Nuts – Overview and Dimensions

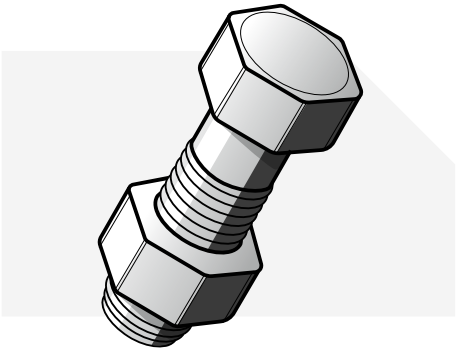
Nuts are a common type of fastener which contain an internal threaded hole. They are designed to be used with screws and bolts to secure them in place and prevent axial movement. For example, to secure two metal plates, a bolt or screw would be passed through them and a nut would be used at the other end. Hence, the clamping force is provided by the nut and the head of the bolt or screw.

Common Types of Nuts

Hex Nuts, Hex Bolt and Nuts

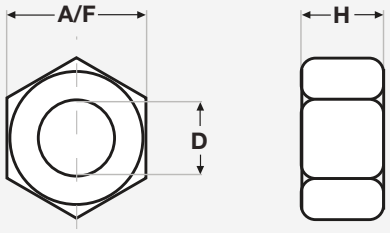
One of the most common nuts is the hex nut. These are hexagonal shaped nuts with internal threads that connect to the external threads of a screw or bolt. They are used with screws or bolts to connect and secure two metal or wooden parts. The parts are secured on either side by the head of the screw or bolt and the hex nut at the bottom to prevent lateral movement.

Applications: Used in light to medium duty applications which require a secure connection between two components.



Imperial Nuts Measurements

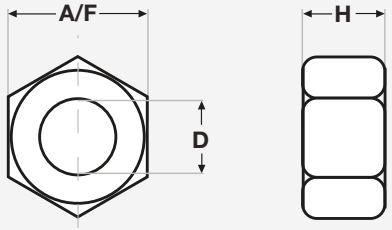
The sizing of these nuts are usually based on the diameter of the internal thread and the height of the nut. The chart also includes the dimension ‘A/F’ which stands for ‘across flats’. This is the distance between the two flat sides of the hexagonal nut.



Size				Grade 5 & 8 Hex		Nyloc		2H Hex	
Diameter	Unc T.P.I	UNF T.P.I	UN8 T.P.I.	A/F	Height	A/F	Height	A/F	Height
3/16	24	32		3/8	1/8	3/8	15/64		
1/4	20	28		7/16	7/32	7/16	5/16		
5/16	18	24		1/2	17/64	1/2	11/32		
3/8	16	24		9/16	21/64	9/16	29/64		
7/16	14	20		5/8	21/64	5/8	29/64		
1/2	13	20		3/4	7/16	3/4	19/32	7/8	1/2
9/16	12	18		7/8	31/64	7/8	41/64		
5/8	11	18		15/16	35/64	15/16	3/4	1 1/16	5/8
3/4	10	16		1 1/8	41/64	1 1/16	7/8	1 1/4	3/4
7/8	9	14		1 5/16	3/4	1 1/4	63/64	1 7/16	7/8
1	8	12		1 1/2	55/64	1 7/16	1 3/64	1 5/8	1 1/64
1 (UNS)		14		1 1/2	55/64	1 7/16	1 3/64		
1 1/8	7	12	8	1 11/16	31/32	1 5/8	1 11/64	1 13/16	1 7/64
1 1/4	7	12	8	1 7/8	1 1/16	1 13/16	1 25/64	2	1 7/32

Metric Nut Measurements

The sizing of these nuts are usually based on the diameter of the internal thread and the height of the nut. The chart also includes the dimension 'A/F' which stands for 'across flats'. This is the distance between the two flat sides of the hexagonal nut.



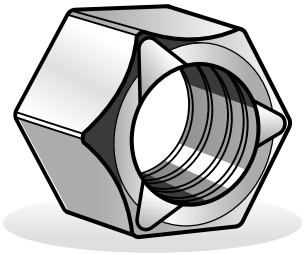
Size		Class 5, 8 & 10 Hex		HSFG Structural		Nyloc		Flange		
Metric Coarse	Metric Fine	A/F	Height	A/F	Height	A/F	Height	A/F	Height	OD
M3x0.5		5.5	2.4			5.5	4.0			
M4x0.7		7.0	3.2			7.0	5.0	7.0	4.6	10.0
M5x0.8		8.0	4.0			8.0	5.0	8.0	5.0	11.8
M6x1.0		10.0	5.0			10.0	6.0	10.0	6.0	14.2
	M8x1.0	13.0	6.5			13.0	8.0			
M8x1.25		13.0	6.5			13.0	8.0	13.0	8.0	17.9
	M10x1.0	17.0	8.0			17.0	10.0			
	M10x1.25	17.0	8.0			17.0	10.0			
M10x1.5		16.0	8.4			16.0	10.0	15.0	10.0	21.8
	M12x1.25	19.0	10.0			19.0	12.0			
	M12x1.5	19.0	10.0			19.0	12.0			
M12x1.75		18.0	10.8	22.0	12.5	18.0	12.0	18.0	12.0	26.0
	M14x1.5	22.0	11.0			22.0	14.0			
M14x2.0		22.0	11.0			22.0	14.0	21.0	14.0	30.0
	M16x1.5	24.0	13.0			24.0	16.0			
M16x2.0		24.0	13.0	27.0	16.5	24.0	16.0	24.0	16.0	34.5
	M18x1.5	27.0	15.0			27.0	18.5			
M18x2.5		27.0	15.0	30.0	18.5	27.0	18.5			
	M20x1.5	30.0	16.0			30.0	20.0			
M20x2.5		30.0	16.0	32.0	20.5	30.0	20.0	30.0	20.0	42.8
	M22x1.5	33.0	18.0			33.0	22.0			
M22x2.5		33.0	18.0			33.0	22.0			
	M24x1.5	36.0	19.0			36.0	24.0			
	M24x2.0	36.0	19.0			36.0	24.0			
M24x3.0		36.0	19.0	41.0	24.5	36.0	24.0			
M27x3.0		41.0	22.0	46.0	27.5					
M30x3.5		46.0	24.0	50.0	30.5	46.0	30.0			
M33x3.5		50.0	26.0	55.0	33.5					
M36x4.0		55.0	29.0	60.0	36.5	55.0	36.0			
M39x4.0		60.0	31.0							
M42x4.5		65.0	34.0							
M48x5.0		75.0	38.0							
M56x5.5		85.0	45.0							
M64x6.0		95.0	51.0							
M72x6.0		105.0	58.0							

Nuts come in various shapes and sizes, with the type of nut used depending on the specific application and the type of fastener being used. Here is a list of some common types of nuts that Milsons stock.

Barrel Nuts

Barrel Nuts are cylindrical fasteners with internal threading that allows it to be used with bolts. Typically featuring either a hexagonal or cylindrical shape for easy installation and removal. Designed to be used in furniture applications, these nuts are inserted into a pre-drilled hole and secured with a bolt.

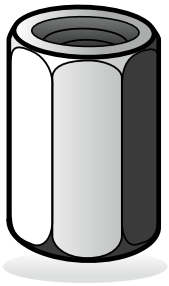
Applications: Furniture assembly, cabinetry, architectural applications, electrical panels.



Conelock Nuts

Conelock nuts are hex nuts that have a conical top and a flat bottom surface with chamfered corners. Near the top, it contains imperfect threads which distort under torque from an external thread. This helps to lock the nut in place against vibrations and sudden shocks.

Applications: Automotive suspension, machinery, construction, and heavy equipment applications.

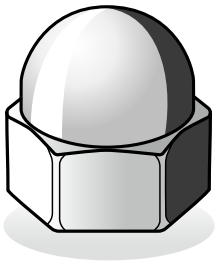


Coupling Nuts

Also known as: Extension nut

Coupling nuts are cylindrical elongated nuts with internal threading. They are used to connect two male threads together and to create longer thread assemblies from shorter parts.

Applications: To connect two externally threaded parts together in applications such as threaded rod or piping.

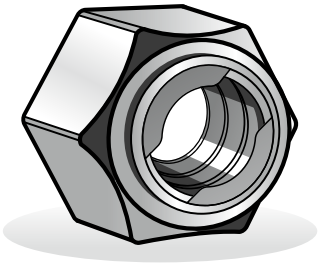


Dome Nuts

Also known as: blind nut, acorn nut, cap nut, dome nuts

These are nuts where one end is sealed off with a dome shape. Designed to cover and protect the ends of bolts or threaded rods, providing a smooth, finished appearance.

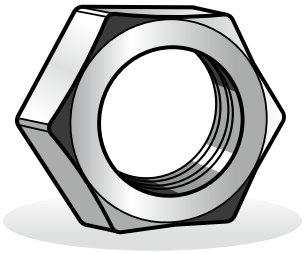
Applications: Aesthetic reasons or for safety reasons (e.g. to protect from sharp threads).



Fuji Lock Nuts

Also known as Fuji bearing locknuts, Fuji Lock Nuts use an internal friction ring that applies upward pressure when tightened, forcing the nut's threads to press against the threads it is fastened on to, to lock the nut in place and prevent loosening under vibration.

Applications: Commonly used in automotive applications, such as disc brake mountings. The all-metal locking mechanism allows them to withstand higher temperatures than nyloc nuts.

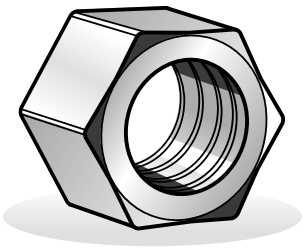


Half Nuts

Also known as: thin nuts, jam nuts, hex lock nuts.

Designed to be used in conjunction with a full nut to create a locking arrangement. The Half Nut should be threaded onto the mating thread first, followed by the Hex Nut.

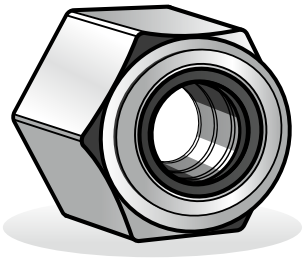
Applications: Usually used when a normal hex nut is not sufficient on its own.



Hex Nuts

Hex Nuts are six-sided, hexagonal female fasteners with internal threads designed to fit onto a male thread. The shape of the nut is designed to provide a secure grip and create a connection between components.

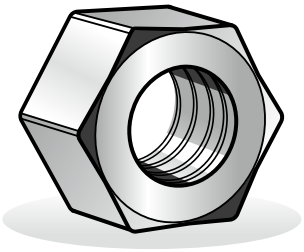
Applications: Hex nuts play a crucial role in various applications by providing a reliable method for joining and securing parts.



Nyloc Nuts

Also known as nylon-insert or polymer-insert lock nuts, these feature a nylon insert at one end with a slightly smaller diameter than the thread. As the nut is tightened, the insert deforms around the thread, creating resistance that locks it in place and prevents loosening.

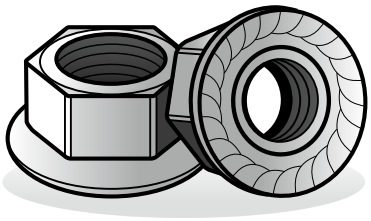
Applications: Used in environments subject to vibration where standard hex nuts may loosen.



Structural Nut HSFG

Structural Nuts (High Strength Friction Grip or HSFG Nuts) are heavy-duty fasteners designed to provide high strength and stability in structural applications.

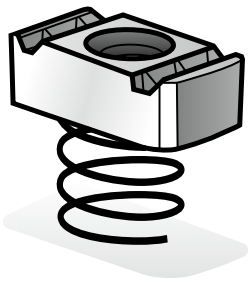
Applications: They are primarily used alongside structural bolts or threaded rods in construction and heavy machinery industries, where structural integrity is crucial.



Serrated Flange Nuts

Serrated flange nuts have a flange on one end that behaves like a stationary, non-spinning washer. The flange helps to distribute pressure from the nut more evenly in the component it is being secured to. The ‘washer’ has serrations cut at an angle to prevent rotation of the nut and stop it from loosening.

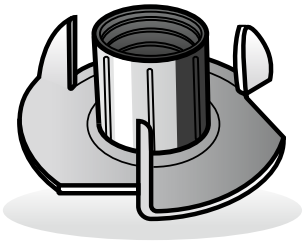
Applications: Commonly used in the automotive and construction industries, ideal for applications requiring reliability and resistance to loosening.



Strut Nuts

Rectangular shaped nuts with internal threading with a spring attached at the bottom. They also contain ‘grooves’ on either side that can fit and slide along the sides of a metal channel.

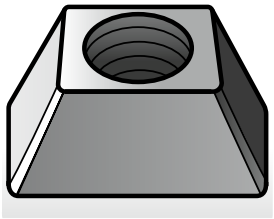
Applications: Commonly used in construction, manufacturing, and HVAC to secure equipment, supports, and structural components within framing systems.



Tee Nut

Tee nuts have a long cylindrical body with a flange at the top to create a flush surface with the workpiece. The flange has blade-like projections around it that are designed to cut into materials like wood or composite materials to make a permanent connection.

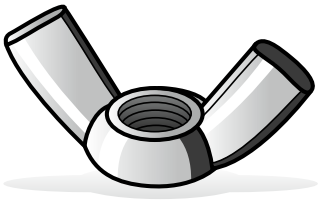
Applications: Places that require permanent connections in wood, composite material.



Wedge Nuts

Wedge nuts (or V-nuts) are specialised, tapered fasteners designed to create secure hanging points within the V-shaped ribs of composite steel decking, typically without drilling.

Applications: Used in construction to suspend threaded rods, pipes, cable trays, and HVAC services from composite flooring systems. Suited for applications that require precise adjustments and vibration-resistant connections.



Wing Nuts

Also known as: Butterfly nuts

Wing nuts contain two extensions at the end of the nut, which make them easier to grip with your thumb and finger while securing it.

Applications: Used in places that are hard to reach and where equipment such as spanners can't be used.