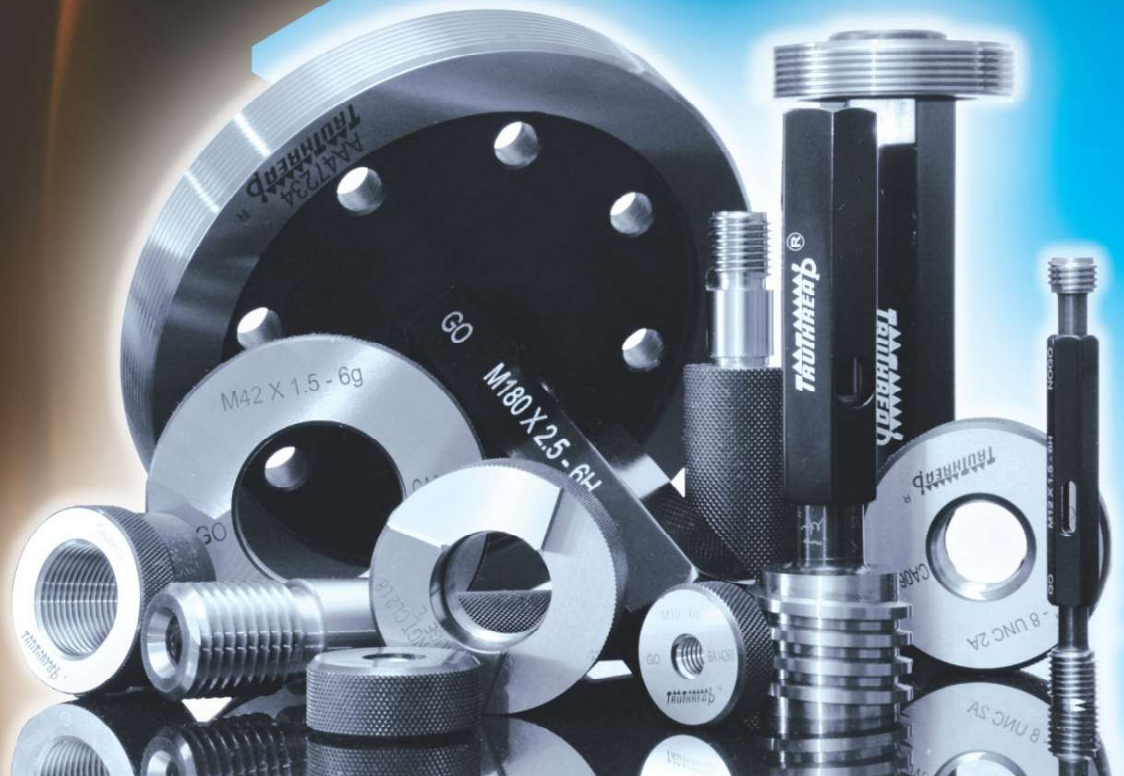




Tru-Thread Gauges & Tools Pvt. Ltd.

*Threading our way  
to Excellence*



# Modern Manufacturing Plant with top class machine tools sourced from all over the world.



Temperature controlled Thread Grinding Section



Cylindrical Grinding Section



Design Section with Software for 3D-Product Modeling



Thread Grinding of Plug Gauge



Thread Grinding of Ring Gauge



CNC Technology for Manufacturing

## Heat Treatment

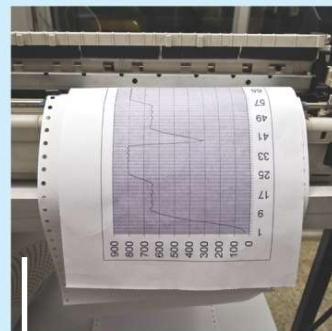
- Proper Heat treatment is necessary to achieve wear resistance and dimensional stability in gauges.
- We have modern, safe and environmental friendly heat treatment facility, different from conventional salt bath furnaces.
- Electrically heated furnaces are fitted with electronic controller and data loggers for controlling and recording heat treatment cycle parameters.
- Gauges are Heat treated to achieve hardness of 60 - 63 HRc.



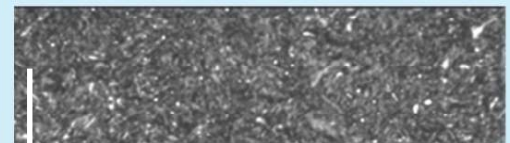
Heating Gauges for Heat Treatment



Oil Quenching of Gauges

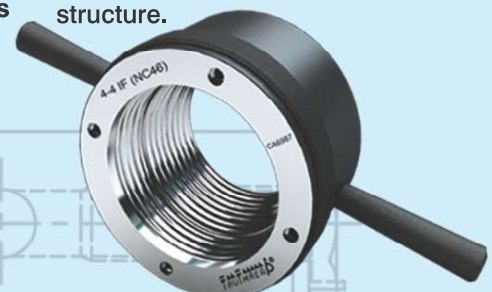


Records of Cycle Parameters



### Micro structure of Gauge –

- Uniformly distributed carbides in a matrix of tempered martensite.
- No banding of carbides.
- Fine size carbides are uniformly distributed throughout the structure.



## PREFACE



The purpose of preparing this technical catalogue is to make a single comprehensive document, that has most of the required information on threads at one place.

We have made honest and sincere efforts to cover most of the thread profiles & specifications. We hope that this will help our customers in understanding basic information about threads.

The first edition was appreciated by our customers across the globe. They were requesting us to release the next edition.

We are now releasing the second edition. In this second edition, we have updated the specifications and added a section on Frequently Asked Questions (FAQs).

We have taken utmost care to ensure the correctness of this catalogue, but we do not take any legal liability for this. Please use your own discretion while using this catalogue.

We welcome your suggestions for improvement. For feedback or suggestions you can email to [atul@truththread.com](mailto:atul@truththread.com) OR connect with me on [linkedin.com/in/atultapre](https://www.linkedin.com/in/atultapre)

**Atul Tapre**  
Jt. Managing Director  
Truththread Gauges & Tools Pvt. Ltd.



4<sup>th</sup> February 2022



**Tru-thread Gauges & Tools Pvt. Ltd.**

CIN - U17231PN1982PTC027369

T-83, M.I.D.C. BHOSARI, PUNE - 411 026. INDIA.

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### PRODUCTS FOR THREAD GAUGING

1. **THREAD PLUG GAUGES** are used for checking Internal threaded components.  
For parallel gauges up to 65mm / 2.5" Nominal Diameter, Go & Nogo ends are fitted on both sides of a single handle, & supplied in pair unless otherwise instructed by the customer. For Nominal Diameter above 65mm/ 2.5", Go end & NOGO end are fitted on separate handles. Taper Gauges have **only one member** with steps to indicate Maximum, Minimum & Basic pitch diameter limits.
2. **THREAD RING GAUGES** are used for checking external threaded components.  
We manufacture solid Thread Ring Gauges & **not** the adjustable type or Thread Calipers / Rings.
3. **CHECK PLUG (CP) GAUGES** are used for checking **NEW** thread ring gauges.  
For checking **NEW** GO screw ring gauge, Check plug for GO ring gauge is used. Check Plug has GO and NOGO end. GO end should completely pass through GO ring gauge, while NOGO end should not pass. This indicates that, GO screw ring gauge is within specified tolerance. Similarly Check plug for NOGO ring will be used for checking **NEW** NOGO ring gauge.  
Normally, check plug gauges are used for checking smaller diameter ring gauges where the facility of direct measurement is not available or direct measure is not possible.
4. **WEAR CHECK PLUG GAUGES (WCP)** are used for checking wear / calibration of **USED** screw ring gauge. These WCPs are designed in such a manner that, when WCP enters its corresponding ring gauge, it indicates that, the ring is worn out and oversize than the allowable wear limit. WCP for Go Ring & WCP for Nogo ring are supplied separately.
5. **DOUBLE LENGTH SETTING PLUGS** for settings adjustable rings.
6. **SETTING PLUGS** for setting caliper gauges.
7. **PLAIN PLUG TO CHECK MINOR DIAMETER** of Internal Threads.
8. **PLAIN RING TO CHECK MAJOR DIAMETER** of External Threads.
9. **CHECK RING (CR) GAUGES** to check **NEW** Thread Plug Gauges. There is no International / National standard for these gauges and design is based on our own Company Standard. ⚡ These are manufactured, if requested by customer.
10. **WEAR CHECK RINGS (WCR)** to check used Thread Plug Gauges. There is no International / National standard for these gauges and design is based on our own Company Standard. ⚡ These are manufactured, if requested by customer.

**AISI O-1 / 100 MnCr W4 / DIN 1.2510 tool steel**

Elements	% Composition
Carbon (c)	0.85 – 0.95
Silicon (Si)	0.20 – 0.40
Manganese (Mn)	1.00 – 1.30
Chromium (Cr)	0.40 – 0.60
Vanadium (V)	(0.20) Max.
Tungstan (W)	0.40 – 0.60

**EN 31 / SAE 5210 / 100 Cr6 / DIN 1.3505 tool steel**

Elements	% Composition
Carbon (c)	0.95 – 1.10
Silicon (Si)	0.10 – 0.35
Manganese (Mn)	0.40 – 0.70
Chromium (Cr)	1.20 – 1.60
Sulphur (S)	0.025 – 0.050
Phosphorus (P)	0.0350 – 0.050

**HEAT TREATMENT**

'TRUTHREAD' has established modern, safe & environmental friendly in-house heat treatment facility. This is zero pollution Green technology & does not use poisonous substances like Cyanide used in conventional salt bath furnaces.

We use controlled atmosphere electrical furnaces for heat treatment. As the furnaces are electrical, they offer very precise temperature control. The furnaces are fitted with electronic controllers along with data logger for recording the cycle parameters. The complete heat treatment cycle is mapped & data is electronically stored.

The Heat Treatment Cycle includes Stress relieving, Pre heating, Soaking, Austenitizing, Oil quenching, & double Tempering.

The complete Heat Treatment Cycle is automated ( Loading, Unloading & Quenching.), with programmable electronics controls.

This ensures consistent quality.

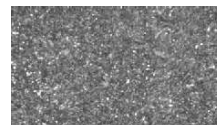
The heat treatment process is periodically validated to achieve consistent & good quality micro structure.

**HARDNESS**

The hardness of gauges is 60-63 HRc.

**Micro structure of Gauge –**

- Uniformly distributed carbides in a matrix of tempered martensite.
- No banding of carbides.
- Fine size carbides are uniformly distributed throughout the structure.

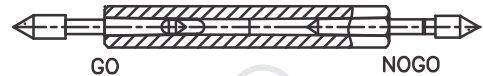




**Thread Plug Gauges : Up to 40mm.**

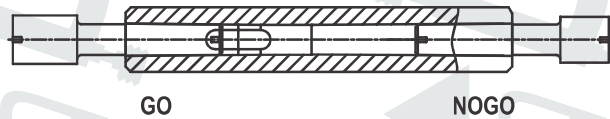
**SPECIFICATIONS :**

Indian standard : IS 9631-1983  
 ISO standard : ISO 3670 -1979  
 DIN standard : DIN 2282 (1)-2000 for Go members.  
 DIN 2284 (1)-2000 for Nogo members.



**Nominal Diameter Up to 3 mm.**

Go & Nogo Plugs with Male centers on both sides.



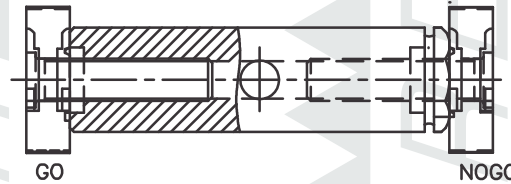
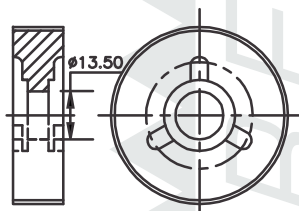
**Nominal Diameter 3 – 40 mm.**

Go & Nogo plugs with Female centers on both sides.

**Thread Plug Gauges: 40-200 mm.**

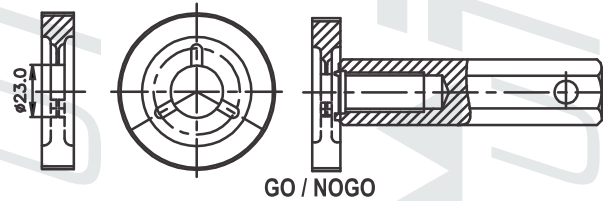
**SPECIFICATIONS:**

Indian standard :  
 IS 9608-1985 for sizes up to 120mm &  
 IS 10685-1983 for sizes between 120-200mm  
 ISO standard : ISO 3670-1979  
 DIN standard : DIN 2282 (2)-2001 for Go  
 DIN 2284 (2)-2001 for Nogo



**Nominal Diameter 40-65 mm.**

Up to 65mm/ 2.5", Go & Nogo gauge members are fitted on same handle.



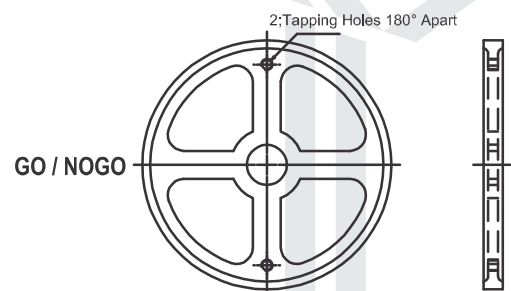
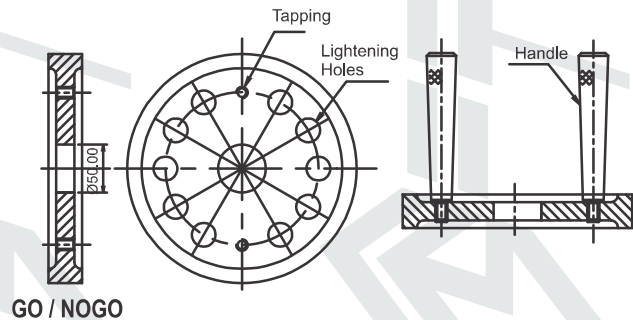
**Nominal Diameter 65 – 200 mm.**

Above 65mm/ 2.5" Nominal Diameter, Go member is fitted on one handle & Nogo member is fitted on separate handle.

**Thread Plug Gauges: above 200-300 mm.**

**SPECIFICATION:**

Company standard (as no National /International Specification is available)



**Thread Plug Gauges: above 300 mm.**

**SPECIFICATION:**

Company standard (as no National /International Specification is available)

**Thread Ring Gauges: 1-200 mm.**

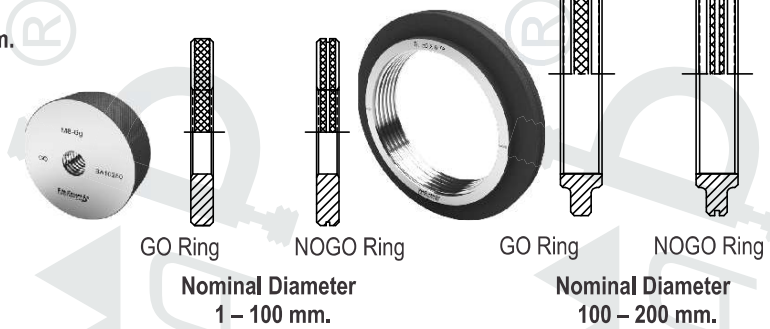
**SPECIFICATION:**

Indian standard : IS 9610-1985 for sizes up to 100mm.

ISO standard : ISO 3670-1979

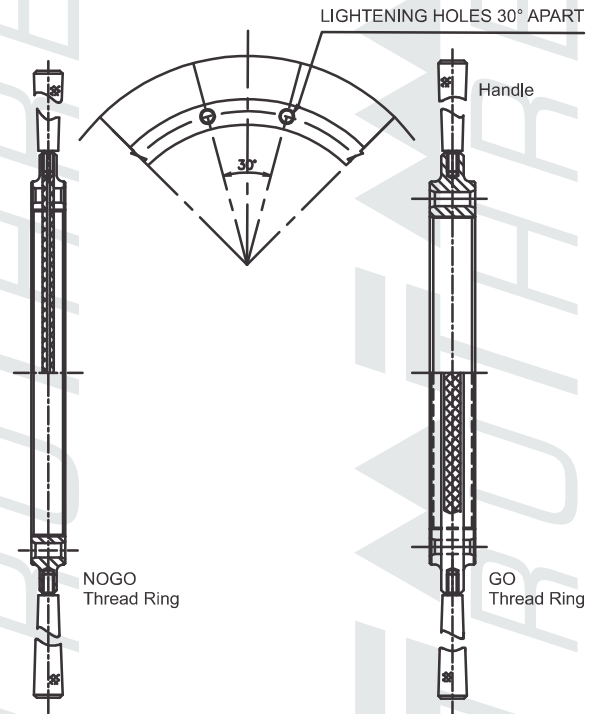
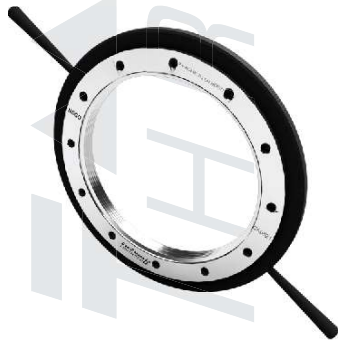
DIN standard : DIN 2285(1)-2008 for Go  
DIN 2299 (1)- 2003 for Nogo  
gauge members.

☛ Rings above 100mm are manufactured based on DIN standard.



**Thread Ring Gauges: above 200 mm.**

**SPECIFICATION:** Company standard \ (as No National /International Specification is available)

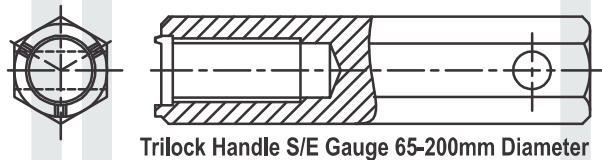


**DESIGN OF HANDLE FOR GAUGES.**

**SPECIFICATION:**

Indian standard : IS 5388-1985

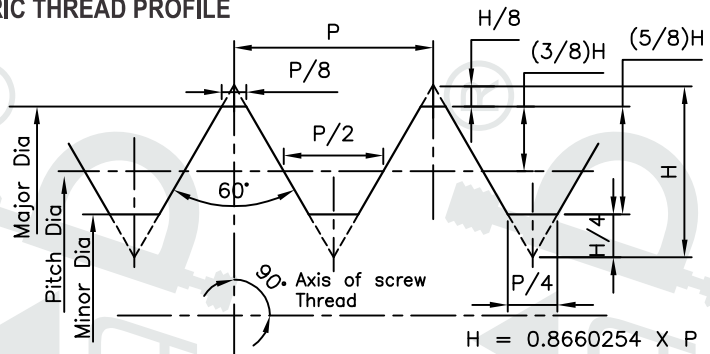
ISO standard : ISO 3670-1979



**SPECIFICATION:** Company standard



ISO METRIC THREAD PROFILE



**SPECIFICATION:**

ISO standard : Basic Dimensions : ISO 965 Part 1,2,3 - 2013  
 Gauging Practice : ISO 1502 - 1996  
 Indian standard : Basic Dimensions: IS 14962 Part 1-2018, Part -2&3- 2001  
 Gauging Practice: IS 2334- 2001.  
 DIN standard : Basic Dimensions & Gauging Practice: DIN 13-1999  
 JIS standard : Basic Dimensions: JIS B0205 & JIS B 0209  
 Gauging Practice: JIS B 0251-1998\*.

ANSI standard : Basic Dimensions: ANSI/ASME B 1.13 M  
 Gauge Dimensions: ANSI / ASME B 1.16 M - 1984.  
 BS standard : Basic Dimensions: B.S. 3643 Part I & II - 2007  
 Gauging Practice: B.S 919 Part III - 2007.

ANSI & BS standards use unilateral Tolerances for gauges. These gauges are manufactured only against specific customer order. We require Minimum Ordering quantity for these.

**\* JIS standard : Gauging Practice: JIS B 0251-1975 & JIS B 0252-1996.**

Tolerance Class – I, II, & III & two grades Machine work & Inspection are recommended.

Gauge are denoted as,  
 GO Plugs - Common for Working & Inspection (GP) - GP I, GP II, GP III  
 NOGO Plugs for Working (WP) - WP I, WP II, WP III  
 NOGO Plugs for Inspection (IP) - IP I, IP II, IP III  
 GO Rings - Common for Working & Inspection (GR) - GR I, GR II, GR III  
 NOGO Rings for Working (WR) - WR I, WR II, WR III  
 NOGO Rings for Inspection (IR) - IR I, IR II, IR III

Gauges as per these obsolete JIS standard are manufactured if requested by customer.

**We manufacture ISO Metric Gauges with,**

- a) customer specified Pitch Diameters.
- b) modified pitch diameters to check components Before coating/ Plating OR components After coating / plating.
- c) Tolerance class 6AZ, 6AX (Internal Threads / Thread Plugs) & 6az (external thread / Thread ring gauges).
- d) External Threads /Thread rings of High temperature application as per IS 9965-1981
- e) Interference Fit gauges as per IS 2186 - 1985

**MANUFACTURING RANGE**

Gauge Type	Diameter Range	Pitches in mm	Tolerance Class
Thread Plug Gauges.	1.6mm - 350 mm	0.35, 0.4, 0.45, 0.5, 0.6, 0.7, 0.75, 0.8, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, Pitches above 6mm up to 12 mm can be supplied based on customer request.	As given in below Table
Thread Ring Gauges.	2 mm - 300 mm	0.4, 0.45, 0.5, 0.6, 0.7, 0.75, 0.8, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, Pitches above 6mm up to 12 mm can be supplied based on customer request.	As given in below Table
Plain Plugs to check Minor Diameter of Internal Threads	1.6mm - 100 mm		
Plain Rings to check Major Diameter of External Threads.	2 mm - 100 mm		
Check Plug Gauges	To check <b>NEW</b> Go & Nogo Ring Gauges as given above.		
Wear Check Plug Gauges	To check / calibrate <b>USED</b> Go & Nogo Ring Gauges as given above.		
Check Ring Gauges	To check <b>NEW</b> Go & Nogo Plug Gauges as given above.		
Wear Check Ring Gauges	To check / calibrate <b>USED</b> Go & Nogo Plug Gauges as given above.		





**DIAMETER COARSE PITCH COMBINATION.**

Nominal Diameter	Coarse Pitch
M1.1, M1.1,M1.2	0.25
M1.4	0.3
M1.6, M1.8	0.35
M2	0.4
M2.2, M2.5	0.45
M3	0.5
M3.5	0.6
M4	0.7

Nominal Diameter	Coarse Pitch
M4.5	0.75
M5	0.8
M6, M7	1.0
M8, M9	1.25
M10, M11	1.5
M12	1.75
M14, M16	2.0
M18, M20, M22	2.5

Nominal Diameter	Coarse Pitch
M24, M27	3.0
M30, M33	3.5
M36, M39	4
M42, M45	4.5
M48, M52	5
M56, M60	5.5
M64, M68	6

For writing size, the pitch is not to be written when it is coarse. Example M10 -6H  
 For pitches other than coarse pitch is to be written after diameter Example - M10x16H

**Recommended Tolerance classes for Internal Threads (Plug Gauges)**

	Tolerance position 'G'			Tolerance position 'H'		
	S	N	L	S	N	L
Fine	-	-	-	4H	5H	6H
Medium	-	-	-	-	-	-
Coarse	(5G)	6G	(7G)	5H	<b>6H</b>	7H
	-	(7G)	(8G)	-	7H	8H

S-Short length of Thread engagement  
 N – Normal length of Thread engagement  
 L - Long length of Thread engagement

**Recommended Tolerance classes for External Threads (Ring Gauges)**

	Tolerance position 'e'			Tolerance position 'f'			Tolerance position 'g'			Tolerance position 'h'		
	S	N	L	S	N	L	S	N	L	S	N	L
Fine	-	-	-	-	-	-	-	(4g)	(5g4g)	(3h4h)	4h	(5h4h)
Medium	-	6e	(7e6e)	-	6f	-	(5g6g)	<b>6g</b>	(7g6g)	(5h6h)	6h	(7h6h)
Coarse	-	(8e)	(9e8e)	-	-	-	-	8g	(9g8g)	-	-	-

Tolerance classes in bold are first choice.  
 Tolerance classes in normal print are second choice.  
 Tolerance classes in parentheses are third choice.

**GAUGES TO CHECK TAPPED HOLE TO RECEIVE WIRE THREAD INSERTS -ISO METRIC**

Application: To check tapped holes to receive wire thread inserts. ( EG / STI )

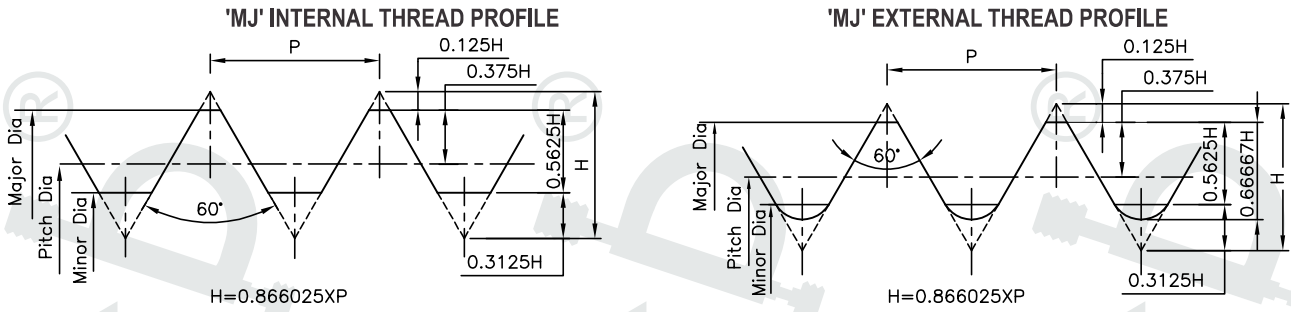
These gauges are used for checking oversize tapping which is done for fitting wire thread inserts. Wire thread inserts are having external threads which are oversize than the standard size and internal threads which are of standard dimensions. When tapped internal threads become oversize and standard screw cannot be fitted then wire threads inserts are used. Oversize tapping is done using wire thread taps and wire thread inserts are fitted in this.

☛ These are also known as Heli-coil thread inserts. 'Heli-coil' is a registered Trade mark of Emhart Technologies, USA.

**SPECIFICATION :**  
 B.S. 4377 –1991 / DIN 8140

**TOLERANCE CLASS :**  
 5H and 6H classes are recommended for Metric threads.





**SPECIFICATION:** ISO 5855 - Part I,II,III - 1999, & Gauging Practice ISO 10959 - 2016  
ANSI B 1.21M - 1997 & ANSI B1.22 M -1985

**MANUFACTURING RANGE**

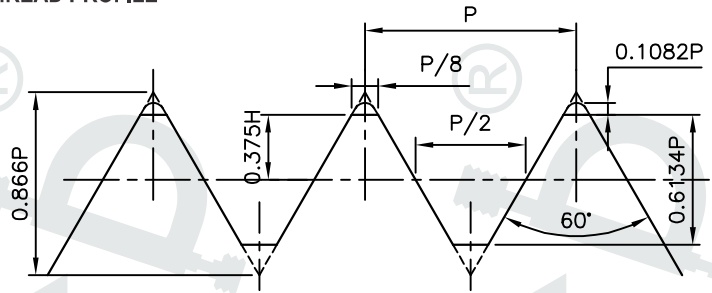
Gauge Type	Nominal Diameter Range	Pitches in mm	Tolerance Class
Thread Plug Gauges.	1.6mm - 90 mm	0.35, 0.4, 0.45, 0.5, 0.6, 0.7, 0.75, 0.8, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6,	As given in below Table
Thread Ring Gauges.	2 mm - 90 mm	0.4, 0.45, 0.5, 0.6, 0.7, 0.75, 0.8, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6,	As given in below Table
Plain Plugs	To check Minor Diameter of Internal Threads as per above diameter range.		
Plain Rings	To check Major Diameter of External Threads as per above diameter range.		
Check Plug Gauges	To check <b>NEW</b> Go & Nogo Ring Gauges as given above.		
Wear Check Plug Gauges	To check / calibrate <b>USED</b> Go & Nogo Ring Gauges as given above.		
Check Ring Gauges	To check <b>NEW</b> Go & Nogo Plug Gauges as given above.		
Wear Check Ring Gauges	To check / calibrate <b>USED</b> Go & Nogo Plug Gauges as given above.		

**TOLERANCE CLASS**

Type of thread	Tolerance Class for Before coating threads.	Tolerance Class for After coating or Uncoated finish threads.	
		If pitch is 2mm or smaller	Pitch more than 2mm
External Thread (Ring Gauges)	4g6g	4g6g	4h6h
Internal Thread (Plug Gauges)	Nominal diameter up to 5mm	4G6G	'4H6H'
	Nominal diameter 6mm and above	4G5G	'4H5H'



UNIFIED THREAD PROFILE



**SPECIFICATION:** ANSI / ASME B1.2-1983.

☛ We manufacture Unified Gauges with Basic Dimensions as per B.S. 1580, Part I & II-2007 & Gauging practice as per B.S. 919 Part (I)-2007 if requested by customer.

**MANUFACTURING RANGE**

Gauge Type	Diameter Range (Inch)	TPI (Threads per Inch)	Tolerance Class
Thread Plug Gauges.	No. 0 (0.06) to 14"	48, 44, 40, 36, 32, 28, 24, 20, 18, 16, 14, 13, 12, 11.5, 11, 10, 9, 8,7,6, 5, 4.5, 4 TPI not covered here can be supplied based on customer request	1B / 2B / 3B Details as given in below Table
Thread Ring Gauges.	No.4 (0.112) to 12"	48, 44, 40, 36, 32, 28, 24, 20, 18, 16, 14, 13, 12, 11.5,11,10, 9, 8,7,6, 5, 4.5, 4 TPI not covered here can be supplied based on customer request.	1A / 2A / 3A Details as given in below Table
Plain Plugs	To check Minor Diameter of Internal Threads as per above Diameter range.		
Plain Rings	To check Major Diameter of External Threads as per above Diameter range.		
D. L Setting Plugs	To set adjustable rings		
Check Plug Gauges	To check <b>NEW</b> Go & Nogo Ring Gauges as given above.		
Wear Check Plug Gauges	To check / calibrate <b>USED</b> Go & Nogo Ring Gauges as given above.		
Check Ring Gauges	To check <b>NEW</b> Go & Nogo Plug Gauges as given above.		
Wear Check Ring Gauges	To check / calibrate <b>USED</b> Go & Nogo Plug Gauges as given above.		

**TOLERANCE CLASS**

Tolerance Class for Plug gauges (Internal threads)	Tolerance Class for Ring gauges (External threads)	Application
1B	1A	Where quick assembly is needed, even when threads are dirty / damaged. Wide tolerances for male and female threads.
2B	2A	Corresponds to medium fit and used for general applications, which requires free assembly.
3B	3A	Where closer fit is required.

**In addition to above, we manufacture**

- a) AG class Thread Ring Gauges for lubricant and high temperature applications as recommended in B.S. 1580, Part I & II - 2007 specification.
- b) Class 5 Interference Fit threads as per ASME / ANSI B1.12 - 1987 specification.  
The recommended tolerance classes for External threads are NC-5 HF, NC-5 CSF & NC-5 ONF.  
For Internal threads, the tolerance classes are NC-5 IF, NC-55 INF

WE MANUFACTURE GAUGES TO CHECK THREADS OF TAPPED HOLES TO RECEIVE  
**WIRE THREAD INSERTS / STI FOR UNIFIED THREADS**



TPI / Threads Per Inch

Dia	Dia. in Inch	UNC	UNF	UNEF	UN
No. 0	0.06	-	80	-	-
No. 1	0.073	64	72	-	-
No. 2	0.086	56	64	-	-
No. 3	0.099	48	56	-	-
No. 4	0.112	40	48	-	-
No. 5	0.125	40	44	-	-
No. 6	0.138	32	40	-	-
No. 8	0.164	32	36	-	-
No. 10	0.190	24	32	-	-
No. 12	0.216	24	28	32	-
1/4"	0.25	20	28	32	-
5/16"	0.3125	18	24	32	20,28
3/8"	0.375	16	24	32	20,28
7/16"	0.4375	14	20	28	16,32
1/2"	0.5	13	20	28	16,32
9/16"	0.5625	12	18	24	16,20,28,32
5/8"	0.625	11	18	24	12,16,20,28,32
*11/16"	0.6875			24	12,16,20,28,32
3/4"	0.75	10	16	20	12,28,32
*13/16"	0.8125			20	12,16,28,32
7/8"	0.875	9	14	20	12,16,28,32
*15/16"	0.9375			20	12,16,28,32
1"	1.00	8	12	20	16,28,32
*1.1/16"	1.0625			18	8,12,16,20,28
1.1/8"	1.125	7	12	18	8,16,20,28
*1.3/16"	1.1875			18	8,12,16,20,28
1.1/4"	1.25	7	12	18	8,16,20,28
*1.5/16"	1.3125			18	8,12,16,20,28
1.3/8"	1.375	6	12	18	8,16,20,28
*1.7/16"	1.4375			18	6,8,12,16,20,28
1.1/2"	1.5	6	12	18	8,16,20,28
*1.9/16"	1.5625			18	6,8,12,16,20
1.5/8"	1.625			18	6,8,12,16,20
*1.11/16"	1.6875			18	6,8,12,16,20
1.3/4"	1.75	5			6,8,12,16,20
*1.13/16"	1.8125				6,8,12,16,20
1.7/8"	1.875				6,8,12,16,20
*1.15/16"	1.9375				6,8,12,16,20
2"	2.0	4.5			6,8,12,16,20
*2.1/8"	2.125	-	-	-	6,8,12,16,20
2.1/4"	2.25	4.5	-	-	6,8,12,16,20
*2.3/8"	2.375	-	-	-	6,8,12,16,20
2.1/2"	2.5	4	-	-	6,8,12,16,20
*2.5/8"	2.625	-	-	-	4,6,8,12,16,20
2.3/4"	2.75	4	-	-	6,8,12,16,20
*2.7/8"	2.875	-	-	-	4,6,8,12,16,20
3"	3.0	4	-	-	6,8,12,16,20
*3.1/8"	3.125	-	-	-	4,6,8,12,16
3.1/4"	3.25	4	-	-	6,8,12,16
*3.3/8"	3.375	-	-	-	4,6,8,12,16
3.1/2"	3.5	4	-	-	6,8,12,16
*3.5/8"	3.625	-	-	-	4,6,8,12,16
3.3/4"	3.75	4	-	-	6,8,12,16
*3.7/8"	3.875	-	-	-	4,6,8,12,16
4"	4.0	4	-	-	6,8,12,16
*4.1/8"	4.125	-	-	-	4,6,8,12,16
4.1/4"	4.25	-	-	-	4,6,8,12,16
*4.3/8"	4.375	-	-	-	4,6,8,12,16
4.1/2"	4.5	-	-	-	4,6,8,12,16
*4.5/8"	4.625	-	-	-	4,6,8,12,16
4.3/4"	4.75	-	-	-	4,6,8,12,16
*4.7/8"	4.875	-	-	-	4,6,8,12,16
5"	5.0	-	-	-	4,6,8,12,16
*5.1/8"	5.125	-	-	-	4,6,8,12,16
5.1/4"	5.25	-	-	-	4,6,8,12,16
*5.3/8"	5.375	-	-	-	4,6,8,12,16
5.1/2"	5.50	-	-	-	4,6,8,12,16
*5.5/8"	5.625	-	-	-	4,6,8,12,16
5.3/4"	5.75	-	-	-	4,6,8,12,16
*5.7/8"	5.875	-	-	-	4,6,8,12,16
6"	6.0	-	-	-	4,6,8,12,16

DIAMETER – TPI COMBINATION

**UNC** Unified National Coarse.

**UNF** Unified National Fine.

**UNEF** Unified National Extra Fine.

**UN** Unified National Constant (uniform TPI Series) like 8, 12, 16, etc.

**UNS** Unified National Special. In case of diameter and TPI combination not covered in given table & when diameter is above 6".

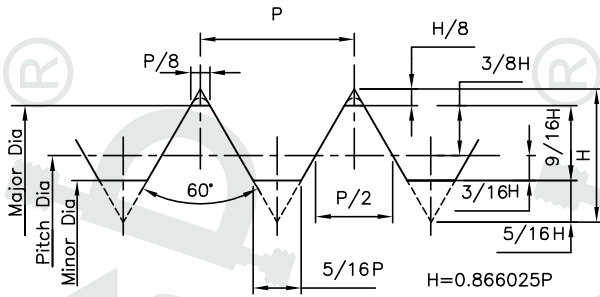
**Note :**

1. Diameter – TPI combination not covered in this table use "UNS"
2. For all diameters above 6", use "UNS" series irrespective of TPI.

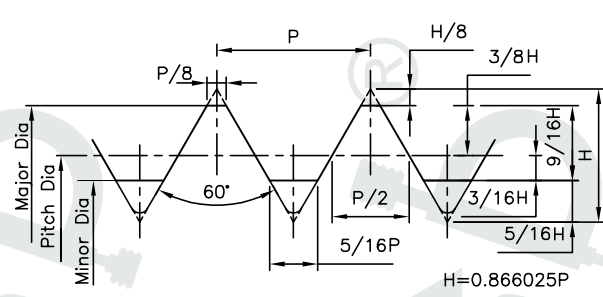
\* 2nd choice of Diameter.



UNJ INTERNAL THREAD PROFILE



UNJ EXTERNAL THREAD PROFILE



**SPECIFICATION :**

B.S. 4084 & Gauging Practice Bs919 (I) -2007  
 ASME B1.15 -1995 / SAE AS 8879.  
 ISO 3161 - 1999 & Gauging ISO 15872-2017

**MANUFACTURING RANGE**

Gauge Type	Diameter Range (Inch)	TPI (Threads per Inch)	Tolerance Class
Thread Plug Gauges.	No.0 (0.06) -6"	48, 44, 40, 36, 32, 28, 24, 20, 18, 16, 14, 13, 12, 11.5, 11, 10, 9, 8,7,6, 5, 4.5, 4 TPI not covered here can be supplied based on customer request.	3B
Thread Ring Gauges.	No.4 (0.112)- 6"	48, 44, 40, 36, 32, 28, 24, 20, 18, 16, 14, 13, 12, 11.5,11,10, 9, 8,7,6, 5, 4.5, 4 TPI not covered here can be supplied based on customer request.	3A
Plain Plugs	To check Minor Diameter of Internal Threads as per above Diameter range.		
Plain Rings	To check Major Diameter of External Threads as per above Diameter range.		
Check Plug Gauges	To check <b>NEW</b> Go & Nogo Ring Gauges as given above.		
Wear Check Plug Gauges	To check / calibrate <b>USED</b> Go & Nogo Ring Gauges as given above.		
Check Ring Gauges	To check <b>NEW</b> Go & Nogo Plug Gauges as given above.		
Wear Check Ring Gauges	To check / calibrate <b>USED</b> Go & Nogo Plug Gauges as given above.		

**UNJC** – Coarse diameter TPI combination similar to UNC.

**UNJF** – Fine diameter TPI combination similar to UNF.

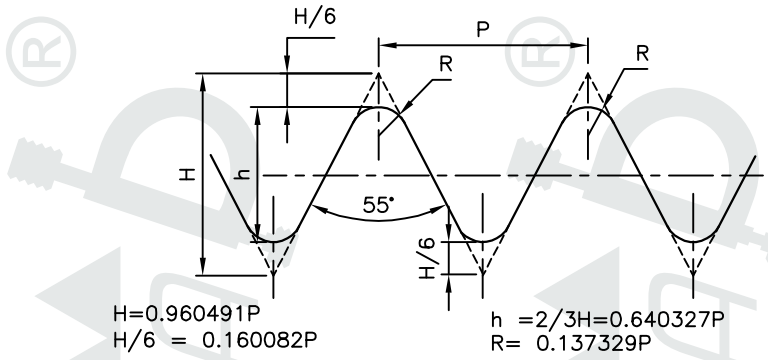
**UNJEF** – Extra fine Diameter – TPI combination similar to UNEF.

**UNJ** – Constant (uniform TPI series) similar to UN.

• The Diameter-TPI combination & series is similar to UNIFIED Threads as given in Table on page No. 09



**BSW / BSF / WHITWORTH THREAD PROFILE**



**SPECIFICATION:** Basic Dimensions : B.S. 84-2007,  
Gauging Practice : B.S. 919 Part II - 2007

**BSW** – British Standard Whitworth,  
**BSF** – British Standard Fine,  
**BSB** – British Standard Brass  
**Whits**–Special Diameter TPI combination not covered in table given below.

**MANUFACTURING RANGE**

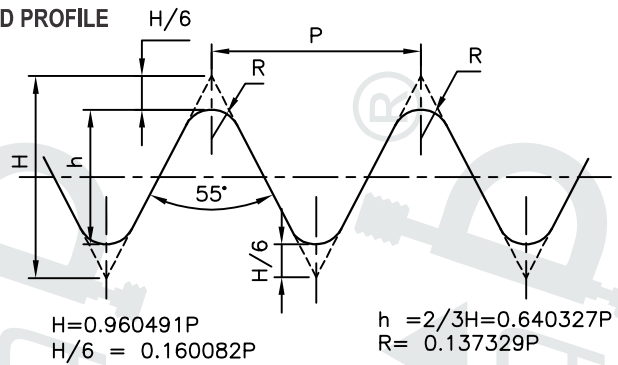
Dia Inch	BSW	BSF	BSB	Type of Thread Gauges used				
1/8	40	-	26	Thread Plug Gauges.	Plain plugs to check tapped holes/ minor diameter	Thread Ring Gauges.	Check Plug Gauges to Check New Rings.	Wear Check Plug Gauges to Check / Calibrate used Rings.
* 5/32"	32							
3/16	24	32	26					
* 7/32	24	28	*					
1/4	20	26	26					
* 9/32"		26						
5/16	18	22	26					
3/8	16	20	26					
7/16	14	18	26					
1/2	12	16	26					
*9/16	12	16	26					
5/8	11	14	26					
*11/16		14	*					
3/4	10	12	26					
* 13/16		12						
7/8	9	11	26					
1	8	10	26					
1.1/8	7	9	26					
1.1/4	7	9	26					
*1.3/8	-	8	26					
1.1/2	(6)	(8)	26					
* 1 5/8"	5	8						
1.3/4	(5)	(7)	26					
* 1 7/8"	4.5							
2	(4.5)	(7)	26					
2.1/4	(4)	(6)	*					
2.1/2	(4)	(6)	*					
2.3/4	(3.5)	(6)	*					
3	(3.5)	(5)	*					
*3.1/4	(3.25)	(5)	*					
3.1/2	(3.25)	(4.5)	*					
*3.3/4	(3)	(4.5)	*					
4	(3)	(4.5)	*					
4.1/2	(2.875)	(4)	*					
5	(2.75)	-	*					
5.1/2	(2.625)	-	*					
6	(2.5)	-	*					
				<b>Internal Threads (Plug)</b> Medium Class Normal Class Close Class		<b>External Threads - (Rings)</b> Medium Class Free Class Close Class		

- Gauges of TPI in parenthesis are supplied in Truncated Form. \* Marked sizes not recommended for use.
- We manufacture Gauges of diameter & TPI combination not covered above (Whits), based on customer request.

**WE MANUFACTURE GAUGES TO CHECK THREADS OF TAPPED HOLES TO RECEIVE WIRE THREAD INSERTS / STI FOR BSW / BSF / WHITS THREADS**



PIPE / 'G' THREAD PROFILE



**SPECIFICATION :**

- I.S.O standard - Basic Dimensions : ISO 228 (1) – 2000(E)  
Gauging Practice : ISO 228 (2) – 1987 (E)
- Indian Standard - Basic Dimensions : IS 2643 – 2005  
Gauging Practice : IS 10216 – 1988
- BSI Standard - B.S 2779 – 1986.
- JIS standard- B 0202-1999 \* See Footnote for details.

**MANUFACTURING RANGE**

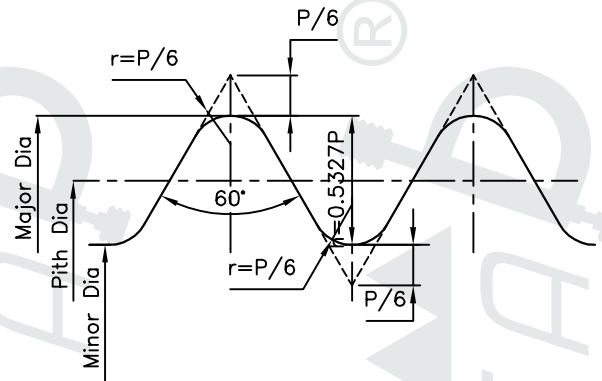
Pipe Diameter.	TPI	Tolerance Class	
1/16, 1/8	28	Thread Plugs. Only General Class	Thread Rings • Class B • Class A Tolerance for class 'A' rings are close / tighter than Class 'B'. In case of pitch diameter tolerance, Class 'A' tolerance is exactly half the Class 'B' tolerance.
1/4, 3/8	19		
1/2, 5/8, 3/4, 7/8	14		
1, (1.1/16), 1.1/8, 1.1/4, (1.3/8), (1.5/8), 1.3/4, (1.7/8), 2, (2.1/8), 2.1/4, (2.5/16), (2.3/8), 2.1/2, 2.3/4, (2.7/8), 3, (3.1/4), 3.1/2, 4, 4.1/2, 5, 5.1/2, 6	11		

- Pipe Diameters in parenthesis ( ) are not recommended in above refereed IS/ ISO specifications. On customer request we can manufacture gauges for these sizes.
- \* JIS B 0202-1999 Specification covers sizes from 1/8" to 12". Sizes from 1/8" to 6", are based on ISO specification. The sizes above 6" Pipe Diameter are manufactured based on JIS.  
The designation used for Parallel Pipe threads in JIS is PF.

WE MANUFACTURE GAUGES TO CHECK THREADS OF TAPPED HOLES TO RECEIVE WIRE THREAD INSERTS / STI FOR PIPE / G THREADS



**B.S. CYCLE THREAD PROFILE**



**SPECIFICATION:** Basic Dimensions : B.S. 811 – 1950.  
Gauging Practice : B.S. 919 Part II – 2007.

**MANUFACTURING RANGE**

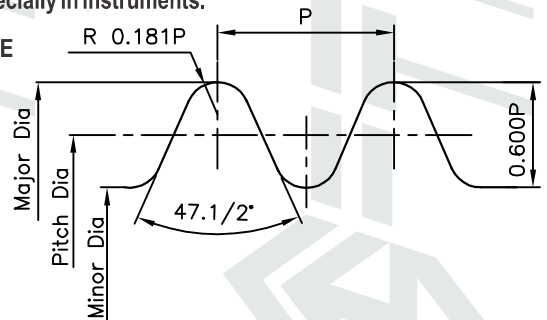
DIAMETER/ SIZE	TPI	Thread Plug Gauges	Thread Ring Gauges	Check Plug Gauges to check NEW Rings.	Wear Check Plug Gauges to check/ calibrate used Rings.
<b>For Spokes and Nipples</b>					
SWG 11	44	Tolerance Class-Medium (M)	Tolerance Class-Medium (M)	Tolerance Class-Medium (M)	Tolerance Class-Medium (M)
SWG 10, SWG9	40				
SWG 8	32				
<b>For Bolts and Nuts</b>					
1/8	40	Tolerance Class-Close (C)	Tolerance Class-Close (C)	Tolerance Class-Close (C)	Tolerance Class-Close (C)
5/32, 3/16	32				
7/32, 1/4, 9/32, 5/16	26	Tolerance Class-Medium (M) Free (F)	Tolerance Class-Medium (M) Free (F)	Tolerance Class-Medium (M) Free (F)	Tolerance Class-Medium (M) Free (F)
3/8, 7/16, 1/2					
9/16, 5/8					
11/16, 3/4					
<b>For Special Thread Applications</b>					
7/8, 1, 1.290, 1.370	24	Tolerance Class-Medium (M)	Tolerance Class-Medium (M)	Tolerance Class-Medium (M)	Tolerance Class-Medium (M)
1.9/16, 1.5/8					
1.1/8, 1.45, 17/64					
31/32					

**B.A. THREADS**

Application : B.A. threads are used for fine fastening, especially in instruments.



**B.A. THREAD PROFILE**



**SPECIFICATION :** Basic Dimensions : B.S.93-2008.  
Gauging Practice : B.S 919 Part II - 2007

BA No.	Pitch (mm)	Type of Thread Gauges			
0 *	1.00	Thread Plug Gauge  only one class is recommended.	Thread Ring Gauge	Check Plug Gauges to check NEW Ring gauges.	Wear Check Plug Gauges to check / calibrate used ring gauges.
1 *	0.90				
2	0.81				
3	0.73				
4	0.66				
5	0.59				
6	0.53				
7	0.48				
8	0.43				
9 *	0.39				
10 *	0.35	<b>Normal Class-</b> recommended for sizes 0 BA to 16 BA <b>Close Class -</b> is recommended only for sizes 0 to 10 BA & not sizes above 10 BA			

\* marked sizes & sizes 11 BA to 16 BA are out of our current manufacturing range.

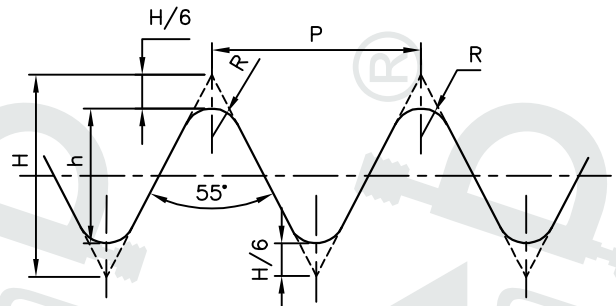


## B.S. CONDUIT THREADS

Application : Used for checking threads of electrical conduit pipes used for wiring.



### B.S. CONDUIT THREAD PROFILE



$$H = 0.960491P$$

$$H/6 = 0.160082P$$

$$h = 2/3H = 0.640327P$$

$$R = 0.137329P$$

#### SPECIFICATION:

Basic Dimensions & Gauging Practice: B.S. 31 – 1940  
TOLERANCE : CLASS B

#### MANUFACTURING RANGE

\* Specification recommends Threaded GO & Plain Nogo

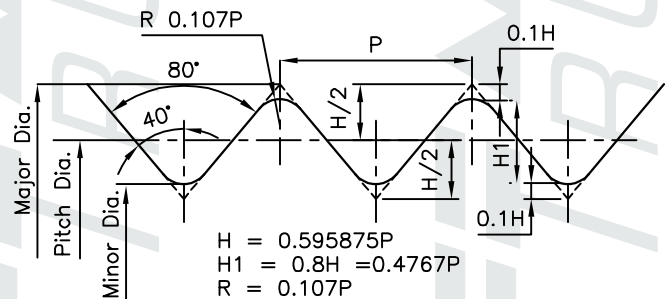
Pipe Diameter (Inch)	TPI	Type of Thread Gauges used			
		Thread Plug Gauges *	Thread Ring Gauges *	Check Plug Gauges to check NEW Ring Gauges.	Wear Check Plug Gauges to check/ Calibrate used Ring Gauges.
1/2, 5/8	18				
3/4, 1, 1.1/4	16				
1-1/2, 2, 2-1/2	14				

## PG THREADS

Application : Used for checking threads of conduit pipes used for electrical wiring.



### PG THREAD PROFILE



$$H = 0.595875P$$

$$H1 = 0.8H = 0.4767P$$

$$R = 0.107P$$

#### SPECIFICATION :

Basic Dimension : DIN 40430 -1971 &  
Gauging Practice : DIN 40431(1) -1970 & DIN 40431(2)-1972

#### MANUFACTURING RANGE

\*Specification recommends Threaded GO & Plain Nogo

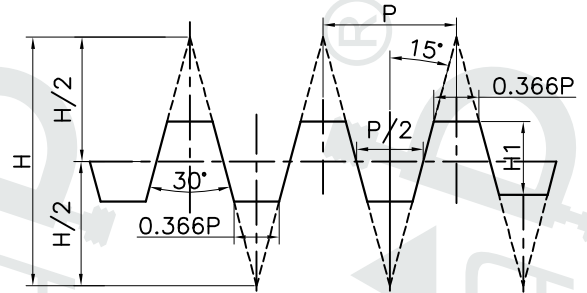
Size	TPI	Type of Thread Gauges used			
Pg 7	20	* Thread Plug Gauges	* Thread Ring Gauges	Check Plug Gauges to check NEW Rings.	Wear Check Plug Gauges to check/ calibrate used Rings.
Pg 9	18				
Pg 11	18				
Pg 13.5	18				
Pg 16	18				
Pg 21	16				
Pg 29	16				
Pg 36	16				
Pg 42	16				
Pg 48	16				

# TRAPEZOIDAL THREADS

Application : Used for translation motion in machine tools like lead screws, where rapid movement is required or in screw jacks, where load to be shared is more.



## TRAPEZOIDAL THREAD PROFILE



$$H = 1.866P$$

$$H/2 = 0.933P$$

$$H_4 = h_3 = H_1 + ac$$

$$H_1 = 0.5P$$

$$\text{ANGLE} = 30^\circ$$

### SPECIFICATIONS:

**IS Standard:** Basic Dimensions: IS 7008 Part 1&4-1999, Part 2&3-1988  
Gauging Practice: DIN 103 (9) 1985.

### ISO Standard:

Basic Dimensions: ISO 2903 – 2016, ISO 2904-1977  
Gauging Practice: DIN 103-(9) 1985.

### MANUFACTURING RANGE

Gauge Type	Diameter Range(mm)	Pitches in mm	Tolerance Class
Thread Plug Gauges.	8 - 350	1.5, 2, 3, 4, 5, 6, 7, 8, 10, 12 Pitches not covered here can be supplied if customer requests	As given in below Table
Thread Ring Gauges.	8 - 300	1.5, 2, 3, 4, 5, 6, 7, 8, 10, 12 Pitches not covered here can be supplied if customer requests	As given in below Table
Plain Plugs to check Minor Diameter of Internal Threads	8 - 285		
Plain Rings to check Major Diameter of External Threads.	8 - 285		
Check Plug Gauges	To check <b>NEW</b> Go & Nogo Ring Gauges as given above.		
Wear Check Plug Gauges	To check / calibrate <b>USED</b> Go & Nogo Ring Gauges as given above.		
Check Ring Gauges	To check <b>NEW</b> Go & Nogo Plug Gauges as given above.		
Wear Check Ring Gauges	To check / calibrate <b>USED</b> Go & Nogo Plug Gauges as given above.		

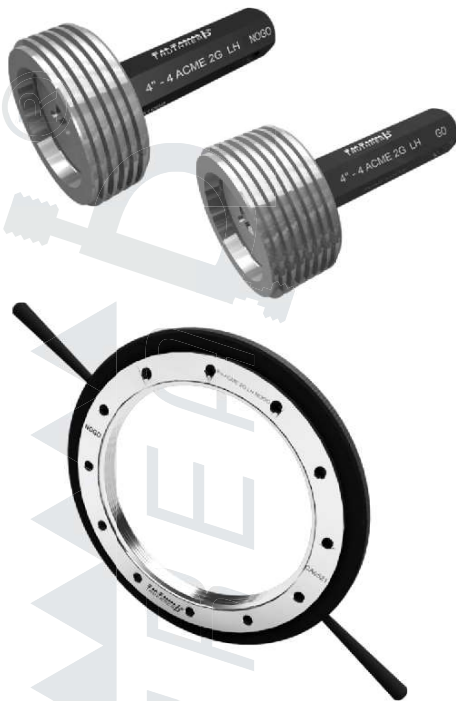
TRAPEZOIDAL GAUGES FOR PVC PIPE AS PER IS 12818 – 1992, for sizes DN 100, DN 125, DN 150, DN 175 & DN 200, can be supplied.

### TOLERANCE CLASS

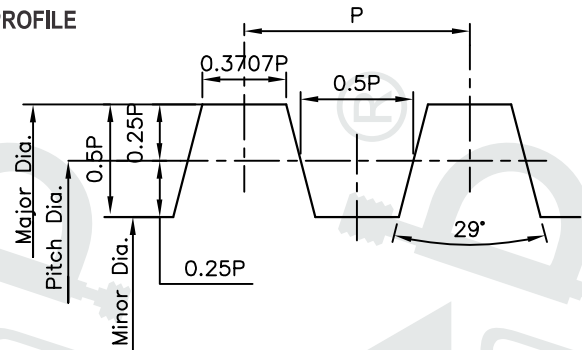
	Tolerance classes for Internal Threads (Plug Gauges)		Tolerance classes for External Threads (Ring Gauges)			
	Tolerance position 'H'		Tolerance position 'e'		Tolerance position 'c'	
	N	L	N	L	N	L
Medium	7H	8H	7e	8e	-	-
Coarse	8H	9H			8c	9c

## ACME THREADS

**Application:** Used for translation motion in machine tools like lead screws, where rapid movement is required or in screw jacks, where load to be shared is more.



### ACME THREAD PROFILE



- Acme threads are similar to Trapezoidal threads but with 29° included angle.
- Trapezoidal threads follow Metric system while ACME threads are based on Inch / Imperial system.

### SPECIFICATION :

American specification: ASME B1.5 – 1997  
B. S. specification: B.S. 1104 – 1957.

### MANUFACTURING RANGE

Gauge Type	Diameter Range (Inch)	TPI	Tolerance Class
Thread Plug Gauges.	1/4 - 14 Inch Sizes can be supplied based on customer request.	16, 14, 12, 10, 8, 6, 5, 4, 3, 2.5, 2. TPI not covered here can be supplied based on customer request.	2G, 3G & 4G
Thread Ring Gauges.	1/4 - 12 Inch Sizes can be supplied based on customer request.	16, 14, 12, 10, 8, 6, 5, 4, 3, 2.5, 2. TPI not covered here can be supplied based on customer request.	2G, 3G & 4G
Plain Plugs to check Minor Diameter of Internal Threads	To cover above Diameter range.		
Plain Rings to check Major Diameter of External Threads	To cover above Diameter range.		
Check Plug Gauges	To check <b>NEW</b> Go & Nogo Ring Gauges as given above.		
Wear Check Plug Gauges	To check / calibrate <b>USED</b> Go & Nogo Ring Gauges as given above.		

### TOLERANCE CLASS

'G' is the most commonly used Tolerance Class.

'3G' class is used for general purpose assemblies while classes above 3 are progressively closer tolerance classes like 4G, 5G etc. Classes below 3 are having coarse tolerance and are suitable for loose fit. Example – '2G' class.

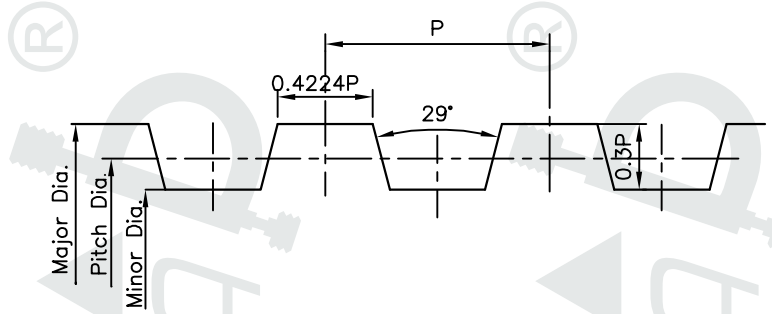
### CENTRALIZING ACME THREADS.

Centralizing ACME have limited clearance at the major diameter of screw & nut. The limited clearance enables a bearing at the diameter to maintain alignment of the thread axis preventing the wedging on the Flanks & part sagging.

Five classes are used **2C, 3C, 4C, 5C & 6C.**



STUB ACME THREAD PROFILE



**SPECIFICATION :**  
ANSI/ASME B1.8 – 1988

**MANUFACTURING RANGE**

Gauges for MODIFIED STUB ACME THREADS - **STUBACME M1 & STUBACME M2** are covered in our manufacturing range.

Gauge Type	Diameter Range (Inch)	TPI	Tolerance Class
Thread Plug Gauges.	1/4 - 14 Inch Sizes can be supplied based on customer request.	16, 14, 12, 10, 8, 6, 5, 4, 3, 2.5, 2. TPI not covered here can be supplied based on customer request.	2G, 3G & 4G
Thread Ring Gauges.	1/4 - 12 Inch Sizes can be supplied based on customer request.	16, 14, 12, 10, 8, 6, 5, 4, 3, 2.5, 2. TPI not covered here can be supplied based on customer request.	2G, 3G & 4G 2G, 3G
Plain Plugs to check Minor Diameter of Internal Threads	To cover above Diameter range.		
Plain Rings to check Major Diameter of External Threads.	To cover above Diameter range.		
Check Plug Gauges	To check <b>NEW</b> Go & Nogo Ring Gauges as given above.		
Wear Check Plug Gauges	To check / calibrate <b>USED</b> Go & Nogo Ring Gauges as given above.		

**CENTRALIZING OF STUBACME THREADS.**

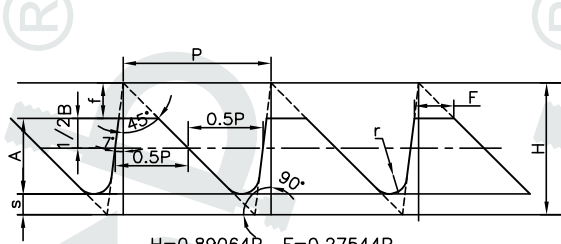
Centralizing ACME have limited clearance at the major diameter of screw & nut. The limited clearance enables a bearing at the diameter to maintain alignment of the thread axis preventing the wedging on the Flanks & part sagging.

**Five classes are used 2C, 3C, 4C, 5C & 6C.**



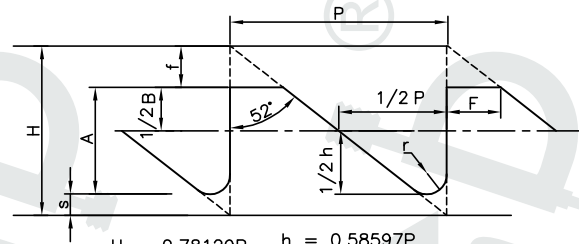
buttruss threads can withstand the axial load placed on it/high force in only one direction hence suitable for above application.

**BUTTRESS 7°/45° THREAD PROFILE**



$H=0.89064P$     $F=0.27544P$   
 $r=0.12055$     $B=0.4P$   
 $A=0.50586P$     $S=0.13946P$   
 $h=0.61172P$

**BUTTRESS 0°/52° THREAD PROFILE**



$H = 0.78129P$     $h = 0.58597P$   
 $f = 0.19064P$     $s = 0.09766P$   
 $B = 0.4P$     $r = 0.09298P$   
 $A = 0.49298P$     $F = 0.24401P$

**SPECIFICATION:**

B.S. 1657 – 1950 used for 7°/45° and 0°/52° thread profiles & ANSI B 1.9-1973 for 7°/45° thread profile.

**MANUFACTURING RANGE**

Buttruss with Hydraulic sealing thread form used in Oil fields is not considered here.

Gauge Type	Diameter Range (Inch)	TPI (Threads per Inch)	Tolerance Class as per BS 1657	Tolerance Class as per ANSI B1.9
Thread Plug Gauges.	0.5 - 14	20, 16, 12, 10, 8, 6, 5,	Free Medium Close	Class 2(standard grade) Class 3(precision grade)
Thread Ring Gauges.	1 - 12	4, 3, 2.5, 2		
Check Plug Gauges.	1 - 12	• TPI not covered		
Wear Check Plug Gauges.	1 - 12	here can be supplied if requested by customer		

**METRIC BUTTRESS / SAW TOOTH THREAD SERIES**

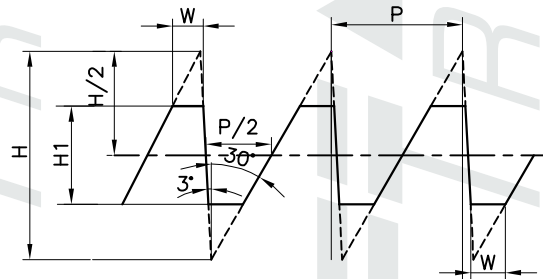
Application: Similar to Buttress Threads. Metric buttress or saw tooth dimensions are in metric system, instead of Imperial system.

**METRIC BUTTRESS/ SAW TOOTH 3°/30° THREAD PROFILE**

**SPECIFICATION:**

DIN 513 – 1985 / I.S. 4696 Part 1 & 3 – 2004 & Part 4 -2005.

$H = 1.5878P$   
 $H1 = 0.75P$   
 $H/2 = 0.7939P$   
 $W = 0.26384P$



**MANUFACTURING RANGE**

Gauge Type	Diameter Range (MM)	Pitch in mm.	Tolerance Class
Thread Plug Gauges.	25 - 350	2, 3, 4, 5, 6, 7, 8, 9, 10, 12	7H, 8H, 9H,
Thread Ring Gauges.	25 - 300	• Pitches not covered here can be supplied based If requested by customer	6e*, 7e, 8e, 9e & 6c*, 7c, 8c & 9c
Check Plug Gauges	25 - 300		* 6e & 6c are not preferred tolerance classes.
Wear Check Plug Gauges	25 - 300		

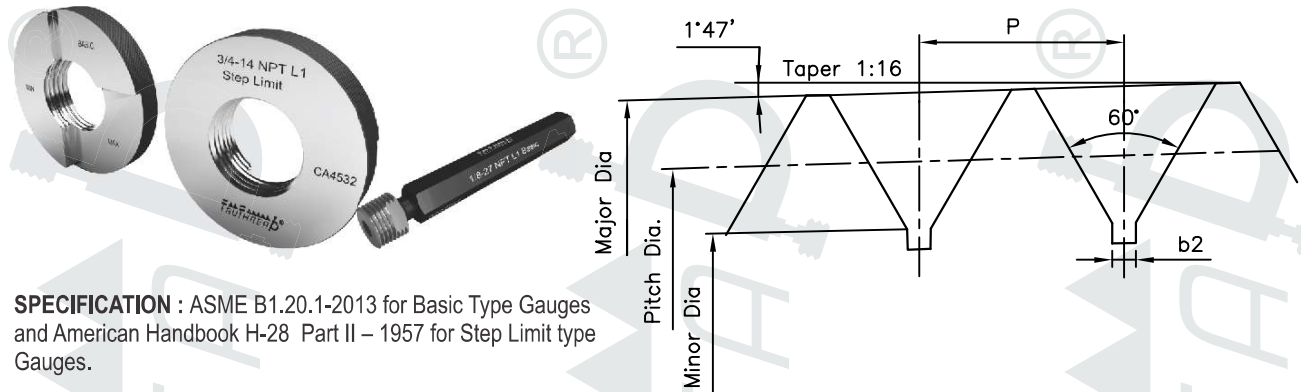
\* Selection of Tolerance Class

Tolerance class	Thread Plugs gauges		Thread Ring, Check Plug & Wear Check Plugs	
	Thread Engagement Type			
	Normal	Long	Normal	Long
Medium	7H	8H	7e	8e
Coarse	8H	9H	8c	9c

Application: NPT threads are used in general purpose applications of pipe assembly, where a pressure tight joint of the pipes are made, by making the pipes wrench tight using a sealing compound.



NPT THREAD PROFILE



**SPECIFICATION** : ASME B1.20.1-2013 for Basic Type Gauges and American Handbook H-28 Part II – 1957 for Step Limit type Gauges.

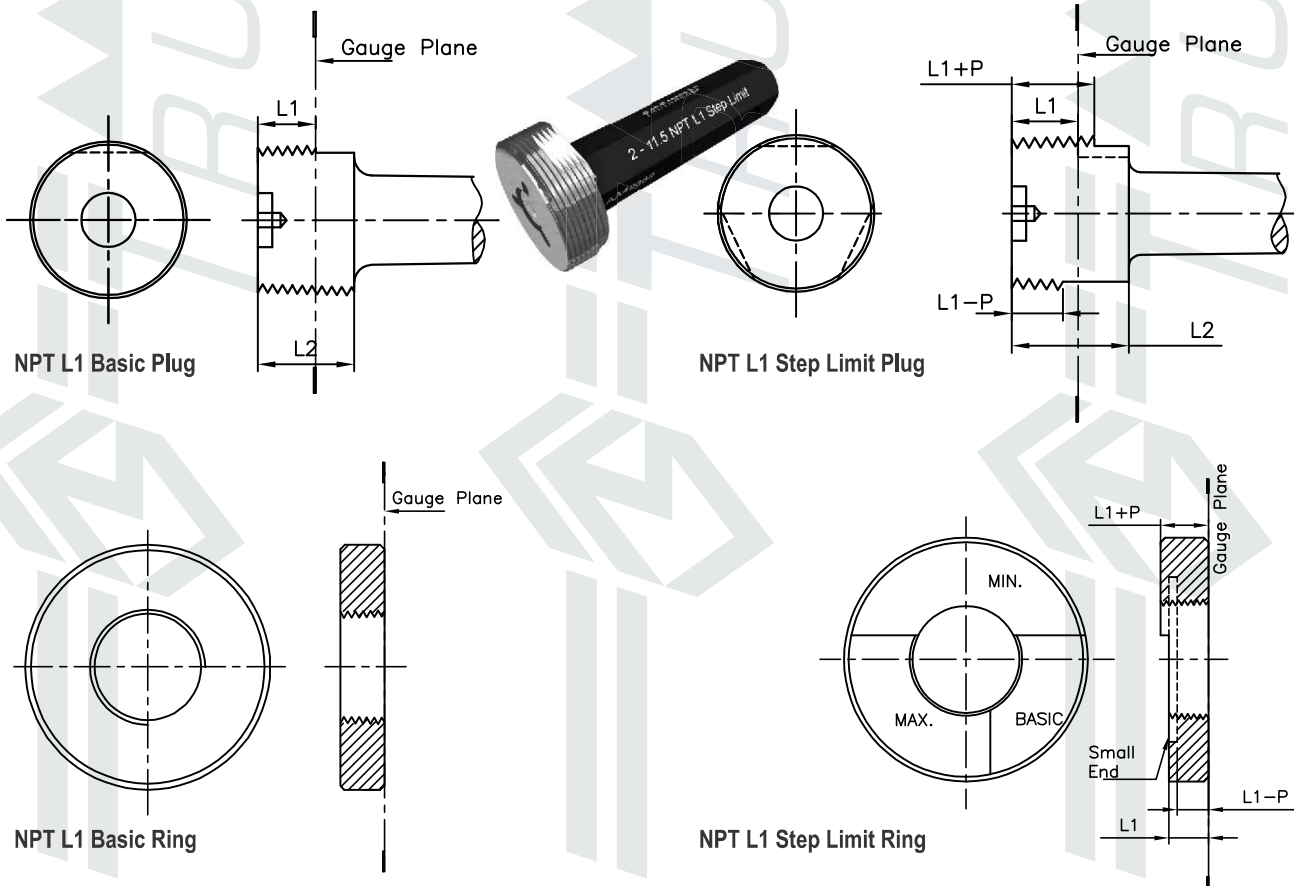
MANUFACTURING RANGE

DIA IN INCH	TPI	Type of Thread Gauges used			
1/16, 1/8	27	Taper Plug Gauges, L1 Basic L1 Step Limit	Plain Taper Plugs to check Taper Bore / Minor Diameter of Internal Threads.	Taper Ring Gauges	Master Plug/ Check Plugs/ Wear Check Plugs to check Ring Gauges.
1/4, 3/8	18			L1 Basic	
1/2, 3/4	14			L1 Step Limit	
1, 1.1/4, 1.1/2, 2	11.5				
2.1/2, 3, 3.1/2, 4	8				
4, 5, 6, 8,					
10, 12					
					Rings Diameter above 10" are not in our Mfg. Range

• NPT L2 gauges to check threads beyond L1 limit, i.e. up to L2 length for wrench fit, can be supplied on request.

**BASIC TYPE** - one step is provided which corresponds to basic size of component.

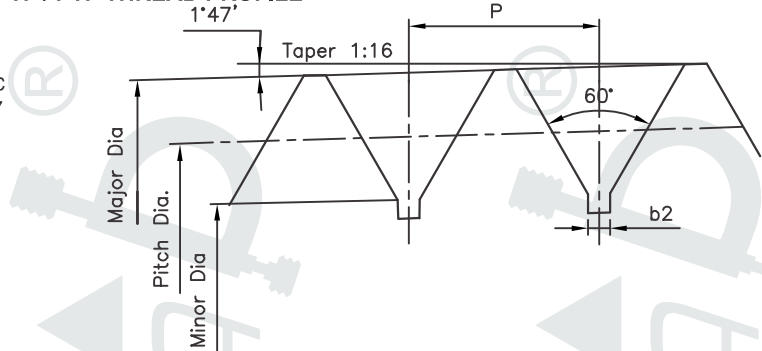
**LIMIT TYPE** – Gauge has three steps. These steps corresponds to minimum, basic and maximum size of components.



Application: NPTF threads can provide pressure tight seal on threads without the use of a sealing compound (dry seal type) PTF are short gauges (less thickness) which are used for application similar to NPTF.



**NPTF / PTF THREAD PROFILE**



**SPECIFICATION** : ASME B1.20.6 – 1984 which is metric translation of ANSI B1.20.5 – 1991 and H-28 Part II 1957

**MANUFACTURING RANGE**

DIA IN INCH	TPI	Type of Thread Gauges used				
1/16, 1/8	27	Taper Plug Gauges	Plain Taper Plugs to check Crest of Threads.	Taper Ring Gauges	Check Plugs / Master Plugs to check L1 & L2 Taper Rings.	Crest Check Plain Taper Ring Gauge. 6 Step Design.
1/4, 3/8	18	L1 Basic		L1 Basic		
1/2, 3/4	14	L3 Basic		L2 Basic		
		OR		OR		
1, 1.1/4, 1.1/2, 2	11.5	L1 Step Limit		L1 Step Limit		
2.1/2, 3	8	L3 Step Limit		L2 Step Limit		

**For Internal Threads (Thread Plug Gauges)**

two types are recommended.

L1 – To check effective diameter of thread to hand tightness at the gauge line (large end dia.)

L3 – To check effective dia. of remaining thread length (small end dia.) and the taper cone.

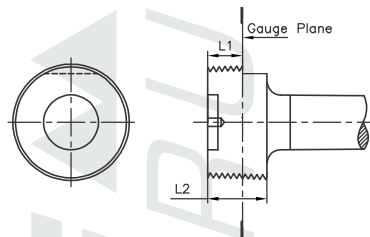
**For External threads (Thread Ring Gauges)**

two types are recommended.

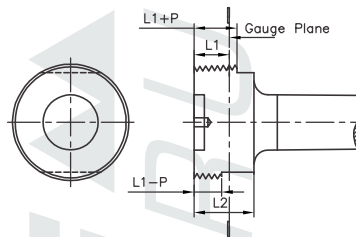
L1 – To check effective diameter of thread to hand tightness at the gauge line (large end dia.)

L2 – To check effective dia. of remaining thread length (small end dia.) and the taper of cone.

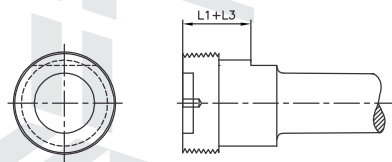
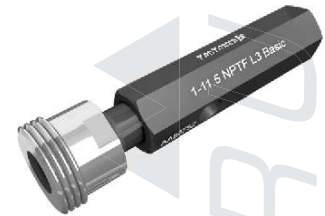
Normally L2 rings and L3 plugs are used in addition to L1 gauges, where more stringent, examination is required. The use of L2 and L3 gauges is only effective when the designed full thread length in the work piece is one thread longer than the nominal thread length.



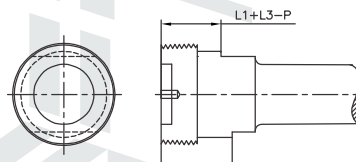
**NPTF L1 Basic Plug**



**NPTF L1 Step Limit Plug (3 Step design)**



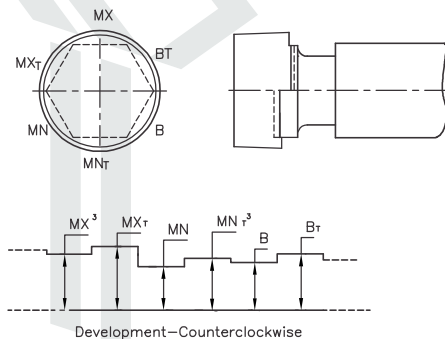
**NPTF L3 Basic Plug**



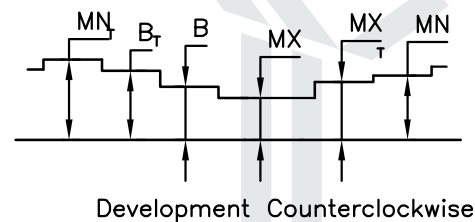
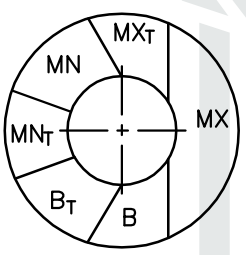
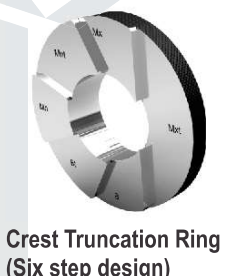
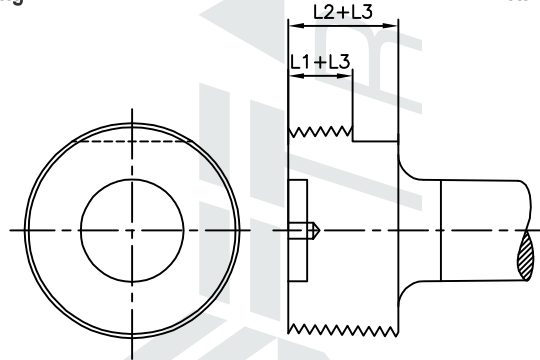
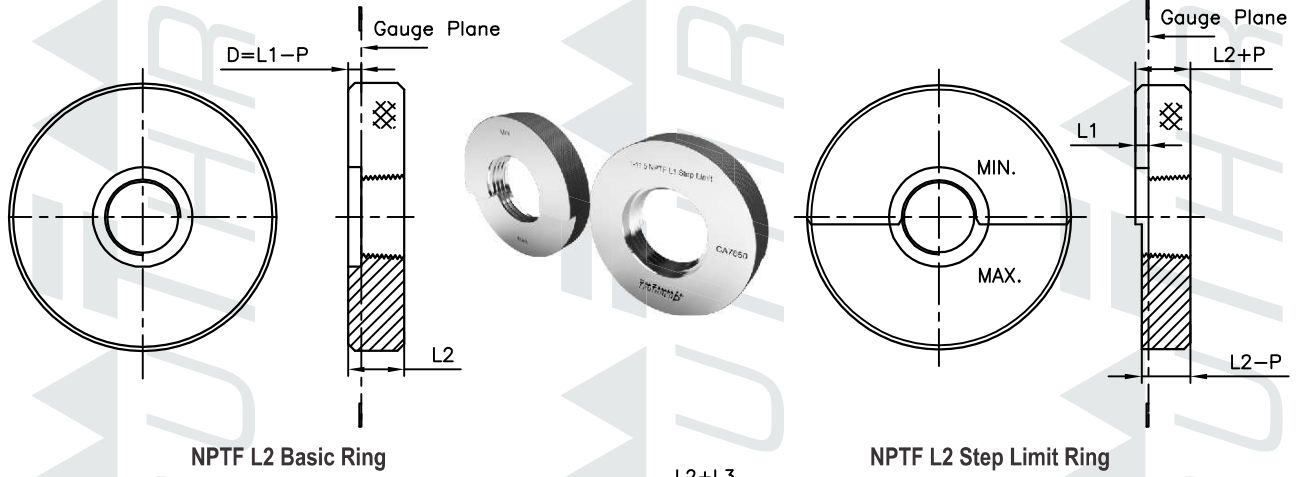
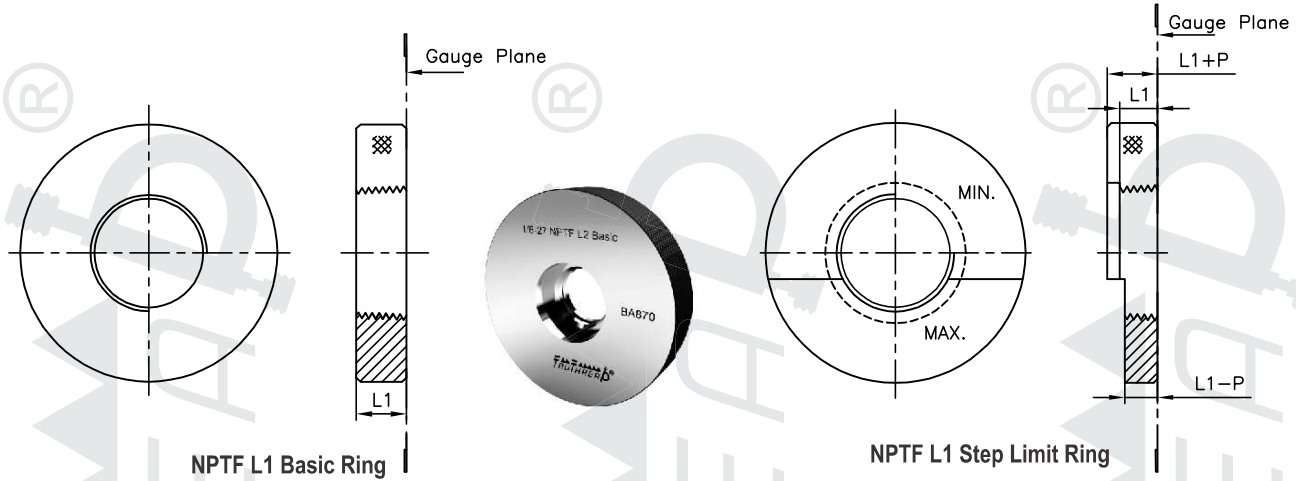
**NPTF L3 Step Limit Plug (2 Step design)**



**Taper Plain Plug To Check Crest Of Threads. (Six step design)**



Application: NPTF threads can provide pressure tight seal on threads without the use of a sealing compound (dry seal type) PTF are short gauges (less thickness) which are used for application similar to NPTF.

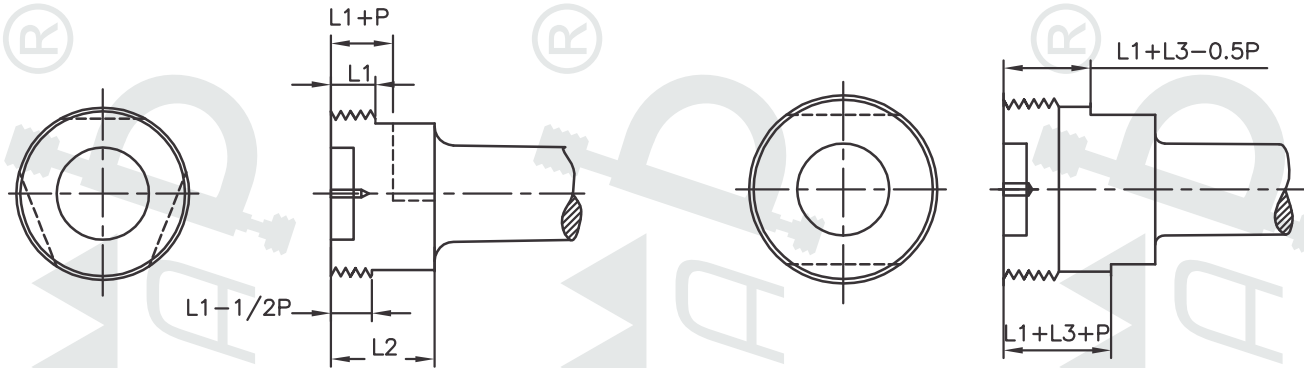




Application: NPTF threads can provide pressure tight seal on threads without the use of a sealing compound (dry seal type) PTF are short gauges (less thickness) which are used for application similar to NPTF.

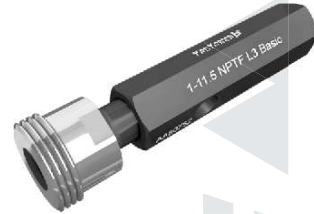


GAUGES FOR PTF (SHORT); NPSF, & NPSI THREADS

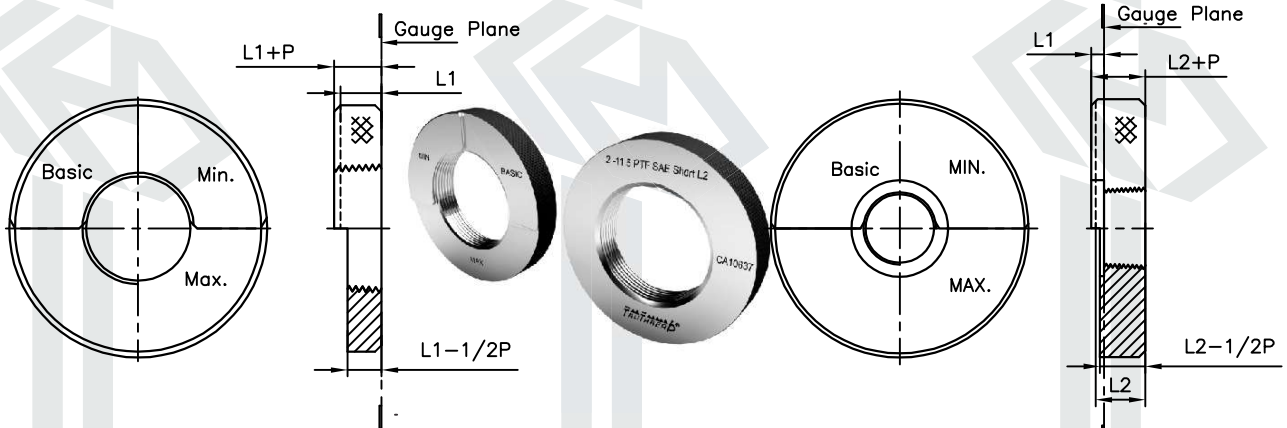
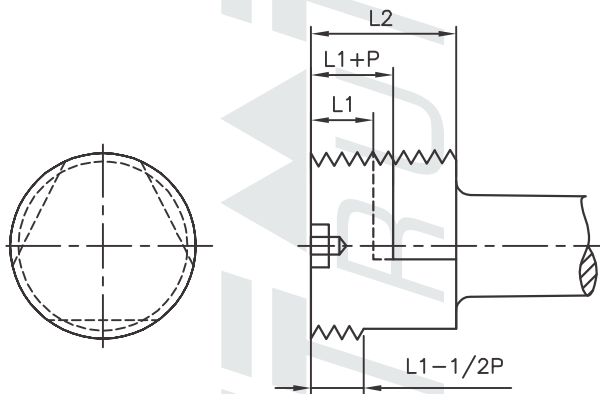


PTF SAE L1 short OR NPSF L1 PLUG

PTF SAE L3 short PLUG



NPSI L1 PLUG



PTF SAE L1 Short Ring

PTF SAE L2 Short Ring



**SPECIFICATION:**  
**(For Inspection gauges)**

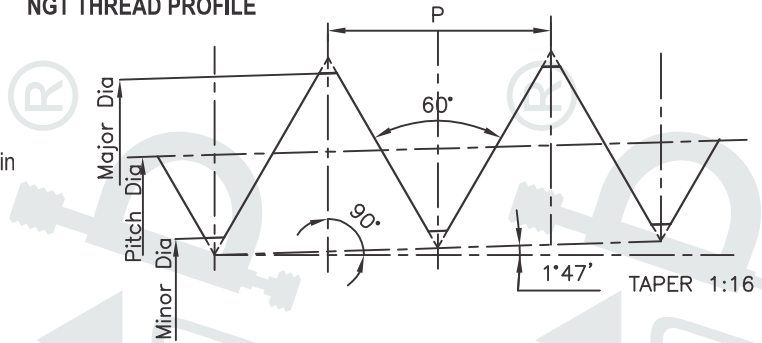
Handbook H-28 Part II – 1957/CGA V-1-2001

IS 15894 -2018

Only \* Marked sizes from given below table are covered in IS 15894. Balance sizes as per Handbook H-28

We manufacture gauges as per obsolete IS 9121 - 1979 based on specific customer's request.

**NGT THREAD PROFILE**



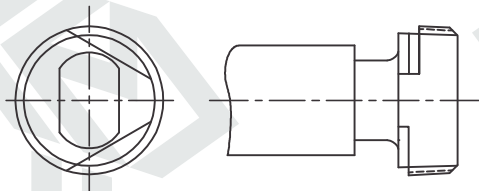
Size	Types of Gauges				
1/8-27 NGT	Taper Thread Plug Gauges to check Pitch Diameter of Cylinder Neck.	Plain Taper Plugs to check crest truncation of Minor Diameter of Cylinder Neck.	Taper Thread Ring Gauges to check Pitch Diameter of Valve.	Plain Taper Ring to check Crest Truncation of Major Diameter of Valve. (Six Step design)	Master Check Plug Gauge to check L1 & L8 Thread Rings
1/4-18 NGT					
3/8-18 NGT					
1/2-14 NGT					
3/4-14 NGT	Gauge L1 & Gauge L9	Gauge C1 & Gauge C2	Gauge L1 & Gauge L8.		
1-11.5 NGT					
1.1/2-11.5 NGT					

For Chlorine (Cl) based on H-28 Part II -1957					
3/4-14 NGT Cl-1 is same as standard 3/4-14 NGT					
3/4-14 NGT Cl-2 4 turn oversize	Standard 3/4-14 NGT L1 & L9 plugs to be used.	Standard 3/4-14 NGT C1 & C2 plugs to be used.	3/4-14 NGT Cl-2 L1 & Gauge L8.	3/4-14 NGT Cl-2 Crest Truncation Ring	3/4-14 NGT Cl-2/CP for L1 & L8 Rings
3/4-14 NGT Cl-3 8.5 turn oversize			3/4-14 NGT Cl-3 L1 & Gauge L8.	3/4-14 NGT Cl-3 Crest Truncation Ring	3/4-14 NGT Cl-3/CP for L1 & L8 Rings
3/4-14 NGT Cl-4 14 turn oversize			3/4-14 NGT Cl-4 L1 & Gauge L8.	3/4-14 NGT Cl-4 Crest Truncation Ring.	3/4-14 NGT Cl-4/CP for L1 & L8 Rings
3/4-14 NGT Cl-5 * 28 turn oversize			3/4-14 NGT Cl-5 L1 & Gauge L8.	3/4-14 NGT Cl-5 Crest Truncation Ring	3/4-14 NGT Cl-5/CP for L1 & L8 Rings

\* Not recommended in H-28

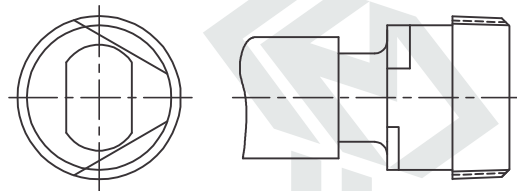
**GAUGES**

For checking Internal Taper Threads of Cylinder neck.



Thread Plug Gauge For Checking Pitch Diameter in Cylinder Neck L1

(Gauge A as per - IS 15894)

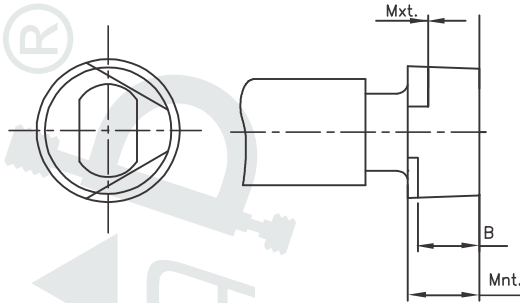


Full Form Taper Thread Plug Gauge For Checking Thread in Cylinder Neck L9

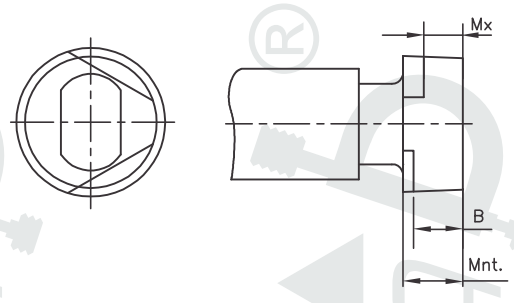
(Gauge B - as per IS 15894)



Plain Taper Plug Gauge to check crest Truncation in Cylinder neck.

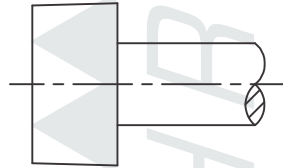


Maximum Truncation Plain Taper Plug  
(Gauge C1 - H28 Part II -1957)



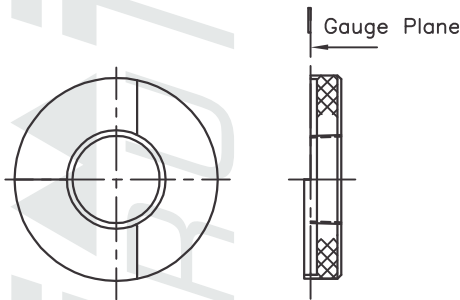
Minimum Truncation Plain Taper Plug  
(Gauge C2 - H28 Part II -1957)

# IS 15894 - 2018 recommends only one Taper Plain Plug 'C' to check crest Truncation of Minor diameter as given below.

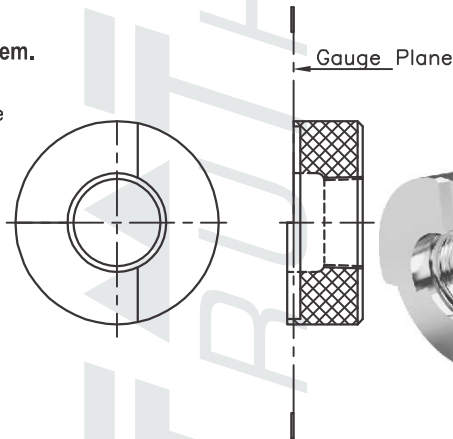


Plain Taper gauge to check crest truncation in Cylinder Neck Gauge "C" (IS 15894)

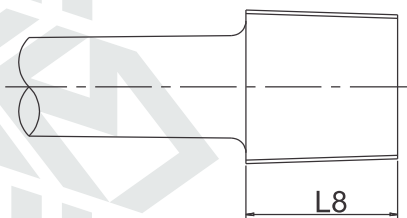
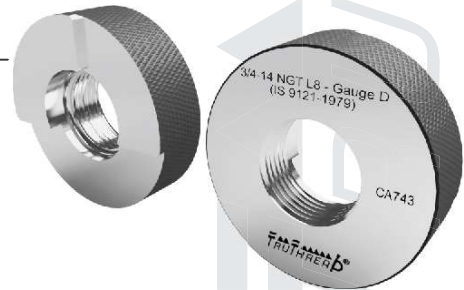
For checking External Taper Threads of valve stem.



Taper Thread Ring Gauge L1  
(Gauge D - IS 15894)



Taper Thread Ring Gauge L8  
(Gauge E - IS 15894)



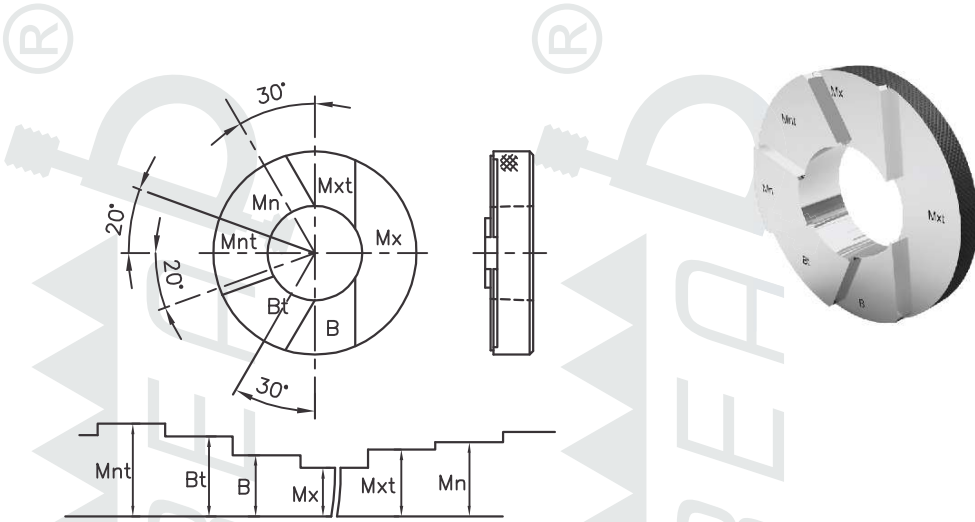
Master check Plug  
to check rings L1 & L8 ( M-EXT ) - IS 15894



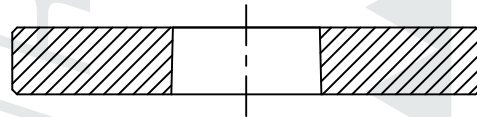
Master Taper thread ring  
Gauge ( M - INT )- IS 15894



Plain Taper Ring Gauge to check crest Truncation.



Plain Taper ring Gauge for Checking Crest Truncations of External threads (Six step design) H-28 Part II -1957



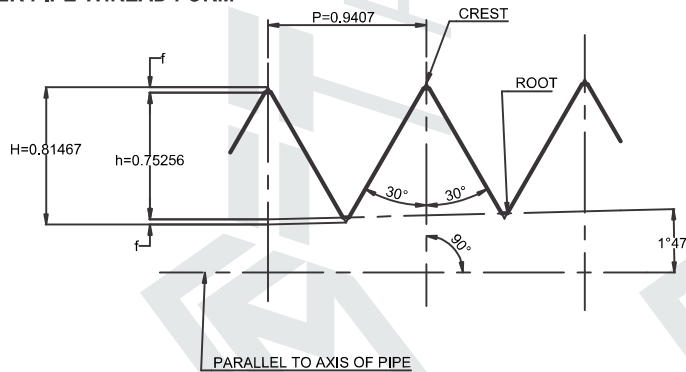
Crest truncation ring without steps IS 15894 - 2018

ANPT THREADS.

Application: ANPT (Aeronautical National Form) threads are used for piping & coupling in aeronautical industry.

SPECIFICATION: AS71051 - SAE

AERONAUTICAL NATIONAL TAPER PIPE THREAD FORM



MANUFACTURING RANGE

Nominal Pipe Size	TPI	Type of Thread Gauges used			
		Taper Plug Gauges.	Taper Plain Plug 6 steps.	Taper Ring Gauges.	Taper Plain Plug 6 steps.
1/16, 1/8 27	27	L1- Basic & L3- Basic		L1- Basic & L2- Basic	
1/4, 3/8	18				
1/2, 3/4	14				
1, 1.1/4, 1.1/2, 2	11.5				
2.1/2, 3	8				

# BRITISH STANDARD PIPE TAPER THREADS (BSPT<sub>r</sub>)

Application : Used for fastening of pipe threads where, pressure tight joints are required on threads.



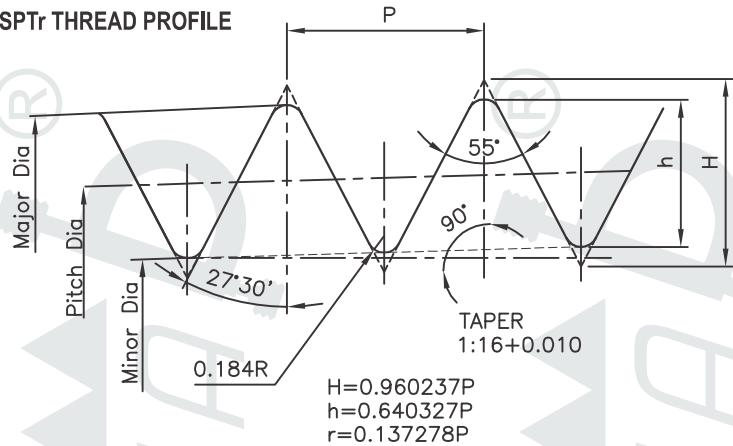
## SPECIFICATION :

BS Standard: BS 21-1985.

Indian Standard: \* Basic Dimensions: IS 554-1975,  
\* Gauging Practice: IS 8999-1979

\* These specifications are replaced first by ISO 7/2-1984 & later on by ISO 7/2-2000. As these gauges are still used in industry, we manufacture these based on specific customer request.

## BSPT<sub>r</sub> THREAD PROFILE



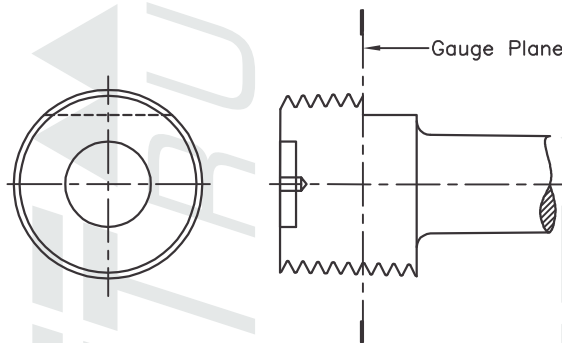
## MANUFACTURING RANGE.

Diameter (Inch)	TPI	Type of Gauges			
1/16, & 1/8	28	Thread Plug Gauges	Thread Ring Gauges	Check Plug to check NEW Rings	Wear Check Plug Gauges to check/ calibrate used Rings.
1/4 & 3/8	19				
1/2 & 3/4	14	System A. & System B.	System A & System B	System A & System B	System A & System B
1, 1.1/4, 1.1/2, 2, 2.1/2, 3	11				
4, 5, 6					

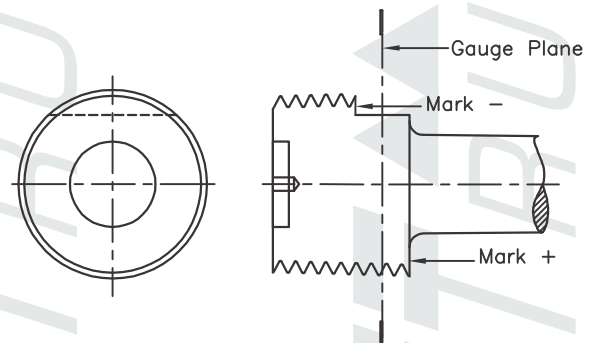
Specification recommends,

### To check Internal Taper Threads -

Taper Thread Plug either System 'A' OR System 'B'



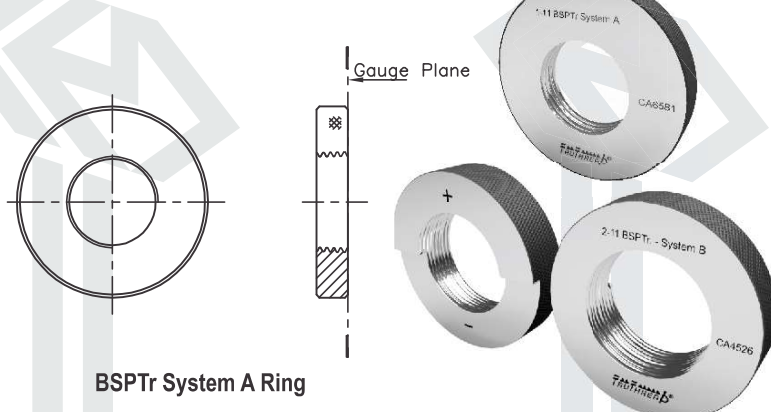
BSPT<sub>r</sub> System A Plug



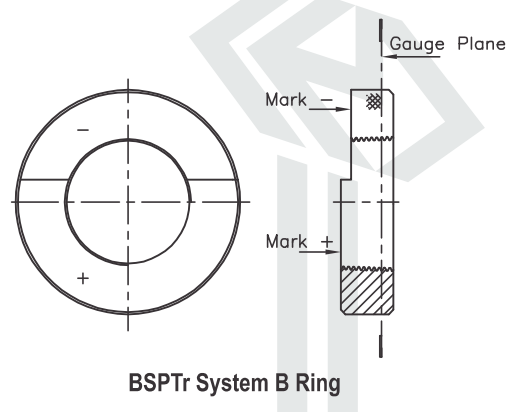
BSPT<sub>r</sub> System B Plug

To check external Taper Threads.

Taper Ring Gauges either System 'A' OR System 'B'



BSPT<sub>r</sub> System A Ring



BSPT<sub>r</sub> System B Ring

**PIPE THREADS WHERE PRESSURE TIGHT JOINTS ARE MADE ON THREADS. (R)**

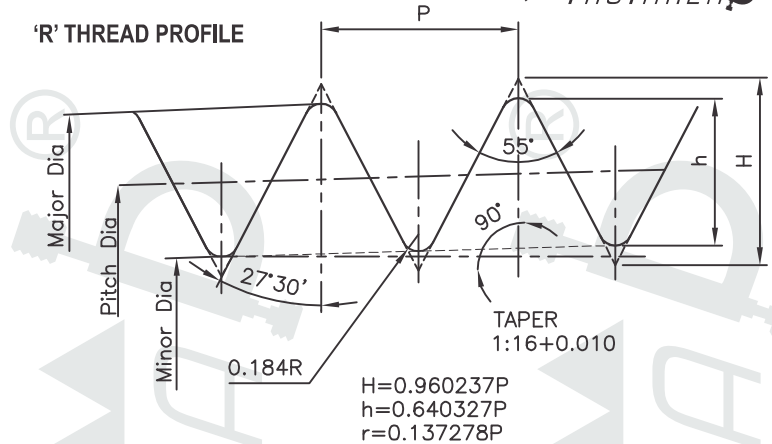
Application : Used for fastening of pipe threads, where pressure tight joints are required on threads.



**SPECIFICATION :**

Basic Dimensions: ISO 7/1 - 1994 / IS 554 – 1999 ,  
Gauging Practice : ISO 7/2 – 2000 / IS 8999-2003.  
BS EN 10226-3-2005

**'R' THREAD PROFILE**



**MANUFACTURING RANGE.**

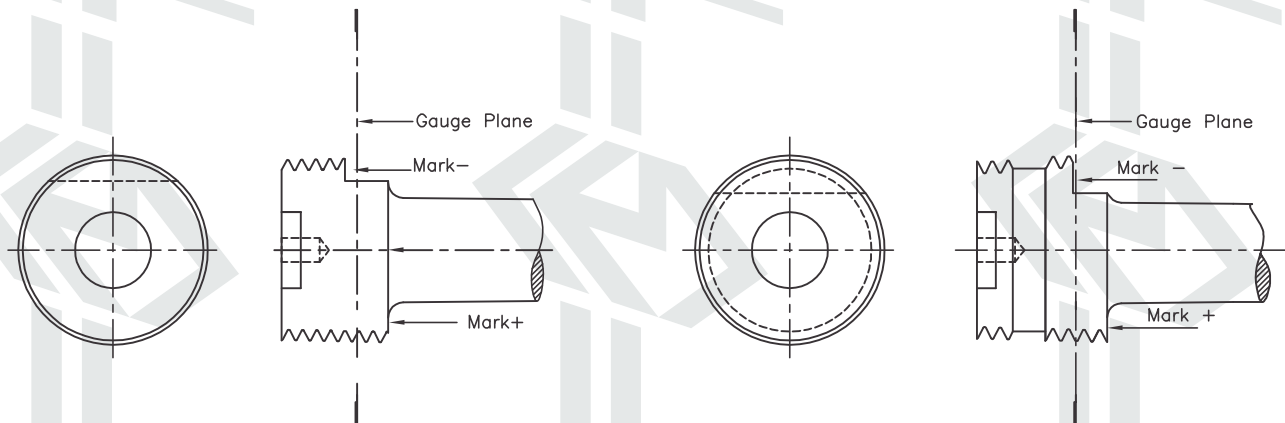
Diameter (Inch)	TPI	Type of Gauges used for checking					
1/16" & 1/8"	28	Taper Full form Thread Plug Gauge	Taper Full form Thread Plug Gauge with relief	Parallel Full form Thread Ring Gauge	Taper Plain Ring Gauge	Taper modified Thread form Check Plug Gauge	Parallel Modified Thread form Check Ring Gauge
1/4" & 3/8"	19						
1/2" & 3/4"	14						
1", 1.1/4", 1.1/2", 2", 2.1/2", 3", 4", 5", 6" *	11						

Internal Threads	Parameters to be checked →	Pitch Dia. with Major Diameter	Accommodation Length	
Taper Rc	<b>Gauges required -</b>	<b>Gauge No.1 and/or 2</b>	<b>Gauge No.2</b>	
Parallel Rp		<b>Gauge No.1 and/or 2</b>	<b>Gauge No.2</b>	
External Threads	Parameters to be checked →	Pitch & Minor Diameters.	Accommodation Length	Major Diameter
Always Taper 'R'	<b>Gauges required -</b>	<b>Gauge No.3</b>	<b>Gauge No.4</b>	<b>Gauge No.4</b>

Details of Gauges as per ISO 7/2-2000

**GAUGES FOR CHECKING WORKPIECE THREADS.**

To check Major Diameter & Pitch Diameter of Internal workpiece Threads Taper OR Parallel at the Gauge plane & the accommodation length.



Taper Full form Thread Plug. **Gauge No.1**

Taper Full form Thread Plug with relief. **Gauge No.2**

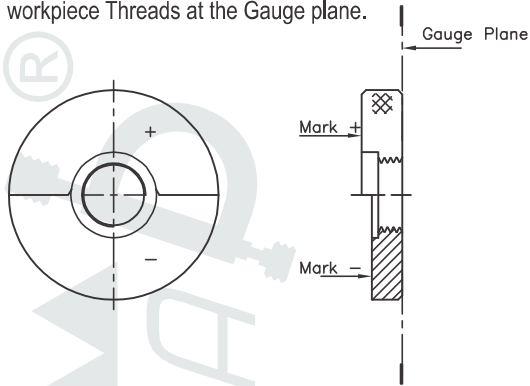
• The use of Gauge 2, may be omitted when the design of the work piece ensures availability of adequate accommodation length, but it should be noted that malformed threads may not be detected if Gauge No.2 is not used.

**PIPE THREADS WHERE PRESSURE TIGHT JOINTS ARE MADE ON THREADS. (R)**

Application : Used for fastening of pipe threads, where pressure tight joints are required on threads.



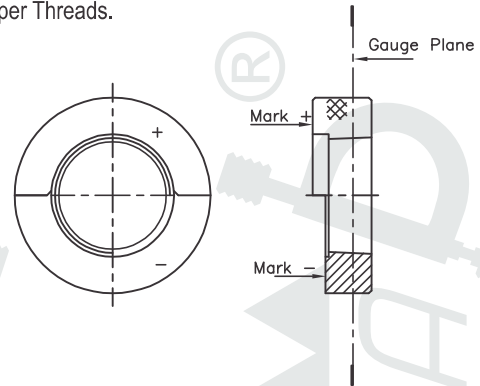
To check Minor Diameter & Pitch Diameter of External Taper workpiece Threads at the Gauge plane.



Parallel Full form Thread Ring Gauge. **Gauge No.3**



To check Major Diameter & the related useful thread length of External Taper Threads.

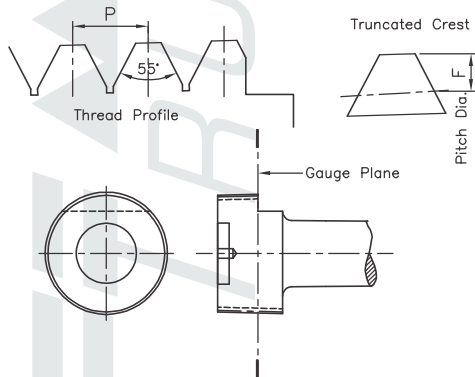


Taper Plain Ring Gauge (without threads) **Gauge No.4**



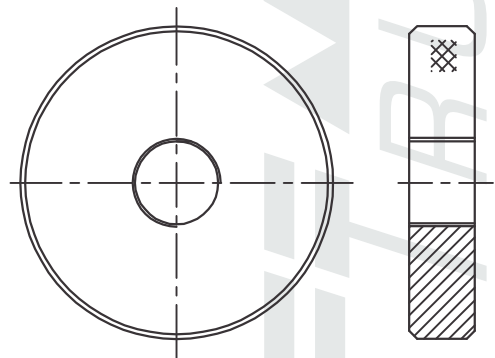
**MASTER GAUGES TO CHECK GAUGES (CALIBRATION & CONTROL PURPOSE)**

To check Pitch Diameter of Parallel Full form Ring **Gauge No.3** during manufacturing & calibration (wear during usage)



Taper Modified Thread form Check Plug Gauge **Gauge No.5**

To check dimensions of Taper Thread Plug Gauges (**Gauge No.1 & 2**) during manufacturing & calibration. (wear during usage)



Parallel Modified Thread form Check Ring Gauge **Gauge No.6**

**PT Gauges-The PT Taper Plug & Taper Ring gauges specified in Appendix of JIS B 0253-1985, covers pipe sizes from 1/8 to 12".**

**Dimensions of PT Taper thread gauges are different than R/Rc gauges.**

**We manufacture PT gauges as per JIS B 0253-1985 standard.**

# M KEG METRIC TAPER THREADS

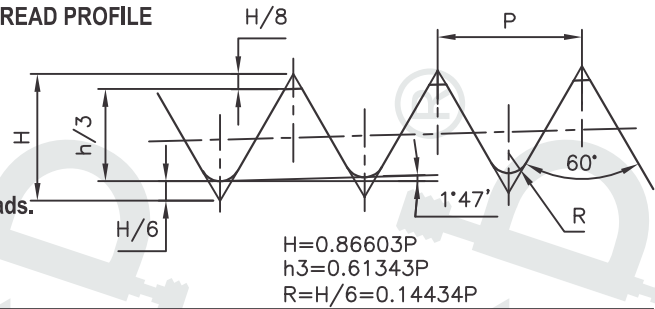
Application: These taper threads are used for Oil and Grease Nipples where self sealing connection cannot be obtained by parallel thread connections, with sealing washer.



## SPECIFICATION:

Basic Dimensions : DIN 158 Part 1 – 1997/IS 8788 – 2002 ,  
Gauging Practice: DIN 158 Part 2-1997.

## M KEG THREAD PROFILE



External Threads are Taper & Internal Threads are parallel.

For Internal threads, Thread profile is similar to ISO Metric Threads.

## MANUFACTURING RANGE

Diameter	Pitch (mm)	Type of Gauges				
M5	0.8	PARALLEL Ring Gauge	Taper Check Plug to check Parallel Rings.	Taper Rings Gauge	Taper Check Plug to check Taper Rings.	Parallel Plug Gauge to check Parallel Internal Threads.
M6, M8, M10, M12	1					
M10, M12 M12, M14, M16, M18, M20, M22, M24, M26, M27, M30, M33, M36,	1.25					
M38, M39, M42, M45, M48, M52, M27, M30, M33,	1.5	a) Standard b) Short	a) Standard b) For Short rings	a) Standard b) Short	Common for Standard and Short rings	Tolerance 4H5H
M36, M39, M42, M45, M48, M52, M56, M60.	2					

## GAUGING.

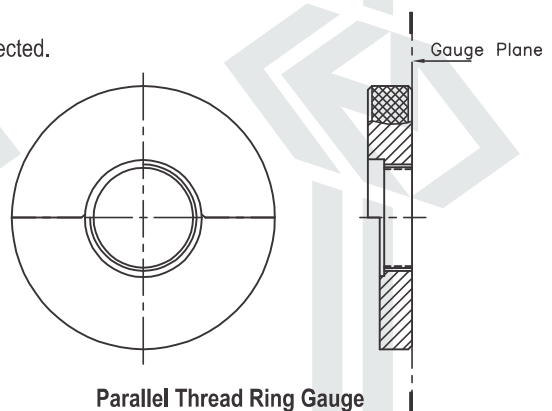
External Taper Threads of work piece can be checked by either,

### 1) Parallel Thread Ring Gauge (Standard / Short).

The design of this ring is specified in DIN 158 Part 2 – 1997 standard.

The limitation of parallel ring gauge is, it checks only the function of the thread at the gauge plane.

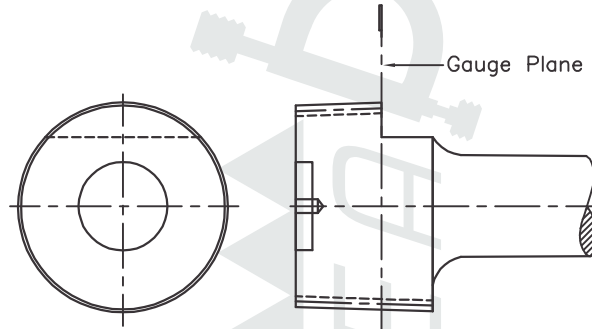
In this case however, errors of taper angle, pitch & thread angle can not be detected.





## Taper Check Plug Gauge (Standard/Short)

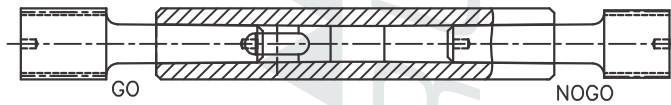
- 3) Taper Check Plug Gauge is used to check NEW or worn out parallel Thread Ring Gauge.



Taper Check Plug Gauge

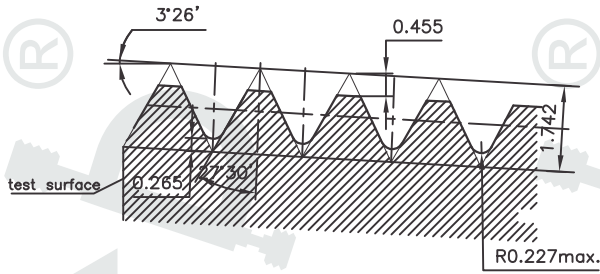
Internal parallel Threads of work piece can be checked by,

- 4) Parallel Plug Gauge of tolerance class '4H5H'.  
The Gauging practice of ISO Metric Thread Gauges is used for calculating Gauge size.

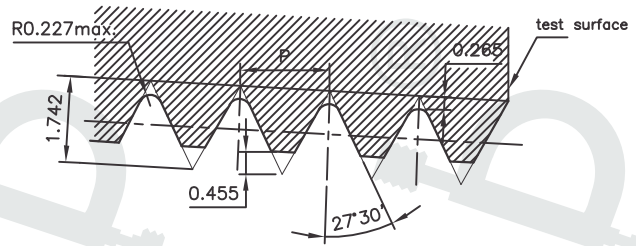




\* Does not cover valves for LPG (Liquid, Petroleum gas)..



**Thread Profile of Plug Gauges.**

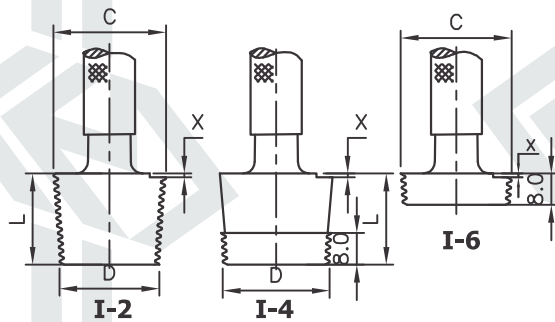


**Thread Profile of Ring Gauges.**

**SPECIFICATION :**  
 ISO 11363-2018 , BS EN ISO 11363 -2018, IS 9122 - 2008  
 These sizes are also covered in DIN 477 & BS 341-1991

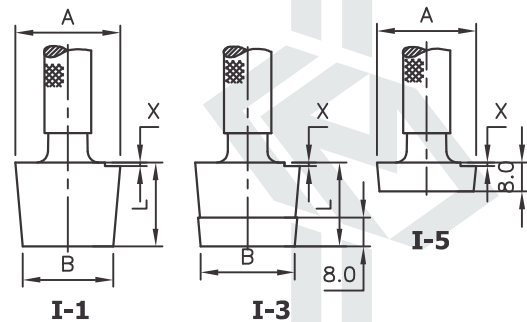
Size	Types of Gauges used for checking			
	<b>Thread Plug Gauges to check Internal Threads</b> - set of 3 Gauges	<b>Plain Plug Gauges to check Internal Threads.</b> - set of 3 Gauges	<b>Thread Ring Gauges to check External Threads.</b> -set of 3 Gauges	<b>Plain Ring Gauges to check Internal Threads.</b> - set of 3 Gauges
17E & 25E	<ul style="list-style-type: none"> <li>• Single part Thread Plug to check Pitch Dia. (I-2).</li> <li>• 2 part Thread Plug to check Pitch Dia.at Small end (I-4)</li> <li>• 2 part Thread Plug to check Pitch Dia. at Large End (I-6)</li> </ul>	<ul style="list-style-type: none"> <li>• Single part Plain Plug to check Minor Dia.(I-1).</li> <li>• 2 part Plain Plug to check Minor Dia.at Small end. (I-3).</li> <li>• 2 part Plain Plug to check Minor Dia. at Large End (I-5)</li> </ul>	<ul style="list-style-type: none"> <li>• Single Part Thread Ring to check Pitch Dia. (I-8).</li> <li>• 2 part Thread Ring to check Pitch Dia.at Small End (I-10)</li> <li>• 2 part Thread Ring to check Pitch Dia.at Large End (I-12)</li> </ul>	<ul style="list-style-type: none"> <li>• Single Part Plain Ring to check Major Dia. (I-7)</li> <li>• 2 part Plain Ring to check Major Dia. at Small End (I-9)</li> <li>• 2 part Plain Ring to check Major Dia.at Large End (I-11)</li> </ul>

**17 E & 25 E**



**Thread Plug Gauges to check Internal Threads.**  
 ( Set of Three Gauges)

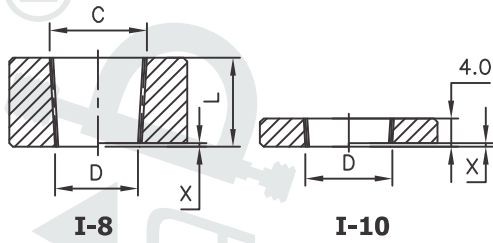
**17 E & 25 E**



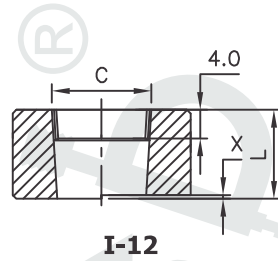
**Plain Taper Plug Gauges to check Minor diameter of Internal Threads.**  
 ( Set of Three Gauges)



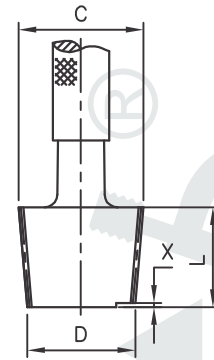
17 E & 25 E



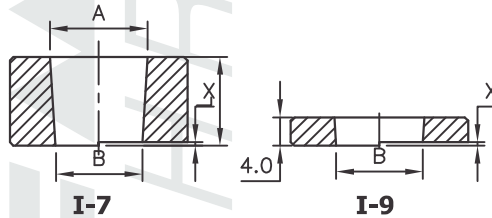
**Thread Ring Gauges to check External Threads.**  
(Set of Three Gauges)



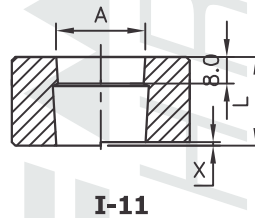
**Check Plug for Inspection of Taper Ring Gauge. (M-2)**



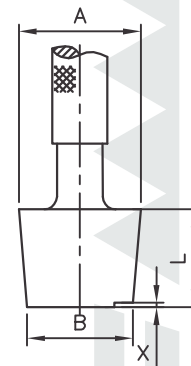
17 E & 25 E



**Plain Taper Ring Gauges to check Major diameter of External Threads.**  
(Set of Three Gauges)



**Plain Taper Check Plug for Inspection of Plain Taper Ring Gauge. (M-1)**



**SPECIFICATION : DIN 477 - 1984**

**MANUFACTURING RANGE**

Type, Nom. Dia. & TPI	Thread Profile	Type of Gauges for checking					
W 19.8 *	<p>3:25 Taper slope 12%</p> <p>27.5°</p> <p>27.5°</p> <p>Axis of stem 10° inc. taper</p> <p>TPI = 14</p>	Thread Plug Gauges to check Internal Threads	Plain Taper Plug Gauges	Thread Ring Gauges to check External Threads	Check Plug for Inspection of Ring Gauge.	Plain Taper Ring Gauges	Plain Taper Check Plug for Inspection of Plain Taper Ring Gauge.
W 28.8 \$		set of 3 gauges.	set of 3 gauges.	set of 3 gauges.		set of 3 gauges.	
W 31.3		For details refer gauge drawings given on Page no. 31-32					

\* W 19.8 is same as 17E as per BS EN ISO 11363  
\$ W 28.8 is same as 25E as per BS EN ISO 11363

## GAUGES FOR VALVE FITTINGS OTHER THAN LPG

Application: Valves of containers used for the conveyance of permanent, Liquefiable and Dissolved Gases up to working pressure 400 Bar. Valves of Breathing Apparatus, Fire Extinguishers.



### SPECIFICATION :

As per BS 341 Part I - 1991

### MANUFACTURING RANGE

Type, Nom. Dia. & TPI	Thread Profile	Type of Gauges for checking					
16 T 0.635"-18		Thread Plug Gauges to check Internal Threads	Plain Taper Plug Gauges	Thread Ring Gauges to check External Threads	Check Plug for Inspection of Ring Gauge.	Plain Taper Ring Gauges	Plain Taper Check Plug for Inspection of Plain Taper Ring Gauge.
18 T * 0.715"-14							
19 T 0.735"-14							
32 T 1.25-11		set of 3 gauges.	set of 3 gauges.	set of 3 gauges.		set of 3 gauges.	
25 T \$ 1" - 14							
26 T 1.025"-14		For details refer gauge drawings on Page no. 31-32					

\* 18 T or 0.715 - 14 is same as 17 E as per BS EN ISO 11363

\$ 25 T or 1"-14 is same as 25 E as per BS EN ISO 11363

## GAUGES FOR VALVE FITTINGS OTHER THAN LPG

### SPECIFICATION : BS 341 -1963 / IS 7202-2017

This is an absolute specification & replaced with BS 341- 1991

### MANUFACTURING RANGE

Size	Thread Profile	Types of Gauges used for checking			
0.6"	Taper 1 in 5.625, 14 TPI	Thread Plug Gauge - Full form & - Effective Form	Plain Plug Gauge to check Minor Diameter	Thread Ring Gauge	Plain Ring Gauge to check Major Diameter
0.715" OR 18.16 mm Size 1	Taper 1 in 8, 14 TPI				
1" OR 25.4 mm Size 2	Taper 1 in 8, 14 TPI				
1.1/4" OR 31.75 mm Size 3	Taper 1 in 8, 11 TPI				

Size 1,2,3 are recommended in IS 7202

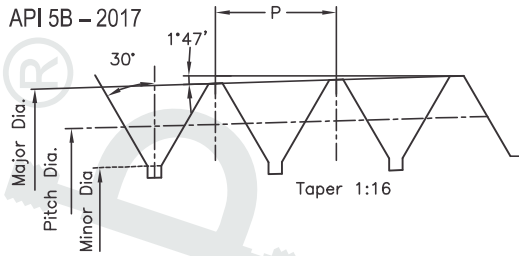
### Application :

- BS 341 -1963 for Taper Stems for use with breathing apparatus (excluding medical gas cylinders)
- IS 7202 -2017 Inspection gauges for checking type IV (Size 1,2,3 ) taper threads of gas cylinder valves & cylinder necks.

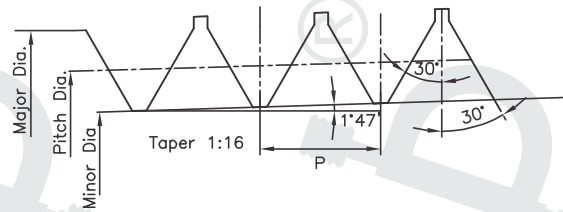


**SPECIFICATION :**  
API 5B – 2017

**CASING TUBING & LINE PIPE THREAD PROFILE**



Thread Profile of Plug Gauge



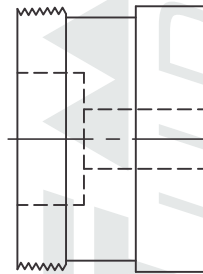
Thread Profile of Ring Gauge

**LINE PIPE**

**MANUFACTURING RANGE**

DIA IN INCH	TPI
1/8	27
1/4, 3/8	18
1/2, 3/4	14
1, 1.1/4, 1.1/2, 2	11.5
2.1/2, 3, 3.1/2, 4, 5	8
6	8
8	8
10	8
12	8

Taper Plug Gauge



Taper Ring Gauge



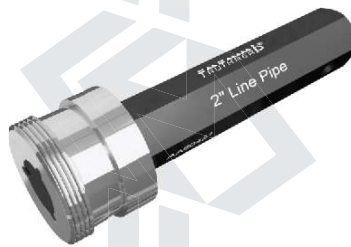
\* 14D, 16D, 18D & 20D sizes are out of our current manufacturing range

**CASING SHORT & LONG ROUND THREADS**

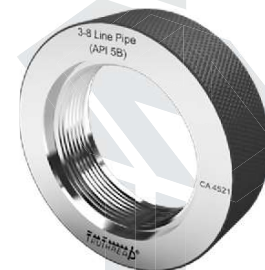
**MANUFACTURING RANGE**

DIA IN INCH	TPI
4.1/2,	8
5	8
5.1/2	8
6.5/8	8
7	8
7.5/8	8
8.5/8	8
9.5/8	8
10.3/4	8
11.3/4	8
13.3/8	8

Taper Plug Gauge



Taper Ring Gauge



\*11.3/4 & 13.3/8 Ring Gauges are out of manufacturing range.

\* Above 13.3/8 diameter i.e. 16, 18.5/8, 20 Diameter PLUG AND RING both are out of manufacturing range



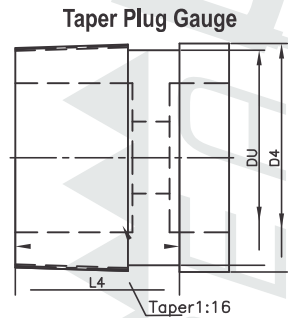
**NON- UPSET TUBING (TBG) & EXTERNAL UPSET TUBING (UP TBG) GAUGES.**

SPECIFICATION : API 5B -2017

**NON- UPSET TUBING GAUGES**

**MANUFACTURING RANGE**

1.050	10
1.315	10
1.660	10
1.900	10
2.3/8	10
2.7/8	10
3.1/2	10
4	8
4.1/2	8



Non-Upset tubing Plug Gauge

Taper Ring Gauge

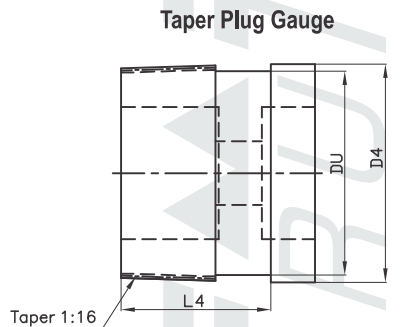


Non-Upset tubing Ring Gauge

**EXTERNAL UPSET TUBING GAUGES (UP TBG)**

**MANUFACTURING RANGE**

DIA IN INCH	TPI
1.05	10
1.315	10
1.660	10
1.900	10
2.3/8	8
2.7/8	8
3.1/2	8
4	8
4.1/2	8



External Upset Tubing Plug Gauge

Taper Ring Gauge



External Upset Tubing Ring Gauge

\* Buttress casing threads are out of Manufacturing range.



Integral Joint Tubing Thread Gauges can be supplied, If requested.



**SPECIFICATION: API 5A-1944**

This is an old API standard now obsolete, we have covered it as still in some cases gauges for these are required.

**SHARP THREAD CASING - LONG & SHORT THREAD.**

**MANUFACTURING RANGE**

Nominal Pipe Size	Outside Dia.of Pipe	TPI	Taper Rate
4.3/4	4.750	10	0.03125
5.1/2	5.500	10	0.03125
5.3/4	5.750	10	0.03125
6	6.000	10	0.03125
6.5/8	6.625	10	0.03125
7	7.000	10	0.03125
7.5/8	7.625	8	0.0625

Taper rate 0.03125 means 1 in 32 & 0.0625 means 1 in 16.

In addition to above sizes, 4.3/4 Up, 5.3/4 Up, 8.1/8 Up are used for Sharp Thread casing Short Threads.

**Sharp Thread Tubing Non-Upset.**

Nominal Pipe Size	Outside Dia. of Pipe	TPI
1.1/2	1.900	11.1/2
2	2.375	11.1/2
2.1/2	2.875	11.1/2
3	3.500	11.1/2
3.1/2	4.000	10
4	4.500	10

Rate of Taper 3/4 Inch per foot or 1 in 16 or 0.0625 inch per inch common for all sizes.

Nominal Pipe Size	Outside Dia. of	TPI	Taper Rate
8.1/8	8.125	10	0.03125
8.5/8	8.625	8	0.0625
9	9.000	8	0.0625
9.5/8	9.625	8	0.0625
10.3/4	10.750	8	0.0625
11.3/4	11.750	8	0.0625
13.3/8	13.375	8	0.0625

**Sharp Thread Tubing External Upset.**

Nominal Pipe Size	Outside Dia. of Pipe	TPI
1.1/4	1.660	11.1/2
1.1/2	1.900	11.1/2
2	2.375	10
2.1/2	2.875	10
3	3.500	10
3.1/2	4.000	10
4	4.500	10

Rate of Taper 3/4 Inch per foot or 1 in 16 or 0.0625 inch per inch common for all sizes.

**THREADS FOR SUCKER RODS.**

**SPECIFICATION: API II AX -2015 & II B -2015**

Specification for Subsurface Rod Pump assemblies, Components and Fittings.

We manufacture Thread gauges to check external threads of polished rod pin & internal threads of Box connections.

**Application Sucker rods – steel & FRP, Couplings, sub couplings & polished rod connections, polished rods & clamps, stuffing boxes & pumping tees, sinker bars.**

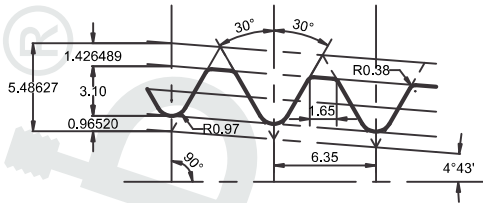
**SIZES**

Nominal Size of rod	Approx. size in mm	TPI
5/8	15.9 mm	10
3/4	19.1 mm	10
7/8	22.2 mm	10
1	25.4 mm	10
1.1/8	28.6 mm	10

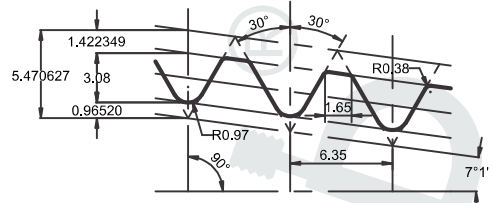


**SPECIFICATION : API SPEC 7/2 -2017**

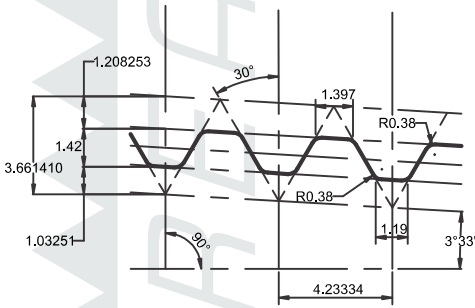
**THREAD FORMS**



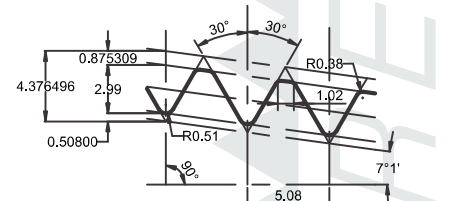
**TAPER 1:6 , 4 TPI  
V-038R**



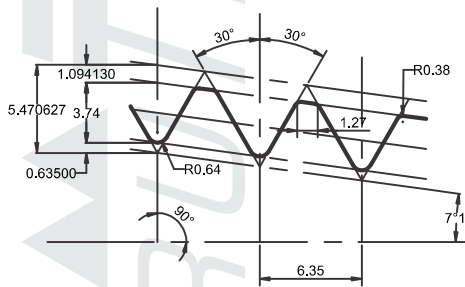
**TAPER 1:4 , 4 TPI  
V-038R**



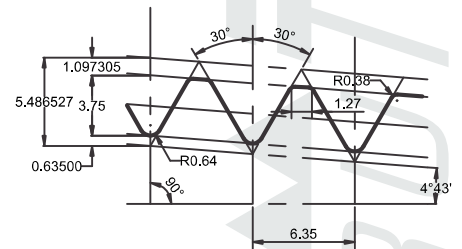
**TAPER 1:8 , 6 TPI  
V-055**



**TAPER 1:4 , 5 TPI  
V-040**



**TAPER 1:4 , 4 TPI  
V-050**



**TAPER 1:6 , 4 TPI  
V-050**

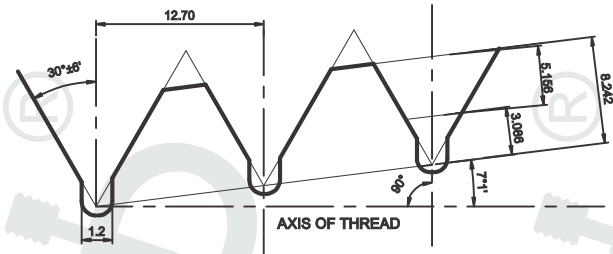
**PREFERRED CONNECTIONS.**

Connection style & size	Thread Form	Taper	TPI
NC 23	V-038R	1 IN 6	4
NC 26 (2.78 IF)	V-038R	1 IN 6	4
NC 31 (2.78 IF)	V-038R	1 IN 6	4
NC 35	V-038R	1 IN 6	4
NC 38 (3.1/2 IF)	V-038R	1 IN 6	4
NC 40 (4 FH)	V-038R	1 IN 6	4
NC 44	V-038R	1 IN 6	4
NC 46 (4 IF)	V-038R	1 IN 6	4
NC 50 (4.1/2 IF)	V-038R	1 IN 6	4
NC 56	V-038R	1 IN 4	4
NC 61	V-038R	1 IN 4	4
NC 70	V-038R	1 IN 4	4

Connection style & size	Thread Form	Taper	TPI
1 REG	V-055	1 IN 8	6
1.1/2 REG	V-055	1 IN 8	6
2.3/8 REG	V-040	1 IN 4	5
2.7/8 REG	V-040	1 IN 4	5
3.1/2 REG	V-040	1 IN 4	5
4.1/2 REG	V-040	1 IN 4	5
5.1/2 REG	V-050	1 IN 4	4
6.5/8 REG	V-050	1 IN 6	4
7.5/8 REG	V-050	1 IN 4	4
8.5/8 REG	V-050	1 IN 4	4
5.1/2 FH	V-050	1 IN 6	4
6.5/8 FH	V-050	1 IN 6	4

Sizes in Parenthesis indicate interchangeable connections -with NC



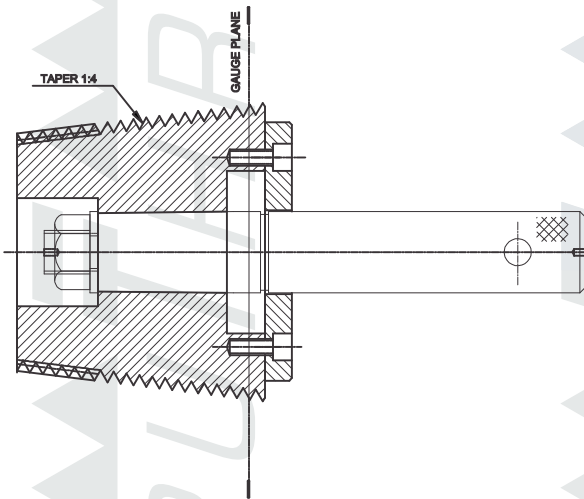


BECO THREAD

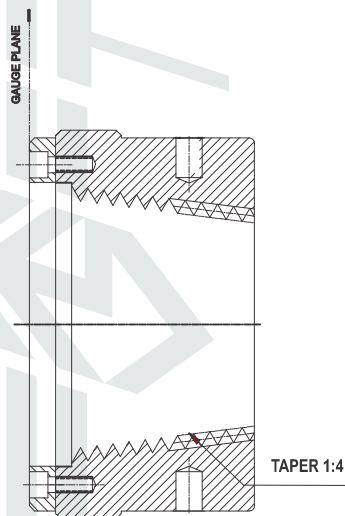
Specification – Company standard developed by Bucyrus Erie Company (BECO)

SIZES

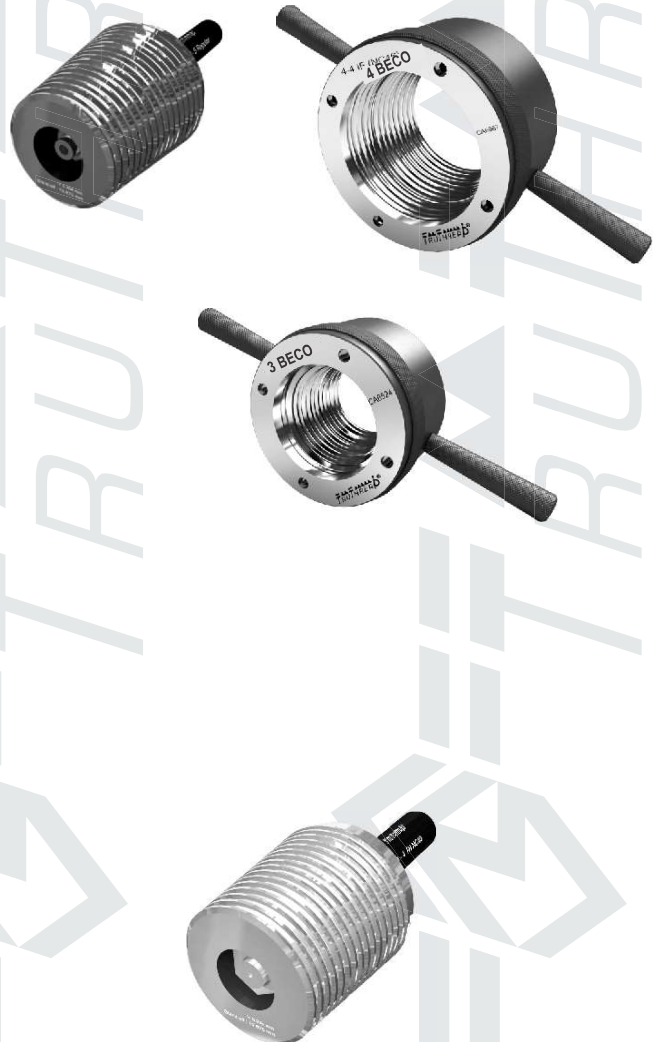
Nominal Diameter	TPI	Rate of Taper
3	2 TPI is common pitch for all sizes.	Taper 1 in 4 on diameter OR Taper Angle 7° 1'
3.1/2		
4		
4.1/2		
5.1/4		
6		
8		



BECO THREAD PLUG ASSEMBLY



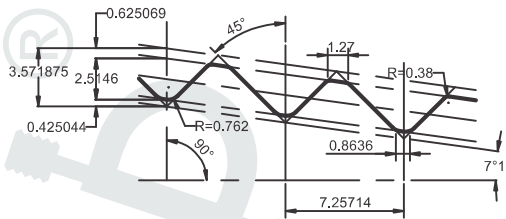
BECO THREAD RING



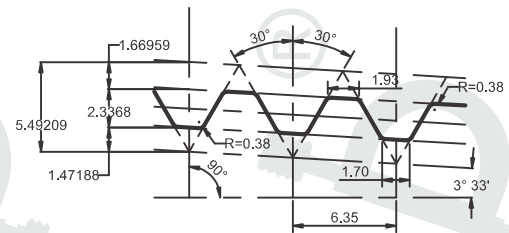


**SPECIFICATION : API SPEC 7/2 -2017, ISO 10424**

**THREAD FORMS**



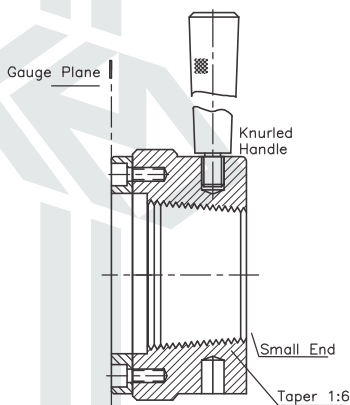
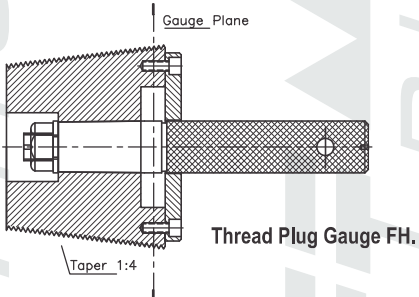
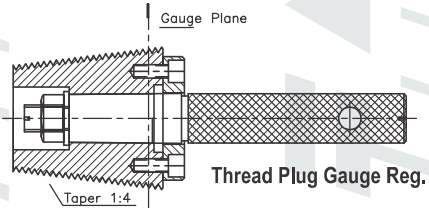
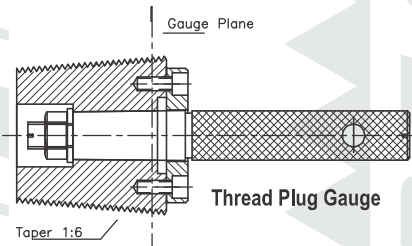
TAPER 1:4 , 3.5 TPI  
**90-V-050**



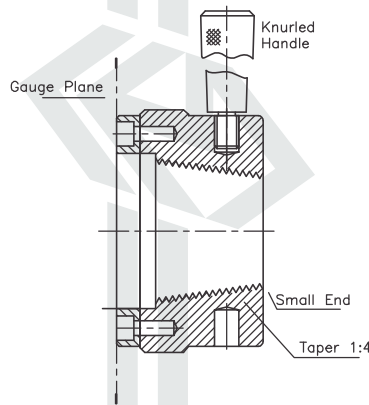
TAPER 1:8 , 4 TPI  
**V-076**

**NON-PREFERRED CONNECTIONS.**

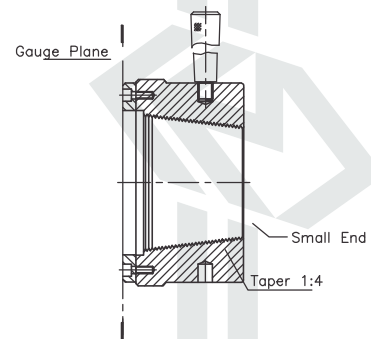
Connection style & size	Thread Form	Taper	TPI
NC 10, NC 12, NC 13, NC 16	V-055	1 IN 8	6
NC 77	V-038R	1 IN 4	4
3.1/2 FH, 4.1/2 FH	V-040	1 IN 4	5
5.1/2 IF, 6.5/8 IF	V-038R	1 IN 6	4
2.3/8 OH LW, 2.7/8 OH LW, 2.7/8 OH SW 3.1/2 OH SW, 4OH LW, 4 OH SW, 4.1/2 OH SW	V-076	1 IN 8	4
2.3/8 PAC, 2.7/8 PAC, 3.1/2 PAC	V-076	1 IN 8	4
2.3/8 SH	V-038R	1 IN 6	4
2.3/8 WO, 2.7/8 WO, 3.1/2 WO	V-038R	1 IN 6	4
2.7/8 XH, 3.1/2 XH,	V-038R	1 IN 6	4
3.1/2 H90, 4 H90, 4.1/2 H90 5 H90, 5.1/2 H90, 6.5/8 H90	90-V-050	1 IN 6	3.5
7 H90, 7.5/8 H90, 8.5/8 H90	90-V-050	1 IN 4	3.5
2.3/8 SL H90, 2.7/8 SL H90, 3.1/2 SL H90	90-V-084	5 IN 48	3
GOST Z-161, GOST Z-189.	V-050	1 IN 6	4



**Thread Ring Gauge IF**



**Thread Ring Gauge REG**



**Thread Ring Gauge FH.**



**MATERIAL**

**HARDENED & STABILIZED STEEL**, AISI O1 / EN-31(SAE 52100), Hardness 60- 62 HRc.

☛ *Close Tolerance Plugs are sub zero treated for dimensional stability.*

☛ **TUNGSTEN CARBIDE OPTION WHERE EVER AVAILABLE IS SEPARATELY GIVEN IN THIS CATALOGUE.**

**SPECIFICATION:**

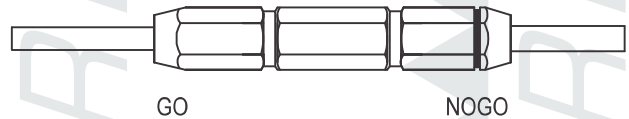
Basic Dimensions: ISO 286 Part 1 & 2- 2010 / IS 919 Part 1 & 2-2014

Gauging Practice: DIN 7164 - 2017 & IS 3455-1971, IS 7859-1975

**DIAMETER 0.5MM – 10 MM. REVERSIBLE PIN TYPE DESIGN.**

**SPECIFICATION:**

- ☛ Handle Design : ANSI B47.1 OR BS 1044 Part 1
- ☛ Handle in Anodized Aluminum with brass collets to hold gauging pin.



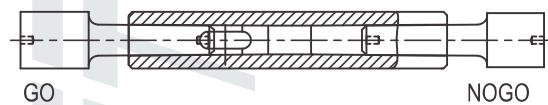
☛ *We can supply these reversible gauges in SOLID TUNGSTEN CARBIDE ON REQUEST. Carbide Gauges up to 8 mm diameter are available in reversible pin type design.*

**DIAMETER 10 MM – 40 MM. TAPER LOCK DESIGN.**

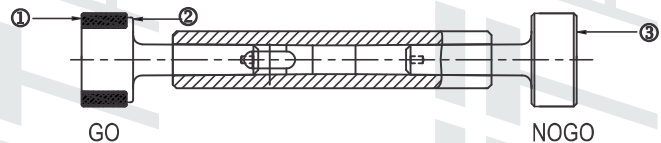
**SPECIFICATION:**

- Gauge Blanks : ISO 3670-1979 OR IS 6137-1983
- Handle Design: ISO 3670-1979 OR IS 5388-1983 for handles.

**STEEL**



**TUNGSTEN CARBIDE**



- ① Tungsten Carbide Ring of Special Wear Resisting Grade.
- ② En-31 Shank to Support Carbide Ring
- ③ No GO Member of En - 31.



Go –Outer Ring of wear resistance grade Tungsten Carbide with EN 31 shank support.

Nogo- in stabilized steel AISI O-1 / EN 31 (SAE 52100), Hardness 60- 62 HRc.

☛ Go & Nogo both in Carbide can be supplied for Special customer request

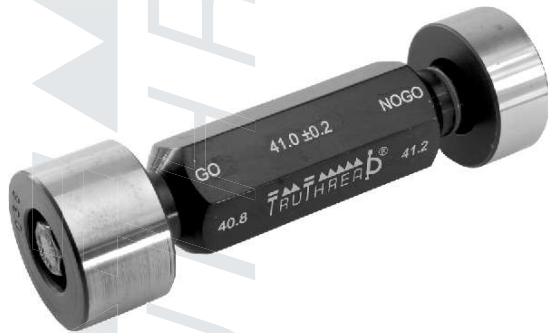
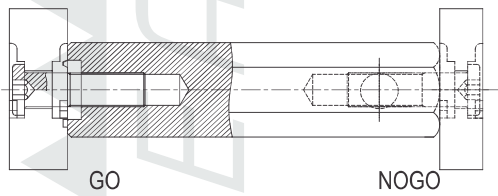


**DIAMETER 40MM – 100 MM. TRILOCK DESIGN.**

It is possible to supply Plain plug gauges more than 100mm in Trilock design, in steel on specific customer request.

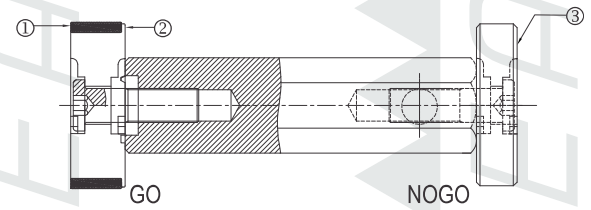
**SPECIFICATION:** Gauge Blanks : ISO 3670-1979 OR IS 6244-1980  
Handle Design: ISO 3670 - 1979 OR IS 5388-1983 for handles.

**STEEL**



**TUNGSTEN CARBIDE ( up to 60 mm diameter)\***

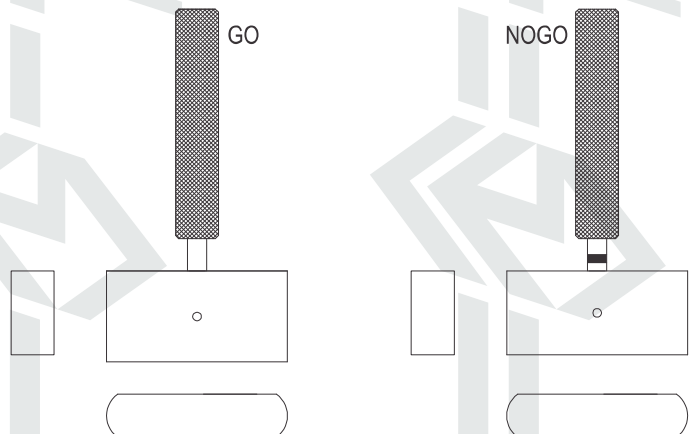
Go in Carbide & Nogo in stabilized steel. (Common practice)



- ① Tungsten Carbide Ring of Special Wear Resisting Grade.
  - ② En-31 Shank to Support Carbide Ring
  - ③ No GO Member of En - 31.
- \* Tungsten Carbide upto 60 mm diameter are available in this design.

**DIAMETER 100 MM – 300MM. PLATE TYPE GAUGES IN STEEL.**

**SPECIFICATION:**  
Our own company standard.





Material & Heat Treatment Hardened & Stabilized Steel , AISI O1 / EN-31(SAE 52100), Hardness 60- 62 HRc.

Close Tolerance Rings and setting rings are sub zero treated for dimensional stability.

TUNGSTEN CARBIDE OPTION WHERE EVER AVAILABLE IS SEPARATELY GIVEN IN THIS CATALOGUE.

**SPECIFICATION:  
For Go / Nogo Rings**

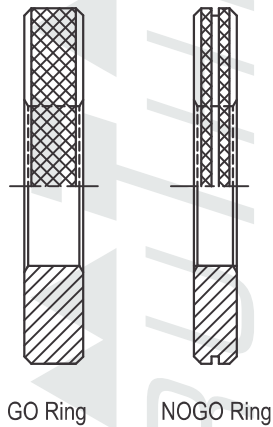
Basic Dimensions: IS 919 Part 1 & 2 2014/ ISO 286 Part 1 & 2-2010.  
Gauging Practice: IS 3455-1971, IS 7876-1975 & DIN 7163-2017.

**For Ring Blanks :**  
ISO 3670 OR IS 3485-1983 OR DIN 2250-2008 & DIN 2254

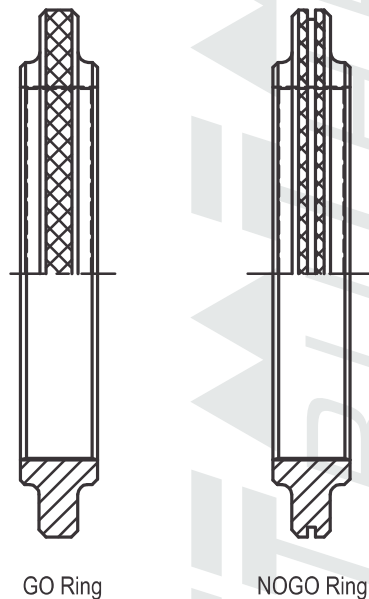
**STEEL**

Material Stabilised Steel AISI O1/ EN31/ SAE 52100

**DIAMETER 1MM - 100 MM**

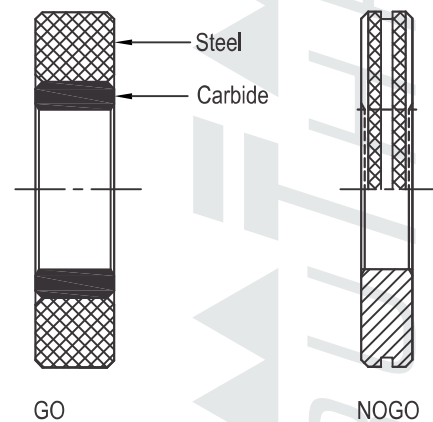


**DIAMETER 100 - 300 MM**



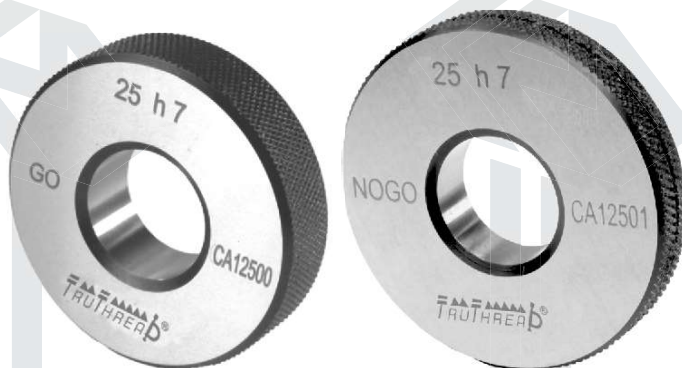
**TUNGSTEN CARBIDE**

**DIAMETER 4MM - 60 MM**



Go in Tungsten Carbide & Nogo stabilized steel. (AISI O1/ EN 31 (SAE 52100), Hardness 60- 62 HRc.

No go Ring in Tungsten carbide can be supplied if requested.





**SPECIFICATION : DIN 2250**

**MATERIAL**

Hardened & Stabilised Steel (AISI O1/ EN 31) available in Diameter 3mm – 300mm.  
Tungsten Carbide (from Dia. 4mm – 60 mm only)

☛ All Setting rings in steel are sub zero treated for dimensional stability.

**STEEL**

**DIAMETER 3-100 MM**

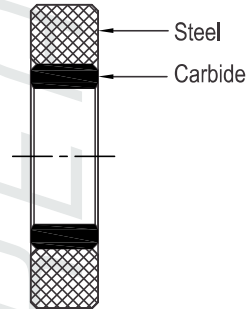


**DIAMETER 100-300 MM**



**TUNGSTEN CARBIDE**

**DIA. 4 - 60MM Only**

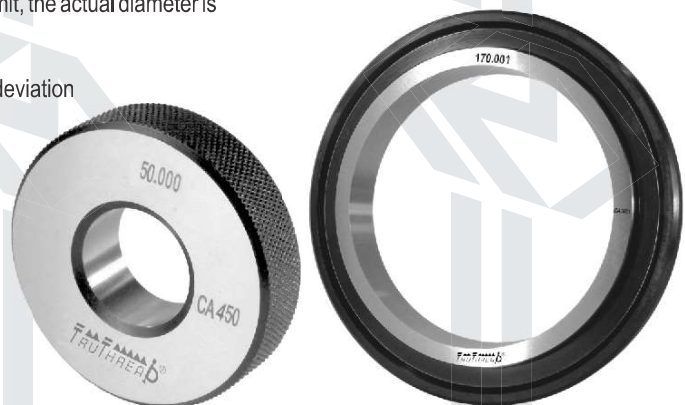


**TOLERANCE FOR SETTING RINGS.**

Diameter Range In MM	Maximum permissible deviation from nominal Diameter (in micrometer) $\mu$ m	Roundness. (in micrometer) $\mu$ m
4-10	+/- 1.25	1
10-18	+/- 1.5	1
18-50	+/- 2.0	1
50-80	+/- 2.5	1
80-120	+/- 3	1
120-150	+/- 4	1
150-180	+/- 4	2
180-250	+/- 5	2
250-315	+/- 6	2

☛ Whenever the roundness is within above specified tolerance limit, the actual diameter is marked on the setting ring.

The actual diameter shall be within the above specified permissible deviation limit from the specified diameter value.





**MATERIAL**

Hardened & Stabilized Steel, AISI O1 / EN-31(SAE 52100), Hardness 60-62 HRc.

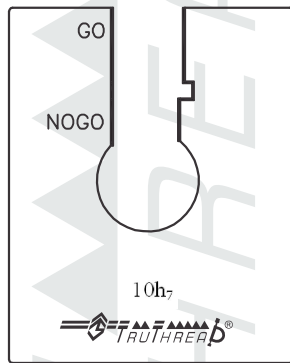
**SPECIFICATION:**

Basic Dimensions : ISO 286 Part 1 & 2-2010. IS 919 Part 1 & 2-1993  
Gauging Practice : DIN 7163-1966 & IS 3455-1971, IS 7876-1975.

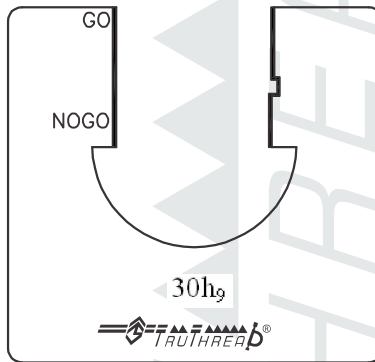
**SINGLE END (S/E) PROGRESSIVE TYPE SNAP. DIAMETER 3 MM TO 100 MM.**

Blank Design : IS 8023-1991

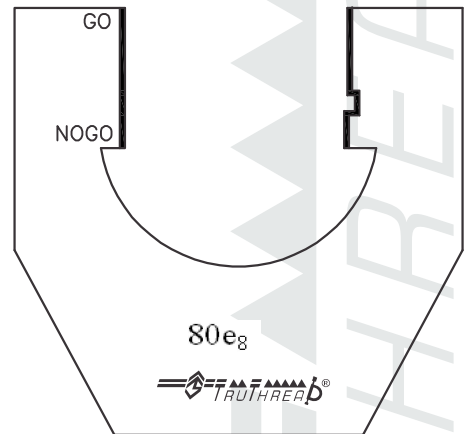
**DIAMETER 3 MM TO 10 MM**



**DIAMETER 10 MM TO 50 MM**

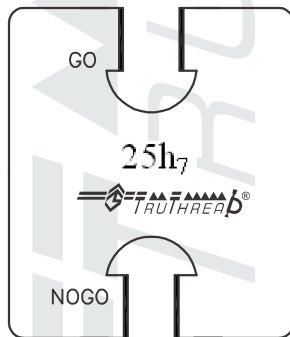


**DIAMETER 50 MM TO 160 MM**



**DOUBLE END SNAP GAUGE**

**DIAMETER 3 MM TO 100 MM**



**“I” Type Double End Snap.**

**DIAMETER OVER 100 MM.**

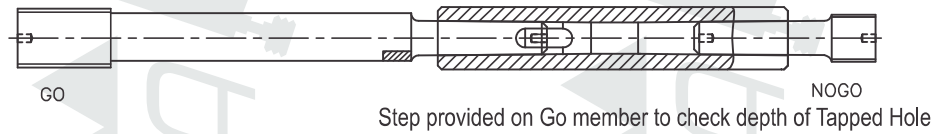
Blank Design – As per Company Standard.



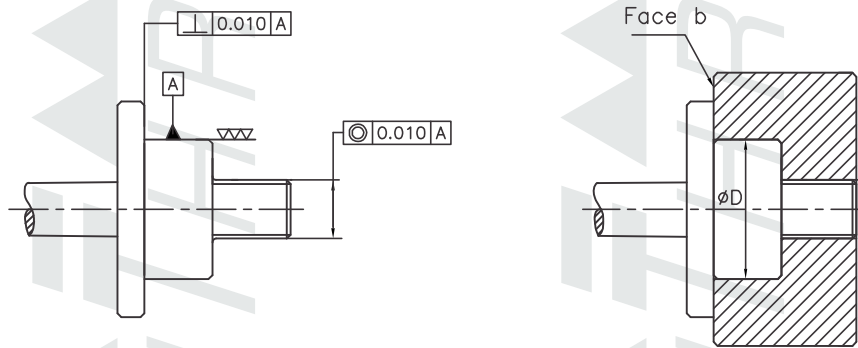
We can design & offer Thread Gauging solutions for special requirements like,

- To check the Thread Depth of a Tapped Hole.
- To check the squareness of faces with respect to Threads.
- To check the concentricity of Plain bore with respect to Threads.
- Any other requirement, Please send your component drawing.

**1. Depth checking Gauge.**

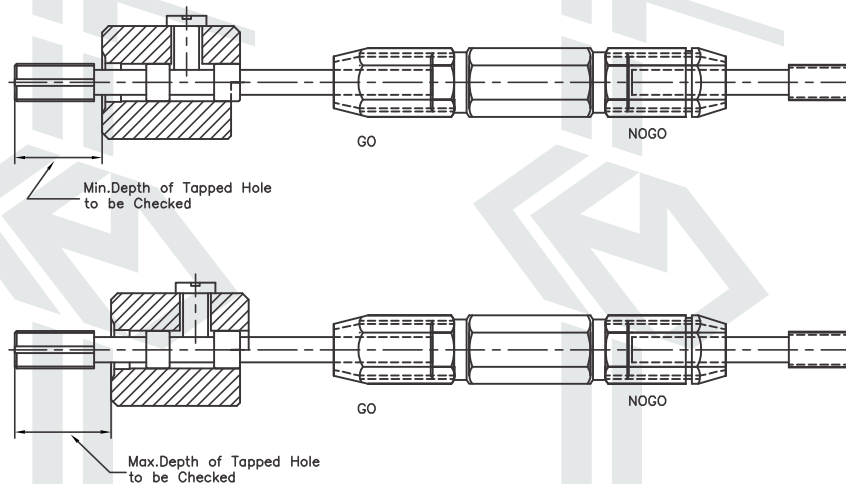


**2. Concentricity & Squareness Checking Gauge.**



Gauge checks Concentricity of Diameter 'D' of plain Bore / Hole w.r.t. to threads & squareness of Face 'b' of component w.r.t threads.

**3. Depth Checking Gauge.**





### 1. How to use the parallel gauges.

For checking parallel threads Go & Nogo Gauges are required. The design of Go & Nogo gauges is based on Taylor's principle.

As per this principle, the 'GO' gauge is full form and checks all thread parameters & thread form, while the 'NOGO' gauge only checks the pitch diameter.

First screw / thread-in the go gauge into the component threads. The Go should pass completely without applying excessive force.

The Nogo should not enter more than 3/4 turn. When this is achieved your external & internal thread components qualify or pass.

### 2. How to use Taper gauges.

Taper Gauge does not have separate Go & Nogo. The tolerance limits (usually maximum, basic & minimum) are indicated by providing one or more steps on the taper portion of gauge.

When the component & gauge threads are screwed without excessive force, at one plane the gauge stops. The position of component thread end face with gauge step is observed. Based on this position the component is either conforming or non-conforming.

The Taper gauges may have one step which represents basic or central tolerance position or two steps representing maximum & minimum tolerance limits or three steps representing maximum, basic & minimum tolerance limits.

The plain Taper plug and the plain taper ring used to check crest truncation has six steps. Each step indicates the position of tolerance zone. If the large end face of component flushes with the maximum step, then it indicates that the component is at maximum limit of tolerance.

For component to be conforming, its large end face should lie between the minimum and maximum step.

### 3. How to use NPT Basic & Step Limit Gauges.

NPT Basic gauge has one step which represents basic/ central tolerance position. When NPT Basic type gauge is screwed in component & stops entering, the large end face of component should be within +/- one pitch from the large end face of gauge.

User has to use other means to check this.

Step Limit type of gauges have three steps representing maximum, basic & minimum tolerance limits. The minimum & maximum steps represent +/- one pitch. When gauge is screwed in component & stops entering, the large end face of component should be within Minimum & maximum steps. Step Limit gauges are more user friendly as these don't require other means to check if the face is within + / - one pitch or not.

### 4. What is the life of gauge? Or gauge wears fast.

The life of gauge depends on many factors like material of component, how the gauge is handled while checking etc.

When gauges are used for checking component of copper, brass or Aluminum, the wear of gauge is high. Though these materials are soft, these are sticky. During engagement, 'Galling' takes place due to this the gauge wears fast.

If you are checking a blind hole, it is recommended to use Go gauge with dirt groove or chip grooves. This results in better life of gauge.

The operating conditions to which gauge is subjected like material of the components, cleanliness of component, method of handling and checking are all variable factors. Thus the gauge life cannot be accurately estimated. We are giving tips to increase gauge life.

#### **Tips to increase gauge life**

- The threads of components should be thoroughly cleaned before gauging. Grinding dust / metal chips trapped in threads results in fast wear.
- Gauge should never be used when component is rotating on the machine.
- Gauge is not a cutting tool & should not be used like a cutting tool for material removal.
- Gauge should be inserted in component by hand and should never be forced to enter using wrench, spanner etc.

### 5. The gauges are not answering the components satisfactorily.

It is important to note that, gauges should be used to check the components and to decide whether the components are conforming or rejected and not the reverse way. Customer should not use components to check the correctness of gauges.

In case of doubt, gauges should be sent to local calibration laboratory accredited to ISO 17025 standard & which has small measurement uncertainty.

**6. GO gauge does not enter, but the 'NOGO' gauge enters the component.**

The design of Go & Nogo gauges is based on Taylor's principle.

As per this principle, the 'GO' gauge is full form and used to check the form of thread including minor and major diameter. The 'NOGO' gauge checks only the pitch diameter.

When the form of Threads & clearing of root diameter of threads is not proper, even when the pitch diameter is correct, the 'GO' gauge does not enter the component.

The reason for this is, the major/ minor diameter of Go gauge interfere with the root diameter of component threads. In order to make the 'GO' gauge enter the component, the user cuts more material. In this process the pitch diameter becomes oversize for Internal threads and undersize for external threads. At this point the Nogo gauge starts entering the component, but due to form error the Go gauge does not enter.

**7. Thread Plug does not enter in Thread Ring of same size.**

We take one example. M10-6H Go Thread Plug does not enter M10-6g Go Thread Ring.

These two will never fit with each other & if they fit there is something wrong in their dimensions.

For same size, the external threads are designed at lower tolerance limit & internal threads at higher. Due to this when external & internal components are assembled, there is a clearance between external & Internal threads & they fit properly. This clearance depends on tolerance class, which in turn depends on application. The exception to this rule is Interference / Force Fit.

For the same size & compatible tolerance class, the pitch diameter of Thread plug gauge is higher than pitch diameter of thread ring gauge.

Hence the thread plug will not enter the thread ring gauge.

The external & internal components qualified by thread rings & thread plugs should fit each other & not the gauges.

**8. What is the difference between UNC/ UNF/ UNEF/ UN/ UNS threads?.**

UNIFIED threads are covered in ANSI B1.2 and BS1580 standards.

Based on Diameter & TPI (Threads per Inch) combination, specification recommends,

- UNC - Unified National Coarse ( TPI is coarse)
  - UNF - Unified National Fine (TPI is fine)
  - UNEF - Unified National Extra Fine (TPI is extra Fine)
  - UN - Unified National Series ( for Fix TPI like 8, 12)
  - UNS - Unified National Special (Special diameter & TPI combination)
- Above 6" Nominal Diameter, all sizes irrespective of TPI are UNS.

For 1" Nominal Diameter, when TPI is 8, the size is 1"-8 UNC,

- for 12TPI, the size is 1"-12 UNF,
- for 20TPI, the size is 1"-20 UNEF,
- for 16TPI, the size is 1"-16 UN,
- for 14TPI, the size is 1"-14 UNS.

The Thread dimensions depend on diameter, TPI & tolerance class. These donot depend on description like UNC, UNF, UN.

It is important to use correct description based on diameter TPI combination. Many times users use these wrongly. But using wrong description does not affect the thread & gauge dimensions.

Dimensionally there is no difference between 1"- 8 UNC 2B & 1"-8 UN 2B.

According to specification, 1"-8 UNC 2B is correct way of writing the size & 1"- 8 UN 2B is wrong way. It is as important as spelling the word correctly.

# Quality Assurance

- Well-equipped Quality Assurance Department to check precision of manufactured gauges.
- Measuring equipments capable of measuring up to 0.0001 mm in controlled environment of
- 20 ± 1 degree Celsius & Humidity 50±10% RH
- Measuring equipments maintain Traceability to International / National standards.



Measurement of Thread Ring, Gauge

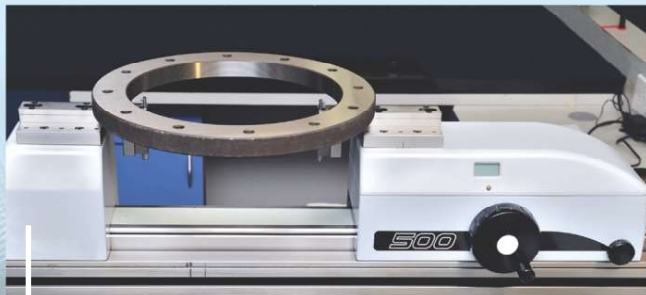


# Calibration Service

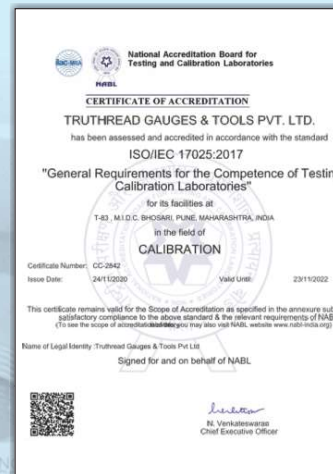


Calibration Laboratory

- Separate and independent calibration laboratory, free from any internal or external influence.
- Facilities to calibrate wide range of measuring instruments, Masters & Plain Gauges besides Thread Gauges.
- For detail scope and Best Measurement Capabilities Please contact our Marketing Department OR Email: [callab@truththread.com](mailto:callab@truththread.com)



Measurement of Thread Ring, Gauge



Measurement of Angle on Profile Projector



Measurement of Plain Plug Gauge on Electronic Comparator

- Accreditation by National Accreditation Board of Laboratories (NABL) Certificate No. CC-2842 for ISO / IEC 17025 standard.
- Quality Management System compliant with ISO 9001-2015 certified by TÜV-SÜD.



**Our Product Range covers almost all types of Thread Profiles like,**

ISO Metric, Unified, BSW / BSF / Whits, BA, BS Cycle, BS Conduit, Pipe threads like G / Rp, Pg, Acme, Stub Acme, Trapezoidal, Buttress, Saw Tooth.

Taper threads like NPT, NPTF/ PTF, BSPT<sub>r</sub>, R/Rc, DIN 158.

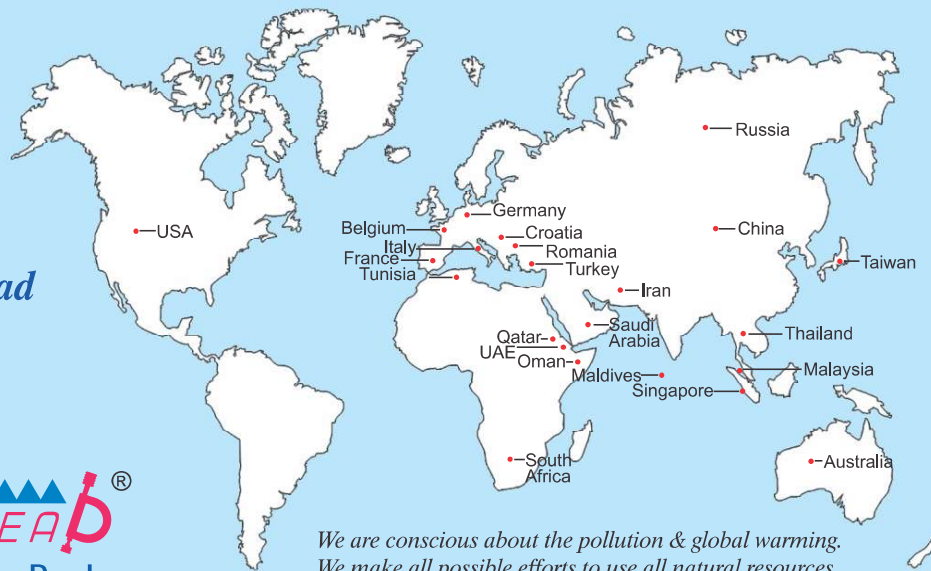
Gauges for Gas cylinders & valves used for storage & transportation of Gas.

Gauges as per various specifications of American Petroleum Institute (API)

**Our esteemed customers are spread in all types of Engineering industries, few are listed here.**

- Automobiles & components.
- Aerospace.
- Agro equipments.
- Boilers / Pressure vessels.
- Defense equipments.
- Dairy equipments.
- Fasteners.
- Hydraulics.
- Machine tools.
- Pneumatics.
- Gas cylinders & valves.

*Our satisfied Customers are spread all over the world.*



**Tru-Thread Gauges & Tools Pvt. Ltd.**  
CIN : U17231PN1982PTC027369

*We are conscious about the pollution & global warming. We make all possible efforts to use all natural resources responsibly and to avoid / reduce pollution. The waste disposal is handled with care & is compliant with the legal regulations.*

T-83, M.I.D.C. Bhosari, Pune- 411 026.  
Maharashtra. (INDIA)

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Website : [www.truthread.com](http://www.truthread.com)

TTG/CT/01 Revision 01/Feb.2022.

