



# *Fixed Limit Thread Gages*

**Easy to Use**

**Assures Assembly**

**Economical**





## *Thread Gages Are Used To:*

- *Assures Assembly of Mating Parts*
- *Inspect Pitch Diameter and the Functional Thread*
- *Pass or Fail Product Threads*



## *Thread Gages Are Not:*

- *Thread Chasers, Taps, Dies or Other Cutting Tools*
- *Hammers*
- *Die or Tap Clean Out Tools*
- *Intended to Measure “Actual Size”*

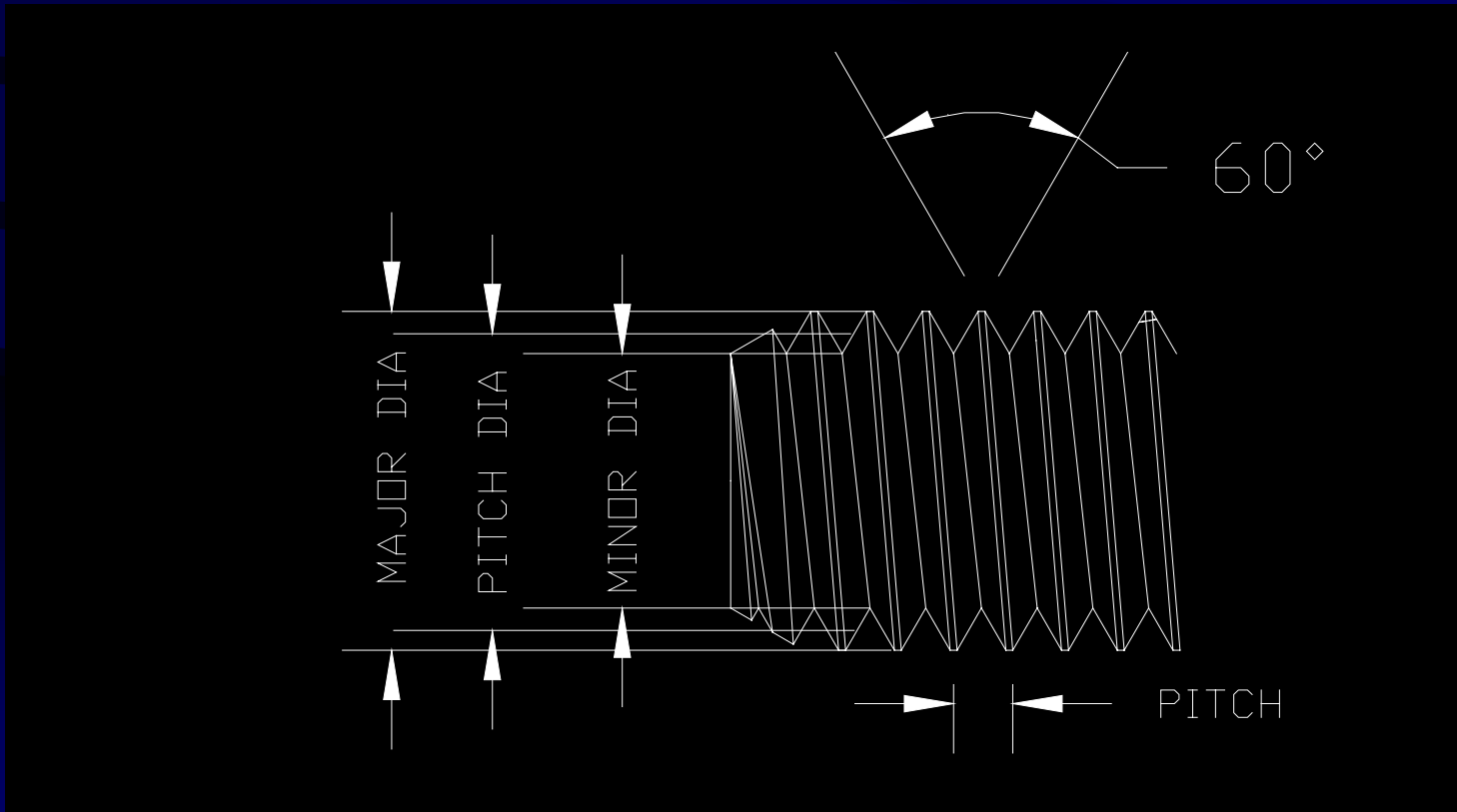


## *Thread Gages Types*

- *Taper-lock Work Plugs (Standard)*
- *Reversible Work Plugs (When Specified)*
- *STI Taper-lock Work Plugs (When Specified)*
- *Ring Gages*
- *Setting Plugs Gages*
- *Pipe Plug Gages*
- *Pipe Ring Gages*



# *Thread Form*





# *Thread Nomenclature*

- *Pitch Diameter - “located equidistantly between the sharp major & minor cylinders.”*
- *Major Diameter - “is an imaginary cylinder that would bound the crests of an external thread or the roots of an internal thread.”*
- *Minor Diameter - “is an imaginary cylinder that would bound the roots of an external straight thread or the crests an internal thread.”*
- *Ref.: ANSI/ASME B1.7M*



# *Thread Nomenclature (Layman's Terms)*

- *Pitch Diameter* - is the halfway point between the sharp thread crest & root.
- *Major Diameter* - is the largest diameter of a thread.
- *Minor Diameter* - is the smallest diameter of a thread.



# *Inch Thread Designations*

## **External Inch Screw Threads**

| <b>Nominal Diameter</b> | <b>-</b> | <b>Threads per Inch</b> | <b>Thread Series</b> | <b>Class of Fit</b> |
|-------------------------|----------|-------------------------|----------------------|---------------------|
| <b>.250</b>             | <b>-</b> | <b>20</b>               | <b>UNC</b>           | <b>2A</b>           |

## **Internal Inch Screw Threads**

| <b>Nominal Diameter</b> | <b>-</b> | <b>Threads per Inch</b> | <b>Thread Series</b> | <b>Class of Fit</b> |
|-------------------------|----------|-------------------------|----------------------|---------------------|
| <b>.250</b>             | <b>-</b> | <b>20</b>               | <b>UNC</b>           | <b>2B</b>           |





# Metric Thread Designations

## Metric External Thread Designations

| Metric Thread Designater | Nominal Diameter | x | Thread Pitch | Tolerance Class Designations |          |                     |          |
|--------------------------|------------------|---|--------------|------------------------------|----------|---------------------|----------|
| M                        | 6                | x | 1            | 4                            | g        | 6                   | g        |
|                          |                  |   |              | Grade                        | Position | Grade               | Position |
|                          |                  |   |              | Pitch Dia Tolerance          |          | Major Dia Tolerance |          |

## Metric Internal Thread Designations

| Metric Thread Designater | Nominal Diameter | x | Thread Pitch | Tolerance Class Designations |          |                     |          |
|--------------------------|------------------|---|--------------|------------------------------|----------|---------------------|----------|
| M                        | 6                | x | 1            | 4                            | H        | 6                   | H        |
|                          |                  |   |              | Grade                        | Position | Grade               | Position |
|                          |                  |   |              | Pitch Dia Tolerance          |          | Minor Dia Tolerance |          |



**Vermont  
Gage**



# *General Classifications*

## ***Thread Product Class of Fits***

| <b><i>Inch Series</i></b> |                        | <b><i>Metric Series</i></b> |                        |
|---------------------------|------------------------|-----------------------------|------------------------|
| <b><i>External</i></b>    | <b><i>Internal</i></b> | <b><i>External</i></b>      | <b><i>Internal</i></b> |
| <b><i>1A</i></b>          | <b><i>1B</i></b>       | <b><i>8g</i></b>            | <b><i>7H</i></b>       |
| <b><i>2A</i></b>          | <b><i>2B</i></b>       | <b><i>6g</i></b>            | <b><i>6H</i></b>       |
| <b><i>3A</i></b>          | <b><i>3B</i></b>       | <b><i>4h</i></b>            | <b><i>5H</i></b>       |



# *Taperlock Thread Plugs*



***Range: Inch = 0-80 UNF to 1-1/2-18 UNEF (Steel & Chrome)  
Metric= M1.6 x .35 to M39 x 2.0 (Steel & Chrome)***

***Materials: Tool Steel 60/62 RC  
Chrome (Plated Tool Steel) 70/72 RC***

***Tolerances: Class “X”***

***Features:***

|   |  |
|---|--|
| <b><i>Go : Min Product Pitch Dia.</i></b> | <b><i>No-Go : Max Product Pitch Dia.</i></b> |
| <b><i>Gage Tolerance: Plus</i></b>        | <b><i>Gage Tolerance: Minus</i></b>          |
| <b><i>Long Member</i></b>                 | <b><i>Short Member</i></b>                   |

***ANSI/ASME B1.2 (Inch) & B1.16 M (Metric)***

***\* Unless Otherwise Specified Taperlock is the Gage Design Supplied!!!***



# *Reversible Thread Plugs*



*Range: Inch = 0-80 UNF to 3/4 - 16 UNF (Steel & Chrome)*

*Metric = M1.6 x .35 to M18 x 1.5 (Steel & Chrome)*

*Materials: Tool Steel 60/62 RC*

*Chrome (Plated Tool Steel) 70/72 RC*

*Tolerances: Class "X"*

*Features:*

*Go : Min Product Pitch Dia.*

*No-Go : Max Product Pitch Dia.*

*Gage Tolerance: Plus*

*Gage Tolerance: Minus*

**•“Reversible” Must be Specified When Ordering!!!**



# *Thread Ring & Set Plug Gages*



**Range:**

*Inch = 0-80 UNF to 1-1/2-18 UNEF (Steel & Chrome)*

*Metric = M1.6 x .35 to M39 x 2.0 (Steel & Chrome)*

**Tolerance: Class "X"**

**Materials: Tool Steel 60/62 RC**

**Chrome (Plated Tool Steel) 70/72 RC**

**Features:**

**Go : Max Product**

**Pitch Diameter**

**No-Go : Min Product**

**Pitch Diameter**

**Gage Tolerance: Plus**

**Ring Knurled, No Groove**

**Gage Tolerance: Minus**

**Ring Knurled, Groove**

**Set Plugs - Both Members are the Same Length!!**

**ANSI/ASME B1.2 (Inch) & B1.16 M (Metric)**





***Remember!!!***

- *Set Plug Gages are Only Intended to Inspect Ring Gages. They are Not Used to Inspect Product Threads!*
- *Set Plug Gages Have the Same Pitch Diameters as the Rings They Set, (Go PD Larger than NG PD).*



# *Product Thread Inspection*

## Attributes Gaging (Fixed Limit)

Attributes Inspection is a non-quantitative type of inspection whose only possible outcome is either accept or reject. Attributes Inspection is gaging at the limits of tolerance. In the world of Screw Threads, Go and No Go Ring and Plug Gages are the most common type of Attributes Inspection. Attributes Inspection is non generally recommended for SPC. , it cannot measure actual Pitch Diameter.



## *Custom Thread Gages*

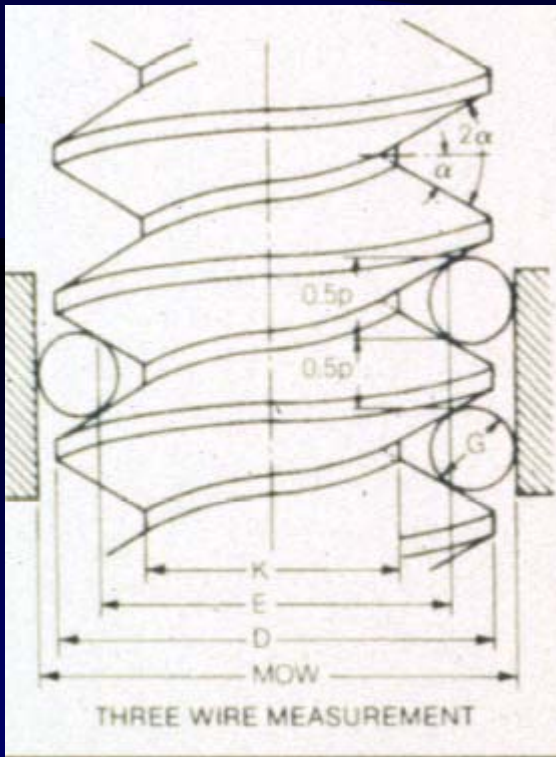
- *Acme, Buttress, Hole Location, UNJ, & UNR...*
- *Built to Your Specifications or Applicable Standard.*
- *Developed from Your Part Drawings*
- *Designed to Meet Your Specific Needs*
- *Drawings May Be Supplied, if Required. (All Created Drawings Require Your Approval!)*





# *Thread Measuring Wires*

*Measuring Pitch Diameter  
by the Three Wire Method.*



*Tolerance:  
.000020"*

*Sets Matched w/in  
.000010"*

*Material:  
Tool Steel 59/64 Rc*

*ANSI/ASME B89.1.17*





***Remember!!!***

***Never force a Gage into or on a Part Being Check***

***Handle gages as you would any precision tool, misuse or mishandling can result in nicks or other deformities which can destroy the integrity of the gage.***

***Store gages in a secure location, preferably in individual compartments or containers. Gages should be dipped in an oil-wax based seal or coated with a rust preventive prior to storing***

***Ship gages packed separately, coated with rust preventive, with sufficient packing material to avoid damage.***



***Any Questions, Contact Us***

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