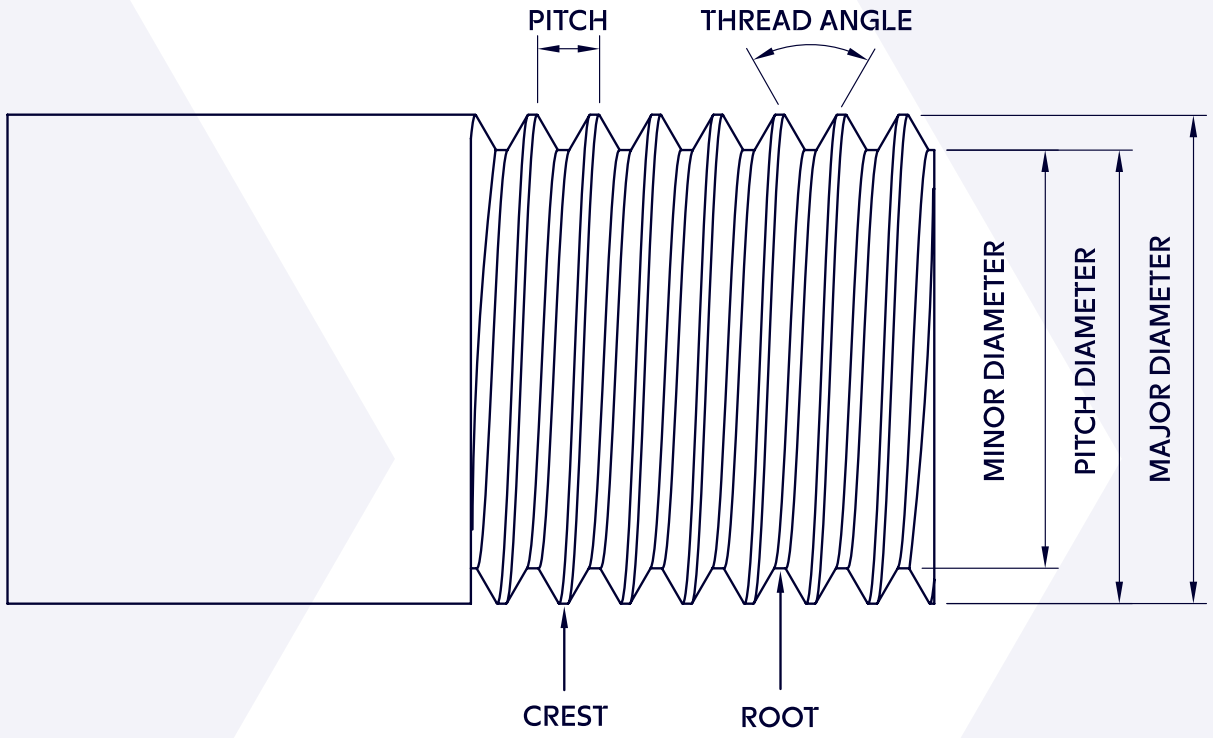
Metric Thread Dimensions For ISO Standard Screws & Bolts.

Metric threads are manufactured according to strict metric thread dimensions and specifications defined by the ISO standardisation authority to ensure cross-compatibility between mating components. The metric thread size chart below represents the dimensions of metric coarse machine screw threads as defined by ISO standards.

Please note that these figures relate to product design, and are always implemented with metric thread tolerances in mind. In practice, values related to tapping and drilling can vary significantly depending on many factors such as material and operating temperature. Use these metric thread dimensions as a guide and perform a test fit on a scrap workpiece if you're unsure. Measure twice, tap once.



THREAD SIZE	MAJOR DIAMETER (MM)	MINOR DIAMETER (MM)	THREAD PITCH (MM)	PITCH DIAMETER (MM)	TAPPING DRILL DIAMETER (MM)	CLEARANCE HOLE DIAMETER (MM)
M1	1	0.729	0.25	0.838	0.75	1.3
M1.1	1.1	0.829	0.25	0.938	0.85	1.4
M1.2	1.2	0.929	0.25	1.038	0.95	1.5
M1.4	1.4	1.075	0.3	1.205	1.1	1.8
M1.6	1.6	1.221	0.35	1.373	1.25	2
M1.8	1.8	1.421	0.35	1.573	1.45	2.3
M2	2	1.567	0.4	1.74	1.6	2.6
M2.2	2.2	1.713	0.45	1.908	1.75	2.9
M2.5	2.5	2.013	0.45	2.208	2.05	3.1
M3	3	2.459	0.5	2.675	2.5	3.6
M3.5	3.5	2.85	0.6	3.11	2.9	4.2
M4	4	3.242	0.7	3.545	3.3	4.8
M4.5	4.5	3.688	0.75	4.013	3.8	5.3
M5	5	4.134	0.8	4.48	4.2	5.8
M6	6	4.917	1	5.35	5	7
M7	7	5.917	1	6.35	6	8
M8	8	6.647	1.25	7.188	6.8	10
M9	9	7.647	1.25	8.188	7.8	11
M10	10	8.376	1.5	9.026	8.5	12
M11	11	9.376	1.5	10.026	9.5	13.5
M12	12	10.106	1.75	10.863	10.2	15
M14	14	11.835	2	12.701	12	17
M16	16	13.835	2	14.701	14	19
M18	18	15.394	2.5	16.376	15.5	22
M20	20	17.294	2.5	18.376	17.5	24
M22	22	19.294	2.5	20.376	19.5	26
M24	24	20.752	3	22.051	21	28
M27	27	23.752	3	25.051	24	33
M30	30	26.211	3.5	27.727	26.5	35

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M33	33	29.211	3.5	30.727	29.5	38
M36	36	31.67	4	33.402	32	41
M39	39	34.67	4	36.402	35	44
M42	42	37.129	4.5	39.077	37.5	47
M45	45	40.129	4.5	42.077	40.5	50
M48	48	42.857	5	44.752	43	53
M52	52	46.587	5	48.752	47	57
M56	56	50.046	5.5	52.428	50.5	61
M60	60	54.046	5.5	56.428	54.5	65
M64	64	57.505	6	60.103	58	69
M68	68	61.505	6	64.103	62	73

Metric Thread Size Explained.

In our metric screw size chart above, metric thread size is denoted by a series of numbers and letters that encapsulate various dimensions including the major diameter, thread pitch, and thread type. The most common system adhered to is the ISO Metric Screw Thread, where designations like M6x1 signify a major diameter of 6 mm and a pitch of 1 mm. This naming convention of m sizes for screws enables engineers to swiftly identify and match threaded components, thereby facilitating streamlined procurement and assembly processes.

Major Diameter (mm) Explained.

The major diameter in our bolt size chart, typically measured in millimetres (mm), refers to the largest diameter of a threaded cylinder, also known as the crest of the thread. This is a critical parameter as it essentially dictates all metric bolt sizes. Precise measurements can be acquired using Vernier callipers or micrometers.

Minor Diameter (mm) Explained.

The minor diameter in our metric thread chart is the smallest diameter of a threaded element, often referred to as the root of the thread. This dimension is usually specified in millimetres (mm) and serves as a crucial indicator of the quality and strength of the thread. Minor diameter can be measured using specialised gauges like a thread depth micrometer, or even optically through profile projectors.

Thread Pitch (mm) Explained.

The thread pitch column in our metric thread pitch chart refers to the distance between two parallel crests on a thread, typically measured in millimetres (mm). This is usually calculated by measuring the distance between three or more thread crests and then dividing by the number of spaces between them. Pitch is an essential attribute as it affects both the thread's mechanical properties and its compatibility with mating components. Specialised instruments such as leaf thread gauges or vision systems are commonly used to measure this.

Tapping Drill Diameter (mm) Explained.

The tapping drill diameter is the diameter of the drill hole required before the tapping process can begin. This parameter is closely aligned with the minor diameter and usually varies based on material properties and application requirements. Applicable to all standard screw sizes, accurate measurement post-tapping ensures that the threads achieve the desired fit and strength, typically taken using digital bore gauges or plug gauges.

Clearance Hole Diameter (mm) Explained.

The clearance hole diameter in our thread size chart is the diameter of the hole that allows a bolt or screw to pass through without engaging the threads. This is crucial for ensuring easy assembly and disassembly. The diameter is generally measured using pin gauges or digital calipers and should be chosen based on the bolt's major diameter plus an additional margin for ease of fit.

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