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Recommended Tap Drill Sizes for Tapping and Cold-forming Internal Threads

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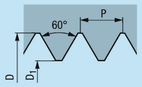
American Standard Threads



UNC

Unified coarse thread ASME B1.1, Table 2

Nominal size (in.) D	P [T.P.I.]	Minor thread dia. of the internal thread (Tol. 2B) D_1 min.	D_1 max.	Rec. tap drill size
No. 1 (0.073)	64	0.0561	0.0622	0.0595
No. 2 (0.086)	56	0.0667	0.0737	0.0700
No. 3 (0.099)	48	0.0764	0.0845	0.0820
No. 4 (0.112)	40	0.0849	0.0939	0.0890
No. 5 (0.125)	40	0.0979	0.1062	0.1015
No. 6 (0.138)	32	0.1040	0.1140	0.1110
No. 8 (0.164)	32	0.1300	0.1390	0.1360
No. 10 (0.190)	24	0.1450	0.1550	0.1520
No. 12 (0.216)	24	0.1710	0.1810	0.1770
1/4	20	0.1960	0.2070	0.2040
5/16	18	0.2520	0.2650	0.2610
3/8	16	0.3070	0.3210	0.3160
7/16	14	0.3600	0.3760	0.3680
1/2	13	0.4170	0.4340	0.4219
9/16	12	0.4720	0.4900	0.4844
5/8	11	0.5270	0.5460	0.5313
3/4	10	0.6420	0.6630	0.6563
7/8	9	0.7550	0.7780	0.7656
1	8	0.8650	0.8900	0.8750
1 1/8	7	0.9700	0.9980	0.9843
1 1/4	7	1.0950	1.1230	1.1094
1 3/8	6	1.1950	1.2250	1.2205
1 1/2	6	1.3200	1.3500	1.3386
1 3/4	5	1.5330	1.5670	1.5551
2	4 1/2	1.7590	1.7950	1.7812
2 1/4	4 1/2	2.0090	2.0450	2.0312
2 1/2	4	2.2290	2.2670	2.2500
2 3/4	4	2.4790	2.5170	2.5000
3	4	2.7290	2.7670	2.7500

UNF

Unified fine thread ASME B1.1, Table 2

Nominal size D	P [T.P.I.]	Minor thread dia. of the internal thread (Tol. 2B) D_1 min.	D_1 max.	Rec. tap drill size
No. 0 (0.060)	80	0.0465	0.0514	0.0480
No. 1 (0.073)	72	0.0580	0.0634	0.0595
No. 2 (0.086)	64	0.0691	0.0752	0.0730
No. 3 (0.099)	56	0.0797	0.0865	0.0827
No. 4 (0.112)	48	0.0894	0.0968	0.0945
No. 5 (0.125)	44	0.1004	0.1079	0.1063
No. 6 (0.138)	40	0.1110	0.1190	0.1181
No. 8 (0.164)	36	0.1340	0.1420	0.1378
No. 10 (0.190)	32	0.1560	0.1640	0.1614
No. 12 (0.216)	28	0.1770	0.1860	0.1820
1/4	28	0.2110	0.2200	0.2165
5/16	24	0.2670	0.2770	0.2717
3/8	24	0.3300	0.3400	0.3346
7/16	20	0.3830	0.3950	0.3898
1/2	20	0.4460	0.4570	0.4528
9/16	18	0.5020	0.5150	0.5118
5/8	18	0.5650	0.5780	0.5709
3/4	16	0.6820	0.6960	0.6890
7/8	14	0.7980	0.8130	0.8071
1	12	0.9100	0.9280	0.9219
1 1/8	12	1.0350	1.0530	1.0433
1 1/4	12	1.1600	1.1780	1.1719
1 3/8	12	1.2850	1.3030	1.2992
1 1/2	12	1.4100	1.4280	1.4173

UNEF

Unified extra fine thread ASME B1.1, Table 2

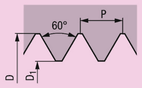
Nominal size D	P [T.P.I.]	Minor thread dia. of the internal thread (Tol. 2B) D_1 min.	D_1 max.	Rec. tap drill size
No. 12 (0.216)	32	0.1820	0.1900	0.1875
1/4	32	0.2160	0.2240	0.2205
5/16	32	0.2790	0.2860	0.2835
3/8	32	0.3410	0.3490	0.3465
7/16	28	0.3990	0.4070	0.4040
1/2	28	0.4610	0.4700	0.4646
9/16	24	0.5170	0.5270	0.5236
5/8	24	0.5800	0.5900	0.5807
3/4	20	0.6960	0.7070	0.6988
7/8	20	0.8210	0.8320	0.8268
1	20	0.9460	0.9570	0.9531
1 1/8	18	1.0650	1.0780	1.0728
1 1/4	18	1.1900	1.2030	1.2008
1 3/8	18	1.3150	1.3280	1.3189
1 1/2	18	1.4400	1.4530	1.4488

UN-8

Unified thread ASME B1.1, Table 2

Nominal size D	P [T.P.I.]	Minor thread dia. of the internal thread (Tol. 2B) D_1 min.	D_1 max.	Rec. tap drill size
1 1/8	8	0.9900	1.0150	1.0000
1 1/4	8	1.1150	1.1400	1.1250
1 3/8	8	1.2400	1.2650	1.2500
1 1/2	8	1.3650	1.3900	1.3750
1 5/8	8	1.4900	1.5150	1.5000
1 3/4	8	1.6150	1.6400	1.6250
1 7/8	8	1.7400	1.7650	1.7500
2	8	1.8650	1.8900	1.8750
2 1/4	8	2.1150	2.1400	2.1250
2 1/2	8	2.3650	2.3900	2.3750
2 3/4	8	2.6150	2.6400	2.6250
3	8	2.8650	2.8900	2.8750
3 1/2	8	3.3650	3.3900	3.3750
4	8	3.8650	3.8900	3.8750
4 1/2	8	4.3650	4.3900	4.3750

ISO Metric Threads



M

ISO Metric coarse thread DIN 13 and DIN ISO 965-1, ASME B1.13M

Nominal size D	P [mm]	Minor thread dia. of the internal thread (Tol. 6H) D_1 min. [mm]	D_1 max. [mm]	Rec. tap drill size [mm]	[inch]
M 2	0.4	1.567	1.679	1.6	0.0630
M 2.5	0.45	2.013	2.138	2.05	0.0807
M 3	0.5	2.459	2.599	2.5	0.0984
M 3.5	0.6	2.850	3.010	2.9	0.1142
M 4	0.7	3.242	3.422	3.3	0.1299
M 4.5	0.75	3.688	3.878	3.7	0.1457
M 5	0.8	4.134	4.334	4.2	0.1654
M 6	1	4.917	5.153	5	0.1969
M 7	1	5.917	6.153	6	0.2362
M 8	1.25	6.647	6.912	6.8	0.2677
M 9	1.25	7.647	7.912	7.8	0.3071
M 10	1.5	8.376	8.676	8.5	0.3346
M 11	1.5	9.376	9.676	9.5	0.3740
M 12	1.75	10.106	10.441	10.2	0.4016
M 14	2	11.835	12.210	12	0.4724
M 16	2	13.835	14.210	14	0.5512
M 18	2.5	15.294	15.744	15.5	0.6102
M 20	2.5	17.294	17.744	17.5	0.6890
M 22	2.5	19.294	19.744	19.5	0.7677
M 24	3	20.752	21.252	21	0.8268
M 27	3	23.752	24.252	24	0.9449
M 30	3.5	26.211	26.771	26.5	1.0433
M 33	3.5	29.211	29.771	29.5	1.1614
M 36	4	31.670	32.270	32	1.2598
M 39	4	34.670	35.270	35	1.3780
M 42	4.5	37.129	37.799	37.5	1.4764
M 45	4.5	40.129	40.799	40.5	1.5945
M 48	5	42.587	43.297	43	1.6929
M 52	5	46.587	47.297	47	1.8504

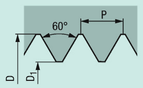
MF

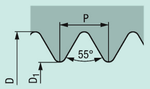
ISO Metric fine thread DIN 13 and DIN ISO 965-1, ASME B1.13M

Nominal size D	P [mm]	Minor thread dia. of the internal thread (Tol. 6H) D_1 min. [mm]	D_1 max. [mm]	Rec. tap drill size [mm]	[inch]
M 4 x	0.5	3.459	3.599	3.5	0.1378
M 5 x	0.5	4.459	4.599	4.5	0.1772
M 6 x	0.75	5.188	5.378	5.2	0.2047
M 8 x	0.75	7.188	7.378	7.2	0.2835
M 8 x	1	6.917	7.153	7	0.2756
M 10 x	1	8.917	9.153	9	0.3543
M 10 x	1.25	8.647	8.912	8.8	0.3465
M 12 x	1.5	10.376	10.676	10.5	0.4134
M 14 x	1.5	12.376	12.676	12.5	0.4921
M 16 x	1.5	14.376	14.676	14.5	0.5709
M 18 x	1.5	16.376	16.676	16.5	0.6496
M 20 x	1.5	18.376	18.676	18.5	0.7283
M 22 x	2	19.835	20.210	20	0.7874
M 24 x	2	21.835	22.210	22	0.8661
M 27 x	2	24.835	25.210	25	0.9843
M 30 x	2	27.835	28.210	28	1.1024
M 36 x	3	32.752	33.252	33	1.2992
M 42 x	3	38.752	39.252	39	1.5354
M 48 x	3	44.752	45.252	45	1.7717
M 52 x	4	47.670	48.270	48	1.8898

Tap drill sizes of Metric fine threads which are not listed can be found by considering the diameter difference.

Straight Pipe Threads





NPSM

American Standard straight pipe thread
(for mechanical joints, previously NPS)
acc. ANSI/ASME B1.20.1

Nominal size D	P [T.P.I.]	Minor thread dia. of the internal thread D_1 min.	D_1 max.	Rec. tap drill size [mm]	[inch]
1/8	27	0.358	0.364	9.1	0.3583
1/4	18	0.468	0.481	12	0.4724
3/8	18	0.603	0.612	15.5	0.6102
1/2	14	0.747	0.759	19	0.7480
3/4	14	0.958	0.970	24.5	0.9646
1	11 1/2	1.201	1.211	30.5	1.2008

Rp (BSPP)

Cylindrical Whitworth pipe thread
where pressure-tight joints are made on the threads,
acc. DIN EN 10226-1 and ISO 7-1

Nominal size D	P [T.P.I.]	Minor thread dia. of the internal thread D_1 min. [mm]	D_1 max. [mm]	Rec. tap drill size [mm]	[inch]
Rp 1/16	28	6.490	6.632	6.55	0.2579
Rp 1/8	28	8.495	8.637	8.6	0.3386
Rp 1/4	19	11.341	11.549	11.5	0.4528
Rp 3/8	19	14.846	15.054	15	0.5906
Rp 1/2	14	18.489	18.773	18.5	0.7283
Rp 3/4	14	23.975	24.259	24	0.9449
Rp 1	11	30.111	30.471	30.25	1.1909

NPSC

American Standard internal straight thread
in pipe coupling, acc. ANSI/ASME B1.20.1, Table A1

Nominal size D	P [T.P.I.]	Minor thread dia. of the internal thread D_1 min.	Rec. tap drill size [mm]	[inch]
1/8	27	0.340	8.75	0.344
1/4	18	0.442	11.1	0.438
3/8	18	0.577	14.7	0.578
1/2	14	0.715	18.25	0.719
3/4	14	0.925	23.4	0.922
1	11 1/2	1.161	29.35	1.156

G

Whitworth pipe thread DIN EN ISO 228

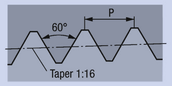
Nominal size D	P [T.P.I.]	Minor thread dia. of the internal thread D_1 min. [mm]	D_1 max. [mm]	Rec. tap drill size [mm]	[inch]
G 1/16	28	6.561	6.843	6.8	0.2677
G 1/8	28	8.566	8.848	8.8	0.3465
G 1/4	19	11.445	11.890	11.8	0.4646
G 3/8	19	14.950	15.395	15.25	0.6004
G 1/2	14	18.631	19.172	19	0.7480
G 5/8	14	20.587	21.128	21	0.8268
G 3/4	14	24.117	24.658	24.5	0.9646
G 7/8	14	27.877	28.418	28.25	1.1122
G 1	11	30.291	30.931	30.75	1.2106
G 1 1/8	11	34.939	35.579	35.5	1.3976
G 1 1/4	11	38.952	39.592	39.5	1.5551
G 1 3/8	11	41.365	42.005	41.75	1.6437
G 1 1/2	11	44.845	45.485	45.25	1.7815
G 1 5/8	11	49.030	49.670	49.5	1.9488
G 1 3/4	11	50.788	51.428	51	2.0079
G 2	11	56.656	57.296	57	2.2441
G 2 1/4	11	62.752	63.392	63.3	2.4921
G 2 1/2	11	72.226	72.866	72.8	2.8661
G 2 3/4	11	78.576	79.216	79.1	3.1142
G 3	11	84.926	85.566	85.5	3.3661

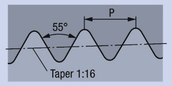
NPSF

American Standard straight pipe thread
(dryseal internal straight pipe thread for fuel, combined with external tapered pipe thread NPTF or PTF-SAE-SHORT; Gage with tapered gages) acc. ANSI B1.20.3, Table B1

Nominal size D	P [T.P.I.]	Minor thread dia. of the internal thread D_1 min.	Rec. tap drill size [mm]	[inch]
1/16	27	0.2482	6.25	0.246
1/8	27	0.3406	8.6	0.339
1/4	18	0.4422	11.15	0.438
3/8	18	0.5776	14.7	0.578
1/2	14	0.7133	17.85	0.703
3/4	14	0.9238	23.4	0.922
1	11 1/2	1.1600	29.35	1.156

Taper Pipe Threads





NPT

American tapered pipe thread, taper 1:16,
for threads **with dryseal material** acc. ANSI/ASME B1.20.1

Nominal size	P [T.P.I.]	D_1	D_2	D_3 (+0.002)	t_1
1/16	27	0.2421	0.2343	0.2516	0.4646
1/8	27	0.3346	0.3268	0.3441	0.4685
1/4	18	0.4331	0.4232	0.4472	0.6850
3/8	18	0.5669	0.5571	0.5827	0.6969
1/2	14	0.7008	0.6870	0.7213	0.9094
3/4	14	0.9114	0.8976	0.9319	0.9291
1	11 1/2	1.1437	1.1280	1.1689	1.1181
1 1/4	11 1/2	1.4882	1.4705	1.5138	1.1378
1 1/2	11 1/2	1.7264	1.7106	1.7528	1.1378
2	11 1/2	2.1988	2.1831	2.2268	1.1535

Rc (BSPT)

Tapered Whitworth pipe thread
where pressure-tight joints are made on the threads,
taper 1:16, acc. DIN EN 10226-2 and ISO 7-1

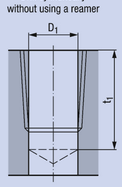
Nominal size	P [T.P.I.]	D_1 [mm]	D_2 [mm]	D_3 (JS11) [mm]	t_1 [mm]
Rc 1/16	28	6.15	6.1	6.56	11.1
Rc 1/8	28	8.15	8.1	8.57	11.1
Rc 1/4	19	10.85	10.75	11.45	16.3
Rc 3/8	19	14.3	14.25	14.95	16.7
Rc 1/2	14	17.8	17.7	18.63	22.3
Rc 3/4	14	23.2	23.1	24.12	23.6
Rc 1	11	29.2	29.1	30.29	28.3

NPTF

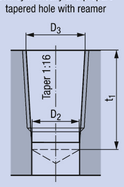
American tapered pipe thread, taper 1:16,
for threads **without dryseal material** acc. ANSI B1.20.3

Nominal size	P [T.P.I.]	D_1	D_2	D_3 (+0.002)	t_1
1/16	27	0.2402	0.2343	0.2524	0.4646
1/8	27	0.3327	0.3268	0.3449	0.4685
1/4	18	0.4291	0.4232	0.4488	0.6850
3/8	18	0.5630	0.5571	0.5843	0.6969
1/2	14	0.6929	0.6870	0.7217	0.9094
3/4	14	0.9055	0.8976	0.9323	0.9291
1	11 1/2	1.1319	1.1280	1.1701	1.1181
1 1/4	11 1/2	1.4764	1.4705	1.5150	1.1378
1 1/2	11 1/2	1.7224	1.7106	1.7539	1.1378
2	11 1/2	2.1949	2.1831	2.2280	1.1535

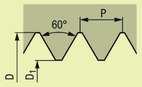
Drill cylindrically without using a reamer



Drill cylindrically and prepare tapered hole with reamer



Threads for the aerospace industry



UNJF

Unified fine thread ASME B1.15 (SAE AS8879C)

Nominal size D	P [T.P.I.]	Minor thread dia. of the internal thread (Tol. 3B/2B) D_1 min.	D_1 max.	Rec. tap drill size
No. 4 (0.112)	48	0.0917	0.0971	0.0945
No. 5 (0.125)	44	0.1029	0.1088	0.1063
No. 6 (0.138)	40	0.1137	0.1202	0.1181
No. 8 (0.164)	36	0.1370	0.1442	0.1398
No. 10 (0.190)	32	0.1596	0.1675	0.1634
No. 12 (0.216)	28	0.1812	0.1896	0.1850
1/4	28	0.2152	0.2229	0.2185
5/16	24	0.2719	0.2799	0.2756
3/8	24	0.3344	0.3417	0.3386
7/16	20	0.3888	0.3970	0.3937
1/2	20	0.4513	0.4591	0.4567
9/16	18	0.5084	0.5166	0.5118
5/8	18	0.5709	0.5788	0.5748
3/4	16	0.6892	0.6977	0.6929
7/8	14	0.8055	0.8152	0.8110
1	12	0.9189	0.9289	0.9213

UNJC

Unified coarse thread ASME B1.15 (SAE AS8879C)

Nominal size (in.) D	P [T.P.I.]	Minor thread dia. of the internal thread (Tol. 3B/2B) D_1 min.	D_1 max.	Rec. tap drill size
No. 4 (0.112)	40	0.0877	0.0942	0.0906
No. 5 (0.125)	40	0.1007	0.1072	0.1024
No. 6 (0.138)	32	0.1076	0.1157	0.1122
No. 8 (0.164)	32	0.1336	0.1417	0.1378
No. 10 (0.190)	24	0.1494	0.1600	0.1535
No. 12 (0.216)	24	0.1754	0.1852	0.1811
1/4	20	0.2013	0.2121	0.2067
5/16	18	0.2584	0.2690	0.2638
3/8	16	0.3141	0.3250	0.3189
7/16	14	0.3680	0.3795	0.3740
1/2	13	0.4251	0.4368	0.4291
9/16	12	0.4814	0.4914	0.4843
5/8	11	0.5365	0.5474	0.5413
3/4	10	0.6526	0.6646	0.6594
7/8	9	0.7668	0.7801	0.7717
1	8	0.8783	0.8933	0.8858

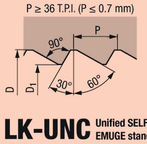
MJ

Metric thread ASME B1.21M, Table 6

Nominal size D	P [mm]	Minor thread dia. of the internal thread (Tol. 6H) D_1 min. [mm]	D_1 max. [mm]	Rec. tap drill size [mm]	[inch]
MJ 2.5 x	0.45	2.062	2.187	2.1	0.0827
MJ 3 x	0.5	2.513	2.653	2.6	0.1024
MJ 4 x	0.7	3.318	3.498	3.4	0.1339
MJ 5 x	0.8	4.221	4.421	4.3	0.1693
MJ 6 x	1	5.026	5.262	5.1	0.2008
MJ 8 x	1	7.026	7.262	7.1	0.2795
MJ 8 x	1.25	6.782	7.047	6.9	0.2717
MJ 10 x	1.25	8.782	9.047	8.9	0.3504
MJ 10 x	1.5	8.539	8.839	8.7	0.3425
MJ 12 x	1.25	10.782	11.047	10.9	0.4291
MJ 14 x	1.5	12.539	12.839	12.7	0.5000
MJ 16 x	1.5	14.539	14.839	14.7	0.5787
MJ 18 x	1.5	16.539	16.839	16.7	0.6575
MJ 20 x	1.5	18.539	18.839	18.7	0.7362
MJ 22 x	1.5	20.539	20.839	20.7	0.8150
MJ 24 x	2	22.051	22.426	22.3	0.8780

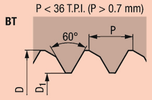
Self-Locking Threads

P ≥ 36 T.P.I. (P ≤ 0.7 mm)



BT

P < 36 T.P.I. (P > 0.7 mm)



LK-UNC

Unified SELF-LOCK coarse thread EMUGE standard

Nominal size D	P [T.P.I.]	LK-Core hole dia. D_1 min.	D_1 max. Line 1	Line 2	Rec. tap drill size (Line 1)
LK-No. 6	32	0.1119	0.1219	0.1217	0.1142
LK-No. 8	32	0.1378	0.1468	0.1476	0.1417
LK-No. 10	24	0.1544	0.1654	0.1675	0.1575
LK-No. 12	24	0.1804	0.1904	0.1935	0.1850
LK- 1/4	20	0.2069	0.2179	0.2226	0.2087
LK- 5/16	18	0.2644	0.2774	0.2818	0.2677
LK- 3/8	16	0.3204	0.3344	0.3400	0.3268
LK- 7/16	14	0.3748	0.3908	0.3972	0.3819
LK- 1/2	13	0.4323	0.4493	0.4564	0.4375
LK- 9/16	12	0.4887	0.5067	0.5148	0.5000
LK- 5/8	11	0.5443	0.5633	0.5728	0.5512
LK- 3/4	10	0.6609	0.6819	0.6922	0.6693

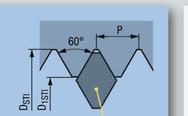
LK-M

Metric SELF-LOCK coarse thread EMUGE standard

Nominal size D	P [mm]	LK-Core hole dia. D_1 min. [mm]	D_1 max. Line 1 [mm]	Line 2 [mm]	Rec. tap drill size (Line 1) [mm]	[inch]
LK-M 3	0.5	2.673	2.745	—	2.7	0.1063
LK-M 4	0.7	3.549	3.639	—	3.55	0.1398
LK-M 5	0.8	4.324	4.524	4.574	4.4	0.1732
LK-M 6	1	5.152	5.388	5.465	5.2	0.2047
LK-M 8	1.25	6.931	7.196	7.322	7	0.2756
LK-M 10	1.5	8.700	9.000	9.170	8.8	0.3465
LK-M 12	1.75	10.477	10.812	11.024	10.7	0.4213
LK-M 14	2	12.237	12.612	12.863	12.5	0.4921
LK-M 16	2	14.237	14.612	14.863	14.5	0.5709
LK-M 18	2.5	15.787	16.237	16.569	16	0.6299
LK-M 20	2.5	17.787	18.237	18.569	18	0.7087
LK-M 24	3	21.320	21.820	22.259	21.5	0.8465

It is possible to use Line 2 when machining heavy materials.

Screw Thread Insert Threads (STI)



STI-UNC

Unified coarse thread ASME B18.29.1
for wire thread inserts

Nominal size	P [T.P.I.]	Major thread dia. of the internal thread (Tol. 2B) D_{STI} min.	Minor thread dia. of the internal thread (Tol. 2B) D_{1STI} min.	D_{1STI} max.	Rec. tap drill size
STI-No. 2	56	0.1092	0.0899	0.0961	0.0906
STI-No. 3	48	0.1261	0.1036	0.1104	0.1063
STI-No. 4	40	0.1445	0.1175	0.1252	0.1220
STI-No. 5	40	0.1575	0.1305	0.1373	0.1339
STI-No. 6	32	0.1786	0.1448	0.1527	0.1496
STI-No. 8	32	0.2046	0.1708	0.1781	0.1732
STI-No. 10	24	0.2441	0.1990	0.2080	0.2047
STI-No. 12	24	0.2701	0.2250	0.2340	0.2283
STI- 1/4	20	0.3150	0.2608	0.2704	0.2638
STI- 5/16	18	0.3847	0.3245	0.3342	0.3307
STI- 3/8	16	0.4562	0.3885	0.3987	0.3937
STI- 7/16	14	0.5303	0.4530	0.4639	0.4567
STI- 1/2	13	0.5999	0.5166	0.5273	0.5236
STI- 9/16	12	0.6708	0.5806	0.5918	0.5866
STI- 5/8	11	0.7431	0.6447	0.6564	0.6496
STI- 3/4	10	0.8799	0.7716	0.7838	0.7776
STI- 7/8	9	1.0193	0.8990	0.9119	0.9055
STI-1	8	1.1624	1.0271	1.0421	1.0335
STI-1 1/8	7	1.3106	1.1559	1.1730	1.1614
STI-1 1/4	7	1.4356	1.2809	1.2980	1.2894
STI-1 3/8	6	1.5915	1.4110	1.4310	1.4173
STI-1 1/2	6	1.7165	1.5360	1.5560	1.5453

STI-UNF

Unified fine thread ASME B18.29.1
for wire thread inserts

Nominal size	P [T.P.I.]	Major thread dia. of the internal thread (Tol. 2B) D_{STI} min.	Minor thread dia. of the internal thread (Tol. 2B) D_{1STI} min.	D_{1STI} max.	Rec. tap drill size
STI-No. 2	64	0.1063	0.0894	0.0947	0.0906
STI-No. 3	56	0.1222	0.1029	0.1086	0.1063
STI-No. 4	48	0.1391	0.1166	0.1229	0.1181
STI-No. 6	40	0.1705	0.1435	0.1503	0.1457
STI-No. 8	36	0.2001	0.1701	0.1771	0.1732
STI-No. 10	32	0.2306	0.1968	0.2041	0.2008
STI- 1/4	28	0.2964	0.2577	0.2646	0.2598
STI- 5/16	24	0.3666	0.3215	0.3288	0.3248
STI- 3/8	24	0.4291	0.3840	0.3910	0.3858
STI- 7/16	20	0.5025	0.4483	0.4561	0.4528
STI- 1/2	20	0.5650	0.5108	0.5186	0.5157
STI- 9/16	18	0.6347	0.5745	0.5826	0.5787
STI- 5/8	18	0.6972	0.6370	0.6451	0.6398
STI- 3/4	16	0.8312	0.7635	0.7720	0.7677
STI- 7/8	14	0.9678	0.8905	0.8994	0.8957
STI-1