Vermont Gage

Fixed Limit Thread Gages

Easy to Use

Assures Assembly

Economical

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.

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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”*

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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*

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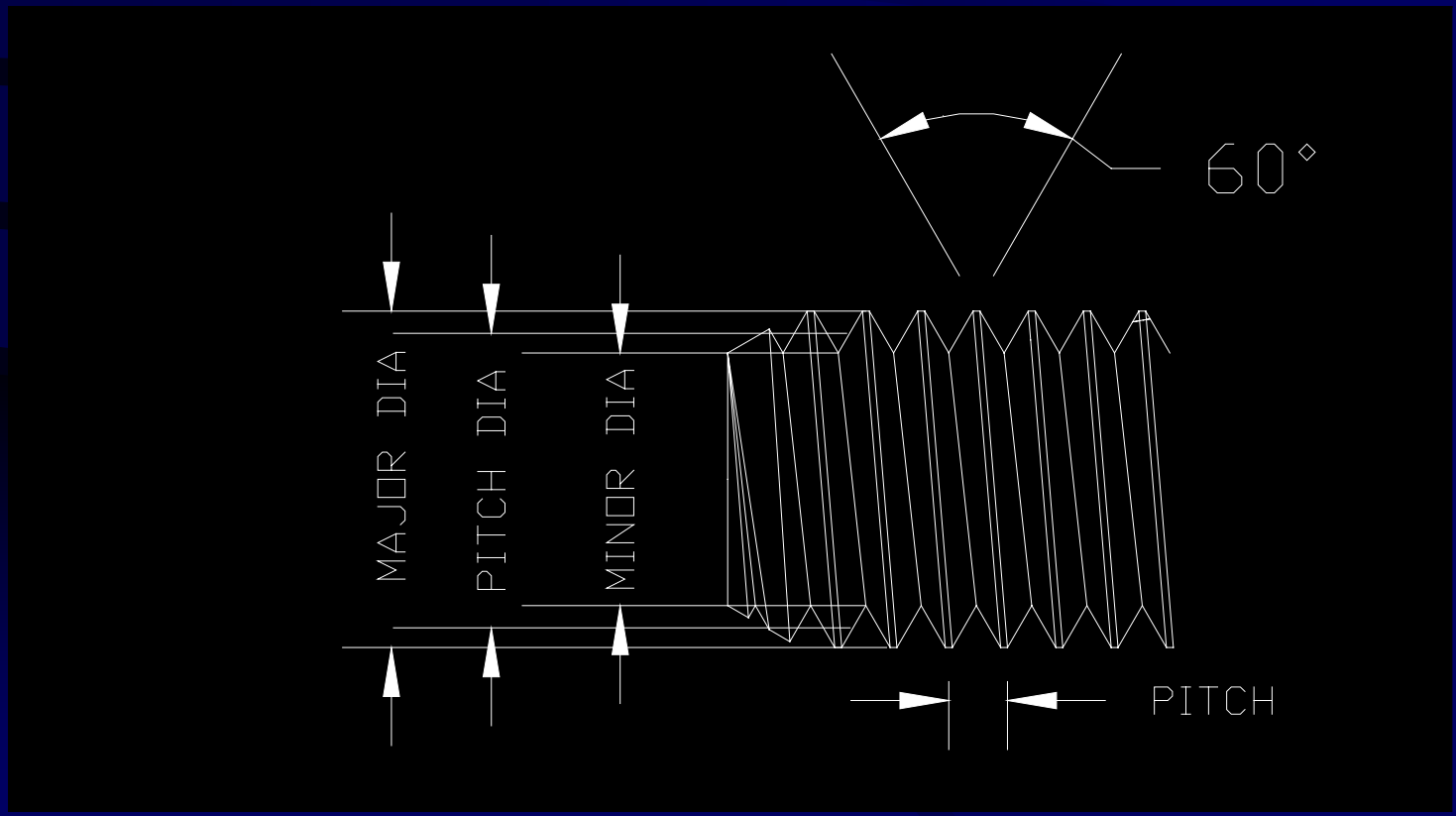
Thread Form



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***

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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.*

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Inch Thread Designations

External Inch Screw Threads				
Nominal Diameter	-	Threads per Inch	Thread Series	Class of Fit
.250	-	20	UNC	2A

Internal Inch Screw Threads				
Nominal Diameter	-	Threads per Inch	Thread Series	Class of Fit
.250	-	20	UNC	2B

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	

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General Classifications

Thread Product Class of Fits			
Inch Series		Metric Series	
External	Internal	External	Internal
1A	1B	8g	7H
2A	2B	6g	6H
3A	3B	4h	5H

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:

Go : Min Product Pitch Dia.
Gage Tolerance: Plus
Long Member

No-Go : Max Product Pitch Dia.
Gage Tolerance: Minus
Short Member

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

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

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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. Gage Tolerance: Plus

No-Go : Max Product Pitch Dia. Gage Tolerance: Minus

- ***"Reversible" Must be Specified When Ordering!!!***

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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	***Gage Tolerance: Minus***
Ring Knurled, No Groove	***Ring Knurled, Groove***

Set Plugs - Both Members are the Same Length!!

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

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Custom Gages

- *Built to Your Specifications*
- *Developed from Your Part Drawings*
- *Designed to Meet Your Specific Needs*
- *Drawings May Be Supplied, if Required. (All Created Drawings Require Your Approval!)*

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

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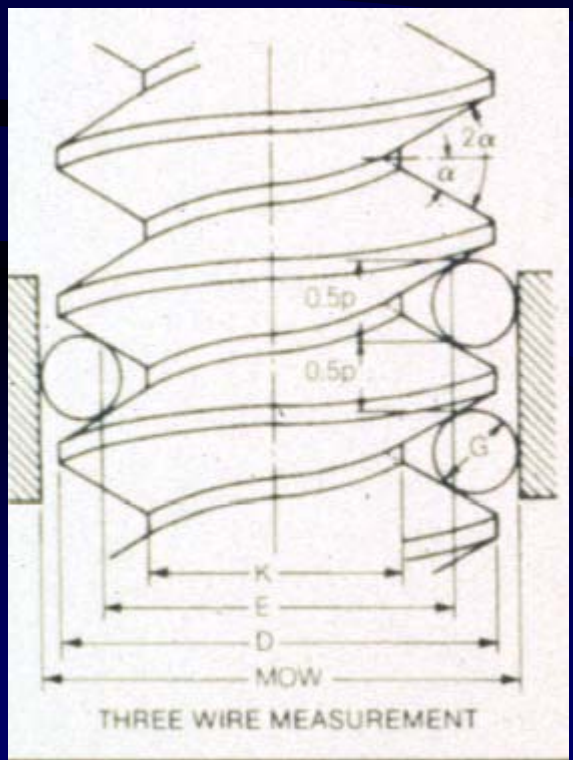
Custom Thread Gages

- *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 <u>Three Wire</u> 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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