

New SumiDrill Power Series – Expansion

SDP Type

All-rounder for Drilling



- High efficient drilling in wide application range
- General purpose application
- Maximum performance by increased feed capabilities
- Latest technology of Sumi-Power Coating



SUMITOMO

CARBIDE - CBN - DIAMOND

SumiDrill Power Series SDP Type

General Features

New designed double margin

Excellent hole accuracy

Shank

DIN 6535 Form HAK

Sumi-Power Coating

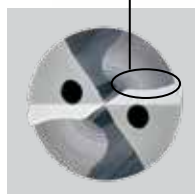
Excellent wear resistance
and anti-adhesion

Elliptical flute design

Improved chip formation
and chip evacuation

Curved cutting edge,
optimized edge preparation

Low cutting force

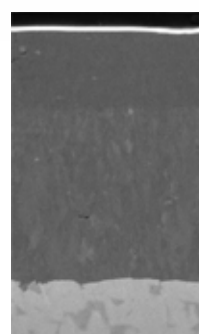


Stock Size

Ø3,0 ~ Ø12,0
Increment 0,1mm

Ø12,1 ~ Ø16,0
Standard diameter

Coating Structure



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

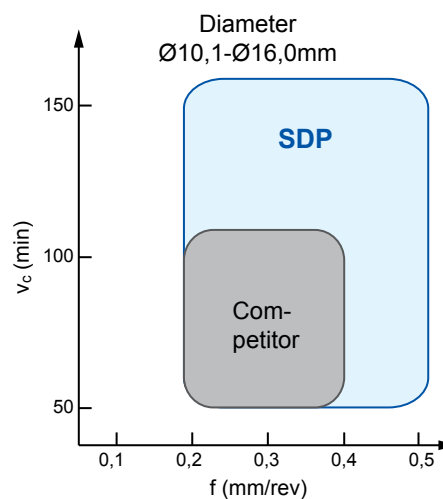
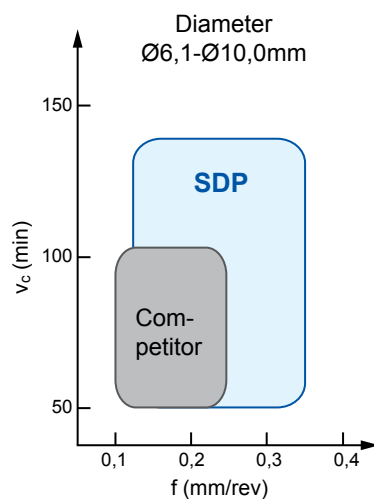
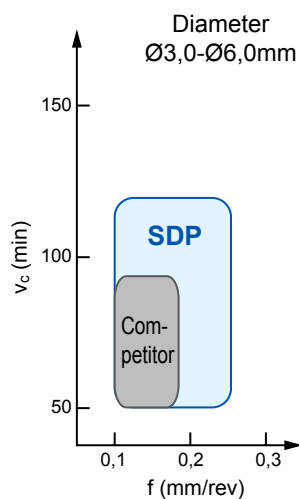
High wear resistance
Tough and hard
AlCrTiN super multilayer

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



SumiDrill Power Series

SDP Type

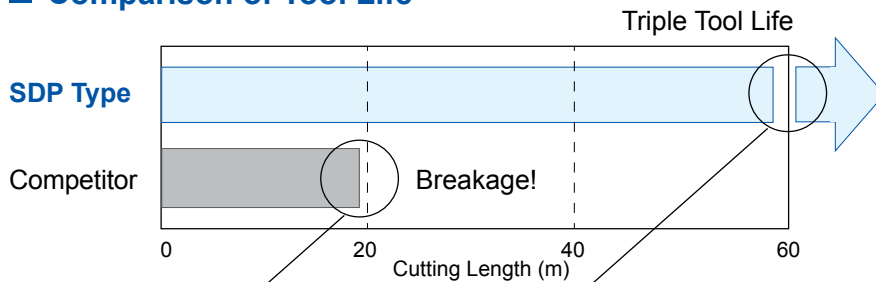
Maximum Feed Rate Result

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

Internal test conditions

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

Comparison of Tool Life



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

Competitor

SDP Type

Cut volume: 950cm³

Cut volume: 3800cm³



500 Holes

Work: C50, Drill Dia: 8mm, 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: $v_c=80\text{m/min}$, $f=0,25\text{mm/rev}$, $a_p=24\text{mm}$, Blind-hole, Internal coolant

SumiDrill Power Series

SDP Type

Recommended Cutting Conditions

Material Group						SDP ____ U_HAK PCX70					
ISO 513	Work Material	Type/Structure	R _m N/mm ²	Hardness HB30	Fitness	ØD: 3,0 - 6,0		ØD: 6,1 - 10,0		ØD: 10,1 - 16,0	
						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 martensitic austenitic Duplex	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
			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
			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 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
				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 pearlitic		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
				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 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
					○	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 Ti-Basis	430		○	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% Al - Mg alloys			○	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
	Zinc die-cast	Zn alloys									
H	Hardened steel	45 HRC 55 HRC 60 HRC > 60 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

● Preferred choice

○ Suitable

○ Possible

SDP-Identification

SDP 0800 U 3 HAK PCX70

Sumi-
Drill
Power Type

Drill Diameter
8,0mm

U: Universal

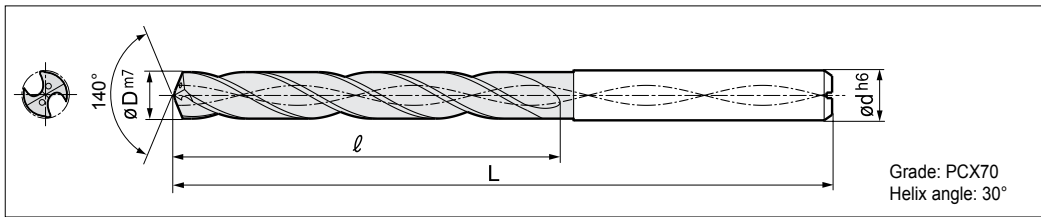
Grade

DIN 6535
Form HAK

Drilling Depth
3D/5D/7D

SumiDrill Power-Series SDP-Type

■ Solid Carbide Drill with Internal Coolant Supply, ØD: 3,0 ~ 7,5mm, 3D / 5D / 7D



ØD (mm)	Shank ød (mm)	Cat. No. (L/D) 3, 5, 7	3D Type			5D Type			7D Type					
			Stock	Dimensions (mm)		Stock	Dimensions (mm)		Stock	Dimensions (mm)				
			3	L	ℓ	5	L	ℓ	7	L	ℓ			
3,0	6	SDP 0300 U □ HAK	●	62	20	●	66	28	●	70	32			
3,1		SDP 0310 U □ HAK	●			●			●					
3,2		SDP 0320 U □ HAK	●			●			●					
3,25		SDP 0325 U □ HAK	●			●			□					
3,3		SDP 0330 U □ HAK	●			●			●					
3,4		SDP 0340 U □ HAK	●			●			●					
3,5		SDP 0350 U □ HAK	●			●			●					
3,6		SDP 0360 U □ HAK	●			●			●					
3,7		SDP 0370 U □ HAK	●			●			●					
3,8		SDP 0380 U □ HAK	●			24			●	74	36	●	75	38,5
3,9		SDP 0390 U □ HAK	●						●			●		
4,0		SDP 0400 U □ HAK	●						●			●		
4,1		SDP 0410 U □ HAK	●	●	●									
4,2		SDP 0420 U □ HAK	●	●	●									
4,3		SDP 0430 U □ HAK	●	66	28		82	44	●			85	47	
4,4		SDP 0440 U □ HAK	●						●					●
4,5		SDP 0450 U □ HAK	●						●					●
4,6		SDP 0460 U □ HAK	●			●			●					
4,65		SDP 0465 U □ HAK	●			●			●					
4,7		SDP 0470 U □ HAK	●			●			●					
4,8		SDP 0480 U □ HAK	●			66			28	82	44	●	90	52
4,9		SDP 0490 U □ HAK	●									●		
5,0		SDP 0500 U □ HAK	●	●	●									
5,1		SDP 0510 U □ HAK	●	●	●									
5,2		SDP 0520 U □ HAK	●	●	●									
5,3		SDP 0530 U □ HAK	●	●	●									
5,4		SDP 0540 U □ HAK	●	79	34		91	53				●	97	59
5,5		SDP 0550 U □ HAK	●									●		
5,55	SDP 0555 U □ HAK	●	●			□								
5,6	SDP 0560 U □ HAK	●	●			□								
5,7	SDP 0570 U □ HAK	●	●			●								
5,8	SDP 0580 U □ HAK	●	●			●								
5,9	SDP 0590 U □ HAK	●	●			●								
6,0	SDP 0600 U □ HAK	●	8			34			91	53	●	106	68	
6,1	SDP 0610 U □ HAK	●		●	●									
6,2	SDP 0620 U □ HAK	●		●	●									
6,3	SDP 0630 U □ HAK	●		●	●									
6,4	SDP 0640 U □ HAK	●		●	□									
6,5	SDP 0650 U □ HAK	●		●	●									
6,6	SDP 0660 U □ HAK	●		●	●									
6,7	SDP 0670 U □ HAK	●		●	●									
6,8	SDP 0680 U □ HAK	●		●	●									
6,9	SDP 0690 U □ HAK	●		40	●		●	●						
7,0	SDP 0700 U □ HAK	●			●		●	●						
7,1	SDP 0710 U □ HAK	●			●		●	●						
7,2	SDP 0720 U □ HAK	●			40		●	●			●			
7,3	SDP 0730 U □ HAK	●					●	□			116	78		
7,4	SDP 0740 U □ HAK	●					●	□						
7,5	SDP 0750 U □ HAK	●	●			●								

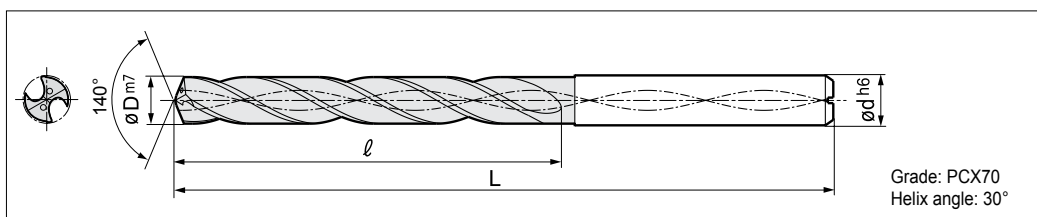
□ On request

● Euro stock

SumiDrill Power-Series

SDP-Type

■ Solid Carbide Drill with Internal Coolant Supply, ØD: 7,6 ~ 12,5mm, 3D / 5D / 7D



ØD (mm)	Shank Ød (mm)	Cat. No. (L/D) 3, 5, 7	3D Type			5D Type			7D Type		
			Stock	Dimensions (mm)		Stock	Dimensions (mm)		Stock	Dimensions (mm)	
			3	L	ℓ	5	L	ℓ	7	L	ℓ
7,6	8	SDP 0760 U □ HAK	●	79	40	●	91	53	●	116	78
7,7		SDP 0770 U □ HAK	●			●			●		
7,8		SDP 0780 U □ HAK	●			●			●		
7,9		SDP 0790 U □ HAK	●			●			●		
8,0		SDP 0800 U □ HAK	●			●			●		
8,1	10	SDP 0810 U □ HAK	●	89	47	●	103	61	●	131	89
8,2		SDP 0820 U □ HAK	●			●			●		
8,3		SDP 0830 U □ HAK	●			●			□		
8,4		SDP 0840 U □ HAK	●			●			●		
8,5		SDP 0850 U □ HAK	●			●			●		
8,6		SDP 0860 U □ HAK	●			●			●		
8,7		SDP 0870 U □ HAK	●			●			●		
8,8		SDP 0880 U □ HAK	●			●			●		
8,9		SDP 0890 U □ HAK	●			●			□		
9,0		SDP 0900 U □ HAK	●			●			●	139	97
9,1		SDP 0910 U □ HAK	●			●			●		
9,2		SDP 0920 U □ HAK	●			●			●		
9,25		SDP 0925 U □ HAK	●			●			□		
9,3		SDP 0930 U □ HAK	●			●			●		
9,4		SDP 0940 U □ HAK	●			●			●		
9,5		SDP 0950 U □ HAK	●			●			●		
9,6		SDP 0960 U □ HAK	●			●			□		
9,7		SDP 0970 U □ HAK	●			●			●		
9,8		SDP 0980 U □ HAK	●			●			●		
9,9		SDP 0990 U □ HAK	●			●			●		
10,0		SDP 1000 U □ HAK	●			●			●		
10,1	12	SDP 1010 U □ HAK	●	102	55	●	118	71	□	155	108
10,2		SDP 1020 U □ HAK	●			●			●		
10,3		SDP 1030 U □ HAK	●			●			□		
10,4		SDP 1040 U □ HAK	●			●			□		
10,5		SDP 1050 U □ HAK	●			●			●		
10,6		SDP 1060 U □ HAK	●			●			□		
10,7		SDP 1070 U □ HAK	●			●			□		
10,8		SDP 1080 U □ HAK	●			●			●		
10,9		SDP 1090 U □ HAK	●			●			□		
11,0		SDP 1100 U □ HAK	●			●			●	163	116
11,1		SDP 1110 U □ HAK	●			●			□		
11,2		SDP 1120 U □ HAK	●			●			●		
11,3		SDP 1130 U □ HAK	●			●			□		
11,4		SDP 1140 U □ HAK	●			●			□		
11,5		SDP 1150 U □ HAK	●			●			●		
11,6		SDP 1160 U □ HAK	●			●			□		
11,7		SDP 1170 U □ HAK	●			●			□		
11,8		SDP 1180 U □ HAK	●			●			●		
11,9		SDP 1190 U □ HAK	●			●			□		
12,0		SDP 1200 U □ HAK	●			●			●		
12,1	14	SDP 1210 U □ HAK	□	107	60	□	124	77	□	182	135
12,2		SDP 1220 U □ HAK	●			●			□		
12,3		SDP 1230 U □ HAK	□			□			□		
12,4		SDP 1240 U □ HAK	□			□			□		
12,5		SDP 1250 U □ HAK	●			●			□		

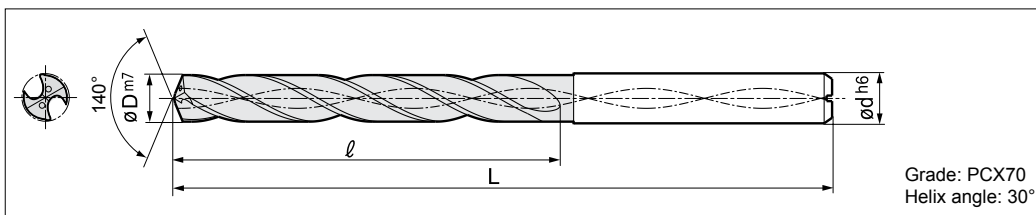
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● Euro stock

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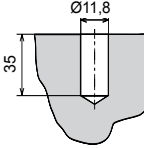
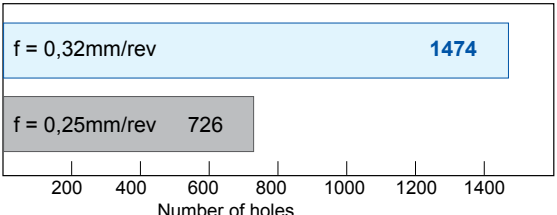
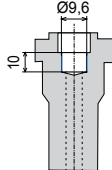
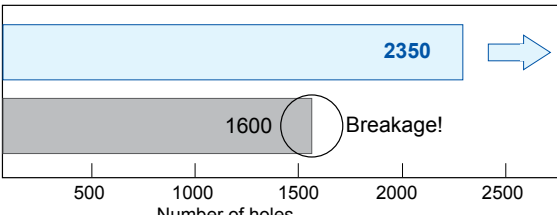
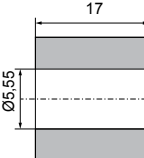
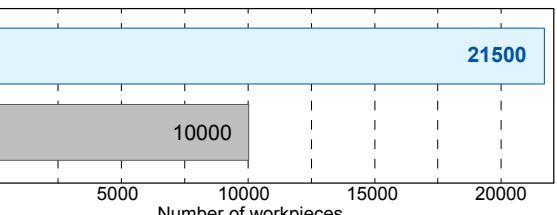
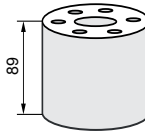
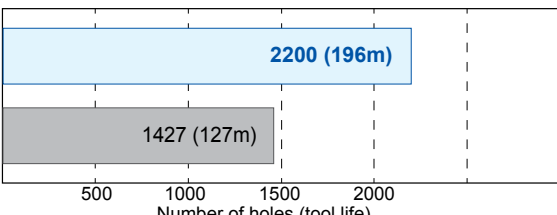
ØD (mm)	Shank Ød (mm)	Cat. No. (L/D) 3, 5, 7	3D Type			5D Type			7D Type		
			Stock	Dimensions (mm)		Stock	Dimensions (mm)		Stock	Dimensions (mm)	
			3	L	ℓ	5	L	ℓ	7	L	ℓ
12,6	14	SDP 1260 U □ HAK	□	107	60	□	124	77	□	182	135
12,7		SDP 1270 U □ HAK	□			□			□		
12,8		SDP 1280 U □ HAK	□			□			□		
12,9		SDP 1290 U □ HAK	□			□			□		
13,0		SDP 1300 U □ HAK	●			●			□		
13,1		SDP 1310 U □ HAK	□			□			□		
13,2		SDP 1320 U □ HAK	□			□			□		
13,3		SDP 1330 U □ HAK	□			□			□		
13,4		SDP 1340 U □ HAK	□			□			□		
13,5		SDP 1350 U □ HAK	●			●			□		
13,6		SDP 1360 U □ HAK	□			□			□		
13,7		SDP 1370 U □ HAK	●			●			□		
13,8		SDP 1380 U □ HAK	□			□			□		
13,9		SDP 1390 U □ HAK	□			□			□		
14,0		SDP 1400 U □ HAK	●			●			□		
14,1	16	SDP 1410 U □ HAK	□	115	65	□	133	83	□	204	154
14,2		SDP 1420 U □ HAK	●			●			□		
14,3		SDP 1430 U □ HAK	□			□			□		
14,4		SDP 1440 U □ HAK	□			□			□		
14,5		SDP 1450 U □ HAK	●			●			□		
14,6		SDP 1460 U □ HAK	□			□			□		
14,7		SDP 1470 U □ HAK	●			●			□		
14,8		SDP 1480 U □ HAK	□			□			□		
14,9		SDP 1490 U □ HAK	□			□			□		
15,0		SDP 1500 U □ HAK	●			●			□		
15,1		SDP 1510 U □ HAK	□			□			□		
15,2		SDP 1520 U □ HAK	●			●			□		
15,3		SDP 1530 U □ HAK	□			□			□		
15,4		SDP 1540 U □ HAK	□			□			□		
15,5		SDP 1550 U □ HAK	●			●			□		
15,6		SDP 1560 U □ HAK	□			□			□		
15,7		SDP 1570 U □ HAK	●			●			□		
15,8		SDP 1580 U □ HAK	□			□			□		
15,9		SDP 1590 U □ HAK	□			□			□		
16,0		SDP 1600 U □ HAK	●			●			□		

□ On request

● Euro stock

SumiDrill Power-Series SDP Type

Application Examples

42CrMo4V, Automotive Part	42CrMoS4, Engine Component
Drill: SDP1180U3HAK (D=11,8mm, 3xD) Cutting Condition $v_c = 120\text{m/min}$ $f = 0,32\text{mm/rev}$ $a_p = 35\text{mm}$ Blind hole Emulsion  SDP $f = 0,32\text{mm/rev}$ 1474 Com- petitor $f = 0,25\text{mm/rev}$ 726 	Drill: SDP0960U3HAK (D=9,6mm, 3xD) Cutting Condition $v_c = 72\text{m/min}$ $f = 0,16\text{mm/rev}$ $a_p = 10\text{mm}$ Blind hole Spindle through coolant  SDP 2350 Com- petitor 1600 Breakage! 
16MnCr5, Pinion gear	16MnCr5, Flange
Drill: SDP0555U5HAK (D=5,55mm, 5xD) Cutting Condition $v_c = 78\text{m/min}$ $f = 0,14\text{mm/rev}$ $a_p = 17\text{mm}$ Through hole Emulsion  SDP 21500 Com- petitor 10000 	Drill: SDP1050U7HAK (D=10,5mm, 7xD) Cutting Condition $v_c = 90\text{m/min}$ $f = 0,30\text{mm/rev}$ $a_p = 89\text{mm}$ Through hole Emulsion, 40bar  SDP 2200 (196m) Com- petitor 1427 (127m) 



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