FMS THREAD MEASUREMENT PRINCIPLE

1A is a schematic drawing of the "male" thread insert

1B is a schematic drawing of the "female" thread insert

The top drawing shows 1A and 1B zeroed (0.00)

Pos. 1 shows the penetration depth on a "perfect" fit between the inserts and the thread pitch diameter

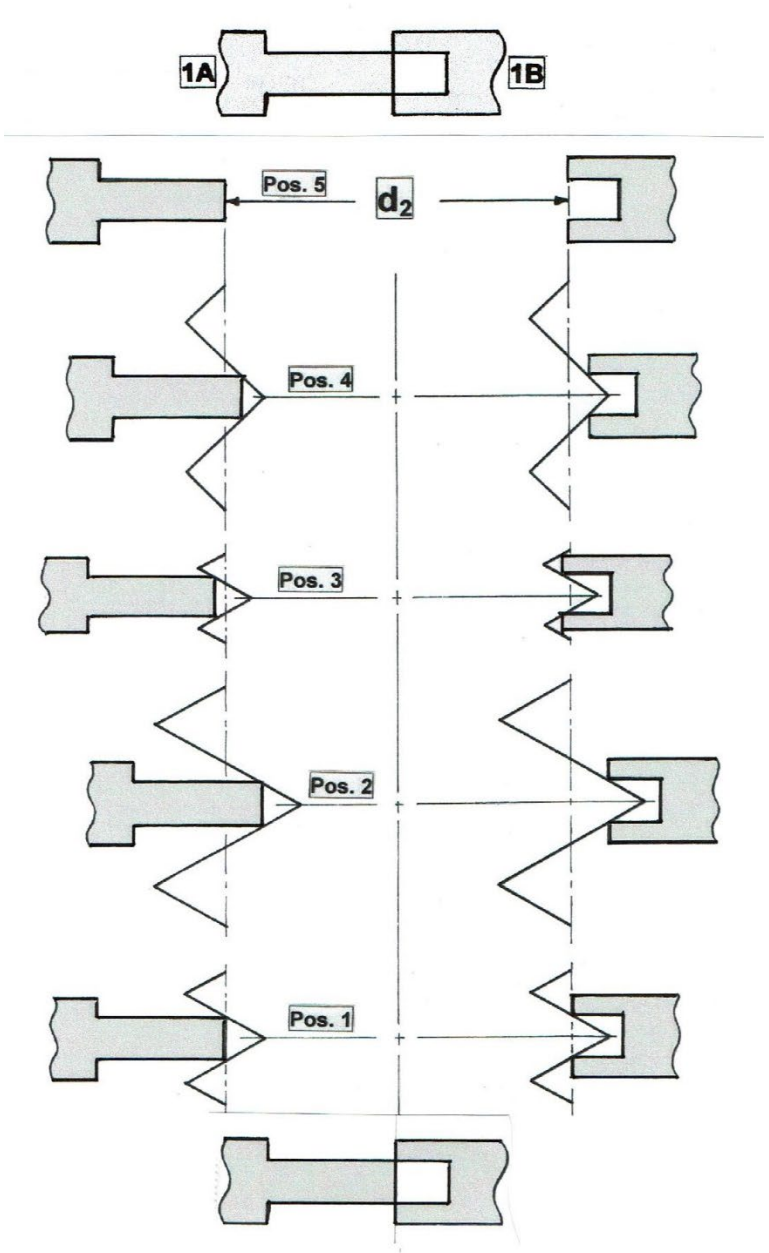
Pos. 2 shows the same inserts used on a coarser pitch. The distance the "male" insert (1A) penetrates below the pitch diameter is the same as the "female" thread insert (1B) is above the pitch diameter

Pos. 3 shows the same inserts used on a finer pitch.

Pos. 4 shows the same inserts used on a larger flank angle. All measurement results show the actual pitch diameter with the same thread inserts.

Pos. 5 shows that the pitch diameter distance is the same for all pitches and explains why FMS thread inserts have a wide range for all threads with a flank angle between 50º and 80º

Most thread flank angles less than 50º (Tr and ACME) need individual inserts because of the steep thread flank angle



For external pitch diameter measurement just push the two thread inserts against each other and zero (0.00) the digital caliper.

Measure the thread pitch diameter and the measurement result will be the actual thread pitch diameter.

Standard external FMS thread inserts 21AA, 21A, 21B, 21C and 21D cover the respective pitch ranges of 0.5-1mm, 1-2mm, 2-4mm, 4-8mm and 8-12mm plus 48-24 TPI, 24-13 TPI, 13-6 TPI, 6-3 TPI and 3-2 TPI.

Standard internal FMS thread inserts 22AA, 22A, 22B, 22C and 22D cover the respective pitch ranges of 0.5-1mm, 1-2mm, 2-4mm, 4-8mm and 8-12mm plus 48-24 TPI, 24-13 TPI, 13-6 TPI, 6-3 TPI and 3-2 TPI.
N.B. the minimum internal thread with these inserts is 6mm/¼"

Standard internal FMS thread inserts 23AA, 23A, 23B, 23C and 23D cover the respective pitch ranges of 0.5-1mm, 1-2mm, 2-4mm, 4-8mm and 8-12mm plus 48-24 TPI, 24-13 TPI, 13-6 TPI, 6-3 TPI and 3-2 TPI.
N.B. the minimum internal thread with these inserts is 36mm/1½"

Internal thread pitch diameter measurement requires a suitable reference (calibration) component. i.e. Calibration plate 30A or 30AB