

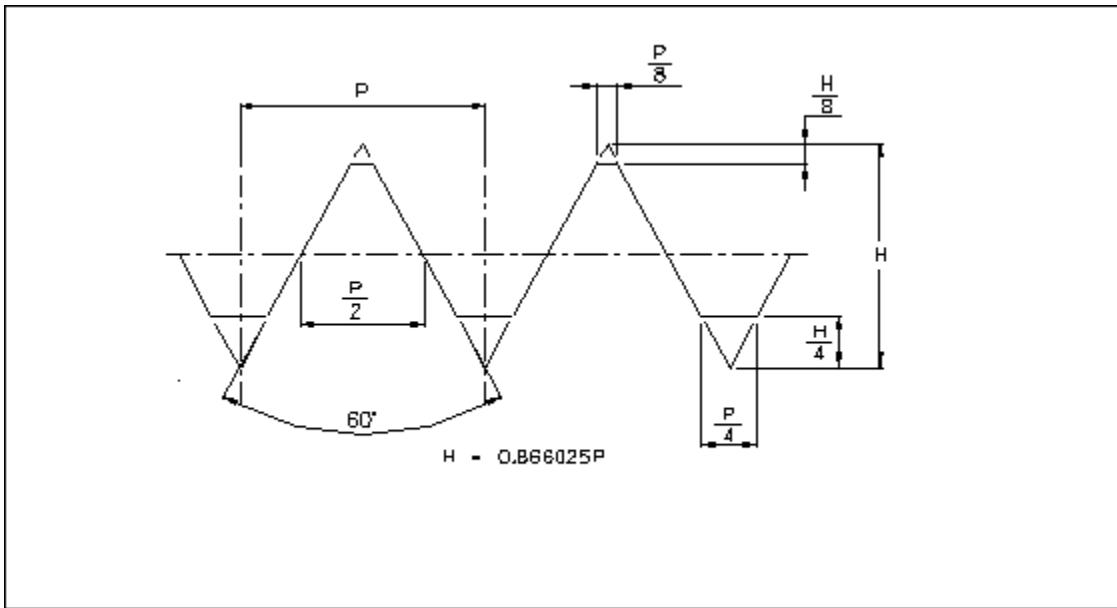
# Types of Threads

## ISO METRIC SCREW THREADS

### SPECIFICATION:

Basic dimensions :	Gauging Practice :
IS 4218 Part III - 1999	IS 2334 - 2001
IS 4218 Part IV - 2001	ISO 1502 : 1996
ISO 724 : 1993	B.S. 919 Part III : 1968
B.S. 3643 : Part I & II - 1981	JIS B0251 - 1978
JIS B0205 Part I,II,III & IV - 2001	DIN 2282 Part I - 2000, Part II- 2001, Part III- 2001
DIN 13 Part 12 - 1975	DIN 2285 Part I - 1975, DIN 2299 Part I - 1989

### BASIC THREAD PROFILE:



### APPLICATION :

These threads are used for general purpose fasteners.

### RANGE :

THREAD PLUG GAUGE : Diameter 1mm to 350mm

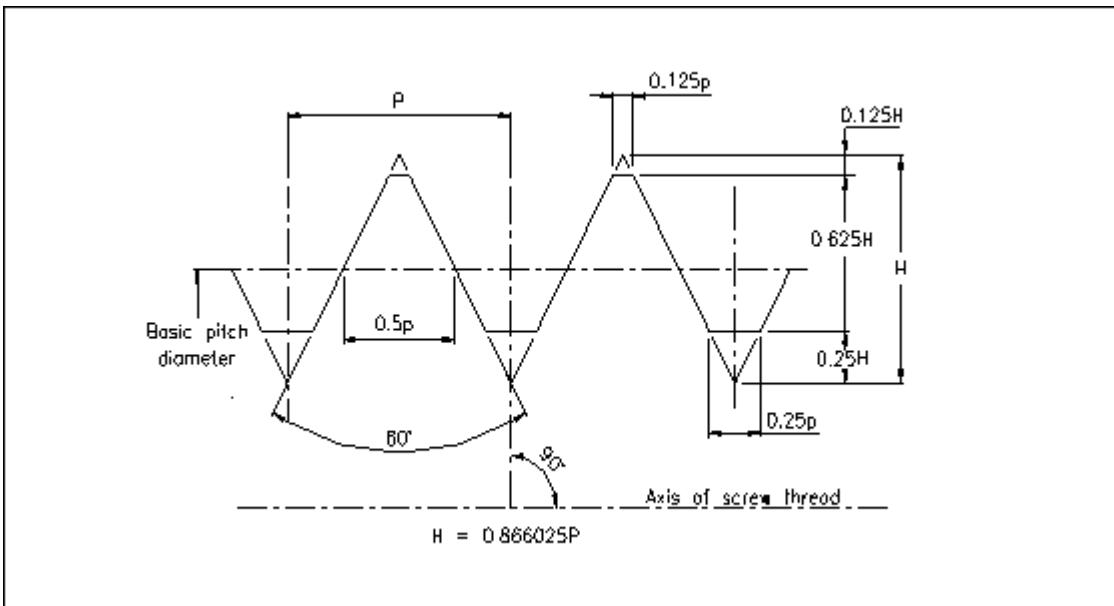
THREAD RING GAUGE : Diameter 1.2mm to 350mm

## UNIFIED INCH SCREW THREAD FORM (UN AND UNR THREAD FORM)

### SPECIFICATION:

Basic dimensions :	Gauging Practice :
ANSI B1.1 - 1982	ANSI B1.2 - 1983
B.S. 1580 Part I & II - 1962	B.S. 919 Part I - 1960
B.S. 1580 Part III - 1965	B.S. 919 Part IV - 1964

### BASIC THREAD PROFILE:



#### APPLICATION :

The Unified Coarse thread series (UNC/UNRC) is used for the bulk production of screws, bolts and nuts. It is commonly used in relative low strength materials such as cast iron, aluminium, magnesium, brass, bronze and plastic because the coarse threads provide more resistance to internal thread stripping than the fine or extra fine series. The fine thread series (UNF/UNRF) is commonly used for bolts and nuts in high strength applications. Fine series threads allows for finer adjustment in cases such as slotted nut and cotter pin assembly.

The extra-fine series (UNEF/UNREF) is used particularly for equipment and threaded parts which require fine adjustments, such as bearing retaining nuts, adjusting screws, etc. and for thin wall tubing and thin nuts.

#### RANGE :

THREAD PLUG GAUGE : No.0 to 14"

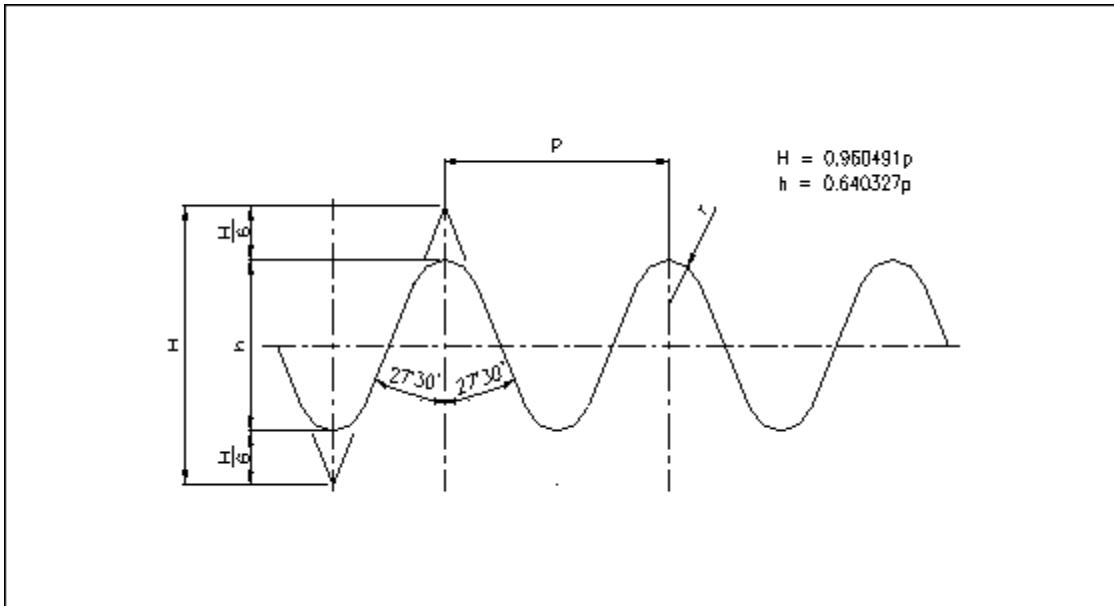
THREAD RING GAUGE : No.0 to 14"

## PIPE THREADS, WHERE PRESSURE-TIGHT JOINTS ARE NOT MADE ON THREADS ('G' THREADS)

### SPECIFICATION:

Basic dimensions :	Gauging Practice :
ISO 228 / 1 : 2000	ISO 228 / 2 : 1987 (E)
IS 2643 (Part 1 to 3) : 1999	IS 10216 : 1988
DIN ISO 228 Part I - 1985	DIN ISO 228 Part II - 1988

### BASIC THREAD PROFILE:



#### APPLICATION :

These threads are used for mechanical assembly, of the component parts of fittings, cocks and valves, accessories etc.

#### RANGE :

THREAD PLUG GAUGE : Size 1/16" to 6"

THREAD RING GAUGE : Size 1/16" to 6"

## PIPE THREADS WHERE PRESSURE-TIGHT JOINTS ARE MADE ON THREADS

#### SPECIFICATION:

##### Basic dimensions :

IS 554 - 1999

B.S. 21 - 1985

ISO 7 / 1 - 1994 (E)

DIN 2999 - 1960

##### Gauging Practice :

IS 8999 - 2003

B.S.21 - 1985

ISO 7/2 - 1982 (E)

DIN 2999 Sheet 2 & 3-1973, Sheet 4 & 5-1975

#### APPLICATION :

These threads are intended for tubes suitable for screwing, and for cocks, valves and any fittings to be connected to screwed tubes. If necessary, an appropriate jointing medium may be used on the thread to ensure pressure tight joints.

#### RANGE :

THREAD PLUG GAUGE : Size 1/16" to 6"

THREAD RING GAUGE : Size 1/16" to 6"

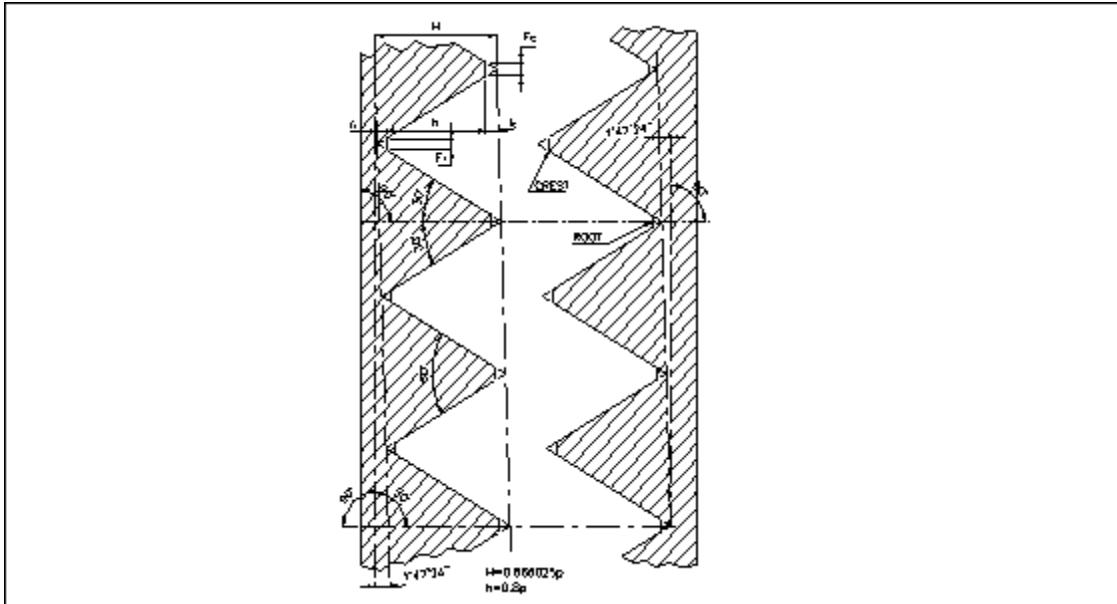
## PIPE THREADS, GENERAL PURPOSE (INCH) NPT

#### SPECIFICATION:

##### Basic dimensions :

ANSI / ASME B1.20.1 - 1983

#### BASIC THREAD PROFILE:



APPLICATION :	RANGE :
<p>Where pressure-tight joints are required, it is intended that taper pipe threads confirming to this standard be made up wrench-tight with a sealant. To prevent galling on certain piping materials such as stainless steels, the sealant usually contains lubricant.</p>	<p>THREAD PLUG GAUGE : Size 1/16" to 12"</p> <p>THREAD RING GAUGE : 1/16" to 12"</p>

# AMERICAN NATIONAL DRYSEAL PIPE THREADS NPTF

## **SPECIFICATION:**

<b>Basic dimensions :</b>	<b>Gauging Practice :</b>
ANSI B1.20.3 - 1976	ANSI B1.20.5 - 1991

## APPLICATION :

Dryseal pipe threads are designed to seal pressure tight joints without the necessity of using sealing compounds.

## 1. NPTF :-

This type applies to both external and internal threads & is suitable for pipe joints in practically every type of service.

## 2. PTF-SAE short :-

External threads of these types are designed for applications where clearance is not sufficient for the full thread length of NPTF threads.

Internal threads of these types are designed for thin materials where thickness is not sufficient for the full thread length of NPTF threads.

### 3. NPSF :-

These are straight threads and internal only. These are generally used with soft or ductile materials which will tend to adjust at assembly to the taper of external threads, but may be used in hard or brittle materials where the section is thick.

#### 4. NPSI :-

These are straight threads and internal only & slightly larger in diameter than NPSF threads. These may be used in hard or brittle materials where the section is thick or where there is a little expansion at assembly with external taper threads.

## GAUGES FOR NPTF THREADS - TYPES OF GAUGES:

<b>NPTF</b>	
<b>RING GAUGE</b>	<b>PLUG GAUGE</b>
L1 Ring Gauge - Basic Step	L1 Plug Gauge - Basic Step

L1 Ring Gauge - 3-Step  
 L2 Ring Gauge - Basic Step  
 L2 Ring Gauge - 3-Step  
 6-Step Crest Ring Gauge  
 6-Step Root Ring Gauge

L1 Plug Gauge - 3-Step  
 L3 Plug Gauge - Basic Step  
 L3 Plug Gauge - 3-Step  
 6-Step Crest Plug Gauge  
 6-Step Root Plug Gauge

#### PTF-SAE

##### RING GAUGE

L1 Short Ring Gauge - 3-Step  
 L2 Short Ring Gauge - 3-Step

##### PLUG GAUGE

L1 Short Plug Gauge - 3-Step  
 L2 Short Plug Gauge - 3-Step

##### NPSF

L1 Short Plug Gauge - 3-Step

##### NPSI

L1 Plug Gauge - 3-Step

##### MASTER GAUGES

Ring for L1 & L3 Taper Plug  
 Ring for 6-Step crest plug  
 Ring for 6-Step root plug

Plug for L1 & L2 Taper Ring  
 Plug for 6-Step crest ring  
 Plug for 6-Step root ring

##### RANGE

THREAD PLUG GAUGE : Size 1/16" to 3"

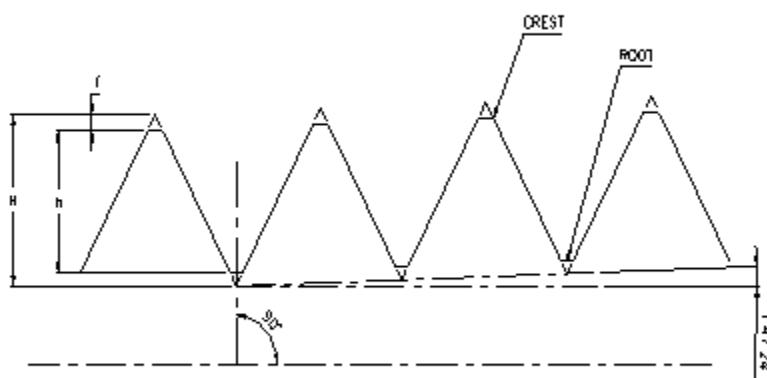
THREAD RING GAUGE : Size 1/16" to 3"

## PIPE THREADS, TAPER, AERONAUTICAL NATIONAL FORM ANPT ANPT

#### SPECIFICATION:

MIL-P-7105 B

#### BASIC THREAD PROFILE:



#### APPLICATION :

These threads are used for Aeronautical Industries.

#### RANGE :

THREAD PLUG GAUGE & 6-STEP CREST PLUG GAUGE :  
Size 1/16" to 3"

THREAD RING GAUGE & 6-STEP CREST RING GAUGE :  
Size 1/16" to 3"

# TAPER THREADS OF GAS CYLINDER VALVES

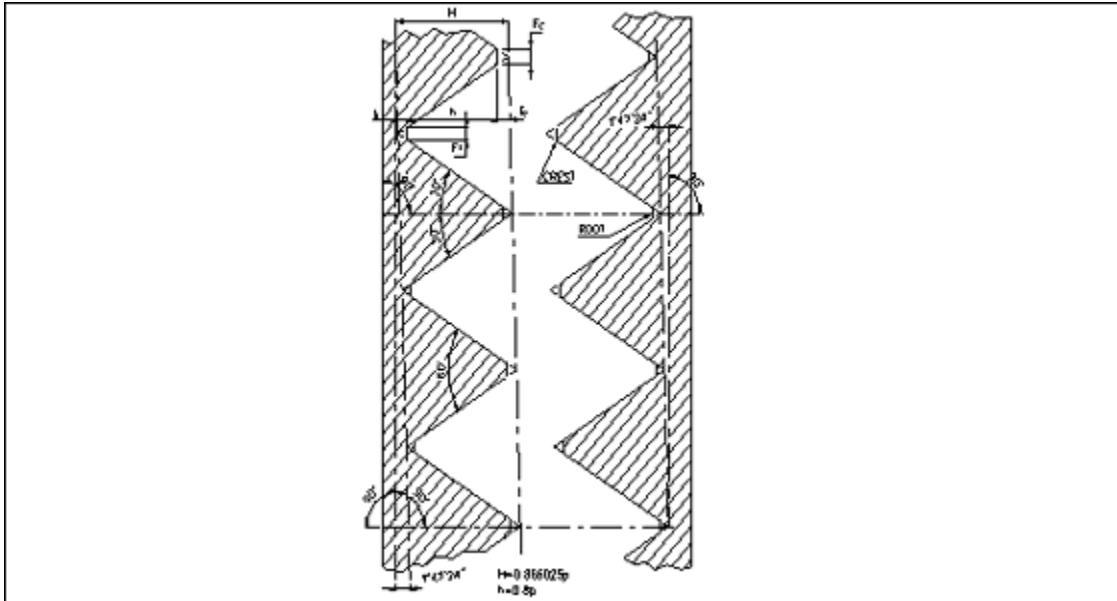
NGT

## **SPECIFICATION:**

<b>Basic dimensions :</b> IS : 3224 - 1979	<b>Gauging Dimensions :</b> IS : 9121-1979 for size 3/4"-14 NGT IS : 9687-1980 for size 1/2"-14 NGT
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ISI MARK CERTIFICATION HAS GRANTED TO US WITH LICENCE No. CM/L - 1441641 FOR SIZE 3/4"-14 NGT.

## **BASIC THREAD PROFILE:**



<b>APPLICATION :</b>	<b>RANGE :</b>
These taper threads are used on valve stems and in the cylinder necks of valve fittings.	THREAD PLUG GAUGE : Size 3/4" & 1/2" THREAD RING GAUGE : Size 3/4" & 1/2"

## THREADS USED BY AMERICAN PETROLEUM INDUSTRIES

## API

There are different types of threads used by American Petroleum Industries which are as follows,

- 1. Line Pipe threads**  
Range : Size 1/8" to 8" - Thread Plug & Ring Gauges
- 2. Round thread casing short and long**  
Range : Size 4 1/2" to 9 5/8" - Thread Plug & Ring Gauges
- 3. Buttress thread casing**  
Range : Size 4 1/2" to 9 5/8" - Thread Plug & Ring Gauges
- 4. Non-upset tubing threads**  
Range : Size 1.050" to 4 1/2" - Thread Plug & Ring Gauges
- 5. External upset tubing threads**

Range : Size 1.050" to 4 1/2" - Thread Plug & Ring Gauges

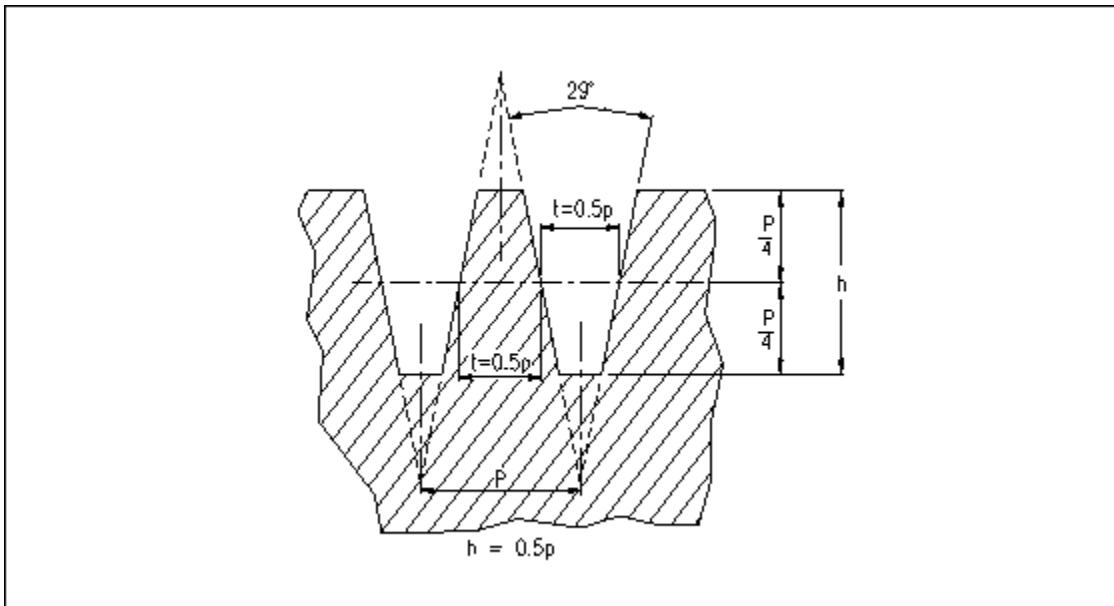
The gauges used to test the above threads consists of working plug and working ring gauges. Certified Master plug and master ring gauges are required to check the above working gauges.

## ACME THREADS

### SPECIFICATION:

ANSI B1.5 - 1988

### BASIC THREAD PROFILE:



### APPLICATION :

Acme screw threads are mainly used for the purpose of producing traversing motions on machines , tools etc. The multi-start threads are used to provide fast relative traversing motion.

### RANGE :

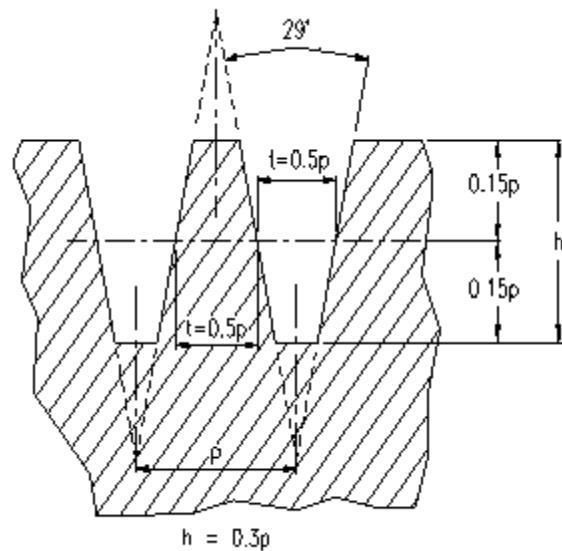
THREAD PLUG GAUGE : Size 1/4" to 5"  
THREAD RING GAUGE : Size 1/4" to 5"

## STUB ACME THREADS

### SPECIFICATION:

ANSI B1.8 - 1988

### BASIC THREAD PROFILE:



## **APPLICATION :**

The Stub Acme screw threads are generally confined to those unusual applications like transmission of power and motion where a coarse pitch thread of shallow depth is required due to mechanical or metallurgical considerations.

**RANGE :**

## THREAD PLUG GAUGE : Size 1/4" to 5"

## THREAD RING GAUGE : Size 1/4" to 5"

## TRAPEZOIDAL THREADS

## **SPECIFICATION:**

## Basic dimensions :

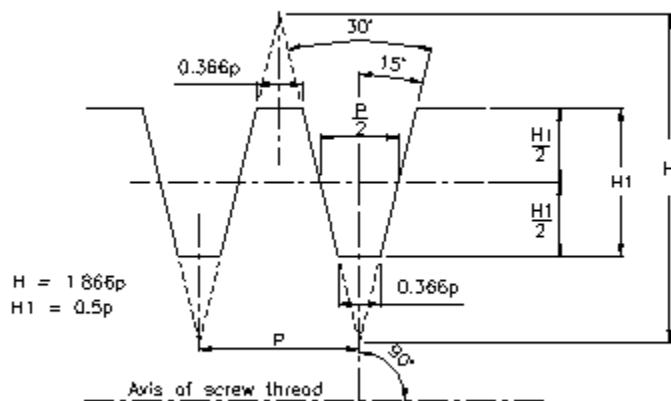
ISO 2901 : 1993 (E), ISO 2902 : 1977  
ISO 2903 : 1993 (E)

IS 7008 Part I & IV : 1999. Part II & III : 1988

## Gauging Dimensions :

DIN 103 (Part 9) : 1985

## BASIC THREAD PROFILE:



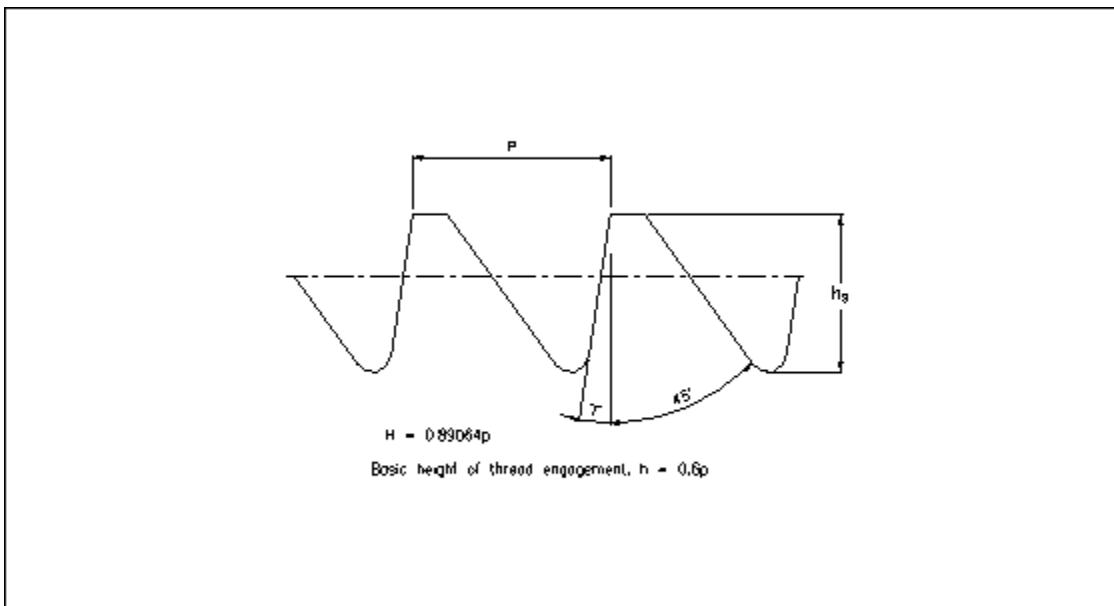
APPLICATION :	RANGE :
For transmission of power & motion.	THREAD PLUG GAUGE : Diameter 8mm to 300mm
	THREAD RING GAUGE : Diameter 8mm to 300mm

## BUTTRESS INCH SCREW THREADS (7° / 45° FORM WITH 0.6P BASIC HEIGHT OF THREAD ENGAGEMENT)

### SPECIFICATION:

ANSI B1.9 - 1973  
B.S. 1657 - 1950

### BASIC THREAD PROFILE:



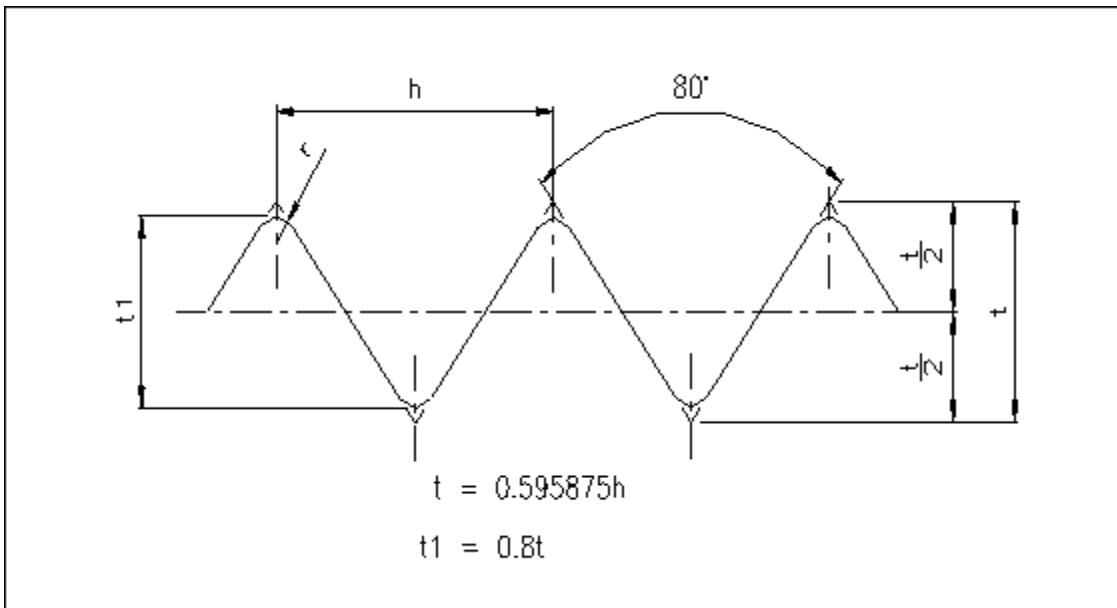
APPLICATION :	RANGE :
The buttress thread form has certain advantages in applications involving exceptionally high stresses along the thread axis in one direction only.	THREAD PLUG GAUGE : Size 1/2" to 12"
The few applications are the breech assemblies of large guns, airplane propeller hubs, and columns for hydraulic presses.	THREAD RING GAUGE : Size 1/2" to 12"

## STEEL CONDUIT THREAD, Pg (80°)

### SPECIFICATION:

Basic dimensions :	Gauging Dimensions :
DIN 40430 - 1941	DIN 40431 Part I - 1970

### BASIC THREAD PROFILE:



**RANGE :**

THREAD PLUG GAUGE : Size Pg7 to Pg48

THREAD RING GAUGE : Size Pg7 to Pg48

**PARALLEL SCREW THREADS OF WHITWORTH FORM  
BSW, BSF**

**SPECIFICATION:**

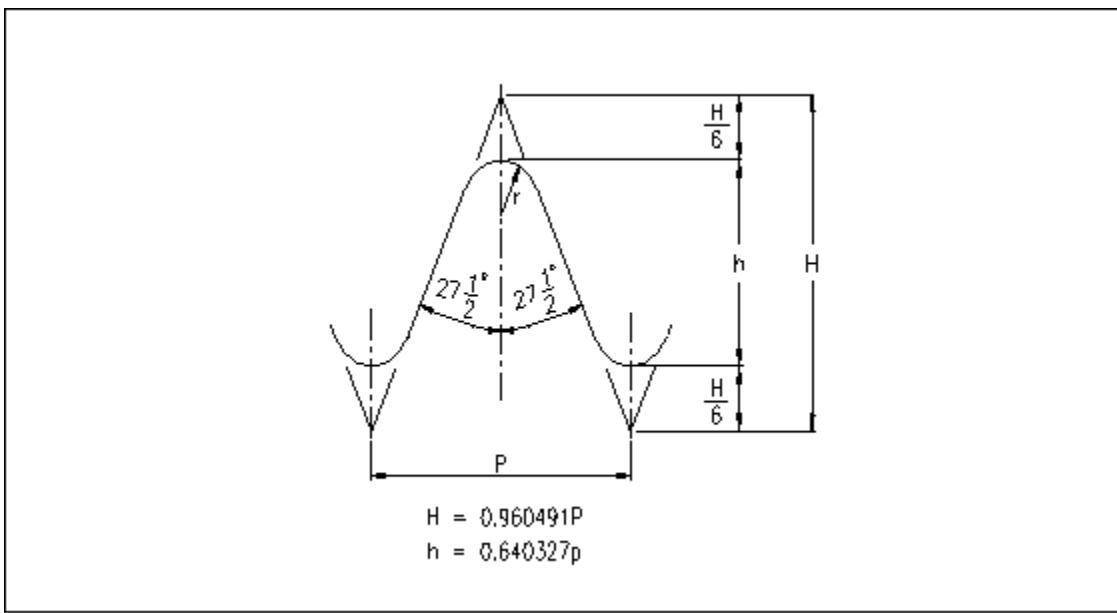
Basic dimensions :

B.S. 84 : 1956

Gauging Dimensions :

B.S. 919 : Part 2 : 1971

**BASIC THREAD PROFILE:**



**APPLICATION :**

**RANGE :**

These threads are used for general engineering purpose.

THREAD PLUG GAUGE : Size 1/8" to 6"

THREAD RING GAUGE : Size 1/8" to 6"

## CYCLE THREADS

### SPECIFICATION:

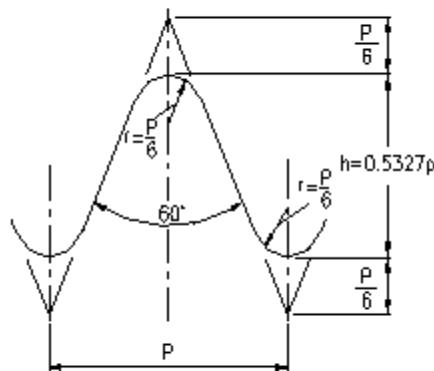
**Basic dimensions :**

B.S. 811 : 1950

**Gauging Dimensions :**

B.S. 919 : Part 2 :1971

### BASIC THREAD PROFILE:



### APPLICATION :

The form of thread is formulated to provide a thread of suitable design and mechanical strength for bolts, nuts, nipples, spokes and other threaded parts of cycles and motor cycles.

### RANGE :

THREAD PLUG GAUGE : Size 1/8" to 3/4"

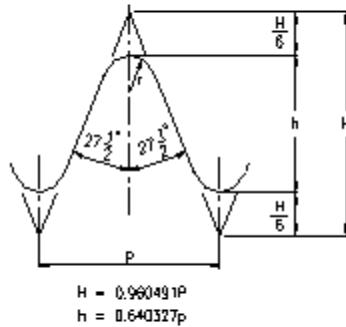
THREAD RING GAUGE : Size 1/8" to 3/4"

## B.S. STEEL CONDUIT AND FITTINGS

### SPECIFICATION:

B.S. 31 : 1940

### BASIC THREAD PROFILE:



#### APPLICATION :

These threads are used for electrical wiring.

#### RANGE :

THREAD PLUG GAUGE : Size 0.5" to 2.5"

THREAD RING GAUGE : Size 0.5" to 2.5"

### BOLTED CONNECTIONS WITH REDUCED SHANK, METRIC THREAD WITH LARGE CLEARANCE

(Note : Nut threads according to DIN 13, Class 6H)

#### SPECIFICATION:

##### Basic dimensions :

DIN 2510 (Part 1 to 8)

##### Gauging Dimensions :

DIN 13

#### APPLICATION :

The threads according to this standard corresponds with the Metric ISO thread to DIN 13. Larger basic allowances are provided for the bolt thread in order to ensure the minimum flank clearance needed for bolted connections with reduced shank.

#### RANGE :

THREAD RING GAUGE : Size M12 to M180

### THE TAPPING OF HOLES TO RECEIVE WIRE THREAD INSERTS (HELICOIL)

#### SPECIFICATION:

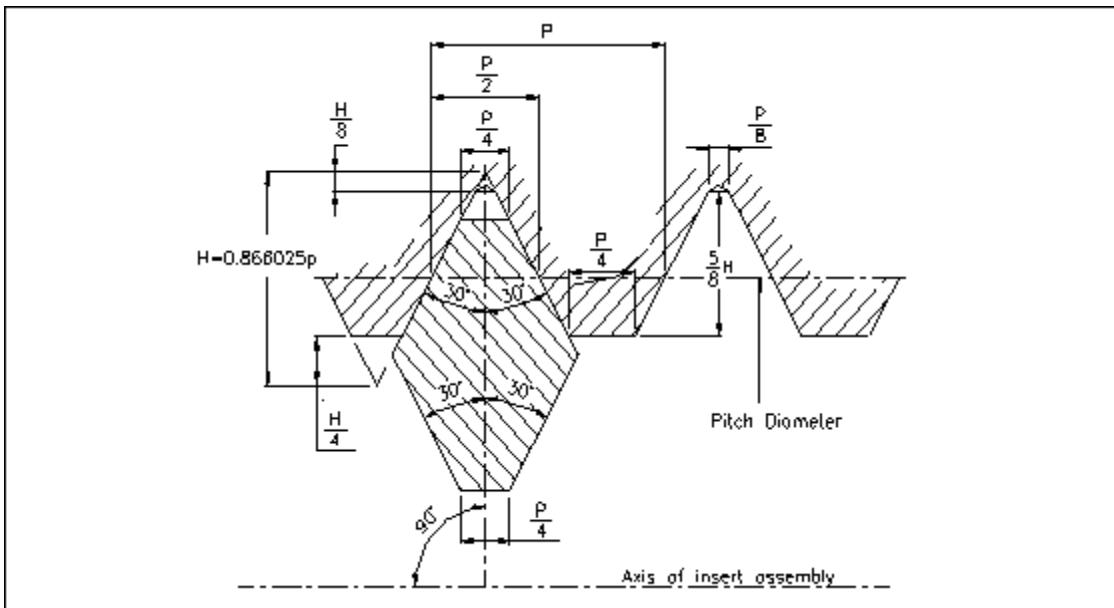
B.S.4377 : 1977

[ For ISO Metric Threads ]

B.S.3409 Part I - 1961 & B.S. 3409 Part II - 1966

[ For Unified Threads ]

#### BASIC THREAD PROFILE:



#### APPLICATION :

The use of wire thread inserts by many industries has grown rapidly in recent years. The main purpose is to provide a wear resisting fastening in light alloys and similar materials. Their application is mainly for example, inserts may be called upon to meet design requirements or they may be used for purposes of salvage and repair.

#### RANGE :

THREAD PLUG GAUGE : M2.5 TO M39  
THREAD PLUG GAUGE : No.2 TO 1 1/2"

## MILD STEEL TUBES AND TUBULARS

#### SPECIFICATION:

IS 1239 Part I - 2004  
IS 1239 Part II - 1992

#### APPLICATION :

This standard covers the requirement of butt welded, seamless, screwed and socketed mild steel tubes, suitable for screwing to pipe threads confirming to IS 554-1999, Specification for pipe threads for gas list tubes and screwed fittings. Sockets shall be capable of withstanding the expansion test with steel plugs having thread form and angle of taper in accordance with IS 554 : 1999

#### RANGE :

THREAD PLUG GAUGE : Diameter 6mm to 150mm