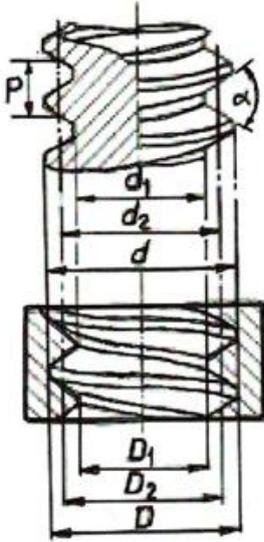


## MEASURE d1 & D THREAD DIAMETERS



The external thread major diameter (d) and the internal minor diameter (D1 or bore diameter) are easy to measure. So are both the external and internal pitch diameters (d2 and D2) using FMS thread inserts.

Sometimes companies want to, or are required to by customers, to measure d1 and D. FMS can and has made thread inserts that can do this. One advantage with FMS inserts for this is that, if requested, the inserts can often be made to measure 2 pitches.

For example, if the inserts necessary are to measure a pitch of 2mm then the same inserts can also be made to so they can measure either a 1mm or 4mm pitch. The same applies to inch threads and, again for example, pitches of 10 or 5 TPI.

If we are told which variation is preferred the inserts can probably be made for both pitches and at no extra cost.

### What reason can there be for it to be necessary to measure one or both these diameters?

A solid thread gauge, more often than not, would determine if one or the other diameters appears to be within tolerance on smaller diameter threads. When threads are so large that measuring is the option then large thread gauges, especially for single and few items, are both costly and have lengthy delivery times. The thread cutting tool tip can also be damaged or worn and perhaps not noticed when measuring pitch diameter. A fault like that is often first discovered at assembly. Other reasons can be read below.

On J type threads the radius on the external minor diameter (d1) is larger than the radius on the comparable standard thread. J type threads are often used in the aerospace industry.

*"UNJ, UNJC, UNJF and UNJEF threads are almost identical to UN, UNC, UNF, and UNEF threads except that the external J thread has a much larger root radius than the standard UN threads and inspection must be performed on this element. The Special UNJ threads are designated by the nomenclature UNJS. J screw threads feature a root radius which improves the tensile stress area of the fastener and helps to reduce the stress concentration factor in the thread thus making the thread stronger. Additionally, the requirement for high strength is achieved with 3A and 3B classes of fit. All pitch diameters and tolerances are based on the Unified Inch Standard."*

*"MJ threads are "Metric threads for Aerospace" used in aircraft, rockets and space stations. The MJ thread standard is specified in ISO 5855. The minor diameter is larger and the pitch diameter tolerance is more strict than general Metric threads."*

The information on both these quotes can be found by searching for J type thread profiles.

