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MARYLAND METRICS
THREAD DATA CHARTS

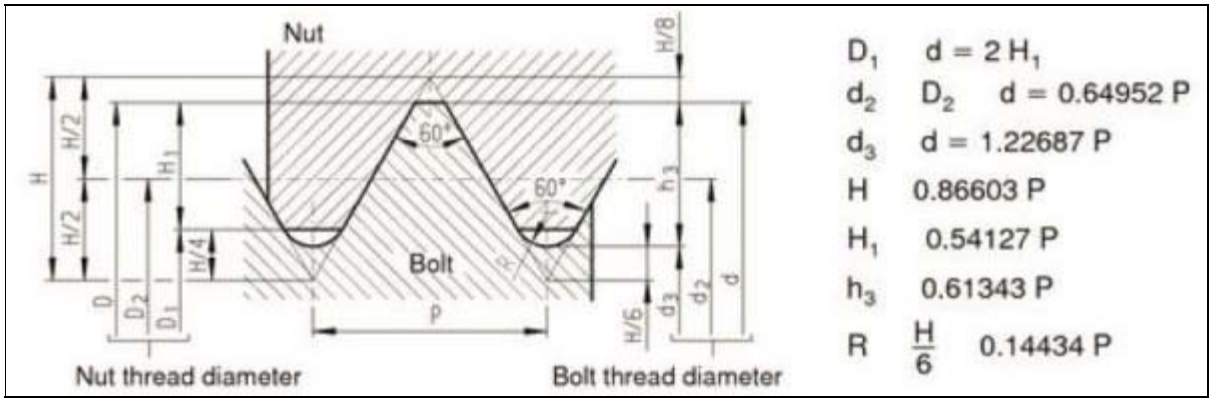
THREAD DATA CHART INDEX

■ = newly added item or revised item

THINK!- MARYLAND METRICS - The One-Stop Source For Metric And British Sized Fasteners,

MARYLAND METRICS
THREAD DATA CHARTS

METRIC THREAD -- COARSE PITCH -- M



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Metric Thread -- Extended Thread Size Range (online only)

MARYLAND METRICS -- THREAD DATA CHART: Metric Thread -- Coarse Pitch										
Nominal Size ISO M	Thread Form Type	Major Diameter mm d=D	Pitch mm p	Root Radius mm r	Pitch Diameter mm d2=D2	Minor Diameter Male Thd. d3	Minor Diameter Female Thd. D1	Thread Height Male Thd. h3	Thread Height Female Thd. H1	Tap Drill Diameter mm
1.00	M	1.00	0.25	0.036	0.838	0.693	0.729	0.153	0.135	0.75
1.10	M	1.10	0.25	0.036	0.938	0.793	0.829	0.153	0.135	0.85
1.20	M	1.20	0.25	0.036	1.038	0.893	0.929	0.153	0.135	0.95
1.40	M	1.40	0.30	0.043	1.205	1.032	1.075	0.184	0.162	1.10
1.60	M	1.60	0.35	0.051	1.373	1.171	1.221	0.215	0.189	1.25
1.80	M	1.80	0.35	0.051	1.573	1.371	1.421	0.215	0.189	1.45
2.00	M	2.00	0.40	0.058	1.740	1.509	1.567	0.245	0.217	1.60
2.20	M	2.20	0.45	0.065	1.908	1.648	1.713	0.276	0.244	1.75
2.50	M	2.50	0.45	0.065	2.208	1.948	2.013	0.276	0.244	2.05
3.00	M	3.00	0.50	0.072	2.675	2.387	2.459	0.307	0.271	2.50
3.50	M	3.50	0.60	0.087	3.110	2.764	2.850	0.368	0.325	2.90
4.00	M	4.00	0.70	0.101	3.545	3.141	3.242	0.429	0.379	3.30
4.50	M	4.50	0.75	0.108	4.013	3.580	3.688	0.460	0.406	3.80
5.00	M	5.00	0.80	0.115	4.480	4.019	4.134	0.491	0.433	4.20
6.00	M	6.00	1.00	0.144	5.350	4.773	4.917	0.613	0.541	5.00
7.00	M	7.00	1.00	0.144	6.350	5.773	5.917	0.613	0.541	6.00
8.00	M	8.00	1.25	0.180	7.188	6.466	6.647	0.767	0.677	6.80
9.00	M	9.00	1.25	0.180	8.188	7.466	7.647	0.767	0.677	7.80
10.00	M	10.00	1.50	0.217	9.026	8.160	8.376	0.920	0.812	8.50
11.00	M	11.00	1.50	0.217	10.026	9.160	9.376	0.920	0.812	9.50
12.00	M	12.00	1.75	0.253	10.863	9.853	10.106	1.074	0.947	10.20
14.00	M	14.00	2.00	0.289	12.701	11.546	11.835	1.227	1.083	12.00
16.00	M	16.00	2.00	0.289	14.701	13.546	13.835	1.227	1.083	14.00
18.00	M	18.00	2.50	0.361	16.376	14.933	15.394	1.534	1.353	15.50
20.00	M	20.00	2.50	0.361	18.376	16.933	17.294	1.534	1.353	17.50
22.00	M	22.00	2.50	0.361	20.376	18.933	19.294	1.534	1.353	19.50

24.00	M	24.00	3.00	0.433	22.051	20.319	20.752	1.840	1.624	21.00
27.00	M	27.00	3.00	0.433	25.051	23.319	23.752	1.840	1.624	24.00
30.00	M	30.00	3.50	0.505	27.727	25.706	26.211	2.147	1.894	26.50
33.00	M	33.00	3.50	0.505	30.727	28.706	29.211	2.147	1.894	29.50
36.00	M	36.00	4.00	0.577	33.402	31.093	31.670	2.454	2.165	32.00
39.00	M	39.00	4.00	0.577	36.402	34.093	34.670	2.454	2.165	35.00
42.00	M	42.00	4.50	0.650	39.077	36.479	37.129	2.760	2.436	37.50
45.00	M	45.00	4.50	0.650	42.077	39.479	40.129	2.760	2.436	40.50
48.00	M	48.00	5.00	0.722	44.752	41.866	42.857	3.067	2.706	43.00
52.00	M	52.00	5.00	0.722	48.752	45.866	46.587	3.067	2.706	47.00
56.00	M	56.00	5.50	0.794	52.428	49.252	50.046	3.374	2.977	50.50
60.00	M	60.00	5.50	0.794	56.428	53.252	54.046	3.374	2.977	54.50
64.00	M	64.00	6.00	0.866	60.103	56.639	57.505	3.681	3.248	58.00
68.00	M	68.00	6.00	0.866	64.103	60.639	61.505	3.681	3.248	62.00
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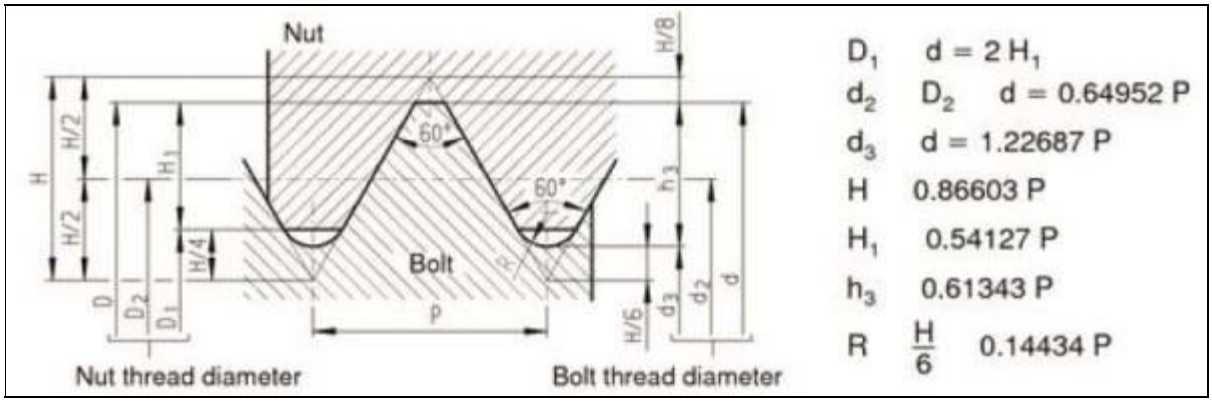
Metric Thread -- Extended Thread Size Range (online only)

MARYLAND METRICS
THREAD DATA CHARTS

METRIC THREAD -- FINE PITCH -- M (1 mm - 28 mm)



Click here to return to the thread data chart page index.

Metric Thread -- Extended Thread Size Range (online only)

MARYLAND METRICS -- THREAD DATA CHART: Metric Thread -- Fine Pitch

Nominal Size ISO MF	Thread Form Type	Major Diameter mm d=D	Pitch mm p	Root Radius mm r	Pitch Diameter mm d2=D2	Minor Diameter Male Thd. d3	Minor Diameter Female Thd. D1	Thread Height Male Thd. h3	Thread Height Female Thd. H1	Tap Drill Diameter mm
1.0x0.2	M	1.00	0.20	0.029	0.870	0.755	0.783	0.123	0.108	0.80
1.1x0.2	M	1.10	0.20	0.029	0.970	0.855	0.883	0.123	0.108	0.90
1.2x0.2	M	1.20	0.20	0.029	1.070	0.955	0.983	0.123	0.108	1.00
1.4z0.2	M	1.40	0.20	0.029	1.270	1.155	1.183	0.123	0.108	1.20
1.6x0.2	M	1.60	0.20	0.029	1.470	1.355	1.383	0.123	0.108	1.40
1.8x0.2	M	1.80	0.20	0.029	1.670	1.555	1.583	0.123	0.108	1.60
2x0.25	M	2.00	0.25	0.036	1.838	1.693	1.729	0.153	0.135	1.75
2.2x0.25	M	2.20	0.25	0.036	2.038	1.893	1.929	0.153	0.135	1.95
2.5x0.35	M	2.50	0.35	0.051	2.273	2.071	2.121	0.215	0.189	2.10
3x0.35	M	3.00	0.35	0.051	2.773	2.571	2.621	0.215	0.189	2.60
3.5x0.35	M	3.50	0.35	0.051	3.273	3.071	3.121	0.215	0.189	3.10
4x0.5	M	4.00	0.50	0.072	3.675	3.387	3.459	0.307	0.271	3.50
4.5x0.5	M	4.50	0.50	0.072	4.175	3.887	3.959	0.307	0.271	4.00
5x0.5	M	5.00	0.50	0.072	4.675	4.387	4.459	0.307	0.271	4.50
5.5x0.5	M	5.50	0.50	0.072	5.175	4.887	4.959	0.307	0.271	5.00
6x0.75	M	6.00	0.75	0.108	5.513	5.080	5.188	0.460	0.406	5.20
7x0.75	M	7.00	0.75	0.108	6.513	6.080	6.188	0.460	0.406	6.20
8x0.75	M	8.00	0.75	0.108	7.513	7.080	7.188	0.460	0.406	7.20
8x1.0	M	8.00	1.00	0.144	7.350	6.773	6.917	0.613	0.541	7.00
9x0.75	M	9.00	0.75	0.108	8.513	8.080	8.188	0.460	0.406	8.20
9x 1	M	9.00	1.00	0.144	8.350	7.773	7.917	0.613	0.541	8.00
10x0.75	M	10.00	0.75	0.108	9.513	9.080	9.188	0.460	0.406	9.20
10x1	M	10.00	1.00	0.144	9.350	8.773	8.917	0.613	0.541	9.00
10x1.25	M	10.00	1.25	0.180	9.188	8.466	8.647	0.767	0.677	8.80

11x0.75	M	11.00	0.75	0.108	10.513	10.080	10.188	0.460	0.406	10.20
11x1	M	11.00	1.00	0.144	10.350	9.773	9.917	0.613	0.541	10.00
12x1	M	12.00	1.00	0.144	11.350	10.773	10.917	0.613	0.541	11.00
12x1.25	M	12.00	1.25	0.180	11.188	10.466	10.647	0.767	0.677	10.80
12x1.5	M	12.00	1.50	0.217	11.026	10.160	10.376	0.920	0.812	10.50
14x1.0	M	14.00	1.00	0.144	13.350	12.773	12.917	0.613	0.541	13.00
14x1.25	M	14.00	1.25	0.180	13.188	12.466	12.647	0.767	0.677	12.80
14x1.5	M	14.00	1.50	0.217	13.026	12.160	12.376	0.920	0.812	12.50
15x1	M	15.00	1.00	0.144	14.350	13.773	13.917	0.613	0.541	14.00
15x1.5	M	15.00	1.50	0.217	14.026	13.160	13.376	0.920	0.812	13.50
16x1	M	16.00	1.00	0.144	15.350	14.773	14.917	0.613	0.541	15.00
16x1.5	M	16.00	1.50	0.217	15.026	14.160	14.376	0.920	0.812	14.50
17x1.0	M	17.00	1.00	0.144	16.350	15.773	15.917	0.613	0.541	16.00
17x1.5	M	17.00	1.50	0.217	16.026	15.160	15.376	0.920	0.812	15.50
18x1.0	M	18.00	1.00	0.144	17.350	16.773	16.917	0.613	0.541	17.00
18x1.5	M	18.00	1.50	0.217	17.026	16.160	16.376	0.920	0.812	16.50
18x2.0	M	18.00	2.00	0.289	16.701	15.546	15.835	1.227	1.083	16.00
20x1.0	M	20.00	1.00	0.144	19.350	18.773	18.917	0.613	0.541	19.00
20x1.5	M	20.00	1.50	0.217	19.026	18.160	18.376	0.920	0.812	18.50
20x2.0	M	20.00	2.00	0.289	18.701	17.546	17.835	1.227	1.083	18.00
22x1.0	M	22.00	1.00	0.144	21.350	20.773	20.917	0.613	0.541	21.00
22x1.5	M	22.00	1.50	0.217	21.026	20.160	20.376	0.920	0.812	20.50
22x2.0	M	22.00	2.00	0.289	20.701	19.546	19.835	1.227	1.083	20.00
24x1.0	M	24.00	1.00	0.144	23.350	22.773	22.917	0.613	0.541	23.00
24x1.5	M	24.00	1.50	0.217	23.026	22.160	22.376	0.920	0.812	22.50
24x2.0	M	24.00	2.00	0.289	22.701	21.546	21.835	1.227	1.083	22.00
25x1.0	M	25.00	1.00	0.144	24.350	23.773	23.917	0.613	0.541	24.00
25x1.5	M	25.00	1.50	0.217	24.026	23.160	23.376	0.920	0.812	23.50
25x2.0	M	25.00	2.00	0.289	23.701	22.546	22.835	1.227	1.083	23.00
27x1.0	M	27.00	1.00	0.144	26.350	25.773	25.917	0.613	0.541	26.00
27x1.5	M	27.00	1.50	0.217	26.026	25.160	25.376	0.920	0.812	25.50
27x2.0	M	27.00	2.00	0.289	25.701	24.546	24.835	1.227	1.083	25.00
28x1.0	M	28.00	1.00	0.144	27.350	26.773	26.917	0.613	0.541	27.00
28x1.5	M	28.00	1.50	0.217	27.026	26.160	26.376	0.920	0.812	26.50
28x2.0	M	28.00	2.00	0.289	26.701	25.546	25.835	1.227	1.083	26.00
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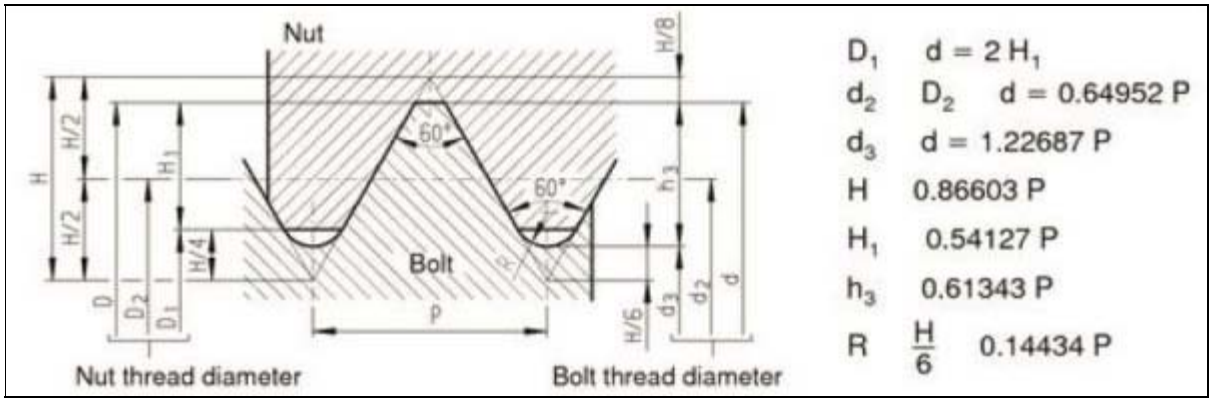
Click here to return to the thread data chart page index.

Metric Thread -- Extended Thread Size Range (online only)

MARYLAND METRICS
THREAD DATA CHARTS

METRIC THREAD -- FINE PITCH -- M (30 mm - 64 mm)



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Metric Thread -- Extended Thread Size Range (online only)

MARYLAND METRICS -- THREAD DATA CHART: Metric Thread -- Fine Pitch

Nominal Size ISO MF	Thread Form Type	Major Diameter mm d=D	Pitch mm p	Root Radius mm r	Pitch Diameter mm d2=D2	Minor Diameter Male Thd. d3	Minor Diameter Female Thd. D1	Thread Height Male Thd. h3	Thread Height Female Thd. H1	Tap Drill Diameter mm
30x1.0	M	30.00	1.00	0.144	29.350	28.773	28.917	0.613	0.541	29.00
30x1.5	M	30.00	1.50	0.217	29.026	28.160	28.376	0.920	0.812	28.50
30x2.0	M	30.00	2.00	0.289	28.701	27.546	27.835	1.227	1.083	28.00
30x3.0	M	30.00	3.00	0.433	28.051	26.319	26.752	1.840	1.624	27.00
32x1.5	M	32.00	1.50	0.217	31.026	30.160	30.376	0.920	0.812	30.50
32x2.0	M	32.00	2.00	0.289	30.701	29.546	29.835	1.227	1.083	30.00
33x1.5	M	33.00	1.50	0.217	32.026	31.160	31.376	0.920	0.812	31.50
33x2.0	M	33.00	2.00	0.289	31.701	30.546	30.835	1.227	1.083	31.00
33x3.0	M	33.00	3.00	0.433	31.051	29.319	29.752	1.840	1.624	30.00
35x1.5	M	35.00	1.50	0.217	34.026	33.160	33.376	0.920	0.812	33.50
35x2.0	M	35.00	2.00	0.289	33.701	32.546	32.835	1.227	1.083	33.00
36x1.5	M	36.00	1.50	0.217	35.026	34.160	34.376	0.920	0.812	34.50
36x2.0	M	36.00	2.00	0.289	34.701	33.546	33.835	1.227	1.083	34.00
36x3.0	M	36.00	3.00	0.433	34.051	32.319	32.752	1.840	1.624	33.00
39x1.5	M	39.00	1.50	0.217	38.026	37.160	37.376	0.920	0.812	37.50
39x2.0	M	39.00	2.00	0.289	37.701	36.546	36.835	1.227	1.083	37.00
39x3.0	M	39.00	3.00	0.433	37.051	35.319	35.752	1.840	1.624	36.00
40x1.5	M	40.00	1.50	0.217	39.026	38.160	38.376	0.920	0.812	38.50
40x2.0	M	40.00	2.00	0.289	38.701	37.546	37.835	1.227	1.083	38.00
40x3.0	M	40.00	3.00	0.433	38.051	36.619	36.752	1.840	1.624	37.00
42x1.5	M	42.00	1.50	0.217	41.026	40.160	40.376	0.920	0.812	40.50
42x2.0	M	42.00	2.00	0.289	40.701	39.546	39.835	1.227	1.083	40.00
42x3.0	M	42.00	3.00	0.433	40.051	38.319	38.752	1.840	1.624	39.00
42x4.0	M	42.00	4.00	0.577	39.402	37.093	37.670	2.454	2.165	38.00

45x1.5	M	45.00	1.50	0.217	44.026	43.160	43.376	0.920	0.812	43.50
45x2.0	M	45.00	2.00	0.289	43.701	42.546	42.835	1.227	1.083	43.00
45x3.0	M	45.00	3.00	0.433	43.051	41.319	41.752	1.840	1.624	42.00
45x4.0	M	45.00	4.00	0.577	42.402	40.093	40.670	2.454	2.165	41.00
48x1.5	M	48.00	1.50	0.217	47.026	46.160	46.376	0.920	0.812	46.50
48x2.0	M	48.00	2.00	0.289	46.701	45.546	45.835	1.227	1.083	46.00
48x3.0	M	48.00	3.00	0.433	46.051	44.319	44.752	1.840	1.624	45.00
48x4.0	M	48.00	4.00	0.577	45.402	43.093	43.670	2.454	2.165	44.00
50x1.5	M	50.00	1.50	0.217	49.026	48.160	48.376	0.920	0.812	48.50
50x2.0	M	50.00	2.00	0.289	48.701	47.546	47.835	1.227	1.083	48.00
50x3.0	M	50.00	3.00	0.433	48.051	46.319	46.752	1.840	1.624	47.00
52x1.5	M	52.00	1.50	0.217	51.026	50.160	50.376	0.920	0.812	50.50
52x2.0	M	52.00	2.00	0.289	50.701	49.546	49.835	1.227	1.083	50.00
52x3.0	M	52.00	3.00	0.433	50.051	48.319	48.752	1.840	1.624	49.00
52x4.0	M	52.00	4.00	0.577	49.402	47.093	47.670	2.454	2.165	48.00
55x1.5	M	55.00	1.50	0.217	54.026	53.160	53.376	0.920	0.812	53.50
55x2.0	M	55.00	2.00	0.289	53.701	52.546	52.835	1.227	1.083	53.00
55x3.0	M	55.00	3.00	0.433	53.051	51.319	51.752	1.840	1.624	52.00
55x4.0	M	55.00	4.00	0.577	52.402	50.093	50.670	2.454	2.165	51.00
56x1.5	M	56.00	1.50	0.217	55.026	54.160	54.376	0.920	0.812	54.50
56x2.0	M	56.00	2.00	0.289	54.701	43.546	53.835	1.227	1.083	54.00
56x3.0	M	56.00	3.00	0.433	54.051	52.319	52.752	1.840	1.624	53.00
56x4.0	M	56.00	4.00	0.577	53.402	51.903	51.670	2.454	2.165	52.00
58x1.5	M	58.00	1.50	0.217	57.026	56.160	56.376	0.920	0.812	56.50
58x2.0	M	58.00	2.00	0.289	56.701	55.546	55.835	1.227	1.083	56.00
58x3.0	M	58.00	3.00	0.433	56.051	54.319	54.752	1.840	1.624	55.00
58x4.0	M	58.00	4.00	0.577	55.402	53.093	53.670	2.454	2.165	54.00
60x1.5	M	60.00	1.50	0.217	59.026	58.160	58.376	0.920	0.812	58.50
60x2.0	M	60.00	2.00	0.289	58.701	57.546	57.835	1.227	1.083	58.00
60x3.0	M	60.00	3.00	0.433	58.051	56.319	56.752	1.840	1.624	57.00
60x4.0	M	60.00	4.00	0.577	57.402	55.093	55.670	2.454	2.165	56.00
62x1.5	M	62.00	1.50	0.217	61.026	60.160	60.376	0.920	0.812	60.50
62x2.0	M	62.00	2.00	0.289	60.701	59.546	59.835	1.227	1.083	60.00
62x3.0	M	62.00	3.00	0.433	60.051	58.319	58.752	1.840	1.624	59.00
62x4.0	M	62.00	4.00	0.577	59.402	57.093	57.670	2.454	2.165	58.00
64x1.5	M	64.00	1.50	0.217	63.026	62.160	62.376	0.920	0.812	62.50
64x2.0	M	64.00	2.00	0.289	62.701	61.546	61.835	1.227	1.083	62.00
64x3.0	M	64.00	3.00	0.433	62.051	60.319	60.752	1.840	1.624	61.00
64x4.0	M	64.00	4.00	0.577	61.402	59.093	59.670	2.454	2.165	60.00
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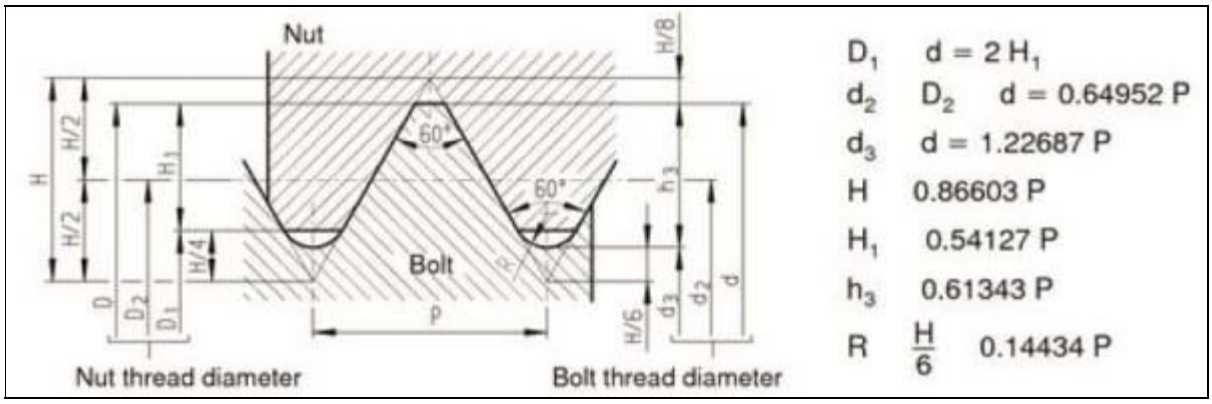
Click here to return to the thread data chart page index.

Metric Thread -- Extended Thread Size Range (online only)

MARYLAND METRICS
THREAD DATA CHARTS

METRIC THREAD -- FINE PITCH -- M (65 mm - 100 mm)



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Metric Thread -- Extended Thread Size Range (online only)

MARYLAND METRICS -- THREAD DATA CHART: Metric Thread -- Fine Pitch

Nominal Size ISO MF	Thread Form Type	Major Diameter mm d=D	Pitch mm p	Root Radius mm r	Pitch Diameter mm d2=D2	Minor Diameter Male Thd. d3	Minor Diameter Female Thd. D1	Thread Height Male Thd. h3	Thread Height Female Thd. H1	Tap Drill Diameter mm
65x1.5	M	65.00	1.50	0.217	64.026	63.160	63.376	0.920	0.812	63.50
65x2.0	M	65.00	2.00	0.289	63.789	62.546	62.835	1.227	1.083	63.00
65x3.0	M	65.00	3.00	0.433	63.051	61.319	61.752	1.840	1.624	62.00
65x4.0	M	65.00	4.00	0.577	62.402	60.093	60.670	2.454	2.165	61.00
68x1.5	M	68.00	1.50	0.217	67.026	66.160	66.376	0.920	0.812	66.50
68x2.0	M	68.00	2.00	0.289	66.701	65.546	65.835	1.227	1.083	66.00
68x3.0	M	68.00	3.00	0.433	66.051	64.319	64.752	1.840	1.624	65.00
68x4.0	M	68.00	4.00	0.577	65.402	63.093	63.670	2.454	2.165	64.00
70x1.5	M	70.00	1.50	0.217	69.026	68.160	68.376	0.920	0.812	68.50
70x2.0	M	70.00	2.00	0.289	68.201	67.546	67.835	1.227	1.083	68.00
70x3.0	M	70.00	3.00	0.433	68.051	66.319	66.752	1.840	1.624	67.00
70x4.0	M	70.00	4.00	0.577	67.402	65.093	65.670	2.454	2.165	66.00
70x6.0	M	70.00	6.00	0.866	66.103	62.639	63.505	3.681	3.248	64.00
72x1.5	M	72.00	1.50	0.217	71.026	70.160	70.376	0.920	0.812	70.50
72x2.0	M	72.00	2.00	0.289	70.701	69.546	69.835	1.227	1.083	70.00
72x3.0	M	72.00	3.00	0.433	70.051	68.319	68.752	1.840	1.624	69.00
72x4.0	M	72.00	4.00	0.577	69.402	67.093	67.670	2.454	2.165	68.00
72x6.0	M	72.00	6.00	0.866	68.103	64.639	65.505	3.681	3.248	66.00
75x1.5	M	75.00	1.50	0.217	74.026	73.160	73.376	0.920	0.812	73.50
75x2.0	M	75.00	2.00	0.289	73.701	72.546	72.835	1.227	1.083	73.00
75x3.0	M	75.00	3.00	0.433	73.051	71.319	71.752	1.840	1.624	72.00
75x4.0	M	75.00	4.00	0.577	72.402	70.093	70.670	2.454	2.165	71.00
75x6.0	M	75.00	6.00	0.866	71.103	67.639	68.505	3.681	3.248	69.00
76x1.5	M	76.00	1.50	0.217	75.026	74.160	74.376	0.920	0.812	74.50

76x2.0	M	76.00	2.00	0.289	74.701	73.546	73.835	1.227	1.083	74.00
76x3.0	M	76.00	3.00	0.433	74.051	72.319	72.752	1.840	1.624	73.00
76x4.0	M	76.00	4.00	0.577	73.402	71.093	71.670	2.454	2.165	72.00
76x6.0	M	76.00	6.00	0.866	72.103	68.639	69.505	3.681	3.248	70.00
80x1.5	M	80.00	1.50	0.217	79.026	78.160	78.376	0.920	0.812	78.50
80x2.0	M	80.00	2.00	0.289	78.701	77.546	77.835	1.227	1.083	78.00
80x3.0	M	80.00	3.00	0.433	78.051	76.319	76.752	1.840	1.624	77.00
80x4.0	M	80.00	4.00	0.577	77.402	75.093	75.670	2.454	2.165	76.00
80x6.0	M	80.00	6.00	0.866	76.103	72.639	73.505	3.681	3.248	74.00
85x2.0	M	85.00	2.00	0.289	83.701	82.546	82.535	1.227	1.083	83.00
85x3.0	M	85.00	3.00	0.433	83.051	81.319	81.752	1.840	1.624	82.00
85x4.0	M	85.00	4.00	0.577	82.402	80.093	80.670	2.454	2.165	81.00
85x6.0	M	85.00	6.00	0.866	81.103	77.639	78.505	3.681	3.248	79.00
90x2.0	M	90.00	2.00	0.289	88.701	87.546	87.835	1.227	1.083	88.00
90x3.0	M	90.00	3.00	0.433	88.051	86.319	86.752	1.840	1.624	87.00
90x4.0	M	90.00	4.00	0.577	87.402	85.093	85.670	2.454	2.165	86.00
90x6.0	M	90.00	6.00	0.866	86.103	82.639	83.505	3.681	0.328	84.00
95x2.0	M	95.00	2.00	0.289	93.701	92.546	92.835	1.227	1.083	93.00
95x3.0	M	95.00	3.00	0.433	93.051	91.319	91.752	1.840	1.624	92.00
95x4.0	M	95.00	4.00	0.577	92.402	90.093	90.670	2.454	2.165	91.00
95x6.0	M	95.00	6.00	0.866	91.103	87.639	88.505	3.681	3.248	89.00
100x2.0	M	100.00	2.00	0.289	98.701	97.546	97.835	1.227	1.083	98.00
100x3.0	M	100.00	3.00	0.433	98.051	96.319	96.752	1.840	1.624	97.00
100x4.0	M	100.00	4.00	0.577	97.402	95.093	95.670	2.454	2.165	96.00
100x6.0	M	100.00	6.00	0.866	96.103	92.639	93.505	3.681	3.248	94.00
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Click here to return to the thread data chart page index.

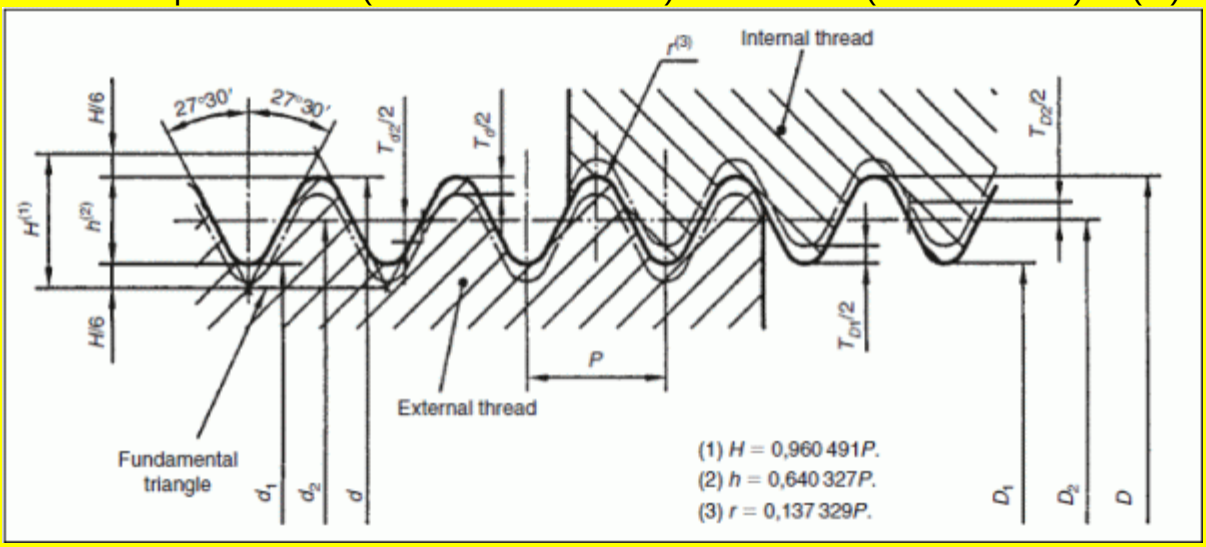
Metric Thread -- Extended Thread Size Range (online only)

MARYLAND METRICS
THREAD DATA CHARTS

PIPE THREAD -- BRITISH STANDARD PIPE PARALLEL -- BSPP/BSPF
PIPE THREAD -- JAPANESE PIPE PARALLEL -- PF
British Pipe Thread (Whitworth Form) -- Parallel (BSPP/BSPF) -- (G)

Click here to return to the thread data chart page index.

BS EN ISO 228-1: 2003 Table 1 Thread dimensions
British Pipe Thread (Whitworth Form) -- Parallel (BSPP/BSPF) -- (G)

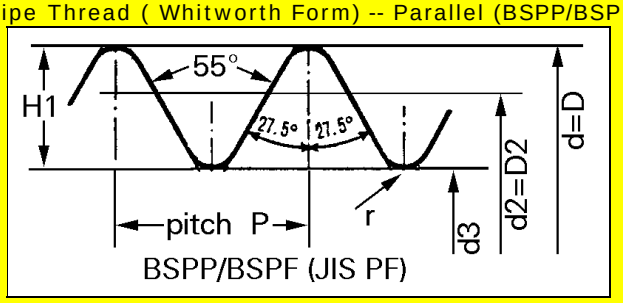


				Diameters			Tolerances on pitch diameteraa					Tolerance on minor diameter		Tolerance on major diameter	
							Internal thread TD2		External thread Td2			Internal thread TD1		External thread Td	
Desig-nation of thread	Number of threads in 25.4 mm	Pitch P	Height of thread h	major d = D	pitch d2 = D2	minor d1 = D1	Lower deviation	Upper deviation	Lower deviation Class A	Lower deviation Class B	Upper deviation	Lower deviation	Upper deviation	Lower deviation	Upper deviation
1/16	28	0.907	0.581	7.723	7.142	6.561	0	0.107	-0.107	-0.214	0	0	0.282	-0.214	0
1/8	28	0.907	0.581	9.728	9.147	8.566	0	0.107	-0.107	-0.214	0	0	0.282	-0.214	0
1/4	19	1.337	0.856	13.157	12.301	11.445	0	0.125	-0.125	-0.25	0	0	0.445	-0.25	0
3/8	19	1.337	0.856	16.662	15.806	14.95	0	0.125	-0.125	-0.25	0	0	0.445	-0.25	0
1/2	14	1.814	1.162	20.955	19.793	18.631	0	0.142	-0.142	-0.284	0	0	0.541	-0.284	0
5/8	14	1.814	1.162	22.911	21.749	20.587	0	0.142	-0.142	-0.284	0	0	0.541	-0.284	0
3/4	14	1.814	1.162	26.441	25.279	24.117	0	0.142	-0.142	-0.284	0	0	0.541	-0.284	0
7/8	14	1.814	1.162	30.201	29.039	27.877	0	0.142	-0.142	-0.284	0	0	0.541	-0.284	0
1	11	2.309	1.479	33.249	31.77	30.291	0	0.18	-0.18	-0.36	0	0	0.64	-0.36	0
1 1/8	11	2.309	1.479	37.897	36.418	34.939	0	0.18	-0.18	-0.36	0	0	0.64	-0.36	0
1 1/4	11	2.309	1.479	41.91	40.431	38.952	0	0.18	-0.18	-0.36	0	0	0.64	-0.36	0
1 1/2	11	2.309	1.479	47.803	46.324	44.845	0	0.18	-0.18	-0.36	0	0	0.64	-0.36	0
1 3/4	11	2.309	1.479	53.746	52.267	50.788	0	0.18	-0.18	-0.36	0	0	0.64	-0.36	0
2	11	2.309	1.479	59.614	58.135	56.656	0	0.18	-0.18	-0.36	0	0	0.64	-0.36	0
2 1/4	11	2.309	1.479	65.71	64.231	62.752	0	0.217	-0.217	-0.434	0	0	0.64	-0.434	0
2 1/2	11	2.309	1.479	75.184	73.705	72.226	0	0.217	-0.217	-0.434	0	0	0.64	-0.434	0
2 3/4	11	2.309	1.479	81.534	80.055	78.576	0	0.217	-0.217	-0.434	0	0	0.64	-0.434	0
3	11	2.309	1.479	87.884	86.405	84.926	0	0.217	-0.217	-0.434	0	0	0.64	-0.434	0
3 1/2	11	2.309	1.479	100.33	98.851	97.372	0	0.217	-0.217	-0.434	0	0	0.64	-0.434	0
4	11	2.309	1.479	113.03	111.551	110.072	0	0.217	-0.217	-0.434	0	0	0.64	-0.434	0
4 1/2	11	2.309	1.479	125.73	124.251	122.772	0	0.217	-0.217	-0.434	0	0	0.64	-0.434	0

5	11	2.309	1.479	138.43	139.951	135.472	0	0.217	-0.217	-0.434	0	0	0.64	-0.434	0
5 1/2	11	2.309	1.479	151.13	149.651	148.172	0	0.217	-0.217	-0.434	0	0	0.64	-0.434	0
6	11	2.309	1.479	163.83	162.351	160.872	0	0.217	-0.217	-0.434	0	0	0.64	-0.434	0

Note: Class B applies only to external threads. Internal threads are Class A.
BS EN ISO 228-1: 2003 data chart above revised and updated 12/20/11

British Pipe Thread (Whitworth Form) -- Parallel (BSPP/BSPF) -- (G)

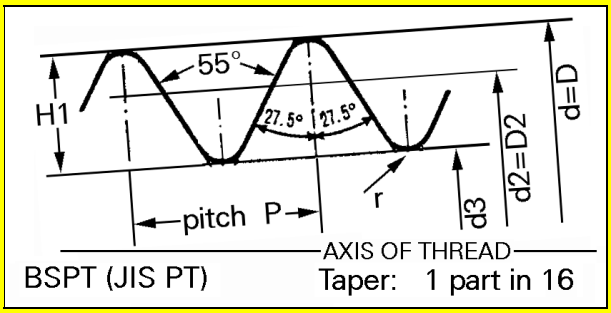


	Major Dia			External Thread								Internal Thread							
Size	*Size*	pitch			Major Dia		Pitch Dia		Minor Dia				Minor Dia		Pitch Dia		Major Dia		Tap Drill
Thread Designation	*mm*	*mm*	*TPI*	*Class*	*Max*	*Min*	*Max*	*Min*	*Max*	*Min*		*Class*	*Min*	*Max*	*Min*	*Max*	*Min*	*Max*	*mm*
G 1/16	7.723	0.907	28	A	7.723	7.509	7.142	7.035	6.561				6.561	6.834	7.142	7.249	7.723		6.8
G 1/16	7.723	0.907	28	B	7.723	7.509	7.142	6.928	6.561										
G 1/8	9.728	0.907	28	A	9.728	9.514	9.147	9.040	8.566				8.566	8.848	9.147	9.254	9.728		8.8
G 1/8	9.728	0.907	28	B	9.728	9.514	9.147	8.933	8.566										
G 1/4	13.157	1.337	19	A	13.157	12.907	12.301	12.176	11.445				11.445	11.89	12.301	12.426	13.157		11.8
G 1/4	13.157	1.337	19	B	13.157	12.907	12.301	12.051	11.445										
G 3/8	16.662	1.337	19	A	16.662	16.412	15.806	15.681	14.950				14.95	15.395	15.806	15.931	16.662		15.25
G 3/8	16.662	1.337	19	B	16.662	16.412	15.806	15.556	14.950										
G 1/2	20.955	1.814	14	A	20.955	20.671	19.793	19.651	18.631				18.631	19.172	19.793	19.935	20.955		19
G 1/2	20.955	1.814	14	B	20.955	20.671	19.793	19.509	18.631										
G 5/8	22.911	1.814	14	A	22.911	22.627	21.749	21.607	20.587				20.587	21.128	21.749	21.891	22.911		21
G 5/8	22.911	1.814	14	B	22.911	22.627	21.749	21.465	20.587										
G 3/4	26.441	1.814	14	A	26.441	26.157	25.279	25.137	24.117				24.117	24.658	25.279	25.421	26.441		24.5
G 3/4	26.441	1.814	14	B	26.441	26.157	25.279	24.995	24.117										
G 7/8	30.201	1.814	14	A	30.201	29.917	29.039	28.897	27.877				27.877	28.418	29.039	29.181	30.201		28.25
G 7/8	30.201	1.814	14	B	30.201	29.917	29.039	28.755	27.877										
G 1	33.249	2.309	11	A	33.249	32.889	31.770	31.590	30.291				30.291	30.931	31.77	31.95	33.249		30.75
G 1	33.249	2.309	11	B	33.249	32.889	31.770	31.410	30.291										
G 1 1/8	37.897	2.309	11	A	37.897	37.537	36.418	36.238	34.939				34.939	35.579	36.418	36.598	37.897		35.5
G 1 1/8	37.897	2.309	11	B	37.897	37.537	36.418	36.058	34.939										
G 1 1/4	41.910	2.309	11	A	41.910	41.550	40.431	40.251	38.952				38.952	39.592	40.431	40.611	41.910		39.5
G 1 1/4	41.910	2.309	11	B	41.910	41.550	40.431	40.071	38.952										
G 1 3/8	44.323	2.309	11		44.323	limited data available							41.365	42.005	limited data available				41.75
G 1 1/2	47.803	2.309	11	A	47.803	47.443	46.324	46.144	44.845				44.845	45.485	46.324	46.504	47.803		45.25
G 1 1/2	47.803	2.309	11	B	47.803	47.443	46.324	45.964	44.845										
G 1 5/8	52.000	2.309	11		52.000	limited data available							49.030	49.670	limited data available				49.5
G 1 3/4	53.746	2.309	11	A	53.746	53.386	52.267	52.087	50.788				50.788	51.428	52.267	52.447	53.746		51
G 1 3/4	53.746	2.309	11	B	53.746	53.386	52.267	51.907	50.788										
G 2	59.614	2.309	11	A	59.614	59.254	58.135	57.955	56.656				56.656	57.296	58.135	58.315	59.614		57
G 2	59.614	2.309	11	B	59.614	59.254	58.135	57.775	56.656										
G 2 1/4	65.710	2.309	11	A	65.710	65.276	64.231	64.014	62.752				62.752	63.392	64.231	64.448	65.710		63.3
G 2 1/4	65.710	2.309	11	B	65.710	65.276	64.231	63.797	62.752										
G 2 1/2	75.184	2.309	11	A	75.184	74.750	73.705	73.488	72.226				72.226	72.866	73.705	73.922	75.184		72.8
G 2 1/2	75.184	2.309	11	B	75.184	74.750	73.705	73.271	72.226										
G 2 3/4	81.534	2.309	11	A	81.534	81.100	80.055	79.838	78.576				78.576	79.216	80.055	80.272	81.534		79.1
G 2 3/4	81.534	2.309	11	B	81.534	81.100	80.055	79.621	78.576										
G 3	87.884	2.309	11	A	87.884	87.450	86.405	86.188	84.926				84.926	85.566	86.405	86.622	87.884		85.5
G 3	87.884	2.309	11	B	87.884	87.450	86.405	85.971	84.926										
G 3 1/4	93.980	2.309	11		93.984	limited data available							91.022	91.660	limited data available				91
G 3 1/2	100.330	2.309	11	A	100.330	99.896	98.851	98.634	97.372				97.372	98.012	98.851	99.068	100.330		97.75
G 3 1/2	100.330	2.309	11	B	100.330	99.896	98.851	98.417	97.372										
G 3 3/4	106.680	2.309	11		106.680	limited data available							103.722	104.300	limited data available				104
G 4	113.030	2.309	11	A	113.030	112.596	111.551	111.334	110.072				110.072	110.712	111.551	111.768	113.030		110.5
G 4	113.030	2.309	11	B	113.030	112.596	111.551	111.117	110.072										

G 4 1/2	125.730	2.309	11	A	125.730	125.296	124.251	124.034	122.772				122.772	123.412	124.251	124.468	125.730		123
G 4 1/2	125.730	2.309	11	B	125.730	125.296	124.251	123.817	122.772										
G 5	138.430	2.309	11	A	138.430	137.996	136.951	136.734	135.472				135.472	136.112	136.951	137.168	138.430		136
G 5	138.430	2.309	11	B	138.430	137.996	136.951	136.517	135.472										
G 5 1/2	151.130	2.309	11	A	151.130	150.696	149.651	149.434	148.172				148.172	148.812	149.651	149.868	151.130		148.5
G 5 1/2	151.130	2.309	11	B	151.130	150.696	149.651	149.217	148.172										
G 6	163.830	2.309	11	A	163.830	163.396	162.351	162.134	160.872				160.872	161.512	162.351	162.568	163.830		161.5
G 6	163.830	2.309	11	B	163.830	163.396	162.351	161.917	160.872										

Note: Class B applies only to external threads. Internal threads are Class A.
data chart above revised and updated 9/28/09

PIPE THREAD -- BRITISH STANDARD PIPE TAPER -- BSPT
PIPE THREAD -- JAPANESE PIPE TAPER -- PT



MARYLAND METRICS -- THREAD DATA CHART:

British Pipe Thread (Whitworth Form) -- Taper (BSPT) -- (R)

Thread Designation	Nominal Size	Thread Form Type	Major Diameter mm d=D	Pitch mm p	Threads per inch tpi	Pitch Diameter mm d2=D2	Minor Diameter Male Thd. d3	Thread Height H1	Rounding r	Effective Thread Length mm External	Tap Drill Diameter mm
BSPT	BSPT										
R 1/16	1/16"	BSPT	7.723	0.907	28	7.142	6.561	0.581	0.125	2.5	6.4
R 1/8	1/8"	BSPT	9.728	0.907	28	9.147	8.566	0.581	0.125	2.5	8.4
R 1/4	1/4"	BSPT	13.157	1.337	19	12.301	11.445	0.856	0.184	3.7	11.2
R 3/8	3/8"	BSPT	16.662	1.337	19	15.806	14.95	0.856	0.184	3.7	14.75
R 1/2	1/2"	BSPT	20.955	1.814	14	19.793	18.631	1.162	0.249	5	18.25
R 3/4	3/4"	BSPT	26.441	1.814	14	25.279	24.117	1.162	0.249	5	23.75
R 1	1"	BSPT	33.249	2.309	11	31.77	30.291	1.479	0.317	6.4	30
R 1 1/4	1 1/4"	BSPT	41.91	2.309	11	40.431	38.952	1.479	0.317	6.4	38.5
R 1 1/2	1 1/2"	BSPT	47.803	2.309	11	46.324	44.845	1.479	0.317	6.4	44.5
R 2	2"	BSPT	59.614	2.309	11	58.135	56.656	1.479	0.317	7.5	56
R 2 1/2	2 1/2"	BSPT	75.184	2.309	11	73.705	72.226	1.479	0.317	9.2	71
R 3	3"	BSPT	87.884	2.309	11	86.405	84.926	1.479	0.317	9.2	85.5
R 4	4"	BSPT	113.03	2.309	11	111.551	110.072	1.479	0.317	10.4	110.5
R 5	5"	BSPT	138.43	2.309	11	136.951	135.472	1.479	0.317	11.5	136
R 6	6"	BSPT	163.83	2.309	11	162.351	160.872	1.479	0.317	11.5	161.5

Click here to return to the thread data chart page index.

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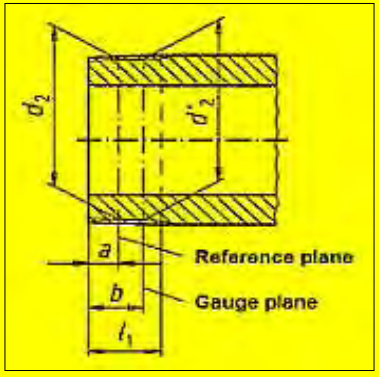
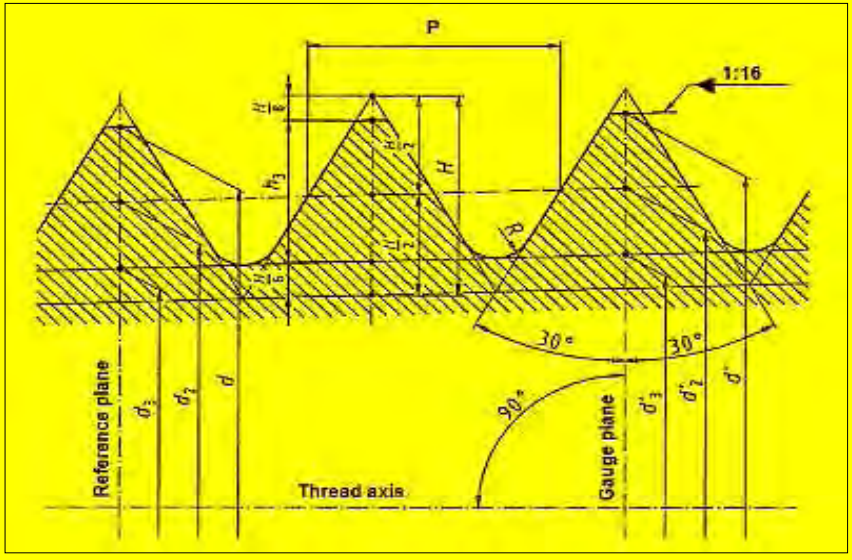
MARYLAND METRICS
THREAD DATA CHARTS DIN 158

PIPE THREAD -- METRIC TAPER PIPE -- MT
Example Designation: DIN 158 - M 30 x 2 keg





Type of thread: female thread cylindrical (M-thread acc. DIN 13)
male thread thread conical (taper 1:16)

Limits of size for taper external threads at gauge plane

Thread size	Standard design						Short design					
	Major diameter, d´		Pitch diameter, d´2		Minor diameter, d´3		Major diameter, d´		Pitch diameter, d´2		Minor diameter, d´3	
	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
M 5 keg	5,08	5,02	4,56	4,5	4,099	4,039	-	-	-	-	-	-
M 6 keg	6,108	6,018	5,458	5,368	4,881	4,791	6,093	6,033	5,443	5,383	4,866	4,806
M 8 x 1 keg	8,108	8,018	7,458	7,368	6,881	6,791	8,093	8,033	7,443	7,383	6,866	6,806
M 10 x 1 keg	10,108	10,018	9,458	9,368	8,881	8,791	10,093	10,033	9,443	9,383	8,866	8,806
M 12 x 1 keg	12,108	12,018	11,458	11 ,368	10,881	10,791	12,093	12,033	11,443	11,383	10,866	10,806
M 10 x 1,25 keg	10,181	10,069	9,369	9,257	8,647	8,535	10,165	10,085	9,353	9,273	8,631	8,551
M 12 x 1,25 keg	12,181	12,069	11,369	11,257	10,647	10,535	12,165	12,085	11 ,353	11,273	10,631	10,551
M 12 x 1,5 keg	12,251	12,125	11,277	11 ,151	10,411	10,285	12,235	12,141	11 ,261	11 ,167	10,395	10,301
M 14 x 1,5 keg	14,251	14,125	13,277	13,151	12,411	12,285	14,235	14,141	13,261	13,167	12,395	12,301
M 16 x 1,5 keg	16,251	16,125	15,277	15,151	14,411	14,285	16,235	16,141	15,261	15,167	14,395	14,301
M 18 x 1,5 keg	18,251	18,125	17,277	17,151	16,411	16,285	18,235	18,141	17,261	17,167	16,395	16,301
M 20 x 1,5 keg	20,251	20,125	19,277	19,151	18,411	18,285	20,235	20,141	19,261	19,167	18,395	18,301
M 22 x 1,5 keg	22,251	22 ,125	21,277	21,151	20,411	20,285	22,235	22 ,141	21 ,261	21,167	20,395	20,301
M 24 x 1,5 keg	24,251	24,125	23,277	23,151	22,411	22,285	24,235	24,141	23,261	23,167	22,395	22,301
M 26 x 1,5 keg	26,251	26,125	25,277	25,151	24,411	24,285	26,235	26,141	25,261	25,167	24,395	24,301
M 27 x 1,5 keg	27,251	27,125	26,277	26,151	25,411	25,285	27,235	27,141	26,261	26,167	25,395	25,301
M 30 x 1,5 keg	30,251	30,125	29,277	29,151	28,411	28,285	30,235	30,141	29,261	29,167	28,395	28,301

Thread size	Standard design						Short design					
	Major diameter, d´		Pitch diameter, d´2		Minor diameter, d´3		Major diameter, d´		Pitch diameter, d´2		Minor diameter, d´3	
	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
M 33 x 1,5 keg	33,313	33,125	32,339	32 ,151	31,473	31,285	33,282	33,156	32,308	32 ,182	31,442	31,316
M 36 x 1,5 keg	36,313	36,125	35,339	35,151	34,473	34,285	36,282	36,156	35,308	35,182	34,442	34,316
M 38 x 1,5 keg	38,313	38,125	37,339	37,151	36,473	36,285	38,282	38,156	37,308	37,182	36,442	36,316
M 39 x 1,5 keg	39,313	39,125	38,339	38,151	37,473	37,285	39,282	39,156	38,308	38,182	37,442	37,316
M 42 x 1,5 keg	42,313	42,125	41,339	41 ,151	40,473	40,285	42,282	42,156	41,308	41,182	40,442	40,316
M 45 x 1,5 keg	45,313	45,125	44,339	44,151	43,473	43,285	45,282	45,156	44,308	44,182	43,442	43,316
M 48 x 1,5 keg	48,313	48,125	47,339	47,151	46,473	46,285	48,282	48,156	47,308	47,182	46,442	46,316
M 52 x 1,5 keg	52,313	52,125	51 ,339	51 ,151	50,473	50,285	52,282	52,156	51,308	51,182	50,442	50,316
M 27 x 2 keg	27,344	27,156	26,045	25,857	24,89	24,702	27,313	27,187	26,014	25,888	24,859	24,733
M 30 x 2 keg	30,344	30,156	29,045	28,857	27,89	27,702	30,313	30,187	29,014	28,888	27,859	27,733
M 33 x 2 keg	33,344	33,156	32,045	31 ,857	30,89	30,702	33,313	33,187	32 ,014	31 ,888	30,859	30,733
M 36 x 2 keg	36,365	36,135	35,066	34,836	33,911	33,681	36,325	36,175	35,026	34,876	33,871	33,721
M 39 x 2 keg	39,365	39,135	38,066	37,836	36,911	36,681	39,325	39,175	38,026	37,876	36,871	36,721
M 42 x 2 keg	42,365	42,135	41 ,066	40,836	39,911	39,681	42,325	42,175	41 ,026	40,876	39,871	39,721
M 45 x 2 keg	45,365	45,135	44,066	43,836	42,911	42,681	45,325	45,175	44,026	43,876	42,871	42,721
M 48 x 2 keg	48,365	48,135	47,066	46,836	45,911	45,681	48,325	48,175	47,026	46,876	45,871	45,721
M 52 x 2 keg	52,365	52,135	51,066	50,836	49,911	49,681	52,325	52,175	51,026	50,876	49,871	49,721
M 56 x 2 keg	56,365	56,135	55 ,066	54,836	53 ,911	53,681	56,325	56,175	55,026	54,876	53,871	53,721
M 60 x 2 keg	60,365	60,135	59,066	58,836	57,911	57,681	60,325	60,175	59,026	58,876	57,871	57,721

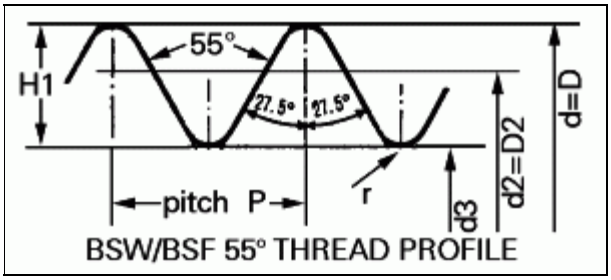
Nominal sizes for taper external threads

Thread size	Pitch, P	Useful thread length, l1		Maximum height of thread, h3		Dimensions at reference plane					Dimensions at gauge plane				
						Dimension a		Thread dimensions at gauge plane			Gauge length b		Thread dimensions		
		Standard design	Short design	Standard design	Short design	Standard design	Short design	Major diameter, d	Pitch diameter, d'2	Minor diameter, d'3	Standard design	Short design	d'	d'2	d'3
M5 keg	0,8	5	-	0,521	-	2	-	5	4,48	4,019	2,8	-	5,05	4,53	4,069
M6 keg								6	5,35	4,773			6,063	5,413	4,836
M8 x 1 keg								8	7,35	6,773			8,063	7,413	6,836
M10 x 1 keg	1	5,5	4	0,659	0,644	2,5	2	10	9,35	8,773	3,5	3	10,063	9,413	8,836
M12 x 1 keg								12	11,35	10,773			12,063	11,413	10,836
M10x 1,25 keg								10	9,188	8,466			10,125	9,313	8,591
M12 x 1,25 keg	1,25	7	6	0,823	0,807	3	2 ,2	12	11,188	10,466	5	4,2	12,125	11,313	10,591
M12x 1,5 keg								12	11,026	10,16			12,188	11,214	10,348
M14 x 1,5 keg								14	13,026	12,16			14,188	13,214	12,348
M16 x 1,5 keg								16	15,026	14,16			16,188	15,214	14,348
M18 x 1,5 keg								18	17,026	16,16			18,188	17,214	16,348
M20 x 1,5 keg								20	19,026	18,16			20,188	19,214	18,348
M22 x 1,5 keg	1,5	8,5	7,5	0,983	0,967	3,5	2,5	22	21,026	20,16	6,5	5,5	22,188	21,214	20,348
M24 x 1,5 keg								24	23 ,026	22,16			24,188	23,214	22,348
M26 x 1,5 keg								26	25,026	24,16			26,188	25,214	24,348
(M27 x 1,5 keg)								27	26,026	25,16			27,188	26,214	25,348
M30 x 1,5 keg								30	29,026	28,16			30,188	29,214	28,348

Threads according to this norm are used for pipe connections with conical screw-in plugs or fittings size C, which are to screwed into cylindrical screw-in holes size Z, both according to DIN 3852 part 1. The distance a of the relating level corresponds to DIN 3852 part 1. The conical outside thread of this norm shows at the relating level point the same effective diameter as the relating cylindrical inner thread according DIN 13, so it can be manually screwed in until that relating level.The adjustment power created by using of a suitable tool increases the thread reach and seals the screw connection supported by a suitable sealant (e.g. hemp or Teflon). Outside, effective and core diameter show the same ± tolerance, the tabular form list shows averages only. The cylindrical inner thread according DIN 13 shows the tolerance - 4H5H, to keep the free space between the crest of thread and the leakage space as small as possible.

MARYLAND METRICS
THREAD DATA CHARTS

BRITISH THREAD -- COARSE PITCH -- BSW



Whitworth Coarse Thread BS 84
BSW (British Standard Whitworth)
British Standard Whitworth Coarse Thread Series (parallel, cylindrical)
In GB most common Thread. Corresponds to the Metric Thread in its type of use.

Click here to return to the thread data chart page index.

MARYLAND METRICS -- THREAD DATA CHART:

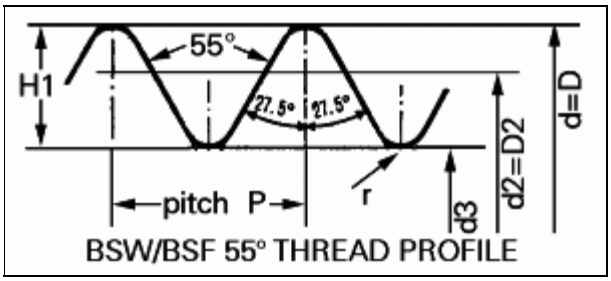
British Thread (British Standard Whitworth) -- Coarse Pitch

Nominal Size Ww	Thread Form Type	Major Diameter mm d=D	Pitch mm p	Threads per inch tpi	Pitch Diameter mm d2=D2	Minor Diameter Male Thd. d3	Thread Height H1	Tap Drill Diameter mm
1/16"	BSW	1.587	0.423	60	1.315	1.050	0.270	1.15
3/32"	BSW	2.381	0.529	48	2.041	1.703	0.338	1.90
1/8"	BSW	3.175	0.635	40	2.768	2.362	0.406	2.50
5/32"	BSW	3.969	0.793	32	3.459	2.952	0.507	3.20
3/16"	BSW	4.762	1.058	24	4.084	3.407	0.677	3.70
7/32"	BSW	5.556	1.058	24	4.878	4.201	0.677	4.50
1/4"	BSW	6.350	1.270	20	5.537	4.724	0.813	5.10
5/16"	BSW	7.938	1.411	18	7.034	6.131	0.904	6.50
3/8"	BSW	9.525	1.588	16	8.509	7.492	1.017	7.90
7/16"	BSW	11.113	1.814	14	9.951	8.789	1.162	9.20
1/2"	BSW	12.700	2.117	12	11.345	9.990	1.355	10.40
9/16"	BSW	14.290	2.117	12	12.930	11.580	1.355	11.89
5/8"	BSW	15.876	2.309	11	14.397	12.918	1.479	13.40
3/4"	BSW	19.051	2.540	10	17.424	15.798	1.627	16.25
7/8"	BSW	22.226	2.822	9	20.419	18.611	1.807	19.25
1"	BSW	25.400	3.175	8	23.368	21.335	2.033	22.00
1 1/8"	BSW	28.576	3.629	7	26.253	23.929	2.324	24.50
1 1/4"	BSW	31.751	3.629	7	29.428	27.104	2.324	27.25
1 3/8"	BSW	34.926	4.233	6	32.215	29.505	2.711	30.25
1 1/2"	BSW	38.100	4.233	6	35.391	32.680	2.711	33.50
1 5/8"	BSW	41.277	5.080	5	38.024	34.771	3.253	35.50
1 3/4"	BSW	44.452	5.080	5	41.199	37.946	3.253	38.50
1 7/8"	BSW	47.627	5.645	4 1/2	44.012	40.398	3.614	41.25
2"	BSW	50.802	5.645	4 1/2	47.187	43.573	3.614	44.50
2 1/4"	BSW	57.152	6.350	4	53.086	49.020	4.066	50.00
2 1/2"	BSW	63.502	6.350	4	59.436	55.370	4.066	56.00

2 3/4"	BSW	69.853	7.257	3 1/2	65.205	60.558	4.647	61.50
3"	BSW	76.203	7.257	3 1/2	71.556	66.909	4.647	68.00
3 1/4"	BSW	82.553	7.816	3 1/4	77.548	72.544	5.005	73.75
3 1/2"	BSW	88.903	7.816	3 1/4	83.899	78.894	5.005	80.00
3 3/4"	BSW	95.254	8.467	3	89.832	84.410	5.422	85.50
4"	BSW	101.604	8.467	3	96.182	90.760	5.422	92.00
4 1/4"	BSW	107.954	8.835	2 7/8	102.297	96.639	5.657	98.00
4 1/2"	BSW	114.304	8.835	2 7/8	108.647	102.990	5.657	104.20
4 3/4"	BSW	120.665	9.237	2 3/4	114.740	108.625	5.915	110.00
5"	BSW	127.005	9.237	2 3/4	121.090	115.176	5.915	116.50
5 1/4"	BSW	133.355	9.677	2 5/8	127.159	120.963	6.196	122.50
5 1/2"	BSW	139.705	9.677	2 5/8	133.509	127.313	6.196	128.50
5 3/4"	BSW	146.055	10.160	2 1/2	139.549	133.043	6.506	134.50
6"	BSW	152.406	10.160	2 1/2	145.900	139.394	6.506	141.00

Click here to return to the thread data chart page index.

BRITISH THREAD -- FINE PITCH -- BSF



Whitworth Fine Thread BS 84
British Standard Fine Thread Series (parallel, cylindrical)
BSW and BSF are the Thread selections for commercial screws and nuts.
This fine thread, which is widespread in the British machine tool industry, is superseded by the American UNF Thread.

Click here to return to the thread data chart page index.

MARYLAND METRICS -- THREAD DATA CHART:

British Thread (British Standard Fine) -- Fine Pitch

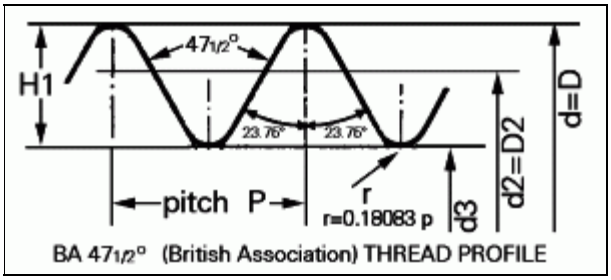
Nominal Size BSF	Thread Form Type	Major Diameter mm d=D	Pitch mm p	Threads per inch tpi	Pitch Diameter mm d2=D2	Minor Diameter Male Thd. d3	Thread Height H1	Tap Drill Diameter mm
3/16"	BSF	4.763	0.794	32	4.255	3.747	0.508	4.00
7/32"	BSF	5.556	0.907	28	4.975	4.394	0.581	4.60
1/4"	BSF	6.350	0.977	26	5.725	5.100	0.625	5.30
9/32"	BSF	7.142	0.977	26	6.518	5.893	0.625	6.10
5/16"	BSF	7.938	1.156	22	7.199	6.459	0.739	6.80
3/8"	BSF	9.525	1.27	20	8.712	7.899	0.813	8.30
7/16"	BSF	11.113	1.411	18	10.209	9.304	0.904	9.70
1/2"	BSF	12.700	1.588	16	11.684	10.668	1.017	11.10
9/16"	BSF	14.288	1.588	16	13.272	12.256	1.017	12.70
5/8"	BSF	15.875	1.814	14	14.712	13.549	1.162	14.00
11/16"	BSF	17.463	1.814	14	16.300	15.137	1.162	15.50
3/4"	BSF	19.050	2.117	12	17.693	16.336	1.355	16.75
13/16"	BSF	20.638	2.117	12	19.281	17.924	1.355	18.25

7/8"	BSF	22.225	2.309	11	20.747	19.269	1.479	19.75
1"	BSF	25.400	2.54	10	23.774	22.148	1.627	22.75
1 1/8"	BSF	28.575	2.822	9	26.769	24.963	1.807	26.50
1 1/4"	BSF	31.750	2.822	9	29.944	28.138	1.807	28.75
1 3/8"	BSF	34.925	3.175	8	32.893	30.861	2.033	31.50
1 1/2"	BSF	38.100	3.175	8	36.068	34.036	2.033	34.50
1 5/8"	BSF	41.275	3.175	8	39.243	37.211	2.033	38.00
1 3/4"	BSF	44.450	3.629	7	42.126	39.802	2.324	40.50
2"	BSF	50.800	3.629	7	48.476	46.152	2.324	47.00
2 1/4"	BSF	57.150	4.234	6	54.440	51.730	2.711	53.00
2 1/2"	BSF	63.500	4.234	6	60.790	58.080	2.711	59.00
2 3/4"	BSF	69.850	4.234	6	67.140	64.430	2.711	n/a
3"	BSF	76.200	5.08	5	72.946	69.692	3.253	n/a
3 1/4"	BSF	82.550	5.08	5	79.296	76.042	3.253	n/a
3 1/2"	BSF	88.900	5.645	4 1/2	85.285	81.670	3.614	n/a
3 3/4"	BSF	95.250	5.645	4 1/2	91.635	88.020	3.614	n/a
4"	BSF	101.600	5.645	4 1/2	97.985	94.370	3.614	n/a
4 1/4"	BSF	107.950	6.35	4	103.886	99.822	4.066	n/a

BSW & BSF thread notes:
C = Core diameter = Major Diameter - 1.280654 x P
d = Actual Depth = 0.640327 x P
D = Depth of Rounding = 0.073917 x P
Effective or Pitch Diameter = Major Diameter - .640327 x P
h = Angular Depth = 0.960491 x P
h/6 = Shortening = 0.160083 x P
P = Pitch = 1/Number of threads per inch (tpi)
r = Radius at the Crest & Root = 0.137329 x P

Click here to return to the thread data chart page index.

BRITISH THREAD -- MINIATURE SERIES -- BA



BA 47½° (British Association) THREAD PROFILE

British Association BS 93
(note: only sizes No. 0-16 are covered by BS 93)
British Association Standard Thread.
Used mainly for instruments and clocks.
Replaced by the metric ISO thread and the ISO fine thread.

MARYLAND METRICS -- THREAD DATA CHART:								
British Thread (British Association) -- Miniature Series								
Nominal Size BA	Thread Form Type	Major Diameter mm	Pitch mm p	Threads per Inch tpi	Pitch Diameter mm	Minor Diameter Male Thd.	Thread Height H1	Tap Drill Diameter
		d=D			d2=D2	d3		mm
No. 25	BA	0.25	0.07	363	0.205			0.18
No. 24	BA	0.29	0.08	317	0.239			0.21

No. 23	BA	0.33	0.09	282	0.272			0.24
No. 22	BA	0.37	0.10	254	0.307			0.27
No. 21	BA	0.42	0.11	230.91	0.350			0.31
No. 20	BA	0.48	0.13	211.67	0.403			0.36
No. 19	BA	0.54	0.14	181.43	0.450			0.40
No. 18	BA	0.62	0.15	169.33	0.524			0.47
No. 17	BA	0.70	0.17	149.41	0.591			0.53
No. 16	BA	0.79	0.19	133.68	0.668	0.56	0.115	0.60
No. 15	BA	0.90	0.21	120.95	0.766	0.65	0.125	0.70
No. 14	BA	1	0.23	110.4	0.853	0.72	0.14	0.75
No. 13	BA	1.2	0.25	101.6	1.040	0.9	0.15	0.95
No. 12	BA	1.3	0.28	90.71	1.121	0.96	0.17	1.00
No. 11	BA	1.5	0.32	81.93	1.301	1.13	0.185	1.20
No. 10	BA	1.7	0.35	72.57	1.476	1.28	0.21	1.35
No. 9	BA	1.9	0.39	65.12	1.650	1.43	0.235	1.50
No. 8	BA	2.2	0.43	59.07	1.925	1.68	0.26	1.80
No. 7	BA	2.5	0.48	52.92	2.193	1.92	0.29	2.00
No. 6	BA	2.8	0.53	47.92	2.461	2.16	0.32	2.30
No. 5	BA	3.2	0.59	43.05	2.822	2.49	0.355	2.60
No. 4	BA	3.6	0.66	38.48	3.177	2.81	0.395	2.95
No. 3	BA	4.1	0.73	34.79	3.633	3.22	0.44	3.40
No. 2	BA	4.7	0.81	31.35	4.181	3.73	0.485	3.90
No. 1	BA	5.3	0.90	28.22	4.724	4.22	0.54	4.40
No. 0	BA	6	1	25.4	5.360	4.8	0.6	5.00

BA thread notes:
C = Core diameter = Major Diameter - 1.2000 x P (2d)
d = Actual Depth = 0.60000 x P
Effective or Pitch Diameter = Major Diameter - 0.6000 x P (d)
h = Triangular height = 1.1363365 x P
Nuts and Bolts across flats is nominally 1.75 x Major Diameter
P = Pitch = 1/Number of threads per inch (tpi)
r = Radius at the Crest & Root = 0.1808346 x P
t = Shortening = 0.2681688 x P

Click here to return to the thread data chart page index.

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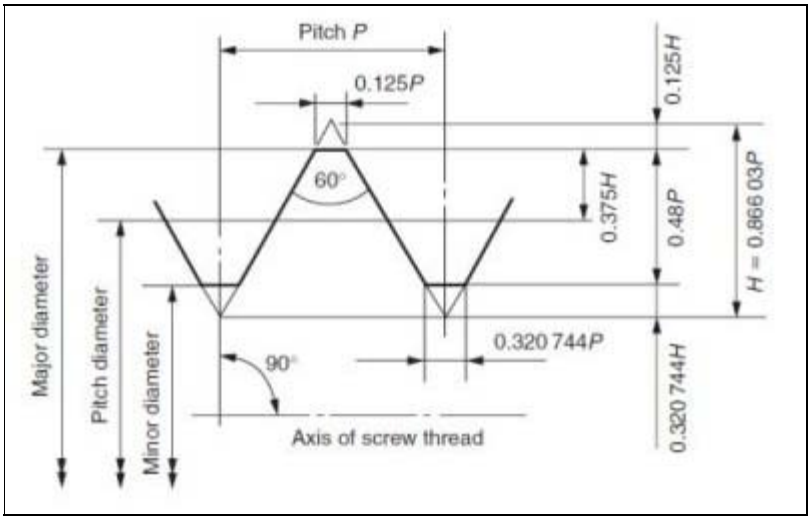
MARYLAND METRICS
THREAD DATA CHARTS

METRIC THREAD
BS 4827 ISO metric screw threads
miniature series 'S'



Nominal size		Dimensions in mm			
1st choice	2nd choice	Pitch of thread P	Major diameter	Pitch (effective) diameter	Minor diameter
S-0.3		0.08	0.300 000	0.248 038	0.223 200
	S-0.35	0.09	0.350 000	0.291 543	0.263 600
S-0.4		0.1	0.400 000	0.335 048	0.304 000
	S-0.45	0.1	0.450 000	0.385 048	0.354 000
S-0.5		0.125	0.500 000	0.418 810	0.380 000
	S-0.55	0.125	0.550 000	0.468 810	0.430 000
S-0.6		0.15	0.600 000	0.502 572	0.456 000
	S-0.7	0.175	0.700 000	0.586 334	0.532 000
S-0.8		0.2	0.800 000	0.670 096	0.608 000
	S-0.9	0.225	0.900 000	0.753 858	0.684 000
S-1		0.25	1.000 000	0.837 620	0.760 000
	S-1.1	0.25	1.100 000	0.937 620	0.860 000
S-1.2		0.25	1.200 000	1.037 620	0.960 000
	S-1.4	0.3	1.400 000	1.205 144	1.112 000

For full range and further information see BS 4827.
Example Designation: for a thread diameter 0.5 mm by length 2.0 mm = S 0.5x2

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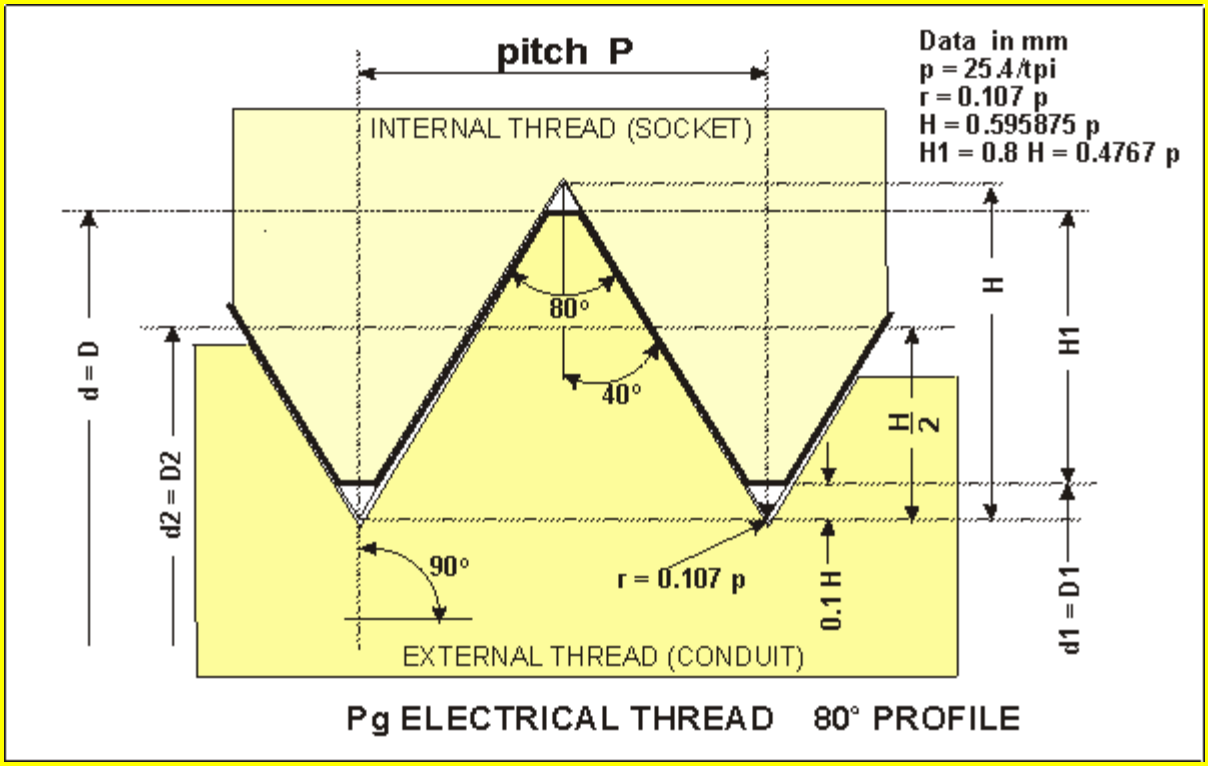
MARYLAND METRICS
THREAD DATA CHARTS

METRIC THREAD -- ELECTRICAL THREAD -- Pg



Click here to return to the thread data chart page index.

Pg thread usage will eventually be phased out in continental Europe. A new metric thread standard (EN 50262) will be phased in as mandatory beginning on March 1, 2001 replacing the Pg thread. Metric electrical threads are already in use in the UK where they have replaced the (now obsolete for electrical use) BSP threads.

PG									
MARYLAND METRICS -- THREAD DATA CHART:									
METRIC Pg ELECTRICAL THREAD DIN 40430 (Stahlpanzerrohr-Gewinde)									
Pg Nominal Size Callout	Thread Form Type	Major Diameter mm d=D	Pitch mm p	Threads per inch tpi	Pitch Diameter mm d2=D2	Minor Diameter Male Thd. d1	Thread Height H1	Tap Drill Diameter mm	Radius mm
Pg7	Pg	12.5	1.27	20	11.89	11.28	0.61	11.4	0.14
Pg9	Pg	15.2	1.411	18	14.53	13.86	0.67	14	0.15
Pg11	Pg	18.6	1.411	18	17.93	17.26	0.67	17.25	0.15
Pg13.5	Pg	20.4	1.411	18	19.73	19.06	0.67	19	0.15
Pg16	Pg	22.5	1.411	18	21.83	21.16	0.67	21.25	0.15
Pg21	Pg	28.3	1.588	16	27.54	26.78	0.76	26.75	0.17
Pg29	Pg	37	1.588	16	36.24	35.48	0.76	35.5	0.17
Pg36	Pg	47	1.588	16	46.24	45.48	0.76	45.5	0.17
Pg42	Pg	54	1.588	16	53.24	52.48	0.76	52.5	0.17
Pg48	Pg	59.3	1.588	16	58.54	57.78	0.76	57.75	0.17

For clearance drill diameter: (Pg 7 thru Pg 13.5 add 0.1 mm to major diameter)
For clearance drill diameter: (Pg 16 thru Pg 48 add 0.25 mm to major diameter)
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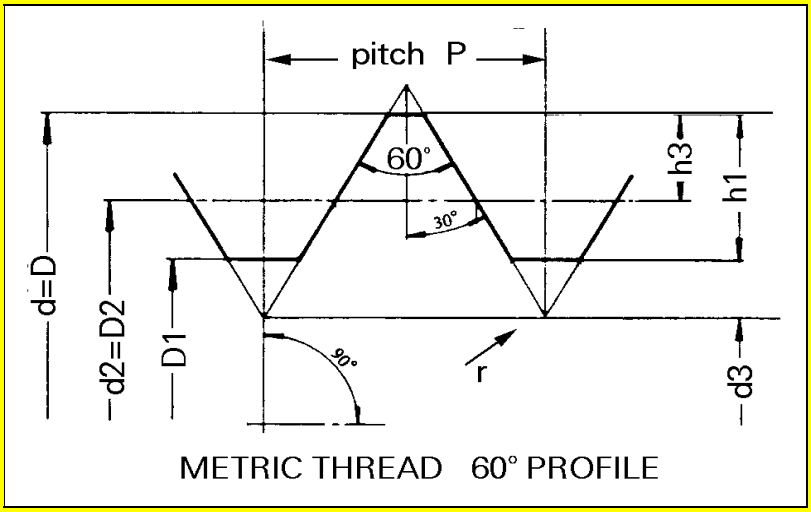
MARYLAND METRICS
THREAD DATA CHARTS

METRIC ELECTRICAL THREAD
FINE PITCH -- (M12x1.5 - M75x1.5)
for EN 50262 threaded fittings



METRIC THREAD 60° PROFILE

Click here to return to the thread data chart page index.

MARYLAND METRICS -- THREAD DATA CHART: Metric Electrical Thread
Fine Pitch (EN 60423 table 1) + Some Electrical Industry Proprietary Threads

Nominal Size ISO MF	Thread Form Type	Major Diameter mm d=D	Pitch mm p	Root Radius mm r	Pitch Diameter mm d2=D2	Minor Diameter Male Thd. d3	Minor Diameter Female Thd. D1	Thread Height Male Thd. h3	Thread Height Female Thd. H1	Tap Drill Diameter mm	Clearance Drill Diameter mm
12x1.5	M	12.00	1.50	0.217	11.026	10.160	10.376	0.920	0.812	10.50	12.500
16x1.5	M	16.00	1.50	0.217	15.026	14.160	14.376	0.920	0.812	14.50	16.500
20x1.5	M	20.00	1.50	0.217	19.026	18.160	18.376	0.920	0.812	18.50	20.500
25x1.5	M	25.00	1.50	0.217	24.026	23.160	23.376	0.920	0.812	23.50	25.500
32x1.5	M	32.00	1.50	0.217	31.026	30.160	30.376	0.920	0.812	30.50	32.500
40x1.5	M	40.00	1.50	0.217	39.026	38.160	38.376	0.920	0.812	38.50	40.500
50x1.5	M	50.00	1.50	0.217	49.026	48.160	48.376	0.920	0.812	48.50	50.500
63x1.5	M	63.00	1.50	0.217	62.026	61.160	61.376	0.920	0.812	61.50	63.500
75x1.5	M	75.00	1.50	0.217	74.026	73.160	73.376	0.920	0.812	73.50	75.500
80x2	M	80.00	2.00							78.00	80.50
85x2	M	85.00	2.00							83.00	85.50
90x2	M	90.00	2.00							88.00	90.50
100x2	M	100.00	2.00							98.00	100.50
100x3	M	100.00	3.00							97.00	100.50
110x3	M	110.00	3.00							107.00	110.50

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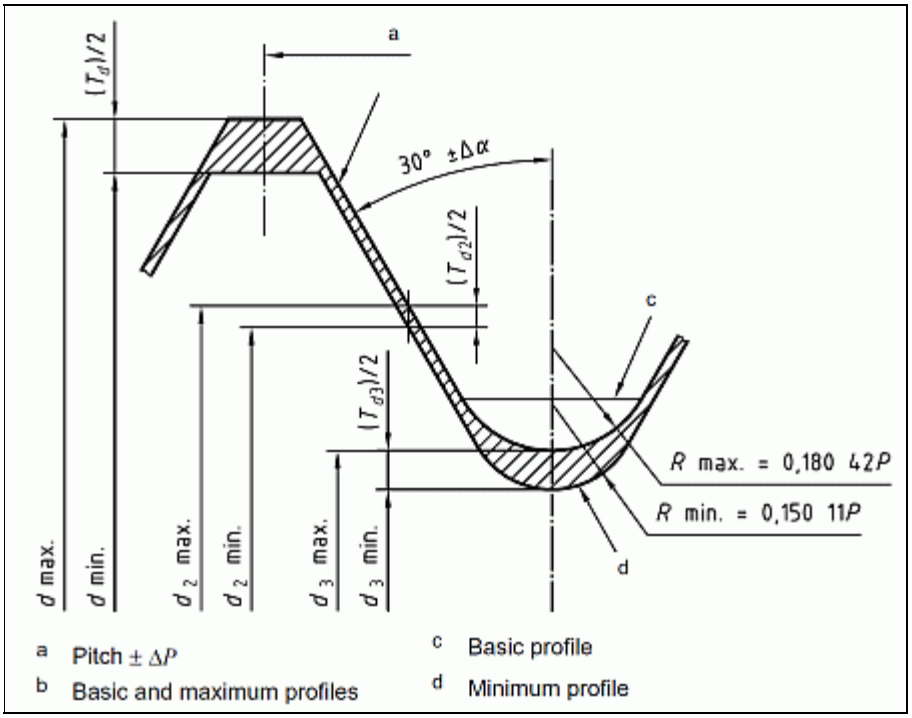
MARYLAND METRICS
THREAD DATA CHARTS

METRIC THREAD -- Aerospace threads MJ

BOLT Figure 1



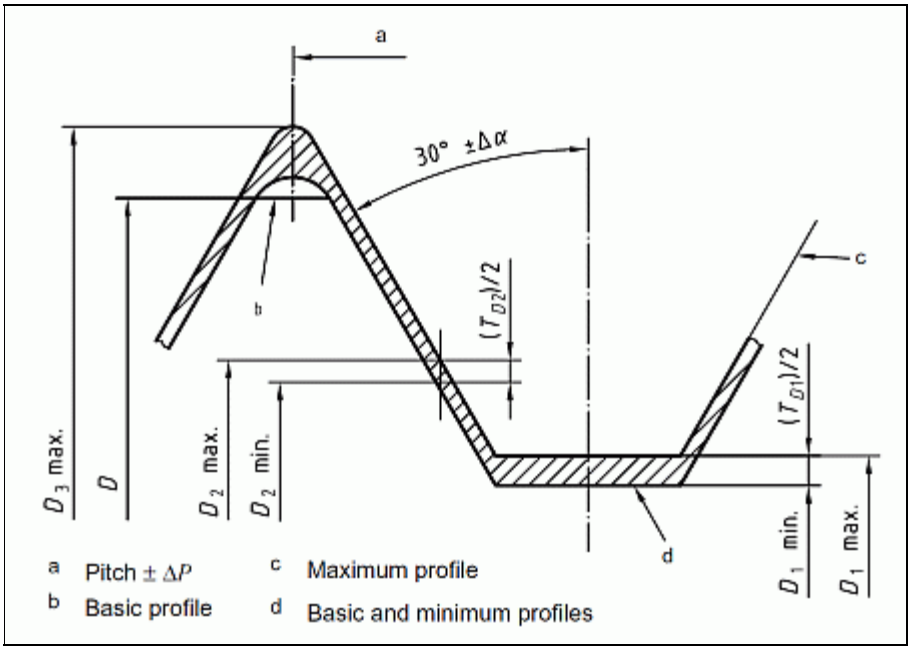
Limit dimensions for 4h6h threads for bolts

Dimensions in millimetres

	Major diameter			Pitch diameter			Minor diameter		
	d			d2			d3		
Thread designation			Td			Td2			Td3
	max.	min.	(6h) a	max.	min.	(4h) a	max.	min.	
MJ1,6 x 0,35-4h6h	1,600	1,515	0,085	1,373	1,333	0,04	1,196	1,135	0,061
MJ2 x 0,4-4h6h	2,000	1,905	0,095	1,740	1,698	0,042	1,538	1,472	0,066
MJ2,5 x 0,45-4h6h	2,5	2,4	0,1	2,208	2,163	0,045	1,980	1,908	0,072
MJ3 x 0,5-4h6h	3,000	2,894	0,106	2,675	2,627	0,048	2,423	2,345	0,078
MJ3,5 x 0,6-4h6h	3,500	3,375	0,125	3,110	3,057	0,053	2,807	2,718	0,089
MJ4 x 0,7-4h6h	4,00	3,86	0,14	3,545	3,489	0,056	3,192	3,094	0,098
MJ5 x 0,8-4h6h	5,00	4,85	0,15	4,48	4,42	0,06	4,076	3,968	0,108
MJ6 x 1-4h6h	6,00	5,82	0,18	5,350	5,279	0,071	4,845	4,713	0,132
MJ7 x 1-4h6h	7,00	6,82	0,18	6,350	6,279	0,071	5,845	5,713	0,132
MJ8 x 1-4h6h	8,00	7,82	0,18	7,350	7,279	0,071	6,845	6,713	0,132
MJ10 x 1,25-4h6h	10,000	9,788	0,212	9,188	9,113	0,075	8,557	8,406	0,151
MJ12 x 1,25-4h6h	12,000	11,788	0,212	11,188	11,103	0,085	10,557	10,396	0,161
MJ14 x 1,5-4h6h	14,000	13,764	0,236	13,026	12,936	0,09	12,268	12,087	0,181
MJ16 x 1,5-4h6h	16,000	15,764	0,236	15,026	14,936	0,09	14,268	14,087	0,181
MJ18 x 1,5-4h6h	18,000	17,764	0,236	17,026	16,936	0,09	16,268	16,087	0,181
MJ20 x 1,5-4h6h	20,000	19,764	0,236	19,026	18,936	0,09	18,268	18,087	0,181
MJ22 x 1,5-4h6h	22,000	21,764	0,236	21,026	20,936	0,09	20,268	20,087	0,181
MJ24 x 2-4h6h	24,00	23,72	0,28	22,701	22,595	0,106	21,691	21,464	0,227
MJ27 x 2-4h6h	27,00	26,72	0,28	25,701	25,595	0,106	24,691	24,464	0,227
MJ30 x 2-4h6h	30,00	29,72	0,28	28,701	28,595	0,106	27,691	27,464	0,227

MJ33 x 2-4h6h	33,00	32,72	0,28	31,701	31,595	0,106	30,691	30,464	0,227
MJ36 x 2-4h6h	36,00	35,72	0,28	34,701	34,595	0,106	33,691	33,464	0,227
MJ39 x 2-4h6h	39,00	38,72	0,28	37,701	37,595	0,106	36,691	36,464	0,227
a In accordance with ISO 965-1									

NUT Figure 2



Limit dimensions of 4H6H threads for nuts of diameter MJ1,6 to MJ5
and limit dimensions of 4H5H threads for nuts of diameter MJ6 to MJ39

Dimensions in millimetres

	Major	Pitch diameter			Minor diameter			
	D3 a	D2			D1			
Thread designation				TD2			TD1	
	max.	max.	min.	(4H) b	max.	min.	(6H) b	(5H) b
MJ1,6 x 0,35-4H6H	1,704	1,426	1,373	0,053	1,359	1,259	0,1	
MJ2 x 0,4-4H6H	2,114	1,796	1,740	0,056	1,722	1,610	0,112	
MJ2,5 x 0,45-4H6H	2,625	2,268	2,208	0,06	2,187	2,062	0,125	
MJ3 x 0,5-4H6H	3,135	2,738	2,675	0,063	2,653	2,513	0,14	
MJ3,5 x 0,6-4H6H	3,658	3,181	3,110	0,071	3,075	2,915	0,16	
MJ4 x 0,7-4H6H	4,176	3,620	3,545	0,075	3,498	3,318	0,18	
MJ5 x 0,8-4H6H	5,195	4,56	4,48	0,08	4,421	4,221	0,2	
MJ6 x 1-4H5H	6,239	5,445	5,350	0,095	5,216	5,026		0,19
MJ7 x 1-4H5H	7,239	6,445	6,350	0,095	6,216	6,026		0,19
MJ8 x 1-4H5H	8,239	7,445	7,350	0,095	7,216	7,026		0,19
MJ10 x 1,25-4H5H	10,28	9,288	9,188	0,1	8,994	8,782		0,212
MJ12 x 1,25-4H5H	12,292	11,300	11,188	0,112	10,994	10,782		0,212
MJ14 x 1,5-4H5H	14,335	13,144	13,026	0,118	12,775	12,539		0,236
MJ16 x 1,5-4H5H	16,335	15,144	15,026	0,118	14,775	14,539		0,236
MJ18 x 1,5-4H5H	18,335	17,144	17,026	0,118	16,775	16,539		0,236
MJ20 x 1,5-4H5H	20,335	19,144	19,026	0,118	18,775	18,539		0,236
MJ22 x 1,5-4H5H	22,335	21,144	21,026	0,118	20,775	20,539		0,236
MJ24 x 2-4H5H	24,429	22,841	22,701	0,14	22,351	22,051		0,3
MJ27 x 2-4H5H	27,429	25,841	25,701	0,14	25,351	25,051		0,3
MJ30 x 2-4H5H	30,429	28,841	28,701	0,14	28,351	28,051		0,3
MJ33 x 2-4H5H	33,429	31,841	31,701	0,14	31,351	31,051		0,3
MJ36 x 2-4H5H	36,429	34,841	34,701	0,14	34,351	34,051		0,3

MJ39 x 2-4H5H	39,429	37,841	37,701	0,14	37,351	37,051		0,3

a D3 min. is not specified. However, it shall be greater than D (see Figure 2).

b In accordance with ISO 965-1

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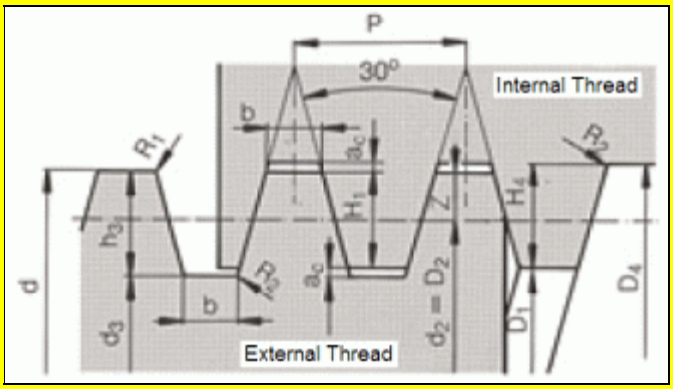
MARYLAND METRICS
THREAD DATA CHARTS

METRIC TRAPEZOIDAL THREAD



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ISO Metric Trapezoidal Threads DIN 103 & ISO 2904 excerpts

			External						Internal					
				Major Dia		Pitch Dia		Minor Dia			Minor Dia		Pitch Dia		Major Dia
Size mm	*Thread Designation*	*Pitch mm*	*Class*	*Max*	*Min*	*Max*	*Min*	*Max*	*Min*	*Class*	*Min*	*Max*	*Min*	*Max*	*Min*
8	TR8x1.5	1.5	7e	8.000	7.850	7.183	7.013	6.200	5.921	7H	6.500	6.690	7.250	7.474	8.300
9	TR9x1.5	1.5	7e	9.000	8.850	8.183	8.013	7.200	6.921	7H	7.500	7.690	8.250	8.474	9.300
9	TR9x2	2	7e	9.000	8.820	7.929	7.739	6.500	6.191	7H	7.000	7.236	8.000	8.250	9.500
10	TR10x1.5	1.5	7e	10.000	9.850	9.183	9.013	8.200	7.921	7H	8.500	8.690	9.250	9.474	10.300
10	TR10x2	2	7e	10.000	9.820	8.929	8.739	7.500	7.191	7H	8.000	8.236	9.000	9.250	10.500
11	TR11x2	2	7e	11.000	10.820	9.929	9.739	8.500	8.191	7H	9.000	9.236	10.000	10.250	11.500
11	TR11x3	3	7e	11.000	10.764	9.415	9.203	7.500	7.150	7H	8.000	8.315	9.500	9.780	11.500
12	TR12x2	2	7e	12.000	11.820	10.929	10.729	9.500	9.179	7H	10.000	10.236	11.000	11.265	12.500
12	TR12x3	3	7e	12.000	11.764	10.415	10.191	8.500	8.135	7H	9.000	9.315	10.500	10.800	12.500
14	TR14x2	2	7e	14.000	13.820	12.929	12.729	11.500	11.179	7H	12.000	12.236	13.000	13.265	14.500
14	TR14x3	3	7e	14.000	13.764	12.415	12.191	10.500	10.135	7H	11.000	11.315	12.500	12.800	14.500
16	TR16x2	2	7e	16.000	15.820	14.929	14.729	13.500	13.179	7H	14.000	14.236	15.000	15.265	16.500
16	TR16x3	3	7e	16.000	15.764	14.415	14.191	12.500	12.135	7H	13.000	13.315	14.500	14.800	16.500
16	TR16x4	4	7e	16.000	15.700	13.905	13.640	11.500	11.074	7H	12.000	12.375	14.000	14.355	16.500
18	TR18x2	2	7e	18.000	17.820	16.929	16.729	15.500	15.179	7H	16.000	16.236	17.000	17.265	18.500
18	TR18x3	3	7e	18.000	17.764	16.415	16.191	14.500	14.135	7H	15.000	15.315	16.500	16.800	18.500
18	TR18x4	4	7e	18.000	17.700	15.905	15.640	13.500	13.074	7H	14.000	14.375	16.000	16.355	18.500
20	TR20x2	2	7e	20.000	19.820	18.929	18.729	17.500	17.179	7H	18.000	18.236	19.000	19.265	20.500
20	TR20x3	3	7e	20.000	19.764	18.415	18.191	16.500	16.135	7H	17.000	17.315	18.500	18.800	20.500
20	TR20x4	4	7e	20.000	19.700	17.905	17.640	15.500	15.074	7H	16.000	16.375	18.000	18.355	20.500
22	TR22x3	3	7e	22.000	21.764	20.415	20.191	18.500	18.135	7H	19.000	19.315	20.500	20.800	22.500
22	TR22x5	5	7e	22.000	21.665	19.394	19.114	16.500	16.044	7H	17.000	17.450	19.500	19.875	22.500
22	TR22x8	8	7e	22.000	21.550	17.868	17.513	13.500	12.924	7H	14.000	14.630	18.000	18.475	22.500
24	TR24x3	3	7e	24.000	23.764	22.415	22.165	20.500	20.103	7H	21.000	21.315	22.500	22.835	24.500
24	TR24x5	5	7e	24.000	23.665	21.394	21.094	18.500	18.019	7H	19.000	19.450	21.500	21.900	24.500
24	TR24x8	8	7e	24.000	23.550	19.868	19.493	15.500	14.899	7H	16.000	16.630	20.000	20.500	24.500
26	TR26x3	3	7e	26.000	25.764	24.415	24.165	22.500	22.103	7H	23.000	23.315	24.500	24.835	26.500
26	TR26x5	5	7e	26.000	25.665	23.394	23.094	20.500	20.019	7H	21.000	21.450	23.500	23.900	26.500
26	TR26x8	8	7e	26.000	25.550	21.868	21.493	17.500	16.899	7H	18.000	18.630	22.000	22.500	26.500
28	TR28x3	3	7e	28.000	27.764	26.415	26.165	24.500	24.103	7H	25.000	25.315	26.500	26.835	28.500
28	TR28x5	5	7e	28.000	27.665	25.394	25.094	22.500	22.019	7H	23.000	23.450	25.500	25.900	28.500

28	TR28x8	8	7e	28.000	27.550	23.868	23.493	19.500	18.899	7H	20.000	20.630	24.000	24.500	28.500
30	TR30x3	3	7e	30.000	29.764	28.415	28.165	26.500	26.103	7H	27.000	27.315	28.500	28.835	30.500
30	TR30x6	6	7e	30.000	29.575	26.875	26.540	23.000	22.463	7H	24.000	24.560	27.000	27.450	31.000
30	TR30x10	10	7e	30.000	29.470	24.850	24.450	19.000	18.350	7H	20.000	20.710	25.000	25.530	31.000
32	TR32x3	3	7e	32.000	31.764	30.415	30.165	28.500	28.103	7H	29.000	29.315	30.500	30.835	32.500
32	TR32x6	6	7e	32.000	31.575	28.875	28.540	25.000	24.463	7H	26.000	26.560	29.000	29.450	33.000
32	TR32x10	10	7e	32.000	31.470	26.850	26.450	21.000	20.350	7H	22.000	22.710	27.000	27.530	33.000
34	TR34x3	3	7e	34.000	33.764	32.415	32.165	30.500	30.103	7H	31.000	31.315	32.500	32.835	34.500
34	TR34x6	6	7e	34.000	33.575	30.875	30.540	27.000	26.463	7H	28.000	28.560	31.000	31.450	35.000
34	TR34x10	10	7e	34.000	33.470	28.850	28.450	23.000	22.350	7H	24.000	24.710	29.000	29.530	35.000
36	TR36x3	3	7e	36.000	35.764	34.415	34.165	32.500	32.103	7H	33.000	33.315	34.500	34.835	36.500
36	TR36x6	6	7e	36.000	35.575	32.875	32.540	29.000	28.463	7H	30.000	30.560	33.000	33.450	37.000
36	TR36x10	10	7e	36.000	35.470	30.850	30.450	25.000	24.350	7H	26.000	26.710	31.000	31.530	37.000
38	TR38x3	3	7e	38.000	37.764	36.415	36.165	34.500	34.103	7H	35.000	35.315	36.500	36.835	38.500
38	TR38x7	7	7e	38.000	37.575	34.375	34.020	30.000	29.431	7H	31.000	31.560	34.500	34.975	39.000
38	TR38x10	10	7e	38.000	37.470	32.850	32.450	27.000	26.350	7H	28.000	28.710	33.000	33.530	39.000
40	TR40x3	3	7e	40.000	39.764	38.415	38.165	36.500	36.103	7H	37.000	37.315	38.500	38.835	40.500
40	TR40x7	7	7e	40.000	39.575	36.375	36.020	32.000	31.431	7H	33.000	33.560	36.500	36.975	41.000
40	TR40x10	10	7e	40.000	39.470	34.850	34.450	29.000	28.350	7H	30.000	30.710	35.000	35.530	41.000
42	TR42x3	3	7e	42.000	41.764	40.415	40.165	38.500	38.103	7H	39.000	39.315	40.500	40.835	42.500
42	TR42x7	7	7e	42.000	41.575	38.375	38.020	34.000	33.431	7H	35.000	35.560	38.500	38.975	43.000
42	TR42x10	10	7e	42.000	41.470	36.850	36.450	31.000	30.350	7H	32.000	32.710	37.000	37.530	43.000
44	TR44x3	3	7e	44.000	43.764	42.415	42.165	40.500	40.103	7H	41.000	41.315	42.500	42.835	44.500
44	TR44x7	7	7e	44.000	43.575	40.375	40.020	36.000	35.431	7H	37.000	37.560	40.500	40.975	45.000
44	TR44x12	12	7e	44.000	43.400	37.830	37.405	31.000	30.309	7H	32.000	32.800	38.000	38.560	45.000
46	TR46x3	3	7e	46.000	45.764	44.415	44.150	42.500	42.084	7H	43.000	43.315	44.500	44.855	46.500
46	TR46x8	8	7e	46.000	45.550	41.868	41.468	37.000	36.368	7H	38.000	38.630	42.000	42.530	47.000
46	TR46x12	12	7e	46.000	45.400	39.830	39.355	33.000	32.246	7H	34.000	34.800	40.000	40.630	47.000
48	TR48x3	3	7e	48.000	47.764	46.415	46.150	44.500	44.084	7H	45.000	45.315	46.500	46.855	48.500
48	TR48x8	8	7e	48.000	47.550	43.868	43.468	39.000	38.368	7H	40.000	40.630	44.000	44.530	49.000
48	TR48x12	12	7e	48.000	47.400	41.830	41.355	35.000	34.246	7H	36.000	36.800	42.000	42.630	49.000
50	TR50x3	3	7e	50.000	49.764	48.415	48.150	46.500	46.084	7H	47.000	47.315	48.500	48.855	50.500
50	TR50x8	8	7e	50.000	49.550	45.868	45.468	41.000	40.368	7H	42.000	42.630	46.000	46.530	51.000
50	TR50x12	12	7e	50.000	49.400	43.830	43.355	37.000	36.246	7H	38.000	38.800	44.000	44.630	51.000
52	TR52x3	3	7e	52.000	51.764	50.415	50.150	48.500	48.084	7H	49.000	49.315	50.500	50.855	52.500
52	TR52x8	8	7e	52.000	51.550	47.868	47.468	43.000	42.368	7H	44.000	44.630	48.000	48.530	53.000
52	TR52x12	12	7e	52.000	51.400	45.830	45.355	39.000	38.246	7H	40.000	40.800	46.000	46.630	53.000
55	TR55x3	3	7e	55.000	54.764	53.415	53.150	51.500	51.084	7H	52.000	52.315	53.500	53.855	55.500
55	TR55x9	9	7e	55.000	54.500	50.360	49.935	45.000	44.329	7H	46.000	46.670	50.500	51.060	56.000
55	TR55x14	14	7e	55.000	54.330	47.820	47.320	39.000	38.195	7H	41.000	41.900	48.000	48.670	57.000
60	TR60x3	3	7e	60.000	59.764	58.415	58.150	56.500	56.084	7H	57.000	57.315	58.500	58.855	60.500
60	TR60x9	9	7e	60.000	59.500	55.360	54.935	50.000	49.329	7H	51.000	51.670	55.500	56.060	61.000
60	TR60x14	14	7e	60.000	59.330	52.820	52.320	44.000	43.195	7H	46.000	46.900	53.000	53.670	62.000
65	TR65x4	4	7e	65.000	64.700	62.905	62.605	60.500	60.030	7H	61.000	61.375	63.000	63.400	65.500
65	TR65x10	10	7e	65.000	64.470	59.850	59.425	54.000	53.319	7H	55.000	55.710	60.000	60.560	66.000
65	TR65x16	16	7e	65.000	64.290	56.810	56.280	47.000	46.147	7H	49.000	50.000	57.000	57.710	67.000
70	TR70x4	4	7e	70.000	69.700	67.905	67.605	65.500	65.030	7H	66.000	66.375	68.000	68.400	70.500
70	TR70x10	10	7e	70.000	69.470	64.850	64.425	59.000	58.319	7H	60.000	60.710	65.000	65.560	71.000
70	TR70x16	16	7e	70.000	69.290	61.810	61.280	52.000	51.147	7H	54.000	55.000	62.000	62.710	72.000
75	TR75x4	4	7e	75.000	74.700	72.905	72.605	70.500	70.030	7H	71.000	71.375	73.000	73.400	75.500
75	TR75x10	10	7e	75.000	74.470	69.850	69.425	64.000	63.319	7H	65.000	65.710	70.000	70.560	76.000
75	TR75x16	16	7e	75.000	74.290	66.810	66.280	57.000	56.147	7H	59.000	60.000	67.000	67.710	77.000
80	TR80x4	4	7e	80.000	79.700	77.905	77.605	75.500	75.030	7H	76.000	76.375	78.000	78.400	80.500
80	TR80x10	10	7e	80.000	79.470	74.850	74.425	69.000	68.319	7H	70.000	70.710	75.000	75.560	81.000
80	TR80x16	16	7e	80.000	79.290	71.810	71.280	62.000	61.147	7H	64.000	65.000	72.000	72.710	82.000

85	TR85x4	4	7e	85.000	84.700	82.905	82.605	80.500	80.030	7H	81.000	81.375	83.000	83.400	85.500
85	TR85x12	12	7e	85.000	84.400	78.830	78.355	72.000	71.246	7H	73.000	73.800	79.000	79.630	86.000
85	TR85x18	18	7e	85.000	84.200	75.800	75.240	65.000	64.100	7H	67.000	68.120	76.000	76.750	87.000
90	TR90x4	4	7e	90.000	89.700	87.905	87.605	85.500	85.030	7H	86.000	86.375	88.000	88.400	90.500
90	TR90x12	12	7e	90.000	89.400	83.830	83.355	77.000	76.246	7H	78.000	78.800	84.000	84.630	91.000
90	TR90x18	18	7e	90.000	89.200	80.800	80.240	70.000	69.100	7H	72.000	73.120	81.000	81.750	92.000
95	TR95x4	4	7e	95.000	94.700	92.905	92.590	90.500	90.011	7H	91.000	91.375	93.000	93.425	95.500
95	TR95x12	12	7e	95.000	94.400	88.830	88.300	82.000	81.177	7H	83.000	83.800	89.000	89.710	96.000
95	TR95x18	18	7e	95.000	94.200	85.800	85.200	75.000	74.050	7H	77.000	78.120	86.000	86.800	97.000
100	TR100x4	4	7e	100.000	99.700	97.905	97.590	95.500	95.011	7H	96.000	96.375	98.000	98.425	100.500
100	TR100x12	12	7e	100.000	99.400	93.830	93.300	87.000	86.177	7H	88.000	88.800	94.000	94.710	101.000
100	TR100x20	20	7e	100.000	99.150	89.788	89.188	78.000	77.038	7H	80.000	81.180	90.000	90.800	102.000
105	TR105x4	4	7e	105.000	104.700	102.905	102.590	100.500	100.011	7H	101.000	101.375	103.000	103.425	105.500
105	TR105x12	12	7e	105.000	104.400	98.830	98.300	92.000	91.177	7H	93.000	93.800	99.000	99.710	106.000
105	TR105x20	20	7e	105.000	104.150	94.788	94.188	83.000	82.038	7H	85.000	86.180	95.000	95.800	107.000
110	TR110x4	4	7e	110.000	109.700	107.905	107.590	105.500	105.011	7H	106.000	106.375	108.000	108.425	110.500
110	TR110x12	12	7e	110.000	109.400	103.830	103.300	97.000	96.177	7H	98.000	98.800	104.000	104.710	111.000
110	TR110x20	20	7e	110.000	109.150	99.788	99.188	88.000	87.038	7H	90.000	91.180	100.000	100.800	112.000
115	TR115x6	6	7e	115.000	114.575	111.875	111.500	108.000	107.413	7H	109.000	109.560	112.000	112.500	116.000
115	TR115x12	12	7e	115.000	114.400	108.830	108.330	102.000	101.215	7H	103.000	103.800	109.000	109.670	116.000
115	TR115x14	14	7e	115.000	114.330	107.820	107.290	99.000	98.157	7H	101.000	101.900	108.000	108.710	117.000
115	TR115x22	22	7e	115.000	114.100	103.776	103.146	91.000	89.989	7H	93.000	94.250	104.000	104.850	117.000
120	TR120x6	6	7e	120.000	119.575	116.875	116.500	113.000	112.413	7H	114.000	114.560	117.000	117.500	121.000
120	TR120x12	12	7e	120.000	119.400	113.830	113.330	107.000	106.215	7H	108.000	108.800	114.000	114.670	121.000
120	TR120x14	14	7e	120.000	119.330	112.820	112.290	104.000	103.157	7H	106.000	106.900	113.000	113.710	122.000
120	TR120x22	22	7e	120.000	119.100	108.776	108.146	96.000	94.989	7H	98.000	99.250	109.000	109.850	122.000
125	TR125x6	6	7e	125.000	124.575	121.875	121.500	118.000	117.413	7H	119.000	119.560	122.000	122.500	126.000
125	TR125x12	12	7e	125.000	124.400	118.830	118.330	112.000	111.215	7H	113.000	113.800	119.000	119.670	126.000
125	TR125x14	14	7e	125.000	124.330	117.820	117.290	109.000	108.157	7H	111.000	111.900	118.000	118.710	127.000
125	TR125x22	22	7e	125.000	124.100	113.776	113.146	101.000	99.989	7H	103.000	104.250	114.000	114.850	127.000
130	TR130x6	6	7e	130.000	129.575	126.875	126.500	123.000	122.413	7H	124.000	124.560	127.000	127.500	131.000
130	TR130x12	12	7e	130.000	129.400	123.830	123.330	117.000	116.215	7H	118.000	118.800	124.000	124.670	131.000
130	TR130x14	14	7e	130.000	129.330	122.820	122.290	114.000	113.157	7H	116.000	116.900	123.000	123.710	132.000
130	TR130x22	22	7e	130.000	129.100	118.776	118.146	106.000	104.989	7H	108.000	109.250	119.000	119.850	132.000
135	TR135x6	6	7e	135.000	134.575	131.875	131.500	128.000	127.413	7H	129.000	129.560	132.000	132.500	136.000
135	TR135x12	12	7e	135.000	134.400	128.830	128.330	122.000	121.215	7H	123.000	123.800	129.000	129.670	136.000
135	TR135x14	14	7e	135.000	134.330	127.820	127.290	119.000	118.157	7H	121.000	121.900	128.000	128.710	137.000
135	TR135x24	24	7e	135.000	134.050	122.764	122.094	109.000	107.926	7H	111.000	112.320	123.000	123.900	137.000
140	TR140x6	6	7e	140.000	139.575	136.875	136.500	133.000	132.413	7H	134.000	134.560	137.000	137.500	141.000
140	TR140x12	12	7e	140.000	139.400	133.830	133.330	127.000	126.215	7H	128.000	128.800	134.000	134.670	141.000
140	TR140x14	14	7e	140.000	139.330	132.820	132.290	124.000	123.157	7H	126.000	126.900	133.000	133.710	142.000
140	TR140x24	24	7e	140.000	139.050	127.764	127.094	114.000	112.926	7H	116.000	117.320	128.000	128.900	142.000
145	TR145x6	6	7e	145.000	144.575	141.875	141.500	138.000	137.413	7H	139.000	139.560	142.000	142.500	146.000
145	TR145x12	12	7e	145.000	144.400	138.830	138.330	132.000	131.215	7H	133.000	133.800	139.000	139.670	146.000
145	TR145x14	14	7e	145.000	144.330	137.820	137.290	129.000	128.157	7H	131.000	131.900	138.000	138.710	147.000
145	TR145x24	24	7e	145.000	144.050	132.764	132.094	119.000	117.926	7H	121.000	122.320	133.000	133.900	147.000
150	TR150x6	6	7e	150.000	149.575	146.875	146.500	143.000	142.413	7H	144.000	144.560	147.000	147.500	151.000
150	TR150x12	12	7e	150.000	149.400	143.830	143.330	137.000	136.215	7H	138.000	138.800	144.000	144.670	151.000
150	TR150x16	16	7e	150.000	149.290	141.810	141.250	132.000	131.110	7H	134.000	135.000	142.000	142.750	152.000
150	TR150x24	24	7e	150.000	149.050	137.764	137.094	124.000	122.926	7H	126.000	127.320	138.000	138.900	152.000
155	TR155x6	6	7e	155.000	154.575	151.875	151.500	148.000	147.413	7H	149.000	149.560	152.000	152.500	156.000
155	TR155x12	12	7e	155.000	154.400	148.830	148.330	142.000	141.215	7H	143.000	143.800	149.000	149.670	156.000
155	TR155x16	16	7e	155.000	154.290	146.810	146.250	137.000	136.110	7H	139.000	140.000	147.000	147.750	157.000
155	TR155x24	24	7e	155.000	154.050	142.764	142.094	129.000	127.926	7H	131.000	132.320	143.000	143.900	157.000
160	TR160x6	6	7e	160.000	159.575	156.875	156.500	153.000	152.413	7H	154.000	154.560	157.000	157.500	161.000

160	TR160x12	12	7e	160.000	159.400	153.830	153.330	147.000	146.215		7H	148.000	148.800	154.000	154.670	161.000
160	TR160x16	16	7e	160.000	159.290	151.810	151.250	142.000	141.110		7H	144.000	145.000	152.000	152.750	162.000
160	TR160x28	28	7e	160.000	158.940	145.750	145.040	130.000	128.862		7H	132.000	133.500	146.000	146.950	162.000
165	TR165x6	6	7e	165.000	164.575	161.875	161.500	158.000	157.413		7H	159.000	159.560	162.000	162.500	166.000
165	TR165x12	12	7e	165.000	164.400	158.830	158.330	152.000	151.215		7H	153.000	153.800	159.000	159.670	166.000
165	TR165x16	16	7e	165.000	164.290	156.810	156.250	147.000	146.110		7H	149.000	150.000	157.000	157.750	167.000
165	TR165x28	28	7e	165.000	163.940	150.750	150.040	135.000	133.862		7H	137.000	138.500	151.000	151.950	167.000
170	TR170x6	6	7e	170.000	169.575	166.875	166.500	163.000	162.413		7H	164.000	164.560	167.000	167.500	171.000
170	TR170x12	12	7e	170.000	169.400	163.830	163.330	157.000	156.215		7H	158.000	158.800	164.000	164.670	171.000
170	TR170x16	16	7e	170.000	169.290	161.810	161.250	152.000	151.110		7H	154.000	155.000	162.000	162.750	172.000
170	TR170x28	28	7e	170.000	168.940	155.750	155.040	140.000	138.862		7H	142.000	143.500	156.000	156.950	172.000
175	TR175x8	8	7e	175.000	174.550	170.868	170.443	166.500	165.837		7H	167.000	167.630	171.000	171.560	175.500
175	TR175x12	12	7e	175.000	174.400	168.830	168.330	162.000	161.215		7H	163.000	163.800	169.000	169.670	176.000
175	TR175x16	16	7e	175.000	174.290	166.810	166.250	157.000	156.110		7H	159.000	160.000	167.000	167.750	177.000
175	TR175x28	28	7e	175.000	173.940	160.750	160.040	145.000	143.862		7H	147.000	148.500	161.000	161.950	177.000
180	TR180x8	8	7e	180.000	179.550	175.868	175.443	171.500	170.837		7H	172.000	172.630	176.000	176.560	180.500
180	TR180x12	12	7e	180.000	179.400	173.830	173.330	167.000	166.215		7H	168.000	168.800	174.000	174.670	181.000
180	TR180x18	18	7e	180.000	179.200	170.800	170.200	160.000	159.050		7H	162.000	163.120	171.000	171.800	182.000
180	TR180x28	28	7e	180.000	178.940	165.750	165.040	150.000	148.862		7H	152.000	153.500	166.000	166.950	182.000
185	TR185x8	8	7e	185.000	184.550	180.868	180.418	176.500	175.805		7H	177.000	177.630	181.000	181.600	185.500
185	TR185x12	12	7e	185.000	184.400	178.830	178.300	172.000	171.177		7H	173.000	173.800	179.000	179.710	186.000
185	TR185x18	18	7e	185.000	184.200	175.800	175.170	165.000	164.013		7H	167.000	168.120	176.000	176.850	187.000
185	TR185x24	24	7e	185.000	184.050	172.764	172.054	159.000	157.876		7H	161.000	162.320	173.000	173.950	187.000
185	TR185x32	32	7e	185.000	183.880	168.735	167.935	151.000	149.735		7H	153.000	154.600	169.000	170.060	187.000
190	TR190x8	8	7e	190.000	189.550	185.868	185.418	181.500	180.805		7H	182.000	182.630	186.000	186.600	190.500
190	TR190x12	12	7e	190.000	189.400	183.830	183.300	177.000	176.177		7H	178.000	178.800	184.000	184.710	191.000
190	TR190x18	18	7e	190.000	189.200	180.800	180.170	170.000	169.013		7H	172.000	173.120	181.000	181.850	192.000
190	TR190x24	24	7e	190.000	189.050	177.764	177.054	164.000	162.876		7H	166.000	167.320	178.000	178.950	192.000
190	TR190x32	32	7e	190.000	188.880	173.735	172.935	156.000	154.735		7H	158.000	159.600	174.000	175.060	192.000
195	TR195x8	8	7e	195.000	194.550	190.868	190.418	186.500	185.805		7H	187.000	187.630	191.000	191.600	195.500
195	TR195x12	12	7e	195.000	194.400	188.830	188.300	182.000	181.177		7H	183.000	183.800	189.000	189.710	196.000
195	TR195x18	18	7e	195.000	194.200	185.800	185.170	175.000	174.013		7H	177.000	178.120	186.000	186.850	197.000
195	TR195x24	24	7e	195.000	194.050	182.764	182.054	169.000	167.876		7H	171.000	172.320	183.000	183.950	197.000
195	TR195x32	32	7e	195.000	193.880	178.735	177.935	161.000	159.735		7H	163.000	164.600	179.000	180.060	197.000
200	TR200x8	8	7e	200.000	199.550	195.868	195.418	191.500	190.805		7H	192.000	192.630	196.000	196.600	200.500
200	TR200x12	12	7e	200.000	199.400	193.830	193.300	187.000	186.177		7H	188.000	188.800	194.000	194.710	201.000
200	TR200x18	18	7e	200.000	199.200	190.800	190.170	180.000	179.013		7H	182.000	183.120	191.000	191.850	202.000
200	TR200x24	24	7e	200.000	199.050	187.764	187.054	174.000	172.876		7H	176.000	177.320	188.000	188.950	202.000
200	TR200x32	32	7e	200.000	198.880	183.735	182.935	166.000	164.735		7H	168.000	169.600	184.000	185.060	202.000
205	TR205x4	4	7e	205.000	204.700	202.905	202.550	200.500	199.979		7H	201.000	201.375	203.000	203.500	205.500
210	TR210x4	4	7e	210.000	209.700	207.905	207.550	205.500	204.979		7H	206.000	206.375	208.000	208.500	210.500
210	TR210x8	8	7e	210.000	209.550	205.868	205.418	201.500	200.805		7H	202.000	202.630	206.000	206.600	210.500
210	TR210x12	12	7e	210.000	209.400	203.830	203.300	197.000	196.177		7H	198.000	198.800	204.000	204.710	211.000
210	TR210x20	20	7e	210.000	209.150	199.788	199.118	188.000	186.950		7H	190.000	191.180	200.000	200.900	212.000
210	TR210x24	24	7e	210.000	209.050	197.764	197.054	184.000	182.876		7H	186.000	187.320	198.000	198.950	212.000
210	TR210x36	36	7e	210.000	208.750	191.720	190.870	172.000	170.657		7H	174.000	175.800	192.000	193.120	212.000
215	TR215x4	4	7e	215.000	214.700	212.905	212.550	210.500	209.979		7H	211.000	211.375	213.000	213.500	215.500
220	TR220x4	4	7e	220.000	219.700	217.905	217.550	215.500	214.979		7H	216.000	216.375	218.000	218.500	220.500
220	TR220x8	8	7e	220.000	219.550	215.868	215.418	211.500	210.805		7H	212.000	212.630	216.000	216.600	220.500
220	TR220x12	12	7e	220.000	219.400	213.830	213.300	207.000	206.177		7H	208.000	208.800	214.000	214.710	221.000
220	TR220x20	20	7e	220.000	219.150	209.788	209.118	198.000	196.950		7H	200.000	201.180	210.000	210.900	222.000
220	TR220x24	24	7e	220.000	219.050	207.764	207.054	194.000	192.876		7H	196.000	197.320	208.000	208.950	222.000
220	TR220x36	36	7e	220.000	218.750	201.720	200.870	182.000	180.657		7H	184.000	185.800	202.000	203.120	222.000
230	TR230x4	4	7e	230.000	229.700	227.905	227.550	225.500	224.979		7H	226.000	226.375	228.000	228.500	230.500
230	TR230x8	8	7e	230.000	229.550	225.868	225.418	221.500	220.805		7H	222.000	222.630	226.000	226.600	230.500

230	TR230x12	12	7e	230.000	229.400	223.830	223.300	217.000	216.177		7H	218.000	218.800	224.000	224.710	231.000
230	TR230x20	20	7e	230.000	229.150	219.788	219.118	208.000	206.950		7H	210.000	211.180	220.000	220.900	232.000
230	TR230x24	24	7e	230.000	229.050	217.764	217.054	204.000	202.876		7H	206.000	207.320	218.000	218.950	232.000
230	TR230x36	36	7e	230.000	228.750	211.720	210.870	192.000	190.657		7H	194.000	195.800	212.000	213.120	232.000
235	TR235x4	4	7e	235.000	234.700	232.905	232.550	230.500	229.979		7H	231.000	231.375	233.000	233.500	235.500
240	TR240x4	4	7e	240.000	239.700	237.905	237.550	235.500	234.979		7H	236.000	236.375	238.000	238.500	240.500
240	TR240x8	8	7e	240.000	239.550	235.868	235.418	231.500	230.805		7H	232.000	232.630	236.000	236.600	240.500
240	TR240x12	12	7e	240.000	239.400	233.830	233.300	227.000	226.177		7H	228.000	228.800	234.000	234.710	241.000
240	TR240x20	20	7e	240.000	239.150	229.788	229.118	218.000	216.950		7H	220.000	221.180	230.000	230.900	242.000
240	TR240x22	22	7e	240.000	239.100	228.776	228.106	216.000	214.938		7H	218.000	219.250	229.000	229.900	242.000
240	TR240x24	24	7e	240.000	239.050	227.764	227.054	214.000	212.876		7H	216.000	217.320	228.000	228.950	242.000
240	TR240x36	36	7e	240.000	238.750	221.720	220.870	202.000	200.657		7H	204.000	205.800	222.000	223.120	242.000
250	TR250x4	4	7e	250.000	249.700	247.905	247.550	245.500	244.979		7H	246.000	246.375	248.000	248.500	250.500
250	TR250x12	12	7e	250.000	249.400	243.830	243.300	237.000	236.177		7H	238.000	238.800	244.000	244.710	251.000
250	TR250x22	22	7e	250.000	249.100	238.776	238.106	226.000	224.938		7H	228.000	229.250	239.000	239.900	252.000
250	TR250x24	24	7e	250.000	249.050	237.764	237.054	224.000	222.876		7H	226.000	227.320	238.000	238.950	252.000
250	TR250x40	40	7e	250.000	248.680	229.700	228.850	208.000	206.637		7H	210.000	211.900	230.000	231.120	252.000
260	TR260x4	4	7e	260.000	259.700	257.905	257.550	255.500	254.979		7H	256.000	256.375	258.000	258.500	260.500
260	TR260x12	12	7e	260.000	259.400	253.830	253.300	247.000	246.177		7H	248.000	248.800	254.000	254.710	261.000
260	TR260x20	20	7e	260.000	259.150	249.788	249.118	238.000	236.950		7H	240.000	241.180	250.000	250.900	262.000
260	TR260x22	22	7e	260.000	259.100	248.776	248.106	236.000	234.938		7H	238.000	239.250	249.000	249.900	262.000
260	TR260x24	24	7e	260.000	259.050	247.764	247.054	234.000	232.876		7H	236.000	237.320	248.000	248.950	262.000
260	TR260x40	40	7e	260.000	258.680	239.700	238.850	218.000	216.637		7H	220.000	221.900	240.000	241.120	262.000
270	TR270x12	12	7e	270.000	269.400	263.830	263.300	257.000	256.177		7H	258.000	258.800	264.000	264.710	271.000
270	TR270x24	24	7e	270.000	269.050	257.764	257.054	244.000	242.876		7H	246.000	247.320	258.000	258.950	272.000
270	TR270x40	40	7e	270.000	268.680	249.700	248.850	228.000	226.637		7H	230.000	231.900	250.000	251.120	272.000
275	TR275x4	4	7e	275.000	274.700	272.905	272.550	270.500	269.979		7H	271.000	271.375	273.000	273.500	275.500
280	TR280x4	4	7e	280.000	279.700	277.905	277.550	275.500	274.979		7H	276.000	276.375	278.000	278.500	280.500
280	TR280x12	12	7e	280.000	279.400	273.830	273.300	267.000	266.177		7H	268.000	268.800	274.000	274.710	281.000
280	TR280x24	24	7e	280.000	279.050	267.764	267.054	254.000	252.876		7H	256.000	257.320	268.000	268.950	282.000
280	TR280x40	40	7e	280.000	278.680	259.700	258.850	238.000	236.637		7H	240.000	241.900	260.000	261.120	282.000
290	TR290x4	4	7e	290.000	289.700	287.905	287.550	285.500	284.979		7H	286.000	286.375	288.000	288.500	290.500
290	TR290x12	12	7e	290.000	289.400	283.830	283.300	277.000	276.177		7H	278.000	278.800	284.000	284.710	291.000
290	TR290x24	24	7e	290.000	289.050	277.764	277.054	264.000	262.876		7H	266.000	267.320	278.000	278.950	292.000
290	TR290x44	44	7e	290.000	288.600	267.685	266.785	244.000	242.560		7H	246.000	248.000	268.000	269.250	292.000
295	TR295x4	4	7e	295.000	294.700	292.905	292.550	290.500	289.979		7H	291.000	291.375	293.000	293.500	295.500
300	TR300x4	4	7e	300.000	299.700	297.905	297.550	295.500	294.979		7H	296.000	296.375	298.000	298.500	300.500
300	TR300x12	12	7e	300.000	299.400	293.830	293.300	287.000	286.177		7H	288.000	288.800	294.000	294.710	301.000
300	TR300x24	24	7e	300.000	299.050	287.764	287.054	274.000	272.876		7H	276.000	277.320	288.000	288.950	302.000
300	TR300x44	44	7e	300.000	298.600	277.685	276.785	254.000	252.560		7H	256.000	258.000	278.000	279.250	302.000
310	TR310x5	5	7e	310.000	309.665	307.394	307.039	304.500	303.979		7H	305.000	305.450	307.500	308.000	310.500
315	TR315x5	5	7e	315.000	314.665	312.394	312.039	309.500	308.979		7H	310.000	310.450	312.500	313.000	315.500
320	TR320x5	5	7e	320.000	319.665	317.394	317.019	314.500	313.925		7H	315.000	315.450	317.500	318.030	320.500
320	TR320x12	12	7e	320.000	319.400	313.830	313.300	307.000	306.177		7H	308.000	308.800	314.000	314.710	321.000
320	TR320x24	24	7e	320.000	319.050	307.764	307.054	294.000	292.876		7H	296.000	297.320	308.000	308.950	322.000
320	TR320x44	44	7e	320.000	318.600	297.685	296.785	275.000	273.560		7H	276.000	278.000	298.000	299.250	321.000
330	TR330x5	5	7e	330.000	329.665	327.394	327.039	324.500	323.979		7H	325.000	325.450	327.500	328.000	330.500
335	TR335x5	5	7e	335.000	334.665	332.394	332.039	329.500	328.979		7H	330.000	330.450	332.500	333.000	335.500
340	TR340x5	5	7e	340.000	339.665	337.394	337.019	334.500	333.925		7H	335.000	335.450	337.500	338.030	340.500
340	TR340x12	12	7e	340.000	339.400	333.830	333.300	327.000	326.177		7H	328.000	328.800	334.000	334.710	341.000
340	TR340x24	24	7e	340.000	339.050	327.764	327.054	314.000	312.876		7H	316.000	317.320	328.000	328.950	342.000
340	TR340x28	28	7e	340.000	338.940	325.750	325.000	310.000	308.813		7H	312.000	313.500	326.000	327.000	342.000
340	TR340x44	44	7e	340.000	338.600	317.685	316.785	295.000	293.560		7H	296.000	298.000	318.000	319.250	341.000
345	TR345x5	5	7e	345.000	344.665	342.394	342.039	339.500	338.979		7H	340.000	340.450	342.500	343.000	345.500
350	TR350x5	5	7e	350.000	349.665	347.394	347.039	344.500	343.979		7H	345.000	345.450	347.500	348.000	350.500

355	TR355x5	5	7e	355.000	354.665	352.394	352.039	349.500	348.979		7H	350.000	350.450	352.500	353.000	355.500
360	TR360x5	5	7e	360.000	359.665	357.394	356.994	354.500	353.894		7H	355.000	355.450	357.500	358.060	360.500
360	TR360x12	12	7e	360.000	359.400	353.830	353.270	347.000	346.130		7H	348.000	348.800	354.000	354.800	361.000
360	TR360x24	24	7e	360.000	359.050	347.764	347.014	334.000	332.827		7H	336.000	337.320	348.000	349.000	362.000
360	TR360x28	28	7e	360.000	358.940	345.750	344.950	330.000	328.750		7H	332.000	333.500	346.000	347.120	362.000
360	TR360x44	44	7e	360.000	358.600	337.685	336.735	314.000	312.498		7H	316.000	318.000	338.000	339.400	362.000
365	TR365x5	5	7e	365.000	364.665	362.394	361.994	359.500	358.894		7H	360.000	360.450	362.500	363.060	365.500
370	TR370x5	5	7e	370.000	369.665	367.394	366.994	364.500	363.894		7H	365.000	365.450	367.500	368.060	370.500
375	TR375x5	5	7e	375.000	374.665	372.394	371.994	369.500	368.894		7H	370.000	370.450	372.500	373.060	375.500
380	TR380x5	5	7e	380.000	379.665	377.394	376.994	374.500	373.894		7H	375.000	375.450	377.500	378.060	380.500
380	TR380x12	12	7e	380.000	379.400	373.830	373.270	367.000	366.130		7H	368.000	368.800	374.000	374.800	381.000
380	TR380x24	24	7e	380.000	379.050	367.764	367.014	354.000	352.827		7H	356.000	357.320	368.000	369.000	382.000
380	TR380x28	28	7e	380.000	378.940	365.750	364.950	350.000	348.750		7H	352.000	353.500	366.000	367.120	382.000
380	TR380x32	32	7e	380.000	378.880	363.735	362.885	346.000	344.673		7H	348.000	349.600	364.000	365.200	382.000
380	TR380x44	44	7e	380.000	378.600	357.685	356.735	334.000	332.498		7H	336.000	338.000	358.000	359.400	382.000
385	TR385x5	5	7e	385.000	384.665	382.394	381.994	379.500	378.894		7H	380.000	380.450	382.500	383.060	385.500
395	TR395x5	5	7e	395.000	394.665	392.394	391.994	389.500	388.894		7H	390.000	390.450	392.500	393.060	395.500
400	TR400x5	5	7e	400.000	399.665	397.394	396.994	394.500	393.894		7H	395.000	395.450	397.500	398.060	400.500
400	TR400x12	12	7e	400.000	399.400	393.830	393.270	387.000	386.130		7H	388.000	388.800	394.000	394.800	401.000
400	TR400x24	24	7e	400.000	399.050	387.764	387.014	374.000	372.827		7H	376.000	377.320	388.000	389.000	402.000
400	TR400x28	28	7e	400.000	398.940	385.750	384.950	370.000	368.750		7H	372.000	373.500	386.000	387.120	402.000
400	TR400x32	32	7e	400.000	398.880	383.735	382.885	366.000	364.673		7H	368.000	369.600	384.000	385.200	402.000
400	TR400x44	44	7e	400.000	398.600	377.685	376.735	354.000	352.498		7H	356.000	358.000	378.000	379.400	402.000
410	TR410x5	5	7e	410.000	409.665	407.394	406.994	404.500	403.894		7H	405.000	405.450	407.500	408.060	410.500
415	TR415x5	5	7e	415.000	414.665	412.394	411.994	409.500	408.894		7H	410.000	410.450	412.500	413.060	415.500
420	TR420x5	5	7e	420.000	419.665	417.394	416.994	414.500	413.894		7H	415.000	415.450	417.500	418.060	420.500
420	TR420x12	12	7e	420.000	419.400	413.830	413.270	407.000	406.130		7H	408.000	408.800	414.000	414.800	421.000
420	TR420x24	24	7e	420.000	419.050	407.764	407.014	394.000	392.827		7H	396.000	397.320	408.000	409.000	422.000
420	TR420x32	32	7e	420.000	418.880	403.735	402.885	386.000	384.673		7H	388.000	389.600	404.000	405.200	422.000
420	TR420x44	44	7e	420.000	418.600	397.685	396.735	374.000	372.498		7H	376.000	378.000	398.000	399.400	422.000
430	TR430x5	5	7e	430.000	429.665	427.394	426.994	424.500	423.894		7H	425.000	425.450	427.500	428.060	430.500
435	TR435x5	5	7e	435.000	434.665	432.394	431.994	429.500	428.894		7H	430.000	430.450	432.500	433.060	435.500
440	TR440x5	5	7e	440.000	439.665	437.394	436.994	434.500	433.894		7H	435.000	435.450	437.500	438.060	440.500
440	TR440x12	12	7e	440.000	439.400	433.830	433.270	427.000	426.130		7H	428.000	428.800	434.000	434.800	441.000
440	TR440x24	24	7e	440.000	439.050	427.764	427.014	414.000	412.827		7H	416.000	417.320	428.000	429.000	442.000
440	TR440x32	32	7e	440.000	438.880	423.735	422.885	406.000	404.673		7H	408.000	409.600	424.000	425.200	442.000
440	TR440x36	36	7e	440.000	438.750	421.720	420.820	402.000	400.595		7H	404.000	405.800	422.000	423.250	442.000
440	TR440x44	44	7e	440.000	438.600	417.685	416.735	394.000	392.498		7H	396.000	398.000	418.000	419.400	442.000
450	TR450x5	5	7e	450.000	449.665	447.394	446.994	444.500	443.894		7H	445.000	445.450	447.500	448.060	450.500
460	TR460x5	5	7e	460.000	459.665	457.394	456.994	454.500	453.894		7H	455.000	455.450	457.500	458.060	460.500
460	TR460x12	12	7e	460.000	459.400	453.830	453.270	447.000	446.130		7H	448.000	448.800	454.000	454.800	461.000
460	TR460x24	24	7e	460.000	459.050	447.764	447.014	434.000	432.827		7H	436.000	437.320	448.000	449.000	462.000
460	TR460x32	32	7e	460.000	458.880	443.735	442.885	426.000	424.673		7H	428.000	429.600	444.000	445.200	462.000
460	TR460x36	36	7e	460.000	458.750	441.720	440.820	422.000	420.595		7H	424.000	425.800	442.000	443.250	462.000
460	TR460x44	44	7e	460.000	458.600	437.685	436.735	414.000	412.498		7H	416.000	418.000	438.000	439.400	462.000
470	TR470x5	5	7e	470.000	469.665	467.394	466.994	464.500	463.894		7H	465.000	465.450	467.500	468.060	470.500
480	TR480x5	5	7e	480.000	479.665	477.394	476.994	474.500	473.894		7H	475.000	475.450	477.500	478.060	480.500
480	TR480x12	12	7e	480.000	479.400	473.830	473.270	467.000	466.130		7H	468.000	468.800	474.000	474.800	481.000
480	TR480x24	24	7e	480.000	479.050	467.764	467.014	454.000	452.827		7H	456.000	457.320	468.000	469.000	482.000
480	TR480x36	36	7e	480.000	478.750	461.720	460.820	442.000	440.595		7H	444.000	445.800	462.000	463.250	482.000
480	TR480x44	44	7e	480.000	478.600	457.685	456.735	434.000	432.498		7H	436.000	438.000	458.000	459.400	482.000
490	TR490x5	5	7e	490.000	489.665	487.394	486.994	484.500	483.894		7H	485.000	485.450	487.500	488.060	490.500
500	TR500x5	5	7e	500.000	499.665	497.394	496.994	494.500	493.894		7H	495.000	495.450	497.500	498.060	500.500
500	TR500x12	12	7e	500.000	499.400	493.830	493.270	487.000	486.130		7H	488.000	488.800	494.000	494.800	501.000
500	TR500x24	24	7e	500.000	499.050	487.764	487.014	474.000	472.827		7H	476.000	477.320	488.000	489.000	502.000

500	TR500x36	36	7e	500.000	498.750	481.720	480.820	462.000	460.595		7H	464.000	465.800	482.000	483.250	502.000
500	TR500x40	40	7e	500.000	498.680	479.700	478.800	458.000	456.575		7H	460.000	461.900	480.000	481.250	502.000
500	TR500x44	44	7e	500.000	498.600	477.685	476.735	454.000	452.498		7H	456.000	458.000	478.000	479.400	502.000
510	TR510x6	6	7e	510.000	509.625	506.882	506.482	503.000	502.394		7H	504.000	504.500	507.000	507.560	511.000
520	TR520x6	6	7e	520.000	519.625	516.882	516.482	513.000	512.394		7H	514.000	514.500	517.000	517.560	521.000
530	TR530x5	5	7e	530.000	529.665	527.394	526.994	524.500	523.894		7H	525.000	525.450	527.500	528.060	530.500
530	TR530x6	6	7e	530.000	529.625	526.882	526.482	523.000	522.394		7H	524.000	524.500	527.000	527.560	531.000
530	TR530x12	12	7e	530.000	529.400	523.830	523.270	517.000	516.130		7H	518.000	518.800	524.000	524.800	531.000
530	TR530x24	24	7e	530.000	529.050	517.764	517.014	504.000	502.827		7H	506.000	507.320	518.000	519.000	532.000
530	TR530x40	40	7e	530.000	528.680	509.700	508.800	488.000	486.575		7H	490.000	491.900	510.000	511.250	532.000
530	TR530x44	44	7e	530.000	528.600	507.685	506.735	484.000	482.498		7H	486.000	488.000	508.000	509.400	532.000
540	TR540x6	6	7e	540.000	539.625	536.882	536.482	533.000	532.394		7H	534.000	534.500	537.000	537.560	541.000
550	TR550x6	6	7e	550.000	549.625	546.882	546.482	543.000	542.394		7H	544.000	544.500	547.000	547.560	551.000
560	TR560x5	5	7e	560.000	559.665	557.394	556.994	554.500	553.894		7H	555.000	555.450	557.500	558.060	560.500
560	TR560x12	12	7e	560.000	559.400	553.830	553.270	547.000	546.130		7H	548.000	548.800	554.000	554.800	561.000
560	TR560x24	24	7e	560.000	559.050	547.764	547.014	534.000	532.827		7H	536.000	537.320	548.000	549.000	562.000
560	TR560x40	40	7e	560.000	558.680	539.700	538.800	518.000	516.575		7H	520.000	521.900	540.000	541.250	562.000
560	TR560x44	44	7e	560.000	558.600	537.685	536.735	514.000	512.498		7H	516.000	518.000	538.000	539.400	562.000
560	TR560x45	45	7e	560.000	558.600	537.185	536.235	513.000	511.497		7H	515.000	517.000	537.500	538.900	562.000
600	TR600x6	6	7e	600.000	599.625	596.882	596.457	593.000	592.351		7H	594.000	594.500	597.000	597.600	601.000
600	TR600x12	12	7e	600.000	599.400	593.830	593.270	587.000	586.130		7H	588.000	588.800	594.000	594.800	601.000
600	TR600x24	24	7e	600.000	599.050	587.764	587.014	574.000	572.827		7H	576.000	577.320	588.000	589.000	602.000
600	TR600x40	40	7e	600.000	598.680	579.700	578.800	558.000	556.575		7H	560.000	561.900	580.000	581.250	602.000
600	TR600x44	44	7e	600.000	598.600	577.685	576.735	554.000	552.498		7H	556.000	558.000	578.000	579.400	602.000
600	TR600x45	45	7e	600.000	598.600	577.185	576.235	553.000	551.497		7H	555.000	557.000	577.500	578.900	602.000
630	TR630x6	6	7e	630.000	629.625	626.882	626.457	623.000	622.351		7H	624.000	624.500	627.000	627.600	631.000
630	TR630x12	12	7e	630.000	629.400	623.830	623.270	617.000	616.130		7H	618.000	618.800	624.000	624.800	631.000
630	TR630x24	24	7e	630.000	629.050	617.764	617.014	604.000	602.827		7H	606.000	607.320	618.000	619.000	632.000
630	TR630x44	44	7e	630.000	628.600	607.685	606.735	584.000	582.498		7H	586.000	588.000	608.000	609.400	632.000
630	TR630x45	45	7e	630.000	628.600	607.185	606.235	583.000	581.497		7H	585.000	587.000	607.500	608.900	632.000
670	TR670x6	6	7e	670.000	669.625	666.882	666.457	663.000	662.351		7H	664.000	664.500	667.000	667.600	671.000
670	TR670x12	12	7e	670.000	669.400	663.830	663.270	657.000	656.130		7H	658.000	658.800	664.000	664.800	671.000
670	TR670x24	24	7e	670.000	669.050	657.764	657.014	644.000	642.827		7H	646.000	647.320	658.000	659.000	672.000
670	TR670x44	44	7e	670.000	668.600	647.685	646.735	624.000	622.498		7H	626.000	628.000	648.000	649.400	672.000
670	TR670x45	45	7e	670.000	668.600	647.185	646.235	623.000	621.497		7H	625.000	627.000	647.500	648.900	672.000
710	TR710x7	7	7e	710.000	709.575	706.375	705.925	702.000	701.313		7H	703.000	703.560	706.500	707.130	711.000
710	TR710x12	12	7e	710.000	709.400	703.830	703.270	697.000	696.130		7H	698.000	698.800	704.000	704.800	711.000
710	TR710x24	24	7e	710.000	709.050	697.764	697.014	684.000	682.827		7H	686.000	687.320	698.000	699.000	712.000
710	TR710x44	44	7e	710.000	708.600	687.685	686.735	664.000	662.498		7H	666.000	668.000	688.000	689.400	712.000
710	TR710x50	50	7e	710.000	708.550	684.680	683.680	658.000	656.430		7H	660.000	662.120	685.000	686.400	712.000
750	TR750x7	7	7e	750.000	749.575	746.375	745.900	742.000	741.281		7H	743.000	743.560	746.500	747.170	751.000
750	TR750x12	12	7e	750.000	749.400	743.830	743.200	737.000	736.043		7H	738.000	738.800	744.000	829.000	751.000
750	TR750x24	24	7e	750.000	749.050	737.764	736.964	724.000	722.764		7H	726.000	727.320	738.000	739.120	752.000
750	TR750x44	44	7e	750.000	748.600	727.685	726.625	704.000	702.360		7H	706.000	708.000	728.000	729.400	752.000
800	TR800x7	7	7e	800.000	799.575	796.375	795.900	792.000	791.281		7H	793.000	793.560	796.500	797.170	801.000
800	TR800x12	12	7e	800.000	799.400	793.830	793.200	787.000	786.043		7H	788.000	788.800	794.000	879.000	801.000
800	TR800x24	24	7e	800.000	799.050	787.764	786.964	774.000	772.764		7H	776.000	777.320	788.000	789.120	802.000
800	TR800x44	44	7e	800.000	798.600	777.685	776.625	754.000	752.360		7H	756.000	758.000	778.000	779.400	802.000
850	TR850x7	7	7e	850.000	849.575	846.375	845.900	842.000	841.281		7H	843.000	843.560	846.500	847.170	851.000
850	TR850x12	12	7e	850.000	849.400	843.830	843.200	837.000	836.043		7H	838.000	838.800	844.000	929.000	851.000
850	TR850x24	24	7e	850.000	849.050	837.764	836.964	824.000	822.764		7H	826.000	827.320	838.000	839.120	852.000
850	TR850x44	44	7e	850.000	848.600	827.685	826.625	804.000	802.360		7H	806.000	808.000	828.000	829.400	852.000
900	TR900x7	7	7e	900.000	899.575	896.375	895.900	892.000	891.281		7H	893.000	893.560	896.500	897.170	901.000
900	TR900x12	12	7e	900.000	899.400	893.830	893.200	887.000	886.043		7H	888.000	888.800	894.000	979.000	901.000
900	TR900x24	24	7e	900.000	899.050	887.764	886.964	874.000	872.764		7H	876.000	877.320	888.000	889.120	902.000

900	TR900x44	44	7e	900.000	898.600	877.685	876.625	854.000	852.360		7H	856.000	858.000	878.000	879.400	902.000
950	TR950x8	8	7e	950.000	949.550	945.868	945.368	941.000	940.243		7H	942.000	942.630	946.000	946.710	951.000
950	TR950x12	12	7e	950.000	949.400	943.830	943.200	937.000	936.043		7H	938.000	938.800	944.000	1029.000	951.000
950	TR950x24	24	7e	950.000	949.050	937.764	936.964	924.000	922.764		7H	926.000	927.320	938.000	939.120	952.000
950	TR950x44	44	7e	950.000	948.600	927.685	926.625	904.000	902.360		7H	906.000	908.000	928.000	929.400	952.000
1000	TR1000x8	8	7e	1000.000	999.550	995.868	995.368	991.000	990.243		7H	992.000	992.630	996.000	996.710	1001.000
1000	TR1000x12	12	7e	1000.000	999.400	993.830	993.200	987.000	986.043		7H	988.000	988.800	994.000	1079.000	1001.000
1000	TR1000x24	24	7e	1000.000	999.050	987.764	986.964	974.000	972.764		7H	976.000	977.320	988.000	989.120	1002.000
1000	TR1000x44	44	7e	1000.000	998.600	977.685	976.625	954.000	952.360		7H	956.000	958.000	978.000	979.400	1002.000
1060	TR1060x8	8	7e	1060.000	1059.550	1055.868	1055.368	1051.000	1050.243		7H	1052.000	1052.630	1056.000	1056.710	1061.000
1060	TR1060x12	12	7e	1060.000	1059.400	1053.830	1053.200	1047.000	1046.043		7H	1048.000	1048.800	1054.000	1139.000	1061.000
1060	TR1060x24	24	7e	1060.000	1059.050	1047.764	1046.964	1034.000	1032.764		7H	1036.000	1037.320	1048.000	1049.120	1062.000
1060	TR1060x44	44	7e	1060.000	1058.600	1037.685	1036.625	1014.000	1012.360		7H	1016.000	1018.000	1038.000	1039.400	1062.000
1120	TR1120x8	8	7e	1120.000	1119.550	1115.868	1115.368	1111.000	1110.243		7H	1112.000	1112.630	1116.000	1116.710	1121.000
1120	TR1120x12	12	7e	1120.000	1119.400	1113.830	1113.200	1107.000	1106.043		7H	1108.000	1108.800	1114.000	1199.000	1121.000
1120	TR1120x24	24	7e	1120.000	1119.050	1107.764	1106.964	1094.000	1092.764		7H	1096.000	1097.320	1108.000	1109.120	1122.000
1120	TR1120x44	44	7e	1120.000	1118.600	1097.685	1096.625	1074.000	1072.360		7H	1076.000	1078.000	1098.000	1099.400	1122.000

p	1.5	2/3/4/5	6/7/8/9/10/12	14 - 44
ac	0.150	0.250	0.500	1.000
R1	0.075	0.125	0.25	0.5
R2	0.15	0.25	0.5	1

Formula for tap drill (round to closest available drill size): D1+(0.05*p)
D1 = minimum internal thread minor diameter, p = pitch

DIN 103 is similar to: JIS B 0217 Tolerance system for metric trapezoidal screw threads;
ISO 2902/3/4; Chinese Standard GB/T5796

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MARYLAND METRICS
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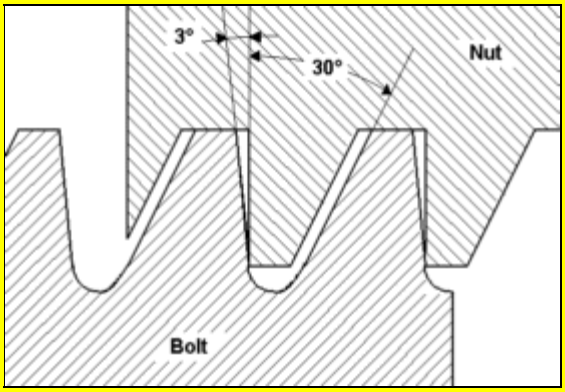
P.O. Box 261 Owings Mills, MD 21117 USA
6119 Oakleaf Avenue Baltimore, MD 21215 USA

MARYLAND METRICS
THREAD DATA CHARTS

Buttress Coarse Thread DIN 513



Nominal Diameter	Bolt Thread Minor Diameter mm	Tapping Drill Size mm
S 10 x 2	6,528	7,000
S 12 x 3	6,794	7,500
S 14 x 3	8,794	9,500
S 16 x 4	9,058	10,000
S 18 x 4	11,058	12,000
S 20 x 4	13,058	14,000
S 22 x 5	13,322	14,500
S 24 x 5	15,322	16,500
S 26 x 5	17,322	18,500
S 28 x 5	19,322	20,500
S 30 x 6	19,586	21,000
S 32 x 6	21,586	23,000
S 34 x 6	23,586	25,000
S 36 x 6	25,586	27,000
S 38 x 7	25,852	27,500
S 40 x 7	27,825	29,500
S 42 x 7	39,825	31,500
S 44 x 7	31,825	33,500
S 46 x 8	32,116	34,000
S 48 x 8	34,116	36,000
S 50 x 8	36,116	38,000
S 52 x 8	38,116	40,000

S 55 x 9	39,380	41,500
S 60 x 9	44,380	46,500
S 65 x 10	47,644	50,000
S 70 x 10	52,644	55,000
S 75 x 10	57,644	60,00
S 80 x 10	62,644	65,000
S 85 x 12	64,174	67,000
S 90 x 12	69,174	72,000
S 95 x 12	74,174	77,000
S 100 x 12	79,174	82,000
Buttress Coarse Thread		

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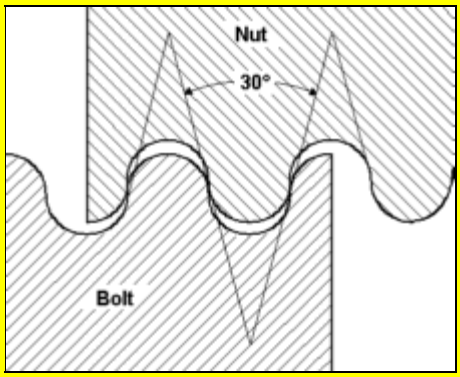
MARYLAND METRICS
THREAD DATA CHARTS

Knuckle Thread DIN 405



This thread is used by fire departments and for fittings.					
Thread Size	Nominal Diameter	Bolt Thread Minor Diameter mm	Nut Thread Minor Diameter mm	Pitch mm	TPI
Rd 8 x 1/10"	8,254	5,460	5,714	2,540	10
Rd 9 x 1/10"	9,254	6,460	6,714	2,540	10
Rd 10 x 1/10"	10,254	7,460	7,714	2,540	10
Rd 11 x 1/10"	11,254	8,460	8,714	2,540	10
Rd 12 x 1/10"	12,254	9,460	9,714	2,540	10
Rd 14 x 1/8"	14,318	10,825	11,142	3,175	8
Rd 16 x 1/8"	16,318	4,166	12,825	3,175	8
Rd 18 x 1/8"	18,318	14,825	15,142	3,175	8
Rd 20 x 1/8"	20,318	16,825	17,142	3,175	8
Rd 22 x 1/8"	22,318	18,825	19,142	3,175	8
Rd 24 x 1/8"	24,318	20,825	21,142	3,175	8
Rd 28 x 1/8"	28,318	24,825	25,142	3,175	8
Rd 30 x 1/8"	30,318	26,825	27,142	3,175	8
Rd 32 x 1/8"	32,318	28,825	29,142	3,175	8
Rd 34 x 1/8"	34,318	30,825	31,142	3,175	8
Rd 36 x 1/8"	36,318	32,825	33,142	3,175	8
Rd 38 x 1/8"	38,318	34,825	35,142	3,175	8
Rd 40 x 1/6"	40,423	35,767	36,190	4,233	6
Rd 42 x 1/6"	42,423	37,767	38,190	4,233	6
Rd 44 x 1/6"	44,423	39,767	40,190	4,233	6
Rd 46 x 1/6"	46,423	41,767	42,190	4,233	6
Rd 48 x 1/6"	48,423	43,767	44,190	4,233	6

Rd 50 x 1/6"	50,423	45,767	46,190	4,233	6
Rd 52 x 1/6"	52,423	47,767	48,100	4,233	6
Rd 55 x 1/6"	55,423	50,767	51,190	4,233	6
Rd 58 x 1/6"	58,423	53,767	54,190	4,233	6
Rd 60 x 1/6"	60,423	55,767	56,190	4,233	6
Rd 62 x 1/6"	62,423	57,767	58,190	4,233	6
Rd 65 x 1/6"	65,423	60,767	61,190	4,233	6
Rd 68 x 1/6"	68,423	63,767	64,190	4,233	6
Rd 70 x 1/6"	70,423	65,767	66,190	4,233	6
Rd 72 x 1/6"	72,423	67,767	68,190	4,233	6
Rd 75 x 1/6"	75,423	70,767	71,190	4,233	6
Rd 78 x 1/6"	78,423	73,767	74,190	4,233	6
Rd 80 x 1/6"	80,423	75,767	76,190	4,233	6
Rd 82 x 1/6"	82,423	77,767	78,190	4,233	6
Rd 85 x 1/6"	85,423	80,767	81,190	4,233	6
Rd 88 x 1/6"	88,423	83,767	84,190	4,233	6
Rd 90 x 1/6"	90,423	85,767	86,190	4,233	6
Rd 92 x 1/6"	92,423	87,767	88,190	4,233	6
Rd 95 x 1/6"	95,423	90,767	91,190	4,233	6
Rd 98 x 1/6"	98,423	93,767	94,190	4,233	6
Rd 100 x 1/6"	100,423	95,767	96,190	4,233	6
Rd 105 x 1/4"	105,635	98,650	99,285	6,350	4
Rd 110 x 1/4"	110,635	103,650	104,285	6,350	4
Rd 115 x 1/4"	115,635	108,650	109,285	6,350	4
Rd 120 x 1/4"	120,635	113,650	114,285	6,350	4
Rd 120 x 1/4"	120,635	113,650	114,285	6,350	4
Rd 125 x 1/4"	125,635	118,650	119,285	6,350	4
Rd 130 x 1/4"	130,635	123,650	124,285	6,350	4
Rd 135 x 1/4"	135,635	128,650	129,285	6,350	4
Rd 140 x 1/4"	140,635	133,650	134,285	6,350	4
Rd 145 x 1/4"	145,635	138,650	139,285	6,350	4
Rd 150 x 1/4"	150,635	143,650	144,285	6,350	4
Rd 155 x 1/4"	155,635	148,650	149,285	6,350	4
Rd 160 x 1/4"	160,635	153,650	154,285	6,350	4
Rd 165 x 1/4"	165,635	158,650	159,285	6,350	4
Rd 170 x 1/4"	170,635	163,650	164,285	6,350	4
Rd 175 x 1/4"	175,635	168,650	169,285	6,350	4
Rd 180 x 1/4"	180,635	173,650	174,285	6,350	4
Rd 185 x 1/4"	185,635	178,650	179,285	6,350	4
Rd 190 x 1/4"	190,635	183,650	184,285	6,350	4
Rd 195 x 1/4"	195,635	188,650	189,285	6,350	4
Rd 200 x 1/4"	200,635	193,650	194,285	6,350	4
Knuckle Thread DIN 405					

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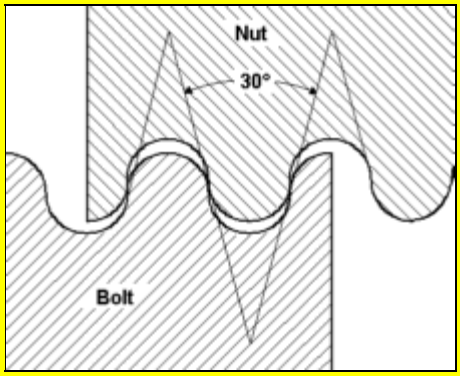
Knuckle Thread DIN 20400



This thread is used in the mining industry for increased bearing depth.				
Bolt Thread Minor Diameter mm	Bolt Tapping Drill Size mm	Pitch mm	Nut Thread Minor Diameter mm	Nut Tapping Drill Size mm
Rd 10	6,700	3,000	10,300	7,000
Rd 12	8,700	3,000	12,300	9,000
Rd 14	10,700	3,000	14,300	11,000
Rd 16	11,600	4,000	16,400	12,000
Rd 18	13,600	4,000	18,400	14,000
Rd 20	15,600	4,000	20,400	16,000
Rd 22	17,600	4,000	22,400	18,000
Rd 25	20,600	4,000	25,400	21,000
Rd 28	23,600	4,000	28,400	24,000
Rd 32	27,600	4,000	32,400	28,000
Rd 36	30,500	5,000	36,500	31,000
Rd 40	34,500	5,000	40,500	35,000
Rd 42	36,500	5,000	42,500	37,000
Rd 45	39,500	5,000	45,500	40,000
Rd 48	42,500	5,000	48,500	43,000
Rd 50	44,500	5,000	50,500	45,000
Rd 53	47,500	5,000	53,500	48,000
Rd 56	50,500	5,000	56,500	51,000
Rd 60	53,400	6,000	60,600	54,000
Rd 63	56,400	6,000	63,600	57,000
Rd 67	60,400	6,000	67,600	61,000
Rd 70	63,400	6,000	70,600	64,000
Rd 75	68,400	6,000	75,600	69,000
Rd 80	73,400	6,000	80,600	74,000
Rd 85	78,400	6,000	85,600	79,000
Rd 90	81,200	8,000	90,800	82,000
Rd 95	86,200	8,000	95,800	87,000
Rd 100	91,200	8,000	100,800	92,000
Rd 106	97,200	8,000	106,800	98,000
Rd 112	103,200	8,000	112,800	104,000
Rd 118	109,200	8,000	118,800	110,000

Rd 125	116,200	8,000	125,800	117,000
Rd 123	121,000	10,000	133,000	122,000
Rd 140	129,000	10,000	141,000	130,000
Rd 150	139,000	10,000	151,000	140,000
Rd 160	149,000	10,000	161,000	150,000
Rd 170	159,000	10,000	171,000	160,000
Rd 180	166,800	12,000	181,200	168,000
Rd 190	176,800	12,000	191,200	178,000
Rd 200	186,800	12,000	201,200	188,000
Rd 212	189,800	12,000	213,200	200,000
Rd 224	210,800	12,000	225,200	212,000
Rd 236	218,400	16,000	237,600	220,000
Rd 250	232,400	16,000	251,600	234,000
Rd 265	247,400	16,000	266,600	249,000
Rd 280	262,400	16,000	281,600	264,000
Rd 300	282,400	16,000	301,600	284,000
Knuckle Thread DIN 20400				

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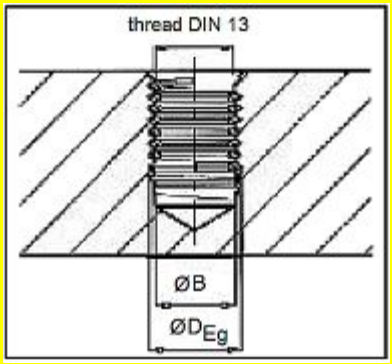
Eg M Metric Insert Thread - for Helical Wire Inserts 4)



Thread call out Ø	P [mm]	Outside-Ø Min.	Nut Thread Drill-Ø ØB	Minor-Ø Min.	Minor-Ø Max.	Thread call out Ø x P [mm]	Outside-Ø Min.	Nut Thread Drill-Ø ØB	Minor-Ø Min.	Minor-Ø Max.	Thread call out Ø x P [mm]	Outside-Ø Min.	Nut Thread Drill-Ø ØB	Minor-Ø Min.	Minor-Ø Max.
Eg M 2	0,4	2,520	2,10	2,087	2,177	Eg M 8 x 1	9,300	8,30	8,217	8,407	Eg M 26 x 1,5	27,948	26,50	26,324	26,560
Eg M 2,5	0,45	3,084	2,65	2,597	2,697	Eg M 9 x 1	10,300	9,30	9,217	9,407	Eg M 27 x 1,5	28,948	27,50	27,324	27,560
Eg M 3	0,5	3,650	3,15	3,108	3,220	Eg M 10 x 1	11,300	10,30	10,217	10,407	Eg M 27 x 2	29,598	27,50	27,433	27,733
Eg M 3,5	0,6	4,280	3,70	3,630	3,755	Eg M 10 x 1,25	11,624	10,40	10,271	10,483	Eg M 28 x 1,5	29,948	28,50	28,324	28,560
Eg M 4	0,7	4,910	4,20	4,152	4,292	Eg M 11 x 1	12,300	11,30	11,217	11,407	Eg M 30 x 1,5	31,948	30,50	30,324	30,560
Eg M 5	0,8	6,040	5,25	5,174	5,334	Eg M 12 x 1	13,300	12,30	12,217	12,407	Eg M 30 x 2	32,598	30,50	30,433	30,733
Eg M 6	1	7,300	6,30	6,217	6,407	Eg M 12 x 1,25	13,624	12,40	12,271	12,483	Eg M 30 x 3	33,897	31,00	30,649	31,049
Eg M 7	1	8,300	7,30	7,217	7,407	Eg M 12 x 1,5	13,948	12,50	12,324	12,560	Eg M 33 x 2	35,598	33,50	33,433	33,733
Eg M 8	1,25	9,624	8,40	8,271	8,483	Eg M 14 x 1	15,300	14,30	14,217	14,407	Eg M 33 x 3	36,897	34,00	33,649	34,049
Eg M 10	1,5	11,948	10,50	10,324	10,560	Eg M 14 x 1,25	15,624	14,40	14,217	14,483	Eg M 36 x 2	38,598	36,50	36,433	36,733
Eg M						Eg M 14 x					Eg M				

12	1,75	14,274	12,50	12,379	12,644	1,5	15,948	14,50	14,324	14,560	36 x 3	39,897	37,00	36,649	37,049
Eg M 14	2	16,598	14,50	14,433	14,733	Eg M 15 x 1,5	16,948	15,50	15,324	15,560	Eg M 39 x 2	41,598	39,50	39,433	39,733
Eg M 16	2	18,598	16,50	16,433	16,733	Eg M 16 x 1,5	17,948	16,50	16,324	16,560	Eg M 39 x 3	42,897	40,00	39,649	40,049
Eg M 18	2,5	21,248	18,75	18,541	18,896	Eg M 18 x 1,5	19,948	18,50	18,324	18,560	Eg M 42 x 2	44,598	42,50	42,433	42,733
Eg M 20	2,5	23,248	20,75	20,541	20,896	Eg M 18 x 2	20,598	18,50	18,433	18,733	Eg M 42 x 3	45,897	43,00	42,649	43,049
Eg M 22	2,5	25,248	22,75	22,541	22,896	Eg M 20 x 1,5	21,948	20,50	20,234	20,560	Eg M 42 x 4	47,196	43,00	42,866	43,341
Eg M 24	3	27,897	24,75	24,649	25,049	Eg M 20 x 2	22,598	20,50	20,433	20,733	Eg M 45 x 2	47,598	45,50	45,433	45,733
Eg M 27	3	30,897	27,75	27,649	28,049	Eg M 22 x 1,5	23,948	22,50	22,234	22,560	Eg M 45 x 3	48,897	46,00	45,649	46,049
Eg M 30	3,5	34,546	31,00	30,757	31,207	Eg M 22 x 2	24,598	22,50	22,433	22,733	Eg M 48 x 2	50,598	48,50	48,433	48,733
Eg M 33	3,5	37,546	34,00	33,757	34,207	Eg M 24 x 1,5	25,948	24,50	24,324	24,560	Eg M 48 x 3	51,897	49,00	48,649	49,049
Eg M 36	4	41,196	37,00	36,866	37,341	Eg M 24 x 2	26,598	24,50	24,433	24,733					
Eg M 39	4	44,196	40,00	39,866	40,431										
Eg M 42	4,5	47,846	43,25	42,975	43,505										
Eg M 45	4,5	50,846	46,25	45,975	46,505										
Eg M 48	5	54,495	49,50	49,082	49,642										
Eg M 52	5	58,495	53,50	53,082	53,642										

4) Sizes of nut thread accord. to DIN 8140 part 2

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MARYLAND METRICS
THREAD DATA CHARTS

MARYLAND METRICS -- THREAD DATA CHART: ELECTRICAL THREAD -- BRITISH ET (Conduit to BS 31)			
Imperial Conduit (ET) to BS 31			
Thread	Nominal	Major	Threads
Designation	Size	Diameter	per
		mm	inch
ET	ET	d=D	tpi
ET 5/8	5/8	15.88	18
ET 3/4	3/4	19.05	16
ET 1	1	25.40	16
ET 1 1/4	1 1/4	31.75	16
ET 1 1/2	1 1/2	38.10	14
ET 2	2	50.80	14
ET 2 1/2	2 1/2	63.50	14
ET 3	3	76.20	14
filnam:ETthd.xls ver x2g			

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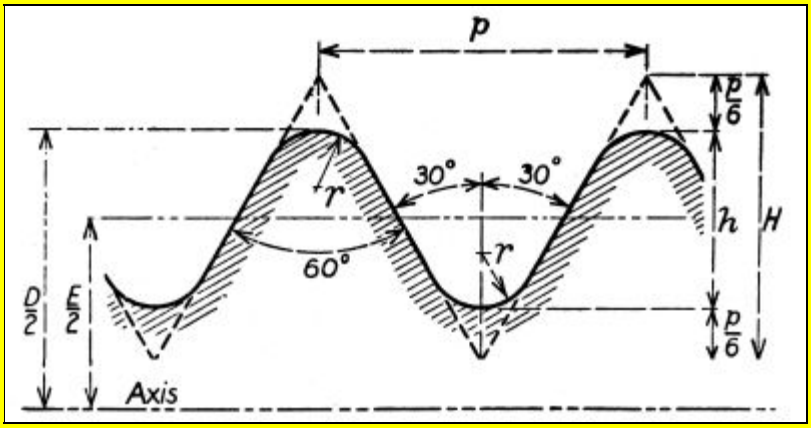
BRITISH STANDARD CYCLE THREAD (BSC)



Size	Threads per inch	Outside Dia.	Core Dia.	Pitch	Depth	Radius	Tapping drill	Clearance drill
		inch	inch	inch	inch	inch	mm	mm
				p		r		
16	56 RH	0.0735	0.0545	0.0179	0.0095	0.0030	1.5 mm	2 mm
15	56 RH	0.0825	0.0635	0.0179	0.0095	0.0030	1.7 mm	2.2 mm
14	56 RH	0.0905	0.0715	0.0179	0.0095	0.0030	1.9 mm	2.4 mm
13	56 RH	0.1025	0.0835	0.0179	0.0095	0.0030	2.2 mm	2.7 mm
12	56 RH	0.1145	0.0955	0.0179	0.0095	0.0030	2.55 mm	3 mm
1/8"	40 RH	0.1250	0.0984	0.0250	0.0133	0.0041	2.65 mm	3.4 mm
11	44 RH	0.1291	0.1049	0.0227	0.0121	0.0038	2.8 mm	3.5 mm
10	40 RH	0.1423	0.1157	0.0260	0.0133	0.0041	3.1 mm	3.8 mm
5/32"	32 RH	0.1563	0.1231	0.0312	0.0166	0.0052	3.4 mm	4.2 mm
9	40 RH	0.1583	0.1317	0.0250	0.0133	0.0041	3.5 mm	4.3 mm
8	32 RH	0.1776	0.1444	0.0312	0.0168	0.0052	3.9 mm	4.7 mm
3/16"	32 RH	0.1875	0.1543	0.0312	0.0166	0.0052	4.1 mm	5.0 mm
7/32"	26 RH	0.2188	0.1778	0.0385	0.0205	0.0064	4.8 mm	5.8 mm
1/4"	26 RH	0.2500	0.2090	0.0385	0.0205	0.0064	5.5 mm	6.6 mm
17/64"	26 RH	0.2656	0.2246	0.0385	0.0205	0.0064	5.0 mm	7.0 mm
9/32"	26 RH	0.2813	0.2403	0.0385	0.0205	0.0064	6.4 mm	7.4 mm
5/16"	26 RH	0.3125	0.2715	0.0385	0.0205	0.0064	7.2 mm	8.3 mm
3/8"	26 RH	0.3750	0.3340	0.0385	0.0205	0.0064	8.8 mm	9.9 mm
7/16"	26 RH	0.4375	0.3965	0.0385	0.0205	0.0064	10.4 mm	11.5 mm
7/16"	20 RH	0.4375	0.3843	0.5000	0.0266	0.0083	10.3 mm	11.5 mm
1/2"	26 RH	0.5000	0.4590	0.0385	0.0205	0.0064	12.0 mm	33/64"
1/2"	20 RH	0.5000	0.4590	0.0500	0.0266	0.0083	11.9 mm	33/64"
9/16"	26 RH	0.5625	0.5215	0.0385	0.0205	0.0064	13.5 mm	37/64"
9/16"	20 RH	0.5625	0.5093	0.0500	0.0266	0.0083	13.4 mm	37/64"

5/8"	26 RH	0.6250	0.5840	0.0385	0.0205	0.0064	15.0 mm	41/64"
5/8"	20 RH	0.6250	0.5719	0.0500	0.0266	0.0083	14.75 mm	41/64"
11/16"	26 RH	0.6875	0.6465	0.0385	0.0205	0.0064	21/32"	18 mm
11/16"	20 RH	0.6875	0.6343	0.0500	0.0266	0.0083	16.5 mm	18 mm
3/4"	26 RH	0.7500	0.7090	0.0385	0.0205	0.0064	23/32"	19.5 mm
3/4"	20 RH	0.7500	0.6968	0.0500	0.0266	0.0083	18.0 mm	19.5 mm
7/8"	24 RH	0.8750	0.8306	0.0417	0.0222	0.0070	21.5 mm	23 mm
31/32"	30 RH	0.9688	0.9332	0.0333	0.0178	0.0066	24 mm	25 mm
1"	24 RH	1.0000	0.9556	0.0417	0.0222	0.0070	31/32"	26 mm
1 1/8"	26 RH	1.1250	1.0840	0.0385	0.0205	0.0064	1 3/32"	29 mm
1.29"	24 LH	1.2900	1.2456	0.0417	0.0222	0.0070	32 mm	1 5/16"
1.37"	24 RH	1.3700	1.3256	0.0417	0.0222	0.0070	34 mm	35.5 mm
1.37"	24 LH	1.3700	1.3256	0.0417	0.0222	0.0070	34 mm	35.5 mm
1.45"	26 RH	1.4500	1.4090	0.0385	0.0205	0.0064	1 27/64"	37.5 mm
1.45"	26 LH	1.4500	1.4090	0.0385	0.0205	0.0064	1 27/64"	37.5 mm
1 9/16"	24 LH	1.5620	1.5181	0.0417	0.0222	0.0070	1 17/32"	1 19/32"
1 5/8"	24 RH	1.6250	1.5805	0.0417	0.0222	0.0070	40.5 mm	42 mm

Notes: RH = Right Hand LH = Left Hand r = p x 0.1666 D = p x 0.5327

IMPERIAL WIRE GAUGE (IWG)
spoke thread data

No picture currently available

Size	Threads per inch	Outside Dia.	Core Dia.	Pitch	Depth	Radius	Tapping drill
		inch	inch	inch	inch	inch	
				p		r	
17 IWG	62	0.056	0.0388	0.01613	0.0086	0.002687	No 61
16 IWG	62	0.064	0.0468	0.01613	0.0086	0.002687	3/64"
15 IWG	62	0.072	0.0548	0.01613	0.0086	0.002687	No 54
14 IWG	62	0.08	0.0628	0.01613	0.0086	0.002687	1.60mm
13 IWG	56	0.092	0.073	0.0179	0.0095	0.002982	No 49
12 IWG	44	0.104	0.0798	0.0227	0.0121	0.00378	No 46

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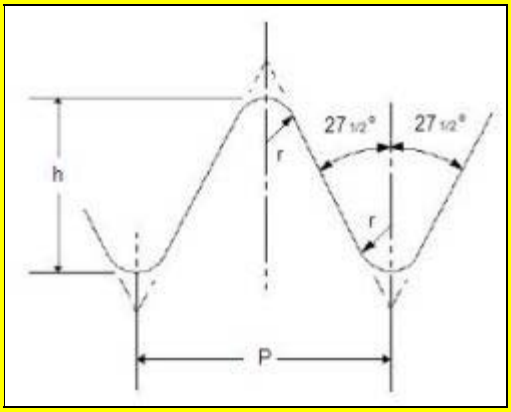
BRITISH STANDARD BRASS (BSB)



Brass Pipe Screw Threads (Whitworth Form 55 Deg Thread Angle)
Thread Form Data

Diameter	Outside Diameter inch	Core	Pitch	Depth	Radius	Effective Dia	T.P.I.	Double depth thread	Root Diameter	Tapping drill
1/8"	0.125	0.0757	0.03846	0.0246	--	0.102	26	0.0493	0.0757	# 47
1/4"	0.250	0.2007	0.03846	0.0246	--	0.2254	26	0.0493	0.2007	# 6
3/8"	0.375	0.3257	0.03846	0.0246	--	0.3504	26	0.0493	0.3257	Letter Q
1/2"	0.500	0.4507	0.03846	0.0246	--	0.4754	26	0.0493	0.4507	29/64"
5/8"	0.625	0.5657	0.03846	0.0246	--	0.6004	26	0.0493	0.5657	37/64"
3/4"	0.750	0.7007	0.03846	0.0246	--	0.7254	26	0.0493	0.7007	45/64"
7/8"	0.875	0.8257	0.03846	0.0246	--	0.8504	26	0.0493	0.8257	53/64"
1"	1.000	0.9507	0.03846	0.0246	--	0.9754	26	0.0493	0.9507	61/64"
1-1/8"	1.125	1.0757	0.03846	0.0246	--	1.1004	26	0.0493	1.0757	1-5/64"
1-1/4"	1.250	1.2007	0.03846	0.0246	--	1.2254	26	0.0493	1.2007	1-13/64"
1-1/2"	1.500	1.4507	0.03846	0.0246	--	1.4754	26	0.0493	1.4507	1-29/64"

Dimensions in Inches except where stated

Notes: Because brass tubing has a uniform wall thickness, regardless of the tube diameter, any threading (external or internal), would have to have the same thread depth, so 26 TPI is standard on all diameters.

Click here to return to the thread data chart page index.

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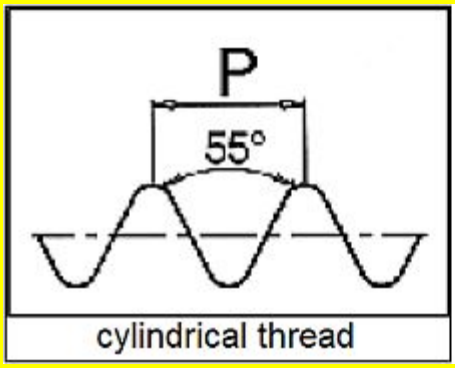
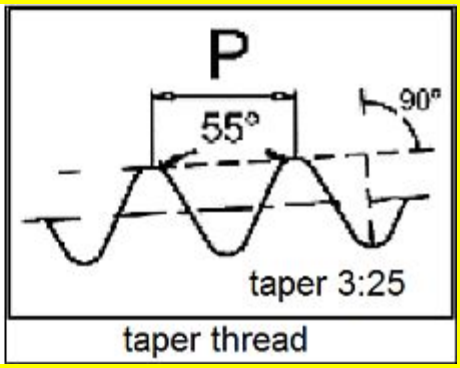
MARYLAND METRICS
THREAD DATA CHARTS

Whitworth Gas Cylinder Thread according to DIN 477



cylindrical thread



taper thread

W Cylindrical Whitworth Thread according to DIN 477				
Thread call out	P Gg/1“ / TPI	Core-Ø Min.4)	Nut Thread Minor-Ø Max.	Drill-Ø ØB
W 21,8 x 1/14	14	19,496	20,066	19,75
W 24,32 x 1/14	14	22,016	22,586	22,25
W 1 x 1/8	8	21,339	22,152	22,00

W Taper Whitworth Thread according to DIN 477				
Thread call out	P Gg/1“ / TPI	Gauge plane of tap Lm	Drill-Ø cylindrical Max.	Drill-Ø taper 5) ØB
W 19,8 x 1/14 keg.	14	24,2	14,7	16,8
W 28,8 x 1/14 keg.	14	29,2	22,7	25,4
W 31,3 x 1/14 keg.	14	29,2	25,2	27,9

4) Minor-Ø of nut thread accord. to DIN 477 part 1
5) For mass production preparation of a taper core hole is recommended. (BK)
Notes: DIN 477 is similar to ISO 11116-1
The Ø symbol = diameter

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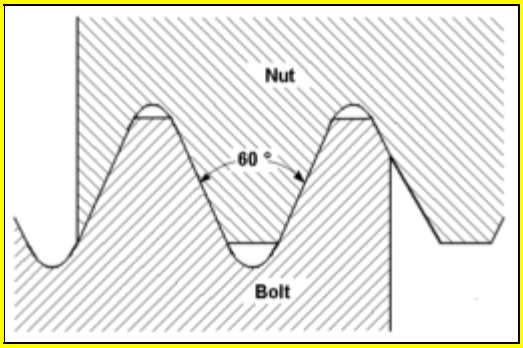
MARYLAND METRICS THREAD DATA CHARTS

Tire Valve Screw Thread DIN 7756



Nominal Diameter	Bolt				Nut					
	Major Diameter mm		Minor Diameter mm		Major Diameter mm		Minor Diameter mm		Pitch mm	TPI
	max.	min.	max.	min.	max.	min.	max.	min.		
Vg 5	5,200	5,100	4,400	4,300					0,706	36
Vg 5,2	5,280	5,180	3,900	3,800					1,058	24
Vg 6	6,030	5,930	5,130	5,030					0,794	32
Vg 7,8										30
Vg 8	7,747	7,620	6,630	6,503	8,062	7,935	6,945	6,818	0,794	32
Vg 9,6	9,650	9,550	8,670	8,552;					1,000	25
Vg 10	10,338	10,211	9,063	8,936	10,665	10,538	9,388	9,261	0,907	28
Vg 12	12,243	120,917	10,869	10,717	12,601	12,449	11,227	11,075	0,977	26
Tire Valve Thread										

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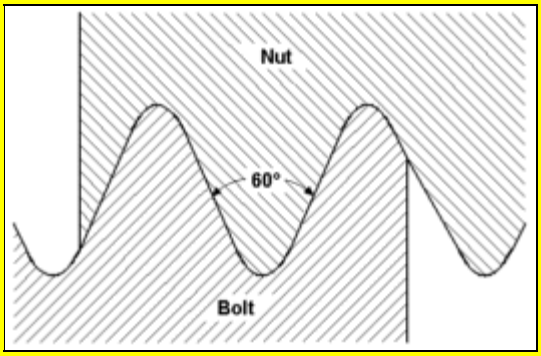
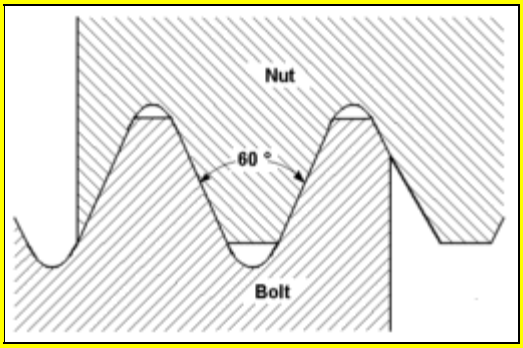
MARYLAND METRICS
THREAD DATA CHARTS

Bicycle Screw Thread DIN 79012



For cycles and motor scooters				
Thread Size mm	Major Diameter mm	Tapping Drill Size mm	TPI	Pitch mm
Fg 2	2,096	1,613	56	0,454
Fg 2,3	2,299	1,816	56	0,454
Fg 2,6	2,604	2,121	56	0,454
Fg 6,35	6,350	5,310	26	0,977
Fg 7,9	7,938	6,898	26	0,977
Fg 9,5	9,525	8,485	26	0,977
Fg 14,3	14,288	12,934	20	1,270
Fg 25,4	25,400	24,272	24	1,058
Fg 32,8	32,766	31,638	24	1,058
Fg 34,8	34,798	33,670	24	1,058
Cycle Thread				

C.E.I.-Thread



Cycle Engineer Institution Thread, used in the British bicycle industry.				

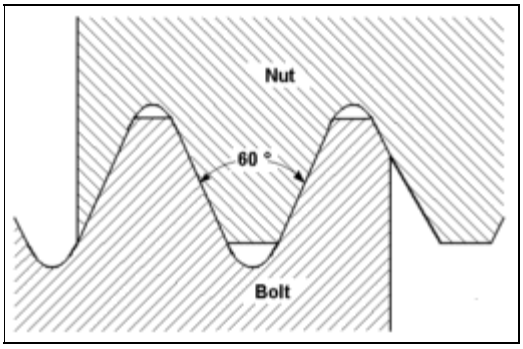
Major Diameter Inch	Major Diameter mm	Tapping Drill Size mm	TPI	Pitch mm
0,056	1,422	0,965	62	0,409
0,064	1,626	1,190	62	0,409
0,072	1,829	1,393	62	0,409
0,080	2,032	1,596	62	0,409
0,092	2,337	1,854	56	0,453
0,104	2,642	2,642	44	0,577
0,125	3,175	2,499	40	0,635
0,154	3,912	3,236	40	0,635
0,175	4,445	3,600	32	0,794
0,187	4,762	3,917	32	0,794
0,250	6,350	5,309	26	0,977
0,266	6,756	5,715	26	0,977
0,281	7,137	6,096	26	0,977
0,312	7,937	6,896	26	0,977
0,375	9,525	8,484	26	0,977
0,562	14,287	12,287	20	1,270
1,000	25,400	24,359	26	0,977
1,290	32,766	31,639	24	1,058
1,370	34,797	33,670	24	1,058
1,437	36,512	35,385	24	1,058
1,500	38,100	36,973	24	1,058
CEI Thread				

Click here to return to the thread data chart page index.

MARYLAND METRICS
THREAD DATA CHARTS

UNC, UNF, & UNEF Thread ANSI B1.1

Click here to return to the thread data chart page index.



UNC Thread ANSI B1.1

UNC - Unified Coarse Thread. The old definition NC - National Coarse is comparable with the metric thread. The new term UNC is comparable with the ISO metric thread. NC and UNC threads are interchangeable, in an similar manner to the metric and the ISO metric thread.

Nominal Diameter	Major Diameter Inch	Major Diameter mm	Tapping Drill Size mm	TPI	Pitch mm
1 - 64 UNC	0,073	1,854	1,50	64	0,397
2 - 56 UNC	0,086	2,184	1,80	56	0,453
3 - 48 UNC	0,099	2,515	2,10	48	0,529
4 - 40 UNC	0,112	2,845	2,35	40	0,635
5 - 40 UNC	0,125	3,175	2,65	40	0,635
6 - 32 UNC	0,138	3,505	2,85	32	0,794
8 - 32 UNC	0,164	4,166	3,50	32	0,794
10 - 24 UNC	0,190	4,826	4,00	24	1,058
12 - 24 UNC	0,216	5,486	4,65	24	1,058
1/4" - 20 UNC	0,250	6,350	5,35	20	1,270
5/16" - 18 UNC	0,313	7,938	6,80	18	1,411
3/8" - 16 UNC	0,375	9,525	8,25	16	1,587
7/16" - 14 UNC	0,438	11,112	9,65	14	1,814
1/2" - 13 UNC	0,500	12,700	11,15	13	1,954
9/16" - 12 UNC	0,563	14,288	12,60	12	2,117
5/8" - 11 UNC	0,625	15,875	14,05	11	2,309
3/4" - 10 UNC	0,750	19,050	17,00	10	2,540
7/8" - 9 UNC	0,875	22,225	20,00	9	2,822
1" - 8 UNC	1,000	25,400	22,85	8	3,175
1 1/8" - 7 UNC	1,125	28,575	25,65	7	3,628

1 1/4" - 7 UNC	1,250	31,750	28,85	7	3,628
1 3/8" - 6 UNC	1,375	43,925	31,55	6	4,233
1 1/2" - 6 UNC	1,500	38,100	34,70	6	4,233
1 3/4" - 5 UNC	1,750	44,450	40,40	5	5,080
2" - 4 1/2 UNC	2,000	50,800	46,30	4,5	5,644
2 1/4" - 4 1/2 UNC	2,250	57,150	52,65	4,5	5,644
2 1/2" - 4 UNC	2,500	63,500	58,50	4	6,350
2 3/4" - 4 UNC	2,750	69,850	64,75	4	6,350
3" - 4 UNC	3,000	63,500	71,10	4	6,350
3 1/4" - 4 UNC	3,250	82,550	77,45	4	6,350
3 1/2" - 4 UNC	3,500	88,900	83,80	4	6,350
3 3/4" - 4 UNC	3,750	95,250	90,15	4	6,350
4" - 4 UNC	4,000	101,600	96,50	4	6,350
UNC Thread					

Click here to return to the thread data chart page index.

UNF Thread ANSI B1.1

UNF - Unified National Fine Thread. Similar to UNC. UNC and UNF threads are the choices for the customary Unified screws and nuts.

Nominal Diameter	Major Diameter Inch	Major Diameter mm	Tapping Drill Size mm	TPI	Pitch mm
0 - 80 UNF	0,060	1,524	1,25	80	0,317
1 - 72 UNF	0,073	1,854	1,55	72	0,353
2 - 64 UNF	0,068	2,184	1,90	64	0,397
3 - 56 UNF	0,099	2,515	2,15	56	0,453
4 - 48 UNF	0,112	2,845	2,40	48	0,529
5 - 44 UNF	0,125	3,175	2,70	44	0,577
6 - 40 UNF	0,138	3,505	2,95	40	0,635
8 - 36 UNF	0,164	4,166	3,50	36	0,705
10 - 32 UNF	0,190	4,826	4,10	32	0,794
12 - 28 UNF	0,216	5,486	4,70	28	0,907
1/4" - 28 UNF	0,250	6,350	5,50	28	0,907
5/16" - 24 UNF	0,313	7,938	6,90	24	1,058
3/8" - 24 UNF	0,375	9,525	8,50	24	1,058
7/16" - 20 UNF	0,438	11,112	9,90	20	1,270
1/2" - 20 UNF	0,500	12,700	11,50	20	1,270
9/16" - 18 UNF	0,563	14,288	12,90	18	1,411
5/8" - 18 UNF	0,625	15,875	14,50	18	1,411
3/4" - 16 UNF	0,750	19,050	17,50	16	1,587
7/8" - 14 UNF	0,875	22,225	20,40	14	1,814
1" - 12 UNF	1,000	25,400	23,25	12	2,117
1 1/8" - 12 UNF	1,125	28,575	26,50	12	2,117

1 1/4" - 12 UNF	1,250	31,750	29,50	12	2,117
1 3/8" - 12 UNF	1,375	43,925	32,75	12	2,117
1 1/2" - 12 UNF	1,500	38,100	36,00	12	2,117
UNF Thread					

Click here to return to the thread data chart page index.

UNEF Thread ANSI B1.1					
UNEF - Unified Extra Fine Thread, which is used for special purposes.					
Nominal Diameter	Major Diameter Inch	Major Diameter mm	Tapping Drill Size mm	TPI	Pitch mm
12 - 80 UNEF	0,216	5,486	4,80	32	0,794
1/4" - 32 UNEF	0,250	6,350	5,70	32	0,794
5/16" - 32 UNEF	0,313	7,938	7,25	32	0,794
3/8" - 32 UNEF	0,375	9,525	8,85	32	0,794
7/16" - 28 UNEF	0,438	11,112	10,35	28	0,907
1/2" - 28 UNEF	0,500	12,700	11,80	28	0,907
9/16" - 24 UNEF	0,563	14,288	13,40	24	1,058
5/8" - 24 UNEF	0,625	15,875	15,00	24	1,058
11/16" - 24 UNEF	0,688	17,462	16,60	24	1,058
3/4" - 20 UNEF	0,750	19,050	18,00	20	1,270
13/16" - 20 UNEF	0,813	20,638	19,60	20	1,270
7/8" - 20 UNEF	0,875	22,225	21,15	20	1,270
15/16" - 20 UNEF	0,938	23,812	22,70	20	1,270
1" - 20 UNEF	1,000	25,400	24,30	20	1,270
1 1/16" - 18 UNEF	1,063	26,988	25,80	18	1,411
1 1/8" - 18 UNEF	1,125	28,575	27,35	18	1,411
1 1/4" - 18 UNEF	1,250	31,750	30,55	18	1,411
1 5/16" - 18 UNEF	1,313	33,338	32,10	18	1,411
1 3/8" - 18 UNEF	1,375	34,925	33,70	18	1,411
1 7/16" - 18 UNEF	1,438	36,512	35,30	18	1,411
1 1/2" - 18 UNEF	1,500	38,100	36,90	18	1,411
1 9/16" - 18 UNEF	1,563	39,688	38,55	18	1,411
1 5/8" - 18 UNEF	1,625	41,275	40,10	18	1,411
1 11/16" - 18 UNEF	1,688	42,862	41,60	18	1,411
UNEF Thread					

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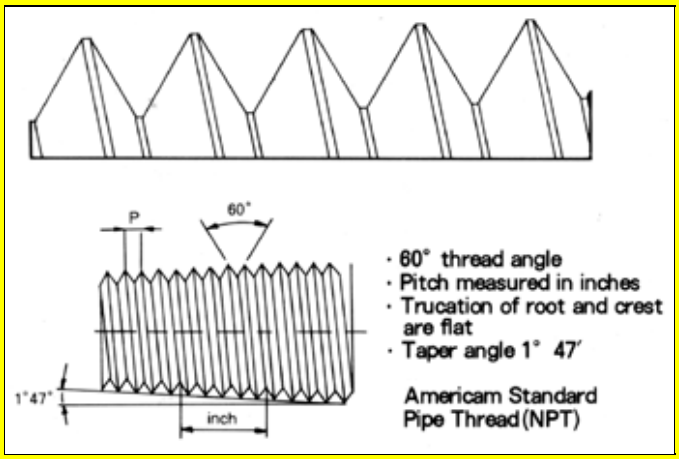
MARYLAND METRICS
THREAD DATA CHARTS

NATIONAL PIPE TAPERED THREAD (NPT)

NPT Thread - American Standard Taper Pipe Thread (ANSI/ASME B1.20.1), Taper 1:16
Thread Form Data - Basic Dimensions of American National Standard Taper Threads, NPT (National Pipe Tapered)



Nominal Pipe Size (inch)	Number of threads per inch	Outside Diameter (inch)	Outside Diameter (mm)	Pitch of thread		Depth of thread		Truncation, max."**		Pitch diameter at plane of hand-tight engagement		Length from end of pipe to plane of hand-tight engagement		Length of useful thread		Length of washout thread		Pitch Diameter at Beginning of External Thread Start (inch)	Effective Thread, External Diameter (inch)
				P		h		l		E		L1		L2					
				in	mm	in	mm	in	mm	in	mm	in	Threads	in	Threads	in	Threads		
1⁄16	27	0.3125	7.938	0.03704	0.941	0.02963	0.753			0.28118		0.16		0.2611		0.1285	3.47	0.27118	0.28750
1/8"	27	0.405	10.287	0.03704	0.941	0.02963	0.753	0.00360	0.091	0.37360	9.489	0.162	4.36	0.2639	7.12	0.1285	3.47	0.36351	0.38000
1/4"	18	0.540	13.716	0.05556	1.411	0.04444	1.129	0.00490	0.124	0.49163	12.487	0.228	4.10	0.4018	7.23	0.1928	3.47	0.47739	0.50250
3/8"	18	0.675	17.145	0.05556	1.411	0.04444	1.129	0.00490	0.124	0.62701	15.926	0.240	4.32	0.0478	7.34	0.1928	3.47	0.61201	0.63750
1/2"	14	0.840	21.336	0.07143	1.814	0.05714	1.451	0.00560	0.142	0.77843	19.772	0.320	4.48	0.5337	7.47	0.2478	3.47	0.75843	0.79179
3/4"	14	1.050	26.670	0.07143	1.814	0.05714	1.451	0.00560	0.142	0.98887	25.117	0.339	4.75	0.5457	7.64	0.2478	3.47	0.96768	1.00179
1"	11.5	1.315	33.401	0.08696	2.209	0.06957	1.767	0.00630	0.160	1.23863	31.461	0.400	4.60	0.6828	7.85	0.3017	3.47	1.21363	1.25630
1-1/4"	11.5	1.660	42.164	0.08696	2.209	0.06957	1.767	0.00630	0.160	1.58338	40.218	0.420	4.83	0.7068	8.13	0.3017	3.47	1.55713	1.60130
1-1/2"	11.5	1.900	48.260	0.08696	2.209	0.06957	1.767	0.00630	0.160	1.82234	46.287	0.402	4.83	0.7235	8.32	0.3017	3.47	1.79609	1.84130
2"	11.5	2.375	60.325	0.08696	2.209	0.06957	1.767	0.00630	0.160	2.29627	58.325	0.436	5.01	0.7565	8.70	0.3017	3.47	2.26902	2.31630
2-1/2"	8	2.875	73.025	0.12500	3.175	0.10000	2.540	0.00780	0.198	2.76215	70.159	0.682	5.46	1.1375	9.10	0.4337	3.47	2.71953	2.79062
3"	8	3.500	88.900	0.12500	3.175	0.10000	2.540	0.00780	0.198	3.38850	86.068	0.766	6.13	1.2000	9.60	0.4337	3.47	3.34062	3.41562
3-1/2"	8	4	101.600	0.12500	3.175	0.10000	2.540	0.00780	0.198	3.88881	98.776	0.821	6.57	1.2500	10.00	0.4337	3.47	3.83750	3.91562
4"	8	4.5	114.300	0.12500	3.175	0.10000	2.540	0.00780	0.198	4.38712	111.433	0.844	6.75	1.3000	10.40	0.4337	3.47	4.33438	4.41562
5"	8	5.563	141.300	0.12500	3.175	0.10000	2.540	0.00780	0.198	5.44929	138.412	0.937	7.50	1.4063	11.25	0.4337	3.47	5.39073	5.47862
6"	8	6.625	168.275	0.12500	3.175	0.10000	2.540	0.00780	0.198	6.50597	165.252	0.958	7.66	1.5125	12.10	0.4337	3.47	6.44609	6.54062
8"	8	8.625	219.075	0.12500	3.175	0.10000	2.540	0.00780	0.198	8.50003	215.901	1.630	8.50	1.7125	13.70	0.4337	3.47	8.43359	8.54062
10"	8	10.750	273.050	0.12500	3.175	0.10000	2.540	0.00780	0.198	10.62094	296.772	1.210	9.58	1.9250	15.40	0.4337	3.47	10.54531	10.66562

12"	8	12.750	323.850	0.12500	3.175	0.10000	2.540	0.00780	0.198	12.61781	320.493	1.360	10.88	2.1250	17.00	0.4337	3.47	12.53281	12.66562
14"	8	14	355.600	0.12500	3.175	0.10000	2.540	0.00780	0.198	13.87262	352.365	1.562	12.50	2.2500	18.00	0.4337	3.47	13.77500	13.91562
16"	8	16	406.400	0.12500	3.175	0.10000	2.540	0.00780	0.198	15.87575	403.244	1.812	14.50	2.4500	19.60	0.4337	3.47	15.76250	15.91562
18"	8	18	457.200	0.12500	3.175	0.10000	2.540	0.00780	0.198	17.87500	454.025	2.000	16.00	2.6500	21.20	0.4337	3.47	17.75000	17.91562
20"	8	20	508.000	0.12500	3.175	0.10000	2.540	0.00780	0.198	19.87031	504.706	2.125	17.00	2.8500	22.80	0.4337	3.47	19.73750	19.91562
24"	8	24	609.600	0.12500	3.175	0.10000	2.540	0.00780	0.198	23.68094	606.066	2.375	19.00	3.2500	26.00	0.4337	3.47	23.71250	23.91562

Nominal Pipe Size (inch)	Number of threads per inch	Tapping Drills: Taper NPT with Reamer *			Tapping Drills: Taper NPT without Reamer			Tapping Drills: Straight NPS		
		Drill Size	Equivalents (in)	Equivalents (mm)	Drill Size	Equivalents (in)	Equivalents (mm)	Drill Size	Equivalents (in)	Equivalents (mm)
1⁄16	27	15/64"	0.2344	5.9531	C	0.242	6.1468	1/4"	0.25	6.35
1/8"	27	21/64"	0.3281	8.3344	Q	0.332	8.4328	11/32"	0.3438	8.7313
1/4"	18	27/64"	0.4219	10.7156	7/16"	0.4375	11.1125	7/16"	0.4375	11.1125
3/8"	18	9/16"	0.5625	14.2875	37/64"	0.5781	14.6844	19/32"	0.5938	15.0813
1/2"	14	11/16"	0.6875	17.4625	45/64"	0.7031	17.8594	23/32"	0.7188	18.2563
3/4"	14	57/64"	0.8906	22.6219	29/32"	0.9063	23.0188	15/16"	0.9375	23.8125
1"	11.5	1-1/8"	1.125	28.575	1-9/32"	1.2813	32.5438	1-5/32"	1.1563	29.3688
1-1/4"	11.5	1-15/32"	1.4688	37.3063	1-31/64"	1.4844	37.7031	1-1/2"	1.5	38.1
1-1/2"	11.5	1-23/32"	1.7188	43.6563	1-23/32"	1.7188	43.6563	1-3/4"	1.75	44.45
2"	11.5	2-5/32"	2.1563	54.7688	2-3/16"	2.1875	55.5625	2-3/16"	2.1875	55.5625
2-1/2"	8	2-25/32"	2.7813	70.6438	2-5/8"	2.625	66.675	2-5/8"	2.625	66.675
3"	8	3-9/32"	3.2813	83.3438	3-1/4"	3.25	82.55	3-1/4"	3.25	82.55
3-1/2"	8	3-3/4"	3.75	95.25	3-3/4"	3.75	95.25	3-3/4"	3.75	95.25
4"	8	4-1/4"	4.25	107.95	4-1/4"	4.25	107.95	4-1/4"	4.25	107.95
5"	8	5-1/4"	5.25	133.35	5-9/32"	5.2813	134.1438	5-5/16"	5.3125	134.9375
6"	8	6-1/4"	6.25	158.75	6-11/32"	6.3438	161.1313	6-3/8"	6.375	161.925

Notes:

* Ream the hole before tapping with a reamer having a taper of 3/4 inch per foot. Pipe Size is the accepted industry designation and does not refer to either the inside or the outside diameter (ID or OD) of a pipe or a fitting. Dimensions in Inches except where stated

E= Pitch diameter at hand-tight plane. This is also the pitch diameter at the gauge plane.

**'= Truncation from point of thread triangle to flat (not shown in diagram). Minimum = 0.033P for all pitches. See table for maximum.

Tolerances:

When using L1 gauges to check threads, the thread is within permissible tolerance if the ring gauge face, or plug gauge notch, is +/- 1 turn from being flush with the end of the thread.

Example designation:

3/8 - 18 NPT where

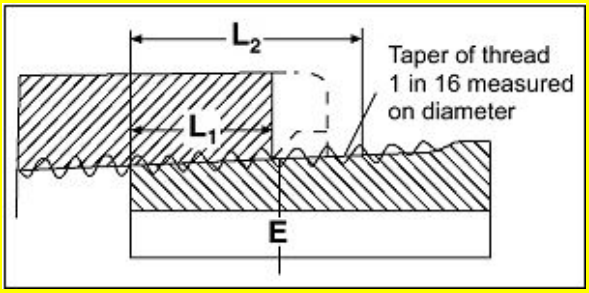
3/8 = nominal pipe size

18 = number of threads per inch

NPT = symbol for the thread series and

form (i.e., National (American)Standard Pipe, Taper)

Note- Basic dimensions are given to four or five decimal places to eliminate errors when calculating gauge dimensions, they do not imply a greater degree of precision than is normally obtainable.



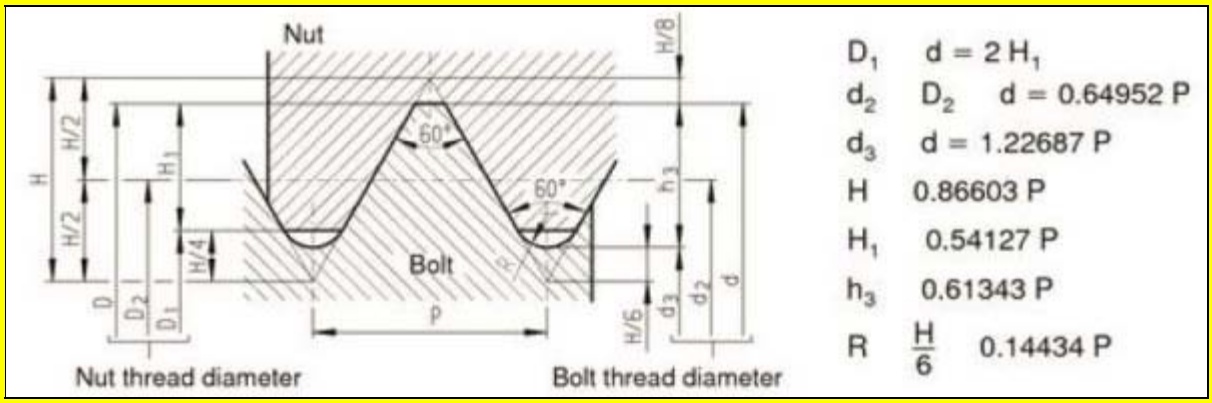
L1= Length of normal hand-tight engagement. This is also the L1 gauge length. (Longer thread engagement may be used in special applications, such as flanges for high pressure use. In such cases the pitch diameter, E, remains as specified and the diameter at the end of the pipe is proportionally smaller.)

L2= Effective Length of thread

Click here to return to the thread data chart page index.

MARYLAND METRICS
THREAD DATA CHARTS

METRIC THREAD -- EXTENDED THREAD SIZE RANGE (ISO)



Thread Height Male Thread = h3 Thread Height Female Thread = H1

Sorted by thread class

Click here to return to the thread data chart page index.

	ISO Metric profile			External (bolt thread)							Internal (nut thread)							*Basic mm*
Size mm	Thread Designation	Simple Thread Designation	*Pitch mm*	*Class*	Major Dia d=D max.	Major Dia d=D min.	Pitch Dia d2=D2 max.	Pitch Dia d2=D2 min.	Minor Dia d3 max.	Minor Dia d3 min.	*Class*	Minor Dia D1 min.	Minor Dia D1 max.	Pitch Dia d2=D2 min.	Pitch Dia d2=D2 max.	Major Dia d=D min.	Major Dia d=D max.	Tap Drill
0.25	M0.25x0.075	M0.25x0.075	0.075	6g	0.25	0.235	0.201	0.187	0.16	0.14	6H	0.172	0.208	0.201	0.215	0.255	0.276	0.175
0.3	M0.3x0.08	M0.3x0.08	0.08	6g	0.3	0.284	0.248	0.234	0.204	0.183	6H	0.217	0.254	0.248	0.262	0.306	0.327	0.22
0.3	M0.3x0.09	M0.3x0.09	0.09	6g	0.3	0.283	0.242	0.226	0.192	0.17	6H	0.206	0.247	0.242	0.257	0.306	0.33	0.21
0.35	M0.35x0.09	M0.35x0.09	0.09	6g	0.35	0.333	0.292	0.277	0.242	0.22	6H	0.256	0.297	0.292	0.307	0.356	0.38	0.26
0.4	M0.4x0.1	M0.4x0.1	0.1	6g	0.4	0.382	0.335	0.319	0.28	0.256	6H	0.296	0.34	0.335	0.351	0.407	0.432	0.3
0.45	M0.45x0.1	M0.45x0.1	0.1	6g	0.45	0.432	0.385	0.369	0.33	0.306	6H	0.346	0.39	0.385	0.401	0.457	0.482	0.35
0.5	M0.5x0.125	M0.5x0.125	0.125	6g	0.5	0.479	0.419	0.401	0.35	0.322	6H	0.37	0.422	0.419	0.437	0.509	0.538	0.375
0.55	M0.55x0.125	M0.55x0.125	0.125	6g	0.55	0.529	0.469	0.451	0.4	0.372	6H	0.42	0.472	0.469	0.487	0.559	0.588	0.425
0.6	M0.6x0.15	M0.6x0.15	0.15	6g	0.6	0.576	0.503	0.483	0.42	0.388	6H	0.444	0.504	0.503	0.523	0.611	0.644	0.45
0.7	M0.7x0.175	M0.7x0.175	0.175	6g	0.7	0.673	0.586	0.564	0.49	0.454	6H	0.518	0.586	0.586	0.608	0.713	0.75	0.525
0.8	M0.8x0.2	M0.8x0.2	0.2	6g	0.8	0.77	0.67	0.646	0.56	0.52	6H	0.592	0.668	0.67	0.694	0.814	0.856	0.6
0.9	M0.9x0.225	M0.9x0.225	0.225	6g	0.9	0.867	0.754	0.728	0.63	0.586	6H	0.666	0.75	0.754	0.78	0.916	0.962	0.675
1	M1x0.25	M1	0.25	6g	0.982	0.915	0.82	0.767	0.711	0.613	6H	0.729	0.809	0.838	0.909	1	1.107	0.75
1	M1x0.2	M1x0.2	0.2	6g	0.983	0.927	0.853	0.805	0.766	0.682	6H	0.783	0.858	0.87	0.933	1	1.092	0.8
1.1	M1.1x0.25	M1.1x0.25	0.25	6g	1.082	1.015	0.92	0.867	0.811	0.713	6H	0.829	0.909	0.938	1.009	1.1	1.207	0.85
1.1	M1.1x0.2	M1.1x0.2	0.2	6g	1.083	1.027	0.953	0.905	0.866	0.782	6H	0.883	0.958	0.97	1.033	1.1	1.192	0.9
1.2	M1.2x0.25	M1.2	0.25	6g	1.182	1.115	1.02	0.967	0.911	0.813	6H	0.929	1.009	1.038	1.109	1.2	1.307	0.95
1.2	M1.2x0.2	M1.2x0.2	0.2	6g	1.183	1.127	1.053	1.005	0.966	0.882	6H	0.983	1.058	1.07	1.133	1.2	1.292	1
1.4	M1.4x0.3	M1.4	0.3	6g	1.383	1.308	1.253	1.193	1.166	1.07	6H	1.183	1.258	1.27	1.35	1.4	1.509	1.1
1.4	M1.4x0.2	M1.4x0.2	0.2	6g	1.383	1.327	1.253	1.205	1.166	1.082	6H	1.183	1.258	1.27	1.333	1.4	1.492	1.2
1.6	M1.6x0.35	M1.6	0.35	6g	1.581	1.496	1.354	1.291	1.202	1.075	6H	1.221	1.321	1.373	1.458	1.6	1.736	1.25
1.6	M1.6x0.3	M1.6x0.3	0.3	6g	1.582	1.507	1.387	1.342	1.257	1.157	6H	1.275	1.36	1.405	1.465	1.6	1.703	1.3
1.6	M1.6x0.2	M1.6x0.2	0.2	6g	1.583	1.527	1.453	1.403	1.366	1.28	6H	1.383	1.458	1.47	1.537	1.6	1.696	1.4
1.7	M1.7x0.35	M1.7x0.35	0.35	6g	1.681	1.596	1.454	1.391	1.302	1.175	6H	1.321	1.421	1.473	1.558	1.7	1.836	1.35
1.8	M1.8x0.35	M1.8	0.35	6g	1.781	1.696	1.554	1.491	1.402	1.275	6H	1.421	1.521	1.573	1.658	1.8	1.936	1.45
1.8	M1.8x0.2	M1.8x0.2	0.2	6g	1.783	1.727	1.653	1.603	1.566	1.48	6H	1.583	1.658	1.67	1.737	1.8	1.896	1.6
2	M2x0.4	M2	0.4	6g	1.981	1.886	1.721	1.654	1.548	1.408	6H	1.567	1.679	1.74	1.83	2	2.148	1.6
2	M2x0.25	M2x0.25	0.25	6g	1.982	1.915	1.82	1.764	1.711	1.61	6H	1.729	1.809	1.838	1.913	2	2.111	1.75
2.2	M2.2x0.45	M2.2	0.45	6g	2.18	2.08	1.888	1.817	1.693	1.54	6H	1.713	1.838	1.908	2.003	2.2	2.36	1.75
2.2	M2.2x0.25	M2.2x0.25	0.25	6g	2.182	2.115	2.02	1.964	1.911	1.81	6H	1.929	2.009	2.038	2.113	2.2	2.311	1.95

2.3	M2.3x0.45	M2.3x0.45	0.45	6g	2.28	2.18	1.988	1.917	1.793	1.64	6H	1.813	1.938	2.008	2.103	2.3	2.46	1.85
2.3	M2.3x0.4	M2.3x0.4	0.4	6g	2.281	2.186	2.021	1.954	1.848	1.708	6H	1.867	1.979	2.04	2.13	2.3	2.448	1.9
2.5	M2.5x0.45	M2.5	0.45	6g	2.48	2.38	2.188	2.117	1.993	1.84	6H	2.013	2.138	2.208	2.303	2.5	2.66	2.05
2.5	M2.5x0.35	M2.5x0.35	0.35	6g	2.481	2.396	2.254	2.191	2.102	1.975	6H	2.121	2.221	2.273	2.358	2.5	2.636	2.15
2.6	M2.6x0.45	M2.6x0.45	0.45	6g	2.58	2.48	2.288	2.217	2.093	1.94	6H	2.113	2.238	2.308	2.393	2.6	2.75	2.15
3	M3x0.5	M3	0.5	6g	2.98	2.874	2.655	2.58	2.439	2.272	6H	2.459	2.599	2.675	2.775	3	3.172	2.5
3	M3x0.35	M3x0.35	0.35	6g	2.981	2.896	2.754	2.687	2.602	2.471	6H	2.621	2.721	2.773	2.863	3	3.141	2.65
3.5	M3.5x0.6	M3.5	0.6	6g	3.479	3.354	3.089	3.004	2.829	2.635	6H	2.85	3.01	3.11	3.222	3.5	3.699	2.9
3.5	M3.5x0.35	M3.5x0.35	0.35	6g	3.481	3.396	3.254	3.187	3.102	2.971	6H	3.121	3.221	3.273	3.363	3.5	3.641	3.15
4	M4x0.7	M4	0.7	6g	3.978	3.838	3.523	3.433	3.22	3.002	6H	3.242	3.422	3.545	3.663	4	4.219	3.3
4	M4x0.5	M4x0.5	0.5	6g	3.98	3.874	3.655	3.58	3.439	3.272	6H	3.459	3.599	3.675	3.775	4	4.172	3.5
4.5	M4.5x0.75	M4.5x0.75	0.75	6g	4.478	4.338	3.991	3.901	3.666	3.439	6H	3.688	3.878	4.013	4.131	4.5	4.726	3.75
4.5	M4.5x0.5	M4.5x0.5	0.5	6g	4.48	4.374	4.155	4.08	3.939	3.772	6H	3.959	4.099	4.175	4.275	4.5	4.672	4
5	M5x0.8	M5	0.8	6g	4.976	4.826	4.456	4.361	4.11	3.869	6H	4.134	4.334	4.48	4.605	5	5.24	4.2
5	M5x0.5	M5x0.5	0.5	6g	4.98	4.874	4.655	4.58	4.439	4.272	6H	4.459	4.599	4.675	4.775	5	5.172	4.5
5.5	M5.5x0.5	M5.5x0.5	0.5	6g	5.48	5.374	5.155	5.065	4.939	4.757	6H	4.959	5.099	5.175	5.295	5.5	5.692	5
6	M6x1	M6	1	6g	5.974	5.794	5.324	5.212	4.891	4.596	6H	4.917	5.153	5.35	5.5	6	6.294	5
6	M6x0.8	M6x0.8	0.8	6g	5.976	5.826	5.456	5.376	5.11	4.884	6H	5.134	5.334	5.48	5.586	6	6.221	5.2
6	M6x0.75	M6x0.75	0.75	6g	5.978	5.838	5.491	5.391	5.166	4.929	6H	5.188	5.378	5.513	5.645	6	6.24	5.25
6	M6x0.7	M6x0.7	0.7	6g	5.978	5.838	5.523	5.428	5.22	4.997	6H	5.242	5.422	5.545	5.671	6	6.226	5.3
6	M6x0.5	M6x0.5	0.5	6g	5.98	5.874	5.655	5.57	5.439	5.262	6H	5.459	5.599	5.675	5.787	6	6.184	5.5
7	M7x1	M7	1	6g	6.974	6.794	6.324	6.212	5.891	5.596	6H	5.917	6.153	6.35	6.5	7	7.294	6
7	M7x0.75	M7x0.75	0.75	6g	6.978	6.838	6.491	6.391	6.166	5.929	6H	6.188	6.378	6.513	6.645	7	7.24	6.25
7	M7x0.5	M7x0.5	0.5	6g	6.98	6.874	6.655	6.57	6.439	6.262	6H	6.459	6.599	6.675	6.787	7	7.184	6.5
8	M8x1.25	M8	1.25	6g	7.972	7.76	7.16	7.042	6.619	6.272	6H	6.647	6.912	7.188	7.348	8	8.34	6.75
8	M8x1	M8x1	1	6g	7.974	7.794	7.324	7.212	6.891	6.596	6H	6.917	7.153	7.35	7.5	8	8.294	7
8	M8x0.8	M8x0.8	0.8	6g	7.976	7.826	7.456	7.35	7.11	6.858	6H	7.134	7.334	7.48	7.62	8	8.255	7.2
8	M8x0.75	M8x0.75	0.75	6g	7.978	7.838	7.491	7.391	7.166	6.929	6H	7.188	7.378	7.513	7.645	8	8.24	7.25
8	M8x0.5	M8x0.5	0.5	6g	7.98	7.874	7.655	7.57	7.439	7.262	6H	7.459	7.599	7.675	7.787	8	8.184	7.5
9	M9x1.25	M9x1.25	1.25	6g	8.972	8.76	8.16	8.042	7.619	7.272	6H	7.647	7.912	8.188	8.348	9	9.34	7.75
9	M9x1	M9x1	1	6g	8.974	8.794	8.324	8.212	7.891	7.596	6H	7.917	8.153	8.35	8.498	9	9.292	8
9	M9x0.75	M9x0.75	0.75	6g	8.978	8.838	8.491	8.391	8.166	7.929	6H	8.188	8.378	8.513	8.645	9	9.24	8.25
9	M9x0.5	M9x0.5	0.5	6g	8.98	8.874	8.655	8.57	8.439	8.262	6H	8.459	8.599	8.675	8.787	9	9.184	8.5
10	M10x1.5	M10	1.5	6g	9.968	9.732	8.994	8.862	8.344	7.938	6H	8.376	8.676	9.026	9.206	10	10.396	8.5
10	M10x1.25	M10x1.25	1.25	6g	9.972	9.76	9.16	9.042	8.619	8.272	6H	8.647	8.912	9.188	9.348	10	10.34	8.75
10	M10x1.12	M10x1.12	1.12	6g	9.973	9.783	9.246	9.128	8.761	8.438	6H	8.788	9.038	9.273	9.433	10	10.322	8.88
10	M10x1	M10x1	1	6g	9.974	9.794	9.324	9.212	8.891	8.596	6H	8.917	9.153	9.35	9.5	10	10.294	9
10	M10x0.75	M10x0.75	0.75	6g	9.978	9.838	9.491	9.391	9.166	8.929	6H	9.188	9.378	9.513	9.645	10	10.24	9.25
10	M10x0.5	M10x0.5	0.5	6g	9.98	9.874	9.655	9.57	9.439	9.262	6H	9.459	9.599	9.675	9.787	10	10.184	9.5
11	M11x1.5	M11x1.5	1.5	6g	10.97	10.73	9.994	9.862	9.344	8.938	6H	9.376	9.676	10.026	10.196	11	11.387	9.5
11	M11x1	M11x1	1	6g	10.97	10.79	10.32	10.21	9.891	9.596	6H	9.917	10.153	10.35	10.5	11	11.294	10
11	M11x0.75	M11x0.75	0.75	6g	10.98	10.84	10.49	10.39	10.166	9.929	6H	10.188	10.378	10.513	10.645	11	11.24	10.25
11	M11x0.5	M11x0.5	0.5	6g	10.98	10.87	10.66	10.57	10.439	10.262	6H	10.459	10.599	10.675	10.787	11	11.184	10.5
12	M12x1.75	M12	1.75	6g	11.97	11.7	10.83	10.68	10.072	9.601	6H	10.106	10.441	10.863	11.063	12	12.453	10.25
12	M12x1.5	M12x1.5	1.5	6g	11.97	11.73	10.99	10.85	10.344	9.93	6H	10.376	10.676	11.026	11.216	12	12.406	10.5
12	M12x1.25	M12x1.25	1.25	6g	11.97	11.76	11.16	11.03	10.619	10.258	6H	10.647	10.912	11.188	11.368	12	12.36	10.75
12	M12x1	M12x1	1	6g	11.97	11.79	11.32	11.21	10.891	10.59	6H	10.917	11.153	11.35	11.51	12	12.304	11
12	M12x0.75	M12x0.75	0.75	6g	11.98	11.84	11.49	11.39	11.166	10.923	6H	11.188	11.378	11.513	11.653	12	12.248	11.25
12	M12x0.5	M12x0.5	0.5	6g	11.98	11.87	11.66	11.57	11.439	11.257	6H	11.459	11.599	11.675	11.795	12	12.192	11.5
14	M14x2	M14	2	6g	13.96	13.68	12.66	12.5	11.797	11.271	6H	11.835	12.21	12.701	12.913	14	14.501	12
14	M14x1.5	M14x1.5	1.5	6g	13.97	13.73	12.99	12.85	12.344	11.93	6H	12.376	12.676	13.026	13.216	14	14.406	12.5
14	M14x1.25	M14x1.25	1.25	6g	13.97	13.76	13.16	13.03	12.619	12.258	6H	12.647	12.912	13.188	13.358	14	14.35	12.75
14	M14x1	M14x1	1	6g	13.97	13.79	13.32	13.21	12.891	12.59	6H	12.917	13.153	13.35	13.51	14	14.304	13
14	M14x0.75	M14x0.75	0.75	6g	13.98	13.84	13.49	13.39	13.166	12.923	6H	13.188	13.378	13.513	13.653	14	14.248	13.25
14	M14x0.5	M14x0.5	0.5	6g	13.98	13.87	13.66	13.57	13.439	13.257	6H	13.459	13.599	13.675	13.795	14	14.192	13.5
15	M15x1.5	M15x1.5	1.5	6g	14.97	14.73	13.99	13.85	13.344	12.93	6H	13.376	13.676	14.026	14.216	15	15.407	13.5
15	M15x1	M15x1	1	6g	14.97	14.79	14.32	14.21	13.891	13.59	6H	13.917	14.153	14.35	14.51	15	15.304	14
16	M16x2	M16	2	6g	15.96	15.68	14.66	14.5	13.797	13.271	6H	13.835	14.21	14.701	14.913	16	16.501	14

16	M16x1.6	M16x1.6	1.6	6g	15.97	15.76	14.93	14.82	14.236	13.838		6H	14.268	14.568	14.961	15.101	16	16.371	14.4
16	M16x1.5	M16x1.5	1.5	6g	15.97	15.73	14.99	14.85	14.344	13.93		6H	14.376	14.676	15.026	15.216	16	16.406	14.5
16	M16x1.25	M16x1.25	1.25	6g	15.97	15.76	15.16	15.03	14.619	14.258		6H	14.647	14.912	15.188	15.358	16	16.35	14.75
16	M16x1	M16x1	1	6g	15.97	15.79	15.32	15.21	14.891	14.59		6H	14.917	15.153	15.35	15.51	16	16.304	15
16	M16x0.75	M16x0.75	0.75	6g	15.98	15.84	15.49	15.39	15.166	14.923		6H	15.188	15.378	15.513	15.653	16	16.248	15.25
16	M16x0.5	M16x0.5	0.5	6g	15.98	15.87	15.66	15.57	15.439	15.257		6H	15.459	15.599	15.675	15.795	16	16.192	15.5
17	M17x1.5	M17x1.5	1.5	6g	16.97	16.73	15.99	15.85	15.344	14.93		6H	15.376	15.676	16.026	16.216	17	17.407	15.5
17	M17x1	M17x1	1	6g	16.97	16.79	16.32	16.21	15.891	15.59		6H	15.917	16.153	16.35	16.51	17	17.304	16
18	M18x2.5	M18	2.5	6g	17.96	17.62	16.33	16.16	15.252	14.624		6H	15.294	15.744	16.376	16.601	18	18.585	15.5
18	M18x2	M18x2	2	6g	17.96	17.68	16.66	16.5	15.797	15.271		6H	15.835	16.21	16.701	16.913	18	18.501	16
18	M18x1.5	M18x1.5	1.5	6g	17.97	17.73	16.99	16.85	16.344	15.93		6H	16.376	16.676	17.026	17.216	18	18.406	16.5
18	M18x1.25	M18x1.25	1.25	6g	17.97	17.76	17.16	17.03	16.619	16.258		6H	16.647	16.912	17.188	17.358	18	18.35	16.75
18	M18x1	M18x1	1	6g	17.97	17.79	17.32	17.21	16.891	16.59		6H	16.917	17.153	17.35	17.51	18	18.304	17
18	M18x0.75	M18x0.75	0.75	6g	17.98	17.84	17.49	17.39	17.166	16.923		6H	17.188	17.378	17.513	17.653	18	18.248	17.25
18	M18x0.5	M18x0.5	0.5	6g	17.98	17.87	17.66	17.57	17.439	17.257		6H	17.459	17.599	17.675	17.795	18	18.192	17.5
20	M20x2.5	M20	2.5	6g	19.96	19.62	18.33	18.16	17.252	16.624		6H	17.294	17.744	18.376	18.6	20	20.585	17.5
20	M20x2	M20x2	2	6g	19.96	19.68	18.66	18.5	17.797	17.271		6H	17.835	18.21	18.701	18.913	20	20.501	18
20	M20x1.5	M20x1.5	1.5	6g	19.97	19.73	18.99	18.85	18.344	17.93		6H	18.376	18.676	19.026	19.216	20	20.406	18.5
20	M20x1	M20x1	1	6g	19.97	19.79	19.32	19.21	18.891	18.59		6H	18.917	19.153	19.35	19.51	20	20.304	19
20	M20x0.75	M20x0.75	0.75	6g	19.98	19.84	19.49	19.39	19.166	18.923		6H	19.188	19.378	19.513	19.653	20	20.248	19.25
20	M20x0.5	M20x0.5	0.5	6g	19.98	19.87	19.66	19.57	19.439	19.257		6H	19.459	19.599	19.675	19.795	20	20.192	19.5
22	M22x3	M22x3	3	6g	21.95	21.58	20	19.82	18.704	17.97		6H	18.752	19.252	20.051	20.296	22	22.677	19
22	M22x2.5	M22	2.5	6g	21.96	21.62	20.33	20.16	19.252	18.624		6H	19.294	19.744	20.376	20.6	22	22.585	19.5
22	M22x2	M22x2	2	6g	21.96	21.68	20.66	20.5	19.797	19.271		6H	19.835	20.21	20.701	20.913	22	22.501	20
22	M22x1.5	M22x1.5	1.5	6g	21.97	21.73	20.99	20.85	20.344	19.93		6H	20.376	20.676	21.026	21.216	22	22.406	20.5
22	M22x1	M22x1	1	6g	21.97	21.79	21.32	21.21	20.891	20.59		6H	20.917	21.153	21.35	21.51	22	22.304	21
22	M22x0.75	M22x0.75	0.75	6g	21.98	21.84	21.49	21.39	21.166	20.923		6H	21.188	21.378	21.513	21.653	22	22.248	21.25
22	M22x0.5	M22x0.5	0.5	6g	21.98	21.87	21.66	21.57	21.439	21.257		6H	21.459	21.599	21.675	21.795	22	22.192	21.5
24	M24x3	M24	3	6g	23.95	23.58	22	21.8	20.704	19.955		6H	20.752	21.252	22.051	22.316	24	24.698	21
24	M24x2.5	M24x2.5	2.5	6g	23.96	23.62	22.33	22.14	21.252	20.604		6H	21.294	21.744	22.376	22.626	24	24.611	21.5
24	M24x2	M24x2	2	6g	23.96	23.68	22.66	22.49	21.797	21.261		6H	21.835	22.21	22.701	22.925	24	24.513	22
24	M24x1.5	M24x1.5	1.5	6g	23.97	23.73	22.99	22.84	22.344	21.92		6H	22.376	22.676	23.026	23.226	24	24.417	22.5
24	M24x1	M24x1	1	6g	23.97	23.79	23.32	23.2	22.891	22.583		6H	22.917	23.153	23.35	23.52	24	24.314	23
24	M24x0.75	M24x0.75	0.75	6g	23.98	23.84	23.49	23.38	23.166	22.917		6H	23.188	23.378	23.513	23.663	24	24.258	23.25
25	M25x2	M25x2	2	6g	24.96	24.68	23.66	23.49	22.797	22.261		6H	22.835	23.21	23.701	23.925	25	25.513	23
25	M25x1.5	M25x1.5	1.5	6g	24.97	24.73	23.99	23.84	23.344	22.92		6H	23.376	23.676	24.026	24.226	25	25.416	23.5
25	M25x1	M25x1	1	6g	24.97	24.79	24.32	24.2	23.891	23.583		6H	23.917	24.153	24.35	24.52	25	25.314	24
26	M26x1.5	M26x1.5	1.5	6g	25.97	25.73	24.99	24.84	24.344	23.92		6H	24.376	24.676	25.026	25.226	26	26.417	24.5
27	M27x3	M27	3	6g	26.95	26.58	25	24.8	23.704	22.955		6H	23.752	24.252	25.051	25.316	27	27.698	24
27	M27x2	M27x2	2	6g	26.96	26.68	25.66	25.49	24.797	24.261		6H	24.835	25.21	25.701	25.925	27	27.513	25
27	M27x1.5	M27x1.5	1.5	6g	26.97	26.73	25.99	25.84	25.344	24.92		6H	25.376	25.676	26.026	26.226	27	27.417	25.5
27	M27x1	M27x1	1	6g	26.97	26.79	26.32	26.2	25.891	25.583		6H	25.917	26.153	26.35	26.52	27	27.314	26
27	M27x0.75	M27x0.75	0.75	6g	26.98	26.84	26.49	26.38	26.166	25.917		6H	26.188	26.378	26.513	26.663	27	27.258	26.25
28	M28x2	M28x2	2	6g	27.96	27.68	26.66	26.49	25.797	25.261		6H	25.835	26.21	26.701	26.925	28	28.513	26
28	M28x1.5	M28x1.5	1.5	6g	27.97	27.73	26.99	26.84	26.344	25.92		6H	26.376	26.676	27.026	27.226	28	28.417	26.5
28	M28x1	M28x1	1	6g	27.97	27.79	27.32	27.2	26.891	26.583		6H	26.917	27.153	27.35	27.52	28	28.314	27
30	M30x3.5	M30	3.5	6g	29.95	29.52	27.67	27.46	26.158	25.306		6H	26.211	26.771	27.727	28.007	30	30.785	26.5
30	M30x3	M30x3	3	6g	29.95	29.58	28	27.8	26.704	25.955		6H	26.752	27.252	28.051	28.316	30	30.698	27
30	M30x2.5	M30x2.5	2.5	6g	29.96	29.62	28.33	28.14	27.252	26.604		6H	27.294	27.744	28.376	28.626	30	30.611	27.5
30	M30x2	M30x2	2	6g	29.96	29.68	28.66	28.49	27.797	27.261		6H	27.835	28.21	28.701	28.925	30	30.513	28
30	M30x1.5	M30x1.5	1.5	6g	29.97	29.73	28.99	28.84	28.344	27.92		6H	28.376	28.676	29.026	29.226	30	30.416	28.5
30	M30x1	M30x1	1	6g	29.97	29.79	29.32	29.2	28.891	28.583		6H	28.917	29.153	29.35	29.52	30	30.314	29
30	M30x0.75	M30x0.75	0.75	6g	29.98	29.84	29.49	29.38	29.166	28.917		6H	29.188	29.378	29.513	29.663	30	30.258	29.25
32	M32x2	M32x2	2	6g	31.96	31.68	30.66	30.49	29.797	29.261		6H	29.835	30.21	30.701	30.925	32	32.513	30
32	M32x1.5	M32x1.5	1.5	6g	31.97	31.73	30.99	30.84	30.344	29.92		6H	30.376	30.676	31.026	31.226	32	32.417	30.5
33	M33x3.5	M33	3.5	6g	32.97	32.54	30.7	30.48	29.179	28.327		6H	29.211	29.771	30.727	31.007	33	33.785	29.5
33	M33x3	M33x3	3	6g	32.95	32.58	31	30.8	29.704	28.955		6H	29.752	30.252	31.051	31.316	33	33.698	30
33	M33x2	M33x2	2	6g	32.96	32.68	31.66	31.49	30.797	30.261		6H	30.835	31.21	31.701	31.925	33	33.513	31

33	M33x1.5	M33x1.5	1.5	6g	32.97	32.73	31.99	31.84	31.344	30.92	6H	31.376	31.676	32.026	32.226	33	33.417	31.5
33	M33x1	M33x1	1	6g	32.97	32.79	32.32	32.2	31.891	31.583	6H	31.917	32.153	32.35	32.52	33	33.314	32
33	M33x0.75	M33x0.75	0.75	6g	32.98	32.84	32.49	32.38	32.166	31.917	6H	32.188	32.378	32.513	32.663	33	33.258	32.25
35	M35x1.5	M35x1.5	1.5	6g	34.97	34.73	33.99	33.84	33.344	33.92	6H	33.376	33.676	34.026	34.226	35	35.416	33.5
36	M36x4	M36	4	6g	35.94	35.47	33.34	33.12	31.61	30.654	6H	31.67	32.27	33.402	33.702	36	36.877	32
36	M36x3	M36x3	3	6g	35.95	35.58	34	33.8	32.704	31.955	6H	32.752	33.252	34.051	34.316	36	36.698	33
36	M36x2	M36x2	2	6g	35.96	35.68	34.66	34.49	33.797	33.261	6H	33.835	34.21	34.701	34.925	36	36.513	34
36	M36x1.5	M36x1.5	1.5	6g	35.97	35.73	34.99	34.84	34.344	33.92	6H	34.376	34.676	35.026	35.226	36	36.417	34.5
36	M36x1	M36x1	1	6g	35.97	35.79	35.32	35.2	34.891	34.583	6H	34.917	35.153	35.35	35.52	36	36.314	35
38	M38x1.5	M38x1.5	1.5	6g	37.97	37.73	36.99	36.84	36.344	35.92	6H	36.376	36.676	37.026	37.226	38	38.417	36.5
39	M39x4	M39	4	6g	38.94	38.47	36.34	36.12	34.61	33.654	6H	34.67	35.27	36.402	36.702	39	39.877	35
39	M39x3	M39x3	3	6g	38.95	38.58	37	36.8	35.704	34.955	6H	35.752	36.252	37.051	37.316	39	39.698	36
39	M39x2	M39x2	2	6g	38.96	38.68	37.66	37.49	36.797	36.261	6H	36.835	37.21	37.701	37.925	39	39.513	37
39	M39x1.5	M39x1.5	1.5	6g	38.97	38.73	37.99	37.84	37.344	36.92	6H	37.376	37.676	38.026	38.226	39	39.417	37.5
39	M39x1	M39x1	1	6g	38.97	38.79	38.32	38.2	37.891	37.583	6H	37.917	38.153	38.35	38.52	39	39.314	38
40	M40x3	M40x3	3	6g	39.95	39.58	38	37.8	36.704	35.955	6H	36.752	37.252	38.051	38.316	40	40.698	37
40	M40x2.5	M40x2.5	2.5	6g	39.96	39.62	38.33	38.14	37.252	36.604	6H	37.294	37.744	38.376	38.626	40	40.611	37.5
40	M40x2	M40x2	2	6g	39.96	39.68	38.66	38.49	37.797	37.261	6H	37.835	38.21	38.701	38.925	40	40.513	38
40	M40x1.5	M40x1.5	1.5	6g	39.97	39.73	38.99	38.84	38.344	37.92	6H	38.376	38.676	39.026	39.226	40	40.416	38.5
42	M42x4.5	M42	4.5	6g	41.94	41.44	39.01	38.78	37.066	36.006	6H	37.129	37.799	39.077	39.392	42	42.965	37.5
42	M42x4	M42x4	4	6g	41.94	41.47	39.34	39.12	37.61	36.654	6H	37.67	38.27	39.402	39.702	42	42.877	38
42	M42x3	M42x3	3	6g	41.95	41.58	40	39.8	38.704	37.955	6H	38.752	39.252	40.051	40.316	42	42.698	39
42	M42x2	M42x2	2	6g	41.96	41.68	40.66	40.49	39.797	39.261	6H	39.835	40.21	40.701	40.925	42	42.513	40
42	M42x1.5	M42x1.5	1.5	6g	41.97	41.73	40.99	40.84	40.344	39.92	6H	40.376	40.676	41.026	41.226	42	42.417	40.5
42	M42x1	M42x1	1	6g	41.97	41.79	41.32	41.2	40.891	40.583	6H	40.917	41.153	41.35	41.52	42	42.314	41
45	M45x4.5	M45	4.5	6g	44.94	44.44	42.01	41.78	40.066	39.006	6H	40.129	40.799	42.077	42.392	45	45.965	40.5
45	M45x4	M45x4	4	6g	44.94	44.47	42.34	42.12	40.61	39.654	6H	40.67	41.27	42.402	42.702	45	45.877	41
45	M45x3	M45x3	3	6g	44.95	44.58	43	42.8	41.704	40.955	6H	41.752	42.252	43.051	43.316	45	45.698	42
45	M45x2	M45x2	2	6g	44.96	44.68	43.66	43.49	42.797	42.261	6H	42.835	43.21	43.701	43.925	45	45.513	43
45	M45x1.5	M45x1.5	1.5	6g	44.97	44.73	43.99	43.84	43.344	42.92	6H	43.376	43.676	44.026	44.226	45	45.416	43.5
45	M45x1	M45x1	1	6g	44.97	44.79	44.32	44.2	43.891	43.583	6H	43.917	44.153	44.35	44.52	45	45.314	44
48	M48x5	M48	5	6g	47.93	47.4	44.68	44.43	42.516	41.351	6H	42.587	43.297	44.752	45.087	48	49.057	43
48	M48x4	M48x4	4	6g	47.94	47.47	45.34	45.11	43.61	42.642	6H	43.67	44.27	45.402	45.717	48	48.892	44
48	M48x3	M48x3	3	6g	47.95	47.58	46	45.79	44.704	43.943	6H	44.752	45.252	46.051	46.331	48	48.713	45
48	M48x2	M48x2	2	6g	47.96	47.68	46.66	46.48	45.797	45.251	6H	45.835	46.21	46.701	46.937	48	48.525	46
48	M48x1.5	M48x1.5	1.5	6g	47.97	47.73	46.99	46.83	46.344	45.91	6H	46.376	46.676	47.026	47.238	48	48.429	46.5
50	M50x4	M50x4	4	6g	49.94	49.47	47.34	47.11	45.61	44.642	6H	45.67	46.27	47.402	47.717	50	50.892	46
50	M50x3	M50x3	3	6g	49.95	49.58	48	47.79	46.704	45.943	6H	46.752	47.252	48.051	48.331	50	50.713	47
50	M50x2	M50x2	2	6g	49.96	49.68	48.66	48.48	47.797	47.251	6H	47.835	48.21	48.701	48.937	50	50.525	48
50	M50x1.5	M50x1.5	1.5	6g	49.97	49.73	48.99	48.83	48.344	47.91	6H	48.376	48.676	49.026	49.238	50	50.428	48.5
52	M52x5	M52	5	6g	51.93	51.4	48.68	48.45	46.516	45.365	6H	46.587	47.297	48.752	49.067	52	53.037	47
52	M52x4	M52x4	4	6g	51.94	51.47	49.34	49.11	47.61	46.642	6H	47.67	48.27	49.402	49.717	52	52.892	48
52	M52x3	M52x3	3	6g	51.95	51.58	50	49.79	48.704	47.943	6H	48.752	49.252	50.051	50.331	52	52.713	49
52	M52x2	M52x2	2	6g	51.96	51.68	50.66	50.48	49.797	49.251	6H	49.835	50.21	50.701	50.937	52	52.525	50
52	M52x1.5	M52x1.5	1.5	6g	51.97	51.73	50.99	50.83	50.344	49.91	6H	50.376	50.676	51.026	51.238	52	52.429	50.5
55	M55x4	M55x4	4	6g	54.94	54.47	52.34	52.11	50.61	49.642	6H	50.67	51.27	52.402	52.717	55	55.892	51
55	M55x3	M55x3	3	6g	54.95	54.58	53	52.79	51.704	50.943	6H	51.752	52.252	53.051	53.331	55	55.713	52
55	M55x2	M55x2	2	6g	54.96	54.68	53.66	53.48	52.797	52.251	6H	52.835	53.21	53.701	53.937	55	55.525	53
55	M55x1.5	M55x1.5	1.5	6g	54.97	54.73	53.99	53.83	53.344	52.91	6H	53.376	53.676	54.026	54.238	55	55.428	53.5
56	M56x5.5	M56	5.5	6g	55.93	55.37	52.35	52.09	49.971	48.7	6H	50.046	50.796	52.428	52.783	56	57.149	50.5
56	M56x4	M56x4	4	6g	55.94	55.47	53.34	53.11	51.61	50.642	6H	51.67	52.27	53.402	53.717	56	56.892	52
56	M56x3	M56x3	3	6g	55.95	55.58	54	53.79	52.704	51.943	6H	52.752	53.252	54.051	54.331	56	56.713	53
56	M56x2	M56x2	2	6g	55.96	55.68	54.66	54.48	53.797	53.251	6H	53.835	54.21	54.701	54.937	56	56.525	54
56	M56x1.5	M56x1.5	1.5	6g	55.97	55.73	54.99	54.83	54.344	53.91	6H	54.376	54.676	55.026	55.238	56	56.429	54.5
56	M56x1	M56x1	1	6g	55.97	55.79	55.32	55.18	54.891	54.568	6H	54.917	55.153	55.35	55.54	56	56.334	55
58	M58x4	M58x4	4	6g	57.94	57.47	55.34	55.11	53.61	52.642	6H	53.67	54.27	55.402	55.717	58	58.892	54
58	M58x3	M58x3	3	6g	57.95	57.58	56	55.79	54.704	53.943	6H	54.752	55.252	56.051	56.331	58	58.713	55
58	M58x2	M58x2	2	6g	57.96	57.68	56.66	56.48	55.797	55.251	6H	55.835	56.21	56.701	56.937	58	58.525	56

58	M58x1.5	M58x1.5	1.5	6g	57.97	57.73	56.99	56.83	56.344	55.91	6H	56.376	56.676	57.026	57.238	58	58.429	56.5
60	M60x5.5	M60	5.5	6g	59.93	59.37	56.35	56.09	53.971	52.7	6H	54.046	54.796	56.428	56.783	60	61.149	54.5
60	M60x4	M60x4	4	6g	59.94	59.47	57.34	57.11	55.61	54.642	6H	55.67	56.27	57.402	57.717	60	60.892	56
60	M60x3	M60x3	3	6g	59.95	59.58	58	57.79	56.704	55.943	6H	56.752	57.252	58.051	58.331	60	60.713	57
60	M60x2	M60x2	2	6g	59.96	59.68	58.66	58.48	57.797	57.251	6H	57.835	58.21	58.701	58.937	60	60.525	58
60	M60x1.5	M60x1.5	1.5	6g	59.97	59.73	58.99	58.83	58.344	57.91	6H	58.376	58.676	59.026	59.238	60	60.428	58.5
60	M60x1	M60x1	1	6g	59.97	59.79	59.32	59.18	58.891	58.568	6H	58.917	59.153	59.35	59.54	60	60.334	59
62	M62x4	M62x4	4	6g	61.94	61.47	59.34	59.11	57.61	56.642	6H	57.67	58.27	59.402	59.717	62	62.892	58
62	M62x3	M62x3	3	6g	61.95	61.58	60	59.79	58.704	57.943	6H	58.752	59.252	60.051	60.331	62	62.713	59
62	M62x2	M62x2	2	6g	61.96	61.68	60.66	60.48	59.797	59.251	6H	59.835	60.21	60.701	60.937	62	62.525	60
62	M62x1.5	M62x1.5	1.5	6g	61.97	61.73	60.99	60.83	60.344	59.91	6H	60.376	60.676	61.026	61.238	62	62.429	60.5
63	M63x1.5	M63x1.5	1.5	6g	62.97	62.73	61.99	61.83	61.344	60.91	6H	61.376	61.676	62.026	62.238	63	63.429	61.5
64	M64x6	M64	6	6g	63.92	63.32	60.02	59.74	57.425	56.047	6H	57.505	58.305	60.103	60.478	64	65.241	58
64	M64x5.5	M64x5.5	5.5	6g	63.93	63.37	60.35	60.09	57.971	56.7	6H	58.046	58.796	60.428	60.783	64	65.149	58.5
64	M64x4	M64x4	4	6g	63.94	63.47	61.34	61.11	59.61	58.642	6H	59.67	60.27	61.402	61.717	64	64.892	60
64	M64x3	M64x3	3	6g	63.95	63.58	62	61.79	60.704	59.943	6H	60.752	61.252	62.051	62.331	64	64.713	61
64	M64x2	M64x2	2	6g	63.96	63.68	62.66	62.48	61.797	61.251	6H	61.835	62.21	62.701	62.937	64	64.525	62
64	M64x1.5	M64x1.5	1.5	6g	63.97	63.73	62.99	62.83	62.344	61.91	6H	62.376	62.676	63.026	63.238	64	64.429	62.5
64	M64x1	M64x1	1	6g	63.97	63.79	63.32	63.18	62.891	62.568	6H	62.917	63.153	63.35	63.54	64	64.334	63
65	M65x4	M65x4	4	6g	64.94	64.47	62.34	62.11	60.61	59.642	6H	60.67	61.27	62.402	62.717	65	65.892	61
65	M65x3	M65x3	3	6g	64.95	64.58	63	62.79	61.704	60.943	6H	61.752	62.252	63.051	63.331	65	65.713	62
65	M65x2	M65x2	2	6g	64.96	64.68	63.66	63.48	62.797	62.251	6H	62.835	63.21	63.701	63.937	65	65.525	63
65	M65x1.5	M65x1.5	1.5	6g	64.97	64.73	63.99	63.83	63.344	62.91	6H	63.376	63.676	64.026	64.238	65	65.428	63.5
68	M68x6	M68x6	6	6g	67.92	67.32	64.02	63.74	61.425	60.047	6H	61.505	62.305	64.103	64.478	68	69.241	62
68	M68x4	M68x4	4	6g	67.94	67.47	65.34	65.11	63.61	62.642	6H	63.67	64.27	65.402	65.717	68	68.892	64
68	M68x3	M68x3	3	6g	67.95	67.58	66	65.79	64.704	63.943	6H	64.752	65.252	66.051	66.331	68	68.713	65
68	M68x2	M68x2	2	6g	67.96	67.68	66.66	66.48	65.797	65.251	6H	65.835	66.21	66.701	66.937	68	68.525	66
68	M68x1.5	M68x1.5	1.5	6g	67.97	67.73	66.99	66.83	66.344	65.91	6H	66.376	66.676	67.026	67.238	68	68.429	66.5
68	M68x1	M68x1	1	6g	67.97	67.79	67.32	67.18	66.891	66.568	6H	66.917	67.153	67.35	67.54	68	68.334	67
70	M70x6	M70x6	6	6g	69.92	69.32	66.02	65.74	63.425	62.047	6H	63.505	64.305	66.103	66.478	70	71.241	64
70	M70x4	M70x4	4	6g	69.94	69.47	67.34	67.11	65.61	64.642	6H	65.67	66.27	67.402	67.717	70	70.892	66
70	M70x3	M70x3	3	6g	69.95	69.58	68	67.79	66.704	65.943	6H	66.752	67.252	68.051	68.331	70	70.713	67
70	M70x2	M70x2	2	6g	69.96	69.68	68.66	68.48	67.797	67.251	6H	67.835	68.21	68.701	68.937	70	70.525	68
70	M70x1.5	M70x1.5	1.5	6g	69.97	69.73	68.99	68.83	68.344	67.91	6H	68.376	68.676	69.026	69.238	70	70.428	68.5
72	M72x6	M72x6	6	6g	71.92	71.32	68.02	67.74	65.425	64.047	6H	65.505	66.305	68.103	68.478	72	73.241	66
72	M72x4	M72x4	4	6g	71.94	71.47	69.34	69.11	67.61	66.642	6H	67.67	68.27	69.402	69.717	72	72.892	68
72	M72x3	M72x3	3	6g	71.95	71.58	70	69.79	68.704	67.943	6H	68.752	69.252	70.051	70.331	72	72.713	69
72	M72x2	M72x2	2	6g	71.96	71.68	70.66	70.48	69.797	69.251	6H	69.835	70.21	70.701	70.937	72	72.525	70
72	M72x1.5	M72x1.5	1.5	6g	71.97	71.73	70.99	70.83	70.344	69.91	6H	70.376	70.676	71.026	71.238	72	72.429	70.5
72	M72x1	M72x1	1	6g	71.97	71.79	71.32	71.18	70.891	70.568	6H	70.917	71.153	71.35	71.54	72	72.334	71
75	M75x6	M75x6	6	6g	74.92	74.32	71.02	70.74	68.425	67.047	6H	68.505	69.305	71.103	71.478	75	76.241	69
75	M75x4	M75x4	4	6g	74.94	74.47	72.34	72.11	70.61	69.642	6H	70.67	71.27	72.402	72.717	75	75.892	71
75	M75x3	M75x3	3	6g	74.95	74.58	73	72.79	71.704	70.943	6H	71.752	72.252	73.051	73.331	75	75.713	72
75	M75x2	M75x2	2	6g	74.96	74.68	73.66	73.48	72.797	72.251	6H	72.835	73.21	73.701	73.937	75	75.525	73
75	M75x1.5	M75x1.5	1.5	6g	74.97	74.73	73.99	73.83	73.344	72.91	6H	73.376	73.676	74.026	74.238	75	75.428	73.5
76	M76x6	M76x6	6	6g	75.92	75.32	72.02	71.74	69.425	68.047	6H	69.505	70.305	72.103	72.478	76	77.241	70
76	M76x4	M76x4	4	6g	75.94	75.47	73.34	73.11	71.61	70.642	6H	71.67	72.27	73.402	73.717	76	76.892	72
76	M76x3	M76x3	3	6g	75.95	75.58	74	73.79	72.704	71.943	6H	72.752	73.252	74.051	74.331	76	76.713	73
76	M76x2	M76x2	2	6g	75.96	75.68	74.66	74.48	73.797	73.251	6H	73.835	74.21	74.701	74.937	76	76.525	74
76	M76x1.5	M76x1.5	1.5	6g	75.97	75.73	74.99	74.83	74.344	73.91	6H	74.376	74.676	75.026	75.238	76	76.429	74.5
76	M76x1	M76x1	1	6g	75.97	75.79	75.32	75.18	74.891	74.568	6H	74.917	75.153	75.35	75.54	76	76.334	75
78	M78x2	M78x2	2	6g	77.96	77.68	76.66	76.48	75.797	75.251	6H	75.835	76.21	76.701	76.937	78	78.525	76
80	M80x6	M80x6	6	6g	79.92	79.32	76.02	75.74	73.425	72.047	6H	73.505	74.305	76.103	76.478	80	81.241	74
80	M80x4	M80x4	4	6g	79.94	79.34	77.34	77.11	75.61	74.642	6H	75.67	76.27	77.402	77.717	80	80.892	76
80	M80x3	M80x3	3	6g	79.95	79.58	78	77.79	76.704	75.943	6H	76.752	77.252	78.051	78.331	80	80.713	77
80	M80x2	M80x2	2	6g	79.96	79.68	78.66	78.48	77.797	77.251	6H	77.835	78.21	78.701	78.937	80	80.525	78
80	M80x1.5	M80x1.5	1.5	6g	79.97	79.73	78.99	78.83	78.344	77.91	6H	78.376	78.676	79.026	79.238	80	80.428	78.5
80	M80x1	M80x1	1	6g	79.97	79.79	79.32	79.18	78.891	78.568	6H	78.917	79.153	79.35	79.54	80	80.334	79

82	M82x2	M82x2	2	6g	81.96	81.68	80.66	80.48	79.797	79.251	6H	79.835	80.21	80.701	80.937	82	82.525	80
85	M85x6	M85x6	6	6g	84.92	84.32	81.02	80.74	78.425	77.047	6H	78.505	79.305	81.103	81.478	85	86.241	79
85	M85x4	M85x4	4	6g	84.94	84.47	82.34	82.11	80.61	79.642	6H	80.67	81.27	82.402	82.717	85	85.892	81
85	M85x3	M85x3	3	6g	84.95	84.58	83	82.79	81.704	80.943	6H	81.752	82.252	83.051	83.331	85	85.713	82
85	M85x2	M85x2	2	6g	84.96	84.68	83.66	83.48	82.797	82.251	6H	82.835	83.21	83.701	83.937	85	85.525	83
85	M85x1.5	M85x1.5	1.5	6g	84.97	84.73	83.99	83.83	83.344	82.91	6H	83.376	83.676	84.026	84.238	85	85.429	83.5
90	M90x6	M90x6	6	6g	89.92	89.32	86.02	85.74	83.425	82.047	6H	83.505	84.305	86.103	86.478	90	91.241	84
90	M90x4	M90x4	4	6g	89.94	89.47	87.34	87.11	85.61	84.642	6H	85.67	86.27	87.402	87.717	90	90.892	86
90	M90x3	M90x3	3	6g	89.95	89.58	88	87.79	86.704	85.943	6H	86.752	87.252	88.051	88.331	90	90.713	87
90	M90x2	M90x2	2	6g	89.96	89.68	88.66	88.48	87.797	87.251	6H	87.835	88.21	88.701	88.937	90	90.525	88
90	M90x1.5	M90x1.5	1.5	6g	89.97	89.73	88.99	88.83	88.344	87.91	6H	88.376	88.676	89.026	89.238	90	90.429	88.5
95	M95x6	M95x6	6	6g	94.92	94.32	91.02	90.72	88.425	87.027	6H	88.505	89.305	91.103	91.503	95	96.266	89
95	M95x4	M95x4	4	6g	94.94	94.47	92.34	92.09	90.61	89.628	6H	90.67	91.27	92.402	92.737	95	95.912	91
95	M95x3	M95x3	3	6g	94.95	94.58	93	92.78	91.704	90.931	6H	91.752	92.252	93.051	93.351	95	95.733	92
95	M95x2	M95x2	2	6g	94.96	94.68	93.66	93.47	92.797	92.241	6H	92.835	93.21	93.701	93.951	95	95.539	93
95	M95x1.5	M95x1.5	1.5	6g	94.97	94.73	93.99	93.81	93.344	92.89	6H	93.376	93.676	94.026	94.262	95	95.453	93.5
100	M100x6	M100x6	6	6g	99.92	99.32	96.02	95.72	93.425	92.027	6H	93.505	94.305	96.103	96.503	100	101.27	94
100	M100x4	M100x4	4	6g	99.94	99.47	97.34	97.09	95.61	94.628	6H	95.67	96.27	97.402	97.737	100	100.91	96
100	M100x3	M100x3	3	6g	99.95	99.58	98	97.78	96.704	95.931	6H	96.752	97.252	98.051	98.351	100	100.73	97
100	M100x2	M100x2	2	6g	99.96	99.68	98.66	98.47	97.797	97.241	6H	97.835	98.21	98.701	98.951	100	100.54	98
100	M100x1.5	M100x1.5	1.5	6g	99.97	99.73	98.99	98.81	98.344	97.89	6H	98.376	98.676	99.026	99.262	100	100.45	98.5
105	M105x6	M105x6	6	6g	104.9	104.3	101	100.7	98.425	97.027	6H	98.505	99.305	101.1	101.5	105	106.27	99
105	M105x4	M105x4	4	6g	104.9	104.5	102.3	102.1	100.61	99.628	6H	100.67	101.27	102.4	102.74	105	105.91	101
105	M105x3	M105x3	3	6g	105	104.6	103	102.8	101.7	100.93	6H	101.75	102.25	103.05	103.35	105	105.73	102
105	M105x2	M105x2	2	6g	105	104.7	103.7	103.5	102.8	102.24	6H	102.84	103.21	103.7	103.95	105	105.54	103
105	M105x1.5	M105x1.5	1.5	6g	105	104.7	104	103.8	103.34	102.89	6H	103.38	103.68	104.03	104.26	105	105.45	103.5
110	M110x6	M110x6	6	6g	109.9	109.3	106	105.7	103.43	102.03	6H	103.51	104.31	106.1	106.5	110	111.27	104
110	M110x4	M110x4	4	6g	109.9	109.5	107.3	107.1	105.61	104.63	6H	105.67	106.27	107.4	107.74	110	110.91	106
110	M110x3	M110x3	3	6g	110	109.6	108	107.8	106.7	105.93	6H	106.75	107.25	108.05	108.35	110	110.73	107
110	M110x2	M110x2	2	6g	110	109.7	108.7	108.5	107.8	107.24	6H	107.84	108.21	108.7	108.95	110	110.54	108
110	M110x1.5	M110x1.5	1.5	6g	110	109.7	109	108.8	108.34	107.89	6H	108.38	108.68	109.03	109.26	110	110.45	108.5
115	M115x6	M115x6	6	6g	114.9	114.3	111	110.7	108.43	107.03	6H	108.51	109.31	111.1	111.5	115	116.27	109
115	M115x4	M115x4	4	6g	114.9	114.5	112.3	112.1	110.61	109.63	6H	110.67	111.27	112.4	112.74	115	115.91	111
115	M115x3	M115x3	3	6g	115	114.6	113	112.8	111.7	110.93	6H	111.75	112.25	113.05	113.35	115	115.73	112
115	M115x2	M115x2	2	6g	115	114.7	113.7	113.5	112.8	112.24	6H	112.84	113.21	113.7	113.95	115	115.54	113
115	M115x1.5	M115x1.5	1.5	6g	115	114.7	114	113.8	113.34	112.89	6H	113.38	113.68	114.03	114.26	115	115.45	113.5
120	M120x6	M120x6	6	6g	119.9	119.3	116	115.7	113.43	112.03	6H	113.51	114.31	116.1	116.5	120	121.27	114
120	M120x4	M120x4	4	6g	119.9	119.5	117.3	117.1	115.61	114.63	6H	115.67	116.27	117.4	117.74	120	120.91	116
120	M120x3	M120x3	3	6g	120	119.6	118	117.8	116.7	115.93	6H	116.75	117.25	118.05	118.35	120	120.73	117
120	M120x2	M120x2	2	6g	120	119.7	118.7	118.5	117.8	117.24	6H	117.84	118.21	118.7	118.95	120	120.54	118
120	M120x1.5	M120x1.5	1.5	6g	120	119.7	119	118.8	118.34	117.89	6H	118.38	118.68	119.03	119.26	120	120.45	118.5
125	M125x8	M125x8	8	6g	124.9	124.2	119.7	119.4	116.24	114.44	6H	116.34	117.34	119.8	120.25	125	126.61	117
125	M125x6	M125x6	6	6g	124.9	124.3	121	120.7	118.43	117.03	6H	118.51	119.31	121.1	121.5	125	126.27	119
125	M125x4	M125x4	4	6g	124.9	124.5	122.3	122.1	120.61	119.63	6H	120.67	121.27	122.4	122.74	125	125.91	121
125	M125x3	M125x3	3	6g	125	124.6	123	122.8	121.7	120.93	6H	121.75	122.25	123.05	123.35	125	125.73	122
125	M125x2	M125x2	2	6g	125	124.7	123.7	123.5	122.8	122.24	6H	122.84	123.21	123.7	123.95	125	125.54	123
125	M125x1.5	M125x1.5	1.5	6g	125	124.7	124	123.8	123.34	122.89	6H	123.38	123.68	124.03	124.26	125	125.45	123.5
130	M130x8	M130x8	8	6g	129.9	129.2	124.7	124.4	121.24	119.44	6H	121.34	122.34	124.8	125.25	130	131.61	122
130	M130x6	M130x6	6	6g	129.9	129.3	126	125.7	123.43	122.03	6H	123.51	124.31	126.1	126.5	130	131.27	124
130	M130x4	M130x4	4	6g	129.9	129.5	127.3	127.1	125.61	124.63	6H	125.67	126.27	127.4	127.74	130	130.91	126
130	M130x3	M130x3	3	6g	130	129.6	128	127.8	126.7	125.93	6H	126.75	127.25	128.05	128.35	130	130.73	127
130	M130x2	M130x2	2	6g	130	129.7	128.7	128.5	127.8	127.24	6H	127.84	128.21	128.7	128.95	130	130.54	128
130	M130x1.5	M130x1.5	1.5	6g	130	129.7	129	128.8	128.34	127.89	6H	128.38	128.68	129.03	129.26	130	130.45	128.5
135	M135x6	M135x6	6	6g	134.9	134.3	131	130.7	128.43	127.03	6H	128.51	129.31	131.1	131.5	135	136.27	129
135	M135x4	M135x4	4	6g	134.9	134.5	132.3	132.1	130.61	129.63	6H	130.67	131.27	132.4	132.74	135	135.91	131
135	M135x3	M135x3	3	6g	135	134.6	133	132.8	131.7	130.93	6H	131.75	132.25	133.05	133.35	135	135.73	132
135	M135x2	M135x2	2	6g	135	134.7	133.7	133.5	132.8	132.24	6H	132.84	133.21	133.7	133.95	135	135.54	133
135	M135x1.5	M135x1.5	1.5	6g	135	134.7	134	133.8	133.34	132.89	6H	133.38	133.68	134.03	134.26	135	135.45	133.5

140	M140x8	M140x8	8	6g	139.9	139.2	134.7	134.4	131.24	129.44	6H	131.34	132.34	134.8	135.25	140	141.61	132
140	M140x6	M140x6	6	6g	139.9	139.3	136	135.7	133.43	132.03	6H	133.51	134.31	136.1	136.5	140	141.27	134
140	M140x4	M140x4	4	6g	139.9	139.5	137.3	137.1	135.61	134.63	6H	135.67	136.27	137.4	137.74	140	140.91	136
140	M140x3	M140x3	3	6g	140	139.6	138	137.8	136.7	135.93	6H	136.75	137.25	138.05	138.35	140	140.73	137
140	M140x2	M140x2	2	6g	140	139.7	138.7	138.5	137.8	137.24	6H	137.84	138.21	138.7	138.95	140	140.54	138
140	M140x1.5	M140x1.5	1.5	6g	140	139.7	139	138.8	138.34	137.89	6H	138.38	138.68	139.03	139.26	140	140.45	138.5
145	M145x6	M145x6	6	6g	144.9	144.3	141	140.7	138.43	137.03	6H	138.51	139.31	141.1	141.5	145	146.27	139
145	M145x4	M145x4	4	6g	144.9	144.5	142.3	142.1	140.61	139.63	6H	140.67	141.27	142.4	142.74	145	145.91	141
145	M145x3	M145x3	3	6g	145	144.6	143	142.8	141.7	140.93	6H	141.75	142.25	143.05	143.35	145	145.73	142
145	M145x2	M145x2	2	6g	145	144.7	143.7	143.5	142.8	142.24	6H	142.84	143.21	143.7	143.95	145	145.54	143
145	M145x1.5	M145x1.5	1.5	6g	145	144.7	144	143.8	143.34	142.89	6H	143.38	143.68	144.03	144.26	145	145.45	143.5
150	M150x8	M150x8	8	6g	149.9	149.2	144.7	144.4	141.24	139.44	6H	141.34	142.34	144.8	145.25	150	151.61	142
150	M150x6	M150x6	6	6g	149.9	149.3	146	145.7	143.43	142.03	6H	143.51	144.31	146.1	146.5	150	151.27	144
150	M150x4	M150x4	4	6g	149.9	149.5	147.3	147.1	145.61	144.63	6H	145.67	146.27	147.4	147.74	150	150.91	146
150	M150x3	M150x3	3	6g	150	149.6	148	147.8	146.7	145.93	6H	146.75	147.25	148.05	148.35	150	150.73	147
150	M150x2	M150x2	2	6g	150	149.7	148.7	148.5	147.8	147.24	6H	147.84	148.21	148.7	148.95	150	150.54	148
150	M150x1.5	M150x1.5	1.5	6g	150	149.7	149	148.8	148.34	147.89	6H	148.38	148.68	149.03	149.26	150	150.45	148.5
155	M155x6	M155x6	6	6g	154.9	154.3	151	150.7	148.43	147.03	6H	148.51	149.31	151.1	151.5	155	156.27	149
155	M155x4	M155x4	4	6g	154.9	154.5	152.3	152.1	150.61	149.63	6H	150.67	151.27	152.4	152.74	155	155.91	151
155	M155x3	M155x3	3	6g	155	154.6	153	152.8	151.7	150.93	6H	151.75	152.25	153.05	153.35	155	155.73	152
155	M155x2	M155x2	2	6g	155	154.7	153.7	153.5	152.8	152.24	6H	152.84	153.21	153.7	153.95	155	155.54	153
160	M160x8	M160x8	8	6g	159.9	159.2	154.7	154.4	151.24	149.44	6H	151.34	152.34	154.8	155.25	160	161.61	152
160	M160x6	M160x6	6	6g	159.9	159.3	156	155.7	153.43	152.03	6H	153.51	154.31	156.1	156.5	160	161.27	154
160	M160x4	M160x4	4	6g	159.9	159.5	157.3	157.1	155.61	154.63	6H	155.67	156.27	157.4	157.74	160	160.91	156
160	M160x3	M160x3	3	6g	160	159.6	158	157.8	156.7	155.93	6H	156.75	157.25	158.05	158.35	160	160.73	157
160	M160x2	M160x2	2	6g	160	159.7	158.7	158.5	157.8	157.24	6H	157.84	158.21	158.7	158.95	160	160.54	158
165	M165x6	M165x6	6	6g	164.9	164.3	161	160.7	158.43	157.03	6H	158.51	159.31	161.1	161.5	165	166.27	159
165	M165x4	M165x4	4	6g	164.9	164.5	162.3	162.1	160.61	159.63	6H	160.67	161.27	162.4	162.74	165	165.91	161
165	M165x3	M165x3	3	6g	165	164.6	163	162.8	161.7	160.93	6H	161.75	162.25	163.05	163.35	165	165.73	162
165	M165x2	M165x2	2	6g	165	164.7	163.7	163.5	162.8	162.24	6H	162.84	163.21	163.7	163.95	165	165.54	163
170	M170x8	M170x8	8	6g	169.9	169.2	164.7	164.4	161.24	159.44	6H	161.34	162.34	164.8	165.25	170	171.61	162
170	M170x6	M170x6	6	6g	169.9	169.3	166	165.7	163.43	162.03	6H	163.51	164.31	166.1	166.5	170	171.27	164
170	M170x4	M170x4	4	6g	169.9	169.5	167.3	167.1	165.61	164.63	6H	165.67	166.27	167.4	167.74	170	170.91	166
170	M170x3	M170x3	3	6g	170	169.6	168	167.8	166.7	165.93	6H	166.75	167.25	168.05	168.35	170	170.73	167
170	M170x2	M170x2	2	6g	170	169.7	168.7	168.5	167.8	167.24	6H	167.84	168.21	168.7	168.95	170	170.54	168
175	M175x6	M175x6	6	6g	174.9	174.3	171	170.7	168.43	167.03	6H	168.51	169.31	171.1	171.5	175	176.27	169
175	M175x4	M175x4	4	6g	174.9	174.5	172.3	172.1	170.61	169.63	6H	170.67	171.27	172.4	172.74	175	175.91	171
175	M175x3	M175x3	3	6g	175	174.6	173	172.8	171.7	170.93	6H	171.75	172.25	173.05	173.35	175	175.73	172
175	M175x2	M175x2	2	6g	175	174.7	173.7	173.5	172.8	172.24	6H	172.84	173.21	173.7	173.95	175	175.54	173
180	M180x8	M180x8	8	6g	179.9	179.2	174.7	174.4	171.24	169.44	6H	171.34	172.34	174.8	175.25	180	181.61	172
180	M180x6	M180x6	6	6g	179.9	179.3	176	175.7	173.43	172.03	6H	173.51	174.31	176.1	176.5	180	181.27	174
180	M180x4	M180x4	4	6g	179.9	179.5	177.3	177.1	175.61	174.63	6H	175.67	176.27	177.4	177.74	180	180.91	176
180	M180x3	M180x3	3	6g	180	179.6	178	177.8	176.7	175.93	6H	176.75	177.25	178.05	178.35	180	180.73	177
180	M180x2	M180x2	2	6g	180	179.7	178.7	178.5	177.8	177.24	6H	177.84	178.21	178.7	178.95	180	180.54	178
185	M185x6	M185x6	6	6g	184.9	184.3	181	180.7	178.43	177.01	6H	178.51	179.31	181.1	181.53	185	186.29	179
185	M185x4	M185x4	4	6g	184.9	184.5	182.3	182.1	180.61	179.6	6H	180.67	181.27	182.4	182.78	185	185.95	181
185	M185x3	M185x3	3	6g	185	184.6	183	182.8	181.7	180.91	6H	181.75	182.25	183.05	183.39	185	185.77	182
185	M185x2	M185x2	2	6g	185	184.7	183.7	183.5	182.8	182.22	6H	182.84	183.21	183.7	183.98	185	185.57	183
190	M190x8	M190x8	8	6g	189.9	189.2	184.7	184.3	181.24	179.42	6H	181.34	182.34	184.8	185.28	190	191.63	182
190	M190x6	M190x6	6	6g	189.9	189.3	186	185.7	183.43	182.01	6H	183.51	184.31	186.1	186.53	190	191.29	184
190	M190x4	M190x4	4	6g	189.9	189.5	187.3	187.1	185.61	184.6	6H	185.67	186.27	187.4	187.78	190	190.95	186
190	M190x3	M190x3	3	6g	190	189.6	188	187.8	186.7	185.91	6H	186.75	187.25	188.05	188.39	190	190.77	187
190	M190x2	M190x2	2	6g	190	189.7	188.7	188.5	187.8	187.22	6H	187.84	188.21	188.7	188.98	190	190.57	188
195	M195x6	M195x6	6	6g	194.9	194.3	191	190.7	188.43	187.01	6H	188.51	189.31	191.1	191.53	195	196.29	189
195	M195x4	M195x4	4	6g	194.9	194.5	192.3	192.1	190.61	189.6	6H	190.67	191.27	192.4	192.78	195	195.95	191
195	M195x3	M195x3	3	6g	195	194.6	193	192.8	191.7	190.91	6H	191.75	192.25	193.05	193.39	195	195.77	192
195	M195x2	M195x2	2	6g	195	194.7	193.7	193.5	192.8	192.22	6H	192.84	193.21	193.7	193.98	195	195.57	193
200	M200x8	M200x8	8	6g	199.9	199.2	194.7	194.3	191.24	189.42	6H	191.34	192.34	194.8	195.28	200	201.63	192

200	M200x6	M200x6	6	6g	199.9	199.3	196	195.7	193.43	192.01	6H	193.51	194.31	196.1	196.53	200	201.29	194
200	M200x4	M200x4	4	6g	199.9	199.5	197.3	197.1	195.61	194.6	6H	195.67	196.27	197.4	197.78	200	200.95	196
200	M200x3	M200x3	3	6g	200	199.6	198	197.8	196.7	195.91	6H	196.75	197.25	198.05	198.39	200	200.77	197
200	M200x2	M200x2	2	6g	200	199.7	198.7	198.5	197.8	197.22	6H	197.84	198.21	198.7	198.98	200	200.57	198
205	M205x6	M205x6	6	6g	204.9	204.3	201	200.7	198.43	197.01	6H	198.51	199.31	201.1	201.53	205	206.29	199
205	M205x4	M205x4	4	6g	204.9	204.5	202.3	202.1	200.61	199.6	6H	200.67	201.27	202.4	202.78	205	205.95	201
205	M205x3	M205x3	3	6g	205	204.6	203	202.8	201.7	200.91	6H	201.75	202.25	203.05	203.39	205	205.77	202
205	M205x2	M205x2	2	6g	205	204.7	203.7	203.5	202.8	202.22	6H	202.84	203.21	203.7	203.98	205	205.57	203
210	M210x8	M210x8	8	6g	209.9	209.2	204.7	204.3	201.24	199.42	6H	201.34	202.34	204.8	205.28	210	211.63	202
210	M210x6	M210x6	6	6g	209.9	209.3	206	205.7	203.43	202.01	6H	203.51	204.31	206.1	206.53	210	211.29	204
210	M210x4	M210x4	4	6g	209.9	209.5	207.3	207.1	205.61	204.6	6H	205.67	206.27	207.4	207.78	210	210.95	206
210	M210x3	M210x3	3	6g	210	209.6	208	207.8	206.7	205.91	6H	206.75	207.25	208.05	208.39	210	210.77	207
210	M210x2	M210x2	2	6g	210	209.7	208.7	208.5	207.8	207.22	6H	207.84	208.21	208.7	208.98	210	210.57	208
215	M215x6	M215x6	6	6g	214.9	214.3	211	210.7	208.43	207.01	6H	208.51	209.31	211.1	211.53	215	216.29	209
215	M215x4	M215x4	4	6g	214.9	214.5	212.3	212.1	210.61	209.6	6H	210.67	211.27	212.4	212.78	215	215.95	211
215	M215x3	M215x3	3	6g	215	214.6	213	212.8	211.7	210.91	6H	211.75	212.25	213.05	213.39	215	215.77	212
220	M220x8	M220x8	8	6g	219.9	219.2	214.7	214.3	211.24	209.42	6H	211.34	212.34	214.8	215.28	220	221.63	212
220	M220x6	M220x6	6	6g	219.9	219.3	216	215.7	213.43	212.01	6H	213.51	214.31	216.1	216.53	220	221.29	214
220	M220x4	M220x4	4	6g	219.9	219.5	217.3	217.1	215.61	214.6	6H	215.67	216.27	217.4	217.78	220	220.95	216
220	M220x3	M220x3	3	6g	220	219.6	218	217.8	216.7	215.91	6H	216.75	217.25	218.05	218.39	220	220.77	217
220	M220x2	M220x2	2	6g	220	219.7	218.7	218.5	217.8	217.22	6H	217.84	218.21	218.7	218.98	220	220.57	218
225	M225x6	M225x6	6	6g	224.9	224.5	221	220.7	218.43	217.01	6H	218.51	219.31	221.1	221.53	225	226.29	219
225	M225x4	M225x4	4	6g	224.9	224.5	222.3	222.1	220.61	219.6	6H	220.67	221.27	222.4	222.78	225	225.95	221
225	M225x3	M225x3	3	6g	225	224.6	223	222.8	221.7	220.91	6H	221.75	222.25	223.05	223.39	225	225.77	222
225	M225x2	M225x2	2	6g	225	224.7	223.7	223.5	222.8	222.22	6H	222.84	223.21	223.7	223.98	225	225.57	223
230	M230x6	M230x6	6	6g	229.9	229.3	226	225.7	223.43	222.01	6H	223.51	224.31	226.1	226.53	230	231.29	224
230	M230x4	M230x4	4	6g	229.9	229.5	227.3	227.1	225.61	224.6	6H	225.67	226.27	227.4	227.78	230	230.95	226
230	M230x3	M230x3	3	6g	230	229.6	228	227.8	226.7	225.91	6H	226.75	227.25	228.05	228.39	230	230.77	227
230	M230x2	M230x2	2	6g	230	229.7	228.7	228.5	227.8	227.22	6H	227.84	228.21	228.7	228.98	230	230.57	228
235	M235x6	M235x6	6	6g	234.9	234.3	231	230.7	228.43	226.97	6H	228.51	229.31	231.1	231.58	235	236.34	229
235	M235x4	M235x4	4	6g	234.9	234.5	232.3	232.1	230.61	229.6	6H	230.67	231.27	232.4	232.78	235	235.95	231
235	M235x3	M235x3	3	6g	235	234.6	233	232.8	231.7	230.91	6H	231.75	232.25	233.05	233.39	235	235.77	232
240	M240x8	M240x8	8	6g	239.9	239.2	234.7	234.3	231.24	229.42	6H	231.34	232.34	234.8	235.28	240	241.63	232
240	M240x6	M240x6	6	6g	239.9	239.3	236	235.7	233.43	232.01	6H	233.51	234.31	236.1	236.53	240	241.29	234
240	M240x4	M240x4	4	6g	239.9	239.5	237.3	237.1	235.61	234.6	6H	235.67	236.27	237.4	237.78	240	240.95	236
240	M240x3	M240x3	3	6g	240	239.6	238	237.8	236.7	235.91	6H	236.75	237.25	238.05	238.39	240	240.77	237
240	M240x2	M240x2	2	6g	240	239.7	238.7	238.5	237.8	237.22	6H	237.84	238.21	238.7	238.98	240	240.57	238
245	M245x6	M245x6	6	6g	244.9	244.3	241	240.7	238.43	237.01	6H	238.51	239.31	241.1	241.53	245	246.29	239
245	M245x4	M245x4	4	6g	244.9	244.5	242.3	242.1	240.61	239.6	6H	240.67	241.27	242.4	242.78	245	245.95	241
245	M245x3	M245x3	3	6g	245	244.6	243	242.8	241.7	240.91	6H	241.75	242.25	243.05	243.39	245	245.77	242
245	M245x2	M245x2	2	6g	245	244.7	243.7	243.5	242.8	242.22	6H	242.84	243.21	243.7	243.98	245	245.57	243
250	M250x8	M250x8	8	6g	249.9	249.2	244.7	244.3	241.24	239.42	6H	241.34	242.34	244.8	245.28	250	251.63	242
250	M250x6	M250x6	6	6g	249.9	249.3	246	245.7	243.43	242.01	6H	243.51	244.31	246.1	246.53	250	251.29	244
250	M250x4	M250x4	4	6g	249.9	249.5	247.3	247.1	245.61	244.6	6H	245.67	246.27	247.4	247.78	250	250.95	246
250	M250x3	M250x3	3	6g	250	249.6	248	247.8	246.7	245.91	6H	246.75	247.25	248.05	248.39	250	250.77	247
250	M250x2	M250x2	2	6g	250	249.7	248.7	248.5	247.8	247.22	6H	247.84	248.21	248.7	248.98	250	250.57	248
255	M255x6	M255x6	6	6g	254.9	254.3	251	250.7	248.43	246.97	6H	248.51	249.31	251.1	251.58	255	256.34	249
255	M255x4	M255x4	4	6g	254.9	254.5	252.3	252.1	250.61	249.6	6H	250.67	251.27	252.4	252.78	255	255.95	251
255	M255x3	M255x3	3	6g	255	254.6	253	252.8	251.7	250.91	6H	251.75	252.25	253.05	253.39	255	255.77	252
260	M260x8	M260x8	8	6g	259.9	259.2	254.7	254.3	251.24	249.42	6H	251.34	252.34	254.8	255.28	260	261.63	252
260	M260x6	M260x6	6	6g	259.9	259.3	256	255.7	253.43	252.01	6H	253.51	254.31	256.1	256.53	260	261.29	254
260	M260x4	M260x4	4	6g	259.9	259.5	257.3	257.1	255.61	254.6	6H	255.67	256.27	257.4	257.78	260	260.95	256
260	M260x3	M260x3	3	6g	260	259.6	258	257.8	256.7	255.91	6H	256.75	257.25	258.05	258.39	260	260.77	257
265	M265x6	M265x6	6	6g	264.9	264.3	261	260.7	258.43	257.01	6H	258.51	259.31	261.1	261.53	265	266.29	259
265	M265x4	M265x4	4	6g	264.9	264.5	262.3	262.1	260.61	259.6	6H	260.67	261.27	262.4	262.78	265	265.95	261
265	M265x3	M265x3	3	6g	265	264.6	263	262.8	261.7	260.91	6H	261.75	262.25	263.05	263.39	265	265.77	262
270	M270x6	M270x6	6	6g	269.9	269.3	266	265.7	263.43	262.01	6H	263.51	264.31	266.1	266.53	270	271.29	264
270	M270x4	M270x4	4	6g	269.9	269.5	267.3	267.1	265.61	264.6	6H	265.67	266.27	267.4	267.78	270	270.95	266

270	M270x3	M270x3	3	6g	270	269.6	268	267.8	266.7	265.91	6H	266.75	267.25	268.05	268.39	270	270.77	267
275	M275x6	M275x6	6	6g	274.9	274.3	271	270.7	268.43	267.01	6H	268.51	269.31	271.1	271.53	275	276.29	269
275	M275x4	M275x4	4	6g	274.9	274.5	272.3	272.1	270.61	269.6	6H	270.67	271.27	272.4	272.78	275	275.95	271
275	M275x3	M275x3	3	6g	275	274.6	273	272.8	271.7	270.91	6H	271.75	272.25	273.05	273.39	275	275.77	272
280	M280x8	M280x8	8	6g	279.9	279.2	274.7	274.3	271.24	269.42	6H	271.34	272.34	274.8	275.28	280	281.63	272
280	M280x6	M280x6	6	6g	279.9	279.3	276	275.7	273.43	272.01	6H	273.51	274.31	276.1	276.53	280	281.29	274
280	M280x4	M280x4	4	6g	279.9	279.5	277.3	277.1	275.61	274.6	6H	275.67	276.27	277.4	277.78	280	280.95	276
280	M280x3	M280x3	3	6g	280	279.6	278	277.8	276.7	275.91	6H	276.75	277.25	278.05	278.39	280	280.77	277
285	M285x6	M285x6	6	6g	284.9	284.3	281	280.7	278.43	277.01	6H	278.51	279.31	281.1	281.53	285	286.29	279
285	M285x4	M285x4	4	6g	284.9	284.5	282.3	282.1	280.61	279.6	6H	280.67	281.27	282.4	282.78	285	285.95	281
285	M285x3	M285x3	3	6g	285	284.6	283	282.8	281.7	280.91	6H	281.75	282.25	283.05	283.39	285	285.77	282
290	M290x6	M290x6	6	6g	289.9	289.3	286	285.7	283.43	282.01	6H	283.51	284.31	286.1	286.53	290	291.29	284
290	M290x4	M290x4	4	6g	289.9	289.5	287.3	287.1	285.61	284.6	6H	285.67	286.27	287.4	287.78	290	290.95	286
290	M290x3	M290x3	3	6g	290	289.6	288	287.8	286.7	285.91	6H	286.75	287.25	288.05	288.39	290	290.77	287
295	M295x6	M295x6	6	6g	294.9	294.3	291	290.7	288.43	287.01	6H	288.51	289.31	291.1	291.53	295	296.29	289
295	M295x4	M295x4	4	6g	294.9	294.5	292.3	292.1	290.61	289.6	6H	290.67	291.27	292.4	292.78	295	295.95	291
295	M295x3	M295x3	3	6g	295	294.6	293	292.8	291.7	290.91	6H	291.75	292.25	293.05	293.39	295	295.77	292
300	M300x8	M300x8	8	6g	299.9	299.2	294.7	294.3	291.24	289.42	6H	291.34	292.34	294.8	295.28	300	301.63	292
300	M300x6	M300x6	6	6g	299.9	299.3	296	295.7	293.43	292.01	6H	293.51	294.31	296.1	296.53	300	301.29	294
300	M300x4	M300x4	4	6g	299.9	299.5	297.3	297.1	295.61	294.6	6H	295.67	296.27	297.4	297.78	300	300.95	296
300	M300x3	M300x3	3	6g	300	299.6	298	297.8	296.7	295.91	6H	296.75	297.25	298.05	298.39	300	300.77	297
310	M310x6	M310x6	6	6g	309.9	309.3	306	305.7	303.43	302.01	6H	303.51	304.31	306.1	306.53	310	311.29	304
310	M310x4	M310x4	4	6g	309.9	309.5	307.3	307.1	305.61	304.6	6H	305.67	306.27	307.4	307.78	310	310.95	306
320	M320x6	M320x6	6	6g	319.9	319.3	316	315.7	313.43	312.01	6H	313.51	314.31	316.1	316.53	320	321.29	314
320	M320x4	M320x4	4	6g	319.9	319.5	317.3	317.1	315.61	314.6	6H	315.67	316.27	317.4	317.78	320	320.95	316
330	M330x6	M330x6	6	6g	329.9	329.3	326	325.7	323.43	322.01	6H	323.51	324.31	326.1	326.53	330	331.29	324
330	M330x4	M330x4	4	6g	329.9	329.5	327.3	327.1	325.61	324.6	6H	325.67	326.27	327.4	327.78	330	330.95	326
340	M340x6	M340x6	6	6g	339.9	339.3	336	335.7	333.43	332.01	6H	333.51	334.31	336.1	336.53	340	341.29	334
340	M340x4	M340x4	4	6g	339.9	339.5	337.3	337.1	335.61	334.6	6H	335.67	336.27	337.4	337.78	340	340.95	336
350	M350x6	M350x6	6	6g	349.9	349.3	346	345.7	343.43	342.01	6H	343.51	344.31	346.1	346.53	350	351.29	344
350	M350x4	M350x4	4	6g	349.9	349.5	347.3	347.1	345.61	344.6	6H	345.67	346.27	347.4	347.78	350	350.95	346
360	M360x6	M360x6	6	6g	359.9	359.3	356	355.7	353.43	351.97	6H	353.51	354.31	356.1	356.58	360	361.34	354
360	M360x4	M360x4	4	6g	359.9	359.5	357.3	357	355.61	354.58	6H	355.67	356.27	357.4	357.8	360	360.98	356
370	M370x6	M370x6	6	6g	369.9	369.3	366	365.7	363.43	361.97	6H	363.51	364.31	366.1	366.58	370	371.34	364
370	M370x4	M370x4	4	6g	369.9	369.5	367.3	367	365.61	364.58	6H	365.67	366.27	367.4	367.8	370	370.98	366
380	M380x6	M380x6	6	6g	379.9	379.3	376	375.7	373.43	371.97	6H	373.51	374.31	376.1	376.58	380	381.34	374
380	M380x4	M380x4	4	6g	379.9	379.5	377.3	377	375.61	374.58	6H	375.67	376.27	377.4	377.8	380	380.98	376
390	M390x6	M390x6	6	6g	389.9	389.3	386	385.7	383.43	381.97	6H	383.51	384.31	386.1	386.58	390	391.34	384
390	M390x4	M390x4	4	6g	389.9	389.5	387.3	387	385.61	384.58	6H	385.67	386.27	387.4	387.8	390	390.98	386
400	M400x6	M400x6	6	6g	399.9	399.3	396	395.7	393.43	391.97	6H	393.51	394.31	396.1	396.58	400	401.34	394
400	M400x4	M400x4	4	6g	399.9	399.5	397.3	397	395.61	394.58	6H	395.67	396.27	397.4	397.8	400	400.98	396
410	M410x6	M410x6	6	6g	409.9	409.3	406	405.7	403.43	401.97	6H	403.51	404.31	406.1	406.58	410	411.34	404
420	M420x6	M420x6	6	6g	419.9	419.3	416	415.7	413.43	411.97	6H	413.51	414.31	416.1	416.58	420	421.34	414
430	M430x6	M430x6	6	6g	429.9	429.3	426	425.7	423.43	421.97	6H	423.51	424.31	426.1	426.58	430	431.34	424
440	M440x6	M440x6	6	6g	439.9	439.3	436	435.7	433.43	431.97	6H	433.51	434.31	436.1	436.58	440	441.34	434
450	M450x6	M450x6	6	6g	449.9	449.3	446	445.7	443.43	441.97	6H	443.51	444.31	446.1	446.58	450	451.34	444
460	M460x6	M460x6	6	6g	459.9	459.3	456	455.7	453.43	451.97	6H	453.51	454.31	456.1	456.58	460	461.34	454
470	M470x6	M470x6	6	6g	469.9	469.3	466	465.7	463.43	461.97	6H	463.51	464.31	466.1	466.58	470	471.34	464
480	M480x6	M480x6	6	6g	479.9	479.3	476	475.7	473.43	471.97	6H	473.51	474.31	476.1	476.58	480	481.34	474
490	M490x6	M490x6	6	6g	489.9	489.3	486	485.7	483.43	481.97	6H	483.51	484.31	486.1	486.58	490	491.34	484
500	M500x6	M500x6	6	6g	499.9	499.3	496	495.7	493.43	491.97	6H	493.51	494.31	496.1	496.58	500	501.34	494
510	M510x6	M510x6	6	6g	509.9	509.3	506	505.7	503.43	501.97	6H	503.51	504.31	506.1	506.58	510	511.34	504
520	M520x6	M520x6	6	6g	519.9	519.3	516	515.7	513.43	511.97	6H	513.51	514.31	516.1	516.58	520	521.34	514
530	M530x6	M530x6	6	6g	529.9	529.3	526	525.7	523.43	521.97	6H	523.51	524.31	526.1	526.58	530	531.34	524
540	M540x6	M540x6	6	6g	539.9	539.3	536	535.7	533.43	531.97	6H	533.51	534.31	536.1	536.58	540	541.34	534
550	M550x6	M550x6	6	6g	549.9	549.3	546	545.7	543.43	541.97	6H	543.51	544.31	546.1	546.58	550	551.34	544
560	M560x6	M560x6	6	6g	559.9	559.3	556	555.7	553.43	551.97	6H	553.51	554.31	556.1	556.58	560	561.34	554
570	M570x6	M570x6	6	6g	569.9	569.3	566	565.7	563.43	561.97	6H	563.51	564.31	566.1	566.58	570	571.34	564

580	M580x6	M580x6	6	6g	579.9	579.3	576	575.7	573.43	571.97		6H	573.51	574.31	576.1	576.58	580	581.34	574
590	M590x6	M590x6	6	6g	589.9	589.3	586	585.7	583.43	581.97		6H	583.51	584.31	586.1	586.58	590	591.34	584
600	M600x6	M600x6	6	6g	599.9	599.3	596	595.7	593.43	591.97		6H	593.51	594.31	596.1	596.58	600	601.34	594

Sorted by thread class

	ISO Metric profile			External (bolt thread)						
Size mm	Thread Designation	Simple Thread Designation	*Pitch mm*	*Class*	Major Dia d=D max.	Major Dia d=D min.	Pitch Dia d2=D2 max.	Pitch Dia d2=D2 min.	Minor Dia d3 max.	Minor Dia d3 min.
0.25	M0.25x0.075	M0.25x0.075	0.075	4g6g	0.250	0.235	0.201	0.193	0.160	0.152
0.3	M0.3x0.08	M0.3x0.08	0.08	4g6g	0.300	0.284	0.248	0.239	0.204	0.195
0.3	M0.3x0.09	M0.3x0.09	0.09	4g6g	0.300	0.283	0.242	0.233	0.192	0.183
0.35	M0.35x0.09	M0.35x0.09	0.09	4g6g	0.350	0.333	0.292	0.283	0.242	0.233
0.4	M0.4x0.1	M0.4x0.1	0.1	4g6g	0.400	0.382	0.335	0.325	0.280	0.270
0.45	M0.45x0.1	M0.45x0.1	0.1	4g6g	0.450	0.432	0.385	0.375	0.330	0.320
0.5	M0.5x0.125	M0.5x0.125	0.125	4g6g	0.500	0.479	0.419	0.408	0.350	0.339
0.55	M0.55x0.125	M0.55x0.125	0.125	4g6g	0.550	0.529	0.469	0.458	0.400	0.389
0.6	M0.6x0.15	M0.6x0.15	0.15	4g6g	0.600	0.576	0.503	0.490	0.420	0.407
0.7	M0.7x0.175	M0.7x0.175	0.175	4g6g	0.700	0.673	0.586	0.572	0.490	0.476
0.8	M0.8x0.2	M0.8x0.2	0.2	4g6g	0.800	0.770	0.670	0.655	0.560	0.545
0.9	M0.9x0.225	M0.9x0.225	0.225	4g6g	0.900	0.867	0.754	0.738	0.630	0.614
1	M1x0.25	M1	0.25	4g6g	0.982	0.915	0.820	0.787	0.711	0.633
1	M1x0.2	M1x0.2	0.2	4g6g	0.983	0.927	0.853	0.823	0.766	0.700
1.1	M1.1x0.25	M1.1x0.25	0.25	4g6g	1.082	1.015	0.920	0.888	0.811	0.734
1.1	M1.1x0.2	M1.1x0.2	0.2	4g6g	1.083	1.027	0.953	0.923	0.866	0.800
1.2	M1.2x0.25	M1.2	0.25	4g6g	1.182	1.115	1.020	0.987	0.911	0.833
1.2	M1.2x0.2	M1.2x0.2	0.2	4g6g	1.183	1.127	1.053	1.023	0.966	0.900
1.4	M1.4x0.3	M1.4	0.3	4g6g	1.383	1.308	1.253	1.215	1.166	1.092
1.4	M1.4x0.2	M1.4x0.2	0.2	4g6g	1.383	1.327	1.253	1.223	1.166	1.100
1.6	M1.6x0.35	M1.6	0.35	4g6g	1.581	1.496	1.354	1.314	1.202	1.098
1.6	M1.6x0.3	M1.6x0.3	0.3	4g6g	1.582	1.507	1.387	1.359	1.257	1.174
1.6	M1.6x0.2	M1.6x0.2	0.2	4g6g	1.583	1.527	1.453	1.421	1.366	1.298
1.7	M1.7x0.35	M1.7x0.35	0.35	4g6g	1.681	1.596	1.454	1.414	1.302	1.198
1.8	M1.8x0.35	M1.8	0.35	4g6g	1.781	1.696	1.554	1.514	1.402	1.298
1.8	M1.8x0.2	M1.8x0.2	0.2	4g6g	1.783	1.727	1.653	1.621	1.566	1.498
2	M2x0.4	M2	0.4	4g6g	1.981	1.886	1.721	1.679	1.548	1.433
2	M2x0.25	M2x0.25	0.25	4g6g	1.982	1.915	1.820	1.784	1.711	1.630
2.2	M2.2x0.45	M2.2	0.45	4g6g	2.180	2.080	1.888	1.843	1.693	1.566
2.2	M2.2x0.25	M2.2x0.25	0.25	4g6g	2.182	2.115	2.020	1.984	1.911	1.830
2.3	M2.3x0.45	M2.3x0.45	0.45	4g6g	2.280	2.180	1.988	1.943	1.793	1.666
2.3	M2.3x0.4	M2.3x0.4	0.4	4g6g	2.281	2.186	2.021	1.979	1.848	1.733
2.5	M2.5x0.45	M2.5	0.45	4g6g	2.480	2.380	2.188	2.143	1.993	1.866
2.5	M2.5x0.35	M2.5x0.35	0.35	4g6g	2.481	2.396	2.254	2.214	2.102	1.998
2.6	M2.6x0.45	M2.6x0.45	0.45	4g6g	2.580	2.480	2.288	2.243	2.093	1.966
3	M3x0.5	M3	0.5	4g6g	2.980	2.874	2.655	2.607	2.439	2.299
3	M3x0.35	M3x0.35	0.35	4g6g	2.981	2.896	2.754	2.712	2.602	2.496
3.5	M3.5x0.6	M3.5	0.6	4g6g	3.479	3.354	3.089	3.036	2.829	2.667
3.5	M3.5x0.35	M3.5x0.35	0.35	4g6g	3.481	3.396	3.254	3.212	3.102	2.996
4	M4x0.7	M4	0.7	4g6g	3.978	3.838	3.523	3.467	3.220	3.036
4	M4x0.5	M4x0.5	0.5	4g6g	3.980	3.874	3.655	3.607	3.439	3.299
4.5	M4.5x0.75	M4.5x0.75	0.75	4g6g	4.478	4.338	3.991	3.935	3.666	3.473
4.5	M4.5x0.5	M4.5x0.5	0.5	4g6g	4.480	4.374	4.155	4.107	3.939	3.799
5	M5x0.8	M5	0.8	4g6g	4.976	4.826	4.456	4.396	4.110	3.904
5	M5x0.5	M5x0.5	0.5	4g6g	4.980	4.874	4.655	4.607	4.439	4.299
5.5	M5.5x0.5	M5.5x0.5	0.5	4g6g	5.480	5.374	5.155	5.099	4.939	4.791
6	M6x1	M6	1	4g6g	5.974	5.794	5.324	5.253	4.891	4.637
6	M6x0.8	M6x0.8	0.8	4g6g	5.976	5.826	5.456	5.406	5.110	4.914
6	M6x0.75	M6x0.75	0.75	4g6g	5.978	5.838	5.491	5.428	5.166	4.966

6	M6x0.7	M6x0.7	0.7	4g6g	5.978	5.838	5.523	5.463	5.220	5.032
6	M6x0.5	M6x0.5	0.5	4g6g	5.980	5.874	5.655	5.602	5.439	5.294
7	M7x1	M7	1	4g6g	6.974	6.794	6.324	6.253	5.891	5.637
7	M7x0.75	M7x0.75	0.75	4g6g	6.978	6.838	6.491	6.428	6.166	5.966
7	M7x0.5	M7x0.5	0.5	4g6g	6.980	6.874	6.655	6.602	6.439	6.294
8	M8x1.25	M8	1.25	4g6g	7.972	7.760	7.160	7.085	6.619	6.315
8	M8x1	M8x1	1	4g6g	7.974	7.794	7.324	7.253	6.891	6.637
8	M8x0.8	M8x0.8	0.8	4g6g	7.976	7.826	7.456	7.389	7.110	6.897
8	M8x0.75	M8x0.75	0.75	4g6g	7.978	7.838	7.491	7.428	7.166	6.966
8	M8x0.5	M8x0.5	0.5	4g6g	7.980	7.874	7.655	7.602	7.439	7.294
9	M9x1.25	M9x1.25	1.25	4g6g	8.972	8.760	8.160	8.085	7.619	7.315
9	M9x1	M9x1	1	4g6g	8.974	8.794	8.324	8.253	7.891	7.637
9	M9x0.75	M9x0.75	0.75	4g6g	8.978	8.838	8.491	8.428	8.166	7.966
9	M9x0.5	M9x0.5	0.5	4g6g	8.980	8.874	8.655	8.602	8.439	8.294
10	M10x1.5	M10	1.5	4g6g	9.968	9.732	8.994	8.909	8.344	7.985
10	M10x1.25	M10x1.25	1.25	4g6g	9.972	9.760	9.160	9.085	8.619	8.315
10	M10x1.12	M10x1.12	1.12	4g6g	9.973	9.783	9.246	9.171	8.761	8.481
10	M10x1	M10x1	1	4g6g	9.974	9.794	9.324	9.253	8.891	8.637
10	M10x0.75	M10x0.75	0.75	4g6g	9.978	9.838	9.491	9.428	9.166	8.966
10	M10x0.5	M10x0.5	0.5	4g6g	9.980	9.874	9.655	9.602	9.439	9.294
11	M11x1.5	M11x1.5	1.5	4g6g	10.968	10.732	9.994	9.911	9.344	8.987
11	M11x1	M11x1	1	4g6g	10.974	10.794	10.324	10.253	9.891	9.637
11	M11x0.75	M11x0.75	0.75	4g6g	10.978	10.838	10.491	10.428	10.166	9.966
11	M11x0.5	M11x0.5	0.5	4g6g	10.980	10.874	10.655	10.602	10.439	10.294
12	M12x1.75	M12	1.75	4g6g	11.966	11.701	10.829	10.734	10.072	9.656
12	M12x1.25	M12x1.25	1.25	4g6g	11.972	11.760	11.160	11.075	10.619	10.305
12	M12x1	M12x1	1	4g6g	11.974	11.794	11.324	11.249	10.891	10.633
12	M12x0.75	M12x0.75	0.75	4g6g	11.978	11.838	11.491	11.424	11.166	10.962
12	M12x0.5	M12x0.5	0.5	4g6g	11.980	11.874	11.655	11.598	11.439	11.290
14	M14x2	M14	2	4g6g	13.962	13.682	12.663	12.563	11.797	11.331
14	M14x1.5	M14x1.5	1.5	4g6g	13.968	13.732	12.994	12.904	12.344	11.980
14	M14x1.25	M14x1.25	1.25	4g6g	13.972	13.760	13.160	13.075	12.619	12.305
14	M14x1	M14x1	1	4g6g	13.974	13.794	13.324	13.250	12.891	12.634
14	M14x0.75	M14x0.75	0.75	4g6g	13.978	13.838	13.491	13.424	13.166	12.962
14	M14x0.5	M14x0.5	0.5	4g6g	13.980	13.874	13.655	13.598	13.439	13.290
15	M15x1.5	M15x1.5	1.5	4g6g	14.968	14.732	13.994	13.904	13.344	12.980
15	M15x1	M15x1	1	4g6g	14.974	14.794	14.324	14.249	13.891	13.633
16	M16x2	M16	2	4g6g	15.962	15.682	14.663	14.563	13.797	13.331
16	M16x1.6	M16x1.6	1.6	4g6g	15.968	15.756	14.929	14.863	14.236	13.877
16	M16x1.5	M16x1.5	1.5	4g6g	15.968	15.732	14.994	14.904	14.344	13.980
16	M16x1.25	M16x1.25	1.25	4g6g	15.972	15.760	15.160	15.075	14.619	14.305
16	M16x1	M16x1	1	4g6g	15.974	15.794	15.324	15.249	14.891	14.633
16	M16x0.75	M16x0.75	0.75	4g6g	15.978	15.838	15.491	15.424	15.166	14.962
16	M16x0.5	M16x0.5	0.5	4g6g	15.980	15.874	15.655	15.599	15.439	15.291
17	M17x1.5	M17x1.5	1.5	4g6g	16.968	16.732	15.994	15.904	15.344	14.980
17	M17x1	M17x1	1	4g6g	16.974	16.794	16.324	16.249	15.891	15.633
18	M18x2.5	M18	2.5	4g6g	17.958	17.623	16.334	16.228	15.252	14.688
18	M18x2	M18x2	2	4g6g	17.962	17.682	16.663	16.563	15.797	15.331
18	M18x1.5	M18x1.5	1.5	4g6g	17.968	17.732	16.994	16.904	16.344	15.980
18	M18x1.25	M18x1.25	1.25	4g6g	17.972	17.760	17.160	17.075	16.619	16.305
18	M18x1	M18x1	1	4g6g	17.974	17.794	17.324	17.249	16.891	16.633
18	M18x0.75	M18x0.75	0.75	4g6g	17.978	17.838	17.491	17.424	17.166	16.962
18	M18x0.5	M18x0.5	0.5	4g6g	17.980	17.874	17.655	17.599	17.439	17.291
20	M20x2.5	M20	2.5	4g6g	19.958	19.623	18.334	18.228	17.252	16.688
20	M20x2	M20x2	2	4g6g	19.962	19.682	18.663	18.562	17.797	17.330
20	M20x1.5	M20x1.5	1.5	4g6g	19.968	19.732	18.994	18.904	18.344	17.980
20	M20x1	M20x1	1	4g6g	19.974	19.794	19.324	19.249	18.891	18.633
20	M20x0.75	M20x0.75	0.75	4g6g	19.978	19.838	19.491	19.424	19.166	18.962

20	M20x0.5	M20x0.5	0.5	4g6g	19.980	19.874	19.655	19.599	19.439	19.291
22	M22x3	M22x3	3	4g6g	21.952	21.577	20.003	19.885	18.704	18.037
22	M22x2.5	M22	2.5	4g6g	21.958	21.623	20.334	20.234	19.252	18.694
22	M22x2	M22x2	2	4g6g	21.962	21.682	20.663	20.563	19.797	19.331
22	M22x1.5	M22x1.5	1.5	4g6g	21.968	21.732	20.994	20.904	20.344	19.980
22	M22x1	M22x1	1	4g6g	21.974	21.794	21.324	21.249	20.891	20.633
22	M22x0.75	M22x0.75	0.75	4g6g	21.978	21.838	21.491	21.424	21.166	20.962
22	M22x0.5	M22x0.5	0.5	4g6g	21.980	21.874	21.655	21.598	21.439	21.290
24	M24x3	M24	3	4g6g	23.952	23.557	22.003	21.878	20.704	20.030
24	M24x2.5	M24x2.5	2.5	4g6g	23.958	23.623	22.334	22.214	21.252	20.674
24	M24x2	M24x2	2	4g6g	23.962	23.682	22.663	22.557	21.797	21.325
24	M24x1.5	M24x1.5	1.5	4g6g	23.968	23.732	22.994	22.899	22.344	21.975
24	M24x1	M24x1	1	4g6g	23.974	23.794	23.324	23.244	22.891	22.628
24	M24x0.75	M24x0.75	0.75	4g6g	23.978	23.838	23.491	23.420	23.166	22.958
25	M25x2	M25x2	2	4g6g	24.962	24.682	23.663	23.557	22.797	22.325
25	M25x1.5	M25x1.5	1.5	4g6g	24.968	24.732	23.994	23.899	23.344	22.975
25	M25x1	M25x1	1	4g6g	24.974	24.794	24.324	24.244	23.891	23.628
26	M26x1.5	M26x1.5	1.5	4g6g	25.968	25.732	24.994	24.899	24.344	23.975
27	M27x3	M27	3	4g6g	26.952	26.577	25.003	24.878	23.704	23.030
27	M27x2	M27x2	2	4g6g	29.962	26.682	25.663	25.557	24.797	24.325
27	M27x1.5	M27x1.5	1.5	4g6g	26.968	26.732	25.994	25.899	25.344	24.975
27	M27x1	M27x1	1	4g6g	26.974	26.794	26.324	26.244	25.891	25.628
27	M27x0.75	M27x0.75	0.75	4g6g	26.978	26.838	26.491	26.420	26.166	25.958
28	M28x2	M28x2	2	4g6g	27.962	27.682	26.663	26.557	25.797	25.325
28	M28x1.5	M28x1.5	1.5	4g6g	27.968	27.732	26.994	26.899	26.344	25.975
28	M28x1	M28x1	1	4g6g	27.974	27.794	27.324	27.244	26.891	26.628
30	M30x3.5	M30	3.5	4g6g	29.947	29.522	27.674	27.542	26.158	25.386
30	M30x3	M30x3	3	4g6g	29.952	29.577	28.003	27.878	26.704	26.030
30	M30x2.5	M30x2.5	2.5	4g6g	29.958	29.623	28.334	28.214	27.252	26.674
30	M30x2	M30x2	2	4g6g	29.962	29.682	28.663	28.557	27.797	27.325
30	M30x1.5	M30x1.5	1.5	4g6g	29.968	29.732	28.994	28.899	28.344	27.975
30	M30x1	M30x1	1	4g6g	29.974	29.794	29.324	29.244	28.891	28.628
30	M30x0.75	M30x0.75	0.75	4g6g	29.978	29.838	29.491	29.420	29.166	28.958
32	M32x2	M32x2	2	4g6g	31.962	31.682	30.663	30.557	29.797	29.325
32	M32x1.5	M32x1.5	1.5	4g6g	31.968	31.732	30.994	30.899	30.344	29.975
33	M33x3.5	M33	3.5	4g6g	32.968	32.543	30.695	30.563	29.179	28.407
33	M33x3	M33x3	3	4g6g	32.952	32.577	31.003	30.878	29.704	29.030
33	M33x2	M33x2	2	4g6g	32.962	32.682	31.663	31.557	30.797	30.325
33	M33x1.5	M33x1.5	1.5	4g6g	32.968	32.732	31.994	31.899	31.344	30.975
33	M33x1	M33x1	1	4g6g	32.974	32.794	32.324	32.244	31.891	31.628
33	M33x0.75	M33x0.75	0.75	4g6g	32.978	32.838	32.491	32.420	32.166	31.958
35	M35x1.5	M35x1.5	1.5	4g6g	34.968	34.732	33.994	33.899	33.344	32.975
36	M36x4	M36	4	4g6g	35.940	35.465	33.342	33.202	31.610	30.738
36	M36x3	M36x3	3	4g6g	35.952	35.577	34.003	33.878	32.704	32.030
36	M36x2	M36x2	2	4g6g	35.962	35.682	34.663	34.557	33.797	33.325
36	M36x1.5	M36x1.5	1.5	4g6g	35.968	35.732	34.994	34.899	34.344	33.975
36	M36x1	M36x1	1	4g6g	35.974	35.794	35.324	35.244	34.891	34.628
38	M38x1.5	M38x1.5	1.5	4g6g	37.968	37.732	36.994	36.899	36.344	35.975
39	M39x4	M39	4	4g6g	38.940	38.465	36.342	36.202	34.610	33.738
39	M39x3	M39x3	3	4g6g	38.952	38.577	37.003	36.878	35.704	35.030
39	M39x2	M39x2	2	4g6g	38.962	38.682	37.663	37.557	36.797	36.325
39	M39x1.5	M39x1.5	1.5	4g6g	38.968	38.732	37.994	37.899	37.344	36.975
39	M39x1	M39x1	1	4g6g	38.974	38.794	38.324	38.244	37.891	37.628
40	M40x3	M40x3	3	4g6g	39.952	39.577	38.003	37.878	36.704	36.030
40	M40x2.5	M40x2.5	2.5	4g6g	39.958	39.623	38.334	38.215	37.252	36.674
40	M40x2	M40x2	2	4g6g	39.962	39.682	38.663	38.557	37.797	37.325
40	M40x1.5	M40x1.5	1.5	4g6g	39.968	39.732	38.994	38.899	38.344	37.975
42	M42x4.5	M42	4.5	4g6g	41.937	41.437	39.014	38.864	37.066	36.092

42	M42x4	M42x4	4	4g6g	41.940	41.465	39.342	39.202	37.610	36.738
42	M42x3	M42x3	3	4g6g	41.952	41.577	40.003	39.878	38.704	38.030
42	M42x2	M42x2	2	4g6g	41.962	41.682	40.663	40.557	39.797	39.325
42	M42x1.5	M42x1.5	1.5	4g6g	41.968	41.732	40.994	40.899	40.344	39.975
42	M42x1	M42x1	1	4g6g	41.974	41.794	41.324	41.244	40.891	40.628
45	M45x4.5	M45	4.5	4g6g	44.937	44.437	42.014	41.864	40.066	39.092
45	M45x4	M45x4	4	4g6g	44.940	44.465	42.342	42.202	40.610	39.738
45	M45x3	M45x3	3	4g6g	44.952	44.577	43.003	42.878	41.704	41.030
45	M45x2	M45x2	2	4g6g	44.962	44.682	43.663	43.557	42.797	42.325
45	M45x1.5	M45x1.5	1.5	4g6g	44.968	44.732	43.994	43.899	43.344	42.975
45	M45x1	M45x1	1	4g6g	44.974	44.794	44.324	44.244	43.891	43.628
48	M48x5	M48	5	4g6g	47.929	47.399	44.681	44.521	42.516	41.441
48	M48x4	M48x4	4	4g6g	47.940	47.465	45.342	45.192	43.610	42.728
48	M48x3	M48x3	3	4g6g	47.952	47.577	46.003	45.871	44.704	44.023
48	M48x2	M48x2	2	4g6g	47.962	47.682	46.663	46.551	45.797	45.319
48	M48x1.5	M48x1.5	1.5	4g6g	47.968	47.732	46.994	46.894	46.344	45.970
50	M50x4	M50x4	4	4g6g	49.940	49.465	47.342	47.192	45.610	44.728
50	M50x3	M50x3	3	4g6g	49.952	49.577	48.003	47.871	46.704	46.023
50	M50x2	M50x2	2	4g6g	49.962	49.682	48.663	48.551	47.797	47.319
50	M50x1.5	M50x1.5	1.5	4g6g	49.968	49.732	48.994	48.894	48.344	47.970
52	M52x5	M52	5	4g6g	51.929	51.399	48.681	48.531	46.516	45.451
52	M52x4	M52x4	4	4g6g	51.940	51.465	49.342	49.192	47.610	46.728
52	M52x3	M52x3	3	4g6g	51.952	51.577	50.003	49.871	48.704	48.023
52	M52x2	M52x2	2	4g6g	51.962	51.682	50.663	50.551	49.797	49.319
52	M52x1.5	M52x1.5	1.5	4g6g	51.968	51.732	50.994	50.894	50.344	49.970
55	M55x4	M55x4	4	4g6g	54.940	54.465	52.342	52.192	50.610	49.728
55	M55x3	M55x3	3	4g6g	54.952	54.577	53.003	52.871	51.704	51.023
55	M55x2	M55x2	2	4g6g	54.962	54.682	53.663	53.551	52.797	52.319
55	M55x1.5	M55x1.5	1.5	4g6g	54.968	54.732	53.994	53.894	53.344	52.970
56	M56x5.5	M56	5.5	4g6g	55.925	55.365	52.353	52.183	49.971	48.795
56	M56x4	M56x4	4	4g6g	55.940	55.465	53.342	53.192	51.610	50.728
56	M56x3	M56x3	3	4g6g	55.952	55.577	54.003	53.871	52.704	52.023
56	M56x2	M56x2	2	4g6g	55.962	55.682	54.663	54.551	53.797	53.319
56	M56x1.5	M56x1.5	1.5	4g6g	55.968	55.732	54.994	54.894	54.344	53.970
56	M56x1	M56x1	1	4g6g	55.974	55.794	55.324	55.234	54.891	54.618
58	M58x4	M58x4	4	4g6g	57.940	57.465	55.342	55.192	53.610	52.728
58	M58x3	M58x3	3	4g6g	57.952	57.577	56.003	55.871	54.704	54.023
58	M58x2	M58x2	2	4g6g	57.962	57.682	56.663	56.551	55.797	55.319
58	M58x1.5	M58x1.5	1.5	4g6g	57.968	57.732	56.994	56.894	56.344	55.970
60	M60x5.5	M60	5.5	4g6g	59.925	59.365	56.353	56.183	53.971	52.795
60	M60x4	M60x4	4	4g6g	59.940	59.465	57.342	57.192	55.610	54.728
60	M60x3	M60x3	3	4g6g	59.952	59.577	58.003	57.871	56.704	56.023
60	M60x2	M60x2	2	4g6g	59.962	59.682	58.663	58.551	57.797	57.319
60	M60x1.5	M60x1.5	1.5	4g6g	59.968	59.732	58.994	58.894	58.344	57.970
60	M60x1	M60x1	1	4g6g	59.974	59.794	59.324	59.234	58.891	58.618
62	M62x4	M62x4	4	4g6g	61.940	61.465	59.342	59.192	57.610	56.728
62	M62x3	M62x3	3	4g6g	61.952	61.577	60.003	59.871	58.704	58.023
62	M62x2	M62x2	2	4g6g	61.962	61.682	60.663	60.551	59.797	59.319
62	M62x1.5	M62x1.5	1.5	4g6g	61.968	61.732	60.994	60.894	60.344	59.970
63	M63x1.5	M63x1.5	1.5	4g6g	62.968	62.732	61.994	61.894	61.344	60.970
64	M64x6	M64	6	4g6g	63.920	63.320	60.023	59.843	57.425	56.147
64	M64x5.5	M64x5.5	5.5	4g6g	63.925	63.365	60.353	60.183	57.971	56.795
64	M64x4	M64x4	4	4g6g	63.940	63.465	61.342	61.192	59.610	58.728
64	M64x3	M64x3	3	4g6g	63.952	63.577	62.003	61.871	60.704	60.023
64	M64x2	M64x2	2	4g6g	63.962	63.682	62.663	62.551	61.797	61.319
64	M64x1.5	M64x1.5	1.5	4g6g	63.968	63.732	62.994	62.894	62.344	61.970
64	M64x1	M64x1	1	4g6g	63.974	63.794	63.324	63.234	62.891	62.618
65	M65x4	M65x4	4	4g6g	64.940	64.465	62.342	62.192	60.610	59.728

65	M65x3	M65x3	3	4g6g	64.952	64.577	63.003	62.871	61.704	61.023
65	M65x2	M65x2	2	4g6g	64.962	64.682	63.663	63.551	62.797	62.319
65	M65x1.5	M65x1.5	1.5	4g6g	64.968	64.732	63.994	63.894	63.344	62.970
68	M68x6	M68x6	6	4g6g	67.920	67.320	64.023	63.843	61.425	60.147
68	M68x4	M68x4	4	4g6g	67.940	67.465	65.342	65.192	63.610	62.728
68	M68x3	M68x3	3	4g6g	67.952	67.577	66.003	65.871	64.704	64.023
68	M68x2	M68x2	2	4g6g	67.962	67.682	66.663	66.551	65.797	65.319
68	M68x1.5	M68x1.5	1.5	4g6g	67.968	67.732	66.994	66.894	66.344	65.970
68	M68x1	M68x1	1	4g6g	67.974	67.794	67.324	67.234	66.891	66.618
70	M70x6	M70x6	6	4g6g	69.920	69.320	66.023	65.843	63.425	62.147
70	M70x4	M70x4	4	4g6g	69.940	69.465	67.342	67.192	65.610	64.728
70	M70x3	M70x3	3	4g6g	69.952	69.577	68.003	67.871	66.704	66.023
70	M70x2	M70x2	2	4g6g	69.962	69.682	68.663	68.551	67.797	67.319
70	M70x1.5	M70x1.5	1.5	4g6g	69.968	69.732	68.994	68.894	68.344	67.970
72	M72x6	M72x6	6	4g6g	71.920	71.320	68.023	67.843	65.425	64.147
72	M72x4	M72x4	4	4g6g	71.940	71.465	69.342	69.192	67.610	66.728
72	M72x3	M72x3	3	4g6g	71.952	71.577	70.003	69.871	68.704	68.023
72	M72x2	M72x2	2	4g6g	71.962	71.682	70.663	70.551	69.797	69.319
72	M72x1.5	M72x1.5	1.5	4g6g	71.968	71.732	70.994	70.894	70.344	69.970
72	M72x1	M72x1	1	4g6g	71.974	71.794	71.324	71.234	70.891	70.618
75	M75x6	M75x6	6	4g6g	74.920	74.320	71.023	70.843	68.425	67.147
75	M75x4	M75x4	4	4g6g	74.940	74.465	72.342	72.192	70.610	69.728
75	M75x3	M75x3	3	4g6g	74.952	74.577	73.003	72.871	71.704	71.023
75	M75x2	M75x2	2	4g6g	74.962	74.682	73.663	73.551	72.797	72.319
75	M75x1.5	M75x1.5	1.5	4g6g	74.968	74.732	73.994	73.894	73.344	72.970
76	M76x6	M76x6	6	4g6g	75.920	75.320	72.023	71.843	69.425	68.147
76	M76x4	M76x4	4	4g6g	75.940	75.465	73.342	73.192	71.610	70.728
76	M76x3	M76x3	3	4g6g	75.952	75.577	74.003	73.871	72.704	72.023
76	M76x2	M76x2	2	4g6g	75.962	75.682	74.663	74.551	73.797	73.319
76	M76x1.5	M76x1.5	1.5	4g6g	75.968	75.732	74.994	74.894	74.344	73.970
76	M76x1	M76x1	1	4g6g	75.974	75.794	75.324	75.234	74.891	74.618
78	M78x2	M78x2	2	4g6g	77.962	77.682	76.663	76.551	75.797	75.319
80	M80x6	M80x6	6	4g6g	79.920	79.320	76.023	75.843	73.425	72.147
80	M80x4	M80x4	4	4g6g	79.940	79.340	77.342	77.192	75.610	74.728
80	M80x3	M80x3	3	4g6g	79.952	79.577	78.003	77.871	76.704	76.023
80	M80x2	M80x2	2	4g6g	79.962	79.682	78.663	78.551	77.797	77.319
80	M80x1.5	M80x1.5	1.5	4g6g	79.968	79.732	78.994	78.894	78.334	77.970
80	M80x1	M80x1	1	4g6g	79.974	79.794	79.324	79.234	78.891	78.618
82	M82x2	M82x2	2	4g6g	81.962	81.682	80.663	80.551	79.797	79.319
85	M85x6	M85x6	6	4g6g	84.920	84.320	81.023	80.843	78.425	77.147
85	M85x4	M85x4	4	4g6g	84.940	84.465	82.342	82.192	80.610	79.728
85	M85x3	M85x3	3	4g6g	84.952	84.577	83.003	82.871	81.704	81.023
85	M85x2	M85x2	2	4g6g	84.962	84.682	83.663	83.551	82.797	82.319
85	M85x1.5	M85x1.5	1.5	4g6g	84.968	84.732	83.994	83.894	83.344	82.970
90	M90x6	M90x6	6	4g6g	89.920	89.320	86.023	85.843	83.425	82.147
90	M90x4	M90x4	4	4g6g	89.940	89.465	87.342	87.192	85.610	84.728
90	M90x3	M90x3	3	4g6g	89.952	89.577	88.003	87.871	86.704	86.023
90	M90x2	M90x2	2	4g6g	89.962	89.682	88.663	88.551	87.797	87.319
90	M90x1.5	M90x1.5	1.5	4g6g	89.968	89.732	88.994	88.894	88.344	87.970
95	M95x6	M95x6	6	4g6g	94.920	94.320	91.023	90.833	88.425	87.137
95	M95x4	M95x4	4	4g6g	94.940	94.465	92.342	92.182	90.610	89.718
95	M95x3	M95x3	3	4g6g	94.952	94.577	93.003	92.863	91.704	91.015
95	M95x2	M95x2	2	4g6g	94.962	94.682	93.663	93.545	92.797	92.313
95	M95x1.5	M95x1.5	1.5	4g6g	94.968	94.732	93.994	93.882	93.344	92.958
100	M100x6	M100x6	6	4g6g	99.920	99.320	96.023	95.833	93.425	92.137
100	M100x4	M100x4	4	4g6g	99.940	99.465	97.342	97.182	95.610	94.718
100	M100x3	M100x3	3	4g6g	99.952	99.577	98.003	97.863	96.704	96.015
100	M100x2	M100x2	2	4g6g	99.962	99.682	98.663	98.545	97.797	97.313

100	M100x1.5	M100x1.5	1.5	4g6g	99.968	99.732	98.994	98.882	98.344	97.958
105	M105x6	M105x6	6	4g6g	104.920	104.320	101.023	100.833	98.425	97.137
105	M105x4	M105x4	4	4g6g	104.940	104.465	102.342	102.182	100.610	99.718
105	M105x3	M105x3	3	4g6g	104.952	104.577	103.003	102.863	101.704	101.015
105	M105x2	M105x2	2	4g6g	104.962	104.682	103.663	103.545	102.797	102.313
105	M105x1.5	M105x1.5	1.5	4g6g	104.968	104.732	103.994	103.882	103.344	102.958
110	M110x6	M110x6	6	4g6g	109.920	109.320	106.023	105.833	103.425	102.137
110	M110x4	M110x4	4	4g6g	109.940	109.465	107.342	107.182	105.610	104.718
110	M110x3	M110x3	3	4g6g	109.952	109.577	108.003	107.863	106.704	106.015
110	M110x2	M110x2	2	4g6g	109.962	109.682	108.663	108.545	107.797	107.313
110	M110x1.5	M110x1.5	1.5	4g6g	109.968	109.732	108.994	108.882	108.344	107.958
115	M115x6	M115x6	6	4g6g	114.920	114.320	111.023	110.833	108.425	107.137
115	M115x4	M115x4	4	4g6g	114.940	114.465	112.342	112.182	110.610	109.718
115	M115x3	M115x3	3	4g6g	114.952	114.577	113.003	112.863	111.704	111.015
115	M115x2	M115x2	2	4g6g	114.962	114.682	113.663	113.543	112.797	112.311
115	M115x1.5	M115x1.5	1.5	4g6g	114.968	114.732	113.994	113.882	113.344	112.958
120	M120x6	M120x6	6	4g6g	119.920	119.320	116.023	115.833	113.425	112.137
120	M120x4	M120x4	4	4g6g	119.940	119.465	117.342	117.182	115.610	114.718
120	M120x3	M120x3	3	4g6g	119.952	119.577	118.003	117.863	116.704	116.015
120	M120x2	M120x2	2	4g6g	119.962	119.682	118.663	118.545	117.797	117.313
120	M120x1.5	M120x1.5	1.5	4g6g	119.968	119.732	118.994	118.882	118.344	117.958
125	M125x8	M125x8	8	4g6g	124.900	124.190	119.704	119.492	116.240	114.564
125	M125x6	M125x6	6	4g6g	124.920	124.320	121.023	120.833	118.425	117.137
125	M125x4	M125x4	4	4g6g	124.940	124.465	122.342	122.182	120.610	119.718
125	M125x3	M125x3	3	4g6g	124.952	124.577	123.003	122.863	121.704	121.015
125	M125x2	M125x2	2	4g6g	124.962	124.682	123.663	123.543	122.797	122.311
125	M125x1.5	M125x1.5	1.5	4g6g	124.968	124.732	123.994	123.882	123.344	122.958
130	M130x8	M130x8	8	4g6g	129.900	129.190	124.704	124.492	121.240	119.564
130	M130x6	M130x6	6	4g6g	129.920	129.320	126.023	125.833	123.425	122.137
130	M130x4	M130x4	4	4g6g	129.940	129.465	127.342	127.182	125.610	124.718
130	M130x3	M130x3	3	4g6g	129.952	129.577	128.003	127.863	126.704	126.015
130	M130x2	M130x2	2	4g6g	139.962	139.682	138.663	138.545	137.797	137.313
130	M130x1.5	M130x1.5	1.5	4g6g	129.968	129.732	128.994	128.882	128.344	127.958
135	M135x6	M135x6	6	4g6g	134.920	134.320	131.023	130.833	128.425	127.137
135	M135x4	M135x4	4	4g6g	134.940	134.465	132.342	132.182	130.610	129.718
135	M135x3	M135x3	3	4g6g	134.952	134.577	133.003	132.863	131.704	131.015
135	M135x2	M135x2	2	4g6g	134.962	134.682	133.663	133.543	132.797	132.311
135	M135x1.5	M135x1.5	1.5	4g6g	134.968	134.732	133.994	133.882	133.344	132.958
140	M140x8	M140x8	8	4g6g	139.900	139.190	134.704	134.492	131.240	129.564
140	M140x6	M140x6	6	4g6g	139.920	139.320	136.023	135.833	133.425	132.137
140	M140x4	M140x4	4	4g6g	139.940	139.465	137.342	137.182	135.610	134.718
140	M140x3	M140x3	3	4g6g	139.952	139.577	138.003	137.863	136.704	136.015
140	M140x2	M140x2	2	4g6g	139.962	139.682	138.663	138.545	137.797	137.313
140	M140x1.5	M140x1.5	1.5	4g6g	139.968	139.732	138.994	138.882	138.344	137.958
145	M145x6	M145x6	6	4g6g	144.920	144.320	141.023	140.833	138.425	137.137
145	M145x4	M145x4	4	4g6g	144.940	144.465	142.342	142.182	140.610	139.718
145	M145x3	M145x3	3	4g6g	144.952	144.577	143.003	142.863	141.704	141.015
145	M145x2	M145x2	2	4g6g	144.962	144.682	143.663	143.543	142.797	142.311
145	M145x1.5	M145x1.5	1.5	4g6g	144.968	144.732	143.994	143.882	143.344	142.958
150	M150x8	M150x8	8	4g6g	149.900	149.190	144.704	144.492	141.240	139.564
150	M150x6	M150x6	6	4g6g	149.920	149.320	146.023	145.833	143.425	142.137
150	M150x4	M150x4	4	4g6g	149.940	149.465	147.342	147.182	145.610	144.718
150	M150x3	M150x3	3	4g6g	149.952	149.577	148.003	147.863	146.704	146.015
150	M150x2	M150x2	2	4g6g	149.962	149.682	148.663	148.545	147.797	147.313
150	M150x1.5	M150x1.5	1.5	4g6g	149.968	149.732	148.994	148.882	148.344	147.958
155	M155x6	M155x6	6	4g6g	154.920	154.320	151.023	150.833	148.425	147.137
155	M155x4	M155x4	4	4g6g	154.940	154.465	152.342	152.182	150.610	149.718
155	M155x3	M155x3	3	4g6g	154.952	154.577	153.003	152.863	151.704	151.015

155	M155x2	M155x2	2	4g6g	154.962	154.682	153.663	153.543	152.797	152.311
160	M160x8	M160x8	8	4g6g	159.900	159.190	154.704	154.492	151.240	149.564
160	M160x6	M160x6	6	4g6g	159.920	159.320	156.023	155.833	153.425	152.137
160	M160x4	M160x4	4	4g6g	159.940	159.465	157.342	157.182	155.610	154.718
160	M160x3	M160x3	3	4g6g	159.952	159.577	158.003	157.863	156.704	156.015
160	M160x2	M160x2	2	4g6g	159.962	159.682	158.663	158.543	157.797	157.311
165	M165x6	M165x6	6	4g6g	164.920	164.320	161.023	160.833	158.425	157.137
165	M165x4	M165x4	4	4g6g	164.940	164.465	162.342	162.182	160.610	159.718
165	M165x3	M165x3	3	4g6g	164.952	164.577	163.003	162.863	161.704	161.015
165	M165x2	M165x2	2	4g6g	164.962	164.682	163.663	163.543	162.797	162.311
170	M170x8	M170x8	8	4g6g	169.900	169.190	164.704	164.492	161.240	159.564
170	M170x6	M170x6	6	4g6g	169.920	169.320	166.023	165.833	163.425	162.137
170	M170x4	M170x4	4	4g6g	169.940	169.465	167.342	167.182	165.610	164.718
170	M170x3	M170x3	3	4g6g	169.952	169.577	168.003	167.863	166.704	166.015
170	M170x2	M170x2	2	4g6g	169.962	169.682	168.663	168.543	167.797	167.311
175	M175x6	M175x6	6	4g6g	174.920	174.320	171.023	170.833	168.425	167.137
175	M175x4	M175x4	4	4g6g	174.940	174.465	172.342	172.182	170.610	169.718
175	M175x3	M175x3	3	4g6g	174.952	174.577	173.003	172.862	171.704	171.014
175	M175x2	M175x2	2	4g6g	174.962	174.682	173.663	173.543	172.797	172.311
180	M180x8	M180x8	8	4g6g	179.900	179.190	174.704	174.492	171.240	169.564
180	M180x6	M180x6	6	4g6g	179.920	179.320	176.023	175.833	173.425	172.137
180	M180x4	M180x4	4	4g6g	179.940	179.465	177.342	177.182	175.610	174.718
180	M180x3	M180x3	3	4g6g	179.952	179.577	178.003	177.863	176.704	176.015
180	M180x2	M180x2	2	4g6g	179.962	179.682	178.663	178.543	177.797	177.311
185	M185x6	M185x6	6	4g6g	184.920	184.320	181.023	180.823	178.425	177.127
185	M185x4	M185x4	4	4g6g	184.940	184.465	182.342	182.162	180.610	179.698
185	M185x3	M185x3	3	4g6g	184.952	184.577	183.003	182.843	181.704	180.995
185	M185x2	M185x2	2	4g6g	184.962	184.682	183.663	183.531	182.797	182.299
190	M190x8	M190x8	8	4g6g	189.900	189.190	184.704	184.480	181.240	179.552
190	M190x6	M190x6	6	4g6g	189.920	189.320	186.023	185.823	183.425	182.127
190	M190x4	M190x4	4	4g6g	189.940	189.465	187.342	187.162	185.610	184.698
190	M190x3	M190x3	3	4g6g	189.952	189.577	188.003	187.843	186.704	185.995
190	M190x2	M190x2	2	4g6g	189.962	189.682	188.663	188.531	187.797	187.299
195	M195x6	M195x6	6	4g6g	194.920	194.320	191.023	190.823	188.425	187.127
195	M195x4	M195x4	4	4g6g	194.940	194.465	192.342	192.162	190.610	189.698
195	M195x3	M195x3	3	4g6g	194.952	194.577	193.003	192.843	191.704	190.995
195	M195x2	M195x2	2	4g6g	194.962	194.682	193.663	193.531	192.797	192.299
200	M200x8	M200x8	8	4g6g	199.900	199.190	194.704	194.480	191.240	189.552
200	M200x6	M200x6	6	4g6g	199.920	199.320	196.023	195.823	193.425	192.127
200	M200x4	M200x4	4	4g6g	199.940	199.465	197.342	197.162	195.610	194.698
200	M200x3	M200x3	3	4g6g	199.952	199.577	198.003	197.843	196.704	195.995
200	M200x2	M200x2	2	4g6g	199.962	199.682	198.663	198.531	197.797	197.299
205	M205x6	M205x6	6	4g6g	204.920	204.320	201.023	200.823	198.425	197.127
205	M205x4	M205x4	4	4g6g	204.940	204.465	202.342	202.162	200.610	199.698
205	M205x3	M205x3	3	4g6g	204.952	204.577	203.003	202.843	201.704	200.995
205	M205x2	M205x2	2	4g6g	204.962	204.682	203.663	203.531	202.797	202.299
210	M210x8	M210x8	8	4g6g	209.900	209.190	204.704	204.480	201.240	199.552
210	M210x6	M210x6	6	4g6g	209.920	209.320	206.023	205.823	203.425	202.127
210	M210x4	M210x4	4	4g6g	209.940	209.465	207.342	207.162	205.610	204.698
210	M210x3	M210x3	3	4g6g	209.952	209.577	208.003	207.843	206.704	205.995
210	M210x2	M210x2	2	4g6g	209.962	209.682	208.663	208.531	207.797	207.299
215	M215x6	M215x6	6	4g6g	214.920	214.320	211.023	210.823	208.425	207.127
215	M215x4	M215x4	4	4g6g	214.940	214.465	212.342	212.162	210.610	209.698
215	M215x3	M215x3	3	4g6g	214.952	214.577	213.003	212.843	211.704	210.995
220	M220x8	M220x8	8	4g6g	219.900	219.190	214.704	214.480	211.240	209.552
220	M220x6	M220x6	6	4g6g	219.920	219.320	216.023	215.823	213.425	212.127
220	M220x4	M220x4	4	4g6g	219.940	219.465	217.342	217.162	215.610	214.698
220	M220x3	M220x3	3	4g6g	219.952	219.577	218.003	217.843	216.704	215.995

220	M220x2	M220x2	2	4g6g	219.962	219.682	218.663	218.531	217.797	217.299
225	M225x6	M225x6	6	4g6g	224.920	224.545	221.023	220.823	218.425	217.127
225	M225x4	M225x4	4	4g6g	224.940	224.465	222.342	222.162	220.610	219.698
225	M225x3	M225x3	3	4g6g	224.952	224.577	223.003	222.843	221.704	220.995
225	M225x2	M225x2	2	4g6g	224.962	224.682	223.663	223.531	222.797	222.299
230	M230x6	M230x6	6	4g6g	229.920	229.320	226.023	225.823	223.425	222.127
230	M230x4	M230x4	4	4g6g	229.940	229.465	227.342	227.162	225.610	224.698
230	M230x3	M230x3	3	4g6g	229.952	229.577	228.003	227.843	226.704	225.995
230	M230x2	M230x2	2	4g6g	229.962	229.682	228.663	228.531	227.797	227.299
235	M235x6	M235x6	6	4g6g	234.920	234.320	231.023	230.799	228.425	227.103
235	M235x4	M235x4	4	4g6g	234.940	234.465	232.342	232.162	230.610	229.698
235	M235x3	M235x3	3	4g6g	234.952	234.577	233.003	232.843	231.704	230.995
240	M240x8	M240x8	8	4g6g	239.900	239.190	234.704	234.480	231.240	229.552
240	M240x6	M240x6	6	4g6g	239.920	239.320	236.023	235.823	233.425	232.127
240	M240x4	M240x4	4	4g6g	239.940	239.465	237.342	237.162	235.610	234.698
240	M240x3	M240x3	3	4g6g	239.952	239.577	238.003	237.843	236.704	235.995
240	M240x2	M240x2	2	4g6g	239.962	239.682	238.663	238.531	237.797	237.299
245	M245x6	M245x6	6	4g6g	244.920	244.320	241.023	240.823	238.425	237.127
245	M245x4	M245x4	4	4g6g	244.940	244.465	242.342	242.162	240.610	239.698
245	M245x3	M245x3	3	4g6g	244.952	244.577	243.003	242.843	241.704	240.995
245	M245x2	M245x2	2	4g6g	244.962	244.682	243.663	243.531	242.797	242.299
250	M250x8	M250x8	8	4g6g	249.900	249.190	244.704	244.480	241.240	239.552
250	M250x6	M250x6	6	4g6g	249.920	249.320	246.023	245.823	243.425	242.127
250	M250x4	M250x4	4	4g6g	249.940	249.465	247.342	247.162	245.610	244.698
250	M250x3	M250x3	3	4g6g	249.952	249.577	248.003	247.843	246.704	245.995
250	M250x2	M250x2	2	4g6g	249.962	249.682	248.663	248.531	247.797	247.299
255	M255x6	M255x6	6	4g6g	254.920	254.320	251.023	250.799	248.425	247.103
255	M255x4	M255x4	4	4g6g	254.940	254.465	252.342	252.162	250.610	249.698
255	M255x3	M255x3	3	4g6g	254.952	254.577	253.003	252.843	251.704	250.995
260	M260x8	M260x8	8	4g6g	259.900	259.190	254.704	254.480	251.240	249.552
260	M260x6	M260x6	6	4g6g	259.920	259.320	256.023	255.823	253.425	252.127
260	M260x4	M260x4	4	4g6g	259.940	259.465	257.342	257.162	255.610	254.698
260	M260x3	M260x3	3	4g6g	259.952	259.577	258.003	257.843	256.704	255.995
265	M265x6	M265x6	6	4g6g	264.920	264.320	261.023	260.823	258.425	257.127
265	M265x4	M265x4	4	4g6g	264.940	264.465	262.342	262.162	260.610	259.698
265	M265x3	M265x3	3	4g6g	264.952	264.577	263.003	262.843	261.704	260.995
270	M270x6	M270x6	6	4g6g	269.920	269.320	266.023	265.823	263.425	262.127
270	M270x4	M270x4	4	4g6g	269.940	269.465	267.342	267.162	265.610	264.698
270	M270x3	M270x3	3	4g6g	269.952	269.577	268.003	267.843	266.704	265.995
275	M275x6	M275x6	6	4g6g	274.920	274.320	271.023	270.823	268.425	267.127
275	M275x4	M275x4	4	4g6g	274.940	274.465	272.342	272.162	270.610	269.698
275	M275x3	M275x3	3	4g6g	274.952	274.577	273.003	272.843	271.704	270.995
280	M280x8	M280x8	8	4g6g	279.900	279.190	274.704	274.480	271.240	269.552
280	M280x6	M280x6	6	4g6g	279.920	279.320	276.023	275.823	273.425	272.127
280	M280x4	M280x4	4	4g6g	279.940	279.465	277.342	277.162	275.610	274.698
280	M280x3	M280x3	3	4g6g	279.952	279.577	278.003	277.843	276.704	275.995
285	M285x6	M285x6	6	4g6g	284.920	284.320	281.023	280.823	278.425	277.127
285	M285x4	M285x4	4	4g6g	284.940	284.465	282.342	282.162	280.610	279.698
285	M285x3	M285x3	3	4g6g	284.952	284.577	283.003	282.843	281.704	280.995
290	M290x6	M290x6	6	4g6g	289.920	289.320	286.023	285.823	283.425	282.127
290	M290x4	M290x4	4	4g6g	289.940	289.465	287.342	287.162	285.610	284.698
290	M290x3	M290x3	3	4g6g	289.952	289.577	288.003	287.843	286.704	285.995
295	M295x6	M295x6	6	4g6g	294.920	294.320	291.023	290.823	288.425	287.127
295	M295x4	M295x4	4	4g6g	294.940	294.465	292.342	292.162	290.610	289.698
295	M295x3	M295x3	3	4g6g	294.952	294.577	293.003	292.843	291.704	290.995
300	M300x8	M300x8	8	4g6g	299.900	299.190	294.704	294.480	291.240	289.552
300	M300x6	M300x6	6	4g6g	299.920	299.320	296.023	295.823	293.425	292.127
300	M300x4	M300x4	4	4g6g	299.940	299.465	297.342	297.162	295.610	294.698

300	M300x3	M300x3	3	4g6g	299.952	299.577	298.003	297.843	296.704	295.995
310	M310x6	M310x6	6	4g6g	309.920	309.320	306.023	305.823	303.425	302.127
310	M310x4	M310x4	4	4g6g	309.940	309.465	307.342	307.162	305.610	304.698
320	M320x6	M320x6	6	4g6g	319.920	319.320	316.023	315.823	313.425	312.127
320	M320x4	M320x4	4	4g6g	319.940	319.465	317.342	317.162	315.610	314.698
330	M330x6	M330x6	6	4g6g	329.920	329.320	326.023	325.823	323.425	322.127
330	M330x4	M330x4	4	4g6g	329.940	329.465	327.342	327.162	325.610	324.698
340	M340x6	M340x6	6	4g6g	339.920	339.320	336.023	335.823	333.425	332.127
340	M340x4	M340x4	4	4g6g	339.940	339.465	337.342	337.162	335.610	334.698
350	M350x6	M350x6	6	4g6g	349.920	349.320	346.023	345.823	343.425	342.127
350	M350x4	M350x4	4	4g6g	349.940	349.465	347.342	347.162	345.610	344.698
360	M360x6	M360x6	6	4g6g	359.920	359.320	356.023	355.799	353.425	352.103
360	M360x4	M360x4	4	4g6g	359.940	359.465	357.342	357.152	355.610	354.688
370	M370x6	M370x6	6	4g6g	369.920	369.320	366.023	365.799	363.425	362.103
370	M370x4	M370x4	4	4g6g	369.940	369.465	367.342	367.152	365.610	364.688
380	M380x6	M380x6	6	4g6g	379.920	379.320	376.023	375.799	373.425	372.103
380	M380x4	M380x4	4	4g6g	379.940	379.465	377.342	377.152	375.610	374.688
390	M390x6	M390x6	6	4g6g	389.920	389.320	386.023	385.799	383.425	382.103
390	M390x4	M390x4	4	4g6g	389.940	389.465	387.342	387.152	385.610	384.688
400	M400x6	M400x6	6	4g6g	399.920	399.320	396.023	395.799	393.425	392.103
400	M400x4	M400x4	4	4g6g	399.940	399.465	397.342	397.152	395.610	394.688
410	M410x6	M410x6	6	4g6g	409.920	409.320	406.023	405.799	403.425	402.103
420	M420x6	M420x6	6	4g6g	419.920	419.320	416.023	415.799	413.425	412.103
430	M430x6	M430x6	6	4g6g	429.920	429.320	426.023	425.799	423.425	422.103
440	M440x6	M440x6	6	4g6g	439.920	439.320	436.023	435.799	433.425	432.103
450	M450x6	M450x6	6	4g6g	449.920	449.320	446.023	445.799	443.425	442.103
460	M460x6	M460x6	6	4g6g	459.920	459.320	456.023	455.799	453.425	452.103
470	M470x6	M470x6	6	4g6g	469.920	469.320	466.023	465.799	463.425	462.103
480	M480x6	M480x6	6	4g6g	479.920	479.320	476.023	475.799	473.425	472.103
490	M490x6	M490x6	6	4g6g	489.920	489.320	486.023	485.799	483.425	482.103
500	M500x6	M500x6	6	4g6g	499.920	499.320	496.023	495.799	493.425	492.103
510	M510x6	M510x6	6	4g6g	509.920	509.320	506.023	505.799	503.425	502.103
520	M520x6	M520x6	6	4g6g	519.920	519.320	516.023	515.799	513.425	512.103
530	M530x6	M530x6	6	4g6g	529.920	529.320	526.023	525.799	523.425	522.103
540	M540x6	M540x6	6	4g6g	539.920	539.320	536.023	535.799	533.425	532.103
550	M550x6	M550x6	6	4g6g	549.920	549.320	546.023	545.799	543.425	542.103
560	M560x6	M560x6	6	4g6g	559.920	559.320	556.023	555.799	553.425	552.103
570	M570x6	M570x6	6	4g6g	569.920	569.320	566.023	565.799	563.425	562.103
580	M580x6	M580x6	6	4g6g	579.920	579.320	576.023	575.799	573.425	572.103
590	M590x6	M590x6	6	4g6g	589.920	589.320	586.023	585.799	583.425	582.103
600	M600x6	M600x6	6	4g6g	599.920	599.320	596.023	595.799	593.425	592.103

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MARYLAND METRICS Technical Data Chart:
A collection of Tapping drill sizes for taps in a multilingual format

Gewindekernlöcher für Gewindebohrer
Tapping drill sizes for taps / Avant-trous de taraudage
Prefori per maschi / Dimensiones de la broca previa para machos

M

Metrisches ISO Regelgewinde / Metric ISO thread / Filetage métrique ISO standard / Filettatura metrica ISO / Rosca Métrica ISO

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (DIN 13)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm) (acc. to DIN 336)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (mm)	
		min	6H max
M 1	0,75	0,729	0,785*
M 1,2	0,95	0,929	0,985*
M 1,4	1,1	1,075	1,142*
M 1,6	1,25	1,221	1,321
M 1,7	1,35	1,321	1,421
M 1,8	1,45	1,421	1,521
M 2	1,6	1,567	1,679
M 2,2	1,75	1,713	1,838
M 2,3	1,85	1,813	1,938
M 2,5	2,05	2,013	2,138
M 2,6	2,15	2,113	2,238
M 3	2,5	2,459	2,599
M 3,5	2,9	2,850	3,010
M 4	3,3	3,242	3,422
M 4,5	3,7	3,688	3,878
M 5	4,2	4,134	4,334
M 6	5	4,917	5,153
M 7	6	5,917	6,153
M 8	6,8	6,647	6,912
M 9	7,8	7,647	7,912
M 10	8,5	8,376	8,676
M 11	9,5	9,376	9,676
M 12	10,2	10,106	10,441
M 14	12	11,835	12,210
M 16	14	13,835	14,210
M 18	15,5	15,294	15,744
M 20	17,5	17,294	17,744
M 22	19,5	19,294	19,744
M 24	21	20,752	21,252
M 27	24	23,752	24,252
M 30	26,5	26,211	26,771
M 33	29,5	29,211	29,771
M 36	32	31,670	32,270
M 39	35	34,670	35,270
M 42	37,5	37,129	37,799
M 45	40,5	40,129	40,799
M 48	43	42,587	43,297
M 52	47	46,587	47,297
M 56	50,5	50,046	50,796

* 5H max

MF

Metrisches ISO Feingewinde / Metric ISO Fine thread / Filetage métrique fin ISO / Filettatura metrica ISO fine / Rosca Métrica ISO Fina

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (DIN 13)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm) (acc. to DIN 336)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (mm)	
		min	6H max
M 2 x 0,25	1,75	1,729	1,785
M 2,2 x 0,25	1,95	1,929	1,985
M 2,3 x 0,25	2,05	2,029	2,085
M 2,5 x 0,35	2,15	2,121	2,221
M 3 x 0,25	2,75	2,729	2,785
M 3 x 0,35	2,65	2,621	2,721
M 3,5 x 0,35	3,15	3,121	3,221
M 4 x 0,35	3,65	3,621	3,721
M 4 x 0,5	3,5	3,459	3,599
M 4,5 x 0,5	4	3,959	4,099
M 5 x 0,35	4,65	4,621	4,721
M 5 x 0,5	4,5	4,459	4,599
M 5 x 0,75	4,2	4,188	4,378
M 6 x 0,5	5,5	5,459	5,599
M 6 x 0,75	5,25	5,188	5,378
M 7 x 0,5	6,5	6,459	6,599
M 7 x 0,75	6,25	6,188	6,378
M 8 x 0,5	7,5	7,459	7,599
M 8 x 0,75	7,25	7,188	7,378
M 8 x 1	7	6,917	7,153
M 9 x 0,75	8,25	8,188	8,378
M 9 x 1	8	7,917	8,153
M 10 x 0,5	9,5	9,459	9,599
M 10 x 0,75	9,25	9,188	9,378
M 10 x 1	9	8,917	9,153
M 10 x 1,25	8,75	8,647	8,912
M 11 x 1	10	9,917	10,153
M 12 x 0,5	11,5	11,459	11,599
M 12 x 1	11	10,917	11,153
M 12 x 1,25	10,75	10,647	10,912
M 12 x 1,5	10,5	10,376	10,676
M 13 x 1	12	11,917	12,153
M 14 x 0,75	13,2	13,188	13,378
M 14 x 1	13	12,917	13,153
M 14 x 1,25	12,75	12,647	12,912
M 14 x 1,5	12,5	12,376	12,676
M 15 x 1	14	13,917	14,153
M 15 x 1,5	13,5	13,376	13,676
M 16 x 0,75	15,2	15,188	15,378
M 16 x 1	15	14,917	15,153
M 16 x 1,25	14,8	14,647	14,912
M 16 x 1.5	14,5	14,376	14,676
M 17 x 1	16	15,917	16,153
M 18 x 1	17	16,917	17,153
M 18 x 1.5	16,5	16,376	16,676
M 18 x 2	16	15,835	16,210
M 20 x 1	19	18,917	19,153
M 20 x 1.5	18,5	18,376	18,676
M 20 x 2	18	17,835	18,210
M 22 x 1	21	20,917	21,153
M 22 x 1,5	20,5	20,376	20,676

Gewindekernlöcher für Gewindebohrer
Tapping drill sizes for taps / Avant-trous de taraudage
Prefori per maschi / Dimensiones de la broca previa para machos

MF

Metrisches ISO Feingewinde / Metric ISO Fine thread / Filetage métrique fin ISO / Filettatura metrica ISO fine / Rosca Métrica ISO Fina

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (DIN 13)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm) (acc. to DIN 336)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (mm)	
		min	6H max
M 22 x 2	20	19,835	20,210
M 24 x 1	23	22,917	23,153
M 24 x 1.5	22,5	22,376	22,676
M 24 x 2	22	21,835	22,210
M 25 x 1	23	22,917	23,153
M 25 x 1,5	23,5	23,376	23,676
M 26 x 1,5	24,5	24,376	24,676
M 27 x 1	26	25,917	26,153
M 27 x 1,5	25,5	25,376	25,676
M 27 x 2	25	24,835	25,210
M 28 x 1,5	26,5	26,376	26,676
M 28 x 2	26	25,835	26,210
M 30 x 1	29	28,917	29,153
M 30 x 1,5	28,5	28,376	28,676
M 30 x 2	28	27,835	28,210
M 32 x 1.5	30,5	30,376	30,676
M 32 x 2	30	29,835	30,210
M 33 x 1,5	31,5	31,376	31,676
M 33 x 2	31	30,835	31,210
M 34 x 1,5	32,5	32,376	32,676
M 35 x 1.5	33,5	33,376	33,676
M 36 x 1,5	34,5	34,376	34,676
M 36 x 2	34	33,835	34,210
M 36 x 3	33	32,752	33,252
M 38 x 1,5	36,5	36,376	36,676
M 39 x 1,5	37,5	37,376	37,676
M 39 x 2	37	36,835	37,210
M 39 x 3	36	35,752	36,252
M 40 x 1,5	38,5	38,376	38,676
M 40 x 2	38	37,835	38,210
M 40 x 3	37	36,752	37,252
M 42 x 1,5	40,5	40,376	40,676
M 42 x 2	40	39,835	40,210
M 42 x 3	39	38,752	39,252
M 45 x 1.5	43,5	43,376	43,676
M 45 x 2	43	42,835	43,210
M 45 x 3	42	41,752	42,252
M 48 x 1.5	46,5	46,376	46,676
M 48 x 2	46	45,835	46,210
M 48 x 3	45	44,752	45,252
M 50 x 1.5	48,5	48,376	48,676
M 50 x 2	48	47,835	48,210
M 50 x 3	47	46,752	47,252
M 52 x 1.5	50,5	50,376	50,676
M 52 x 2	50	49,835	50,210
M 52 x 3	47	46,587	47,087
M 56 x 1,5	54,5	54,376	54,676
M 56 x 2	54	53,835	54,210
M 56 x 3	53	52,752	53,252
M 58 x 1,5	56,5	56,376	56,676
M 60 x 1,5	66,5	66,376	66,676
M 60 x2	58	57,835	58,210
M 60 x 3	57	56,752	57,252

UNC

Unified Coarse Gewinde / Unified Coarse thread / Filetage Unified Coarse Filettatura grossa unificata / Rosca Unificada Gruesap

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (ASME B 1.1)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm) (acc. to DIN 336)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (mm)	
		min	2B max
Nr. 1-64	1,55	1,425	1,582
Nr. 2-56	1,85	1,694	1,872
Nr. 3-48	2,35	1,941	2,146
Nr. 4-40	2,35	2,156	2,385
Nr. 5-40	2,65	2,487	2,697
Nr. 6-32	2,85	2,642	2,896
Nr. 8-32	3,5	3,302	3,531
Nr. 10-24	3,9	3,683	3,962
Nr. 12-24	4,5	4,343	4,597
1/4-20	5,1	4,976	5,268
5/16-18	6,6	6,411	6,734
3/8-16	8	7,805	8,164
7/16-14	9,4	9,149	9,550
1/2-13	10,8	10,584	11,013
9/16-12	12,2	11,996	12,456
5/8-11	13,5	13,376	13,868
3/4-10	16,5	16,299	16,833
7/8-9	19,5	19,169	19,748
1-8	22,25	21,963	22,598
1 1/8-7	25	24,648	25,348
1 1/4-6	28	27,823	28,524
1 1/2-6	34	33,518	34,295

UNF

Unified Fine Gewinde /Unified Fine thread / Filetage Unified Fine Filettatura fine unificata / Rosca Unificada Fina

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (ASME B 1.1)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm) (acc. to DIN 336)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (mm)	
		min	2B max
Nr. 0-80	1,25	1,181	1,306
Nr. 1-72	1,55	1,473	1,613
Nr. 2-64	1,85	1,755	1,913
Nr. 3-56	2,15	2,024	2,197
Nr. 4-48	2,4	2,271	2,459
Nr. 5-44	2,7	2,550	2,741
Nr. 6-40	2,95	2,819	3,023
Nr. 8-36	3,5	3,404	3,607
Nr. 10-32	4,1	3,962	4,166
Nr. 12-28	4,6	4,496	4,724
1/4-28	5,5	5,367	5,580
5/16-24	6,9	6,792	7,038
3/8-24	8,5	8,379	8,626
7/16-20	9,9	9,738	10,030
1/2-20	11,5	11,326	11,618
9/16-18	12,9	12,761	13,084
5/8-18	14,5	14,348	14,671

Gewindekernlöcher für Gewindebohrer
Tapping drill sizes for taps / Avant-trous de taraudage
Prefori per maschi / Dimensiones de la broca previa para machos

UNF

Unified Fine Gewinde /Unified Fine thread / Filetage Unified Fine
Filettatura fine unificata / Rosca Unificada Fina

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (ASME B 1.1)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm) (acc. to DIN 336)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (mm)	
		min	2B max
3/4-16	17,5	17,330	17,689
7/8-14	20,4	20,262	20,663
1-12	23,25	23,109	23,569
1 1/8-12	26,5	26,284	26,744
1 1/4-12	29,5	29,459	29,919
1 3/8-12	33	32,634	33,094
1 1/2-12		35,809	36,269

UNEF

Unified Extra Fine Gewinde /Unified Extra Fine thread / Filetage Unified Extra-fine
Filettatura extra fine unificata / Rosca Unificada Extra Fina

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (ASME B 1.1)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm) (acc. to DIN 336)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (mm)	
		min	2B max
1/4-32	5,55	5,491	5,679
5/16-32	7,1	7,079	7,267
3/8-32	8,8	8,666	8,854
7/16-28	10,2	10,130	10,343
1/2-28	11,8	11,718	11,931
9/16-24	13,2	13,142	13,388
5/8-24	14,8	14,729	14,976
11/16-24	16,4	16,317	16,563
3/4-20	17,8	17,675	17,967
7/8-20	21	20,850	21,142
1-20	24,2	24,025	24,317

UN

Unified Coarse Gewinde (8 Gang Reihe) / Unified Coarse thread (8 thread series) / Filetage Unified Coarse (8 filets) / Filettatura grossa unificata (serie di 8 filetti) / Rosca Unificada Gruesa (series 8 hilos)

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (ASME B 1.1)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm) (acc. to DIN 336)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (mm)	
		min	2B max
1 1/8-8	25,4	25,138	25,962
1 1/4-8	28,5	28,313	29,126
1 3/8-8	32	31,488	32,123
1 1/2-8	35	34,663	35,456
1 5/8-8	38,1	37,838	38,623
1 3/4-8	41,5	41,013	41,790
1 7/8-8	44,45	44,188	44,957
2-8	48	47,363	48,125
2 1/4-8	54	53,713	54,462

EG UNC (STI)

Unified Coarse Gewinde für Gewindeeinsätze aus Draht / Unified Coarse thread for screw thread inserts / Filetage Unified Coarse / Filettatura grossa unificata per inserti filettati / Rosca Unificada Gruesa para montaje de insertos

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (NASM 33537)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (mm)	
		min	3B max
EG Nr. 2-56	2,35	2,282	2,441
EG Nr. 3-48	2,7	2,630	2,804
EG Nr. 4-40	3,05	2,982	3,180
EG Nr. 5-40	3,4	3,312	3,487
EG Nr. 6-32	3,7	3,677	3,879
EG Nr. 8-32	4,4	4,338	4,524
EG Nr. 10-24	5,1	5,055	5,283
EG Nr. 12-24	5,8	5,715	5,944
EG 1/4-20	6,7	6,625	6,868
EG 5/16-18	8,4	8,244	8,489
EG 3/8-16	10	9,869	10,127
EG 7/16-14	11,7	11,505	11,783
EG 1/2-13	13,3	13,123	13,393

EG UNF (STI)

Unified Fine Gewinde für Gewindeeinsätze aus Draht / Unified Fine thread for screw thread inserts / Filetage Unified Fine / Filettatura fina unificata per inserti filettati Rosca Unificada Fina para montaje de insertos

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (NASM 33537)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (mm)	
		min	3B max
EG Nr. 2-64	2,3	2,270	2,405
EG Nr. 3-56	2,65	2,614	2,758
EG Nr. 4-48	3	2,962	3,122
EG Nr. 5-44	3,3	3,300	3,467
EG Nr. 6-40	3,7	3,644	3,818
EG Nr. 8-36	4,4	4,321	4,498
EG Nr. 10-32	5,1	4,999	5,184
EG 1/4-28	6,6	6,545	6,721
EG 5/16-24	8,2	8,166	8,351
EG 3/8-24	9,8	9,754	9,931
EG 7/16-20	11,4	11,387	11,585
EG 1/2-20	13	12,970	13,172

Gewindekernlöcher für Gewindebohrer
Tapping drill sizes for taps / Avant-trous de taraudage
Prefori per maschi / Dimensiones de la broca previa para machos

EG M

Metrisches ISO Regelgewinde für Gewindeeinsätze aus Draht / Metric ISO thread for screw thread inserts / Filetage métrique ISO standard / Filettatura metrica ISO per inserti filettati / Rosca Métrica ISO para montaje de insertos

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (DIN 8140)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (mm)	
		min	6H mod max
EG M 2,5	2,65	2,597	2,697
EG M 3	3,15	3,109	3,221
EG M 3,5	3,7	3,630	3,755
EG M 4	4,2	4,152	4,292
EG M 5	5,25	5,174	5,334
EG M 6	6,3	6,217	6,407
EG M 8	8,4	8,271	8,483
EG M 10	10,5	10,324	10,560
EG M 12	12,5	12,380	12,645
EG M 14	14,5	14,433	14,733
EG M 16	16,5	16,433	16,733
EG M 18	18,8	18,542	18,897
EG M 20	20,8	20,542	20,897
EG M 22	22,8	22,542	22,897
EG M 24	24,75	24,649	25,049

EG MF

Metrisches ISO Feingewinde für Gewindeeinsätze aus Draht / Metric ISO Fine thread for screw thread inserts / Filetage métrique ISO fin / Filettatura metrica ISO fine per inserti filettati / Rosca Métrica ISO fina para montaje de insertos

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (DIN 8140)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (mm)	
		min	6H mod max
EG M 8 x 1	8,3	8,217	8,407
EG M 10 x 1	10,3	10,217	10,407
EG M 10 x 1,25	10,4	10,271	10,483
EG M 12 x 1,25	12,4	12,271	12,483
EG M 12 x 1,5	12,5	12,324	12,560
EG M 14 x 1,5	14,5	14,324	14,560
EG M 16 x 1,5	16,5	16,324	16,560
EG M 18 x 1,5	18,5	18,324	18,560
EG M 18 x 2	18,5	18,433	18,733
EG M 20 x 1,5	20,5	20,324	20,560

G

Rohrgewinde / British Standard pipe thread / Filetage tube / Filettatura Whitworth a Gas cilindrica / Rosca para tubos, Norma Británica

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (DIN EN ISO 228)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (mm)	
		min	max
G 1/16	6,8	6,561	6,843
G 1/8	8,8	8,566	8,848
G 1/4	11,8	11,445	11,890
G 3/8	15,25	14,950	15,395
G 1/2	19	18,632	19,173
G 5/8	21	20,588	21,129
G 3/4	24,5	24,118	24,659
G 7/8	28,25	27,878	28,419
G 1	30,75	30,292	30,932
G 1 1/8	35,5	34,940	35,580
G 1 1/4	39,5	38,953	39,593
G 1 3/8	41,9	41,366	42,006
G 1 1/2	45,25	44,846	45,486
G 1 3/4	51	50,789	51,429
G 2	57	56,657	57,297
G 2 1/4	63	62,753	63,393
G 2 1/2	72,6	72,227	72,867
G 3	85	84,927	85,567

Rp

Whitworth Rohrgewinde / Whitworth Standard parallel internal pipe thread / Filetage Whitworth pour tubes / Filettatura Whitworth / Rosca cilíndrica interna para tubos, norma Whitworth

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (DIN EN 10226-1)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (mm)	
		min	max
Rp 1/16	6,55	6,490	6,632
Rp 1/8	8,6	8,495	8,637
Rp 1/4	11,5	11,341	11,549
Rp 3/8	15	14,846	15,054
Rp 1/2	18,5	18,490	18,774
Rp 5/8	20,5	20,446	20,730
Rp 3/4	24	23,976	24,260
Rp 1	30,25	30,112	30,472
Rp 1 1/4	39	38,773	39,133
Rp 1 1/2	45	44,629	45,063
Rp 2	56,5	56,440	56,874
Rp 2 1/2	72,2	72,010	72,444
Rp 3	85	84,710	85,144

Gewindekernlöcher für Gewindebohrer
Tapping drill sizes for taps / Avant-trous de taraudage
Prefori per maschi / Dimensiones de la broca previa para machos

BSW

British Standard Whitworth-Gewinde / British Standard Whitworth thread / Filetage British Standard Whitworth / Filettatura Whitworth standard inglese / Rosca Whitworth Norma Británica

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (B.S. 84)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (mm)	
		min	max
1/16-60	1,2	1,045	1,231
3/32-48	1,9	1,703	1,911
1/8-40	2,5	2,362	2,590
5/32-32	3,1	2,952	3,213
3/16-24	3,6	3,407	3,745
7/32-24	4,5	4,201	4,539
1/4-20	5	4,724	5,155
5/16-18	6,5	6,131	6,591
3/8-16	7,9	7,493	7,988
7/16-14	9,2	8,790	9,330
1/2-12	10,5	9,989	10,590
9/16-12	12	11,577	12,178
5/8-11	13,4	12,919	13,558
3/4-10	16,4	15,798	16,484
7/8-9	19,25	18,612	19,354
1-8	22	21,335	22,148
1 1/8-7	24,75	23,929	24,833
1 1/4-7	27,5	27,104	28,008
1 3/8-6	30	29,505	30,529
1 1/2-6	33,5	32,680	33,704
1 5/8-5	35,5	34,771	35,965
1 3/4-5	39	37,946	39,140
1 7/8-4 1/2	41,5	40,398	41,705
2-4 1/2	44,5	43,573	44,880
2 1/4-4	50	49,020	50,468
2 1/2-4	56	55,370	56,818
2 3/4-3 1/2	61	60,559	62,188
3-3 1/2	68	66,909	68,538

Pg

Stahlpanzer Rohrgewinde DIN 40 430 / Steel conduit thread DIN 40 430 / Filetage pour raccords de tubes éléctriques DIN 40 430 / Filettatura tubo corazzato / Rosca para tubos blindados DIN 40 430

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (DIN 40430)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (mm)	
		min	max
Pg 7	11,4	11,29	11,43
Pg 9	14	13,85	14,01
Pg 11	17,25	17,25	17,41
Pg 13,5	19	19,05	19,21
Pg 16	21,25	21,15	21,31
Pg 21	27	26,79	27,03
Pg 29	35,5	35,49	35,73
Pg 36	45,5	45,49	45,73
Pg 42	52,5	52,49	52,73
Pg 48	58	57,79	58,03

BSF

British Standard Fine Gewinde / British Standard Fine thread / Filetage British Standard Fine / Filettatura fine standard inglese / Rosca Fina, Norma Británica

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (B.S. 84)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (mm)	
		min	max
3/16-32	4	3,745	4,006
7/32-28	4,6	4,394	4,677
1/4-26	5,3	5,099	5,396
5/16-22	6,7	6,459	6,817
3/8-20	8,2	7,900	8,331
7/16-18	9,6	9,306	9,766
1/2-16	11	10,667	11,162
9/16-16	12,6	12,255	12,750
5/8-14	14	13,553	14,093
3/4-12	16,8	16,340	16,941
7/8-12	19,8	19,269	19,909
1-10	22,7	22,148	22,834
1 1/8-9	25,5	24,962	25,704
1 1/4-9	28,5	28,137	28,879
1 3/8-8	31,5	30,860	31,673
1 1/2-8	34,5	34,035	34,848
1 5/8-8	37,5	37,211	38,024

MJ

Luft- und Raumfahrt / Aerospace / Industrie aéronautique / Aeronautica e Aerospaziale / aero-espacial

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (DIN ISO 5855)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (mm)	
		min	6H max
MJ 3 x 0,5	2,6	2,513	2,653*
MJ 4 x 0,7	3,4	3,318	3,498*
MJ 5 x 0,8	4,3	4,221	4,421*
MJ 6 x 1	5,1	5,026	5,215
MJ 8 x 1.25	6,9	6,782	6,994
MJ 10 x 1.5	8,7	8,539	8,779
MJ 12 x 1,75	10,5	10,295	10,563
MJ 16 x 2	14,3	14,051	14,351

* 5H max

Additional MJ sizes

Thread size	Nominal size
MJ 2 x 0,4	1,65
MJ 2,5 x 0,45	2,1
MJ 3,5 x 0,6	3
MJ 7 x 1	6,1
MJ 8 x 1	7,1
MJ 10 x 1,25	8,9
MJ 12 x 1,25	10,9
MJ 14 x 1,5	12,6
MJ 16 x 1,5	14,6
MJ 18 x 1,5	16,6
MJ 20 x 1,5	18,6

Data source additional MJ sizes: FERG

Gewindekernlöcher für Gewindebohrer
Tapping drill sizes for taps / Avant-trous de taraudage
Prefori per maschi / Dimensiones de la broca previa para machos

UNJC

Unified Coarse Gewinde (modifiziert) / Unified Coarse thread (modified) / Filetage Unified Coarse (modifié) / Filettatura grossa unificata (modificata) / Rosca Unificada Gruesa (modificada)

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (ASME B1.15)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (mm)	
		min	3B max
Nr. 1-64	1,5	1,467	1,570
Nr. 2-56	1,8	1,742	1,860
Nr. 3-48	2,05	1,999	2,137
Nr. 4-40	2,3	2,226	2,391
Nr. 5-40	2,65	2,556	2,721
Nr. 6-32	2,8	2,732	2,938
Nr. 8-32	3,5	3,393	3,599
Nr. 10-24	3,9	3,795	4,064
Nr. 12-24	4,6	4,455	4,704
1/4-20	5,2	5,113	5,387
5/16-18	6,7	6,563	6,833
3/8-16	8,1	7,978	8,255
7/16-14	9,5	9,344	9,637
1/2-13	10,9	10,796	11,093
9/16-12	12,3	12,226	12,480
5/8-11	13,7	13,625	13,902
3/4-10	6,75	16,575	16,880

UNJF

Unified Fine Gewinde (modifiziert) / Unified Fine thread (modified) / Filetage Unified Fine (modifié) / Filettatura fine unificata (modificata) / Rosca Unificada Fina (modificada)

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (ASME B1.15)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (mm)	
		min	3B max
Nr. 0-80	1,25	1,215	1,297
Nr. 1-72	1,55	1,510	1,602
Nr. 2-64	1,85	1,797	1,900
Nr. 3-56	2,1	2,073	2,191
Nr. 4-48	2,4	2,329	2,467
Nr. 5-44	2,7	2,613	2,763
Nr. 6-40	2,95	2,886	3,051
Nr. 8-36	3,6	3,479	3,662
Nr. 10-32	4,15	4,053	4,253
Nr. 12-28	4,7	4,602	4,815
1/4-28	5,6	5,466	5,662
5/16-24	7	6,907	7,110
3/8-24	8,6	8,494	8,680
7/16-20	10	9,875	10,083
1/2-20	11,5	11,463	11,660
9/16-18	13	12,913	13,123
5/8-18	14,5	14,500	14,702

BA

British Association Standard Gewinde / British Association Standard thread
Filetage standard British Association / Filettatura associazione British standard
Rosca estándar British Association

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (B.S. 949: Part 2)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (mm)	
		min	max
BA 0	5,1	4,800	5,175
BA 1	4,5	4,220	4,560
BA 2	4	3,728	4,033
BA 3	3,4	3,224	3,499
BA 4	3	2,808	3,058
BA 5	2,6	2,492	2,712
BA 6	2,3	2,164	2,364
BA 7	2	1,924	2,104
BA 8	1,8	1,684	1,844
BA 9	1,5	1,432	1,577
BA 10	1,3	1,280	1,410
BA 11	1,2	1,128	1,243
BA 12	1	0,964	1,069
BA 13	0,95	0,900	0,995
BA 14	0,75	0,724	0,809

NPSM

Amerikanisches zylindrisches Rohrgewinde / American standard straight pipe thread
Filetage standard américain pour tubes cylindriques / Filettatura cilindrica americana / Rosca americana para tubo

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (ASME B1.20.1)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior max (mm)
1/8-27	9,1	9,246
1/4-18	12	12,217
3/8-18	15,5	15,545
1/2-14	19	19,279
3/4-14	24,5	24,639
1 - 11 1/2	30,5	30,759
1 1/4-11 1/2	39,5	39,497
1 1/2-11 1/2	45,5	45,568
2-11 1/2	57,5	57,607
2 1/2-8	69	69,266
3 - 8	85	85,166

W zyl / par / cyl / cil / cilínd.

Zylindrisches Whitworth Gewinde / Whitworth Gas cylinder thread / Filetage Whitworth, cylindrique / Filettatura Whitworth, filetto cilindrico / Rosca Whitworth cilíndrica para botellas de gas

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (DIN 477)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior max (mm)
W 21,80-14	19,75	20,066
W 24,32-14	22,25	22,586

Gewindekernlöcher für Gewindebohrer
Tapping drill sizes for taps / Avant-trous de taraudage
Prefori per maschi / Dimensiones de la broca previa para machos

Tr

Metrisches ISO Trapez Gewinde
Metric ISO trapezoidal thread / Filetage métrique ISO trapéziodal
Filettatura trapezoidale ISO / Rosca trapezoidal métrica ISO

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (DIN 103)	Steigung Pitch Pas Passo Paso P (mm)	Bohrer-∅ Nominal size diamètre du foret Diametro nominale ∅-Taladro (mm)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo / ∅-nucleo de rosca interior max (mm)
8	1,5	6,60	6,690
10	1,5	8,60	8,690
10	2	8,20	8,236
*10	3	7,50	7,500
12	2	10,20	10,236
12	3	9,2	9,315
14	2	12,20	12,236
14	3	11,25	11,315
*14	4	10,50	10,500
16	4	12,25	12,375
18	4	14,25	14,375
20	4	16,25	16,375
22	5	17,25	17,450
24	5	19,25	19,450
26	5	21,25	21,450
28	5	23,25	23,450
30	6	24,25	24,500
32	6	26,25	26,500
36	6	30,25	30,500
38	7	31,50	31,560
40	7	33,50	33,560
44	7	37,50	37,560
48	8	40,50	40,630
50	8	42,50	42,630
52	8	44,50	44,630

NPT

Amerikanisches kegeliges Rohrgewinde, Kegel 1:16 / American standard pipe taper thread, taper 1:16 / Filetage standard américain conicité 1:16 pour tube conique avec perçage cylindrique / Filettatura conica americana, conicità 1:16 / Rosca cónica para tubo norma americana, conicidad 1:16

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca ASME B1.20.1	Vorbohr-∅ zylindrisch Tapping drill size parallel ∅ de l'avant trou cylindrique Diam. del preforo cilindrico Dimensión broca cilín. d1 (mm)	Vorbohr-∅ konisch Tapping drill size tapered ∅ de l'avant trou conique Diam. del preforo conico Dimensión broca cónica D1 (mm)	Einschneidtiefe Thread depth Profondeur de taraudage Profondità di filettatura Profundidad rosca ET (mm)	Bohrtiefe Drill depth BT Profondità di foratura Profundidad broca min BT (mm)	Flanken-∅ pitch diameter dia. sur flancs diametro medio dia. medio E_1 (mm)
1/16-27	6,15	6,39	9,29	10,7	7,142
1/8-27	8,4	8,74	9,32	10,8	9,489
1/4-18	11,1	11,36	13,52	15,6	12,487
3/8-18	14,3	14,8	13,83	16	15,926
1/2-14	17,9	18,32	18,07	20,8	19,772
3/4-14	23,3	23,67	18,55	21,3	25,117
1-11 1/2	29	29,69	22,29	25,6	31,461
1 1/4-11 1/2	37,7	38,45	22,8	26,1	40,218
1 1/2-11 1/2	43,7	44,52	22,8	26,1	46,287
2-11 1/2	55,6	56,56	23,2	26,5	58,325
2 1/2-8	66,3	67,62	31,57	36,3	70,158
3 - 8	82,3	83,52	33,74	38,5	86,068

Gewindekernlöcher für Gewindebohrer
Tapping drill sizes for taps / Avant-trous de taraudage
Prefori per maschi / Dimensiones de la broca previa para machos

NPTF

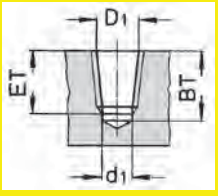
Amerikanisches kegeliges Rohrgewinde, Kegel 1:16 / American standard pipe taper thread, taper 1:16 / Filetage standard américain conicité 1:16 pour tube conique avec perçage cylindrique / Filettatura conica americana, conicità 1:16 / Rosca cónica para tubo norma americana, conicidad 1:16

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca ASME B1.20.3	Vorbohr-∅ zylindrisch Tapping drill size parallel ∅ de l'avant trou cylindrique Diam. del preforo cilindrico Dimensión broca cilín. d1 (mm)	Vorbohr-∅ konisch Tapping drill size tapered ∅ de l'avant trou conique Diam. del preforo conico Dimensión broca cónica D1 (mm)	Einschneidtiefe Thread depth Profondeur de taraudage Profondità di filettatura Profundidad rosca ET (mm)	Bohrtiefe Drill depth BT Profondità di foratura Profundidad broca min BT (mm)	Flanken-∅ pitch diameter dia. sur flancs diametro medio dia. medio E_1 (mm)
1/16-27	6,10	6,41	9,29	10,3	7,142
1/8-27	8,4	8,77	9,32	10,3	9,489
1/4-18	11,0	11,4	13,52	15	12,487
3/8-18	14,5	14,84	13,83	15,3	15,926
1/2-14	17,5	18,33	18,07	19,9	19,772
3/4-14	23,0	23,72	18,55	20,4	25,117
1-11 1/2	29,0	29,76	22,29	24,5	31,461
1 1/4-11 1/2	37,5	38,52	22,8	25	40,218
1 1/2-11 1/2	43,5	44,59	22,8	25	46,287
2-11 1/2	56,0	56,62	23,2	25,4	58,325
2 1/2-8	66,0	67,71	34,75	38	70,158
3 - 8	82,0	83,62	36,88	40	86,068

Rc = PT

Kegeliges Rohrgewinde, Kegel 1:16 / British Standard taper pipe thread, taper 1:16 / Filetage pour tubes coniques, conicité 1:16 / Filettatura Whitworth, filetto conico interno, conicità 1:16 / Rosca cónica para tubo norma británica, conicidad 1:16

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (DIN EN 10226/2)	Vorbohr-∅ zylindrisch Tapping drill size parallel ∅ de l'avant trou cylindrique Diam. del preforo cilindrico Dimensión broca cilín. d1 (mm)	Vorbohr-∅ konisch Tapping drill size tapered ∅ de l'avant trou conique Diam. del preforo conico Dimensión broca cónica D1 (mm)	Einschneidtiefe Thread depth Profondeur de taraudage Profondità di filettatura Profundidad rosca ET (mm)	Bohrtiefe Drill depth BT Profondità di foratura Profundidad broca min BT (mm)
Rc 1/16-28	6,3	6,49	8,31	10,1
Rc 1/8-28	8,3	8,50	8,31	10,1
Rc 1/4-19	11	11,35	12,37	15
Rc 3/8-19	14,5	14,85	12,77	15,4
Rc 1/2-14	18,1	18,49	16,83	20,5
Rc 3/4-14	23,5	23,98	18,13	21,8
Rc 1-11	29,6	30,11	21,42	26
Rc 1 1/4-11	38,1	38,78	23,72	28,3
Rc 1 1/2-11	44	44,67	23,72	28,3
Rc 2-11	55,6	56,48	28,02	32,6
Rc 2 1/2-11	71,1	72	31,32	37,1
Rc 3-11	83,6	84,71	34,42	40,2



W keg / tap / con / cón

Kegeliges Whitworth-Gewinde, Kegel 3:25 / Whitworth Gas cylinder thread, taper 3:25 / Filetage Whitworth conique, conicité 3:25 / Filettatura Whitworth, filetto conico, conicità 3:25 / Rosca Whitworth cónica botellas de gas

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (DIN 477)	Vorbohr-∅ zylindrisch Tapping drill size parallel ∅ de l'avant trou cylindrique Diam. del preforo cilindrico Dimensión broca cilín. d1 (mm)	Vorbohr-∅ konisch Tapping drill size tapered ∅ de l'avant trou conique Diam. del preforo conico Dimensión broca cónica D1 (mm)	Einschneidtiefe Thread depth Profondeur de taraudage Profondità di filettatura Profundidad rosca ET (mm)	Bohrtiefe Drill depth BT Profondità di foratura Profundidad broca min BT (mm)
W 19,80-14	14,6	16,8	24,2	27,8
W 28,80-14	22,6	25,4	29,2	32,8
W 31,30-14	25,1	27,9	29,2	32,8

Gewindekernlöcher für Gewindeformer
Tapping drill sizes for Internal thread formers / Avant-trous de tarauds travaillant par déformation / Prefori per maschi rullatori / Dimensiones de la broca previa para machos laminadores

M

Metrisches ISO Regelgewinde / Metric ISO thread
Filetage métrique ISO standard / Filettatura metrica ISO / Rosca Métrica ISO

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (DIN 13)	Vorbohr-∅ Tapping drill size ∅ de l'avant trou Diam. del preforo Dimensión broca (mm)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (DIN 13-50) (mm)	
		min	7H max
M 1	0,88	0,729	-
M 1,2	1,08	0,929	-
M 1,4	1,26	1,075	-
M 1,6	1,45	1,221	-
M 1,7	1,55	1,321	-
M 1,8	1,65	1,421	-
M 2	1,82	1,567	1,707
M 2,2	2	1,713	1,873
M 2,3	2,1	1,813	2,007
M 2,5	2,3	2,013	2,173
M 2,6	2,4	2,113	2,273
M 3	2,8	2,459	2,639
M 3,5	3,25	2,850	3,050
M 4	3,7	3,242	3,466
M 5	4,65	4,134	4,384
M 6	5,55	4,917	5,217
M 8	7,4	6,647	6,982
M 10	9,3	8,376	8,751
M 12	11,2	10,106	10,106
M 14	13,1	11,835	12,310
M 16	15,1	13,835	14,310
M 18	16,9	15,294	15,854
M 20	18,9	17,294	17,854
M 22	20,9	19,294	19,854
M 24	22,7	20,752	21,382

MF

Metrisches ISO Feingewinde / Metric ISO Fine thread
Filetage métrique fin ISO / Filettatura metrica ISO fine Rosca Métrica ISO Fina

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca (DIN 13)	Vorbohr-∅ Tapping drill size ∅ de l'avant trou Diam. del preforo Dimensión broca (mm)	Innengewindekern-∅ Minor diameter / Diamètre du noyau fileté / Diametro del nocciolo ∅-nucleo de rosca interior (DIN 13-50) (mm)	
		min	7H max
M 4 x 0,5	3,8	3,459	3,639
M 5 x 0,5	4,8	4,459	4,639
M 6 x 0,5	5,8	5,459	5,639
M 6 x 0,75	5,65	5,188	5,424
M 7 x 0,75	6,65	6,188	6,424
M 8 x 0,75	7,65	7,188	7,424
M 10 x 0,75	9,65	9,188	9,424
M 8 x 1	7,55	6,917	7,217
M 10 x 1	9,55	8,917	9,217
M 12 x 1	11,55	10,917	11,217
M 14 x 1	13,55	12,917	13,217
M 16 x 1	15,55	14,917	15,217
M 18 x 1	17,55	16,917	17,217
M 10 x 1,25	9,4	8,647	8,982
M 12 x 1,25	11,4	10,647	10,982
M 12 x 1,5	11,3	10,376	10,751
M 14 x 1,5	13,3	12,376	12,751
M 16 x 1.5	15,3	14,376	14,751
M 18 x 1.5	17,3	16,376	16,751
M 20 x 1.5	19,3	18,376	18,751
M 22 x 1,5	21,3	20,376	20,751
M 24 x 1.5	23,3	22,376	22,751
M 20 x 2	19,1	17,835	18,310
M 22 x 2	21,1	19,835	20,310
M 24 x 2	23,1	21,835	22,310

Gewindekernlöcher für Gewindeformer
Tapping drill sizes for Internal thread formers / Avant-trous de tarauds travaillant par déformation / Prefori per maschi rullatori / Dimensiones de la broca previa para machos laminadores

UNC

Unified Coarse Gewinde / Unified Coarse thread
Filetage Unified Coarse / Filettatura grossa unificata
Rosca Unificada Gruesa

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca ASME B1.1	Vorbohr-∅ Tapping drill size ∅ de l'avant trou Diam. del preforo Dimensión broca (mm)
Nr. 2-56	1,97
Nr. 3-48	2,26
Nr. 4-40	2,55
Nr. 5-40	2,87
Nr. 6-32	3,15
Nr. 8-32	3,8
Nr. 10-24	4,3
Nr. 12-24	5
1/4-20	5,75
5/16-18	7,25
3/8-16	8,75
7/16-14	10,3
1/2-13	11,8
9/16-12	13,3
5/8-11	14,8
3/4-10	17,9

UNF

Unified Fine Gewinde /Unified Fine thread / Filetage Unified Fine / Filettatura fine unificata / Rosca Unificada Fina

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca ASME B1.1	Vorbohr-∅ Tapping drill size ∅ de l'avant trou Diam. del preforo Dimensión broca (mm)
Nr. 2-64	2
Nr. 3-56	2,3
Nr. 4-48	2,6
Nr. 5-44	2,9
Nr. 6-40	3,2
Nr. 8-36	3,85
Nr. 10-32	4,45
Nr. 12-28	5,05
1/4-28	5,9
5/16-24	7,45
3/8-24	9
7/16-20	10,5
1/2-20	12,1
9/16-18	13,7
5/8-18	15,25
3/4-16	18,4
7/8-14	21,4
1-12	24,45

UNEF

Unified Extra Fine Gewinde /Unified Extra Fine thread Filetage Unified Extra-fine / Filettatura extra fine unificata / Rosca Unificada Extra Fina

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca ASME B1.1	Vorbohr-∅ Tapping drill size ∅ de l'avant trou Diam. del preforo Dimensión broca (mm)
1/4-32	6
5/16-32	7,6
3/8-32	9,1
7/16-28	10,7
1/2-28	12,3
9/16-24	13,8
5/8-24	15,4
3/4-20	18,5
7/8-20	21,6
1-20	24,8

BSW

British Standard Whitworth-Gewinde / British Standard Whitworth thread / Filetage British Standard Whitworth / Filettatura Whitworth standard inglese
Rosca Whitworth Norma Británica

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca B.S. 84	Vorbohr-∅ Tapping drill size ∅ de l'avant trou Diam. del preforo Dimensión broca (mm)
3/32-48	2,1
1/8-40	2,85
5/32-32	3,55
3/16-24	4,2
1/4-20	5,7
5/16-18	7,2
3/8-16	8,7
7/16-14	10,2
1/2-12	11,6
9/16-12	13,2
5/8-11	14,8
11/16-11	16,25
3/4-10	17,7
7/8-9	20,75
1-8	23,75

EG M

Metrisches ISO Regelgewinde für Gewindeeinsätze aus Draht / Metric ISO thread for screw thread inserts
Filetage métrique ISO standard / Filettatura metrica ISO per inserti filettati / Rosca Métrica ISO para montaje de insertos

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca DIN 8140	Vorbohr-∅ Tapping drill size ∅ de l'avant trou Diam. del preforo Dimensión broca (mm)
EG M 3	3,4
EG M 4	4,6
EG M 5	5,65
EG M 6	6,85
EG M 8	9,05
EG M 10	11,3
EG M 12	13,5

G

Rohrgewinde DIN ISO 228-1 / British Standard pipe thread DIN ISO 228-1/ Filetage tube DIN ISO 228-1
Filettatura Whitworth a Gas cilindrica, DIN ISO 228-1
Rosca para tubos DIN ISO 228-1, Norma Británica

Kurzzeichen Thread size Désignation Diametro del filetto Dimensión rosca DIN EN ISO 228	Vorbohr-∅ Tapping drill size ∅ de l'avant trou Diam. del preforo Dimensión broca (mm)
G 1/16	7,25
G 1/8	9,25
G 1/4	12,5
G 3/8	16
G 1/2	20
G 5/8	22
G 3/4	25,5
G 7/8	29,25
G 1	32

Data source: walter - tools.com