GAGEMAKER

# Product Information



DETERCO, INC.
Quality Products and Services

www.gagemaker.com

**We would like to thank you for taking the time to view our catalog. It contains many new features and products. We hope this catalog will provide you with the necessary information to familiarize yourself with all of our products, as well as, make it easier to find the best product for you.**

**This catalog is an example of Gagemaker's continued commitment to adapt and improve not our product, but the industry as a whole. Gagemaker's dynamic innovation and unparalleled products will continue to push the boundaries of the thread inspection industry.**

**We appreciate your business and hope you continue your patronage with us for all of your gauging and calibration needs.**

***Thank you,***

**The Gagemaker Team**

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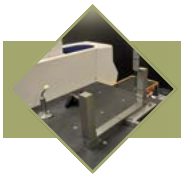

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# Straight Thread Inspection



# STRAIGHT THREAD GAGES

# Straight Thread Inspection System Solutions

## Straight Thread Base System (SBP-400)

### 0” - 4”

- ***Acme (2 - 18 pitch)***
- ***Stub Acme (2 - 18 pitch)***
- ***Stub Acme Mod 1 (3 - 18 pitch)***
- ***Stub Acme Mod 2 (4 - 20 pitch)***
- ***UN Series (2 - 28 pitch)***
- ***UNR Series (2 - 28 pitch)***
- ***Metric (1.5 - 4 mm pitch)***
- ***7 x 45 Buttress (2 - 18 pitch)***

**Base System Includes:**

- External pitch diameter gage
- Internal pitch diameter gage
- External functional size gage
- Internal functional size gage
- Internal thread height gage
- External thread height gage
- Lead gage
- Lead gage standard (specify pitch)*
- Thread profile(s)*
- TDWIN software
- Two sets of thread rolls (specify form & pitch)*
- All necessary contact points (specify form & pitch)*

***Base System is for one specific form and pitch. Additional thread rolls, contact points, or standards for additional forms and pitches are available at the package price.**

## For Additional Sizes and Pitches,

### 4” - 8” Add-on Solution

**SBP-400-1A Add-on Includes:**

- RG-7001
- PD-8002
- Lead gage standard (if necessary)*
- Thread profile(s)*
- Two sets of form and pitch specific thread rolls*
- Two sets of contact points (form and pitch specific)*

***Add-on Solution is for one specific form and pitch. Additional thread rolls, contact points, profile, or standards for additional forms and pitches are available at the package price.**



***Full solutions for specific form, size, and pitch are available for 4” - 8” and 8” - 12”.***




## Choose Your Add-on:

### 8” - 12” Add-on Solution

**SBP-400-2A Add-on Includes:**

- RG-7002
- PG-6001
- PD-8002
- PD-6001
- Lead gage standard (if necessary)*
- Thread profile(s)
- Two sets of form and pitch specific thread rolls*
- Two sets of contact points (form and pitch specific)*



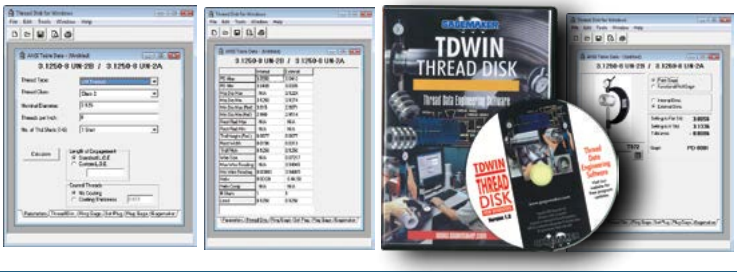
***Add-on Solution is for one specific form and pitch. Additional thread rolls, contact points, or standards for additional forms and pitches are available at the package price.***

***For larger than 12” or custom sizing, please contact Gagemaker at 713-472-7360 or sales@gagemaker.com***

# Straight Thread Inspection System

Today's dynamic manufacturing environment overwhelms old "GO/NO GO" methods and only our Straight Thread Inspection System consistently goes above and beyond. An effective Straight Thread Inspection System should measure all of the vital thread attributes - *Functional Thread Size*, *Pitch Diameter*, *Thread Lead*, *Thread Height*, and *Thread Form*.

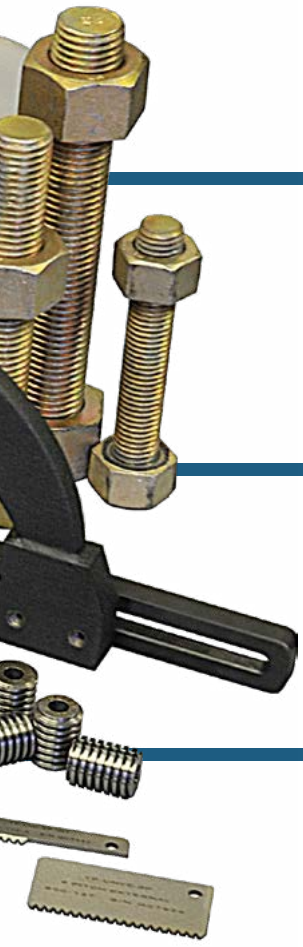





## Inspection Setup & Tolerances



## Functional Size





## Pitch Diameter




## Thread Lead



## Thread Height






## Thread Form

# Thread Inspection Setup and Tolerances

The Thread Disk™ engineering software (**TD**WIN™) calculates critical dimensions for threads based on ANSI tables and formulas.




Thread types supported by the program include:

- UN Series
- UNJ Series
- UNR Series
- Acme
- Stub Acme
- Stub Acme Modified I
- Stub Acme Modified II
- Metric M & MJ
- 7° X 45° Buttress
- General Purpose Pipe Threads

## *Thread Disk™ Software - Straight Thread Dimensions*

To generate critical dimensions instantly, enter basic thread information on the Thread Type Entry screen, such as: thread type, thread class, nominal diameter, and threads per inch. Once the results are computed, tabs at the bottom of the program allow selection of several types of calculated information, including dimensions and tolerances for product threads, ring gages, set plugs, plug gages or Gagemaker's Thread Diameter gages.

If measuring internal and external shallow taper diameters is a problem, the Ball Mic SET DIM Tool™ provides setting dimensions for ball micrometers or Gagemaker's BX-1000 groove gage. The program calculates ball mic settings for any tapered surface geometry.

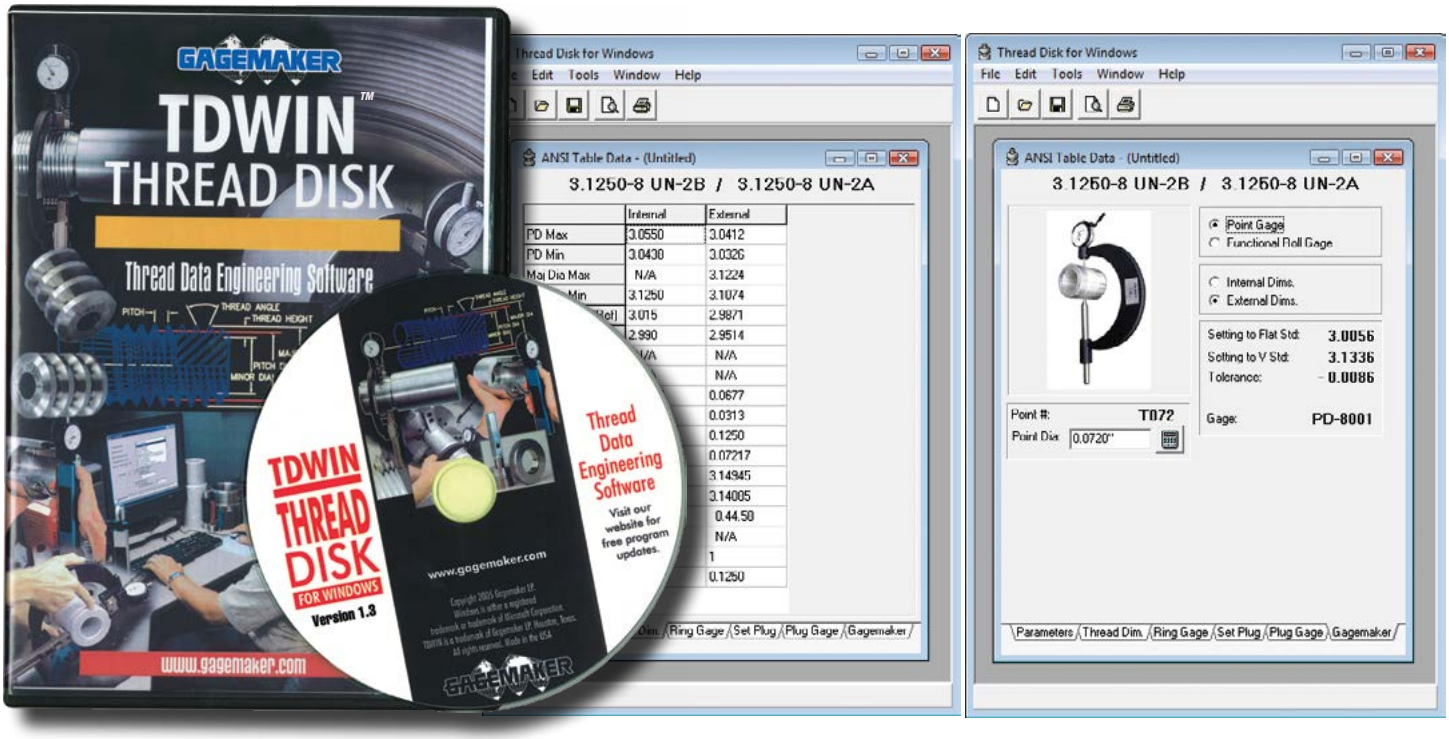
Other features of the program include the ability to print thread dimension reports, providing a paper copy of any calculation. These reports provide the same critical dimensions that display in the program. A multiple calculation window capability is a feature that allows performing several different thread calculations in one session.

***System Requirements***

- Windows XP or higher
- 3 MB of free hard disk space
- 64 MB RAM

***Features***

- *Uses ANSI tables, formulas, and tolerances*
- *Calculates standard and non-standard product thread diameters from #000 to 99.8"*
- *Calculates ANSI ring and plug gage dimensions*
- *Addresses pitches from 1 to 400*
- *Calculates Gagemaker style thread gage setting dimensions*




| Model | Description |
|---|---|
| **TD**WIN | Thread Disk software |
| **TD**WIN-Network | Multi-user license agreement |



# Thread Functional Size Inspection



Functional gauging takes into account the cumulative effects of diameter, lead, taper, flank angle and form error. Experience the same functionality of ring and plugs with the added benefit of accurately inspecting a range of sizes.

Functional thread inspection gages, or GO/NO GO gages, measure thread diameters. These functional gages are adjustable within a size range and use interchangeable thread rolls to measure different pitch threads.

Setting dimensions for the functional pitch diameter gages are provided by the **TD**WIN Thread Disk™ software.

## *External Functional Size Gages (⅝" to 24" Diameters)*

These functional inspection gages measure external GO/NO GO thread diameters. ***Software (see page 10) and thread rolls (see page 13 or 117) are sold separately.*** For gages with ranges greater than 12", please see page 116. Higher resolution indicators are also available.

| Model | Description | Range | Resolution | Travel |
|---|---|---|---|---|
| RG-7000 | External Thread Roll Gage | ⅝" - 4" (15.9 mm - 101.6 mm) | .0005" | ½" |
| RG-7001 | External Thread Roll Gage | 4" - 8" (101.6 mm - 203.2 mm) | .0005" | ½" |
| RG-7002 | External Thread Roll Gage | 8" - 12" (203.2 mm - 304.8 mm) | .0005" | ½" |

## *Internal Functional Size Gages (1½" to 24" Diameters)*

Gagemaker also manufactures functional inspection gages that inspect internal GO/NO GO thread diameters. ***Software (see page 10) and thread rolls (see page 13 or 117) are sold separately.*** For gages with ranges greater than 16", please see page 116. Higher resolution indicators are also available.

| Model | Description | Range | Resolution | Travel |
|---|---|---|---|---|
| PG-6000 | Internal Thread Roll Gage, 4½" reach | 1½" - 9" (38.1 mm - 228.6 mm) | .0005" | ½" |
| PG-6001 | Internal Thread Roll Gage, 4½" reach | 9" - 16" (228.6 mm - 406.4 mm) | .0005" | ½" |
| DPG-6500 | Internal Deep Reach Thread Roll Gage | 2.970" - 4.400"* | .0005" | 1" |

***DPG-6500 has extension arms to increase range up to 12.350". Please see page 116 for more information.**









## UN Series (60° "V") Thread Rolls

"TRV" thread rolls inspect the functional fit of machine threaded parts with 60° "V" thread forms. These thread rolls are designed specifically for internal or external applications. Rolls are sold in matched sets (2 rolls). Specify thread pitch when ordering. Finer pitches are available upon request.

| INTERNAL THREAD DIAMETERS (1½" & Larger) | | EXTERNAL THREAD DIAMETERS (1½" & Larger) | |
|---|---|---|---|
| **Model** | **Description** | **Model** | **Description** |
| TRVI-4P | 4 pitch internal 60° "V" | TRVE-4P | 4 pitch external 60° "V" |
| TRVI-5P | 5 pitch internal 60° "V" | TRVE-5P | 5 pitch external 60° "V" |
| TRVI-6P | 6 pitch internal 60° "V" | TRVE-6P | 6 pitch external 60° "V" |
| TRVI-8P | 8 pitch internal 60° "V" | TRVE-8P | 8 pitch external 60° "V" |
| TRVI-10P | 10 pitch internal 60° "V" | TRVE-10P | 10 pitch external 60° "V" |
| TRVI-12P | 12 pitch internal 60° "V" | TRVE-12P | 12 pitch external 60° "V" |
| TRVI-14P | 14 pitch internal 60° "V" | TRVE-14P | 14 pitch external 60° "V" |
| TRVI-16P | 16 pitch internal 60° "V" | TRVE-16P | 16 pitch external 60° "V" |
| TRVI-18P | 18 pitch internal 60° "V" | TRVE-18P | 18 pitch external 60° "V" |
| TRVI-20P | 20 pitch internal 60° "V" | TRVE-20P | 20 pitch external 60° "V" |

## Acme and Stub Acme Thread Rolls

"TRA" and "TRSA" thread rolls inspect the functional fit of parts with 29° Acme and Stub Acme thread forms. Sold in matched sets of 2 rolls. Specify the pitch of the thread when ordering. Finer pitches are also available.

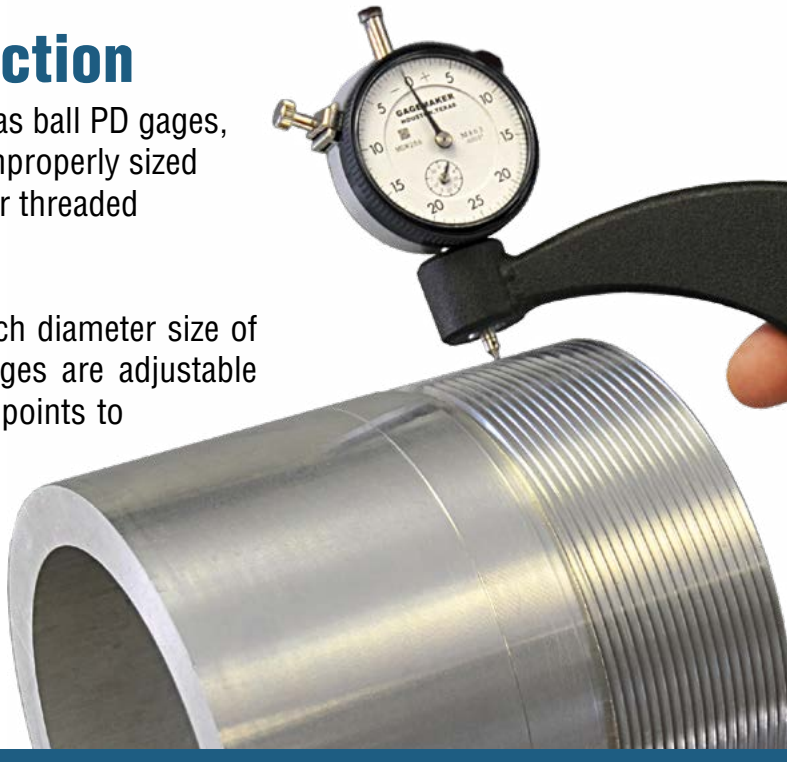
| Acme Thread Diameters (1½" & Larger) | | Stub Acme Thread Diameters (1½" & Larger) | |
|---|---|---|---|
| **Model** | **Description** | **Model** | **Description** |
| TRA-2P | 2 pitch 29° Acme | TRSA-2P | 2 pitch 29° Stub Acme |
| TRA-3P | 3 pitch 29° Acme | TRSA-3P | 3 pitch 29° Stub Acme |
| TRA-4P | 4 pitch 29° Acme | TRSA-4P | 4 pitch 29° Stub Acme |
| TRA-5P | 5 pitch 29° Acme | TRSA-5P | 5 pitch 29° Stub Acme |
| TRA-6P | 6 pitch 29° Acme | TRSA-6P | 6 pitch 29° Stub Acme |
| TRA-8P | 8 pitch 29° Acme | TRSA-8P | 8 pitch 29° Stub Acme |
| TRA-10P | 10 pitch 29° Acme | TRSA-10P | 10 pitch 29° Stub Acme |
| TRA-12P | 12 pitch 29°Acme | TRSA-12P | 12 pitch 29° Stub Acme |
| TRA-14P | 14 pitch 29° Acme | TRSA-14P | 14 pitch 29° Stub Acme |
| TRA-16P | 16 pitch 29° Acme | TRSA-16P | 16 pitch 29° Stub Acme |
| TRA-18P | 18 pitch 29° Acme | TRSA-18P | 18 pitch 29° Stub Acme |

***For ISO Metric Series, National 7° X 45° Buttress Series, and Trapezoidial Thread Rolls please see pages 117. Custom thread rolls are available.***

# Thread Pitch Diameter Inspection

Gagemaker pitch diameter gages, commonly known as ball PD gages, verify that your part is within allowable tolerances. Improperly sized pitch diameters compromise the load capacity of your threaded components.

The ball pitch diameter gages gages indicate the pitch diameter size of the product's external and internal threads. The gages are adjustable within a size range and use interchangeable contact points to measure different pitch threads. Setting dimensions for the pitch diameter gages are provided by the **TD**WIN Thread Disk™ software.



## External Pitch Diameter Gages (0" to 12" Diameters)

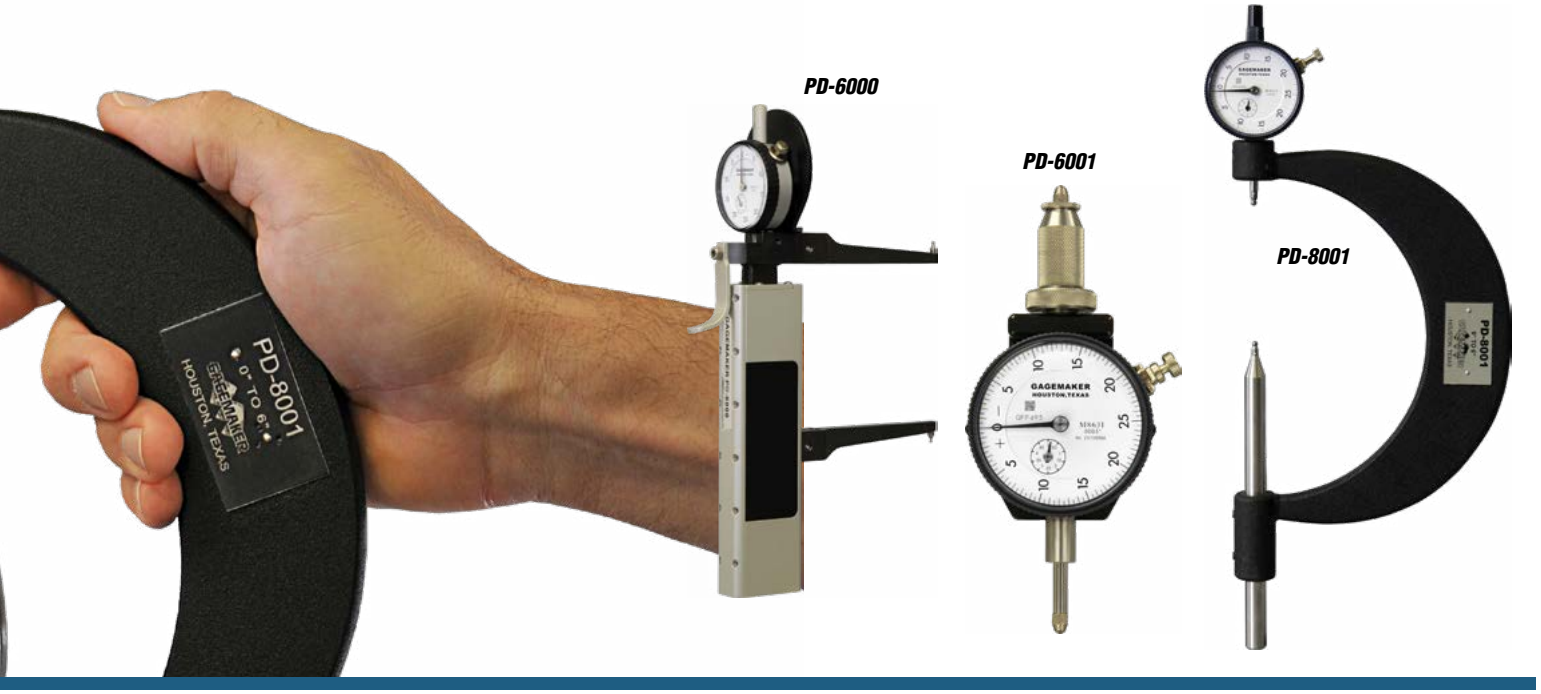
These inspection gages measure external thread pitch diameters. ***Software (see page 10) and contact points (see page 15 or 124-125) are sold separately***. For gages with ranges greater than 12", please see page 114. Higher resolution indicators are available.

| Model | Description | Range | Resolution | Travel |
|---|---|---|---|---|
| PD-8001 | External Ball Pitch Diameter Gage | 0" - 6" (0 mm - 152.4 mm) | .0005" | ½" |
| PD-8002 | External Ball Pitch Diameter Gage | 6" - 12" (152.4 mm - 304.8 mm) | .0005" | ½" |

## Internal Pitch Diameter Gages (1½" to 24" Diameters)

These inspection gages measure internal thread pitch diameters. ***Software (see page 10) and contact points (see page 15 or 124-125) are sold separately***. Higher resolution indicators are available.

| Model | Description | Range | Resolution | Travel |
|---|---|---|---|---|
| PD-6000 | Internal Pitch Diameter Gage ("V" & Acme) | 1½" - 9" (38.1 mm -228.6 mm) | .0005" | ½" |
| PD-6001 | Internal Pitch Diameter Gage | 6" - 24" (152.4 mm - 609.6mm) | .0005" | ½" |




## Contact Points

### UN Series (60° "V") Threads

These contacts points are used to inspect the pitch diameter of machined parts with 60° "V" thread forms. Two are required per gage. Sold individually.

| Model | Thread Pitch | Model | Thread Pitch | Model | Thread Pitch | Model | Thread Pitch |
|---|---|---|---|---|---|---|---|
| T562 | 1 | T128 | 4.5 | T072 | 8 | T032 | 18 |
| T288 | 2 | T115 | 5 | T057 | 10 | | |
| T188 | 3 & 3½ | T105 | 5½ | T050 | 11½ & 12 | | |
| T144 | 4 | T096 | 6 | T041 | 14 & 16 | | |

### Acme or Stub Acme Threads

These truncated contact points are used to inspect the pitch diameter of machined parts with 29° Acme and Stub Acme thread forms. Two are required per gage. Sold individually.

| Model | Thread Pitch | Model | Thread Pitch | Model | Thread Pitch | Model | Thread Pitch |
|---|---|---|---|---|---|---|---|
| T531T | 1 | T188T | 3 | T090T | 6 & 7 | T032T | 16 |
| T344T | 1½ | T144T | 3½ | T062T | 8 | | |
| T266T | 2 | T128T | 4 | T050T | 10 | | |
| T219T | 2½ | T105T | 5 | T041T | 12 & 14 | | |

### 7° x 45° Buttress Series Contact Points

These contact points are used to inspect the pitch diameter of machined parts with 7° x 45° Buttress thread forms. Two are required per gage. Sold individually.

| Model | Thread Pitch | Model | Thread Pitch | Model | Thread Pitch | Model | Thread Pitch |
|---|---|---|---|---|---|---|---|
| T562 | 1 | T219 | 2½ | T115 | 5 | T050 | 12 |
| T437 | 1¼ | T188 | 3 | T096 | 6 | T032 | 16 & 18 |
| T375 | 1½ | T156 | 3½ | T072 | 8 | | |
| T281 | 2 | T144 | 4 | T057 | 10 | | |

*For Trapezoidial or ISO Metric contact points please see pages 125.*

# Thread Lead Inspection

Thread lead is one of the most important thread elements and directly affects a part's functional size.

Lead error is most commonly generated by manual and CNC lathes not cutting properly. Therefore, it's important to take measurements at the locations where the most lead error typically occurs. These readings help detect machine tool error and worn lead screws on your lathe.

Lead gages inspect both internal and external lead on a variety of thread forms.

LS-5001



## Lead Gages

The **LG-6002** uses a two-point system to inspect thread lead for Acme, Stub Acme, Stub Acme Modified I and II, Metric M & J, UN, UNJ, UNR, 7º X 45º Buttress, and general purpose pipe threads. The two points allow for a sweeping action to obtain the measurement.

Before inspecting parts, the lead gage must be preset to a nominal predetermined dimension using a lead gage setting standard. See chart below for the proper standard based on pitch.

Contact points are sold separately. See page 17 or 124-125 for more.

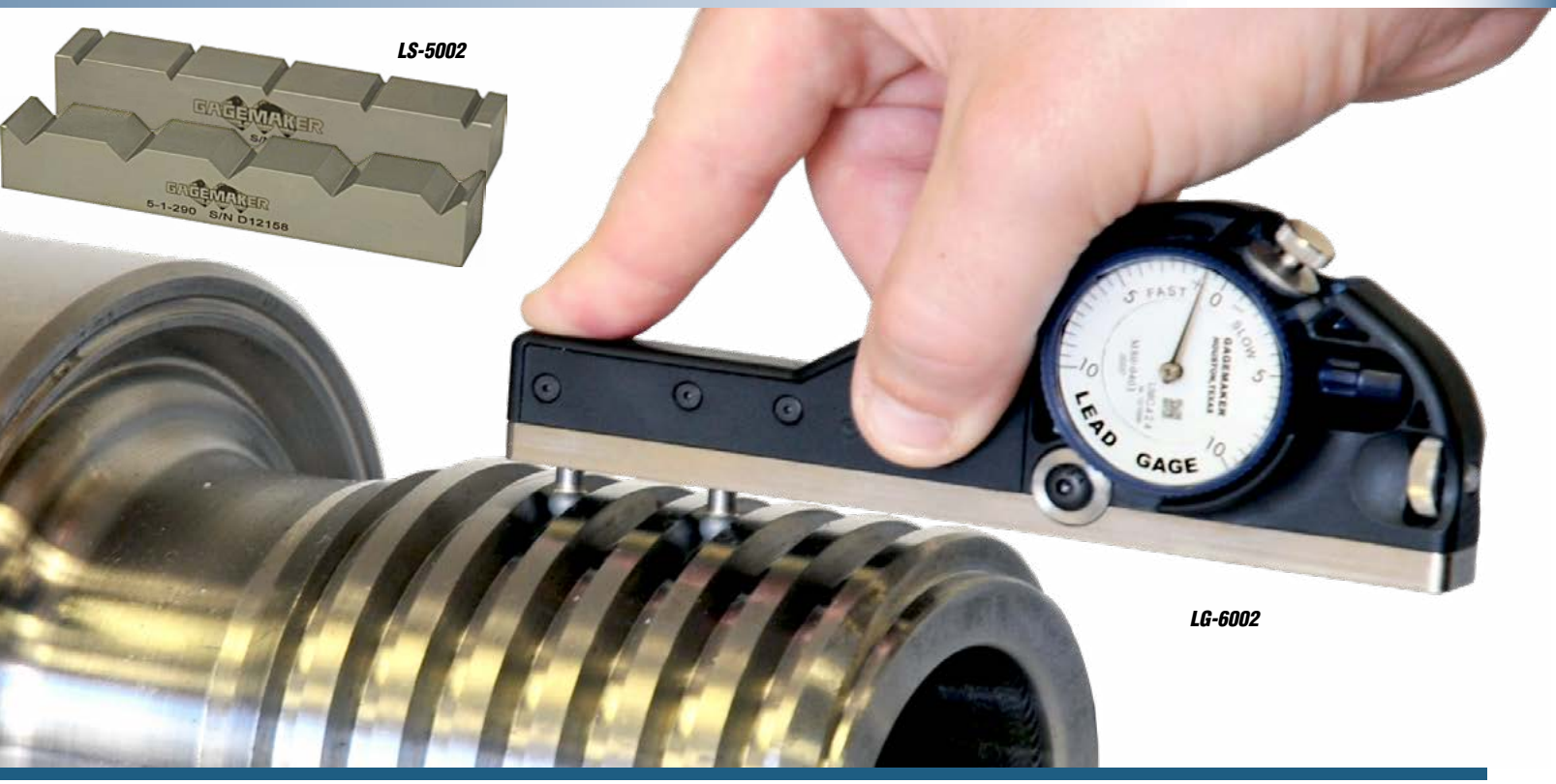
Higher resolution indicators are also available.

| Model | Description | Minimum Bore | Range |
|---|---|---|---|
| LG-6002 | 2-point Lead Gage | 1.200 | ½" - 4" Thread Length |
| LG-5003 | 3-point Lead Gage | 1.340 | ½" - 4" Thread Length |

## Lead Gage Setting Standards

Gagemaker's precision lead gage setting standards are manufactured in accordance with ANSI Specifications. Lead gage standards are used to set the gage prior to the inspection.

| Model | Connection Type/Description | Threads Per Inch (TPI) |
|---|---|---|
| LS-5001 | Straight Threads, 1-5 pitch, 4" length | 1 - 5 |
| LS-5002 | Straight Threads, 6-18 pitch, 4" length | 6 - 18 |
| LS-___mm | Straight Threads, Metric, specify pitch for model (e.g. LS-4mm) | |




## Contact Points

### UN Series (60° "V") Threads

These contacts points are used to inspect the lead of machined parts with 60° "V" thread forms. Two are required per gage. Sold individually.

| Model | Thread Pitch | Model | Thread Pitch | Model | Thread Pitch | Model | Thread Pitch |
|---|---|---|---|---|---|---|---|
| T562 | 1 | T128 | 4.5 | T072 | 8 | T032 | 18 |
| T288 | 2 | T115 | 5 | T057 | 10 | | |
| T188 | 3 & 3½ | T105 | 5½ | T050 | 11½ & 12 | | |
| T144 | 4 | T096 | 6 | T041 | 14 & 16 | | |

### Acme or Stub Acme Threads

These truncated contact points are used to inspect the lead of machined parts with 29° Acme and Stub Acme thread forms. Two are required per gage. Sold individually.

| Model | Thread Pitch | Model | Thread Pitch | Model | Thread Pitch | Model | Thread Pitch |
|---|---|---|---|---|---|---|---|
| T531T | 1 | T188T | 3 | T090T | 6 & 7 | T032T | 16 |
| T344T | 1½ | T144T | 3½ | T062T | 8 | | |
| T266T | 2 | T128T | 4 | T050T | 10 | | |
| T219T | 2½ | T105T | 5 | T041T | 12 & 14 | | |

### 7° x 45° Buttress Series Contact Points

These contact points are used to inspect the lead of machined parts with 7° x 45° Buttress thread forms. Two are required per gage. Sold individually.

| Model | Thread Pitch | Model | Thread Pitch | Model | Thread Pitch | Model | Thread Pitch |
|---|---|---|---|---|---|---|---|
| T562 | 1 | T219 | 2½ | T115 | 5 | T050 | 12 |
| T437 | 1¼ | T188 | 3 | T096 | 6 | T032 | 16 & 18 |
| T375 | 1½ | T156 | 3½ | T072 | 8 | | |
| T281 | 2 | T144 | 4 | T057 | 10 | | |

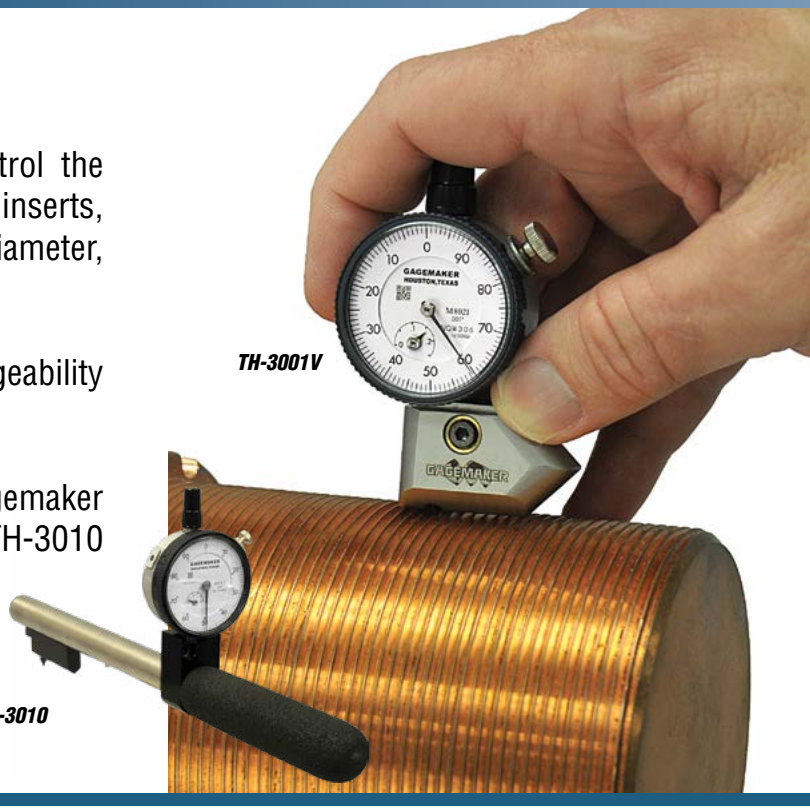
*For Trapezoidial or ISO Metric contact points please see pages 125.*

# Thread Height Inspection

Measuring thread height helps monitor and control the depth of cut during manufacturing, detects broken inserts, and can be used to calculate the minor or major diameter, when only one is known.

Accurate thread height contributes to the interchangeability and integrity of the threaded assembly.

For inspecting your straight thread heights, Gagemaker recommends our TH-3001V (external) and TH-3010 (internal) .




## External Thread Height Gages

Gagemaker manufactures many models of external thread height gages. Specify the type of thread when ordering. The T500C contact point is included. See contact point pages on 123-125 for other options.

| Model | Description | Travel | Min. Bore |
|---|---|---|---|
| TH-3001V | External Thread Height, 0-100 | .196" | 3.230" |

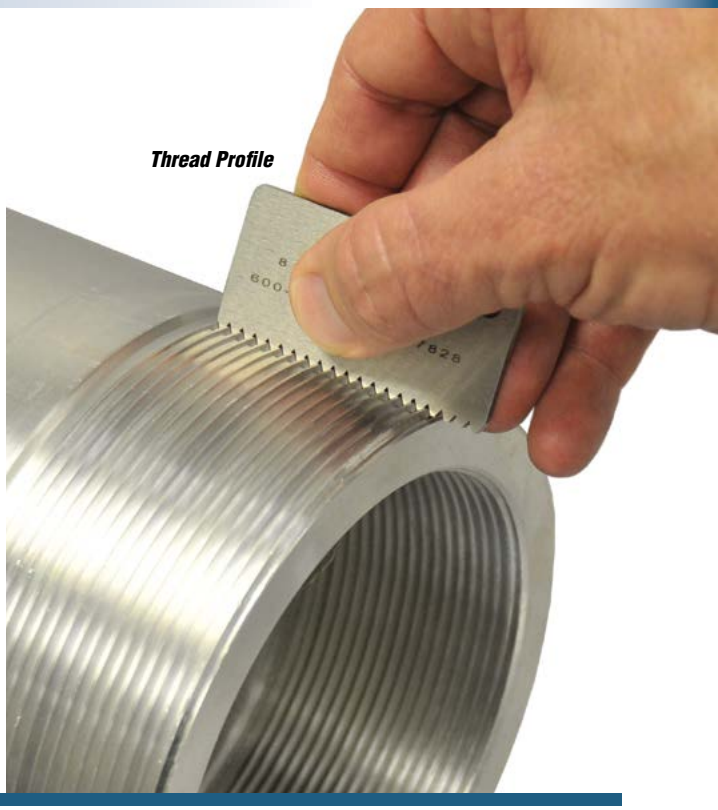
## Internal Thread Height Gages

Gagemaker also manufactures several models of internal thread height gages. Please specify the type of thread when ordering. The T500C contact point is included. See contact point pages on 123-125 for other options.

| Model | Description | Travel | Min. Bore |
|---|---|---|---|
| TH-3010 | Internal Thread Height, 0-100, 1" base | .250" | 1.750" |

# Thread Form Inspection

Check proper form and pitch by placing the correct profile template into the threads. By shining a light behind the profile template, it's possible to detect any steps or signs of a chipped insert. A template that stands too far out of the threads or allows excess light to shine through can be an indication of lead error. Sweeping the profile template along the helix of the threads helps find burrs or debris.



***Thread Profile***

## *Thread Form Profiles*

Gagemaker manufactures precision straight thread profile gages for the quick identification of product thread forms. Specify the pitch of the thread to be inspected when ordering. Special form profiles are available and are quoted upon request.

| Model | Description |
|---|---|
| TP-UNVI-__P | Internal UN series thread gage |
| TP-UNVE-__P | External UN series thread gage |
| TP-GPA-__P | Internal/external general purpose Acme thread profile gage |
| TP-SA-__P | Internal/external Stub Acme thread profile gage |
| TP-SAM1-__P | Modified 1 Stub Acme thread profile gage |
| TP-SAM2-__P | Modified 2 Stub Acme thread profile gage |
| TP-MI-__P | Internal ISO Metric series thread profile gage |
| TP-ME-__P | External ISO Metric series thread profile gage |
| TP-745-__P | Internal/External 7° X 45° Buttress thread profiile gage |

***Order Example:*** TP-UNVI-2P, TP-UNVE-4P, TP-SA-8P, etc.

Overlays for all of these profile gages are available.





# TUBING & CASING GAGES

# Tubing & Casing Inspection System Solutions

## Basic Tubing Solution

### TBP-200

***2 ⅜" - 4 ½" EUE, 2 ⅞" - 4 ½" NUE***



**Solution Includes:**

- Ovality & pitch diameter gage (MRP® Series)
- MRP® pin rod standard*
- MRP® box rod standard*
- Internal thread height gage
- External thread height gage
- Thread height standard
- Thread addendum gage
- Thread addendum standard
- Lead gage
- Lead gage standard
- Internal taper gage
- External taper gage
- Thread profile
- TDWIN Taper™ software
- All necessary contact points

***Solution package includes one pin and one box standard for one connection size. Standards for additional connection sizes are available at package price.***

## Tubing Add-on Solutions

**1.66" - 1.90" EUE**
**1.66" - 2⅜" NUE**

***TBP-200-1A Add-On***

- 1 MRP® pin rod standard*
- 1 MRP® box rod standard*
- TH-3012
- TP-RTC-10R profile
- Required contact points



**1.05" - 1.315" EUE**
**1.05" - 1.315" NUE**

***TBP-200-2A Add-On***

- MRP-202
- 1 MRP® pin rod standard*
- 1 MRP® box rod standard*
- TH-3012
- SPG-6000 with contact point arms
- TP-RTC-10R profile
- Required contact points



**For connection packages other than the base packages, please contact Gagemaker directly. However, if you order the basic solution and want more connections, you simply need to add one of the Tubing Add-on or Casing Add-on solutions*.**

**Add-on solutions include one pin and one box standard for one connection size. Standards for additional connection sizes are available at package price.*

**2⅜" - 4½" USS Buttress**

***TBP-200-3A Add-On***

- BR-2001-USS
- 1 MRP® pin rod standard*
- 1 MRP® box rod standard*
- TH-3004-USS
- TH-3002-USS
- THS-USS
- TP-USS-8P Profile
- Required contact points



# Basic Casing Solution

## CBP-300

### *4 ½" - 8 ⅝" LTC/STC*



**Solution Includes:**

- Ovality & pitch diameter gage (MRP® Series)
- MRP® pin rod standard*
- MRP® box rod standard*
- Internal thread height gage
- External thread height gage
- Thread height standard
- Thread addendum gage
- Thread addendum standard
- Lead gage
- Lead gage standard
- Internal taper gage
- External taper gage
- Thread profile
- TDWIN Taper™ software
- All necessary contact points

***Solution package includes one pin and one box standard for one connection size. Standards for additional connection sizes are available at package price.***

## Casing Add-on Solutions

### 9⅝" - 20" STC/LTC

***CBP-300-1A Add-On***

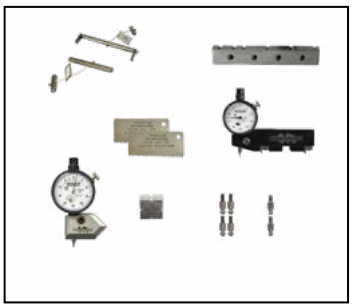
- ET-7004
- ET-7006
- IT-6001 and extension rods,
- 1 MRP® pin rod standard*
- 1 MRP® box rod standard*
- Required contact points



### 4½" - 8⅝" Buttress

***CBP-300-2A Add-On***

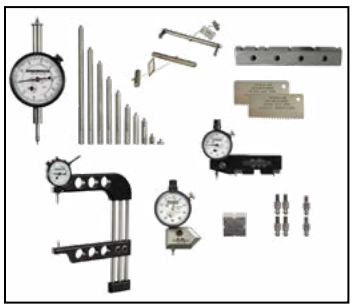
- 1 MRP® pin rod standard*
- 1 MRP® box rod standard*
- TH-3002B
- 1017 standard
- LS-1005
- BR-2001
- TP-5BTC75-EXT
- TP-5BTC75-INT
- Required contact points



### 9⅝" - 13⅜" Buttress

***CBP-300-3A Add-On***

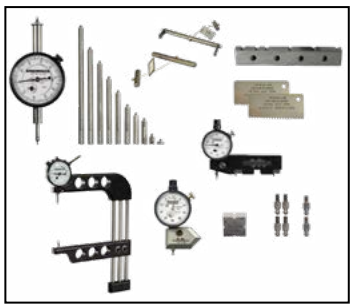
- ET-7004
- IT-6001 and extension rods
- 1 MRP® pin rod standard*
- 1 MRP® box rod standard*
- TH-3002B
- 1017 standard
- LS-1005
- BR-2001
- TP-5BTC75-INT Profile
- TP-5BTC75-EXT Profile
- Required Contact Points



### 16" - 20" Buttress

***CBP-300-4A Add-On***

- ET-7006
- IT-6001 and extension rods
- 1 MRP® pin rod standard*
- 1 MRP® box rod standard*
- TH-3003
- 1018 standard
- LS-1006
- BR-2001
- TP-5BTC1-INT
- TP-5BTC1-EXT
- Required Contact Points



# Tubing & Casing Thread Inspection System

Gagemaker's Tubing & Casing Thread Inspection System takes the guesswork out of inspecting tubing and casing. The Gagemaker's Tubing and Casing Thread Inspection Gages inspect all required thread elements - *Thread Form, Ovality, Crest Diameter, Thread Lead, Thread Height,* and *Thread Taper* – all with the precise accuracy required in today's demanding industry.



**TDWIN TAPER**
THREAD DISK for TAPERED THREADS







## Inspection Setup & Tolerances



## Thread Form



## Thread Lead



## Crest Diameter and Ovality



## Thread Taper

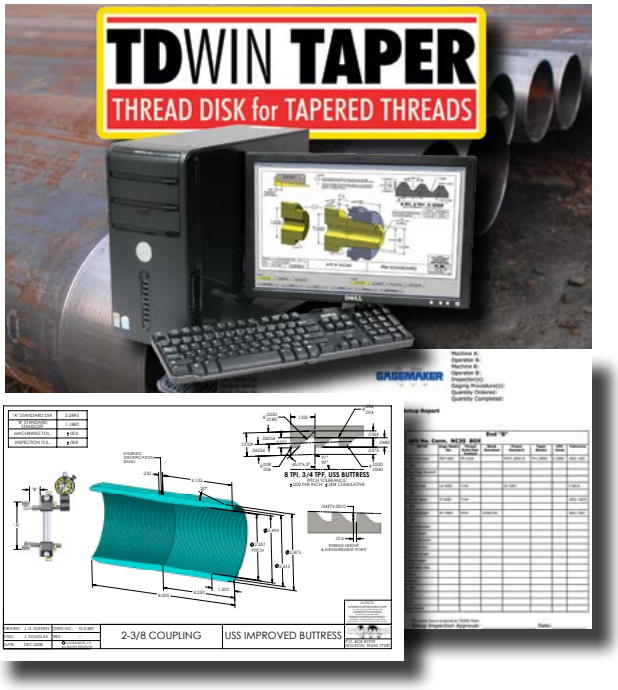


## Thread Height

# Inspection Setup and Tolerances

**TD**WIN Taper™ is the perfect accessory to Gagemaker's Tubing and Casing API Inspection Gages. It's the only software program dedicated to the manufacturing and inspection of downhole tubular connections. **TD**WIN Taper™ relies on API and industry standard tables and tolerances. It has everything you need to machine, inspect, and document tubular connection threads. **TD**WIN Taper™ displays connection drawings, inspection gage information, and setup and inspection reports. It is a must have for any machine shop.

- *Print dimensional reports and inspection sheets*
- *Print product blueprints for manufacturing and inspection*
- *View gage configurations, setting standards, and contact point information*




The program includes the following tapered connections:

## Tubing and Casing Connections

NUE Tubing
EUE Tubing
Short Thread Casing
Long Thread Casing
Buttress Casing
USS Improved Buttress Tubing
Line Pipe
Special Clearance Couplings
SR13 Seal Ring Groove Couplings

## Rotary Shouldered Connections

API Numbered Connections - NC
API Regular - REG
Full Hole - FH
Internal Flush - IF
Open Hole - OH
PAC
Slim Hole - SH
Wide Open - WO
Xtra Hole - XH
Hughes 90 - H-90
Slimline H-90 - SL H-90
External Flush - EF
Acme Regular - AR
Acme Streamline AS
Double Streamline - DSL

### *System Requirements*

- *Microsoft Windows XP or newer*
- *USB 2.0 port*
- *Internet Connection for first use*
- *1 MB RAM or more (recommended)*
- *Screen resolution of 1024 X 768 minimum*
- *.Net Framework 2.0 or later installed*

| Model | Description |
|---|---|
| **TD**WIN-Taper-2.0 | Thread Disk Software for Tapered Threads |

# Thread Form Inspection

Correct thread form is important for a pipe end and coupling to make up properly. Doing a quick check using a Gagemaker thread profile verifies the thread form is correct.

Profile gages can also be used to perform a visual inspection of a thread form for detecting chipped inserts, steps, flat crested threads, stretched threads, wide first threads, or rolled over threads.




***TP-RTC-8R***

## *Thread Form Profiles*

Gagemaker manufactures precision tapered thread profile gages for the quick identification of product thread forms. Specify the connection which is to be inspected when ordering. Special profiles will be quoted upon request.

| Model | Connection Type | Taper Per Foot (TPF) | Threads Per Inch (TPI) |
|---|---|---|---|
| TP-RTC-8R | API 8-Round Casing, Tubing & Drill Pipe | ¾" | 8 |
| TP-RTC-10R | API 10-Round Tubing | ¾" | 10 |
| TP-5BTC75-INT | API Buttress Casing, Internal, 4½" - 13⅜" | ¾" | 5 |
| TP-5BTC75-EXT | API Buttress Casing, External, 4½" - 13⅜" | ¾" | 5 |
| TP-5BTC1-INT | API Buttress Casing, Internal, 16" - 20" | 1" | 5 |
| TP-5BTC1-EXT | API Buttress Casing, External, 16" - 20" | 1" | 5 |
| ***Line Pipe, NPT, and Specials are Available Upon Request*** | | | |

***Overlay Charts are also available. For information, contact Gagemaker directly. Specials are also available. For Special Overlays, please specify the following:***

1. ***Screen Size***
2. ***Magnification 20X/50X***
3. ***Product Form or Profile Template***

# Thread Lead Inspection

Gagemaker lead gages use interchangeable contact points to inspect both pin and box threads for a wide variety of API tubing & casing connections. Lead inspection is both an API mandated requirement and an industry wide practice. Defined as the distance between threads as measured on a plane parallel to the centerline of the threaded part, lead variation has a direct effect on stand-off, thread flank engagement, and make-up. Lead error is most commonly generated by manual and CNC lathes not cutting properly. Gagemaker lead gages provide dimensional verification of product print data.



LG-6001



LG-6002

## Lead Gages

The lead gage inspects both internal and external thread leads using contact points that seat in the threads of a part. The pitch of the thread determines the diameter of the contact points required for taking measurements.

The **LG-6001** (external) and the **LG-6002** (internal) are two-point gages for inspecting thread lead on API threads. The two points allow for a sweeping action to obtain the measurement.

The **LG-5003** is a three-point gage for inspecting thread lead on API threads. Two fixed contact points at the rear of the gage and one moveable contact point at the front of the gage provide complete stability when taking thread lead measurements. This unique design does not require sweeping to obtain measurements.

Contact points can be easily changed to allow the gages to be used on a variety of thread forms. For tubing and casing, please see page 29 for contact points. Additional points can be found on pages 124-125.

Before inspecting parts, the lead gage must be preset to a nominal predetermined dimension using a lead gage setting standard. For tubing and casing, please see page 29 for standards.

More gage models and accessories can be found on pages 120-121. Higher resolution indicators are available.

| Model | Description | Minimum Bore | Range |
|---|---|---|---|
| LG-6001 | External Lead Gage 2-point | 1.200 | ½" - 2" Thread Length |
| LG-6002 | Internal Lead Gage 2-point | 1.200 | ½" - 4" Thread Length |
| LG-5003 | Lead Gage 3-point<br>Contact point spacing .500" | 1.340 | ½" - 4" Thread Length |




*LG-5003*

## Lead Gage Setting Standard

Gagemaker's precision lead gage setting standards are manufactured in accordance with API Specification 5B. Lead gage standards are used to set the gage prior to the inspection.

| Model | Connection Type/Description | TPF* | TPI* |
|---|---|---|---|
| LS-1001 | API 8-Round Casing, Tubing & Drill Pipe, All 10-Round Tubing | ¾" | 8 & 10 |
| LS-1005 | API Buttress Casing, Internal/External 4½" - 13⅜" | ¾" | 5 |
| LS-1006 | API Buttress Casing, Internal/External 16" - Larger | 1" | 5 |

**TPF = Taper Per Foot, TPI = Threads Per Inch*




## API Contact Points for Lead Gages

Gagemaker's standard ball contact points are manufactured with carbide balls. Both threaded and straight (non-threaded) shanks are available. All of Gagemaker's inspection gages use threaded shank contact points and are #4-48 UNF. Metric threads are available upon request. Lead gages require two or three contact points. Contact points are sold individually.

| Model | Point Diameter | Threads Per Inch | Connection Type |
|---|---|---|---|
| T090 | 0.090" | 5 | Buttress Casing – Taper |
| T072 | 0.072" | 8 | API Tubing and Casing |
| T062 | 0.062" | 5 | Buttress Casing – Lead |
| T057 | 0.057" | 10 | API Tubing |

**Line Pipe and NPT contact points and standards are available.*
*For contact points,see pages 124-125. For standards, see page 121.*

# Crest Diameter and Ovality Inspection



Thirty years ago, Gagemaker introduced the **MRP®** gage which forever changed the industry. Today, the **MRP®** is the industry standard worldwide. Whether you call it Crest Diameter, Root Diameter, or Ball PD, Pitch Diameter governs the strength of the actual thread assembly and ensures API dimensional measurement specs are met.

The Gagemaker MRP® gages measure the internal and external pitch diameters of tapered threaded connections. Any slight variations in diameter or ovality are immediately detected with these precision gages granting you total control over your quality. These versatile gages easily adjust to measure thread diameters ranging from 1½" - 20". The ability to inspect a range of diameters with one gage, eliminates the need for a room full of ring or plug gages.

## MRP® Crest Diameter and Ovality Gages

The **MRP®** series of gages detects variations in crest diameter by the use of a gage shoe that rests on the crest of the threads. Variation in diameter is detected by the indicator readout. These gages must be set to a nominal size with one of a variety of setting standards or a MIC TRAC™. Refer to the standard chart that follows. All of these gages are API approved for use on tubing and casing. ***Additional gages, parts, & accessories can be found on pages 104-109.***

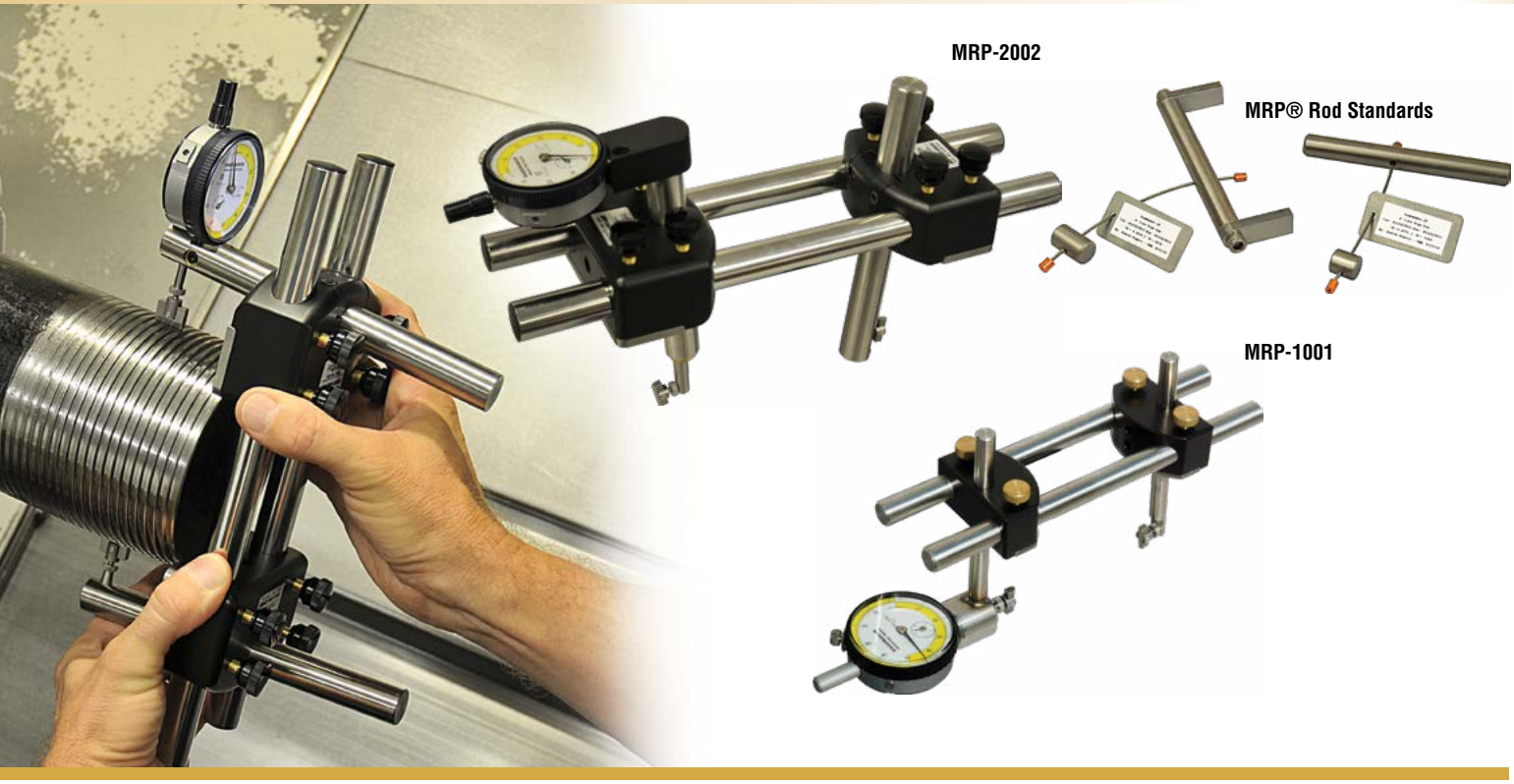
| Model | Description | Range |
|---|---|---|
| MRP-1001 | External Crest Diameter Gage | External 1½" - 4½" |
| MRP-1002 | Internal Crest Diameter Gage | External 1½" - 4½" |
| MRP-1000 | Internal/External Crest Diameter Gage | Internal 1½" - 4½"<br>External 1½" - 4½" |
| MRP-2001 | External Crest Diameter Gage | External 2⅜" - 20" |
| MRP-2002 | Internal Crest Diameter Gage | Internal 2⅜" - 20" |
| MRP-2003 | Internal/External Crest Diameter Gage, 4¼" reach | Internal 2⅜" - 20"<br>External 2⅜" - 20" |

## Rod Style Setting Standards for MRP-1000 and MRP-2000 Series

Rod style setting standards are designed to preset all models of the **MRP®** Series gages for accurate inspection of API threaded connections. Each set of standards consists of two precision ground rods that are ground to lengths in accordance with API Specification 5B. Other standard styles and connections are available, see pages 108-109.

| Thread Type | Connection | Pin Standard Model | Box Standard Model |
|---|---|---|---|
| NUE | 2⅜" NUE | MRP5B-238NUE-P | MRP5B-238NUE-B |
| | 2⅞" NUE | MRP5B-278NUE-P | MRP5B-278NUE-B |
| | 3½" NUE | MRP5B-312NUE-P | MRP5B-312NUE-B |
| | 4" NUE | MRP5B-4NUE-P | MRP5B-4NUE-B |
| | 4½" NUE | MRP5B-412NUE-P | MRP5B-412NUE-B |
| EUE | 2⅜" EUE | MRP5B-238EUE-P | MRP5B-238EUE-B |
| | 2⅞" EUE | MRP5B-278EUE-P | MRP5B-278EUE-B |
| | 3½" EUE | MRP5B-312EUE-P | MRP5B-312EUE-B |
| | 4" EUE | MRP5B-4EUE-P | MRP5B-4EUE-B |
| | 4½" EUE | MRP5B-412EUE-P | MRP5B-412EUE-B |






## Rod Style Setting Standards (Cont'd.)

| Thread Type | Connection | Pin Standard | Box Standard |
|---|---|---|---|
| Buttress | 4½" Buttress | MRP5B-412B-P | MRP5B-412B-B |
| | 5" Buttress | MRP5B-5B-P | MRP5B-5B-B |
| | 5½" Buttress | MRP5B-512B-P | MRP5B-512B-B |
| | 6⅝" Buttress | MRP5B-658B-P | MRP5B-658B-B |
| | 7" Buttress | MRP5B-7B-P | MRP5B-7B-B |
| | 7⅝" Buttress | MRP5B-758B-P | MRP5B-758B-B |
| | 8⅝" Buttress | MRP5B-858B-P | MRP5B-858B-B |
| | 9⅝" Buttress | MRP5B-958B-P | MRP5B-958B-B |
| | 10¾" Buttress | MRP5B-1034B-P | MRP5B-1034B-B |
| | 11¾" Buttress | MRP5B-1134B-P | MRP5B-1134B-B |
| | 13⅜" Buttress | MRP5B-1338B-P | MRP5B-1338B-B |
| | 16" Buttress | MRP5B-16B-P | MRP5B-16B-B |
| | 18⅝" Buttress | MRP5B-1858B-P | MRP5B-1858B-B |
| | 20" Buttress | MRP5B-20B-P | MRP5B-20B-B |
| LTC | 4½" 8R LTC | MRP5B-412L-P | MRP5B-412L-B |
| | 5" 8R LTC | MRP5B-5L-P | MRP5B-5L-B |
| | 5½" 8R LTC | MRP5B-512L-P | MRP5B-512L-B |
| | 6⅝" 8R LTC | MRP5B-658L-P | MRP5B-658L-B |
| | 7" 8R LTC | MRP5B-7L-P | MRP5B-7L-B |
| | 7⅝" 8R LTC | MRP5B-758L-P | MRP5B-758L-B |
| | 8⅝" 8R LTC | MRP5B-858L-P | MRP5B-858L-B |
| | 9⅝" 8R LTC | MRP5B-958L-P | MRP5B-958L-B>P110 or MRP5B-958L-B<P110 |
| | 20" 8R LTC | MRP5B-20L-P | MRP5B-20L-B>JK55 or MRP20L-B<JK55 |

| Thread Type | Connection | Pin Standard | Box Standard |
|---|---|---|---|
| STC | 4½" - 9.50# 8R STC | MRP5B-412S-9-P | MRP5B-412S-9-B |
| | 4½" - Other 8R STC | MRP5B-412S-O-P | MRP5B-412S-O-B |
| | 5" - 11.50# 8R STC | MRP5B-5S-11-P | MRP5B-5S-11-B |
| | 5" - Other 8R STC | MRP5B-5S-O-P | MRP5B-5S-O-B |
| | 5½" 8R STC | MRP5B-512S-P | MRP5B-512S-B |
| | 6⅝" 8R STC | MRP5B-658S-P | MRP5B-658S-B |
| | 7" - 17.00# 8R STC | MRP5B-7S-17-P | MRP5B-7S-17-B |
| | 7" - Other 8R STC | MRP5B-7S-O-P | MRP5B-7S-O-B |
| | 7⅝" 8R STC | MRP5B-758S-P | MRP5B-758S-B |
| | 8⅝" - 24.00# 8R STC | MRP5B-858S-24-P | MRP5B-858S-24-B |
| | 8⅝" - Other 8R STC | MRP5B-858S-O-P | MRP5B-858S-O-B |
| | 9⅝" 8R STC | MRP5B-958S-P | MRP5B-958S-B>P110 or MRP5B-958S-B<P110 |
| | 10¾" - 32.75# 8R STC | MRP5B-1034S-32-P | MRP5B-1034S-32-B |
| | 10¾" - Other 8R STC | MRP5B-1034S-O-P | MRP5B-1034S-O-B>P110 or MRP5B-1034S-O-B<P110 |
| | 11¾" 8R STC | MRP5B-1134S-P | MRP5B-1134S-B>P110 or MRP5B-1134S-B<P110 |
| | 13⅜" 8R STC | MRP5B-1338S-P | MRP5B-1338S-B>P110 or MRP5B-1338S-B<P110 |
| | 16" 8R STC | MRP5B-16S-P | MRP5B-16S-B |
| | 18⅝" 8R STC | MRP5B-1858S-P | MRP5B-1858S-B |
| | 20" 8R STC | MRP5B-20S-P | MRP5B-20S-B>JK55 or MRP20S-B<JK55 |

**Line Pipe, NPT, step style, and frame style standards are available.**
**All Special Orders, Non-Standard API Standards, or Premium Connection Setting Standards are extra.**

# Thread Taper Inspection

Tapered threads are a signature feature of API Tubing & Casing connections. Measuring thread taper is not only an industry wide practice, it is an API Specification 5B mandated inspection. During the manufacturing process, taper must be accurately measured and quantified to stay within the required specification limits. When subjected to a service load, taper error on threaded tubing and casing connections can lead to galling, improper fit, and reduced performance.



For the most accurate taper inspection, use Gagemaker taper gages to verify both the threaded pin and coupling meet all customer and industry requirements. Gagemaker's taper gages are the best choice for measuring and controlling both pin and box taper values.

## External Taper Gages

Gagemaker's external taper gages inspect variation in external thread taper. Unless specified otherwise, external taper gages are shipped with .072" diameter contact points (T072) as standard. Refer to the chart on the following page for the proper contact point for your particular connection. Each gage requires two contact points. Higher resolution indicators are available.

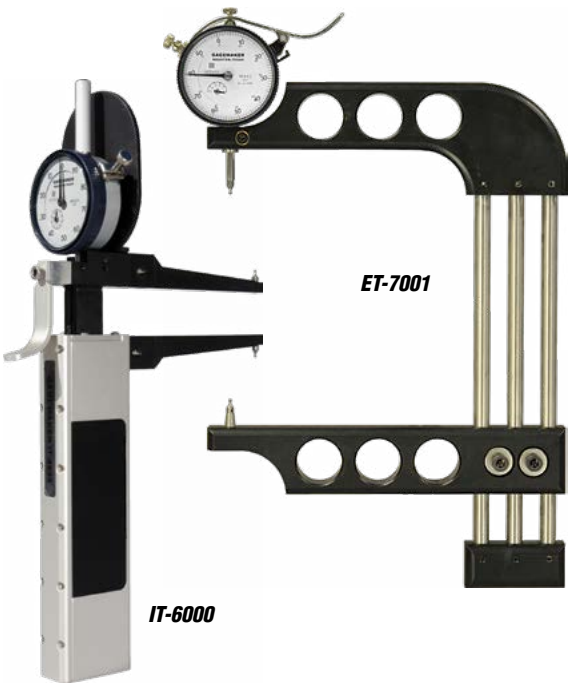
| Model | Description | Range | Travel | Resolution |
|---|---|---|---|---|
| ET-7001 | External Taper, ½" travel | 0" - 6" | ½" | .001" |
| ET-7002 | External Taper, ½" travel | 0" - 10" | ½" | .001" |
| ET-7003 | External Taper, 1" travel | 0" - 10" | ½" | .001" |
| ET-7004 | External Taper, ½" travel | 0" - 16" | ½" | .001" |
| ET-7006 | External Taper, ½" travel | 16" - 24" | ½" | .001" |

## Internal Taper Gages

Gagemaker's internal taper gages measure variation in thread taper. Taper gages are shipped with our standard set of .072" diameter contact points (T072), unless specified otherwise or requested. Refer to the chart on the following page for the proper contact point for your particular connection. Each internal gage requires two contact points. Higher resolution indicators are available.

| Model | Description | Range | Travel | Resolution |
|---|---|---|---|---|
| IT-6000 | Internal Taper Gage | 4¼" Depth, 1½" - 9" Diameter | 1" | .001" |
| IT-6001 | Internal Taper Gage | Any Depth, 5" - 13⅜" API Sizes | ½" | ..001" |






## API Contact Points for Taper Gages

Gagemaker's standard ball contact points are manufactured with carbide balls. All of Gagemaker's inspection gages use threaded shank contact points. Threaded shanks are #4-48 UNF. Metric threads are available upon request. Taper gages require two contact points. Additional contact points can be found on pages 124-125.

| Model | Point Diameter | Threads Per Inch (TPI) | Connection Type |
|---|---|---|---|
| T090 | 0.090" | 5 | Buttress Casing – Taper |
| T072 | 0.072" | 8 | API Tubing and Casing |
| T057 | 0.057" | 10 | API Tubing and Line Pipe |

# Thread Height Inspection

Proper Thread Height maximizes the performance of the connection. Thread height inspection is an API requirement. Gagemaker thread height gages inspect external or internal thread height for a variety of thread forms. A shallow thread height may allow the connection to pull apart under stress.







## External Thread Height Gages

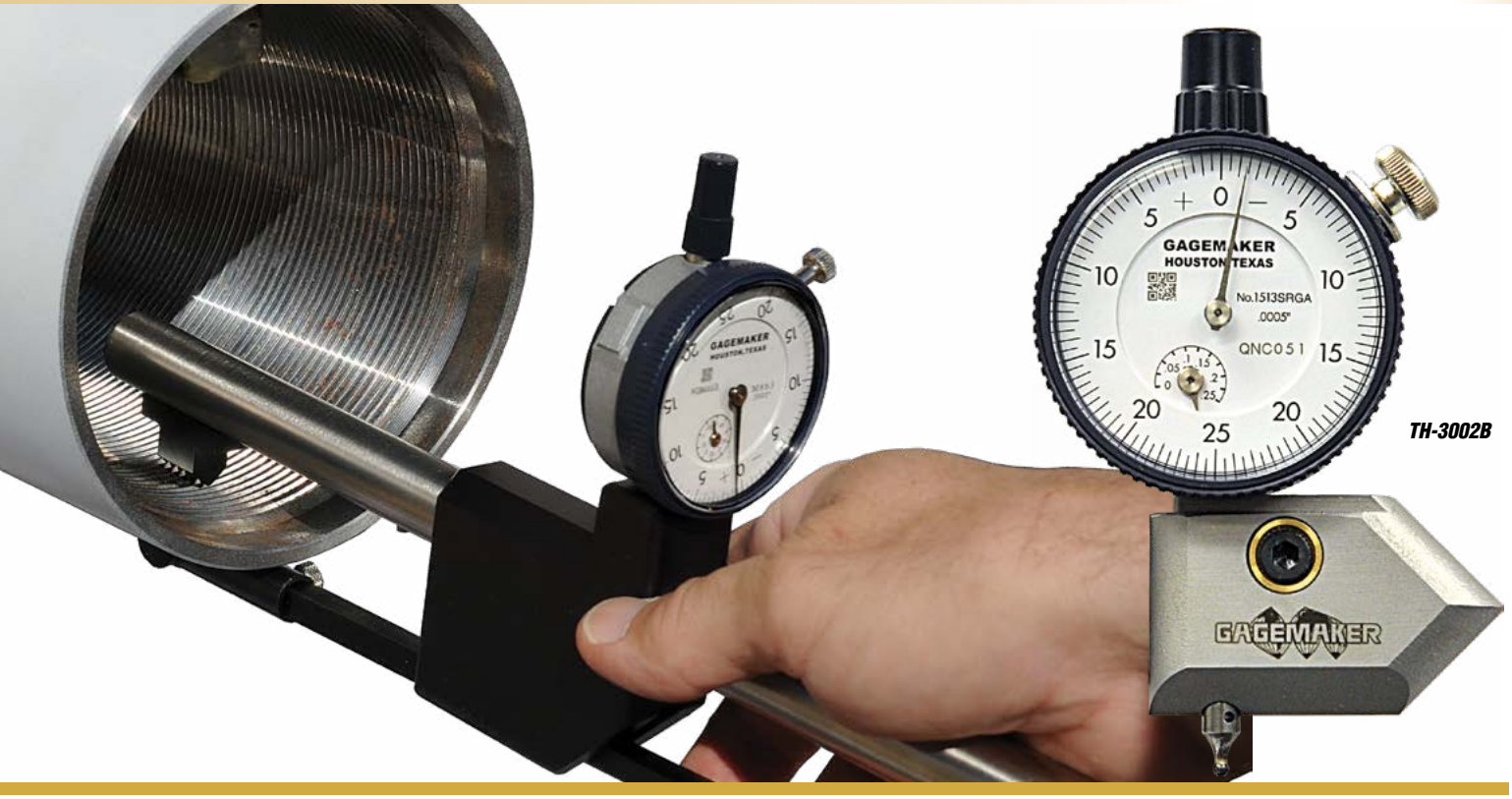
Gagemaker manufactures many models of external thread height gages. Specify the type of thread when ordering. One contact point based on thread type is included, please refer to the chart on page 35. For tubing and casing, standards may be required, please see page 35 for more.

| Model | Description | Connection | Travel | Min. Bore |
|---|---|---|---|---|
| TH-3002B | External Thread Height, 0-25-0 | ¾" TPF Buttress | .094" | 2.930" |
| TH-3002R | External Thread Height, 0-50-0 | 8-Round & 10-Round | .162" | 3.400" |

## Internal Thread Height Gages

Gagemaker also manufactures several models of internal thread height gages. Please specify the type of thread when ordering. One contact point based on thread type is included, please refer to the chart on page 35. For tubing and casing, standards may be required, please see page 35 for more.

| Model | Description | Connection | Travel | Min. Bore |
|---|---|---|---|---|
| TH-3006 | Internal Thread Height, 0-25-0 | 8-Round & 10-Round | .105" | 1.595" |
| TH-3008 | Internal Thread Height, 0-25-0 | 8-Round & 10-Round | .094" | 1.575" |
| TH-3009 | Internal Thread Height, 0-25-0 | ¾" TPF Buttress | .250" | 1.750" |

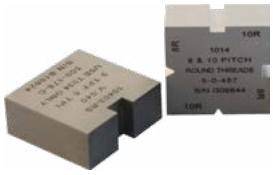



TH-3002B

## Thread Height Gage Standards

Gagemaker manufactures API mandated precision setting standards for presetting thread height gages. Please specify the type of thread when ordering.

| Model | Description |
|---|---|
| THS-1014 | 8 & 10 Round Threads |
| THS-1017 | 13⅜" & Smaller Buttress, ¾" TPF |
| THS-1018 | 16" & Larger Buttress, 1"TPF |



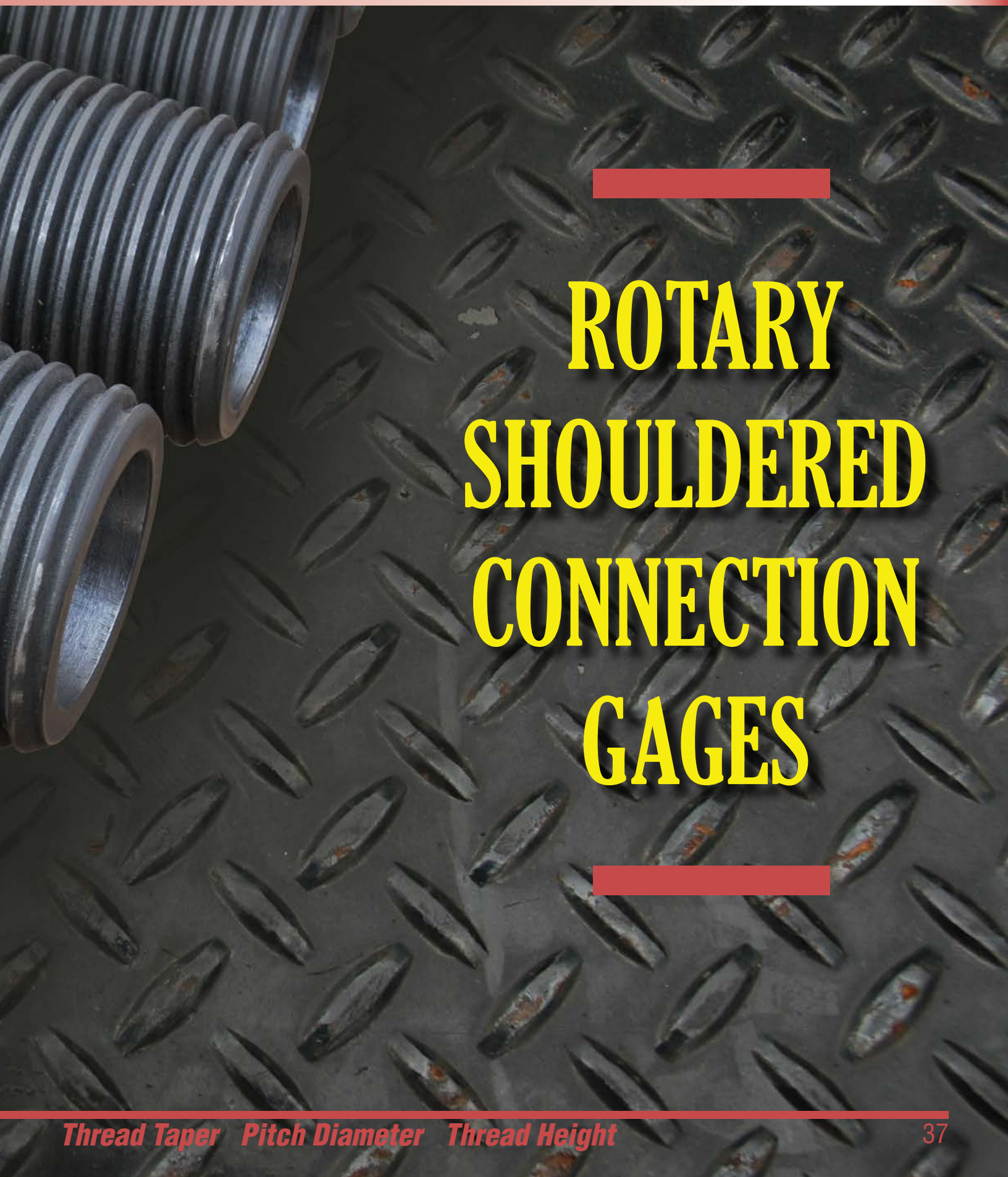
## Thread Height Gage Contact Points

The contact points are interchangeable between gages. Contact point diameters are manufactured to tolerances of +.0002". Thread height gages require one contact point. Additional points are available, please see pages 123-124.

| Model | Description |
|---|---|
| T072 | 0.072" Contact Point for Buttress Threads |
| T501 | 50° Cone Contact Point, Self-Centering for TH-3001R, TH-3002R Gages |
| T502 | Self-Centering Sleeve for T501 & T503 Contact Points |
| T503 | 50° Cone Contact Point, "V" Threads for TH-3006 |

# Rotary Shouldered Connection Thread Inspection





# ROTARY SHOULDERED CONNECTION GAGES

# JSS® Solutions

## Inspect the following Connections:

- API No. Connection (NC) - 23, 26, 31, 35, 38, 40, 44, 46, 50
- Double Streamline - 3½", 4, 4½", 5½"
- External Flush - 3½", 4½"
- Full Hole - 4"
- Internal Flush - 2⅜", 2⅞", 3½", 4, 4½"
- Slim Hole - 2⅜", 2⅞", 3½", 4, 4½"
- Xtra Hole - 2⅞", 3½", 4½", 5"

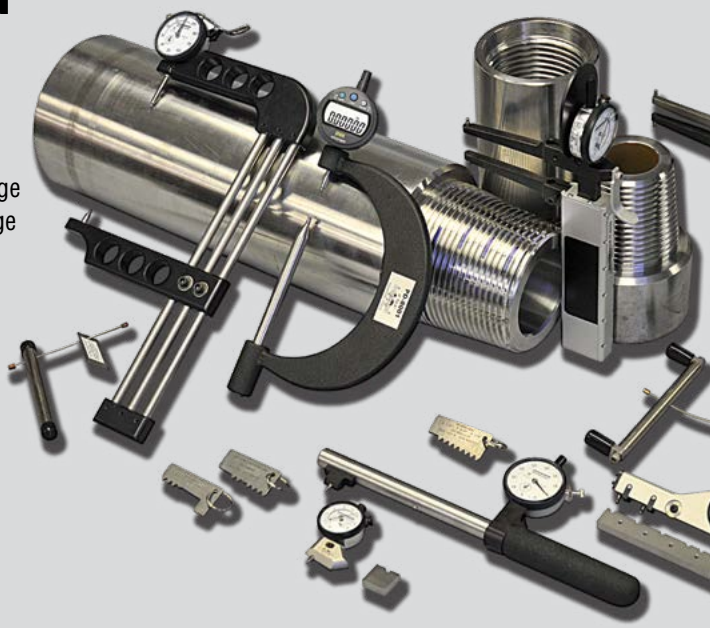
## Choose Your

### FIELD SOLUTION

### JSS-100

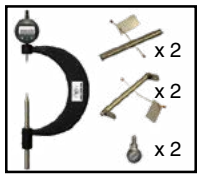
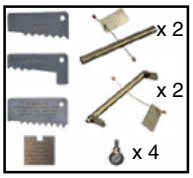
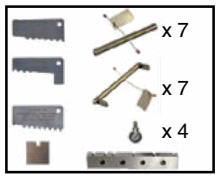
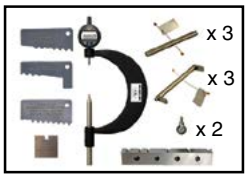
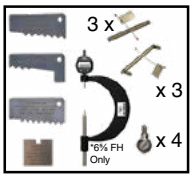
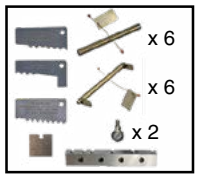
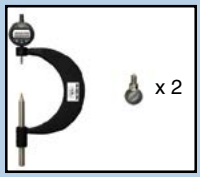
**Field Solution Includes:**

- External pitch diameter gage
- Internal pitch diameter gage
- Location profiles for box
- Location profile for pin
- Lead gage and standard
- External taper gage
- Internal taper gage
- Thread height gages and standard
- Thread profiles
- TDWIN Taper™ Software
- 1 external rod standard*
- 1 internal rod standard*
- Necessary contact points



***Field Solution includes one pin and one box standard for one connection size.***
***Rod standards for additional connection sizes are available at solution price at time of package order.***

## For Additional Connections,

| Connections | | | | | |
|---|---|---|---|---|---|
| **IF -** 5½", 6⅝" | **EF -** 2⅜", 2⅞" | **FH -** 2⅞", 3½", 4½"<br>**REG -** 2⅜", 2⅞", 3½", 4½" | **REG -** 5½", 7⅝", 8⅝" | **FH -** 5½", 6⅝"*<br>**REG -** 6⅝" | **H - 90** - 3½", 4", 4½", 5", 5½", 6⅝" |
| **JSS-100 Field Solution Add-ons** | | | | | |
| **JSS-100-1A** | **JSS-100-2A** | **JSS-100-3A** | **JSS-100-4A** | **JSS-100-5A** | **JSS-100-6A** |
|  |  |  |  |  |  |
| **JSS-500 Shop Solution Add-ons** | | | | | |
| **JSS-500-1A** | **JSS-500-2A** | **JSS-500-3A** | **JSS-500-4A** | **JSS-500-5A** | **JSS-500-6A** |
|  |  |  |  |  |  |

## Base Package:



OR

### SHOP SOLUTION

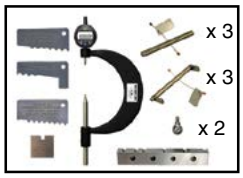
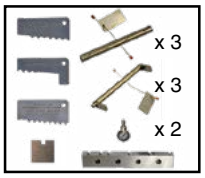
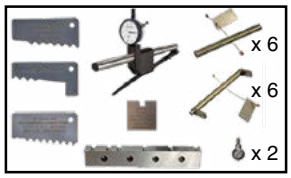
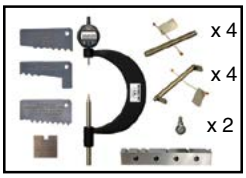
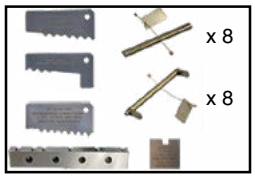
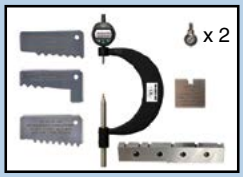
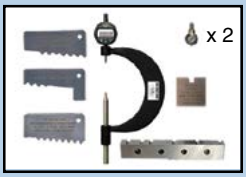
# JSS-500

**Shop Solution Includes:**

- External pitch diameter gage
- Internal pitch diameter gage
- Location profile for box
- Location profile for pin
- Lead gage and standard
- External taper gage
- Internal taper gage
- Thread height gage and standard
- Thread profiles
- TDWIN Taper™ software
- MIC TRAC™ (MT-3000)
- Necessary contact points

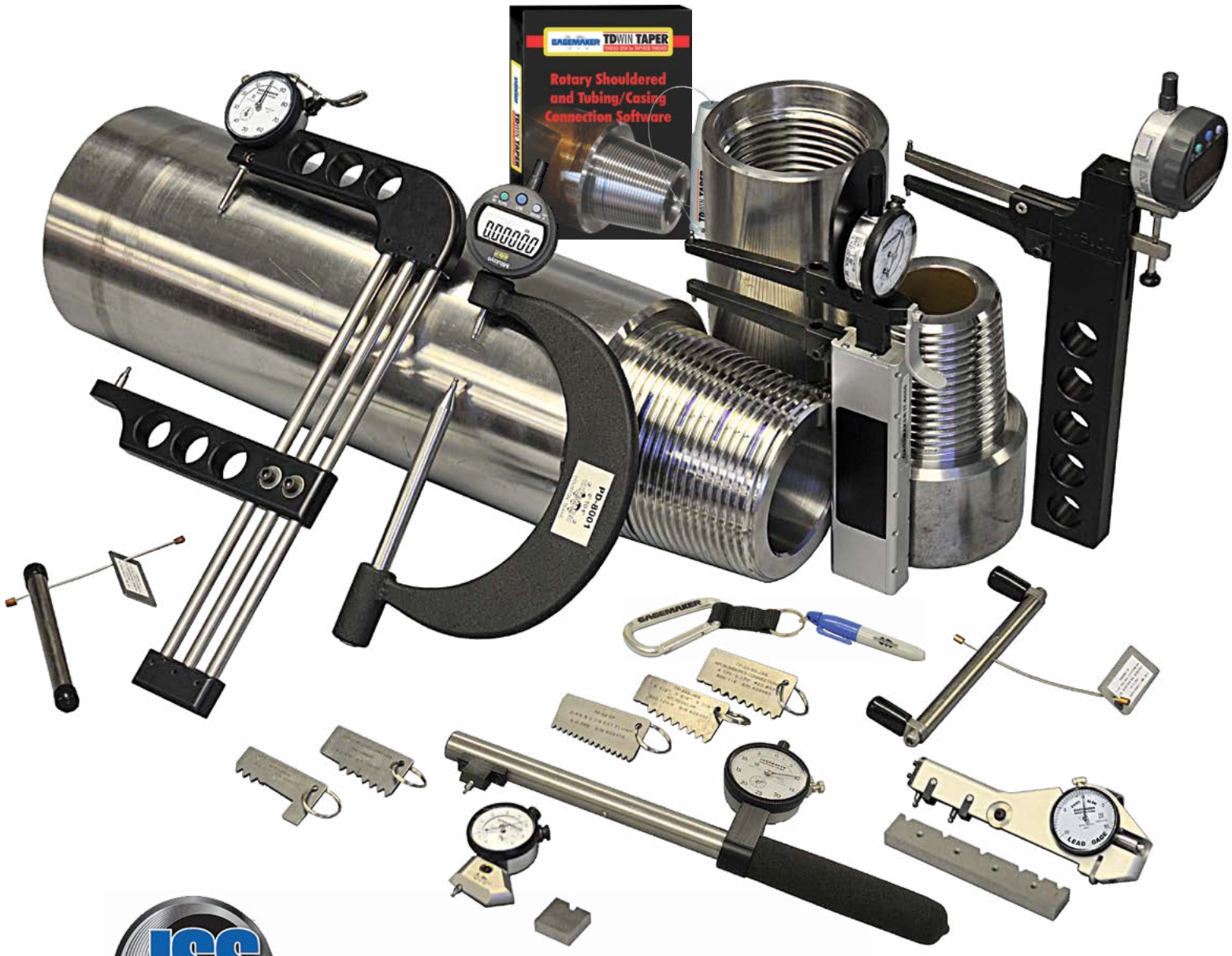



## Choose Your Add-ons:

| | | | | |
|---|---|---|---|---|
| **H - 90** - 7", 7⅝", 8⅝" | **SL H-90** - 2⅜", 2⅞", 3½" | **NC** - 10, 12, 13, 16<br>**REG** - 1", 1½" | **NC** - 56, 61, 70, 77 | **PAC** - 2⅜", 2⅞", 3½"<br>**OH** - 2⅜", 2⅞", 3½", 4", 4½" |
| **JSS-100-7A**<br> | **JSS-100-8A**<br> | **JSS-100-9A**<br> | **JSS-100-10A**<br> | **JSS-100-11A**<br> |
| **JSS-500-7A**<br> | **JSS-500-8A**<br> | **JSS-500-9A**<br> | **JSS-500-10A**<br> | **JSS-500-11A**<br> |

# Rotary Shouldered Connection Thread Inspection System

Gagemaker's Joint Strength System (JSS®) is a revolutionary breakthrough in accurately gauging the quality of both *new* and *used* rotary shouldered connections. It's now possible to avoid broken connections by identifying thread damage before it's visually apparent and unfortunately too late. For years, the industry has relied on the interpretative "fit" of a ring or plug gage although a ring or plug gage will not directly detect variation in pitch diameter. With JSS®, you'll inspect just a few key attributes and save hours of down time and thousands of dollars in rework charges.

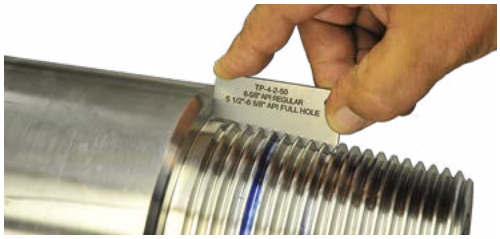





## Inspection Setup and Tolerances



## Insert Identification



## Thread Form



## Pitch Diameter



## Thread Lead



## Thread Taper



## Thread Height

# Inspection Setup and Tolerances

**TD**WIN Taper™ is the only software program dedicated to the manufacturing and inspection of downhole tubular connections. It has everything you need to machine, inspect, and document tubular connection threads. **TD**WIN Taper™ relies on API and industry standard tables and tolerances. **TD**WIN Taper™ displays connection drawings, inspection gage information, and setup and inspection reports. Simply, it is a must have for any machine shop.

**TD**WIN Taper™ is included in any full JSS® Package.




- *Follows API Specification 7-2, Dec. 2008, for Rotary Shouldered Connections and API Specification 5B, Oct. 2008, for Tubing and Casing Connections*
- *Print product blueprints for manufacturing and inspection*
- *Print dimensional reports and inspection sheets*
- *Provides gages configurations, setting standards, and contact point information*

The program includes the following tapered connections:

## Tubing and Casing Connections

NUE Tubing
EUE Tubing
Short Thread Casing
Long Thread Casing
Buttress Casing
USS Improved Buttress Tubing
Line Pipe
Special Clearance Couplings
SR13 Seal Ring Groove Couplings

## Rotary Shouldered Connections

API Numbered Connections - NC
API Regular - REG
Full Hole - FH
Internal Flush - IF
Open Hole - OH
PAC
Slim Hole - SH
Wide Open - WO
Xtra Hole - XH
Hughes 90 - H-90
Slimline H-90 - SL H-90
External Flush - EF
Acme Regular - AR
Acme Streamline AS
Double Streamline - DSL

***System Requirements***

- *Microsoft Windows XP or newer*
- *USB 2.0 port*
- *Internet Connection for first use*
- *1 MB RAM or more (recommended)*
- *Screen resolution of 1024 X 768 minimum*
- *.Net Framework 2.0 or later installed*

| Model | Description |
|---|---|
| **TD**WIN-Taper-2.0 | Thread Disk Software for Tapered Threads |




## The oilfield's most reliable source of information to accurately machine, inspect, and document tapered threaded connections

***Consulting TDWIN Taper™ should be your first step in quality assurance. Until now, this type of information was available only through closely controlled documents supplied by a few industry leaders. Now, all the latest dimensions, gauging tolerances, and inspection reports for the connections you need to cut are available with a few keystrokes.***




***Stay on top of the ongoing changes in industry specifications with your own copy of the TDWIN Taper™ program.***

# Insert Identification

The first step in the quality process is to ensure the threading insert being used is correct for the job.

Use a Thread Insert Identifier Template to quickly verify that the correct threading insert has been selected as well as check the full topping profile of both internal and external inserts.

A quick mating of the insert to the template ensures the insert is correct for the job.

Insert identifiers have multiple notches on each template and are available for all API thread forms.




## Tapered Insert Identifiers

Gagemaker's new tapered thread insert indentifier easily determines which threading insert the machinist is using. When an optical comparator is unavailable, the insert indentifier will show which thread form is on the insert.

| Model | TPF | Thread Forms |
|---|---|---|
| TI-RSC-60 | 1.5", 2", & 3" | V-0.032, V-0.038R, V-0.040, V-0.050, V-0.055, V-0.076 |
| TI-RSC-90 | 1.25", 2", 3", & 3.373" | A-0.094, 90-V-0.050, 90-V-0.084 |

# Thread Form Inspection

Thread form accuracy is important if two connections are to make-up properly. Using a Thread Profile Gage provides a quick check of the thread to ensure that the form is correct. The Thread Profile should be used on every connection to ensure the first imperfect thread was deburred fully.

Thread form is defined as its profile in an axial plane for a length of one pitch. Most importantly, verifying thread form is a recommended inspection for API connections and ensures form accuracy.




## *Thread Profile Gages*

Gagemaker manufactures precision tapered thread profile gages for the quick identification of product thread forms. Specify the connection which is to be inspected when ordering. Special profiles will be quoted upon request.

| Model | Connection Type | TPI, TPF, Thread Form |
|---|---|---|
| TP-3-1.25-84 | 2⅜" - 3½" Hughes Slimline H-90 | 3 TPI, 1.25" TPF, 90-V-0.084 |
| TP-3.5-2-50 | 3½"- 6⅝" Hughes H-90 | 3.5 TPI, 2" TPF, 90-V-0.050 |
| TP-3.5-3-50 | 7" - 8⅝" Hughes H-90 | 3.5 TPI, 3" TPF, 90-V-0.050 |
| TP-4-1.5-76 | 2⅜" - 3½" P.A.C. Connections<br>2⅜" - 4½" American Open Hole | 4 TPI, 1.5" TPF, V-0.076 |
| TP-4-2-50 | 6⅝" API REG<br>5½" & 6⅝" API Full Hole | 4 TPI, 2" TPF, V-0.050 |
| TP-4-2-38 | 3½" - 5½" Double Streamline,<br>3½" - 4½" External Flush,<br>4" API Full Hole,<br>2⅜" - 4½" Hughes Slim Hole,<br>2⅞" - 5" Hughes Xtra Hole,<br>2⅜" - 6⅝" Internal Flush<br>2⅜" - 4½" Wide Open<br>API Numbered Connections #23 - #50 | 4 TPI, 2" TPF, V-0.038R |
| TP-4-3-38 | API Numbered Connections #56 - #77 | 4 TPI, 3" TPF, V-0.038R |
| TP-4-3-50 | 5½", 7⅝", & 8⅝" API REG | 4 TPI, 3" TPF, V-0.050 |
| TP-5-3-40 | 2⅜" - 4½" API REG<br>2⅞", 3½", 4½" API Full Hole | 5 TPI, 3" TPF, V-0.040 |
| TP-6-1.5-55 | API Numbered Connections #10, #12, #13, #16<br>M.T. (Macaroni Tubing) | 6 TPI, 1.5" TPF, V-0.055 |
| TP-6-2-32 | 2⅜" - 2⅞" Hughes External Flush | 6 TPI, 2" TPF, V-0.032 |

***Special profiles and overlay charts are available. For information on those available, please contact customer service.***
***For Special Overlays, please specify the following: 1. Screen Size, 2. Magnification 20X/50X, and 3. Product Form or Profile Template***

# Thread Pitch Diameter Inspection



Now, operators are able to inspect both new and used pipe threads using precision Pitch Diameter Gages that allow them to pinpoint early signs of stress, perform preventative maintenance, and extend the life of their drill string connections. By measuring the pitch diameters, the operators can directly control the connection's size during manufacturing, as well as ensure that the thread cones go into interference properly when the connections are torqued together.

In the past, pitch diameter has been ignored as long as the ring or plug gage threaded to an acceptable standoff. Using a pin location profile (LPP) and a PD-8000-RSC Series gage(pin) or a box location profile (LPB) with an IT-5104-RSC (box) provides you plenty of control. The process of locating and measuring the pitch diameter takes less than a minute. This minute of inspection quickly decides the difference between good quality and bad quality.

## Pitch Diameter Location Templates

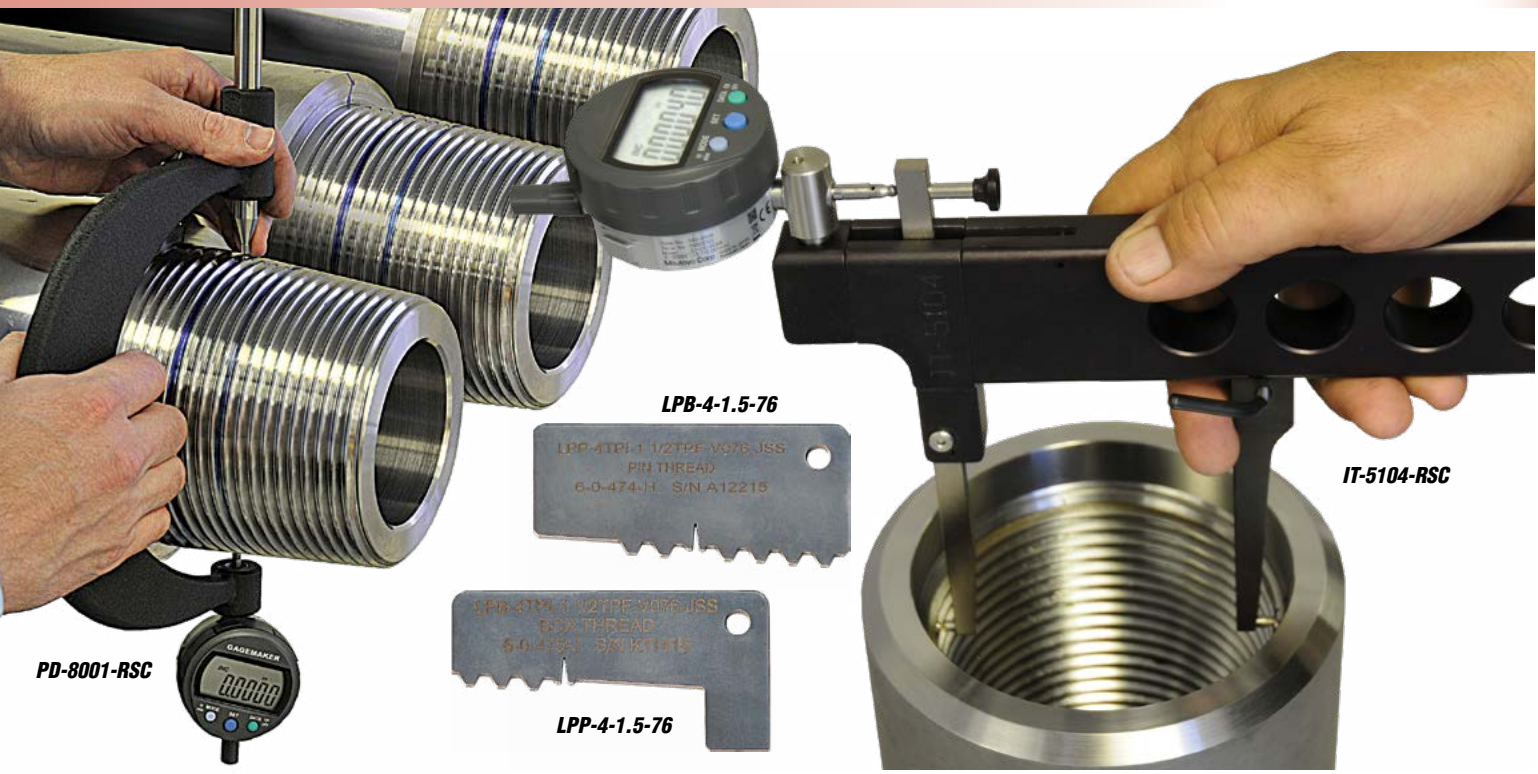
Pitch diameter location templates locate the point on the connection where the pitch diameter is measured. When applied properly to the connection, the template's special layout mark indicates the proper thread to measure the pitch diameter. A simple mark with a felt tip marking pen allows the operator or inspector to accurately position the gage and read a diameter. Please specify the threads per inch ( TPI), taper per foot (TPF), and thread form when ordering.

### Box Pitch Diameter Location Templates

| Model | Thread Form | Model | Thread Form |
|---|---|---|---|
| LPB-3-1.25-SLH9 | 3 TPI, 1.25 TPF, 90-V-0.084 | LPB-4-3-50 | 4 TPI, 3 TPF, V-0.0.050 |
| LPB-3.5-2-H9 | 3.5 TPI, 2 TPF, 90-V-0.050 | LPB-4-3.375-A-0.094 | 4 TPI, 3.375 TPF, A-0.094 |
| LPB-3.5-3-H9 | 3.5 TPI, 3 TPF, 90-V-0.050 | LPB-5-3-40 | 5 TPI, 3 TPF, V-0.040 |
| LPB-4-1.5-76 | 4 TPI, 1.50 TPF, V-0.076 | LPB-6-1.0-55 | 6 TPI, 1.0 TPF, V-0.055 |
| LPB-4-2-38 | 4 TPI, 2 TPF, V-0.038R | LPB-6-1.5-55 | 6 TPI, 1.50 TPF, V-0.055 |
| LPB-4-2-50 | 4 TPI, 2 TPF, V-0.050 | LPB-6-2-32 | 6 TPI, 2 TPF, V-0.032 |
| LPB-4-3-38 | 4 TPI, 3 TPF, V-0.038R | | |

### Pin Pitch Diameter Location Templates

| Model | Thread Form | Model | Thread Form |
|---|---|---|---|
| LPP-3-1.25-SLH9 | 3 TPI, 1.25 TPF, 90-V-0.084 | LPP-4-3-50 | 4 TPI, 3 TPF, V-0.050 |
| LPP-3.5-2-H9 | 3.5 TPI, 2 TPF, 90-V-0.050 | LPP-4-3.375-A-0.094 | 4 TPI, 3.375 TPF, A-0.094 |
| LPP-3.5-3-H9 | 3.5 TPI, 3 TPF, 90-V-0.050 | LPP-5-3-40 | 5 TPI, 3 TPF, V-0.040 |
| LPP-4-1.5-76 | 4 TPI, 1.50 TPF, V-0.076 | LPP-6-1.0-55 | 6 TPI, 1.0 TPF, V-0.055 |
| LPP-4-2-38 | 4 TPI, 2 TPF, V-0.038R | LPP-6-1.5-55 | 6 TPI, 1.50 TPF, V-0.055 |
| LPP-4-2-50 | 4 TPI, 2 TPF, V-0.050 | LPP-6-2-32 | 6 TPI, 2 TPF, V-0.032 |
| LPP-4-3-38 | 4 TPI, 3 TPF, V-0.038R | | |




## Internal Pitch Diameter Gages

Gagemaker's internal pitch diameter gages measure variation in intrenal thread pitch diameters. Pitch diameter gages are shipped with one set of contact points, please see the chart below to request proper points. Setting dimensions for the pitch diameter gages are provided by the **TD**WIN Taper™ software package. Gages require setting with either a standard or a MIC TRAC™. ***Software (page 42), MIC TRAC™ (pages 87-93), contact points, and standards (page 113) are sold separately.***

| Model | Description | Range |
|---|---|---|
| IT-5104-RSC | Internal Pitch Diameter Gage | 4" (101.6 mm) Depth, 1½" - 10" (38.1 mm - 254 mm) Diameter |

## External Pitch Diameter Inspection Gages

The ball pitch diameter gages indicate the pitch diameter size of the product's external thread. The gages are adjustable within a size range and use interchangeable contact points to measure different pitch threads. Gages ship with one set of contact points, please see the chart below to request proper points. Gages require setting with either a standard or a MIC TRAC™. ***Software (page 42), MIC TRAC™ (pages 87-93), contact points, and standards (page 113) are sold separately.***

| Model | Description | Range |
|---|---|---|
| PD-8001-RSC | External Pitch Diameter Gage | 0" - 6" (0 mm - 152.4 mm) |
| PD-8002-RSC | External Pitch Diameter Gage | 6" - 12" (152.4 mm - 304.8 mm) |

## API Contact Points for Pitch Diameter Gages

Gagemaker's standard ball contact points are manufactured with carbide balls. All RSC inspection gages use threaded shank contact points. Threaded shanks are #4-48 UNF. Pitch diameter gages require two contact points. Sold individually.

| Model | Point Diameter | Threads Per Inch | Connection Type |
|---|---|---|---|
| T235 | 0.235" | 3 | Hughes Slim Line H-90 |
| T200 | 0.200" | 3½ | All Hughes H-90 |
| T144 | 0.144" | 4 | API Rotary Shouldered Connections |
| T115 | 0.115" | 5 | API Rotary Shouldered Connections |
| T096 | 0.096" | 6 | API Rotary Shouldered Connections |

# Thread Lead Inspection

Thread Lead is one of the most important thread elements to monitor. Not only is lead inspection an industry wide practice for rotary shouldered connections, it is an API Specification 7 mandated requirement. Lead error is most commonly generated by manual and CNC lathes not cutting properly.

Thread lead is the distance between threads, measured on a plane parallel to the centerline of the threaded part. Lead error has a direct effect on functional diameter, stand-off, and thread flank engagement.

Gagemaker's lead gages inspect pin and box connections for multiple pitches and thread forms. The gages provide dimensional verification of product print data on the thread's true integrity.

- *Interchangeable contact points allow inspection on a variety of thread forms.*
- *Inspect RSC threads as well as Tubing and Casing threads.*
- *Requires presetting using Gagemaker's lead gage setting standards.*

## *Lead Gages*

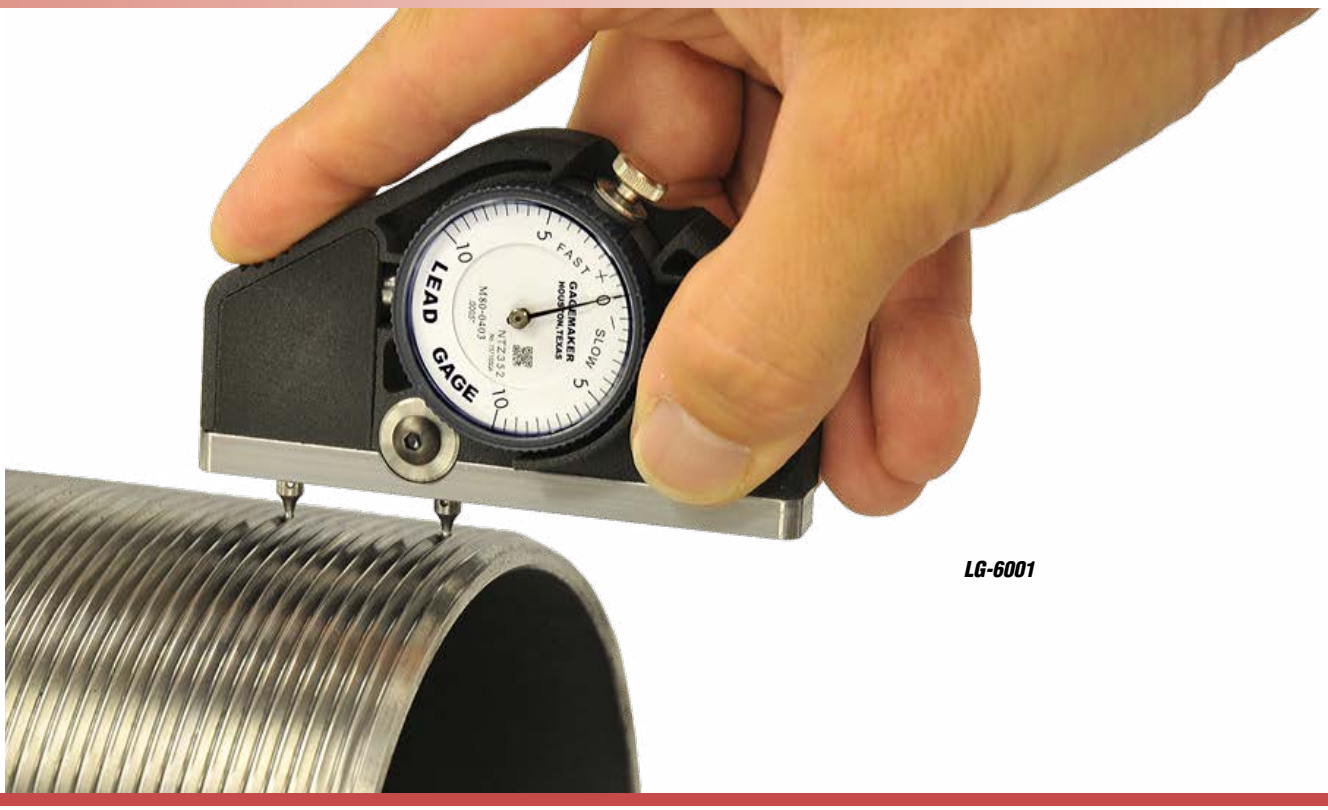
The **LG-6001** (external) and the **LG-6002** (internal) are two-point gage for inspecting thread lead for API threads. The two points allow for a sweeping action to obtain the measurement.

The **LG-5003** is a three-point gage for inspecting thread lead on API threads. Two fixed contact points at the rear of the gage and one moveable contact point at the front of the gage provide complete stability when taking thread lead measurements. This unique design does not require sweeping to obtain measurements.

Contact points can be easily changed to allow the gage to be used on a variety of thread forms. Lead gages come with two contact points. Please specify type of points required when ordering, see page 44 for chart.

Before inspecting parts, the lead gage must be preset to a nominal predetermined dimension using a lead gage setting standard. Please see the chart on page 44 to select your standard. Standards are not inlcuded.

| Model | Description | Minimum Bore | Range |
|---|---|---|---|
| LG-6001 | External Lead Gage 2-point | 1.200 | ½" - 2" Thread Length |
| LG-6002 | Internal Lead Gage 2-point | 1.200 | ½" - 4" Thread Length |
| LG-5003 | Lead Gage 3-point<br>Contact point spacing .500" | 1.340 | ½" - 4" Thread Length |




***LG-6001***

## *Lead Gage Setting Standards*

Gagemaker's precision lead gage setting standards are manufactured in accordance with API Specification 7-2. Lead gage standards are used to set the gage prior to the inspection.

| Model | Connection Type/Description | TPF* | TPI* |
|---|---|---|---|
| LS-1007 | 6⅝" API Reg; 4", 5½", & 6⅝" API Full Hole; 2⅞", 3½" - 5" Hughes Xtra Hole; 2⅜", 2⅞" - 4½" Hughes Slim Hole; 2⅜" - 5½" API INT Flush; API Numbered Connections #23-#50 | 2" | 4 |
| LS-1008 | 5½", 7⅝" - 8⅝" API Reg, API Numbered Connections #56 - #77 | 3" | 4 |
| LS-1009 | 2⅜" - 4½" API Reg, 3½", 4½" API Full Hole | 3" | 5 |
| LS-1010 | API Numbered Connections #10, #12, #13, #16<br>A.M.T. (Macaroni Tubing)<br>2⅜" - 3½" PAC<br>2⅜" - 4" American Open Hole | 1½" | 4 |
| LS-1011 | 3½" - 6⅝" Hughes H-90 | 2" | 3½ |
| LS-1012 | 7"- 8⅝" Hughes H-90 | 3" | 3½ |
| LS-1013 | 2⅜" - 3 ½" Slim Line H-90 | 1¼" | 3 |

***TPF = Taper Per Foot, TPI = Threads Per Inch***

## *API Contact Points for Lead Gages*

Gagemaker's standard ball contact points are manufactured with carbide balls. All Gagemaker lead gages use threaded shank contact points. Threaded shanks are #4-48 UNF. Lead gages require two or thee contact points. See pages 124-125 for additional contact points.

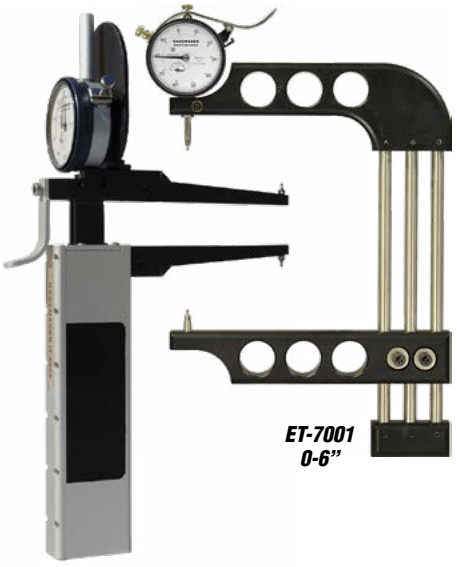
| Model | Point Diameter | Threads Per Inch | Connection Type |
|---|---|---|---|
| T235 | 0.235" | 3 | Hughes Slim Line H-90 |
| T200 | 0.200" | 3½ | All Hughes H-90 |
| T144 | 0.144" | 4 | API Rotary Shouldered Connections |
| T128 | 0.128" | 4½ | API Rotary Shouldered Connections |
| T115 | 0.115" | 5 | API Rotary Shouldered Connections |
| T096 | 0.096" | 6 | API Rotary Shouldered Connections |

# Thread Taper Inspection

Thread Taper is the change in pitch diameter over the length of a connection, typically designated in inches per foot. For all rotary shouldered connections, measuring thread taper is not only an industry wide practice; it is an API mandated inspection.

During the manufacturing process, taper must be accurately measured and quantified to avoid mismatched tapers. When under a service load, mismatched tapers between pins and boxes diminish proper thread engagement resulting in reduced connection performance.

Gagemaker's IT-6000 and ET-7000 series gages are the best choice for measuring and controlling both pin and box taper values within the required specification limits. When RSC connections are properly manufactured utilizing Gagemakers precision taper gages, product performance is maximized.




*IT-6000*

## External Taper Gages

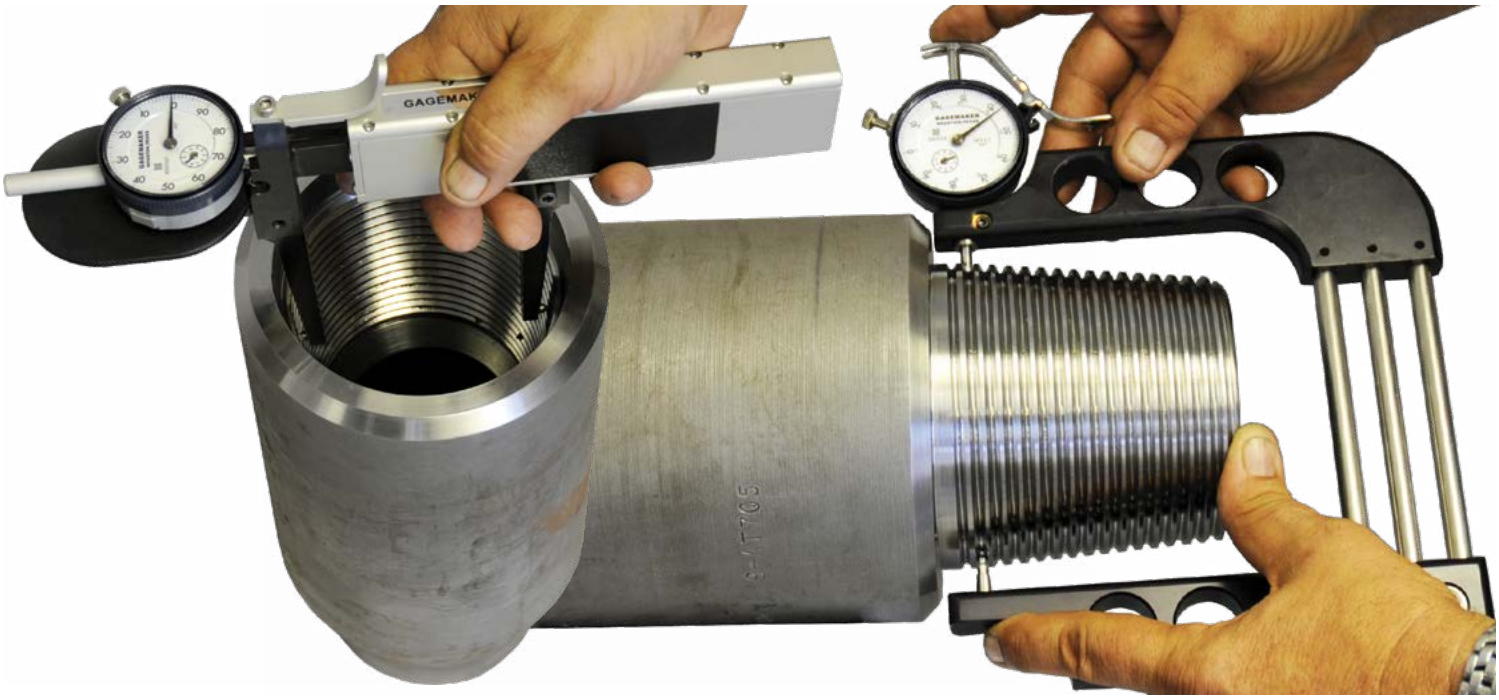
Gagemaker's external taper gages inspect variation in connection taper. External taper gages are shipped with .072" diameter contact points unless otherwise requested. Refer to the contact point chart on the next page for the proper contact point for your particular connection. Higher resolution indicators are available. For larger diameters, see page 115.

| Model | Description | Range | Travel | Resolution |
|---|---|---|---|---|
| ET-7003 | External Taper Gage | 0" - 10" | 1" | .001" |

## Internal Taper Gages

Gagemaker's internal taper gages measure variation in connection taper. Taper gages are shipped with our standard set of .072" diameter contact points, unless specified otherwise. Refer to the contact point chart on the next page for the proper contact point for your particular connection. Higher resolution indicators are available. For larger diameters, see page 115.

| Model | Description | Range | Travel | Resolution |
|---|---|---|---|---|
| IT-6000 | Internal Taper Gage, 4¼" Depth | 1½" - 9" Diameter | 1" | .001" |



## API Contact Points for Taper Gages

Gagemaker's standard contact points are manufactured with carbide balls. Taper gages use threaded shank contact points. Threaded shanks are #4-48 UNF. For other contact points, please see pages 124-125. Taper gages require two contact points. Sold individually.

| Model | Point Diameter | Threads Per Inch (TPI) | Connection Type |
|---|---|---|---|
| T235 | 0.235" | 3 | Hughes Slim Line H-90 |
| T200 | 0.200" | 3½ | All Hughes H-90 |
| T144 | 0.144" | 4 | API Rotary Shouldered Connections |
| T115 | 0.115" | 5 | API Rotary Shouldered Connections |
| T096 | 0.096" | 6 | API Rotary Shouldered Connections |

# Thread Height Inspection

Proper thread height maximizes the performance of any threaded connection and is a required inspection by the API. Thread height not only affects the interchangeability but also the integrity of a thread assembly. Thread height is the distance between the crest and the root, normal to the axis of the thread and several issues can be easily detected by simply inspecting thread height.

From detecting a chipped tool to preventing a connection from pulling apart under critical loads, inspecting thread height is valuable. Thread Height Gages inspect both internal and external thread height for a variety of thread forms and provide immediate feedback on the integrity of your threads.



## External Thread Height Gages

Gagemaker manufactures external thread height gages. Please specify the thread form when ordering. One contact point (T072) included, please see chart on page 53 for the proper point for your connection. Standards sold separately, please see page 53.

| Model | Description | Connection | Travel | Min. Bore |
|---|---|---|---|---|
| TH-3000-RSC | External Thread Height, 0-25-0 | Rotary Shouldered Connections | .196" | 3.230" |

## Internal Thread Height Gages

Gagemaker also manufactures internal thread height gages. Please specify the thread form when ordering. One contact point (T072) included, please see chart on page 53 for proper point for your connection. Standards sold separately, please see page 53.

| Model | Description | Connection | Travel | Min. Bore |
|---|---|---|---|---|
| TH-3009-RSC | Internal Thread Height, 0-25-0, 1" Base | Rotary Shouldered Connections | .250" | 1.750" |




## Thread Height Gage Standards

Gagemaker manufactures precision setting standards for thread height gages to API specifications. Please specify the type of thread when ordering.

| Model | Description |
|---|---|
| THS-10322 | V-0.032, 2 TPF, 6 TPI to be used with T034 pt. |
| THS-10382 | V-0.038R, 2 TPF, 4 TPI to be used with T072 pt. |
| THS-10383 | V-0.038R, 3 TPF, 4 TPI to be used with T072 pt. |
| THS-10403 | V-0.040, 3 TPF, 5 TPI to be used with T034 pt. |
| THS-10502 | V-0.050, 2 TPF, 4 TPI to be used with T044 pt. |
| THS-10503 | V-0.050, 3 TPF, 4 TPI to be used with T044 pt. |
| THS-10551.5 | V-0.055, 1.5 TPF, 6 TPI to be used with T072 pt. |
| THS-10761.5 | V-0.076, 1.5 TPF, 4 TPI to be used with T044 pt. |
| THS-10H90-2 | 2" TPF H-90 Connection (90-V-0.050), 3.5 TPI to be used with T072 pt. |
| THS-10H90-3 | 3" TPF H-90 Connection (90-V-0.050), 3.5 TPI to be used with T072 pt. |
| THS-SL-H90 | 1¼" TPF, 3 TPI, 90-V-0.084 to be used with T072 pt. |

## Thread Height Contact Points

Gagemaker's standard contact points are manufactured with carbide balls. Thread height gages require one contact point. Points are sold individually.

| Model | Point Diameter | Threads Per Inch | Thread Form |
|---|---|---|---|
| T072 | 0.072" | 3, 3.5, 4, 6 | V-0.038R, V-0.055 |
| T044 | 0.044" | 4 | V-0.050, V-0.076 |
| T034 | 0.034" | 5, 6 | V-0.032, V-0.040 |





# PREMUIUM CONNECTION GAGES

# Premium Connection Inspection Gages

As drilling requirements become more difficult and as the demand for performance increases, companies respond with new and improved connection designs to meet those customer demands. When companies design new proprietary connections their first call is to Gagemaker to discuss gauging requirements. Over the past 25 years Gagemaker has designed and built gauging solutions that ensure consistent quality of premium connections. Many of the gages have multiple applications and can be shipped with short lead times. This section of the catalog is focused on those specialty gages that apply directly to the premium or non-API connection industry.



### *CONFIDENTIALITY STATEMENT*

Gagemaker maintains confidentiality of all proprietary connection designs through signed agreements. Gagemaker will not provide any quotations nor ship any gages or setting standards to any unauthorized party. Customers doing work for companies that require proprietary gages will be required to submit approval in writing prior to receiving any quotes or gages.



## Thread Diameter Gages



## Shoulder Location Gages



## Pipe Straightness Gages



## Seal Gages




## Thread Runout Gages

# Thread Diameter Gages

A variety of comparative style thread inspection gages are available for the proprietary market. We provide gages that will meet your requirements of size range, accuracy, affordability, and delivery.



MRP-1000



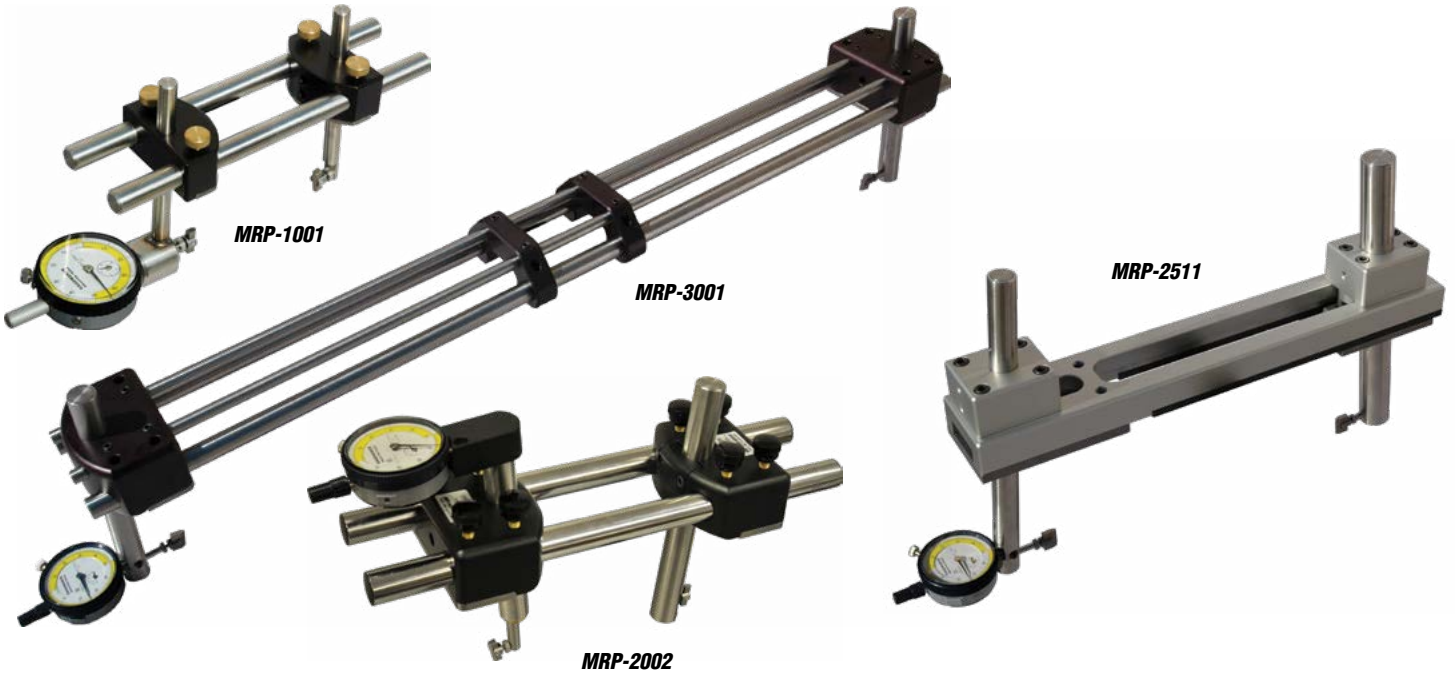
MRP-2001



## MRP® Pitch Diameter and Ovality Gages

This **MRP®** series of pitch diameter gages detects variations in pitch diameter by the use of a gage shoe that rests on the crest of the threads. Variation in diameter is detected by the indicator readout. These gages must be set to nominal size with one of a variety of setting options offered. Refer to the setting option section that follows. All of these gages are API approved for use on casing and tubing.

| Model | Description | Range |
|---|---|---|
| MRP-1000 | Internal/External Pitch Diameter Gage | 1½" - 4½" |
| MRP-1001 | External Pitch Diameter Gage | External 1½" - 4½" |
| MRP-1000-45 | Internal Seal Diameter Gage. Contacts on a 45° angle. Arms- .375" upper, .375" lower | Internal 1" - 4½" |
| MRP-1007 | Internal Seal Diameter Gage. Contacts on a 45° angle. Arms- .740" upper, .500" lower | Internal 1½" - 4½" |
| MRP-1008 | Internal Seal Diameter Gage. Contacts on a 45° angle. Arms- .740" upper, .740" lower | Internal 1⅜" - 4½" |
| MRP-1009 | Internal Seal Diameter Gage. Contacts on a 45° angle. Arms- .740" upper, .500" lower | Internal 1⅜" - 4½" |
| MRP-1012-TSS | Internal/External Pitch Diameter Gage for Two Step Seal. Upper and lower arms are .740" diameter. Upper arm has standard travel of .150". Shipped with T105 pts. | Internal 2⅜" - 4½"<br>External 1¾" - 4½" |
| MRP-1012-TST | Internal/External Pitch Diameter Gage, Two Step Thread, w/ 1.030" Horseshoe standoff for front and rear measurements. Upper and lower arms have .740" diameter. Upper arm has extended travel of .350" | Internal 2⅜" - 4½"<br>External 1¾" - 4½" |
| MRP-1500 | Internal/External Pitch Diameter Gage, Solid Body | Internal 1½" - 4½"<br>External 2⅞" - 4½" |
| MRP-2001 | External Pitch Diameter Gage | External 2⅜" - 20" |
| MRP-2001-S | External Pitch Diameter Gage, 4½" reach, Straight Blocks | |
| MRP-2001-7 | External Pitch Diameter Gage, 7" reach | |
| MRP-2001-10 | External Pitch Diameter Gage, 10" reach | |



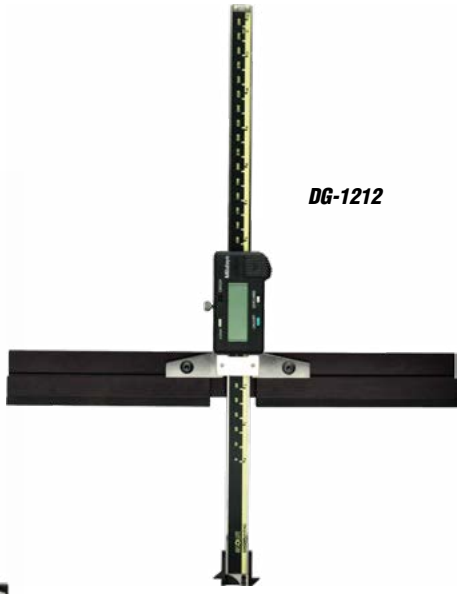

## MRP® Pitch Diameter and Ovality Gages (Continued)

| Model | Description | Range |
|---|---|---|
| MRP-2002 | Internal Pitch Diameter Gage, 4¼" reach | Internal 2⅜" - 20" |
| MRP-2002-S | Internal Pitch Diameter Gage, 4¼" reach, Straight Blocks | |
| MRP-2002-7 | Internal Pitch Diameter Gage, 7" reach | Internal 3½" - 20" |
| MRP-2002-10 | Internal Pitch Diameter Gage, 10" reach | |
| MRP-2003 | Internal/External Pitch Diameter Gage, 4¼" reach | 2⅜" - 20" |
| MRP-2003-S | Internal/External Pitch Diameter Gage, 4¼" reach, Straight Blocks | |
| MRP-2003-7 | Internal/External Pitch Diameter Gage, 7" reach | Internal 3½" - 20"<br>External 2⅜" - 20" |
| MRP-2003-10 | Internal/External Pitch Diameter Gage, 10" reach | |
| MRP-2511 | External Pitch Diameter Gage, 4" reach | External 4½" - 9⅝" |
| MRP-2511-7 | External Pitch Diameter Gage, 7" reach | |
| MRP-2512 | Internal Pitch Diameter Gage, 3⅜" reach | Internal 4½" - 9⅝" |
| MRP-2512-7 | Internal Pitch Diameter Gage, 7" reach | |
| MRP-2521 | External Pitch Diameter Gage, 4" reach | External 4½" - 13⅜" |
| MRP-2522 | Internal Pitch Diameter Gage, 3⅜" reach | Internal 4½" - 13⅜" |
| MRP-2513 | Internal/External PD Gage, 3⅜" reach | 4½" - 9⅝" |
| MRP-2523 | Internal/External PD Gage, 3⅜" reach | 4½" - 13⅜" |
| MRP-3001 | External Pitch Diameter Gage, 3⅜" reach | External 8⅝" - 24" |
| MRP-3002 | Internal Pitch Diameter Gage, 3⅜" reach | Internal 8⅝" - 24" |
| MRP-3003 | Internal/External Pitch Diameter Gage, 3⅜" reach | 8⅝" - 24" |
| MRP-3004 | Internal/External Pitch Diameter Gage, 3⅜" reach | 20" - 36" |
| MRP-3501 | External Pitch Diameter Gage, w/ 6¼" reach | External 8⅝" - 24" |
| MRP-3502 | Internal Pitch Diameter Gage, w/ 6¼" reach | Internal 8⅝" - 24" |
| MRP-3503 | Internal/External PD Gage, w/ 6¼" reach | 8⅝" - 24" |

*Gage parts and accessories can be found on page 105.*

# Shoulder Location Gages

These gages are often referred to as box depth or pin length gages. They are designed to measure the linear distance from the face to the shoulder. Some gages are comparative and preset with standards; others are direct read and need no masters. All are available with a variety of tips and contact points.



DG-1212



DG-1012

## Digital Depth Gages

Our digital depth gages inspect the location of internal and external shoulders and grooves from the face of the pin and box connections or other datum surfaces. The DG-1000 Series is available with the standard base, a 12" base, and a 20" base. These gages are available in ranges: 0”-8”, 0”-12”, 0”-18”, and 0-24".

The standard gage (DG-1000 Series) is supplied with a 7” extension arm and a 0° and 45° contact point holder for use with any #4-48 threaded contact point (one .072” contact point (T072) supplied unless otherwise requested). Longer extension arms and other contact point configurations and adapters are available upon request. The 12” (DG-1200 Series) and 20” (DG-2000 Series) gages include one double sided blade contact instead of a contact point and a contact point holder.

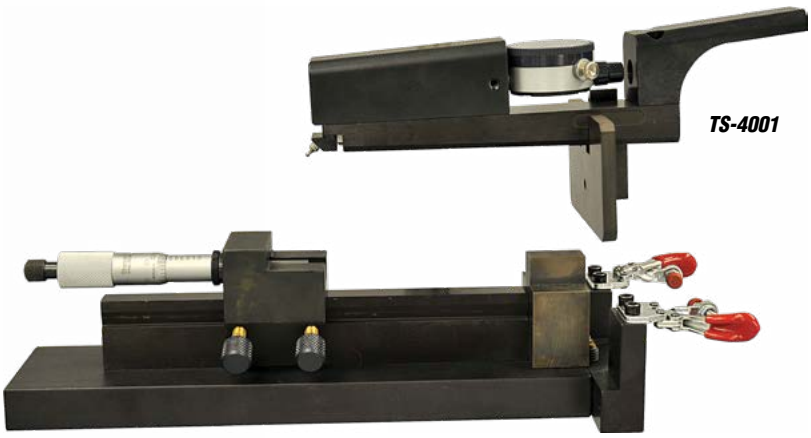
Digital depth gages do not require a setting standard. The gage is preset to zero on any flat surface and then applied to the product. Actual length measurements display on the gage’s .0005”/.01 mm resolution digital readout. The digital readout easily converts from inches to metric and has an SPC output.

Additional gages and accessories are available, see page 148. See pages 124-125 for additional contact points.

| Model | Description | Range |
|---|---|---|
| ***Depth Gage with Digital Display (in/mm)*** | | |
| DG-1008 | Depth Gage w/ digital display (in/mm), .0005”/.01 mm resolution | 0” - 8” |
| DG-1012 | Depth Gage w/ digital display (in/mm), .0005”/.01 mm resolution | 0” - 12” |
| DG-1018 | Depth Gage w/ digital display (in/mm), .0005”/.01 mm resolution | 0” - 18” |
| DG-1024 | Depth Gage w/ digital display (in/mm), .0005”/.01 mm resolution | 0" - 24" |
| ***Depth Gage with Digital Display and 12” Base (in/mm)*** | | |
| DG-1208 | Depth Gage w/ digital display (in/mm), .0005”/.01 mm resolution, 12" base | 0” - 8” |
| DG-1212 | Depth Gage w/ digital display (in/mm), .0005”/.01 mm resolution, 12" base | 0” - 12” |
| DG-1218 | Depth Gage w/ digital display (in/mm), .0005”/.01 mm resolution, 12" base | 0” - 18” |
| DG-1224 | Depth Gage w/ digital display (in/mm), .0005”/.01 mm resolution, 12" base | 0” - 24” |



DG-1012 with
DG-1000-R36 Stablizer



TS-4001

TSS-4000

## Digital Depth Gages (cont.)

| Model | Description | Range |
|---|---|---|
| ***Depth Gage with Digital Display and 20" Base (in/mm)*** | | |
| DG-2012 | Depth Gage w/ digital display (in/mm), .0005"/.01 mm resolution, 20" base | 0" - 12" |
| DG-2018 | Depth Gage w/ digital display (in/mm), .0005"/.01 mm resolution, 20" base | 0" - 18" |
| DG-2024 | Depth Gage w/ digital display (in/mm), .0005"/.01 mm resolution, 20" base | 0" - 24" |

## Torque Shoulder Gages and Standards

The TS-4001 Torque Shoulder Gage accurately measures the distance between the primary and secondary torque shoulders on both internal and external threaded connections. Used industry wide to measure the shoulder-to-shoulder distance on premium tool joints and the face-to-seal location on premium couplings, the Gagemaker TS-4001 is also perfectly suited to locate grooves from various datum surfaces.

The TS-4001 requires a setting standard. The gage is preset to the desired dimension and deviation is read from the gage's dial indicator.

One contact point included, please specify. One taper block is supplied according to customer taper specification. Additional taper blocks sold separately.

| Model | Description | Range |
|---|---|---|
| TS-4001 | Shoulder Depth Gage (Specify Taper) | 2⅜" & Larger |
| TSS-4000 | TS-4001 Setting Standard | |

# Pipe Straightness Gages

Identifying hooked or bent pipe ends is critical when machining or swedging. These gages are direct reading and do not require setting masters. Used in a variety of applications, the most predominant use relates to threading upset end pipe.




## Saddle Gage

The Saddle Gage measures the amount of hook or bend at the end of a joint of pipe. The SG-8001 uses the RC-375 roller contact. For replacements parts, please see page 147. Larger ranges available by special request only.

| Model | Description | Range |
|---|---|---|
| SG-8001 | Saddle Gage | 18" Max |

## Squareness Gage

The SQ-1630 Squareness Gage monitors the alignment of weld-on connectors to the pipe body. Requires setting by a qualified standard. The SQ-1630S, our precision calibration square, is strongly recommended for best results. Standard sold separately.

| Model | Description | Range |
|---|---|---|
| SQ-1636 | Squareness Gage, 30" reach | up to 36" diameter |
| SQ-1648 | Squareness Gage, 30" reach | up to 48" diameter |
| SQ-1630S | Squareness Gage Standard | 14" X 36" Square |

## Straight Edge Gage

The SE-1000 Straight Edge Gage measures the straightness of well tubing and casing. The gage price includes an SES-1000 Standard. Replacement standards are available.

| Model | Description | Range |
|---|---|---|
| SE-1000 | Straight Edge | 36" - 64" |
| SES-1000 | Replacement Straight Edge Standard | |









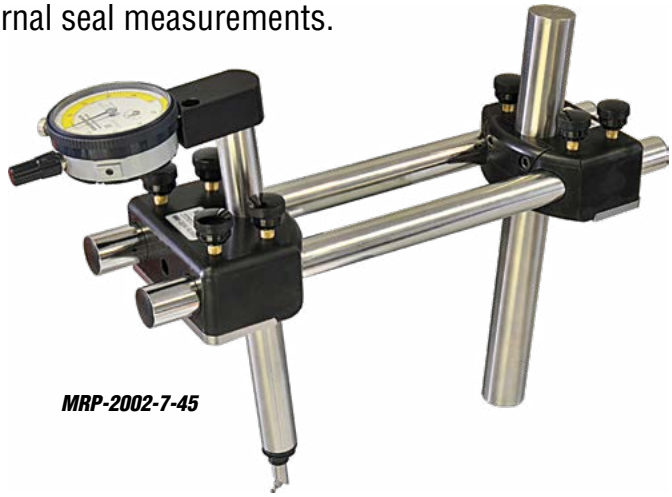
## *Laser Alignment Gage*

The Laser Alignment Gage ensures proper angular and parallel alignment during assembly of weld-on connectors. Replacement parts are available.

| Model | Description | Inside Diameter Range | Outside Diameter Range |
|---|---|---|---|
| LA-3600 | Laser Alignment Gage | 11” - 55” | 8” - 50” |

# Seal Gages

Ensure the integrity of a premium connection's seal by monitoring metal-to-metal seal interference. Our seal diameter gages accurately check diameter and ovality to guarantee the quality of your product. Gages are available for internal and external seal measurements.



MRP-2002-7-45



IT-5106-45

## Box Seal Gage

Box Seal gages measure coupling and box seal diameters. Gage must be preset with a standard. For standards, please contact customer service for information.

| Model | Description | Range |
|---|---|---|
| IT-5106-30 | Box Seal Gage, points at 30° angle | 6" Depth, 1½" - 10" Dia. |
| IT-5106-45 | Box Seal Gage, points at 45° angle | 6" Depth, 1½" - 10" Dia. |

## Box Seal Gage

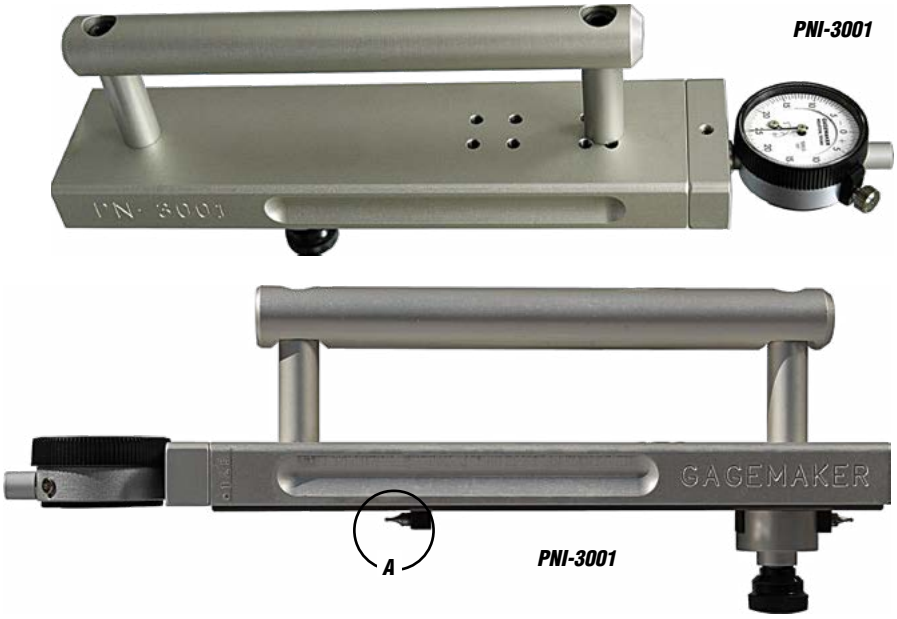
Our MRP® style box seal gage uses contact points to inspect criticial seal diameters at the back of premium connection boxes.

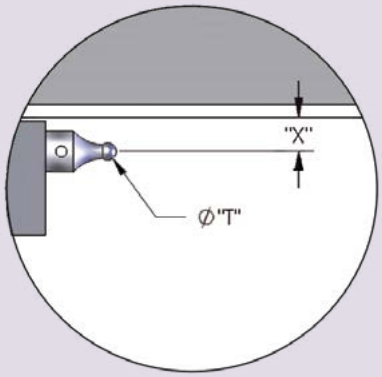
| Model | Description | Range |
|---|---|---|
| MRP-2002-7-45 | Back-of-Box Seal Gage, MRP® Style, 7" Depth, points at 45° angle | 2⅜" - 20" |

## PN-3000 Series Pin Seal Diameter Gages

The PN-3000 Series of gages inspect critical pin seal diameters on premium connections ranging from 2⅜" - 25½". Gagemaker pin nose gages provide accurate measurements at the critical sealing point of the pin. The gage also inspects seal tapers with the addition of stand-off plates.

The PN-3000 gages use precision interchangeable contact points that position on the seal at a fixed distance from the connection face. Pin nose gage indicators have resoution of .0005". Each model covers a specific range of connection sizes, making the PN-3000 gages extremely versatile and economical. Before inspecting parts, these gages must be preset to a nominal predetermined dimension using gage blocks, MIC TRAC™, or frame standards. For additional parts and standoff plates, please see pages 144-145.




**View A**
**X = Distance to Face**
**T = Contact Ball Diameter**

## *PN-3000 Series Pin Nose Diameter Gages**

The PN series measure pin nose diameter using contact points. Specify the distance from the face of the connection to the measuring plane and desired contact point diameter when ordering.

| Model | Description | Range | Model | Description | Range |
|---|---|---|---|---|---|
| PN-3001 | Pin Nose Diameter Gage | 0" - 5½" | PN-3004 | Pin Nose Diameter Gage | 0" - 19½" |
| PN-3002 | Pin Nose Diameter Gage | 0" - 9½" | PN-3005 | Pin Nose Diameter Gage | 0" - 25½" |
| PN-3003 | Pin Nose Diameter Gage | 0" - 13½" | | | |

****There is a separate cost to reposition the point standoff of PN-3000 Gages. Quotation available upon request.***

## *PN-3000 Series Internal "Ball Contact" Seal Diameter Gages*

The PNI series measure the internal ball contact seal diameter using contact points. Specify the distance from the face of the connection to the measuring plane and desired contact point diameter when ordering.

| Model | Description | Range |
|---|---|---|
| PNI-3001-VMB | Internal "Ball Contact" Seal Diameter Gage | 2" - 5½" |
| PNI-3002-VMB | Internal "Ball Contact" Seal Diameter Gage | 2" - 9⅝" |
| PNI-3003-VMB | Internal "Ball Contact" Seal Diameter Gage | 2" - 13⅜" |

## *PN-3000 Series 30° External Apex Diameter Gages*

The PNA model gages measure only the external apex diameter of the connection.

| Model | Description | Range |
|---|---|---|
| PNA-3001-VMA | 30° External Apex Diameter Gage, Anvils | 2" - 4¼" |
| PNA-3002-VMA | 30° External Apex Diameter Gage, Anvils | 2" - 9⅝" |
| PNA-3003-VMA | 30° External Apex Diameter Gage, Anvils | 2" - 13⅜" |

## *PN-3000 Series 30° Internal/External Apex Seal Diameter Gages*

The PN-3000 Series 30° Internal/External Apex Seal Diameter gages measure both the internal and external diameters of the apex seal for the connection.

| Model | Description | Range |
|---|---|---|
| PN-31VM-30 | 30° Internal/External Apex Seal Diameter "V" | Internal 2⅜" - 6⅝", External 4"-6⅝" |
| PN-33VM-30 | 30° Internal/External Apex Seal Diameter "V" | Internal 2⅜" - 14", External 4" - 14" |

# Thread Runout Gages

Maximize efficiency of the threading process by ensuring the insert pulled out at the right time on external threads. We manufacture runout gages for both internal and external designs.

The run out gage is a three point gage having two fixed points and one movable point attached to a balanced dial indicator. Accuracy of the gage is verified by zeroing the dial indicator on a flat surface.




*BR-2001*

## *Buttress Runout Gage*

Buttress runout gages ensure proper thread pullout on runout type threads. Thread runout is the measurement of the abruptness with which the buttress thread is terminated at the triangle end of the thread. A rapid pull-out of the cutting tool results in a steep slope at the end of the thread causing high stress when the coupling is made-up.
Buttress runout gages have standard 1" and 2" point spacing. Includes one contact point (TBR) and shoes.

| Model | Description | Range |
|---|---|---|
| BR-2001 | Buttress Runout Gage | All Sizes |
| BRB-2001 | Buttress Runout Base Only | All Sizes |
| BRS-2001 | Replacement Shoes (2) | |

# Premium Setting Standards

***Premium Round Standards***







***Premium Frame Standards***

## *Premium Setting Standards*

We manufacture master setting standards of various styles for numerous API as well as premium connections. Setting standards duplicate critical dimensions that are then compared to the machined product. Standards can be as simple as a single diameter or length or can combine diameters, lengths, seal groove locations, tapers, sealing surfaces and thread gauging locations.

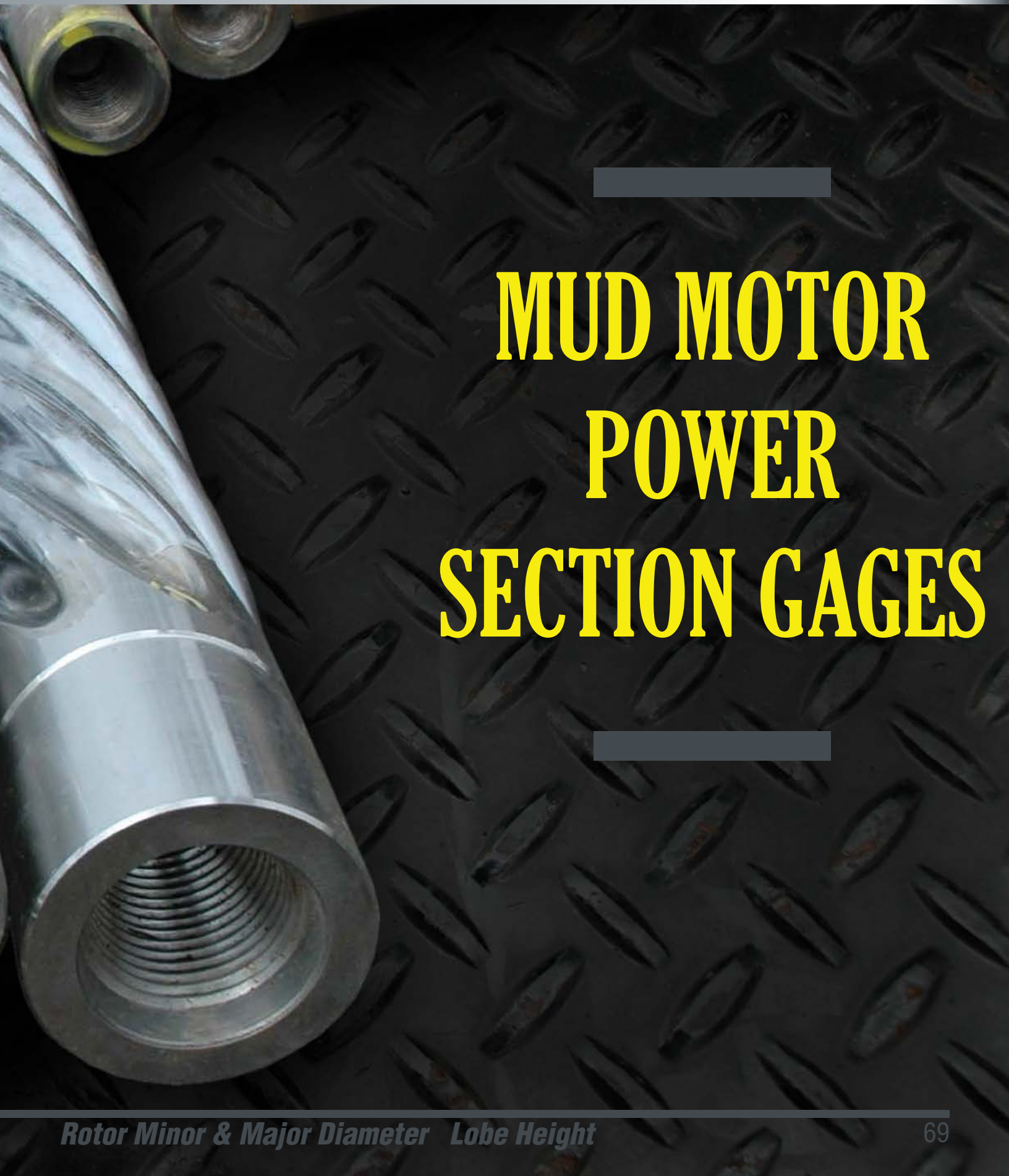
Standards are designed round as well as frame style. Setting surfaces may be cylindrical, conical, or flat and tapered. The choice of style is very much an individual's decision. All styles are manufactured to the same accuracy and precision.

All standards are put through a methodical process of rough machining, stress relieving, heat treat hardening, surface coating, and finish grinding. The result of the process produces a master size standard with accuracies where required to ±.00025".

Standards are calibrated and certified with traceability to NIST and come complete with a long form dimensional certificate.

**Please Note:** Premium connection standards will only be manufactured for companies with the proper permission or complete ownership of the product. Product drawings are required on the company's title block with an authorized signature. An NDA may be required to protect both parties as proprietary information is often involved.





# MUD MOTOR POWER SECTION GAGES

# Maximize the Performance of Your Power Section

Drilling faster without stalls is critical to any drilling operation. The demands placed on the drilling motor to achieve optimum performance require the proper fit between the rotor and the stator in the power section. Gagemaker's Power Section Gages ensure this fit meets these specifications.

With Gagemaker's Stator Bore Diameter Gages, Rotor Major Diameter Gages, and Rotor Minor Diameter Gages, you are armed to maintain the quality of the power section you produce. With this arsenal of inspection gages, there's not a motor or pump out there that can't be inspected.





## Stator Bore Diameter Measurement



## Rotor Major and Minor Diameter Measurement

# Stator Bore Diameter Measurement



Each of Gagemaker's electronic Stator Bore Gages provides data collection and data storage options of bore measurements. The gage is supplied with your choice of a light duty netbook or a heavy duty notebook computer. Both provide the ability to enter a serial number and store inspection data as a file for future reference. The data can also be ported through a wireless link to a central computer for further processing.

Durable, accurate, easy to use, the Gagemaker Stator Bore Gages ensure your quality levels remains at the highest level possible.

## *Electronic Stator Minor Bore Gages*

The SBG series of gages determines a precise stator/rotor match by measuring the largest and smallest bore diameters. Attaching or removing different height extension shoes achieves the gage's range flexibility. Both gage models address any pitch or lobe configuration.

The SBG-5000E measures diameters from 1.500" - 2.000". Additional shoes are available for inspecting diameters larger than 2.000" and up to 7.500" (see page 75).

The SBG-5000E includes three extension shoes, a interface box, a computer, measurement software, cables, and setting standard base (standard not included).

Setting standards are sold separately, please see page 74.

| Model | Description | Range |
|---|---|---|
| SBG-5000E | Electronic Stator Bore Gage with interface box, computer, software, standard base, & SB-2100, SB-2110, SB-2120 extension shoes | 1.500" - 2.000" |

## *Indicator Style Stator Minor Bore Gage*

Gagemaker also offers two indicator based versions of the electronic SBG-5000 model. One setting standard assembly without setting standard and three shoes are included. For diameters over 2.000", additional shoes are required. Please see page 75 for more shoes. Setting standards are sold separately, please see page 74.

| Model | Description | Range |
|---|---|---|
| SBG-5000A | Stator Bore Gage with Analog Indicator and SB-2100, SB-2110, and SB-2120 extension shoes | 1.500" - 2.000" |
| SBG-5000D | Stator Bore Gage with Digital Indicator and SB-2100, SB-2110, and SB-2120 extension shoes | 1.500" - 2.000" |




*SBG-5000E*

*Interface Box & Computer*

*Connection Cable*





*SBG Flat Standards*

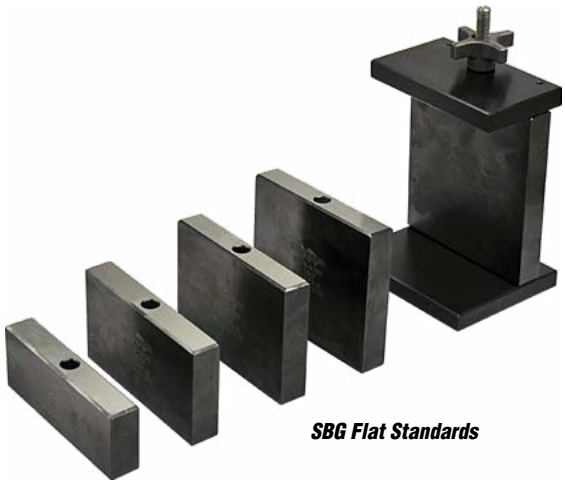


# Setting Standard Assembly

All Stator Bore Gages require presetting prior to part inspection. The flat style standard provides an economical method to accurately preset the gage. For smaller diameters, round standards are preferable and are also available.

The assembly allows for fast and secure setup. The flat style standards use a common base and top plate and use interchangeable flat sizing blocks to achieve the setting distance required. A speed nut locks the assembly together quickly and securely.

Setting standards do not need to be sized to the exact bore of the stator's bore. As long as the size of the standard is within the measurement range of the gage, it can be used to preset the gage.



*SBG Flat Standards*

## *SBG-5000A, SBG-5000D, and SBG-5000E Flat Standards*

| Setting Master Height | Flat Standard Model | Setting Master Height | Flat Standard Model |
|---|---|---|---|
| 1.600" | SBFS-1600 | 4.640" | SBFS-4640 |
| 1.727" | SBFS-1727 | 4.750" | SBFS-4750 |
| 1.800" | SBFS-1800 | 4.900" | SBFS-4900 |
| 2.062" | SBFS-2062 | 5.060" | SBFS-5060 |
| 2.187 | SBFS-2187 | 5.150" | SBFS-5150 |
| 2.375" | SBFS-2375 | 5.240" | SBFS-5240 |
| 2.598" | SBFS-2598 | 5.350" | SBFS-5350 |
| 2.700" | SBFS-2700 | 5.420" | SBFS-5420 |
| 2.736" | SBFS-2736 | 5.500" | SBFS-5500 |
| 2.900" | SBFS-2900 | 5.600" | SBFS-5600 |
| 3.080" | SBFS-3080 | 5.750" | SBFS-5750 |
| 3.150" | SBFS-3150 | 5.850" | SBFS-5850 |
| 3.245" | SBFS-3245 | 5.960" | SBFS-5960 |
| 3.303" | SBFS-3303 | 6.050" | SBFS-6050 |
| 3.400" | SBFS-3400 | 6.140" | SBFS-6140 |
| 3.425" | SBFS-3425 | 6.250" | SBFS-6250 |
| 3.500" | SBFS-3500 | 6.375" | SBFS-6375 |
| 3.625" | SBFS-3625 | 6.500" | SBFS-6500 |
| 3.750" | SBFS-3750 | 6.600" | SBFS-6600 |
| 3.976 | SBFS-3976 | 6.750" | SBFS-6750 |
| 4.000" | SBFS-4000 | 6.860" | SBFS-6860 |
| 4.160" | SBFS-4160 | 6.950" | SBFS-6950 |
| 4.250" | SBFS-4250 | 7.040" | SBFS-7040 |
| 4.370" | SBFS-4370 | 7.220" | SBFS-7220 |
| 4.520" | SBFS-4520 | 7.375" | SBFS-7375 |
| 4.567" | SBFS-4567 | 7.450" | SBFS-7450 |

***Custom Sizes and Round Standards (usually for smaller diameters) are available as special requests.***

# Stator Bore Extension Shoes

Stator bore gage extension shoes provide flexibility to the gauging package by simple changing a shoe or adjusting a shoe when stator diameters change. Extension shoes are lightweight metal that are anodized to resist wear.

The style of extension shoe depends on the diameter range being measured. Shoes are offered in several lengths depending on the pitch of the stator lobes. It is important that the shoe length be long enough to contact a minimum of two points on the bottom and one point on the top pad.




## *SBG-5000A, SBG-5000D, and SBG-5000E Extension Shoes*

Extension shoes are designed with flexibility in mind. The wide range of bores is balanced with the travel of the gage to provide just the right fit for your stator. Select the shoe that best meets the minor diameter range of the stator to be inspected.

| Model | Description | Range |
|---|---|---|
| SB-2100 | 8” long extension shoe | 1.500” – 1.650” |
| SB-2110 | 8” long extension shoe | 1.650” – 1.800” |
| SB-2120 | 8” long extension shoe | 1.800” – 1.950” |
| SB-2200 | 20” extension shoe (requires riser, see below) | |
| SB-2150 | .130” riser – SB-2200 extension shoe required | 2.000” – 2.150” |
| SB-2300 | .280” riser – SB-2200 extension shoe required | 2.150” – 2.300” |
| SB-2400 | .380” riser – SB-2200 extension shoe required | 2.250” – 2.400” |
| SB-2500 | .480” riser – SB-2200 extension shoe required | 2.350” – 2.550” |
| SB-2600 | .580” riser – SB-2200 extension shoe required | 2.450” – 2.600” |
| SB-3500 | 20” extension shoe w/ brackets and adapter | 2.600” – 3.500” |
| SB-4500 | 20” extension shoe w/ brackets and adapter | 3.450” – 4.500” |
| SB-5500 | 20” extension shoe w/ brackets and adapter | 4.450” – 5.500” |
| SB-6500 | 20” extension shoe w/ brackets and adapter | 5.450” – 6.500” |
| SB-7500 | 20” extension shoe w/ brackets and adapter | 6.450” – 7.500” |

# Rotor Major & Minor Diameter

Today in the oil field industry, unique high-performance power sections require accurate measurement tools for rotors and stators. Gagemaker has designed several gages to measure a rotor's major and minor diameters. The Gagemaker Major Diameter T-Micrometer (T-MIC) is for rotor major diameters (0" - 9") and comes with bases ranging from 6" to 24". Gagemaker's Minor Diameter Gage (MM) is for inspecting rotor minor diameters (0" - 6").

- *The T-MIC's frame is not only the strongest and most rigid available on the market today, but the hardened and ground A-2 tool steel base rails are re-grindable after years of service*
- *The T-MIC's micrometer thimble mount allows for calibration and replacement*
- *The T-MIC's micrometer thimble is available with a flat or radiused micrometer stem*
- *Both the T-MIC and MM are durably constructed for the harshest work environments*



***MM-0-6***

## *Rotor Minor Diameter (MM)*

Gagemaker's Minor Diameter gage was designed to measure a rotor's minor diameter. The spiral lobes on the rotor produce a valley, or minor diameter. The depth of the minor diameter from the major diameter requires a 1" travel indicator stem. The range of the gage (0" - 6") allows measuring most rotor sizes with only one gage. Ensuring the gage's durability and long life, Gagemaker's design uses a heavy duty indicator stem and bearing housing to withstand side loads. Special sizes are available.

| Model | Description | Diameter Range |
|---|---|---|
| MM-0-6 | Minor diameter micrometer | 0" - 6" |

## *Rotor Major Diameter Micrometer (T-MIC)*

Due to high spirals on the lobes, conventional measurement gages cannot be used for measuring rotor major diameters. Gagemaker developed the T-MIC to measure a rotor's major diameter. The T-MIC's base spans across two lobes on one side of the centerline and uses a micrometer thimble on the other to measure the diameter. Instead of modifying an existing micrometer, Gagemaker custom builds each T-MIC. Gagemaker's rugged design far exceeds all others on the market today. Special sizes are available, contact customer service for more information. **Special sizes, metric thimbles, and metric sizes are available.**

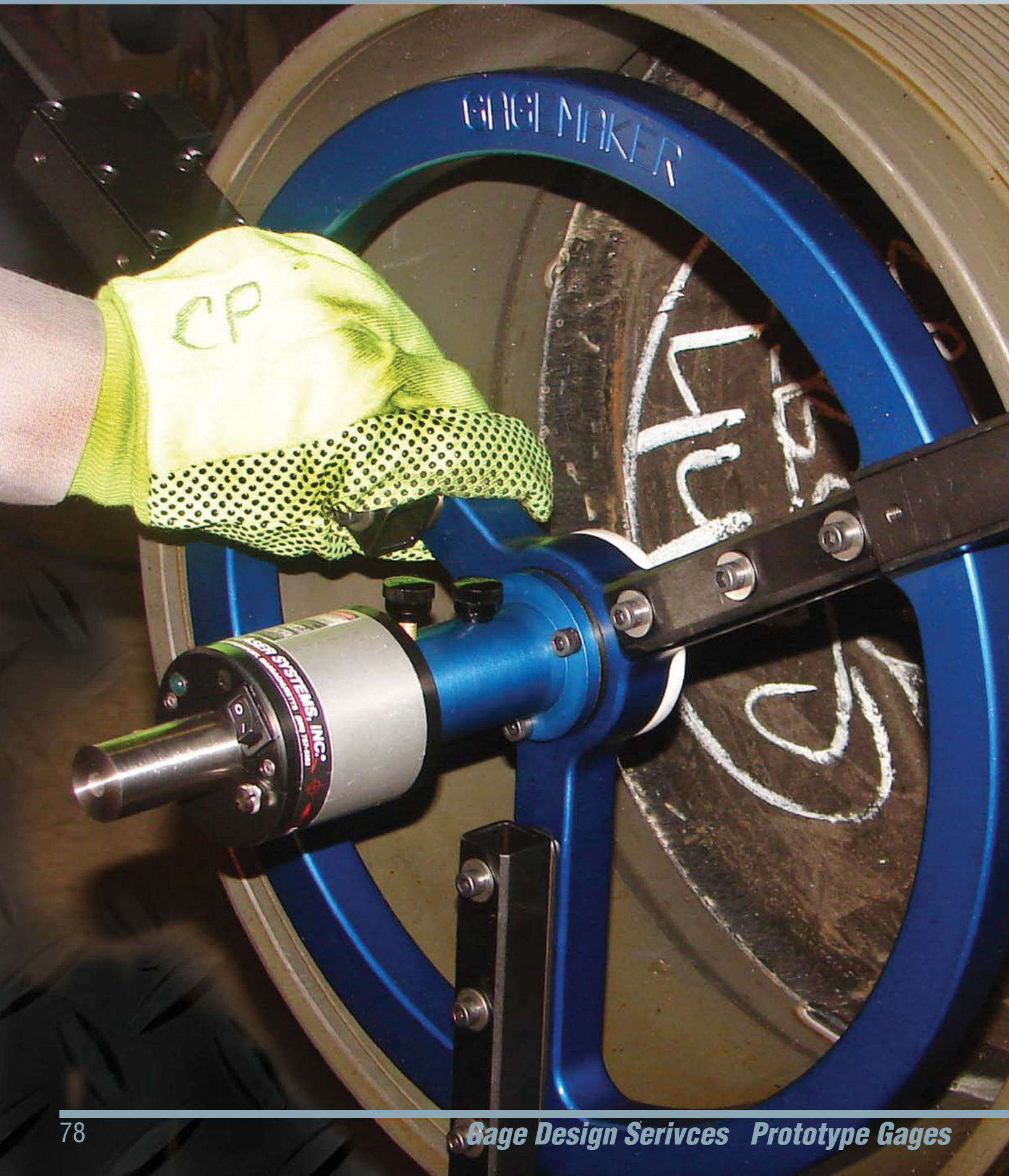
| Range | Model | | | | | Description |
|---|---|---|---|---|---|---|
| | 6" Base | 8" Base | 12" Base | 18" Base | 24" Base | |
| 0" - 1" | TM6-0-1 | TM8-0-1 | TM12-0-1 | TM18-0-1 | TM24-0-1 | T-MIC for Rotor, ½" wide base |
| 1" - 2" | TM6-1-2 | TM8-1-2 | TM12-1-2 | TM18-1-2 | TM24-1-2 | |
| 2" - 3" | TM6-2-3 | TM8-2-3 | TM12-2-3 | TM18-2-3 | TM24-2-3 | |
| 3" - 4" | TM6-3-4 | TM8-3-4 | TM12-3-4 | TM18-3-4 | TM24-3-4 | |
| 4" - 5" | TM6-4-5 | TM8-4-5 | TM12-4-5 | TM18-4-5 | TM24-4-5 | |
| 5" - 6" | TM6-5-6 | TM8-5-6 | TM12-5-6 | TM18-5-6 | TM24-5-6 | |
| 6" - 7" | TM6-6-7 | TM8-6-7 | TM12-6-7 | TM18-6-7 | TM24-6-7 | |
| 7" - 8" | TM6-7-8 | TM8-7-8 | TM12-7-8 | TM18-7-8 | TM24-7-8 | |
| 8" - 9" | TM6-8-9 | TM8-8-9 | TM12-8-9 | TM18-8-9 | TM24-8-9 | |




## *Rotor Major Diameter T-Micrometer with Digital Micrometer*

Gagemaker also offers our T-MICs with digital micrometers. The digital micrometer can transfer your data to a computer via the included SPC output. **Special sizes, metric thimbles, and metric sizes are available.**

| Range | Model | | | | | Description |
|---|---|---|---|---|---|---|
| | 6" Base | 8" Base | 12" Base | 18" Base | 24" Base | |
| 0" - 1" | TM6-0-1-352 | TM8-0-1-352 | TM12-0-1-352 | TM18-0-1-352 | TM24-0-1-352 | T-MIC for Rotor, ½" wide base with a Mitutoyo 350-352-10 digital micrometer and SPC output |
| 1" - 2" | TM6-1-2-352 | TM8-1-2-352 | TM12-1-2-352 | TM18-1-2-352 | TM24-1-2-352 | |
| 2" - 3" | TM6-2-3-352 | TM8-2-3-352 | TM12-2-3-352 | TM18-2-3-352 | TM24-2-3-352 | |
| 3" - 4" | TM6-3-4-352 | TM8-3-4-352 | TM12-3-4-352 | TM18-3-4-352 | TM24-3-4-352 | |
| 4" - 5" | TM6-4-5-352 | TM8-4-5-352 | TM12-4-5-352 | TM18-4-5-352 | TM24-4-5-352 | |
| 5" - 6" | TM6-5-6-352 | TM8-5-6-352 | TM12-5-6-352 | TM18-5-6-352 | TM24-5-6-352 | |
| 6" - 7" | TM6-6-7-352 | TM8-6-7-352 | TM12-6-7-352 | TM18-6-7-352 | TM24-6-7-352 | |
| 7" - 8" | TM6-7-8-352 | TM8-7-8-352 | TM12-7-8-352 | TM18-7-8-352 | TM24-7-8-352 | |
| 8" - 9" | TM6-8-9-352 | TM8-8-9-352 | TM12-8-9-352 | TM18-8-9-352 | TM24-8-9-352 | |


GAGE MAKER
CP
SYSTEMS, INC.



# CUSTOM GAGES

# The Gages You Need, When You Need Them

For 25 years we have been solving gauging problems by offering custom gage designs. Customers from all industries contact our design team for help with inspecting the impossible. We will find a solution for your most intricate designs.

Using the most modern and up to date manufacturing equipment, our machinists turn unique designs into reality by sculpting gages that meet the most demanding requirements.

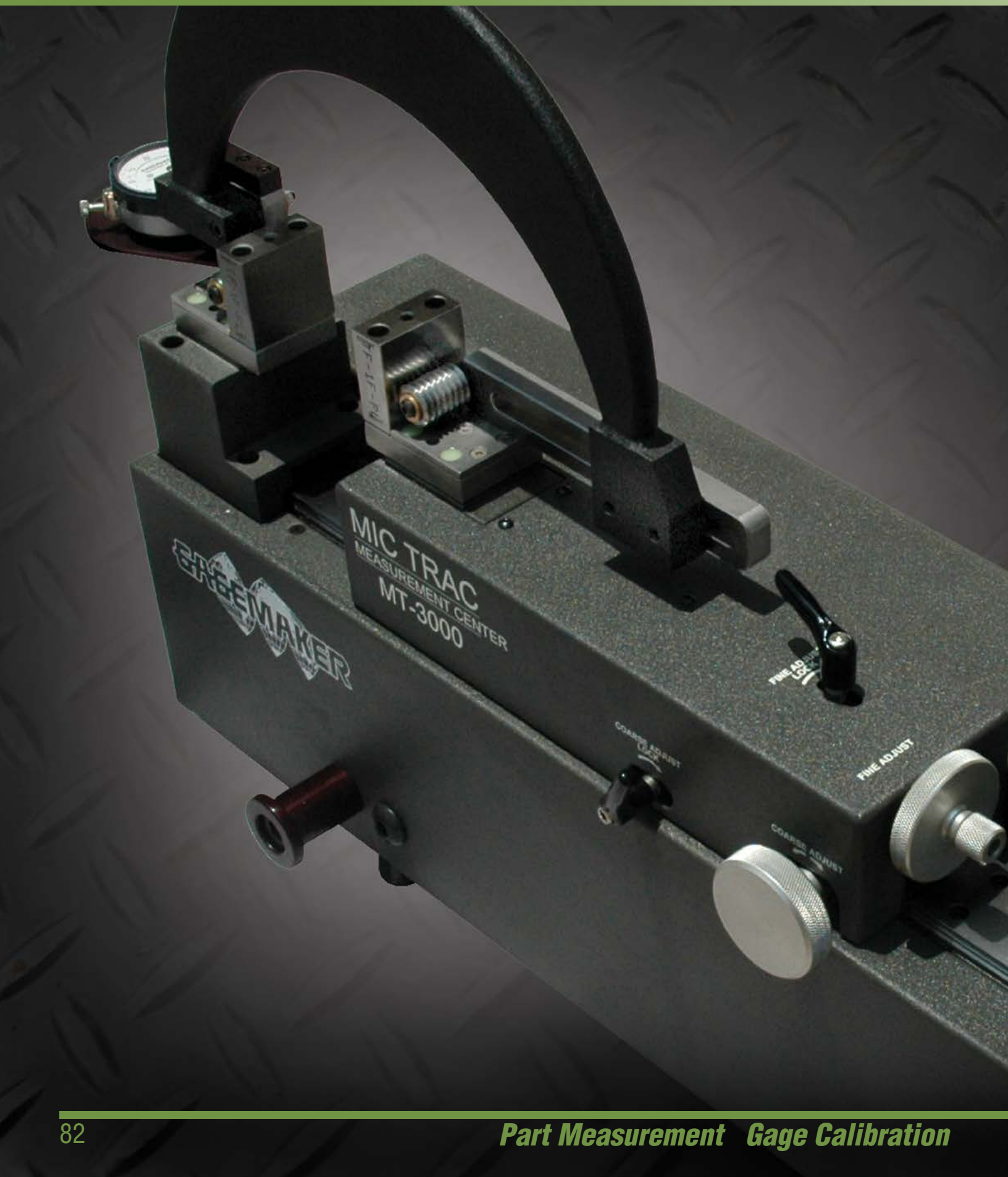
We have designed and built several hundred special gages over the years. Let us introduce you to some of the many products our design team has produced.




### CONFIDENTIALITY STATEMENT

Gagemaker maintains confidentiality of all proprietary connection designs through signed agreements. Gagemaker will not provide any quotations nor ship any gages or setting standards to any unauthorized party. Customers doing work for companies that require proprietary gages will be required to submit approval in writing prior to receiving any quotes or gages.


OV-9801
IBS 2080
GAGEMAKER
HOUSTON, TEXAS


MIC TRAC
MEASUREMENT CENTER
MT-3000
GAGEMAKER
FINE ADJUST
COARSE ADJUST

# MEASUREMENT & CALIBRATION SYSTEMS



# MIC TRAC™ 4000 In-House Precision Gage Calibration System

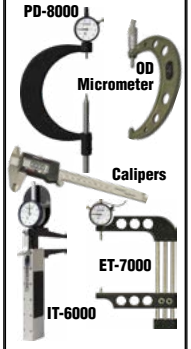
Inspect Parts, Calibrate, and Track Gages



## Choosing the Right

### Step 1: Find what type of gages you have.

**Gages & Indicators for Calibration**

| RG-7000 | PD-8000 | Calipers | Depth Micrometers | Indicators | LG-5002 / Allen Lead Gage | LG-5003 |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |
| PG-6000 | OD Micrometer, Calipers, ET-7000, IT-6000 | | | | | |

### Step 2: Determine which system you need.

| | RG-7000 | PD-8000 | Calipers | Depth Micrometers | Indicators | LG-5002 / Allen Lead Gage | LG-5003 |
|---|---|---|---|---|---|---|---|
| **MT-4000** (Accuracies to .00001" (.254µ)) | ☑ | ☑ | ☑ | ☑ | ☑ (≥0.0001" Res.) | ☑ | ☑ |
| **MT-3000** (Accuracies to .00002" (.508µ)) | ☑ | ☑ | ☑ | ☑ | ☑ (≥0.0005" Res.) | ☑ | ☑ |

### Step 3: Locate the fixures and accessories necessary.

**Necessary Fixtures & Accessories By Gage Type**

**Cal-Pak Calibration Package**
Included with MT-4000 In-House Calibration System; can be purchased separately.

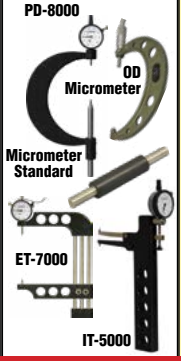
| TF-1F | TF-SA | TF-CA | TF-DG | TF-IND | TF-LG-2 | TF-LG-3 |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |
| TF-SA to Support RG-7000/ PG-6000 for Setting | TF-1F | TF-SA to Support Long Calipers | TF-SS Required to Support Extended Probes | | TF-1F | TF-1F |
|  |  |  |  | |  |  |
| | TF-SV | | TF-SS | | | |



## MIC TRAC™ 3000 Shop Floor Gage Setting and Part Measurement System

Measure Parts, Calibrate Hand-Held Gages, and Preset Indicator Style Gages

# Calibration System

| TH-3000 | PD-8000 | Test Indicator | Cylindrical Ring | Threaded Plug | Threaded Ring (Solid Only) | Cylindrical Plug (NPT) | Spline Gage | Dial Bore Gage |
|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  |  |
| ☑ | ☑ | ☑ (≥0.0001" Res.) | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ |
| ☑ | ☑ | ☑ (≥0.0005" Res.) | | | | | | |

## Additional Calibration Accessories

These fixtures and accessories are not part of the CAL-PAK and must be purchased separately.

| TF-VB | TF-SV | TF-SS (included in the CAL-PAK) | TF-CR | TF-2R | TF-IT | TF-TP | TF-SP | TF-VN |
|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  |  |
| **TF-1F** | **TF-1F** | **TF-1F** (included in the CAL-PAK) TF-TI Required with TF-SS to Test Indicator Probes **TF-TI** | **1-2-3 BLOCKS** **INTERNAL GAGE BLOCK** | **MASTER RING** **GAGE BLOCK** **TF-WH** | **1-2-3 BLOCKS** | **TF-2R** **THREAD WIRES** | **1-2-3 BLOCKS** | **TF-1F** (included in the CAL-PAK) |
|  |  |  |  |  |  |  |  |  |

# Choosing the Right Calibration System

Most companies use various gages and tools that need calibrating, setting, and zeroing. Historically, calibration caused multiple headaches from tracking, scheduling, shipping, and instrument downtime. Now, companies who implement in-house calibration see a quick return on their investment with less headaches and increased efficiency. Gagemaker systems are customizable, allowing you to create your own calibration plan as simple or as comprehensive as you want. Our versatile, cost effective and easy-to-use **MIC TRAC™** calibration and gage setting systems produce accurate, repeatable, reproducible results that you can trust.

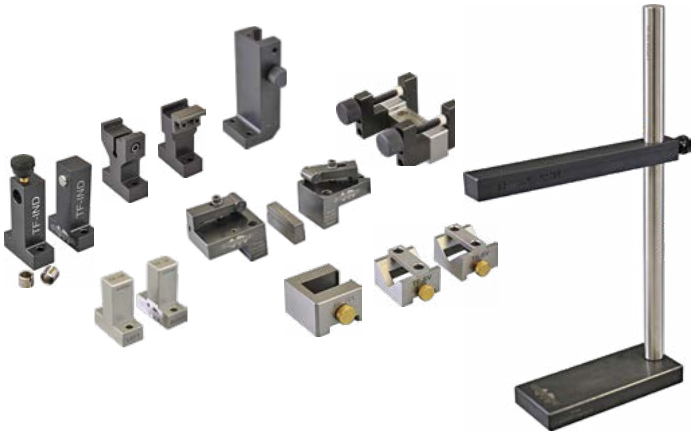





## MIC TRAC™ 3000
## Shop Floor Gage Setting and Part Measurement System




## MIC TRAC™ 4000 In-House Precision Gage Calibration System



## Calibration Accessories



## Calibrator Gage

# Shop Floor Gage Setting and Part Measurement System

Employing a versatile bench mounted length measuring system allows you to calibrate hand-held gages, preset indicator style gages, and with the optional Force-Lok, measure parts. The MIC TRAC™ 3000 Shop Floor Series Gage Setting And Part Measurement System sets or zeros most gages with the standard resolution of .00005", accuracies ranging from ±.0001" to ±.0004" (traceable to the NIST) and the digital read out is CE approved. The cost effective Force-Lok feature improves repeatability from operator to operator and is well suited for a variety of environments including the shop floor.




*MT-3012-50*

## *MIC TRAC™ 3000 Shop Floor Gage Setting and Part Measurement System*

MT-3000 Standard Base Units Without Force-Lok. Supplied with Digital Readout, TF-PL setting blocks, and shipping carton.

| Model | Description | Accuracy | Resolution | Internal Range | External Range |
|---|---|---|---|---|---|
| MT-3012-50 | MIC TRAC™ Base Unit w/ DRO | ±.0001" | .00005" | 0" – 12" | 1½" - 13½" |
| MT-3024-50 | MIC TRAC™ Base Unit w/ DRO | ±.0002" | .00005" | 0" – 24" | 1½" - 25½" |
| MT-3036-50 | MIC TRAC™ Base Unit w/ DRO | ±.0003" | .00005" | 0" – 36" | 1½" - 37½" |
| MT-3048-50 | MIC TRAC™ Base Unit w/ DRO | ±.0004" | .00005" | 0" – 48" | 1½" - 49½" |
| MT-3060-50 | MIC TRAC™ Base Unit w/ DRO | ±.0005" | .00005" | 0" – 60" | 1½" - 61½" |

MT-3000 Standard Base Units With Force-Lok. Supplied with Digital Readout, TF-PL setting blocks, and shipping carton.

| Model | Description | Accuracy | Resolution | Internal Range | External Range |
|---|---|---|---|---|---|
| MT-3012F-50 | MIC TRAC™ Base Unit w/ DRO | ±.0001" | .00005" | 0" – 12" | 1½" - 13½" |
| MT-3024F-50 | MIC TRAC™ Base Unit w/ DRO | ±.0002" | .00005" | 0" – 24" | 1½" - 25½" |
| MT-3036F-50 | MIC TRAC™ Base Unit w/ DRO | ±.0003" | .00005" | 0" – 36" | 1½" - 37½" |
| MT-3048F-50 | MIC TRAC™ Base Unit w/ DRO | ±.0004" | .00005" | 0" – 48" | 1½" - 49½" |
| MT-3060F-50 | MIC TRAC™ Base Unit w/ DRO | ±.0005" | .00005" | 0" – 60" | 1½" - 61½" |

***A computer can be added for additional cost to any of the above MT-3000 models.***
***Setting Blocks are also available. Please see pages 132 -133 for more options.***

# Gage Setting, Part Measurement, & Hand Tool Calibration System

Gagemaker offers the MT-3000 system with data capture and document storage options. This system includes a computer connected to the MIC TRAC™ and the CERTIFI™ software for producing calibration documents. The base unit ships with the Force-Lok feature that allows for calibration of micrometer and rod standards.




***MT-3012F-50-USBC***

## *MIC TRAC™ 3000 Gage Setting, Part Measurement, and Hand Tool Calibration System*

MT-3000 Base Units With Force-Lok, Computer, MT-4-USB, TF-PL setting blocks, and a shipping carton.

| Model | Description | Accuracy | Resolution | Internal Range | External Range |
|---|---|---|---|---|---|
| MT-3012F-50-USBC | MIC TRAC™ Base Unit with Force-Lok, Computer, & MT-4-USB | ±.0001" | .00005" | 0" – 12" | 1½" - 13½" |
| MT-3024F-50-USBC | MIC TRAC™ Base Unit with Force-Lok, Computer, & MT-4-USB | ±.0002" | .00005" | 0" – 24" | 1½" - 25½" |
| MT-3036F-50-USBC | MIC TRAC™ Base Unit with Force-Lok, Computer, & MT-4-USB | ±.0003" | .00005" | 0" – 36" | 1½" - 37½" |
| MT-3048F-50-USBC | MIC TRAC™ Base Unit with Force-Lok, Computer, & MT-4-USB | ±.0004" | .00005" | 0" – 48" | 1½" - 49½" |
| MT-3060F-50-USBC | MIC TRAC™ Base Unit with Force-Lok, Computer, & MT-4-USB | ±.0005" | .00005" | 0" – 60" | 1½" - 61½" |

***Even higher resolution MT-3000 systems are also available.***
***Setting Blocks can be found on page 133.***

# MIC TRAC™ 4000 In-House Precision Gage Calibration System

Establishing an in-house calibration service represents an investment in facilities, equipment and trained personnel, but grants you total control over all of your calibration process as well as saves you time and money over the long term. Gagemaker's MIC TRAC™ 4000 Series In-House Precision Gage Calibration System enables you to inspect parts, calibrate and track a wide variety of gage styles including solid ring and plugs. This innovative high precision metrology system with 1.00" travel guarantees extremely high accuracies to ±.00002 and a resolution of .00001" (traceable to the NIST). This system also enables you to track and maintain gage history as well as produce calibration certificates.



## *MIC TRAC™ 4000 In-House Precision Gage Calibration System*

This package features the MIC TRAC™/MT-4000 as a precision calibration system. The system accepts fixtures that inspect and calibrate a wide range of gage diameters and thread pitches. The package includes all the equipment necessary to calibrate precision handheld gages. ***Solid ring and plug inspection requires the purchase of additional accessories***.

Package includes:

- MT-4012-10 MIC TRAC™ electronic adjustable measurement master, range 0" to 12". Base unit is error compensated to an accuracy of ±.00005", resolution .00001", travel 12.000".
- Ultra precision scale with 1.00" travel, accuracy ±.00002", and resolution .00001".
- Computer with CERTIFI™ Calibration Software. CERTIFI™ produces calibration reports, has a recall database, and a digital readout acquisition module. (MT-4-USB)
- CRC MT-4000 Calibration Reference card set-up procedures documenting calibrations with the Gagemaker system
- TF-2R: Carbide anvil set, ⅜" diameter
- TF-XYT: Adjustable X, Y & tilt support table for use with the MIC TRAC™
- CAL-PAK: Assortment of fixtures designed to hold gages for calibration
- TDWIN Thread Disk™ software program: provides critical thread dimensions for manufacturing and inspection of UN, Acme, Stub Acme, Metric, Buttress, and NPT threads.
- Torque wrench, 50 in. lb. (TW-50)
- AWH-100 bench-top tool holder with wrenches
- Reusable shipping container

| Model | Description | Range |
|---|---|---|
| PGC-12-W2 | Precision Calibration Package | 0" - 12" |
| PGC-24-W2 | Precision Calibration Package with MT-4024-10 MIC TRAC™ | 0" - 24" |
| PGC-36-W2 | Precision Calibration Package with MT-4036-10 MIC TRAC™ | 0" - 36" |
| PGC-48-W2 | Precision Calibration Package with MT-4048-10 MIC TRAC™ | 0" - 48" |




## MIC TRAC™ 4000 Base Units with Software

A MIC TRAC™ 4000 (MT-4000) base unit supplied only with digital readout software, a computer, TF-2R setting blocks, and a shipping carton.

| Model | Description | Accuracy | Resolution | Range |
|---|---|---|---|---|
| MT-4012-10 | MIC TRAC™ Base Unit | ±.00005" | .00001" | 0" - 12" |
| MT-4024-10 | MIC TRAC™ Base Unit | ±.00010" | .00001" | 0" - 24" |
| MT-4036-10 | MIC TRAC™ Base Unit | ±.00015" | .00001" | 0" - 36" |
| MT-4048-10 | MIC TRAC™ Base Unit | ±.00020" | .00001" | 0" - 48" |

## MIC TRAC™ 4000 Ring and Plug Accessories*

| Model | Description |
|---|---|
| TF-1F | Flat face setting blocks |
| TF-1F-C | Carbide flat face setting blocks |
| TF-CP | Ball contact holders, .500 ID measurement |
| TF-CR | Set of 3 fixtures for measuring cylindrical ring gages and bores. CR-1 (.170"-.249"), CR-2 (.250"-.879"), CR-3 (.880"- Larger) |
| TF-IT | Internal threaded ring arm P.D. module (for solid threaded ring gages). Contains ball contacts and holders for 6, 8, 10, 12, 14, 16, 18, and 20 pitch 60° threads (Diameter range 1.500" & Larger). |
| TF-SP-5 | For vertically holding gage pins .062 - .500 |
| TF-SP-75 | For vertically holding gage pins .062 - .750 |
| TF-TP | Calibration fixture for NPT, NPTF and ANPT tapered plug gages (includes wires for 27, 18, 14, and 11 ½ pitch threaded plugs). (Requires TF-2R blocks) |
| TF-WSV | Thread wire holder set. Contains wires and holders for 6, 8, 10, 12, 14, 16, 18, 20, 24, 28 and 32 pitch 60° threads. |
| TF-WSA | Thread wire holder set. Contains wires and holders for 4, 5, 6, 8, 10, 12, 14 and 16 pitch Acme 29° threads. |
| TF-WSM | Thread wire holder set. Contains wires and holders for .5, .6, .75, 1.0, 1.25, 1.5, 2.0, 3.0, 4.0 and 5.0 pitch metric 60° threads. |

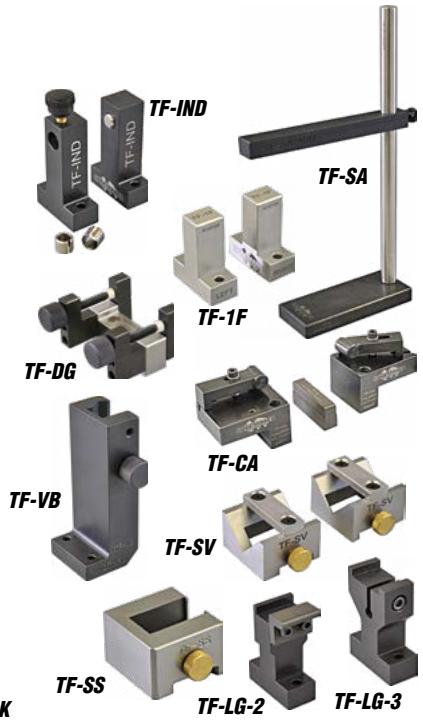
***Additional Thread Wire Holders and Cylindrical Ring and Thread Ring and Plug Gage accessories are on page 135.***

# System Accessories

Gagemaker provides multiple fixtures and accessories that enable you to calibrate many types of hand-held gages using the MIC TRAC™ System. Precision fixtures are designed to ensure the gage's proper positioning which is vital in securing the highest calibration accuracy and most consistent measurement results.

The CAL-PAK collection of fixtures handles most standard Gagemaker gages, as well as calipers, dial indicators, test indicators, bore gages, micrometers, micrometer standards and depth gages (See pages 84-85 for calibration guide.) The CAL-PAK can be used on both the MT-3000 and MT-4000, while other fixtures and accessories are only applicable to the MT-3000. This huge variety of accessories provides unmatched versatility in measurement capabilities.


CAL-PAK




## MIC TRAC™ System Options

The following base units and accessories are available for additional requirements for either the MIC TRAC™ 3000 or MIC TRAC™ 4000.

| Model | Description |
|---|---|
| CAL-PAK | Complete Calibration Package (All fixtures are also individually available.)<br>Includes: TF-1F, TF-CA, TF-DG, TF-IND, TF-LG-2, TF-LG-3, TF-SA, TF-SS, TF-SV, TF-VB, and storage case |
| TF-TI | Test indicator calibration block* |
| TF-VN | "V" blocks for calibration of axial travel probes and bore gages |
| TF-BA | Base support block for setting dial bore gages** |
| TF-BI | Base support plate for setting dial bore gages** |
| TF-CG | Universal clamping fixture for calibration of indicators and gages* |

***One TF-1F block required with this accessory, sold separately; **Two TF-1F blocks required with this accessory, sold separately**

## MIC TRAC™ 3000 Calibration Documentation

| Model | Description |
|---|---|
| CRC-MT3000 | Complete procedural documentation for the calibration of handheld inspection equipment including: O.D. & I.D. micrometers, calipers, depth micrometers, and more. |

## MIC TRAC™ 4000 Only Accessories

| Model | Description |
|---|---|
| CRC-MT4000 | Complete procedural documentation for the calibration of handheld inspection equipment including: O.D. & I.D. micrometers, calipers, depth micrometers, ring and plug gages, and more. |
| MT-4-USB | Digital readout software module with digital data acquisition card w/ CERTIFI™ |
| TF-2R | ⅜" diameter carbide anvil set |
| TF-SB | Adjustable height support table |
| TF-SB-1 | Bearing rail support base |
| TF-XYT | Adjustable height support table, X-axis & Y-axis support base |

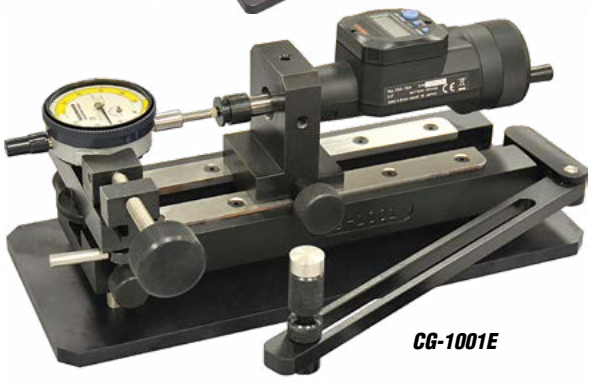
# Bench Calibrator

The Gagemaker calibrator gage, CG-1001/CG-1001E, calibrates gages and indicators per AGD specification.
The CG-1001 uses a non-rotating spindle screw type micrometer which reads directly to .0001" and can be estimated to the closest .00005".

Disassembling the gage is not required for calibration. The vise assembly allows full vertical and horizontal adjustment of the gage or indicator clamped in the vise jaws. During calibration, an outboard arm and arm support allows for larger gage assemblies to be securely supported.

Four supplied accessory fixtures will help speed up calibration while maintaining accuracy.


CG-1001


CG-1001E

## Bench Calibrator

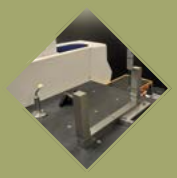
The CG-1001 is our standard bench calibrator, while the CG-1001E is our digital version which includes an SPC output. The CG-1000 models are shipped in a durable custom shipping/storage case. Optional wooden storage cases available.

| Model | Description | Range | Accuracy |
|---|---|---|---|
| CG-1001 | Bench Calibrator | .0001" Resolution, Mechanical | ±.0001 |
| CG-1001E | Digital Bench Calibrator w/ SPC Output | .00005"/.001 mm Resolution, Digital | ±.00015 |

## Bench Calibrator Fixtures

Bench Calibrator fixtures are included with the purchase of any bench calibrator, but are also offered individually as additionals or replacements. These fixtures are used in calibration of select gages. Not all applicable gages require a fixture; however, some gages require two fixtures.

| Model | Description | Applicable Gages |
|---|---|---|
| CG-1001-A | Bench Calibrator Fixture A | Lead Gages, Internal Taper Gage (IT-6000) |
| CG-1001-B | Bench Calibrator Fixture B | Lead Gages, Internal Taper Gage (IT-6000) |
| CG-1001-C | Bench Calibrator Fixture C | MRP® Series, Internal Thread Height (TH-3000 INT) |
| CG-1001-D | Bench Calibrator Fixture D | Indicators |



# Calibration Services & Repair



# CALIBRATION SERVICES & REPAIR

# Calibration Services & Repair

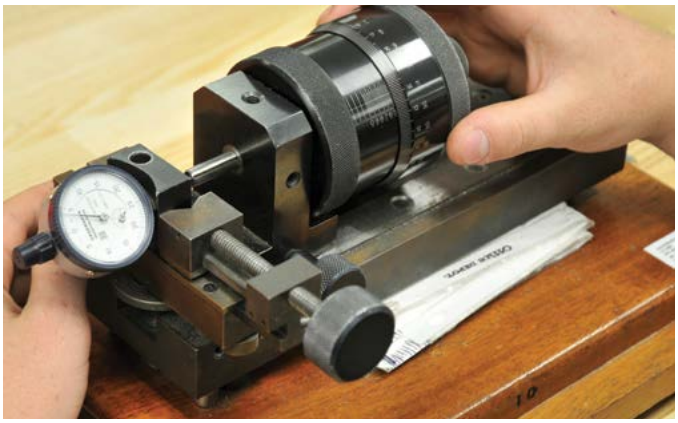
As an OEM and ISO/IEC 17025:2005 certified, we offer professional calibration services for all the gages that we manufacture. Our repair facility is fully equipped to service your gages and get them back to their original condition. We maintain a complete inventory of replacement parts so we can provide a quick turnaround to keep your operation running smoothly.

Gagemaker provides full service calibration, parts and repair on all MIC TRACS sold. At no extra charge, a standard long form certificate is provided with all calibrations of MIC TRAC™ units. Calibration maintenance often necessitates repair work. All repairs are quoted and require customer authorization prior to work being done.






## MIC TRAC™ Calibration Pricing



## Calibration Services and Repair Rates



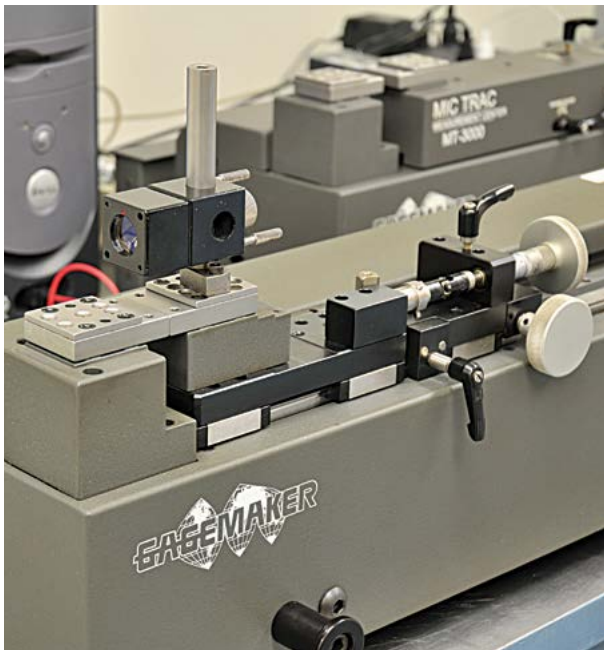

## Calibration Certificates

## Shipping & Care

# MIC TRAC™ Calibration Pricing

Gagemaker provides full service calibration and repair on all MIC TRACS sold. At no extra charge, a standard long form certificate is provided with all calibrations of MIC TRAC™ units.

Calibration maintenance may require repair work. All repairs are quoted and require customer authorization prior to work being done.




## MIC TRAC™ Calibration and Repair

| MIC TRAC™ Model | MIC TRAC™ Model Options | | | Repair Rate ($USD/hr) |
|---|---|---|---|---|
| | MIC TRAC™ Non Force-Lok Unit | MIC TRAC™ Force-Lok Unit | MIC TRAC™ with SLEC File | |
| MT-3012 | Contact Us | Contact Us | Contact Us | Contact Us |
| MT-3024 | | | | |
| MT-3036 | | | | |
| MT-3048 | | | | |
| MT-3060 | | | | |
| MT-4012 | | | Contact Us | |
| MT-4024 | | | | |
| MT-4036 | | | | |
| MT-4048 | | | | |

***All figures are in US Dollars.***

***Note 1: Gagemaker cannot guarantee the accuracy of a MIC TRAC™ unit, unless it is correctly packaged and shipped in a proper container. Prior to shipping, please request a Return Authorization Number and instructions. Current cost for a standard MIC TRAC™ 3000 Series replacement shipping container is $525.00*(See Note 3). For all other containers, please call for a quotation. At no additional charge, all MIC TRAC™ units are supplied with a calibration certificate and inch-by-inch error report.***

***Note 2: MT-2000 Series units are considered obsolete. We will calibrate MT-2000 Series unit, but we will not make any adjustments to improve the accuracy. Call for pricing.***

***Note 3: Prices subject to change without notice.***

# Calibration Services and Repair Rates

Gagemaker offers calibration and repair services for many of its products. Non-Gagemaker manufactured gages are quoted on an individual basis. Please consult the table below for basic information on our services.

For additional information on calibration and repair please contact our customer service department.




## *Gages, Standards, and Inspection Equipment Calibration and Repair*

| Model | Services Available | Calibration Price ($USD)* | Repair Rate ($USD/hr)* |
|---|---|---|---|
| **Gage Calibration Equipment** | | | |
| TF-1F, TF-2R Setting Blocks | Inspect flatness, parallelism, and size | Contact Us | Contact Us |
| TF-__T Taper Blocks | Inspect taper and size | | |
| TF-__RSC Taper Block Set | Inspect taper and size | | |
| TF-BX Setting Blocks | Inspect angle and size | | |
| TF-TP Calibration Fixture | Inspect and calculate new constant | | |
| CG-1001 Bench Calibrator Gage | Verify micrometer travel | | |
| **Thread Diameter Measurement Gage** | | | |
| RG-7000, PG-6000, MRP-5000 Diameter Gages | Verify function and check parallelism | | |
| **Large Diameter Measurement Gages** | | | |
| MIC 360 Gage | Verify wheel diameter and gage function | | |
| **API Gages/Standards** | | | |
| Lead Gages | Calibrate indicator and verify function | Contact Us | Contact Us |
| Lead Standards | Inspect step/step per specification | | |
| MRP® Gages (MRP-1000, -2000, -3000) | Inspect complete assembly | | |
| MRP® Standard Set | Inspect rod lengths per specifications | | |
| Thread Height Standards | Inspect groove depths per specifications | | |
| Profile Gages | Verify profile with optical comparator | | |
| **Miscellaneous Equipment** | | | |
| Indicators | Calibrate per specification | Contact Us | Contact Us |
| Thread Rolls | Calibrate per specification | | |
| CMM Contract Inspection | Per customer specification | | Contact Us |

***Prices subject to change without notice.***

***Note: ALL indicators or gages requiring repair will be quoted prior to any work being commenced. A purchase order or written approval for the repair work must be submitted and received before any repairs will be undertaken.***

# Calibration Certificates

Gagemaker provides two types of Calibration Certificates, the Certificate of Compliance and the Certificate of Calibration.

The Certificate of Compliance (Short Form) is issued to a product that has been inspected or verified to meet minimum prescribed requirements. Usually, it is applied to a fixed limit instrument with no adjustment capability.

The Certificate of Calibration (Long Form)is issued to products that have been inspected to the requirements of a prescribed engineering document while providing actual dimensional data.



## Calibration Certificates

**Certificates of Compliance (Short Form Certificate)** - A certificate of compliance is issued to a product that has been inspected or verified to meet the minimum requirements of a prescribed engineering document or description. Normally this type of certificate is applied to a fixed limit instrument that has no adjustment capability. No dimensional values are included in this certificate.

The Compliance Certificate shall, as a minimum, include the following information: document title, name and address of the our office where the certification took place, the unique identification of the certificate in the form of a document number, name and address of the customer, identification of the method used to verify conformance, a description of the item verified, the date that the verification was completed, reference to specific procedures used in the verification process, verification results noted as Pass or Fail, the name and signature of the person authorized and responsible for the verification, and evidence that the verification is traceable.

**Certificates of Calibration (Long Form Certificate) -** The long form certificate is issued to products that have been inspected to requirements of a prescribed engineering document. The long form includes actual dimensional data with tolerance limits as noted on the inspection drawings or certification documents. This level of certificate provides the user with the exact dimensional data on the instrument when it left the Gagemaker facility.

The Calibration Certificate shall, as a minimum, include all items outlined for the Compliance Certificate with the addition of: calibration results noted by required, actual and dimensional deviation of each feature inspected.

| Certificate Type | Price* |
|---|---|
| **Certificate of Compliance** – provided with all calibrations. Includes model number, serial number, traceability to NIST or other governing body, inspector's signature, calibration and recalibration date. Profile gages are issued certificates of compliance only. | |
| **Certificate of Calibration** – includes any documentation other than that listed under the Certificate of Compliance | 35.00 |

***Prices subject to change without notice.***

# Shipping & Care

## *Guide to Returning for Calibration or Repair*



It is always best to return equipment in its original case and packaging. If you no longer have the original carton or gage case, always package gages securely in a carton and then secure in a second carton. If the gage has a sliding member, always lock the member in a secure position prior to placing in a carton. Loose components in a carton will damage the product in shipment and the cost of repair will be more. Most shipments get turned upside down and often times dropped during shipment, so plan to package for the worst conditions.

**When returning products, please include the following:**

- Contact name
- Company name
- Phone number
- E-mail address
- RMA (Return Material Authorization)(if available)
- Purchase Order or Work Order in the package
- Description of the work to be completed

***Note: Incomplete or insufficient information will cause a delay in the repair or calibration process.***

## *Basic Gage Care*




- Keep all unprotected metal surfaces coated with light oil.
- Avoid dropping the gage or subjecting it to any vibration or impact.
- Keep the gage dry and away from any machine coolant spray.
- Do not force the movement of any of the mechanical parts. The mechanics are designed to move freely.
- Keep the indicator face clean.
- Never oil the indicator, as the oil will attract dirt and dust





# GAGEMAKER PRODUCTS




# Pitch Diameter and Ovality Gages

## MRP® Pitch Diameter and Ovality Gages

This MRP® series of pitch diameter (or crest diameter) gages detects variations in pitch diameter by the use of a gage shoe that rests on the crest of the threads. Variation in diameter is detected by the indicator readout. These gages must be set to nominal size with one of a variety of setting options offered. All of these gages are API approved for use on tubing and casing.

| Model | Description | Range |
|---|---|---|
| MRP-202 | Internal Small Pitch Diameter Thread Gage | Internal 1" - 2½" |
| MRP-1001 | External Pitch Diameter Gage | External 1½" - 4½" |
| MRP-1000-45 | Internal Seal Diameter Gage. Contacts on a 45° angle. Arms: ⅜" upper arms, ⅜" lower arms | Internal 1" - 4½" |
| MRP-1003 | External/Internal Pitch Diameter Gage | 1½" - 4½" |
| MRP-1007 | Internal Seal Diameter Gage. Contacts on a 45° angle. Arms: .740" upper, ½" lower | Internal 1½" - 4½" |
| MRP-1008 | Internal Seal Diameter Gage. Contacts on a 45° angle. Arms: .740" upper, .740" lower | Internal 1⅜" - 4½" |
| MRP-1009 | Internal Seal Diameter Gage. Contacts on a 45° angle. Arms: .740" upper, .500" lower | Internal 1⅜" - 4½" |
| MRP-1012-TSS | Internal/External Pitch Diameter Gage for Two Step Seal. Upper and lower arms are .740" diameter. Upper arm has standard travel of .150". Shipped with T105 pts. | Internal 2⅜" - 4½"<br>External 1¾" - 4½" |
| MRP-1012-TST | Internal/External Pitch Diameter Gage, Two Step Thread, w/ 1.030" Horseshoe standoff for front and rear measurements. Arms have .740" diameter. Upper arm has extended travel of .350" | Internal 2⅜" - 4½"<br>External 1¾" - 4½" |
| MRP-1500 | Internal/External Pitch Diameter Gage, Solid Body | Internal 1½" - 4½"<br>External 2⅞" - 4½" |
| MRP-2001 | External Pitch Diameter Gage, 4½" reach | External 2⅜" - 20" |
| MRP-2001-S | External Pitch Diameter Gage, 4½" reach, Straight Blocks | |
| MRP-2001-7 | External Pitch Diameter Gage, 7" reach | |
| MRP-2001-10 | External Pitch Diameter Gage, 10" reach | |
| MRP-2002 | Internal Pitch Diameter Gage, 4¼" reach | Internal 2⅜" - 20" |
| MRP-2002-S | Internal Pitch Diameter Gage, 4¼" reach, Straight Blocks | |
| MRP-2002-7 | Internal Pitch Diameter Gage, 7" reach | Internal 3½" - 20" |
| MRP-2002-10 | Internal Pitch Diameter Gage, 10" reach | |
| MRP-2003 | Internal/External Pitch Diameter Gage, 4¼" reach | 2⅜" - 20" |
| MRP-2003-S | Internal/External Pitch Diameter Gage, 4¼" reach, Straight Blocks | |
| MRP-2003-7 | Internal/External Pitch Diameter Gage, 7" reach | Internal 3½" - 20"<br>External 2⅜" - 20" |
| MRP-2003-10 | Internal/External Pitch Diameter Gage, 10" reach | |
| MRP-2511 | External Pitch Diameter Gage, 4" reach | External 4½" - 9⅝" |
| MRP-2511-7 | External Pitch Diameter Gage, 7" reach | |
| MRP-2521 | External Pitch Diameter Gage, 4" reach | External 4½" - 13⅜" |
| MRP-2512 | Internal Pitch Diameter Gage, 3⅜" reach | Internal 4½" - 9⅝" |
| MRP-2512-7 | Internal Pitch Diameter Gage, 7" reach | |
| MRP-2522 | Internal Pitch Diameter Gage, 3⅜" reach | Internal 4½" - 13⅜" |
| MRP-2513 | Internal/External PD Gage, 3⅜" reach | 4½" - 9⅝" |
| MRP-2523 | Internal/External PD Gage, 3⅜" reach | 4½" - 13⅜" |
| MRP-3001 | External Pitch Diameter Gage, 3⅜" reach | External 8⅝" - 24" |
| MRP-3002 | Internal Pitch Diameter Gage, 3⅜" reach | Internal 8⅝" - 24" |
| MRP-3003 | Internal/External Pitch Diameter Gage, 3⅜" reach | 8⅝" - 24" |
| MRP-3004 | Internal/External Pitch Diameter Gage, 3⅜" reach | 20" - 36" |
| MRP-3501 | External Pitch Diameter Gage, w/ 6¼" reach | External 8⅝" - 24" |
| MRP-3502 | Internal Pitch Diameter Gage, w/ 6¼" reach | Internal 8⅝" - 24" |
| MRP-3503 | Internal/External PD Gage, w/ 6¼" reach | 8⅝" - 24" |

## *MRP-1000, MRP-2000, & MRP-3000 Replacement Parts*

These are some of the most commonly requested replacement parts for the MRP® gages. Additional parts may be available.

| Model | Description |
|---|---|
| MRP-10BL | MRP-1000 Block Set |
| MRP-10UA | MRP-1000 Upper Arm |
| MRP-10LA | MRP-1000 Lower Arm |
| MRP-10WP | MRP-1000 Wear Pad Set |
| MRP-10SP | MRP-1000 Spring Plunger |
| MRP-11UA | MRP-1001 Upper Arm |
| MRP-20BL | MRP-2000 Block Set |
| MRP-20CL | MRP-2000 Series Arm Clamp |
| MRP-20LB-1 | MRP-2000 Lower Block w/ 1" hole |
| MRP-21UA | MRP-2001 Upper Arm |
| MRP-21LA | MRP-2001 Lower Arm |
| MRP-21UA-7 | MRP-2001 7" Upper Arm |
| MRP-21LA-7 | MRP-2001 7" Lower Arm |
| MRP-21UA-10 | MRP-2001 10" Upper Arm |
| MRP-21LA-10 | MRP-2001 10" Lower Arm |
| MRP-.625I | Int. Thread Shoe, ⅝" long, .125 Pivot Dimension |
| MRP-.625E | Ext. Thread Shoe, ⅝" long, .250 Pivot Dimension |
| MRP-20mm | Int./Ext. Thread Shoe, 20 mm long, .250 Pivot Dimension |
| MRP-20SP | MRP-2000 Spring Plunger |
| MRP-22UA | MRP-2002 Upper Arm |
| MRP-22LA | MRP-2002 Lower Arm |
| MRP-22UA-7 | MRP-2002 7" Upper Arm |
| MRP-22LA-7 | MRP-2002 7" Lower Arm |
| MRP-22UA-10 | MRP-2002 10" Upper Arm |
| MRP-22LA-10 | MRP-2002 10" Lower Arm |
| MRP-20WP | MRP-2000 Wear Pad Set |
| MRP-20WPEX | MRP-2000 Extended Wear Pad Set |
| MRP-20WP-7 | MRP-2000 Wear Pad Set, 7" reach |
| MRP-20WP-10 | MRP-2000 Wear Pad Set, 10" reach |
| MRP-RAIL-12 | MRP-2000 12" Cross Rail Set |
| MRP-RAIL-18 | MRP-2000 18" Cross Rail Set |
| MRP-RAIL-24 | MRP-2000 24" Cross Rail Set |
| MRP-10KB-S | MRP-1000 Knob-Short |
| MRP-10KB-L | MRP-1000 Knob-Long |
| MRP-20KB | MRP-2000 Knob |
| MRP-.750 | Ext. Thread Shoe, ¾" long, .250 Pivot Dimension |
| MRP-.875 | Int./Ext. Thread Shoe, ⅞" long, .250 Pivot Dimension |
| MRP-1.00 | Int./Ext. Thread Shoe, 1" long, .250 Pivot Dimension |
| MRP-30WP | MRP-3000 Wear Pad Set |
| MRP-30WPEX | MRP-3000 Extended Wear Pad Set |
| MRP-30RS-18 | MRP-3000 Rail Set, 18" Max |
| MRP-30RS-24 | MRP-3000 Rail Set, 24" Max |
| MRP-GSS | MRP® Gage Setting Stand |



# MRP® Gage Setting Standards

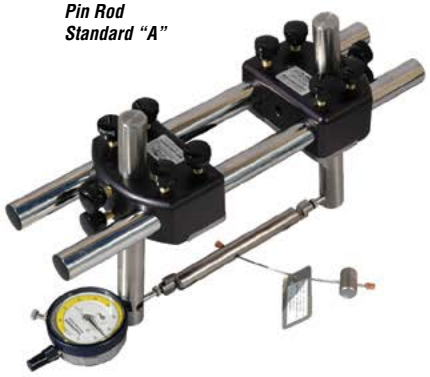
## Rod Style Setting Standards for MRP-1000, 1500, 2000, 2500, 3000, & 3500

Rod style setting standards are designed to preset select **MRP®** Series models for accurate inspection of API threaded connections. Each set of standards consists of two precision ground rods that are ground to lengths in accordance with API Specification 5B. The rod sets are securely attached together and labeled with the connection size and serial number. The rods set the location of the thread shoe and the distance between shoes for accurate inspection of threaded connections.

*Pin Rod Standard in Case*



*Pin Rod Standard "A"*



*Pin Rod Standard "B"*



| Thread Type | Connection Size | Pin Model | Box Model |
|---|---|---|---|
| EUE | 2⅜" EUE | MRP5B-238EUE-P | MRP5B-238EUE-B |
| | 2⅞" EUE | MRP5B-278EUE-P | MRP5B-278EUE-B |
| | 3½" EUE | MRP5B-312EUE-P | MRP5B-312EUE-B |
| | 4" EUE | MRP5B-4EUE-P | MRP5B-4EUE-B |
| | 4½" EUE | MRP5B-412EUE-P | MRP5B-412EUE-B |

| Thread Type | Connection Size | Pin Model | Box Model |
|---|---|---|---|
| NUE | 2⅜" NUE | MRP5B-238NUE-P | MRP5B-238NUE-B |
| | 2⅞" NUE | MRP5B-278NUE-P | MRP5B-278NUE-B |
| | 3½" NUE | MRP5B-312NUE-P | MRP5B-312NUE-B |
| | 4" NUE | MRP5B-4NUE-P | MRP5B-4NUE-B |
| | 4½" NUE | MRP5B-412NUE-P | MRP5B-412NUE-B |

| Thread Type | Connection Size | Pin Model | Box Model |
|---|---|---|---|
| Buttress | 4½" Buttress | MRP5B-412B-P | MRP5B-412B-B |
| | 5" Buttress | MRP5B-5B-P | MRP5B-5B-B |
| | 5½" Buttress | MRP5B-512B-P | MRP5B-512B-B |
| | 6⅝" Buttress | MRP5B-658B-P | MRP5B-658B-B |
| | 7" Buttress | MRP5B-7B-P | MRP5B-7B-B |
| | 7⅝" Buttress | MRP5B-758B-P | MRP5B-758B-B |
| | 8⅝" Buttress | MRP5B-858B-P | MRP5B-858B-B |
| | 9⅝" Buttress | MRP5B-958B-P | MRP5B-958B-B |
| | 10¾" Buttress | MRP5B-1034B-P | MRP5B-1034B-B |
| | 11¾" Buttress | MRP5B-1134B-P | MRP5B-1134B-B |
| | 13⅜" Buttress | MRP5B-1338B-P | MRP5B-1338B-B |
| | 16" Buttress | MRP5B-16B-P | MRP5B-16B-B |
| | 18⅝" Buttress | MRP5B-1858B-P | MRP5B-1858B-B |
| | 20" Buttress | MRP5B-20B-P | MRP5B-20B-B |

***Line Pipe standards are available. All Special Orders, Non-Standard API or Premium Connection Setting Standards are extra. Please contact for more information.***

## *Rod Style Setting Standards for MRP-1000, 1500, 2000, 2500, 3000, & 3500 (Cont.)*

| Thread Type | Connection Size | Pin Model | Box Model |
|---|---|---|---|
| LTC | 4½" 8R LTC | MRP5B-412L-P | MRP5B-412L-B |
| | 5" 8R LTC | MRP5B-5L-P | MRP5B-5L-B |
| | 5½" 8R LTC | MRP5B-512L-P | MRP5B-512L-B |
| | 6⅝" 8R LTC | MRP5B-658L-P | MRP5B-658L-B |
| | 7" 8R LTC | MRP5B-7L-P | MRP5B-7L-B |
| | 7⅝" 8R LTC | MRP5B-758L-P | MRP5B-758L-B |
| | 8⅝" 8R LTC | MRP5B-858L-P | MRP5B-858L-B |
| | 9⅝" 8R LTC | MRP5B-958L-P | MRP5B-958L-B>P110 or MRP5B-958L-B<P110 |
| | 20" 8R LTC | MRP5B-20L-P | MRP5B-20L-B>JK55 or MRP5B-20L-B<JK55 |

| Thread Type | Connection Size | Pin Model | Box Model |
|---|---|---|---|
| STC | 4½" - 9.50# 8R STC | MRP5B-412S-9-P | MRP5B-412S-9-B |
| | 4½" - Other 8R STC | MRP5B-412S-O-P | MRP5B-412S-O-B |
| | 5" - 11.50# 8R STC | MRP5B-5S-11-P | MRP5B-5S-11-B |
| | 5" - Other 8R STC | MRP5B-5S-O-P | MRP5B-5S-O-B |
| | 5½" 8R STC | MRP5B-512S-P | MRP5B-512S-B |
| | 6⅝" 8R STC | MRP5B-658S-P | MRP5B-658S-B |
| | 7" - 17.00# 8R STC | MRP5B-7S-17-P | MRP5B-7S-17-B |
| | 7" - Other 8R STC | MRP5B-7S-O-P | MRP5B-7S-O-B |
| | 7⅝" 8R STC | MRP5B-758S-P | MRP5B-758S-B |
| | 8⅝" - 24.00# 8R STC | MRP5B-858S-24-P | MRP5B-858S-24-B |
| | 8⅝" - Other 8R STC | MRP5B-858S-O-P | MRP5B-858S-O-B |
| | 9⅝" 8R STC | MRP5B-958S-P | MRP5B-958S-B≥P110 or MRP5B-958S-B<P110 |
| | 10¾" - 32.75# 8R STC | MRP5B-1034S-32-P | MRP5B-1034S-32-B |
| | 10¾" - Other 8R STC | MRP5B-1034S-O-P | MRP5B-1034S-O-B≥P110 or MRP5B-1034S-O-B<P110 |
| | 11¾" 8R STC | MRP5B-1134S-P | MRP5B-1134S-B≥P110 or MRP5B-1134S-B<P110 |
| | 13⅜" 8R STC | MRP5B-1338S-P | MRP5B-1338S-B≥P110 or MRP5B-1338S-B<P110 |
| | 16" 8R STC | MRP5B-16S-P | MRP5B-16S-B |
| | 18⅝" 8R STC | MRP5B-1858S-P | MRP5B-1858S-B |
| | 20" 8R STC | MRP5B-20S-P | MRP5B-20S-B≥JK55 or MRP-20S-B<JK55 |

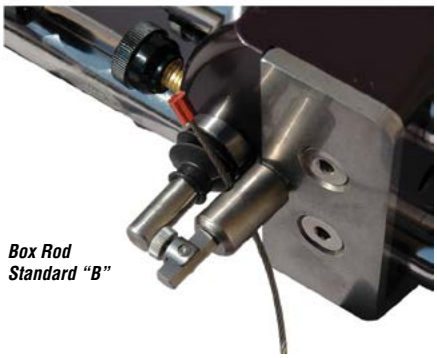
***Line Pipe standards are available. All Special Orders, Non-Standard API or Premium Connection Setting Standards are extra. Please contact for more information.***

***Box Rod Standard in Case***



***Box Rod Standard "A"***





***Box Rod Standard "B"***



*MRP® Series Frame Style Standards*



*MRP® Series External Frame Style Standard*



*MRP® Series Internal Frame Style Standard*

## *Frame Style Setting Standards for MRP-1000, 1500, 2000, 2500, 3000, & 3500 Series**

These frame style setting standards are designed to preset multiple models of the **MRP®** Series gages for accurate inspection of API threaded connections. These standards consist of a rigid, non-adjustable steel block precision machined to proper size to tolerances of ±.0003". Round style standards, smaller than 2⅜", are available as specials (contact us directly for more information). **When ordering, please specify the gage to be used.**

| Thread Type | Connection Size | Pin Model | Box Model |
|---|---|---|---|
| NUE | 2⅜" NUE | FS5B-238N-P2 | FS5B-238N-B2 |
| | 2⅞" NUE | FS5B-278N-P2 | FS5B-278N-B2 |
| | 3½" NUE | FS5B-312N-P2 | FS5B-312N-B2 |
| | 4½" NUE | FS5B-412N-P2 | FS5B-412N-B2 |

| Thread Type | Connection Size | Pin Model | Box Model |
|---|---|---|---|
| EUE | 2⅜" EUE | FS5B-238E-P2 | FS5B-238E-B2 |
| | 2⅞" EUE | FS5B-278E-P2 | FS5B-278E-B2 |
| | 3½" EUE | FS5B-312E-P2 | FS5B-312E-B2 |
| | 4½" EUE | FS5B-412E-P2 | FS5B-412E-B2 |

| Thread Type | Connection Size | Pin Model | Box Model |
|---|---|---|---|
| Buttress | 4½" Buttress | FS5B-412B-P2 | FS5B-412B-B2 |
| | 5" Buttress | FS5B-5B-P2 | FS5B-5B-B2 |
| | 5½" Buttress | FS5B-512B-P2 | FS5B-512B-B2 |
| | 6⅝" Buttress | FS5B-658B-P2 | FS5B-658B-B2 |
| | 7" Buttress | FS5B-7B-P2 | FS5B-7B-B2 |
| | 7⅝" Buttress | FS5B-758B-P2 | FS5B-758B-B2 |
| | 8⅝" Buttress | FS5B-858B-P2 | FS5B-858B -B2 |
| | 9⅝" Buttress | FS5B-958B-P2 | FS5B-958B-B2 |
| | 10¾" Buttress | FS5B-1034B-P2 | FS5B-1034B-B2 |
| | 11¾" Buttress | FS5B-1134B -P2 | FS5B-1134B-B2 |
| | 13⅜" Buttress | FS5B-1338B-P2 | FS5B-1338B-B2 |
| | 16" Buttress | FS5B-16B-P2 | FS5B-16B-B2 |
| | 18⅝" Buttress | FS5B-1858B-P2 | FS5B-1858B-B2 |
| | 20" Buttress | FS5B-20B-P2 | FS5B-20B-B2 |

| Thread Type | Connection Size | Pin Model | Box Model |
|---|---|---|---|
| LTC | 4½" 8R LTC | FS5B-412L-P2 | FS5B-412L-B2 |
| | 5" 8R LTC | FS5B-5L-P2 | FS5B-5L-B2 |
| | 5½" 8R LTC | FS5B-512L-P2 | FS5B-512L-B2 |
| | 6⅝" 8R LTC | FS5B-658L-P2 | FS5B-658L-B2 |
| | 7" 8R LTC | FS5B-7L-P2 | FS5B-7L-B2 |
| | 7⅝" 8R LTC | FS5B-758L-P2 | FS5B-758L-B2 |
| | 8⅝" 8R LTC | FS5B-858L-P2 | FS5B-858L-B2 |
| | 9⅝" 8R LTC | FS5B-958L-P2 | FS5B-958L-B2≥P110 or FS5B-958L-B2<P110 |
| | 20" 8R LTC | FS5B-20L-P2 | FS5B-20L-B2≥JK55 or FS5B-20L-B2<JK55 |

***Standards for Tubing and Casing Connections for MRP-5000 gages are available. Special Orders, Non Standard API, Round or Premium Connection Setting Standards are available.**

## *Frame Style Setting Standards for MRP-1000, 1500, 2000, 2500, 3000, & 3500 Series* (Cont.)*

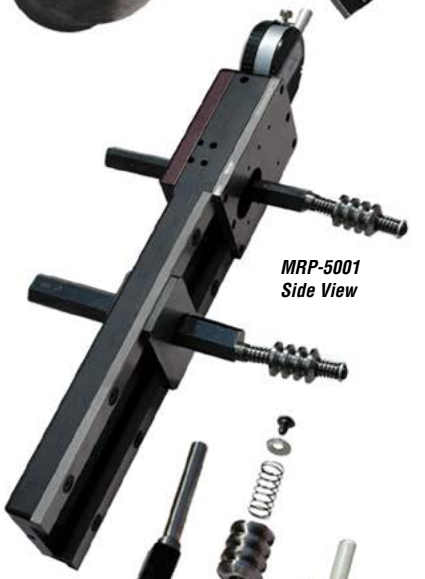
| Thread Type | Connection Size | Pin Model | Box Model |
|---|---|---|---|
| STC | 4½" - 9.50# 8R STC | FS5B-412S-9-P2 | FS5B-412S-9-B2 |
| | 4½" - Other 8R STC | FS5B-412S-O-P2 | FS5B-412S-O-B2 |
| | 5" - 11.50# 8R STC | FS5B-5S-11-P2 | FS5B-5S-O-B2 |
| | 5" - Other 8R STC | FS5B-5S-O-P2 | FS5B-5S-O-B2 |
| | 5½" 8R STC | FS5B-512S-P2 | FS5B-512S-B2 |
| | 6⅝" 8R STC | FS5B-658S-P2 | FS5B-658S-B2 |
| | 7" - 17.00# 8R STC | FS5B-7S-17-P2 | FS5B-7S-17-B2 |
| | 7" - Other 8R STC | FS5B-7S-O-P2 | FS5B-7S-O-B2 |
| | 7⅝" 8R STC | FS5B-758S-P2 | FS5B-758S-B2 |
| | 8⅝"- 24.00# 8R STC | FS5B-858S-24-P2 | FS5B-858S-24-B2 |
| | 8⅝" - Other 8R STC | FS5B-858S-O-P2 | FS5B-858S-O-B2 |
| | 9⅝" 8R STC | FS5B-958S-P2 | FS5B-958S-B2≥P110 or FS5B-958S-B2<P110 |
| | 10¾"- 32.75# 8R STC | FS5B-1034S-32-P2 | FS5B-1034S-32-B2 |
| | 10¾"- Other 8R STC | FS5B-1034S-O-P2 | FS5B-1034S-O-B2≥P110 or FS5B-1034S-O-B2<P110 |
| | 11¾" 8R STC | FS5B-1134S-P2 | FS5B-1134S -B2≥P110 or FS5B-1134S-B2<P110 |
| | 13⅜" 8R STC | FS5B-1338S-P2 | FS5B-1338S-B2≥P110 or FS5B-1338S-B2<P110 |
| | 16" 8R STC | FS5B-16S-P2 | FS5B-16S-B2 |
| | 18⅝" 8R STC | FS5B-1858S-P2 | FS5B-1858S-B2 |
| | 20" 8R STC | FS5B-20S-P2 | FS5B-20S-B2≥JK55 or FS5B-20S-B2<JK55 |

***Standards for Tubing and Casing Connections for MRP-5000 gages are available. Special Orders, Non Standard API, Round or Premium Connection Setting Standards are available.**

# Tapered Thread Functional Size



MRP-5001



MRP-5001
Side View



MRP-5000
Series
Taper Arm



MRP-502




## MRP® Functional Roll Gages for Tapered Threads (MRP-5000)

The MRP-5000 series of thread pitch diameter gages use hardened and ground thread rolls to inspect functional size of tapered threaded connections. The MRP-5000 gages are adjustable within a size range and have interchangeable thread rolls for inspection of all API thread forms. The gages must be preset to size using one of a variety of setting methods available. Refer to the setting options that follow. Please specify preferred taper arms when ordering. ***Thread rolls and standards are sold separately.***

| Model | Description | Resolution | Range |
|---|---|---|---|
| MRP-501* | External Sizes by Taper, Single Taper* | .0001" | 1" - 2¼" |
| MRP-502* | Internal Sizes by Taper, Single Taper* | .0001" | 1" - 2¼" |
| MRP-5001 | Internal/External Tubing and Casing Connections | .0005" | 2⅜" - 5½" |
| MRP-5002 | Internal/External Tubing and Casing Connections | .0005" | 2⅜" - 13⅜" |
| MRP-5003 | Internal/External Tubing and Casing Connections | .0005" | 13⅜" - 20" |
| MRP-5004 | Internal/External Tubing and Casing Connections | .0005" | 2⅜" - 9⅝" |

***Please specify taper when ordering. Built to one specific taper. One taper per gage. Set of thread rolls included.**

## MRP-5000 Replacement Parts

| Model | Description* |
|---|---|
| MRP5-10 | Positioning Springs (Set of 2) |
| MRP5-11 | Retainer Washers (Set of 2) |
| MRP5-12 | Lock Screws (Set of 2) |
| MRP5-75T | ¾" TPF Taper Arms (Set of 2) |
| MRP5-10T | 1" TPF Taper Arms (Set of 2) |

***Taper arm price does not include thread rolls.***
***To determine the thread rolls required, refer to thread roll chart below.***

## MRP-5000 Thread Rolls

The product thread form determines the thread roll set that will be used. Thread roll sets consist of two rolls supplied in a labeled storage tube.

| Model | Description |
|---|---|
| TR-8R | All API 8 Round Tubing |
| TR-10R | All API 10 Round Tubing |
| TR-8LP | 8V API Line Pipe |
| TR-11LP | 11½ TPI V API Line Pipe |
| TR-B10I | API Buttress Casing, Internal, 16" - 20" |
| TR-B10E | API Buttress Casing, External, 16" - 20" |
| TR-B75 | API Buttress Casing, 4½" - 13⅜" |
| TR-BL | Blank thread roll set |

## Frame Style Setting Standards

### MRP-5000 Series Setting Standards for Tubing and Casing Connections*

These frame style setting standards are designed to preset **MRP-5000** Series gages for accurate inspection of API threaded connections. These standards consist of a rigid, non-adjustable steel block precision machined to proper size to tolerances of ±.0003".

| Thread Type | Connection Size | Pin Model | Box Model |
|---|---|---|---|
| NUE | 2⅜" NUE | FSTD-238N-P5 | FSTD-238N-B5 |
| | 2⅞" NUE | FSTD-278N-P5 | FSTD-278N-B5 |
| | 3½" NUE | FSTD-312N-P5 | FSTD-312N-B5 |
| | 4½" NUE | FSTD-412N-P5 | FSTD-412N-B5 |
| EUE | 2⅜" EUE | FSTD-238E-P5 | FSTD-238E-B5 |
| | 2⅞" EUE | FSTD-278E-P5 | FSTD-278E-B5 |
| | 3½" EUE | FSTD-312E-P5 | FSTD-312E-B5 |
| | 4½" EUE | FSTD-412E-P5 | FSTD-412E-B5 |
| Buttress | 4½" Buttress | FSTD-412B-P5 | FSTD-412B-B5 |
| | 5" Buttress | FSTD-5B-P5 | FSTD-5B-B5 |
| | 5½" Buttress | FSTD-512B-P5 | FSTD-512B-B5 |
| | 6⅝" Buttress | FSTD-658B-P5 | FSTD-658B-B5 |
| | 7" Buttress | FSTD-7B-P5 | FSTD-7B-B5 |
| | 7⅝" Buttress | FSTD-758B-P5 | FSTD-758B-B5 |
| | 8⅝" Buttress | FSTD-858B-P5 | FSTD-858B -B5 |
| | 9⅝" Buttress | FSTD-958B-P5 | FSTD-958B-B5 |
| | 10¾" Buttress | FSTD-1034B-P5 | FSTD-1034B-B5 |
| | 11¾" Buttress | FSTD-1134B -P5 | FSTD-1134B-B5 |
| | 13⅜" Buttress | FSTD-1338B-P5 | FSTD-1338B-B5 |
| | 16" Buttress | FSTD-16B-P5 | FSTD-16B-B5 |
| | 18⅝" Buttress | FSTD-1858B-P5 | FSTD-1858B-B5 |
| | 20" Buttress | FSTD-20B-P5 | FSTD-20B-B5 |
| LTC | 4½" 8R LTC | FSTD-412L-P5 | FSTD-412L-B5 |
| | 5" 8R LTC | FSTD-5L-P5 | FSTD-5L-B5 |
| | 5½" 8R LTC | FSTD-512L-P5 | FSTD-512L-B5 |
| | 6⅝" 8R LTC | FSTD-658L-P5 | FSTD-658L-B5 |
| | 7" 8R LTC | FSTD-7L-P5 | FSTD-7L-B5 |
| | 7⅝" 8R LTC | FSTD-758L-P5 | FSTD-758L-B5 |
| | 8⅝" 8R LTC | FSTD-858L-P5 | FSTD-858L-B5 |
| | 9⅝" 8R LTC | FSTD-958L-P5 | FSTD-958L-B5≥P110 or FSTD-958L-B5<P110 |
| | 20" 8R LTC | FSTD-20L-P5 | FSTD-20L-B5≥JK55 or FSTD-20L-B5<JK55 |
| STC | 4½" - 9.50# 8R STC | FSTD-412S-9-P5 | FSTD-412S-9-B5 |
| | 4½" - Other 8R STC | FSTD-412S-O-P5 | FSTD-412S-O-B5 |
| | 5" - 11.50# 8R STC | FSTD-5S-11-P5 | FSTD-5S-O-B5 |
| | 5" - Other 8R STC | FSTD-5S-O-P5 | FSTD-5S-O-B5 |
| | 5½" 8R STC | FSTD-512S-P5 | FSTD-512S-B5 |
| | 6⅝" 8R STC | FSTD-658S-P5 | FSTD-658S-B5 |
| | 7" - 17.00# 8R STC | FSTD-7S-17-P5 | FSTD-7S-17-B5 |
| | 7" - Other 8R STC | FSTD-7S-O-P5 | FSTD-7S-O-B5 |
| | 7⅝" 8R STC | FSTD-758S-P5 | FSTD-758S-B5 |
| | 8⅝"- 24.00# 8R STC | FSTD-858S-24-P5 | FSTD-858S-24-B5 |
| | 8⅝" - Other 8R STC | FSTD-858S-O-P5 | FSTD-858S-O-B5 |
| | 9⅝" 8R STC | FSTD-958S-P5 | FSTD-958S-B5≥P110 or FSTD-958S-B5<P110 |
| | 10¾"- 32.75# 8R STC | FSTD-1034S-32-P5 | FSTD-1034S-32-B5 |
| | 10¾"- Other 8R STC | FSTD-1034S-O-P5 | FSTD-1034S-O-B5≥P110 or FSTD-1034S-O-B5<P110 |
| | 11¾" 8R STC | FSTD-1134S-P5 | FSTD-1134S -B5≥P110 or FSTD-1134S-B5<P110 |
| | 13⅜" 8R STC | FSTD-1338S-P5 | FSTD-1338S-B5≥P110 or FSTD-1338S-B5<P110 |
| | 16" 8R STC | FSTD-16S-P5 | FSTD-16S-B5 |
| | 18⅝" 8R STC | FSTD-1858S-P5 | FSTD-1858S-B5 |
| | 20" 8R STC | FSTD-20S-P5 | FSTD-20S-B5≥JK55 or FSTD-20S-B5<JK55 |

***Rotary Shouldered Connection pin and custom standards are available. Please contact Gagemaker for more information.***



***Setting an MRP-5001 with Frame Style Standards***



***MRP-5000 Frame Style Box Standard***

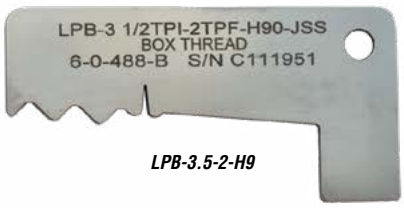


***MRP-5000 Frame Style Pin Standard***






*LPB-4-2-50*




*LPB-3.5-2-H9*




*LPP-3.5-2-H9*




*LPP-6-1.5-55*



*LPP on a Pin with blue line marking proper thread*




*LPB on a Box cutout*

# Pitch Diameter

Pitch Diameter is one of the most important inspections for nearly any thread. In the past, pitch diameter was ignored as long as the ring or plug gage threaded. Now, using Gagemaker gages, you have more control over threading connections of marginal quality. The process of locating and measuring the pitch diameter takes less than a minute. This minute of inspection quickly decides the difference between good and bad.

## Rotary Shouldered Connection Pitch Diameter Location Profiles

Pitch diameter location templates locate the point on the connection where the pitch diameter is measured. When applied properly to the connection, the template's special layout mark indicates the proper thread to measure the pitch diameter. A simple mark with a felt tip marking pen allows the operator or inspector to accurately position the gage and read a diameter. Please specify the threads per inch (TPI), taper per foot (TPF), and thread form when ordering.

*Box Profiles*

| Model | Description |
|---|---|
| LPB-3-1.25-SLH9 | Box Location Profile template for 3 TPI, 1.25 TPF, 90-V-0.084 thread form |
| LPB-3.5-2-H9 | Box Location Profile template for 3.5 TPI, 2 TPF, 90-V-0.050 thread form |
| LPB-3.5-3-H9 | Box Location Profile template for 3.5 TPI, 3 TPF, 90-V-0.050 thread form |
| LPB-4-1.5-76 | Box Location Profile template for 4 TPI, 1.50 TPF, V-0.076 thread form |
| LPB-4-2-38 | Box Location Profile template for 4 TPI, 2 TPF, V-0.038R thread form |
| LPB-4-2-50 | Box Location Profile template for 4 TPI, 2 TPF, V-0.050 thread form |
| LPB-4-3-38 | Box Location Profile template for 4 TPI, 3 TPF, V-0.038R thread form |
| LPB-4-3-50 | Box Location Profile template for 4 TPI, 3 TPF, V-0.050 thread form |
| LPB-4-3.375-A094 | Box Location Profile template for 4 TPI, 3.375 TPF, A-0.094 thread form |
| LPB-5-3-40 | Box Location Profile template for 5 TPI, 3 TPF, V-0.040 thread form |
| LPB-6-1.0-55 | Box Location Profile template for 6 TPI, 1.0 TPF, V-0.055 thread form |
| LPB-6-1.5-55 | Box Location Profile template for 6 TPI, 1.50 TPF, V-0.055 thread form |
| LPB-6-2-32 | Box Location Profile template for 6 TPI, 2 TPF, V-0.032 thread form |

*Pin Profiles*

| Model | Description |
|---|---|
| LPP-3-1.25-SLH9 | Pin Location Profile template for 3 TPI, 1.25 TPF, 90-V-0.084 thread form |
| LPP-3.5-2-H9 | Pin Location Profile template for 3.5 TPI, 2 TPF, 90-V-0.050 thread form |
| LPP-3.5-3-H9 | Pin Location Profile template for 3.5 TPI, 3 TPF, 90-V-0.050 thread form |
| LPP-4-1.5-76 | Pin Location Profile template for 4 TPI, 1.50 TPF, V-0.076 thread form |
| LPP-4-2-38 | Pin Location Profile template for 4 TPI, 2 TPF, V-0.038R thread form |
| LPP-4-2-50 | Pin Location Profile template for 4 TPI, 2 TPF, V-0.050 thread form |
| LPP-4-3-38 | Pin Location Profile template for 4 TPI, 3 TPF, V-0.038R thread form |
| LPP-4-3-50 | Pin Location Profile template for 4 TPI, 3 TPF, V-0.050 thread form |
| LPP-4-3.375-A094 | Pin Location Profile template for 4 TPI, 3.375 TPF, A-0.094 thread form |
| LPP-5-3-40 | Pin Location Profile template for 5 TPI, 3 TPF, V-0.040 thread form |
| LPP-6-1.0-55 | Pin Location Profile template for 6 TPI, 1.0 TPF, V-0.055 thread form |
| LPP-6-1.5-55 | Pin Location Profile template for 6 TPI, 1.50 TPF, -0.055 thread form |
| LPP-6-2-32 | Pin Location Profile template for 6 TPI, 2 TPF, V-0.032 thread form |

## RSC Box Pitch Diameter Gages

Gagemaker's internal diameter and groove gages measure variation in internal bore diameters. Pitch diameter gages are shipped with two 0.144" diameter contact points (T144) as standard. Setting dimensions for the pitch diameter gages are provided by the **TD**WIN Taper™ software. ***Software is sold separately (see page 129)***. Refer to page 124 for the proper contact point for your particular connection.

| Model | Description | Range |
|---|---|---|
| IT-5104-RSC | Internal Diameter/Groove Gage, 4" (101.6 mm) Depth | 1½" - 10" (38.1 mm - 254 mm) Dia. |
| IT-5104-04 | Replacement Lower Arm | 4¼" (107.9 mm) Length |



*IT-5104-RSC*

## RSC Pin Pitch Diameter Gages

The ball pitch diameter gages gages indicate the pitch diameter size of the product's external thread. The gages are adjustable within a size range and use interchangeable contact points to measure different pitch threads. Gages are shipped with two 0.144" diameter contact points (T144) as standard. Reference page 124 for other connection specific contact points.

| Model | Description | Range |
|---|---|---|
| PD-8001-RSC | External Ball Pitch Diameter Gage | 0" - 6" (0 mm - 152.4 mm) |
| PD-8002-RSC | External Ball Pitch Diameter Gage | 6" - 12" (152.4 mm - 304.8 mm) |



*PD-8001-RSC*

## Rod Style Setting Standards

Rod style setting standards are used to set many JSS® gages. Specify size or specific connection when ordering. Ex.: RS-3.5-DS-B, RS-NC77-B, RS-2.375-REG-B.

| Model | Description |
|---|---|
| RS-__-DS-B | Rod Standard for Double Streamline (3.5" - 5.5"), Box |
| RS-__-DS-P | Rod Standard for Double Streamline (3.5" - 5.5"), Pin |
| RS-__-EF-B | Rod Standard for External Flush (2.375" - 4.5"), Box |
| RS-__-EF-P | Rod Standard for External Flush (2.375" - 4.5"), Pin |
| RS-__-FH-B | Rod Standard for Full Hole (2.875" - 6.625"), Box |
| RS-__-FH-P | Rod Standard for Full Hole (2.875" - 6.625"), Pin |
| RS-__-H9-B | Rod Standard for H-90 (3.5" - 8.625"), Box |
| RS-__-H9-P | Rod Standard for H-90 (3.5" - 8.625"), Pin |
| RS-__-IF-B | Rod Standard for Internal Flush (2.375" - 6.625"), Box |
| RS-__-IF-P | Rod Standard for Internal Flush (2.375" - 6.625"), Pin |
| RS-NC__-B | Rod Standard for API Numbered Connections (#10 - #77), Box |
| RS-NC__-P | Rod Standard for API Numbered Connections (#10 - #77), Pin |
| RS-___-OH-B | Rod Standard for Open Hole (2.375" - 4.5"), Box |
| RS-___-OH-P | Rod Standard for Open Hole (2.375" - 4.5"), Pin |
| RS-__-PAC-B | Rod Standard for PAC (2.375" - 3.5"), Box |
| RS-__-PAC-P | Rod Standard for PAC (2.375" - 3.5"), Pin |
| RS-__-SH-B | Rod Standard for Slim Hole (2.375" - 4.5"), Box |
| RS-__-SH-P | Rod Standard for Slim Hole (2.375" - 4.5"), Pin |
| RS-__-SLH9-B | Rod Standard for Slimline H-90 (2.375" - 3.5"), Box |
| RS-__-SLH9-P | Rod Standard for Slimline H-90 (2.375" - 3.5"), Pin |
| RS-__-REG-B | Rod Standard for Regular (1.0" - 8.625"), Box |
| RS-__-REG-P | Rod Standard for Regular (1.0" - 8.625"), Pin |
| RS-__-XH-B | Rod Standard for Xtra Hole (2.875" - 5.0"), Box |
| RS-__-XH-P | Rod Standard for Xtra Hole (2.875" - 5.0"), Pin |
| RS-__-WO-B | Rod Standard for Wide Open (2.375" - 4.5"), Pin |
| RS-__-WO-P | Rod Standard for Wide Open (2.375" - 4.5"), Pin |



*Setting PD-8001-RSC with Rod Standard*









PD-6001 and Extension Rods

## Straight Thread External Pitch Diameter Gages (0" to 72" Diameters)

The ball pitch diameter gages or "GO/NO GO" gages indicate the pitch diameter size of the product's external thread. The gages are adjustable within a size range and use interchangeable contact points to measure different pitch threads. Setting dimensions for the pitch diameter gages are provided by the **TD**WIN software. **Software (see page 128) and contact points (see pages 124-125) are sold separately.** Indicators have a ½" travel and .0005" resolution, and higher resolutions are available. Models PD-8004 through PD-8016 include a custom wood case.

| Model | Description | Range |
|---|---|---|
| PD-8000 | External Ball Pitch Diameter Gage | 0" - 2⅜" (0 mm - 60.3 mm) |
| PD-8001 | External Ball Pitch Diameter Gage | 0" - 6" (0 mm - 152.4 mm) |
| PD-8002 | External Ball Pitch Diameter Gage | 6" - 12" (152.4 mm - 304.8 mm) |
| PD-8004 | External Ball Pitch Diameter Gage | 12" - 16" (304.8 mm - 406.4 mm) |
| PD-8006 | External Ball Pitch Diameter Gage | 16" - 20" (406.4 mm - 508 mm) |
| PD-8008 | External Ball Pitch Diameter Gage | 20" - 24" (508 mm - 609.6 mm) |
| PD-8010 | External Ball Pitch Diameter Gage | 24" - 28" (609.6 mm 711.2 mm) |
| PD-8012 | External Ball Pitch Diameter Gage | 28" - 36" (711.2 mm - 914.4 mm) |
| PD-8013 | External Ball Pitch Diameter Gage | 36" - 44" (914.4 mm - 1117.6 mm) |
| PD-8014 | External Ball Pitch Diameter Gage | 44" - 52" (1117.6 mm - 1320.8 mm) |
| PD-8015 | External Ball Pitch Diameter Gage | 52" - 60" (1320.8 mm - 1524.0 mm) |
| PD-8016 | External Ball Pitch Diameter Gage | 60" - 72" (1524.0 mm - 1828.8 mm) |

## Straight Thread Internal Pitch Diameter Gages (1½" to 27" Diameters)

The ball pitch diameter gages or "GO/NO GO" gages indicate the pitch diameter size of the product's internal threads. The gages are adjustable within a size range and use interchangeable contact points to measure different pitch threads. Setting dimensions for the pitch diameter gages are provided by the **TD**WIN software (sold separately, see page 128). Higher resolution indicators are available. All of the PD-6000 series are sold without contact points. See pages 124-125 for contact points.

| Model | Description | Travel | Resolution | Range |
|---|---|---|---|---|
| PD-6000 | Internal Pitch Diameter Gage ("V" & Acme) | ½" | .0005" | 1½" - 9" |
| PD-6000-07 | Replacement Arm Set | | | 4½" length |
| PD-6001 | Internal Pitch Diameter Gage | ½" | .0005" | 6" - 24" |

## PD-6001 Replacement Parts (Extensions have #10-32 threads)

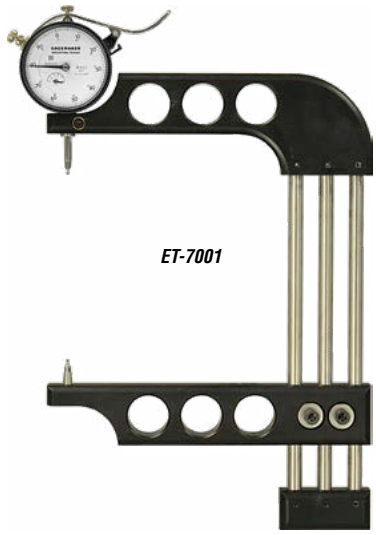
| Model | Description | Length |
|---|---|---|
| PD-6001-PD4M | Cap | |
| 4-2-617 | Indicator Base - Mitutoyo Indicator Only | |
| PD-6001-CBA | Cap and Base Assembly | |
| PD-6001-PD3 | Adjustment Cap Lock Nut | |
| PD-6001-PD2 | Adjustment Cap | |
| PD-6001-PD1 | Contact Point Adapter | |
| PD-6001-PDA | Extension Rod | .430" |
| PD-6001-PDB | Extension Rod | .860" |
| PD-6001-PDC | Extension Rod | 1.290" |
| PD-6001-PDD | Extension Rod | 1.720" |
| PD-6001-PDE | Extension Rod | 3.440" |
| PD-6001-PDF | Extension Rod | 5.590" |
| PD-6001-PDG | Extension Rod | 7.740" |
| PD-6001-PDH | Extension Rod | 10.320" |
| PD-6001-12E | PD-6001 Internal Pitch Diameter Extension Rod | 12" |
| PD-6001-24E | PD-6001 Internal Pitch Diameter Extension Rod | 24" |
| PD-6001-36E | PD-6001 Internal Pitch Diameter Extension Rod | 36" |

# Thread Taper

## External Taper Gages

Gagemaker's external taper gages inspect variation in connection taper. External taper gages are shipped with .072" diameter contact points as standard. Refer to page 124 for the proper contact point for your particular connection. All indicators are .001" resolution, but higher resolution indicators are available for some models.

| Model | Description | Range | Model | Description | Range |
|---|---|---|---|---|---|
| ET-7001 | External Taper, ½" travel | 0" - 6" | ET-7005 | External Taper, 1" travel | 0" - 16" |
| ET-7002 | External Taper, ½" travel | 0" - 10" | ET-7006 | External Taper, ½" travel | 16" - 24" |
| ET-7003 | External Taper, 1" travel | 0" - 10" | ET-7007 | External Taper, 1" travel | 16" - 24" |
| ET-7004 | External Taper, ½" travel | 0" - 16" | | | |



*ET-7001*

## Internal Taper Gages

Gagemaker's internal taper gages measure variation in connection taper. Taper gages are shipped with our standard set of .072" diameter contact points (T072), unless specified otherwise. Refer to the contact point page 124 for the proper contact points for your particular connections. IT-6001 includes one set of extension rods up to 13⅜". Higher resolution indicators are available.

| Model | Description | Range | Travel | Resolution |
|---|---|---|---|---|
| IT-6000 | Internal Taper Gage | 4¼" Depth, 1½" - 9" Diameter | 1" | .001" |
| IT-6001 | Internal Taper Gage | Any Depth, 5" - 13⅜" API Sizes | ½" | .001" |
| IT-6001-VM | Internal Taper Gage | Any Depth, 3½" Diameter | ¼" | .001" |



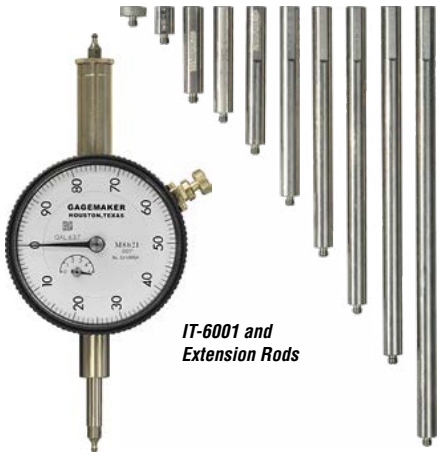
*IT-6000*

## IT-6000 Replacement Parts

| Model | Description | Length |
|---|---|---|
| IT-6000-07 | Replacement Arm Set | 4¼" |

## IT-6001 Replacement Parts (Extensions have #10-40 threads)

| Model | Description | Length | Model | Description | Length |
|---|---|---|---|---|---|
| IT-6001-01M | Cap- Mitutoyo Indicator | - | IT-6001-13 | Extension rod, 9⅝" Connection | 4.643" |
| IT-6001-04 | Point Adapter | .062" | IT-6001-14 | Extension rod, 10¾" Connection | 5.768" |
| IT-6001-06 | Extension rod, 5" Connection | .200" | IT-6001-15 | Extension rod, 11¾" Connection | 6.768" |
| IT-6001-07 | Extension rod, 5½" Connection | .523" | IT-6001-16 | Extension rod, 13⅜" Connection | 8.393" |
| IT-6001-09 | Extension rod, 6⅝" Connection | 1.643" | IT-6001-17 | Extension rod, 16" Connection | 11.018" |
| IT-6001-10 | Extension rod, 7" Connection | 2.023" | IT-6001-18 | Extension rod, 18⅝" Connection | 13.643" |
| IT-6001-11 | Extension rod, 7⅝" Connection | 2.643" | IT-6001-19 | Extension rod, 20" Connection | 15.018" |
| IT-6001-12 | Extension rod, 8⅝" Connection | 3.643" | | | |




*IT-6001 and Extension Rods*

## IT-6001-VM Replacement Parts

| Model | Description | Minimum Bore |
|---|---|---|
| IT-6001-01-VM | Short Cap | 3.4275" |

# Functional Size

RG-7001



PG-6000 Series



DPG-6500



## External Functional Size Thread Inspection Gages ( ⅝" to 24" Diameters)

These functional thread inspection, or "GO/NO GO" gages, measure external thread diameters. The gages are adjustable within a size range and use interchangeable thread rolls to measure different pitch threads. Setting dimensions for the functional pitch diameter gages are provided by the **TD**WIN Thread Disk™ software. ***The software (see page 129) and thread rolls (see page 117) are sold separately.*** Indicators have a ½"travel and .0005" resolution, and higher resolutions are available.

| Model | Description | Range |
|---|---|---|
| RG-7000 | External Thread Roll Gage | ⅝" - 4" (15.9 mm - 101.6 mm) |
| RG-7001 | External Thread Roll Gage | 4" - 8" (101.6 mm - 203.2 mm) |
| RG-7002 | External Thread Roll Gage | 8" - 12" (203.2 mm - 304.8 mm) |
| RG-7003 | External Thread Roll Gage | 12" - 16" (304.8 mm - 406.4 mm) |
| RG-7004 | External Thread Roll Gage | 16" - 20" (406.4 mm - 508 mm) |
| RG-7005 | External Thread Roll Gage | 20" - 24" (508 mm - 609.6 mm) |
| RG-LAA | Lower Adjustment Arm | |

## Internal Functional SIze Thread Inspection Gages (1½" to 24" Diameters)

Gagemaker also manufactures functional thread inspection gages that inspect internal threads. The gages are adjustable within a size range and use interchangeable thread rolls to measure different pitch threads. Indicators have a ½"travel and .0005" resolution, and higher resolutions are available. ***Thread roll sets not included.*** See page 117 for thread rolls.

| Model | Description | Range |
|---|---|---|
| PG-6000 | Internal Thread Roll Gage, 2½" reach | 1½" - 9" (38 mm - 228.6 mm) |
| PG-6001 | Internal Thread Roll Gage, 2½" reach | 9" - 16" (228.6 mm - 406.4 mm) |
| PG-6002 | Internal Thread Roll Gage, 2½" reach | 16" - 24" (406.4 mm - 609.6 mm) |
| PG-6003 | Internal Thread Roll Gage, 2½" reach | 24" - 32" (609.6 mm - 812.8 mm) |
| PG-6000-SA | Replacement Arm Set | 2½" reach |
| PG-6000-XA | Extended Reach Arm Set | 4½" reach |
| PG-6000-17 | Locking T-nut for Arms | |

## Deep Bore Internal Functional Size

The DPG-6000 gage inspects diameters of internal threads using thread rolls. This functional diameter gage inspects the effects of all thread element variations and reports any deviations. Available in three different sizes, 12", 18", and 24". Custom sizing may be available. ***All thread rolls are sold separately.*** See page 117 for thread rolls.

| Model | Description | Range |
|---|---|---|
| DPG-6500 | Deep bore thread roll gage assembly for 4 pitch and finer threads only. Includes DPG -A1 Extension Arm | 2.970" - 4.400" dia. |
| DPG-A1 | Diameter Extension Arms | 2.970" to 4.400" dia. |
| DPG-A2 | Diameter Extension Arms | 4.225" to 5.150" dia. |
| DPG-A3 | Diameter Extension Arms | 5.025" to 5.950" dia. |
| DPG-A4 | Diameter Extension Arms | 5.825" to 6.7500" dia. |
| DPG-A5 | Diameter Extension Arms | 6.625" to 7.550" dia. |
| DPG-A6 | Diameter Extension Arms | 7.425" to 8.350" dia. |
| DPG-A7 | Diameter Extension Arms | 8.225" to 9.150" dia. |
| DPG-A8 | Diameter Extension Arms | 9.025" to 9.950" dia. |
| DPG-A9 | Diameter Extension Arms | 9.825" to 10.750" dia. |
| DPG-A10 | Diameter Extension Arms | 10.625" to 11.550" dia. |
| DPG-A11 | Diameter Extension Arms | 11.425" to 12.350" dia. |

## Thread Rolls

Gagemaker thread rolls are sold in matched sets of two rolls. Specify the pitch of the thread when ordering.

### UN Series Thread Rolls

"TRV" thread rolls inspect the functional fit of machine threaded parts with 60° "V" thread forms. These thread rolls are designed specifically for internal or external applications.

| Internal Thread Diameters (1½" & Larger) | | External Thread Diameters (1½" & Larger) | |
|---|---|---|---|
| **Model** | **Description** | **Model** | **Description** |
| TRVI-4P | 4 pitch internal 60° "V" | TRVE-4P | 4 pitch external 60° "V" |
| TRVI-5P | 5 pitch internal 60° "V" | TRVE-5P | 5 pitch external 60° "V" |
| TRVI-6P | 6 pitch internal 60° "V" | TRVE-6P | 6 pitch external 60° "V" |
| TRVI-8P | 8 pitch internal 60° "V" | TRVE-8P | 8 pitch external 60° "V" |
| TRVI-10P | 10 pitch internal 60° "V" | TRVE-10P | 10 pitch external 60° "V" |
| TRVI-12P | 12 pitch internal 60° "V" | TRVE-12P | 12 pitch external 60° "V" |
| TRVI-14P | 14 pitch internal 60° "V" | TRVE-14P | 14 pitch external 60° "V" |
| TRVI-16P | 16 pitch internal 60° "V" | TRVE-16P | 16 pitch external 60° "V" |
| TRVI-18P | 18 pitch internal 60° "V" | TRVE-18P | 18 pitch external 60° "V" |
| TRVI-20P | 20 pitch internal 60° "V" | TRVE-20P | 20 pitch external 60° "V" |

### Acme and Stub Acme Thread Rolls

"TRA" and "TRSA" thread rolls inspect the functional fit of parts with 29° Acme and Stub Acme thread forms.

| Acme Thread Diameters (1½" & Larger) | | Stub Acme Thread Diameters (1½" & Larger) | |
|---|---|---|---|
| **Model** | **Description** | **Model** | **Description** |
| TRA-2P | 2 pitch 29° Acme | TRSA-2P | 2 pitch 29° Stub Acme |
| TRA-3P | 3 pitch 29° Acme | TRSA-3P | 3 pitch 29° Stub Acme |
| TRA-4P | 4 pitch 29° Acme | TRSA-4P | 4 pitch 29° Stub Acme |
| TRA-5P | 5 pitch 29° Acme | TRSA-5P | 5 pitch 29° Stub Acme |
| TRA-6P | 6 pitch 29° Acme | TRSA-6P | 6 pitch 29° Stub Acme |
| TRA-8P | 8 pitch 29° Acme | TRSA-8P | 8 pitch 29° Stub Acme |
| TRA-10P | 10 pitch 29° Acme | TRSA-10P | 10 pitch 29° Stub Acme |
| TRA-12P | 12 pitch 29°Acme | TRSA-12P | 12 pitch 29° Stub Acme |
| TRA-14P | 14 pitch 29° Acme | TRSA-14P | 14 pitch 29° Stub Acme |
| TRA-16P | 16 pitch 29° Acme | TRSA-16P | 16 pitch 29° Stub Acme |
| TRA-18P | 18 pitch 29° Acme | TRSA-18P | 18 pitch 29° Stub Acme |

### ISO Metric Series Thread Rolls

"TRM" thread rolls inspect the functional fit of machine threaded parts with ISO Metric 60° "V" thread forms.

| Internal Thread Diameters (38.1mm & Larger) | | External Thread Diameters (38.1mm & Larger) | |
|---|---|---|---|
| **Model** | **Description** | **Model** | **Description** |
| TRMI-4P | 4 mm pitch internal 60° "V" | TRME-4P | 4 mm pitch external 60° "V" |
| TRMI-3.5P | 3.5 mm pitch internal 60° "V" | TRME-3.5P | 3.5 mm pitch external 60° "V" |
| TRMI-3P | 3 mm pitch internal 60° "V" | TRME-3P | 3 mm pitch external 60° "V" |
| TRMI-2.5P | 2.5 mm pitch internal 60° "V" | TRME-2.5P | 2.5 mm pitch external 60° "V" |
| TRMI-2P | 2 mm pitch internal 60° "V" | TRME-2P | 2 mm pitch external 60° "V" |
| TRMI-1.75P | 1.75 mm pitch internal 60° "V" | TRME-1.75P | 1.75 mm pitch external 60° "V" |
| TRMI-1.5P | 1.5 mm pitch internal 60° "V" | TRME-1.5P | 1.5 mm pitch external 60° "V" |
| | | TRME-1P | 1 mm pitch external 60° "V" |

### National 7° X 45° Buttress Series Thread Rolls

"TRB" thread rolls inspect the functional fit of machine threaded parts with 7° X 45° Buttress thread forms.

| Thread Diameter (1½" & Larger) | | | |
|---|---|---|---|
| **Model** | **Description** | **Model** | **Description** |
| TRB745-2P | 2 pitch 7° X 45° Buttress | TRB745-8P | 8 pitch 7°X 45° Buttress |
| TRB745-3P | 3 pitch 7° X 45° Buttress | TRB745-10P | 10 pitch 7°X 45° Buttress |
| TRB745-3.5P | 3.5 pitch 7° X 45° Buttress | TRB745-12P | 12 pitch 7° X 45° Buttress |
| TRB745-4P | 4 pitch 7° X 45° Buttress | TRB745-16P | 16 pitch 7° X 45° Buttress |
| TRB745-6P | 6 pitch 7° X 45° Buttress | | |

### Trapezoidal Thread Rolls

"TRT" thread rolls inspect the functional fit of machine thread parts with trapezoidal thread forms.

| Thread Diameter (38.1 mm & Larger) | | | | | |
|---|---|---|---|---|---|
| **Model** | **Description** | **Model** | **Description** | **Model** | **Description** |
| TRT-2P | 2 mm pitch Trapezoidal | TRT-5P | 5 mm pitch Trapezoidal | TRT-9P | 9 mm pitch Trapezoidal |
| TRT-3P | 3 mm pitch Trapezoidal | TRT-6P | 6 mm pitch Trapezoidal | TRT-10P | 10 mm pitch Trapezoidal |
| TRT-4P | 4 mm pitch Trapezoidal | TRT-8P | 8 mm pitch Trapezoidal | TRT-12P | 12 mm pitch Trapezoidal |

**Specials- All other thread forms- Available** **Prices Available Upon Request**






*Assorted Thread Rolls*



# Small Diameters

## Small Internal Diameter Thread Inspection Gages
## 5/8" (.625) to 1½" (1.500) Diameters




*SPG-6000 with thread rolls*

The SPG-6000 line of thread inspection gages measures internal thread diameters smaller than 1.500". The SPG-6000 can be equipped with either thread rolls or contact points. Contact points are used to measure pitch diameter, while thread rolls are used in measuring functional size. ***Contact points, contact point arms, software, and thread rolls sold separately.***

| Model | Description | Range |
|---|---|---|
| SPG-6000 | Internal Pitch Diameter Gage, 1" reach | 5/8" - 1½" (15.9 mm - 38.1 mm) |

## Small Internal Diameter UN Series Thread Rolls

"SRV" thread rolls inspect the interanl functional size of machine threaded parts with 60° "V" thread forms. These thread rolls are designed specifically for internal applications. Rolls are sold in matched sets (2 rolls). ***Rolls sold separately from gages and software. Please specify the pitch of thread when ordering.***

| Internal Thread Diameters (.750" to 1.500") | | | |
|---|---|---|---|
| **Model** | **Pitch** | **Model** | **Pitch** |
| SRVI-6P | 6 pitch internal 60° "V" | SRVI-14P | 14 pitch internal 60° "V" |
| SRVI-7P | 7 pitch internal 60° "V" | SRVI-16P | 16 pitch internal 60° "V" |
| SRVI-8P | 8 pitch internal 60° "V" | SRVI-18P | 18 pitch internal 60° "V" |
| SRVI-9P | 9 pitch internal 60° "V" | SRVI-20P | 20 pitch internal 60° "V" |
| SRVI-10P | 10 pitch internal 60° "V" | SRVI-24P | 24 pitch internal 60° "V" |
| SRVI-11P | 11 pitch internal 60° "V" | SRVI-28P | 28 pitch internal 60° "V" |
| SRVI-12P | 12 pitch internal 60° "V" | SRVI-32P | 32 pitch internal 60° "V" |
| SRVI-13P | 13 pitch internal 60° "V" | | |



*SPG Thread Rolls*

## Small Internal Diameter ISO Metric Thread Rolls

"SRM" thread rolls inspect the internal functional size of machine threaded parts with 60° "V" thread forms. These thread rolls are designed specifically for internal applications. Rolls are sold in matched sets (2 rolls). ***Rolls sold separately from gages and software. Please specify the pitch of thread when ordering.***

| Internal Thread Diameters (.750" to 1.500") | |
|---|---|
| **Model** | **Pitch** |
| SRMI-4P | 4 mm |
| SRMI-35P | 3.5 mm |
| SRMI-3P | 3 mm |
| SRMI-25P | 2.5 mm |
| SRMI-2P | 2 mm |
| SRMI-175P | 1.75 mm |
| SRMI-15P | 1.5 mm |
| SRMI-1P | 1 mm |

## Small Diameter Contact Point Arms

"SPA" contact point arms hold "SP" straight shank contact points on the SPG-6000 for small internal pitch diameter measurements. Sold separately from gage as a set of 2. Contact points are not included, see chart below. Custom sizes are available, contact customer service for more information.

| Model | Description | Reach | Min. Bore |
|---|---|---|---|
| SPA-265 | Contact point arms, .265" Diameter | 1" Long | .700" |
| SPA-375 | Contact point arms, .375" Diameter | 1.25" Long | .950" |
| SPA-437 | Contact point arms, .437" Diameter | 1.50" Long | 1.100" |

*SPG-6000 with contact points*






*SPA Contact Point Arms*



*SPA Contact Points*

## Small Diameter Contact Points

Gagemaker's SP straight shank contact points are manufactured with carbide balls. Standard contact diameters are held to tolerances of ± .0002". "SP" contact points fit "SPA" contact point arms only. Contact point sizes are matched closely to thread inspection wire sizes. These contact point sizes are used in the **TD**WIN™ software program (sold separately). Contact points sold individually and separately. Contact point arms are not included.

### UN, UNJ, and UNR Series Contact Points

| Model | Thread Pitch | Model | Thread Pitch |
|---|---|---|---|
| SP-105 | 5 pitch | SP-050 | 11.5 - 12 pitch |
| SP-096 | 6 - 7 pitch | SP-041 | 13 - 16 pitch |
| SP-072 | 8 - 9 pitch | SP-032 | 18 - 20 pitch |
| SP-057 | 10 pitch | | |

### Acme, Stub Acme, and Stub Acme Mod-1 & -2 Contact Points

| Model | Thread Pitch | Model | Thread Pitch |
|---|---|---|---|
| SP-105T | 5 pitch | SP-050T | 10 pitch |
| SP-090T | 6 pitch | SP-041T | 12 - 14 pitch |
| SP-062T | 8 pitch | SP-032T | 16 pitch |

### Metric and MJ Series Contact Points

| Model | Thread Pitch | Model | Thread Pitch |
|---|---|---|---|
| SP-105 | 4.5 - 4.75 mm | SP-057 | 2.5 mm |
| SP-096 | 4 - 4.25 mm | SP-041 | 1.5 - 2 mm |
| SP-072 | 3 - 3.5 mm | SP-032 | 1 - 1.25 mm |

## Small Diameter Contact Point Arms for Threaded Contact Points

"STPA" contact point arms hold threaded contact points on the SPG-6000 for small internal pitch diameter measurements. Sold as a set of 2. Gage, software, and contact points are not included. For contact points, see pages 124-125. Custom sizes are available, contact customer service for more information.

| Model | Description | Reach | Min. Bore |
|---|---|---|---|
| STPA-375 | Threaded contact point arms, .375" Diameter | 1.25" Long | 1.032" |
| STPA-437 | Threaded contact point arms, .437" Diameter | 1.50" Long | 1.152" |



*STPA Contact Point Arms*



# Thread Lead

## Lead Gages

The lead gage inspects thread leads using contact points that seat in the threads of a part. Thread lead is the distance between threads, measured on a plane parallel to the centerline of the threaded part. The pitch of the thread determines the diameter of the contact points required for taking measurements. API Specification 7-2 requires thread lead inspection.

The **LG-6001** and the **LG-6002** use a two-point system to inspect thread lead for straight and tapered threads. The **LG-6002** inspects both external and internal threads, while the **LG-6001** inspects external threads. The two point system allows for a sweeping action to obtain the measurement.

The **LG-5003** uses the three-point system to inspect internal and external thread lead. Two fixed contact points at the rear of the gage and one moveable contact point at the front of the gage provide complete stability when taking thread lead measurements. This unique design does not require sweeping to obtain measurements.

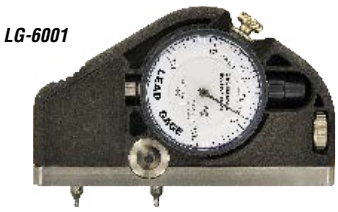
Contact points can be easily changed to allow the gage to be used on a variety of thread forms.

Before inspecting parts, the lead gage must be preset to a nominal predetermined dimension using a lead gage setting standard. Lead standards are available for both straight and tapered threads. Our setting standards are manufactured according to ANSI and API specifications, respectively.

Please see pages 124-125 for contact points. See page 121 for standards.



*LG-6002*



*LG-6001*

### *Features*

- *Uses a three-point system for greater stability when inspecting parts (LG-5003).*
- *Uses interchangeable contact points to allow inspection on a variety of thread forms.*
- *Requires presetting using Gagemaker's lead gage setting standards.*



*LG-5003*



*LG-5003-L*

| Model | Description | Minimum Bore | Range |
|---|---|---|---|
| LG-6001 | External Lead Gage 2-point | 1.200 | ½" - 2" Thread Length |
| LG-6001-1 | External Lead Gage 2-point, .0001" grad. indicator | 1.200 | ½" - 2" Thread Length |
| LG-6002 | Lead Gage 2-point | 1.200 | ½" - 4" Thread Length |
| LG-6002-1 | Lead Gage 2-point, .0001" grad. indicator | 1.200 | ½" - 4" Thread Length |
| LG-5003 | Lead Gage 3-point Contact point spacing .500" | 1.340 | ½" - 4" Thread Length |
| LG-5003-1 | Lead Gage 3-point, .0001" grad. indicator, Contact point spacing .500" | 1.340 | ½" - 4" Thread Length |
| LG-5003-J | Lead Gage 3-point, Contact point spacing .193" | 1.340 | ½" - 4" Thread Length |
| LG-5003-1J | Lead Gage 3-point, .0001" grad., Contact point spacing .193" | 1.340 | ½" - 4" Thread Length |
| LG-5003-L | Special Load-to-Load lead gage | 1.500 | ½" - 4" Thread Length |
| LG-5003-S | Special Stab-to-Stab lead gage | 1.500 | ½" - 4" Thread Length |

## Lead Gage Setting Standards

Gagemaker's precision lead gage setting standards are manufactured in accordance with ANSI Specifications, API Specification 5B, and API Specification 7-2. Lead gage standards are used to set the gage prior to inspection.

| Model | Connection Type/Description | TPF* | TPI* |
|---|---|---|---|
| LS-1001 | API 8-Round Casing, Tubing & Drill Pipe,<br>All 10-Round Tubing | ¾" | 8 & 10 |
| LS-1002 | Straight Threads, 6 - 18 Pitch, 4" Length | Straight | 8 & 10 |
| LS-1003 | 11½ TPI "V" API Line Pipe | ¾" | 11½ |
| LS-1004 | Straight threads, Line pipe | Straight | 11½ |
| LS-1005 | API Buttress Casing, Internal/External 4½" - 13⅜" | ¾" | 5 |
| LS-1006 | API Buttress Casing, Internal/External 16" - Larger | 1" | 5 |
| LS-1007 | 6⅝" API Reg<br>4", 5½", & 6⅝" API Full Hole<br>2⅞", 3½" - 5" Hughes Xtra Hole<br>2⅜", 2⅞" - 4½" Hughes Slim Hole<br>2⅜" - 5½" API INT Flush<br>API Numbered Connections #23-#50 | 2" | 4 |
| LS-1008 | 5½", 7⅝" - 8⅝" API Reg<br>API Numbered Connections #56 - #77 | 3" | 4 |
| LS-1009 | 2⅜" - 4½" API Reg<br>3½", 4½" API Full Hole | 3" | 5 |
| LS-1010 | API Numbered Connections #10, #12, #13, #16<br>M.T. (Macaroni Tubing)<br>2⅜" - 3½" PAC<br>2⅜" - 4" American Open Hole | 1½" | 4 |
| LS-1011 | 3½" - 6⅝" Hughes H-90 | 2" | 3½ |
| LS-1012 | 7"- 8⅝" Hughes H-90 | 3" | 3½ |
| LS-1013 | 2⅜" - 3½" Slim Line H-90 | 1¼" | 3 |
| LS-5001 | Straight Threads, 1-5 pitch, 4" length | | |
| LS-5002 | Straight Threads, 6-18 pitch, 4" length | | |

***TPF = Taper Per Foot, TPI = Threads Per Inch***




***LS-1005***

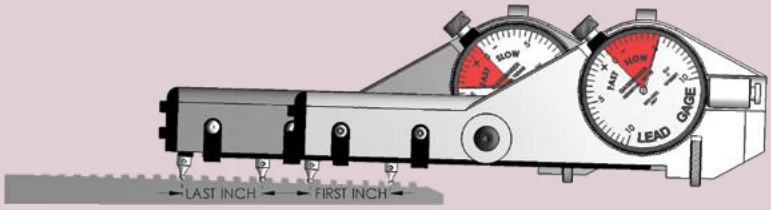



***LS-5001***

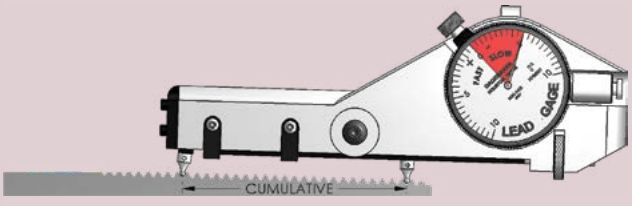



***LS-5002***

**Lead is measured in one inch intervals. As shown below, the cumulative lead interval is the total measured distance from the first to the last thread.**




**LG-5002 in Last and First Position**

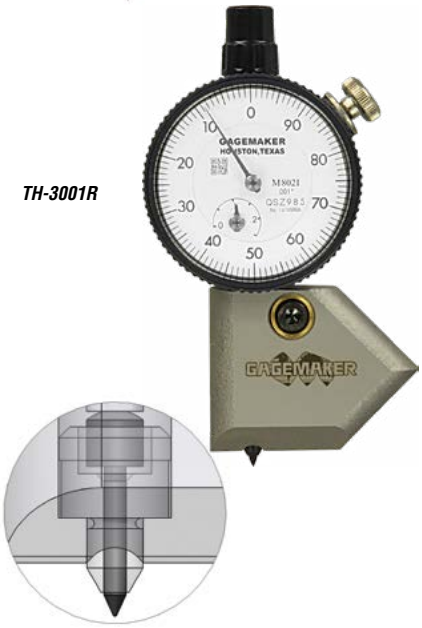



**Cumulative**

# Thread Height




TH-3001V




TH-3001R






TH-3002B

## External Thread Height Gages

Gagemaker manufactures many models of external thread height gages. Specify the type of thread when ordering. **Contact point listed in description (e.g. T072) is included, but may specify other.** See page 123 for standards and contact points.

| Model | Description | Connection | Travel | Min. Bore |
|---|---|---|---|---|
| TH-3002B* | External Thread Height, 0-25-0, T072 | ¾" TPF Buttress | .094" | 2.930" |
| TH-3003B* | External Thread Height, 0-25-0, Step Base, T072 | 1" TPF Buttress | .094" | 2.930" |
| TH-3002BB | External Thread Height Base Only | ¾" TPF Buttress | | |
| TH-3003BB | External Thread Height Base Only | 1" TPF Buttress | | |
| TH-3001R | External Thread Height, 0-100, T501 | 8-Round | .162" | 3.400" |
| TH-3002R* | External Thread Height, 0-50-0, T501 | 8-Round | .162" | 3.400" |
| TH-3002RB | External Thread Height Base Only | 8-Round | | |
| TH-3000-RSC* | External Thread Height, 0-25-0, T072** | Rotary Shouldered Connection/Tool Joint | .196" | 3.230" |
| TH-3001S | External Thread Height, 0-100, T072 | 8-Round | .196" | 3.230" |
| TH-3001V | External Thread Height, 0-100, T500C | Line Pipe, UN/UNJ/ UNR, Acme, Stub Acme, Stub Acme Modified I and II, Metric M & MJ, 7° X 45° Buttress, General Purpose Pipe Threads | .196" | 3.230" |
| TH-3002V* | External Thread Height, 0-50-0, T500C | Line Pipe/Tool Joint | .196" | 3.230" |
| TH-3002VB | External Thread Height Base Only | Line Pipe/Tool Joint | | |

***Gage requires a standard for setting before inspection.***
****Also ships with either T034 or T044 depending on the connection, please specify when ordering.***

## Internal Thread Height Gages

Gagemaker also manufactures several models of internal thread height gages. Please specify the type of thread when ordering. **Contact point listed in description (e.g. T072) is included, but may specify other.** See page 123 for standards and contact points.

| Model | Description | Connection | Travel | Min. Bore |
|---|---|---|---|---|
| TH-3004* | Internal Thread Height, 0-25-0, T500C | Line Pipe | .105" | 1.575" |
| TH-3006* | Internal Thread Height, 0-25-0, T502/T503 | 8-Round | .105" | 1.595" |
| TH-3008* | Internal Thread Height, 0-25-0, T502/T503 | 8-Round | .094" | 1.575" |
| TH-3009* | Internal Thread Height, 0-25-0, T072 | ¾" TPF Buttress | .250" | 1.750" |
| TH-3009-RSC* | Internal Thread Height, 0-25-0, 1" Base, T072** | Rotary Shouldered Connections | .250" | 1.750" |
| TH-3010 | Internal Thread Height, 0-100, 1" Base Length (TPD), T500 | Line Pipe, UN/UNJ/UNR, Acme, Stub Acme, Stub Acme Modified I and II, Metric M & MJ, 7° X 45° Buttress, General Purpose Pipe Threads | .250" | 1.750" |
| TH-3012* | Internal Thread Height, 0-25-0 | ¾" - 2" NPT, AMT | .090" | .750" |

***Gage requires a standard for setting before inspection.***
****Also ships with either T034 or T044 depending on the connection, please specify when ordering.***

## Thread Height Gage Standards

Gagemaker manufactures precision setting standards for presetting thread height gages. Please specify the type of thread when ordering. Custom or special standards are available, contact customer service for more information.

| Model | Description |
|---|---|
| THS-1014 | 8 & 10 Round Threads |
| THS-1014S | 8 & 10 Round Threads (crest to Pitchline "Shave") |
| THS-1015 | 8 & 11½ Pitch "V" Threads |
| THS-1017 | 13⅜" & Smaller Buttress, ¾" TPF |
| THS-1018 | 16" & Larger Buttress, 1"TPF |
| THS-10322 | V-0.032, 2 TPF Rotary Shouldered Connections, 6 TPI to be used with T034 pt. |
| THS-10382 | V-0.038R, 2 TPF Rotary Shouldered Connections, 4 TPI to be used with T072 pt. |
| THS-10383 | V-0.038R, 3 TPF Rotary Shouldered Connections, 4 TPI to be used with T072 pt. |
| THS-10403 | V-0.040, 3 TPF Rotary Shouldered Connections, 5 TPI to be used with T034 pt. |
| THS-10502 | V-0.050, 2 TPF Rotary Shouldered Connections, 4 TPI to be used with T044 pt. |
| THS-10503 | V-0.050, 3 TPF Rotary Shouldered Connections, 4 TPI to be used with T044 pt. |
| THS-10551.5 | V-0.055, 1.5 TPF Rotary Shouldered Connections, 6 TPI to be used with T072 pt. |
| THS-10761.5 | V-0.076, 1.5 TPF Rotary Shouldered Connections, 4 TPI to be used with T044 pt. |
| THS-10H90-2 | 2" TPF H-90 Connection (90-V-0.050), 3.5 TPI to be used with T072 pt. |
| THS-10H90-3 | 3" TPF H-90 Connection (90-V-0.050), 3.5 TPI to be used with T072 pt. |
| THS-SL-H90 | 1¼" TPF, 3 TPI, 90-V-0.084 to be used with T072 pt. |

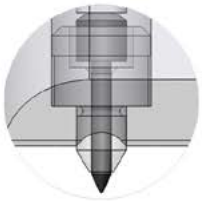
## Thread Height Gage Contact Points

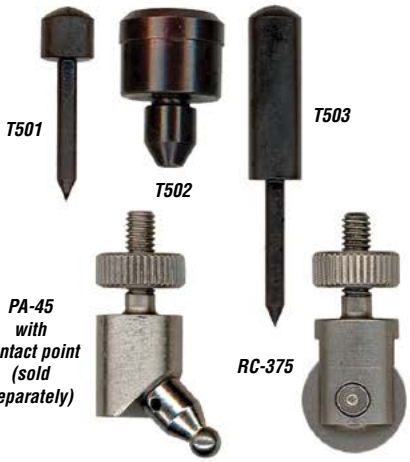
| Model | Description |
|---|---|
| T072 | 0.072" Contact Point for Buttress Threads, RSC Thread Forms V-0.038R & V-0.055 |
| T044 | 0.044" Contact Point Rotary Shouldered Connection V-0.050 and V-0.076 thread forms |
| T034 | 0.034" Contact Point Rotary Shouldered Connection V-0.032 and V-0.040 thread forms |
| T500C | 50° Cone Contact Point, "V" Threads for TH-3001V, TH-3002V, & and TH-3004 Gages |
| T500C-USS | Modified 50° Cone Contact Point, USS Improved Buttress |
| T501 | 50° Cone Contact Point, Self-Centering for TH-3001R and TH-3002R Gages |
| T502 | Self-Centering Sleeve for T501 & T503 Contact Points |
| T503 | 50° Cone Contact Point, "V" Threads for TH-3006 |
| E-Line | .063" R Extreme Line Contact Point |




*Thread Height Standards*










# Contact Points

## API Contact Points for Lead and Taper Gages

Gagemaker's standard contact points are manufactured with carbide balls. Both threaded and straight (non-threaded) shanks are available. All Gagemaker's inspection gages use threaded shank contact points. Threaded shanks are #4-48 UNF. Metric threads are available upon request. Most gages require two contact points.

| Straight Shank Model | Threaded Shank Model | Point Diameter | Threads Per Inch | Connection Type |
|---|---|---|---|---|
| S235 | T235 | 0.235" | 3 | Hughes Slim Line H-90 |
| S200 | T200 | 0.200" | 3½ | All Hughes H-90 |
| S144 | T144 | 0.144" | 4 | API Rotary Shouldered Connections |
| S128 | T128 | 0.128" | 4½ | API Rotary Shouldered Connections |
| S115 | T115 | 0.115" | 5 | API Rotary Shouldered Connections |
| S105T | T105T | 0.105" | 5½ | Truncated for Extreme Line |
| S096 | T096 | 0.096" | 6 | API Rotary Shouldered Connections |
| S090 | T090 | 0.090" | 5 | Buttress Casing – Taper |
| S072 | T072 | 0.072" | 8 | API Tubing and Casing |
| S062 | T062 | 0.062" | 5 | Buttress Casing – Lead |
| S057 | T057 | 0.057" | 10 | API Tubing and Line Pipe |
| S050 | T050 | 0.050" | 11½ | API Line Pipe |
| - | T044 | 0.044" | 4 | RSC Thread Depth Only |
| S041 | T041 | 0.041" | 14 | API Line Pipe |
| - | T034 | 0.034" | 5 | RSC Thread Depth Only |
| S032 | T032 | 0.032" | 18 | API Line Pipe |
| S021 | T021 | 0.021" | 27 | API Line Pipe |

## Special Application Contact Points

Gagemaker continually develops new application contacts and indicator accessories. The following items are in stock for immediate delivery. These contact points have #4-48 UNF threaded shank. All contact points are carbide. Special and metric diameters are available, please call for quotation. **Straight Shanks are available for T060, T098, and T156.**

| Model | Ball Dia. | Model | Ball Dia. | Model | Ball Dia. | Model | Ball Dia. |
|---|---|---|---|---|---|---|---|
| T028 | .028" | T100 | .100" | T176 | .176" | T375 | .375" |
| T043 | .043" | T116 | .116" | T188 | .188" | T430 | .430" |
| T045 | .045" | T118 | .118" | T219 | .219" | T4375 | .4375" |
| T059 | .059" | T125 | .125" | T250 | .250" | T475 | .475" |
| T060 | .060" | T1335 | .1335" | T266 | .266" | T500 | .500" |
| T068 | .068" | T150 | .150" | T295 | .295" | T531 | .531" |
| T071 | .071" | T155 | .155" | T300 | .300" | T625 | .625" |
| T086 | .086" | T156 | .156" | T325 | .325" | T750 | .750" |
| T087 | .087" | T157 | .157" | T344 | .344" | | |
| T092 | .092" | T160 | .160" | T350 | .350" | | |
| T098 | .098" | T165 | .165" | T360 | .360" | | |

## General Purpose Points and Accessories

| Model | Description |
|---|---|
| T500C | 50° Cone Contact Point, "V" Threads for TH-3001V, TH-3002V,TH-3004 Gages |
| T500C-USS | Modified 50° Cone Contact Point, USS Improved Buttress |
| T501 | 50° Cone Contact Point, Self-Centering for TH-3001R, TH-3002R Gages |
| T502 | Self-Centering Sleeve for T501 & T503 Contact Points |
| T503 | 50° Cone Contact Point, "V" Threads for TH-3006 |
| E-Line | .063" R Extreme Line Contact Point |
| TPD | .005" R Contact Point for PD-3003 & PD-3004 Gages |
| PE-___ | Point Extensions available in .300", .500", .750" & 1.00" (Ex. PE-300) |
| PA-45 | 45° Point Adapter, contact point not included |
| RC-375 | .375" Diameter Roller Contact |
| P-500 | TH-3001R Gage, Flat Face Contact |
| Blade-25 | .008" thickness, .170" Diameter, .250" Depth Blade Point |
| Blade-50 | .008" thickness, .170" Diameter, .500" Depth Blade Point |

## Contact Points(Continued)

### UN Series (60° "V") Threads

These contacts points are used to inspect the pitch diameter of machined parts with 60° "V" thread forms. Two are required for most gages.

| Model | Thread Pitch | Model | Thread Pitch | Model | Thread Pitch |
|---|---|---|---|---|---|
| T562 | 1 | T115 | 5 | T050 | 11½ & 12 |
| T288 | 2 | T105 | 5½ | T041 | 14 & 16 |
| T188 | 3 & 3½ | T096 | 6 | T032 | 18 |
| T144 | 4 | T072 | 8 | | |
| T128 | 4½ | T057 | 10 | | |



*Truncated Contact Point*

### Acme or Stub Acme Threads

These truncated contact points are used to inspect the pitch diameter of machined parts with 29° Acme and Stub Acme thread forms. Two are required for most gages.

| Model | Thread Pitch | Model | Thread Pitch | Model | Thread Pitch |
|---|---|---|---|---|---|
| T531T | 1 | T144T | 3½ | T050T | 10 |
| T344T | 1½ | T128T | 4 | T041T | 12 & 14 |
| T266T | 2 | T105T | 5 | T032T | 16 |
| T219T | 2½ | T090T | 6 & 7 | | |
| T188T | 3 | T062T | 8 | | |

### 7° x 45° Buttress Series Contact Points

These contact points are used to inspect the pitch diameter of machined parts with 7° x 45° Buttress thread forms. Two are required for most gages.

| Model | Thread Pitch | Model | Thread Pitch | Model | Thread Pitch |
|---|---|---|---|---|---|
| T562 | 1 | T188 | 3 | T072 | 8 |
| T437 | 1¼ | T156 | 3½ | T057 | 10 |
| T375 | 1½ | T144 | 4 | T050 | 12 |
| T281 | 2 | T115 | 5 | T032 | 16 & 18 |
| T219 | 2½ | T096 | 6 | | |

### Trapezoidal Thread Contact Points

These contact points are used to inspect the millimeter pitch diameter of machined parts with Trapezoidal thread forms. Two are required for most gages.

| Model | mm Pitch | Model | mm Pitch |
|---|---|---|---|
| T144 | 7 | T062 | 3 |
| T125 | 6 | T050 | 2½ |
| T096 | 5 | T041 | 2 |
| T082 | 4 | T032 | 1½ |
| T072 | 3½ | | |

### ISO Metric Series Contact Points

These contact points are used to inspect the pitch diameter of machined parts with ISO Metric 60° "V" thread forms. Two are required for most gages.

| Model | mm Pitch | Model | mm Pitch |
|---|---|---|---|
| T096 | 4 | T057 | 2½ |
| T072 | 3 & 3½ | T041 | 1½, 1¾, & 2 |

*Threaded Shank Contact Points*



*T041*



*T062*



*T072*



*T105*



*T115*



*T125*



*T250*

# Thread Form




*Assorted Straight Thread Profiles*




*Assorted Tapered Thread Profiles*



## Straight Thread Form Profile Gages

Gagemaker manufactures precision straight thread profile gages for quick identification of a thread form. ***Specify thread pitch to be inspected when ordering.*** Special form profiles are available.

| Model | Description |
|---|---|
| TP-UNVI-__P | Internal UN series thread gage |
| TP-UNVE-__P | External UN series thread gage |
| TP-GPA-__P | Internal/external general purpose Acme thread profile gage |
| TP-SA-__P | Internal/external Stub Acme thread profile gage |
| TP-SAM1-__P | Modified 1 Stub Acme thread profile gage |
| TP-SAM2-__P | Modified 2 Stub Acme thread profile gage |
| TP-MI-__P | Internal ISO Metric series thread profile gage |
| TP-ME-__P | External ISO Metric series thread profile gage |
| TP-745-__P | Internal/External 7° X 45° Buttress thread profiile gage |

**Order Example**

TP-UNVI-2P,
TP-UNVE-4P,
TP-SA-8P, etc.

## Tapered Thread Form Profile Gages

Gagemaker manufactures precision tapered thread profile gages for the quick identification thread form identification. When ordering, specify the connection to be inspected. Special profiles will be quoted upon request.

| Model | Connection Type | TPI, TPF, Thread Form |
|---|---|---|
| TP-RTC-8R | API 8-Round Casing, Tubing & Drill Pipe | 8 TPI, ¾" TPF, 8 Round |
| TP-RTC-10R | API 10-Round Tubing | 10 TPI, ¾" TPF, 10 Round |
| TP-8V | 8V API Line Pipe | 8 TPI, ¾" TPF, 8 V Thread |
| TP-11-1/2V | 11½ V API Line Pipe | 11½TPI, ¾" TPF, 11½ V Thread |
| TP-5BTC75-INT | API Buttress Casing, Internal, 4½" - 13⅜" | 5 TPI, ¾" TPF |
| TP-5BTC75-EXT | API Buttress Casing, External, 4½" - 13⅜" | 5 TPI, ¾" TPF |
| TP-5BTC1-INT | API Buttress Casing, Internal, 16" - 20" | 5 TPI, 1" TPF |
| TP-5BTC1-EXT | API Buttress Casing, External, 16" - 20" | 5 TPI, 1" TPF |
| TP-3-1.25-84 | 2⅜" - 3½" Hughes Slimline H-90 | 3 TPI, 1.25" TPF, 90-V-0.084 |
| TP-3.5-2-50 | 3½"- 6⅝" Hughes H-90 | 3.5 TPI, 2" TPF, 90-V-0.050 |
| TP-3.5-3-50 | 7" - 8⅝" Hughes H-90 | 3.5 TPI, 3" TPF, 90-V-0.050 |
| TP-4-1.5-76 | 2⅜" - 3½" P.A.C. Connections<br>2⅜" - 4½" American Open Hole | 4 TPI, 1.5" TPF, V-0.076 |
| TP-4-2-50 | 6⅝" API Regular<br>5½" & 6⅝" API Full Hole | 4 TPI, 2" TPF, V-0.050 |
| TP-4-2-38 | 4" API Full Hole, 2⅞" - 5" Hughes Xtra Hole,<br>2⅜" - 4½" Hughes Slim Hole,<br>2⅜" - 6⅝" Internal Flush<br>API Numbered Connections #23 - #50 | 4 TPI, 2" TPF, V-0.038R |
| TP-4-3-38 | API Numbered Connections #56 - #77 | 4 TPI, 3" TPF, V-0.038R |
| TP-4-3-50 | 5½", 7⅝", & 8⅝" API Regular | 4 TPI, 3" TPF, V-0.050 |
| TP-5-3-40 | 2⅜" - 4½" API Regular<br>2⅞", 3½", 4½" API Full Hole | 5 TPI, 3" TPF, V-0.040 |
| TP-6-1.5-55 | API Numbered Connections #10, #12, #13, #16<br>M.T. (Macaroni Tubing) | 6 TPI, 1.5" TPF, V-0.055 |
| TP-6-2-32 | 2⅜" - 2⅞" Hughes External Flush | 6 TPI, 2" TPF, V-0.032 |
| TP-9060LS | 90° & 60° Threads, Tool Grinding & Setting Gage | Tool Grinding & Setting Gage |
| TP-NPT-8 | NPT Threads | 8 TPI, ¾" TPF |
| TP-NPT-11-1/2 | NPT Threads | 11.5 TPI, ¾" TPF |
| TP-NPT-14 | NPT Threads | 14 TPI, ¾" TPF |

***Specials Available Upon Request***

### *Thread Form Profile Overlays*

Overlay Charts for profiles are available. For more information, please contact customer service.

Special Overlay are also available. For Special Overlays, please specify the following:

1. Screen Size
2. Magnification 20X/50X
3. Product Form or Profile Template



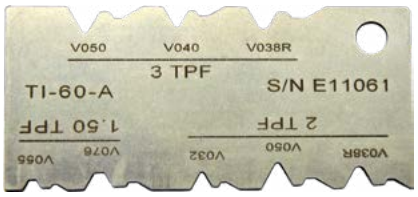

*BR-2001*

# Buttress Runout

### *Buttress Runout Gage*

Buttress runout gages ensure proper thread pullout on runout type threads. Thread runout is the measurement of the abruptness with which the buttress thread is terminated at the triangle end of the thread. A rapid pull-out of the cutting tool results in steep slope at the end of the thread. This causes high stress at the contact point when the coupling is made-up. Buttress runout gages have standard 1" and 2" point spacing. Inlcudes one contact point (TBR) and shoes.

| Model | Description | Range |
|---|---|---|
| BR-2001 | Buttress Runout Gage | All Sizes |
| BR-2001-USS | Buttress Runout Gage for USS Improved Buttress | All Sizes |
| BRB-2001 | Buttress Runout Base Only | All Sizes |
| BRS-2001 | Replacement Shoes (2) | |




*TI-RSC-60*

# Insert Identification

### *Insert Identifiers*

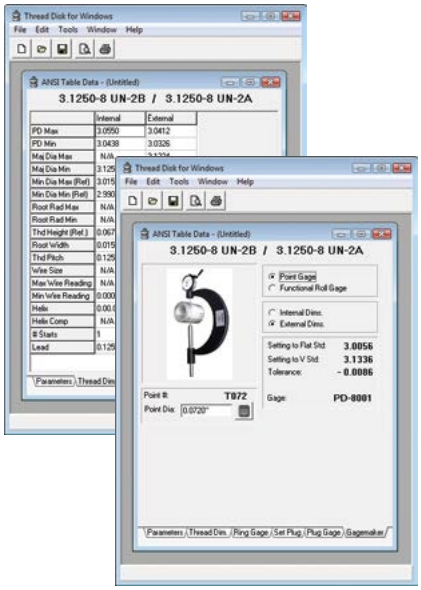
Gagemaker's thread insert indentifiers easily determine which threading insert the machinist is using. When an optical comparator is unavailable, the insert indentifier will show which thread form is on the insert.




| Model | Taper Per Foot/Pitch | Thread Forms |
|---|---|---|
| TI-RSC-60 | 1.5", 2", & 3" | Rotary Shouldered Connections- V-0.032, V-0.038R, V-0.040, V-0.050, V-0.055, V-0.065, & V-0.076 |
| TI-RSC-90 | 1.25", 2", 3", & 3.373" | Rotary Shouldered Connections- A-0.094, 90-V-0.050, & 90-V-0.084 |
| TI-ACME-INT | 3P, 3.5P, 4P, 5P, 6P, 8P, 10P, 12P, 14P, & 16P | Internal Acme |
| TI-SACME-INT | 3P, 3.5P, 4P, 5P, 6P, 8P, 10P, 12P, 14P, & 16P | Internal Stub Acme |
| TI-T&C | ¾" and 1" | Tubing and Casing - 8 Round, 10 Round, & ¾" and 1" Internal and External Buttress |




*TDWIN™ Software*




*TDWIN™ Screenshots*



*TDWIN™ Report*

# Software

## *Thread Disk™ Software*
## *Straight Thread Dimensions* — *TDWIN™*

The Thread Disk™ engineering software calculates critical dimensions for threads based on ANSI tables and formulas. Thread types supported by the program include: UN, UNJ and UNR Series, Acme, Stub Acme, Stub Acme Modified I and II, Metric M & MJ, 7° X 45° Buttress, and General Purpose Pipe Threads.

To generate critical dimensions instantly, enter basic thread information on the Thread Type Entry screen, such as: thread type, thread class, nominal diameter, and threads per inch. Once the results are computed, tabs at the bottom of the program allow selection of several types of calculated information, including dimensions and tolerances for product threads, ring gages, set plugs, plug gages or Gagemaker's Thread Diameter gages.

If measuring internal and external shallow taper diameters is a problem, the Ball Mic SET DIM Tool provides setting dimensions for ball micrometers or Gagemaker's BX-1000 groove gage. The program calculates ball mic settings for any tapered surface geometry.

Other features of the program include the ability to print thread dimension reports, providing a paper copy of any calculation. These reports provide the same critical dimensions that display in the program. A multiple calculation window capability is a feature that allows performing several different thread calculations at the same time.

***System Requirements***

- *Windows XP or higher*
- *64 MB RAM*
- *3 MB of free hard disk space*

***Features***

- *Uses ANSI tables, formulas, and tolerances*
- *Calculates standard and non-standard product thread diameters from #000 to 99.8"*
- *Calculates ANSI ring and plug gage dimensions*
- *Addresses pitches from 1 to 400*
- *Calculates Gagemaker style thread gage setting dimensions*

| Model | Description |
|---|---|
| **TD**WIN | Thread Disk software |
| **TD**WIN-Network | Multi-user license agreement |

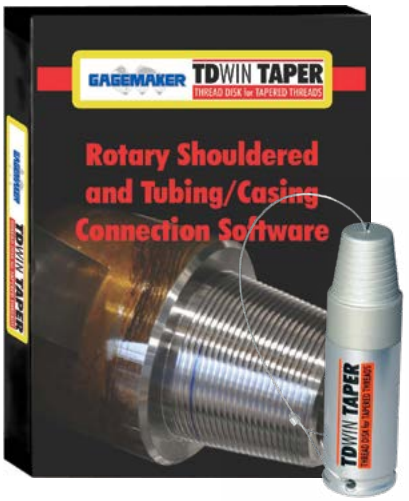
## *Thread Disk Software*
## *Tapered Thread Dimensions*

### *TDWIN Taper™*

Gagemaker's **TD**WIN Taper™ software simplifies the API specifications that control connection quality. **TD**WIN Taper™ produces dimensional drawings and inspection data for API downhole tubular connections based on the most current industry standards. All the necessary details to machine, inspect and document tubular connection threads are available in one convenient program.

**TD**WIN Taper™ provides easy access to information for both preferred and non-preferred Rotary Shouldered Connections, Tubing and Casing Connections, and any combination of Crossover. The program offers standard connection types and sizes. **TD**WIN Taper™ relies on API and industry standard tables and tolerances. It displays connection drawings, inspection gage information, and setup and inspection reports.

The software displays printable drawings suitable for manufacturing. The drawings follow ASME Y14.5 standards for industry compatibility. Print gage setup and inspection reports with your company logo and work order information. The program offers the choice to save reports and jobs for future reference.




*TDWIN Taper Software*

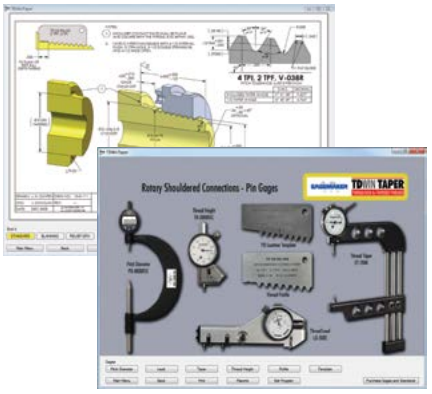
Tapered oilfield connection types supported by the program include the following:

**Rotary Shouldered Connections**

| | | |
|---|---|---|
| API Numbered Connections | PAC | Slimline H-90 |
| API Regular | Slim Hole | External Flush |
| Full Hole | Wide Open | Acme Regular |
| Internal Flush | Xtra Hole | Acme Streamline |
| Open Hole | H-90 | Double Streamline |

**Tubing and Casing Connections**

| | |
|---|---|
| NUE Tubing | USS Improved Buttress Tubing |
| EUE Tubing | Line Pipe |
| Short Thread Casing | Special Clearance Couplings |
| Long Thread Casing | SR13 Seal Ring Groove Couplings |
| Buttress Casing | |




*TDWIN Taper™ Screenshots*

***System Requirements***

- *Microsoft Windows XP or newer*
- *USB 2.0 port*
- *Internet Connection for first use*
- *1 MB RAM or more (recommended)*
- *Screen resolution of 1024 x 768 minimum*
- *.Net Framework 2.0 or later installed*




*TDWIN Taper™ Report*

***Features***

- *Print dimensional reports and inspection sheets*
- *Print product blueprints for manufacturing and inspection*
- *Provides gages configurations, setting standards, and contact point information*

| Model | Description |
|---|---|
| **TD**WIN-Taper-2.0 | Thread Disk Software for Tapered Threads |

# Indicators




## Dial Indicators

Gagemaker's mechanical indicators are manufactured per ANSI AGD specifications.

| Model | Correlating Gage Model | Travel | Resolution |
|---|---|---|---|
| 1512SGA (CONT) | WT-9000 Series | .250" | .0005" |
| 1512SRGA (CONT) | TH-3002R, TH-3002V, PD-3003 | .250" | .0005" |
| 1513SGA (BAL) | PN-3000 Series, BX-1000, BXG-1000 (was 803) | .250" | .0005" |
| 1513SRGA (BAL) | TH-3002B, TH-3003B, TS-4001 (was 803I) | .125" | .0005" |
| 801 (BAL) | BR-2001 | .250" | .001" |
| 801I (BAL) | TH-3002R, TH-3002V | .250" | .001" |
| 802 (CONT) | WT-9000 Series | .250" | .001" |
| 802I (CONT) | TH-3001R, TH-3001V, PD-3003 | .250" | .001" |
| 862L (CONT) | ET-7001, ET-7002, ET-7004, ET-7006 Series w/ Lever | .500" | .001" |
| 862I (CONT) | IT-6001, PD-3004 | .500" | .001" |
| 863 | RG-7000 Series, TH-3004, TH-3006, TH-3008, TH-3009, TH-3010, SRG-7000, CA-9001, MRP-5000 Series, SPG-6000 | .500" | .0005" |
| 863L (BAL) | PD-8000 Series w/ Lever | .500" | .0005" |
| 863I (BAL) | PD-6000, PD-6001, PG-6000 Series, TS-1000, IT-5100, MRP-5500, SPG-6000 | .500" | .0005" |
| 882L (CONT) | ET-7003, ET-7005, ET-7007 w/ Lever | 1.00" | .001" |
| 882I (CONT) | IT-6000 | 1.00" | .001" |
| 80-0403 | LG-5002, LG-5003 | .100" | .0005" |
| 80-0400 | LG-5002, LG-5003 | .025" | .0001" |
| 83-0584 | MRP-2000, MRP-2500, MRP-3000 | .500" | .001" |
| 83-0582 | MRP-2000, MRP-2500, MRP-3000 | .500" | .0005" |
| 87-070 | MRP-1000, MRP-1500 | .125" | .0005" |

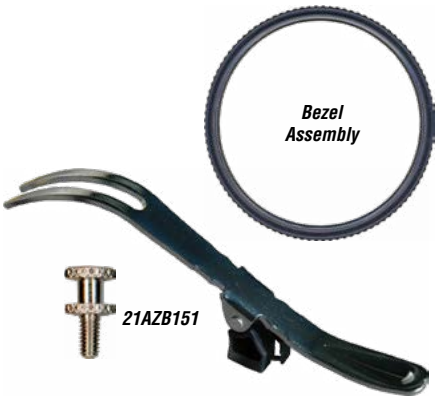
***Notes: (BAL) indicates Balanced.***
***(CONT) indicates Continuous.***
***"I" after the model number indicates counter clockwise rotation.***
***"L" after model number indicates a lifting lever .***

## Multipurpose Indicators

| Model | Description | Travel | Resolution |
|---|---|---|---|
| 2358B-MRP | All MRP® Gages | .500" | .0001" |
| 2358SGA | Multipurpose Indicator, Balanced | .500" | .0001" |
| 2358SRGA | Multipurpose Indicator, Balanced | .500" | .0001" |
| 2776SGA | Multipurpose Indicator, Continuous, Clockwise | 1.00" | .0005" |
| 2776SRGA | Multipurpose Indicator, Continuous, Counterclockwise | 1.00" | .0005" |
| 2777SGA | Multipurpose Indicator, Balanced, Clockwise | 1.00" | .0005" |
| 2777SRGA | Multipurpose Indicator, Balanced, Counterclockwise | 1.00" | .0005" |

## Metric Dial Indicators

| Model | Description | Travel | Resolution |
|---|---|---|---|
| 1044SGA | Metric Mechanical, Continuous, Clockwise | 5 mm | .01 mm |
| 1044SRGA | Metric MechanicaL, Continuous, Counterclockwise | 5 mm | .01 mm |
| 1045SGA | Metric Mechanical, Balanced, Clockwise | 5 mm | .01 mm |
| 1045SRGA | Metric Mechanical, Balanced, Clockwise | 5 mm | .01 mm |
| 2046SGA | Metric Mechanical, Continuous, Clockwise | 10 mm | .01 mm |
| 2047SGA | Metric Mechanical, Balanced, Clockwise | 10 mm | .01 mm |
| 2902SRGA | Metric Mechanical, Continuous, Counterclockwise | 10 mm | .01 mm |
| 2047SRGA | Metric Mechanical, Balanced, Clockwise | 10 mm | .01 mm |
| 2050S-01 | Metric Mechanical, Continuous | 20 mm | .01 mm |




## Digital Indicators

| Model | Description | Travel | Resolution | Accuracy |
|---|---|---|---|---|
| 543-452B | Electronic/Digital | 1" | .00005" | .0005" |
| 543-683B | Electronic/Digital | .500" | .0005" | .0005" |




## Indicator Replacement Parts

Dial rings are available for all indicators. Please call for more information.




### Small Dials

| Model | Description |
|---|---|
| 21AZB353 | Bezel Assembly (Blue "S" Type) |
| 21BAA147A | Bezel Assembly (Black "F" Type) |
| 21AAB364 | Bezel Clamp Washer (Blue "S" Type) |
| 21AAB162 | Bezel Clamp Screw (Blue "S" Type) |
| 193592 | Bezel Clamp Washer (Black "F" Type) |
| 193690 | Bezel Clamp Screw (Black "F" Type) |
| 900527 | Mitutoyo Lifting Lever |

### Large Dials

| Model | Description |
|---|---|
| 21AZB161 | Bezel Assembly (Blue "S" Type) |
| 192683 | Bezel Assembly (Black "F" Type) |
| 21RZA065 | Bezel Clamp Assembly (Blue "S" Type) |
| 21BA083 | Bezel Clamp Washer (Black "F" Type) |
| 101214 | Bezel Clamp Screw (Black "F" Type) |
| 21AZB151 | Mitutoyo Lifting Lever |




SC0232014-00

# Gage Setting and Part Measurement

## Gage Setting and Part Measurement Systems

This package features the MIC TRAC™ as a multi-use gage setting system. The system sets or zeros most gages with the use of interchangeable anvils or blocks. Standard resolution of base unit is .00005". Accuracies range from ±.0001" to ±.0004". The Digital Read Out (DRO) is CE approved. All MIC TRAC™ 3000 Series inlcude one set of TF-PL blocks and a shipping carton. Larger ranges are available, please contact customer service for more information.






*MT-3012-50 with TF-PL Blocks*



*DRO*



*MT-4-USB*



*Computer*



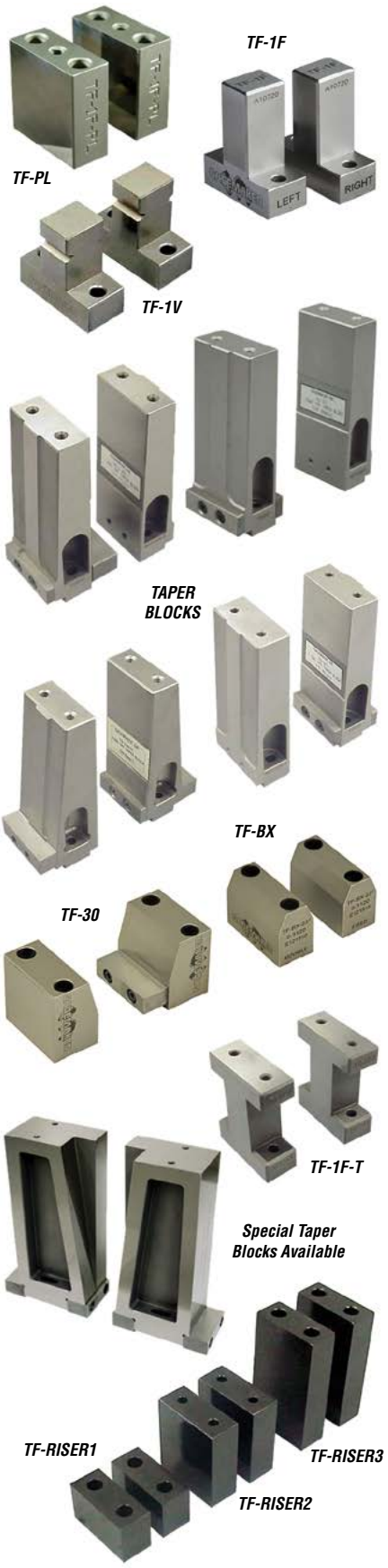

## Shop Floor Gage Setting and Part Measurement System

| Model | Description | Accuracy | Resolution | Range |
|---|---|---|---|---|
| *MT-3000 Standard Base Units without Force-Lok* | | | | |
| MT-3012-50 | MIC TRAC™ Base Unit w/ DRO | ±.0001" | .00005" | Int. 0" - 12"<br>Ext. 1½" - 13½" |
| MT-3024-50 | MIC TRAC™ Base Unit w/ DRO | ±.0002" | .00005" | Int. 0" - 24"<br>Ext. 1½" - 25½" |
| MT-3036-50 | MIC TRAC™ Base Unit w/ DRO | ±.0003" | .00005" | Int. 0" - 36"<br>Ext. 1½" - 37½" |
| MT-3048-50 | MIC TRAC™ Base Unit w/ DRO | ±.0004" | .00005" | Int. 0" - 48"<br>Ext. 1½" - 49½" |
| *MT-3000 Standard Base Units with Force-Lok* | | | | |
| MT-3012F-50 | MIC TRAC™ Base Unit w/ DRO and Force-Lok | ±.0001" | .00005" | Int. 0" - 12"<br>Ext. 1½" - 13½" |
| MT-3024F-50 | MIC TRAC™ Base Unit w/ DRO and Force-Lok | ±.0002" | .00005" | Int. 0" - 24"<br>Ext. 1½" - 25½" |
| MT-3036F-50 | MIC TRAC™ Base Unit w/ DRO and Force-Lok | ±.0003" | .00005" | Int. 0" - 36"<br>Ext. 1½" - 37½" |
| MT-3048F-50 | MIC TRAC™ Base Unit w/ DRO and Force-Lok | ±.0004" | .00005" | Int. 0" - 48"<br>Ext. 1½" - 49½" |
| *MT-3000 Base Unit with Computer & MT-4-USB* | | | | |
| MT-3012F-50-USBC | MIC TRAC™ Base Unit with Force-Lok, Computer, & USB | ±.0001" | .00005" | Int. 0" - 12"<br>Ext. 1½" - 13½" |
| MT-3024F-50-USBC | MIC TRAC™ Base Unit with Force-Lok, Computer, & USB | ±.0002" | .00005" | Int. 0" - 24"<br>Ext. 1½" - 25½" |
| MT-3036F-50-USBC | MIC TRAC™ Base Unit with Force-Lok, Computer, & USB | ±.0003" | .00005" | Int. 0" - 36"<br>Ext. 1½" - 37½" |
| MT-3048F-50-USBC | MIC TRAC™ Base Unit with Force-Lok, Computer, & USB | ±.0004" | .00005" | Int. 0" - 48"<br>Ext. 1½" - 49½" |
| *High Resolution MT-3000 Base Unit with Computer & MT-4-USB* | | | | |
| MT-3012F-10-USBC | MIC TRAC™ Base Unit with Force-Lok, Computer, & USB | ±.00005" | .00001" | Int. 0" - 12"<br>Ext. 1½" - 13½" |
| MT-3024F-10-USBC | MIC TRAC™ Base Unit with Force-Lok, Computer, & USB | ±.00010" | .00001" | Int. 0" - 24"<br>Ext. 1½" - 25½" |
| MT-3036F-10-USBC | MIC TRAC™ Base Unit with Force-Lok, Computer, & USB | ±.00015" | .00001" | Int. 0" - 36"<br>Ext. 1½" - 37½" |
| MT-3048F-10-USBC | MIC TRAC™ Base Unit with Force-Lok, Computer, & USB | ±.00020" | .00001" | Int. 0" - 48"<br>Ext. 1½" - 49½" |
| MT-3060F-10-USBC | MIC TRAC™ Base Unit with Force-Lok, Computer, & USB | ±.00025" | .00001" | Int. 0" - 60"<br>Ext. 1½" - 61½" |

## *MIC TRAC™ Setting Blocks*

The MIC TRAC™ 3000 receiver blocks include precision, calibrated surfaces designed for mounting all the various setting blocks. Depending on the requirements of the application, each pair of MIC TRAC™ setting blocks is precisely ground with either a flat or tapered gauging surface. Setting blocks are supplied in sets of two, with various degrees of taper available.

| Model | Description |
|---|---|
| *Shallow Tapered Cylinder Setting Blocks (2 Block Sets) (used with BX-1000 gages)* | |
| TF-10 | Tapered Setting Blocks 10° half angle |
| TF-15 | Tapered Setting Blocks 15° half angle |
| TF-20 | Tapered Setting Blocks 20° half angle |
| TF-30 | Tapered Setting Blocks 30° half angle |
| TF-45 | Tapered Setting Blocks 45° half angle |
| *Special Purpose Setting Blocks* | |
| TF-.5F | Flat Face Setting Blocks (1.000" outside diameter) |
| TF-1F | Universal flat face setting / measuring blocks (1.500" outside diameter) |
| TF-PL | Flat Face Setting Blocks, No taper (supplied with MIC TRAC™) |
| *API 6A Ring Groove & Special Flange Groove Setting Blocks* | |
| TF-BX | 23° BXR Ring Groove Diameter/Width Setting Blocks, used with BX-1000 gages (2 per set) |
| *Thread Gage Setting Blocks* | |
| TF-1V | 3-5 pitch 60° "V" thread setting blocks (2 per set) |
| TF-2V | 6-20 pitch 60° "V" thread setting blocks (2 per set) |
| *Tubing and Casing Taper Setting Blocks* | |
| TF-STR | Straight Blocks |
| TF-.75T | ¾" Taper Blocks, 8 & 10 Round, ¾" TPF Buttress, Line Pipe |
| TF-1.0T | 1" Taper Blocks, 1" TPF Buttress |
| TF-1.12T | 1⅛" Taper Blocks, 1.125 TPF Connection |
| TF-1.75T | 1¾" Taper Blocks, 1.75 TPF Connections |
| **Special Taper Blocks Available** | |
| *MRP® Straight Face Setting Blocks* | |
| TF-1F-T | Flat face setting blocks to accept riser block (T-Shape) |
| *Riser Blocks for the Taper Blocks* | |
| TF-RISER1 | 1.00" Riser Block (Set of 2) |
| TF-RISER2 | 2.00" Riser Block (Set of 2) |
| TF-RISER3 | 3.00" Riser Block (Set of 2) |






# Precision Gage Calibration System

## MIC TRAC™ 4000 Package

This package features the MIC TRAC™/MT-4000 as a precision calibration system. The system accepts fixtures that inspect and calibrate a wide range of gage diameters and thread pitches. The package includes all the equipment necessary to calibrate precision handheld gages. Ring and plug inspection requires the purchase of additional accessories.

Package includes:

- MT-4012-10 MIC TRAC™ electronic adjustable measurement master, range 0" to 12". Base unit is error compensated to an accuracy of ±.00005", resolution .00001", travel 12.000".
- Ultra precision scale with 1.00" travel, accuracy ±.00002", and resolution .00001".
- Computer with CERTIFI™ Calibration Software. CERTIFI™ produces calibration reports, has a recall database, and a digital readout acquisition module.
- CRC MT-4000 Calibration Reference Card Set: procedures documenting calibrations with the Gagemaker system
- TF-2R: Carbide anvil set, ⅜" diameter
- TF-XYT: Adjustable X, Y & tilt support table for use with the MIC TRAC™
- CAL-PAK: Assortment of fixtures designed to hold gages for calibration
- **TD**WIN Thread Disk software program: provides critical thread dimensions for manufacturing and inspection of UN, Acme, Stub Acme, Metric, Buttress, and NPT threads.
- Torque wrench, 50 in. lb. (TW-50)
- AWH-100 bench-top tool holder with wrenches
- Reusable shipping container

| Model | Description | Range |
|---|---|---|
| PGC-12-W2 | Precision Calibration Package | 0" - 12" |

## Additional Packages & Calibration Accessories

The following base units and accessories for larger requirements are available options to the standard MIC TRAC™ Package above.

| Model | Description | Range |
|---|---|---|
| PGC-24-W2 | Precision Calibration Package with MT-4024-10 MIC TRAC™ | 0" - 24" |
| PGC-36-W2 | Precision Calibration Package with MT-4036-10 MIC TRAC™ | 0" - 36" |
| PGC-48-W2 | Precision Calibration Package with MT-4048-10 MIC TRAC™ | 0" - 48" |

## MIC TRAC™ Package Training Options

We also offer expert-led training for our precision gage calibration systems at your location or at our facility. Please contact customer service for more information.

| | |
|---|---|
| PGC-__-W2 Training Options: | Option A: Training at customer's facility (per day, plus airfare) |
| | Option B: Training at Gagemaker's facility (per day, per person) |

## MT-4000 Base Units with Extended Software Functions

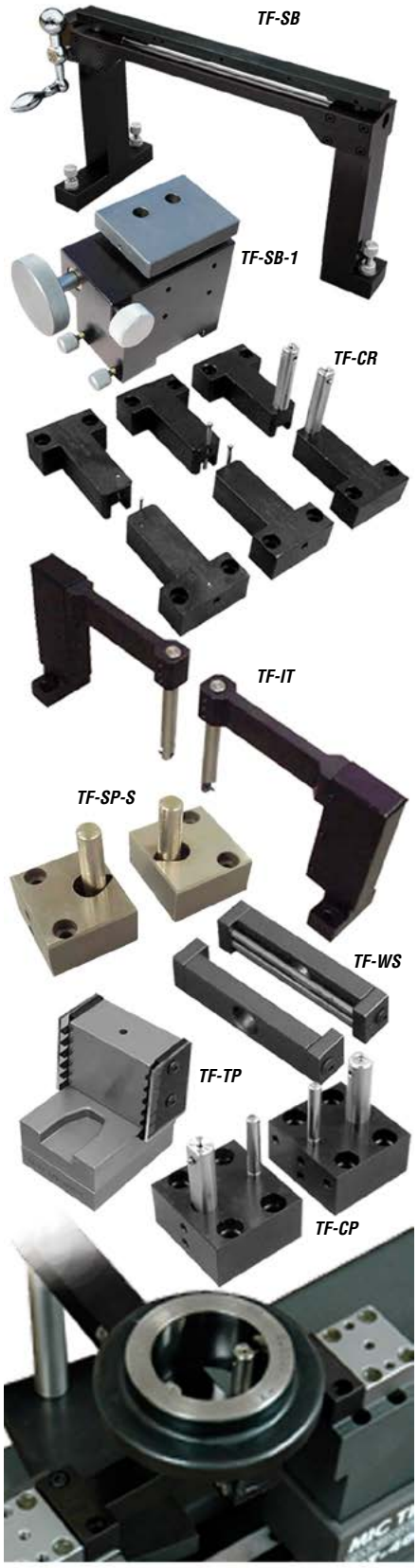
A MIC TRAC™ 4000 base unit supplied only with digital readout software with extended functions, a computer, TF-2R setting blocks, and shipping carton.

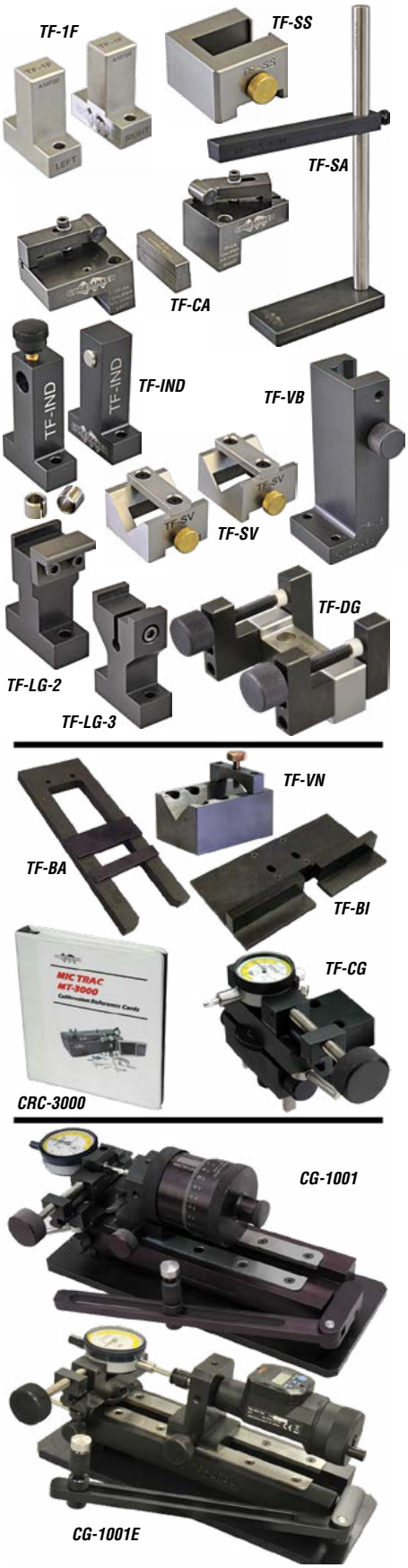
| Model | Description | Accuracy | Resolution | Range |
|---|---|---|---|---|
| MT-4012-10 | MIC TRAC™ Base Unit | ±.00005" | .00001" | 0" - 12" |
| MT-4024-10 | MIC TRAC™ Base Unit | ±.00010" | .00001" | 0" - 24" |
| MT-4036-10 | MIC TRAC™ Base Unit | ±.00015" | .00001" | 0" - 36" |
| MT-4048-10 | MIC TRAC™ Base Unit | ±.00020" | .00001" | 0" - 48" |

## *Precision Gage Calibration System (MT-4000) Accessories*

Gagemaker provides various accessories to expand the functionality of the MIC TRAC™ 4000 base unit. Some of the following are included as a package, but they are also available individually.

| Model | Description |
|---|---|
| AWH-100 | Hex wrench holder with wrenches |
| CRC-MT4000 | Complete procedural documentation for the calibration of handheld inspection equipment including: O.D. & I.D. micrometers, calipers, depth micrometers, ring and plug gages, and more. |
| MT-4-USB | Digital readout software module with digital data acquisition card w/ CERTIFI™ |
| **TD**WIN | Thread Disk software for calculating critical setting dimensions for threads. Includes UN Series, Acme, Stub Acme, ISO Metric, and 7° X 45° Buttress thread forms. |
| TF-2R | ⅜" diameter carbide anvil set |
| TF-SB | Adjustable height support table |
| TF-SB-1 | Bearing rail support base |
| TF-XYT | Adjustable height support table, X-axis & Y-axis support base |
| TW-50 | 50 in-lb torque wrench with 5/32" hex wrench adapter |
| *Cylindrical Ring & Thread Ring and Plug Gage Accessories* | |
| TF-1F | Flat face setting blocks |
| TF-1F-C | Carbide flat face setting blocks |
| TF-CP | Ball contact holders, .500 ID measurement |
| TF-CR | Set of 3 fixtures for measuring cylindrical ring gages and bores. CR-1 (.170"-.249"), CR-2 (.250"-.879"), CR-3 (.880"- Larger) |
| TF-IT | Internal threaded ring arm P.D. module (for solid threaded ring gages). Contains ball contacts and holders for 6, 8, 10, 12, 14, 16, 18, and 20 pitch 60° threads (Diameter range 1.500" & Larger). |
| TF-SP-5 | For vertically holding gage pins .062" - .500" |
| TF-SP-75 | For vertically holding gage pins .062" - .750" |
| TF-TP | Calibration fixture for NPT, NPTF and ANPT tapered plug gages (includes wire for 27, 18, 14, and 11½ pitch threaded plugs). (Requires TF-2R blocks) |
| *Thread Wire Holder Modules for UN, Acme, and Metric Threads*<br>All wire holders require TF-2R Blocks and are supplied with one set of wires. Please specify pitch required.<br>*Note*: "__" denotes pitch, ex. TF-WHV-12 = 60° thread wire holder module with wires 12 pitch. | |
| TF-WHV-__ | 60° thread wire holder module with your choice of wires. Please select one pitch from the following range: 5 pitch to 48 pitch |
| TF-WHVP-__ | 60° thread wire holder module with your choice of wires. Please select one pitch from the following range: 1 pitch to 4 pitch or 56 pitch to 72 pitch |
| TF-WHA-__ | 29° thread wire holder module with your choice of wires. Please select one pitch from the following range: 4 pitch to 20 pitch |
| TF-WHAP-__ | 29° thread wire holder module with your choice of 2 pitch or 3 pitch wires |
| TF-WHM-__ | Metric thread wire holder module with your choice of wires. Please select one pitch from the following range: 0.5 mm pitch to 0.8 mm pitch or 5 mm pitch to 6 mm pitch |
| TF-WHM-__ | Metric thread wire holder module with your choice of wires. Please select one pitch from the following range: 1.0 mm pitch to 4.5 mm pitch |
| TF-WSV | Thread wire holder Set. Contains wires and holders for 6, 8, 10, 12, 14, 16, 18, 20, 24, 28 and 32 pitch 60° threads. |
| TF-WSA | Thread wire holder Set. Contains wires and holders for 4, 5, 6, 8, 10, 12, 14 and 16 pitch Acme 29° threads. |
| TF-WSM | Thread wire holder set. Contains wires and holders for .5, .6, .75, 1.0, 1.25, 1.5, 2.0, 3.0, 4.0 and 5.0 pitch metric 60° threads. |
| TF-WH-__ | Wire holder only (Indicate V, A, or M and then wire size or pitch) |






## MIC TRAC™ System Options

The following accessories are available for larger requirements for either the MIC TRAC™ 3000 or MIC TRAC™ 4000.

| Model | Description |
|---|---|
| CAL-PAK | Complete Calibration Package<br>Includes: TF-1F, TF-CA, TF-DG, TF-IND, TF-LG-2, TF-LG-3, TF-SA, TF-SS, TF-SV, TF-VB, and storage case (included with a MT-4000 Package (PGC-12-W2, etc.)) |
| TF-IND | AGD dial indicator. Calibration fixture (includes .375" and 8mm bushing) |
| TF-DG | Calibration fixture for depth micrometer* |
| TF-CA | Caliper calibration accessory dial, digital and vernier calipers. Includes TF-SA support arm. |
| TF-TI | Test indicator calibration block* |
| TF-SA | Support arm for TF-CA. |
| TF-SS | Straight support accessory for support of extended probes* |
| TF-SV | "V" support accessory for calibrating micrometers and standards** |
| TF-VN | "V" blocks for calibration of axial travel probes and bore gages |
| TF-1F | Flat face setting block set (2 blocks) 1.5000" outside diameter |
| TF-BA | Base support block for setting dial bore gages** |
| TF-VB | "V" block fixture for calibration of Gagemaker's TH-3004 and MRP-2002 Upper arms* |
| TF-LG-2 | Lead gage calibration fixture for either Allen or Gagemaker gages (LG-5002) |
| TF-LG-3 | Gagemaker lead gage (LG-5003) calibration fixture* |
| TF-BI | Base support plate for setting dial bore gages** |
| TF-CG | Universal clamping fixture for calibration of indicators and gages* |
| CRC-MT3000 | Complete procedural documentation for the calibration of handheld inspection equipment including: O.D. & I.D. micrometers, calipers, depth micrometers, and more. (**MT-3000 ONLY**) |
| CRC-MT4000 | Complete procedural documentation for the calibration of handheld inspection equipment including: O.D. & I.D. micrometers, calipers, depth micrometers, ring and plug gages, and more. (**MT-4000 ONLY**) |

***1 TF-1F block required with this accessory***
***2 TF-1F blocks required with this accessory***

## Bench Calibrator

The Gagemaker bench calibrator, CG-1001/CG-1001E, calibrates gages and indicators per AGD specification. The CG-1001 uses a non-rotating spindle screw type micrometer which reads directly to .0001" and can be estimated to the closest .00005".

Disassembling the gage is not required for calibration. The vise assembly allows full vertical and horizontal adjustment of the gage or indicator clamped in the vise jaws. During calibration, an outboard arm and arm support allows for larger gage assemblies to be securely supported. Four supplied accessory fixtures will help speed up calibration while maintaining accuracy.*

The CG-1001 is our standard bench calibrator, while the CG-1001E is our digital version which includes an SPC output.

Bench Calibrators are shipped in a durable custom shipping/storage case. Optional wooden storage cases are available.

| Model | Description | Range | Accuracy |
|---|---|---|---|
| CG-1001 | Bench Calibrator | .0001" Resolution, Mechanical | ±.0001 |
| CG-1001E | Digital Bench Calibrator Gage w/ SPC Output | .00005"/.001 mm Resolution, Digital | ±.00015 |

***Individual replacement fixtures are available for purchase but not listed above. Please call for more information.***

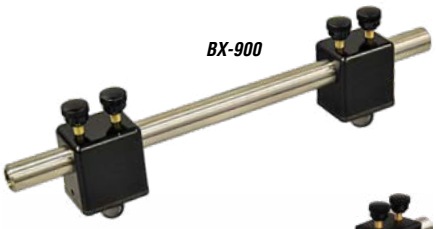
# API 6A Seal Ring Groove Gages (BX/RX)

## Face Groove and Hole Location Gages

Gagemaker's face groove gages inspect groove diameters and groove widths. Excellent for inspecting hole locations. Additional extensions for various lengths are available, please contact customer service for more.

| Model | Description | Range |
|---|---|---|
| BX-900 | Ball Mic Gage w/ Ball Points (no indicator) | BX, R, RX Grooves, Diameters 2.6" - 13" |
| BX-1000 | 6B Groove Diameter Gage w/ T188 Points | BX, R, RX Grooves, Diameters 2.6" - 13" |
| BXG-1000 | 6B Groove Width Gage w/ T072 Points | BX, R, RX Grooves, Widths .375" - 1.5" |
| BXG-1002 | Special Groove Width Gage w/ T072 Points | Special Groove, Widths 2.0" |
| BX-R13 | Optional Extension rod for BX-1000, 13" | Groove Diameters to 13" |
| BX-R24 | Optional Extension rod for BX-1000, 24" | Groove Diameters to 25" |
| BX-R30 | Optional Extension rod for BX-1000, 30" | Groove Diameters to 31" |
| BX-R36 | Optional Extension rod for BX-1000, 36" | Groove Diameters to 37" |
| PD-BX | BX/BXG Setting Gage, ½" X ½" U-notch | |

BX-900



BX-1000

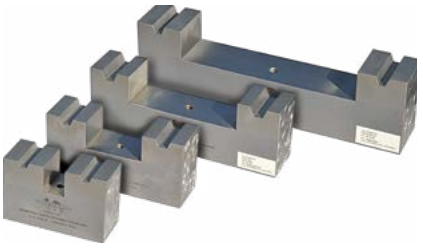


## Face Groove and Hole Location Gage Setting Masters

| Model | Description | Model | Description |
|---|---|---|---|
| FSBX-150 | Setting Master for BX-150 | FSBX-162 | Setting Master for BX-162 |
| FSBX-151 | Setting Master for BX-151 | FSBX-163 | Setting Master for BX-163 |
| FSBX-152 | Setting Master for BX-152 | FSBX-164 | Setting Master for BX-164 |
| FSBX-153 | Setting Master for BX-153 | FSBX-165 | Setting Master for BX-165 |
| FSBX-154 | Setting Master for BX-154 | FSBX-166 | Setting Master for BX-166 |
| FSBX-155 | Setting Master for BX-155 | FSBX-167 | Setting Master for BX-167 |
| FSBX-156 | Setting Master for BX-156 | FSBX-168 | Setting Master for BX-168 |
| FSBX-157 | Setting Master for BX-157 | FSBX-169 | Setting Master for BX-169 |
| FSBX-158 | Setting Master for BX-158 | FSBX-170 | Setting Master for BX-170 |
| FSBX-159 | Setting Master for BX-159 | FSBX-171 | Setting Master for BX-171 |
| FSBX-160 | Setting Master for BX-160 | FSBX-172 | Setting Master for BX-172 |
| FSBX-161 | Setting Master for BX-161 | FSBX-303 | Setting Master for BX-303 |

BXG-1000



Face Groove and Hole Location Standards (FSBX)

## BX - Dog Bone/Paddle Gage

| Model | Description | Model | Description |
|---|---|---|---|
| DBBX-150 | Dog Bone Ring Groove Gage BX-150 | DBBX-162 | Dog Bone Ring Groove Gage BX-162 |
| DBBX-151 | Dog Bone Ring Groove Gage BX-151 | DBBX-163 | Dog Bone Ring Groove Gage BX-163 |
| DBBX-152 | Dog Bone Ring Groove Gage BX-152 | DBBX-164 | Dog Bone Ring Groove Gage BX-164 |
| DBBX-153 | Dog Bone Ring Groove Gage BX-153 | DBBX-165 | Dog Bone Ring Groove Gage BX-165 |
| DBBX-154 | Dog Bone Ring Groove Gage BX-154 | DBBX-166 | Dog Bone Ring Groove Gage BX-166 |
| DBBX-155 | Dog Bone Ring Groove Gage BX-155 | DBBX-167 | Dog Bone Ring Groove Gage BX-167 |
| DBBX-156 | Dog Bone Ring Groove Gage BX-156 | DBBX-168 | Dog Bone Ring Groove Gage BX-168 |
| DBBX-157 | Dog Bone Ring Groove Gage BX-157 | DBBX-169 | Dog Bone Ring Groove Gage BX-169 |
| DBBX-158 | Dog Bone Ring Groove Gage BX-158 | DBBX-170 | Dog Bone Ring Groove Gage BX-170 |
| DBBX-159 | Dog Bone Ring Groove Gage BX-159 | DBBX-171 | Dog Bone Ring Groove Gage BX-171 |
| DBBX-160 | Dog Bone Ring Groove Gage BX-160 | DBBX-172 | Dog Bone Ring Groove Gage BX-172 |
| DBBX-161 | Dog Bone Ring Groove Gage BX-161 | DBBX-303 | Dog Bone Ring Groove Gage BX-303 |

PD-BX

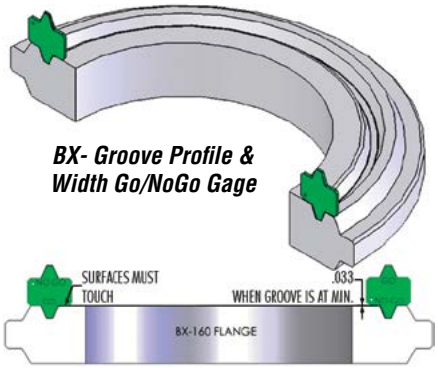


PD-BX Setting a BX-1000



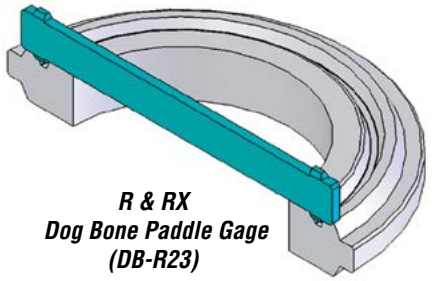


*DB-R36*




***BX- Groove Profile & Width Go/NoGo Gage***

***BX- Dog Bone Paddle Gage***



***R & RX Dog Bone Paddle Gage (DB-R23)***




## BX - Groove Profile & Width GO/NO GO Gage

| Model | Description | Model | Description |
|---|---|---|---|
| BXP-150 | GO/NO GO Profile Gage BX-150 | BXP-162 | GO/NO GO Profile Gage BX-162 |
| BXP-151 | GO/NO GO Profile Gage BX-151 | BXP-163 | GO/NO GO Profile Gage BX-163 |
| BXP-152 | GO/NO GO Profile Gage BX-152 | BXP-164 | GO/NO GO Profile Gage BX-164 |
| BXP-153 | GO/NO GO Profile Gage BX-153 | BXP-165 | GO/NO GO Profile Gage BX-165 |
| BXP-154 | GO/NO GO Profile Gage BX-154 | BXP-166 | GO/NO GO Profile Gage BX-166 |
| BXP-155 | GO/NO GO Profile Gage BX-155 | BXP-167 | GO/NO GO Profile Gage BX-167 |
| BXP-156 | GO/NO GO Profile Gage BX-156 | BXP-168 | GO/NO GO Profile Gage BX-168 |
| BXP-157 | GO/NO GO Profile Gage BX-157 | BXP-169 | GO/NO GO Profile Gage BX-169 |
| BXP-158 | GO/NO GO Profile Gage BX-158 | BXP-170 | GO/NO GO Profile Gage BX-170 |
| BXP-159 | GO/NO GO Profile Gage BX-159 | BXP-171 | GO/NO GO Profile Gage BX-171 |
| BXP-160 | GO/NO GO Profile Gage BX-160 | BXP-172 | GO/NO GO Profile Gage BX-172 |
| BXP-161 | GO/NO GO Profile Gage BX-161 | BXP-303 | GO/NO GO Profile Gage BX-303 |

## R & RX - Dog Bone/Paddle Gage

| Model | Description | Model | Description |
|---|---|---|---|
| DB-R20 | Dog Bone Ring Groove Gage R-RX20 | DB-R57 | Dog Bone Ring Groove Gage R-RX57 |
| DB-R23 | Dog Bone Ring Groove Gage R-RX23 | DB-R63 | Dog Bone Ring Groove Gage R-RX63 |
| DB-R24 | Dog Bone Ring Groove Gage R-RX24 | DB-R65 | Dog Bone Ring Groove Gage R-RX65 |
| DB-R25 | Dog Bone Ring Groove Gage R-RX25 | DB-R66 | Dog Bone Ring Groove Gage R-RX66 |
| DB-R26 | Dog Bone Ring Groove Gage R-RX26 | DB-R69 | Dog Bone Ring Groove Gage R-RX69 |
| DB-R27 | Dog Bone Ring Groove Gage R-RX27 | DB-R70 | Dog Bone Ring Groove Gage R-RX70 |
| DB-R31 | Dog Bone Ring Groove Gage R-RX31 | DB-R73 | Dog Bone Ring Groove Gage R-RX73 |
| DB-R35 | Dog Bone Ring Groove Gage R-RX35 | DB-R74 | Dog Bone Ring Groove Gage R-RX74 |
| DB-R37 | Dog Bone Ring Groove Gage R-RX37 | DB-R82 | Dog Bone Ring Groove Gage R-RX82 |
| DB-R39 | Dog Bone Ring Groove Gage R-RX39 | DB-R84 | Dog Bone Ring Groove Gage R-RX84 |
| DB-R41 | Dog Bone Ring Groove Gage R-RX41 | DB-R85 | Dog Bone Ring Groove Gage R-RX85 |
| DB-R44 | Dog Bone Ring Groove Gage R-RX44 | DB-R86 | Dog Bone Ring Groove Gage R-RX86 |
| DB-R45 | Dog Bone Ring Groove Gage R-RX45 | DB-R87 | Dog Bone Ring Groove Gage R-RX87 |
| DB-R46 | Dog Bone Ring Groove Gage R-RX46 | DB-R88 | Dog Bone Ring Groove Gage R-RX88 |
| DB-R47 | Dog Bone Ring Groove Gage R-RX47 | DB-R89 | Dog Bone Ring Groove Gage R-RX89 |
| DB-R49 | Dog Bone Ring Groove Gage R-RX49 | DB-R90 | Dog Bone Ring Groove Gage R-RX90 |
| DB-R50 | Dog Bone Ring Groove Gage R-RX50 | DB-R91 | Dog Bone Ring Groove Gage R-RX91 |
| DB-R53 | Dog Bone Ring Groove Gage R-RX53 | DB-R99 | Dog Bone Ring Groove Gage R-RX99 |
| DB-R54 | Dog Bone Ring Groove Gage R-RX54 | | |

## R-RX - Groove Profile & Width GO/NO GO Gage

| Model (RP-Depth-Width)* | Corresponding R Groove Size |
|---|---|
| RP-250-344 | R 20 |
| RP-310-469 | R 23 to R45, R49, R53, R57, R65, R69, R82, R84, & R99 |
| RP-380-531 | R46, R73, R85 |
| RP-440-656 | R50, R54, R66, R86, R87 |
| RP-500-781 | R47, R70, R74, R88 |
| RP-560-906 | R90 |
| RP-620-1063 | R63 |
| RP-690-1313 | R91 |

***ex. RP-250-344 = .250"(depth), .344" (width)***

## Groove Width Amplifier Gages

Groove width amplifier gages use flushpins to indicate acceptance or rejection.

| Model | Description | Groove Width |
|---|---|---|
| AG-BX150 | Groove Width Amplifier Gage, BX-150 | 0.450” |
| AG-BX151 | Groove Width Amplifier Gage, BX-151 | 0.466” |
| AG-BX152 | Groove Width Amplifier Gage, BX-152 | 0.498” |
| AG-BX153 | Groove Width Amplifier Gage, BX-153 | 0.554” |
| AG-BX154 | Groove Width Amplifier Gage, BX-154 | 0.606” |
| AG-BX155 | Groove Width Amplifier Gage, BX-155 | 0.698” |
| AG-BX156 | Groove Width Amplifier Gage, BX-156 | 0.921” |
| AG-BX157 | Groove Width Amplifier Gage, BX-157 | 1.039” |
| AG-BX158 | Groove Width Amplifier Gage, BX-158 | 1.149” |
| AG-BX159 | Groove Width Amplifier Gage, BX-159 | 1.279” |
| AG-BX160 | Groove Width Amplifier Gage, BX-160 | 0.786” |
| AG-BX161 | Groove Width Amplifier Gage, BX-161 | 0.930” |
| AG-BX162 | Groove Width Amplifier Gage, BX-162 | 0.705” |
| AG-BX163 | Groove Width Amplifier Gage, BX-163 | 1.006” |
| AG-BX164 | Groove Width Amplifier Gage, BX-164 | 1.290” |
| AG-BX165 | Groove Width Amplifier Gage, BX-165 | 1.071” |
| AG-BX166 | Groove Width Amplifier Gage, BX-166 | 1.373” |
| AG-BX167 | Groove Width Amplifier Gage, BX-167 | 0.902” |
| AG-BX168 | Groove Width Amplifier Gage, BX-168 | 1.018” |
| AG-BX169 | Groove Width Amplifier Gage, BX-169 | 0.666” |




*AG-BX156*

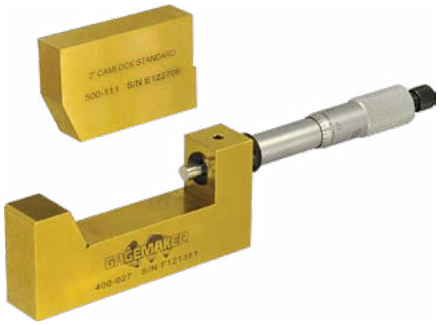



*AG-BX151*

## CamLock Micrometers

The CamLock micrometers measure API weld flange thickness. Supplied with verification standard. Replacement standards are available separately, please call for quotation.

| Model | Description | Range |
|---|---|---|
| CL-1001 | CamLock Micrometer- 25° | 0” - 1” |
| CL-1002 | CamLock Micrometer- 25° | 1” - 2” |
| CL-1003 | CamLock Micrometer- 25° | 2” - 3” |
| CL-1004 | CamLock Micrometer- 25° | 3” - 4” |




*CL-1002 with Verification Standard*




# Stator Minor Bore Inspection

## Stator Bore Gages

The SBG series of gages determines a precise stator/rotor match by measuring the largest and smallest bore diameters. SBG-5000 gages measure diameters from 1.500" - 7.500" and are available in three models: an analog indicator (SBG-5000A), a digital indicator (SBG-5000D), and an electronic (SBG-5000E). Attaching or removing different height extension shoes achieves the gage's range flexibility. All gage models can address any pitch or lobe configuration.

The SBG-5000A and SBG-5000D include three extension shoes and setting standard base without a setting standard.

The SBG-5000E includes three extension shoes, interface box, a computer, measurement software, necessary cables, and setting standard base without a setting standard.

Custom sized standards, round standards, and shoes are available. Setting standards are sold separately. See the chart on page 141 for setting standard sizes.

| Model | Description | Range |
|---|---|---|
| SBG-5000A | Stator Bore Gage with analog indicator & SB-2100, SB-2110, and SB-2120 extension shoes | 1.500" - 2.000"* |
| SBG-5000D | Stator Bore Gage with digital indicator & SB-2100, SB-2110, and SB-2120 extension shoes | 1.500" - 2.000"* |
| SBG-5000E | Electronic Stator Bore Gage with interface box, computer, software, standard base, & SB-2100, SB-2110, and SB-2120 extension shoes | 1.500" - 2.000"* |

***Additional shoes are required for diameters exceeding 2.000".***

## SBG-5000A, SBG-5000D & SBG-5000E Extension Shoes

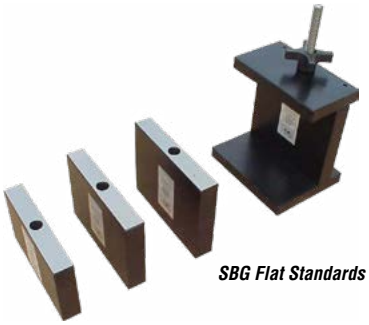
The style of extension shoe depends on the diameter range being measured. Shoes are offered in several lengths depending on the pitch of the stator lobes. It is important that the shoe length be long enough to contact a minimum of two points on the bottom and one point on the top pad. Custom shoes are available as special request. Contact Gagemaker for more infomation.

| Model | Description | Range |
|---|---|---|
| SB-2100 | 8" long extension shoe | 1.500" – 1.650" |
| SB-2110 | 8" long extension shoe | 1.650" – 1.800" |
| SB-2120 | 8" long extension shoe | 1.800" – 1.950" |
| SB-2200 | 20" extension shoe (requires riser) | |
| SB-2150 | .130" riser – SB-2200 extension shoe required | 2.000" – 2.150" |
| SB-2300 | .280" riser – SB-2200 extension shoe required | 2.150" – 2.300" |
| SB-2400 | .380" riser – SB-2200 extension shoe required | 2.250" – 2.400" |
| SB-2500 | .480" riser – SB-2200 extension shoe required | 2.350" – 2.550" |
| SB-2600 | .580" riser – SB-2200 extension shoe required | 2.450" – 2.600" |
| SB-3500 | 20" extension shoe w/ brackets and adapter | 2.600" – 3.500" |
| SB-4500 | 20" extension shoe w/ brackets and adapter | 3.450" – 4.500" |
| SB-5500 | 20" extension shoe w/ brackets and adapter | 4.450" – 5.500" |
| SB-6500 | 20" extension shoe w/ brackets and adapter | 5.450" – 6.500" |
| SB-7500 | 20" extension shoe w/ brackets and adapter | 6.450" – 7.500" |

## SBG-5000A, SBG-5000D, & SBG-5000E Flat Standards

Setting standards do not need to be sized to the exact bore of the stator's bore. As long as the size of the standard is within the measurement range of the gage, it can be used to preset the gage. Custom sizes and round standards are available as special requests.

| Setting Master Height | Flat Standard Model | Setting Master Height | Flat Standard Model |
|---|---|---|---|
| 1.600" | SBFS-1600 | 4.640" | SBFS-4640 |
| 1.727" | SBFS-1727 | 4.750" | SBFS-4750 |
| 1.800" | SBFS-1800 | 4.900" | SBFS-4900 |
| 2.062" | SBFS-2062 | 5.060" | SBFS-5060 |
| 2.187" | SBFS-2187 | 5.150" | SBFS-5150 |
| 2.375" | SBFS-2375 | 5.240" | SBFS-5240 |
| 2.598" | SBFS-2598 | 5.350" | SBFS-5350 |
| 2.700" | SBFS-2700 | 5.420" | SBFS-5420 |
| 2.736" | SBFS-2736 | 5.500" | SBFS-5500 |
| 2.900" | SBFS-2900 | 5.600" | SBFS-5600 |
| 3.080" | SBFS-3080 | 5.750" | SBFS-5750 |
| 3.150" | SBFS-3150 | 5.850" | SBFS-5850 |
| 3.245" | SBFS-3245 | 5.960" | SBFS-5960 |
| 3.303" | SBFS-3303 | 6.050" | SBFS-6050 |
| 3.400" | SBFS-3400 | 6.140" | SBFS-6140 |
| 3.425" | SBFS-3425 | 6.250" | SBFS-6250 |
| 3.500" | SBFS-3500 | 6.375" | SBFS-6375 |
| 3.625" | SBFS-3625 | 6.500" | SBFS-6500 |
| 3.750" | SBFS-3750 | 6.600" | SBFS-6600 |
| 3.976" | SBFS-3976 | 6.750" | SBFS-6750 |
| 4.000" | SBFS-4000 | 6.860" | SBFS-6860 |
| 4.160" | SBFS-4160 | 6.950" | SBFS-6950 |
| 4.250" | SBFS-4250 | 7.040" | SBFS-7040 |
| 4.370" | SBFS-4370 | 7.220" | SBFS-7220 |
| 4.520" | SBFS-4520 | 7.375" | SBFS-7375 |
| 4.567" | SBFS-4567 | 7.450" | SBFS-7450 |



*SBG Flat Standards*




*SBG Extension Shoes*

*SBG Risers*



*SB-2200 with Riser*

## SBG-5000A, SBG-5000D & SBG-5000E Extension Shoes

The style of extension shoe depends on the diameter range being measured. Shoes are offered in several lengths depending on the pitch of the stator lobes. It is important that the shoe length be long enough to contact a minimum of two points on the bottom and one point on the top pad. Custom shoes are available as special request. Contact Gagemaker for more infomation.

| Model | Description | Range |
|---|---|---|
| SB-2100 | 8" long extension shoe | 1.500" – 1.650" |
| SB-2110 | 8" long extension shoe | 1.650" – 1.800" |
| SB-2120 | 8" long extension shoe | 1.800" – 1.950" |
| SB-2200 | 20" extension shoe (requires riser) | |
| SB-2150 | .130" riser – SB-2200 extension shoe required | 2.000" – 2.150" |
| SB-2300 | .280" riser – SB-2200 extension shoe required | 2.150" – 2.300" |
| SB-2400 | .380" riser – SB-2200 extension shoe required | 2.250" – 2.400" |
| SB-2500 | .480" riser – SB-2200 extension shoe required | 2.350" – 2.550" |
| SB-2600 | .580" riser – SB-2200 extension shoe required | 2.450" – 2.600" |
| SB-3500 | 20" extension shoe w/ brackets and adapter | 2.600" – 3.500" |
| SB-4500 | 20" extension shoe w/ brackets and adapter | 3.450" – 4.500" |
| SB-5500 | 20" extension shoe w/ brackets and adapter | 4.450" – 5.500" |
| SB-6500 | 20" extension shoe w/ brackets and adapter | 5.450" – 6.500" |
| SB-7500 | 20" extension shoe w/ brackets and adapter | 6.450" – 7.500" |

*SBG-4500*





*SBG-3500*

# Rotor Inspection

Today in the oil field industry, unique high-performance power sections require accurate measurement tools for rotors and stators. Gagemaker has designed several gages to measure various parts of the rotor.



*TM12-4-5*

## Rotor Major Diameter Micrometer (T-MIC)

Due to high spirals on the lobes, conventional measurement gages cannot be used for measuring rotor major diameters. Gagemaker developed the T-MIC to measure a rotor's major diameter. The T-MIC's base spans across two lobes on one side of the centerline and uses a micrometer thimble on the other to measure the diameter. Instead of modifying an existing micrometer, Gagemaker custom builds each T-MIC. Gagemaker's rugged design far exceeds all others on the market today. Special sizes are available, contact customer service for more information. **Special sizes, metric thimbles, and metric sizes are available.**

| Range | Model | | | | | Description |
|---|---|---|---|---|---|---|
| | 6" Base | 8" Base | 12" Base | 18" Base | 24" Base | |
| 0" - 1" | TM6-0-1 | TM8-0-1 | TM12-0-1 | TM18-0-1 | TM24-0-1 | T-MIC for Rotor, ½" wide base |
| 1" - 2" | TM6-1-2 | TM8-1-2 | TM12-1-2 | TM18-1-2 | TM24-1-2 | |
| 2" - 3" | TM6-2-3 | TM8-2-3 | TM12-2-3 | TM18-2-3 | TM24-2-3 | |
| 3" - 4" | TM6-3-4 | TM8-3-4 | TM12-3-4 | TM18-3-4 | TM24-3-4 | |
| 4" - 5" | TM6-4-5 | TM8-4-5 | TM12-4-5 | TM18-4-5 | TM24-4-5 | |
| 5" - 6" | TM6-5-6 | TM8-5-6 | TM12-5-6 | TM18-5-6 | TM24-5-6 | |
| 6" - 7" | TM6-6-7 | TM8-6-7 | TM12-6-7 | TM18-6-7 | TM24-6-7 | |
| 7" - 8" | TM6-7-8 | TM8-7-8 | TM12-7-8 | TM18-7-8 | TM24-7-8 | |
| 8" - 9" | TM6-8-9 | TM8-8-9 | TM12-8-9 | TM18-8-9 | TM24-8-9 | |



*TM12-2-3-352*

## Rotor Major Diameter T-Micrometer with Digital Micrometer

Gagemaker also offers our T-MICs with digital micrometers. The digital micrometer can transfer your data to a computer via the included SPC output. **Special sizes, metric thimbles, and metric sizes are available.**

| Range | Model | | | | | Description |
|---|---|---|---|---|---|---|
| | 6" Base | 8" Base | 12" Base | 18" Base | 24" Base | |
| 0" - 1" | TM6-0-1-352 | TM8-0-1-352 | TM12-0-1-352 | TM18-0-1-352 | TM24-0-1-352 | T-MIC for Rotor, ½" wide base with a Mitutoyo 50-352-10 digital micrometer and SPC output |
| 1" - 2" | TM6-1-2-352 | TM8-1-2-352 | TM12-1-2-352 | TM18-1-2-352 | TM24-1-2-352 | |
| 2" - 3" | TM6-2-3-352 | TM8-2-3-352 | TM12-2-3-352 | TM18-2-3-352 | TM24-2-3-352 | |
| 3" - 4" | TM6-3-4-352 | TM8-3-4-352 | TM12-3-4-352 | TM18-3-4-352 | TM24-3-4-352 | |
| 4" - 5" | TM6-4-5-352 | TM8-4-5-352 | TM12-4-5-352 | TM18-4-5-352 | TM24-4-5-352 | |
| 5" - 6" | TM6-5-6-352 | TM8-5-6-352 | TM12-5-6-352 | TM18-5-6-352 | TM24-5-6-352 | |
| 6" - 7" | TM6-6-7-352 | TM8-6-7-352 | TM12-6-7-352 | TM18-6-7-352 | TM24-6-7-352 | |
| 7" - 8" | TM6-7-8-352 | TM8-7-8-352 | TM12-7-8-352 | TM18-7-8-352 | TM24-7-8-352 | |
| 8" - 9" | TM6-8-9-352 | TM8-8-9-352 | TM12-8-9-352 | TM18-8-9-352 | TM24-8-9-352 | |

## Rotor Minor Diameter Micrometer (MM)

Gagemaker's minor diameter MIC gage was designed to measure a rotor's minor diameter. The spiral lobes on the rotor produce a valley, or minor diameter. The depth of the minor diameter from the major diameter requires a 1" travel indicator stem. Gage range is 0" - 6", which allows measuring most rotor sizes with only one gage. Ensuring the gage's durability and long life, Gagemaker's design uses a heavy duty indicator stem and bearing housing to withstand side loads. Special sizes are available.

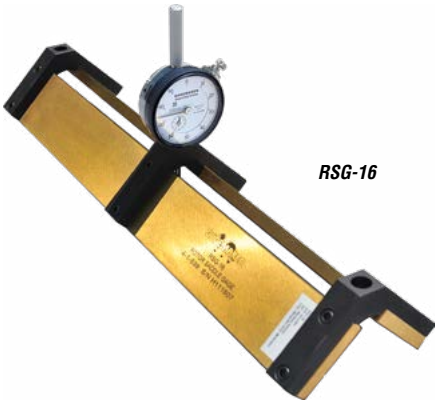


*MM-0-6*

| Model | Description | Range |
|---|---|---|
| MM-0-6 | Minor diameter micrometer | 0" - 6" |

## Rotor Saddle Gage

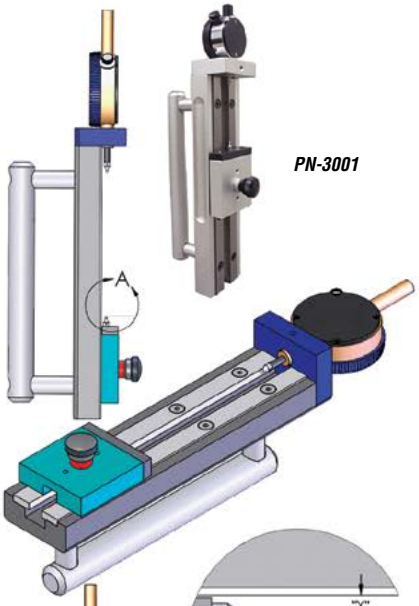
The rotor saddle gage, also known as a rotor lobe height gage, is the last weapon in the inspection arsenal. This gage sets on top of the spiral lobes of the rotor and measures the variation in lobe height. Sliding the gage along the length of the rotor detects variation in root to crest height of all the lobes. Measurements can be taken at 90° or 180° intervals to provide an accurate dimensional map of the relationship between lobes. This inspection aids in manufacturing the rotor to specification.



*RSG-16*

| Model | Description | Travel | Pipe Diameter Range |
|---|---|---|---|
| RSG-7 | Rotor saddle gage, 7" long | 1" | 1" - 4" |
| RSG-16 | Rotor saddle gage, 16" long | 1" | 1" - 4" |
| RSG-24 | Rotor saddle gage, 24" long | 1" | 1" - 4" |

# Pin Seal Diameter Gages



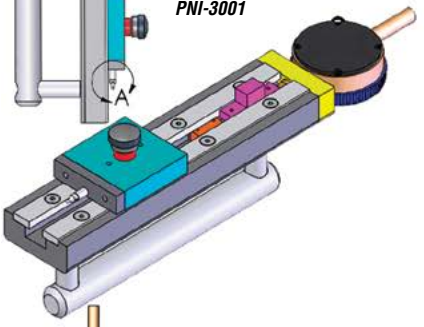
PN-3001



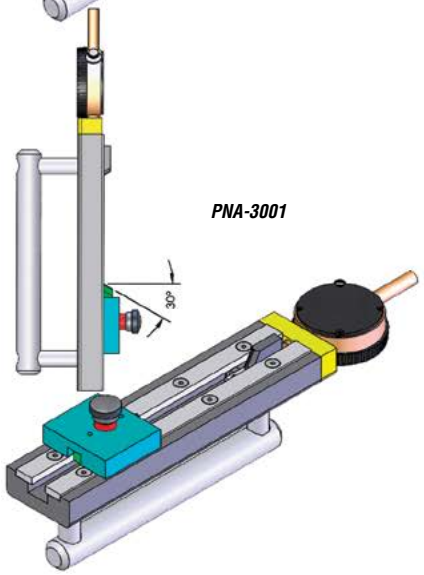

View A. Customer to supply standoff ("X")and point sizes ("T")



PNI-3001



PNA-3001




The Pin Seal Diameter Series of gages inspect critical pin seal diameters and seal tapers on premium connections. With the addition of stand-off plates, the gages also inspect seal tapers. Each model covers a specific range of connection sizes, making the PN-3000 gages extremely versatile and economical.

The PN-3000 gages use precision interchangeable contact points that position on the seal at a fixed distance from the connection face during inspection.

Before inspecting parts, these gages must be preset to a nominal predetermined dimension using gage blocks, Gagemaker's Pin Seal Diameter Gage Setting Master, a MIC TRAC™, or Frame Standards.

***Features***

- *Provides accurate measurements on the gage's indicator at the critical sealing point of the pin.*
- *Uses interchangeable contact points*
- *Inlcudes a .0005" resolution indicator.*
- *Requires presetting using gage blocks, Gagemaker's Pin Seal Diameter Gage Setting Master, Frame Standards, or MIC TRAC™ system.*
- *Allows use in a manufacturing or field environment due to durable construction*

## PN-3000 Series Pin Nose Diameter Gages*

The PN series measure pin nose diameter using contact points. Specify the distance from the face of the connection to the measuring plane and desired contact point diameter when ordering.

| Model | Description | Range |
|---|---|---|
| PN-3001 | Pin Nose Diameter Gage | 0" - 5½" |
| PN-3002 | Pin Nose Diameter Gage | 0" - 9½" |
| PN-3003 | Pin Nose Diameter Gage | 0" - 13½" |
| PN-3004 | Pin Nose Diameter Gage | 0" - 19½" |
| PN-3005 | Pin Nose Diameter Gage | 0" - 25½" |

***There is a separate cost to reposition the point standoff of PN-3000 Gages. Quotation available upon request.***

## PN-3000 Series Internal "Ball Contact" Seal Diameter Gages

The PNI series measure the internal ball contact seal diameter using contact points. Specify the distance from the face of the connection to the measuring plane and desired contact point diameter when ordering. Larger ranges may be available as a custom order.

| Model | Description | Range |
|---|---|---|
| PNI-3001-VMB | Internal "Ball Contact" Seal Diameter Gage | 2" - 5½" |
| PNI-3002-VMB | Internal "Ball Contact" Seal Diameter Gage | 2" - 9⅝" |
| PNI-3003-VMB | Internal "Ball Contact" Seal Diameter Gage | 2" - 13⅜" |

## PN-3000 Series 30° External Apex Diameter Gages

The PNA model gages measure only the external apex diameter of the connection. Larger ranges may be available as a custom order.

| Model | Description | Range |
|---|---|---|
| PNA-3001-VMA | 30° External Apex Diameter Gage, Anvils | 2" - 4¼" |
| PNA-3002-VMA | 30° External Apex Diameter Gage, Anvils | 2" - 9⅝" |
| PNA-3003-VMA | 30° External Apex Diameter Gage, Anvils | 2" - 13⅜" |

## PN-3000 Series 30° Internal/External Apex Seal Diameter Gages

The PN-3000 Series 30° Internal/External Apex Seal Diameter gages measure both the internal and external diameters of the apex seal for the connection.

| Model | Description | Range |
|---|---|---|
| PN-31VM-30 | 30° Internal/External Apex Seal Diameter "V" | External 4"- 6⅝", Internal 2⅜" - 6⅝" |
| PN-33VM-30 | 30° Internal/External Apex Seal Diameter "V" | External 4" - 14", Internal 2⅜" - 14" |

## Pin Seal Diameter Gage Standoff Plates

The pin seal standoff plates are available in various sizes. Additional custom sizes are available upon request. Pin seal standoff plates are sold as a set of two.

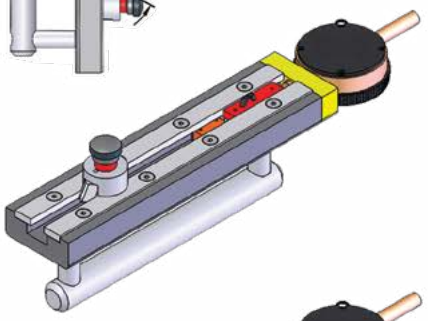
| Model | Description | Range |
|---|---|---|
| PN-3000/T.04087 | Pin Seal Standoff Plate* | 0.04087" (1.038 mm) thick |
| PN-3000/T.044 | Pin Seal Standoff Plate* | 0.0440" (1.12 mm) thick |
| PN-3000/T.0472 | Pin Seal Standoff Plate* | 0.0472" (1.20 mm) thick |
| PN-3000/T.0591 | Pin Seal Standoff Plate* | 0.0591" (1.50 mm) thick |
| PN-3000/T.064 | Pin Seal Standoff Plate* | 0.0640" (1.62 mm) thick |
| PN-3000/T.072 | Pin Seal Standoff Plate* | 0.0720" (1.83 mm) thick |
| PN-3000/T.0748 | Pin Seal Standoff Plate* | 0.0748" (1.90 mm) thick |
| PN-3000/T.078 | Pin Seal Standoff Plate* | 0.0780" (1.9812 mm) thick |
| PN-3000/T.0787 | Pin Seal Standoff Plate* | 0.0787" (2.00 mm) thick |
| PN-3000/T.0811 | Pin Seal Standoff Plate* | 0.0811" (2.06 mm) thick |
| PN-3000/T.0815 | Pin Seal Standoff Plate* | 0.0815" (2.07 mm) thick |
| PN-3000/T.094 | Pin Seal Standoff Plate* | 0.0940" (2.39 mm) thick |
| PN-3000/T.100 | Pin Seal Standoff Plate* | 0.1000" (2.54 mm) thick |
| PN-3000/T.114 | Pin Seal Standoff Plate* | 0.1140" (2.90 mm) thick |
| PN-3000/T.1181 | Pin Seal Standoff Plate* | 0.1181" (3.00 mm) thick |
| PN-3000/T.121 | Pin Seal Standoff Plate* | 0.1210" (3.07 mm) thick |
| PN-3000/T.122 | Pin Seal Standoff Plate* | 0.1220" (3.10 mm) thick |
| PN-3000/T.1378 | Pin Seal Standoff Plate* | 0.1378" (3.50 mm) thick |
| PN-3000/T.171 | Pin Seal Standoff Plate* | 0.1710" (4.34 mm) thick |
| PN-3000/T.1969 | Pin Seal Standoff Plate* | 0.1969" (5.00 mm) thick |
| PN-3000/T.200 | Pin Seal Standoff Plate* | 0.2000" (5.08 mm) thick |
| PN-3000/T.3149 | Pin Seal Standoff Plate* | 0.3149" (8.00 mm) thick |
| PN-3000/T.350 | Pin Seal Standoff Plate* | 0.3500" (8.89 mm) thick |

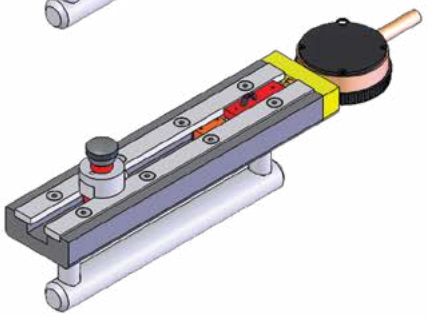
***Additional plate thickness sizes are available. All plates are two per set.***



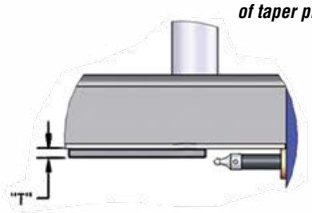

*Rotate the slider and keyway assembly for Internal/External inspection*

*PN-31VM-30 Int./Ext.*
*PN-33VM-30 Int./Ext.*

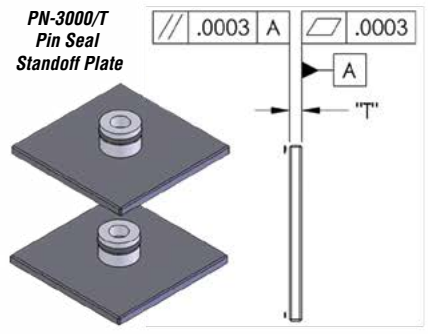




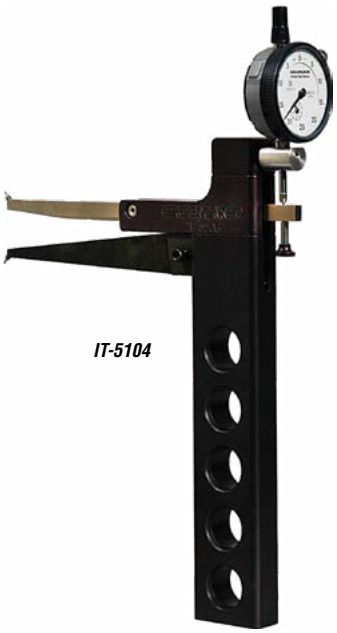
*Customer to specify thickness ("T") of taper plates*




*PN-3000/T Pin Seal Standoff Plate*




***The round and frame style standards are designed to preset all models of the PN-3000 series gages for accurate inspection of API pin end seal taper diameters of premium connections. These standards consist of a rigid, non-adjustable steel block machined to precise, proper size tolerances.***



IT-5104

## Internal Diameter/Groove Gages

Gagemaker's internal diameter and groove gages measure variation in internal bore diameters. Diameter/groove gages are shipped with two .072" diameter contact points (T072) as standard. Refer to the contact point pages 124-125 for the proper contact point for your particular application.

| Model | Description | Range |
|---|---|---|
| IT-5104 | Internal Diameter/Groove Gage | 4" Depth, 1½" - 10" Dia. |
| IT-5106 | Internal Diameter/Groove Gage | 6" Depth, 1½" - 10" Dia. |
| IT-5106-30 | Int. Diameter/Groove Gage, points at 30° angle | 6" Depth, 1½" - 10" Dia. |
| IT-5106-45 | Int. Diameter/Groove Gage, points at 45° angle | 6" Depth, 1½" - 10" Dia. |
| IT-5108 | Internal Diameter/Groove Gage | 8" Depth, 1½" - 10" Dia. |

## Internal Diameter/Groove Gage Replacement Parts

| Model | Description | Length |
|---|---|---|
| IT-5104-04 | Replacement Lower Arm | 4¼" |
| IT-5106-06 | Replacement Lower Arm | 6" |
| IT-5108-08 | Replacement Lower Arm | 8" |
| IT-5112-12 | Replacement Lower Arm | 12" |

TW-6001



# API Buttress Tooth Thickness & Groove Width Gages

API Buttress threads are governed by the Specification 5B. The latest edition mandates the inspection of tooth thickness (the actual tooth thickness, the groove width, or shave).

## Tooth Thickness Gage

The TW-6001 Tooth Thickness Gage meets API requirements for measuring tooth thickness/width or shave on API Buttress connections. The gage is supplied with 3 contact points (2 T072, 1 T087T). A setting standard is required and sold separately.

| Model | Description | Minimum Bore | Range |
|---|---|---|---|
| TW-6001 | Tooth Thickness Gage | 1.200 | ½" - 2" Thread Length |
| TW-5B-750 | Tooth Thickness Standard, 0.750" Taper | | |
| TW-5B-1 | Tooth Thickness Standard, 1" Taper | | |

TW-5B-750




TW-5B-1



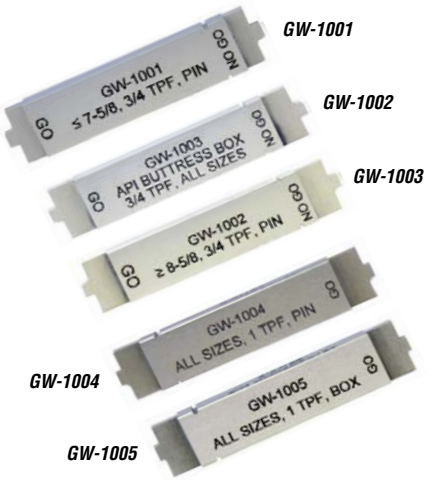

GW-1001

GW-1002

GW-1003

GW-1004

GW-1005




## Groove Width Gages

The GW-1000 Groove Width Gage Series is comprised of Go/NoGo style gages used to quickly check the width of the groove on API Buttress connections. They meet the latest API inspection requirements for tooth thickness or groove width. Each model is for a certain taper and diameter.

| Model | Description | Taper | Connection Diameter |
|---|---|---|---|
| GW-1001 | Groove Width Go/NoGo Gage | ¾" | 4½" - 7⅝" |
| GW-1002 | External Groove Width Go/NoGo Gage | ¾" | 4½" - 13⅜" |
| GW-1003 | Internal Groove Width Go/NoGo Gage | ¾" | 8⅝" - 13⅜" |
| GW-1004 | External Groove Width Go/NoGo Gage | 1" | 16 - 20" |
| GW-1005 | Internal Groove Width Go/NoGo Gage | 1" | 16 - 20" |

# Pipe Straightness Gages

## Saddle Gage

The Saddle Gage measures the amount of hook or bend at the end of a joint of pipe. The SG-8001 uses the RC-375 roller contact.

| Model | Description | Range |
|---|---|---|
| SG-8001 | Saddle Gage | All Sizes |
| SG-8001-TA | SG-8001 Tube Assembly | |
| RC-375 | 0.375" Diameter Roller Contact | |


SG-8001

## Squareness Gage

The SQ-1600 Squareness gage monitors the alignment of weld-on connectors to the pipe body. Requires setting by a qualified standard. The SQ-1630S, our precision calibration square, is strongly recommended for best results. Standard sold separately.

| Model | Description | Range |
|---|---|---|
| SQ-1636 | Squareness Gage, 30" reach | Up to 36" diameter |
| SQ-1648 | Squareness Gage, 30" reach | Up to 48" diameter |
| SQ-1636S | Squareness Gage Standard | 14" X 36" Square |


SQ-1648

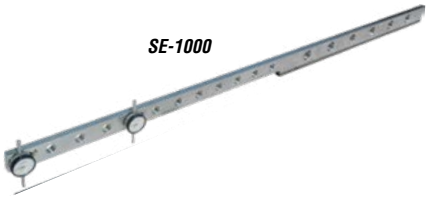
SQ-1636S

SQ-1636

## Straight Edge Gage

The SE-1000 Straight Edge gage measures the straightness of well tubing and casing. The gage price includes an SES-1000 Standard. Replacement standards are available.

| Model | Description | Range |
|---|---|---|
| SE-1000 | Straight Edge | 36" - 64" |
| SES-1000 | Replacement Straight Edge Standard | |


SE-1000

## Laser Alignment Gage

The Laser Alignment Gage ensures proper angular and parallel alignment during assembly of weld-on connectors. Replacement parts are available.

| Model | Description | Inside Diameter Range | Outside Diameter Range |
|---|---|---|---|
| LA-3600 | Laser Alignment Gage | 11" - 55" | 8" - 50" |


LA-3600

## Ovality Gage

Ovality gages are designed to check the out-of-round condition of tubular goods prior to processing. Gagemaker's OG-9800 series offers diameter adjustability within a size range. Stabilizing rollers are adjustable for diameter as well as for alignment to the centerline.

| Model | Description | Range |
|---|---|---|
| OG-9801 | Ovality Gage, pipe ovality | 2" - 6" |
| OG-9802 | Ovality Gage, pipe ovality | 6" - 10" |
| OG-9803 | Ovality Gage, pipe ovality | 10" - 14" |


OG-9801

# Shoulder Location Gages

## Depth Gages



DG-1008

DG-1008 with DG-1000-R7 Extension Arm



DG-1208



DG-1012 with DG-1000-R36 Stabilzer



DG-DSB-1824



DG-DSB-812



DG-P45-1824



DG-P45-812



DG-GV-1824



DG-GV-812

Our digital depth gages inspect the location of internal and external shoulders and grooves from the face of pin and box connections or other datum surfaces. The DG-1000 Series is available with the standard base, a 12" base, and a 20" base. These gages are available in ranges: 0"-8", 0"-12", 0"-18", and 0"-24".

The standard gage (DG-1000 Series) is supplied with a 7" extension arm and a 0° and 45° contact point holder for use with any #4-48 threaded contact point (one .072" contact point (T072) supplied unless otherwise requested). Longer extension arms and other contact point configurations and adapters are available upon request. The 12" (DG-1200 Series) and 20" (DG-2000 Series) gages include one double sided blade contact instead of a contact point and a contact point holder.

Digital depth gages do not require a setting standard. The gage is preset to zero on any flat surface and then applied to the product. Actual length measurements display on the gage's digital readout.

***Features***

- *Inspects internal and external shoulder and groove locations.*
- *Uses an interchangeable contact point or blade that can service many different applications.*
- *Inch/metric conversion with digital readout*
- *Digital readout with .0005"/.01 mm resolution and SPC Output*

| Model | Description | Range |
|---|---|---|
| **Depth Gage with Digital Display (in/mm)** | | |
| DG-1008 | Depth Gage w/ digital display (in/mm), .0005"/.01 mm resolution | 0" - 8" |
| DG-1012 | Depth Gage w/ digital display (in/mm), .0005"/.01 mm resolution | 0" - 12" |
| DG-1018 | Depth Gage w/ digital display (in/mm), .0005"/.01 mm resolution | 0" - 18" |
| DG-1024 | Depth Gage w/ digital display (in/mm), .0005"/.01 mm resolution | 0" - 24" |
| **Depth Gage with Digital Display and 12" Base (in/mm)** | | |
| DG-1208 | Depth Gage w/ digital display (in/mm), .0005"/.01 mm resolution, 12" base | 0" - 8" |
| DG-1212 | Depth Gage w/ digital display (in/mm), .0005"/.01 mm resolution, 12" base | 0" - 12" |
| DG-1218 | Depth Gage w/ digital display (in/mm), .0005"/.01 mm resolution, 12" base | 0" - 18" |
| DG-1224 | Depth Gage w/ digital display (in/mm), .0005"/.01 mm resolution, 12" base | 0" - 24" |
| **Depth Gage with Digital Display (in/mm) and 20" Base (in/mm)** | | |
| DG-2012 | Depth Gage w/ digital display (in/mm), .0005"/.01 mm resolution, 20" base | 0" - 12" |
| DG-2018 | Depth Gage w/ digital display (in/mm), .0005"/.01 mm resolution, 20" base | 0" - 18" |
| DG-2024 | Depth Gage w/ digital display (in/mm), .0005"/.01 mm resolution, 20" base | 0" - 24" |
| **Depth Gage Accessories** | | |
| DG-1000-R7 | 7" Extension Arm | |
| DG-1000-R16 | 16" Extension Arm | |
| DG-1000-R24 | 24" Extension Arm | |
| DG-1000-R36 | Stabilizer for larger diameters | 36" & Larger |
| DG-1000-BPA | DG-1000 Base Plate Assembly | |
| DG-1212-DF | Shoulder Location Double Foot for DG-1208 and DG-1212 | |
| DG-1218-DF | Shoulder Location Double Foot for DG-1218 and DG-1224 | |
| DG-B-812 | Blade Contact for 8 and 12 inch ranges for DG-1200/2000 | 8 & 12 |
| DG-B-1824 | Blade Contact for 18 and 24 inch ranges for DG-1200/2000 | 18 & 24 |
| DG-DSB-812 | Double Sided Blade Contact for 8 and 12 inch range DG-1200/2000 | 8 & 12 |
| DG-DSB-1824 | Double Sided Blade Contact for 18 and 24 inch range DG-1200/2000 | 18 & 24 |
| DG-GV-812 | Groove Locator, .100" thick for DG-1008 and DG-1012 | 8 & 12 |
| DG-GV-1824 | Groove Locator, .100" thick for DG-1018 and DG-1024 | 18 & 24 |
| DG-P45-812 | 45° Point Holder for DG-1008 and DG-1012 | 8 & 12 |
| DG-P45-1824 | 45° Point Holder for DG-1018 and DG-1024 | 18 & 24 |

## Torque Shoulder Gages and Standards

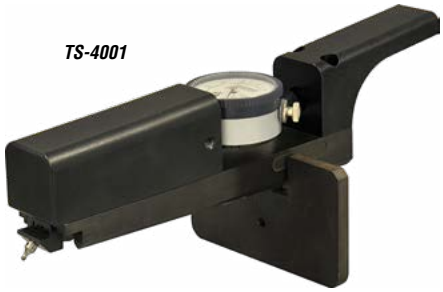
The TS-4001 Torque Shoulder Gage accurately measures the distance between the primary and secondary torque shoulders on both internal and external threaded connections. Used industry wide to measure the shoulder-to-shoulder distance on premium tool joints and the face-to-seal location on premium couplings, the Gagemaker TS-4001 is also perfectly suited to locate grooves from various datum surfaces.

The TS-4001 requires a setting standard. The gage is preset to the desired dimension and deviation is read from the gage's dial indicator.

One contact point included, customer to specify. One taper block is supplied based on customer's taper specification. Additional contact points and taper blocks sold separately.

***Features***

- *Inspects internal and external shoulders along with groove locations*
- *Uses an interchangeable contact point that can service many different applications*



***TS-4001***



***TSS-4000***

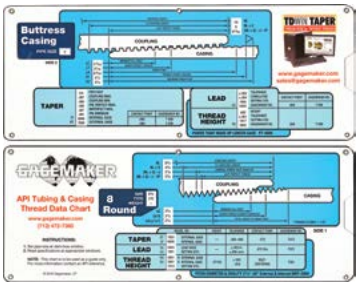
| Model | Description | Range |
|---|---|---|
| TS-4001 | Shoulder Depth Gage (Specify Taper) | 2⅜" & Larger |
| TSS-4000 | TS-4001 Setting Standard | |

# Thread Data

## Thread Data Chart

The Gagemaker API Thread Data Chart provides critical thread data per API Specification 5B.

| Model | Description | Connections |
|---|---|---|
| Thread Data Chart | API Tubing and Casing Thread Dimension Slide Chart | 2⅜" - 20" 8 Round, LTC, STC<br>4½" - 20" Buttress |




***Thread Data Chart***

# Specialty Items


CA-9001


DB-1800


PD-3003


PD-3004


PD-3005


PD-3004-6


PD-3000BF-6


PT-4000


ST-7001


STS-7001

ST-7002

## Coupling Alignment

The Coupling Alignment gage ensures that the threads on both ends of the coupling are properly aligned with each other. Coupling alignment inspection is manadated by the 16th edition of the API 5B.

| Model | Description | Range |
|---|---|---|
| CA-9001 | Coupling Alignment Gage | 2⅜" & Larger |

## Internal Deep Reach Bore Gages

The DB series of gages are internal deep reach bore gages. Internal deep reach bore gages allow the difficult measuring of pitch diameter deep inside a small diameter product. One set of contact points and one set of extension rods (total range 15.25") are included.

| Model | Description | Min. Bore | Travel |
|---|---|---|---|
| DB-1012 | Internal Deep Reach Bore Gage, 12" reach | 2.1" | .75" |
| DB-1018 | Internal Deep Reach Bore Gage, 18" reach | 2.1" | .75" |
| DB-1024 | Internal Deep Reach Bore Gage, 24" reach | 2.1" | .75" |

## Pit Depth Gages

The PD-3000 series of gages inspect the depth of surface pitting on tubular goods. The gage also accepts other types and sizes of contact points for use in other applications, such as groove and thread depth inspection. Select the PD-3000 gage model based on the type of indicator required.

| Model | Description | Travel |
|---|---|---|
| PD-3003 | Pit Depth Gage, AGD #1, 0-100 | .250 |
| PD-3004 | Pit Depth Gage, AGD #2, 0-100 | .450 |
| PD-3005 | Pit Depth Gage w/ Flat Base, AGD #2, 0-100 | .450 |
| PD-3006 | Pit Depth Gage w/ 6" Long Flat Base, AGD #2, 0-100 | .450 |
| PD-3007 | Pit Depth Gage w/ 6" Long V Base, AGD #2, 0-100 | .450 |
| PD-3000BF | Pit Depth Flat Base Only | |
| PD-3000BV | Pit Depth V Base Only | |
| PD-3000BF-6 | Pit Depth 6" Long Flat Base Only | |
| PD-3000BF-10 | Pit Depth 10" Long Flat Base Only | |
| PD-3000BV-6 | Pit Depth 6" Long V Base Only | |

## Power Tight Make-up Gage

The Power Tight Make-up Gage, PT-4000, adjusts to determine the proper make-up location of API couplings.

| Model | Description | Range |
|---|---|---|
| PT-4000 | Power Tight Make-up Gage | All Sizes |

## Standoff Gages

The ST-7001 measures variation in ring and plug gage standoff on rotary shouldered connections. The ST-7001 is supplied with a setting standard. The ST-7002 is set on any qualified surface.

| Model | Description | Range |
|---|---|---|
| ST-7001 | Pin Standoff Gage w/ Setting Standard | .615" - .635" |
| ST-7002 | Box Standoff Gage to measure plug stand-in, .0005" resolution | 0" - .01" stand-in |
| STS-7001 | Setting Standard Replacement, .625" width | |

## Wall Thickness Gages

The WT-9000 series of gages measures wall thickness at specific distances from the end of the pipe. Specify the distance from the end of the pipe to the measuring plane when ordering.

| Model | Description | Range |
|---|---|---|
| WT-9001 | Wall Thickness Gage | 2⅜" - 4½" |
| WT-9002 | Wall Thickness Gage | 4½" - 9⅝" |
| WT-9003 | Wall Thickness Gage | 4½" - 13⅜" |




WT-9001

## Gage Storage Cases

Gagemaker promotes three types of gage storage cases in various sizes- heavy-duty, standard, and wooden. The two plastic types are constructed of durable ABS molded plastic material.

The PEL Series of heavy-duty plastic cases, manufactured by Pelican, are extremely sturdy and can be used to ship and store gages. These cases not only provide extra protection for gages, but they are watertight, airtight, dustproof, and crushproof.

The CASE Series are our standard plastic cases. They are constructed from durable ABS molded plastic. These cases are low impact resistant and lightweight.

The WOOD Series of cases is our line of rugged, handcrafted wooden cases. If necessary, wooden cases can be customized to your specifications.

All storage cases are available with foam inserts at additional cost. Also, foam inserts can be custom cut for any of our products. Custom cutting of foam for cases is priced on an hourly basis. Please call for a quotation.

PEL Series



| Model | Inside Measurements | Model | Inside Measurements |
|---|---|---|---|
| PEL-1400 | 12¼" X 9¼" X 5¼" | PEL-1600 | 22" X 17" X 8" |
| PEL-1450 | 15" X 10⅜" X 6" | PEL-1700 | 36" X 13½" X 5" |
| PEL-1500 | 17⅛" X 11¾" X 6⅛" | PEL-1750 | 50¾" X 13½" X 5" |
| PEL-1550 | 19⅞" X 13¼" X 7¾" | | |

WOOD Series



| Model | Inside Measurements | Model | Inside Measurements |
|---|---|---|---|
| CASE-1 | 16" X 11" X 3" | CASE-5 | 21½" X 14½" X 6⅝" |
| CASE-2 | 14" X 10" X 3" | CASE-6 | 8⅝" X 5⅝" X 3⅛" |
| CASE-3 | 9" X 12½" X 2¾" | CASE-7 | 21" X 14" X 6" |
| CASE-4 | 7" X 4" X 2" | | |

CASE Series



| Model | Inside Measurements | Model | Inside Measurements |
|---|---|---|---|
| WOOD-A | 54" X 17" X 3½" | WOOD-J | 27" X 10" X 3.5" |
| WOOD-B | 48" X 10" X 3½" | WOOD-J-1 | 27" X 9" X 3½" |
| WOOD-B-1 | 46" X 26" X 3½" | WOOD-K | 26" X 15" X 3½" |
| WOOD-C | 44" X 8" X 3½" | WOOD-L | 25" X 10" X 3½" |
| WOOD-D | 42" X 24" X 3½" | WOOD-M | 22" X 12" X 3½" |
| WOOD-E | 42" X 10" X 3½" | WOOD-N | 22" X 8" X 3½" |
| WOOD-F | 35" X 12" X 3½" | WOOD-O | 21" X 8" X 3½" |
| WOOD-G | 34" X 10" X 3½" | WOOD-P | 17" X 10" X 3½" |
| WOOD-H | 34" X 8" X 3½" | WOOD-Q | 15" X 15" X 3½" |
| WOOD-I | 33" X 21" X 3½" | | |

Foam Inserts



Custom Cut Foam





## *CUSTOMER SERVICE*

For any questions, quotations, requests, technical support or any other information, please contact one of our representatives at any of the following:


| | |
|---|---|
| **Address:** | Gagemaker LP |
| | 712 East Southmore Ave. |
| | Pasadena, TX 77502-110 |
| **Fax:** | 713-472-7241 |
| **Phone:** | 713-472-7360 |
| | Monday - Friday : 8am - 5pm CST |
| **Website:** | http://www.gagemaker.com |
| **E-mail:** | gagemaker@gagemaker.com or sales@gagemaker.com |


## *TECHNICAL SUPPORT*

Gagemaker technical support is available through contacting our friendly customer service department at any of the above options.

## *QUOTATIONS*

Quotations are valid for 30 days after the date on the quote. Please refer to the customer service section for contact information for quotations.

## *PICK UP/WALK-IN/COLLECTION*

Some of our products are available for pick up directly from our Pasadena facility. Please contact us if you would like a direct pickup. Notify us of your intentions to pick up products a ***minimum of 2 hours*** in advance of your arrival.

## *SHIPPING POLICY*

Unless otherwise requested, Gagemaker ships once an order is complete. If you would like a partial order shipped, please contact customer service or indicate when ordering.



## *HANDLING CHARGE*

Gagemaker will charge a $10 (USD) handling fee for ALL orders on products invoiced for LESS than $50 (USD). No fee will be applied to orders invoicing for over $50 (USD).

## *RETURN POLICY*

Gagemaker requires a 15% restocking fee on all non-defective returns, except for MIC TRACs (either the MT-3000 or MT-4000) which will be charged a 20% restocking fee. Items not listed in our catalog are not returnable.

***Returns*** may be accepted up to **30 days** after the date of the invoice. Please return products to the address listed in our Customer Service section. Please contact Gagemaker for a Return Goods Authorization (RGA). Contact our Customer Service for any questions regarding your return. Special or custom orders cannot be returned.

***Defective*** products must be returned **15 days** from the date of receipt in order to be eligible for a full refund. Defective products are not subject to any restocking fee. For defective product information, please see our Product Warranty section.

## *PRODUCT WARRANTY*

Gagemaker warrants its products to be free from defects in material and workmanship under normal operating conditions for 12 months from the date of shipment. This warranty is limited to repairing, or at Gagemaker's option, replacing any product which is proven to have been defective at the time it was shipped and/or suffered damage during shipping, provided buyer has given Gagemaker written notice of any such claimed defect within 15 days of receipt. Any defective product must be properly packed and shipped to the Gagemaker factory in Pasadena, Texas USA. This warranty applies to all products when used in a normal industrial environment. Any unauthorized tampering, misuse or neglect will make this warranty null and void. Under no circumstances will GAGEMAKER or any affiliate have any liabilities for loss or for any indirect or consequential damages. The foregoing warranties are in lieu of all other warranties expressed or implied, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

**Return products for repair or calibration to:**

**Gagemaker LP**
**712 East Southmore Ave.**
**Pasadena, TX 77502-110**

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