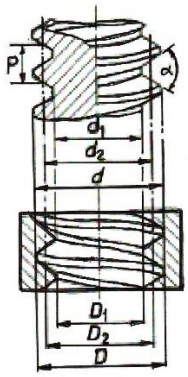
THREAD PROFILES

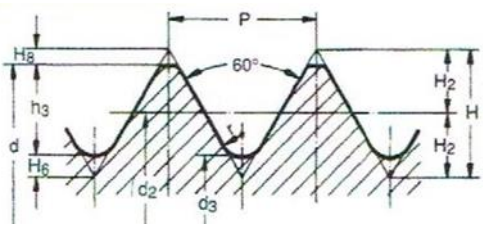
FMS has, or can make, thread inserts to measure these external and internal thread types. Pitch diameter (d2/D2) and also minor diameter (external) and major diameter (internal) D.



There are of course many thread types but probably the two most commonly used are ISO metric (M) and ISO Inch (UN).

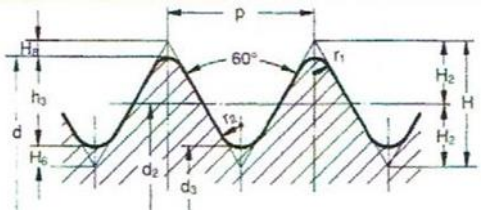
The profile of these two is almost identical with minor differences in radii and pitch.

ISO Metric M



$$H = 0{,}86603 \cdot P$$
$$h_3 = 0{,}61343 \cdot P$$
$$d_2 = d - (0{,}6495 \cdot P)$$
$$d_3 = d - (2 \cdot h_3)$$
$$r = \frac{H}{6} = 0{,}14434 \cdot P$$

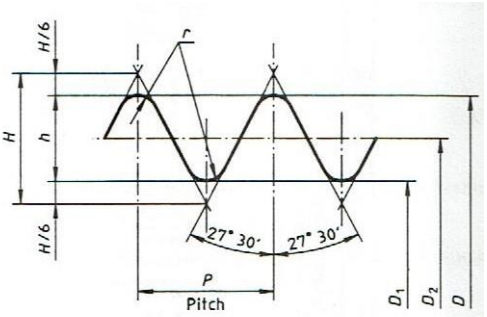
ISO Inch UNC, UNF, UNEF & NPS



$$H = 0{,}86603 \cdot P$$
$$h_3 = 0{,}61343 \cdot P$$
$$d_2 = d - (0{,}6495 \cdot P)$$
$$d_3 = d - (2 \cdot h_3)$$
$$r_1 = 0{,}10825 \cdot P$$
$$r_2 = 0{,}1443 \cdot P$$

Whitworth (55º)

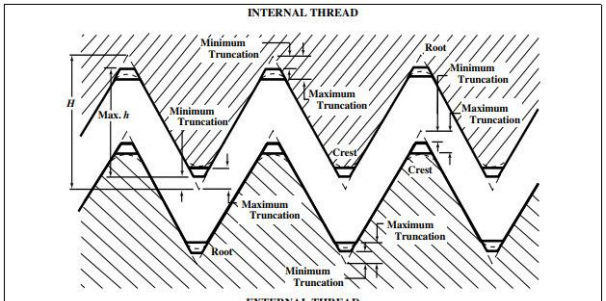
G or BSP (ISO 228 Pipe) & BSW
For pipe threads only 4 pitches.
28, 19, 14 & 11 TPI



$H = 0{,}960\,491\ P$
$h = 0{,}640\,327\ P$
$r = 0{,}137\,329\ P$

Pipe Straight NPS

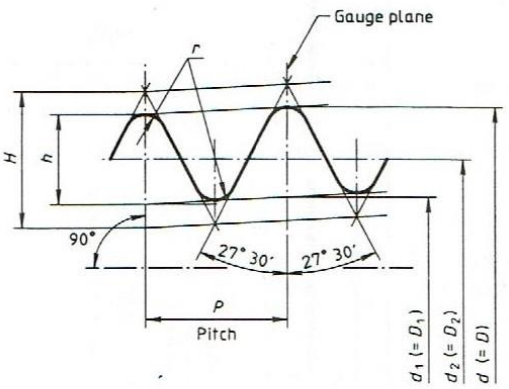
Only 5 pitches
27, 18, 14, 11½ & 8 TPI

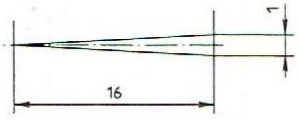


Threads per Inch	Height of Sharp V Thread, H	Height of Pipe Thread, h		Truncation, f		Width of Flat, F, Equivalent toTruncation	
		Max.	Min.	Min.	Max.	Min.	Max.
27	0.03208	0.02963	0.02496	0.0012	0.0036	0.0014	0.0041
18	0.04811	0.04444	0.03833	0.0018	0.0049	0.0021	0.0057
14	0.06186	0.05714	0.05071	0.0024	0.0056	0.0027	0.0064
11½	0.07531	0.06957	0.06261	0.0029	0.0063	0.0033	0.0073
8	0.10825	0.10000	0.09275	0.0041	0.0078	0.0048	0.0090

ISO 7-1 Taper Pipe R & Rc

Only 4 pitches. 28, 19, 14 & 11 TPI

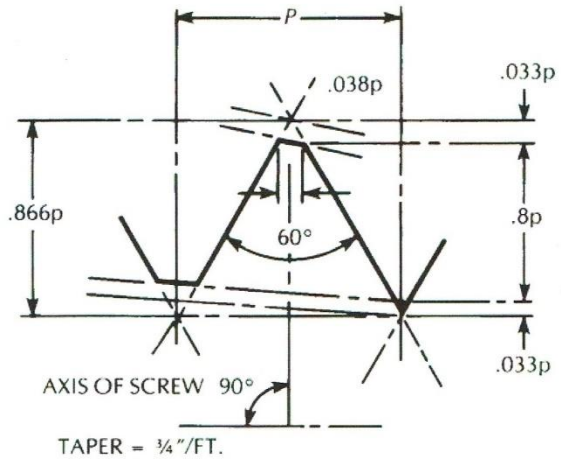




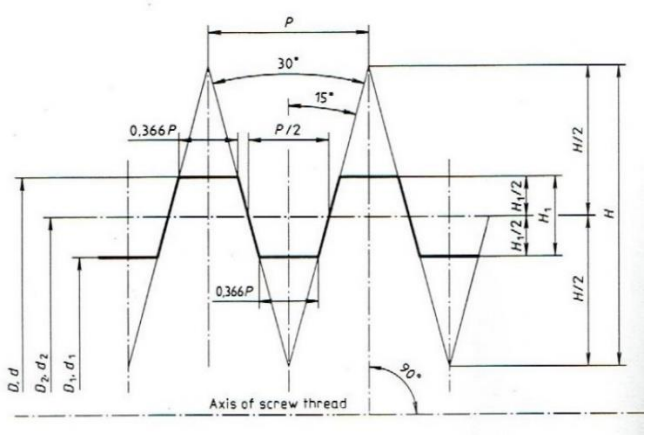
$H = 0{,}960\,237\ P$
$h = 0{,}640\,327\ P$
$r = 0{,}137\,278\ P$

US Pipe Taper NPT

Only 5 pitches 27, 18, 14, 11½ & 8 TPI

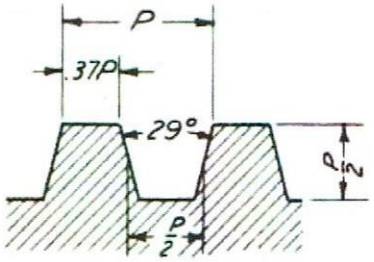


Metric Trapezoidal

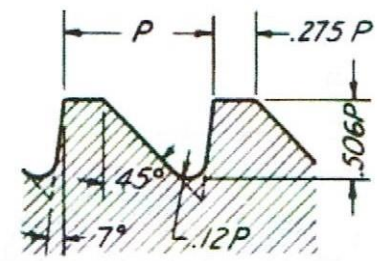


H1 = 0.5P

ACME



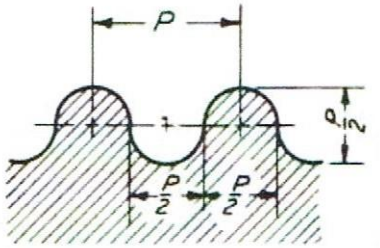
Buttress (7°/45°)



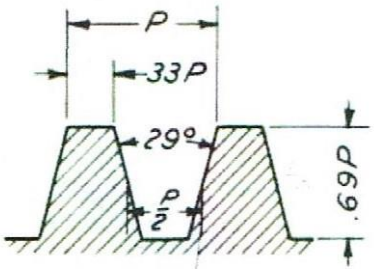
There are other flank angle variations

Knuckle

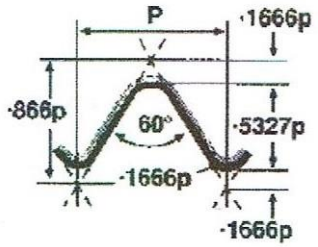
Only 4 pitches 10, 8, 6 & 4 TPI



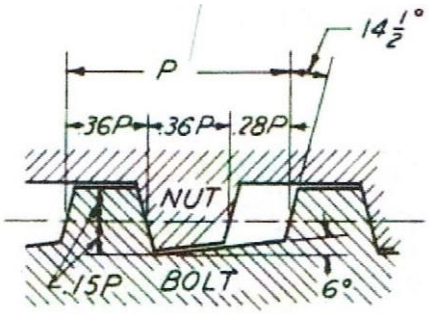
Worm



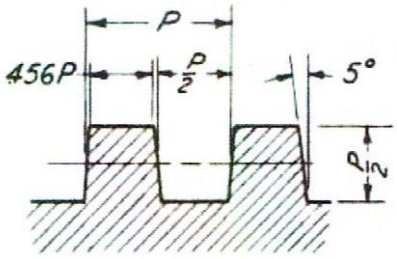
B.S. Cycle



Dardelet



Modified Square



https://flexiblemeasuring.com/