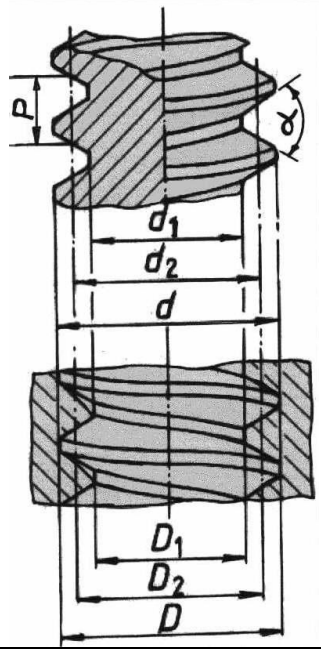
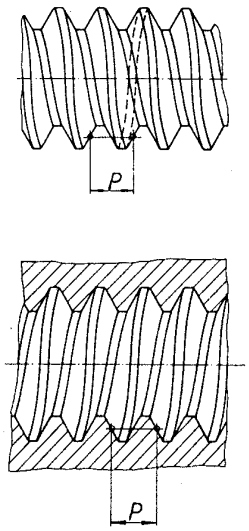
THE IMPORTANT DIMENSIONS ON A THREAD





D Major diameter for an internal thread
D_2 Pitch diameter for an internal thread
D_1 Minor diameter for an internal thread

d Major diameter for an external thread
d_2 Pitch diameter for an external thread
d_1 Minor diameter for an exernal thread

P Pitch

Pitch is the distance a single start thread moves when turned a single rotation. The correct definition is the axial distance between one point on a flank and the same point on the following and corresponding flank.
On a metric thread the number given (i.e. M16x2) after the thread diameter is the pitch whereas in a thread with TPI it is the number of threads (n) per inch (TPI) divided into 1. 1/n.

α Flank angle

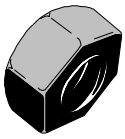
Metric (M) and American (UN) threads are 60^O, Whitworth 55^O, Metric trapezoidal 30^O and Acme 29^O
Other flank angles can be used for "special" threads

Tolerances

Unless otherwise specified the tolerance on a standard metric (**M**) nut is **6H** and on a screw **6g**

Unless otherwise specified the tolerance on a standard American (**UNC**) nut is **2B** and on a screw **2A**

The following information is for a standard ISO metric thread M16x2 - 6H/6g ref. ISO 965-3

Standard **M16x2** **NUT (6H)** 	**D**	**16,000**	**Standard** **M16x2** **SCREW** **(6g)** 	**d**	**16,000** - 0,038 - 0,318	Measuring an external thread is usually easier than measuring an internal thread. This is the one reason why internal screw threads often have larger tolerances than internal threads. Note the pitch diameter size – the nut 0,212mm and the screw 0,160mm As threads are usually measured within 0,01mm, it is practical to round the measurement result up or down to the nearest 0,01mm. If the measurement result is deemed necessary to 0,001mm then the flank angle and pitch should also be measured. The pitch diameter **D_2** for an internal thread must never be less than the nominal pitch diameter. The pitch diameter **d_2** for an external thread should never be larger than the nominal pitch diameter.
	D_2	**14,701** + 0,212 - 0		**d_2**	**14,701** - 0,038 - 0,198	
	D_1	**13,835** + 0,375 - 0		**d_1**	**13,546** - 0,038 - 0,327	

P	**2,000**	± 0,005	up to and including a length of 32 mm
α	**60^O**	± $0,5^O$	
r	**0,25**	minimum	radius on D og d_1

If the tolerance on **d_2** (**- 0,042 / - 0,212** giving **0,17mm**) is set to **100** then the tolerances for **D_2**, **D_1** and **d** respectively are **132**, **264** and **197**. Measuring an external thread is usually easier than an internal thread. This is probably one reason why internal screw threads often have larger tolerances than external threads.