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SUMITOMO

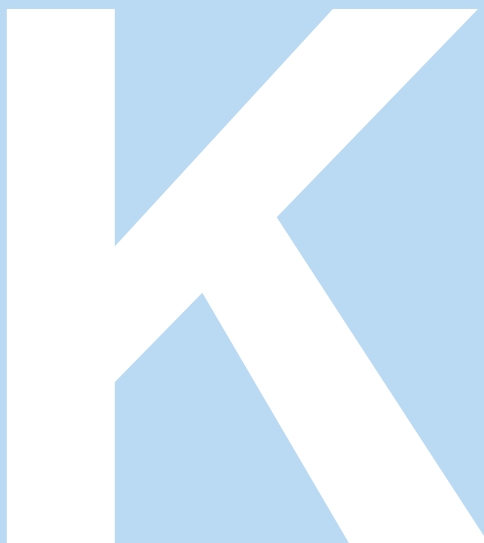
CARBIDE - CBN - DIAMOND

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

K1-K68



Selection Guide	MULTI-DRILLS	K2-5
Solid Type Drills	SDP ... U3/5/7 -HAK	K6-13
	SDM ... U3/5 -HAK	K14-19
	MDW ... GS 2/4	K20-23
Flat MultiDrill	MDF	K24-31
Deep Hole Drills	MDW ... XHG S / PHT	K32-33
for Steels	MDW ... XHG S	K34
for Aluminium	MDW ... XHT A	K35
Pilot Hole Drills	MDW ... PHT	K34-35
AURORA COAT Drills	MDW ... NHGS	K36-37
MINI-Drills	MLDH ... L/P	K38-39
	MDUS / MDSS	K40
SUMIDIA Coated Drills	MDS ... SDC	K41
Replaceable Head Type Drills	SMD	K43
Drill Holder	SMDH ... (D)	K44/48/51
Drill Head for Steels	SMDT ...D MTL	K45
for Stainless Steels	SMDT ...D MEL	K46-47
for Spot Facing	SMDT ...MFS	K48-49
Large Holes	SMDT ...MTL	K50-51
Insert Type Drills	WDX (2D, 3D, 4D, 5D)	K52-64
Eccentric Sleeve	WAS	K65
Plunge Drills	PDL (2D, 3D)	K66-68
Multi-Function Mills	PCT (3D, 5D)	K67-68

Expansion

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 requirements, 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	⇒ K 20–23	⇒ K 24–31	⇒ K 32–35		⇒ K 36–37	⇒ K 38–39	⇒ K 40	⇒ K 41	
				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	H3D/ H5D	3D	10D–30D	3D/5D/10D	5/12/20/30 D	10D	3D
Coolant holes	Yes		No	No	Yes	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	3,0–16,0	4,0–8,0	3,0–12,0	3,0–16,0	0,8–2,0	0,03–1,0	2,0–10,0

Multi-Drill Series

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 ...00	PDL ...00	PCT ...00
Type	 SMDT ... (D) MTL ⇨ K45, K59	WAS-.. ⇨ K65		
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	

Multi-Drill Series Selection Guide

● According to Drill Types / Applications

Application		General ↔ Special	
Solid Type	"Super Multi-Drill" MDS / MDW 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...D Type Hardened Steel Exotic Metals  Ø 1,0–16,1 mm L/D: –3 (Stock in Japan)

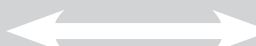
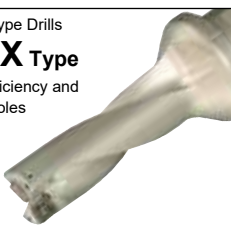
■ Recommended Cutting Conditions by Work Materials

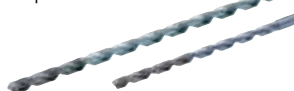
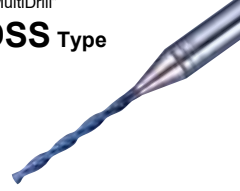
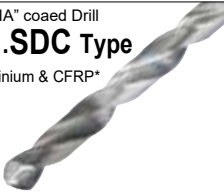
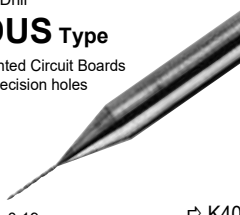
Work		Steel	Stainless Steel	Cast Iron	Non-ferrous Metals
Drill					
Solid Type	SDP...U HAK MDW...GS	50  120 0,2  0,35	15  70 0,1  0,2	50  110 0,2  0,35	—

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

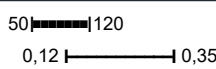
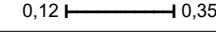
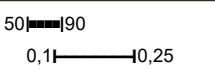
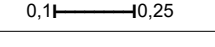
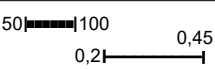
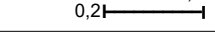
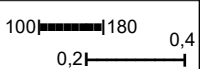
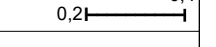
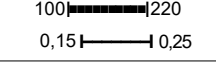
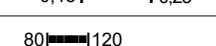
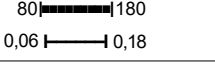
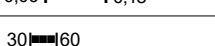
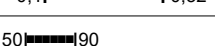
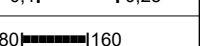
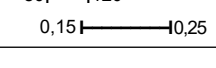
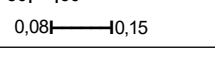
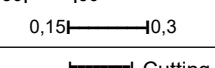
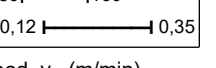
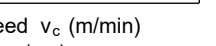
Multi-Drill Series Selection Guide

● 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 ⇒ K32–35 L/D: 10/15/20/25/30	"Long Micro Drill" MLDH... P/L Type "P" type for pilot hole  Ø 0,8–2,0 mm ⇒ K38–39 L/D: 5/12/20/30	AURORA-Coat Drill MDW...NHGS Type For Aluminium Alloy  Ø 3,0–16,0 mm ⇒ K36–37 L/D: 3 / 5 / 10
	—	"Mini-MultiDrill" MDSS Type  Ø 0,20–1,00 mm ⇒ K40 L/D: 10	"SUMI-DIA" coated Drill MDS...SDC Type For Aluminium & CFRP*  CFRP* (Carbon Fibre Reinforced Plastic) Ø 2–10 mm ⇒ K41 L/D: –3
	—	"Micro Drill" MDUS Type For Printed Circuit Boards High precision holes  Ø 0,05–0,19 mm ⇒ K40 L/D: –8	—

■ Recommended Cutting Conditions by Work Materials

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

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

SumiDrill Power Series SDP Type (DIN)

AlCrTiN Coated Solid Carbide Drills to DIN 6537

General Features

New designed double margin

Excellent hole accuracy

Shank

DIN 6535 HAK

Sumi-Power Coating

Excellent wear resistance
and anti-adhesion

Elliptical flute design

Improved chip formation
and chip evacuation

Curved cutting edge,
optimized edge preparation

Low cutting force

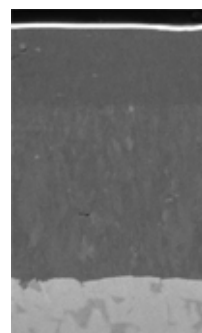


Stock Size

Ø 3,0 – Ø 12,0
Increment 0,1 mm

Ø 12,1 – Ø 16,0
Standard diameter

Coating Structure



Improved anti-adhesion
AlCrTiN lubricant layer
coating with high Al content
improves friction condition.

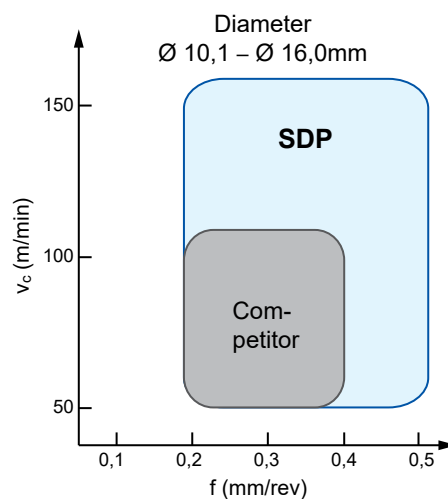
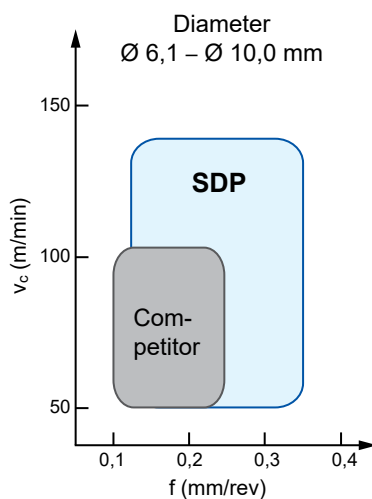
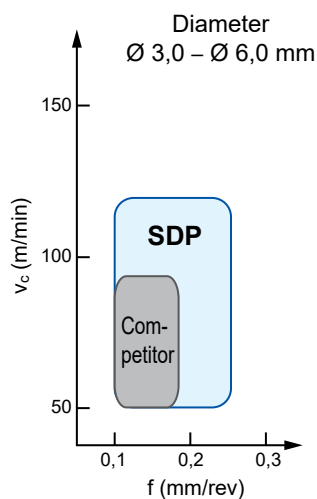
High wear resistance
Tough and hard
AlCrTiN super multilayer

Substrate

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



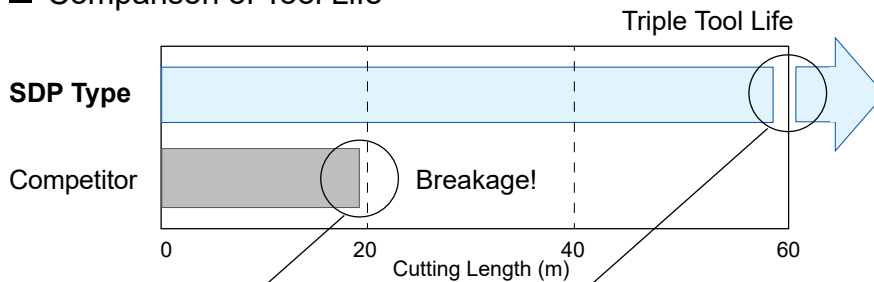
Maximum Feed Rate Result

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	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



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

Competitor

SDP Type

Cut volume: 950 cm³Cut volume: 3800 cm³

500 Holes

Work: C50, Drill Dia: 8 mm, L/D = 5

2000 Holes

SDP Type



Competitor



Excellent Hole Accuracy

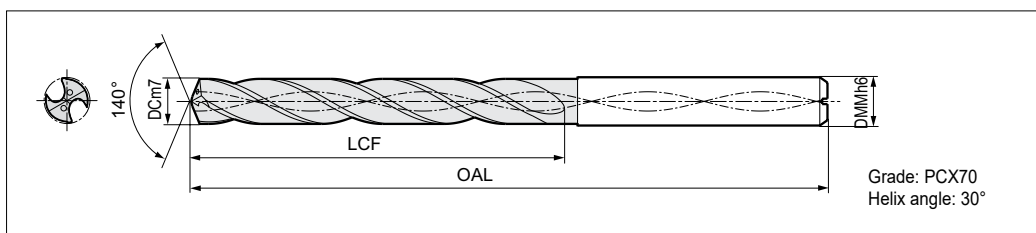
	Hole Accuracy	Chip Shape
SDP Type		Compact cutting chips
Competitor		Longer cutting chips

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

SumiDrill Power Series SDP (DIN) Type

AlCrTiN Coated Solid Carbide Drills to DIN 6537

■ 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		

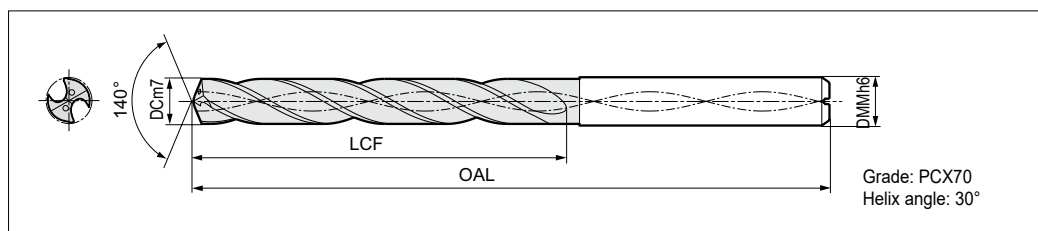
DC	L/D	Cat. No.	Stock	LU	LCF	OAL	PL	DCON
4,4	3	SDP 0440 U3 HAK	●	17,2	23,8	65,8	0,8	6,0
	5	0440 U5 HAK	●	29,2	35,8	73,8		
	7	0440 U7 HAK	●	40,2	46,8	84,8		
4,5	3	SDP 0450 U3 HAK	●	17,1	23,8	65,8	0,8	6,0
	5	0450 U5 HAK	●	29,1	35,8	73,8		
	7	0450 U7 HAK	●	40,1	46,8	84,8		
4,6	3	SDP 0460 U3 HAK	●	16,9	23,8	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	89,9		
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		
	5	0570 U5 HAK	●	35,5	44,0	82,0	1,0	6,0
	7	0570 U7 HAK	●	50,5	59,0	97,0		
5,8	3	SDP 0580 U3 HAK	●	19,4	28,1	66,1		
	5	0580 U5 HAK	●	35,4	44,1	82,1	1,1	6,0
	7	0580 U7 HAK	●	50,4	59,1	97,1		
5,9	3	SDP 0590 U3 HAK	●	19,3	28,1	66,1		
	5	0590 U5 HAK	●	35,3	44,1	82,1	1,1	6,0
	7	0590 U7 HAK	●	50,3	59,1	97,1		
6,0	3	SDP 0600 U3 HAK	●	19,1	28,1	66,1		
	5	0600 U5 HAK	●	35,1	44,1	82,1	1,1	6,0
	7	0600 U7 HAK	●	50,1	59,1	97,1		
6,1	3	SDP 0610 U3 HAK	●	25,0	34,1	79,1		
	5	0610 U5 HAK	●	44,0	53,1	91,1	1,1	8,0
	7	0610 U7 HAK	●	59,0	68,1	106,1		
6,2	3	SDP 0620 U3 HAK	●	24,8	34,1	79,1		
	5	0620 U5 HAK	●	43,8	53,1	91,1	1,1	8,0
	7	0620 U7 HAK	●	58,8	68,1	106,1		
6,3	3	SDP 0630 U3 HAK	●	24,7	34,1	79,1		
	5	0630 U5 HAK	●	43,7	53,1	91,1	1,1	8,0
	7	0630 U7 HAK	●	58,7	68,1	106,1		
6,4	3	SDP 0640 U3 HAK	●	24,6	34,2	79,2		
	5	0640 U5 HAK	●	43,6	53,2	91,2	1,2	8,0
	7	0640 U7 HAK	●	58,6	68,2	106,2		
6,5	3	SDP 0650 U3 HAK	●	24,5	34,2	79,2		
	5	0650 U5 HAK	●	43,5	53,2	91,2	1,2	8,0
	7	0650 U7 HAK	●	58,5	68,2	106,2		
6,6	3	SDP 0660 U3 HAK	●	24,3	34,2	79,2		
	5	0660 U5 HAK	●	43,3	53,2	91,2	1,2	8,0
	7	0660 U7 HAK	●	58,3	68,2	106,2		
6,7	3	SDP 0670 U3 HAK	●	24,2	34,2	79,2		
	5	0670 U5 HAK	●	43,2	53,2	91,2	1,2	8,0
	7	0670 U7 HAK	●	58,2	68,2	106,2		
6,8	3	SDP 0680 U3 HAK	●	24,0	34,2	79,2		
	5	0680 U5 HAK	●	43,0	53,2	91,2	1,2	8,0
	7	0680 U7 HAK	●	58,0	68,2	106,2		
6,9	3	SDP 0690 U3 HAK	●	24,0	34,3	79,3		
	5	0690 U5 HAK	●	43,0	53,3	91,3	1,3	8,0
	7	0690 U7 HAK	●	68,0	78,3	116,3		
7,0	3	SDP 0700 U3 HAK	●	23,8	34,3	79,3		
	5	0700 U5 HAK	●	42,8	53,3	91,3	1,3	8,0
	7	0700 U7 HAK	●	67,8	78,3	116,3		
7,1	3	SDP 0710 U3 HAK	●	29,7	40,3	79,3		
	5	0710 U5 HAK	●	42,7	53,3	91,3	1,3	8,0
	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		
	5	0720 U5 HAK	●	42,5	53,3	91,3	1,3	8,0
	7	0720 U7 HAK	●	67,5	78,3	116,3		
7,3	3	SDP 0730 U3 HAK	●	29,4	40,3	79,3		
	5	0730 U5 HAK	●	42,4	53,3	91,3	1,3	8,0
	7	0730 U7 HAK	●	67,4	78,3	116,3		
7,4	3	SDP 0740 U3 HAK	●	29,2	40,3	79,3		
	5	0740 U5 HAK	●	42,2	53,3	91,3	1,3	8,0
	7	0740 U7 HAK	●	67,2	78,3	116,3		
7,5	3	SDP 0750 U3 HAK	●	29,2	40,4	79,4		
	5	0750 U5 HAK	●	42,2	53,4	91,4	1,4	8,0
	7	0750 U7 HAK	●	67,2	78,4	116,4		
7,6	3	SDP 0760 U3 HAK	●	29,0	40,4	79,4		
	5	0760 U5 HAK	●	42,0	53,4	91,4	1,4	8,0
	7	0760 U7 HAK	●	67,0	78,4	116,4		
7,7	3	SDP 0770 U3 HAK	●	28,9	40,4	79,4		
	5	0770 U5 HAK	●	41,9	53,4	91,4	1,4	8,0
	7	0770 U7 HAK	●	66,9	78,4	116,4		
7,8	3	SDP 0780 U3 HAK	●	28,7	40,4	79,4		
	5	0780 U5 HAK	●	41,7	53,4	91,4	1,4	8,0
	7	0780 U7 HAK	●	66,7	78,4	116,4		
7,9	3	SDP 0790 U3 HAK	●	28,6	40,4	79,4		
	5	0790 U5 HAK	●	41,6	53,4	91,4	1,4	8,0
	7	0790 U7 HAK	●	66,6	78,4	116,4		
8,0	3	SDP 0800 U3 HAK	●	28,5	40,5	79,5		
	5	0800 U5 HAK	●	41,5	53,5	91,5	1,5	8,0
	7	0800 U7 HAK	●	66,5	78,5	116,5		
8,1	3	SDP 0810 U3 HAK	●	34,4	46,5	88,5		
	5	0810 U5 HAK	●	48,4	60,5	102,5	1,5	10,0
	7	0810 U7 HAK	●	76,4	88,5	130,5		
8,2	3	SDP 0820 U3 HAK	●	34,2	46,5	88,5		
	5	0820 U5 HAK	●	48,2	60,5	102,5	1,5	10,0
	7	0820 U7 HAK	●	76,2	88,5	130,5		
8,3	3	SDP 0830 U3 HAK	●	34,1	46,5	88,5		
	5	0830 U5 HAK	●	48,1	60,5	102,5	1,5	10,0
	7	0830 U7 HAK	●	76,1	88,5	130,5		
8,4	3	SDP 0840 U3 HAK	●	33,9	46,5	88,5		
	5	0840 U5 HAK	●	47,9	60,5	102,5	1,5	10,0
	7	0840 U7 HAK	●	75,9	88,5	130,5		
8,5	3	SDP 0850 U3 HAK	●	33,8	46,5	88,5		
	5	0850 U5 HAK	●	47,8	60,5	102,5	1,5	10,0
	7	0850 U7 HAK	●	75,8	88,5	130,5		
8,6	3	SDP 0860 U3 HAK	●	33,7	46,6	88,6		
	5	0860 U5 HAK	●	47,7	60,6	102,6	1,6	10,0
	7	0860 U7 HAK	●	75,7	88,6	130,6		

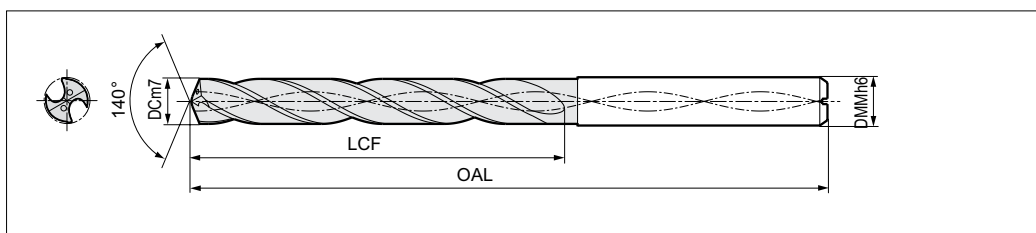
※ Remarks:

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

SumiDrill Power Series SDP (DIN) Type

AlCrTiN Coated Solid Carbide Drills to DIN 6537

■ 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		
	5	0870 U5 HAK	●	47,6	60,6	102,6	1,6	10,0
	7	0870 U7 HAK	●	75,6	88,6	130,6		
8,8	3	SDP 0880 U3 HAK	●	33,4	46,6	88,6		
	5	0880 U5 HAK	●	47,4	60,6	102,6	1,6	10,0
	7	0880 U7 HAK	●	75,4	88,6	130,6		
8,9	3	SDP 0890 U3 HAK	●	33,3	46,6	88,6		
	5	0890 U5 HAK	●	47,3	60,6	102,6	1,6	10,0
	7	0890 U7 HAK	●	75,3	88,6	130,6		
9,0	3	SDP 0900 U3 HAK	●	33,1	46,6	88,6		
	5	0900 U5 HAK	●	47,1	60,6	102,6	1,6	10,0
	7	0900 U7 HAK	●	75,1	88,6	130,6		
9,1	3	SDP 0910 U3 HAK	●	33,1	46,7	88,7		
	5	0910 U5 HAK	●	47,1	60,7	102,7	1,7	10,0
	7	0910 U7 HAK	●	83,1	96,7	138,7		
9,2	3	SDP 0920 U3 HAK	●	32,9	46,7	88,7		
	5	0920 U5 HAK	●	46,9	60,7	102,7	1,7	10,0
	7	0920 U7 HAK	●	82,9	96,7	138,7		
9,25	3	SDP 0925 U3 HAK	●	32,8	46,7	88,7		
	5	0925 U5 HAK	●	46,8	60,7	102,7	1,7	10,0
	7	0925 U7 HAK	●	82,8	96,7	138,7		
9,3	3	SDP 0930 U3 HAK	●	32,8	46,7	88,7		
	5	0930 U5 HAK	●	46,8	60,7	102,7	1,7	10,0
	7	0930 U7 HAK	●	82,8	96,7	138,7		
9,4	3	SDP 0940 U3 HAK	●	32,6	46,7	88,7		
	5	0940 U5 HAK	●	46,6	60,7	102,7	1,7	10,0
	7	0940 U7 HAK	●	82,6	96,7	138,7		
9,5	3	SDP 0950 U3 HAK	●	32,5	46,7	88,7		
	5	0950 U5 HAK	●	46,5	60,7	102,7	1,7	10,0
	7	0950 U7 HAK	●	82,5	96,7	138,7		
9,6	3	SDP 0960 U3 HAK	●	32,3	46,7	88,7		
	5	0960 U5 HAK	●	46,3	60,7	102,7	1,7	10,0
	7	0960 U7 HAK	●	82,3	96,7	138,7		
9,7	3	SDP 0970 U3 HAK	●	32,3	46,8	88,8		
	5	0970 U5 HAK	●	46,3	60,8	102,8	1,8	10,0
	7	0970 U7 HAK	●	82,3	96,8	138,8		
9,8	3	SDP 0980 U3 HAK	●	32,1	46,8	88,8		
	5	0980 U5 HAK	●	46,1	60,8	102,8	1,8	10,0
	7	0980 U7 HAK	●	82,1	96,8	138,8		
9,9	3	SDP 0990 U3 HAK	●	32,0	46,8	88,8		
	5	0990 U5 HAK	●	46,0	60,8	102,8	1,8	10,0
	7	0990 U7 HAK	●	82,0	96,8	138,8		
10,0	3	SDP 1000 U3 HAK	●	31,8	46,8	88,8		
	5	1000 U5 HAK	●	45,8	60,8	102,8	1,8	10,0
	7	1000 U7 HAK	●	81,8	96,8	138,8		

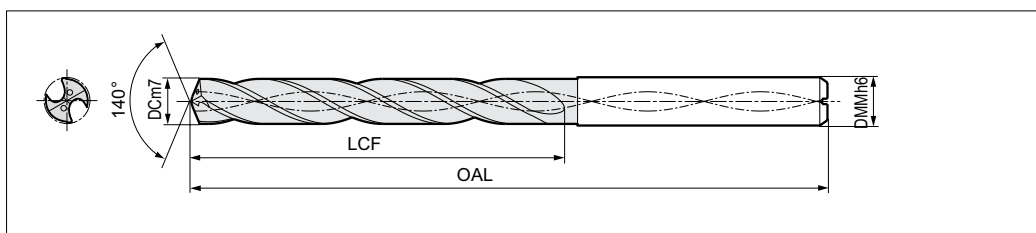
DC	L/D	Cat. No.	Stock	LU	LCF	OAL	PL	DCON
10,1	3	SDP 1010 U3 HAK	●	39,7	54,8	101,8		
	5	1010 U5 HAK	●	55,7	70,8	117,8	1,8	12,0
	7	1010 U7 HAK	●	92,7	107,8	154,8		
10,2	3	SDP 1020 U3 HAK	●	39,6	54,9	101,9		
	5	1020 U5 HAK	●	55,6	70,9	117,9	1,9	12,0
	7	1020 U7 HAK	●	92,6	107,9	154,9		
10,3	3	SDP 1030 U3 HAK	●	39,5	54,9	101,9		
	5	1030 U5 HAK	●	55,5	70,9	117,9	1,9	12,0
	7	1030 U7 HAK	●	92,5	107,9	154,9		
10,4	3	SDP 1040 U3 HAK	●	39,3	54,9	101,9		
	5	1040 U5 HAK	●	55,3	70,9	117,9	1,9	12,0
	7	1040 U7 HAK	●	92,3	107,9	154,9		
10,5	3	SDP 1050 U3 HAK	●	39,2	54,9	101,9		
	5	1050 U5 HAK	●	55,2	70,9	117,9	1,9	12,0
	7	1050 U7 HAK	●	92,2	107,9	154,9		
10,6	3	SDP 1060 U3 HAK	●	39,0	54,9	101,9		
	5	1060 U5 HAK	●	55,0	70,9	117,9	1,9	12,0
	7	1060 U7 HAK	●	92,0	107,9	154,9		
10,7	3	SDP 1070 U3 HAK	●	38,9	54,9	101,9		
	5	1070 U5 HAK	●	54,9	70,9	117,9	1,9	12,0
	7	1070 U7 HAK	●	91,9	107,9	154,9		
10,8	3	SDP 1080 U3 HAK	●	38,8	55,0	102,0		
	5	1080 U5 HAK	●	54,8	71,0	118,0	2,0	12,0
	7	1080 U7 HAK	●	91,8	108,0	155,0		
10,9	3	SDP 1090 U3 HAK	●	38,7	55,0	102,0		
	5	1090 U5 HAK	●	54,7	71,0	118,0	2,0	12,0
	7	1090 U7 HAK	●	91,7	108,0	155,0		
11,0	3	SDP 1100 U3 HAK	●	38,5	55,0	102,0		
	5	1100 U5 HAK	●	54,5	71,0	118,0	2,0	12,0
	7	1100 U7 HAK	●	91,5	108,0	155,0		
11,1	3	SDP 1110 U3 HAK	●	38,4	55,0	102,0		
	5	1110 U5 HAK	●	54,4	71,0	118,0	2,0	12,0
	7	1110 U7 HAK	●	99,4	116,0	163,0		
11,2	3	SDP 1120 U3 HAK	●	38,2	55,0	102,0		
	5	1120 U5 HAK	●	54,2	71,0	118,0	2,0	12,0
	7	1120 U7 HAK	●	99,2	116,0	163,0		
11,3	3	SDP 1130 U3 HAK	●	38,2	55,1	102,1		
	5	1130 U5 HAK	●	54,2	71,1	118,1	2,1	12,0
	7	1130 U7 HAK	●	99,2	116,1	163,1		
11,4	3	SDP 1140 U3 HAK	●	38,0	55,1	102,1		
	5	1140 U5 HAK	●	54,0	71,1	118,1	2,1	12,0
	7	1140 U7 HAK	●	99,0	116,1	163,1		
11,5	3	SDP 1150 U3 HAK	●	37,9	55,1	102,1		
	5	1150 U5 HAK	●	53,9	71,1	118,1	2,1	12,0
	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		
	5	1160 U5 HAK	●	53,7	71,1	118,1	2,1	12,0
	7	1160 U7 HAK	●	98,7	116,1	163,1		
11,7	3	SDP 1170 U3 HAK	●	37,6	55,1	102,1		
	5	1170 U5 HAK	●	53,6	71,1	118,1	2,1	12,0
	7	1170 U7 HAK	●	98,6	116,1	163,1		
11,8	3	SDP 1180 U3 HAK	●	37,4	55,1	102,1		
	5	1180 U5 HAK	●	53,4	71,1	118,1	2,1	12,0
	7	1180 U7 HAK	●	98,4	116,1	163,1		
11,9	3	SDP 1190 U3 HAK	●	37,4	55,2	102,2		
	5	1190 U5 HAK	●	53,4	71,2	118,2	2,2	12,0
	7	1190 U7 HAK	●	98,4	116,2	163,2		
12,0	3	SDP 1200 U3 HAK	●	37,2	55,2	102,2		
	5	1200 U5 HAK	●	53,2	71,2	118,2	2,2	12,0
	7	1200 U7 HAK	●	98,2	116,2	163,2		
12,1	3	SDP 1210 U3 HAK	□	42,1	60,2	107,2		
	5	1210 U5 HAK	●	59,1	77,2	124,2	2,2	14,0
	7	1210 U7 HAK	□	117,1	135,2	182,2		
12,2	3	SDP 1220 U3 HAK	●	41,9	60,2	107,2		
	5	1220 U5 HAK	●	58,9	77,2	124,2	2,2	14,0
	7	1220 U7 HAK	●	116,9	135,2	182,2		
12,3	3	SDP 1230 U3 HAK	□	41,8	60,2	107,2		
	5	1230 U5 HAK	●	58,8	77,2	124,2	2,2	14,0
	7	1230 U7 HAK	□	116,8	135,2	182,2		
12,4	3	SDP 1240 U3 HAK	□	41,7	60,3	107,3		
	5	1240 U5 HAK	●	58,7	77,3	124,3	2,3	14,0
	7	1240 U7 HAK	□	116,7	135,3	182,3		
12,5	3	SDP 1250 U3 HAK	●	41,6	60,3	107,3		
	5	1250 U5 HAK	●	58,6	77,3	124,3	2,3	14,0
	7	1250 U7 HAK	●	116,6	135,3	182,3		
12,6	3	SDP 1260 U3 HAK	□	41,4	60,3	107,3		
	5	1260 U5 HAK	●	58,4	77,3	124,3	2,3	14,0
	7	1260 U7 HAK	□	116,4	135,3	182,3		
12,7	3	SDP 1270 U3 HAK	□	41,3	60,3	107,3		
	5	1270 U5 HAK	●	58,3	77,3	124,3	2,3	14,0
	7	1270 U7 HAK	□	116,3	135,3	182,3		
12,8	3	SDP 1280 U3 HAK	□	41,1	60,3	107,3		
	5	1280 U5 HAK	●	58,1	77,3	124,3	2,3	14,0
	7	1280 U7 HAK	□	116,3	135,3	182,3		
12,9	3	SDP 1290 U3 HAK	□	41,0	60,3	107,3		
	5	1290 U5 HAK	●	58,0	77,3	124,3	2,3	14,0
	7	1290 U7 HAK	□	116,0	135,3	182,3		
13,0	3	SDP 1300 U3 HAK	●	40,9	60,4	107,4		
	5	1300 U5 HAK	●	57,9	77,4	124,4	2,4	14,0
	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		
	5	1310 U5 HAK	●	57,8	77,4	124,4	2,4	14,0
	7	1310 U7 HAK	□	115,8	135,4	182,4		
13,2	3	SDP 1320 U3 HAK	□	40,6	60,4	107,4		
	5	1320 U5 HAK	●	57,6	77,4	124,4	2,4	14,0
	7	1320 U7 HAK	□	115,6	135,4	182,4		
13,3	3	SDP 1330 U3 HAK	□	40,5	60,4	107,4		
	5	1330 U5 HAK	●	57,5	77,4	124,4	2,4	14,0
	7	1330 U7 HAK	□	115,5	135,4	182,4		
13,4	3	SDP 1340 U3 HAK	□	40,3	60,4	107,4		
	5	1340 U7 HAK	●	57,3	77,4	124,4	2,4	14,0
	7	1340 U7 HAK	□	115,3	135,4	182,4		
13,5	3	SDP 1350 U3 HAK	●	40,3	60,5	107,5		
	5	1350 U5 HAK	●	57,3	77,5	124,5	2,5	14,0
	7	1350 U7 HAK	●	115,3	135,5	182,5		
13,6	3	SDP 1360 U3 HAK	□	40,1	60,5	107,5		
	5	1360 U5 HAK	●	57,1	77,5	124,5	2,5	14,0
	7	1360 U7 HAK	□	115,1	135,5	182,5		
13,7	3	SDP 1370 U3 HAK	●	40,0	60,5	107,5		
	5	1370 U5 HAK	●	57,0	77,5	124,5	2,5	14,0
	7	1370 U7 HAK	●	115,0	135,5	182,5		
13,8	3	SDP 1380 U3 HAK	□	39,8	60,5	107,5		
	5	1380 U5 HAK	●	56,8	77,5	124,5	2,5	14,0
	7	1380 U7 HAK	□	114,8	135,5	182,5		
13,9	3	SDP 1390 U3 HAK	□	39,7	60,5	107,5		
	5	1390 U5 HAK	●	56,7	77,5	124,5	2,5	14,0
	7	1390 U7 HAK	□	114,7	135,5	182,5		
14,0	3	SDP 1400 U3 HAK	●	39,5	60,5	107,5		
	5	1400 U5 HAK	●	56,5	77,5	124,5	2,5	14,0
	7	1400 U7 HAK	●	114,5	135,5	182,5		
14,1	3	SDP 1410 U3 HAK	□	43,5	64,6	114,6		
	5	1410 U5 HAK	●	61,5	82,6	132,6	2,6	16,0
	7	1410 U7 HAK	□	132,5	153,6	203,6		
14,2	3	SDP 1420 U3 HAK	●	43,3	64,6	114,6		
	5	1420 U5 HAK	●	61,3	82,6	132,6	2,6	16,0
	7	1420 U7 HAK	●	132,3	153,6	203,6		
14,3	3	SDP 1430 U3 HAK	□	43,2	64,6	114,6		
	5	1430 U5 HAK	●	61,2	82,6	132,6	2,6	16,0
	7	1430 U7 HAK	□	132,2	153,6	203,6		
14,4	3	SDP 1440 U3 HAK	□	43,0	64,6	114,6		
	5	1440 U5 HAK	●	61,0	82,6	132,6	2,6	16,0
	7	1440 U7 HAK	□	132,0	153,6	203,6		
14,5	3	SDP 1450 U3 HAK	●	42,9	64,6	114,6		
	5	1450 U5 HAK	●	60,9	82,6	132,6	2,6	16,0
	7	1450 U7 HAK	●	131,9	153,6	203,6		

※ Remarks:

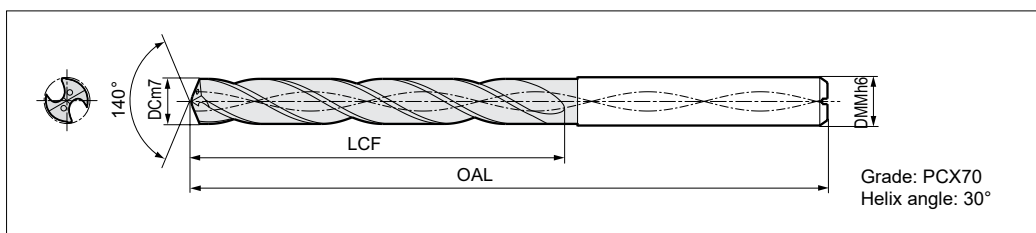
□ Non-Stock Items will be required minimum order quantity for 30 pcs.

SumiDrill Power Series

SDP (DIN) Type

AlCrTiN Coated Solid Carbide Drills to DIN 6537

■ 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

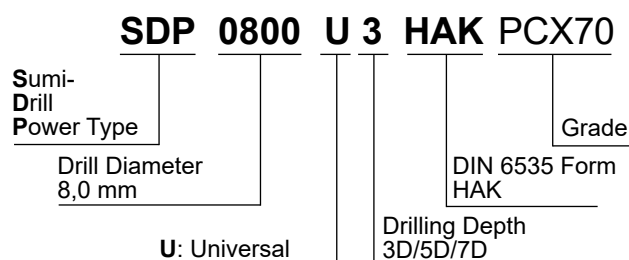
Material Group						SDP ____ U_HAK PCX70					
ISO 513	Work Material	Type/ Structure	R _m N/mm ²	Hard- ness HB30	Fitness	Ø 3,0–6,0 mm		Ø 6,1–10,0 mm		Ø 10,1–16,0 mm	
						v _c =m/min	Feed rate (mm/rev)	v _c =m/min	Feed rate (mm/rev)	v _c =m/min	Feed rate (mm/rev)
P	Carbon steel Cast steel	free cutting steel construction steel case-hardened steel heat-treatable steel spring steel	420	125	◎	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
			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

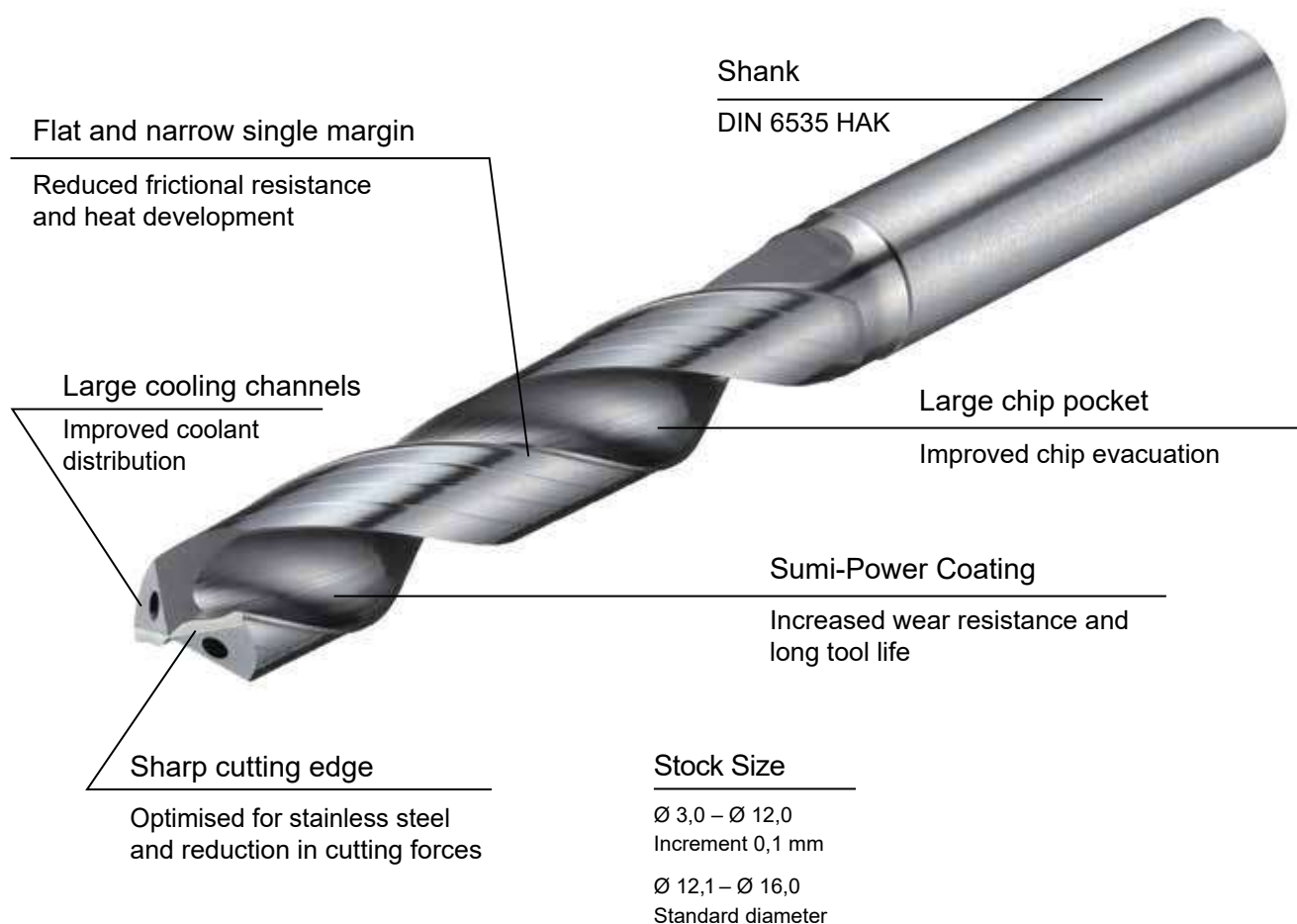
◎ Possible

SDP-Identification



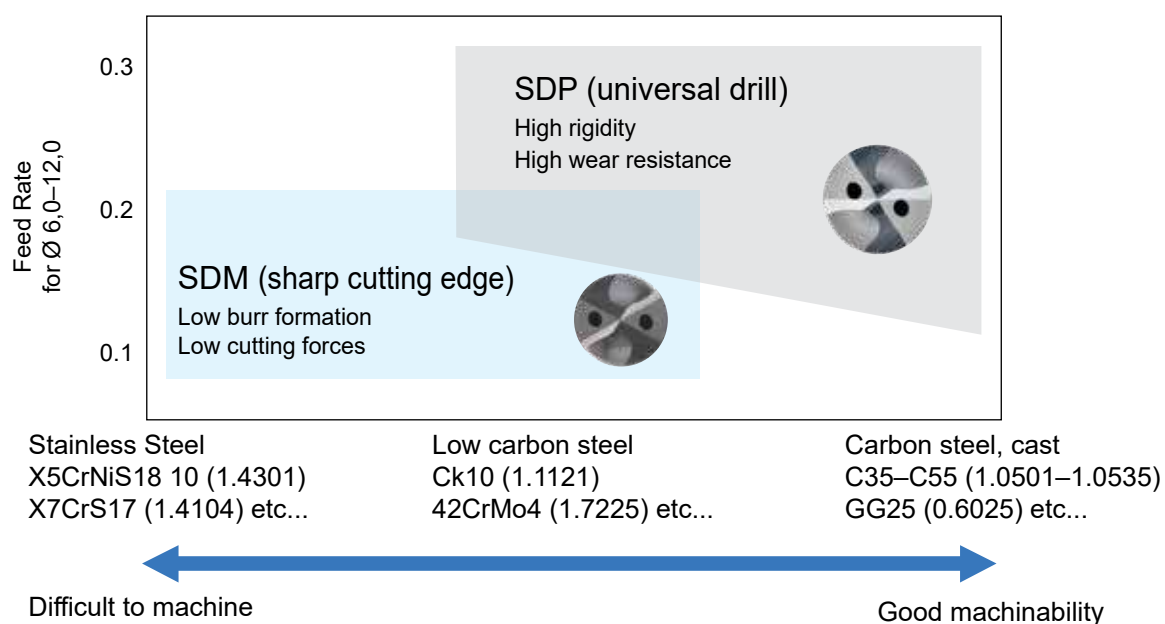
SumiDrill Power Series SDM Type

General Features



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



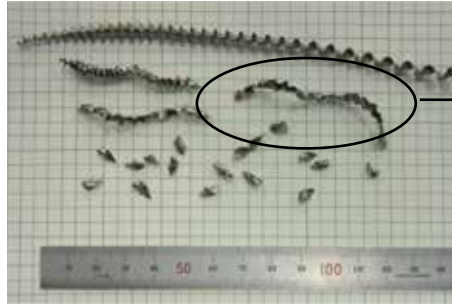
■ Chip Control

SDM



Short chips,
good chip evacuation

Competitor A



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

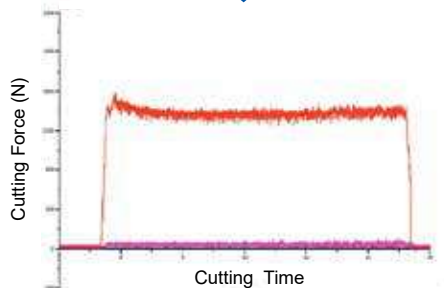
Drill:	Ø 8 mm, L/D = 5
Work Material:	X5CrNiS18 10 (1.4301)
Cutting Data:	$v_c=60\text{m/min}$, $f=0,10\text{mm/rev}$, $a_p=19\text{mm}$ Internal coolant (2,0MPa)



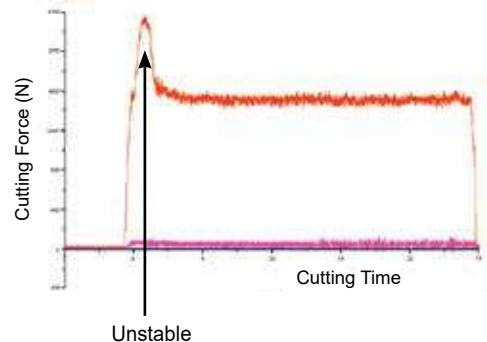
■ Optimal Cutting Forces

10 % lower than competitor A

SDM

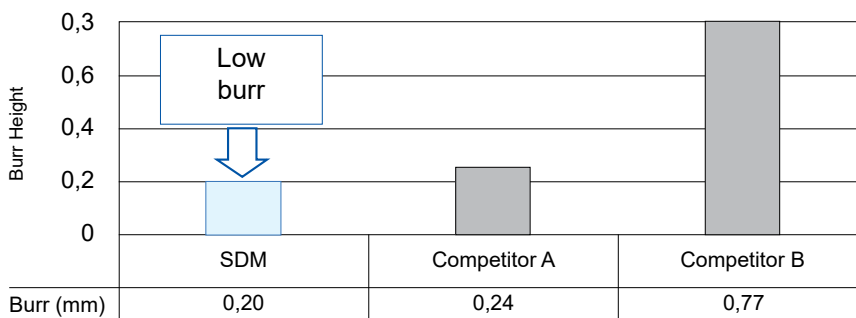


Competitor



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

■ Low Burr Formation



SDM



Competitor A



Competitor B



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

SumiDrill Power Series

SDM Type

Recommended Cutting Conditions

Material Group						SDM____U_HAK PCX70					
ISO 513	Work Material	Type/ Structure	R _m N/mm²	Hard- ness 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	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
		construction steel	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
		case-hardened steel	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
		heat-treatable steel	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
		spring steel	1000	300							
	Low alloy steel Cast steel	case-hardened 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
		heat-treatable steel	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
		bearing steel	1000	300							
		nitriding steel	1200	350							
	High alloy steel / Cast steel	tool 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
		hot work steel	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
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
Precipitation 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

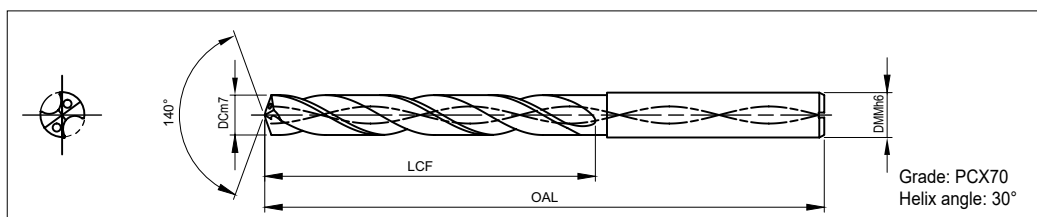


● = Euro stock
□ = Delivery on request

SumiDrill Power Series

SDM Type

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

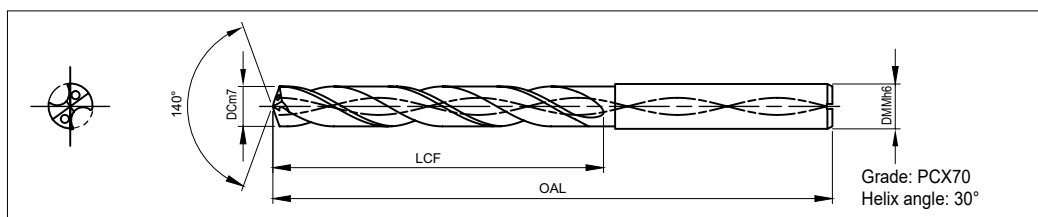


DC (mm)	DMM (mm)	Cat. No. (L/D) 3/5	3D Type			5D Type		
			Stock	Dimensions (mm)		Stock	Dimensions (mm)	
			3	OAL	LCF	5	OAL	LCF
3,0	6	SDM 0300 U □ HAK	●	62	17	●	66	24
3,1		SDM 0310 U □ HAK	●			●		
3,2		SDM 0320 U □ HAK	●			●		
3,25		SDM 0325 U □ HAK	□			□		
3,3		SDM 0330 U □ HAK	●			●		
3,4		SDM 0340 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	●			●		

SumiDrill Power Series

SDM Type

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



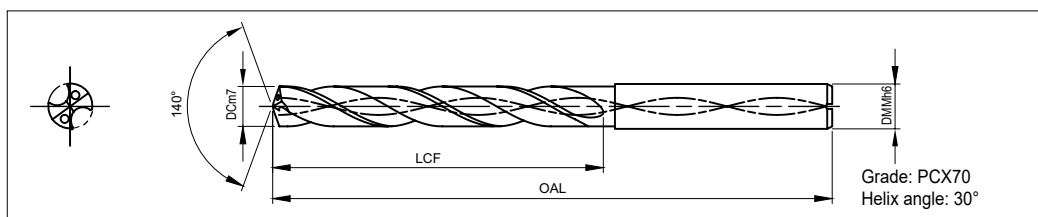
DC (mm)	DMM (mm)	Cat. No. (L/D) 3/5	3D Type			5D Type		
			Stock	Dimensions (mm)		Stock	Dimensions (mm)	
			3	OAL	LCF	5	OAL	LCF
7,6	8	SDM 0760 U □ HAK	●	79	37	●	91	50
7,7		SDM 0770 U □ HAK	●			●		
7,8		SDM 0780 U □ HAK	●			●		
7,9		SDM 0790 U □ HAK	●			●		
8,0		SDM 0800 U □ HAK	●			●		
8,1	10	SDM 0810 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

SumiDrill Power Series

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	●			●		

Drill Coating

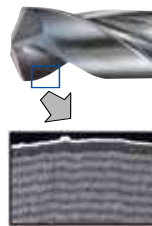
DEX Coating



Characteristics

Coating Design

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



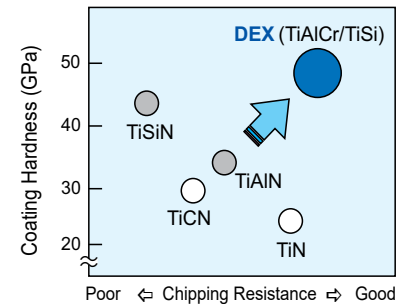
TiAlCr
Super
multi-Layer
coating

TiSi
Super
multi-Layer
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 of Films



DEX Coat Application Examples

MultiDrill GS Type Drilling Examples

Comparison of Usure Resistance	Comparison of Adhesion Resistance
Edge Usure Comparison for 70 m Drilling Shoulder and rake face feature improved usure resistance enabling long tool life. DEX Coating MultiDrill GS Type Concurrent A Drill GS Type MultiDrill with DEX Coating Drilling Length 0 20 40 60 80 100 120 (m) 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)	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. DEX Coating MultiDrill GS Type Competitor B Drill GS Type MultiDrill with DEX Coating Drilling Length 0 20 40 60 80 100 120 140 160 180 (m) 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. DEX Coating Conventional Coating Tool: MDW 0497 XHT20 ($\varnothing 4,97$ 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	
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MultiDrill SMD Type Drilling Examples

Offers longer tool life with SEC MultiDrills as well. DEX Coating Number of holes 0 200 400 600 800 1,000 1,200 1,400 1,150 800 1,4x Life! Tool: SMDH 210 M ($\varnothing 21,0$) Work Material: 36Mn5 (HB350) Construction Mashine Component Cutting Conditions: $v_c = 60$ m/min, $f = 0,25$ mm/rev, $a_p = 25$ mm Water soluble Coolant	
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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.

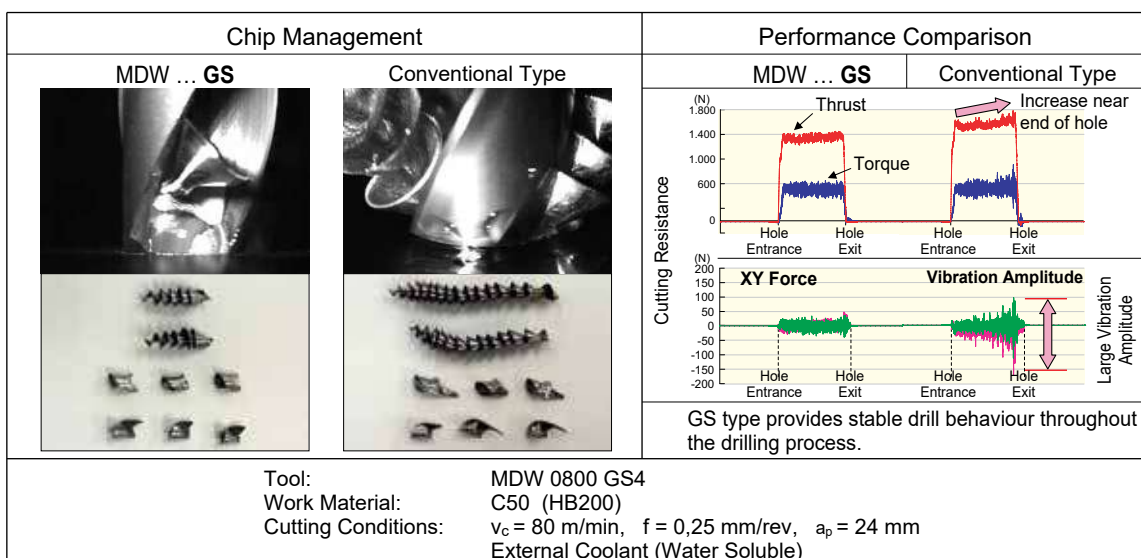
Characteristics and Applications

- 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.

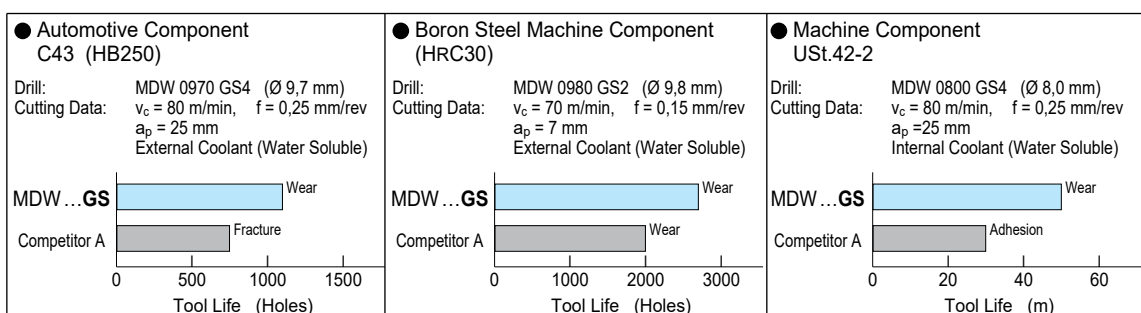
Series

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



Application Examples

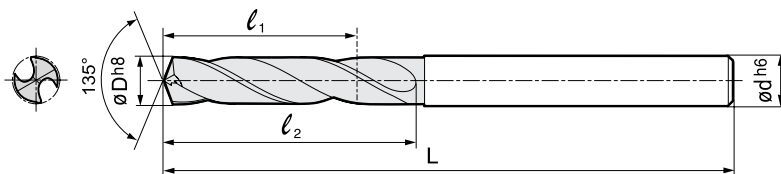


GS Type SUPER MULTI-DRILLS

MDW ... GS Type

Without Coolant Holes (2D/4D)

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



Helix angle: 30°
ℓ₁ = Effective drilling length

● Diameter Ø 2,0–6,0 mm

Dimensions		Cat. No.	Short Type (2D)				Long Type (4D)			
DC	ød		Stock	Dimensions			Stock	Dimensions		
			2	L	ℓ ₁	ℓ ₂	4	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□	●		○	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□	○		○	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□	○		○	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□	○		○	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

Dimensions		Cat. No.	Short Type (2D)				Long Type (4D)				
DC	ød		Stock	Dimensions			Stock	Dimensions			
			2	L	ℓ ₁	ℓ ₂	4	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□	●		○	26,1	34,5		○	36,1	44,5
6,6		MDW 0660 GS□	○		○						
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□	●		○	28,1	37,7		○	40,1	49,7
7,6		MDW 0760 GS□	○		○						
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□	○		○	29,1	39,9		○	46,1	56,9
8,6		MDW 0860 GS□	○		○						
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□	○		○	30,0	42,0		○	50,0	62,0
9,6		MDW 0960 GS□	○		○						
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

GS Type SUPER MULTI-DRILLS

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)			
DC (mm)	ød		Stock	Dimensions			Stock	Dimensions		
			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□	○			○				
10,7		MDW 1070 GS□	○		34,1	47,3	○		57,1	70,3
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□	○			○				
11,7		MDW 1170 GS□	○		35,1	49,5	○		61,1	75,5
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□	○			○	65,1		80,7	
12,6		MDW 1260 GS□	○			○				
12,7		MDW 1270 GS□	○		36,1	51,7				○
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)				
DC (mm)	ød		Stock	Dimensions			Stock	Dimensions			
			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)

SUPER
MULTI-DRILLS

Drill diameter
10,2 mm

Drilling depth
(The ratio to ØD): -2 / -4

GS type MULTI-DRILLS

Flat MultiDrill MDF Type

Coated Carbide Drills for Spot Facing



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.



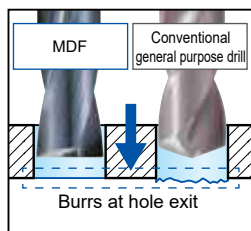
Advantages

- 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 $\varnothing 3,0$ and $\varnothing 20,0$ 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 ($\varnothing 5,0$ 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

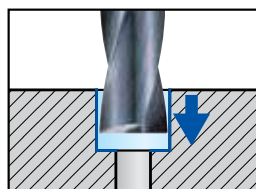


Burr height: 0,18 mm
Flat MultiDrill MDF type

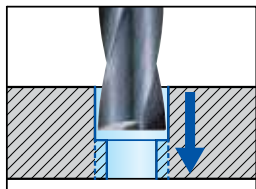


Burr height: 0,44 mm
Conventional general type

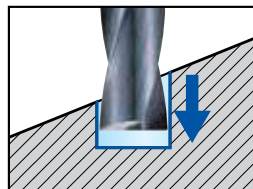
Applications



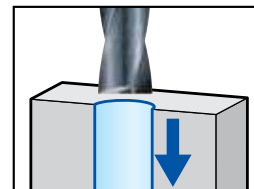
High-efficient spot facing



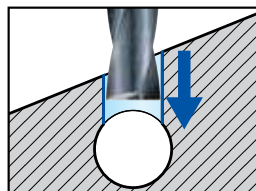
Hole expansion drilling



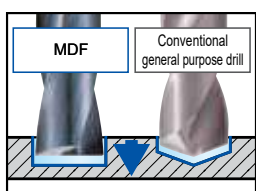
Drilling in non-horizontal surfaces
(such as inclined and cylindrical)



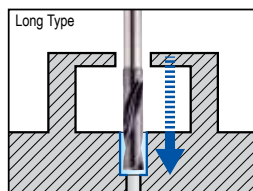
Interrupted drilling



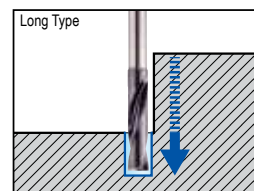
Cross drilling



Pre-tap hole drilling in thin
sheets



Deep spot facing



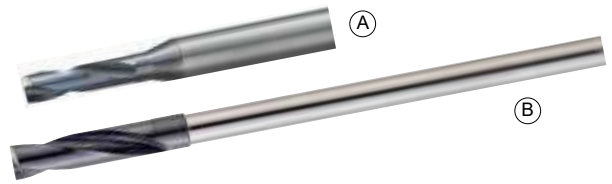
Avoiding interference with
work materials

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 (A) $\varnothing DC < 6 \text{ mm}$ Stepped Shank Products

(B) $\varnothing DC \geq 6 \text{ mm}$ Relief Shank Products

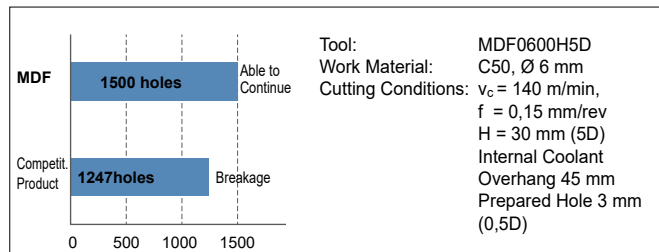


With Oil Hole (H3D Type / H5D Type)

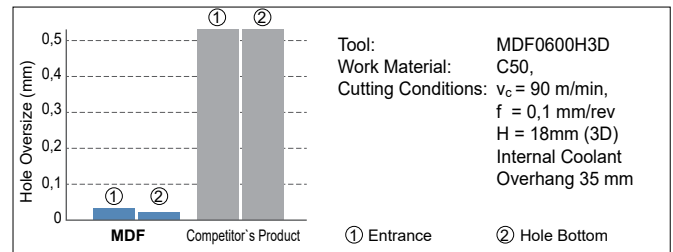
Support for internal coolant allows for deeper flat hole drilling.
Drilling that uses oil hole L/D = 5 requires a guide hole of the same diameter or a centering hole larger than the tool diameter.



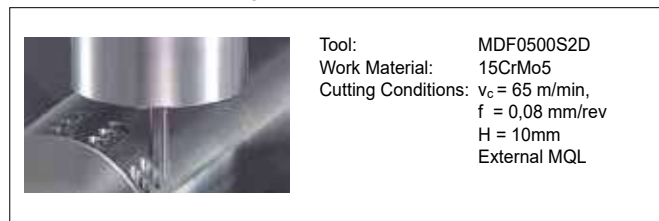
Deep Spot Facing



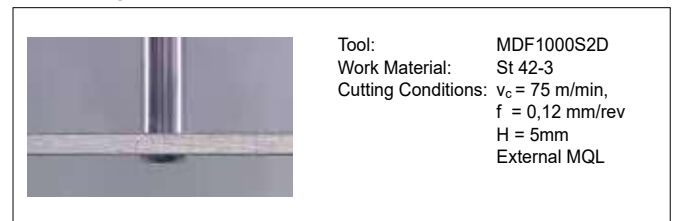
Long Overhang Spot Facing



Inclined Surface Drilling



Controlling Burrs and Chips when Withdrawn



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	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)	Unusable	Within 1D, limited to low feed rate Feed rate half or lower of a flat drill
Traversing	Unusable	Unusable	Optimal

Series

Application	Series	Diameter Range (mm)	Hole Depth (L/D)
External	MDF □□□□ S2D	$\varnothing 0,3 - 20,0$	$\leq 2,0$
	MDF □□□□ L2D	$\varnothing 0,3 - 20,0$	$\leq 2,0$
Internal	MDF □□□□ H3D	$\varnothing 0,3 - 16,0$	$\leq 3,0$
	MDF □□□□ H5D	$\varnothing 0,3 - 16,0$	$\leq 5,0$

Flat MultiDrill MDF Type

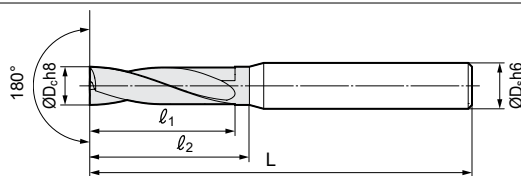
MDF S2D Type

External Coolant Supply (MDF S2D Type)

Carbon Steel	Alloy Steel	Tempered Steel	Hardened Steel	Stainless Steel	Cast Iron	Ductile Cast Iron	Aluminum Alloy
○	○	○	○	○	○	○	○
<0.28%	>0.28%	<45HRC	>45HRC	<45HRC	<45HRC	<45HRC	<45HRC



● MDF Type



● Diameter Ø 0,3–7,0 mm

Diameter ØDc (mm)	Shank ØDs (mm)	Cat. No.	Stock	Dimensions (mm)		
				L	ℓ ₁	ℓ ₂
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	3,0	0090S2D	○	45	3,6	4,0
1,0		MDF 0100S2D	●		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	6,0	0350S2D	●	50	14,0	15,4
3,6		MDF 0360S2D	●		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	6,0	0400S2D	●	60	16,0	17,6
4,1		MDF 0410S2D	●		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	6,0	0450S2D	●	60	18,0	19,8
4,6		MDF 0460S2D	●		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	6,0	0500S2D	●	60	20,0	22,0
5,1		MDF 0510S2D	●		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	6,0	0550S2D	●	60	22,0	24,2
5,6		MDF 0560S2D	●		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	8,0	0600S2D	●	70	24,0	26,4
6,1		MDF 0610S2D	●		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	8,0	0650S2D	●	70	26,0	28,6
6,6		MDF 0660S2D	●		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

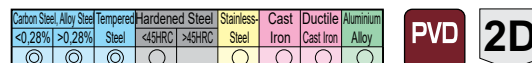
● Diameter Ø 7,1–20,0 mm

Diameter ØDc (mm)	Shank ØDs (mm)	Cat. No.	Stock	Dimensions (mm)		
				L	ℓ ₁	ℓ ₂
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	○		54,0	59,6
14,0	16,0	1400S2D	○	110	56,0	62,4
14,5		MDF 1450S2D	○		58,0	65,2
15,0		1500S2D	○		60,0	68,0
15,5	20,0	1550S2D	○	115	62,0	70,8
16,0		1600S2D	○		64,0	73,6
16,5		MDF 1650S2D	○		66,0	72,4
17,0	18,0	1700S2D	○	125	68,0	75,2
17,5		1750S2D	○		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

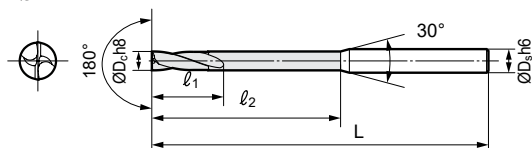
*RS Thinning is used for ØDc ≥ 0,5mm.

Grade: ACF75

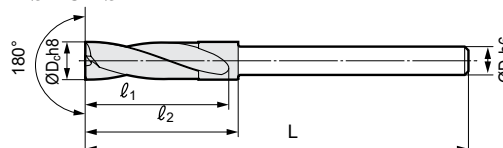
External Coolant Supply (L2D Type, Long Type)



● $\varnothing DC \leq \varnothing DMM$



● $\varnothing DC > \varnothing DMM$



● Diameter $\varnothing 3,0-9,5$ mm

Diameter $\varnothing D_c$ (mm)	Shank $\varnothing D_s$ (mm)	Cat. No.	Stock	Dimensions (mm)		
				L	l_1	l_2
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		MDF 0410L2D	○	100	18,5	41,0
4,2	6,0	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		MDF 0460L2D	○	100	20,7	46,0
4,7	6,0	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		MDF 0510L2D	○	110	23,0	51,0
5,2	6,0	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		MDF 0560L2D	○	110	25,2	56,0
5,7	6,0	0570L2D	○		25,7	57,0
5,8		0580L2D	○		26,1	58,0
5,9		0590L2D	○		26,6	59,0
6,0		MDF 0600L2DS5	○		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		MDF 0660L2D	○	120	29,7	32,7
6,7	6,0	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		MDF 0710L2D	○	130	32,0	35,0
7,2	6,0	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		MDF 0760L2D	○	130	34,2	37,2
7,7	6,0	0770L2D	○		34,7	37,7
7,8		0780L2D	○		35,1	38,1
7,9		0790L2D	○		35,6	38,6
8,0		MDF 0800L2DS6	○		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		MDF 0860L2D	○	140	38,7	41,7
8,7	8,0	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		MDF 0910L2D	○	150	41,0	41,0
9,2	8,0	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 $\varnothing 9,6-20,0$ mm

Diameter $\varnothing D_c$ (mm)	Shank $\varnothing D_s$ (mm)	Cat. No.	Stock	Dimensions (mm)		
				L	l_1	l_2
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		MDF 1000L2DS8	○		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		MDF 1060L2D	○	160	47,7	50,7
10,7	10,0	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		MDF 1110L2D	○	170	50,0	53,0
11,2	10,0	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		MDF 1160L2D	○	170	52,2	55,2
11,7	10,0	1170L2D	○		52,7	55,7
11,8		1180L2D	○		53,1	56,1
11,9		1190L2D	○		53,6	56,6
12,0		MDF 1200L2DS10	○		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	○		60,8	63,8
14,0		MDF 1400L2DS12	○		63,0	66,0
14,0		MDF 1400L2D	○	190	63,0	140,0
14,5		MDF 1450L2D	○	200	65,3	68,3
15,0	14,0	1500L2D	○		67,5	70,5
15,5		1550L2D	○		69,8	72,8
16,0		MDF 1600L2DS14	○		72,0	75,0
16,0		MDF 1600L2D	○	210	72,0	160,0
16,5		MDF 1650L2D	○	220	74,3	77,3
17,0	16,0	1700L2D	○		76,5	79,5
17,5		1750L2D	○		78,8	81,8
18,0		MDF 1800L2DS16	○		81,0	84,0
18,0		MDF 1800L2D	○	230	81,0	180,0
18,5		MDF 1850L2D	○	240	83,3	86,3
19,0	18,0	1900L2D	○		85,5	88,5
19,5		1950L2D	○		87,8	90,8
20,0		MDF 2000L2DS18	○		90,0	93,0
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

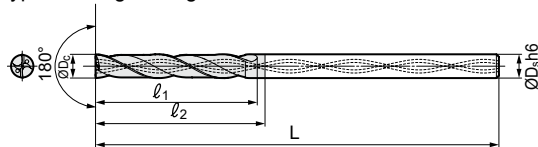
Min. - Optimum - Max.

Internal Coolant Supply (MDF H3D/H5D Type)

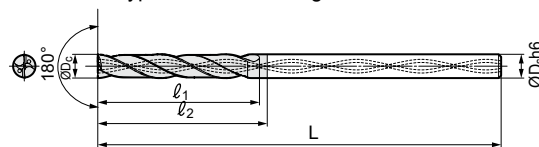
Carbon Steel	Alloy Steel	Tempered Steel	Hardened Steel	Stainless Steel	Cast Iron	Ductile Iron	Aluminum Alloy
●	●	●	●	●	●	●	●
<0.28%	>0.28%	<45HRC	>45HRC	<0.28%	>0.28%	<45HRC	>45HRC



● 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	l ₁	l ₂
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	l ₁	l ₂
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

Flat MultiDrill

MDF Type

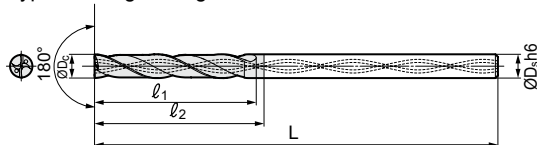
MDF Type with Oil Hole - H3D / H5D

Internal Coolant Supply (MDF H3D/H5D Type)

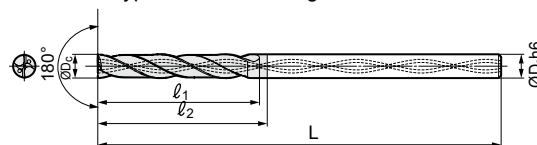
Carbon Steel	Alloy Steel	Tempered Steel	Hardened Steel	Stainless Steel	Cast Iron	Ductile Cast Iron	Aluminum Alloy
<0.28%	>0.28%	<45HRC	>45HRC	Steel	Steel	Iron	Alloy



● 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	l ₁	l ₂
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	l ₁	l ₂
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 $\leq 70\%$ when the inclination angle is $\leq 30^\circ$.
 - 3.2 Set the feed rate at $\leq 50\%$ when the inclination angle is $> 30^\circ$.
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.

(vc: 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	vc	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	vc	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	vc	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	vc	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	vc	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	vc	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.

(vc: 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	vc	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	vc	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	vc	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	vc	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	vc	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	vc	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.

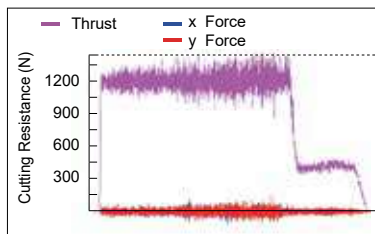
■ Characteristics and Applications

Low Cutting Resistance

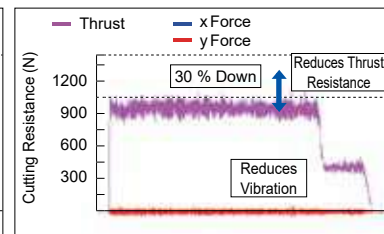
The application of a new special thinning shape „RX thinning“ reduces cutting resistance during high efficiency drilling.



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, ($\Rightarrow$ 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.



XHGS Series

Conv. Drill



$f = 0,35$ mm/rev

$f = 0,40$ mm/rev

$f = 0,45$ mm/rev

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

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.

Conventional Drill



Excellent Guide Performance

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

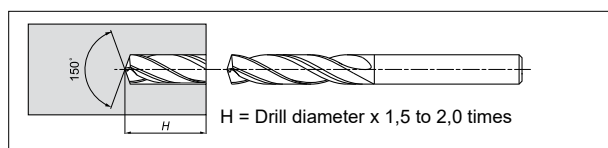
Note: Use lower speed when using MQL coolant and higher speed when using internal coolant.

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

Recommended Drilling Method

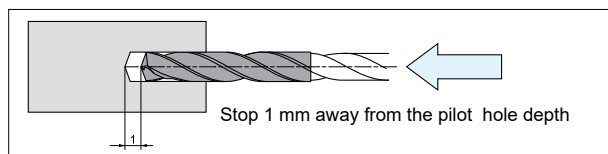
1. Drill a pilot hole using the dedicated PHT

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

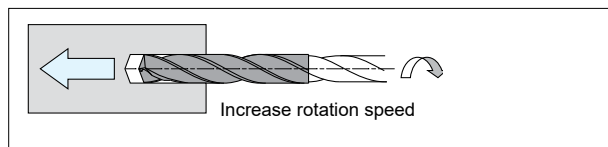
Rotation speed: 500 min⁻¹
Feed rate: 1000 to 2000 mm/min



Important:

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

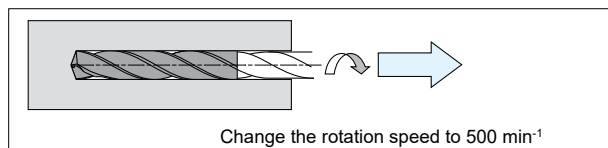
3. Increase rotation speed until the set cutting speed is reached, and start normal drilling operation



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

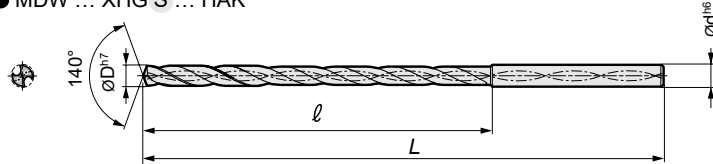
Discharge volume: It is recommended to set the maximum discharge volume possible on the machine.

*Consult the manufacturer before using with aluminium alloy.

Extra Long SUPER MULTI-DRILLS MDW ... XHGS/PHT Type

Solid Carbide Drills for Deep Hole Drilling

● MDW ... XHG S ... HAK



Coated grade: ACX70

P ● MDW...XHGS Type for Deep Hole Drilling, Diameter Ø 3,0–12,0 mm

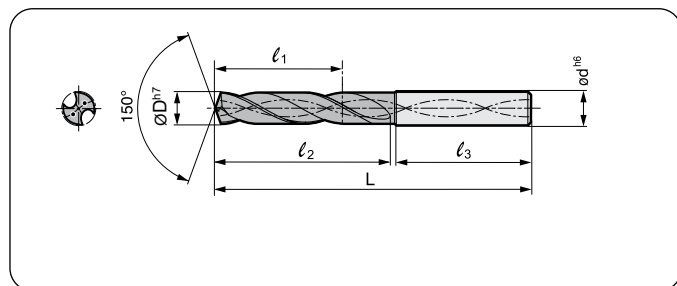
Dimensions		Cat. No. 12, 15, 20, 25, 30	For 12 x D			For 15 x D			For 20 x D			For 25 x D			For 30 x D		
DC (mm)	ød (mm)		Stock	Dimensions		Stock	Dimensions		Stock	Dimensions		Stock	Dimensions		Stock	Dimensions	
				L	ℓ		L	ℓ		L	ℓ		L	ℓ		L	ℓ
3,0	4,0	MDW 0300XHGS □□ HAK	●	85	57	●	94	66	●	109	81	●	124	96	●	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 □□ HAK ^{5°}	●	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 diameters and lengths on request (Ø 2,5–16,0 mm possible)



● MDW...PHT Type for Pilot Hole



Dimensions		Cat. No.	Stock	For Pilot Hole			
DC (mm)	ød (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 5,0 mm = MDW 050

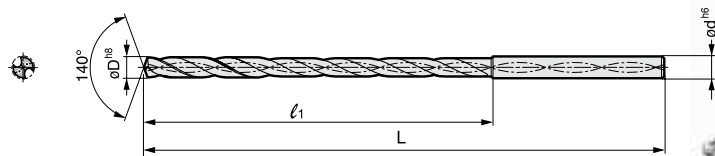
E.g.,

MDW 050 X H G S 30 HAK ACX70 (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 steel with double margin
Special shape (RX thinning) + J flute

● = Euro stock

● MDW ... XHT A ... HAK



Helix angle: 30°
Uncoated grade: KH03

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

Dimensions		Cat. No. 20, 30 	For 20 x D			For 30 x D		
DC (mm)	ød (mm)		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 accommodate 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 XHT A 30 HAK (KH03)		(Grade)
Super MULTI-DRILL		Shank type to DIN6535
DC = 5,0 mm		Drilling depth (L/D ratio)
Extra long type		Cutting edges for Al and Cu alloys
with spiral coolant holes		Special shape of clearance face

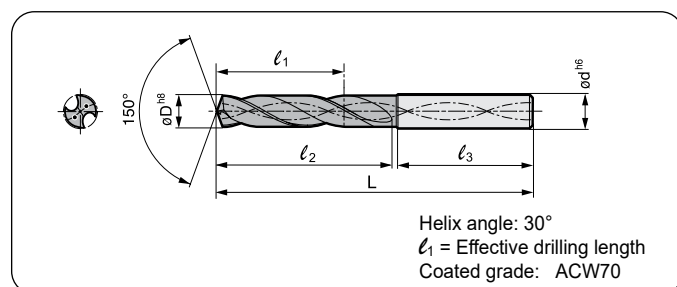
■ Recommended Cutting Conditions

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

Work material		Aluminium Alloy
Drill Ø (mm)		
-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

■ 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.,

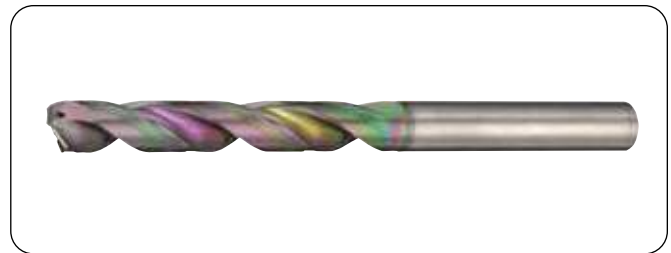
MDW 0503 PHT , ACW70		TiAlN coated grade
Super MULTI-DRILL		Pilot drill with spiral coolant holes
DC = 5,03 mm		

Dimensions		Cat. No.	Stock	For Pilot Hole			
DC (mm)	ϕd (mm)			Dimensions (mm)			
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		MDW 0803 PHT	●	88	24	46	40
8,53	10,0	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

AURORA COAT SERIES MDW ... NHGS Type

DLC (Diamond Like Carbon) Coated Multi-Drills

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



● Diameter Ø 3,0–8,0 mm

(mm)

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

AURORA Coated NHGS Type, Grade: DL1300

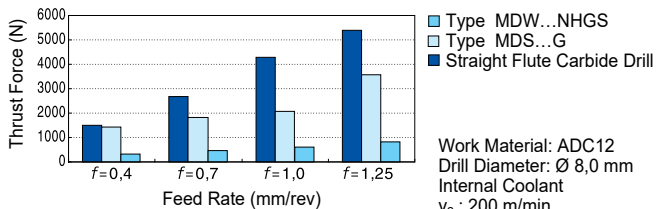
■ Characteristics

- 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)



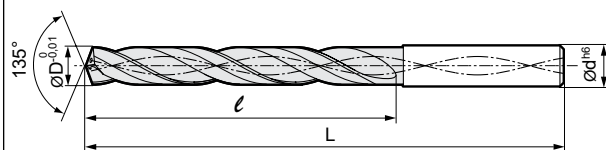
■ Recommended Cutting Conditions

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

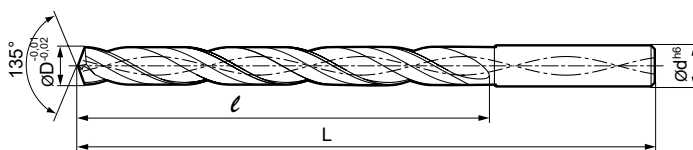
(v_c : Cutting Speed (m/min), f : Feed rate (mm/rev), Min–Max)

○ = Japan stock
□ = Delivery on request

● 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

Dimensions		Cat. No.	3D Type			5D Type			10D Type		
øD	ød		Stock	Dimensions		Stock	Dimensions		Stock	Dimensions	
3, 5, 10			3	L		5	L	ℓ	10	L	ℓ
8,1	9,0	MDW 0810 NHGS□□				□					
8,2		MDW 0820 NHGS□□				○					
8,3		MDW 0830 NHGS□□			44,3	○		69,8			118,8
8,4		MDW 0840 NHGS□□				○					
8,5		MDW 0850 NHGS□□	○		101,9	○		128,9	○		182,9
8,6		MDW 0860 NHGS□□	□			○					
8,7		MDW 0870 NHGS□□				□					
8,8		MDW 0880 NHGS□□	○		46,9	□		73,9			127,9
8,9	10,0	MDW 0890 NHGS□□				□					
9,0		MDW 0900 NHGS□□	○			○			○		
9,1		MDW 0910 NHGS□□				□					
9,2		MDW 0920 NHGS□□				□					
9,21		MDW 0921 NHGS□□	□		49,5	□		78,0			135,0
9,3		MDW 0930 NHGS□□				○					
9,4		MDW 0940 NHGS□□	□			□					
9,5		MDW 0950 NHGS□□	□		108,0	○		138,0	□		198,0
9,6	11,0	MDW 0960 NHGS□□				□					
9,7		MDW 0970 NHGS□□				□					
9,8		MDW 0980 NHGS□□			52,0	○		82,0	○		142,0
9,9		MDW 0990 NHGS□□				○					
10,0		MDW 1000 NHGS□□	○			○			○		
10,1		MDW 1010 NHGS□□	□								
10,2		MDW 1020 NHGS□□									
10,3		MDW 1030 NHGS□□	□		54,7	□		86,2			149,2
10,4	12,0	MDW 1040 NHGS□□				□					
10,5		MDW 1050 NHGS□□	○		168,3	□		151,3	□		217,3
10,6		MDW 1060 NHGS□□	□			□					
10,7		MDW 1070 NHGS□□									
10,8		MDW 1080 NHGS□□			57,3			90,3			156,3
10,9		MDW 1090 NHGS□□									
11,0		MDW 1100 NHGS□□	○			○			○		
11,08		MDW 1108 NHGS□□	□			□					
11,1	12,0	MDW 1110 NHGS□□	□			□					
11,2		MDW 1120 NHGS□□	○		59,9	□		94,4			163,4
11,3		MDW 1130 NHGS□□									
11,4		MDW 1140 NHGS□□	□			□					
11,5		MDW 1150 NHGS□□	○		124,5	□		160,5	□		232,5
11,6		MDW 1160 NHGS□□									
11,7		MDW 1170 NHGS□□									
11,8		MDW 1180 NHGS□□			62,5			98,5			170,5
11,9	13,0	MDW 1190 NHGS□□									
12,0		MDW 1200 NHGS□□	○			○			○		
12,1		MDW 1210 NHGS□□	□			□					
12,2		MDW 1220 NHGS□□									
12,3		MDW 1230 NHGS□□	□		65,1	□		102,6			177,6
12,4		MDW 1240 NHGS□□									
12,5		MDW 1250 NHGS□□	□			○			□		
12,6		MDW 1260 NHGS□□			130,7			169,7			247,7
12,7	15,0	MDW 1270 NHGS□□									
12,8		MDW 1280 NHGS□□									
12,9		MDW 1290 NHGS□□			67,7			106,7			184,7
12,96		MDW 1296 NHGS□□	□			□					
13,0		MDW 1300 NHGS□□	○			○			○		

● Diameter Ø 13,1–16,0 mm

Dimensions		Cat. No. 3, 5, 10 ▾	3D Type			5D Type			10D Type		
øD	ød		Stock	Dimensions	Stock	Dimensions	Stock	Dimensions			
			3	L	ℓ	5	L	ℓ	10	L	ℓ
13,1	14,0	MDW 1310 NHGS□□									
13,2		MDW 1320 NHGS□□									
13,3		MDW 1330 NHGS□□		70,8			110,8			191,8	
13,4		MDW 1340 NHGS□□									
13,5		MDW 1350 NHGS□□	○	136,9		○	178,9			262,9	
13,6		MDW 1360 NHGS□□									
13,7		MDW 1370 NHGS□□									
13,8		MDW 1380 NHGS□□		72,9			114,9			198,9	
13,9	15,0	MDW 1390 NHGS□□									
14,0		MDW 1400 NHGS□□	○			○					
14,1		MDW 1410 NHGS□□	□			□					
14,2		MDW 1420 NHGS□□									
14,3		MDW 1430 NHGS□□		75,5			119,0			206	
14,4		MDW 1440 NHGS□□									
14,5		MDW 1450 NHGS□□	○			○					
14,6		MDW 1460 NHGS□□		141,1			188,1			278,1	
14,7	16,0	MDW 1470 NHGS□□									
14,8		MDW 1480 NHGS□□									
14,9		MDW 1490 NHGS□□	□	78,1		□	123,1			213,1	
14,96		MDW 1496 NHGS□□	□			□					
15,0		MDW 1500 NHGS□□	○			○					
15,1		MDW 1510 NHGS□□									
15,2		MDW 1520 NHGS□□									
15,3		MDW 1530 NHGS□□		80,7			127,2			220,2	
15,4	18,0	MDW 1540 NHGS□□									
15,5		MDW 1550 NHGS□□	○	149,3		□	197,3			293,3	
15,6		MDW 1560 NHGS□□									
15,7		MDW 1570 NHGS□□									
15,8		MDW 1580 NHGS□□		83,3			131,3			227,3	
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)

Super MULTI-DRILL

DC = 10,3 mm

Applicable work materials

with spiral coolant holes

Drilling depth (The ratio to ØD):
-3 / -5 / -10

NHGS type Multi-Drills

Micro Long Drills

MLDHL/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

MLDH-P



MLDH-L

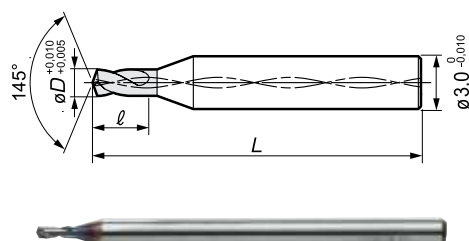


Micro Long Drills

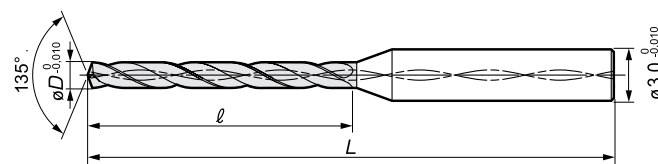
MLDHL/P Type

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. 5, 12, 20, 30	5x D		12x D		20x D		30x D		Stock	Dimensions
			L	ℓ		Stock	Dimensions	Stock	Dimensions	Stock	Dimensions	Stock	Dimensions		
0,80	MLDH 0800P	○	45	3,2	MLDH 0800L□□	○	50	8	55	○	L	ℓ	○	19	○
0,81	0810P	○			MLDH 0810L□□	○									
0,82	MLDH 0820P	○		3,3	MLDH 0820L□□	○									
0,83	0830P	○			MLDH 0830L□□	○									
0,84	MLDH 0840P	○		3,4	MLDH 0840L□□	○									
0,85	0850P	○			MLDH 0850L□□	○									
0,86	0860P	○		3,5	MLDH 0860L□□	○									
0,87	MLDH 0870P	○			MLDH 0870L□□	○									
0,88	0880P	○		3,6	MLDH 0880L□□	○									
0,89	MLDH 0890P	○			MLDH 0890L□□	○									
0,90	0900P	○		3,7	MLDH 0900L□□	○									
0,91	0910P	○			MLDH 0910L□□	○									
0,92	MLDH 0920P	○		3,8	MLDH 0920L□□	○									
0,93	0930P	○			MLDH 0930L□□	○									
0,94	MLDH 0940P	○		3,9	MLDH 0940L□□	○									
0,95	0950P	○			MLDH 0950L□□	○									
0,96	0960P	○		4,0	MLDH 0960L□□	○									
0,97	MLDH 0970P	○			MLDH 0970L□□	○									
0,98	0980P	○		4,2	MLDH 0980L□□	○									
0,99	MLDH 0990P	○			MLDH 0990L□□	○									
1,00	1000P	○		4,4	MLDH 1000L□□	○									
1,05	MLDH 1050P	○			MLDH 1050L□□	○									
1,10	MLDH 1100P	○		4,6	MLDH 1100L□□	○									
1,15	MLDH 1150P	○			MLDH 1150L□□	○									
1,20	MLDH 1200P	○		4,8	MLDH 1200L□□	○									
1,25	MLDH 1250P	○			MLDH 1250L□□	○									
1,30	MLDH 1300P	○		5,0	MLDH 1300L□□	○									
1,35	MLDH 1350P	○			MLDH 1350L□□	○									
1,40	MLDH 1400P	○		5,2	MLDH 1400L□□	○									
1,45	MLDH 1450P	○			MLDH 1450L□□	○									
1,50	MLDH 1500P	○		5,4	MLDH 1500L□□	○									
1,55	MLDH 1550P	○			MLDH 1550L□□	○									
1,60	MLDH 1600P	○		5,6	MLDH 1600L□□	○									
1,65	MLDH 1650P	○			MLDH 1650L□□	○									
1,70	MLDH 1700P	○		5,8	MLDH 1700L□□	○									
1,75	MLDH 1750P	○			MLDH 1750L□□	○									
1,80	MLDH 1800P	○		6,0	MLDH 1800L□□	○									
1,85	MLDH 1850P	○			MLDH 1850L□□	○									
1,90	MLDH 1900P	○		6,2	MLDH 1900L□□	○									
1,95	MLDH 1950P	○			MLDH 1950L□□	○									
2,00	MLDH 2000P	○		6,4	MLDH 2000L□□	○									
			50	6,6	MLDH 2000L□□	○	60	18	70	○	L	ℓ	○	100	○
			50	6,8	MLDH 2000L□□	○									
			50	7,0	MLDH 2000L□□	○									
			50	7,2	MLDH 2000L□□	○									
			50	7,4	MLDH 2000L□□	○									
			50	7,6	MLDH 2000L□□	○									
			50	7,8	MLDH 2000L□□	○									
			50	8,0	MLDH 2000L□□	○									

PVD Coated Grade: ACV70

Solid Carbide Micro / MINI-DRILLS

MDUS / MDSS Type

Fig.1 Helix angle: 30°

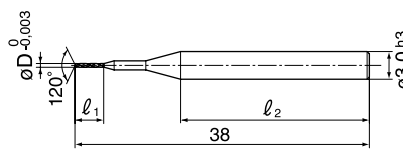


Fig.2

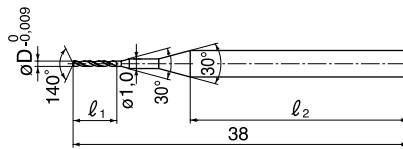
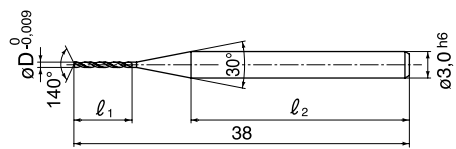


Fig.3



● Diameter $\phi 0,03-0,19$ mm

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

● Diameter $\phi 0,20-0,59$ mm

ϕD (mm)	Cat. No.	Stock	Dimensions l_1 l_2	Fig.	Pcs./ Pack- ing
0,20	MDSS 0020	○	2,5	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	28	1
0,31	MDSS 0031	○			
0,32	MDSS 0032	○			
0,33	MDSS 0033	○			
0,34	MDSS 0034	○			
0,35	MDSS 0035	○			
0,36	MDSS 0036	○			
0,37	MDSS 0037	○			
0,38	MDSS 0038	○			
0,39	MDSS 0039	○			
0,40	MDSS 0040	○	5	3	1
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	1
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 $\phi 0,60-1,00$ mm

ϕD (mm)	Cat. No.	Stock	Dimensions l_1 l_2	Fig.	Pcs./ Pack- ing
0,60	MDSS 0060	○	7	26	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	1
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	1
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	1
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.	Alloy Steel, Pre-hardened Steel			Die Steel, Tempered Steel (HRC 30-40)			Stainless Steel		
	Spindle (rpm)	Feed rate (mm/min)	Step-feed (mm)	Spindle (rpm)	Feed rate (mm/min)	Step-feed (mm)	Spindle (rpm)	Feed rate (mm/min)	Step-feed (mm)
$\phi 0,2$	26500	50	0,1D	21200	40	0,1D	10600	20	0,1D
$\phi 0,3$	26500	80		21200	60		10600	30	
$\phi 0,4$	25900	100		19900	80		9500	40	
$\phi 0,5$	25500	150		19100	110		9500	50	
$\phi 1,0$	15900	240	0,2D-0,5D*	12700	190	0,2D-0,5D*	5600	80	

- The above conditions are recommended under wet conditions, using water-soluble coolant.
- If machine noises and vibrations are present, please adjust the cutting conditions accordingly.
- 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



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.

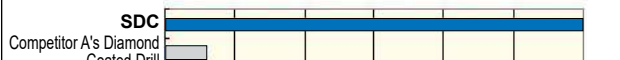
Performance

Comparison of Machined Surface Finish				
Excellent Machined Face Quality (Prevents Delamination And Burrs)				
	SDC	Concurrent A	Concurrent B	Concurrent C
Hole Entrance				
Hole Exit				
Tool:	SUMIDIA coated drill SDC type, Ø 6,375			
Work Material:	Competitor A B C's drill Ø 6,35 & Ø 6,5			
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.

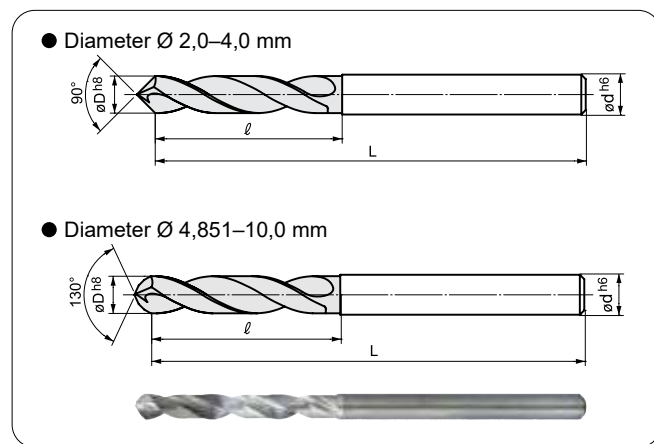
	
Tool:	SUMIDIA coated drill SDC type, Ø 6,375
Work Material:	Competitor A B C's drill Ø 6,35 & Ø 6,5
Cutting Conditions:	n = 6.000 rpm, f=0,1 mm/rev, a _p = 28 mm (Through)
	Dry

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°	

Grade	Coating	Structural Steel	Carbon Steel	Alloy Steel	Precipitated Steel	Tempered Die Steel	Hardened Steel	Stainless Steel	Ti Alloy / Heat Resistant Alloy	Cast Iron	Al Alloy	Cu Alloy	CFRP *
DCX20	SUMI-DIA												

* CFRP (Carbon Fibre Reinforced Plastic)



Diameter ø 2,0–10,0 mm

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

Recommended Cutting Conditions

Work	Cond.	CFRP Only (Dry Machining)		Stacked Plates of CFRP, Aluminium Alloys (Dry Machining)	
		ØD	Cond.	ØD	Cond.
–Ø 6,0	v _c	80–120–150		40–60–80	
	f	0,05–0,08–0,10		0,05–0,05–0,10	
–Ø 10,0	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)

Replaceable Head Type MULTI-DRILLS SMD Type

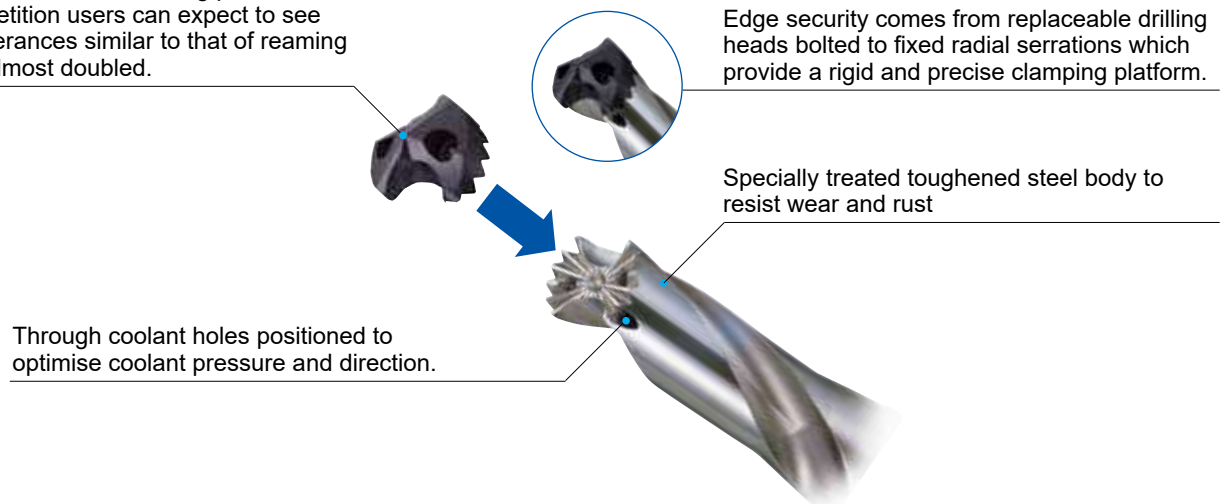
General Features

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

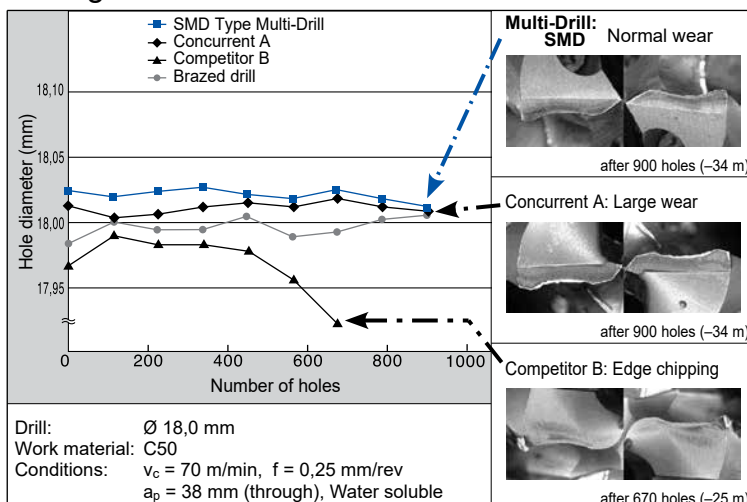


- ## Advantages
- Available in diameters ranging from 12,0–42,5 mm
 - Drilling Depths 1,5–12 x Diameter
 - Optimised heat dissipation via precisely located coolant holes
 - Maximised rigidity from newly developed clamping system
 - High performance drilling of precision holes from solid
 - 3 different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

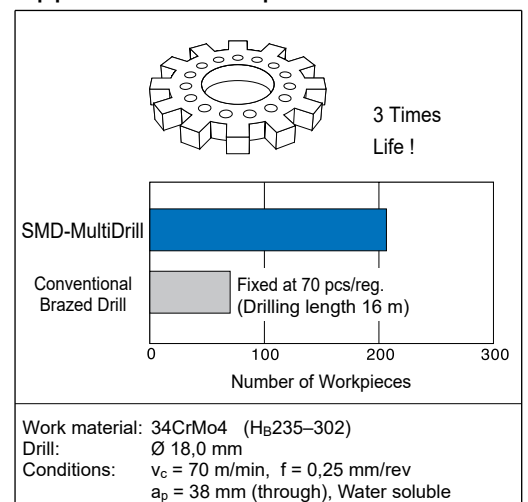
The newly developed tungsten carbide substrate with it's ultra hard smooth coating proved that against competition users can expect to see holes with tolerances similar to that of reaming and tool life almost doubled.



Drilling Precision



Application Example

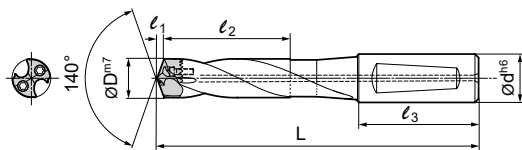


Replaceable Head Type Drill Holder

SMDH Type

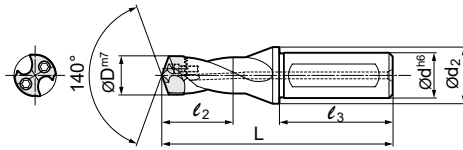
● Holder 3D / 5D / 8D

Shank Type:
Whistle notch type



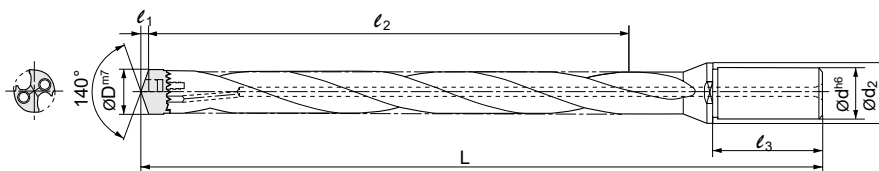
● Holder 1,5D

Shank Type:
Weldon type



● Holder 12D

Shank Type:
Cylindrical type



l_2 = Effective drilling length

■ Holder

(mm)

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

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

■ Recommended Torque

Screw		Applicable Insert
		
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

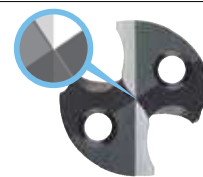
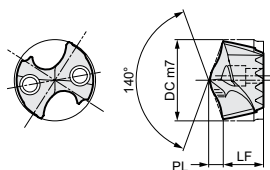
■ Spare Parts

Screw		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 □



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	
19,7	1970 D MTL	●	3,6	
19,8	1980 D MTL	●	3,6	10,5
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	
21,5	2150 D MTL	●	3,9	
22,0	SMDT 2200 D MTL	●	4,0	
22,5	2250 D MTL	●	4,1	
23,0	SMDT 2300 D MTL	●	4,2	
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	
25,5	2550 D MTL	●	4,6	
26,0	SMDT 2600 D MTL	●	4,7	
26,5	2650 D MTL	●	4,8	
27,0	SMDT 2700 D MTL	●	4,9	
27,5	2750 D MTL	●	5,0	
28,0	SMDT 2800 D MTL	●	5,1	
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	
30,5	3050 D MTL	●	5,6	13,5

■ Recommended Cutting Conditions

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

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

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

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

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

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

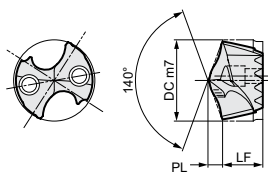
Regrindable Drill Head Insert SMDT... D MEL Type

MEL Type for Smooth Cutting

(Soft Steel, Stainless Steel, Grey Cast Iron)

PVD coated grade: **ACX80**

Type MEL



■ Drill Head (Insert)

● Ø 12,0–15,3 mm

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

● Ø 15,4–18,7 mm

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

● Ø 18,8–30,5 mm

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

■ Recommended Cutting Conditions

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

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

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

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

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

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

● = Euro stock

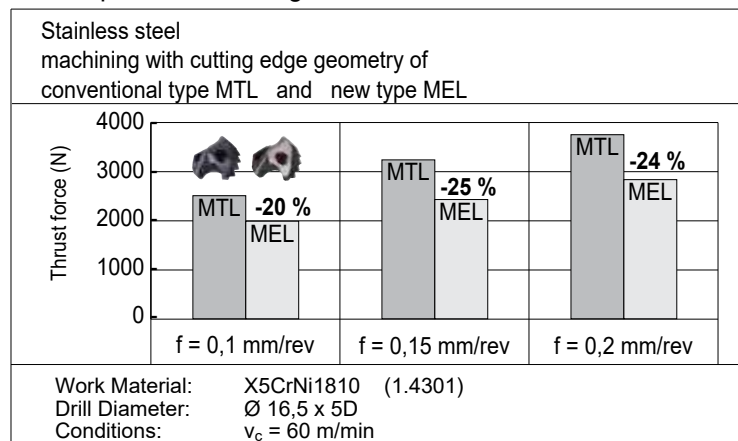
Advantages

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

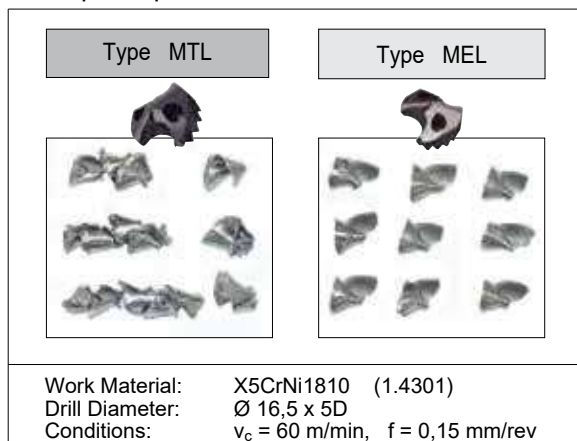


Performance (Stainless steel machining)

Comparison of cutting force

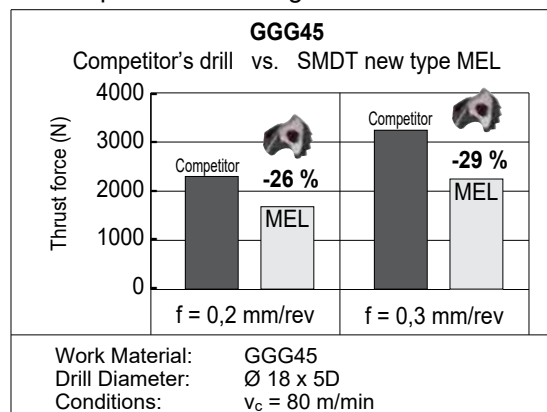


Chip comparison

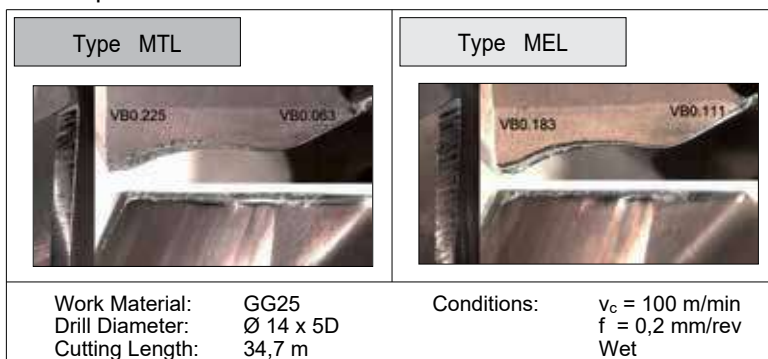


Performance (Cast iron machining)

Comparison of cutting force



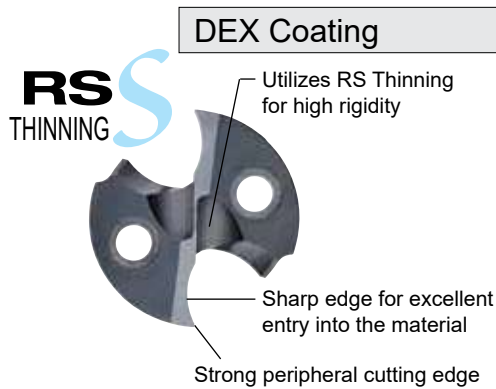
Comparison of wear resistance



Drill Head Insert SMDT... MFS Type

MFS Type for Drilling in Non-Flat Surfaces

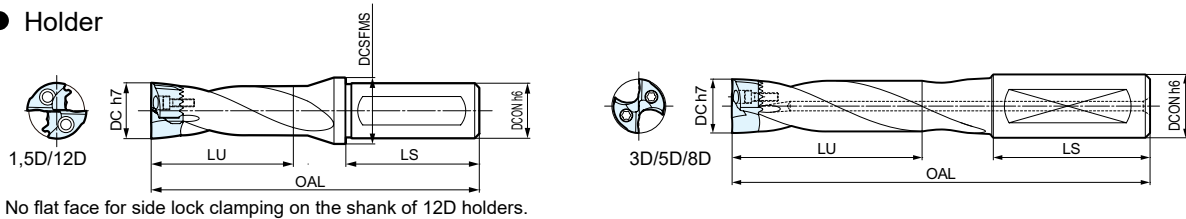
MFS Type Ideal for Drilling in Non-Flat Surfaces and Less Burr



Advantages

- Various Drilling Operations Thanks to a Point Angle of 180°
Applicable to high-efficiency spot facing, drilling in non-flat surfaces such as inclined and cylindrical surfaces and interrupted drilling.
Also reduces burrs at the hole exit.
- Improves Machining Stability
Achieves high rigidity by employing RS Thinning, which ensures thick web at the bottom.

Holder



Holder

Dimensions			Cat. No.	Series (1,5D)				Series (3D)			Series (5D)			Series (8D)			Series (12D)				Related Drill Heads MFS
Drill Head	Shank			Stock	Dimensions			Stock	Dimensions		Stock	Dimensions		Stock	Dimensions		Stock	Dimensions			
DC	DCON	LS		S	OAL	LU	DCSFMS	M3	OAL	LU	M5	OAL	LU	M8	OAL	LU	12D	OAL	LU	DCSFMS	
12,0	16	48	SMDH 120□□	●	91	25,5	20	●	107,2	43,5	●	132,2	68,5								1200–1249
12,5			SMDH 125□□	●	91	25,5	20	●	107,3	43,5	●	132,3	68,5								1250–1299
13,0			SMDH 130□□	●	92	27,5	20	●	112,4	46,5	●	142,4	73,5								1300–1349
14,0			SMDH 140□□□	●	96	31,5	20	●	119,0	52,5	●	149,0	81,5	●	194,0	124,5	●	238,5	168,5	20	
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

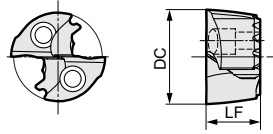
Spare Parts

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

Recommended Tightening Torque (N·m)

Type MFS

PVD coated grade: **ACX70**

■ Drill Head (Insert)

● $\varnothing 12,0 \sim 21,5$ mm

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

● $\varnothing 22,0 \sim 30,0$ mm

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

■ MFS Type Head Important Notes

Application	No Guide Hole (Solid Workpiece Hole Drilling)	With Guide Hole	Flat Finishing of Hole Bottom
	 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.
- $\varnothing 16,0$	v_c	60-100-120	70-100-120	40-60-90	50-60-80	50-70-90	50-60-80	200-240-260
	f	0,15-0,20-0,35	0,15-0,20-0,30	0,10-0,15-0,20	0,10-0,15-0,20	0,20-0,25-0,30	0,20-0,25-0,30	0,35-0,45-0,55
- $\varnothing 20,0$	v_c	80-100-120	70-100-120	40-60-90	60-70-90	60-80-100	50-70-90	200-240-260
	f	0,15-0,25-0,35	0,15-0,25-0,35	0,15-0,20-0,25	0,15-0,20-0,25	0,20-0,30-0,35	0,20-0,25-0,35	0,35-0,50-0,60
- $\varnothing 30,8$	v_c	80-100-120	70-100-120	40-60-90	60-70-90	60-80-100	50-70-90	200-240-260
	f	0,20-0,30-0,35	0,20-0,25-0,35	0,15-0,20-0,25	0,15-0,20-0,25	0,20-0,30-0,40	0,25-0,30-0,35	0,35-0,50-0,60

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

(*) Inquire about drills specifically for aluminum alloy.

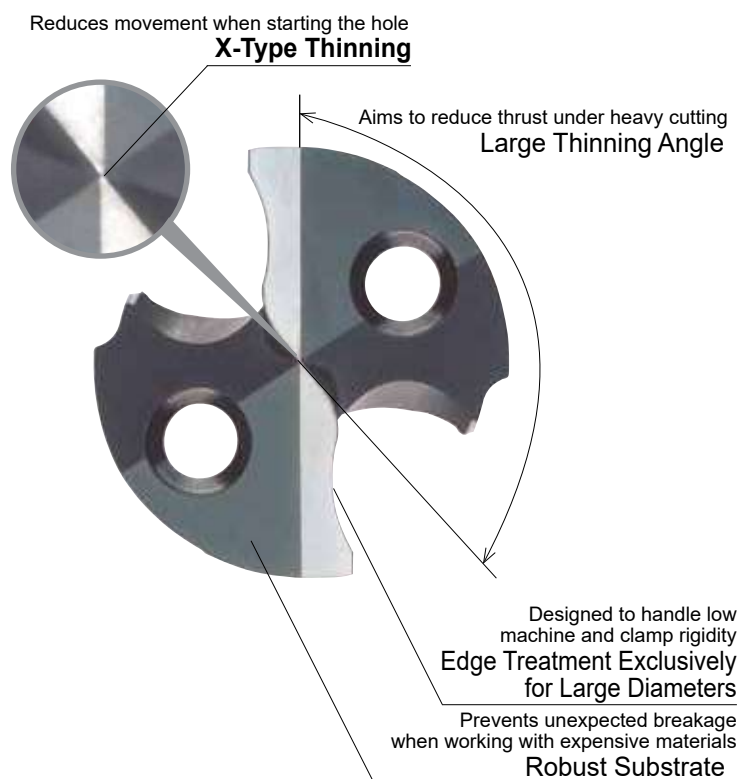
Replaceable Head Type MULTI-DRILLS SMD Type

Large Hole MTL Type

For Large Holes



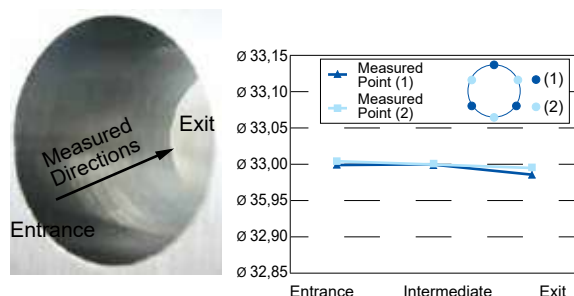
Tool edge design ideal for malleable material used for large casings, etc.
Edge design suitable for malleable material commonly used for large hole drilling.



■ Machined Surface Accuracy

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

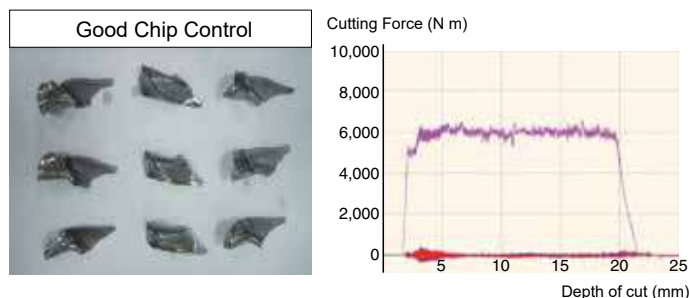
High drilling accuracy with large diameters



■ Cutting Force Comparison (Thrust)

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

Stable even when machining laminated plates



■ Recommended Cutting Conditions

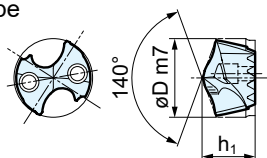
Work Material		Soft Steel (-250 HB)	General Steel (250-320 HB)	Hardened Steel (45 HRC)	Stainless Steel (-200 HB)	Grey Cast Iron	Ductile Cast Iron
Recommended Head Drill Ø (mm)	Cutt. Conditions	MTL Type	MTL Type	MTL Type	MTL Type	MTL Type	MTL Type
		MTL Type	MTL Type	MTL Type	MTL Type	MTL Type	MTL Type
-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.

Regrindable Drill Head Insert SMDT... MTL Type

For Large Holes

● Indexable Head MTL Type



● Toolholder

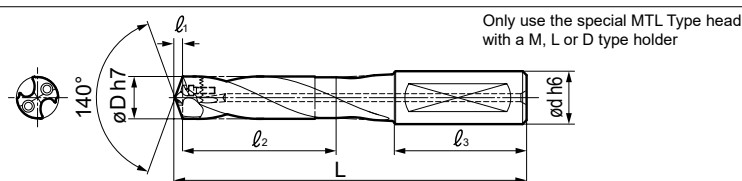


■ Drill Head (Ø 31,0–42,5 mm), Grade MTL Type - ACX80

■ 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	□	15,2	SMDH 320 M	○	SMDH 320 L	○	SMDH 320 D	○
31,5	SMDT 3150 MTL	□							
32,0	SMDT 3200 MTL	○							
32,5	SMDT 3250 MTL	□	15,2	SMDH 335 M	○	SMDH 335 L	○	SMDH 335 D	○
33,0	SMDT 3300 MTL	○							
33,5	SMDT 3350 MTL	□							
34,0	SMDT 3400 MTL	○	16,6	SMDH 350 M	○	SMDH 350 L	○	SMDH 350 D	○
34,5	SMDT 3450 MTL	□							
35,0	SMDT 3500 MTL	○							
35,5	SMDT 3550 MTL	□	16,4	SMDH 365 M	○	SMDH 365 L	○	SMDH 365 D	○
36,0	SMDT 3600 MTL	○							
36,5	SMDT 3650 MTL	□							
37,0	SMDT 3700 MTL	○	18,1	SMDH 380 M	○	SMDH 380 L	○	SMDH 380 D	○
37,5	SMDT 3750 MTL	○							
38,0	SMDT 3800 MTL	○							
38,5	SMDT 3850 MTL	□	17,8	SMDH 395 M	○	SMDH 395 L	○	SMDH 395 D	○
39,0	SMDT 3900 MTL	○							
39,5	SMDT 3950 MTL	□							
40,0	SMDT 4000 MTL	○	19,5	SMDH 410 M	○	SMDH 410 L	○	SMDH 410 D	○
40,5	SMDT 4050 MTL	○							
41,0	SMDT 4100 MTL	○							
41,5	SMDT 4150 MTL	□	19,3	SMDH 425 M	○	SMDH 425 L	○	SMDH 425 D	○
42,0	SMDT 4200 MTL	○							
42,5	SMDT 4250 MTL	□							

● Mounted Figure



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

SumiDrill 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.

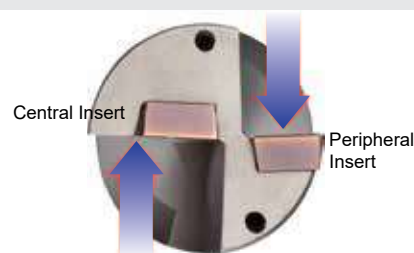
Economical Four-Cornered Insert

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

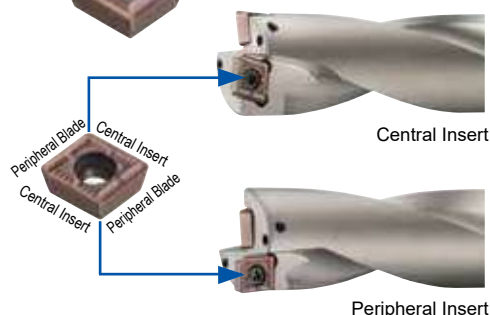
Type	L	G	H	M New
Features	For low feed with chip control	General Purpose	For non-ferrous metal drilling	For stainless steel drilling
Appearance				
Figure				

Design

Cutting force of central insert = that peripheral insert



Chip control groove in each cutting edge



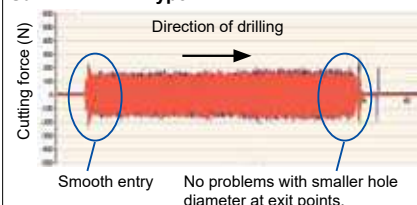
Performance

Balanced Design

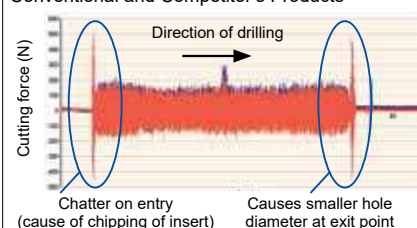
(Comparison of Horizontal Component Values)

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

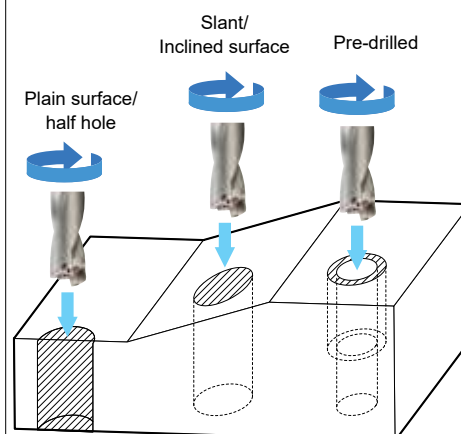


Conventional and Competitor's Products



Multi-Purpose Functionality

Applications for Machining Centre



Recommended conditions - reduce feed rate to 70 %

SumiDrill WDX Type

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.

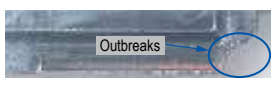
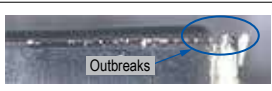
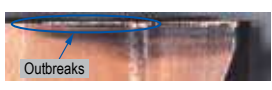
Holder	WDX M Type	WDX G Type	Competitor's Product
Hole			
Chips			

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 	 Outbreaks
	Flank 	 Outbreaks
Central Insert	Rake Face 	 Outbreaks
	Flank 	 Outbreaks

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

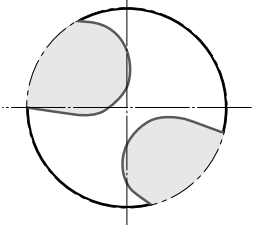
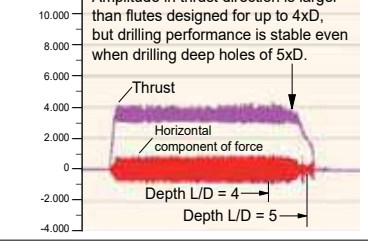
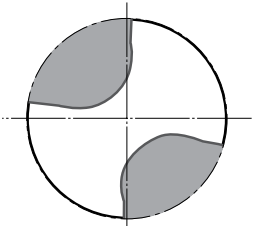
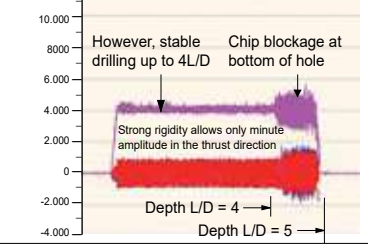


Coolant supply guidehole

Special flute shape for L/D = 5



■ Performance

Characteristics	Figure	Cutting Resistance	Machined Surface (Exit)
WDX260D5S32 Flutedesign L/D = 5 Designed with emphasis on chip evacuation Expanded flute design improves chip evacuation for stable drilling performance even with holes up to 5xD.		 (N) 12.000 10.000 8.000 6.000 4.000 2.000 0 -2.000 -4.000 Thrust Horizontal component of force Depth L/D = 4 Depth L/D = 5 Amplitude in thrust direction is larger than flutes designed for up to 4xD, but drilling performance is stable even when drilling deep holes of 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.		 (N) 12.000 10.000 8.000 6.000 4.000 2.000 0 -2.000 -4.000 Thrust Horizontal component of force Depth L/D = 4 Depth L/D = 5 However, stable drilling up to 4L/D Chip blockage at bottom of hole Strong rigidity allows only minute amplitude in the thrust direction	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

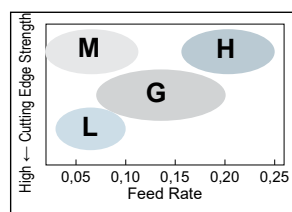
SumiDrill WDX Type

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

5 Grades

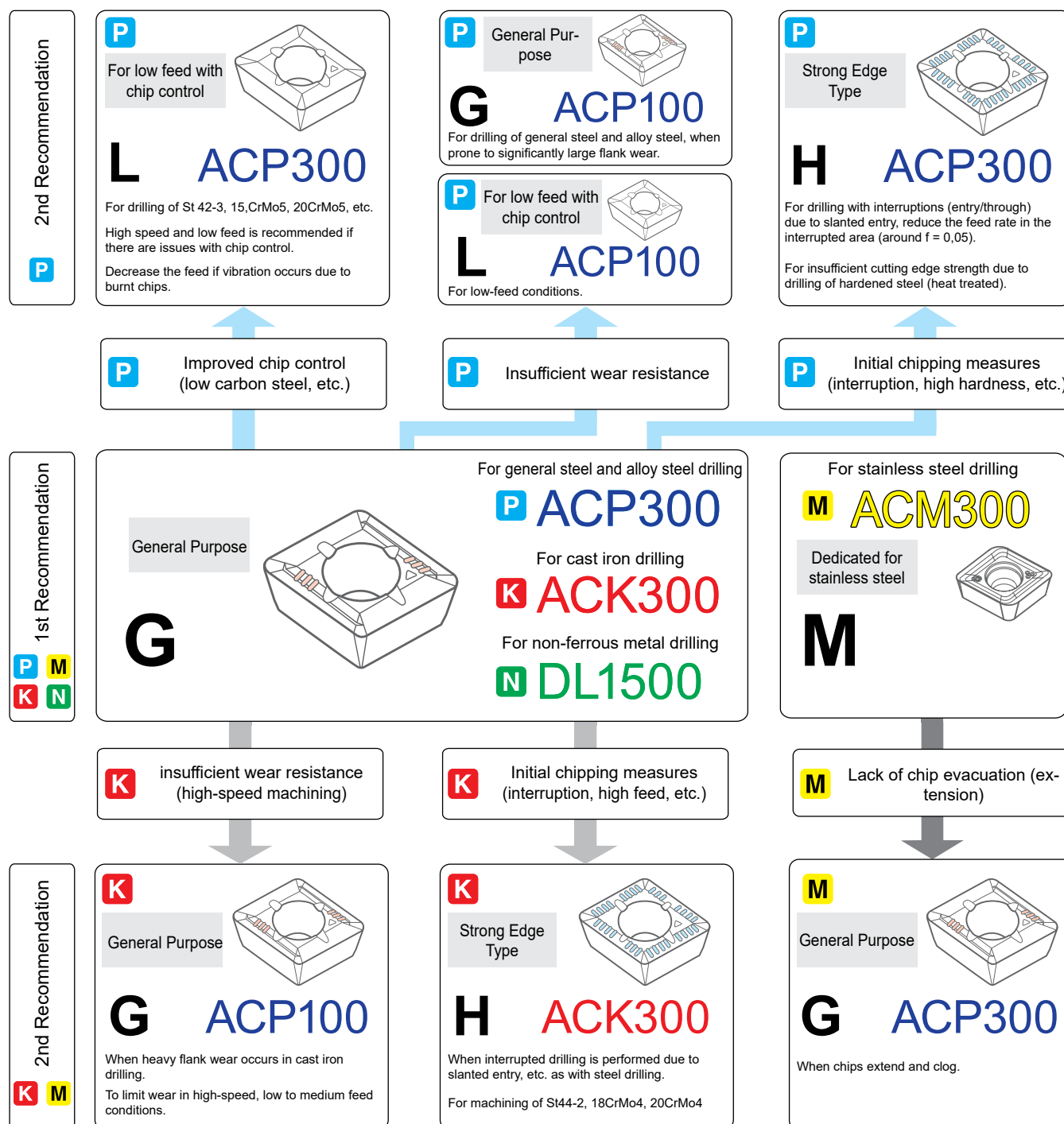
	ACP100	ACP300	ACM300	ACK300	DL1500
P High-speed Drilling	○				
P General Drilling		○			
M Stainless Steel		○	○		
K High-speed Drilling	○				
K General Drilling				○	
N Non-ferrous Metal					○

4 Types of Chipbreakers



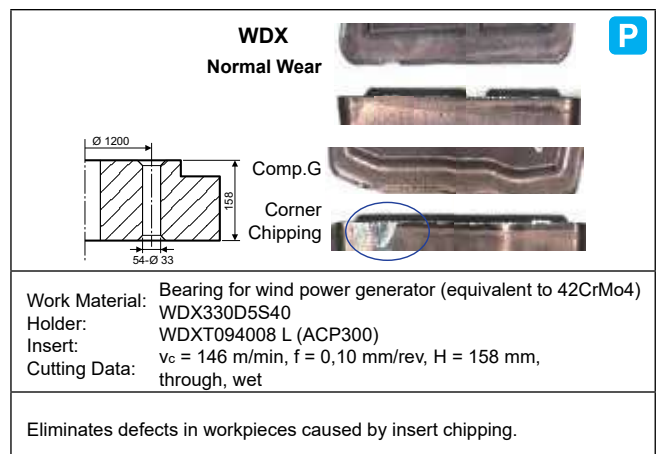
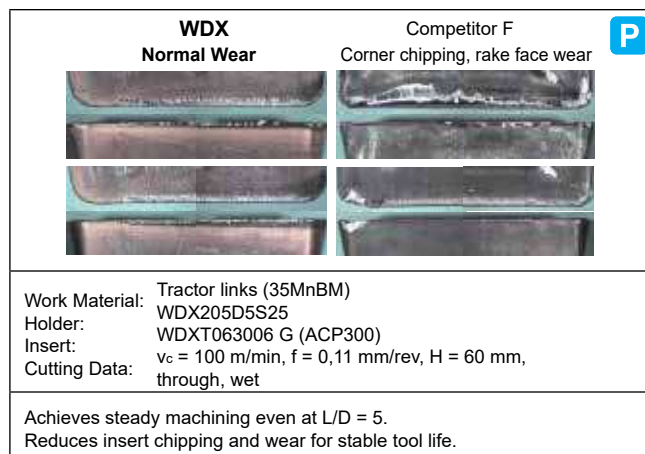
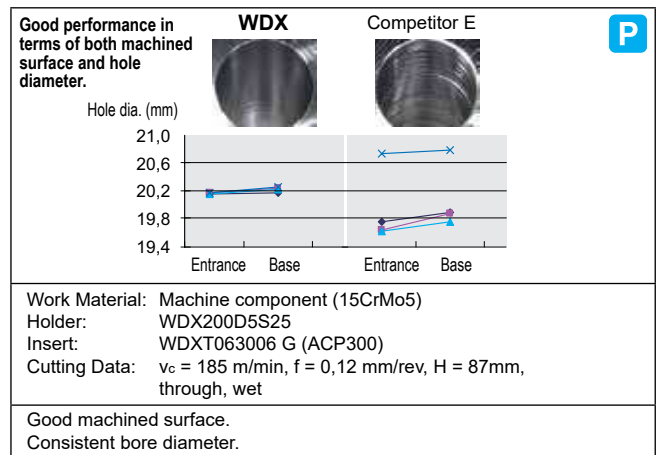
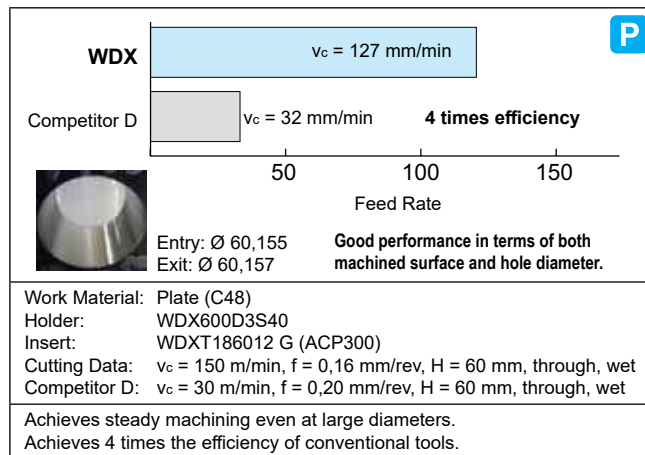
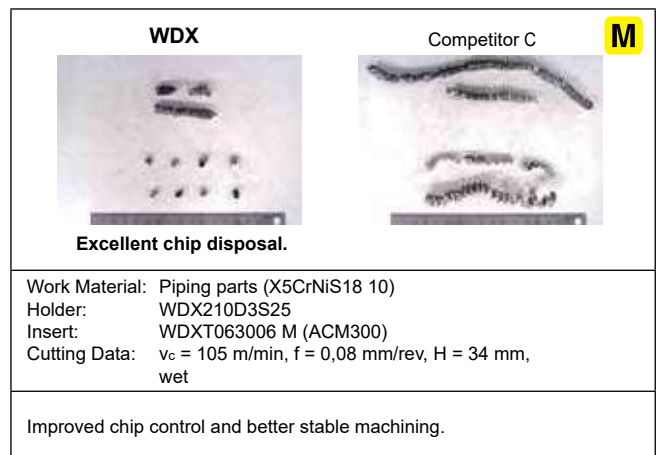
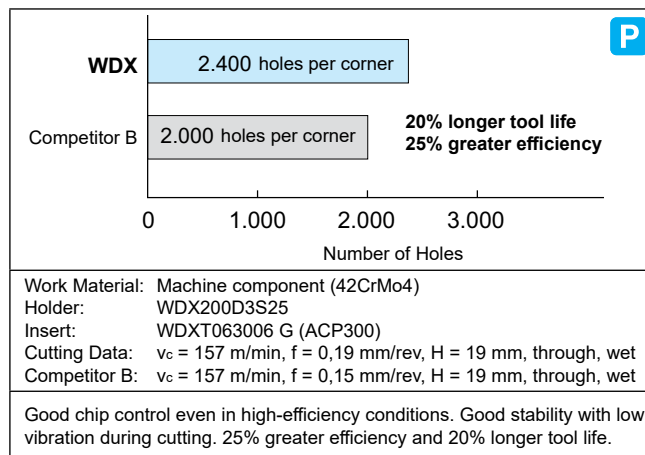
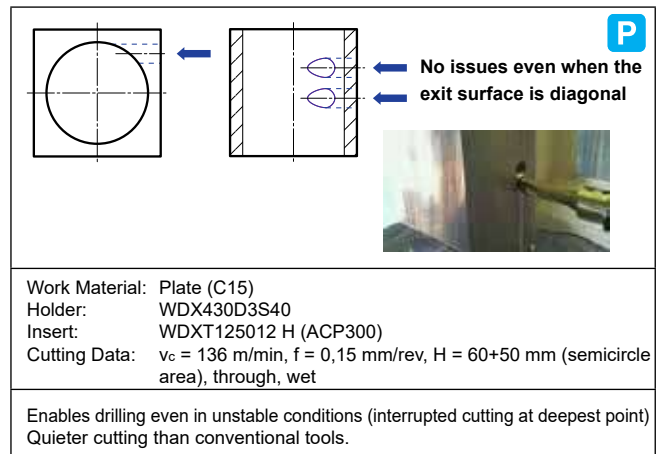
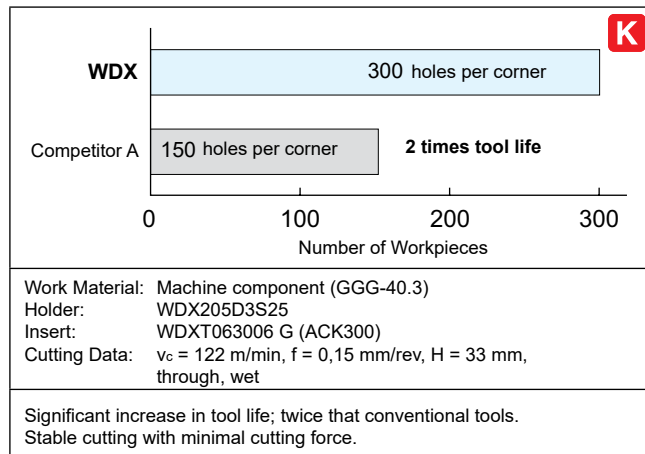
11 Combinations

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	M	P K H	



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

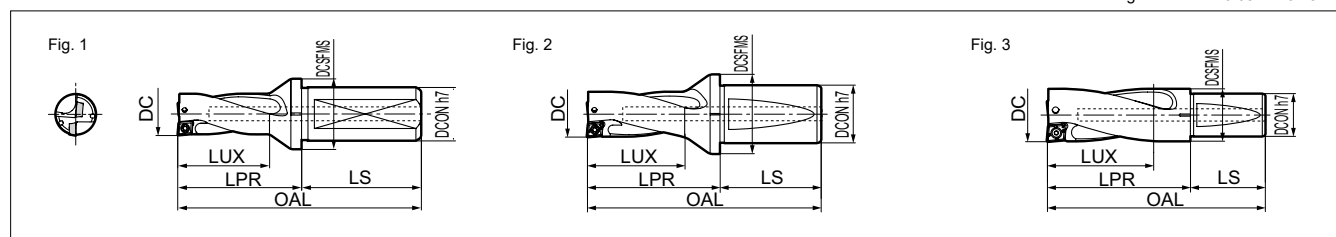
Application Examples



SumiDrill WDX Type (2D)

Max. Depth: 2D

Machining tolerances -0.05 to +0.15 mm



■ 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				1
16,5	●	165D2S20	36	51	95	44	30,0	20	1
17,0	●	170D2S20	37	52	96				1
17,5	●	WDX 175D2S25	38	53	109				1
18,0	●	180D2S25	39	54	110	56	32,0	25	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				2
29,5	●	295D2S32	63	84	144				2
30,0*	○	300D2S32	64	88	148	60		32	2
31,0*	○	310D2S32	66	90	150				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				2
49,0	●	490D2S40	103	133	203				2
50,0	●	500D2S40	105	135	205				2
51,0	●	510D2S40	107	137	207				3
52,0	●	520D2S40	109	139	209				3
53,0	●	530D2S40	111	141	211				3
54,0	●	540D2S40	113	143	213				3
55,0	●	550D2S40	115	145	215				3
56,0	○	WDX 560D2S40	120	152	222				3
57,0	○	570D2S40	122	154	224				3
58,0	○	580D2S40	124	156	226				3
59,0	○	590D2S40	126	158	228				3
60,0	○	600D2S40	128	160	230				3
61,0	○	610D2S40	130	162	232				3
62,0	○	620D2S40	132	164	234				3
63,0	○	630D2S40	134	166	236				3
64,0	○	640D2S40	136	168	238				3
65,0	○	650D2S40	138	170	240				3
66,0	○	660D2S40	140	172	242				3
67,0	○	670D2S40	142	174	244				3
68,0	○	680D2S40	144	176	246				3

■ Parts

Applicable Holder	Flat Screw		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

Diameter DC (Ø 20,0 mm) | Flute Length L/D (2D) | Shank Diameter DCON (Ø 25,0 mm)

■ Identification Details - Inserts

WDX 06 30 06 -G

Width across Flats (6,0 mm) | Thickness (3,0 mm) | Breaker Type
Nose Radius (0,6 mm)

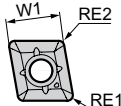
SumiDrill WDX Type (2D)

■ Inserts

Application	Coated Carbide										
High-Speed / Light	P_K				N						
General Purpose		P	M								
Roughing		P		K							
Cat. No.	ACP100	ACP300	ACM300	ACK300	DL 1500	Fig	W1	S	RE1	RE2	Applicable Holder
WDX1 042004 L	○	●		●		1					WDX130D2S20 – WDX150D2S20
042004 G	●	●		●	●	2	4,2	2,0	0,4	0,4	
042004 H	●	●		●		3					
042004 M			●			4				0,8	
WDX1 052504 L	○	●		●		1					WDX155D2S20 – WDX180D2S25
052504 G	●	●		●	●	2	5,0	2,5	0,4	0,4	
052504 H	●	●		●		3					
052504 M			●			4				1,0	
WDX1 063006 L	●	●		●		1					WDX185D2S25 – WDX225D2S25
063006 G	●	●		●	●	2	6,0	3,0	0,6	0,6	
063006 H	●	●		●		3					
063006 M			●			4				1,4	
WDX1 073506 L	●	●		●		1					WDX230D2S25 – WDX285D2S32
073506 G	●	●		●	●	2	7,5	3,5	0,6	0,6	
073506 H	●	●		●		3					
073506 M			●			4				1,6	
WDX1 094008 L	●	●		●		1					WDX290D2S32 – WDX360D2S40
094008 G	●	●		●	●	2	9,6	4,0	0,8	0,8	
094008 H	●	●		●		3					
094008 M			●			4				2,4	
WDX1 125012 L	●	●		●		1					WDX370D2S40 – WDX450D2S40
125012 G	●	●		●	●	2	12,4	5,0	1,2	1,2	
125012 H	●	●		●		3					
125012 M			●			4				3,2	
WDX1 156012 L	●	●		●		1					WDX460D2S40 – WDX550D2S40
156012 G	●	●		●	●	2	15,2	6,0	1,2	1,2	
156012 H	●	●		●		3					
WD-XT											WDX560D2S40 – WDX680D2S40
186012 L	●	○		○		1	18,0	6,0	1,2	1,2	
186012 G	●	●		●		2					
186012 H	○	○		○		3					

Fig. 1

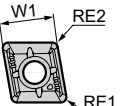
L



For low feed with chip control

Fig. 2

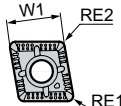
G



General purpose

Fig. 3

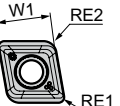
H



Strong edge

Fig. 4

M



For stainless steel

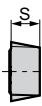


Fig. 1

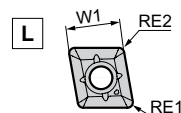


Fig. 3

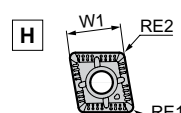


Fig. 2

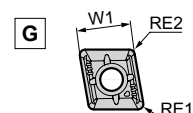
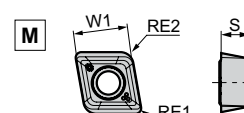


Fig. 4



■ Recommended Cutting Conditions (2D)

(min. - optimal - max.)

Material Group		Hardness (HB)	Chipbreaker	Grade	Cutting Speed (m/min)	Feed rate (mm/rev)				
ISO	Work material					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
			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
	Low alloyed steel	Cr-Mo, Ni-Cr-Mo	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		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
		Sintered	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

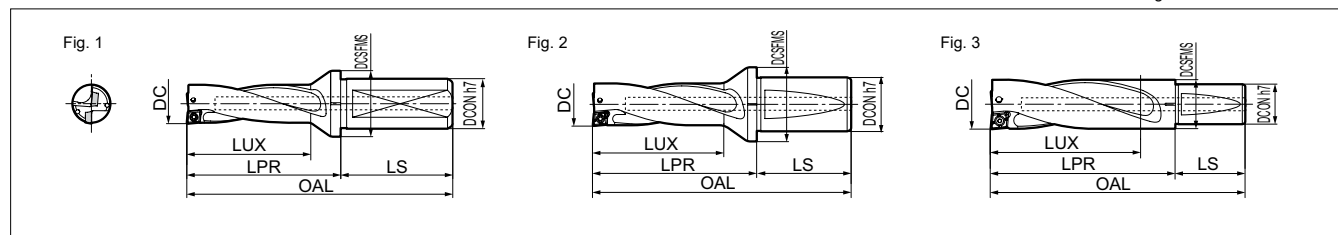
*For the P and K grades for which ACP300 and ACK300 are the first recommendation, ACP100 inserts are the second recommendation.

The recommended cutting conditions are a cutting speed v_c of 130% of the above table and a feed rate f of 75%.

SumiDrill WDX Type (3D)

Max. Depth: 3D

Machining tolerances 0 to +0.20 mm



■ 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				2
29,5	●	295D3S32	92,5	113,5	173,5		50,0		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				2
50,0	●	500D3S40	155,0	185,0	255,0				2
51,0	●	510D3S40	158,0	188,0	258,0	70		40	3
52,0	●	520D3S40	161,0	191,0	261,0				3
53,0	●	530D3S40	164,0	194,0	264,0				3
54,0	●	540D3S40	167,0	197,0	267,0				3
55,0	●	550D3S40	170,0	200,0	270,0				3
56,0	○	WDX 560D3S40	176,0	208,0	278,0				3
57,0	○	570D3S40	179,0	211,0	281,0				3
58,0	○	580D3S40	182,0	214,0	284,0				3
59,0	○	590D3S40	185,0	217,0	287,0				3
60,0	○	600D3S40	188,0	220,0	290,0				3
61,0	○	610D3S40	191,0	223,0	293,0	70		40	3
62,0	○	620D3S40	194,0	226,0	296,0				3
63,0	○	630D3S40	197,0	229,0	299,0				3
64,0	○	640D3S40	200,0	232,0	302,0				3
65,0	○	650D3S40	203,0	235,0	305,0				3
66,0	○	660D3S40	206,0	238,0	308,0				3
67,0	○	670D3S40	209,0	241,0	311,0				3
68,0	○	680D3S40	212,0	244,0	314,0				3

■ Parts

Applicable Holder	Flat Screw		Wrench	Wrench
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

Diameter DC (Ø 20,0 mm) | Flute Length L/D (3D) | Shank Diameter DCON (Ø 25,0 mm)

■ Identification Details - Inserts

WDX 06 30 06 -G

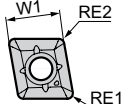
Width across Flats (6,0 mm) | Thickness (3,0 mm) | Breaker Type | Nose Radius (0,6 mm)

SumiDrill WDX Type (3D)

■ Inserts

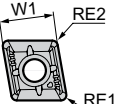
Application	Coated Carbide										
High-Speed / Light											
General Purpose											
Roughing											
Cat. No.	ACP100	ACP300	ACM300	ACK300	DL1500	Fig	W1	S	RE1	RE2	Applicable Holder
WDX1 042004 L						1					WDX130D3S20 – WDX150D3S20
042004 G						2	4,2	2,0	0,4	0,4	
042004 H						3					
042004 M						4				0,8	
WDX1 052504 L						1					WDX155D3S20 – WDX180D3S25
052504 G						2	5,0	2,5	0,4	0,4	
052504 H						3					
052504 M						4				1,0	
WDX1 063006 L						1					WDX185D3S25 – WDX225D3S25
063006 G						2	6,0	3,0	0,6	0,6	
063006 H						3					
063006 M						4				1,4	
WDX1 073506 L						1					WDX230D3S25 – WDX285D3S32
073506 G						2	7,5	3,5	0,6	0,6	
073506 H						3					
073506 M						4				1,6	
WDX1 094008 L						1					WDX290D3S32 – WDX360D3S40
094008 G						2	9,6	4,0	0,8	0,8	
094008 H						3					
094008 M						4				2,4	
WDX1 125012 L						1					WDX370D3S40 – WDX450D3S40
125012 G						2	12,4	5,0	1,2	1,2	
125012 H						3					
125012 M						4				3,2	
WDX1 156012 L						1					WDX460D3S40 – WDX550D3S40
156012 G						2	15,2	6,0	1,2	1,2	
156012 H						3					
WDX1 186012 L						1					WDX560D3S40 – WDX680D3S40
186012 G						2	18,0	6,0	1,2	1,2	
186012 H						3					

Fig. 1



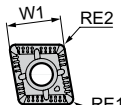
For low feed with chip control

Fig. 2



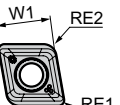
General purpose

Fig. 3



Strong edge

Fig. 4



For stainless steel

Fig. 1

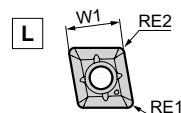


Fig. 3

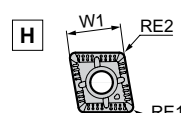


Fig. 2

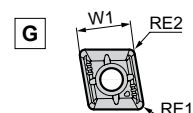
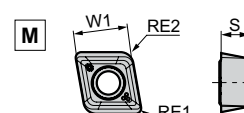


Fig. 4



■ Recommended Cutting Conditions (3D)

(min. - optimal - max.)

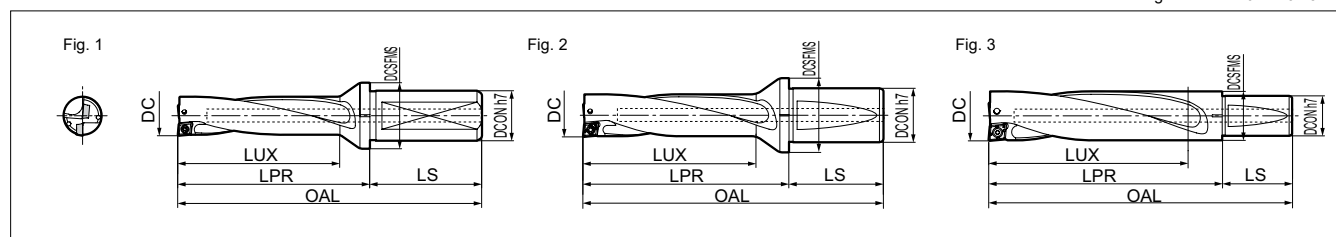
Material Group		Hardness (HB)	Chipbreaker	Grade	Cutting Speed (m/min)	Feed rate (mm/rev)				
ISO	Work material					Ø 13,0-Ø 18,0	Ø 18,5-Ø 29,0	Ø 29,5-Ø 36,0	Ø 37,0-Ø 55,0	Ø 56,0-Ø 68,0
P	Carbon steel	St 42-3	125	G ACP300	120-180-240	0,05-0,07-0,10	0,05-0,07-0,10	0,05-0,08-0,11	0,05-0,08-0,12	0,06-0,09-0,13
		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 Hardened	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
	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
			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
	Low alloyed steel	Cr-Mo, Ni-Cr-Mo	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		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
M	Stainless steel	Sintered	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
		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
K	Cast iron	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
				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
S	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
		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%.

SumiDrill WDX Type (4D)

Max. Depth: 4D

Machining tolerances 0 to +0.25 mm



■ 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				1
16,5	●	165D4S20	69	84	128	44	30,0	20	1
17,0	●	170D4S20	71	86	130				1
17,5	●	WDX 175D4S25	73	88	144				1
18,0	●	180D4S25	75	90	146	56	32,0	25	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				2
29,5	●	295D4S32	122	143	203				2
30,0*	○	300D4S32	124	148	208	60		32	2
31,0*	○	310D4S32	128	152	212				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				2
49,0	●	490D4S40	201	231	301				2
50,0	●	500D4S40	205	235	305				2
51,0	●	510D4S40	209	239	309				3
52,0	●	520D4S40	213	243	313				3
53,0	●	530D4S40	217	247	317				3
54,0	●	540D4S40	221	251	321				3
55,0	●	550D4S40	225	255	325				3
56,0	○	WDX 560D4S40	232	264	334				3
57,0	○	570D4S40	236	268	338				3
58,0	○	580D4S40	240	272	342				3
59,0	○	590D4S40	244	276	346				3
60,0	○	600D4S40	248	280	350				3
61,0	○	610D4S40	252	284	354				3
62,0	○	620D4S40	256	288	358				3
63,0	○	630D4S40	260	292	362				3

■ Parts

Applicable Holder	Flat Screw		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

Diameter DC (Ø 20,0 mm) | Flute Length L/D (4D) | Shank Diameter DCON (Ø 25,0 mm)

■ Identification Details - Inserts

WDXT 06 30 06 -G

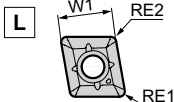
Width across Flats (6,0 mm) | Thickness (3,0 mm) | Breaker Type | Nose Radius (0,6 mm)

SumiDrill WDX Type (4D)

■ Inserts

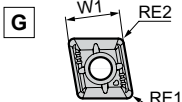
Application	Coated Carbide										
High-Speed / Light											
General Purpose											
Roughing											
Cat. No.	ACP100	ACP300	ACM300	ACK300	DL1500	Fig	W1	S	RE1	RE2	Applicable Holder
WDX1 042004 L						1					WDX130D4S20 – WDX150D4S20
042004 G						2	4,2	2,0	0,4	0,4	
042004 H						3					
042004 M						4				0,8	
WDX1 052504 L						1					WDX155D4S20 – WDX180D4S25
052504 G						2	5,0	2,5	0,4	0,4	
052504 H						3					
052504 M						4				1,0	
WDX1 063006 L						1					WDX185D4S25 – WDX225D4S25
063006 G						2	6,0	3,0	0,6	0,6	
063006 H						3					
063006 M						4				1,4	
WDX1 073506 L						1					WDX230D4S25 – WDX285D4S32
073506 G						2	7,5	3,5	0,6	0,6	
073506 H						3					
073506 M						4				1,6	
WDX1 094008 L						1					WDX290D4S32 – WDX360D4S40
094008 G						2	9,6	4,0	0,8	0,8	
094008 H						3					
094008 M						4				2,4	
WDX1 125012 L						1					WDX370D4S40 – WDX450D4S40
125012 G						2	12,4	5,0	1,2	1,2	
125012 H						3					
125012 M						4				3,2	
WDX1 156012 L						1					WDX460D4S40 – WDX550D4S40
156012 G						2	15,2	6,0	1,2	1,2	
156012 H						3					
WDX1 186012 L						1					WDX560D4S40 – WDX630D4S40
186012 G						2	18,0	6,0	1,2	1,2	
186012 H						3					

Fig. 1



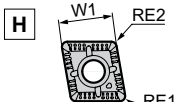
For low feed with chip control

Fig. 2



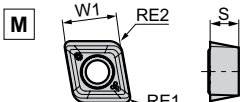
General purpose

Fig. 3



Strong edge

Fig. 4



For stainless steel

Fig. 1

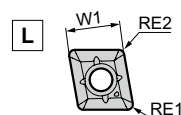


Fig. 3

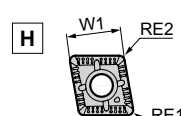


Fig. 2

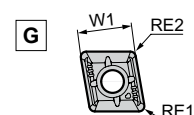
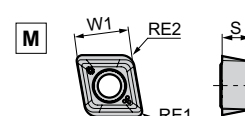


Fig. 4



■ Recommended Cutting Conditions (4D)

(min. - optimal - max.)

Material Group		Hardness (HB)	Chipbreaker	Grade	Cutting Speed (m/min)	Feed rate (mm/rev)				
ISO	Work material					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
	Low alloyed steel	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
		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
		Cr-Mo, Ni-Cr-Mo	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
M	Low alloyed steel	Cr-Mo, Ni-Cr-Mo	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
	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	0,08-0,11-0,14
		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	0,08-0,11-0,14
		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	0,08-0,11-0,14
	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
K	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
	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
	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
N	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

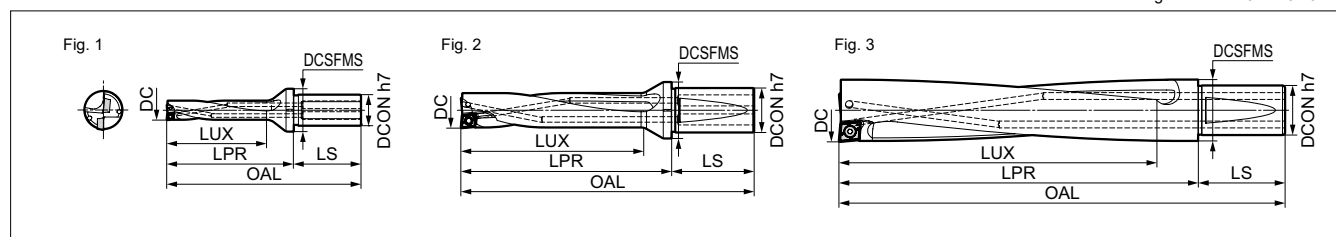
*For the P and K grades for which ACP300 and ACK300 are the first recommendation, ACP100 inserts are the second recommendation.

The recommended cutting conditions are a cutting speed v_c of 130% of the above table and a feed rate f of 75%.

SumiDrill WDX Type (5D)

Max. Depth: 5D

Machining tolerances 0 to +0.25 mm



■ 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	54,0	32,0	2
31,0*	●	310D5S32	159,0	183,0	243,0				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				2
49,0	○	490D5S40	250,0	280,0	350,0				2
50,0	○	500D5S40	255,0	285,0	355,0				2
51,0	○	510D5S40	260,0	290,0	360,0	70		40,0	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	
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

Diameter DC (Ø 20,0 mm) | Flute Length L/D (5D) | Shank Diameter DCON (Ø 25,0 mm)

■ Identification Details - Inserts

WDX 06 30 06 -G

Width across Flats (6,0 mm) | Thickness (3,0 mm) | Breaker Type (Nose Radius (0,6 mm))

SumiDrill WDX Type (5D)

■ Inserts

Application	Coated Carbide											
High-Speed / Light	P_K				N							
General Purpose		P	M									
Roughing		P		K								
Cat. No.	ACP100	ACP300	ACM300	ACK300	DL1500	Fig	W1	S	RE1	RE2	Applicable Holder	
WDX1 042004 L	○	●		●		1					WDX130D5S20 – WDX150D5S20	
042004 G	●	●		●	●	2	4,2	2,0	0,4	0,4		
042004 H	●	●		●		3						
042004 M			●			4				0,8		
WDX1 052504 L	○	●		●		1					WDX155D5S20 – WDX180D5S25	
052504 G	●	●		●	●	2	5,0	2,5	0,4	0,4		
052504 H	●	●		●		3						
052504 M			●			4				1,0		
WDX1 063006 L	●	●		●		1					WDX185D5S25 – WDX225D5S25	
063006 G	●	●		●	●	2	6,0	3,0	0,6	0,6		
063006 H	●	●		●		3						
063006 M			●			4				1,4		
WDX1 073506 L	●	●		●		1					WDX230D5S25 – WDX280D5S32	
073506 G	●	●		●	●	2	7,5	3,5	0,6	0,6		
073506 H	●	●		●		3						
073506 M			●			4				1,6		
WDX1 094008 L	●	●		●		1					WDX290D5S32 – WDX360D5S40	
094008 G	●	●		●	●	2	9,6	4,0	0,8	0,8		
094008 H	●	●		●		3						
094008 M			●			4				2,4		
WDX1 125012 L	●	●		●		1					WDX370D5S40 – WDX450D5S40	
125012 G	●	●		●	●	2	12,4	5,0	1,2	1,2		
125012 H	●	●		●		3						
125012 M			●			4				3,2		
WDX1 156012 L	●	●		●		1					WDX460D5S40 – WDX550D5S40	
156012 G	●	●		●	●	2	15,2	6,0	1,2	1,2		
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.)

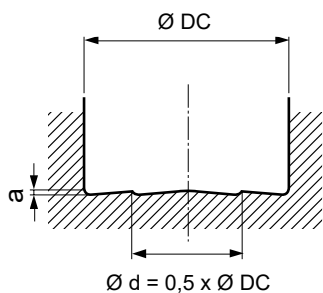
Material Group		Hardness (HB)	Chipbreaker	Grade	Cutting Speed (m/min)	Feed rate (mm/rev)			
ISO	Work material					Ø 13,0–Ø 18,0	Ø 18,5–Ø 29,0	Ø 29,5–Ø 36,0	Ø 37,0–Ø 55,0
P	Carbon steel	St 42-3	125	G ACP300	120–180–240	0,05–0,06–0,09	0,05–0,06–0,09	0,05–0,06–0,09	0,05–0,07–0,09
		C15	125	L ACP300	130–170–220	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 Hardened	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
	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
			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
	Low alloyed steel	Cr-Mo, Ni-Cr-Mo	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%.

SumiDrill WDX Type

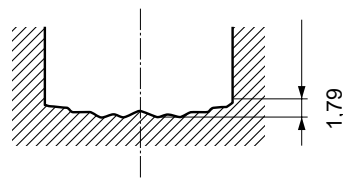
■ Hole Profile

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.

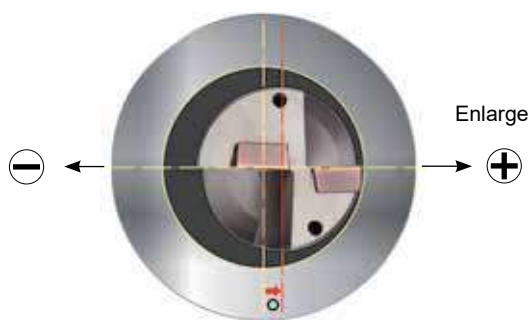
Align the centreline of the drill to the centreline of the lathes Y axis.

Max. +/- 0,03 mm



Drilling Over Holes

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

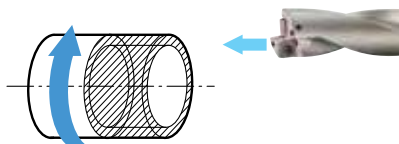


Drill	Max. Offset (mm)	Drill	Max. Offset (mm)
WDX130...	0,35	WDX330...	0,55
WDX135...	0,30	WDX340...	0,45
WDX140...	0,25	WDX350...	0,35
WDX145...	0,20	WDX360...	0,20
WDX150...	0,15	WDX370...	1,00
WDX155...	0,40	WDX380...	1,00
WDX160...	0,40	WDX390...	0,90
WDX165...	0,35	WDX400...	0,80
WDX170...	0,30	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		

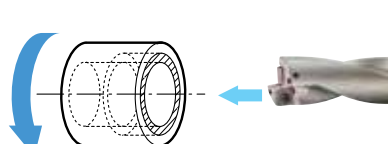
Recommended conditions - reduce feed rate to 30 %

■ Turning by Lathes

Outer turning (max. 2xD)



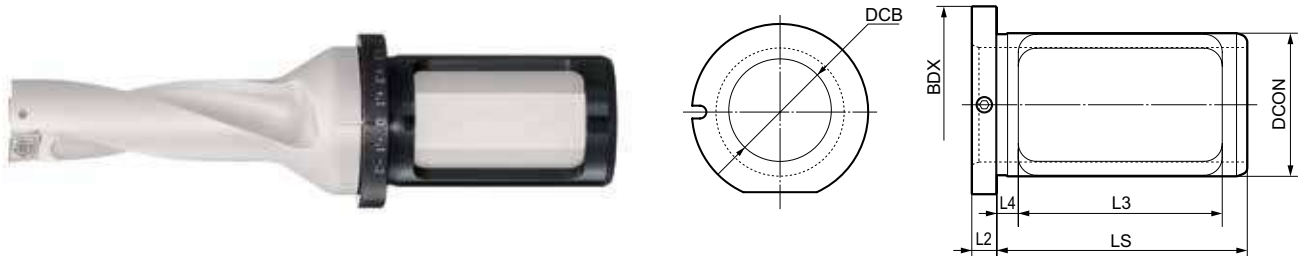
Inner turning (max. 2xD)



Recommended conditions - reduce feed rate to 50 %

Eccentric Sleeve **WAS** Type

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



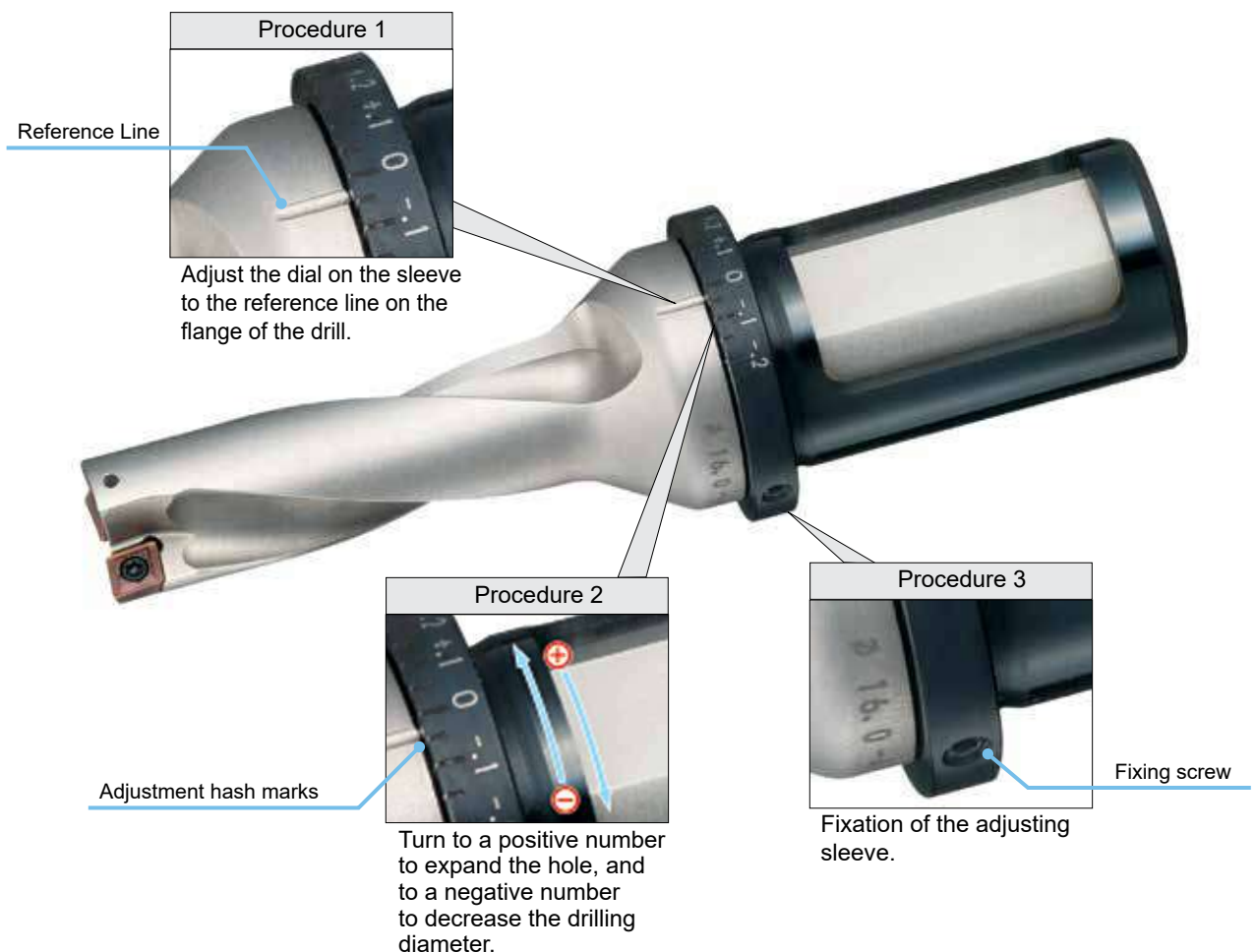
■ Dimensions

■ 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.

Indexable Plunge Drill / Plunge Mill

PDL Type / PCT Type

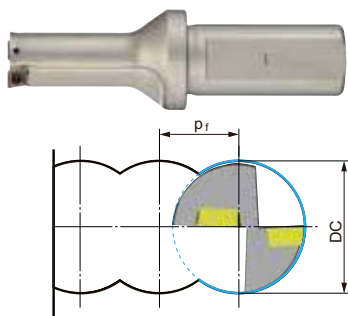


Description

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.

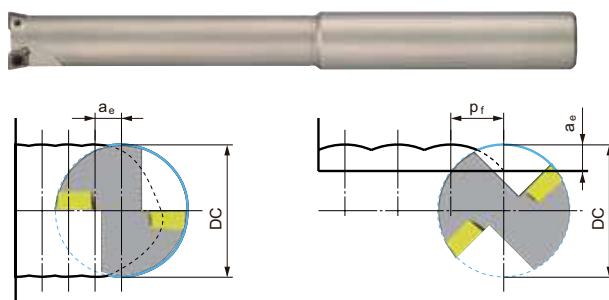
- The PDL type has a central insert making it possible to make radial cuts beyond the tool's radius, pitch feed cutting, and drilling. (Pocket milling, etc.)



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.)



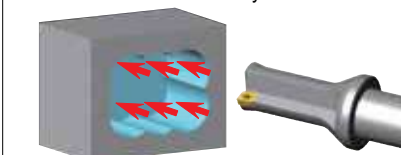
Keep the value of P_f for PCT type tools to less than 50 % of the tool diameter (DC).
For a_e refer to the dimension under "a_e max" in the stock / dimensions tables titled "Holders Max, Depth: 3D/5D".



Application examples

PDL Pocketing

Work Material: Ti Alloy

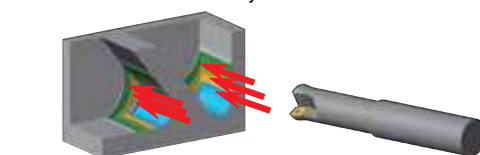


Tool: PDL400D2S40 (Ø 40)
Insert: WDXT125012-G
Grade: ACK300

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

PCT Corner Finishing

Work Material: Ti Alloy

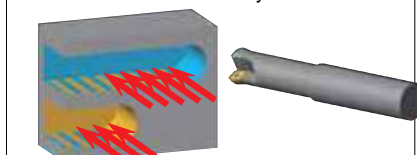


Tool: PCT320D3S32 (Ø 32)
Insert: WDXT094008-G
Grade: ACK300

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

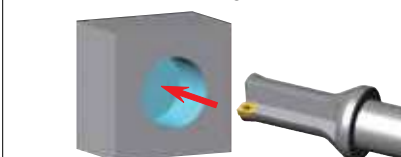


Tool: PCT320D5S32 (Ø 32)
Insert: WDXT094008-G
Grade: ACK300

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

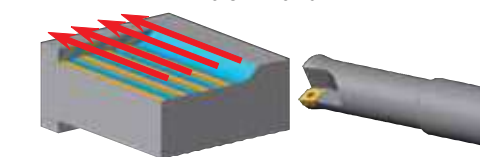


Tool: PDL200D3S25 (Ø 20)
Insert: WDXT063006-G
Grade: ACP300

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

PCT Aeronautic Components

Work Material: X5 CrNi 18 10

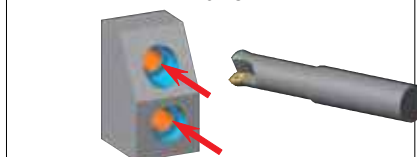


Tool: PCT320D3S32 (Ø 32)
Insert: WDXT094008-G
Grade: ACP300

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	Tempered Steel	Hardened Steel	Stainless Steel	Ti Alloy	Heat Resistant Alloy	Cast Iron	Ductile Cast Iron	Al Alloy	Cu Alloy	Composite CFRP*
		C≤0.28% C>0.28%		HRC≤45 HRC>45								
		W										

Fig 1

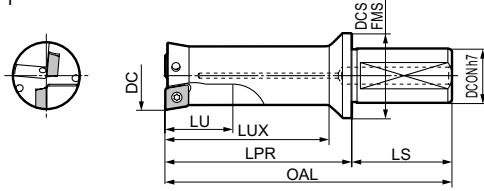
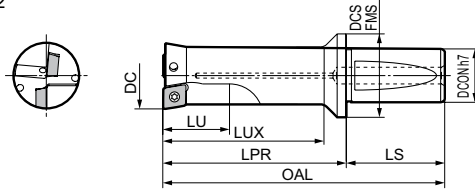


Fig 2



Holder (Max a_p : 2D)

Cat. No.	Stock	Dimensions (mm)								Applicable Insert	Fig.
		DC	OAL	LU	LUX	LPR	LS	DCON	DCSFMS		
PDL 160D2S20	●	16,0	94	32	35	50	44	20	28	WDXTO52504	1
200D2S25	●	20,0	114	40	43	58	56	25	33	WDXTO63006	
250D2S25	●	25,0	127	50	53	71	56	25	37	WDXTO73506	
PDL 320D2S40	●	32,0	162	64	68	92	70	40	54	WDXTO94008	2
400D2S40	●	40,0	185	80	85	115	70	40	54	WDXT125012	

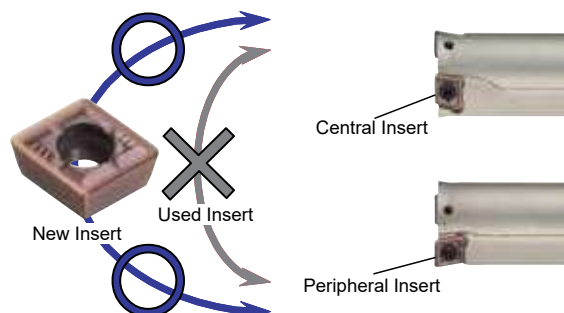
Holder (Max a_p : 3D)

Cat. No.	Stock	Dimensions (mm)								Applicable Insert	Fig.
		DC	OAL	LU	LUX	LPR	LS	DCON	DCSFMS		
PDL 160D3S20	●	16,0	110	48	51	66	44	20	28	WDXTO52504	1
200D3S25	●	20,0	134	60	63	78	56	25	33	WDXTO63006	
250D3S25	●	25,0	152	75	78	96	56	25	37	WDXTO73506	
PDL 320D3S40	●	32,0	194	96	100	124	70	40	54	WDXTO94008	2
400D3S40	●	40,0	225	120	125	155	70	40	54	WDXT125012	

Spare Parts

Screw	Wrench	Wrench		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.

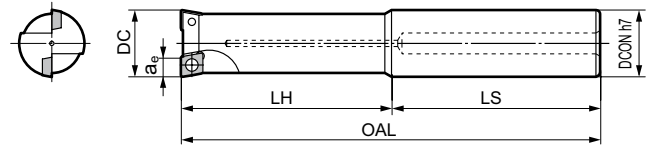
Indexable Plunge Mill PCT Type (3D, 5D)



3D	5D	Carbon Steel, Alloy Steel	Tempered Steel	Hardened Steel	Stainless Steel	Ti Alloy	Heat Resistant Alloy	Cast Iron	Ductile Cast Iron	Al Alloy	Cu Alloy	Composite CFRP*
		C≤0.28% C>0.28%		HRC≤45 HRC>45								
		○	○	○	○	○	○	○	○	○	○	○

* CFRP (Carbon Fibre Reinforced Plastic)

Fig 3



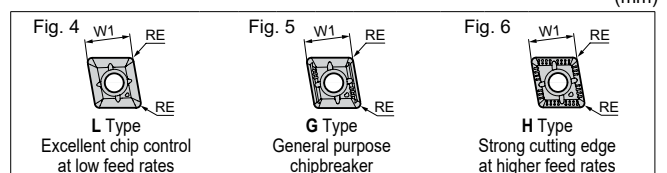
Holder (Max a_p : 3D)

Cat. No.	Stock	Dimensions (mm)						No. of teeth	Applicable Insert	Fig.
		DC	a_e max	OAL	LH	LS	DCON			
PCT 160D3S16	●	16,0	4,0	123	53	70	16	2	WDXTO52504	3
200D3S20	●	20,0	5,0	145	65	80	20	2	WDXTO63006	
250D3S25	●	25,0	6,5	160	80	80	25	2	WDXTO73506	
320D3S32	●	32,0	8,5	191	101	90	32	2	WDXTO94008	
400D3S42	●	40,0	11,0	225	125	100	42	3	WDXT125012	

Holder (Max a_p : 5D)

Cat. No.	Stock	Dimensions (mm)						No. of teeth	Applicable Insert	Fig.
		ϕD	a_e max	OAL	LH	LS	DCON			
PCT 160D5S16	●	16,0	4,0	155	85	70	16	2	WDXTO52504	3
200D5S20	●	20,0	5,0	185	105	80	20	2	WDXTO63006	
250D5S25	●	25,0	6,5	210	130	80	25	2	WDXTO73506	
320D5S32	●	32,0	8,5	255	165	90	32	2	WDXTO94008	
400D5S42	●	40,0	11,0	305	205	100	42	3	WDXT125012	

Inserts



Application	Coated								
High Speed / Light Cutting				N					
General Purpose		M							
Roughing		PM	K						
Cat. No.	ACP100	ACP300	ACK300	DL1500	Fig.	Dimensions (mm)			Applicable Holder
						W1	Thickness	RE	
WDXT 052504-L	○	●	●		4	5,0	2,5	0,4	PDL160D2S20
052504-G		●	●	●	5				PDL160D3S20
052504-H		●	●		6				PCT160D3S16
WDXT 063006-L		●	●		4	6,0	3,0	0,6	PCT160D5S16
063006-G		●	●	●	5				PDL200D2S25
063006-H		●	●		6				PDL200D3S25
WDXT 073506-L		●	●		4	7,5	3,5	0,6	PCT200D3S20
073506-G		●	●	●	5				PCT200D5S20
073506-H		●	●		6				PDL250D2S25
WDXT 094008-L		●	●		4	9,6	4,0	0,8	PDL250D3S25
094008-G		●	●	●	5				PDL320D2S40
094008-H		●	●		6				PDL320D3S40
WDXT 125012-L		●	●		4	12,4	5,0	1,2	PCT320D3S32
125012-G		●	●	●	5				PCT320D5S32
125012-H		●	●		6				PDL400D2S40
									PDL400D3S40
									PCT400D3S42
									PCT400D5S42

Identification Details

PCT, PDL Type

PCT 250 D3 S25

Tool Diameter (Ø 25,0) | Max Depth L/D (3D) | Shank Size (Ø 25,0)

PCT, PDL Type Insert Identification

WDXTO7 35 06 -G

Width Across Flats (7,5) | Thickness x 10 (3,5) | Corner Radius x 10 (R0,6) | Breaker Type

Recommended Cutting Conditions

PDL Type / PCT Type

PDL

PCT (ø40)

Recommended Cutting Conditions (2D)

Material Group		Hardness (HB)	Chip breaker & Grade	Cutting Speed					PDL Type: f (mm/rev)				[min. - optimal - max.]	
ISO	Work material			Vc (m/min)	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						
	Low alloyed steel	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						
		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						
	High alloyed steel	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						
M	Stainless steel, martensitic / ferritic, martensitic / tempered, austenitic / quenched, austenitic / ferritic (Duplex)	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						
		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						
		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						
		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						
		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						
K	Cast iron (GG)	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)

Material Group		Hardness (HB)	Chip breaker & Grade	Cutting Speed					PDL Type: f (mm/rev) / PCT Type: f _t (mm/tooth)				[min. - optimal - max.]	
ISO	Work material			Vc (m/min)	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						
	Low alloyed steel	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						
		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						
	High alloyed steel	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						
M	Stainless steel, martensitic / ferritic, martensitic / tempered, austenitic / quenched, austenitic / ferritic (Duplex)	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						
		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						
		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						
		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						
		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						
K	Cast iron (GG)	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)

Recommended Cutting Conditions (SD)										[min. - optimal - max.]	
Material Group		Hardness (HB)	Chip breaker & Grade		Cutting Speed	PCT Type: f _t (mm/tooth)					
ISO	Work material				Vc (m/min)	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		
	Low alloyed steel	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		
		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		
	High alloyed steel	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		
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			
M	Stainless steel, martensitic / ferritic martensitic / tempered austenitic / quenched austenitic / ferritic (Duplex)	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		
		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		
		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		
		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		
		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		
S	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		
	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		