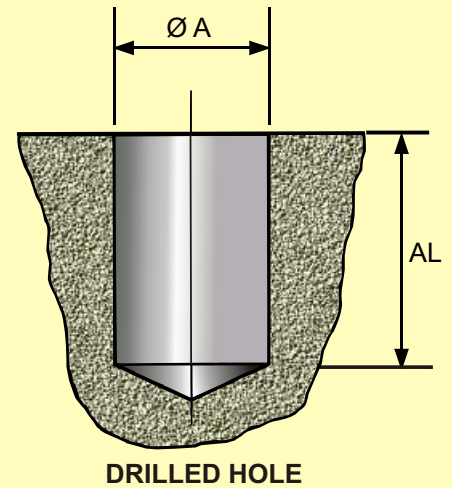


ISO Metric

THREADS TO:-

BS3643
BS A358
ISO 965
ISO 5855
DIN 13
LN 9163
SAE AS 1370

ASME B1.13M
ASME B1.21M



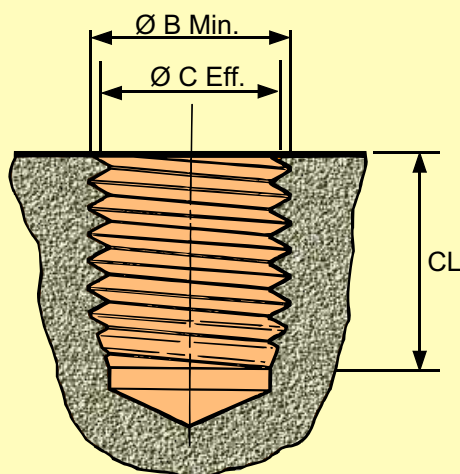
DRILLED HOLE

Dimensions in Millimetres unless otherwise stated.

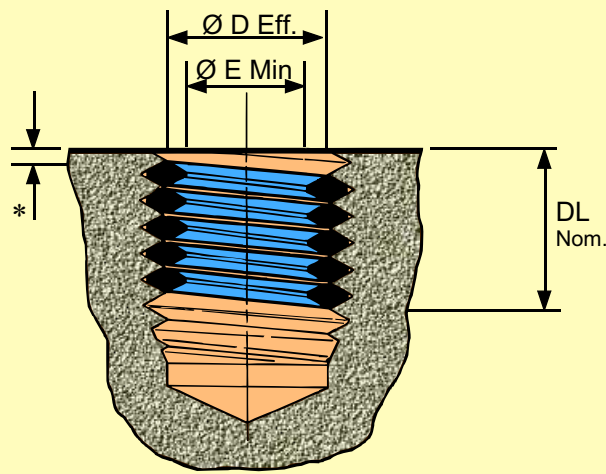
SIZE	NOM. DRILL	A	B	C(5H)	D(4H)	C(6H)	D(5H)	E
M2 X 0.40	2.10	2.177 / 2.087	2.520	2.296 / 2.260	1.796 / 1.740	2.311 / 2.260	1.811 / 1.740	1.567
M2.5 X 0.45	2.60	2.697 / 2.597	3.085	2.832 / 2.792	2.268 / 2.208	2.847 / 2.792	2.283 / 2.208	2.013
M3 X 0.50	3.20	3.220 / 3.108	3.650	3.367 / 3.325	2.738 / 2.675	3.384 / 3.325	2.755 / 2.675	2.459
M3.5 X 0.60	3.70	3.755 / 3.630	4.279	3.940 / 3.890	3.181 / 3.110	3.959 / 3.890	3.200 / 3.110	2.850
M4 x 0.70	4.20	4.292 / 4.152	4.909	4.509 / 4.455	3.620 / 3.545	4.529 / 4.455	3.640 / 3.545	3.242
M5 X 0.80	5.20	5.333 / 5.173	6.039	5.577 / 5.520	4.560 / 4.480	5.597 / 5.520	4.580 / 4.480	4.134
M6 X 1.00	6.30	6.406 / 6.216	7.299	6.719 / 6.650	5.445 / 5.350	6.742 / 6.650	5.468 / 5.350	4.917
M7 X 1.00	7.30	7.406 / 7.216	8.299	7.719 / 7.650	6.445 / 6.350	7.742 / 7.650	6.468 / 6.350	5.917
M8 X 1.25	8.30	8.483 / 8.271	9.624	8.886 / 8.182	7.288 / 7.188	8.912 / 8.812	7.313 / 7.188	6.647
M8 X 1.00	8.30	8.406 / 8.216	9.299	8.719 / 8.650	7.445 / 7.350	8.742 / 8.650	7.468 / 7.350	6.917
M9 X 1.25	9.40	9.483 / 9.271	10.624	9.886 / 9.812	8.288 / 8.188	9.912 / 9.812	8.313 / 8.188	7.647
M9 x 1.00	9.30	9.406 / 9.216	10.299	9.719 / 9.650	8.445 / 8.350	9.742 / 9.650	8.468 / 8.350	7.917
M10 X 1.50	10.40	10.561 / 10.325	11.949	11.061 / 10.974	9.138 / 9.026	11.089 / 10.974	9.166 / 9.026	8.376
M10 X 1.25	10.30	10.483 / 10.271	11.624	10.886 / 10.812	9.288 / 9.188	10.912 / 10.812	9.313 / 9.188	8.647
M10 x 1.00	10.30	10.406 / 10.216	11.299	10.724 / 10.650	9.445 / 9.350	10.742 / 10.650	9.468 / 9.350	8.917
M11 X 1.50	11.40	11.561 / 11.325	12.949	12.061 / 11.974	10.138 / 10.026	12.089 / 11.974	10.166 / 10.026	9.376
M11 X 1.25	11.30	11.483 / 11.271	12.624	11.898 / 11.812	10.300 / 10.188	11.926 / 11.812	10.328 / 10.188	9.647
M12 X 1.75	12.50	12.644 / 12.379	14.273	13.236 / 13.137	10.988 / 10.863	13.271 / 13.137	11.023 / 10.863	10.106
M12 X 1.50	12.40	12.561 / 12.325	13.949	13.067 / 12.974	11.144 / 11.026	13.099 / 12.974	11.176 / 11.026	10.376
M12 X 1.25	12.30	12.483 / 12.271	13.624	12.898 / 12.812	11.300 / 11.188	12.926 / 12.812	11.328 / 11.188	10.647
M14 X 2.00	14.50	14.733 / 14.433	16.598	15.406 / 15.299	12.833 / 12.701	15.444 / 15.299	12.871 / 12.701	11.835
M14 X 1.50	14.50	14.561 / 14.325	15.949	15.067 / 14.974	13.144 / 13.026	15.099 / 14.974	13.176 / 13.026	12.376
M14 X 1.25	.5625"	14.483 / 14.271	15.624	14.898 / 14.812	13.300 / 13.188	14.926 / 14.812	13.328 / 13.188	12.674
M16 X 2.00	16.50	16.733 / 16.433	18.598	17.406 / 17.299	14.833 / 14.701	17.444 / 17.299	14.871 / 14.701	13.835
M16 X 1.50	16.50	16.561 / 16.325	17.949	17.067 / 16.974	15.144 / 15.026	17.099 / 16.974	15.176 / 15.026	14.376
M18 X 2.50	18.75	18.896 / 18.541	21.248	19.738 / 19.624	16.516 / 16.376	19.778 / 19.624	16.556 / 16.376	15.294
M18 X 2.00	18.50	18.733 / 18.433	20.598	19.406 / 19.299	16.833 / 16.701	19.444 / 19.299	16.871 / 16.701	15.835
M20 X 2.50	20.75	20.896 / 20.541	23.248	21.738 / 21.624	18.516 / 18.376	21.778 / 21.624	18.556 / 18.376	17.294
M20 X 2.00	20.50	20.733 / 20.433	22.598	21.406 / 21.299	18.833 / 18.701	21.444 / 21.299	18.871 / 18.701	17.835
M20 X 1.50	20.50	20.561 / 20.325	21.949	21.067 / 20.974	19.144 / 19.026	21.099 / 20.974	19.176 / 19.026	18.376
M22 X 2.50	22.75	22.896 / 22.541	25.248	23.738 / 23.624	20.516 / 20.376	23.778 / 23.624	20.556 / 20.376	19.294
M22 X 2.00	22.50	22.733 / 22.433	24.598	23.406 / 23.299	20.833 / 20.701	23.444 / 23.299	20.871 / 20.701	19.835
M22 X 1.50	22.50	22.561 / 22.325	23.949	23.067 / 22.974	21.144 / 21.026	23.099 / 22.974	21.176 / 21.026	20.376
M24 X 3.00	25.00	25.050 / 24.650	27.897	26.093 / 25.948	22.221 / 22.051	26.135 / 25.948	22.263 / 22.051	20.752
M24 X 2.00	24.50	24.733 / 24.433	26.598	25.414 / 25.299	22.841 / 22.701	25.454 / 25.299	22.881 / 22.701	21.835
M27 X 3.00	28.00	28.050 / 27.650	30.897	29.093 / 28.948	25.221 / 25.051	29.135 / 28.948	25.263 / 25.051	23.752
M27 X 2.00	27.50	27.733 / 27.433	29.598	28.414 / 28.299	25.841 / 25.701	28.454 / 28.299	25.881 / 25.701	24.835
M30 X 3.50	31.00	31.208 / 30.758	34.547	32.428 / 32.273	27.907 / 27.727	32.472 / 32.273	27.951 / 27.727	26.211
M30 X 3.00	31.00	31.050 / 30.650	33.897	32.093 / 31.948	28.221 / 28.051	32.135 / 31.948	28.263 / 28.051	26.752
M33 X 3.50	34.00	34.208 / 33.758	37.547	35.428 / 35.273	30.907 / 30.727	35.472 / 35.273	30.951 / 30.727	29.211
M36 X 4.00	37.00	37.341 / 36.866	41.196	38.763 / 38.598	33.592 / 33.402	38.809 / 38.598	33.638 / 33.402	31.670
M36 X 3.00	37.00	37.050 / 36.650	39.897	38.093 / 37.948	34.221 / 34.051	38.135 / 37.948	34.263 / 34.051	32.752
M39 X 4.00	40.00	40.341 / 39.866	44.196	41.763 / 41.598	36.592 / 36.402	41.809 / 41.598	36.638 / 36.402	34.670
M42 X 4.50	43.00	43.505 / 42.975	47.846	45.098 / 44.923	39.277 / 39.077	45.147 / 44.923	39.327 / 39.077	37.129
M42 X 3.00	43.00	43.050 / 42.650	48.897	44.093 / 43.948	40.221 / 40.051	44.135 / 43.948	40.263 / 40.051	38.752

As with all engineering practice, the success of any drilling & tapping operation is dependant upon many factors, i.e. the type of material being cut : style of tap : cutting speed / feed : coolant type etc. Due to the vast range of parent material now available to the engineer it is not possible to make specific recommendations. However when using Wire Thread Inserts it is important that the above charted sizes for diameter & length are achieved.

Using WTI inserts it is possible to achieve a closer class of fit on the final installation than those indicated for tapped holes.



TAPPED HOLE



INSTALLED INSERT

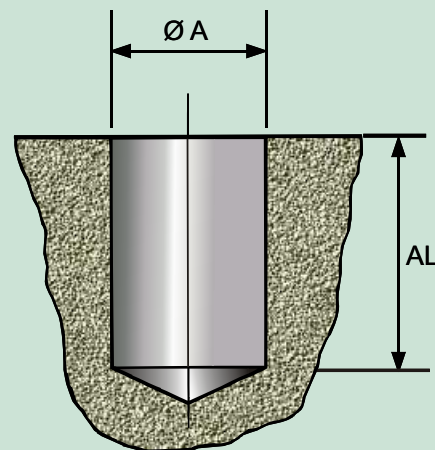
AL					CL					DL					SIZE
1D	1.5D	2D	2.5D	3D	1D	1.5D	2D	2.5D	3D	1D	1.5D	2D	2.5D	3D	
3.80	4.80	5.80	6.80	7.80	3.40	4.40	5.40	6.40	7.40	2.00	3.00	4.00	5.00	6.00	M2 X 0.40
4.52	5.77	7.02	8.27	9.52	4.07	5.32	6.57	7.82	9.07	2.50	3.75	5.00	6.25	7.50	M2.5 X 0.45
5.25	6.75	8.25	9.75	11.25	4.75	6.25	7.75	9.25	10.75	3.00	4.50	6.00	7.50	9.00	M3 X 0.50
6.20	7.95	9.70	11.45	13.20	5.60	7.35	9.10	10.85	12.60	3.50	5.25	7.00	8.75	10.50	M3.5 X 0.60
7.15	9.15	11.15	13.15	15.15	6.45	8.45	10.45	12.45	14.45	4.00	6.00	8.00	10.00	12.00	M4 x 0.70
8.60	11.10	13.60	16.10	18.60	7.80	10.30	12.80	15.30	17.80	5.00	7.50	10.00	12.50	15.00	M5 X 0.80
10.50	13.50	16.50	19.50	22.50	9.50	12.50	15.50	18.50	21.50	6.00	9.00	12.00	15.00	18.00	M6 X 1.00
11.50	15.00	18.50	22.00	25.50	10.50	14.00	17.50	21.00	24.50	7.00	10.50	14.00	17.50	21.00	M7 X 1.00
13.62	17.62	21.62	25.62	29.62	12.37	16.37	20.37	24.37	28.37	8.00	12.00	16.00	20.00	24.00	M8 x 1.25
12.50	16.50	20.50	24.50	28.50	11.50	15.50	19.50	23.50	27.50	8.00	12.00	16.00	20.00	24.00	M8 x 1.00
14.62	19.12	23.62	28.13	32.62	13.37	17.87	22.37	26.87	31.37	9.00	13.50	18.00	22.50	27.00	M9 X 1.25
13.50	18.00	22.50	27.00	31.50	12.50	17.00	21.50	26.00	30.50	9.00	13.50	18.00	22.50	27.00	M9 x 1.00
16.75	21.75	26.75	31.75	36.75	15.25	20.25	25.25	30.25	35.25	10.00	15.00	20.00	25.00	30.00	M10 X 1.50
15.62	20.62	25.62	30.62	35.62	14.37	19.37	24.37	29.37	34.37	10.00	15.00	20.00	25.00	30.00	M10 X 1.25
14.50	19.50	24.50	29.50	34.50	13.50	18.50	23.50	28.50	33.50	10.00	15.00	20.00	25.00	30.00	M10 x 1.00
17.75	23.25	28.75	34.25	39.75	16.25	21.75	27.25	32.75	38.25	11.00	16.50	22.00	27.50	33.00	M11 X 1.50
16.62	22.12	27.62	33.12	38.62	15.37	20.87	26.37	31.87	37.37	11.00	16.50	22.00	27.50	33.00	M11 X 1.25
19.87	25.87	31.87	37.87	43.87	18.12	24.12	30.12	36.12	42.12	12.00	18.00	24.00	30.00	36.00	M12 X 1.75
18.75	24.75	30.75	36.75	42.75	17.25	23.25	29.25	35.25	41.25	12.00	18.00	24.00	30.00	36.00	M12 X 1.50
17.62	23.62	29.62	35.62	41.62	16.37	22.37	28.37	34.37	40.37	12.00	18.00	24.00	30.00	36.00	M12 X 1.25
23.00	30.00	37.00	44.00	51.00	21.00	28.00	35.00	42.00	49.00	14.00	21.00	28.00	35.00	42.00	M14 X 2.00
20.75	27.75	34.75	41.75	48.75	19.25	26.25	33.25	40.25	47.25	14.00	21.00	28.00	35.00	42.00	M14 X 1.50
19.62	26.62	33.62	40.62	47.62	18.37	25.37	32.37	39.37	46.37	14.00	21.00	28.00	35.00	42.00	M14 X 1.25
25.00	33.00	41.00	49.00	57.00	23.00	31.00	39.00	47.00	55.00	16.00	24.00	32.00	40.00	48.00	M16 X 2.00
22.75	30.75	38.75	46.75	54.75	21.25	29.25	37.25	45.25	53.25	16.00	24.00	32.00	40.00	48.00	M16 X 1.50
29.25	38.25	47.25	56.25	65.25	26.75	35.75	44.75	53.75	62.75	18.00	27.00	36.00	45.00	54.00	M18 X 2.50
27.00	36.00	45.00	54.00	63.00	25.00	34.00	43.00	52.00	61.00	18.00	27.00	36.00	45.00	54.00	M18 X 2.00
31.25	41.25	51.25	61.25	71.25	28.75	38.75	48.75	58.75	68.75	20.00	30.00	40.00	50.00	60.00	M20 X 2.50
29.00	39.00	49.00	59.00	69.00	27.00	37.00	47.00	57.00	67.00	20.00	30.00	40.00	50.00	60.00	M20 X 2.00
26.75	36.75	46.75	56.75	66.75	25.25	35.25	45.25	55.25	65.25	20.00	30.00	40.00	50.00	60.00	M20 X 1.50
33.25	44.25	55.25	66.25	77.25	30.75	41.75	52.75	63.75	74.75	22.00	33.00	44.00	55.00	66.00	M22 X 2.50
31.00	42.00	53.00	64.00	75.00	29.00	40.00	51.00	62.00	73.00	22.00	33.00	44.00	55.00	66.00	M22 X 2.00
28.75	39.75	50.75	61.75	72.75	27.25	38.25	49.25	60.25	71.25	22.00	33.00	44.00	55.00	66.00	M22 X 1.50
37.50	49.50	61.50	73.50	85.50	34.50	46.50	58.50	70.50	82.50	24.00	36.00	48.00	60.00	72.00	M24 X 3.00
33.00	45.00	57.00	69.00	81.00	31.00	43.00	55.00	67.00	79.00	24.00	36.00	48.00	60.00	72.00	M24 X 2.00
40.50	54.00	67.50	81.00	94.50	37.50	51.00	64.50	78.00	91.50	27.00	40.50	54.00	67.50	81.00	M27 X 3.00
36.00	49.50	63.00	76.50	90.00	34.00	47.50	61.00	74.50	88.00	27.00	40.50	54.00	67.50	81.00	M27 X 2.00
45.75	60.75	75.75	90.75	105.75	42.25	57.25	72.25	87.25	102.25	30.00	45.00	60.00	75.00	90.00	M30 X 3.50
43.50	58.50	73.50	88.50	103.50	40.50	55.50	70.50	85.50	100.50	30.00	45.00	60.00	75.00	90.00	M30 X 3.00
48.75	65.25	81.75	98.25	114.75	45.25	61.75	78.25	94.75	111.25	33.00	49.50	66.00	82.50	99.00	M33 X 3.50
54.00	72.00	90.00	108.00	126.00	50.00	68.00	86.00	104.00	122.00	36.00	54.00	72.00	90.00	108.00	M36 X 4.00
49.50	67.50	85.50	103.50	121.50	46.50	64.50	82.50	100.50	118.50	36.00	54.00	72.00	90.00	108.00	M36 X 3.00
57.00	76.50	96.00	115.50	135.00	53.00	72.50	92.00	111.50	131.00	39.00	58.50	78.00	97.50	117.00	M39 X 4.00
62.25	83.25	104.25	125.25	146.25	57.75	78.75	99.75	120.75	141.75	42.00	63.00	84.00	105.00	126.00	M42 X 4.50
55.50	76.50	97.50	118.50	139.50	52.50	73.50	94.50	115.50	136.50	42.00	63.00	84.00	105.00	126.00	M42 X 3.00

* To achieve optimum thread performance Wire Thread Inserts must be installed between 1/4 to 1 pitch below the surface of the tapped hole. For this reason the actual length of an installed insert is equal to dimension DL less 1/2 to 1 pitch.
Dimensions AL and CL allow for tap end clearance of finishing taps. When using bottoming or spiral flute taps these dimensions may be reduced by an amount equal to 2 thread pitches. Any counterbore depths must be added to these dimensions.

UNF

THREADS TO:- BS1580
BSA346
ISO 263
ISO 3161
MIL-S-7742
MIL-S-8879

**FED-STD-H28
ASME. B1.1**



DRILLED HOLE

Dimensions in Inches unless otherwise stated.

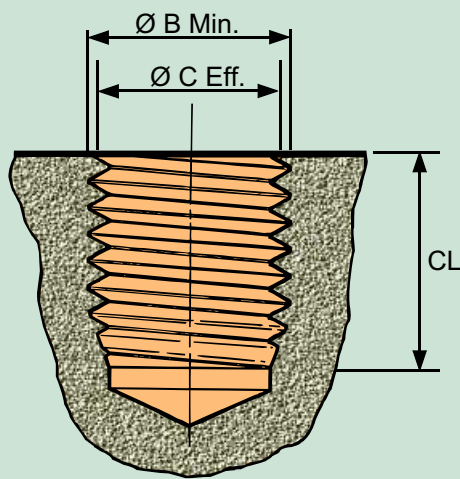
SIZE	NOM. DRILL	A	B	C(2B)	D(3B)	C(1B)	D(2B)	E
2-64	2.3 mm	.0931 / .0894	.1063	.0974 / .0962	.0779 / .0759	.0980 / .0962	.0786 / .0759	.0691
3-56	2.7 mm	.1068 / .1029	.1222	.1119 / .1106	.0895 / .0874	.1126 / .1106	.0902 / .0874	.0797
4-48	3 mm	.1207 / .1165	.1391	.1270 / .1255	.1008 / .0985	.1278 / .1255	.1016 / .0985	.0894
5-44	3.4 mm	.1342 / .1299	.1545	.1414 / .1398	.1126 / .1102	.1422 / .1398	.1134 / .1102	.1004
6-40	3.7 mm	.1478 / .1434	.1705	.1559 / .1542	.1243 / .1218	.1568 / .1542	.1252 / .1218	.1110
8-36	4.4 mm	.1745 / .1700	.2001	.1839 / .1820	.1487 / .1460	.1848 / .1820	.1496 / .1460	.1340
10-32	5.1 mm	.2015 / .1968	.2306	.2123 / .2103	.1726 / .1697	.2133 / .2103	.1736 / .1697	.1560
1/4-28	6.6 mm	.2647 / .2577	.2964	.2754 / .2732	.2300 / .2268	.2765 / .2732	.2311 / .2268	.2113
5/16-24	8.2 mm	.3289 / .3215	.3666	.3421 / .3395	.2890 / .2854	.3433 / .3395	.2902 / .2854	.2674
3/8-24	9.8 mm	.3909 / .3840	.4291	.4047 / .4020	.3516 / .3479	.4059 / .4020	.3528 / .3479	.3299
7/16-20	11.5 mm	.4561 / .4483	.5025	.4731 / .4700	.4091 / .4050	.4744 / .4700	.4104 / .4050	.3834
1/2-20	13 mm	.5182 / .5108	.5650	.5357 / .5325	.4717 / .4675	.5371 / .5325	.4731 / .4675	.4459
9/16-18	14.75	.5824 / .5745	.6347	.6020 / .5986	.5308 / .5264	.6035 / .5986	.5323 / .5264	.5024
5/8-18	16.25 mm	.6447 / .6370	.6972	.6646 / .6611	.5934 / .5889	.6661 / .6611	.5949 / .5889	.5649
3/4-16	19.5 mm	.7716 / .7635	.8312	.7945 / .7906	.7143 / .7094	.7961 / .7906	.7159 / .7094	.6823
7/8-14	22.75	.8993 / .8905	.9678	.9257 / .9214	.8339 / .8286	.9274 / .9214	.8356 / .8286	.7977
1"-12	26 mm	1.0280 / 1.0180	1.1083	1.0589 / 1.0542	.9516 / .9459	1.0608 / 1.0542	.9535 / .9459	.9098
1 1/8-12	29.25 mm	1.1543 / 1.1430	1.2333	1.1841 / 1.1792	1.0768 / 1.0709	1.1860 / 1.1792	1.0787 / 1.0709	1.0348
1 1/4-12	32.5 mm	1.2793 / 1.2680	1.3583	1.3092 / 1.3042	1.2019 / 1.1959	1.3112 / 1.3042	1.2039 / 1.1959	1.1598
1 3/8-12	35.5 mm	1.4043 / 1.3930	1.4833	1.4343 / 1.4292	1.3270 / 1.3209	1.4364 / 1.4292	1.3291 / 1.3209	1.2848
1 1/2-12	38.75 mm	1.5293 / 1.5180	1.6083	1.5595 / 1.5542	1.4522 / 1.4459	1.5615 / 1.5542	1.4542 / 1.4459	1.4098

UNC

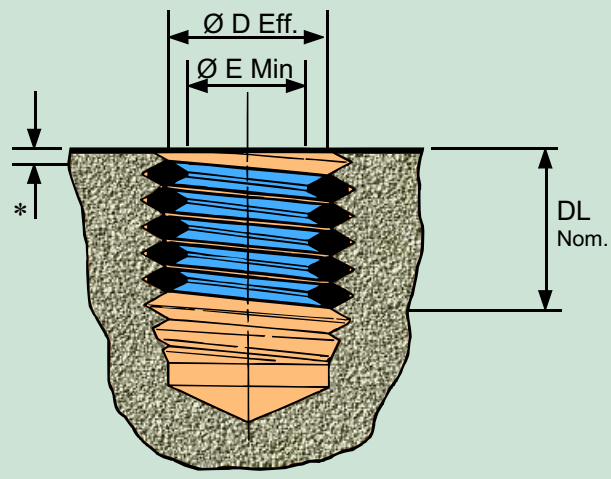
SIZE	NOM. DRILL	A	B	C(2B)	D(3B)	C(1B)	D(2B)	E
2-56	2.35 mm	.0941 / .0899	.1092	.0989 / .0976	.0765 / .0744	.0996 / .0976	.0772 / .0744	.0667
3-48	2.7 mm	.1080 / .1035	.1261	.1139 / .1125	.0877 / .0855	.1147 / .1125	.0885 / .0855	.0764
4-40	3 mm	.1224 / .1174	.1445	.1298 / .1282	.0982 / .0958	.1307 / .1282	.0991 / .0958	.0849
6-32	3.8 mm	.1503 / .1448	.1786	.1601 / .1583	.1204 / .1177	.1611 / .1583	.1214 / .1177	.1040
8-32	4.4 mm	.1758 / .1708	.2046	.1862 / .1843	.1465 / .1437	.1872 / .1843	.1475 / .1437	.1300
10-24	5.2 mm	.2051 / .1990	.2441	.2193 / .2171	.1661 / .1629	.2204 / .2171	.1672 / .1629	.1450
12-24	5.8 mm	.2308 / .2250	.2701	.2454 / .2431	.1922 / .1889	.2465 / .2431	.1933 / .1889	.1710
1/4-20	6.8 mm	.2703 / .2608	.3150	.2851 / .2825	.2211 / .2175	.2863 / .2825	.2223 / .2175	.1959
5/16-18	8.4 mm	.3341 / .3245	.3847	.3515 / .3486	.2803 / .2764	.3529 / .3486	.2817 / .2764	.2524
3/8-16	10 mm	.3985 / .3885	.4562	.4189 / .4156	.3387 / .3344	.4203 / .4156	.3401 / .3344	.3073
7/16-14	11.7 mm	.4636 / .4530	.5303	.4875 / .4839	.3957 / .3911	.4890 / .4839	.3972 / .3911	.3602
1/2-13	13.2 mm	.5275 / .5166	.5999	.5537 / .5499	.4548 / .4500	.5554 / .5499	.4565 / .4500	.4167
9/16-12	15 mm	.5918 / .5805	.6708	.6208 / .6167	.5135 / .5084	.6225 / .6167	.5152 / .5084	.4723
5/8-11	16.5 mm	.6565 / .6447	.7431	.6885 / .6841	.5714 / .5660	.6903 / .6841	.5732 / .5660	.5266
3/4-10	19.75 mm	.7838 / .7716	.8799	.8196 / .8149	.6907 / .6850	.8216 / .8149	.6927 / .6850	.6417
7/8-9	23 mm	.9124 / .8991	1.0193	.9522 / .9471	.8089 / .8028	.9543 / .9471	.8110 / .8028	.7547
1"-8	26.25 mm	1.0421 / 1.0271	1.1624	1.0868 / 1.0812	.9254 / .9188	1.0890 / 1.0812	.9276 / .9188	.8647
1 1/8-7	29.5 mm	1.1709 / 1.1559	1.3106	1.2239 / 1.2178	1.0393 / 1.0322	1.2262 / 1.2178	1.0416 / 1.0322	.9704
1 1/4-7	32.5 mm	1.2959 / 1.2809	1.4356	1.3490 / 1.3428	1.1644 / 1.1572	1.3514 / 1.3428	1.1668 / 1.1572	1.0954
1 3/8-6	36 mm	1.4311 / 1.4111	1.5914	1.4900 / 1.4832	1.2745 / 1.2667	1.4926 / 1.4832	1.2771 / 1.2667	1.1946
1 1/2-6	39.5 mm	1.5561 / 1.5361	1.7164	1.6151 / 1.6082	1.3996 / 1.3917	1.6177 / 1.6082	1.4022 / 1.3917	1.3196

As with all engineering practice, the success of any drilling & tapping operation is dependant upon many factors, i.e. the type of material being cut : style of tap : cutting speed / feed : coolant type etc. Due to the vast range of parent material now available to the engineer it is not possible to make specific recommendations. However when using Wire Thread Inserts it is important that the above charted sizes for diameter & length are achieved.

Using WTI inserts it is possible to achieve a closer class of fit on the final installation than those indicated for tapped holes.



TAPPED HOLE



INSTALLED INSERT

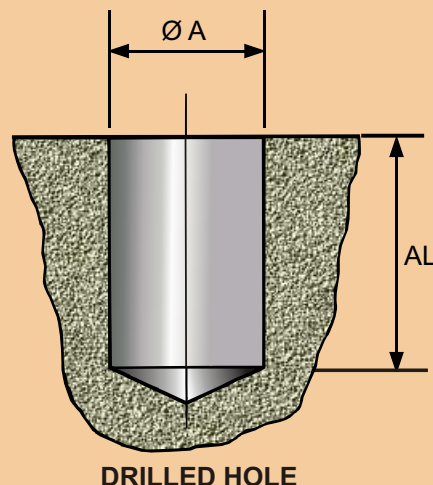
AL					CL					DL					SIZE
1D	1.5D	2D	2.5D	3D	1D	1.5D	2D	2.5D	3D	1D	1.5D	2D	2.5D	3D	
.156	.199	.242	.285	.328	.141	.184	.227	.270	.313	.086	.129	.172	.215	.258	2-64
.179	.229	.278	.328	.377	.161	.210	.260	.310	.359	.099	.148	.198	.247	.297	3-56
.206	.262	.318	.374	.430	.185	.241	.297	.353	.409	.112	.168	.224	.280	.336	4-48
.227	.290	.352	.414	.477	.204	.267	.329	.391	.454	.125	.187	.250	.312	.375	5-44
.250	.319	.388	.457	.526	.225	.294	.363	.432	.501	.138	.207	.276	.345	.414	6-40
.289	.371	.453	.535	.617	.261	.343	.425	.507	.589	.164	.246	.328	.410	.492	8-36
.331	.426	.521	.616	.711	.299	.394	.489	.584	.679	.190	.285	.380	.475	.570	10-32
.411	.536	.661	.786	.911	.375	.500	.625	.750	.875	.250	.375	.500	.625	.750	1/4-28
.500	.656	.812	.969	1.125	.458	.614	.771	.927	1.083	.312	.469	.625	.781	.937	5/16-24
.562	.750	.937	1.124	1.312	.521	.708	.896	1.083	1.271	.375	.562	.750	.937	1.125	3/8-24
.662	.881	1.100	1.319	1.537	.612	.831	1.050	1.269	1.487	.437	.656	.875	1.094	1.312	7/16-20
.725	.975	1.225	1.475	1.725	.675	.925	1.175	1.425	1.675	.500	.750	1.000	1.250	1.500	1/2-20
.811	1.093	1.374	1.655	1.936	.756	1.038	1.319	1.600	1.881	.562	.844	1.125	1.406	1.687	9/16-18
.874	1.187	1.500	1.812	2.124	.819	1.132	1.444	1.757	2.069	.625	.937	1.250	1.562	1.875	5/8-18
1.031	1.406	1.781	2.156	2.531	.969	1.344	1.719	2.094	2.469	.750	1.125	1.500	1.875	2.250	3/4-16
1.196	1.634	2.071	2.509	2.946	1.125	1.562	2.000	2.437	2.875	.875	1.312	1.750	2.187	2.625	7/8-14
1.375	1.875	2.375	2.875	3.375	1.292	1.792	2.292	2.792	3.292	1.000	1.500	2.000	2.500	3.000	1"-12
1.500	2.062	2.625	3.187	3.750	1.417	1.979	2.542	3.104	3.667	1.125	1.687	2.250	2.812	3.375	1 1/8-12
1.625	2.250	2.875	3.500	4.125	1.542	2.167	2.792	3.417	4.042	1.250	1.875	2.500	3.125	3.750	1 1/4-12
1.750	2.438	3.125	3.813	4.500	1.667	2.354	3.042	3.729	4.417	1.375	2.062	2.750	3.437	4.125	1 3/8-12
1.875	2.625	3.375	4.125	4.875	1.792	2.542	3.292	4.042	4.792	1.500	2.250	3.000	3.750	4.500	1 1/2-12

AL					CL					DL					SIZE
1D	1.5D	2D	2.5D	3D	1D	1.5D	2D	2.5D	3D	1D	1.5D	2D	2.5D	3D	
.166	.209	.252	.295	.338	.148	.191	.234	.277	.320	.086	.129	.172	.215	.258	2-56
.193	.242	.292	.341	.391	.172	.221	.271	.320	.370	.099	.148	.198	.247	.297	3-48
.224	.280	.336	.392	.448	.199	.255	.311	.367	.423	.112	.168	.224	.280	.336	4-40
.237	.300	.362	.425	.487	.212	.275	.337	.400	.462	.125	.187	.250	.312	.375	5-40
.279	.348	.417	.486	.555	.247	.316	.385	.454	.523	.138	.207	.276	.345	.414	6-32
.305	.387	.469	.551	.633	.273	.355	.437	.519	.601	.164	.246	.328	.410	.492	8-32
.377	.472	.567	.662	.757	.336	.431	.526	.621	.716	.190	.285	.380	.475	.570	10-24
.403	.511	.619	.727	.835	.362	.470	.578	.686	.794	.216	.324	.432	.540	.648	12-24
.475	.600	.725	.850	.975	.425	.550	.675	.800	.925	.250	.375	.500	.625	.750	1/4-20
.562	.718	.875	1.031	1.187	.507	.663	.819	.975	1.132	.312	.469	.625	.781	.937	5/16-18
.656	.844	1.031	1.219	1.406	.594	.781	.969	1.156	1.344	.375	.562	.750	.937	1.125	3/8-16
.758	.977	1.196	1.415	1.633	.687	.906	1.125	1.344	1.562	.437	.656	.875	1.094	1.312	7/16-14
.846	1.096	1.346	1.596	1.846	.769	1.019	1.269	1.519	1.769	.500	.750	1.000	1.250	1.500	1/2-13
.937	1.219	1.500	1.781	2.062	.854	1.135	1.417	1.698	1.979	.562	.844	1.125	1.406	1.687	9/16-12
1.034	1.347	1.659	1.972	2.284	.943	1.256	1.568	1.881	2.193	.625	.937	1.250	1.562	1.875	5/8-11
1.200	1.575	1.950	2.325	2.700	1.100	1.475	1.850	2.225	2.600	.750	1.125	1.500	1.875	2.250	3/4-10
1.375	1.812	2.250	2.687	3.125	1.264	1.701	2.139	2.576	3.014	.875	1.312	1.750	2.187	2.625	7/8-9
1.562	2.062	2.562	3.062	3.562	1.437	1.937	2.437	2.937	3.437	1.000	1.500	2.000	2.500	3.000	1"-8
1.768	2.330	2.893	3.455	4.018	1.625	2.187	2.750	3.312	3.875	1.125	1.687	2.250	2.812	3.375	1 1/8-7
1.893	2.518	3.143	3.768	4.393	1.750	2.375	3.000	3.625	4.250	1.250	1.875	2.500	3.125	3.750	1 1/4-7
2.125	2.812	3.500	4.187	4.875	1.958	2.646	3.333	4.021	4.708	1.375	2.062	2.750	3.437	4.125	1 3/8-6
2.250	3.000	3.750	4.500	5.250	2.083	2.833	3.583	4.333	5.083	1.500	2.250	3.000	3.750	4.500	1 1/2-6

* To achieve optimum thread performance Wire Thread Inserts must be installed between 1/2 to 1 pitch below the surface of the tapped hole. For this reason the actual length of an installed insert is equal to dimension DL less 1/2 to 1 pitch.
 Dimensions AL and CL allow for tap end clearance of finishing taps. When using bottoming or spiral flute taps these dimensions may be reduced by an amount equal to 2 thread pitches. Any counterbore depths must be added to these dimensions.

BSF

THREADS TO:- BS 84



DRILLED HOLE

Dimensions in Inches unless otherwise stated.

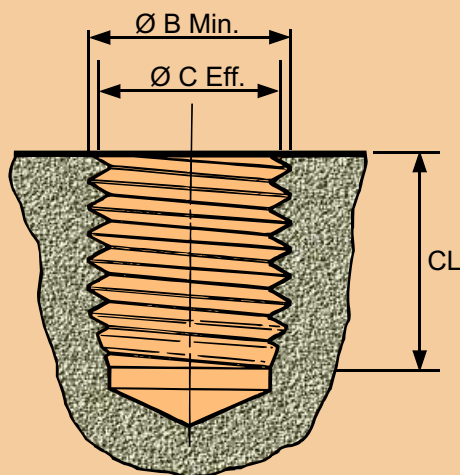
SIZE	NOM. DRILL	A	B	C(Close)	D(Close)	C(Med.)	D(Med.)	E
3/16-32	5 mm	.198 / .192	.2247	.2087 / .2075	.1697 / .1675	.2098 / .2075	.1708 / .1675	.1475
1/4-26	6.6 mm	.264 / .257	.2957	.2762 / .2747	.2279 / .2254	.2774 / .2747	.2291 / .2254	.2008
5/16-22	8.3 mm	.330 / .323	.3662	.3433 / .3416	.2861 / .2834	.3447 / .3416	.2875 / .2834	.2543
3/8-20	9.8 mm	.392 / .385	.4340	.4089 / .4070	.3459 / .3430	.4104 / .4070	.3474 / .3430	.3110
7/16-18	11.5 mm	.458 / .450	.5030	.4751 / .4730	.4050 / .4019	.4767 / .4730	.4066 / .4019	.3663
1/2-16	13.2 mm	.522 / .513	.5736	.5423 / .5400	.4633 / .4600	.5440 / .5400	.4650 / .4600	.4200
9/16-16	14.75 mm	.586 / .577	.6362	.6049 / .6025	.5259 / .5225	.6067 / .6025	.5277 / .5225	.4825
5/8-14	16.25 mm	.649 / .640	.7091	.6734 / .6708	.5829 / .5793	.6752 / .6708	.5847 / .5793	.5336
3/4-12	19.5 mm	.775 / .765	.8478	.8062 / .8033	.7005 / .6966	.8082 / .8033	.7025 / .6966	.6432
7/8-11	22.75 mm	.900 / .890	.9817	.9364 / .9332	.8210 / .8168	.9384 / .9332	.8230 / .8168	.7586
1"-10	26.25 mm	1.044 / 1.031	1.1173	1.0675 / 1.0641	.9404 / .9360	1.0697 / 1.0641	.9426 / .9360	.8720
1 1/8-9	29.5 mm	1.170 / 1.156	1.2551	1.1998 / 1.1962	1.0585 / 1.0539	1.2021 / 1.1962	1.0608 / 1.0539	.9828
1 1/4-9	1.281"	1.295 / 1.281	1.3803	1.3250 / 1.3212	1.1837 / 1.1789	1.3274 / 1.3212	1.1861 / 1.1789	1.1078
1 3/8-8	36 mm	1.420 / 1.406	1.5212	1.4591 / 1.4551	1.3000 / 1.2950	1.4616 / 1.4551	1.3025 / 1.2950	1.2150
1 1/2-8	39 mm	1.545 / 1.531	1.6464	1.5843 / 1.5801	1.4252 / 1.4200	1.5868 / 1.5801	1.4277 / 1.4200	1.3400

BSW

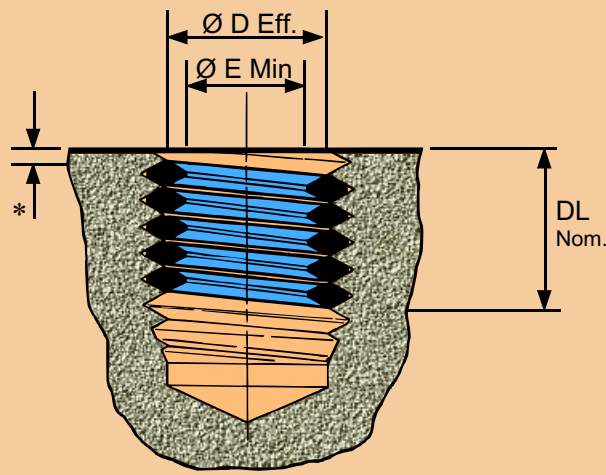
SIZE	NOM. DRILL	A	B	C(Close)	D(Close)	C(Med.)	D(Med.)	E
1/8-40	3.4 mm	.135 / .129	.1548	.1420 / .1410	.1109 / .1090	.1430 / .1410	.1119 / .1090	.0930
3/16-24	5 mm	.202 / .196	.2365	.2154 / .2142	.1631 / .1608	.2166 / .2142	.1643 / .1608	.1341
1/4-20	6.7 mm	.267 / .261	.3087	.2836 / .2820	.2206 / .2180	.2849 / .2820	.2219 / .2180	.1860
5/16-18	8.4 mm	.334 / .328	.3777	.3498 / .3480	.2797 / .2769	.3512 / .3480	.2811 / .2769	.2413
3/8-16	10 mm	.398 / .390	.4483	.4170 / .4150	.3380 / .3350	.4185 / .4150	.3395 / .3350	.2950
7/16-14	11.6 mm	.463 / .453	.5212	.4855 / .4833	.3950 / .3918	.4871 / .4833	.3966 / .3918	.3461
1/2-12	13.2 mm	.525 / .515	.5973	.5557 / .5533	.4500 / .4466	.5575 / .5533	.4518 / .4466	.3932
9/16-12	14.75 mm	.588 / .578	.6600	.6184 / .6158	.5127 / .5091	.6201 / .6158	.5144 / .5091	.4557
5/8-11	16.75 mm	.663 / .653	.7312	.6859 / .6832	.5705 / .5668	.6878 / .6832	.5724 / .5668	.5086
3/4-10	20 mm	.791 / .781	.8669	.8171 / .8141	.6900 / .6860	.8191 / .8141	.6920 / .6860	.6220
7/8-9	23.25 mm	.916 / .906	1.0048	.9495 / .9462	.8082 / .8039	.9516 / .9462	.8103 / .8039	.7328
1"-8	26.5 mm	1.044 / 1.031	1.1457	1.0836 / 1.0801	.9245 / .9200	1.0859 / 1.0801	.9268 / .9200	.8400
1 1/8-7	30 mm	1.186 / 1.171	1.2912	1.2203 / 1.2165	1.0383 / 1.0335	1.2227 / 1.2165	1.0407 / 1.0335	.9420
1 1/4-7	33 mm	1.311 / 1.296	1.4163	1.3454 / 1.3415	1.1634 / 1.1585	1.3479 / 1.3415	1.1659 / 1.1585	1.0670
1 1/2-6	39.5 mm	1.571 / 1.546	1.6936	1.6110 / 1.6067	1.3986 / 1.3933	1.6137 / 1.6067	1.4013 / 1.3933	1.2866

As with all engineering practice, the success of any drilling & tapping operation is dependant upon many factors, i.e. the type of material being cut : style of tap : cutting speed / feed : coolant type etc. Due to the vast range of parent material now available to the engineer it is not possible to make specific recommendations. However when using Wire Thread Inserts it is important that the above charted sizes for diameter & length are achieved.

Using WTI inserts it is possible to achieve a closer class of fit on the final installation than those indicated for tapped holes.



TAPPED HOLE



INSTALLED INSERT

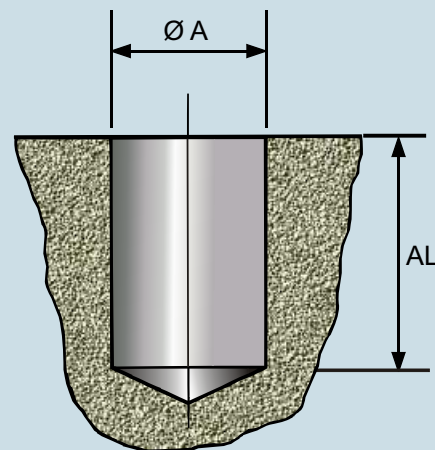
AL					CL					DL					SIZE
1D	1.5D	2D	2.5D	3D	1D	1.5D	2D	2.5D	3D	1D	1.5D	2D	2.5D	3D	
.328	.422	.515	.609	.703	.297	.390	.484	.578	.672	.187	.281	.375	.469	.562	3/16-32
.423	.548	.673	.798	.923	.385	.510	.635	.760	.885	.250	.375	.500	.625	.750	1/4-26
.517	.673	.829	.986	1.142	.472	.628	.784	.940	1.096	.312	.469	.625	.781	.937	5/16-22
.600	.787	.975	1.162	1.350	.550	.737	.925	1.112	1.300	.375	.562	.750	.937	1.125	3/8-20
.687	.906	1.124	1.343	1.562	.632	.851	1.069	1.288	1.507	.437	.656	.875	1.094	1.312	7/16-18
.781	1.031	1.281	1.531	1.781	.719	.969	1.219	1.469	1.719	.500	.750	1.000	1.250	1.500	1/2-16
.844	1.125	1.406	1.687	1.969	.781	1.062	1.344	1.625	1.906	.562	.844	1.125	1.406	1.687	9/16-16
.946	1.259	1.571	1.884	2.196	.875	1.187	1.500	1.812	2.125	.625	.937	1.250	1.562	1.875	5/8-14
1.125	1.500	1.875	2.250	2.625	1.042	1.417	1.792	2.167	2.542	.750	1.125	1.500	1.875	2.250	3/4-12
1.284	1.722	2.159	2.596	3.034	1.193	1.631	2.068	2.506	2.943	.875	1.312	1.750	2.187	2.625	7/8-11
1.450	1.950	2.450	2.950	3.450	1.350	1.850	2.350	2.850	3.350	1.000	1.500	2.000	2.500	3.000	1"-10
1.625	2.187	2.750	3.312	3.875	1.514	2.076	2.639	3.201	3.764	1.125	1.687	2.250	2.812	3.375	1 1/8-9
1.750	2.375	3.000	3.625	4.250	1.639	2.264	2.889	3.514	4.139	1.250	1.875	2.500	3.125	3.750	1 1/4-9
1.937	2.625	3.312	4.000	4.687	1.812	2.500	3.187	3.875	4.562	1.375	2.062	2.750	3.437	4.125	1 3/8-8
2.062	2.812	3.562	4.312	5.062	1.937	2.687	3.437	4.187	4.937	1.500	2.250	3.000	3.750	4.500	1 1/2-8

AL					CL					DL					SIZE
1D	1.5D	2D	2.5D	3D	1D	1.5D	2D	2.5D	3D	1D	1.5D	2D	2.5D	3D	
.237	.300	.362	.425	.487	.212	.275	.337	.400	.462	.125	.187	.250	.312	.375	1/8-40
.375	.469	.562	.656	.750	.333	.427	.521	.614	.708	.187	.281	.375	.469	.562	3/16-24
.475	.600	.725	.850	.975	.425	.550	.675	.800	.925	.250	.375	.500	.625	.750	1/4-20
.562	.718	.875	1.031	1.187	.507	.663	.819	.975	1.132	.312	.469	.625	.781	.937	5/16-18
.656	.844	1.031	1.219	1.406	.594	.781	.969	1.156	1.344	.375	.562	.750	.937	1.125	3/8-16
.758	.977	1.196	1.415	1.633	.687	.906	1.125	1.344	1.562	.437	.656	.875	1.094	1.312	7/16-14
.875	1.125	1.375	1.625	1.875	.792	1.042	1.292	1.542	1.792	.500	.750	1.000	1.250	1.500	1/2-12
.937	1.219	1.500	1.781	2.062	.854	1.135	1.417	1.698	1.979	.562	.844	1.125	1.406	1.687	9/16-12
1.034	1.347	1.659	1.972	2.284	.943	1.256	1.568	1.881	2.193	.625	.937	1.250	1.562	1.875	5/8-11
1.200	1.575	1.950	2.325	2.700	1.100	1.475	1.850	2.225	2.600	.750	1.125	1.500	1.875	2.250	3/4-10
1.375	1.812	2.250	2.687	3.125	1.264	1.701	2.139	2.576	3.014	.875	1.312	1.750	2.187	2.625	7/8-9
1.562	2.062	2.562	3.062	3.562	1.437	1.937	2.437	2.937	3.437	1.000	1.500	2.000	2.500	3.000	1"-8
1.768	2.330	2.893	3.455	4.018	1.625	2.187	2.750	3.312	3.875	1.125	1.687	2.250	2.812	3.375	1 1/8-7
1.893	2.518	3.143	3.768	4.393	1.750	2.375	3.000	3.625	4.250	1.250	1.875	2.500	3.125	3.750	1 1/4-7
2.250	3.000	3.750	4.500	5.250	2.083	2.833	3.583	4.333	5.083	1.500	2.250	3.000	3.750	4.500	1 1/2-6

* To achieve optimum thread performance Wire Thread Inserts must be installed between 1/2 to 1 pitch below the surface of the tapped hole. For this reason the actual length of an installed insert is equal to dimension DL less 1/2 to 1 pitch.
Dimensions AL and CL allow for tap end clearance of finishing taps. When using bottoming or spiral flute taps these dimensions may be reduced by an amount equal to 2 thread pitches. Any counterbore depths must be added to these dimensions.

BSP

THREADS TO:- BS 2779
BS 21
DIN 2999
ISO 288/1



DRILLED HOLE

Dimensions in Inches unless otherwise stated.

SIZE	NOM. DRILL	A	B	C(Close)	D(Close)	C(Med.)	D(Med.)	E
1/8-28	10 mm	.400 / .390	.4258	.4076 / .4058	.3629 / .3601	.4090 / .4058	.3643 / .3601	.3372
1/4-19	13.6 mm	.540 / .530	.5803	.5539 / .5517	.4875 / .4843	.5556 / .5517	.4892 / .4843	.4506
3/8-19	17.25 mm	.680 / .670	.7184	.6920 / .6897	.6256 / .6223	.6937 / .6897	.6273 / .6223	.5886
1/2-14	21.5 mm	.850 / .840	.9092	.8735 / .8708	.7830 / .7793	.8754 / .8708	.7849 / .7793	.7336
5/8-14	23.5 mm	.927 / .915	.9863	.9506 / .9478	.8601 / .8563	.9524 / .9478	.8619 / .8563	.8106
3/4-14	27 mm	1.066 / 1.053	1.1255	1.0898 / 1.0868	.9993 / .9953	1.0918 / 1.0868	1.0013 / .9953	.9496
7/8-14	30.5 mm	1.213 / 1.200	1.2735	1.2378 / 1.2348	1.1473 / 1.1433	1.2399 / 1.2348	1.1494 / 1.1433	1.0976
1"-11	1.3281	1.335 / 1.320	1.4158	1.3705 / 1.3673	1.2551 / 1.2508	1.3727 / 1.3673	1.2573 / 1.2508	1.1926
1 1/4-11	42.5 mm	1.680 / 1.665	1.7571	1.7118 / 1.7083	1.5964 / 1.5918	1.7141 / 1.7083	1.5987 / 1.5918	1.5336
1 1/2-11	48.5 mm	1.921 / 1.906	1.9893	1.9440 / 1.9403	1.8286 / 1.8238	1.9464 / 1.9403	1.8310 / 1.8238	1.7656

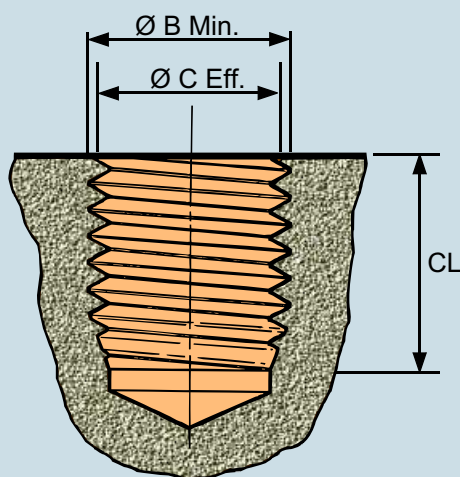
BA

THREADS TO:- BS 93

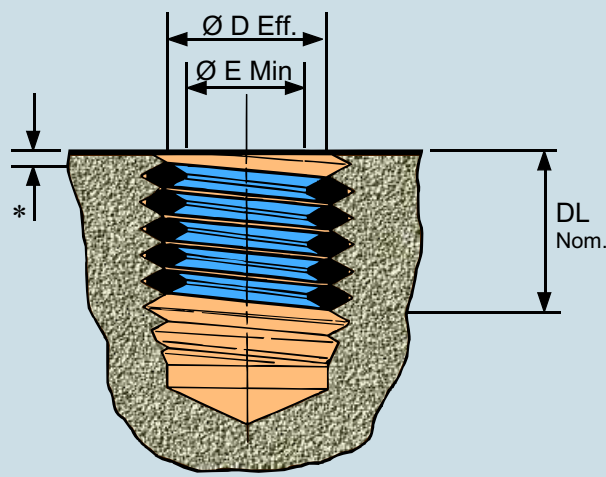
SIZE	NOM. DRILL	A	B	C(Normal)	D(Normal)	E
6BA	2.9 mm	.116 / .113	.1339	.1252 / .1226	.1014 / .0976	.0850
5BA	3.4 mm	.135 / .129	.1522	.1426 / .1399	.1159 / .1120	.0980
4BA	3.8 mm	.152 / .147	.1711	.1605 / .1574	.1305 / .1262	.1106
3BA	4.3 mm	.171 / .166	.1938	.1821 / .1786	.1488 / .1441	.1268
2BA	4.9 mm	.196 / .191	.2208	.2079 / .2042	.1709 / .1659	.1468
1BA	5.5 mm	.220 / .213	.2485	.2342 / .2299	.1929 / .1874	.1661
0BA	6.2 mm	.246 / .241	.2805	.2645 / .2598	.2185 / .2126	.1890

As with all engineering practice, the success of any drilling & tapping operation is dependant upon many factors, i.e. the type of material being cut : style of tap : cutting speed / feed : coolant type etc. Due to the vast range of parent material now available to the engineer it is not possible to make specific recommendations. However when using Wire Thread Inserts it is important that the above charted sizes for diameter & length are achieved.

Using WTI inserts it is possible to achieve a closer class of fit on the final installation than those indicated for tapped holes.



TAPPED HOLE



INSTALLED INSERT

AL					CL					DL					SIZE
1D	1.5D	2D	2.5D	3D	1D	1.5D	2D	2.5D	3D	1D	1.5D	2D	2.5D	3D	
.286	.348	.411	.437	.536	.250	.312	.375	.437	.500	.125	.187	.250	.312	.375	1/8-28
.487	.612	.737	.862	.987	.434	.559	.684	.809	.934	.250	.375	.500	.625	.750	1/4-19
.612	.799	.987	1.174	1.362	.559	.747	.934	1.122	1.309	.375	.562	.750	.937	1.125	3/8-19
.821	1.071	1.321	1.571	1.821	.750	1.000	1.250	1.500	1.750	.500	.750	1.000	1.250	1.500	1/2-14
.946	1.258	1.571	1.883	2.196	.875	1.187	1.500	1.812	2.125	.625	.937	1.250	1.562	1.875	5/8-14
1.071	1.446	1.821	2.196	2.571	1.000	1.375	1.750	2.125	2.500	.750	1.125	1.500	1.875	2.250	3/4-14
1.196	1.634	2.071	2.509	2.946	1.125	1.562	2.000	2.437	2.875	.875	1.312	1.750	2.187	2.625	7/8-14
1.409	1.909	2.409	2.909	3.409	1.318	1.818	2.318	2.818	3.318	1.000	1.500	2.000	2.500	3.000	1"-11
1.660	2.284	2.909	3.534	4.159	1.568	2.193	2.818	3.443	4.068	1.250	1.875	2.500	3.125	3.750	1 1/4"-11
1.909	2.659	3.409	4.159	4.909	1.818	2.568	3.318	4.068	4.818	1.500	2.250	3.000	3.750	4.500	1 1/2"-11

AL					CL					DL					SIZE
1D	1.5D	2D	2.5D	3D	1D	1.5D	2D	2.5D	3D	1D	1.5D	2D	2.5D	3D	
.204	.259	.314	.369	.424	.183	.238	.293	.348	.404	.110	.165	.220	.275	.331	6BA
.230	.293	.356	.419	.482	.207	.270	.333	.396	.459	.126	.189	.252	.315	.378	5BA
.259	.329	.400	.471	.542	.233	.303	.374	.445	.516	.142	.212	.283	.354	.425	4BA
.291	.371	.452	.533	.613	.262	.343	.423	.504	.585	.161	.242	.323	.403	.484	3BA
.328	.421	.513	.606	.698	.297	.389	.482	.574	.667	.185	.277	.370	.462	.555	2BA
.368	.472	.576	.681	.785	.333	.437	.541	.646	.750	.209	.313	.417	.522	.626	1BA
.413	.531	.649	.768	.886	.374	.492	.610	.728	.846	.236	.354	.472	.590	.709	0BA

* To achieve optimum thread performance Wire Thread Inserts must be installed between 1/2 to 1 pitch below the surface of the tapped hole. For this reason the actual length of an installed insert is equal to dimension DL less 1/2 to 1 pitch.
Dimensions AL and CL allow for tap end clearance of finishing taps. When using bottoming or spiral flute taps these dimensions may be reduced by an amount equal to 2 thread pitches. Any counterbore depths must be added to these dimensions.