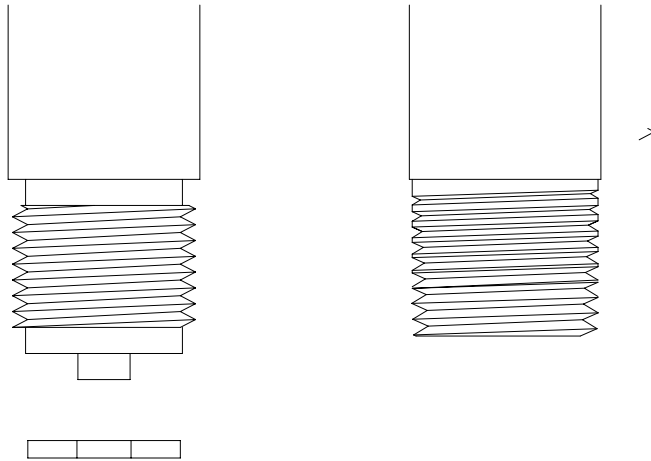


Threads for Instrument Connections

One of the least understood parts of instrument specifications is the connection thread. Misguided metrication also plays its part.

The two commonest thread types used are the BSP parallel thread, and the NPT taper thread. The differences between these are shown below:-



Parallel
Thread
Uses
Sealing
Washer

Taper
Thread
Uses
Thread
Tape

There is most confusion over BSP threads, since plumbing threads are also BSP. (Taper)

Most, but not all, European instrument threads are BSP parallel. These threads are designed for sealing on a flat washer under the thread. The modern specification for these threads is ISO228/1, previously BS2779, and they are referred to as G $\frac{1}{4}$, G $\frac{1}{2}$ etc. External threads are available with two tolerance classes, A and B. If not stated, G?B is assumed.

Occasionally you will come across instruments with a BSP Taper thread, but this is the exception rather than the rule. These threads were originally

made to BS21, superseded by ISO 7/1, and now used with the Prefix R. These threads are designed for sealing on the threads using thread tape or other sealant. These threads are commonly found in domestic / industrial plumbing systems. The SABS specification is 1109. International practice is to use the inch fractions, i.e. 1/8, 1/4, 3/8, 1/2. The SABS equivalents are 1/8 = 6mm 1/4 = 8mm 3/8 = 10mm 1/2 = 15mm 3/4 = 20mm 1 = 25mm.

Most instrument taper threads are NPT, the American taper standard. Only the 1/2 threads have some interchangeability, see table below. The European Standard EN472 prefers NPT for taper instrument threads, and ISO228 G for parallel instrument threads.

Size	Threads per inch				
	1/4	3/8	1/2	3/4	1
BSP G	19	19	14	14	11
NPT	18	18	14	14	11 1/2
BSP R	19	19	14	14	11

There is some interchangeability only on 1/2 & 3/4 threads!