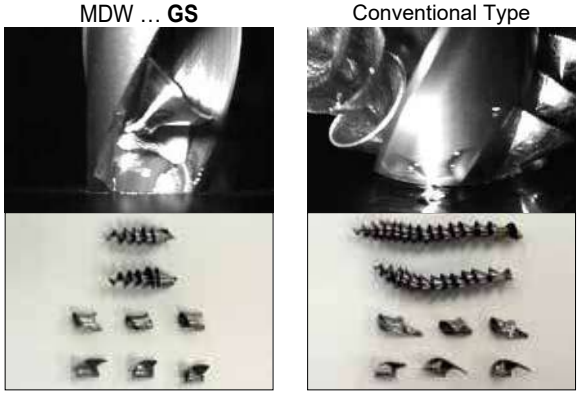
Series

Coolant Supply	Type	Diameter Range (mm)	Hole Depth (L/D)
External (GS Type)	MDW □□□□ GS2	Ø 0,8 – 16,0	–2
	MDW □□□□ GS4		–4

Performance

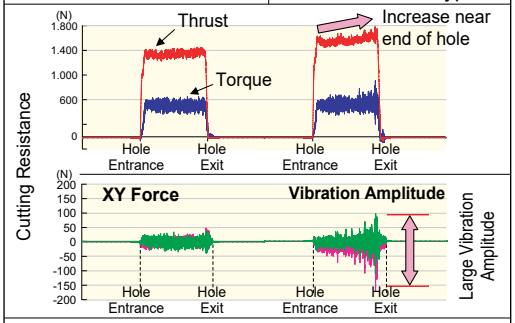
Chip Management

MDW … **GS** | Conventional Type



Performance Comparison

MDW … **GS** | Conventional Type



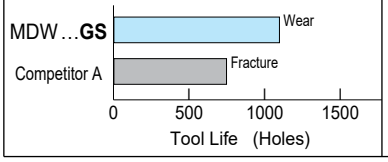
GS type provides stable drill behaviour throughout the drilling process.

Tool: MDW 0800 GS4
Work Material: C50 (HB200)
Cutting Conditions: v_c = 80 m/min, f = 0,25 mm/rev, a_p = 24 mm
External Coolant (Water Soluble)

Application Examples

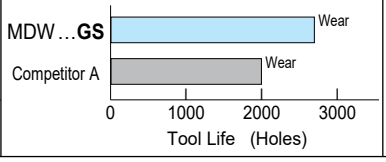
● Automotive Component
C43 (HB250)

Drill: MDW 0970 GS4 (Ø 9,7 mm)
Cutting Data: v_c = 80 m/min, f = 0,25 mm/rev
a_p = 25 mm
External Coolant (Water Soluble)



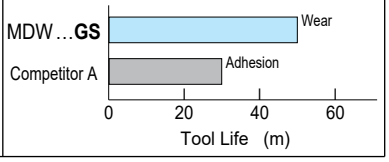
● Boron Steel Machine Component
(HRC30)

Drill: MDW 0980 GS2 (Ø 9,8 mm)
Cutting Data: v_c = 70 m/min, f = 0,15 mm/rev
a_p = 7 mm
External Coolant (Water Soluble)



● Machine Component
USt.42-2

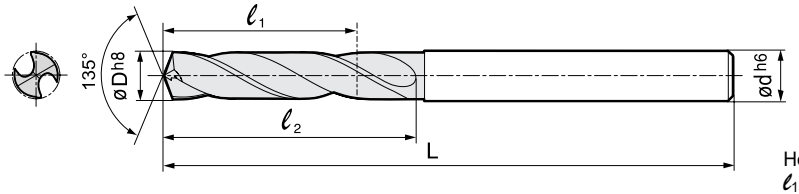
Drill: MDW 0800 GS4 (Ø 8,0 mm)
Cutting Data: v_c = 80 m/min, f = 0,25 mm/rev
a_p =25 mm
Internal Coolant (Water Soluble)



MDW ... GS Type

Without Coolant Holes (2D/4D)

"Super Multi-Layer" DEX (TiAlCr/TiSi) Coated Solid Carbide Drills



Helix angle: 30°
ℓ_1 = Effective drilling length

● Diameter Ø 2,0–6,0 mm

(mm)

Dimensions DC	ød	Cat. No. 2, 4	Short Type (2D) Stock 2	Short Type (2D) Dimensions L	ℓ_1	ℓ_2	Long Type (4D) Stock 4	Long Type (4D) Dimensions L	ℓ_1	ℓ_2
2,0	3,0	MDW 0200 GS□	❍	45,4	6,0	8,4	❍	49,4	13,0	15,4
2,1	3,0	MDW 0210 GS□	❍	45,6	7,3	10,5	❍	49,6	14,5	17,5
2,2		MDW 0220 GS□	❍				❍			
2,3		MDW 0230 GS□	❍				❍			
2,4		MDW 0240 GS□	❍				❍			
2,5		MDW 0250 GS□	●				❍			
2,6		MDW 0260 GS□	●		9,8	13,6	❍		16,0	19,6
2,7		MDW 0270 GS□	❍				❍			
2,8		MDW 0280 GS□	●				❍			
2,9		MDW 0290 GS□	❍				❍			
3,0		MDW 0300 GS□	●				❍			
3,1	4,0	MDW 0310 GS□	●	54,8	15,5	19,7	❍	60,8	20,5	24,7
3,2		MDW 0320 GS□	❍				❍			
3,3		MDW 0330 GS□	❍				❍			
3,4		MDW 0340 GS□	●				❍			
3,5		MDW 0350 GS□	●				❍			
3,6		MDW 0360 GS□	❍		17,0	21,8	❍		23,0	27,8
3,7		MDW 0370 GS□	❍				❍			
3,8		MDW 0380 GS□	❍				❍			
3,9		MDW 0390 GS□	❍				❍			
4,0		MDW 0400 GS□	●				❍			
4,1	5,0	MDW 0410 GS□	❍	62,0	18,5	23,9	❍	77,0	25,5	31,9
4,2		MDW 0420 GS□	❍				❍			
4,3		MDW 0430 GS□	❍				❍			
4,4		MDW 0440 GS□	❍				❍			
4,5		MDW 0450 GS□	❍				❍			
4,6		MDW 0460 GS□	❍		20,0	26,0	❍		33,0	39,0
4,7		MDW 0470 GS□	❍				❍			
4,8		MDW 0480 GS□	❍				❍			
4,9		MDW 0490 GS□	❍				❍			
5,0		MDW 0500 GS□	●				●			
5,1	6,0	MDW 0510 GS□	❍	66,2	19,5	26,1	●	82,2	33,5	40,1
5,2		MDW 0520 GS□	❍				❍			
5,3		MDW 0530 GS□	❍				❍			
5,4		MDW 0540 GS□	❍				❍			
5,5		MDW 0550 GS□	●				●			
5,6		MDW 0560 GS□	❍		21,0	28,2	❍		35,0	42,2
5,7		MDW 0570 GS□	❍				❍			
5,8		MDW 0580 GS□	❍				❍			
5,9		MDW 0590 GS□	❍				❍			
6,0		MDW 0600 GS□	●				●			

● Diameter Ø 6,1–10,0 mm

(mm)

Dimensions DC	ød	Cat. No. 2, 4	Short Type (2D) Stock 2	Short Type (2D) Dimensions L	ℓ_1	ℓ_2	Long Type (4D) Stock 4	Long Type (4D) Dimensions L	ℓ_1	ℓ_2
6,1	7,0	MDW 0610 GS□	❍	74,5	24,5	32,3	❍	84,3	35,5	43,3
6,2		MDW 0620 GS□	❍				❍			
6,3		MDW 0630 GS□	❍				❍			
6,4		MDW 0640 GS□	❍				❍			
6,5		MDW 0650 GS□	●				❍			
6,6		MDW 0660 GS□	❍		26,1	34,5			36,1	44,5
6,7		MDW 0670 GS□	❍				❍			
6,8		MDW 0680 GS□	❍				●			
6,9		MDW 0690 GS□	❍				❍			
7,0		MDW 0700 GS□	●				❍			
7,1	8,0	MDW 0710 GS□	❍	79,7	25,6	34,6	❍	91,7	37,6	46,6
7,2		MDW 0720 GS□	❍				❍			
7,3		MDW 0730 GS□	❍				❍			
7,4		MDW 0740 GS□	❍				❍			
7,5		MDW 0750 GS□	●				❍			
7,6		MDW 0760 GS□	❍		28,1	37,7	❍		40,1	49,7
7,7		MDW 0770 GS□	❍				❍			
7,8		MDW 0780 GS□	❍				❍			
7,9		MDW 0790 GS□	❍				❍			
8,0		MDW 0800 GS□	●				●			
8,1	9,0	MDW 0810 GS□	❍	83,9	27,4	37,8	❍	99,9	34,4	54,8
8,2		MDW 0820 GS□	❍				❍			
8,3		MDW 0830 GS□	❍				❍			
8,4		MDW 0840 GS□	❍				❍			
8,5		MDW 0850 GS□	❍				●			
8,6		MDW 0860 GS□	❍		29,1	39,9	❍		46,1	56,9
8,7		MDW 0870 GS□	❍				❍			
8,8		MDW 0880 GS□	❍				❍			
8,9		MDW 0890 GS□	❍				❍			
9,0		MDW 0900 GS□	❍				❍			
9,1	10,0	MDW 0910 GS□	❍	89,0	28,6	40,0	❍	107,0	48,6	60,0
9,2		MDW 0920 GS□	❍				❍			
9,3		MDW 0930 GS□	❍				❍			
9,4		MDW 0940 GS□	❍				❍			
9,5		MDW 0950 GS□					❍			
9,6		MDW 0960 GS□	❍		30,0	42,0	❍		50,0	62,0
9,7		MDW 0970 GS□	❍				❍			
9,8		MDW 0980 GS□	❍				❍			
9,9		MDW 0990 GS□	❍				❍			
10,0		MDW 1000 GS□	●				●			

■ Recommended Cutting Conditions for Multi-Drills GS Type

Diameter (mm)		Soft Steels (–200 HB)	General Steels (–300 HB)	Stainless Steels (–200 HB)	Grey Cast Irons	Ductile Cast Irons
–Ø 3	v_c	30–**50**–70	30–**45**–60	10–**30**–40	40–**70**–90	35–**55**–75
	f	0,12–0,20	0,10–0,20	0,06–0,12	0,15–0,30	0,12–0,20
–Ø 5	v_c	40–**70**–100	40–**60**–80	15–**40**–55	40–**70**–90	40–**60**–80
	f	0,15–0,25	0,15–0,25	0,08–0,15	0,15–0,30	0,15–0,25
–Ø 10	v_c	50–**80**–130	50–**70**–110	15–**45**–60	50–**80**–120	50–**70**–100
	f	0,20–0,35	0,20–0,35	0,10–0,20	0,20–0,35	0,20–0,35
–Ø 16	v_c	60–**90**–140	60–**80**–120	20–**50**–60	60–**90**–120	50–**70**–100
	f	0,25–0,35	0,25–0,35	0,10–0,20	0,25–0,35	0,25–0,35

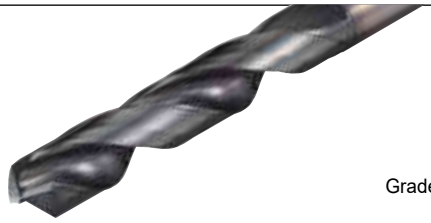
(v_c : Cutting Speed (m/min), f : Feed Rate (mm/rev)) (Min – **Standard** – Max)

● = Euro stock
○ = Japan stock

MDW ... GS Type

GS Type for General Purpose Drilling of Steels

● GS Type



Grade: ACX70

● Diameter Ø 10,1–13,0 mm

(mm)

Dimensions		Cat. No.	Short Type (2D)				Long Type (4D)			
			Stock	Dimensions			Stock	Dimensions		
DC (mm)	ød	2, 4 ↘	2	L	ℓ_1	ℓ_2	4	L	ℓ_1	ℓ_2
10,1	11,0	MDW 1010 GS□	❍	95,3	30,6	43,2	❍	116,2	55,6	68,2
10,2		MDW 1020 GS□	●				●			
10,3		MDW 1030 GS□	❍				❍			
10,4		MDW 1040 GS□	❍				❍			
10,5		MDW 1050 GS□	●							
10,6		MDW 1060 GS□	❍		34,1	47,3	❍		57,1	70,3
10,7		MDW 1070 GS□	❍				❍			
10,8		MDW 1080 GS□	❍				❍			
10,9		MDW 1090 GS□	❍				❍			
11,0		MDW 1100 GS□	❍				●			
11,1	12,0	MDW 1110 GS□	❍	102,5	33,6	47,4	❍	123,5	59,6	73,4
11,2		MDW 1120 GS□	❍				❍			
11,3		MDW 1130 GS□	❍				❍			
11,4		MDW 1140 GS□	❍				❍			
11,5		MDW 1150 GS□								
11,6		MDW 1160 GS□	❍		35,1	49,5	❍		61,1	75,5
11,7		MDW 1170 GS□	❍				❍			
11,8		MDW 1180 GS□	❍				❍			
11,9		MDW 1190 GS□	❍				❍			
12,0		MDW 1200 GS□	●				●			
12,1	13,0	MDW 1210 GS□	❍	102,7	34,6	49,6	❍	139,7	63,6	78,6
12,2		MDW 1220 GS□	❍				❍			
12,3		MDW 1230 GS□	❍				❍			
12,4		MDW 1240 GS□	❍				❍			
12,5		MDW 1250 GS□	❍				❍			
12,6		MDW 1260 GS□	❍		36,1	51,7	❍		65,1	80,7
12,7		MDW 1270 GS□	❍				❍			
12,8		MDW 1280 GS□	❍				❍			
12,9		MDW 1290 GS□	❍				❍			
13,0		MDW 1300 GS□	❍				❍			

● Diameter Ø 13,1–16,0 mm

(mm)

Dimensions		Cat. No.	Short Type (2D)				Long Type (4D)			
			Stock	Dimensions			Stock	Dimensions		
DC (mm)	ød	2, 4 ↘	2	L	ℓ_1	ℓ_2	4	L	ℓ_1	ℓ_2
13,1	14,0	MDW 1310 GS□	❍	107,9	36,6	52,8	❍	149,9	70,2	86,8
13,2		MDW 1320 GS□	❍				❍			
13,3		MDW 1330 GS□	❍				❍			
13,4		MDW 1340 GS□	❍				❍			
13,5		MDW 1350 GS□	❍				❍			
13,6		MDW 1360 GS□	❍		38,1	54,9	❍		72,1	88,9
13,7		MDW 1370 GS□	❍				❍			
13,8		MDW 1380 GS□	❍				❍			
13,9		MDW 1390 GS□	❍				❍			
14,0		MDW 1400 GS□	❍				❍			
14,1	15,0	MDW 1410 GS□	❍	111,1	37,6	55,0	❍	156,1	74,6	92,0
14,2		MDW 1420 GS□	❍				❍			
14,3		MDW 1430 GS□	❍				❍			
14,4		MDW 1440 GS□	❍				❍			
14,5		MDW 1450 GS□	❍				❍			
14,6		MDW 1460 GS□	❍		38,1	56,1	❍		76,1	94,1
14,7		MDW 1470 GS□	❍				❍			
14,8		MDW 1480 GS□	❍				❍			
14,9		MDW 1490 GS□	❍				❍			
15,0		MDW 1500 GS□	❍				❍			
15,1	16,0	MDW 1510 GS□	❍	115,5	37,6	56,2	❍	169,3	78,6	97,2
15,2		MDW 1520 GS□	❍				❍			
15,3		MDW 1530 GS□	❍				❍			
15,4		MDW 1540 GS□	❍				❍			
15,5		MDW 1550 GS□	❍				❍			
15,6		MDW 1560 GS□	❍		39,1	58,3	❍		80,1	99,3
15,7		MDW 1570 GS□	❍				❍			
15,8		MDW 1580 GS□	❍				❍			
15,9		MDW 1590 GS□	❍				❍			
16,0		MDW 1600 GS□	❍				❍			

■ How to Order

Non-Stock Items will be required minimum order quantity for 6 pcs.
Please specify the Cat. No. For example, if the diameter of the drill is 10,2 mm, please indicate as follow.

E.g., **MDW 1020 GS 2/4,** ACX70 (Grade)

- **MDW**: SUPER MULTI-DRILLs
- **1020**: Drill diameter **10,2** mm
- **GS**: **GS** type MULTI-DRILLs
- **2/4**: Drilling depth (The ratio to ØD): –2 / –4

General Features

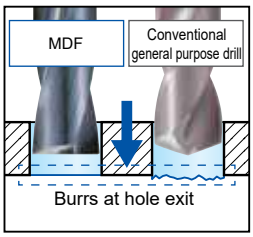
The flat MultiDrill MDF type is a solid carbide drill that can be used for various purposes including high-efficiency spot facing and drilling in inclined and curved surfaces.

Advantages

- Can be used in a variety of drilling applications thanks to its point angle of 180°
  Applicable to high-efficiency spot facing, drilling in non-horizontal surfaces such as inclined and cylindrical surfaces and interrupted drilling. It also reduces burrs at hole exits.
- Improved machining stability
  Achieves high rigidity by employing RS THINNING, which ensures web thickness on the bottom face.
- Excellent chip evacuation performance
  Achieves excellent chip evacuation thanks to its wide chip pocket and high-quality rake face shape.
- Excellent cutting edge strength
  Achieves excellent cutting edge strength thanks to optimized cutting edge design.
- Expanded lineup of long type
  An expanded lineup of long type drills with diameters between Ø 3,0 and Ø 20,0 mm that are capable of drilling with an overhang length up to L/D = 10.
- Expanded lineup of types with oil hole
  Supports internal coolant. For deeper drilling (3D, 5D).

Improves drilling stability by ensuring web thickness.

Reduction of Burrs at Hole Exit



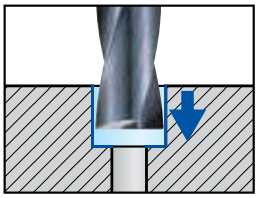
Work Material: 15CrMo5
Drill: MDF0500S2D (Ø 5,0 mm, 2D)
Cutting Conditions: v_c = 65 m/min, f = 0,12 mm/rev
H = 10 mm, 150 holes, wet
Equipment: Vertical machining center

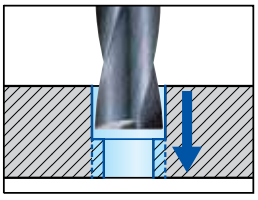
Reduces exit burrs by more than half compared to general-purpose drills

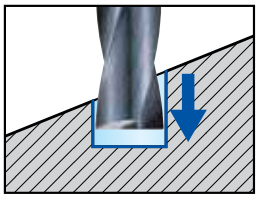

Burr height: 0,18 mm
Flat MultiDrill MDF type

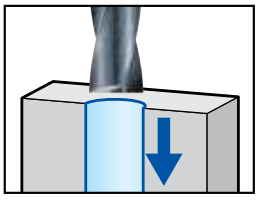

Burr height: 0,44 mm
Conventional general type

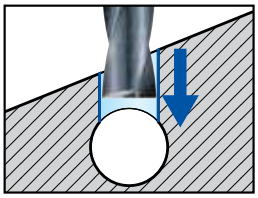
Applications

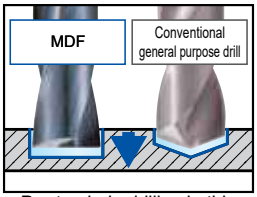

High-efficient spot facing


Hole expansion drilling

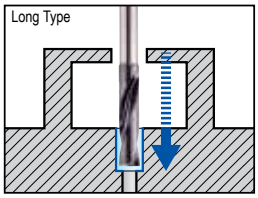

Drilling in non-horizontal surfaces (such as inclined and cylindrical)


Interrupted drilling

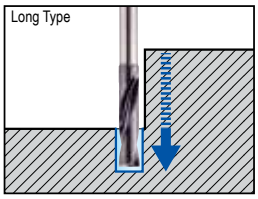

Cross drilling



Pre-tap hole drilling in thin sheets



Deep spot facing



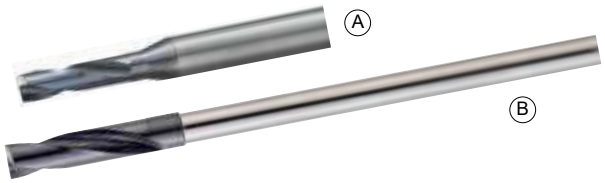
Avoiding interference with work materials

Flat MultiDrill
MDF Type

Long Type (L2D)

For flat base drilling in long overhang conditions, hole expansion, burr prevention.
For deep flat base drilling and to avoid interference with workpiece.
Drilling that uses the long shank type requires a guide hole of the same diameter or a centering hole larger than the tool diameter.

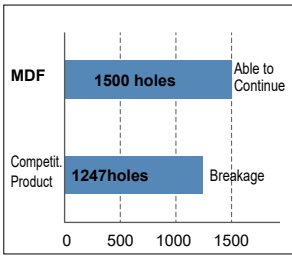
Two types
Ⓐ ØDC < 6 mm Stepped Shank Products
Ⓑ ØDC ≥ 6 mm Relief Shank Products



With Oil Hole (H3D Type / H5D Type)

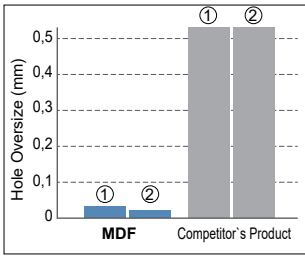
Support for internal coolant allows for deeper flat hole drilling.
Drilling that uses oil hole L/D = 5 requires a guide hole of the same diameter or a centering hole larger than the tool diameter.

Deep Spot Facing



Tool: MDF0600H5D
Work Material: C50, Ø 6 mm
Cutting Conditions: v_c = 140 m/min,
f = 0,15 mm/rev
H = 30 mm (5D)
Internal Coolant
Overhang 45 mm
Prepared Hole 3 mm (0,5D)

Long Overhang Spot Facing



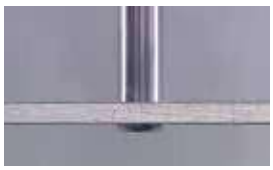
Tool: MDF0600H3D
Work Material: C50,
Cutting Conditions: v_c = 90 m/min,
f = 0,1 mm/rev
H = 18mm (3D)
Internal Coolant
Overhang 35 mm

① Entrance ② Hole Bottom

Inclined Surface Drilling

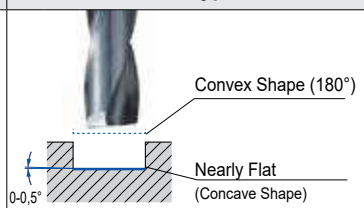
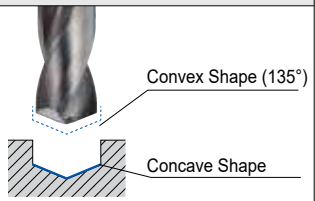
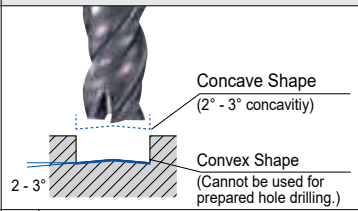
Tool: MDF0500S2D
Work Material: 15CrMo5
Cutting Conditions: v_c = 65 m/min,
f = 0,08 mm/rev
H = 10mm
External MQL

Controlling Burrs and Chips when Withdrawn



Tool: MDF1000S2D
Work Material: St 42-3
Cutting Conditions: v_c = 75 m/min,
f = 0,12 mm/rev
H = 5mm
External MQL

Using Flat Drills, General-Purpose Drills and Endmills

Tool	Flat Drill **MDF Type**		General Purpose Drill GS/HGS Type		Endmill for Spot Facing GSX MILL Slot	
Hole Bottom Shape						
Drilling in horizontal surfaces	⊙	Feed rate approximately half of a general-purpose drill	○	Optimal	X	Within 1D, limited to low feed rate Feed rate one-fifth or lower of a general-purpose drill
Drilling in non-horizontal surfaces	○	Optimal (within 2D is recommended)	X	Unusable	⊙	Within 1D, limited to low feed rate Feed rate half or lower of a flat drill
Traversing	X	Unusable	X	Unusable	○	Optimal

Series

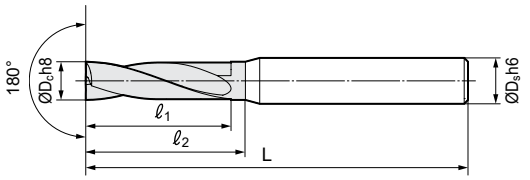
Application	Series	Diameter Range (mm)	Hole Depth (L/D)
External	MDF □□□□ S2D	Ø 0,3 – 20,0	≤ 2,0
	MDF □□□□ L2D	Ø 0,3 – 20,0	≤ 2,0
Internal	MDF □□□□ H3D	Ø 0,3 – 16,0	≤ 3,0
	MDF □□□□ H5D	Ø 0,3 – 16,0	≤ 5,0

External Coolant Supply (MDF S2D Type)

Carbon Steel <0,28%	Carbon Steel >0,28%	Alloy Steel Tempered Steel	Hardened Steel <45HRC	Hardened Steel >45HRC	Stainless-Steel	Cast Iron	Ductile Cast Iron	Aluminium Alloy
◎	◎	◎	○		○	○	○	○

PVD 2D

● MDF Type



● Diameter Ø 0,3–7,0 mm

Diameter ØDc (mm)	Shank ØDs (mm)	Cat. No.	Stock	Dimensions (mm) L	ℓ1	ℓ2
0,3*	3,0	MDF 0030S2D	❍	40	1,0	1,3
0,4*		0040S2D	❍		1,4	1,8
0,5	3,0	MDF 0050S2D	❍	40	2,0	2,2
0,6		0060S2D	❍		2,4	2,6
0,7		0070S2D	❍		2,8	3,1
0,8		0080S2D	❍		3,2	3,5
0,9		0090S2D	❍		3,6	4,0
1,0	3,0	MDF 0100S2D	●	45	4,0	4,4
1,1		0110S2D	❍		4,4	4,8
1,2		0120S2D	❍		4,8	5,3
1,3		0130S2D	❍		5,2	5,7
1,4		0140S2D	❍		5,6	6,2
1,5	3,0	MDF 0150S2D	●	45	6,0	6,6
1,6		0160S2D	❍		6,4	7,0
1,7		0170S2D	❍		6,8	7,5
1,8		0180S2D	❍		7,2	7,9
1,9		0190S2D	❍		7,6	8,4
2,0	4,0	MDF 0200S2D	●	50	8,0	8,8
2,1		0210S2D	●		8,4	9,2
2,2		0220S2D	●		8,8	9,7
2,3		0230S2D	●		9,2	10,1
2,4		0240S2D	●		9,6	10,6
2,5	4,0	MDF 0250S2D	●	50	10,0	11,0
2,6		0260S2D	●		10,4	11,4
2,7		0270S2D	●		10,8	11,9
2,8		0280S2D	●		11,2	12,3
2,9		0290S2D	●		11,6	12,8
3,0	6,0	MDF 0300S2D	●	50	12,0	13,2
3,1		0310S2D	●		12,4	13,6
3,2		0320S2D	●		12,8	14,1
3,3		0330S2D	●		13,2	14,5
3,4		0340S2D	●		13,6	15,0
3,5		0350S2D	●		14,0	15,4
3,6	6,0	MDF 0360S2D	●	50	14,4	15,8
3,7		0370S2D	●		14,8	16,3
3,8		0380S2D	●		15,2	16,7
3,9		0390S2D	●		15,6	17,2
4,0		0400S2D	●		16,0	17,6
4,1	6,0	MDF 0410S2D	●	60	16,4	18,0
4,2		0420S2D	●		16,8	18,5
4,3		0430S2D	●		17,2	18,9
4,4		0440S2D	●		17,6	19,4
4,5		0450S2D	●		18,0	19,8
4,6	6,0	MDF 0460S2D	●	60	18,4	20,2
4,7		0470S2D	●		18,8	20,7
4,8		0480S2D	●		19,2	21,1
4,9		0490S2D	●		19,6	21,6
5,0		0500S2D	●		20,0	22,0
5,1	6,0	MDF 0510S2D	●	60	20,4	22,4
5,2		0520S2D	●		20,8	22,9
5,3		0530S2D	●		21,2	23,3
5,4		0540S2D	●		21,6	23,8
5,5		0550S2D	●		22,0	24,2
5,6	6,0	MDF 0560S2D	●	60	22,4	24,6
5,7		0570S2D	●		22,8	25,1
5,8		0580S2D	●		23,2	25,5
5,9		0590S2D	●		23,6	26,0
6,0		0600S2D	●		24,0	26,4
6,1	8,0	MDF 0610S2D	●	70	24,4	26,8
6,2		0620S2D	●		24,8	27,3
6,3		0630S2D	●		25,2	27,7
6,4		0640S2D	●		25,6	28,2
6,5		0650S2D	●		26,0	28,6
6,6	8,0	MDF 0660S2D	●	70	26,4	29,0
6,7		0670S2D	●		26,8	29,5
6,8		0680S2D	●		27,2	29,9
6,9		0690S2D	●		27,6	30,4
7,0		0700S2D	●		28,0	30,8

● Diameter Ø 7,1–20,0 mm

Diameter ØDc (mm)	Shank ØDs (mm)	Cat. No.	Stock	Dimensions (mm) L	ℓ1	ℓ2
7,1	8,0	MDF 0710S2D	●	70	28,4	31,2
7,2		0720S2D	●		28,8	31,7
7,3		0730S2D	●		29,2	32,1
7,4		0740S2D	●		29,6	32,6
7,5		0750S2D	●		30,0	33,0
7,6	8,0	MDF 0760S2D	●	70	30,4	33,4
7,7		0770S2D	●		30,8	33,9
7,8		0780S2D	●		31,2	34,3
7,9		0790S2D	●		31,6	34,8
8,0		0800S2D	●		32,0	35,2
8,1	10,0	MDF 0810S2D	❍	80	32,4	35,6
8,2		0820S2D	❍		32,8	36,1
8,3		0830S2D	❍		33,2	36,5
8,4		0840S2D	❍		33,6	37,0
8,5		0850S2D	●		34,0	37,4
8,6	10,0	MDF 0860S2D	❍	80	34,4	37,8
8,7		0870S2D	❍		34,8	38,3
8,8		0880S2D	❍		35,2	38,7
8,9		0890S2D	❍		35,6	39,2
9,0		0900S2D	●		36,0	39,6
9,1	10,0	MDF 0910S2D	❍	80	36,4	40,0
9,2		0920S2D	❍		36,8	40,5
9,3		0930S2D	❍		37,2	40,9
9,4		0940S2D	❍		37,6	41,4
9,5		0950S2D	●		38,0	41,8
9,6	10,0	MDF 0960S2D	❍	80	38,4	42,2
9,7		0970S2D	●		38,8	42,7
9,8		0980S2D	❍		39,2	43,1
9,9		0990S2D	❍		39,6	43,6
10,0		1000S2D	●		40,0	44,0
10,1	12,0	MDF 1010S2D	❍	90	40,4	44,4
10,2		1020S2D	❍		40,8	44,9
10,3		1030S2D	❍		41,2	45,3
10,4		1040S2D	❍		41,6	45,8
10,5		1050S2D	●		42,0	46,2
10,6	12,0	MDF 1060S2D	❍	90	42,4	46,6
10,7		1070S2D	❍		42,8	47,1
10,8		1080S2D	❍		43,2	47,5
10,9		1090S2D	❍		43,6	48,0
11,0		1100S2D	●		44,0	48,4
11,1	12,0	MDF 1110S2D	❍	90	44,4	48,8
11,2		1120S2D	❍		44,8	49,3
11,3		1130S2D	❍		45,2	49,7
11,4		1140S2D	❍		45,6	50,2
11,5		1150S2D	●		46,0	50,6
11,6	12,0	MDF 1160S2D	❍	90	46,4	51,0
11,7		1170S2D	❍		46,8	51,5
11,8		1180S2D	●		47,2	51,9
11,9		1190S2D	❍		47,6	52,4
12,0		1200S2D	●		48,0	52,8
12,5	14,0	MDF 1250S2D	❍	100	50,0	54,0
13,0		1300S2D	❍		52,0	56,8
13,5		1350S2D	❍	110	54,0	59,6
14,0		1400S2D	❍		56,0	62,4
14,5	16,0	MDF 1450S2D	❍	110	58,0	65,2
15,0		1500S2D	❍		60,0	68,0
15,5		1550S2D	❍	115	62,0	70,8
16,0		1600S2D	❍		64,0	73,6
16,5	18,0	MDF 1650S2D	❍	125	66,0	72,4
17,0		1700S2D	❍		68,0	75,2
17,5		1750S2D	❍	130	70,0	78,0
18,0		1800S2D	❍		72,0	80,8
18,5	20,0	MDF 1850S2D	❍	140	74,0	83,6
19,0		1900S2D	❍		76,0	86,4
19,5		1950S2D	❍		78,0	89,2
20,0		2000S2D	❍		80,0	92,0

*RS Thinning is used for ØDc ≥ 0,5mm.

Grade: ACF75

● = Euro stock
❍ = Japan stock

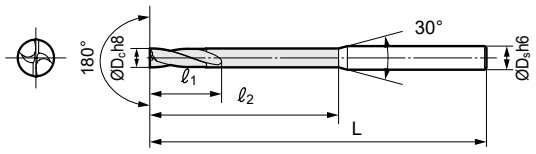
Flat MultiDrill
MDF Type

External Coolant Supply (L2D Type, Long Type)

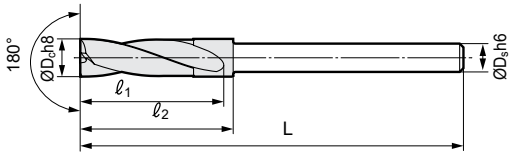
Carbon Steel, Alloy Steel <0,28%	Carbon Steel, Alloy Steel >0,28%	Tempered Steel	Hardened Steel <45HRC	Hardened Steel >45HRC	Stainless-Steel	Cast Iron	Ductile Cast Iron	Aluminium Alloy
◎	◎	◎	○		○	○	○	○

PVD 2D

● Ø DC ≤ Ø DMM



● Ø DC > Ø DMM



● Diameter Ø 3,0–9,5 mm

Diameter ØDc (mm)	Shank ØDs (mm)	Cat. No.	Stock	Dimensions (mm)		
				L	ℓ1	ℓ2
3,0	6,0	MDF 0300L2D	❍	100	13,5	30,0
3,1		0310L2D	❍		14,0	31,0
3,2		0320L2D	❍		14,4	32,0
3,3		0330L2D	❍		14,9	33,0
3,4		0340L2D	❍		15,3	34,0
3,5		0350L2D	❍		15,8	35,0
3,6	6,0	MDF 0360L2D	❍	100	16,2	36,0
3,7		0370L2D	❍		16,7	37,0
3,8		0380L2D	❍		17,1	38,0
3,9		0390L2D	❍		17,6	39,0
4,0		0400L2D	❍		18,0	40,0
4,1	6,0	MDF 0410L2D	❍	100	18,5	41,0
4,2		0420L2D	❍		18,9	42,0
4,3		0430L2D	❍		19,4	43,0
4,4		0440L2D	❍		19,8	44,0
4,5		0450L2D	❍		20,3	45,0
4,6	6,0	MDF 0460L2D	❍	100	20,7	46,0
4,7		0470L2D	❍		21,2	47,0
4,8		0480L2D	❍		21,6	48,0
4,9		0490L2D	❍		22,1	49,0
5,0		0500L2D	❍		22,5	50,0
5,1	6,0	MDF 0510L2D	❍	110	23,0	51,0
5,2		0520L2D	❍		23,4	52,0
5,3		0530L2D	❍		23,9	53,0
5,4		0540L2D	❍		24,3	54,0
5,5		0550L2D	❍		24,8	55,0
5,6	6,0	MDF 0560L2D	❍	110	25,2	56,0
5,7		0570L2D	❍		25,7	57,0
5,8		0580L2D	❍		26,1	58,0
5,9		0590L2D	❍		26,6	59,0
6,0	5,0	MDF 0600L2DS5	❍	110	27,0	30,0
6,0	6,0	MDF 0600L2D	❍	110	27,0	60,0
6,1	6,0	MDF 0610L2D	❍	120	27,5	30,5
6,2		0620L2D	❍		27,9	30,9
6,3		0630L2D	❍		28,4	31,4
6,4		0640L2D	❍		28,8	31,8
6,5		0650L2D	❍		29,3	32,3
6,6	6,0	MDF 0660L2D	❍	120	29,7	32,7
6,7		0670L2D	❍		30,2	33,2
6,8		0680L2D	❍		30,6	33,6
6,9		0690L2D	❍		31,1	34,1
7,0		0700L2D	❍		31,5	34,5
7,1	6,0	MDF 0710L2D	❍	130	32,0	35,0
7,2		0720L2D	❍		32,4	35,4
7,3		0730L2D	❍		32,9	35,9
7,4		0740L2D	❍		33,3	36,3
7,5		0750L2D	❍		33,8	36,8
7,6	6,0	MDF 0760L2D	❍	130	34,2	37,2
7,7		0770L2D	❍		34,7	37,7
7,8		0780L2D	❍		35,1	38,1
7,9		0790L2D	❍		35,6	38,6
8,0	6,0	MDF 0800L2DS6	❍	130	36,0	39,0
8,0	8,0	MDF 0800L2D	❍	130	36,0	80,0
8,1	8,0	MDF 0810L2D	❍	140	36,5	39,5
8,2		0820L2D	❍		36,9	39,9
8,3		0830L2D	❍		37,4	40,4
8,4		0840L2D	❍		37,8	40,8
8,5		0850L2D	❍		38,3	41,3
8,6	8,0	MDF 0860L2D	❍	140	38,7	41,7
8,7		0870L2D	❍		39,2	42,2
8,8		0880L2D	❍		39,6	42,6
8,9		0890L2D	❍		40,1	43,1
9,0		0900L2D	❍		40,5	43,5
9,1	8,0	MDF 0910L2D	❍	150	41,0	41,0
9,2		0920L2D	❍		41,4	41,4
9,3		0930L2D	❍		41,9	41,9
9,4		0940L2D	❍		42,3	42,3
9,5		0950L2D	❍		42,8	42,8

● Diameter Ø 9,6–20,0 mm

Diameter ØDc (mm)	Shank ØDs (mm)	Cat. No.	Stock	Dimensions (mm)		
				L	ℓ1	ℓ2
9,6	8,0	MDF 0960L2D	❍	150	43,2	46,2
9,7		0970L2D	❍		43,7	46,7
9,8		0980L2D	❍		44,1	47,1
9,9		0990L2D	❍		44,6	47,6
10,0	8,0	MDF 1000L2DS8	❍	150	45,0	48,0
10,0	10,0	MDF 1000L2D	❍	150	45,0	100,0
10,1	10,0	MDF 1010L2D	❍	160	45,5	48,5
10,2		1020L2D	❍		45,9	48,9
10,3		1030L2D	❍		46,4	49,4
10,4		1040L2D	❍		46,8	49,8
10,5		1050L2D	❍		47,3	50,3
10,6	10,0	MDF 1060L2D	❍	160	47,7	50,7
10,7		1070L2D	❍		48,2	51,2
10,8		1080L2D	❍		48,6	51,6
10,9		1090L2D	❍		49,1	52,1
11,0		1100L2D	❍		49,5	52,5
11,1	10,0	MDF 1110L2D	❍	170	50,0	53,0
11,2		1120L2D	❍		50,4	53,4
11,3		1130L2D	❍		50,9	53,9
11,4		1140L2D	❍		51,3	54,3
11,5		1150L2D	❍		51,8	54,8
11,6	10,0	MDF 1160L2D	❍	170	52,2	55,2
11,7		1170L2D	❍		52,7	55,7
11,8		1180L2D	❍		53,1	56,1
11,9		1190L2D	❍		53,6	56,6
12,0	10,0	MDF 1200L2DS10	❍	170	54,0	57,0
12,0	12,0	MDF 1200L2D	❍	170	54,0	120,0
12,5	12,0	MDF 1250L2D	❍	180	56,3	59,3
13,0		1300L2D	❍		58,5	61,5
13,5		1350L2D	❍	190	60,8	63,8
14,0	12,0	MDF 1400L2DS12	❍	190	63,0	66,0
14,0	14,0	MDF 1400L2D	❍	190	63,0	140,0
14,5	14,0	MDF 1450L2D	❍	200	65,3	68,3
15,0		1500L2D	❍		67,5	70,5
15,5		1550L2D	❍	210	69,8	72,8
16,0	14,0	MDF 1600L2DS14	❍	210	72,0	75,0
16,0	16,0	MDF 1600L2D	❍	210	72,0	160,0
16,5	16,0	MDF 1650L2D	❍	220	74,3	77,3
17,0		1700L2D	❍		76,5	79,5
17,5		1750L2D	❍	230	78,8	81,8
18,0	16,0	MDF 1800L2DS16	❍	230	81,0	84,0
18,0	18,0	MDF 1800L2D	❍	230	81,0	180,0
18,5	18,0	MDF 1850L2D	❍	240	83,3	86,3
19,0		1900L2D	❍		85,5	88,5
19,5		1950L2D	❍	250	87,8	90,8
20,0	18,0	MDF 2000L2DS18	❍	250	90,0	93,0
20,0	20,0	MDF 2000L2D	❍	250	90,0	200,0

Grade: ACF75

Drilling that uses this tool requires a guide hole of the same diameter or a centering hole larger than the tool diameter.

■ Recommended Cutting Conditions

● MDF S2D Type

1. The recommended hole depth is 2 x DC. The depth shall be the depth from the highest point of the hole when drilling inclined surfaces.
2. The recommended cutting conditions are those for drilling in flat horizontal surfaces.
3. Adjust the feed rate according to the inclination angle when drilling in an inclined surface.
3.1 Set the feed rate at ≤ 70% when the inclination angle is ≤ 30°
3.2 Set the feed rate at ≤ 50% when the inclination angle is:> 30°
4. This product is a drilling tool. Do not use it for traversing or helical milling

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

Drill Diam. ØDC (mm)	Cutting Conditions	Soft Steel / General Steel (–250 HB)	Alloy Steel (–300 HB)	Hardened Steel (–50 HRC)	Stainless Steel (–200 HB)	Gray Cast Iron FC250	Ductile Cast Iron	Aluminium Alloy
–Ø 0,5	v_c	30–**40**–50	30–**35**–40	15–**20**–25	15–**20**–25	30–**40**–50	20–**30**–40	60–**80**–100
	f	0,004–**0,005**–0,006	0,004–**0,005**–0,006	0,001–**0,002**–0,003	0,003–**0,004**–0,005	0,004–**0,005**–0,006	0,001–**0,003**–0,005	0,003–**0,005**–0,007
–Ø 1,0	v_c	45–**55**–65	35–**45**–55	20–**30**–40	20–**25**–30	45–**55**–65	30–**40**–50	80–**100**–120
	f	0,01–**0,03**–0,05	0,01–**0,03**–0,05	0,002–**0,006**–0,01	0,005–**0,007**–0,01	0,01–**0,03**–0,05	0,005–**0,01**–0,015	0,01–**0,02**–0,03
–Ø 2,0	v_c	50–**60**–70	40–**50**–60	20–**30**–40	20–**30**–40	50–**60**–70	45–**55**–65	90–**110**–130
	f	0,02–**0,04**–0,06	0,02–**0,04**–0,06	0,01–**0,018**–0,025	0,01–**0,015**–0,02	0,02–**0,04**–0,06	0,015–**0,03**–0,045	0,03–**0,05**–0,07
–Ø 4,0	v_c	60–**75**–90	50–**65**–80	20–**30**–40	20–**30**–40	60–**75**–90	55–**65**–75	90–**110**–130
	f	0,06–**0,08**–0,10	0,05–**0,08**–0,10	0,01–**0,02**–0,03	0,01–**0,02**–0,03	0,06–**0,08**–0,10	0,04–**0,06**–0,08	0,06–**0,08**–0,10
–Ø 6,0	v_c	60–**75**–90	50–**65**–80	20–**30**–40	20–**30**–50	60–**75**–90	60–**70**–80	90–**110**–130
	f	0,05–**0,10**–0,15	0,05–**0,10**–0,15	0,04–**0,06**–0,08	0,03–**0,04**–0,05	0,05–**0,10**–0,15	0,06–**0,09**–0,12	0,05–**0,10**–0,15
–Ø 8,0	v_c	60–**75**–90	50–**65**–80	20–**30**–40	20–**30**–50	60–**75**–90	60–**70**–80	90–**110**–130
	f	0,10–**0,15**–0,20	0,10–**0,15**–0,20	0,06–**0,08**–0,10	0,04–**0,06**–0,08	0,10–**0,15**–0,20	0,10–**0,12**–0,15	0,10–**0,15**–0,20
–Ø 10,0	v_c	60–**75**–90	50–**65**–80	20–**30**–40	20–**30**–50	60–**75**–90	60–**70**–80	90–**110**–130
	f	0,12–**0,17**–0,22	0,12–**0,17**–0,22	0,08–**0,10**–0,12	0,06–**0,08**–0,10	0,12–**0,17**–0,22	0,12–**0,15**–0,18	0,12–**0,17**–0,22
–Ø 12,0	v_c	60–**75**–90	50–**65**–80	20–**30**–40	20–**30**–50	60–**75**–90	60–**70**–80	90–**110**–130
	f	0,15–**0,20**–0,25	0,15–**0,20**–0,25	0,12–**0,15**–0,18	0,08–**0,10**–0,12	0,15–**0,20**–0,25	0,15–**0,18**–0,20	0,15–**0,20**–0,25
–Ø 16,0	v_c	60–**75**–90	50–**65**–80	20–**30**–40	20–**30**–50	60–**75**–90	60–**70**–80	90–**110**–130
	f	0,20–**0,25**–0,30	0,20–**0,25**–0,30	0,14–**0,17**–0,20	0,10–**0,15**–0,20	0,17–**0,22**–0,27	0,15–**0,20**–0,25	0,20–**0,25**–0,30
–Ø 20,0	v_c	60–**75**–90	50–**65**–80	20–**30**–40	20–**30**–50	60–**75**–90	60–**70**–80	90–**110**–130
	f	0,25–**0,30**–0,35	0,25–**0,30**–0,35	0,16–**0,19**–0,22	0,15–**0,20**–0,25	0,25–**0,30**–0,35	0,20 - **0,25** - 0,30	0,25–**0,30**–0,35

Min. - **Optimum** - Max.

● MDF L2D Type, Long Type

1. Drilling that uses this tool requires a guide hole of the same diameter.
2. The cutting conditions are the recommended conditions with a guide hole.
3. The recommended hole depth is 5 x DC. The depth is measured from the highest point of the hole on drilling in inclined surfaces.
4. This product is a drilling tool. Do not use it for traversing or helical milling.

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

Drill Diam. ØDC (mm)	Cutting Conditions	Soft Steel / General Steel (–250 HB)	Alloy Steel (–300 HB)	Hardened Steel (–50 HRC)	Stainless Steel (–200 HB)	Gray Cast Iron FC250	Ductile Cast Iron	Aluminium Alloy
–Ø 4,0	v_c	60–**80**–100	50–**70**–90	20–**30**–40	20–**30**–40	70–**85**–100	65–**75**–85	90–**120**–150
	f	0,06–**0,08**–0,10	0,05–**0,08**–0,10	0,01–**0,02**–0,03	0,01–**0,02**–0,03	0,06–**0,08**–0,10	0,04–**0,06**–0,08	0,06–**0,08**–0,10
–Ø 6,0	v_c	60–**80**–100	50–**70**–90	20–**30**–40	20–**30**–50	70–**85**–100	65–**75**–85	90–**120**–150
	f	0,05–**0,10**–0,15	0,05–**0,10**–0,15	0,04–**0,06**–0,08	0,03–**0,04**–0,05	0,05–**0,10**–0,15	0,06–**0,09**–0,12	0,05–**0,10**–0,15
–Ø 8,0	v_c	60–**80**–100	50–**70**–90	20–**30**–40	20–**30**–50	70–**85**–100	65–**75**–85	90–**120**–150
	f	0,10–**0,15**–0,20	0,10–**0,15**–0,20	0,06–**0,08**–0,10	0,04–**0,06**–0,08	0,10–**0,15**–0,20	0,10–**0,12**–0,15	0,10–**0,15**–0,20
–Ø 10,0	v_c	60–**80**–100	50–**70**–90	20–**30**–40	20–**30**–50	70–**85**–100	65–**75**–85	90–**120**–150
	f	0,15–**0,20**–0,25	0,15–**0,20**–0,25	0,08–**0,10**–0,12	0,06–**0,08**–0,10	0,15–**0,20**–0,25	0,12–**0,15**–0,18	0,15–**0,20**–0,25
–Ø 12,0	v_c	60–**80**–100	50–**70**–90	20–**30**–40	20–**30**–50	70–**85**–100	65–**75**–85	90–**120**–150
	f	0,20–**0,25**–0,30	0,20–**0,25**–0,30	0,12–**0,15**–0,18	0,08–**0,10**–0,12	0,17–**0,22**–0,27	0,15–**0,20**–0,25	0,20–**0,25**–0,30
–Ø 16,0	v_c	60–**80**–100	50–**70**–90	20–**30**–40	20–**30**–50	70–**85**–100	65–**75**–85	90–**120**–150
	f	0,20–**0,25**–0,30	0,20–**0,25**–0,30	0,14–**0,17**–0,20	0,10–**0,15**–0,20	0,20–**0,25**–0,30	0,20–**0,25**–0,30	0,25–**0,30**–0,35
–Ø 20,0	v_c	60–**80**–100	50–**70**–90	20–**30**–40	20–**30**–50	70–**85**–100	65–**75**–85	90–**120**–150
	f	0,25–**0,30**–0,35	0,25–**0,30**–0,35	0,16–**0,19**–0,22	0,15–**0,20**–0,25	0,30–**0,35**–0,40	0,25–**0,30**–0,35	0,35–**0,40**–0,45

Min. - **Optimum** - Max.

● = Euro stock
❍ = Japan stock

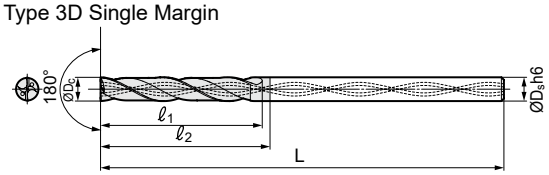
Flat MultiDrill
MDF Type

Carbon Steel <0,28%	Alloy Steel >0,28%	Tempered Steel	Hardened Steel <45HRC	Hardened Steel >45HRC	Stainless-Steel	Cast Iron	Ductile Cast Iron	Aluminium Alloy
◎	◎	◎	○		○	○	○	○

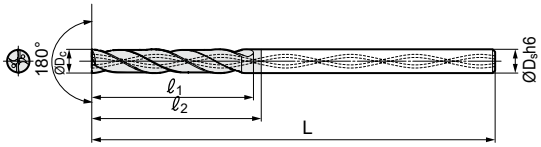
PVD 3D 5D

■ Internal Coolant Supply (MDF H3D/H5D Type)

● MDF Type 3D Single Margin



● MDF Type 5D Double Margin



● Diameter Ø 3,0–6,0 mm

Diameter ØDc (mm)	Shank ØDs (mm)	Hole Depth (L/D)	Cat. No.	Stock	Dimensions (mm) L	ℓ1	ℓ2
3,0	3	3	MDF 0300H3D	●	68	13,5	16,5
		5	0300H5D	●	78	20,1	23,1
3,1	4	3	MDF 0310H3D	❍	72	14,0	17,0
		5	0310H5D	❍	86	20,8	23,8
3,2	4	3	0320H3D	❍	72	14,4	17,4
		5	0320H5D	❍	86	21,4	24,4
3,3	4	3	0330H3D	❍	72	14,9	17,9
		5	0330H5D	❍	86	22,1	25,1
3,4	4	3	0340H3D	❍	72	15,3	18,3
		5	0340H5D	❍	86	22,8	25,8
3,5	4	3	0350H3D	●	72	15,8	18,8
		5	0350H5D	●	86	23,5	26,5
3,6	4	3	MDF 0360H3D	❍	72	16,2	19,2
		5	0360H5D	❍	86	24,1	27,1
3,7	4	3	0370H3D	❍	72	16,7	19,7
		5	0370H5D	❍	86	24,8	27,8
3,8	4	3	0380H3D	❍	72	17,1	20,1
		5	0380H5D	❍	86	25,5	28,5
3,9	4	3	0390H3D	❍	72	17,6	20,6
		5	0390H5D	❍	86	26,1	29,1
4,0	4	3	0400H3D	●	72	18,0	21,0
		5	0400H5D	●	86	26,8	29,8
4,1	5	3	MDF 0410H3D	❍	80	18,5	21,5
		5	0410H5D	❍	98	27,5	30,5
4,2	5	3	0420H3D	❍	80	18,9	21,9
		5	0420H5D	❍	98	28,1	31,1
4,3	5	3	0430H3D	❍	80	19,4	22,4
		5	0430H5D	❍	98	28,8	31,8
4,4	5	3	0440H3D	❍	80	19,8	22,8
		5	0440H5D	❍	98	29,5	32,5
4,5	5	3	0450H3D	●	80	20,3	23,3
		5	0450H5D	●	98	30,2	33,2
4,6	5	3	MDF 0460H3D	❍	80	20,7	23,7
		5	0460H5D	❍	98	30,8	33,8
4,7	5	3	0470H3D	❍	80	21,2	24,2
		5	0470H5D	❍	98	31,5	34,5
4,8	5	3	0480H3D	❍	80	21,6	24,6
		5	0480H5D	❍	98	32,2	35,2
4,9	5	3	0490H3D	❍	80	22,1	25,1
		5	0490H5D	❍	98	32,8	35,8
5,0	5	3	0500H3D	●	80	22,5	25,5
		5	0500H5D	●	98	33,5	36,5
5,1	6	3	MDF 0510H3D	❍	82	23,0	26,0
		5	0510H5D	❍	100	34,2	37,2
5,2	6	3	0520H3D	❍	82	23,4	26,4
		5	0520H5D	❍	100	34,8	37,8
5,3	6	3	0530H3D	❍	82	23,9	26,9
		5	0530H5D	❍	100	35,5	38,5
5,4	6	3	0540H3D	❍	82	24,3	27,3
		5	0540H5D	❍	100	36,2	39,2
5,5	6	3	0550H3D	●	82	24,8	27,8
		5	0550H5D	●	100	36,9	39,9
5,6	6	3	MDF 0560H3D	❍	82	25,2	28,2
		5	0560H5D	❍	100	37,5	40,5
5,7	6	3	0570H3D	❍	82	25,7	28,7
		5	0570H5D	❍	100	38,2	41,2
5,8	6	3	0580H3D	❍	82	26,1	29,1
		5	0580H5D	❍	100	38,9	41,9
5,9	6	3	0590H3D	❍	82	26,6	29,6
		5	0590H5D	❍	100	39,5	42,5
6,0	6	3	0600H3D	●	82	27,0	30,0
		5	0600H5D	●	100	40,2	43,2

● Diameter Ø 6,1–9,0 mm

Diameter ØDc (mm)	Shank ØDs (mm)	Hole Depth (L/D)	Cat. No.	Stock	Dimensions (mm) L	ℓ1	ℓ2
6,1	7	3	MDF 0610H3D	❍	88	27,5	30,5
		5	0610H5D	❍	109	40,9	43,9
6,2	7	3	0620H3D	❍	88	27,9	30,9
		5	0620H5D	❍	109	41,5	44,5
6,3	7	3	0630H3D	❍	88	28,4	31,4
		5	0630H5D	❍	109	42,2	45,2
6,4	7	3	0640H3D	❍	88	28,8	31,8
		5	0640H5D	❍	109	42,9	45,9
6,5	7	3	0650H3D	●	88	29,3	32,3
		5	0650H5D	●	109	43,6	46,6
6,6	7	3	MDF 0660H3D	❍	88	29,7	32,7
		5	0660H5D	❍	109	44,2	47,2
6,7	7	3	0670H3D	❍	88	30,2	33,2
		5	0670H5D	❍	109	44,9	47,9
6,8	7	3	0680H3D	❍	88	30,6	33,6
		5	0680H5D	❍	109	45,6	48,6
6,9	7	3	0690H3D	❍	88	31,1	34,1
		5	0690H5D	❍	109	46,2	49,2
7,0	7	3	0700H3D	●	88	31,5	34,5
		5	0700H5D	●	109	46,9	49,9
7,1	8	3	MDF 0710H3D	❍	94	32,0	35,0
		5	0710H5D	❍	118	47,6	50,6
7,2	8	3	0720H3D	❍	94	32,4	35,4
		5	0720H5D	❍	118	48,2	51,2
7,3	8	3	0730H3D	❍	94	32,9	35,9
		5	0730H5D	❍	118	48,9	51,9
7,4	8	3	0740H3D	❍	94	33,3	36,3
		5	0740H5D	❍	118	49,6	52,6
7,5	8	3	0750H3D	●	94	33,8	36,8
		5	0750H5D	●	118	50,3	53,3
7,6	8	3	MDF 0760H3D	❍	94	34,2	37,2
		5	0760H5D	❍	118	50,9	53,9
7,7	8	3	0770H3D	❍	94	34,7	37,7
		5	0770H5D	❍	118	51,6	54,6
7,8	8	3	0780H3D	❍	94	35,1	38,1
		5	0780H5D	❍	118	52,3	55,3
7,9	8	3	0790H3D	❍	94	35,6	38,6
		5	0790H5D	❍	118	52,9	55,9
8,0	8	3	0800H3D	●	94	36,0	39,0
		5	0800H5D	●	118	53,6	56,6
8,1	9	3	MDF 0810H3D	❍	100	36,5	39,5
		5	0810H5D	❍	127	54,3	57,3
8,2	9	3	0820H3D	❍	100	36,9	39,9
		5	0820H5D	❍	127	54,9	57,9
8,3	9	3	0830H3D	❍	100	37,4	40,4
		5	0830H5D	❍	127	55,6	58,6
8,4	9	3	0840H3D	❍	100	37,8	40,8
		5	0840H5D	❍	127	56,3	59,3
8,5	9	3	0850H3D	●	100	38,3	41,3
		5	0850H5D	●	127	57,0	60,0
8,6	9	3	MDF 0860H3D	❍	100	38,7	41,7
		5	0860H5D	❍	127	57,6	60,6
8,7	9	3	0870H3D	❍	100	39,2	42,2
		5	0870H5D	❍	127	58,3	61,3
8,8	9	3	0880H3D	❍	100	39,6	42,6
		5	0880H5D	❍	127	59,0	62,0
8,9	9	3	0890H3D	❍	100	40,1	43,1
		5	0890H5D	❍	127	59,6	62,6
9,0	9	3	0900H3D	●	100	40,5	43,5
		5	0900H5D	●	127	60,3	63,3

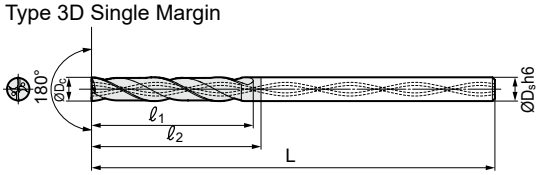
Grade: ACF75

Internal Coolant Supply (MDF H3D/H5D Type)

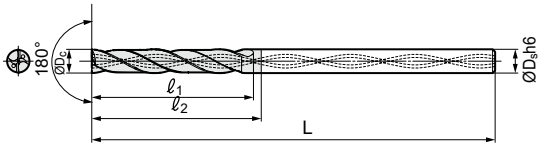
Carbon Steel, Alloy Steel <0,28%	Carbon Steel, Alloy Steel >0,28%	Tempered Steel	Hardened Steel <45HRC	Hardened Steel >45HRC	Stainless-Steel	Cast Iron	Ductile Cast Iron	Aluminium Alloy
◎	◎	◎	○		○	○	○	○

PVD 3D 5D

● MDF Type 3D Single Margin



● MDF Type 5D Double Margin



● Diameter Ø 9,1–12,0 mm

Diameter ØDc (mm)	Shank ØDs (mm)	Hole Depth (L/D)	Cat. No.	Stock	Dimensions (mm) L	ℓ1	ℓ2
9,1	10	3	MDF 0910H3D	❍	106	41,0	44,0
		5	0910H5D	❍	136	61,0	64,0
9,2	10	3	0920H3D	❍	106	41,4	44,4
		5	0920H5D	❍	136	61,6	64,6
9,3	10	3	0930H3D	❍	106	41,9	44,9
		5	0930H5D	❍	136	62,3	65,3
9,4	10	3	0940H3D	❍	106	42,3	45,3
		5	0940H5D	❍	136	63,0	66,0
9,5	10	3	0950H3D	●	106	42,8	45,8
		5	0950H5D	●	136	63,7	66,7
9,6	10	3	MDF 0960H3D	❍	106	43,2	46,2
		5	0960H5D	❍	136	64,3	67,3
9,7	10	3	0970H3D	❍	106	43,7	46,7
		5	0970H5D	❍	136	65,0	68,0
9,8	10	3	0980H3D	❍	106	44,1	47,1
		5	0980H5D	❍	136	65,7	68,7
9,9	10	3	0990H3D	❍	106	44,6	47,6
		5	0990H5D	❍	136	66,3	69,3
10,0	10	3	1000H3D	●	106	45,0	48,0
		5	1000H5D	●	136	67,0	70,0
10,1	11	3	MDF 1010H3D	❍	116	45,5	48,5
		5	1010H5D	❍	149	67,7	70,7
10,2	11	3	1020H3D	❍	116	45,9	48,9
		5	1020H5D	❍	149	68,3	71,3
10,3	11	3	1030H3D	❍	116	46,4	49,4
		5	1030H5D	❍	149	69,0	72,0
10,4	11	3	1040H3D	❍	116	46,8	49,8
		5	1040H5D	❍	149	69,7	72,7
10,5	11	3	1050H3D	●	116	47,3	50,3
		5	1050H5D	●	149	70,4	73,4
10,6	11	3	MDF 1060H3D	❍	116	47,7	50,7
		5	1060H5D	❍	149	71,0	74,0
10,7	11	3	1070H3D	❍	116	48,2	51,2
		5	1070H5D	❍	149	71,7	74,7
10,8	11	3	1080H3D	❍	116	48,6	51,6
		5	1080H5D	❍	149	72,4	75,4
10,9	11	3	1090H3D	❍	116	49,1	52,1
		5	1090H5D	❍	149	73,0	76,0
11,0	11	3	1100H3D	●	116	49,5	52,5
		5	1100H5D	●	149	73,7	76,7
11,1	12	3	MDF 1110H3D	❍	122	50,0	53,0
		5	1110H5D	❍	158	74,4	77,4
11,2	12	3	1120H3D	❍	122	50,4	53,4
		5	1120H5D	❍	158	75,0	78,0
11,3	12	3	1130H3D	❍	122	50,9	53,9
		5	1130H5D	❍	158	75,7	78,7
11,4	12	3	1140H3D	❍	122	51,3	54,3
		5	1140H5D	❍	158	76,4	79,4
11,5	12	3	1150H3D	●	122	51,8	54,8
		5	1150H5D	●	158	77,1	80,1
11,6	12	3	MDF 1160H3D	❍	122	52,2	55,2
		5	1160H5D	❍	158	77,7	80,7
11,7	12	3	1170H3D	❍	122	52,7	55,7
		5	1170H5D	❍	158	78,4	81,4
11,8	12	3	1180H3D	❍	122	53,1	56,1
		5	1180H5D	❍	158	79,1	82,1
11,9	12	3	1190H3D	❍	122	53,6	56,6
		5	1190H5D	❍	158	79,7	82,7
12,0	12	3	1200H3D	●	122	54,0	57,0
		5	1200H5D	●	158	80,4	83,4

● Diameter Ø 12,5–16,0 mm

Diameter ØDc (mm)	Shank ØDs (mm)	Hole Depth (L/D)	Cat. No.	Stock	Dimensions (mm) L	ℓ1	ℓ2
12,5	13	3	MDF 1250H3D	❍	128	56,3	59,3
		5	1250H5D	❍	167	83,8	86,8
13,0	13	3	1300H3D	❍	128	58,5	61,5
		5	1300H5D	❍	167	87,1	90,1
13,5	14	3	MDF 1350H3D	❍	134	60,8	63,8
		5	1350H5D	❍	176	90,5	93,5
14,0	14	3	1400H3D	❍	134	63,0	66,0
		5	1400H5D	❍	176	93,8	96,8
14,5	15	3	MDF 1450H3D	❍	140	65,3	68,3
		5	1450H5D	❍	185	97,2	100,2
15,0	15	3	1500H3D	❍	140	67,5	70,5
		5	1500H5D	❍	185	100,5	103,5
15,5	16	3	MDF 1550H3D	❍	146	69,8	72,8
		5	1550H5D	❍	194	103,9	106,9
16,0	16	3	1600H3D	❍	146	72,0	75,0
		5	1600H5D	❍	194	107,2	110,2

Grade: ACF75

● = Euro stock
❍ = Japan stock

■ Recommended Cutting Conditions

● MDF H3D Type with Oil Hole

1. The recommended hole depth is 3 x DC. The depth is measured from the highest point of the hole on drilling in inclined surfaces.
2. The recommended cutting conditions are those for drilling on flat horizontal surfaces.
3. Adjust the feed rate according to the inclination angle when drilling in an inclined surface.
3.1 Set the feed rate at ≤ 70 % when the inclination angle is ≤ 30°.
3.2 Set the feed rate at ≤ 50 % when the inclination angle is > 30°.
4. This product is a drilling tool. Do not use it for traversing or helical milling.
5. A guide hole of the same diameter is recommended when drilling stainless steel.

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

Drill Diam. ØDC(mm)	Cutting Conditions	Soft Steel / General Steel (–250 HB)	Alloy Steel (–300 HB)	Hardened Steel (–50 HRC)	Stainless Steel (–200 HB)	Gray Cast Iron FC250	Ductile Cast Iron	Aluminium Alloy
–Ø 4,0	v_c	70–**85**–100	60–**75**–90	30–**40**–50	25–**35**–45	70–**85**–100	65–**75**–85	90–**120**–150
	f	0,06–**0,08**–0,10	0,05–**0,08**–0,10	0,01–**0,02**–0,03	0,01–**0,02**–0,03	0,06–**0,08**–0,10	0,04–**0,06**–0,08	0,06–**0,08**–0,10
–Ø 6,0	v_c	70–**85**–100	60–**75**–90	30–**40**–50	25–**35**–45	70–**85**–100	70–**80**–90	90–**120**–150
	f	0,05–**0,10**–0,15	0,05–**0,10**–0,15	0,04–**0,06**–0,08	0,03–**0,04**–0,05	0,05–**0,10**–0,15	0,06–**0,09**–0,12	0,05–**0,10**–0,15
–Ø 8,0	v_c	70–**85**–100	60–**75**–90	30–**40**–50	25–**35**–45	70–**85**–100	70–**80**–90	90–**120**–150
	f	0,10–**0,15**–0,20	0,10–**0,15**–0,20	0,06–**0,08**–0,10	0,04–**0,06**–0,08	0,10–**0,15**–0,20	0,10–**0,12**–0,15	0,10–**0,15**–0,20
–Ø 10,0	v_c	70–**85**–100	60–**75**–90	30–**40**–50	25–**35**–45	70–**85**–100	70–**80**–90	90–**120**–150
	f	0,12–**0,17**–0,22	0,12–**0,17**–0,22	0,08–**0,10**–0,12	0,06–**0,08**–0,10	0,12–**0,17**–0,22	0,12–**0,15**–0,18	0,15–**0,20**–0,25
–Ø 12,0	v_c	70–**85**–100	60–**75**–90	30–**40**–50	25–**35**–45	70–**85**–100	70–**80**–90	90–**120**–150
	f	0,15–**0,20**–0,25	0,15–**0,20**–0,25	0,12–**0,15**–0,18	0,08–**0,10**–0,12	0,15–**0,20**–0,25	0,15–**0,18**–0,20	0,20–**0,25**–0,30
–Ø 16,0	v_c	70–**85**–100	60–**75**–90	30–**40**–50	25–**35**–45	70–**85**–100	70–**80**–90	90–**120**–150
	f	0,15–**0,20**–0,25	0,15–**0,20**–0,25	0,12–**0,15**–0,18	0,10–**0,15**–0,20	0,17–**0,22**–0,27	0,15–**0,20**–0,25	0,25–**0,30**–0,40

Min. - **Optimum** - Max.

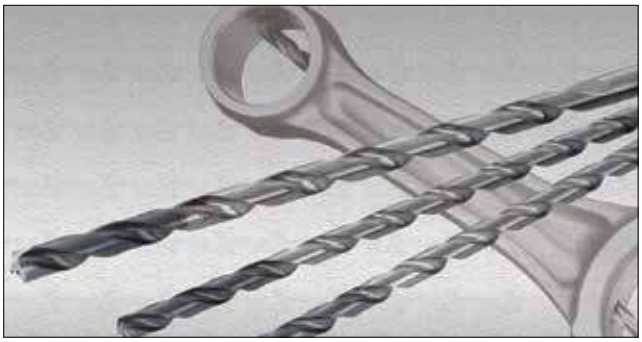
● MDF H5D Type with Oil Hole

1. Drilling that uses this tool requires a guide hole of the same diameter.
2. The cutting conditions are the recommended conditions with a guide hole.
3. The recommended hole depth is 5 x DC. The depth is measured from the highest point of the hole on drilling in inclined surfaces.
4. This product is a drilling tool. Do not use it for traversing or helical milling.

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

Drill Diam. ØDC(mm)	Cutting Conditions	Soft Steel / General Steel (–250 HB)	Alloy Steel (–300 HB)	Hardened Steel (–50 HRC)	Stainless Steel (–200 HB)	Gray Cast Iron FC250	Ductile Cast Iron	Aluminium Alloy
–Ø 4,0	v_c	70–**85**–100	60–**75**–90	30–**40**–50	25–**35**–45	70–**85**–100	65–**75**–85	90–**120**–150
	f	0,06–**0,08**–0,10	0,05–**0,08**–0,10	0,01–**0,02**–0,03	0,01–**0,02**–0,03	0,06–**0,08**–0,10	0,04–**0,06**–0,08	0,06–**0,08**–0,10
–Ø 6,0	v_c	70–**85**–100	60–**75**–90	30–**40**–50	25–**35**–45	70– **85**–100	65–**75**–85	90–**120**–150
	f	0,05–**0,10**–0,15	0,05–**0,10**–0,15	0,04–**0,06**–0,08	0,03–**0,04**–0,05	0,05–**0,10**–0,15	0,06–**0,09**–0,12	0,05–**0,10**–0,15
–Ø 8,0	v_c	70–**85**–100	60–**75**–90	30–**40**–50	25–**35**–45	70–**85**–100	65–**75**–85	90–**120**–150
	f	0,10–**0,15**–0,20	0,10–**0,15**–0,20	0,06–**0,08**–0,10	0,04–**0,06**–0,08	0,10–**0,15**–0,20	0,10–**0,12**–0,15	0,10–**0,15**–0,20
–Ø 10,0	v_c	70–**85**–100	60–**75**–90	30–**40**–50	25–**35**–45	70–**85**–100	65–**75**–85	90–**120**–150
	f	0,15–**0,20**–0,25	0,15–**0,20**–0,25	0,08–**0,10**–0,12	0,06–**0,08**–0,10	0,15–**0,20**–0,25	0,12–**0,15**–0,18	0,15–**0,20**–0,25
–Ø 12,0	v_c	70–**85**–100	60–**75**–90	30–**40**–50	25–**35**–45	70–**85**–100	65–**75**–85	90–**120**–150
	f	0,20–**0,25**–0,30	0,20–**0,25**–0,30	0,12–**0,15**–0,18	0,08–**0,10**–0,12	0,17–**0,22**–0,27	0,15–**0,20**–0,25	0,20–**0,25**–0,30
–Ø 16,0	v_c	70–**85**–100	60–**75**–90	30–**40**–50	25–**35**–45	70–**85**–100	65–**75**–85	90–**120**–150
	f	0,20–**0,25**–0,30	0,20–**0,25**–0,30	0,14–**0,17**–0,20	0,10–**0,15**–0,20	0,20–**0,25**–0,30	0,20–**0,25**–0,30	0,25–**0,30**–0,35

Min. - **Optimum** - Max.



XGHS Series

Applications	Series	Diameter Range (mm)	Hole Depth (L/D)
Deep Hole Drilling	MDW□□□□XHGS12	Ø 3,0 – 12,0	–12
	MDW□□□□XHGS15	Ø 3,0 – 12,0	–15
	MDW□□□□XHGS20	Ø 3,0 – 12,0	–20
	MDW□□□□XHGS25	Ø 3,0 – 12,0	–25
	MDW□□□□XHGS30	Ø 3,0 – 10,0	–30
Pilot Hole Drilling	MDW□□□□PHT	Ø 3,0 – 12,0	–2

General Features

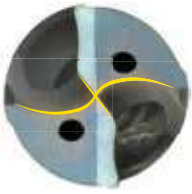
Super MultiDrill XHGS series is a next-generation drill for deep hole drilling, features stable chip control and improved strength to further enhance efficiency of deep hole drilling.

Characteristics and Applications

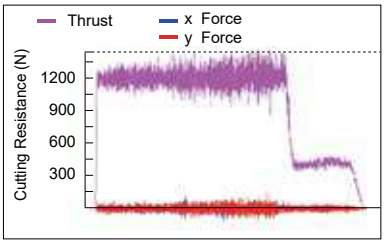
Low Cutting Resistance

The application of a new special thinning shape „RX thinning“ reduces cutting resistance during high efficiency drilling.

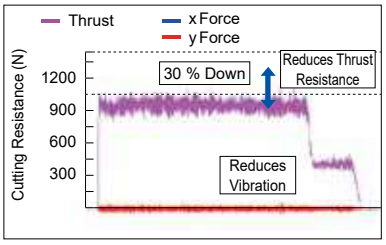
RX THINNING



Conventional Drill



XHGS Series



Work Material: C45
Tools: MDW050XHT20 (conventional), MDW0500XHGS20 (Ø 5,0 mm, 20D)
Cutting Cond.: v_c = 80 m/min, f = 0,35 mm/rev, (⇨ at the time of entry penetration f = 0,08 mm/rev), H = 90 mm
Coolant: MQL

Chip Control

New groove shape „J flute“ with improved chip control stability when drilling deep holes.

J-flute

Improved chip evacuation makes it possible to reduce spindle load fluctuation, ensuring stable, long tool life.

Consistant Chips

XHGS Series

Conv. Drill

f = 0,35 mm/rev | f = 0,40 mm/rev | f = 0,45 mm/rev

Work Material: C45
Tools: MDW050XHT20 (conventional), MDW0500XHGS20 (Ø 5,0 mm, 20D)
Cutting Cond.: v_c = 80 m/min, H = 90 mm
Coolant: MQL

High Precision & Stability

The XHGS series provides excellent guide performance due to the unique design when compared to the conventional drill.

Excellent Guide Performance

Conventional Drill

XHGS Series

Recommended Cutting Conditions

Min. - **Optimum** - Max.

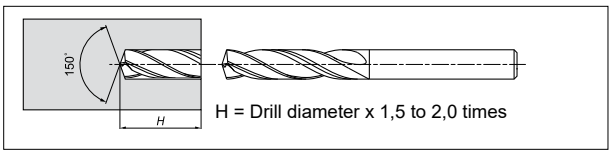
Drill Diameter DC (mm)	Cutting Conditions	Soft Steel (–200 HB)	General Steel (–250 HB)	Alloy Steel (–300 HB)	Hardened Steel (–40 HRC)	Cast Iron FC FCD
–Ø 3,0	v_c	50–**60**–80	60–**80**–100	40–**55**–70	30–**40**–50	40–**55**–70
	f	0,12–**0,15**–0,20	0,12–**0,15**–0,20	0,10–**0,13**–0,16	0,06–**0,08**–0,12	0,15–**0,18**–0,23
–Ø 5,0	v_c	50–**60**–80	60–**80**–100	50–**60**–70	30–**45**–55	50–**60**–70
	f	0,15–**0,20**–0,25	0,15–**0,23**–0,30	0,12–**0,15**–0,20	0,08–**0,10**–0,14	0,17–**0,25**–0,35
–Ø 10,0	v_c	50–**70**–90	60–**80**–110	50–**65**–80	30–**50**–60	50–**65**–80
	f	0,20–**0,25**–0,30	0,20–**0,25**–0,32	0,15–**0,20**–0,25	0,10–**0,15**–0,20	0,25–**0,28**–0,35
–Ø 12,0	v_c	60–**80**–100	60–**90**–120	50–**65**–80	40–**55**–70	50–**65**–80
	f	0,25–**0,30**–0,35	0,25–**0,30**–0,35	0,15–**0,23**–0,27	0,12–**0,15**–0,23	0,25–**0,30**–0,35

Note: Use lower speed when using MQL coolant and higher speed when using internal coolant. Vc: Cutting speed (m/min), f: Feed Rate (mm/rev)

Recommended Drilling Method

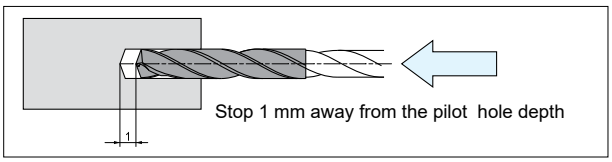
1. Drill a pilot hole using the dedicated PHT

Select the same nominal diameter for the dedicated pilot hole drill PHT type as the deep hole drill XHGS type.
(The pilot drill diameter is designed +0,02 mm to +0,05 mm larger than the long drill diameter)



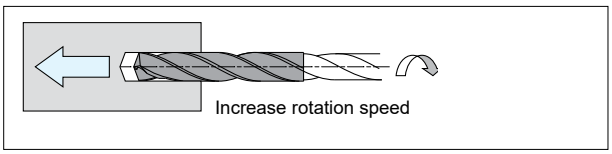
2. Enter the pilot hole at reduced cutting data

Rotation speed: 500 min^{-1}
Feed rate: 1000 to 2000 mm/min



Important:
DO NOT enter pilot hole at higher cutting data, this will cause damage to the drill.

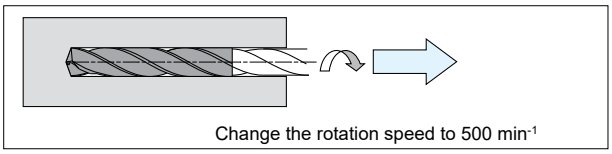
3. Increase rotation speed until the set cutting speed is reached, and start normal drilling operation



When using a NC machine, only begin drilling operation once full rotation speed is reached.

4. After drilling rotation speed is reduced and the drill is retracted from the work material

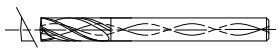
Rotation speed: 500 min^{-1}
Feed rate: 1.000 to 2.000 mm/min



Retracting a drill from the work material at a high rotation speed is dangerous as doing so may result in breakage due to run-out.

5. Other Notes

A flat base should be prepared when the surface for the pilot tool is slanted. Spot face using:

☑ 
MultiDrill MDF type

☑ 
Flat endmill

When the deep hole drill exits through an angle surface, decrease the feed rate to f = 0,05 mm/rev just before drilling through.

Coolant

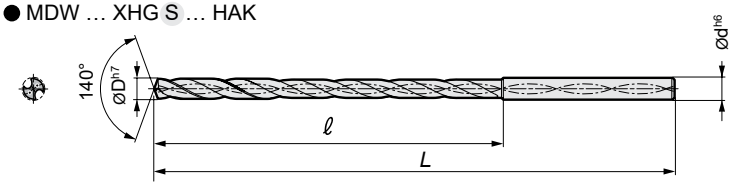
1. Internal coolant supply

Use suitable coolant / emulsion
Pump pressure: Steel: 1,5 to 2,0 MPa (cooling effect increases at higher pressure, affecting chips/wear)
Cast iron & aluminium alloy: 4,0 to 6,0 MPa (priority on cooling)

2. Internal MQL

Airpressure: 0,5 MPa or higher
Discharge volume: It is recommended to set the maximum discharge volume possible on the machine.
*Consult the manufacturer before using with aluminium alloy.

● MDW … XHG S … HAK



Coated grade: ACX70

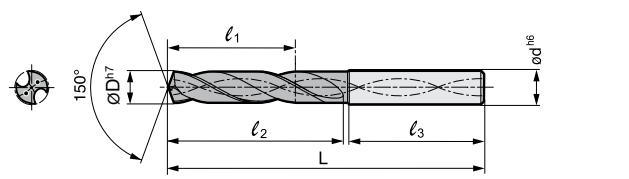
P ●MDW…XHG S Type for Deep Hole Drilling, Diameter Ø 3,0–12,0 mm

(mm)

Dimensions DC (mm)	Dimensions ød (mm)	Cat. No. 12, 15, 20, 25, 30	For 12 x D Stock	For 12 x D Dimensions L	For 12 x D Dimensions ℓ	For 15 x D Stock	For 15 x D Dimensions L	For 15 x D Dimensions ℓ	For 20 x D Stock	For 20 x D Dimensions L	For 20 x D Dimensions ℓ	For 25 x D Stock	For 25 x D Dimensions L	For 25 x D Dimensions ℓ	For 30 x D Stock	For 30 x D Dimensions L	For 30 x D Dimensions ℓ
3,0	4,0	MDW 0300XHGS □□ HAK	●	85	57	●	94	66	●	109	81	●	124	96	●	139	111
3,5		0350XHGS □□ HAK	●	89	61	●	100	72	●	117	89	●	135	107	●	152	124
4,0		0400XHGS □□ HAK	●	95	67	●	107	79	●	127	99	●	147	119	●	167	139
4,5	5,0	MDW 0450XHGS □□ HAK	●	104	76	●	118	90	●	140	112	●	163	135	●	184	156
5,0		0500XHGS □□ HAK5*	●	108	80	●	123	95	●	148	120	●	173	145	●	198	170
5,0	6,0	MDW 0500XHGS □□ HAK	●	116	80	●	131	95	●	156	120	●	181	145	●	206	170
5,5		0550XHGS □□ HAK	●	124	88	●	141	105	●	168	132	●	196	160	●	223	187
6,0		0600XHGS □□ HAK	●	130	94	●	148	112	●	178	142	●	208	172	●	238	202
6,5	8,0	MDW 0650XHGS □□ HAK	●	138	102	●	158	122	●	190	154	●	223	187	●	255	219
6,8		0680XHGS □□ HAK	●	144	108	●	164	128	●	198	162	●	236	200	●	266	230
7,0		0700XHGS □□ HAK	●	145	109	●	166	130	●	201	165	●	236	200	●	271	235
7,5		0750XHGS □□ HAK		151	115	●	174	138		211	175	●	249	213		286	250
8,0		0800XHGS □□ HAK	●	157	121	●	181	145	●	221	185	●	261	225	●	301	265
8,5	10,0	MDW 0850XHGS □□ HAK	●	171	131	●	197	157	●	239	199	●	282	242	●	324	284
9,0		0900XHGS □□ HAK	●	177	137	●	204	164	●	249	209	●	294	254	●	339	299
9,5		0950XHGS □□ HAK	●	183	143	●	212	172	●	259	219		305	265		352	312
10,0		1000XHGS □□ HAK	●	187	147	●	217	177	●	267	227	●	317	277	●	367	327
10,5	12,0	MDW 1050XHGS □□ HAK	●	202	157	●	234	189	●	286	241	●	339	294	–	–	–
11,0		1100XHGS □□ HAK	●	208	163	●	241	196	●	296	251	●	351	306	–	–	–
11,5		1150XHGS □□ HAK	●	213	168	●	248	203	●	305	260	●	363	318	–	–	–
12,0		1200XHGS □□ HAK	●	219	174	●	255	210	●	315	270	●	375	330	–	–	–

(*) Cat. No. description: Drill-Ø = 5 mm, shank-Ø = 5 mm (E.g. for 20 x D: MDW050XHGS20HAK5)
Non-standard diamters and lengths on request (Ø 2,5–16,0 mm possible)

● MDW…PHT Type for Pilot Hole



Dimensions DC (mm)	Dimensions ød (mm)	Cat. No.	For Pilot Hole Stock	L	ℓ1	ℓ2	ℓ3
3,03	4,0	MDW 0303 PHT	●	52	9	22	28
3,53		0353 PHT	●	52	9	22	28
4,03	5,0	MDW 0403 PHT	●	59	12	29	28
4,53		0453 PHT	●	59	12	29	28
5,03	6,0	MDW 0503 PHT	●	71	15	33	36
5,53		0553 PHT	●	71	15	33	36
6,03	8,0	MDW 0603 PHT	●	76	18	38	36
6,53		0653 PHT	●	76	18	38	36
6,83		0683 PHT	●	76	18	38	36
7,03		0703 PHT	●	82	21	43	36
7,53		0753 PHT	●	82	21	43	36
8,03	10,0	MDW 0803 PHT	●	88	24	46	40
8,53		0853 PHT	●	88	24	46	40
9,03		0903 PHT	●	88	24	46	40
9,53		0953 PHT	●	88	24	46	40
10,03	12,0	MDW 1003 PHT	●	104	30	55	45
10,53		1053 PHT	●	104	30	55	45
11,03		1103 PHT	●	104	30	55	45
11,53		1153 PHT	●	104	30	55	45
12,03	14,0	MDW 1203 PHT	●	117	42	68	45

■ How to Order

Non stock items – minimum order 6 pieces
Always specify the catalogue number and drill diameter as shown
- eg drill diameter 5,0 mm = MDW 050

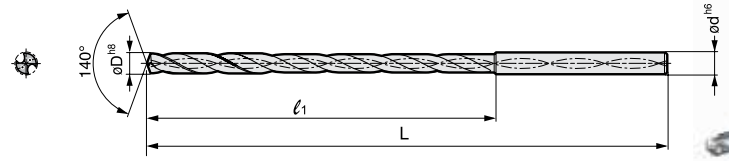
E.g., **MDW 050 X H G S 30 HAK ACX70** (Grade)

- MDW: Super MULTI-DRILL
- 050: DC = 5,0 mm
- X: Extra long type
- H: With spiral coolant holes
- G: Special shape (RX thinning) + J flute
- S: Cutting edges for steel with double margin
- 30: Drilling depth (L/D ratio)
- HAK: Shank type to DIN6535
- ACX70: (Grade)

● = Euro stock

Extra Long SUPER MULTI-DRILLs
MDW ... XHTA/PHT Type

● MDW ... XHT A ... HAK



Helix angle: 30°
Uncoated grade: KH03

N ●MDW...XHT A Type for Aluminium and Copper Alloys

(mm)

Dimensions		Cat. No.	For 20 x D			For 30 x D		
DC (mm)	ød (mm)	20, 30	Stock	Dimensions		Stock	Dimensions	
			20	L	ℓ_1	30	L	ℓ_1
4,0	4,0	MDW 040XHT A□□ HAK	●	127	97	●	167	137
5,0	6,0	MDW 050XHT A□□ HAK	●	156	118	●	206	168
6,0		060XHT A□□ HAK	●	178	138	●	238	198
7,0	8,0	MDW 070XHT A□□ HAK		201	162	●	271	232
8,0		080XHT A□□ HAK	●	221	182	●	301	262
9,0	10,0	MDW 090XHT A□□ HAK	●	249	205	●	339	295
10,0		100XHT A□□ HAK	●	267	225	●	367	325

⇨ All Long Drill series include an allowance to accomodate regrinding!
⇨ Uncoated carbide grade: KH03

■ How to Order

Non stock items – minimum order 6 pieces
Always specify the catalogue number and drill diameter as shown
- eg drill diameter 5,0 mm = MDW 050

E.g.,

MDW 050 X H T A 30 HAK (KH03) (Grade)

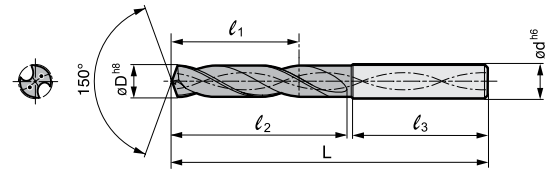
- Super MULTI-DRILL
- DC = 5,0 mm
- Extra long type
- with spiral coolant holes
- Shank type to DIN6535
- Drilling depth (L/D ratio)
- Cutting edges for Al and Cu alloys
- Special shape of clearance face

■ Recommended Cutting Conditions

Vc: Cutting speed (m/min), f: Feed Rate (mm/rev)

Drill Ø (mm) \ Work material		Aluminium Alloy
–Ø 5,0	v_c	80–160
	f	0,08–0,30
–Ø 6,0	v_c	80–160
	f	0,12–0,35
–Ø 8,0	v_c	80–180
	f	0,15–0,40
–Ø 10,0	v_c	80–180
	f	0,20–0,50
–Ø 12,0	v_c	80–180
	f	0,20–0,45

● MDW...PHT Type for Pilot Hole



Helix angle: 30°
ℓ_1 = Effective drilling length
Coated grade: ACW70

Dimensions		Cat. No.	For Pilot Hole				
DC (mm)	ød (mm)		Stock	Dimensions (mm)			
				L	ℓ_1	ℓ_2	ℓ_3
3,03	4,0	MDW 0303 PHT	●	52	9	22	28
3,53		0353 PHT	●	52	9	22	28
4,03	5,0	MDW 0403 PHT	●	59	12	29	28
4,53		0453 PHT	●	59	12	29	28
5,03	6,0	MDW 0503 PHT	●	71	15	33	36
5,53		0553 PHT	●	71	15	33	36
6,03	8,0	MDW 0603 PHT	●	76	18	38	36
6,53		0653 PHT	●	76	18	38	36
6,83		0683 PHT	●	76	18	38	36
7,03		0703 PHT	●	82	21	43	36
7,53		0753 PHT	●	82	21	43	36
8,03	10,0	MDW 0803 PHT	●	88	24	46	40
8,53		0853 PHT	●	88	24	46	40
9,03		0903 PHT	●	88	24	46	40
9,53		0953 PHT	●	88	24	46	40
10,03	12,0	MDW 1003 PHT	●	104	30	55	45
10,53		1053 PHT	●	104	30	55	45
11,03		1103 PHT	●	104	30	55	45
11,53		1153 PHT	●	104	30	55	45
12,03	14,0	MDW 1203 PHT	●	117	42	68	45

■ How to Order

Non stock items – minimum order 6 pieces
Always specify the catalogue number and drill diameter as shown -
eg. drill diameter 5,03 mm = MDW 0503

E.g.,

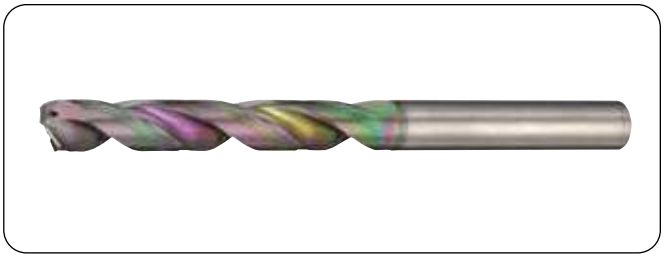
MDW 0503 PHT, ACW70

- Super MULTI-DRILL
- DC = 5,03 mm
- TiAlN coated grade
- Pilot drill with spiral coolant holes

MDW ... NHGS Type

DLC (Diamond Like Carbon) Coated Multi-Drills

With Coolant Holes (3D/5D/10D)



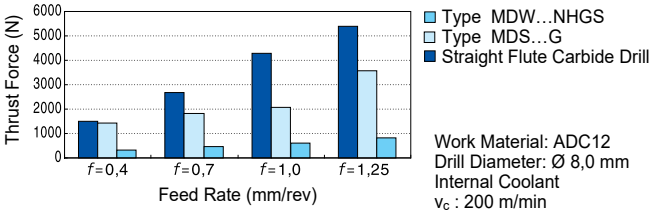
Characteristics

- **High efficiency drilling**
  AURORA COAT and strong helix design reduces cutting forces and improves edge sharpness.
- **Precision drilling**
  Special cutting edge design improves hole precision and quality.
- **Longer tool life**
  With AURORA COAT coupled with the cutting edge design, long and stable tool life can be achieved.
- **Deep hole (L/D = 20) drilling**
  Drills for deep hole drilling can be custom-made.
  Production range: Ø 3,0–16,0 mm
  total length: 50 times drill diameter (max. 290 mm)

Applicable Work Materials

- Aluminium Die Casting
- Aluminium Alloy
- Aluminium Alloy Casting
- Brass Casting
- Bronze Casting

Comparison of Cutting Force (Thrust Force)



Recommended Cutting Conditions

Diameter (mm)		Aluminium Alloy	Aluminium Die Casting	Copper Alloy
–Ø 5	v_c	80–160	80–180	80–160
	f	0,08–0,30	0,10–0,30	0,08–0,15
–Ø 10	v_c	80–180	80–200	60–180
	f	0,10–0,30	0,10–0,35	0,10–0,20
–Ø 16	v_c	80–200	80–200	80–200
	f	0,15–0,40	0,10–0,40	0,10–0,25

(v_c : Cutting Speed (m/min), f : Feed rate (mm/rev), Min–Max)

Diameter Ø 3,0–8,0 mm

(mm)

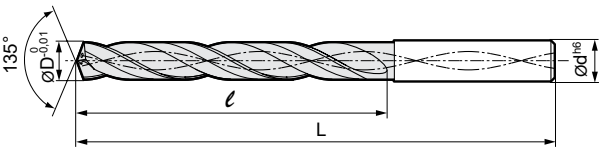
Dimensions		Cat. No.	3D Type			5D Type			10D Type		
			Stock	Dimensions		Stock	Dimensions		Stock	Dimensions	
øD	ød	3, 5, 10 ↘	3	L	ℓ	5	L	ℓ	10	L	ℓ
3,0	3,0	MDW 0300 NHGS□□	❍	68,6	18,1	❍	78,6	28,6	❍	92,6	42,6
3,1		MDW 0310 NHGS□□				❍					
3,2		MDW 0320 NHGS□□	❍			❑			❍		
3,3		MDW 0330 NHGS□□	❍		20,7	❍		32,7			49,7
3,4		MDW 0340 NHGS□□				❍			❍		
3,5		MDW 0350 NHGS□□	❑			❍			❍		
3,6		MDW 0360 NHGS□□				❍			❍		
3,65	4,0	MDW 0365 NHGS□□	❑	72,8		❍	86,8			106,8	
3,66		MDW 0366 NHGS□□				❍					
3,7		MDW 0370 NHGS□□			23,3	❍		36,8			56,8
3,8		MDW 0380 NHGS□□				❍					
3,9		MDW 0390 NHGS□□				❑			❍		
4,0		MDW 0400 NHGS□□	❍			❍			❍		
4,1		MDW 0410 NHGS□□	❍			❍					
4,2		MDW 0420 NHGS□□	❍			❍					
4,3		MDW 0430 NHGS□□			25,9	❍		40,9			63,9
4,4		MDW 0440 NHGS□□				❑					
4,5		MDW 0450 NHGS□□	❍			❍			❍		
4,6	5,0	MDW 0460 NHGS□□	❍	81,0		❍	99,0			125,0	
4,7		MDW 0470 NHGS□□				❍					
4,8		MDW 0480 NHGS□□			28,5	❍		45,0			71,0
4,9		MDW 0490 NHGS□□				❍			❍		
5,0		MDW 0500 NHGS□□	❍			❍			❍		
5,1		MDW 0510 NHGS□□				❍			❑		
5,2		MDW 0520 NHGS□□	❑			❑					
5,3		MDW 0530 NHGS□□	❍		28,6	❑		45,1			88,1
5,4		MDW 0540 NHGS□□				❑					
5,5		MDW 0550 NHGS□□	❍			❑			❍		
5,6	6,0	MDW 0560 NHGS□□		83,2		❍	101,2			137,2	
5,7		MDW 0570 NHGS□□				❍					
5,8		MDW 0580 NHGS□□			31,2	❍		49,2			85,2
5,9		MDW 0590 NHGS□□	❑			❑					
6,0		MDW 0600 NHGS□□	❍			❍			❍		
6,1		MDW 0610 NHGS□□				❍			❍		
6,2		MDW 0620 NHGS□□				❍					
6,3		MDW 0630 NHGS□□			33,8	❍		53,3			92,3
6,4		MDW 0640 NHGS□□				❍					
6,5		MDW 0650 NHGS□□	❍			❍			❍		
6,6	7,0	MDW 0660 NHGS□□		89,5		❑	110,5			152,5	
6,7		MDW 0670 NHGS□□	❑			❍			❑		
6,8		MDW 0680 NHGS□□	❍		36,5	❍		57,5	❍		99,5
6,9		MDW 0690 NHGS□□				❑					
7,0		MDW 0700 NHGS□□	❍			❍			❍		
7,1		MDW 0710 NHGS□□				❑					
7,2		MDW 0720 NHGS□□				❑			❑		
7,3		MDW 0730 NHGS□□			39,1	❑		61,6			116,6
7,35		MDW 0735 NHGS□□	❍			❑					
7,4		MDW 0740 NHGS□□	❍			❍					
7,5	8,0	MDW 0750 NHGS□□	❑	95,7		❍	119,7		❑	167,7	
7,6		MDW 0760 NHGS□□				❑					
7,7		MDW 0770 NHGS□□				❍					
7,8		MDW 0780 NHGS□□	❍		41,7	❍		65,7	❑		113,7
7,9		MDW 0790 NHGS□□				❍					
8,0		MDW 0800 NHGS□□	❍			❍			❍		

AURORA Coated NHGS Type, Grade: DL1300

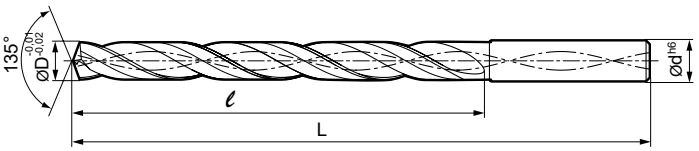
○ = Japan stock
❑ = Delivery on request

AURORA COAT SERIES
MDW ... NHGS Type

● NHGS 3/5 Type (Ø 3,0–16,0 mm)



● NHGS 10 Type (Ø 3,0–16,0 mm)



●Diameter Ø 8,1–13,0 mm

(mm)

Dimensions		Cat. No.	3D Type			5D Type			10D Type		
			Stock	Dimensions		Stock	Dimensions		Stock	Dimensions	
øD	ød	3, 5, 10 ↘	3	L	ℓ	5	L	ℓ	10	L	ℓ
8,1	9,0	MDW 0810 NHGS□□		101,9	44,3	❒	128,9	69,8		182,9	118,8
8,2		MDW 0820 NHGS□□				❍					
8,3		MDW 0830 NHGS□□				❍					
8,4		MDW 0840 NHGS□□				❍					
8,5		MDW 0850 NHGS□□	❍			❍			❍		
8,6		MDW 0860 NHGS□□	❒		46,9	❍		73,9			127,9
8,7		MDW 0870 NHGS□□				❒					
8,8		MDW 0880 NHGS□□	❍			❒					
8,9		MDW 0890 NHGS□□				❒					
9,0		MDW 0900 NHGS□□	❍			❍			❍		
9,1	10,0	MDW 0910 NHGS□□		108,0	49,5	❒	138,0	78,0		198,0	135,0
9,2		MDW 0920 NHGS□□				❒					
9,21		MDW 0921 NHGS□□	❒			❒					
9,3		MDW 0930 NHGS□□				❍					
9,4		MDW 0940 NHGS□□	❒			❒					
9,5		MDW 0950 NHGS□□	❒			❍			❒		
9,6		MDW 0960 NHGS□□			52,0	❒		82,0			142,0
9,7		MDW 0970 NHGS□□				❒					
9,8		MDW 0980 NHGS□□				❍			❍		
9,9		MDW 0990 NHGS□□				❍					
10,0		MDW 1000 NHGS□□	❍			❍			❍		
10,1	11,0	MDW 1010 NHGS□□	❒	168,3	54,7		151,3	86,2		217,3	149,2
10,2		MDW 1020 NHGS□□									
10,3		MDW 1030 NHGS□□	❒			❒					
10,4		MDW 1040 NHGS□□				❒					
10,5		MDW 1050 NHGS□□	❍			❒			❒		
10,6		MDW 1060 NHGS□□	❒		57,3	❒		90,3			156,3
10,7		MDW 1070 NHGS□□									
10,8		MDW 1080 NHGS□□									
10,9		MDW 1090 NHGS□□									
11,0		MDW 1100 NHGS□□	❍			❍			❍		
11,08	12,0	MDW 1108 NHGS□□	❒	124,5	59,9	❒	160,5	94,4		232,5	163,4
11,1		MDW 1110 NHGS□□	❒			❒					
11,2		MDW 1120 NHGS□□	❍			❒					
11,3		MDW 1130 NHGS□□									
11,4		MDW 1140 NHGS□□	❒			❒					
11,5		MDW 1150 NHGS□□	❍			❒			❒		
11,6		MDW 1160 NHGS□□			62,5			98,5			170,5
11,7		MDW 1170 NHGS□□									
11,8		MDW 1180 NHGS□□									
11,9		MDW 1190 NHGS□□									
12,0		MDW 1200 NHGS□□	❍			❍			❍		
12,1	13,0	MDW 1210 NHGS□□	❒	130,7	65,1	❒	169,7	102,6		247,7	177,6
12,2		MDW 1220 NHGS□□									
12,3		MDW 1230 NHGS□□	❒			❒					
12,4		MDW 1240 NHGS□□									
12,5		MDW 1250 NHGS□□	❒			❍			❒		
12,6		MDW 1260 NHGS□□			67,7			106,7			184,7
12,7		MDW 1270 NHGS□□									
12,8		MDW 1280 NHGS□□									
12,9		MDW 1290 NHGS□□									
12,96		MDW 1296 NHGS□□	❒			❒					
13,0		MDW 1300 NHGS□□	❍			❍			❍		

●Diameter Ø 13,1–16,0 mm

(mm)

Dimensions		Cat. No.	3D Type			5D Type			10D Type		
			Stock	Dimensions		Stock	Dimensions		Stock	Dimensions	
øD	ød	3, 5, 10 ↘	3	L	ℓ	5	L	ℓ	10	L	ℓ
13,1	14,0	MDW 1310 NHGS□□		136,9	70,8		178,9	110,8		262,9	191,8
13,2		MDW 1320 NHGS□□									
13,3		MDW 1330 NHGS□□									
13,4		MDW 1340 NHGS□□									
13,5		MDW 1350 NHGS□□	❍			❍					
13,6		MDW 1360 NHGS□□			72,9			114,9			198,9
13,7		MDW 1370 NHGS□□									
13,8		MDW 1380 NHGS□□									
13,9		MDW 1390 NHGS□□									
14,0		MDW 1400 NHGS□□	❍			❍					
14,1	15,0	MDW 1410 NHGS□□	❒	141,1	75,5	❒	188,1	119,0		278,1	206
14,2		MDW 1420 NHGS□□									
14,3		MDW 1430 NHGS□□									
14,4		MDW 1440 NHGS□□									
14,5		MDW 1450 NHGS□□	❍			❍					
14,6		MDW 1460 NHGS□□			78,1			123,1			213,1
14,7		MDW 1470 NHGS□□									
14,8		MDW 1480 NHGS□□									
14,9		MDW 1490 NHGS□□	❒			❒					
14,96		MDW 1496 NHGS□□	❒			❒					
15,0		MDW 1500 NHGS□□	❍			❍					
15,1	16,0	MDW 1510 NHGS□□		149,3	80,7		197,3	127,2		293,3	220,2
15,2		MDW 1520 NHGS□□									
15,3		MDW 1530 NHGS□□									
15,4		MDW 1540 NHGS□□									
15,5		MDW 1550 NHGS□□	❍			❒					
15,6		MDW 1560 NHGS□□			83,3			131,3			227,3
15,7		MDW 1570 NHGS□□									
15,8		MDW 1580 NHGS□□									
15,9		MDW 1590 NHGS□□									
16,0		MDW 1600 NHGS□□	❍			❍					

AURORA Coated NHGS Type, Grade: DL1300

■ How to Order

Non-Stock Items will be required minimum order quantity for 6 pcs.
Please specify the Cat. No.
For example, if the diameter of the drill is 10,3 mm and the ratio to øD is 5, please indicate as follow.

E.g.,

MDW 1030 NHGS 5 , DL1300 (Grade)

- MDW: Super MULTI-DRILL
- 1030: DC = 10,3 mm
- H: Applicable work materials
- GS: with spiral coolant holes
- 5: Drilling depth (The ratio to øD): –3 / –**5** / –10
- NHGS: NHGS type Multi-Drills

Multi-Drills

Micro Long Drills
MLDH ....L/P Type

General Features

Micro Long Drills are oil-hole drills for high efficiency drilling that were developed for drilling deep, small-diameter holes. These next-generation, small-diameter hole drills feature improved strength - often a problem area with small-diameter drills.

Characteristics and Applications

● Deep-hole drilling
New groove shape ensures good drill rigidity and chip evacuation.
High efficiency drilling to depths of over 20 x drill diameter at over v_f = 500 mm/min (drill diameter 1,3 mm, X12CrS13 equivalent).
Optimal thinning and edge balance for stable chip control.

● Long tool life
Special coating provides long tool life with a wide variety of work materials.
Improved chip evacuation makes it possible to reduce spindle load fluctuation, ensuring stable tool life.

Series

Application	Type	Diameter Range (mm)	Hole Depth (L/D)
Guide Hole Drilling	MLDH □□□□ P	Ø 0,8 – 2,0	–2
Deep Hole Drilling	MLDH □□□□ L5	Ø 0,8 – 2,0	–5
	MLDH □□□□ L12	Ø 0,8 – 2,0	–12
	MLDH □□□□ L20	Ø 0,8 – 2,0	–20
	MLDH □□□□ L30	Ø 0,8 – 2,0	–30

Recommended Cutting Conditions

● MLDH .... P / L5

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

Drill-ø (mm)	Cutting Cond.	Soft Steel (–200 HB)	General Steel (200–250 HB)	Alloy Steel (250–300 HB)	Stainless Steel (–200 HB)	Cast Iron	Aluminium Alloy	Heat-Resistant Steels
–Ø 1,0	v_c	40–**50**–60	40–**50**–60	40–**50**–60	20–**30**–40	40–**50**–60	50–**60**–70	5–**10**–15
	f	0,01–**0,02**–0,03	0,01–**0,02**–0,03	0,01–**0,02**–0,03	0,01–**0,02**–0,03	0,02–**0,03**–0,04	0,03–**0,04**–0,06	0,005–**0,01**–0,02
–Ø 1,5	v_c	40–**50**–60	40–**50**–60	40–**50**–60	20–**30**–40	40–**50**–60	50–**60**–70	5–**10**–15
	f	0,04–**0,08**–0,12	0,04–**0,08**–0,12	0,04–**0,08**–0,12	0,02–**0,05**–0,10	0,04–**0,08**–0,12	0,05–**0,10**–0,15	0,01–**0,03**–0,05
–Ø 2,0	v_c	40–**50**–60	40–**50**–60	40–**50**–60	20–**30**–40	40–**50**–60	50–**60**–70	5–**10**–15
	f	0,06–**0,08**–0,12	0,06–**0,08**–0,12	0,06–**0,08**–0,12	0,04–**0,06**–0,10	0,06–**0,08**–0,12	0,08–**0,12**–0,15	0,01–**0,03**–0,05

● MLDH .... L12 / L20 / L30

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

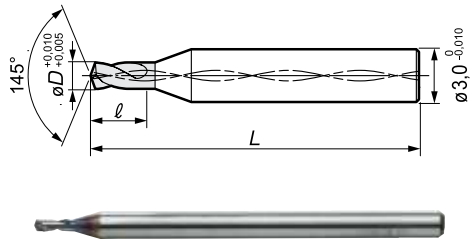
Drill-ø (mm)	Cutting Cond.	Soft Steel (–200 HB)	General Steel (200–250 HB)	Alloy Steel (250–300 HB)	Stainless Steel (–200 HB)	Cast Iron	Aluminium Alloy	Heat-Resistant Steels
–Ø 1,0	v_c	40–**50**–60	40–**50**–60	40–**50**–60	20–**30**–40	40–**50**–60	50–**60**–70	5–**10**–15
	f	0,01–**0,02**–0,03	0,01–**0,02**–0,03	0,01–**0,02**–0,03	0,01–**0,02**–0,03	0,02–**0,03**–0,04	0,03–**0,04**–0,06	0,005–**0,01**–0,02
–Ø 1,5	v_c	40–**50**–60	40–**50**–60	40–**50**–60	20–**30**–40	40–**50**–60	50–**60**–70	5–**10**–15
	f	0,03–**0,05**–0,07	0,03–**0,05**–0,07	0,03–**0,05**–0,07	0,02–**0,04**–0,07	0,04–**0,07**–0,10	0,05–**0,08**–0,12	0,01–**0,02**–0,03
–Ø 2,0	v_c	40–**50**–60	40–**50**–60	40–**50**–60	20–**30**–40	40–**50**–60	50–**60**–70	5–**10**–15
	f	0,04–**0,06**–0,08	0,04–**0,06**–0,08	0,04–**0,06**–0,08	0,04–**0,06**–0,08	0,04–**0,07**–0,10	0,05–**0,08**–0,12	0,01–**0,02**–0,03

○ = Japan stock

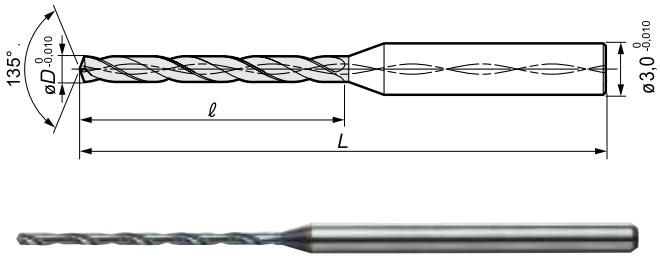
Micro Long Drills
MLDH ....L/P Type

Internal Coolant Supply

● MLDH-P For Pilot Hole Drilling



● MLDH-L For Deep Hole Drilling



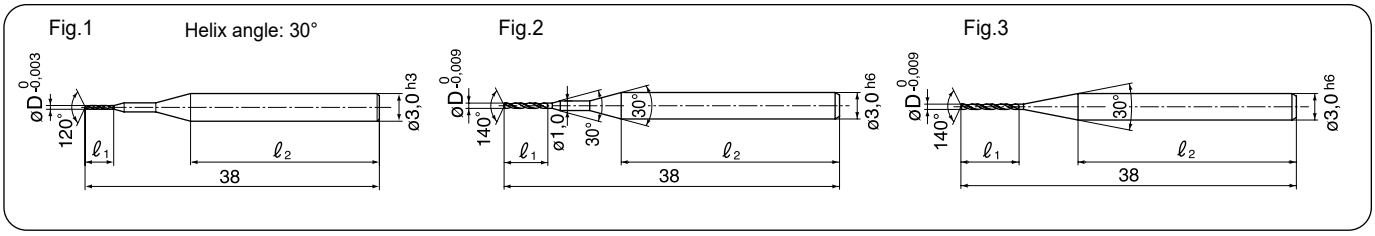
■ Stock

(mm)

ØD (mm)	P Type for Pilot Hole Drilling				L Type for Deep Hole Drilling											
	Cat. No.	Stock	Dimensions		Cat. No.	5x D			12x D			20x D			30x D		
						Stock	Dimensions		Stock	Dimensions		Stock	Dimensions		Stock	Dimensions	
			L	ℓ	5,12,20,30	5	L	ℓ	1 2	L	ℓ	2 0	L	ℓ	3 0	L	ℓ
0,80	MLDH 0800P	❍	45	3,2	MLDH 0800L□□	❍	50	8	❍	55	14	❍	60	19	❍	70	28
0,81	0810P	❍			0810L□□	❍		9	❍			❍		20	❍		
0,82	MLDH 0820P	❍		3,3	MLDH 0820L□□	❍			❍			❍			❍		
0,83	0830P	❍			0830L□□	❍			❍			❍			❍		
0,84	MLDH 0840P	❍		3,4	MLDH 0840L□□	❍			❍			❍			❍		29
0,85	0850P	❍			0850L□□	❍			❍			❍			❍		
0,86	0860P	❍			0860L□□	❍			❍		15	❍	65	21	❍	75	30
0,87	MLDH 0870P	❍		3,5	MLDH 0870L□□	❍		10	❍	60		❍			❍		
0,88	0880P	❍			0880L□□	❍			❍			❍			❍		
0,89	MLDH 0890P	❍		3,6	MLDH 0890L□□	❍			❍			❍			❍		31
0,90	0900P	❍			0900L□□	❍			❍			❍		22	❍		
0,91	0910P	❍			0910L□□	❍			❍			❍			❍		
0,92	MLDH 0920P	❍		3,7	MLDH 0920L□□	❍			❍		16	❍			❍		32
0,93	0930P	❍			0930L□□	❍			❍			❍			❍		
0,94	MLDH 0940P	❍		3,8	MLDH 0940L□□	❍			❍			❍		23	❍		
0,95	0950P	❍			0950L□□	❍			❍			❍			❍		
0,96	0960P	❍			0960L□□	❍			❍			❍			❍		33
0,97	MLDH 0970P	❍		3,9	MLDH 0970L□□	❍			❍			❍			❍		
0,98	0980P	❍			0980L□□	❍			❍		17	❍		24	❍		
0,99	MLDH 0990P	❍		4,0	MLDH 0990L□□	❍			❍			❍			❍		34
1,00	1000P	❍			1000L□□	❍			❍			❍			❍		
1,05	MLDH 1050P	❍		4,2	MLDH 1050L□□	❍	55	12	❍	60	18	❍	70	25	❍	80	36
1,10	MLDH 1100P	❍		4,4	MLDH 1100L□□	❍			❍		19	❍		26	❍		37
1,15	MLDH 1150P	❍		4,6	MLDH 1150L□□	❍			❍		20	❍		28	❍		39
1,20	MLDH 1200P	❍		4,8	MLDH 1200L□□	❍			❍			❍		29	❍		41
1,25	MLDH 1250P	❍		5,0	MLDH 1250L□□	❍		14	❍	65	21	❍	75	30	❍	85	43
1,30	MLDH 1300P	❍		5,2	MLDH 1300L□□	❍			❍		22	❍		31	❍		44
1,35	MLDH 1350P	❍		5,4	MLDH 1350L□□	❍			❍		23	❍		32	❍		46
1,40	MLDH 1400P	❍		5,6	MLDH 1400L□□	❍			❍		24	❍		34	❍	90	48
1,45	MLDH 1450P	❍		5,8	MLDH 1450L□□	❍			❍		25	❍		35	❍		49
1,50	MLDH 1500P	❍		6,0	MLDH 1500L□□	❍		16	❍		26	❍		36	❍		51
1,55	MLDH 1550P	❍		6,2	MLDH 1550L□□	❍			❍			❍	80	37	❍	95	53
1,60	MLDH 1600P	❍		6,4	MLDH 1600L□□	❍			❍	70	27	❍		38	❍		54
1,65	MLDH 1650P	❍	50	6,6	MLDH 1650L□□	❍	60	18	❍		28	❍		40	❍		56
1,70	MLDH 1700P	❍		6,8	MLDH 1700L□□	❍			❍		29	❍		41	❍	100	58
1,75	MLDH 1750P	❍		7,0	MLDH 1750L□□	❍			❍		30	❍		42	❍		60
1,80	MLDH 1800P	❍		7,2	MLDH 1800L□□	❍			❍		31	❍	85	43	❍		61
1,85	MLDH 1850P	❍		7,4	MLDH 1850L□□	❍		20	❍			❍		44	❍		63
1,90	MLDH 1900P	❍		7,6	MLDH 1900L□□	❍			❍	75	32	❍		46	❍	103	65
1,95	MLDH 1950P	❍		7,8	MLDH 1950L□□	❍			❍		33	❍		47	❍		66
2,00	MLDH 2000P	❍		8,0	MLDH 2000L□□	❍			❍		34	❍	90	48	❍		68

PVD Coated Grade: ACV70

MDUS / MDSS Type



●Diameter Ø 0,03–0,19 mm

øD (mm)	Cat. No.	Stock	Dimensions ℓ_1	Dimensions ℓ_2	Fig.	Pcs./Packing
0,030	MDUS 0030-30C	❍	0,3	28	1	5
0,035	MDUS 0035-30C		0,4			
0,040	MDUS 0040-30C	❍				
0,045	MDUS 0045-30C		0,5			
0,050	MDUS 0050-30C	❍				
0,055	MDUS 0055-30C		0,6			
0,060	MDUS 0060-30C					
0,065	MDUS 0065-30C		0,7			
0,070	MDUS 0070-30C					
0,075	MDUS 0075-30C		0,8			
0,080	MDUS 0080-30C	❍				
0,085	MDUS 0085-30C		1,0			
0,090	MDUS 0090-30C					
0,095	MDUS 0095-30C					
0,100	MDUS 0100-30C	❍				
0,110	MDUS 0110-30C	❍	1,2			1
0,120	MDUS 0120-30C					
0,120	MDUS 0130-30C	❍	1,5			
0,140	MDUS 0140-30C					
0,150	MDUS 0150-30C					
0,160	MDUS 0160-30C	❍	1,8			
0,170	MDUS 0170-30C					
0,180	MDUS 0180-30C					
0,190	MDUS 0190-30C		1,9			

●Diameter Ø 0,20–0,59 mm

øD (mm)	Cat. No.	Stock	Dimensions ℓ_1	Dimensions ℓ_2	Fig.	Pcs./Packing
0,20	MDSS 0020	❍	2,5	28	2	1
0,21	MDSS 0021	❍				
0,22	MDSS 0022	❍				
0,23	MDSS 0023	❍				
0,24	MDSS 0024	❍				
0,25	MDSS 0025	❍				
0,26	MDSS 0026	❍				
0,27	MDSS 0027	❍				
0,28	MDSS 0028	❍				
0,29	MDSS 0029	❒				
0,30	MDSS 0030	❍	3			
0,31	MDSS 0031	❍				
0,32	MDSS 0032	❍				
0,33	MDSS 0033	❍				
0,34	MDSS 0034	❍				
0,35	MDSS 0035	❍	4		3	
0,36	MDSS 0036	❍				
0,37	MDSS 0037	❍				
0,38	MDSS 0038	❍				
0,39	MDSS 0039	❍				
0,40	MDSS 0040	❍	5			
0,41	MDSS 0041	❍				
0,42	MDSS 0042	❍				
0,43	MDSS 0043	❍				
0,44	MDSS 0044	❍				
0,45	MDSS 0045	❍				
0,46	MDSS 0046	❍				
0,47	MDSS 0047	❍				
0,48	MDSS 0048	❍				
0,49	MDSS 0049	❍				
0,50	MDSS 0050	❍	6	27		
0,51	MDSS 0051	❍				
0,52	MDSS 0052	❍				
0,53	MDSS 0053	❍				
0,54	MDSS 0054	❍				
0,55	MDSS 0055	❍				
0,56	MDSS 0056	❍				
0,57	MDSS 0057	❍				
0,58	MDSS 0058	❍				
0,59	MDSS 0059	❍				

●Diameter Ø 0,60–1,00 mm

øD (mm)	Cat. No.	Stock	Dimensions ℓ_1	Dimensions ℓ_2	Fig.	Pcs./Packing
0,60	MDSS 0060	❍	7	26	3	1
0,61	MDSS 0061	❍				
0,62	MDSS 0062	❍				
0,63	MDSS 0063	❍				
0,64	MDSS 0064	❍				
0,65	MDSS 0065	❍				
0,66	MDSS 0066	❍				
0,67	MDSS 0067	❍				
0,68	MDSS 0068	❍				
0,69	MDSS 0069	❍				
0,70	MDSS 0070	❍	9	24		
0,71	MDSS 0071	❍				
0,72	MDSS 0072	❍				
0,73	MDSS 0073	❍				
0,74	MDSS 0074	❒				
0,75	MDSS 0075	❍				
0,76	MDSS 0076	❍				
0,77	MDSS 0077	❍				
0,78	MDSS 0078	❍				
0,79	MDSS 0079	❍				
0,80	MDSS 0080	❍	10	23		
0,81	MDSS 0081	❍				
0,82	MDSS 0082	❍				
0,83	MDSS 0083	❍				
0,84	MDSS 0084	❍				
0,85	MDSS 0085	❍				
0,86	MDSS 0086	❍				
0,87	MDSS 0087	❍				
0,88	MDSS 0088	❍				
0,89	MDSS 0089	❍				
0,90	MDSS 0090	❍	11	22		
0,91	MDSS 0091	❍				
0,92	MDSS 0092	❍				
0,93	MDSS 0093	❍				
0,94	MDSS 0094	❍				
0,95	MDSS 0095	❍				
0,96	MDSS 0096	❍				
0,97	MDSS 0097	❍				
0,98	MDSS 0098	❍				
0,99	MDSS 0099	❍				
1,00	MDSS 0100	❍	12	21		

■ MDSS Recommended Cutting Conditions (Wet)

Work / Cond. / Drill-ø (mm)	Alloy Steel, Pre-hardened Steel: Spindle (rpm)	Feed rate (mm/min)	Step-feed (mm)	Die Steel, Tempered Steel (H_RC 30–40): Spindle (rpm)	Feed rate (mm/min)	Step-feed (mm)	Stainless Steel: Spindle (rpm)	Feed rate (mm/min)	Step-feed (mm)
Ø 0,2	26500	50	0,1D	21200	40	0,1D	10600	20	0,1D
Ø 0,3	26500	80		21200	60		10600	30	
Ø 0,4	25900	100		19900	80		9500	40	
Ø 0,5	25500	150		19100	110		9500	50	
Ø 1,0	15900	240	0,2D–0,5D※	12700	190	0,2D–0,5D※	5600	80	

1. The above conditions are recommended under wet conditions, using water-soluble coolant.
2. If machine noises and vibrations are present, please adjust the cutting conditions accordingly.
3. If the machine cannot achieve the recommended spindle speed, please use the max. spindle speed available.

※ Step feed is recommended for drilling of holes deeper than 3xD.

○ = Japan stock
❑ = Delivery on request

SUMIDIA Coated Drills
SDC Type

General Features

SUMIDIA Coated SDC type drills for Carbon Fibre Reinforced Plastic (CFRP) employ Sumitomo Electric Hardmetal's proprietary multi-step point angle.
Combined with a diamond coating, this technology improves the quality of machined surfaces and extends tool life.

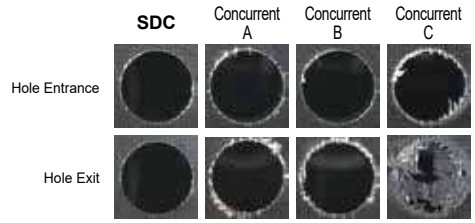
Characteristics and Applications

- Excellent drilled-hole quality
  - Sharp cutting edge shape reduces delamination of fibre layers and burrs.
  - Continuously changing point angle disperses load placed on cutting edge and prevents breakage.
- Long tool life
  - Use of high-strength diamond coating with excellent adhesion delivers high quality and long tool life.

Performance

Comparison of Machined Surface Finish

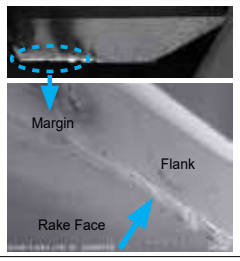
Excellent Machined Face Quality
(Prevents Delamination And Burrs)



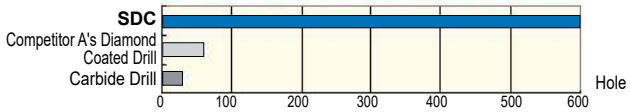
Tool:	SUMIDIA coated drill SDC type, Ø 6,375 Competitor A B C´s drill Ø 6,35 & Ø 6,5
Work Material:	CFRP
Cutting Conditions:	n = 6.000 rpm, f=0,1 mm/rev, a_p =28 mm (Through) Dry

Tool Life Comparison

Effects of Diamond Coating

SDC type (After drilling 600 holes)	Competitor's product (After drilling 50 holes)
	
No delamination Low flank wear	More delamination from cutting edge to flank

Stable diamond layer adhesion prevents delamination.
Excellent wear resistance enables high-quality drilling with long tool life.



Tool:	SUMIDIA coated drill SDC type, Ø 6,375 Competitor A B C´s drill Ø 6,35 & Ø 6,5
Work Material:	CFRP
Cutting Conditions:	n = 6.000 rpm, f=0,1 mm/rev, a_p =28 mm (Through) Dry

Series

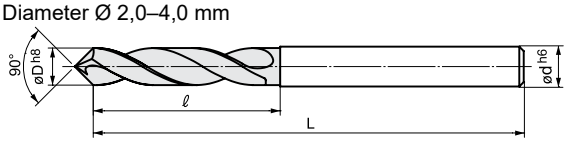
Type	Diameter Range (mm)	Point angle	Hole Depth ($^{L}/_{D}$)
MDS□□□□□SDC3	Ø 2,0 – 4,0	90°	–3
	Ø 4,851 – 10,0	130°	

DCX20 Grade | SUMI-DIA Coating

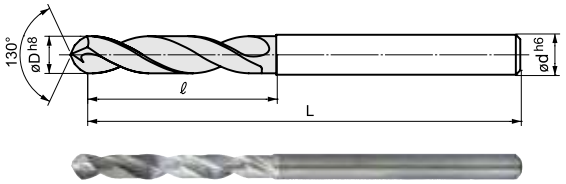
Structal Steel	Carbon Steel	Alloy Steel	Pre-hardened Steel	Tempered Die Steel	Hardened Steel 45–55 HRC	Hardened Steel 55–60 HRC	Hardened Steel 60–65 HRC	Stainless Steel	Ti Alloy / Heat Resistant Alloy	Cast iron	Al Alloy	Cu Alloy	CFRP *
											○		◎

* CFRP (Carbon Fibre Reinforced Plastic)

● Diameter Ø 2,0–4,0 mm



● Diameter Ø 4,851–10,0 mm



●Diameter ø 2,0–10,0 mm

(mm)

Dimensions DC (mm)	Dimensions Ød (mm)	Cat. No.	3D Type Stock	3D Type Dimensions L	3D Type Dimensions ℓ
2,0	3,0	MDS 02000SDC3	❍	49	12,5
2,489		02489SDC3	❍		15,0
3,0		03000SDC3	❍		17,5
3,3	3,3	MDS 03300SDC3	❍	60	20,0
4,0	4,0	04000SDC3	❍		22,5
4,851	4,851	MDS 04851SDC3	❍	76	27,5
5,0	5,0	05000SDC3	❍		
5,6	5,6	MDS 05600SDC3	❍	81	30,0
6,0	6,0	06000SDC3	❍		
6,375	6,375	MDS 06375SDC3	❍	83	32,5
7,0	7,0	07000SDC3	❍		35,0
7,938	7,938	MDS 07938SDC3	❍	90	40,0
8,0	8,0	08000SDC3	❍		
9,0	9,0	MDS 09000SDC3	❍	98	45,0
9,550	9,550	MDS 09550SDC3	❍	105	50,0
10,0	10,0	10000SDC3	❍		

Recommended Cutting Conditions

ØD \ Work / Cond.		CFRP Only (Dry Machining)	Stacked Plates of CFRP, Aluminium Alloys (Dry Machining)
–Ø 6,0	v_c	80–**120**–150	40–**60**–80
	f	0,05–**0,08**–0,10	0,05–**0,05**–0,10
–Ø10,0	v_c	80–**100**–120	40–**60**–80
	f	0,05–**0,08**–0,10	0,05–**0,05**–0,10

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

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

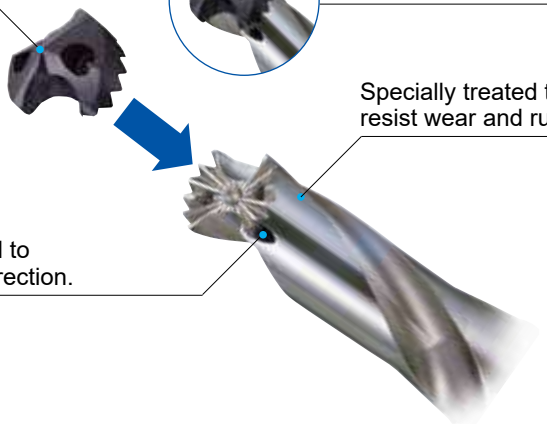
- Available in diameters ranging from 12,0–42,5 mm
- Drilling Depths 1,5–12 x Diameter
- Optimised heat dissipation via precisely located coolant holes
- Maximised rigidity from newly developed clamping system
- High performance drilling of precision holes from solid
- 3 different types of head for general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

The newly developed tungsten carbide substrate with it's 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.

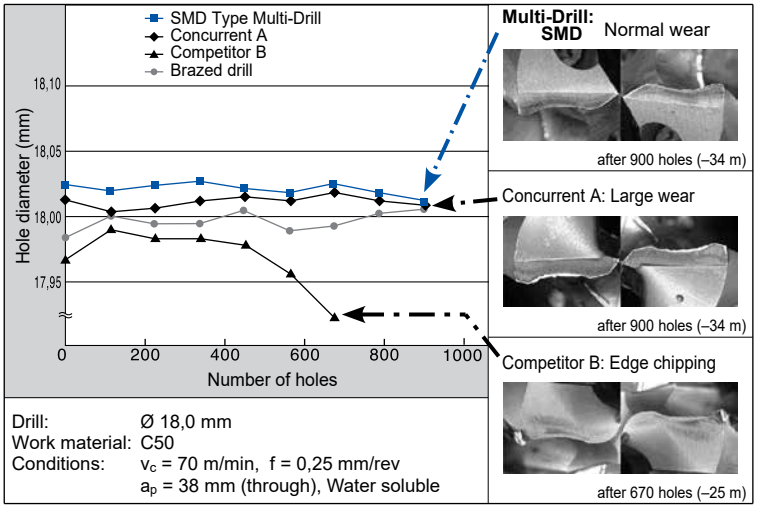
Edge security comes from replaceable drilling heads bolted to fixed radial serrations which provide a rigid and precise clamping platform.

Specially treated toughened steel body to resist wear and rust

Through coolant holes positioned to optimise coolant pressure and direction.

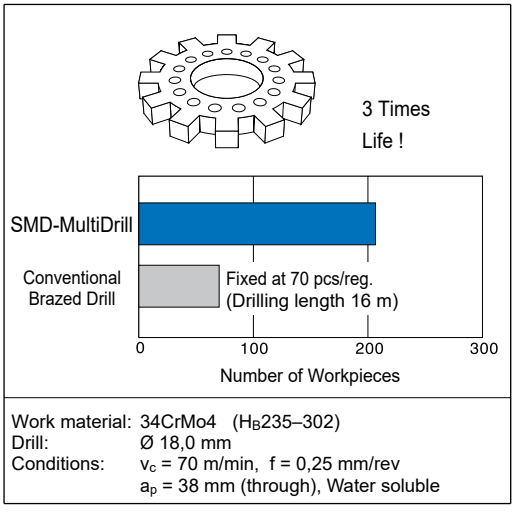


Drilling Precision



Drill: Ø 18,0 mm
Work material: C50
Conditions: v_c = 70 m/min, f = 0,25 mm/rev
a_p = 38 mm (through), Water soluble

Application Example

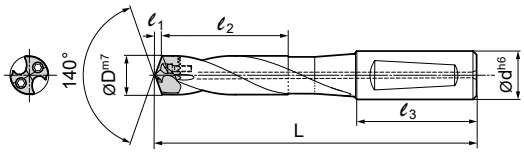


Work material: 34CrMo4 (H_B235–302)
Drill: Ø 18,0 mm
Conditions: v_c = 70 m/min, f = 0,25 mm/rev
a_p = 38 mm (through), Water soluble

SMDH Type

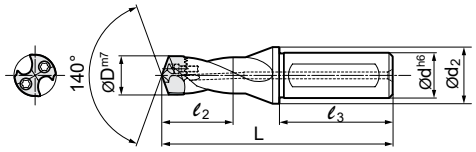
● Holder 3D / 5D / 8D

Shank Type:
Whistle notch type



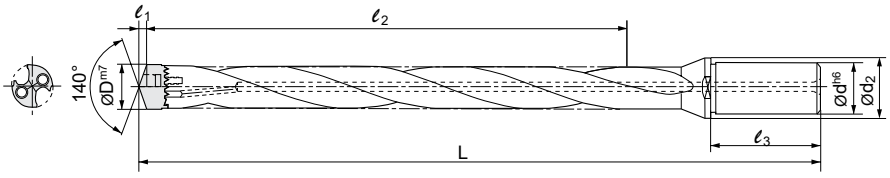
● Holder **1,5D**

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	Ød	ℓ_3		**S**	L	ℓ_2	Ød2	**M3**	L	ℓ_2	**M5**	L	ℓ_2	**M8**	L	ℓ_2	**12D**	L	ℓ_2	Ød2	
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□

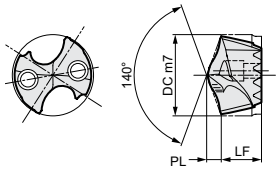
● = Euro stock

N·m Recommended Tightening Torque (N·m)

Regrindable Drill Head Insert
SMDT... D MTL Type

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

Drill Ø (mm) \ Work material		General steel (HB250–320)	Harden steel (HRC45)	Nodular cast iron
~ 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

Drill Ø (mm) \ Work material		General steel (HB250–320)	Harden steel (HRC45)	Nodular cast iron
~ 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]

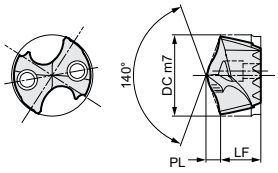
SMDT... D MEL Type

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	
12,1	1210 D MEL	●	2,2	
12,2	1220 D MEL	●	2,2	6,9
12,3	1230 D MEL	●	2,2	
12,4	1240 D MEL	●	2,3	
12,5	SMDT 1250 D MEL		2,3	
12,6	1260 D MEL	●	2,3	
12,7	1270 D MEL	●	2,3	7,1
12,8	1280 D MEL	●	2,3	
12,9	1290 D MEL	●	2,3	
13,0	SMDT 1300 D MEL	●	2,4	
13,1	1310 D MEL	●	2,4	
13,2	1320 D MEL	●	2,4	7,3
13,3	1330 D MEL	●	2,4	
13,4	1340 D MEL	●	2,4	
13,5	SMDT 1350 D MEL	●	2,5	
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	7,8
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	
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	8,3
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	
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	8,7
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	
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	9,2
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	
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	9,6
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	
18,9	1890 D MEL	●	3,4	
19,0	1900 D MEL	●	3,5	
19,1	1910 D MEL	●	3,5	10,1
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	
19,7	1970 D MEL	●	3,6	
19,8	1980 D MEL	●	3,6	10,5
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

Drill Ø (mm) \ Work material		Soft steel (–HB250)	Stainless steel (–HB200)	Grey cast iron
~ 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

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

Drill Ø (mm) \ Work material		Soft steel (–HB250)	Stainless steel (–HB200)	Grey cast iron
~ 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

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

● = Euro stock

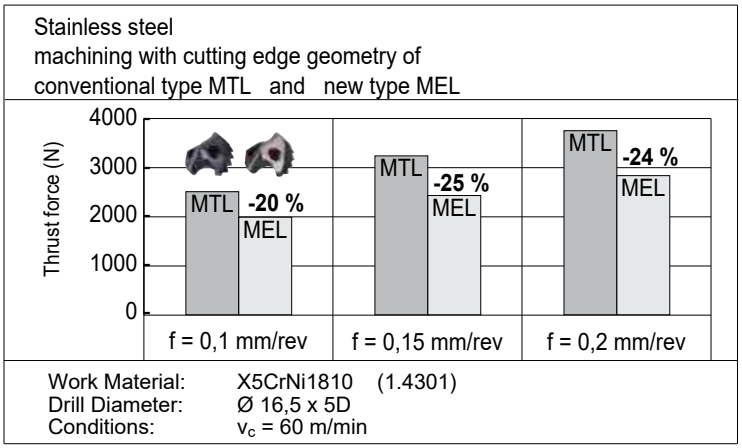
SMDT... MEL Type

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

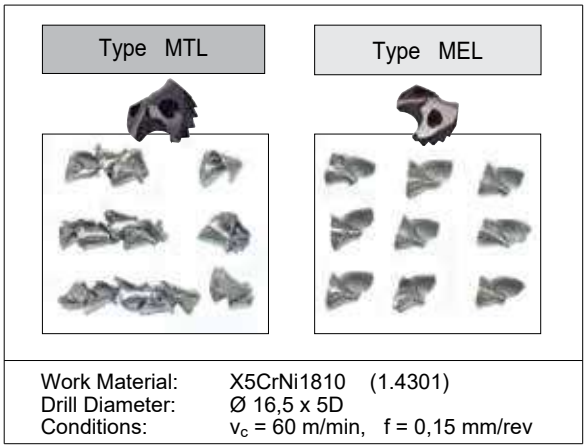
Performance (Stainless steel machinig)

Comparison of cutting force



Work Material: X5CrNi1810 (1.4301)
Drill Diameter: Ø 16,5 x 5D
Conditions: v_c = 60 m/min

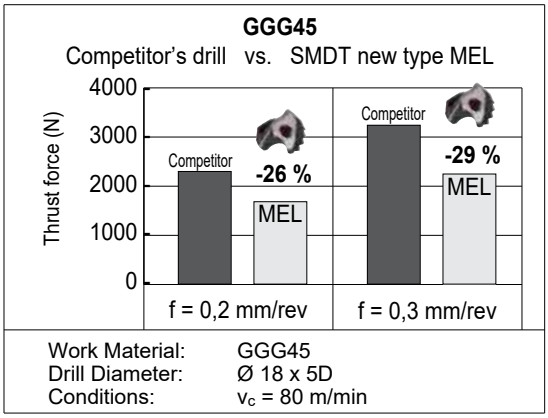
Chip comparison



Work Material: X5CrNi1810 (1.4301)
Drill Diameter: Ø 16,5 x 5D
Conditions: v_c = 60 m/min, f = 0,15 mm/rev

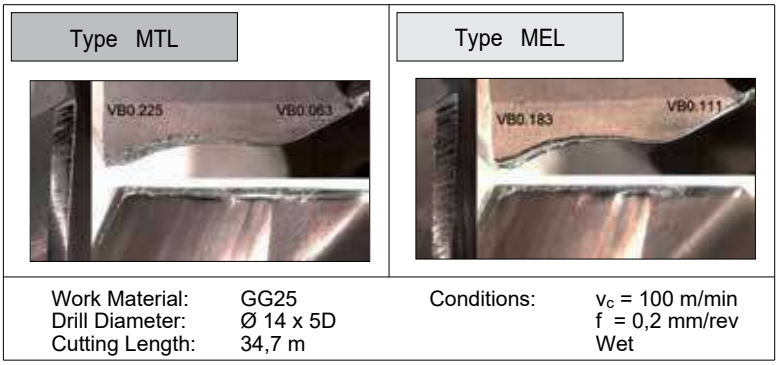
Performance (Cast iron machinig)

Comparison of cutting force



Work Material: GGG45
Drill Diameter: Ø 18 x 5D
Conditions: v_c = 80 m/min

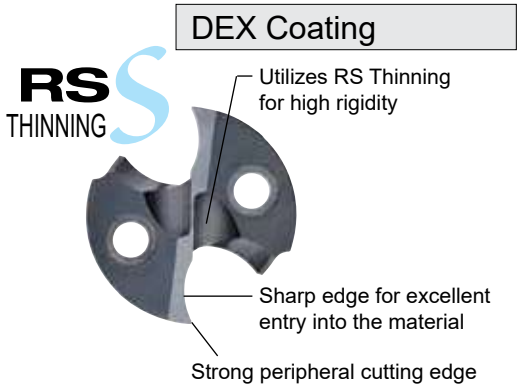
Comparison of wear resistance



Work Material: GG25
Drill Diameter: Ø 14 x 5D
Cutting Length: 34,7 m

Conditions: v_c = 100 m/min
f = 0,2 mm/rev
Wet

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

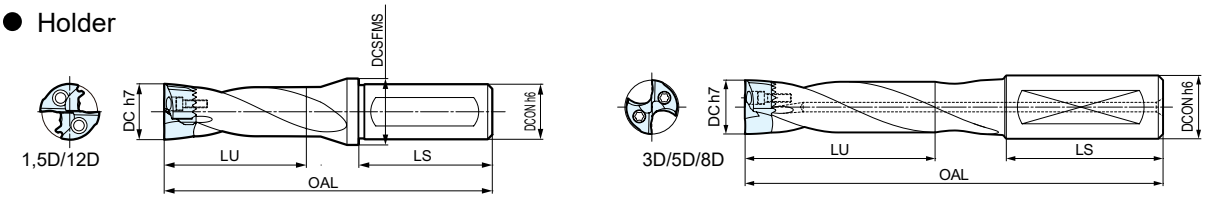


Advantages

- **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 st the hole exit.

- **Improves Machining Stability**
  Achieves high rigidity by employing RS Thinning, which ensures thick web at the bottom.

● Holder



No flat face for side lock clamping on the shank of 12D holders.

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

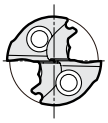
Screw	Wrench	Applicable Holder
		
BXD 02208 IP	TRDR 08 IP	SMDT 120 – 150 □□
BXD 02509 IP	TRDR 10 IP	SMDT 160 – 180 □□
BXD 03011 IP	TRDR 15 IP	SMDT 190 – 210 □□
BXD 03512 IP	TRDR 15 IP	SMDT 220 – 240 □□
BXD 04014 IP	TRDR 20 IP	SMDT 250 – 270 □□
BXD 04515 IP	TRDR 25 IP	SMDT 280 – 300 □□

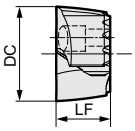
● = Euro stock

N·m Recommended Tightening Torque (N·m)

Drill Head Insert
SMDT... MFS Type

Type MFS





PVD coated grade: **ACX70**

■ Drill Head (Insert)

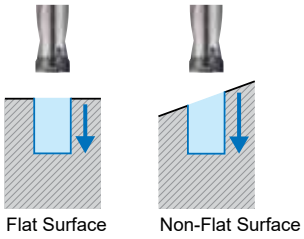
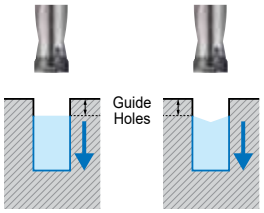
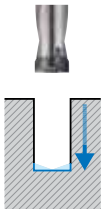
● ø 12,0 ~ 21,5 mm

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	●	7,9	SMDH140 □□
14,0	SMDT 1400 MFS	●		
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	●		

● ø 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

	No Guide Hole (Solid Workpiece Hole Drilling)	With Guide Hole	Flat Finishing of Hole Bottom
Application	 Flat Surface Non-Flat Surface	 Guide Holes	
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.
–Ø 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
–Ø 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
–Ø 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 % ot 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.

SMD Type

Large Hole MTL Type

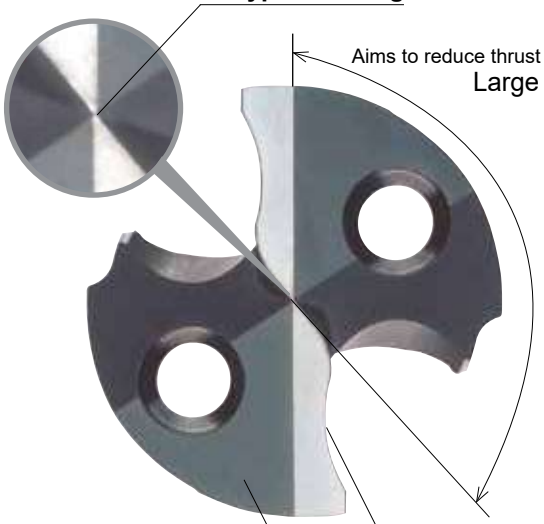
For Large Holes

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

Improved chip management
for highly malleable materials
Large Helix Angle Design

Reduces movement when starting the hole
X-Type Thinning

Aims to reduce thrust under heavy cutting
Large Thinning Angle



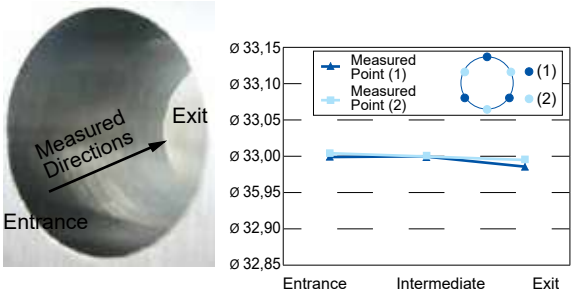
Designed to handle low
machine and clamp rigidity
Edge Treatment Exclusively for Large Diameters

Prevents unexpected breakage
when working with expensive materials
Robust Substrate

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

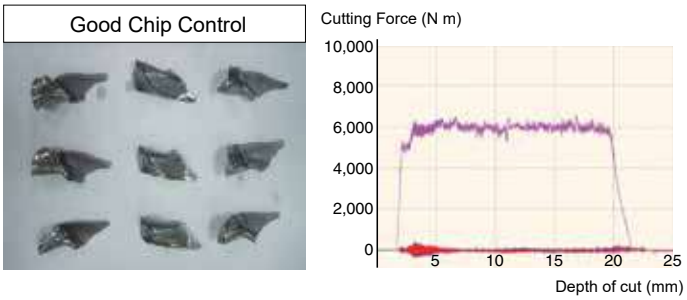
High drilling accuracy with large diameters



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
Recommended Head		**MTL** Type	**MTL** Type	**MTL** Type	**MTL** Type	**MTL** Type	**MTL** Type
Drill Ø (mm)	Cutt. Conditions						
–36,5	v_c	**60–120** (40–80)	**60–120** (40–80)	**40–80** (30–60)	**40–80** (30–60)	**50–100** (40–90)	**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
–42,5	v_c	**60–120** (40–80)	**60–120** (40–80)	**40–80** (30–60)	**40–80** (30–60)	**50–100** (40–90)	**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

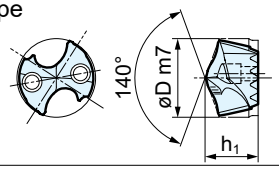
Note: Where machining and work clamp rigidity are good, conditions may be increased up to the maximum.
For 8D drills, please use feed rates stated within the ( ). Before drilling 8D holes, a guide hole of similar diameter must be made.

○ = Japan stock
❑ = Delivery on request

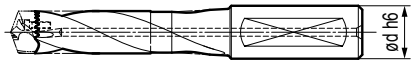
Recommended Tightening Torque (N·m)

Regrindable Drill Head Insert
SMDT... MTL Type

● Indexable Head MTL Type



● Toolholder

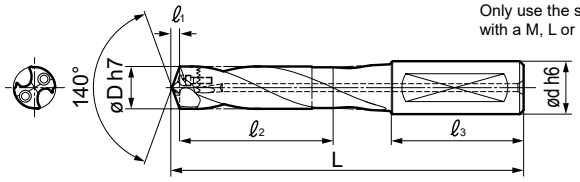


■ Drill Head (Ø 31,0–42,5 mm), Grade MTL Type - ACX80

■ Holders M (3D), L (5D), D (8D)

Drill Diameter ØD	Heads			Toolholder					
	MTL Type		h1	M (3D)		L (5D)		D (8D)	
	Cat. No.	Stock		Cat. No.	Stock	Cat. No.	Stock	Cat. No.	Stock
31,0	**SMDT 3100 MTL**	❒							
31,5	**SMDT 3150 MTL**	❒	15,2	**SMDH 320 M**	❍	**SMDH 320 L**	❍	**SMDH 320 D**	❍
32,0	**SMDT 3200 MTL**	❍							
32,5	**SMDT 3250 MTL**	❒							
33,0	**SMDT 3300 MTL**	❍	15,2	**SMDH 335 M**	❍	**SMDH 335 L**	❍	**SMDH 335 D**	❍
33,5	**SMDT 3350 MTL**	❒							
34,0	**SMDT 3400 MTL**	❍							
34,5	**SMDT 3450 MTL**	❒	16,6	**SMDH 350 M**	❍	**SMDH 350 L**	❍	**SMDH 350 D**	❍
35,0	**SMDT 3500 MTL**	❍							
35,5	**SMDT 3550 MTL**	❒							
36,0	**SMDT 3600 MTL**	❍	16,4	**SMDH 365 M**	❍	**SMDH 365 L**	❍	**SMDH 365 D**	❍
36,5	**SMDT 3650 MTL**	❒							
37,0	**SMDT 3700 MTL**	❍							
37,5	**SMDT 3750 MTL**	❍	18,1	**SMDH 380 M**	❍	**SMDH 380 L**	❍	**SMDH 380 D**	❍
38,0	**SMDT 3800 MTL**	❍							
38,5	**SMDT 3850 MTL**	❒							
39,0	**SMDT 3900 MTL**	❍	17,8	**SMDH 395 M**	❍	**SMDH 395 L**	❍	**SMDH 395 D**	❍
39,5	**SMDT 3950 MTL**	❒							
40,0	**SMDT 4000 MTL**	❍							
40,5	**SMDT 4050 MTL**	❍	19,5	**SMDH 410 M**	❍	**SMDH 410 L**	❍	**SMDH 410 D**	❍
41,0	**SMDT 4100 MTL**	❍							
41,5	**SMDT 4150 MTL**	❒							
42,0	**SMDT 4200 MTL**	❍	19,3	**SMDH 425 M**	❍	**SMDH 425 L**	❍	**SMDH 425 D**	❍
42,5	**SMDT 4250 MTL**	❒							

● Mounted Figure



Only use the special MTL Type head with a M, L or D type holder

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

WDX Type

General Features

The SumiDrill WDX type has excellent cutting balance that provides stable hole drilling on a wide range of work materials from general steel to stainless steel and aluminium alloy.
Available in four original chipbreaker styles, the inserts feature improved chip control and reduced cutting force for use in low rigidity contexts.

Series Configuration

Depth of Machined Hole	Holder Diameter (mm)
2D	Ø 13,0 – Ø 68,0
3D	Ø 13,0 – Ø 68,0
4D	Ø 13,0 – Ø 63,0
5D	Ø 13,0 – Ø 55,0

Features and Applications

Design

Cutting force during drilling is balanced between central insert and peripheral insert. The relative position of each insert is optimised to provide stable drilling.

Excellent Chip Control

The chip evacuation direction can be controlled with the chip control groove at the centre of the breaker, enabling good chip control.

Versatile Tool for a Variety of Machining Applications

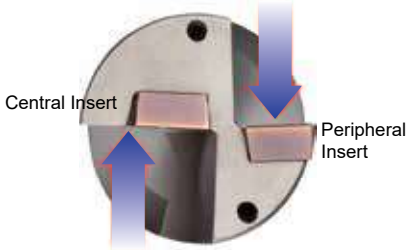
Select among four types of breakers for different applications, allowing optimal drilling for a variety of work materials and conditions. Suitable for a wide range of applications including hole expansion, spot facing, external turning and internal boring.

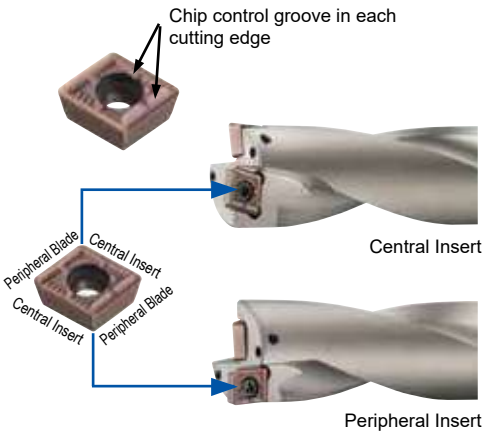
Economical Four-Cornered Insert

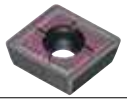
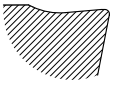
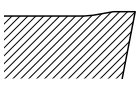
Inserts can be used in either central or peropheral positions with two corners for each position - a total of four corners.

Design

Cutting force of central insert = that periphal insert





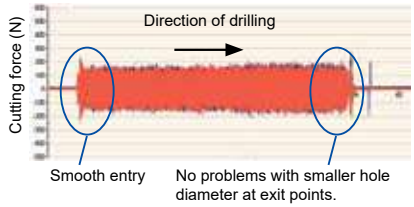
Type	L	G		H	M New
Features	For low feed with chip control	General Purpose	For non-ferrous metal drilling	Strong edge type	**For stainless steel drilling**
Appearance					
Figure					

Performance

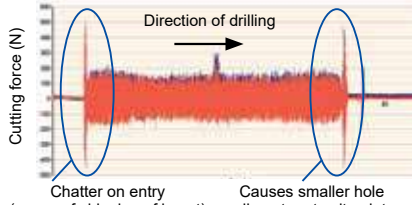
Balanced Design
(Comparison of Horizontal Component Values)

Balance is maintained at the strong hole entry and exit points and drilling is stable.

SumiDrill WDX Type



Conventional and Competitor's Products



Improved Chip Control

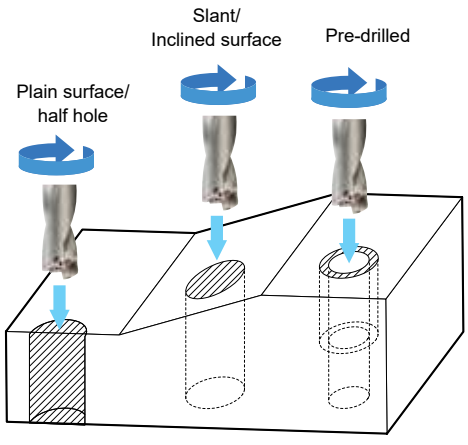
Work Material: X5CrNiS18 10
Holder: WDX 200D3S25 (Ø 20,0)
Cutting Data: v_c = 130 m/min, f = 0,06 mm/rev, H = 50 mm, wet

SumiDrill WDX Type

Conventional and Competitor's Products

Multi-Purpose Functionality

Applications for Machining Centre



Recommended conditions - reduce feed rate to 70 %

Chipbreaker **M** Type / **ACM300** New

For Machining of Stainless Steel

Features

Chip control by the newly developed M chip breaker for stainless steel machining achieves stable hole quality.

Holder	**WDX** **M** Type	**WDX** **G** Type	Competitor's Product
Hole			
Chips			

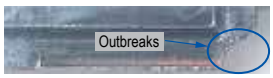
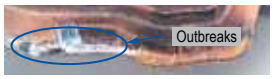
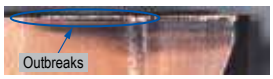
Work Material: X2CrNiMo17 13 2
Holder: WDX200D3S25
Insert: WDXT063006 M (ACM300)
Cutting Data: v_c = 150 m/min, f = 0,08 mm/rev, H = 60 mm, wet

ACP100

For High-speed Drilling of Steel and Cast Iron

Features

Provides excellent wear resistance and high reliability thanks to our coating stress control technology and the ultra-fine crystal grain coating film of the Super FF Coat achieved through our proprietary technology.

		ACP100	Competitor's Product
Peripheral Insert	Rake Face		
	Flank		
Central Insert	Rake Face		
	Flank		

Work Material: C50
Holder: WDX250D3S25
Insert: WDXT063006 G (ACP100)
Cutting Data: v_c = 200 m/min, f = 0,12 mm/rev, H = 50 mm through hole, wet

Drills for Deep Hole Drilling L/D = 5

Features

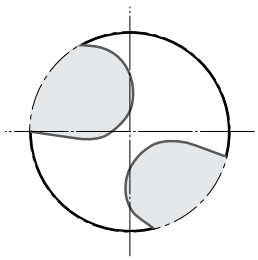
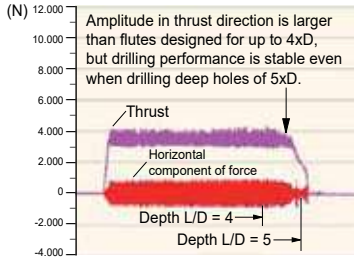
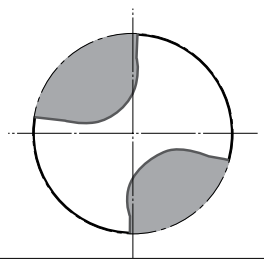
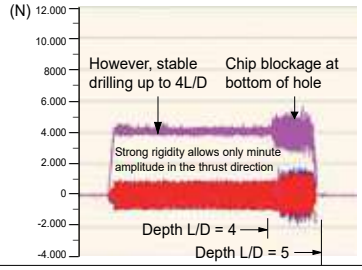
The SumiDrill WDX type for 5xD drilling features a specially designed flute shape and enlarged coolant hole for excellent chip evacuation even during hole drilling.

Large coolant hole

Coolant supply guidehole

Special flute shape for L/D = 5

Performance

Characteristics	Figure	Cutting Resistance	Machined Surface (Exit)
WDX260D5S32 **L/D = 5** Flutedesign Designed with emphasis on chip evacuation Expanded flute design improves chip evacuation for stable drilling performance even with holes up to 5xD.			Produces an excellent surface finish - full hole depth 
Comparison Tool Flutedesign L/D = 4 Designed with emphasis on drill rigidity Flute design for greater rigidity of the drill enables stable drilling of deep holes up to 4xD.			Poor machined surface due to chip blockage at bottom of hole (near 5xD) 

Insert: WDXT073506-G Work Material: X5CrNiS18 10
Cutting Data: v_c = 150 m/min, f = 0,05 mm/rev, H = 130 mm, through hole, wet

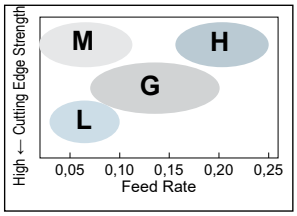
WDX Type

■ Insert Selection Guide – The WDX Insert Series has a Variety of Options

5 Grades

	ACP100	ACP300	ACM300	ACK300	DL1500
P High-speed Drilling	○				
P General Drilling		○			
M Stainless Steel		○	○		
K High-speed Drilling	○				
K General Drilling				○	
N Non-ferrous Metal					○

4 Types of Chipbreakers



11 Combinations

ACP100	ACP300	ACM300	ACK300	DL1500
P K L	P L		P K L	
P K G	P M G		P K G	N G
P K H	P H		K H	
		M M		

2nd Recommendation (P)

P — For low feed with chip control

L ACP300

For drilling of St 42-3, 15,CrMo5, 20CrMo5, etc.

High speed and low feed is recommended if there are issues with chip control.

Decrease the feed if vibration occurs due to burnt chips.

P — General Purpose

G ACP100

For drilling of general steel and alloy steel, when prone to significantly large flank wear.

P — For low feed with chip control

L ACP100

For low-feed conditions.

P — Strong Edge Type

H ACP300

For drilling with interruptions (entry/through) due to slanted entry, reduce the feed rate in the interrupted area (around f = 0,05).

For insufficient cutting edge strength due to drilling of hardened steel (heat treated).

P Improved chip control (low carbon steel, etc.)

P Insufficient wear resistance

P Initial chipping measures (interruption, high hardness, etc.)

1st Recommendation (P M K N)

General Purpose — G

For general steel and alloy steel drilling
P ACP300

For cast iron drilling
K ACK300

For non-ferrous metal drilling
N DL1500

For stainless steel drilling
M ACM300

Dedicated for stainless steel
M

K insufficient wear resistance (high-speed machining)

K Initial chipping measures (interruption, high feed, etc.)

M Lack of chip evacuation (extension)

2nd Recommendation (K M)

K — General Purpose

G ACP100

When heavy flank wear occurs in cast iron drilling.

To limit wear in high-speed, low to medium feed conditions.

K — Strong Edge Type

H ACK300

When interrupted drilling is performed due to slanted entry, etc. as with steel drilling.

For machining of St44-2, 18CrMo4, 20CrMo4

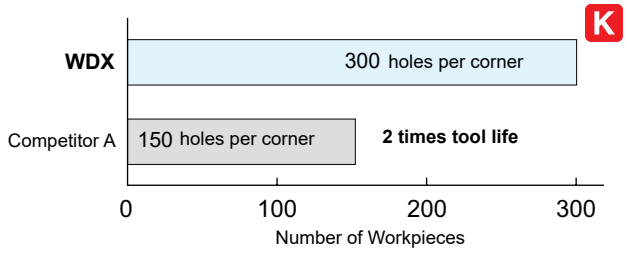
M — General Purpose

G ACP300

When chips extend and clog.

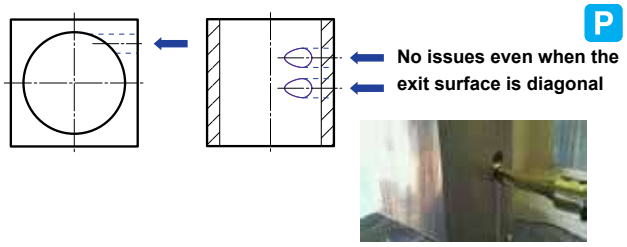
ACP100 is the first recommendation for steel with a hardness of 200HB or greater or for high-speed drilling of steel.

Application Examples



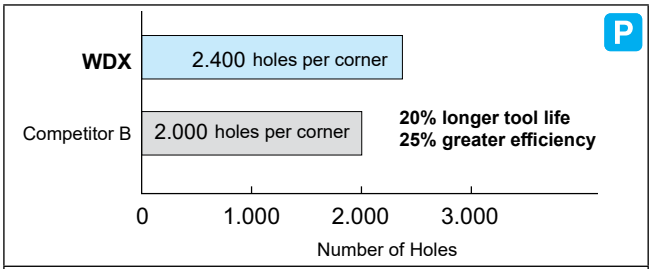
Work Material: Machine component (GGG-40.3)
Holder: WDX205D3S25
Insert: WDXT063006 G (ACK300)
Cutting Data: v_c = 122 m/min, f = 0,15 mm/rev, H = 33 mm, through, wet

Significant increase in tool life; twice that conventional tools.
Stable cutting with minimal cutting force.



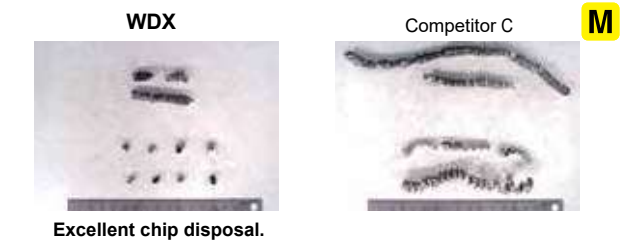
Work Material: Plate (C15)
Holder: WDX430D3S40
Insert: WDXT125012 H (ACP300)
Cutting Data: v_c = 136 m/min, f = 0,15 mm/rev, H = 60+50 mm (semicircle area), through, wet

Enables drilling even in unstable conditions (interrupted cutting at deepest point)
Quieter cutting than conventional tools.



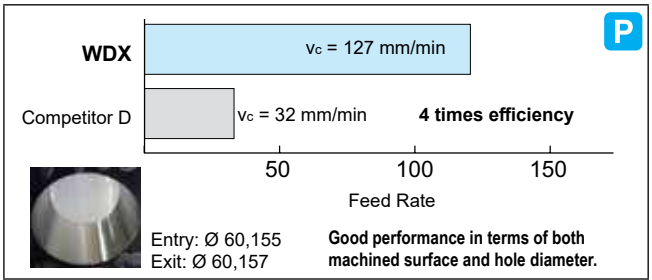
Work Material: Machine component (42CrMo4)
Holder: WDX200D3S25
Insert: WDXT063006 G (ACP300)
Cutting Data: v_c = 157 m/min, f = 0,19 mm/rev, H = 19 mm, through, wet
Competitor B: v_c = 157 m/min, f = 0,15 mm/rev, H = 19 mm, through, wet

Good chip control even in high-efficiency conditions. Good stability with low vibration during cutting. 25% greater efficiency and 20% longer tool life.



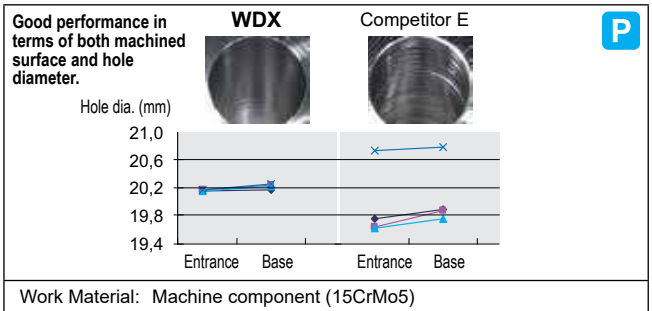
Work Material: Piping parts (X5CrNiS18 10)
Holder: WDX210D3S25
Insert: WDXT063006 M (ACM300)
Cutting Data: v_c = 105 m/min, f = 0,08 mm/rev, H = 34 mm, wet

Improved chip control and better stable machining.



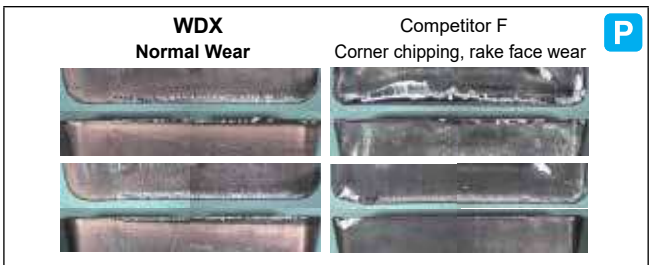
Work Material: Plate (C48)
Holder: WDX600D3S40
Insert: WDXT186012 G (ACP300)
Cutting Data: v_c = 150 m/min, f = 0,16 mm/rev, H = 60 mm, through, wet
Competitor D: v_c = 30 m/min, f = 0,20 mm/rev, H = 60 mm, through, wet

Achieves steady machining even at large diameters.
Achieves 4 times the efficiency of conventional tools.



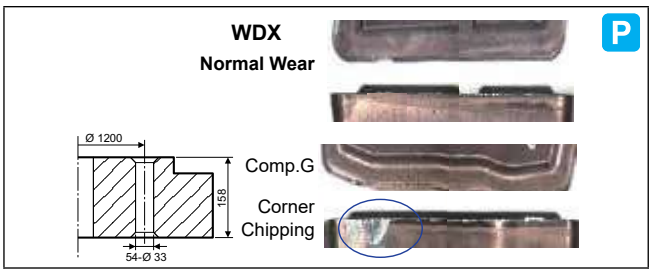
Work Material: Machine component (15CrMo5)
Holder: WDX200D5S25
Insert: WDXT063006 G (ACP300)
Cutting Data: v_c = 185 m/min, f = 0,12 mm/rev, H = 87mm, through, wet

Good machined surface.
Consistent bore diameter.



Work Material: Tractor links (35MnBM)
Holder: WDX205D5S25
Insert: WDXT063006 G (ACP300)
Cutting Data: v_c = 100 m/min, f = 0,11 mm/rev, H = 60 mm, through, wet

Achieves steady machining even at L/D = 5.
Reduces insert chipping and wear for stable tool life.



Work Material: Bearing for wind power generator (equivalent to 42CrMo4)
Holder: WDX330D5S40
Insert: WDXT094008 L (ACP300)
Cutting Data: v_c = 146 m/min, f = 0,10 mm/rev, H = 158 mm, through, wet

Eliminates defects in workpieces caused by insert chipping.

WDX Type (2D)

Max. Depth: 2D

Machining tolerances -0.05 to +0.15 mm

Fig. 1

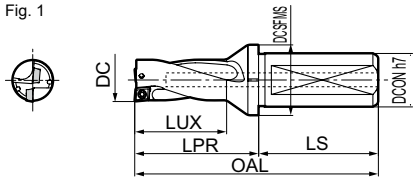


Fig. 2

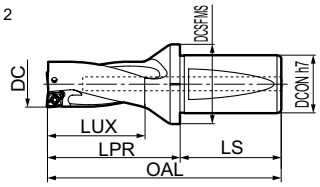
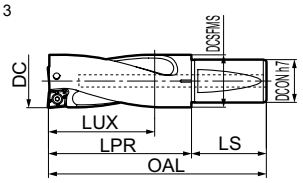


Fig. 3



■ Holder Diameter Ø 13,0 mm – Ø 45,0 mm

DC	Stock	Cat. No.	LUX	LPR	OAL	LS	DCSFMS	DCON	Fig
13,0	●	WDX 130D2S20	29	44	88				1
13,5	●	135D2S20	30	45	89				1
14,0	●	140D2S20	31	46	90	44	28,0	20	1
14,5	●	145D2S20	32	47	91				1
15,0	●	150D2S20	33	48	92				1
15,5	●	WDX 155D2S20	34	49	93				1
16,0	●	160D2S20	35	50	94	44	30,0	20	1
16,5	●	165D2S20	36	51	95				1
17,0	●	170D2S20	37	52	96				1
17,5	●	WDX 175D2S25	38	53	109	56	32,0	25	1
18,0	●	180D2S25	39	54	110				1
18,5	●	WDX 185D2S25	40	55	111				1
19,0	●	190D2S25	41	56	112				1
19,5	●	195D2S25	42	57	113				1
20,0	●	200D2S25	43	58	114				1
20,5	●	205D2S25	44	59	115	56	33,0	25	1
21,0	●	210D2S25	45	60	116				1
21,5	●	215D2S25	46	61	117				1
22,0	●	220D2S25	47	62	118				1
22,5	●	225D2S25	48	63	119				1
23,0	●	WDX 230D2S25	49	67	123				1
23,5	●	235D2S25	50	68	124				1
24,0	●	240D2S25	51	69	125	56	37,0	25	1
24,5	●	245D2S25	52	70	126				1
25,0	●	250D2S25	53	71	127				1
25,5	●	WDX 255D2S32	54	74	134				2
26,0	●	260D2S32	55	75	135				2
26,5	●	265D2S32	56	76	136				2
27,0	●	270D2S32	57	77	137	60	41,0	32	2
27,5	●	275D2S32	58	78	138				2
28,0	●	280D2S32	59	79	139				2
28,5	●	285D2S32	60	80	140				2
29,0	●	WDX 290D2S32	62	83	143		50,0		2
29,5	●	295D2S32	63	84	144				2
30,0*	❍	300D2S32	64	88	148	60		32	2
31,0*		310D2S32	66	90	150		54,0		2
32,0*	❍	320D2S32	68	92	152				2
30,0*	●	WDX 300D2S40	64	88	158				2
31,0*	●	310D2S40	66	90	160				2
32,0*	●	320D2S40	68	92	162				2
33,0	●	330D2S40	70	94	164	70	54,0	40	2
34,0	●	340D2S40	72	96	166				2
35,0	●	350D2S40	74	98	168				2
36,0	●	360D2S40	76	100	170				2
37,0	●	WDX 370D2S40	79	109	179				2
38,0	●	380D2S40	81	111	181				2
39,0	●	390D2S40	83	113	183				2
40,0	●	400D2S40	85	115	185				2
41,0	●	410D2S40	87	117	187	70	49,5	40	2
42,0	●	420D2S40	89	119	189				2
43,0	●	430D2S40	91	121	191				2
44,0	●	440D2S40	93	123	193				2
45,0	●	450D2S40	95	125	195				2

* Diameter Ø 30, Ø 31, Ø 32 are in stock with shank diameters of Ø 32 and Ø 40.

■ Holder Diameter Ø 46,0 mm – Ø 68,0 mm

DC	Stock	Cat. No.	LUX	LPR	OAL	LS	DCSFMS	DCON	Fig
46,0	●	WDX 460D2S40	97	127	197				2
47,0	●	470D2S40	99	129	199				2
48,0	●	480D2S40	101	131	201		49,5		2
49,0	●	490D2S40	103	133	203				2
50,0	●	500D2S40	105	135	205	70		40	2
51,0	●	510D2S40	107	137	207				3
52,0	●	520D2S40	109	139	209		50,5		3
53,0	●	530D2S40	111	141	211		51,5		3
54,0	●	540D2S40	113	143	213		52,5		3
55,0	●	550D2S40	115	145	215		53,5		3
56,0	❍	WDX 560D2S40	120	152	222		54,0		3
57,0	❍	570D2S40	122	154	224		55,0		3
58,0	❍	580D2S40	124	156	226		56,0		3
59,0	❍	590D2S40	126	158	228		57,0		3
60,0	❍	600D2S40	128	160	230		58,0		3
61,0	❍	610D2S40	130	162	232		59,0		3
62,0	❍	620D2S40	132	164	234	70	60,0	40	3
63,0	❍	630D2S40	134	166	236		61,0		3
64,0	❍	640D2S40	136	168	238		62,0		3
65,0	❍	650D2S40	138	170	240		63,0		3
66,0	❍	660D2S40	140	172	242		64,0		3
67,0	❍	670D2S40	142	174	244		65,0		3
68,0	❍	680D2S40	144	176	246		66,0		3

■ Parts

Applicable Holder	Flat Screw	N·m	Wrench	Wrench
WDX130D2S20–WDX150D2S20	BFTX01604N	**0,3**	TRX06	–
WDX155D2S20–WDX180D2S25	BFTX0204N	**0,5**	TRX06	–
WDX185D2S25–WDX225D2S25	BFTY02206	**1,0**	–	TRD07
WDX230D2S25–WDX285D2S32	BFTX02506N	**1,5**	–	TRD08
WDX290D2S32–WDX360D2S40	BFTX03584	**3,5**	–	TRD15
WDX370D2S40–WDX450D2S40	BFTX0511N	**5,0**	–	TRD20
WDX460D2S40–WDX680D2S40	BFTX0615N	**5,0**	–	TRD25

■ Identification Details - Holder

WDX 200 D2 S25

- 200: Diameter DC (Ø 20,0 mm)
- D2: Flute Length L/D (2D)
- S25: Shank Diameter DCON (Ø 25,0 mm)

■ Identification Details - Inserts

WDXT 06 30 06 -G

- 06: Width across Flats (6,0 mm)
- 30: Thickness (3,0 mm)
- 06: Nose Radius (0,6 mm)
- -G: Breaker Type

● = Euro stock
○ = Japan stock

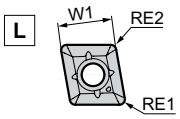
N·m Recommended Tightening Torque (N·m)

Inserts

Application	Coated Carbide				
High-Speed / Light	PK				N
General Purpose		P	M		
Roughing		P		K	

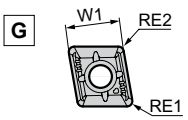
Cat. No.	ACP100	ACP300	ACM300	ACK300	DL1500	Fig	W1	S	RE1	RE2	Applicable Holder
WDXT 042004 L	❍	●		●		1	4,2	2,0	0,4	0,4	WDX130D2S20 – WDX150D2S20
042004 G	●	●		●	●	2					
042004 H	●	●		●		3					
042004 M			●			4				0,8	
WDXT 052504 L	❍	●		●		1	5,0	2,5	0,4	0,4	WDX155D2S20 – WDX180D2S25
052504 G	●	●		●	●	2					
052504 H	●	●		●		3					
052504 M			●			4				1,0	
WDXT 063006 L	●	●		●		1	6,0	3,0	0,6	0,6	WDX185D2S25 – WDX225D2S25
063006 G	●	●		●	●	2					
063006 H	●	●		●		3					
063006 M			●			4				1,4	
WDXT 073506 L	●	●		●		1	7,5	3,5	0,6	0,6	WDX230D2S25 – WDX285D2S32
073506 G	●	●		●	●	2					
073506 H	●	●		●		3					
073506 M			●			4				1,6	
WDXT 094008 L	●	●		●		1	9,6	4,0	0,8	0,8	WDX290D2S32 – WDX360D2S40
094008 G	●	●		●	●	2					
094008 H	●	●		●		3					
094008 M			●			4				2,4	
WDXT 125012 L	●	●		●		1	12,4	5,0	1,2	1,2	WDX370D2S40 – WDX450D2S40
125012 G	●	●		●	●	2					
125012 H	●	●		●		3					
125012 M			●			4				3,2	
WDXT 156012 L	●	●		●		1	15,2	6,0	1,2	1,2	WDX460D2S40 – WDX550D2S40
156012 G	●	●		●	●	2					
156012 H	●	●		●		3					
WD-XT 186012 L	●	❍		❍		1	18,0	6,0	1,2	1,2	WDX560D2S40 – WDX680D2S40
186012 G	●	●		●		2					
186012 H	❍	❍		❍		3					

Fig. 1



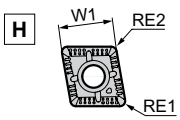
For low feed with chip control

Fig. 2



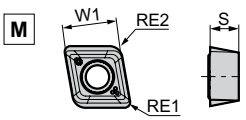
General purpose

Fig. 3



Strong edge

Fig. 4



For stainless steel

Recommended Cutting Conditions (2D)

(min. - **optimal** - max.)

ISO	Work material			Hardness (HB)	Chipbreaker	Grade	Cutting Speed (m/min)	Feed rate (mm/rev) Ø 13,0–Ø 18,0	Ø 18,5–Ø 29,0	Ø 29,5– Ø 36,0	Ø 37,0–Ø 55,0	Ø 56,0–Ø 68,0
P	Carbon steel	St 42-3		125	G	ACP300	120–**180**–240	0,05–**0,08**–0,10	0,05–**0,08**–0,10	0,05–**0,08**–0,11	0,05–**0,08**–0,12	0,06–**0,09**–0,13
		C15		125	L	ACP300	130–**170**–220	0,04–**0,08**–0,12	0,04–**0,08**–0,12	0,04–**0,08**–0,13	0,05–**0,10**–0,15	0,06–**0,11**–0,17
		C45		190	G	ACP300	100–**150**–200	0,08–**0,13**–0,24	0,08–**0,13**–0,24	0,08–**0,14**–0,26	0,09–**0,16**–0,29	0,10–**0,17**–0,32
		C45	Hardened	250	G	ACP100	100–**170**–240	0,05–**0,09**–0,14	0,05–**0,09**–0,14	0,05–**0,09**–0,14	0,05–**0,10**–0,17	0,06–**0,11**–0,18
		C75		270	G	ACP100	120–**180**–240	0,06–**0,10**–0,17	0,06–**0,10**–0,17	0,06–**0,10**–0,17	0,07–**0,12**–0,19	0,08–**0,13**–0,21
		C75	Hardened	300	G	ACP100	80–**150**–210	0,05–**0,09**–0,14	0,05–**0,09**–0,14	0,05–**0,09**–0,14	0,05–**0,10**–0,15	0,06–**0,11**–0,17
	Low alloyed steel	Cr-Mo, Ni-Cr-Mo		180	L	ACP300	100–**140**–180	0,05–**0,08**–0,14	0,05–**0,08**–0,14	0,05–**0,08**–0,16	0,06–**0,09**–0,17	0,07–**0,10**–0,19
	Low alloyed steel	Cr-Mo, Ni-Cr-Mo	Hardened	275	G	ACP100	100–**170**–240	0,06–**0,10**–0,14	0,06–**0,10**–0,14	0,06–**0,10**–0,14	0,07–**0,11**–0,16	0,08–**0,11**–0,17
				300	G	ACP100	90–**150**–210	0,06–**0,10**–0,14	0,06–**0,10**–0,14	0,06–**0,10**–0,14	0,07–**0,11**–0,16	0,08–**0,11**–0,17
				350	G	ACP100	75–**120**–165	0,06–**0,10**–0,14	0,06–**0,10**–0,14	0,06–**0,10**–0,14	0,07–**0,11**–0,16	0,08–**0,11**–0,17
	High alloyed steel		Sintered	200	G	ACP100	120–**180**–240	0,08–**0,12**–0,17	0,08–**0,12**–0,17	0,08–**0,12**–0,18	0,09–**0,12**–0,21	0,10–**0,13**–0,22
				325	G	ACP100	100–**140**–180	0,06–**0,10**–0,15	0,06–**0,10**–0,15	0,06–**0,11**–0,15	0,07–**0,11**–0,16	0,08–**0,11**–0,17
M	Stainless steel	Martensitic/Ferritic		200	M	ACM300	120–**150**–180	0,06–**0,08**–0,15	0,06–**0,08**–0,15	0,06–**0,08**–0,15	0,07–**0,10**–0,16	0,08–**0,12**–0,16
		Martensitic/Hardened		240	M	ACM300	90–**120**–150	0,06–**0,08**–0,15	0,06–**0,08**–0,15	0,06–**0,08**–0,15	0,07–**0,10**–0,16	0,08–**0,12**–0,16
		Austenitic		180	M	ACM300	120–**150**–180	0,06–**0,08**–0,15	0,06–**0,08**–0,15	0,06–**0,08**–0,15	0,07–**0,10**–0,16	0,08–**0,12**–0,16
K	Cast iron				H	ACK300	120–**160**–200	0,09–**0,20**–0,32	0,10–**0,22**–0,36	0,11–**0,24**–0,39	0,12–**0,26**–0,44	0,13–**0,29**–0,48
	Ductile Cast iron				H	ACK300	90–**120**–150	0,09–**0,20**–0,32	0,10–**0,22**–0,36	0,11–**0,24**–0,39	0,12–**0,26**–0,44	0,13–**0,29**–0,48
S	Exotic Alloy (Heat resistant alloy, Super Alloy, etc)			200	G	ACP300	25–**50**–70	0,06–**0,11**–0,18	0,06–**0,11**–0,18	0,06–**0,12**–0,19	0,07–**0,13**–0,22	0,08–**0,14**–0,24
N	Aluminium Alloy				G	DL1500	200–**260**–320	0,06–**0,11**–0,17	0,06–**0,11**–0,17	0,06–**0,12**–0,18	0,07–**0,13**–0,20	0,08–**0,14**–0,22
	Copper Alloy				G	DL1500	180–**230**–280	0,06–**0,11**–0,17	0,06–**0,11**–0,17	0,06–**0,12**–0,18	0,07–**0,13**–0,20	0,08–**0,14**–0,22

*For the P and K grades for which ACP300 and ACK300 are the first recommendation, ACP100 inserts are the second recommendation.
The recommended cutting conditions are a cutting speed v_c of 130% of the above table and a feed rate f of 75%.

WDX Type (3D)

Max. Depth: 3D

Machining tolerances 0 to +0.20 mm

Fig. 1

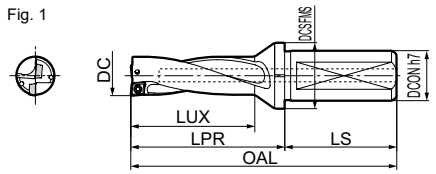


Fig. 2

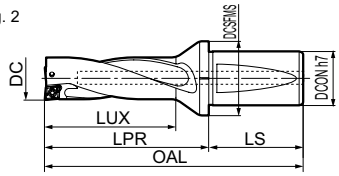
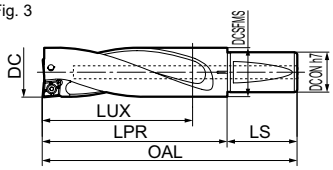


Fig. 3



■ Holder Diameter Ø 13,0 mm – Ø 45,0 mm

DC	Stock	Cat. No.	LUX	LPR	OAL	LS	DCSFMS	DCON	Fig
13,0	●	WDX 130D3S20	42,0	57,0	101,0				1
13,5	●	135D3S20	43,5	58,5	102,5				1
14,0	●	140D3S20	45,0	60,0	104,0	44	28,0	20	1
14,5	●	145D3S20	46,5	61,5	105,5				1
15,0	●	150D3S20	48,0	63,0	107,0				1
15,5	●	WDX 155D3S20	49,5	64,5	108,5				1
16,0	●	160D3S20	51,0	66,0	110,0	44	30,0	20	1
16,5	●	165D3S20	52,5	67,5	111,5				1
17,0	●	170D3S20	54,0	69,0	113,0				1
17,5	●	WDX 175D3S25	55,5	70,5	126,5	56	32,0	25	1
18,0	●	180D3S25	57,0	72,0	128,0				1
18,5	●	WDX 185D3S25	58,5	73,5	129,5				1
19,0	●	190D3S25	60,0	75,0	131,0				1
19,5	●	195D3S25	61,5	76,5	132,5				1
20,0	●	200D3S25	63,0	78,0	134,0				1
20,5	●	205D3S25	64,5	79,5	135,5	56	33,0	25	1
21,0	●	210D3S25	66,0	81,0	137,0				1
21,5	●	215D3S25	67,5	82,5	138,5				1
22,0	●	220D3S25	69,0	84,0	140,0				1
22,5	●	225D3S25	70,5	85,5	141,5				1
23,0	●	WDX 230D3S25	72,0	90,0	146,0				1
23,5	●	235D3S25	73,5	91,5	147,5				1
24,0	●	240D3S25	75,0	93,0	149,0	56	37,0	25	1
24,5	●	245D3S25	76,5	94,5	150,5				1
25,0	●	250D3S25	78,0	96,0	152,0				1
25,5	●	WDX 255D3S32	79,5	99,5	159,5				2
26,0	●	260D3S32	81,0	101,0	161,0				2
26,5	●	265D3S32	82,5	102,5	162,5				2
27,0	●	270D3S32	84,0	104,0	164,0	60	41,0	32	2
27,5	●	275D3S32	85,5	105,5	165,5				2
28,0	●	280D3S32	87,0	107,0	167,0				2
28,5	●	285D3S32	88,5	108,5	168,5				2
29,0	●	WDX 290D3S32	91,0	112,0	172,0		50,0		2
29,5	●	295D3S32	92,5	113,5	173,5				2
30,0*	❍	300D3S32	94,0	118,0	178,0	60		32	2
31,0*		310D3S32	97,0	121,0	181,0		54,0		2
32,0*	❍	320D3S32	100,0	124,0	184,0				2
30,0*	●	WDX 300D3S40	94,0	118,0	188,0				2
31,0*	●	310D3S40	97,0	121,0	191,0				2
32,0*	●	320D3S40	100,0	124,0	194,0				2
33,0	●	330D3S40	103,0	127,0	197,0	70	54,0	40	2
34,0	●	340D3S40	106,0	130,0	200,0				2
35,0	●	350D3S40	109,0	133,0	203,0				2
36,0	●	360D3S40	112,0	136,0	206,0				2
37,0	●	WDX 370D3S40	116,0	146,0	216,0				2
38,0	●	380D3S40	119,0	149,0	219,0				2
39,0	●	390D3S40	122,0	152,0	222,0				2
40,0	●	400D3S40	125,0	155,0	225,0				2
41,0	●	410D3S40	128,0	158,0	228,0	70	49,5	40	2
42,0	●	420D3S40	131,0	161,0	231,0				2
43,0	●	430D3S40	134,0	164,0	234,0				2
44,0	●	440D3S40	137,0	167,0	237,0				2
45,0	●	450D3S40	140,0	170,0	240,0				2

* Diameter Ø 30, Ø 31, Ø 32 are in stock with shank diameters of Ø 32 and Ø 40.

■ Holder Diameter Ø 46,0 mm – Ø 68,0 mm

DC	Stock	Cat. No.	LUX	LPR	OAL	LS	DCSFMS	DCON	Fig
46,0	●	WDX 460D3S40	143,0	173,0	243,0				2
47,0	●	470D3S40	146,0	176,0	246,0				2
48,0	●	480D3S40	149,0	179,0	249,0				2
49,0	●	490D3S40	152,0	182,0	252,0		49,5		2
50,0	●	500D3S40	155,0	185,0	255,0	70		40	2
51,0	●	510D3S40	158,0	188,0	258,0				3
52,0	●	520D3S40	161,0	191,0	261,0		50,5		3
53,0	●	530D3S40	164,0	194,0	264,0		51,5		3
54,0	●	540D3S40	167,0	197,0	267,0		52,5		3
55,0	●	550D3S40	170,0	200,0	270,0		53,5		3
56,0	❍	WDX 560D3S40	176,0	208,0	278,0		54,0		3
57,0	❍	570D3S40	179,0	211,0	281,0		55,0		3
58,0	❍	580D3S40	182,0	214,0	284,0		56,0		3
59,0	❍	590D3S40	185,0	217,0	287,0		57,0		3
60,0	❍	600D3S40	188,0	220,0	290,0		58,0		3
61,0	❍	610D3S40	191,0	223,0	293,0		59,0		3
62,0	❍	620D3S40	194,0	226,0	296,0	70	60,0	40	3
63,0	❍	630D3S40	197,0	229,0	299,0		61,0		3
64,0	❍	640D3S40	200,0	232,0	302,0		62,0		3
65,0	❍	650D3S40	203,0	235,0	305,0		63,0		3
66,0	❍	660D3S40	206,0	238,0	308,0		64,0		3
67,0	❍	670D3S40	209,0	241,0	311,0		65,0		3
68,0	❍	680D3S40	212,0	244,0	314,0		66,0		3

■ Parts

Applicable Holder	Flat Screw		Wrench	Wrench
		N·m		
WDX130D3S20–WDX150D3S20	BFTX01604N	**0,3**	TRX06	–
WDX155D3S20–WDX180D3S25	BFTX0204N	**0,5**	TRX06	–
WDX185D3S25–WDX225D3S25	BFTY02206	**1,0**	–	TRD07
WDX230D3S25–WDX285D3S32	BFTX02506N	**1,5**	–	TRD08
WDX290D3S32–WDX360D3S40	BFTX03584	**3,5**	–	TRD15
WDX370D3S40–WDX450D3S40	BFTX0511N	**5,0**	–	TRD20
WDX460D3S40–WDX680D3S40	BFTX0615N	**5,0**	–	TRD25

■ Identification Details - Holder

WDX 200 D3 S25

- 200 — Diameter DC (Ø 20,0 mm)
- D3 — Flute Length L/D (3D)
- S25 — Shank Diameter DCON (Ø 25,0 mm)

■ Identification Details - Inserts

WDXT 06 30 06 -G

- 06 — Width across Flats (6,0 mm)
- 30 — Thickness (3,0 mm)
- 06 — Nose Radius (0,6 mm)
- -G — Breaker Type

● = Euro stock
○ = Japan stock

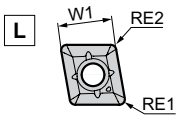
N·m Recommended Tightening Torque (N·m)

Inserts

Application	Coated Carbide				
High-Speed / Light	PK				N
General Purpose		P	M		
Roughing		P		K	

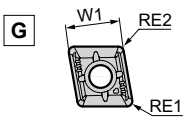
Cat. No.	ACP100	ACP300	ACM300	ACK300	DL1500	Fig	W1	S	RE1	RE2	Applicable Holder
WDXT 042004 L	❍	●		●		1	4,2	2,0	0,4	0,4	WDX130D3S20 – WDX150D3S20
042004 G	●	●		●	●	2					
042004 H	●	●		●		3					
042004 M			●			4				0,8	
WDXT 052504 L	❍	●		●		1	5,0	2,5	0,4	0,4	WDX155D3S20 – WDX180D3S25
052504 G	●	●		●	●	2					
052504 H	●	●		●		3					
052504 M			●			4				1,0	
WDXT 063006 L	●	●		●		1	6,0	3,0	0,6	0,6	WDX185D3S25 – WDX225D3S25
063006 G	●	●		●	●	2					
063006 H	●	●		●		3					
063006 M			●			4				1,4	
WDXT 073506 L	●	●		●		1	7,5	3,5	0,6	0,6	WDX230D3S25 – WDX285D3S32
073506 G	●	●		●	●	2					
073506 H	●	●		●		3					
073506 M			●			4				1,6	
WDXT 094008 L	●	●		●		1	9,6	4,0	0,8	0,8	WDX290D3S32 – WDX360D3S40
094008 G	●	●		●	●	2					
094008 H	●	●		●		3					
094008 M			●			4				2,4	
WDXT 125012 L	●	●		●		1	12,4	5,0	1,2	1,2	WDX370D3S40 – WDX450D3S40
125012 G	●	●		●	●	2					
125012 H	●	●		●		3					
125012 M			●			4				3,2	
WDXT 156012 L	●	●		●		1	15,2	6,0	1,2	1,2	WDX460D3S40 – WDX550D3S40
156012 G	●	●		●	●	2					
156012 H	●	●		●		3					
WDXT 186012 L	●	❍		❍		1	18,0	6,0	1,2	1,2	WDX560D3S40 – WDX680D3S40
186012 G	●	●		●		2					
186012 H	❍	❍		❍		3					

Fig. 1



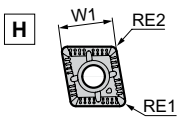
For low feed with chip control

Fig. 2



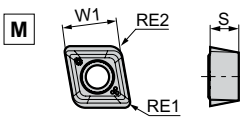
General purpose

Fig. 3



Strong edge

Fig. 4



For stainless steel

Recommended Cutting Conditions (3D)

(min. - **optimal** - max.)

ISO	Material Group	Work material	Hardness (HB)	Chipbreaker	Grade	Cutting Speed (m/min)	Feed rate (mm/rev) Ø 13,0–Ø 18,0	Ø 18,5–Ø 29,0	Ø 29,5– Ø 36,0	Ø 37,0–Ø 55,0	Ø 56,0–Ø 68,0
P	Carbon steel	St 42-3	125	G	ACP300	120–**180**–240	0,05–**0,07**–0,10	0,05–**0,07**–0,10	0,05–**0,08**–0,11	0,05–**0,08**–0,12	0,06–**0,09**–0,13
		C15	125	L	ACP300	130–**170**–220	0,04–**0,07**–0,10	0,04–**0,07**–0,10	0,04–**0,08**–0,11	0,05–**0,09**–0,12	0,06–**0,10**–0,13
		C45	190	G	ACP300	100–**150**–200	0,08–**0,12**–0,20	0,08–**0,12**–0,20	0,08–**0,13**–0,22	0,09–**0,14**–0,24	0,10–**0,16**–0,27
		C45 Hardened	250	G	ACP100	100–**170**–240	0,05–**0,08**–0,11	0,05–**0,08**–0,11	0,05–**0,08**–0,12	0,05–**0,09**–0,14	0,06–**0,10**–0,15
		C75	270	G	ACP100	120–**180**–240	0,06–**0,09**–0,14	0,06–**0,09**–0,17	0,06–**0,10**–0,14	0,07–**0,11**–0,17	0,08–**0,12**–0,18
		C75 Hardened	300	G	ACP100	80–**150**–210	0,05–**0,08**–0,11	0,05–**0,08**–0,11	0,05–**0,08**–0,11	0,05–**0,09**–0,14	0,06–**0,10**–0,14
	Low alloyed steel	Cr-Mo, Ni-Cr-Mo	180	L	ACP300	100–**140**–180	0,05–**0,07**–0,12	0,05–**0,07**–0,12	0,05–**0,08**–0,13	0,06–**0,08**–0,13	0,07–**0,09**–0,16
	Low alloyed steel	Cr-Mo, Ni-Cr-Mo Hardened	275	G	ACP100	100–**170**–240	0,06–**0,08**–0,11	0,06–**0,08**–0,11	0,06–**0,08**–0,11	0,07–**0,10**–0,12	0,08–**0,10**–0,13
			300	G	ACP100	90–**150**–210	0,06–**0,08**–0,11	0,06–**0,08**–0,11	0,06–**0,08**–0,11	0,07–**0,10**–0,12	0,08–**0,10**–0,13
			350	G	ACP100	75–**120**–165	0,06–**0,08**–0,11	0,06–**0,08**–0,11	0,06–**0,08**–0,11	0,07–**0,10**–0,12	0,08–**0,10**–0,13
	High alloyed steel	Sintered	200	G	ACP100	120–**180**–240	0,08–**0,11**–0,14	0,08–**0,12**–0,15	0,08–**0,12**–0,16	0,09–**0,14**–0,18	0,10–**0,14**–0,19
			325	G	ACP100	100–**140**–180	0,06–**0,09**–0,11	0,06–**0,09**–0,11	0,06–**0,09**–0,11	0,07–**0,10**–0,12	0,08–**0,10**–0,13
M	Stainless steel	Martensitic/Ferritic	200	M	ACM300	120–**150**–180	0,06–**0,08**–0,15	0,06–**0,08**–0,15	0,06–**0,08**–0,15	0,07–**0,10**–0,16	0,08–**0,12**–0,16
		Martensitic/Hardened	240	M	ACM300	90–**120**–150	0,06–**0,08**–0,15	0,06–**0,08**–0,15	0,06–**0,08**–0,15	0,07–**0,10**–0,16	0,08–**0,12**–0,16
		Austenitic	180	M	ACM300	120–**150**–180	0,06–**0,08**–0,15	0,06–**0,08**–0,15	0,06–**0,08**–0,15	0,07–**0,10**–0,16	0,08–**0,12**–0,16
K	Cast iron			H	ACK300	120–**160**–200	0,09–**0,18**–0,27	0,10–**0,20**–0,30	0,11–**0,22**–0,32	0,12–**0,24**–0,36	0,13–**0,26**–0,40
	Ductile Cast iron			H	ACK300	90–**120**–150	0,09–**0,18**–0,27	0,10–**0,20**–0,30	0,11–**0,22**–0,32	0,12–**0,24**–0,36	0,13–**0,26**–0,40
S	Exotic Alloy (Heat resistant alloy, Super Alloy, etc)		200	G	ACP300	25–**50**–70	0,06–**0,10**–0,15	0,06–**0,10**–0,15	0,06–**0,11**–0,16	0,07–**0,12**–0,18	0,08–**0,13**–0,20
N	Aluminium Alloy			G	DL1500	200–**260**–320	0,06–**0,11**–0,17	0,06–**0,11**–0,17	0,06–**0,12**–0,18	0,07–**0,13**–0,20	0,08–**0,14**–0,22
	Copper Alloy			G	DL1500	180–**230**–280	0,06–**0,11**–0,17	0,06–**0,11**–0,17	0,06–**0,12**–0,18	0,07–**0,13**–0,20	0,08–**0,14**–0,22

*For the P and K grades for which ACP300 and ACK300 are the first recommendation, ACP100 inserts are the second recommendation.
The recommended cutting conditions are a cutting speed v_c of 130% of the above table and a feed rate f of 75%.

WDX Type (4D)

Max. Depth: 4D

Machining tolerances 0 to +0.25 mm

Fig. 1

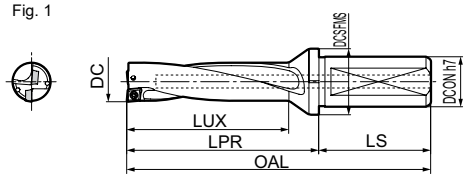


Fig. 2

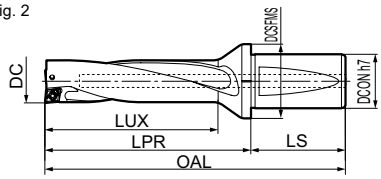
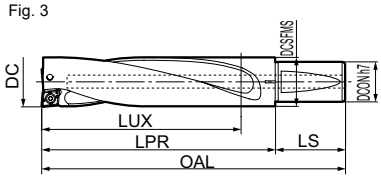


Fig. 3



■ Holder Diameter Ø 13,0 mm – Ø 45,0 mm

DC	Stock	Cat. No.	LUX	LPR	OAL	LS	DCSFMS	DCON	Fig
13,0	●	WDX 130D4S20	55	70	114				1
13,5	●	135D4S20	57	72	116				1
14,0	●	140D4S20	59	74	118	44	28,0	20	1
14,5	●	145D4S20	61	76	120				1
15,0	●	150D4S20	63	78	122				1
15,5	●	WDX 155D4S20	65	80	124				1
16,0	●	160D4S20	67	82	126	44	30,0	20	1
16,5	●	165D4S20	69	84	128				1
17,0	●	170D4S20	71	86	130				1
17,5	●	WDX 175D4S25	73	88	144	56	32,0	25	1
18,0	●	180D4S25	75	90	146				1
18,5	●	WDX 185D4S25	77	92	148				1
19,0	●	190D4S25	79	94	150				1
19,5	●	195D4S25	81	96	152				1
20,0	●	200D4S25	83	98	154				1
20,5	●	205D4S25	85	100	156	56	33,0	25	1
21,0	●	210D4S25	87	102	158				1
21,5	●	215D4S25	89	104	160				1
22,0	●	220D4S25	91	106	162				1
22,5	●	225D4S25	93	108	164				1
23,0	●	WDX 230D4S25	95	113	169				1
23,5	●	235D4S25	97	115	171				1
24,0	●	240D4S25	99	117	173	56	37,0	25	1
24,5	●	245D4S25	101	119	175				1
25,0	●	250D4S25	103	121	177				1
25,5	●	WDX 255D4S32	105	125	185				2
26,0	●	260D4S32	107	127	187				2
26,5	●	265D4S32	109	129	189				2
27,0	●	270D4S32	111	131	191	60	41,0	32	2
27,5	●	275D4S32	113	133	193				2
28,0	●	280D4S32	115	135	195				2
28,5	●	285D4S32	117	137	197				2
29,0	●	WDX 290D4S32	120	141	201		50,0		2
29,5	●	295D4S32	122	143	203				2
30,0*	❍	300D4S32	124	148	208	60		32	2
31,0*		310D4S32	128	152	212		54,0		2
32,0*	❍	320D4S32	132	156	216				2
30,0*	●	WDX 300D4S40	124	148	218				2
31,0*	●	310D4S40	128	152	222				2
32,0*	●	320D4S40	132	156	226				2
33,0	●	330D4S40	136	160	230	70	54,0	40	2
34,0	●	340D4S40	140	164	234				2
35,0	●	350D4S40	144	168	238				2
36,0	●	360D4S40	148	172	242				2
37,0	●	WDX 370D4S40	153	183	253				2
38,0	●	380D4S40	157	187	257				2
39,0	●	390D4S40	161	191	261				2
40,0	●	400D4S40	165	195	265				2
41,0	●	410D4S40	169	199	269	70	49,5	40	2
42,0	●	420D4S40	173	203	273				2
43,0	●	430D4S40	177	207	277				2
44,0	●	440D4S40	181	211	281				2
45,0	●	450D4S40	185	215	285				2

* Diameter Ø 30, Ø 31, Ø 32 are in stock with shank diameters of Ø 32 and Ø 40.

■ Holder Diameter Ø 46,0 mm – Ø 63,0 mm

DC	Stock	Cat. No.	LUX	LPR	OAL	LS	DCSFMS	DCON	Fig
46,0	●	WDX 460D4S40	189	219	289				2
47,0	●	470D4S40	193	223	293				2
48,0	●	480D4S40	197	227	297		49,5		2
49,0	●	490D4S40	201	231	301				2
50,0	●	500D4S40	205	235	305	70		40	2
51,0	●	510D4S40	209	239	309				3
52,0	●	520D4S40	213	243	313		50,5		3
53,0	●	530D4S40	217	247	317		51,5		3
54,0	●	540D4S40	221	251	321		52,5		3
55,0	●	550D4S40	225	255	325		53,5		3
56,0	❍	WDX 560D4S40	232	264	334		54,0		3
57,0	❍	570D4S40	236	268	338		55,0		3
58,0	❍	580D4S40	240	272	342		56,0		3
59,0	❍	590D4S40	244	276	346	70	57,0	40	3
60,0	❍	600D4S40	248	280	350		58,0		3
61,0	❍	610D4S40	252	284	354		59,0		3
62,0	❍	620D4S40	256	288	358		60,0		3
63,0		630D4S40	260	292	362		61,0		3

■ Parts

Applicable Holder	Flat Screw		Wrench	Wrench
				
WDX130D4S20–WDX150D4S20	BFTX01604N	**0,3**	TRX06	–
WDX155D4S20–WDX180D4S25	BFTX0204N	**0,5**	TRX06	–
WDX185D4S25–WDX225D4S25	BFTY02206	**1,0**	–	TRD07
WDX230D4S25–WDX285D4S32	BFTX02506N	**1,5**	–	TRD08
WDX290D4S32–WDX360D4S40	BFTX03584	**3,5**	–	TRD15
WDX370D4S40–WDX450D4S40	BFTX0511N	**5,0**	–	TRD20
WDX460D4S40–WDX630D4S40	BFTX0615N	**5,0**	–	TRD25

■ Identification Details - Holder

WDX 200 D4 S25

- 200: Diameter DC (Ø 20,0 mm)
- D4: Flute Length L/D (4D)
- S25: Shank Diameter DCON (Ø 25,0 mm)

■ Identification Details - Inserts

WDXT 06 30 06 -G

- 06: Width across Flats (6,0 mm)
- 30: Thickness (3,0 mm)
- 06: Nose Radius (0,6 mm)
- -G: Breaker Type

● = Euro stock
○ = Japan stock

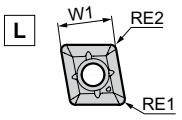
N·m Recommended Tightening Torque (N·m)

Inserts

Application	Coated Carbide				
High-Speed / Light	PK				N
General Purpose		P	M		
Roughing		P		K	

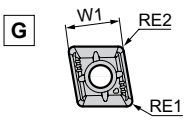
Cat. No.	ACP100	ACP300	ACM300	ACK300	DL1500	Fig	W1	S	RE1	RE2	Applicable Holder
WDXT 042004 L	❍	●		●		1	4,2	2,0	0,4	0,4	WDX130D4S20 – WDX150D4S20
042004 G	●	●		●	●	2					
042004 H	●	●		●		3					
042004 M			●			4				0,8	
WDXT 052504 L	❍	●		●		1	5,0	2,5	0,4	0,4	WDX155D4S20 – WDX180D4S25
052504 G	●	●		●	●	2					
052504 H	●	●		●		3					
052504 M			●			4				1,0	
WDXT 063006 L	●	●		●		1	6,0	3,0	0,6	0,6	WDX185D4S25 – WDX225D4S25
063006 G	●	●		●	●	2					
063006 H	●	●		●		3					
063006 M			●			4				1,4	
WDXT 073506 L	●	●		●		1	7,5	3,5	0,6	0,6	WDX230D4S25 – WDX285D4S32
073506 G	●	●		●	●	2					
073506 H	●	●		●		3					
073506 M			●			4				1,6	
WDXT 094008 L	●	●		●		1	9,6	4,0	0,8	0,8	WDX290D4S32 – WDX360D4S40
094008 G	●	●		●	●	2					
094008 H	●	●		●		3					
094008 M			●			4				2,4	
WDXT 125012 L	●	●		●		1	12,4	5,0	1,2	1,2	WDX370D4S40 – WDX450D4S40
125012 G	●	●		●	●	2					
125012 H	●	●		●		3					
125012 M			●			4				3,2	
WDXT 156012 L	●	●		●		1	15,2	6,0	1,2	1,2	WDX460D4S40 – WDX550D4S40
156012 G	●	●		●	●	2					
156012 H	●	●		●		3					
WDXT 186012 L	●	❍		❍		1	18,0	6,0	1,2	1,2	WDX560D4S40 – WDX630D4S40
186012 G	●	●		●		2					
186012 H	❍	❍		❍		3					

Fig. 1



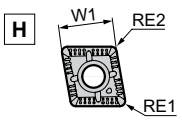
For low feed with chip control

Fig. 2



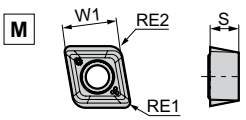
General purpose

Fig. 3



Strong edge

Fig. 4



For stainless steel

Recommended Cutting Conditions (4D)

(min. - **optimal** - max.)

ISO	Material Group / Work material			Hardness (HB)	Chipbreaker	Grade	Cutting Speed (m/min)	Feed rate (mm/rev) Ø 13,0–Ø 18,0	Ø 18,5–Ø 29,0	Ø 29,5– Ø 36,0	Ø 37,0–Ø 55,0	Ø 56,0–Ø 63,0
P	Carbon steel	St 42-3		125	G	ACP300	120–**180**–240	0,05–**0,07**–0,10	0,05–**0,07**–0,10	0,05–**0,07**–0,10	0,05–**0,08**–0,10	0,06–**0,09**–0,11
		C15		125	L	ACP300	130–**170**–220	0,04–**0,07**–0,09	0,04–**0,07**–0,09	0,04–**0,07**–0,09	0,05–**0,08**–0,10	0,06–**0,09**–0,11
		C45		190	G	ACP300	100–**150**–200	0,08–**0,11**–0,17	0,08–**0,11**–0,17	0,08–**0,12**–0,18	0,09–**0,14**–0,21	0,10–**0,15**–0,23
		C45	Hardened	250	G	ACP100	100–**170**–240	0,05–**0,08**–0,10	0,05–**0,08**–0,10	0,05–**0,08**–0,11	0,05–**0,08**–0,11	0,06–**0,09**–0,13
		C75		270	G	ACP100	120–**180**–240	0,06–**0,08**–0,11	0,06–**0,08**–0,11	0,06–**0,09**–0,13	0,07–**0,11**–0,14	0,08–**0,11**–0,15
		C75	Hardened	300	G	ACP100	85–**150**–210	0,05–**0,07**–0,09	0,05–**0,07**–0,09	0,05–**0,08**–0,10	0,05–**0,08**–0,11	0,06–**0,09**–0,12
	Low alloyed steel	Cr-Mo, Ni-Cr-Mo		180	L	ACP300	100–**140**–180	0,05–**0,07**–0,10	0,05–**0,07**–0,10	0,05–**0,07**–0,11	0,06–**0,08**–0,12	0,07–**0,09**–0,14
	Low alloyed steel	Cr-Mo, Ni-Cr-Mo	Hardened	275	G	ACP100	100–**170**–240	0,05–**0,08**–0,10	0,05–**0,08**–0,10	0,05–**0,08**–0,10	0,05–**0,08**–0,11	0,06–**0,08**–0,11
				300	G	ACP100	90–**150**–210	0,05–**0,08**–0,10	0,05–**0,08**–0,10	0,05–**0,08**–0,10	0,05–**0,08**–0,11	0,06–**0,08**–0,11
				350	G	ACP100	75–**120**–165	0,05–**0,08**–0,10	0,05–**0,08**–0,10	0,05–**0,08**–0,10	0,05–**0,08**–0,11	0,06–**0,08**–0,11
	High alloyed steel			200	G	ACP100	120–**180**–240	0,06–**0,10**–0,13	0,07–**0,11**–0,14	0,07–**0,11**–0,15	0,08–**0,12**–0,16	0,09–**0,13**–0,17
			Sintered	325	G	ACP100	100–**140**–180	0,05–**0,08**–0,10	0,05–**0,08**–0,10	0,05–**0,08**–0,10	0,05–**0,08**–0,11	0,06–**0,08**–0,11
M	Stainless steel	Martensitic/Ferritic		200	M	ACM300	120–**150**–180	0,06–**0,08**–0,13	0,06–**0,08**–0,13	0,06–**0,08**–0,14	0,07–**0,09**–0,14	0,06–**0,11**–0,14
		Martensitic/Hardened		240	M	ACM300	90–**120**–150	0,06–**0,08**–0,13	0,06–**0,08**–0,13	0,06–**0,08**–0,14	0,07–**0,09**–0,14	0,06–**0,11**–0,14
		Austenitic		180	M	ACM300	120–**150**–180	0,06–**0,08**–0,13	0,06–**0,08**–0,13	0,06–**0,08**–0,14	0,07–**0,09**–0,14	0,06–**0,11**–0,14
K	Cast iron				H	ACK300	120–**160**–200	0,09–**0,17**–0,23	0,10–**0,19**–0,26	0,11–**0,21**–0,28	0,12–**0,23**–0,31	0,13–**0,25**–0,34
	Ductile Cast iron				H	ACK300	90–**120**–150	0,09–**0,17**–0,23	0,10–**0,19**–0,26	0,11–**0,21**–0,28	0,12–**0,23**–0,31	0,13–**0,25**–0,34
S	Exotic Alloy (Heat resistant alloy, Super Alloy, etc)			200	G	ACP300	25–**50**–70	0,06–**0,10**–0,13	0,06–**0,10**–0,13	0,06–**0,10**–0,14	0,07–**0,11**–0,15	0,08–**0,12**–0,17
N	Aluminium Alloy				G	DL1500	200–**260**–320	0,05–**0,10**–0,15	0,05–**0,10**–0,15	0,06–**0,11**–0,16	0,06–**0,12**–0,18	0,07–**0,13**–0,20
	Copper Alloy				G	DL1500	180–**230**–280	0,05–**0,10**–0,15	0,05–**0,10**–0,15	0,06–**0,11**–0,16	0,06–**0,12**–0,18	0,07–**0,13**–0,20

*For the P and K grades for which ACP300 and ACK300 are the first recommendation, ACP100 inserts are the second recommendation.
The recommended cutting conditions are a cutting speed v_c of 130% of the above table and a feed rate f of 75%.

WDX Type (5D)

Max. Depth: 5D

Machining tolerances 0 to +0.25 mm

Fig. 1

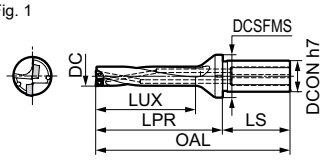


Fig. 2

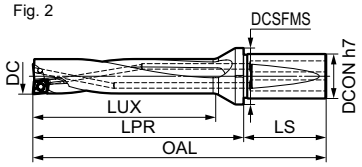
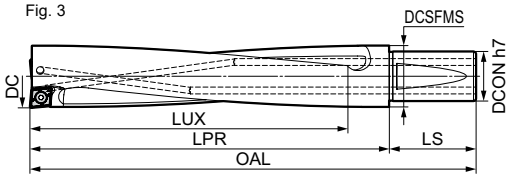


Fig. 3



Holder Diameter Ø 13,0 mm – Ø 45,0 mm

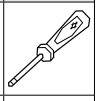
DC	Stock	Cat. No.	LUX	LPR	OAL	LS	DCSFMS	DCON	Fig
13,0	●	WDX 130D5S20	68,0	83,0	127,0				1
13,5	●	135D5S20	70,5	85,5	129,5				1
14,0	●	140D5S20	73,0	88,0	132,0	44	28,0	20,0	1
14,5	●	145D5S20	75,5	90,5	134,5				1
15,0	●	150D5S20	78,0	93,0	137,0				1
15,5	●	WDX 155D5S20	80,5	95,5	139,5				1
16,0	●	160D5S20	83,0	98,0	142,0	44	30,0	20,0	1
16,5	●	165D5S20	85,5	100,5	144,5				1
17,0	●	170D5S20	88,0	103,0	147,0				1
17,5	●	WDX 175D5S25	90,5	105,5	161,5	56	32,0	25,0	1
18,0	●	180D5S25	93,0	108,0	164,0				1
18,5	●	WDX 185D5S25	95,5	110,5	166,5				1
19,0	●	190D5S25	98,0	113,0	169,0				1
19,5	●	195D5S25	100,5	115,5	171,5				1
20,0	●	200D5S25	103,0	118,0	174,0				1
20,5	●	205D5S25	105,5	120,5	176,5	56	33,0	25,0	1
21,0	●	210D5S25	108,0	123,0	179,0				1
21,5	●	215D5S25	110,5	125,5	181,5				1
22,0	●	220D5S25	113,0	128,0	184,0				1
22,5	●	225D5S25	115,5	130,5	186,5				1
23,0	●	WDX 230D5S25	118,0	136,0	192,0				1
23,5	●	235D5S25	120,5	138,5	194,5				1
24,0	●	240D5S25	123,0	141,0	197,0	56	37,0	25,0	1
24,5	●	245D5S25	125,5	143,5	199,5				1
25,0	●	250D5S25	128,0	146,0	202,0				1
26,0	●	WDX 260D5S32	133,0	153,0	213,0				2
27,0	●	270D5S32	138,0	158,0	218,0	60	41,0	32,0	2
28,0	●	280D5S32	143,0	163,0	223,0				2
29,0	●	WDX 290D5S32	149,0	170,0	230,0		50,0		2
30,0*	●	300D5S32	154,0	178,0	238,0	60		32,0	2
31,0*	●	310D5S32	159,0	183,0	243,0		54,0		2
32,0*	○	320D5S32	164,0	188,0	248,0				2
30,0*	●	WDX 300D5S40	154,0	178,0	248,0				2
31,0*	●	310D5S40	159,0	183,0	253,0				2
32,0*	●	320D5S40	164,0	188,0	258,0				2
33,0	●	330D5S40	169,0	193,0	263,0	70	54,0	40,0	2
34,0	●	340D5S40	174,0	198,0	268,0				2
35,0	●	350D5S40	179,0	203,0	273,0				2
36,0	●	360D5S40	184,0	208,0	278,0				2
37,0	○	WDX 370D5S40	190,0	220,0	290,0				2
38,0	○	380D5S40	195,0	225,0	295,0				2
39,0	○	390D5S40	200,0	230,0	300,0				2
40,0	○	400D5S40	205,0	235,0	305,0				2
41,0	○	410D5S40	210,0	240,0	310,0	70	49,5	40,0	2
42,0	○	420D5S40	215,0	245,0	315,0				2
43,0	○	430D5S40	220,0	250,0	320,0				2
44,0	○	440D5S40	225,0	255,0	325,0				2
45,0	○	450D5S40	230,0	260,0	330,0				2

* Diameter Ø 30, Ø 31, Ø 32 are in stock with shank diameters of Ø 32 and Ø 40.

Holder Diameter Ø 46,0 mm – Ø 55,0 mm

DC	Stock	Cat. No.	LUX	LPR	OAL	LS	DCSFMS	DCON	Fig
46,0	○	WDX 460D5S40	235,0	265,0	335,0				2
47,0	○	470D5S40	240,0	270,0	340,0				2
48,0	○	480D5S40	245,0	275,0	345,0		49,5		2
49,0	○	490D5S40	250,0	280,0	350,0				2
50,0	○	500D5S40	255,0	285,0	355,0	70		40,0	2
51,0	○	510D5S40	260,0	290,0	360,0				3
52,0	○	520D5S40	265,0	295,0	365,0		50,5		3
53,0	○	530D5S40	270,0	300,0	370,0		51,5		3
54,0	○	540D5S40	275,0	305,0	375,0		52,5		3
55,0	○	550D5S40	280,0	310,0	380,0		53,5		3

Parts

Applicable Holder	Flat Screw		Wrench	Wrench
		N·m		
WDX130D5S20–WDX150D5S20	BFTX01604N	**0,3**	TRX06	–
WDX155D5S20–WDX180D5S25	BFTX0204N	**0,5**	TRX06	–
WDX185D5S25–WDX225D5S25	BFTY02206	**1,0**	–	TRD07
WDX230D5S25–WDX280D5S32	BFTX02506N	**1,5**	–	TRD08
WDX290D5S32–WDX360D5S40	BFTX03584	**3,5**	–	TRD15
WDX370D5S40–WDX450D5S40	BFTX0511N	**5,0**	–	TRD20
WDX460D5S40–WDX550D5S40	BFTX0615N	**5,0**	–	TRD25

Identification Details - Holder

WDX 200 D5 S25

- 200: Diameter DC (Ø 20,0 mm)
- D5: Flute Length L/D (5D)
- S25: Shank Diameter DCON (Ø 25,0 mm)

Identification Details - Inserts

WDXT 06 30 06 -G

- 06: Width across Flats (6,0 mm)
- 30: Thickness (3,0 mm)
- 06: Nose Radius (0,6 mm)
- -G: Breaker Type

● = Euro stock
○ = Japan stock

N·m Recommended Tightening Torque (N·m)

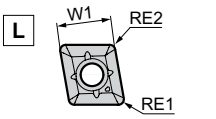
WDX Type (5D)

Inserts

Application	Coated Carbide				
High-Speed / Light	PK				N
General Purpose		P	M		
Roughing		P		K	

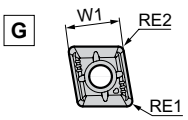
Cat. No.	ACP100	ACP300	ACM300	ACK300	DL1500	Fig	W1	S	RE1	RE2	Applicable Holder
WDXT 042004 L	❍	●		●		1	4,2	2,0	0,4	0,4	WDX130D5S20 – WDX150D5S20
042004 G	●	●		●	●	2					
042004 H	●	●		●		3					
042004 M			●			4				0,8	
WDXT 052504 L	❍	●		●		1	5,0	2,5	0,4	0,4	WDX155D5S20 – WDX180D5S25
052504 G	●	●		●	●	2					
052504 H	●	●		●		3					
052504 M			●			4				1,0	
WDXT 063006 L	●	●		●		1	6,0	3,0	0,6	0,6	WDX185D5S25 – WDX225D5S25
063006 G	●	●		●	●	2					
063006 H	●	●		●		3					
063006 M			●			4				1,4	
WDXT 073506 L	●	●		●		1	7,5	3,5	0,6	0,6	WDX230D5S25 – WDX280D5S32
073506 G	●	●		●	●	2					
073506 H	●	●		●		3					
073506 M			●			4				1,6	
WDXT 094008 L	●	●		●		1	9,6	4,0	0,8	0,8	WDX290D5S32 – WDX360D5S40
094008 G	●	●		●	●	2					
094008 H	●	●		●		3					
094008 M			●			4				2,4	
WDXT 125012 L	●	●		●		1	12,4	5,0	1,2	1,2	WDX370D5S40 – WDX450D5S40
125012 G	●	●		●	●	2					
125012 H	●	●		●		3					
125012 M			●			4				3,2	
WDXT 156012 L	●	●		●		1	15,2	6,0	1,2	1,2	WDX460D5S40 – WDX550D5S40
156012 G	●	●		●	●	2					
156012 H	●	●		●		3					

Fig. 1



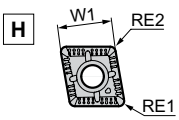
For low feed with chip control

Fig. 2



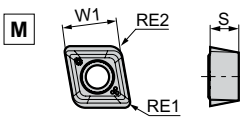
General purpose

Fig. 3



Strong edge

Fig. 4



For stainless steel

Recommended Cutting Conditions (5D)

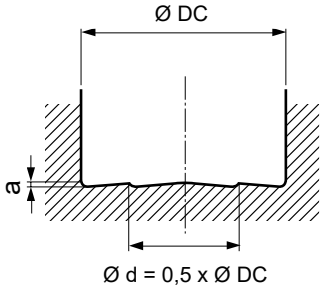
(min. - **optimal** - max.)

ISO	Material Group	Work material		Hardness (HB)	Chipbreaker	Grade	Cutting Speed (m/min)	Feed rate (mm/rev) Ø 13,0–Ø 18,0	Ø 18,5–Ø 29,0	Ø 29,5– Ø 36,0	Ø 37,0–Ø 55,0
P	Carbon steel	St 42-3		125	G	ACP300	120–**180**–240	0,05–**0,06**–0,09	0,05–**0,06**–0,09	0,05–**0,06**–0,09	0,05–**0,07**–0,09
		C15		125	L	ACP300	130–**170**–220	0,04–**0,06**–0,08	0,04–**0,06**–0,08	0,04–**0,06**–0,08	0,05–**0,07**–0,09
		C45		190	G	ACP300	100–**150**–200	0,07–**0,10**–0,15	0,07–**0,10**–0,15	0,08–**0,11**–0,17	0,09–**0,12**–0,19
		C45	Hardened	250	G	ACP100	100–**170**–240	0,04–**0,07**–0,08	0,04–**0,07**–0,08	0,05–**0,07**–0,09	0,05–**0,08**–0,11
		C75		270	G	ACP100	120–**180**–240	0,05–**0,08**–0,11	0,05–**0,08**–0,11	0,06–**0,08**–0,11	0,07–**0,09**–0,13
		C75	Hardened	300	G	ACP100	80–**150**–210	0,04–**0,07**–0,08	0,04–**0,07**–0,08	0,05–**0,07**–0,09	0,05–**0,08**–0,10
	Low alloyed steel	Cr-Mo, Ni-Cr-Mo		180	L	ACP300	100–**140**–180	0,05–**0,06**–0,09	0,05–**0,06**–0,09	0,05–**0,06**–0,10	0,05–**0,07**–0,11
	Low alloyed steel	Cr-Mo, Ni-Cr-Mo		275	G	ACP100	100–**170**–240	0,04–**0,06**–0,09	0,04–**0,06**–0,09	0,04–**0,06**–0,09	0,05–**0,07**–0,10
			Hardened	300	G	ACP100	90–**150**–210	0,04–**0,06**–0,09	0,04–**0,06**–0,09	0,04–**0,06**–0,09	0,05–**0,07**–0,10
				350	G	ACP100	75–**120**–165	0,04–**0,06**–0,09	0,04–**0,06**–0,09	0,04–**0,06**–0,09	0,05–**0,07**–0,10
	High alloyed steel			200	G	ACP100	120–**180**–240	0,05–**0,08**–0,12	0,06–**0,09**–0,12	0,06–**0,09**–0,13	0,07–**0,10**–0,14
			Sintered	325	G	ACP100	100–**140**–180	0,04–**0,06**–0,09	0,04–**0,06**–0,09	0,04–**0,06**–0,09	0,04–**0,06**–0,09
M	Stainless steel	Martensitic/Ferritic		200	M	ACM300	120–**150**–180	0,05–**0,08**–0,11	0,05–**0,08**–0,12	0,05–**0,08**–0,12	0,06–**0,09**–0,12
		Martensitic/Hardened		240	M	ACM300	90–**120**–150	0,05–**0,08**–0,11	0,05–**0,08**–0,12	0,05–**0,08**–0,12	0,06–**0,09**–0,12
		Austenitic		180	M	ACM300	120–**150**–180	0,05–**0,08**–0,11	0,05–**0,08**–0,12	0,05–**0,08**–0,12	0,06–**0,09**–0,12
K	Cast iron				H	ACK300	120–**160**–200	0,08–**0,15**–0,21	0,09–**0,17**–0,23	0,09–**0,18**–0,25	0,11–**0,20**–0,28
	Ductile Cast iron				H	ACK300	90–**120**–150	0,08–**0,15**–0,21	0,09–**0,17**–0,23	0,09–**0,18**–0,25	0,11–**0,20**–0,28
S	Exotic Alloy (Heat resistant alloy, Super Alloy, etc)			200	G	ACP300	25–**50**–70	0,05–**0,09**–0,11	0,05–**0,09**–0,11	0,06–**0,09**–0,12	0,06–**0,10**–0,14
N	Aluminium Alloy				G	DL1500	200–**260**–320	0,05–**0,10**–0,15	0,05–**0,10**–0,15	0,06–**0,11**–0,16	0,06–**0,12**–0,18
	Copper Alloy				G	DL1500	180–**230**–280	0,05–**0,10**–0,15	0,05–**0,10**–0,15	0,06–**0,11**–0,16	0,06–**0,12**–0,18

*For the P and K grades for which ACP300 and ACK300 are the first recommendation, ACP100 inserts are the second recommendation.
The recommended cutting conditions are a cutting speed v_c of 130% of the above table and a feed rate f of 75%.

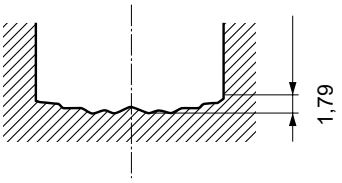
Hole Profile

Bottom of hole after drilling with
WDX200D3S25



Drill Diameter DC (mm)	a (mm)
Ø 13,0– Ø 18,0	0,4
Ø 18,5– Ø 28,5	0,6
Ø 29,0– Ø 36,0	0,8
Ø 37,0– Ø 55,0	1,2
Ø 56,0– Ø 68,0	1,4

Bottom of hole after drilling with
conventional tool

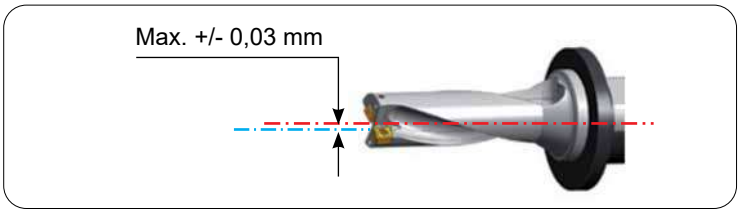


Finishing is easy because the hole bottom is almost flat.

Applications for Lathes

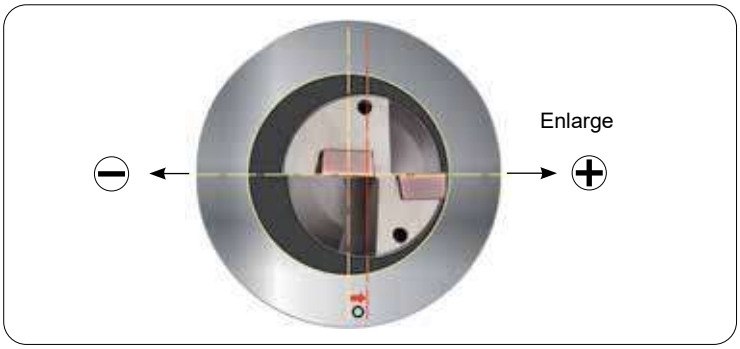
Setting Instruction

Ensure the face of the drill flange is hard against the face of the tool holder.
Axis offset: Difference between workpiece axis and the Y-axis.
Align the centreline of the drill to the centreline of the lathes Y axis.



Drilling Over Holes

Offset the lathes X axis within the maximum amount stated in the table.

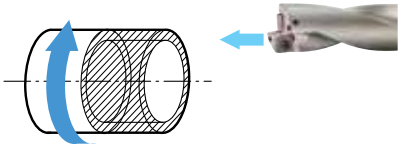


Drill	Max. Offset (mm)	Drill	Max. Offset (mm)
WDX130...	0,35	WDX330...	0,55
WDX135...	0,30	WDX340...	0,45
WDX140...	0,25	WDX350...	0,35
WDX145...	0,20	WDX360...	0,20
WDX150...	0,15	WDX370...	1,00
WDX155...	0,40	WDX380...	1,00
WDX160...	0,40	WDX390...	0,90
WDX165...	0,35	WDX400...	0,80
WDX170...	0,30	WDX410...	0,70
WDX175...	0,25	WDX420...	0,60
WDX180...	0,20	WDX430...	0,50
WDX185...	0,50	WDX440...	0,50
WDX190...	0,45	WDX450...	0,40
WDX195...	0,40	WDX460...	1,50
WDX200...	0,30	WDX470...	1,40
WDX205...	0,30	WDX480...	1,30
WDX210...	0,20	WDX490...	1,20
WDX215...	0,15	WDX500...	1,10
WDX220...	0,10	WDX510...	1,00
WDX225...	0,05	WDX520...	0,90
WDX230...	0,70	WDX530...	0,80
WDX235...	0,70	WDX540...	0,60
WDX240...	0,60	WDX550...	0,50
WDX245...	0,50	WDX560...	2,00
WDX250...	0,50	WDX570...	1,80
WDX255...	0,45	WDX580...	1,70
WDX260...	0,40	WDX590...	1,60
WDX265...	0,35	WDX600...	1,50
WDX270...	0,25	WDX610...	1,40
WDX275...	0,20	WDX620...	1,30
WDX280...	0,15	WDX630...	1,20
WDX285...	0,10	WDX640...	1,00
WDX290...	1,00	WDX650...	0,90
WDX295...	0,95	WDX660...	0,70
WDX300...	0,90	WDX670...	0,60
WDX310...	0,80	WDX680...	0,50
WDX320...	0,70		

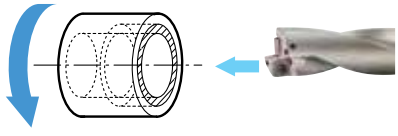
Recommended conditions - reduce feed rate to 30 %

Turning by Lathes

Outer turning (max. 2xD)



Inner turning (max. 2xD)

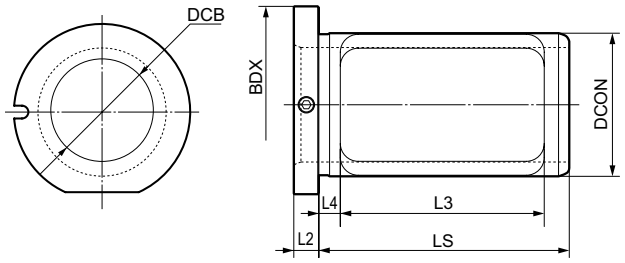


Recommended conditions - reduce feed rate to 50 %

● = Euro stock

Eccentric Sleeve **WAS** Type

The Eccentric Sleeve WAS Type, exclusively designed for "SumiDrill" WDX Type, provides up to ± 0,3 mm of hole size adjustment.



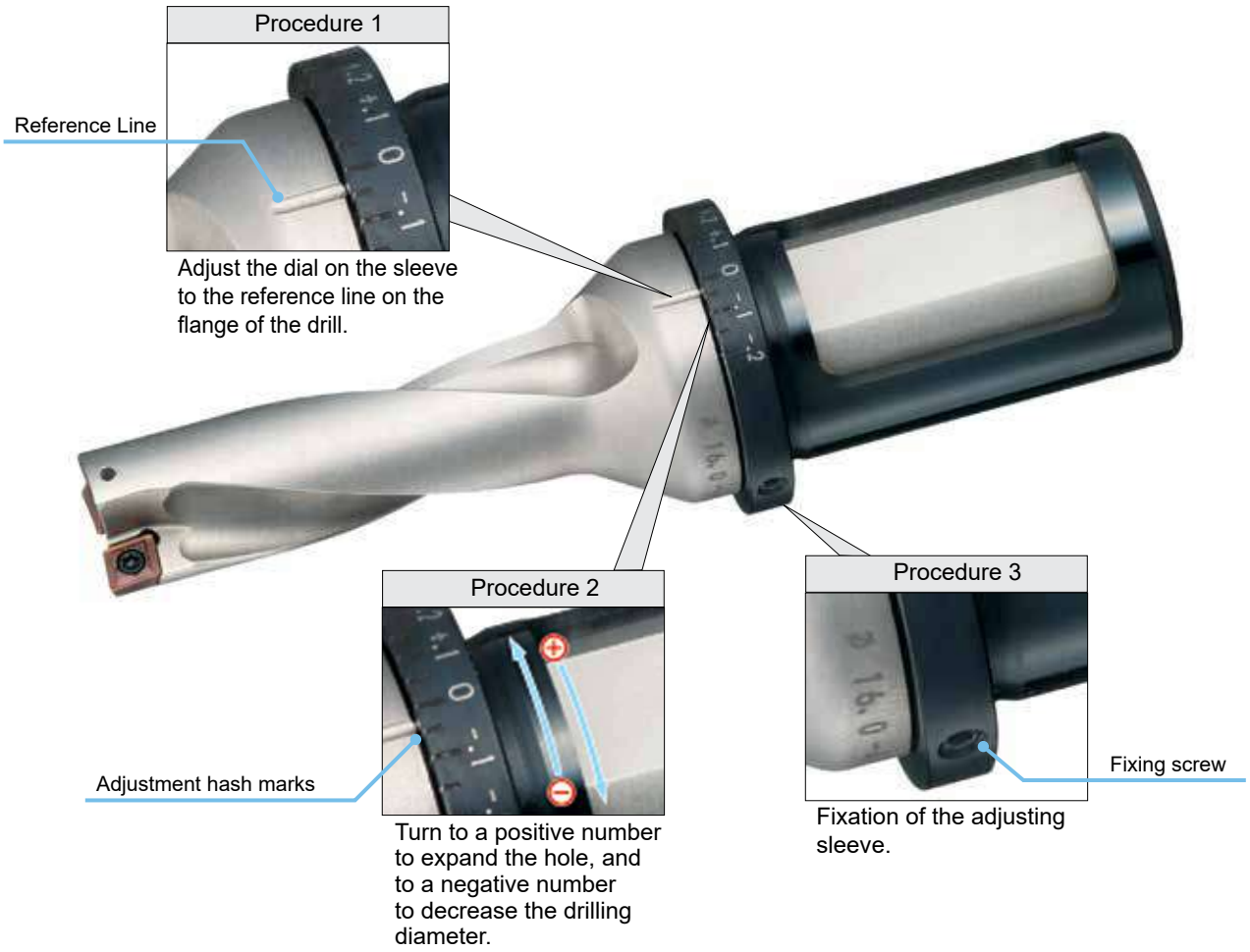
Dimensions

Parts

Dimensions (mm)

Cat. No.	Stock	DCB	DCON	BDX	LS	L2	L3	L4	Diameter Adjustment Range (max.)	Screw	Wrench
WAS 2025-48	●	20	25	33	43	5	32	5	+0,3 – -0,2	BT306	LH015
WAS 2532-60	●	25	32	42	60	7	46	6	+0,3 – -0,3	BT406	LH020
WAS 3240-70	●	32	40	55	70	7	57	6	+0,3 – -0,3	BT408	LH020
WAS 4050-85	●	40	50	60	70	7	54	6	+0,5 – -0,5	BT408	LH020

Diameter Adjustment



Note 1: The dial is for reference purposes. Always measure the actual drilling diameter and adjust accordingly.
Note 2: Not usable with collet chuck type holders. Only use with a side-locking holder like Weldon.

PDL Type / PCT Type

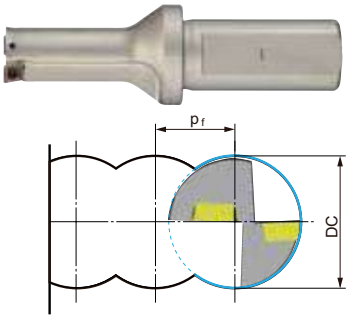
Description

The tool cuts in the Z axis direction where tool rigidity is highest, allowing high efficiency roughing for aeronautic components and dies with long tool overhang must be used to machine deep holes and pockets.

Characteristics

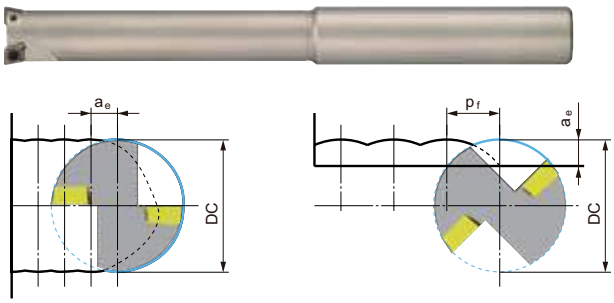
- The flat cutting edge design produces near-flat bottom profiles to reduce depth of cut variation during finishing.
- All sizes come with an air hole for supplying coolant internally to improve chip evacuation.
- Durable body with special surface treatment offers improved tool life and reliability.
- The tools use SumiDrill WDX type inserts for handling a wide range of work materials, from steel to non-ferrous metals and exotic alloys.

- The PDL type has a central insert making it possible to make radial cuts beyond the tool's radius, pitch feed cutting, and drilling. (Pocket milling, etc.)



Keep the value of P_f for PDL type tools to less than 70 % of the tool diameter (DC).

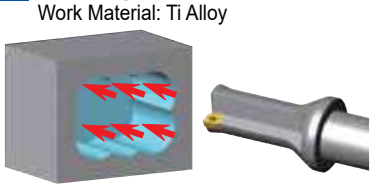
- Although the PCT type has limited radial cutting ability, the tool has many effective teeth enabling it to perform high feed cutting. (Medium finishing of corners, hole expansion, deep grooving, etc.)



Keep the value of P_f for PCT type tools to less than 50 % of the tool diameter (DC).
For a_e refer to the dimension under "a_e max" in the stock / dimensions tables titled "Holders Max, Depth: 3D/5D".

Application examples

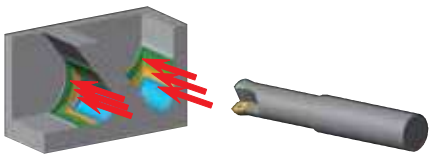
PDL Pocketing
Work Material: Ti Alloy



Tool: PDL400D2S40 (Ø 40)
Insert: WDXT125012-G
Grade: ACK300

Cutting Conditions:
v_c = 40 m/min
f = 0,07 mm/rev
(v_f = 22,3 mm/min)
P_f = 25 mm

PCT Corner Finishing
Work Material: Ti Alloy

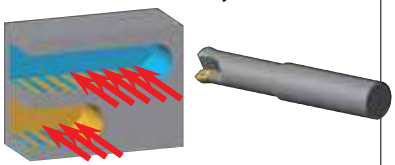


Tool:
PCT320D3S32 (Ø 32)
PCT250D3S25 (Ø 25)
PCT200D3S20 (Ø 20)
Grade: ACK300

Insert:
WDXT094008-G
WDXT073506-G
WDXT063006-G

Cutting Conditions:
v_c = 50 m/min
f_t = 0,08 mm/tooth
(v_f = 80–127 mm/min)
a_e = 3,2–6,5 mm

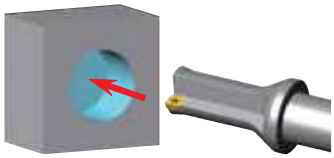
PCT Grooving
Work Material: Ti Alloy



Tool: PCT320D5S32 (Ø 32)
Insert: WDXT094008-G
Grade: ACK300

Cutting Conditions:
v_c = 40 m/min
f_t = 0,07 mm/tooth
(v_f = 56 mm/min)
P_f = 5,0 mm

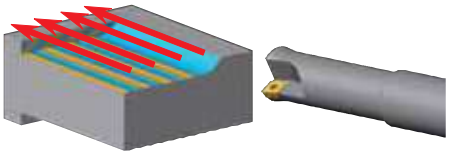
PDL Drilling
Work Material: X4 CrNiMo 17 12 2



Tool: PDL200D3S25 (Ø 20)
Insert: WDXT063006-G
Grade: ACP300

Cutting Conditions:
v_c = 180 m/min
f = 0,10 mm/rev
(v_f = 286 mm/min)
DC = 20 mm

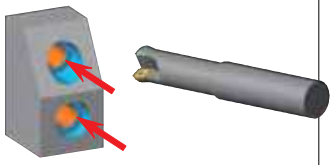
PCT Aeronautic Components
Work Material: X5 CrNi 18 10



Tool: PCT320D3S32 (Ø 32)
Insert: WDXT094008-G
Grade: ACP300

Cutting Conditions:
v_c = 180 m/min
f_t = 0,15 mm/tooth
(v_f = 537 mm/min)
a_e = 7,0 mm, P_f = 5,0 mm

PCT Machine Components
Work Material: 34 Cr Ni 4



Tool: PCT200D5S20 (Ø 20)
Insert: WDXT063006-G
Grade: ACK300

Cutting Conditions:
v_c = 150 m/min
f_t = 0,15 mm/tooth
(v_f = 716 mm/min)
a_e = 3,5 mm

● = Euro stock
❍ = Japan stock

Recommended Tightening Torque (N·m)

Indexable Plunge Drill
PDL Type (2D, 3D)

2D	3D	Carbon Steel, Alloy Steel C≤0,28%	Carbon Steel, Alloy Steel C>0,28%	Tempered Steel	Hardened Steel HRC≤45	Hardened Steel HRC>45	Stainless Steel	Ti Alloy	Heat Resistant Alloy	Cast iron	Ductile Cast Iron	Al Alloy	Cu Alloy	Composite CFRP *
W														

Fig 1

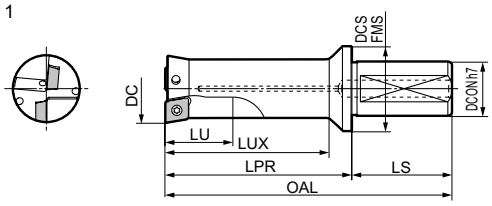
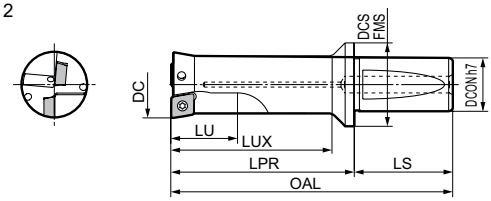


Fig 2



Holder (Max a_p: 2D)

Cat. No.	Stock	Dimensions (mm) DC	OAL	LU	LUX	LPR	LS	DCON	DCSFMS	Applicable Insert	Fig.
PDL 160D2S20	●	16,0	94	32	35	50	44	20	28	WDXT052504	1
200D2S25	●	20,0	114	40	43	58	56	25	33	WDXT063006	
250D2S25	●	25,0	127	50	53	71	56	25	37	WDXT073506	
PDL 320D2S40	●	32,0	162	64	68	92	70	40	54	WDXT094008	2
400D2S40	●	40,0	185	80	85	115	70	40	54	WDXT125012	

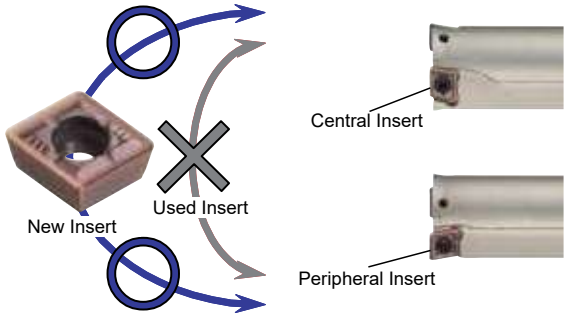
Holder (Max a_p: 3D)

Cat. No.	Stock	Dimensions (mm) DC	OAL	LU	LUX	LPR	LS	DCON	DCSFMS	Applicable Insert	Fig.
PDL 160D3S20	●	16,0	110	48	51	66	44	20	28	WDXT052504	1
200D3S25	●	20,0	134	60	63	78	56	25	33	WDXT063006	
250D3S25	●	25,0	152	75	78	96	56	25	37	WDXT073506	
PDL 320D3S40	●	32,0	194	96	100	124	70	40	54	WDXT094008	2
400D3S40	●	40,0	225	120	125	155	70	40	54	WDXT125012	

Spare Parts

Screw	Wrench	Wrench	N·m	Applicable Holders
BFTX0204N	TRX06	–	**0,5**	PDL 160 D2 S20, PDL 160 D3 S20 PCT 160 D3 S16, PCT 160 D5 S16
BFTY02206	–	TRD07	**1,0**	PDL 200 D2 S25, PDL 200 D3 S25 PCT 200 D3 S20, PCT 200 D5 S20
BFTX02506N	–	TRD08	**1,5**	PDL 250 D2 S25, PDL 250 D3 S25 PCT 250 D3 S25, PCT 250 D5 S25
BFTX03584	–	TRD15	**3,5**	PDL 320 D2 S40, PDL 320 D3 S40 PCT 320 D3 S32, PCT 320 D5 S32
BFTX0511N	–	TRD20	**5,0**	PDL 400 D2 S40, PDL 400 D3 S40 PCT 400 D3 S42, PCT 400 D5 S42

Notes about Mounting Inserts



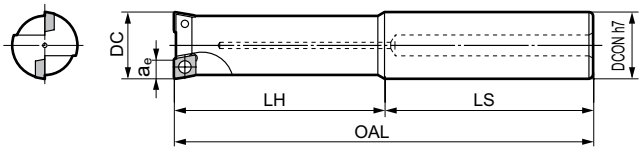
PDL type: Inserts can be used on either the centre or the outside.
Inserts used on the outside cannot be used in the centre,. Similarly, inserts used in the centre cannot be used on the outside.
PCT type: 2 corners can be used only for the outer inserts.

Indexable Plunge Mill
PCT Type (3D, 5D)

3D	5D	Carbon Steel, Alloy Steel C≤0,28%	Carbon Steel, Alloy Steel C>0,28%	Tempered Steel	Hardened Steel HRC≤45	Hardened Steel HRC>45	Stainless Steel	Ti Alloy	Heat Resistant Alloy	Cast iron	Ductile Cast Iron	Al Alloy	Cu Alloy	Composite CFRP *
◎	◎			○		○	◎		◎	◎	◎	○		

* CFRP (Carbon Fibre Reinforced Plastic)

Fig 3



Holder (Max a_p: 3D)

Cat. No.	Stock	Dimensions (mm) DC	a_e max	OAL	LH	LS	DCON	No. of teeth	Applicable Insert	Fig.
PCT 160D3S16	●	16,0	4,0	123	53	70	16	2	WDXT052504	3
200D3S20	●	20,0	5,0	145	65	80	20	2	WDXT063006	
250D3S25	●	25,0	6,5	160	80	80	25	2	WDXT073506	
320D3S32	●	32,0	8,5	191	101	90	32	2	WDXT094008	
400D3S42	●	40,0	11,0	225	125	100	42	3	WDXT125012	

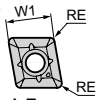
Holder (Max a_p: 5D)

Cat. No.	Stock	Dimensions (mm) øD	a_e max	OAL	LH	LS	DCON	No. of teeth	Applicable Insert	Fig.
PCT 160D5S16	●	16,0	4,0	155	85	70	16	2	WDXT052504	3
200D5S20	●	20,0	5,0	185	105	80	20	2	WDXT063006	
250D5S25	●	25,0	6,5	210	130	80	25	2	WDXT073506	
320D5S32	●	32,0	8,5	255	165	90	32	2	WDXT094008	
400D5S42	●	40,0	11,0	305	205	100	42	3	WDXT125012	

Inserts

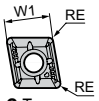
(mm)

Fig. 4



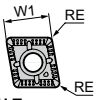
L Type
Excellent chip control at low feed rates

Fig. 5



G Type
General purpose chipbreaker

Fig. 6



H Type
Strong cutting edge at higher feed rates

Application	Coated			
High Speed / Light Cutting				N
General Purpose		M		
Roughing		PM	K	

Cat. No.	ACP100	ACP300	ACK300	DL1500	Fig.	Dimensions (mm) W1	Thickness	RE	Applicable Holder
WDXT 052504-L	❍	●	●		4	5,0	2,5	0,4	PDL160D2S20 PDL160D3S20 PCT160D3S16 PCT160D5S16
052504-G	●	●	●	●	5				
052504-H	●	●	●		6				
WDXT 063006-L	●	●	●		4	6,0	3,0	0,6	PDL200D2S25 PDL200D3S25 PCT200D3S20 PCT200D5S20
063006-G	●	●	●	●	5				
063006-H	●	●	●		6				
WDXT 073506-L	●	●	●		4	7,5	3,5	0,6	PDL250D2S25 PDL250D3S25 PCT250D3S25 PCT250D5S25
073506-G	●	●	●	●	5				
073506-H	●	●	●		6				
WDXT 094008-L	●	●	●		4	9,6	4,0	0,8	PDL320D2S40 PDL320D3S40 PCT320D3S32 PCT320D5S32
094008-G	●	●	●	●	5				
094008-H	●	●	●		6				
WDXT 125012-L	●	●	●		4	12,4	5,0	1,2	PDL400D2S40 PDL400D3S40 PCT400D3S42 PCT400D5S42
125012-G	●	●	●	●	5				
125012-H	●	●	●		6				

Identification Details

PCT, PDL Type

PCT 250 D3 S25

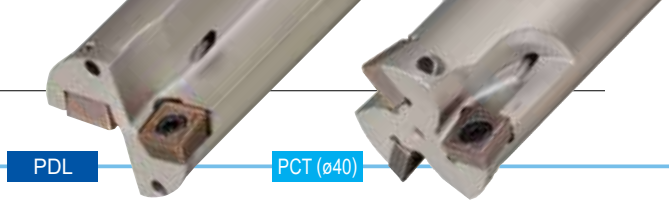
- 250 — Tool Diameter (Ø 25,0)
- D3 — Max Depth L/D (3D)
- S25 — Shank Size (Ø 25,0)

PCT, PDL Type Insert Identification

WDXT 07 35 06 -G

- 07 — Width Across Flats (7,5)
- 35 — Thickness x 10 (3,5)
- 06 — Corner Radius x 10 (R0,6)
- -G — Breaker Type

Recommended Cutting Conditions
PDL Type / PCT Type



Recommended Cutting Conditions (2D)

[min. - **optimal** - max.]

ISO	Work material	Hardness (HB)	Chip breaker & Grade		Cutting Speed Vc (m/min)	PDL Type: f (mm/rev) Ø 16,0	Ø 20,0–25,0	Ø 32,0	Ø 40,0
P	Carbon steel	125	G	ACP300	120–**180**–240	0,05–**0,08**–0,10	0,05–**0,08**–0,10	0,05–**0,08**–0,11	0,05–**0,08**–0,12
		125	L	ACP300	130–**170**–220	0,04–**0,08**–0,12	0,04–**0,08**–0,12	0,04–**0,08**–0,13	0,05–**0,10**–0,15
		190	G	ACP300	100–**150**–200	0,08–**0,13**–0,24	0,08–**0,13**–0,24	0,08–**0,14**–0,26	0,09–**0,16**–0,29
		250	G	ACP300	80–**120**–160	0,06–**0,11**–0,18	0,06–**0,11**–0,18	0,06–**0,12**–0,19	0,07–**0,13**–0,22
		270	G	ACP300	100–**130**–160	0,08–**0,13**–0,22	0,08–**0,13**–0,22	0,08–**0,14**–0,23	0,09–**0,16**–0,26
		300	G	ACP300	70–**100**–140	0,06–**0,11**–0,17	0,06–**0,11**–0,17	0,06–**0,12**–0,18	0,07–**0,13**–0,20
	Low alloyed steel	180	L	ACP300	100–**140**–180	0,05–**0,08**–0,14	0,05–**0,08**–0,14	0,05–**0,08**–0,16	0,06–**0,09**–0,17
		275	G	ACP300	80–**120**–160	0,06–**0,11**–0,17	0,06–**0,11**–0,17	0,06–**0,12**–0,18	0,07–**0,13**–0,20
		300	G	ACP300	75–**110**–140	0,06–**0,11**–0,17	0,06–**0,11**–0,17	0,06–**0,12**–0,18	0,07–**0,13**–0,20
		350	G	ACP300	60–**85**–110	0,06–**0,11**–0,17	0,06–**0,11**–0,17	0,06–**0,12**–0,18	0,07–**0,13**–0,20
	High alloyed steel	200	G	ACP300	100–**130**–160	0,08–**0,13**–0,24	0,08–**0,13**–0,24	0,08–**0,14**–0,26	0,09–**0,16**–0,29
		325	G	ACP300	80–**100**–120	0,06–**0,11**–0,18	0,06–**0,11**–0,18	0,06–**0,12**–0,19	0,07–**0,13**–0,22
M	Stainless steel, martensitic / ferritic	200	G	ACP300	100–**140**–180	0,06–**0,11**–0,18	0,06–**0,11**–0,18	0,06–**0,12**–0,19	0,07–**0,13**–0,22
	Stainless steel, martensitic / tempered	240	G	ACP300	90–**120**–150	0,06–**0,11**–0,18	0,06–**0,11**–0,18	0,06–**0,12**–0,19	0,07–**0,13**–0,22
	Stainless steel, austenitic / quenched	180	G	ACP300	100–**140**–180	0,06–**0,08**–0,18	0,06–**0,11**–0,18	0,06–**0,12**–0,19	0,07–**0,13**–0,22
	Stainless steel, austenitic / ferritic (Duplex)	230	G	ACP300	80–**120**–150	0,04–**0,08**–0,18	0,06–**0,11**–0,18	0,06–**0,12**–0,19	0,07–**0,13**–0,22
K	Cast iron (GG)	180	H	ACK300	120–**160**–200	0,09–**0,20**–0,32	0,10–**0,22**–0,36	0,11–**0,24**–0,39	0,12–**0,26**–0,44
	Nodular cast iron (GGG)	260	H	ACP300	90–**120**–150	0,09–**0,20**–0,32	0,10–**0,22**–0,36	0,11–**0,24**–0,39	0,12–**0,26**–0,44
S	Heat resistant alloy	200	G	ACP300	25–**50**–70	0,06–**0,11**–0,18	0,06–**0,11**–0,18	0,06–**0,12**–0,19	0,07–**0,13**–0,22
N	Aluminium alloy		G	DL1500	200–**260**–320	0,06–**0,11**–0,17	0,06–**0,11**–0,17	0,06–**0,12**–0,18	0,07–**0,13**–0,20
	Copper alloy		G	DL1500	180–**230**–280	0,06–**0,11**–0,17	0,06–**0,11**–0,17	0,06–**0,12**–0,18	0,07–**0,13**–0,20

Recommended Cutting Conditions (3D)

[min. - **optimal** - max.]

ISO	Work material	Hardness (HB)	Chip breaker & Grade		Cutting Speed Vc (m/min)	PDL Type: f (mm/rev) / PCT Type: f_t (mm/tooth) Ø 16,0	Ø 20,0–25,0	Ø 32,0	Ø 40,0
P	Carbon steel	125	G	ACP300	120–**180**–240	0,05–**0,07**–0,10	0,05–**0,07**–0,10	0,05–**0,08**–0,11	0,05–**0,08**–0,12
		125	L	ACP300	130–**170**–220	0,04–**0,07**–0,10	0,04–**0,07**–0,10	0,04–**0,08**–0,11	0,05–**0,09**–0,12
		190	G	ACP300	100–**150**–200	0,08–**0,12**–0,20	0,08–**0,12**–0,20	0,08–**0,13**–0,22	0,09–**0,14**–0,24
		250	G	ACP300	80–**120**–160	0,06–**0,10**–0,15	0,06–**0,10**–0,15	0,06–**0,11**–0,16	0,07–**0,12**–0,18
		270	G	ACP300	100–**130**–160	0,08–**0,12**–0,18	0,08–**0,12**–0,18	0,08–**0,13**–0,19	0,09–**0,14**–0,22
		300	G	ACP300	70–**100**–140	0,06–**0,10**–0,14	0,06–**0,10**–0,14	0,06–**0,11**–0,15	0,07–**0,12**–0,17
	Low alloyed steel	180	L	ACP300	100–**140**–180	0,05–**0,07**–0,12	0,05–**0,07**–0,12	0,05–**0,07**–0,13	0,06–**0,07**–0,15
		275	G	ACP300	80–**120**–160	0,06–**0,10**–0,14	0,06–**0,10**–0,14	0,06–**0,11**–0,15	0,07–**0,12**–0,17
		300	G	ACP300	75–**110**–140	0,06–**0,10**–0,14	0,06–**0,10**–0,14	0,06–**0,11**–0,15	0,07–**0,12**–0,17
		350	G	ACP300	60–**85**–110	0,06–**0,10**–0,14	0,06–**0,10**–0,14	0,06–**0,11**–0,15	0,07–**0,12**–0,17
	High alloyed steel	200	G	ACP300	100–**130**–160	0,08–**0,12**–0,20	0,08–**0,12**–0,20	0,08–**0,13**–0,22	0,09–**0,14**–0,24
		325	G	ACP300	80–**100**–120	0,06–**0,10**–0,15	0,06–**0,10**–0,15	0,06–**0,11**–0,16	0,07–**0,12**–0,18
M	Stainless steel, martensitic / ferritic	200	G	ACP300	100–**140**–180	0,06–**0,10**–0,15	0,06–**0,10**–0,15	0,06–**0,11**–0,16	0,07–**0,12**–0,18
	Stainless steel, martensitic / tempered	240	G	ACP300	90–**120**–150	0,06–**0,10**–0,15	0,06–**0,10**–0,15	0,06–**0,11**–0,16	0,07–**0,12**–0,18
	Stainless steel, austenitic / quenched	180	G	ACP300	100–**140**–180	0,06–**0,10**–0,15	0,06–**0,10**–0,15	0,06–**0,11**–0,16	0,07–**0,12**–0,18
	Stainless steel, austenitic / ferritic (Duplex)	230	G	ACP300	80–**120**–150	0,04–**0,10**–0,15	0,06–**0,10**–0,15	0,06–**0,11**–0,16	0,07–**0,12**–0,18
K	Cast iron (GG)	180	H	ACK300	120–**160**–200	0,09–**0,18**–0,27	0,10–**0,20**–0,30	0,11–**0,22**–0,32	0,12–**0,24**–0,36
	Nodular cast iron (GGG)	260	H	ACP300	90–**120**–150	0,09–**0,18**–0,27	0,10–**0,20**–0,30	0,11–**0,22**–0,32	0,12–**0,24**–0,36
S	Heat resistant alloy	200	G	ACP300	25–**50**–70	0,06–**0,10**–0,15	0,06–**0,10**–0,15	0,06–**0,11**–0,16	0,07–**0,12**–0,18
N	Aluminium alloy		G	DL1500	200–**260**–320	0,06–**0,11**–0,17	0,06–**0,11**–0,17	0,06–**0,12**–0,18	0,07–**0,13**–0,20
	Copper alloy		G	DL1500	180–**230**–280	0,06–**0,11**–0,17	0,06–**0,11**–0,17	0,06–**0,12**–0,18	0,07–**0,13**–0,20

Recommended Cutting Conditions (5D)

[min. - **optimal** - max.]

ISO	Work material	Hardness (HB)	Chip breaker & Grade		Cutting Speed Vc (m/min)	PCT Type: f_t (mm/tooth) Ø 16,0	Ø 20,0–25,0	Ø 32,0	Ø 40,0
P	Carbon steel	125	G	ACP300	120–**180**–240	0,05–**0,06**–0,09	0,05–**0,06**–0,09	0,05–**0,06**–0,09	0,05–**0,07**–0,09
		125	L	ACP300	130–**170**–220	0,04–**0,06**–0,08	0,04–**0,06**–0,08	0,04–**0,06**–0,08	0,05–**0,07**–0,09
		190	G	ACP300	100–**150**–200	0,07–**0,10**–0,15	0,07–**0,10**–0,15	0,08–**0,11**–0,17	0,09–**0,12**–0,19
		250	G	ACP300	80–**120**–160	0,05–**0,09**–0,11	0,05–**0,09**–0,11	0,06–**0,09**–0,12	0,06–**0,10**–0,14
		270	G	ACP300	100–**130**–160	0,07–**0,10**–0,14	0,07–**0,10**–0,14	0,08–**0,11**–0,15	0,09–**0,12**–0,17
		300	G	ACP300	70–**100**–140	0,05–**0,09**–0,11	0,05–**0,09**–0,11	0,06–**0,09**–0,12	0,06–**0,10**–0,13
	Low alloyed steel	180	L	ACP300	100–**140**–180	0,05–**0,06**–0,09	0,05–**0,06**–0,09	0,05–**0,06**–0,10	0,05–**0,07**–0,11
		275	G	ACP300	80–**120**–160	0,05–**0,09**–0,11	0,05–**0,09**–0,11	0,06–**0,09**–0,12	0,06–**0,10**–0,13
		300	G	ACP300	75–**110**–140	0,05–**0,09**–0,11	0,05–**0,09**–0,11	0,06–**0,09**–0,12	0,06–**0,10**–0,13
		350	G	ACP300	60–**85**–110	0,05–**0,09**–0,11	0,05–**0,09**–0,11	0,06–**0,09**–0,12	0,06–**0,10**–0,13
	High alloyed steel	200	G	ACP300	100–**130**–160	0,07–**0,10**–0,15	0,07–**0,10**–0,15	0,08–**0,11**–0,17	0,09–**0,12**–0,19
		325	G	ACP300	80–**100**–120	0,05–**0,09**–0,11	0,05–**0,09**–0,11	0,06–**0,09**–0,12	0,06–**0,10**–0,14
M	Stainless steel, martensitic / ferritic	200	G	ACP300	100–**140**–180	0,05–**0,09**–0,11	0,05–**0,09**–0,11	0,06–**0,09**–0,12	0,06–**0,10**–0,14
	Stainless steel, martensitic / tempered	240	G	ACP300	90–**120**–150	0,05–**0,09**–0,11	0,05–**0,09**–0,11	0,06–**0,09**–0,12	0,06–**0,10**–0,14
	Stainless steel, austenitic / quenched	180	G	ACP300	100–**140**–180	0,05–**0,09**–0,11	0,05–**0,09**–0,11	0,06–**0,09**–0,12	0,06–**0,10**–0,14
	Stainless steel, austenitic / ferritic (Duplex)	230	G	ACP300	80–**120**–150	0,05–**0,09**–0,11	0,05–**0,09**–0,11	0,06–**0,09**–0,12	0,06–**0,10**–0,14
K	Cast iron (GG)	180	H	ACK300	120–**160**–200	0,08–**0,15**–0,21	0,09–**0,17**–0,23	0,09–**0,18**–0,25	0,11–**0,20**–0,28
	Nodular cast iron (GGG)	260	H	ACP300	90–**120**–150	0,08–**0,15**–0,21	0,09–**0,17**–0,23	0,09–**0,18**–0,25	0,11–**0,20**–0,28
S	Heat resistant alloy	200	G	ACP300	25–**50**–70	0,05–**0,09**–0,11	0,05–**0,09**–0,11	0,06–**0,09**–0,12	0,06–**0,10**–0,14
N	Aluminium alloy		G	DL1500	200–**260**–320	0,05–**0,10**–0,15	0,05–**0,10**–0,15	0,06–**0,11**–0,16	0,06–**0,12**–0,18
	Copper alloy		G	DL1500	180–**230**–280	0,05–**0,10**–0,15	0,05–**0,10**–0,15	0,06–**0,11**–0,16	0,06–**0,12**–0,18