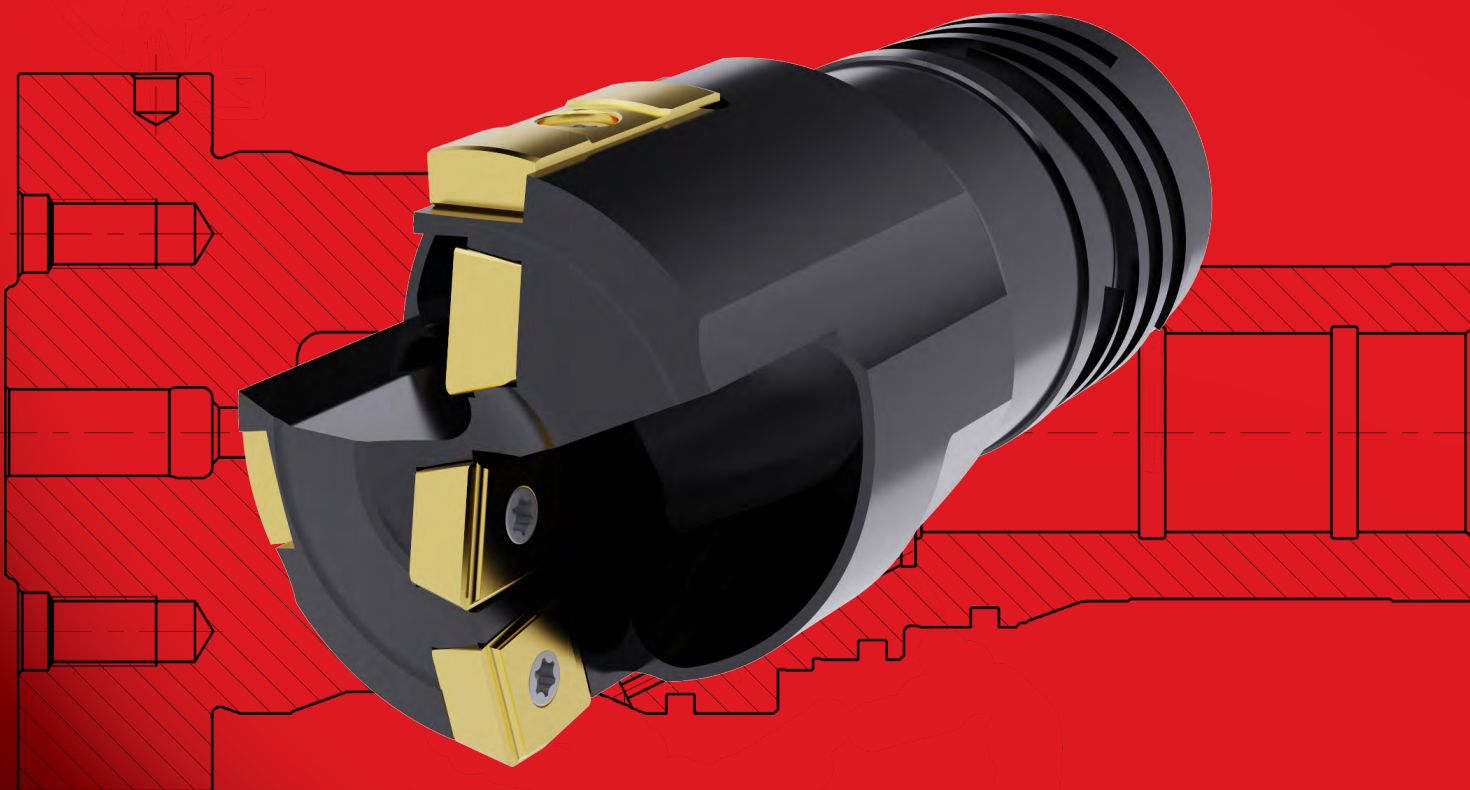




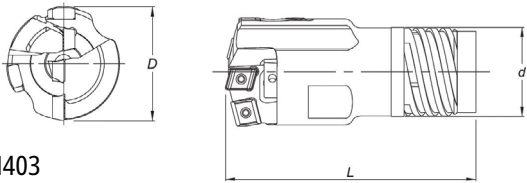
DIRECTDEX SOLID DRILLING TOOLS

Diameter range 25 mm - 65 mm (0.984" - 2.559")



DirectDex Single Tube System

Diameter Range: 25.00 mm – 65.00 mm (0.984” - 2.559”)



Drill Head Part Numbering Code Example: Metric: DDSM02500M403 Imperial: DDS02500M403

DD		S		M02500		M		4		03	
DirectDex Prefix		Fluid Introduction		Bore Size		Connection Type		Thread Starts		Connection Size	
Description	Code	Description	Code	Description	Code	Description	Code	Description	Code	Description	Code
DirectDex	DD	Single-Tube	S	Size in Metric (###.## mm)	M#####	Male/ External	M	Four-Start	4	25.00 - 26.40 mm .984 - 1.039 in	03
				Size in Imperial ##.### in	#####						
				Example: 25.00 mm (1.000")	M02500 (01000)	Female/ Internal	F	Single-Start	1		

Connection Size Numbering Code

Bore Size Range	25.00 - 26.40 mm	26.41 - 28.70 mm	28.71 - 31.00 mm	31.01 - 33.30 mm	33.31 - 36.20 mm	36.21 - 39.60 mm	39.61 - 43.00 mm	43.01 - 47.00 mm	47.01 - 51.70 mm	51.71 - 56.20 mm	56.21 - 65.00 mm	60.61-65.00 mm
	.984 - 1.039 in	1.040 - 1.129 in	1.130 - 1.220 in	1.221- 1.311 in	1.312 - 1.425 in	1.426 - 1.559 in	1.560 - 1.693 in	1.694 - 1.850 in	1.851 - 2.035 in	2.036 - 2.212 in	2.213 - 2.559 in	2.386-2.554 in
Code	03	04	05	06	07	08	09	10	11	12	13	13E

Drill	Item Code	Drill Tube	Dimensions		Item Code			
‘D’			Tube OD ‘d’	L	Peripheral	Center	Intermediate	Guide Pad
25.00 - 26.40 mm	DDSM#####M403	03	22 mm	73 mm	BTDDN06PGU1TE 800-06 03 08H-P-G	BTDDN05CGU1TE 800-05 03 08M-C-G	BTDDN05IGU1TE 800-05 03 08M-I-G	GPS0618DDTE 800-06A
0.984 - 1.039 in	DDS#####M403		0.866 in	2.755 in				
26.41 - 28.70 mm	DDSM#####M404	04	24 mm	74 mm	BTDDN06PGU1TE 800-06 03 08H-P-G	BTDDN05CGU1TE 800-05 03 08M-C-G	BTDDN05IGU1TE 800-05 03 08M-I-G	GPS0618DDTE 800-06A
1.04 - 1.129 in	DDS#####M404		0.945 in	2.795 in				
28.71 - 31.00 mm	DDSM#####M405	05	26 mm	75 mm	BTDDN06PGU1TE 800-06 T3 08M-P-G	BTDDN06CGU1TE 800-06 T3 08M-C-G	BTDDN05IGU1TE 800-05 03 08M-I-G	GPS0720DDTE 800-06A
1.130 - 1.220 in	DDS#####M405		1.024 in	2.95 in				
31.01 - 33.30 mm	DDSM#####M406	06	28 mm	76 mm	BTDDN08PGU1TE 800-08 T3 08M-P-G	BTDDN06CGU1TE 800-06 T3 08M-C-G	BTDDN06IGU1TE 800-06 T3 08M-I-G	GPS0720DDTE 800-07A
1.221 - 1.311 in	DDS#####M406		1.102 in	2.992 in				
33.31-33.99 mm	DDSM#####M407	07	30 mm	77 mm	BTDDN08PGU1TE 800-08 T3 08H-P-G	BTDDN06CGU1TE 800-06 T3 08M-C-G	BTDDN06IGU1TE 800-06 T3 08M-I-G	GPS0720DDTE 800-07A
1.312 - 1.338 in	DDS#####M407		1.181 in	3.031 in				
34.00-34.99 mm	DDSM#####M407	07	30 mm	77 mm	BTDDN08PGU1TE 800-08 T3 08H-P-G	BTDDN08CGU1TE 800-08 T3 08M-C-G	BTDDN08IGU1TE 800-08 T3 08M-I-G	GPS0720DDTE 800-07A
1.339 - 1.377 in	DDS#####M407		1.181 in	3.031 in				
35.00-36.20 mm	DDSM#####M407	07	30.0 mm	77 mm	BTDDN08PGU1TE 800-08 T3 08H-P-G	BTDDN08CGU1TE 800-08 T3 08M-C-G	BTDDN08IGU1TE 800-08 T3 08M-I-G	GPS0720DDTE 800-07A
1.378-1.425 in	DDS#####M407		1.181 in	3.031 in				
36.21-38.99 mm	DDSM#####M408	08	33 mm	89 mm	BTDDN09PGU1TE 800-09 T3 08H-P-G	BTDDN08CGU1TE 800-08 T3 08M-C-G	BTDDN08IGU1TE 800-08 T3 08M-I-G	GPS0720DDTE 800-07A
1.426-1.535 in	DDS#####M408		1.299 in	3.503 in				
39.00-39.60 mm	DDSM#####M408	08	33.0 mm	89 mm	BTDDN09PGU1TE 800-09 T3 08H-P-G	BTDDN08CGU1TE 800-08 T3 08M-C-G	BTDDN08IGU1TE 800-08 T3 08M-I-G	GPS0825DDTE 800-08A
1.536-1.559 in	DDS#####M408		1.299 in	3.503 in				
39.61-43.00 mm	DDSM#####M409	09	36.0 mm	93 mm	BTDDN09PGU1TE 800-09 T3 08H-P-G	BTDDN10CGU1TE 800-10 T3 08M-C-G	BTDDN08IGU1TE 800-08 T3 08M-I-G	GPS0825DDTE 800-08A
1.560-1.692 in	DDS#####M409		1.417 in	3.661 in				
43.01-47.00 mm	DDSM#####M410	10	39 mm	95 mm	BTDDN09PGU1TE 800-09 T3 08H-P-G	BTDDN10CGU1TE 800 10 T3 08M-C-G	BTDDN08IGU1TE 800-08 T3 08M-I-G	GPS1030DDTE 800-10A
1.693-1.850 in	DDS#####M410		1.535 in	3.740 in				
47.01-49.99 mm	DDSM#####M411	11	43 mm	102 mm	BTDDN11PGU1TE 800-11 T3 08H-P-G	BTDDN10CGU1TE 800-10 T3 08M-C-G	BTDDN08IGU1TE 800-08 T3 08M-I-G	GPS1030DDTE 800-10A
1.851-1.968 in	DDS#####M411		1.692 in	4.015 in				
50.00-51.70 mm	DDSM#####M411	11	43 mm	102 mm	BTDDN11PGU1TE 800-11 T3 08H-P-G	BTDDN10CGU1TE 800-10 T3 08M-C-G	BTDDN08IGU1TE 800-08 T3 08M-I-G	GPS1030DDTE 800-10A
1.969-2.035 in	DDS#####M411		1.692 in	4.015 in				
51.71-54.99 mm	DDSM#####M412	12	47 mm	110 mm	BTDDN11PGU1TE 800-11 T3 08H-P-G	BTDDN10CGU1TE 800-10 T3 08M-C-G	BTDDN12IGU1TE 800-12 T3 08M-I-G	GPS1235DDTE 800-12A
2.036-2.165 in	DDS#####M412		1.850 in	4.330 in				
55.00-56.20 mm	DDSM#####M412	12	47.0 mm	110 mm	BTDDN11PGU1TE 800-11 T3 08H-P-G	BTDDN10CGU1TE 800-10 T3 08M-C-G	BTDDN12IGU1TE 800-12 T3 08M-I-G	GPS1235DDTE 800-12A
2.166-2.212 in	DDS##### M412		1.850 in	4.330 in				
56.21-57.99 mm	DDSM#####M413	13	51 mm	115 mm	BTDDN11PGU1TE 800-11 T3 08H-P-G	BTDDN10CGU1TE 800-12 T3 08M-C-G	BTDDN12IGU1TE 800-12 T3 08M-I-G	GPS1235DDTE 800-12A
2.213-2.283 in	DDS#####M413		2.008 in	4.527 in				
58.00-65.00 mm	DDSM#####M413	13	51 mm	115 mm	BTDDN11PGU1TE 800-11 T3 08H-P-G	BTDDN10CGU1TE 800-12 T3 08M-C-G	BTDDN12IGU1TE 800-12 T3 08M-I-G	GPS1235DDTE 800-12A
2.284-2.559 in	DDS#####M413		2.008 in	4.527 in				

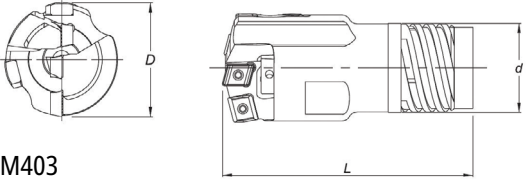
Sandvik Coromant part number shown in Red

Sunnen DirectDex Inserts are available with both “G” and “L” chipbreakers. Additional carbide grades are available, please contact your Sunnen sales representative.

Order Example for “L” chipbreaker = 800-06 03 08H-P-L

DirectDex Double Tube System

Diameter Range: 25.00 mm – 65.00 mm (0.984” - 2.559”)



Drill Head Part Numbering Code Example: Metric: DDDM02500M403 Imperial: DDD02500M403

DD		D		M02500		M		4		03	
DirectDex Prefix		Fluid Introduction		Bore Size (x#####)		Connection Type		Thread Starts		Connection Size	
Description	Code	Description	Code	Description	Code	Description	Code	Description	Code	Description	Code
DirectDex	DD	Double-Tube	D	Size in Metric (###.## mm)	M#####	Male/ External	M	Four-Start	4	25.00 - 26.40 mm .984 - 1.039 in	03
				Size in Imperial ##.### in	#####						
				Example: 25.00 mm (1.000")	M02500 (01000)	Female/ Internal	F	Single-Start	1		

Connection Size Numbering Code

Bore Size Range	25.00 - 26.40 mm	26.41 - 28.70 mm	28.71 - 31.00 mm	31.01 - 33.30 mm	33.31 - 36.20 mm	36.21 - 39.60 mm	39.61 - 43.00 mm	43.01 - 47.00 mm	47.01 - 51.70 mm	51.71 - 56.20 mm	56.21 - 65.00 mm
	.984 - 1.039 in	1.040 - 1.129 in	1.130- 1.220 in	1.221 - 1.311 in	1.312 - 1.425 in	1.426 - 1.559 in	1.560 - 1.693 in	1.694 - 1.850 in	1.851 - 2.035 in	2.036 - 2.212 in	2.213 - 2.559 in
Code	03	04	05	06	07	08	09	10	11	12	13

Drill	Item Code	OuterDrill Tube	Dimensions		Item Code			
‘D’			Tube OD ‘d’	L	Peripheral	Center	Intermediate	Guide Pad
25.00 - 26.40 mm	DDDM#####M403	03	23.50 mm	67.20 mm	BTDDN06PGU1TE	BTDDN05CGU1TE	BTDDN05IGU1TE 800-05 03 08M-I-G	GPS0618DDTE 800-06A
0.984 - 1.039 in	DDD#####403		0.925 in	2.645 in	800-06 03 08H-P-G	800-05 03 08M-C-G		
26.41 - 28.70 mm	DDDM#####M404	04	26 mm	72 mm	BTDDN06PGU1TE	BTDDN05CGU1TE	BTDDN05IGU1TE 800-05 03 08M-I-G	GPS0618DDTE 800-06A
1.04 - 1.129 in	DDD#####404		1.024 in	2.835 mm	800-06 03 08H-P-G	800-05 03 08M-C-G		
28.71 - 31.00 mm	DDDM#####M405	05	28 mm	74 mm	BTDDN06PGU1TE	BTDDN06CGU1TE	BTDDN05IGU1TE 800-05 03 08M-I-G	GPS0720DDTE 800-06A
1.130 - 1.220 in	DDD#####405		1.102 in	2.913 in	800-06 03 08H-P-G	800-06 T3 08M-C-G		
31.00 - 33.30 mm	DDDM#####M406	06	30.5 mm	75 mm	BTDDN08PGU1TE	BTDDN06CGU1TE	BTDDN06IGU1TE 800-06 T3 08M-I-G	GPS0720DDTE 800-07A
1.220 - 1.311 in	DDD#####406		1.201 in	2.952 in	800-08 T3 08H-P-G	800-06 T3 08M-C-G		
33.31 - 33.99 mm	DDDM#####M407	07	33 mm	83 mm	BTDDN08PGU1TE	BTDDN06CGU1TE	BTDDN06IGU1TE 800-06 T3 08M-I-G	GPS0720DDTE 800-07A
1.311 - 1.338 in	DDD#####407		1.299 in	3.267 in	800-08 T3 08H-P-G	800-06 T3 08M-C-G		
34.00-34.99 mm	DDDM#####M407	07	33 mm	83 mm	BTDDN08PGU1TE	BTDDN08CGU1TE	BTDDN08IGU1TE 800-08 T3 08M-I-G	GPS0720DDTE 800-07A
1.339 - 1.377 in	DDD#####407		1.299 in	3.267 in	800-08 T3 08H-P-G	800-08 T3 08M-C-G		
35.00 – 36.20 mm	DDDM#####M407	07	33 mm	83 mm	BTDDN08PGU1TE	BTDDN08CGU1TE	BTDDN08IGU1TE 800-08 T3 08M-I-G	GPS0720DDTE 800-07A
1.378 -1.425 mm	DDD#####M407		1.299 in	3.267 in	800-08 T3 08H-P-G	800-08 T3 08M-C-G		
36.21 - 38.99 mm	DDDM#####M408	08	35.50 mm	88 mm	BTDDN08PGU1TE	BTDDN08CGU1TE	BTDDN08IGU1TE 800-08 T3 08M-I-G	GPS0720DDTE 800-07A
1.426 - 1.535 in	DDD#####408		1.398 in	3.464 in	800-08 T3 08H-P-G	800-08 T3 08M-C-G		
39.00 - 39.60 mm	DDDM#####M408	08	35.50 mm	88 mm	BTDDN09PGU1TE	BTDDN08CGU1TE	BTDDN08IGU1TE 800-08 T3 08M-I-G	GPS0720DDTE 800-07A
1.536 - 1.559 in	DDD#####408		1.398 in	3.464 in	800-09 T3 08H-P-G	800-08 T3 08M-C-G		
39.61 - 43.00 mm	DDDM#####M409	09	39 mm	92 mm	BTDDN09PGU1TE	BTDDN08CGU1TE	BTDDN08IGU1TE 800-08 T3 08M-I-G	GPS0825DDTE 800-08A
1.559 - 1.692 in	DDD#####409		1.535 in	3.622 in	800-09 T3 08H-P-G	800-08 T3 08M-C-G		
43.01-47.00 mm	DDDM#####M410	10	42.5 mm	94 mm	BTDDN09PGU1TE	BTDDN10GU1TE	BTDDN08IGU1TE 800-08 T3 08M-I-G	GPS0825DDTE 800-08A
1.693 - 1.850 in	DDD#####410		1.673 in	3.700 in	800-09 T3 08H-P-G	800-10 T3 08M-C-G		
47.01 - 49.99 mm	DDDM#####M411	11	46.5 mm	104 mm	BTDDN09PGU1TE	BTDDN12CGU1TE	BTDDN08IGU1TE 800-08 T3 08M-I-G	GPS1030DDTE 800-10A
1.851 - 1.968 in	DDD#####411		1.831 in	4.094 in	800-09 T3 08H-P-G	800-12 T3 08M-C-G		
50.00 - 51.70 mm	DDDM#####M411	11	46.5 mm	104 mm	BTDDN11PGU1TE	BTDDN10CGU1TE	BTDDN08IGU1TE 800-08 T3 08M-I-G	GPS1030DDTE 800-10A
1.968 - 2.035 in	DDD#####411		1.831 in	4.094 in	800-11 T3 08H-P-G	800-10 T3 08M-C-G		
51.71 - 54.99 mm	DDDM#####M412	12	51 mm	109 mm	BTDDN11PGU1TE	BTDDN10CGU1TE	BTDDN08IGU1TE 800-08 T3 08M-I-G	GPS1030DDTE 800-10A
2.036 - 2.165 in	DDD#####412		2.008 in	4.291 in	800-11 T3 08H-P-G	800-10 T3 08M-C-G		
55.00-56.20 mm	DDDM#####M412	12	51 mm	109 mm	BTDDN11PGU1TE	BTDDN10CGU1TE	BTDDN12IGU1TE 800-12 T3 08M-I-G	GPS1235DDTE 800-12A
2.166 - 2.211 in	DDD#####412		2.008 in	4.291 in	800-11 T3 08H-P-G	800-10 T3 08M-C-G		
56.21 - 57.99 mm	DDDM#####M413	13	55.5 mm	113,30 mm	BTDDN11PGU1TE	BTDDN10CGU1TE	BTDDN12IGU1TE 800-12 T3 08M-I-G	GPS1235DDTE 800-12A
2.212 - 2.283 in	DDD#####413		2.185 in	4.460 in	800-11 T3 08H-P-G	800-10 T3 08M-C-G		
58.00-65.00 mm	DDDM#####M413	13	55.5 mm	113,30 mm	BTDDN11PGU1TE	BTDDN12CGU1TE	BTDDN12IGU1TE 800-12 T3 08M-I-G	GPS1235DDTE 800-12A
2.284-2.559 in	DDD#####413		2.185 in	4.460 in	800-11 T3 08H-P-G	800-12 T3 08M-C-G		

SDT Drill Tubes



D		DT		803		L01600		T1	
Tube Type				Connection Size		Tube Length		Threads	
Description	Code	Description	Code	Description	Code	Description	Code	Description	Code
Single Tube	S	Drill Tube	DT	Sandvik # (Female 4-start thread)	803	Length in Metric (##### mm)	L#####	Threaded One End	T1
Double Tube (Ejector)	D			BTA Heller # (Male 1-start thread)	03M			Theaded Both Ends	T2
				SPECIAL	S##			Flange	FL
								Special	S## S01, S02, S03, S...

NOTES: Sandvik 794 - 798; 2-Start thread
Sandvik 800 - 813; inner tube 30mm longer than outer tube
Sandvik 814 - 820; inner tube 190mm longer than outer tube

Sandvik 821-825; inner tube 220mm longer than outer tube
Sandvik Double tubes 814 and larger ,threads on both ends, no inner tube flange
Other BTA Heller Conections, not common, doen't need to be in chart; A, B, C, G (GH), M, W (HW)

STS Drill Tube (threaded one end)

Sunnen #	Sandvik Ref.	Connection Size	Tube OD (mm)	Tube ID (mm)	Tube OD (in)	Tube ID (in)
SDT-794-L#####-T1	420.5-794-L#####	794	11.0	7.0	0.433	0.276
SDT-795-L#####-T1	420.5-795-L#####	795	12.0	8.0	0.472	0.315
SDT-796-L#####-T1	420.5-796-L#####	796	13.0	8.5	0.512	0.335
SDT-797-L#####-T1	420.5-797-L#####	797	14.0	9.0	0.551	0.354
SDT-798-L#####-T1	420.5-798-L#####	798	15.0	10.0	0.591	0.394
SDT-799-L#####-T1	420.5-799-L#####	799	16.0	10.5	0.630	0.413
SDT-800-L#####-T1	420.5-800-L#####	800	17.0	11.5	0.669	0.453
SDT-801-L#####-T1	420.5-801-L#####	801	18.0	12.0	0.709	0.472
SDT-802-L#####-T1	420.5-802-L#####	802	20.0	13.0	0.787	0.512
SDT-803-L#####-T1	420.5-803-L#####	803	22.0	14.0	0.866	0.551
SDT-804-L#####-T1	420.5-804-L#####	804	24.0	15.5	0.945	0.610
SDT-805-L#####-T1	420.5-805-L#####	805	26.0	17.0	1.024	0.669
SDT-806-L#####-T1	420.5-806-L#####	806	28.0	18.5	1.102	0.728
SDT-807-L#####-T1	420.5-807-L#####	807	30.0	20.0	1.181	0.787
SDT-808-L#####-T1	420.5-808-L#####	808	33.0	23.0	1.299	0.906
SDT-809-L#####-T1	420.5-809-L#####	809	36.0	25.5	1.417	0.984
SDT-810-L#####-T1	420.5-810-L#####	810	39.0	28.0	1.535	1.102
SDT-811-L#####-T1	420.5-811-L#####	811	43.0	31.0	1.693	1.220
SDT-812-L#####-T1	420.5-812-L#####	812	47.0	35.0	1.850	1.378
SDT-813-L#####-T1	420.5-813-L#####	813	51.0	39.0	2.008	1.535
SDT-813E-L#####-T1	420.5-813E-L#####	813E	56.0	39.0	2.205	1.614

DDT Drill Tubes



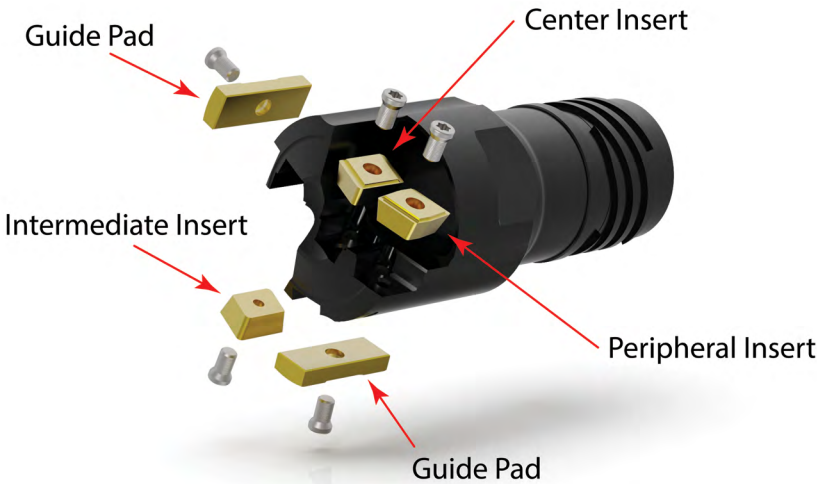
DTS Drill Tube Outer (threaded one end)

Sunnen #	Sandvik Ref.	Outer Tube	Drilled Hole Diameter (mm)	Drilled Hole Diameter (in)	"Tube OD (mm)"	"Tube ID (mm)"	"Tube OD (in)"	"Tube ID (in)"
DDT-800-L#####-T1	424.2-800-L#####	800	18.4 - 20.0	0.724 - 0.787	18.0	12.0	0.709	0.472
DDT-801-L#####-T1	424.2-801-L#####	801	20.0 - 21.8	0.788 - 0.858	19.5	14.0	0.768	0.551
DDT-802-L#####-T1	424.2-802-L#####	802	21.8 - 24.1	0.859 - 0.948	21.5	15.0	0.846	0.591
DDT-803-L#####-T1	424.2-803-L#####	803	24.1 - 26.4	0.949 - 1.039	23.5	16.0	0.925	0.630
DDT-804-L#####-T1	424.2-804-L#####	804	26.4 - 28.7	1.040 - 1.130	26.0	18.0	1.024	0.709
DDT-805-L#####-T1	424.2-805-L#####	805	28.7 - 31.0	1.131 - 1.220	28.0	20.0	1.102	0.787
DDT-806-L#####-T1	424.2-806-L#####	806	31.0 - 33.3	1.221 - 1.311	30.5	22.0	1.201	0.866
DDT-807-L#####-T1	424.2-807-L#####	807	33.3 - 36.2	1.312 - 1.425	33.0	24.0	1.299	0.945
DDT-808-L#####-T1	424.2-808-L#####	808	36.2 - 39.6	1.426 - 1.559	35.5	26.0	1.398	1.024
DDT-809-L#####-T1	424.2-809-L#####	809	39.0 - 43.0	1.560 - 1.692	39.0	29.0	1.535	1.149
DDT-810-L#####-T1	424.2-810-L#####	810	43.0 - 47.0	1.693 - 1.850	42.5	32.0	1.673	1.260
DDT-811-L#####-T1	424.2-811-L#####	811	47.0 - 51.7	1.851 - 2.035	46.5	35.0	1.831	1.378
DDT-812-L#####-T1	424.2-812-L#####	812	51.7 - 56.2	2.036 - 2.212	51.0	39.0	2.008	1.535
DDT-813-L#####-T1	424.2-813-L#####	813	56.2 - 65.0	2.213 - 2.559	55.5	43.0	2.185	1.693

DTS Drill Tube Inner

Sunnen #	Sandvik Ref.	Inner Tube	"Tube OD (mm)"	"Tube ID (mm)"	"Tube OD (in)"	"Tube ID (in)"
DDT-850-L#####	424.2-850-L#####	850	10.0	9.0	0.394	0.354
DDT-851-L#####	424.2-851-L#####	851	12.0	11.0	0.472	0.433
DDT-852-L#####	424.2-852-L#####	852	13.0	12.0	0.512	0.472
DDT-853-L#####	424.2-853-L#####	853	14.0	13.0	0.551	0.512
DDT-854-L#####	424.2-854-L#####	854	16.0	14.0	0.630	0.551
DDT-855-L#####	424.2-855-L#####	855	18.0	16.0	0.709	0.630
DDT-856-L#####	424.2-856-L#####	856	20.0	18.0	0.787	0.709
DDT-857-L#####	424.2-857-L#####	857	22.0	20.0	0.866	0.787
DDT-858-L#####	424.2-858-L#####	858	24.0	22.0	0.945	0.866
DDT-859-L#####	424.2-859-L#####	859	27.0	25.0	1.063	0.984
DDT-860-L#####	424.2-860-L#####	860	30.0	28.0	1.181	1.102
DDT-861-L#####	424.2-861-L#####	861	32.0	30.0	1.260	1.181
DDT-862-L#####	424.2-862-L#####	862	36.0	34.0	1.417	1.339
DDT-863-L#####	424.2-863-L#####	863	40.0	38.0	1.575	1.496

Insert and Guide Pad Sizes



Cutting Diameter Range	Center	Cutting Diameter Range	Intermediate	Cutting Diameter Range	Peripheral	Guide Pad
25.00 - 28.70 mm	BTDDN05CGU1TE 800-05 03 08M-C-G	25.00 - 31.00 mm	BTDDN05IGU1TE 800-05 03 08M-I-G	25.00 - 28.70 mm	BTDDN06PGU1TE 800-06 03 08H-P-G	GPS0618DDTE 800-06A
0.984 - 1.139 in	Screw PHSM1151 5513 020 05	0.984 - 1.220 in	Screw PHSM1151 5513 020 05	0.984 - 1.139 in	Screw PHSM1151 5513 020 05	Screw PHSM1152 5513 020 20
28.71 - 33.99 mm	BTDDN06CGU1TE 800-06 T3 08M-C-G	31.01 - 34.99 mm	BTDDN06IGU1TE 800-06 T3 08M-I-G	31.01 - 34.99 mm	BTDDN08PGU1TE 800-08 T3 08H-P-G	GPS0720DDTE 800-07A
1.140 - 1.338 in	Screw PHSM1153 5513 020 34	1.220 - 1.378 in	Screw PHSM 1153 5513 020 34	1.220 - 1.378 in	Screw PHSM1153 5513 020 34	Screw PHSM1155 416.1-832
34.00 - 43.00 mm	BTDDN08CGU1TE 800-08 T3 08M-C-G	35.00 - 54.99 mm	BTDDN08IGU1TE 800-08 T3 08M-I-G	39.00 - 49.00 mm	BTDDN09PGU1TE 800-09 T3 08H-P-G	GPS0825DDTE 800-08A
1.339 - 1.693 in	Screw PHSM1153 5513 020 34	1.379 - 2.165 in	Screw PHSM1153 5513 020 34	1.536 - 1.968 in	Screw PHSM1153 5513 020 34	Screw PHSM1156 5513 020 16
43.01- 47.00 mm	BTDDN10CGU1TE 800-10 T3 08M-C-G	55.00 - 65.00 mm	BTDDN12IGU1TE 800-12 T3 08M-I-G	50.00 - 65.00 mm	BTDDN11PGU1TE 800-11 T3 08H-P-G	GPS1030DDTE 800-10A
1.694 - 1.850 in	Screw PHSM1153 5513 020 34	2.166 - 2.559 in	Screw PHSM1153 5513 020 34	1.969 -2.559 in	Screw PHSM1153 5513 020 34	Screw PHSM1157 416.1-833
47.01 - 49.99 mm	BTDDN12CGU1TE 800-12 T3 08M-C-G					GPS1235DDTE 800-12A
1.851 - 1.968 in	Screw PHSM1153 5513 020 34					Screw PHSM1157 416.1-833
50.00 - 57.99 mm	BTDDN10CGU1TE 800-10 T3 08M-C-G					
1.969 - 2.283 in	Screw PHSM1153 5513 020 34					
58.00 - 65.00 mm	BTDDN12CGU1TE 800-12 T3 08M-C-G					
2.284 - 2.559 in	Screw PHSM1153 5513 020 34					



Direct Dex - Feed and Speed

Inch values

ISO	MC No. (CMC No.)	Material	Specific cutting force kc1 lbs/in ²	Hardness Brinell HB	Geometry / Grade			Support pad grade	Cutting speed vc ft/min	Drill diameter, inch	
					Insert position					.984-1.693	1.694-2.559
					C	I	P			Feed f _r inch/rev	
P	P1.1.Z.AN (01.1)	Unalloyed steel Non-hardened 0.10-0.25% C	216 500	90-200	G/TE	G/TE	G/TE	DTE	230-425	.004-.016	.006-.018
	P1.2.Z.AN (01.2)	Non-hardened 0.25-0.55% C	233 000	125-225	G/TE	G/TE	G/TE	DTE	230-425	.004-.016	.006-.018
	P1.3.Z.AN (01.3)	Non-hardened 0.55-0.80% C	247 000	150-250	G/TE	G/TE	G/TE	DTE	230-425	.004-.016	.007-.010
	P1.3.Z.AN (01.4)	High carbon steel, annealed	260 500	180-275	G/TE	G/TE	G/TE	DTE	230-425	.004-.016	.006-.018
	P2.1.Z.AN (02.1)	Low alloy steel Non hardened	246 500	150-260	G/TE	G/TE	G/TE	DTE	230-390	.004-.016	.008-.018
	P2.5.Z.HT (02.2)	Hardened and tempered	278 500	220-450	G/TE	G/TE	G/TE	DTE	180-360	.004-.016	.008-.018
	P3.0.Z.AN (03.11)	High alloy steel Annealed	282 000	150-250	G/TE	G/TE	G/TE	DTE	230-390	.004-.016	.008-.018
	(03,13)	Annealed HSS	311 000	150-250	G/TE	G/TE	G/TE	DTE	230-390	.004-.016	.008-.018
	P3.0.Z.HT (03.21)	Hardened tool steel	420 000	250-350	G/TE	G/TE	G/TE	DTE	180-360	.004-.015	.008-.016
	(03,22)	Hardened steel, others	448 500	250-450	G/TE	G/TE	G/TE	DTE	180-360	.008-.015	.008-.016
P1.5.C.UT (06.1)	Castings Unalloyed	204 000	90-225	G/TE	G/TE	G/TE	DTE	165-360	.004-.016	.008-.018	
P2.6.C.UT (06.2)	Low alloyed (alloying elements < 5%)	230 500	150-250	G/TE	G/TE	G/TE	DTE	165-360	.004-.016	.008-.018	
(06,32)	Stainless austenitic	333 500	150-250	G/TE	G/TE	G/TE	DTE	165-360	.004-.013	.008-.015	
(06,33)	Manganese steel, 12–14% Mn	420 500	200-300	G/TE	G/TE	G/TE	DTE	115-280	.004-.013	.008-.015	
M	P5.0.Z.AN (05.11)	Rolled/forged Ferritic/Martensitic, non hardened	262 000	150-270	G/TE	G/TE	G/TE	DTE	130-360	.004-.016	.008-.018
	M1.0.Z.AQ (05.21)	Austenitic	285 000	150-275	G/TE	G/TE	G/TE	DTE	130-360	.004-.016	.008-.018
	M3.1.Z.AQ (05.51)	Austenitic / ferritic materials (Duplex) non-weldable ≥ 0.05% C	286 500	180-290	G/TE	G/TE	G/TE	DTE	130-360	.004-.013	.008-.014
	M3.2.Z.AQ (05.52)	Austenitic / ferritic materials (Duplex) weldable < 0.05% C	356 500	200-320	G/TE	G/TE	G/TE	DTE	130-260	.004-.013	.008-.014
K	K1.1.C.NS (07.1)	Malleable Ferritic	115,000	110-145	G/TE	G/TE	G/TE	DTE	200-390	.004-.015	.009-.016
	K1.1.C.NS (07.2)	Pearlitic	131,000	150-270	G/TE	G/TE	G/TE	DTE	200-390	.004-.015	.009-.016
	K2.1.C.UT (08.1)	Grey Low tensile strength	130,000	150-220	G/TE	G/TE	G/TE	DTE	200-360	.004-.015	.009-.016
N	K2.2.C.UT (08.2)	High tensile strength	159,500	200-330	G/TE	G/TE	G/TE	DTE	200-360	.004-.015	.009-.016
	K3.1.C.UT (09.1)	Nodular Ferritic	130,000	125-230	G/TE	G/TE	G/TE	DTE	160-360	.004-.015	.009-.016
	K3.3.C.UT (09.2)	Pearlitic	194,500	200-300	G/TE	G/TE	G/TE	DTE	160-360	.004-.015	.009-.016
	(30,11)	Aluminium alloys Wrought or wrought and coldworked, non- aging	72 500	30-100	G/TE	G/TE	G/TE	DTE	210-490	.004-.013	.009-.014
	N1.2.Z.AG (30.12)	Wrought or wrought and aged	116 000	30-150	G/TE	G/TE	G/TE	DTE	210-490	.004-.015	.009-.014
N1.3.C.UT (30.21)	Cast, non aging	109 000	40-100	G/TE	G/TE	G/TE	DTE	210-490	.004-.015	.009-.014	
N1.3.C.AG (30.22)	Cast or cast and aged	130 500	70-140	G/TE	G/TE	G/TE	DTE	210-490	.004-.015	.009-.014	
S	N3.3.U.UT (33.1)	Copper and copper alloys Free cutting alloys (Pb > 1%)	101 500	70-160	G/TE	G/TE	G/TE	DTE	210-490	.004-.015	.009-.014
	N3.2.C.UT (33.2)	Brass and leaded alloys (Pb < 1%)	101 500	50-200	G/TE	G/TE	G/TE	DTE	210-490	.004-.015	.009-.014
S	(20,11)	Iron base Annealed or solution treated	435 000	180-230	G/TE	G/TE	G/TE	DTE	30-180	.004-.012	.008-.013
	S2.0.Z.AN (20.21)	Nickel base Annealed or solution treated	481 500	140-300	G/TE	L/TE	L/TE	DTE	30-180	.004-.012	.008-.013
	(20,31)	Cobalt alloys Annealed or solution treated	478 500	180-230	G/TE	G/TE	G/TE	DTE	30-180	.004-.012	.008-.013
	S4.2.Z.AN (23.21)	Titanium Alfa-, near Alfa- and Alfa + Beta alloys annealed	243 000	600-1100	G/TE	L/TE	L/TE	DTE	100-200	.004-.012	.008-.013

DirectDex - Feed and Speed

Metric values

ISO	MC No. (CMC No.)	Material	Specific cutting force k c ₁ N/mm ²	Hardness Brinell HB	Geometry / Grade			Support pad grade	Cutting speed v c m/min	Drill diameter, inch	
					Insert position					25.00-43.00	43.01-.65.00
					C	I	P			Feed f _n mm/r	
P	P1.1.Z.AN (01.1)	Unalloyed steel Non-hardened 0.10-0.25% C	1500	90-200	G/TE	G/TE	G/TE	DTE	70-130	0.11-0.41	0.14-0.45
	P1.2.Z.AN (01.2)	Non-hardened 0.25-0.55% C	1600	125-225	G/TE	G/TE	G/TE	DTE	70-130	0.11-0.41	0.14-0.45
	P1.3.Z.AN (01.3)	Non-hardened 0.55-0.80% C	1700	150-250	G/TE	G/TE	G/TE	DTE	70-130	0.11-0.41	0.14-0.25
	P1.3.Z.AN (01.4)	High carbon steel, annealed	1800	180-275	G/TE	G/TE	G/TE	DTE	70-130	0.11-0.41	0.14-0.45
	P2.1.Z.AN (02.1)	Low alloy steel Non hardened	1700	150-260	G/TE	G/TE	G/TE	DTE	70-120	0.11-0.41	0.20-0.45
	P2.5.Z.HT (02.2)	Hardened and tempered	1900	220-450	G/TE	G/TE	G/TE	DTE	55-110	0.11-0.41	0.20-0.45
	P3.0.Z.AN (03.11)	High alloy steel Annealed	1950	150-250	G/TE	G/TE	G/TE	DTE	70-120	0.11-0.41	0.20-0.45
	(03.13)	Annealed HSS	2150	150-250	G/TE	G/TE	G/TE	DTE	70-120	0.11-0.41	0.20-0.45
	P3.0.Z.HT (03.21)	Hardened tool steel	2900	250-350	G/TE	G/TE	G/TE	DTE	55-110	0.11-0.38	0.20-0.40
	(03.22)	Hardened steel, others	3100	250-450	G/TE	G/TE	G/TE	DTE	55-110	0.20-0.38	0.20-0.40
	P1.5.C.UT (06.1)	Castings Unalloyed	1400	90-225	G/TE	G/TE	G/TE	DTE	50-110	0.11-0.41	0.20-0.45
	P2.6.C.UT (06.2)	Low alloyed (alloying elements < 5%)	1600	150-250	G/TE	G/TE	G/TE	DTE	50-110	0.11-0.41	0.20-0.45
	(06.32)	Stainless austenitic	1800	150-250	G/TE	G/TE	G/TE	DTE	50-110	0.11-0.33	0.20-0.38
	(06.33)	Manganese steel, 12–14% Mn	2900	200-300	G/TE	G/TE	G/TE	DTE	35-85	0.11-0.33	0.20-0.38
M	P5.0.Z.AN (05.11)	Rolled/forged Ferritic/Martensitic, non hardened	1800	150-270	G/TE	G/TE	G/TE	DTE	40-110	0.11-0.41	0.20-0.45
	M1.0.Z.AQ (05.21)	Austenitic	1950	150-275	G/TE	G/TE	G/TE	DTE	40-110	0.11-0.41	0.20-0.45
	M3.1.Z.AQ (05.51)	Austenitic / ferritic materials (Duplex) non- weldable ≥ 0.05% C	2000	180-290	G/TE	G/TE	G/TE	DTE	40-110	0.11-0.33	0.20-0.45
	M3.2.Z.AQ (05.52)	Austenitic / ferritic materials (Duplex) weldable < 0.05% C	2450	200-320	G/TE	G/TE	G/TE	DTE	40-80	0.11-0.33	0.20-0.35
K	K1.1.C.NS (07.1)	Malleable Ferritic	790	110-145	G/TE	G/TE	G/TE	DTE	80-120	0.11-0.38	0.24-0.41
	K1.1.C.NS (07.2)	Pearlitic	900	150-270	G/TE	G/TE	G/TE	DTE	80-120	0.11-0.38	0.24-0.41
	K2.1.C.UT (08.1)	Grey Low tensile strength	890	150-220	G/TE	G/TE	G/TE	DTE	60-110	0.11-0.38	0.24-0.41
	K2.2.C.UT (08.2)	High tensile strength	1100	200-330	G/TE	G/TE	G/TE	DTE	60-110	0.11-0.38	0.24-0.41
	K3.1.C.UT (09.1)	Nodular Ferritic	900	125-230	G/TE	G/TE	G/TE	DTE	50-110	0.11-0.38	0.24-0.41
	K3.3.C.UT (09.2)	Pearlitic	1350	200-300	G/TE	G/TE	G/TE	DTE	50-110	0.11-0.38	0.24-0.41
N	(30.11)	Aluminium alloys Wrought or wrought and coldworked, non- aging	400	30-100	G/TE	G/TE	G/TE	DTE	65-150	0.09-0.33	0.24-0.35
	N1.2.Z.AG (30.12)	Wrought or wrought and aged	650	30-150	G/TE	G/TE	G/TE	DTE	65-150	0.09-0.33	0.24-0.35
	N1.3.C.UT (30.21)	Cast, non aging	600	40-100	G/TE	G/TE	G/TE	DTE	65-150	0.09-0.33	0.24-0.35
	N1.3.C.AG (30.22)	Cast or cast and aged	700	70-140	G/TE	G/TE	G/TE	DTE	65-150	0.09-0.33	0.24-0.35
	N3.3.U.UT (33.1)	Copper and copper alloys Free cutting alloys (Pb > 1%)	550	70-160	G/TE	G/TE	G/TE	DTE	65-150	0.09-0.33	0.24-0.35
	N3.2.C.UT (33.2)	Brass and leaded alloys (Pb < 1%)	550	50-200	G/TE	G/TE	G/TE	DTE	65-150	0.09-0.33	0.24-0.35
S	(20.11)	Iron base Annealed or solution treated	3000	180-230	G/TE	G/TE	G/TE	DTE	10-55	0.09-0.30	0.20-0.33
	S2.0.Z.AN (20.21)	Nickel base Annealed or solution treated	3320	140-300	G/TE	L/TE	L/TE	DTE	10-55	0.09-0.30	0.20-0.33
	(20.31)	Cobalt alloys Annealed or solution treated	3300	180-230	G/TE	G/TE	G/TE	DTE	10-55	0.09-0.30	0.20-0.33
	S4.2.Z.AN (23.21)	Titanium Alfa- , near Alfa- and Alfa + Beta alloys annealed	1675	600-1100	G/TE	L/TE	L/TE	DTE	30-60	0.09-0.30	0.20-0.33

More Deep Hole Drilling Solutions from Sunnen

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.



MicroDex – Solid Drilling

STS	DTS
Diameter Range	Diameter Range
15.97 – 28,00 mm	18.40 – 28,00 mm
0.724 – 1.102 inch	0.628 – 1.102 inch



HellerDex – Solid Drilling

STS	DTS
Diameter Range	Diameter Range
38.00 – 233.00 mm	38.00 – 184.00 mm
1.496 – 9.173 inch	1.496 -7.240 inch



Stabilizer - Trepanning

STS
Diameter Range
38.00 – 233.00 mm
1.496-9.173 inch



Push Counterbore – Counterboring

STS	DTS
Diameter Range	Diameter Range
25.40 – 762 mm	25.40 – 184.00 mm
1.000 – 30.000 inch	1.000 – 7.240 inch



Form Solution

STS	DTS
Made to Order	Made to Order

Sandvik T-Max_801 style consumables upon request

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.
- 67 kw (90 hp) tool motor with headstock drive for optimum power.
- 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.
- Standard 38 kw (50 HP) workpiece headstock drive (counter rotation).



Sunnen Designed and Developed Intuitive Control System

Features include:

- Beckhoff PLC with 394 mm (15.5 in) color touchscreen
- All machine functions controlled from the operator station
- Real time graphical display of tool position, tool feed load, spindle loads, and coolant pressure and volume
- Two-button part-to-part mode for high production operation
- Slow start tool feed for setup
- Tool protection function
- USB port for ease of backup
- Metric/inch units screen selectable
- Up to 500 part setups can be saved and retrieved
- Machine diagnostics
- On-screen, multi-language selection



Heavy-Duty Sunnen Designed and Built Coolant System

Features include:

- Modular clean and dirty tanks with 6245 liter (1650 gallon) maximum capacity and 3765 liter (1000 gallon) operating capacity
- Heavy-duty welded construction using 4.75 mm (.187 in) plate with a double wall option available
- High flow 10-micron, four-bag filtration system
- Heavy-duty screw type pump with 757 lpm (200 gpm) max flow and 5.2MPa (750 psig) max pressure
- 70-micron inlet filter
- Standard chiller for hot environments
- Designed for maintainability with multiple level sensors, clean-out ports and instrumentation
- Heavy-duty chip conveyor
- Active coolant level monitoring



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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