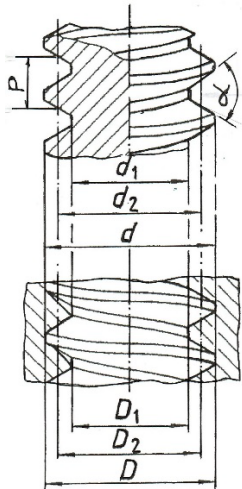


Possibly the only limitations as to what FMS can measure on threads are internal threads with diameters less than 6mm/1/4" and pitches finer than 48mm/ 24 TPI.



### EXTERNAL THREAD

$d$  = major diameter  
 $d_2$  = pitch diameter  
 $d_1$  = minor diameter

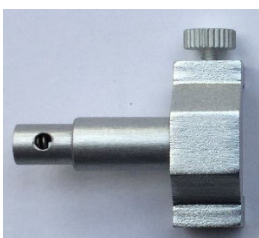
### INTERNAL THREAD

$D$  = major diameter  
 $D_2$  = pitch diameter  
 $D_1$  = minor diameter

$P$  = pitch  
 $a$  = flank angle

Measuring pitch diameter ( $d_2$  and  $D_2$ ) are the most important diameters measured on threads but external major diameter ( $d$ ) and internal minor diameter should always be done as, not only because easy to do but an external major diameter below tolerance and an internal minor diameter above tolerance does not get "caught" by solid thread gauges.

Inspecting pitch is also easy and inexpensive if a thread gauge is used.



Using a FMS caliper pressure device ensures uniform measurement accuracy by all and because measurement is at a distance from the caliper beam

FMS thread insert types 21, 22 and 23 can measure pitch diameter on all thread types with flank angles between 50° and 80° due to the unique design.

FMS thread insert types 24 and 25 are for measuring pitch diameter on tapered threads.

FMS thread insert types 26, 27 and 28 are for measuring pitch diameter on threads with a flank angle not between 50° and 80°. Typical 30° and 29°.

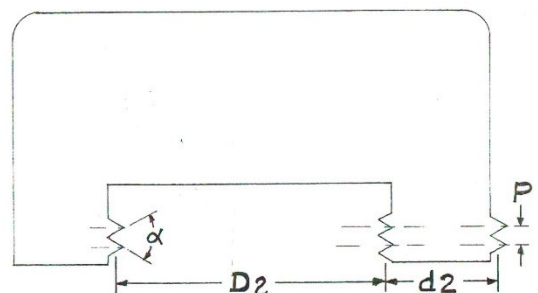
When measuring internal thread pitch diameter, a reference is necessary. A FMS calibration plate is perfect for this. Using a FMS calibration plate as a reference should normally give a thread pitch diameter measurement accuracy of 0.01mm/0.0005" as it is also calibrating the digital caliper.

A major advantage when measuring external thread pitch diameter with FMS is that, after zeroing, no calculation is necessary. The measurement result is the pitch diameter. With internal thread pitch diameter measurement, a simple subtraction after zeroing on the calibration plate is enough.

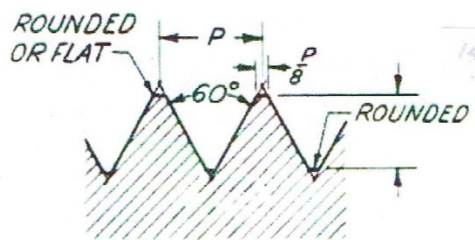
The standard dimensions for  $d_2$  on a FMS calibration plate is 20.00mm and for  $D_2$  50.00mm. Other dimension can be made to customer specifications.

If required a calibration certificate from a certified calibration laboratory can be supplied. Recalibration should not be necessary as there is virtually no wear when using a calibration plate.

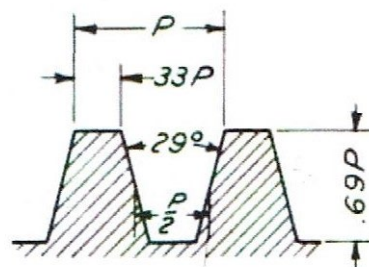
Typical FMS calibration plate



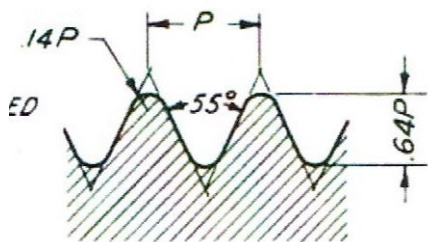
The following are several screw thread forms and basic specifications. Pitch diameter etc. can be measured on all with FMS thread inserts.



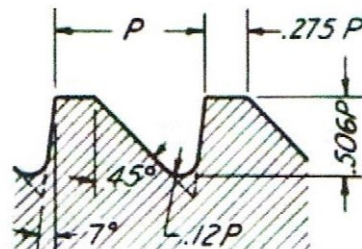
UNIFIED



B & S WORM

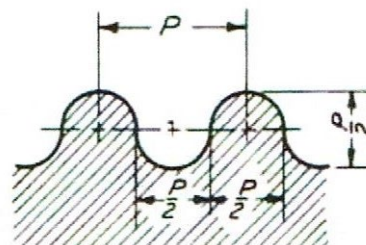


WHITWORTH

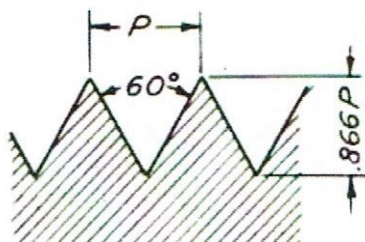


MODIFIED BUTTRESS

This thread type is the most commonly used profile for ISO pipe threads.

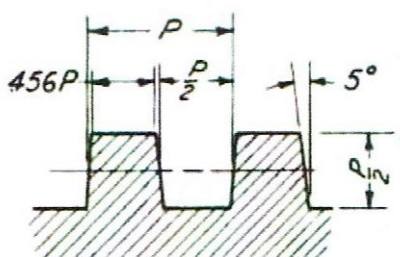


KNUCKLE

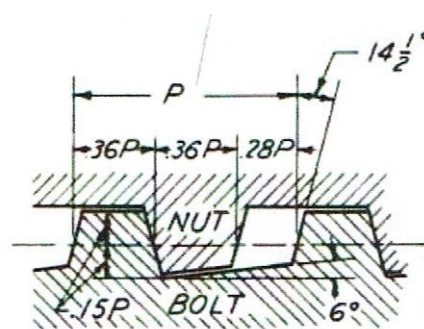


SHARP V

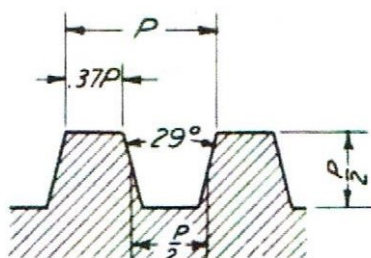
This thread (Rd) is specified as having a 30° flank angle. The actual length of the 30° is very small so when measuring with wires or balls the wire/ball diameter must be almost exactly the correct one or it is a radius that is being measured over



MODIFIED SQUARE  
10° INCLUDED ANGLE



DARDELET



ACME

FMS can and will answer practical questions thread questions (tolerances, use etc.) from customers at no cost. Assuming of course we can.