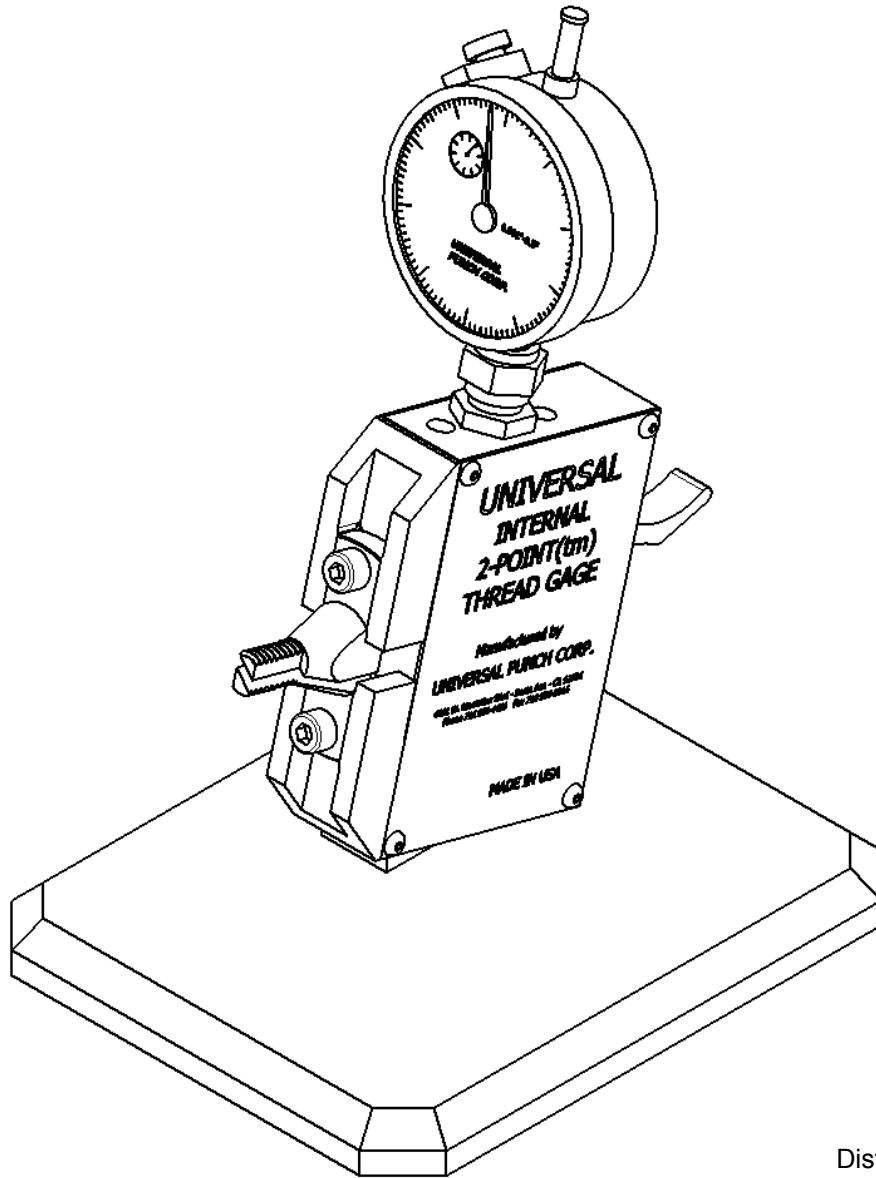


Universal Internal 2-Point Thread Gage



Internal 2-Point Gage Assembly
Shown with Frame #1 & Full Form Elements

Distributed by:
Gage Crib Worldwide Inc
6701 Old 28th St SE, Suite B
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OPERATING AND MAINTENANCE MANUAL



Our Product –

Universal Punch Corp.'s Internal 2-Point Thread Gage System is an accurate and reliable instrument to measure features of internally threaded fasteners. The Gaging system can check Pitch Diameter, Functional Diameter and Minor Diameter in sizes ranging from #4 (3mm) to 1 ½" (40mm) by simply changing the type and size of Elements. This method of thread gaging generates actual measurements of features allowing qualitative assessment of the inspected characteristic. Knowing the measured value allows operators to make precise adjustments to the machine.

Characteristics –

Gage Range –

The 2-Point Thread Gage system covers a size range from #4 (3mm) to 1 ½" (40mm). This is accomplished using two different adjustable Frame sizes:

Frame #1 - #4 (3mm) thru ¾" (20mm)

Frame #2 – 13/16" (22mm) thru 1 ½" (40mm)

Gage performance –

The Gage Element sets are easily changed from one size to another.

SPC compatible –

Universal Gages provide the ideal system for data collection. Adjustments can be made at the machine before scrap is created, resulting in improved quality and productivity.

Types of Elements –

The type of measurement required will dictate the type of Element used in the Gage. Each set of Element corresponds to a particular thread size. When measuring Pitch Diameter, use our Cone & Vee Elements. When measuring Functional Diameter, use our Full Form Elements. When measuring Minor Diameter, use our Plain Elements.

Mounting Stands –

The Frame Assembly is typically mounted to a Mounting Stand for bench top use. It can also be provided with two units mounted to a single Mounting Stand, or even three units mounted to a single Mounting Stand. Another option provided is to have a Handle inserted into the Frame for hand-held use.

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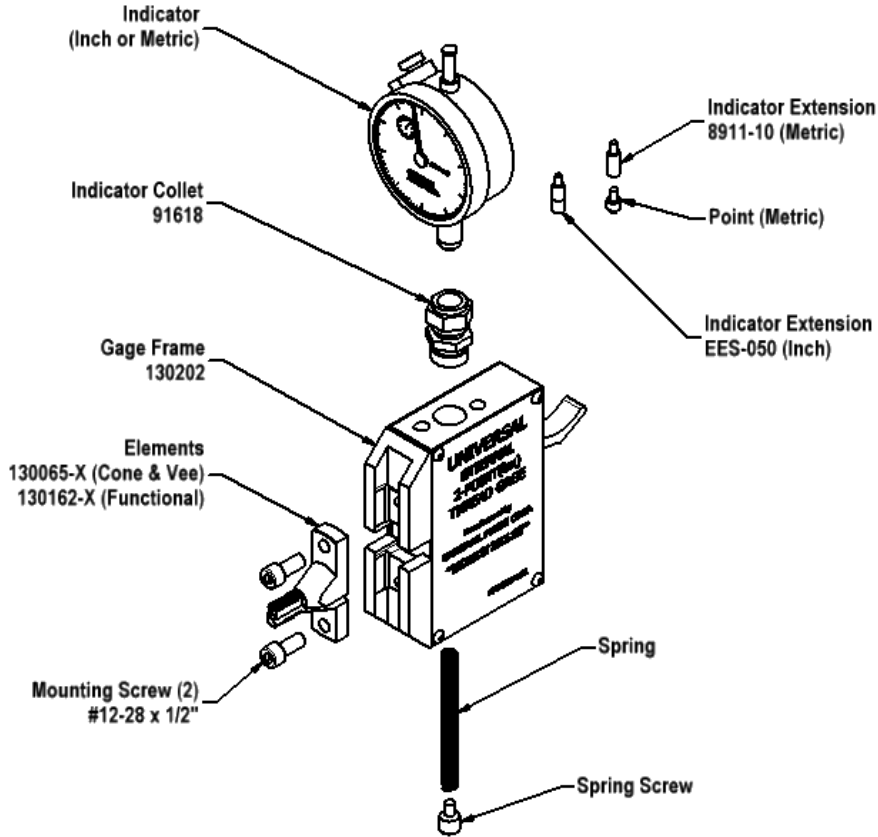
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The Gaging System –

The Gage System consists of 4 major features:

- 1) Mounting Stand (multiple units) or Handle
- 2) Frame Assembly #1 or #2
- 3) Elements
- 4) Mechanical Dial or Digital Indicator

Note: All Figures used are for illustration purposes only and may not represent exact configuration.



Internal Thread Gage Assembly
(Frame Assembly #1 Shown)
Sizes #04 Thru 3/4" or M3 Thru M20

Installing Gage Elements to Frame –

- 1. Clean mating surfaces of Frame and Elements using a rag or cotton swab and Isopropyl Alcohol to allow proper seating.

Note: Elements are manufactured as matched pairs and must be stored and used together. The Elements are interchangeable from top to bottom within a matched set.

- 2. Attach Elements to frame using two (2) #12-28 Socket Head Cap Screws provided.

Mechanical Indicator Installation –

The Mechanical Dial Indicator is secured to the Frame with a Locking Collet. The following steps are for installing the Indicator for the first time for each screw size.

1. Loosen the Locking Collet on top of Gage Frame.
2. Insert Dial Indicator into Collet (Use the Adapter Bushing for Metric Indicators with 8mm shafts).
3. With a Master Ring Gage installed in the Elements, push the Indicator downward to preload at least one full revolution and adjust to approximately zero.
4. Tighten the Locking Collet.
5. Zero Indicator dial.
6. Depress the Thumb Lever and carefully remove Master Ring from Elements.

Electronic Indicator Installation –

The Electronic Dial Indicator is secured to the Frame with a Locking Collet. The following steps are for installing the Indicator for the first time for each screw size.

1. Loosen the Locking Collet on top of Gage Frame.
2. Insert Dial Indicator into Collet (Use the Adapter Bushing for Metric Indicators with 8mm shafts).
3. With a Master Ring Gage installed in the Elements, push the Indicator downward to preload approximately $\frac{1}{4}$ ".
4. Tighten the Locking Collet.
5. Zero Indicator dial.
6. Depress the Thumb Lever and carefully remove Master Ring from Elements.

Setting Thread Gage to Master Ring Gage –

Note: The Gage is set with a Master Ring Gage that matches the thread size of the Elements previously installed.

1. Depress the Thumb Lever on rear of Frame until Elements are compressed enough to allow Master Ring to freely slide over them.
2. Release the Thumb Lever to expand Elements into Master Ring.
3. Rotate Master Ring slightly over Elements to ensure it is properly seated.

Note: Do not turn the Master Ring any more than necessary to seat the Elements. This will cause the Elements to wear prematurely.

4. Zero the Indicator:
If using a Mechanical type Dial Indicator, adjust the zero point by turning the Bezel on indicator face.
If using an Electronic type Indicator, press the "Zero" key on face.
5. Depress the Thumb Lever and carefully remove the Master Ring.

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Measuring Parts –

1. Depress the Thumb Lever enough to allow part to slide freely over Elements.
2. Place part being measured over Elements.
3. Rotate part slightly over Elements to ensure it is properly seated.
4. Note any variance on indicator.

Note: Do not turn the part any more than necessary to seat the Elements. This will cause the Elements to wear prematurely.

5. If measuring in different areas of the part; depress Thumb Lever and move part to next location.

Note: When using a Metric Dial Indicator, an adapter bushing shall be used.

Spring Pressure Changes –

1. Loosen Locking Collet and remove Dial Indicator.
2. Install Spring Pressure Force Gage Assembly (Gage, Point and Adapter) into Collet.
3. Depress Thumb Lever enough to bring Elements completely together.
4. Slide Gage Assembly into Collet until it contacts Inner Frame.
5. Tighten Locking Collet.
6. Zero the Gage by pressing button on outer edge of Gage.
7. Release Thumb Lever.
8. Note spring pressure reading on Gage.
9. Adjust Spring pressure as required by turning Spring Screw located on bottom of Frame with appropriate size hex key.

Note: See chart below for Manufacturers recommendations for Spring pressure.

Recommended Spring Pressure Settings –

<u>Screw Size</u>	<u>Spring Pressure</u>
#4 thru #10 or M3 thru M5	1.5 Lb
¼" thru 7/16" or M6 thru M12	2.0 Lbs
1/2" thru ¾" or M14 thru M20	2.5 Lbs

Note: Alternate springs are available upon request to accommodate higher or lower spring rates for special applications.

Replacement Parts –

Contact Universal Punch Corp. to obtain an Illustrated Parts Breakdown Drawing for a particular Gage Model. Some replacement parts may be ordered by utilizing the drawing and referencing the appropriate Part Number(s).

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Warranty

Universal Punch Corporation warrants that within twelve (12) months from date of shipment we will replace or repair, at our option, free of charge, any part(s) which, upon examination, we find to be defective in workmanship or material, provided that the product has been reasonably maintained and has not been subject to abuse. This warranty is in lieu of all other expressed or implied warranties including proper application for a particular purpose. In no event shall UPC be liable for any special, indirect, or consequential damages including, but not limited to, lost profits or other damages from loss of production caused by defective product, or by unsatisfactory performance of the product.

Returns

No returns will be accepted without factory authorization. Standard gage components or units are subject to a 15% restocking charge. Precision units are not subject to return privileges.

Special Orders

Special Gage orders on any parts or equipment such as electronic instruments and / or digital indicators are not returnable.



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