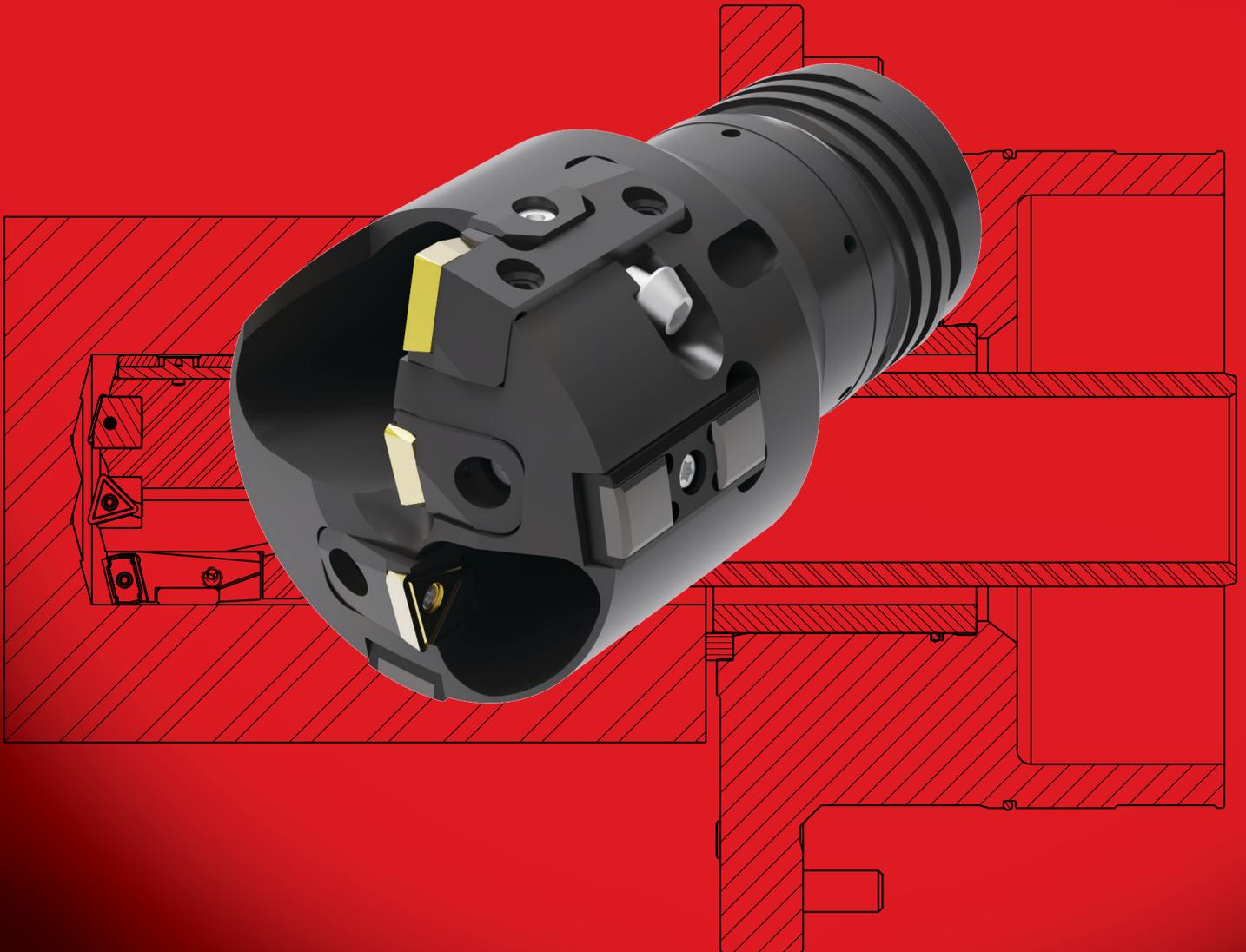




# TRUEDEX SOLID DRILLING TOOLS

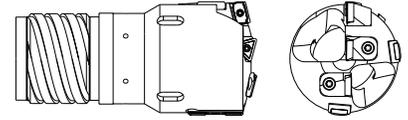
Diameter range 63.50 mm – 183.90 mm (2.500 in – 7.240 in)



# TrueDex

Diameter Range: 63.50 mm – 183.90 mm (2.500 in – 7.240 in)

Drill Head Part Numbering Code Example: Metric: TDM#####M413 Imperial: TD#####M413



TD		M#####		M		4		13	
TrueDex Prefix		Bore Size		Connection Type		Thread Starts		Connection Size	
Description	Code	Description	Code	Description	Code	Description	Code	Description	Code
TrueDex	TD	Size in Metric (###.### mm)	M#####	Male / External	M	Four-Start	4	63.50 - 64.99 mm 2.500 - 2.559 in	13
		Size in Imperial ###.### in	#####	Female / Internal	F	Single-Start	1		

## Connection Size Numbering Code

Bore Size Range	63.50-64.99 mm	63.50-65.00 mm	65.00 - 67.00 mm	67.00 - 73.00 mm	73.00- 80.00 mm	80.00 - 87.00 mm	87.00 - 100.00 mm	100.00 - 112.00 mm	112.00 - 124.00 mm	124.00 - 136.00 mm	136.00 - 148.00 mm	148.00 - 160.00 mm	160.00 - 171.90 mm	172.00 - 183.90 mm
	2.500-2.559 in	2.500 - 2.559 in	2.559 - 2.637 in	2.638 - 2.873 in	2.874 - 3.149 in	3.150 - 3.424 in	3.425 - 3.936 in	3.937 - 4.408 in	4.409 - 4.881 in	4.882 - 5.353 in	5.354 - 5.826 in	5.827 - 6.298 in	6.299 - 6.767 in	6.772-7.240 in
Code	13	13E	14	15	16	17	18	19	20	21	22	23	24	25

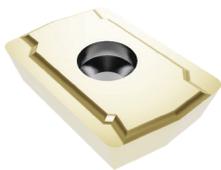
Drill Ø	Item Code	Drill Tube	Dimensions		Item Code						
			Tube OD	L	Peripheral		Center	Intermediate	Guide Pad		
63.50 - 64.99 mm	TDM#####M413	13 (Single Tube can be ordered as a special)	56 mm	115 mm	CTTDN13P R430.28-1516-16	1	CTTDT16MC L430.31-1216-16	1	CTTDT16MI R430.30-1216-16	1	GPS1435D0650TE 800-14 D065
2.500 - 2.559 in	TD#####M413		2.205 in	4.527 in							
63.50 - 65.00 mm	TDM#####M413E	13E	56 mm	115 mm	CTTDN13P R430.28-1516-16	1	CTTDT16MC L430.31-1216-16	1	CTTDT16MI R430.30-1216-16	1	GPS1435D0650TE 800-14 D065
2.500 - 2.559 in	TD#####M413E		2.204 in	4.527 in							
63.50 - 65.00 mm	TDM#####M414	14	56 mm	150 mm	CTTDN13P R430.28-1516-16	1	CTTDT16MC L430.31-1216-16	1	CTTDT16MI R430.30-1216-16	1	GPS1435D0650TE 800-14 D065
2.500 - 2.559 in	TD#####M414		2.204 in	1.968 in							
65.01 - 74.99 mm	TDM#####M415	15	62 mm	150 mm	CTTDN13P R430.28-1516-16	1	CTTDT16MC L430.31-1216-16	1	CTTDT16MI R430.30-1216-16	1	GPS1435D0650TE 800-14 D065
2.559 - 2.952 in	TD#####M415		2.440 in	1.968 in							
75.00 - 79.99 mm	TDM#####M416	16	68 mm	160 mm	CTTDN18P R430.28-1822-22	1	CTTDT16MC L430.31-1216-16	1	CTTDT16MI R430.30-1216-16	1	GPS1435D0750TE 800-16 D075
2.953 - 3.149 in	TD#####M416		2.677 in	6.299 in							
80.00 - 84.99 mm	TDM#####M417	17	75 mm	190 mm	CTTDN18P R430.28-1822-22	1	CTTDT16MC L430.31-1216-16	1	CTTDT16MI R430.30-1216-16	1	GPS1435D0750TE 800-16 D075
3.150 - 3.346 in	TD#####M417		2.952 in	7.480 in							
85.00 - 88.89 mm	TDM#####M417	17	75 mm	190 mm	CTTDN18P R430.28-1822-22	1	CTTDT22MC L430.31-1522-22	1	CTTDT16MI R430.30-1216-16	1	GPS1435D0850TE 800-16 D085
3.346 - 3.500 in	TD#####M417		2.952 in	7.480 in							
88.90 - 94.99 mm	TDM#####M418	18	82 mm	190 mm	CTTDN18P R430.28-1822-22	1	CTTDT22MC L430.31-1522-22	1	CTTDT16MI R430.30-1216-16	1	GPS1435D0850TE 800-16 D085
3.500 - 3.740 in	TD#####M418		3.228 in	7.480 in							
95.00 - 99.99 mm	TDM#####M418	18	82 mm	190 mm	CTTDN18P R430.28-1822-22	1	CTTDT22MC L430.31-1522-22	1	CTTDT22MI R430.30-1522-22	1	GPS1435D0850TE 800-16 D085
3.740 - 3.937 in	TD#####M418		3.228 in	7.480 in							
100.00 - 107.94 mm	TDM#####M419	19	94 mm	195 mm	CTTDN18P R430.28-1822-22	1	CTTDT22MC L430.31-1522-22	1	CTTDT22MI R430.30-1522-22	1	GPS2050D1000TE 800-20 D100
3.937 - 4.250 in	TD#####M419		7.700 in	7.677 in							
107.95 - 114.29 mm	TDM#####M419	19	94 mm	195 mm	CTTDN13P R430.30-1516-16	1	CTTDT16MC L430.31-1216-16	1	CTTDT16MI R430.30-1216-16	3	GPS2050D1100TE 800-22 D110
4.250 - 4.500 in	TD#####M419		7.700 in	7.677 in							
114.30 - 119.99 mm	TDM#####M420	20	106 mm	220 mm	CTTDN13P R430.30-1516-16	1	CTTDT16MC L430.31-1216-16	1	CTTDT16MI R430.30-1216-16	3	GPS2050D1100TE 800-22 D110
4.500 - 4.724 in	TD#####M420		4.173 in	8.661 in							
120.00 - 120.64 mm	TDM#####M420	20	106 mm	220 mm	CTTDN13P R430.30-1516-16	1	CTTDT16MC L430.31-1216-16	1	CTTDT16MI R430.30-1216-16	3	GPS2050D1200TE 800-10A
4.724 - 4.750 in	TD#####M420		4.173 in	8.661 in							
120.65 - 124.99 mm	TDM#####M420	20	106 mm	220 mm	CTTDN13P R430.28-1822-22	1	CTTDT16MC L430.31-1216-16	1	CTTDT16MI R430.30-1216-16	3	GPS2050D1200TE 800-24 D120
4.750 - 4.921 in	TD#####M420		4.173 in	8.661 in							
125.00 - 130.00 mm	TDM#####M421	21	118 mm	220 mm	CTTDN18P R430.28-1822-22	1	CTTDT16MC L430.31-1216-16	1	CTTDT16MI R430.30-1216-16	3	GPS2050D1200TE 800-24 D120
4.921 - 5.118 in	TD#####M421		4.465 in	8.661 in							
130.01 - 139.99 mm	TDM#####M421	21	118 mm	220 mm	CTTDN18P R430.28-1822-22	1	CTTDT16MC L430.31-1216-16	1	CTTDT16MI R430.30-1216-16	3	GPS2050D1300TE 800-26 D130
5.119 - 5.511 in	TD#####M421		4.465 in	8.661 in							

Additional Sizes up to 183.90 mm (7.240 in) are available and made to order.

Sandvik Coromant part number shown in Red

# Cartridges and Inserts

Peripheral Cartridge						
Item code	Insert	Insert Screw	Cartridge Screw	Pad	Pad Screw	Set Screw
CTTDN13P R430.28-1516-16	BTTDN13PGU1TE R424.9-13T3308-22	PHSM1154 5513 020-24	PHSM1180 430.21-825	PPF1018 5636 030-01	PHSM662 154.3-835	PHSM596 3214 010-357
	BTTDN13PLU1TE R424.9-13T3308-23					
CTTDN18P R430.28-1822-22	BBTTDN18PGU1TE R424.9-180608-22	PHSM1159 5513 020-25	PHSM1180 430.21-825	PPF1220 5636-030-02	PHSM662 154.3-835	PHSM596 3214 010-357
	BTTDN18PLU1TE R424.9-180608-23					
Central Cartridge						
Item code	Insert	Insert Screw	Cartridge Screw			
CTTDT16MC L430.31-1216-16	BTTDT16MGU1TE TPMT 16T312R-22	PHSM1159 5513 020-25	PHSM1160 5513 020-26			
	BTTDT16MLU1TE TPMT 16T312TR-23					
CTTDT22MC L430.31-1522-22	BTTDT22MGU1TE TPMT 220612R-22	PHSM1160 5513 020-26	PHSM1160 5513 020-26			
	BTTDT22MLU1TE TPMT 220612TR-23					
Intermediate Cartridge						
Item code	Insert	Insert Screw	Cartridge Screw			
CTTDT16MI R430.30-1216-16	BTTDT16MGU1TE TPMT 16T312R-22	PHSM1159 5513 020-25	PHSM1160 5513 020-26			
	BTTDT16MLU1TE TPMT 16T312TR-23					
CTTDT22MI R430.30-1522-22	BTTDT22MGU1TE TPMT 220612R-22	PHSM1160 5513 020-26	PHSM1160 5513 020-26			
	BTTDT22MLU1TE TPMT 220612TR-23					



Peripheral Insert



Central & Intermediate Insert



Solid Carbide Guide Pad



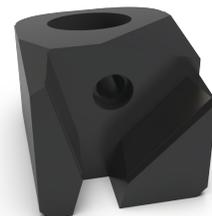
Brazed carbide Guide Pad



Peripheral Cartridge



Intermediate Cartridge



Central Cartridge

# Guide Pad Sizes

Guide Pads			
Diameter	Item code	Description	Guide Pad Screw
63.50-74.99 mm	GPS1435D0650TE 800-14 D065	SOLID CARBIDE GUIDE PAD	PHSM1158 5513 020-01
75.00-84.99 mm	GPS1435D0750TE 800-16 D075	SOLID CARBIDE GUIDE PAD	PHSM1158 5513 020-01
85.00-99.99 mm	GPS1435D0850TE 800-18 D085	SOLID CARBIDE GUIDE PAD	PHSM1158 5513 020-01
100.00-109.99 mm	GPS2050D1000TE 800-20 D100	SOLID CARBIDE GUIDE PAD	PHSM1160 5513 020-26
110.00-119.99 mm	GPS2050D1100TE 800-22 D110	SOLID CARBIDE GUIDE PAD	PHSM1160 5513 020-26
120.00-129.99 mm	GPS2050D1200TE 800-24 D120	SOLID CARBIDE GUIDE PAD	PHSM1160 5513 020-26
65.00 - 69.99 mm	GPB1435D0650 430.32-12 D65.0	BRAZED CARBIDE GUIDE PAD	PHSM1158 5513 020-01
70.00 - 74.99 mm	GPB1435D0700 430.32-12 D70.0	BRAZED CARBIDE GUIDE PAD	PHSM1158 5513 020-01
75.00 - 79.99 mm	GPB1435D0750 430.32-12 D75.0	BRAZED CARBIDE GUIDE PAD	PHSM1158 5513 020-01
80.00 - 84.99 mm	GPB1435D0800 430.32-12 D80.0	BRAZED CARBIDE GUIDE PAD	PHSM1158 5513 020-01
85.00 - 89.99 mm	GPB1435D0850 430.32-12 D85.0	BRAZED CARBIDE GUIDE PAD	PHSM1158 5513 020-01
90.00 - 94.99 mm	GPB1435D0900 430.32-12 D90.0	BRAZED CARBIDE GUIDE PAD	PHSM1158 5513 020-01
95.00 - 99.99 mm	GPB1435D0950 430.32-12 D95.0	BRAZED CARBIDE GUIDE PAD	PHSM1158 5513 020-01
100.00 - 104.99 mm	GPB2050D1000 430.32-16 D100.0	BRAZED CARBIDE GUIDE PAD	PHSM1160 5513 020-26
105.00 - 109.99 mm	GPB2050D1050 430.32-16 D105.0	BRAZED CARBIDE GUIDE PAD	PHSM1160 5513 020-26
110.00 - 114.99 mm	GPB2050D1100 430.32-16 D110.0	BRAZED CARBIDE GUIDE PAD	PHSM1160 5513 020-26
115.00 - 119.99 mm	GPB2050D1150 430.32-16 D115.0	BRAZED CARBIDE GUIDE PAD	PHSM1160 5513 020-26
120.00 - 124.99 mm	GPB2050D1200 430.32-16 D120.0	BRAZED CARBIDE GUIDE PAD	PHSM1160 5513 020-26
125.00 - 129.99 mm	GPB2050D1250 430.32-16 D125.0	BRAZED CARBIDE GUIDE PAD	PHSM1160 5513 020-26
130.00 - 139.99 mm	GPB2050D1300 430.32-16 D130.0	BRAZED CARBIDE GUIDE PAD	PHSM1160 5513 020-26
140.00 - 149.99 mm	GPB2050D1400 430.32-16 D140.0	BRAZED CARBIDE GUIDE PAD	PHSM1160 5513 020-26
150.00 - 159.00 mm	GPB2050D1500 430.32-16 D150.0	BRAZED CARBIDE GUIDE PAD	PHSM1160 5513 020-26
160.00 - 169.99 mm	GPB2050D1600 430.32-16 D160.0	BRAZED CARBIDE GUIDE PAD	PHSM1160 5513 020-26
170.00 - 179.99 mm	GPB2050D1700 430.32-16 D170.0	BRAZED CARBIDE GUIDE PAD	PHSM1160 5513 020-26
180.00 - 189.99 mm	GPB2050D1800 430.32-16 D180.0	BRAZED CARBIDE GUIDE PAD	PHSM1160 5513 020-26

**NOTE: Brazed Carbide Guide Pads can be coated upon request.**  
Sandvik Coromant part number shown in Red

# TrueDex - Feed & Speed



## Inch values

ISO	ANSI	Material	Specific cutting force kc1 lbs/in <sup>2</sup>	Hardness Brinell HB	Geometry / Grade	Cutting speed vc ft/min	Drill diameter, inch
							≥ 2.500
							Feed f <sub>n</sub> inch/rev
P	1018, 1020, 1215	<b>Unalloyed steel</b> Non-hardened 0.10-0.25% C	290 000	90-200	-G/-L/TE	260-330	.007-.014
	1045, 1050, 1335	Non-hardened 0.25-0.55% C	304 500	125-225	-G/TE	260-330	.007-.014
	1055, 1060	Non-hardened 0.55-0.80% C	316 100	150-250	-G/TE	260-330	.007-.014
	1095	High carbon steel, annealed	336 400	180-275	-G/TE	260-330	.007-.014
	4140, 52100, 8620	<b>Low alloy steel</b> Non hardened	304 500	150-260	-G/TE	230-330	.007-.014
	4140, 52100, 8620	Hardened and tempered	402 400	220-450	-G/TE	200-330	.006-.014
	D3, H13, A2	<b>High alloy steel</b> Annealed	362 500	150-250	-G/TE	200-330	.007-.012
	M3, M35 D3, H13, A2	Annealed HSS Hardened tool steel	398 750 543 750	150-250 250-350	-G/TE -G/TE	200-330 200-330	.007-.012 .007-.012
	D3, H13, A2	Hardened steel, others	580 000	250-450	-G/TE	200-330	.007-.012
	1018, 1045, 1055	<b>Castings</b> Unalloyed	261 000	90-225	-G/TE	165-330	.006-.012
4140, 52100, 8620	Low alloyed (alloying elements < 5%)	2304 500	150-250	-G/TE	165-330	.006-.012	
M	403, 405, 410	<b>Rolled/forged</b> Ferritic/Martensitic, non hardened	333 500	150-270	-G/L/TE	165-300	.006-.014
	15-5, 17-4	Corrosion Resistance	350 000	277-352	-L/TE	128-190	.008-.013
	304, 316, 318	Austenitic	377 000	150-270	-L/TE	165-300	.006-.014
K	32510 40010, 50005	<b>Malleable</b> Ferritic Pearlitic	137 750 159 500	110-145 150-270	-G/TE -G/TE	260-330 260-330	.007-.012 .007-.012
	Class 20, 25, 30 Class 45, 50, 60	<b>Grey</b> Low tensile strength High tensile strength	159 500 187 050	150-220 200-330	-G/TE -G/TE	200-330 200-330	.006-.014 .006-.014
	60-40-18, 80-55-56 100-70-03	<b>Nodular</b> Ferritic Pearlitic	152 250 253 750	125-230 200-300	-G/TE -G/TE	165-330 165-330	.006-.014 .006-.014
N	7075, 2024, 7010	<b>Aluminium alloys</b> Wrought or wrought and coldworked, non- aging	72 500	30-100	-L/TE	210-600	.004-.012
	7075, 2024, 7010	Wrought or wrought and aged	116 000	30-150	-L/TE	210-600	.004-.012
	7075, 2024, 7010	Cast, non aging	108 750	40-100	-L/TE	210-600	.004-.012
	7075, 2024, 7010	Cast or cast and aged	130 500	70-140	-L/TE	210-600	.004-.012
	Copper Copper	<b>Copper and copper alloys</b> Free cutting alloys (Pb > 1%) Brass and leaded alloys (Pb < 1%)	101 500 101 500	70-160 50-200	-L/TE -L/TE	210-600 210-600	.004-.012 .004-.012
S	330	<b>Iron base</b> Annealed or solution treated	435 000	180-230	-G/L/TE	65-210	.006-.012
	Waspaloy, Inconel	<b>Nickel base</b> Annealed or solution treated	481 400	140-300	-L/TE	65-210	.006-.012
	Air Resistant 213, Jetalloy 209	<b>Cobalt alloys</b> Annealed or solution treated	478 500	180-230	-L/TE	65-210	.006-.012
	Ti6Al4V	<b>Titanium</b> Alfa- , near Alfa- and Alfa + Beta alloys annealed	242 875	600-1100	-L/TE -L/TE	100-330 100-330	.006-.012 .006-.012

# TrueDex - Feed & Speed



## Metric values

ISO	ANSI	Material	Specific cutting force kc1 N/mm <sup>2</sup>	Hardness Brinell HB	Geometry / Grade	Cutting speed vc m/min	Drill diameter, mm
							≥ 63.50
							Feed f <sub>n</sub> , mm/r
P	1018, 1020, 1215	<b>Unalloyed steel</b> Non-hardened 0.10-0.25% C	1500	90-200	-G/-L/TE	80-100	0.18-0.35
	1045, 1050, 1335	Non-hardened 0.25-0.55% C	1600	125-225	-G/TE	80-100	0.18-0.35
	1055, 1060	Non-hardened 0.55-0.80% C	1700	150-250	-G/TE	80-100	0.18-0.35
	1095	High carbon steel, annealed	1800	180-275	-G/TE	80-100	0.18-0.35
	4140, 52100, 8620	<b>Low alloy steel</b> Non hardened	1700	150-260	-G/TE	70-100	0.18-0.35
	4140, 52100, 8620	Hardened and tempered	1900	220-450	-G/TE	60-100	0.18-0.35
	D3, H13, A2	<b>High alloy steel</b> Annealed	1950	150-250	-G/TE	70-100	0.18-0.30
	M3, M35 D3, H13, A2	Annealed HSS Hardened tool steel	2150 2900	150-250 250-350	-G/TE -G/TE	70-100 60-100	0.18-0.30 0.16-0.30
	D3, H13, A2	Hardened steel, others	3100	250-450	-G/TE	60-100	0.16-0.30
	1018, 1045, 1055	<b>Castings</b> Unalloyed	1400	90-225	-G/TE	50-100	0.15-0.30
4140, 52100, 8620	Low alloyed (alloying elements < 5%)	1600	150-250	-G/TE	50-100	0.15-0.30	
M	403, 405, 410	<b>Rolled/forged</b> Ferritic/Martensitic, non hardened	1800	150-270	-G/L/TE	50-90	0.15-0.30
	16-5, 17-4	Corrosion Resistance	1900	277-352	-L/TE	39-58	0.20-0.33
	304, 316, 318	Austenitic	1950	150-275	-L/TE	50-90	0.15-0.30
K	32510	<b>Malleable</b> Ferritic	790	110-145	-G/TE	80-100	0.18-0.30
	40010, 50005	Pearlitic	900	150-270	-G/TE	80-100	0.18-0.30
	Class 20, 25, 30 Class 45, 50, 60	<b>Grey</b> Low tensile strength High tensile strength	890 1100	150-220 200-330	-G/TE -G/TE	60-100 60-100	0.16-0.35 0.16-0.35
N	60-40-18, 80-55-56 100-70-03	<b>Nodular</b> Ferritic Pearlitic	900 1350	125-230 200-300	-G/TE -G/TE	50-100 50-100	0.16-0.35 0.16-0.35
	7075, 2024, 7010	<b>Aluminium alloys</b> Wrought or wrought and coldworked, non- aging	400	30-100	-L/TE	65-130	0.10-0.30
	7075, 2024, 7010	Wrought or wrought and aged	650	30-150	-L/TE	65-130	0.10-0.30
7075, 2024, 7010	Cast, non aging	600	40-100	-L/TE	65-130	0.10-0.30	
7075, 2024, 7010	Cast or cast and aged	700	70-140	-L/TE	65-130	0.10-0.30	
S	Copper Copper	<b>Copper and copper alloys</b> Free cutting alloys (Pb > 1%) Brass and leaded alloys (Pb < 1%)	550 550	70-160 50-200	-L/TE -L/TE	65-130 65-130	0.10-0.30 0.10-0.30
	330	<b>Iron base</b> Annealed or solution treated	2400	180-230	-G/TES	20-65	0.15-0.30
S	Waspaloy, Inconel	<b>Nickel base</b> Annealed or solution treated	2650	140-300	-L/TES	20-65	0.15-0.30
	Air Resistant 213, Jetallloy 209	<b>Cobalt alloys</b> Annealed or solution treated	2700	180-230	-L/TES	20-65	0.15-0.30
	Ti6Al4V	<b>Titanium</b> Alfa-, near Alfa- and Alfa + Beta alloys annealed	1400	600-1100	-L/TES -L/TES	30-60 30-100	0.15-0.30 0.15-0.30

# Sunnen's SHDD Series Deep Hole Drills

## Easy-to-use, efficient, heavy-duty



- Available in three standard models
  - 2-meter maximum part length (SHDD-2500)
  - 4-meter maximum part length (SHDD-4500)
  - 6-meter maximum part length (SHDD-6500)
- Large 394 mm (15.5 in) color HMI with intuitive controls for ease of use.
- Heavy-duty Bosch-Rexroth 55 mm (2.16 in) linear rails for maximum durability.
- Standard safety system with a combination of multiple E-stops, light curtains, interlocked guarding and fencing.
- Standard 67 kw (90 hp) tool motor with headstock drive for optimum power.
- Standard 38 kw (50 HP) workpiece headstock drive (counter rotation).
- Beckhoff servo driven heavy-duty ball screws for tool feed.
  - 80 mm ball screw (3.15 in) SHDD-2500/SHDD-4500
  - 100 mm ball screw (3.84 in) SHDD-6500
- Electrical enclosure air conditioning unit standard to protect critical electronics in high temperature environments.
- Heavy-duty welded base.
- Heavy-duty 3-jaw chucks standard.
- Automatic lubrication system for ball screw, rack and pinion, and linear rails standard.
- Heavy-duty servo rack and pinion driven work piece positioning and clamping.
- Spindle carriage control station for ease of driveshaft installation.
- Sunnen is the complete system supplier ... machines, tools, chip management, cooling systems and cutting fluids.



## Sunnen's Deep Hole Drilling Tools

Offering the lowest cost per hole for identical replacements of discontinued Sandvik Tools

Sunnen is committed to designing, manufacturing, and delivering world class deep hole machining tools and systems that meet or exceed customer requirements.

Whether a Single Tube, Double Tube, Gun Drilling or other specialty system is needed, Sunnen has the engineering expertise and manufacturing capabilities to meet any deep hole machining requirements.

**Sunnen also offers replacement parts for all of these tools, including inserts, pads, cartridges, shims and screws.**



A LEGACY OF EXCELLENCE SINCE 1924.

## SUNNEN WORLDWIDE



With world headquarters in St. Louis, Missouri, Sunnen is the largest fully integrated company in the world specializing in precision bore creation, sizing and finishing equipment. A Sunnen solution might include honing, lapping, skiving/roller burnishing or deep hole machining...or a combination of those processes.

Our 13 international subsidiaries and over 40 authorized distributors allow us to deliver top quality Sunnen machines, tools, service and training wherever they are needed around the globe.

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