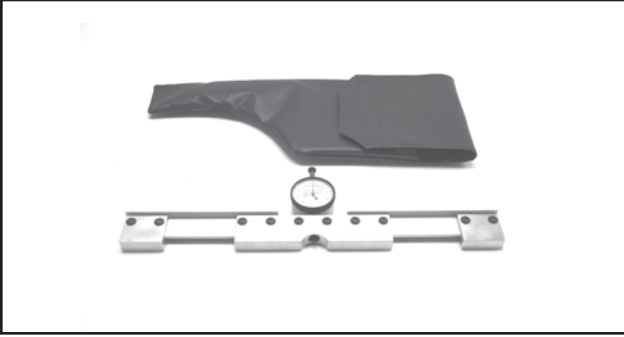


Span Gauge

Description

Western Instruments Span Gauge provides Corrosion Inspectors with an economical alternative to our Bridging Pit Gauge, for the Inspection of large areas of Weight-Loss Corrosion.



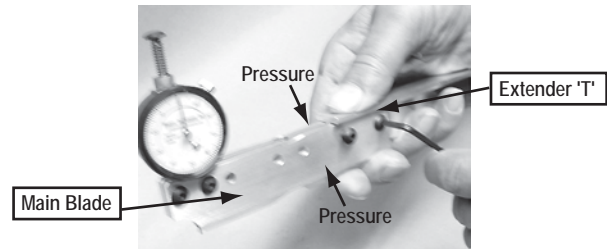
*NOTE: Span Gauge, as illustrated, fits assembled into its optional holster.

Name	Model #	Description
Span Gauge Kit	N88-11	Soft Case, Main Blade, End Blade, Two Tees, Dial Indicator, Fasteners & Wrench. Span Gauge Blades are not a Knife Edge, but Bridging Pit Gauge Components can be used with the Span Gauge to extend its reach.
Basic Span Blade	N88-11B	Main Blade, Dial Indicator, Fasteners & Wrench.
Main Blade	N88-11-1	Centre Mount for Dial Indicator, 5.5" (140mm) long
End Blade	N88-11-3	End Blade, 1.5" (38mm) long (2 included).
Tee Section	N88-11-5	5.5" (140mm) long, will accept Magnetic Hold Downs Blocks and/or Extender Blades.
Carrying Case	N88-11-8P	Accommodates Span Gauge Kit.
Holster	N88-11-8H	Accommodates Assembled Span Gauge

Assembly

All Blades, with the exception of the Slider Blade, have two distinct sides. The mounting holes on the Slider Blade are threaded through the thickness of the blade, while the other blades have a clearance hole on one side. When assembling, start the fasteners on the Thread Clearance Side of the Blades.

When assembling the unit, press firmly (as illustrated) on the Extender T, and the Blade you are attaching to it, while tightening the 12-24 Button Head Machine Screws with the 1/8" Allen Key. When assembled in this fashion, the overall length of the unit should have a straightness of approximately +/-0.015". When more accuracy is required, assemble the unit on a flat surface.

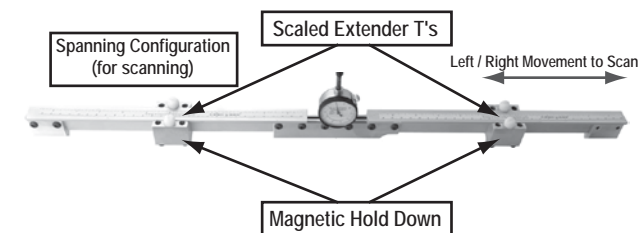


The fasteners only need to be 'snug', to ensure the Blades and Extender 'T's do not move relative to one another.

Magnetic Hold Downs

The Bridging Pit Gauge is offered with 2 models of Magnetic Hold Downs; Basic and Adjustable. The powerful Basic Magnetic Hold Downs are cast in plastic, equipped with 2 fixed magnets and will accommodate most inspection needs. The Adjustable Magnetic Hold Downs are equipped with 4 adjustable magnet cartridges, allowing the inspector to fully Zero the Magnets to the workpiece.

Magnetic Hold Downs provide the inspector with increased mobility, as he is not required to support the Pit Gauge, but more importantly these magnets permit Scanning an area of Corrosion. Magnetic Hold Downs are designed to slide on the Scaled Extender T's (Imperial and Metric Scales), allowing the entire Bridging Pit Gauge to travel over an area of Corrosion. This travel permits the Dial Indicator's Contact Point to be moved incrementally, to take multiple pit measurements. These measurements can then be plotted to obtain a Cross-Sectional View of the corrosion profile.



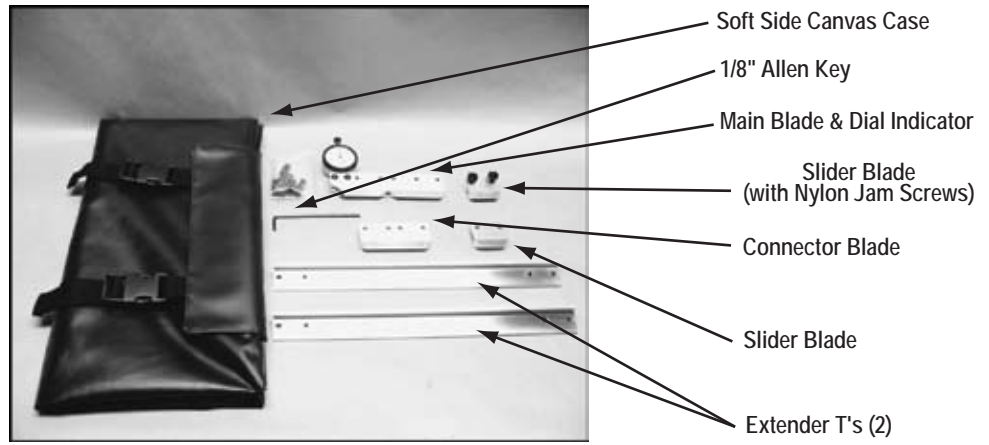
THE Bridging Pit Gauge System

Description

Western Instruments Bridging Pit Gauge allows the Corrosion Inspector to Span or Cantilever over large areas of Weight-Loss Corrosion, to get a true measure of Pit Depth.

Parts

After unpacking your new Bridging Pit Gauge ensure all the parts illustrated and listed are included in you Kit.

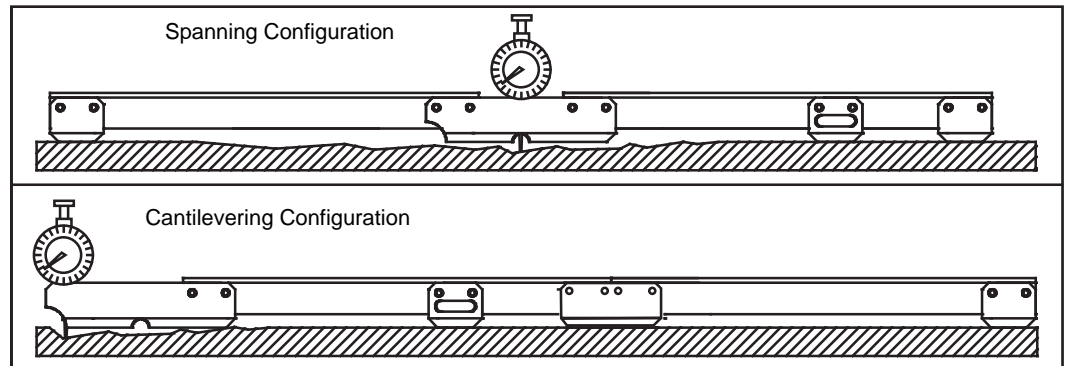


Name	Model #	Description
Standard Bridging Kit	N88-9	Soft Case, Main Blade, Connector Blade, End Blade, Two Tees, Slider Blade, Dial Indicator, Fasteners & Wrench. Multi Piece unit can be assembled in spanning or cantilevering configurations for testing large areas of Corrosion.
Basic Bridging	N88-9B	Main Blade, Dial Indicator, Carrying Case, Fasteners & Wrench.
Main Blade	N88-9-1	Centre and End Dial Indicator mounting positions 5.5" (140mm) Long.
Connector Blade	N88-9-2	3.5" (89mm) Long
End Blade	N88-9-3	1.5" (38mm) Long
Slider Blade	N88-9-4	1.5" (38mm) Long (Slider Blade doubles as an End Blade for Spanning Configuration)
Tee Sections	N88-9-5	12" (305mm) Long (Scaled T's required for Magnetic Option)
Fasteners and Wrench kit	N88-9-7	12 Fasteners, Allan Key, & 2 Nylon Fasteners
Carrying Case	N88-9-8P	Accommodates entire Kit.
Options:		
Adjustable Magnetic Holds downs	N88-9-6	1.625" (41mm) Long. 1 required for each Tee Section, supplied in pairs.
Basic Magnetic Holds downs	N88-9-6P	1.625" (41mm) Long (Plastic). 1 required for each Tee Section, supplied in pairs.

Configuration

As conditions dictate, the operator can assemble the Bridging Pit Gauge into the two general configurations illustrated; Spanning or Cantilevering.

The operator can use just the Main Blade for general corrosion measurement.

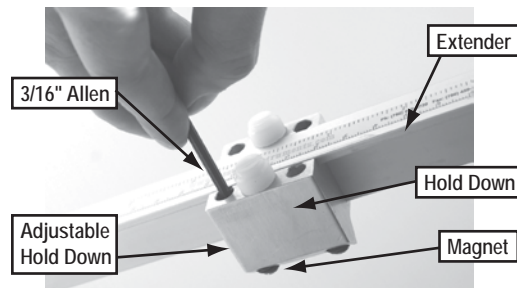


Height Zeroing to Work Piece

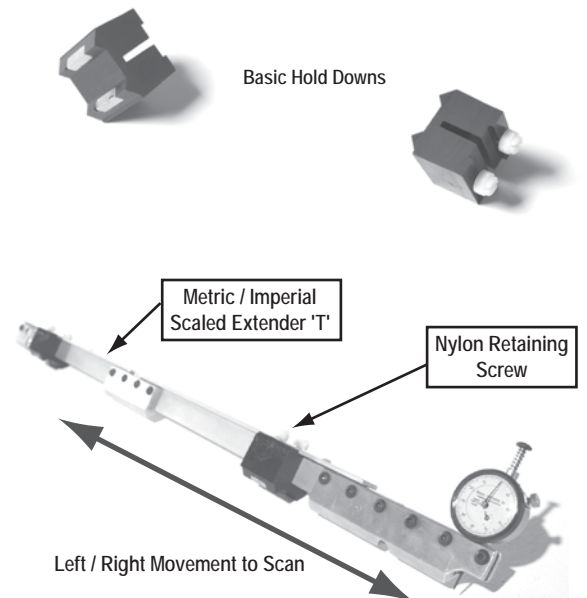
Magnetic Hold Down Blocks must be Zeroed to the work piece, whether the work is Flat (Steel Plate or Structural Sections), or Curved (Vessels, Pipe - 1.5" OD min.). Assemble the Bridging Pit Gauge in the desired configuration, with one Magnetic Hold Down Block on each Extender T, but leave all fasteners loose, and place the unit on a flat surface, of the same basic shape as the work piece. The flatter (or more straight) the surface, the more accurate the assembled unit will be.

The elevation in each Magnet Cartridge must be adjusted to ensure the Hold Down Block contacts the surface of the Work Piece. This ensures the Blocks sit as Flat as possible for maximum magnetic attraction. This is accomplished by using the large 3/16" Allen Key, included in the kit, to bring each magnet cartridge up or down within the block.

The Magnet Cartridges must be as close as possible to, or contacting the work piece whether it is flat or curved. When the Hold Down Blocks are Zeroed, the operator can then tighten the balance of the fasteners on the Pit Gauge. After the unit is assembled, with the Magnetic Hold Down Blocks Zeroed, the unit can be placed on to the work piece in a vertical, inclined, or up-side-down position.



The Magnetic Hold Down Blocks are designed to slide on the Scaled Extender T's (Imperial and Metric Scale), allowing the entire Bridging Pit Gauge to travel over an area of corrosion. This travel permits the Dial Indicator's Contact Point to be moved incrementally, to take multiple pit measurements. These measurements can then be plotted to get a cross-sectional view of the corrosion profile. When placed on the Work Piece, the Nylon Retaining Screws can be tightened or loosened for operator convenience.



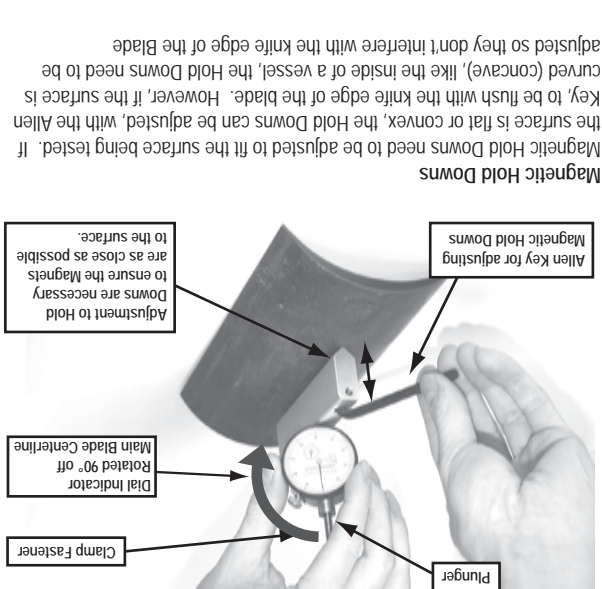
After placing the unit on the Work Piece, the operator Zero's the longitudinal position of the Magnetic Hold Down Blocks, on the Scaled Extender T's. The operator can have over 7" (180mm) of travel with the End and Slider Blades installed or over 9" (230mm), with the End Blades removed. For recording purposes, the operator assigns a Depth Measurement with the corresponding longitudinal position, as referenced to one of the Magnetic Hold Down Blocks.

Care and Maintenance

Western's Dial Indicators (ADG Group 1 in Imperial or Metric, and Group 2 Digital) were developed for Field Pit Depth Measurement. While ruggedly manufactured, these units should not be dropped or subjected to strong Vibration or Impact. While manufactured from Corrosion Resistant Materials, Pit Gauges and their Dial Indicators should be kept clean and dry. Fit and Finish of Pit Gauge parts are very important; operators should not hesitate to file rough edges, clean with steel wool or wet dry abrasive cloth/pads. New parts tend to be tightly fit, and will loosen with use. Care must be taken to ensure fasteners are not cross-threaded.

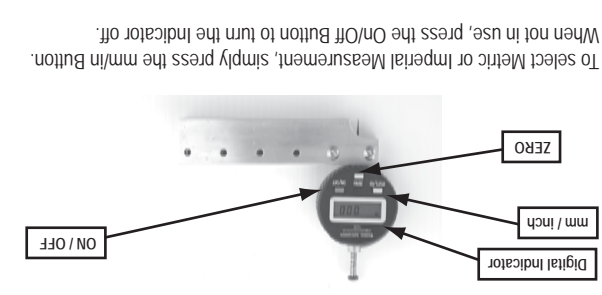
Scanning

Prior to testing on the Work Piece, the dial indicator needs to be re-Zeroed, as there may be a Stand-off distance between the Blades (Main, Connector, End, or End/Slider) and the dial indicator's contact point, due to the Hold Down Blocks. This Stand-off will vary, depending on the profile of the Work Piece (Convex, Concave, or Flat).

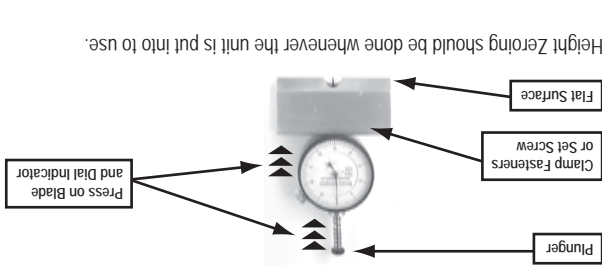


Magnetic Hold Downs
Magnetic Hold Downs need to be adjusted to fit the surface being tested. If the surface is flat or convex, the Hold Downs can be adjusted, with the Allen Key, to be flush with the knife edge of the blade. However, if the surface is curved (concave), like the inside of a vessel, the Hold Downs need to be adjusted so they don't interfere with the knife edge of the Blade.

Indicator Positioning
The position (or rotation) of the Dial Indicator can be changed by simply loosening the Clamp Fasteners or Set Screw, and rotating the Dial Indicator around the Blade. After the Dial Indicator is rotated, the unit should be Zeroed.



Zeroing a Digital Indicator
Digital Indicators can be Height Zeroed or Positioned in the same way as a Mechanical Dial Indicator. To Zero the Digital Indicator simply press the Zero Button when the Contact Point is on a reference point. If the Digital Indicator is Height Zeroed, press Zero when the Plunger is fully retracted.



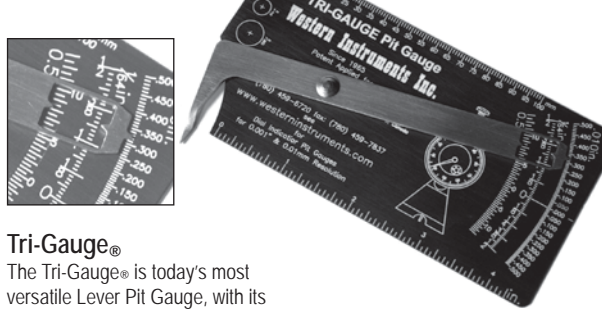
Height Zeroing should be done whenever the unit is put into to use.

Model	Part #	Description
Tri-Gauge	N88L-1	Lever Type Pit Gauge for Evaluation of Corrosion
Basic	N88-2	Centre mount 2.5" (64mm) Blade, our most popular Gauge
Basic Plus	N88-3	Centre mount 3.5" (89mm) Blade
Basic Plus Magnetic	N88-3M	Centre mount c/w Two(2) magnet cartridges. 3.5" (89mm) Blade
Pocket	N88-4	Dual Edge Blade (reversible). 1.5" (38mm) long and spot base
Reaching	N88-5	4.75" (121mm) Blade. End Mount Dial Indicator with Nose Cutout.
Reaching Magnetic	N88-5M	4.75" (121mm) Blade c/w Two(2) magnet cartridges.
Reaching Plus	N88-6	6" (152mm) Blade. End Mount Dial Indicator with Nose Cutout.
Reaching Plus Magnetic	N88-6M	6" (152mm) Blade c/w Two(2) magnet cartridges.
Reference Gauge	N88-12	5.5" (140mm) long, 0.75" (19mm) wide with inverted V Edge, 2 magnet cartridges. Similar and interchangeable with Bridging Pit Gauge Main Blade.

NOTE: All Blades are 0.375" (9.5mm) Wide, except Reference Gauge

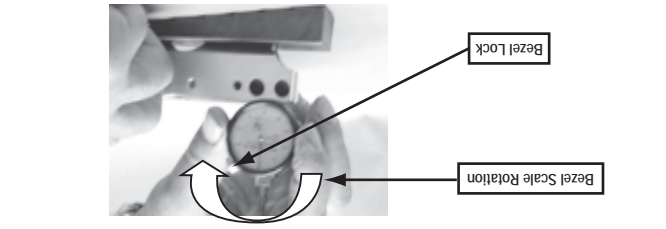
Metric Dial Indicator	Range: 0.0-10mm Resolution: 0.01mm Dial ϕ : 35.5mm
Imperial Dial Indicator	Range: 0.0-0.5inches Resolution: 0.001inches Dial ϕ : 1.4inches
Digital Indicator	Range: 0.0-0.5inches, 0.0-10mm

Lever Pit Gauge



Tri-Gauge®
The Tri-Gauge® is today's most versatile Lever Pit Gauge, with its Metric and dual Imperial Scales. Additionally, the Tri-gauge® also serves as a basic Weld Inspection Gauge, measuring: Undercut Depth, Weld Crown Height, Porosity Comparator, and Metric and Imperial Rules. The Tri-gauge® is fitted with a Patented Pointer Offset Correction for improved accuracy and repeatability. Lever Pit Gauges are intended to Evaluate Corrosion, and not as an absolute measuring tool. The Tri-gauge® is supplied with a Pocket Protector type Case and Instructions.

Height Zeroing
Loosen the Fastener(s) holding the Dial Indicator in place. Hold the Blade firmly on a Flat Surface, and gently press the body of the Dial Indicator down until the contact point touches the flat surface. Carefully re-tighten the Clamp Fastener(s) or the Set Screw. Any fine zeroing can be done by rotating the Bezel Scale on the Dial Indicator.



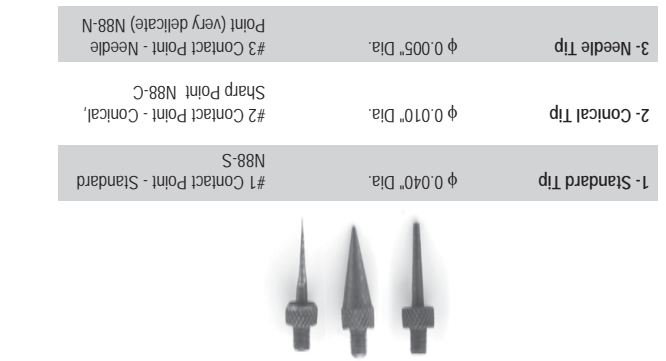
To quickly check the Zero Point of the Dial Indicator, place the Blade on a relatively smooth surface. Gently press the Plunger, until the contact point touches the surface. While the contact point is on the surface, loosen the Bezel Lock, and rotate the Bezel Scale until it reads '0' with respect to the pointer.

Scale Zeroing
The vertical position of the Contact Point, needs to be Zeroed with respect to the Knife Edge of the Blade. Zeroing can be accomplished in two ways: by adjusting the Height of the Dial Indicator in the Blade; or by Rotating the outer Bezel Scale while pressing on the Plunger onto a flat surface.

Zeroing Dial Indicator
The vertical position of the Contact Point, needs to be Zeroed with respect to the Knife Edge of the Blade. Zeroing can be accomplished in two ways: by adjusting the Height of the Dial Indicator in the Blade; or by Rotating the outer Bezel Scale while pressing on the Plunger onto a flat surface.

Description: Western Instruments Pit Gauges allow the Corrosion Inspector to conveniently measure Pit Depth or material loss in areas of Weight-Loss Corrosion. Various types are available for different applications, including the Tri-Gauge® for basic evaluation and the Bridging Pit Gauge for evaluating large areas of weight loss corrosion. The right gauge for the right application.

1- Standard Tip	ϕ 0.040" Dia.	#1 Contact Point - Standard N88-S
2- Conical Tip	ϕ 0.010" Dia.	#2 Contact Point - Conical, Sharp Point N88-C
3- Needle Tip	ϕ 0.005" Dia.	#3 Contact Point - Needle Point (very delicate) N88-N



Contact Points
Western offers a variety of Contact Points, which are all 0.625" (16mm) long. Any ADG Contact point can be used with our special dial indicators, but a different length may affect Height Zeroing, or the vertical position of the Dial Indicator. Contact Points are easily replaced, by extending the Contact Point, and turning it counter clockwise.

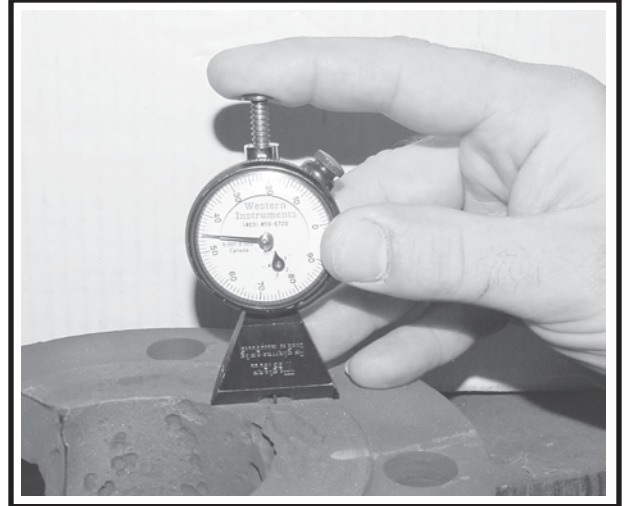
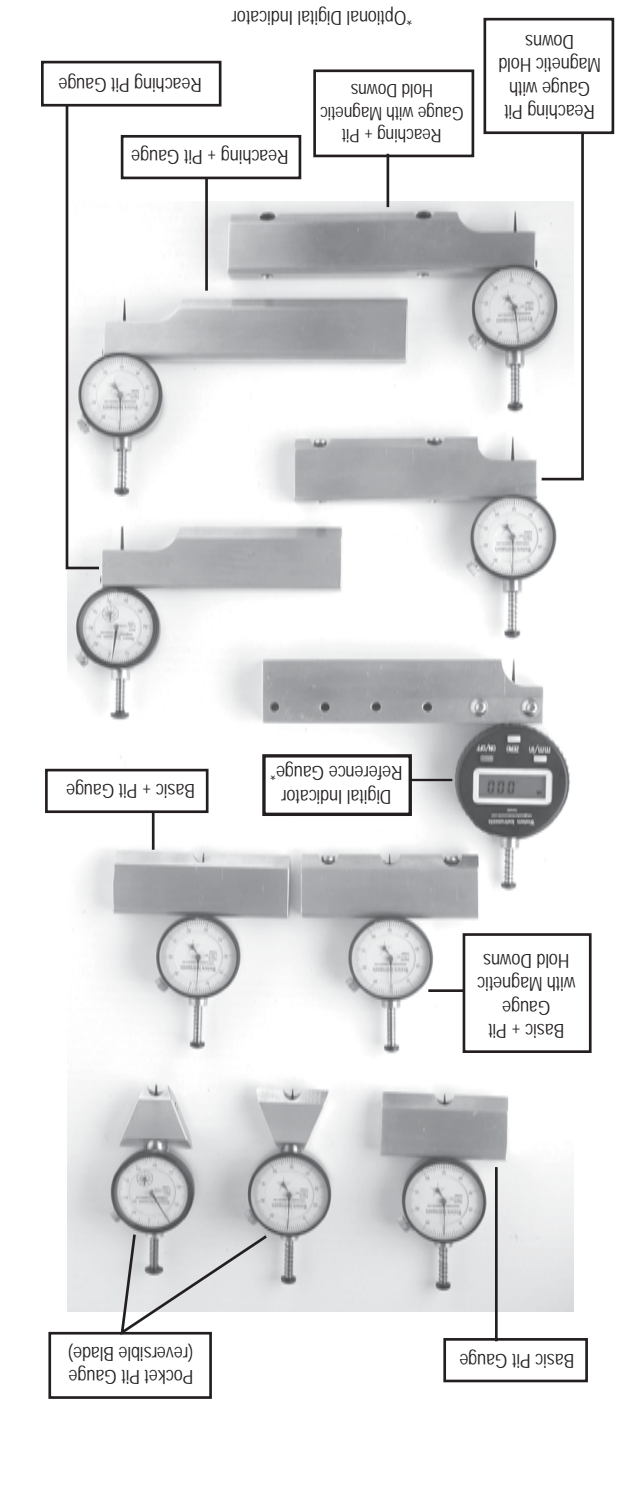
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Warranty

Western Instruments warrants its products, against defects in materials and workmanship for a period of 1 year from receipt by the end user. If Western Instruments receives notice of such defects during the warranty period, Western Instruments will either, at its option, repair, replace, or condemn products that prove to be defective. Consumable items, such as Contact Points, Batteries, and the like are warranted for 30 days, from receipt by the end user.

Any warranty is void if the unit has been modified in any way, or if it has been repaired by an unauthorized agency. The end user agrees that any equipment's disposition, when returned for warranty work, is at the full discretion of Western Instruments as to whether a claim is under warranty, or due to misuse. Western Instruments warranty shall overlook normal wear, however does not include operation outside the environmental specification of the product. All warranty work is FOB Western Instruments, and any returned units shall include a written description, by the end user, of the fault.

Western Instruments makes no other warranty, either expressed or implied, with respect to this product. Western Instruments specifically disclaims any liability arising from the use of this equipment. For the correct use of the product, refer to the Operating Instructions, furthermore we recommend instructional training to NACE, or other regulatory authority qualifications. Western Instruments highly recommends the end user exercise all possible safety precautions, including use of protective equipment, while operating this or other industrial equipment.



Albuquerque Industrial
69-10 108th Street # 2-O
Forest Hills, NY 11375 U.S.A.

www.abqindustrial.net
e-mail: info@abqindustrial.net
Toll Free: +1 (888) 275-5772
Tel: +1 (718) 846-6458
Fax: +1 (718) 846-6459