

Tri-Weld[®] welding Gauge

Western Instruments Inc. Est. 1965
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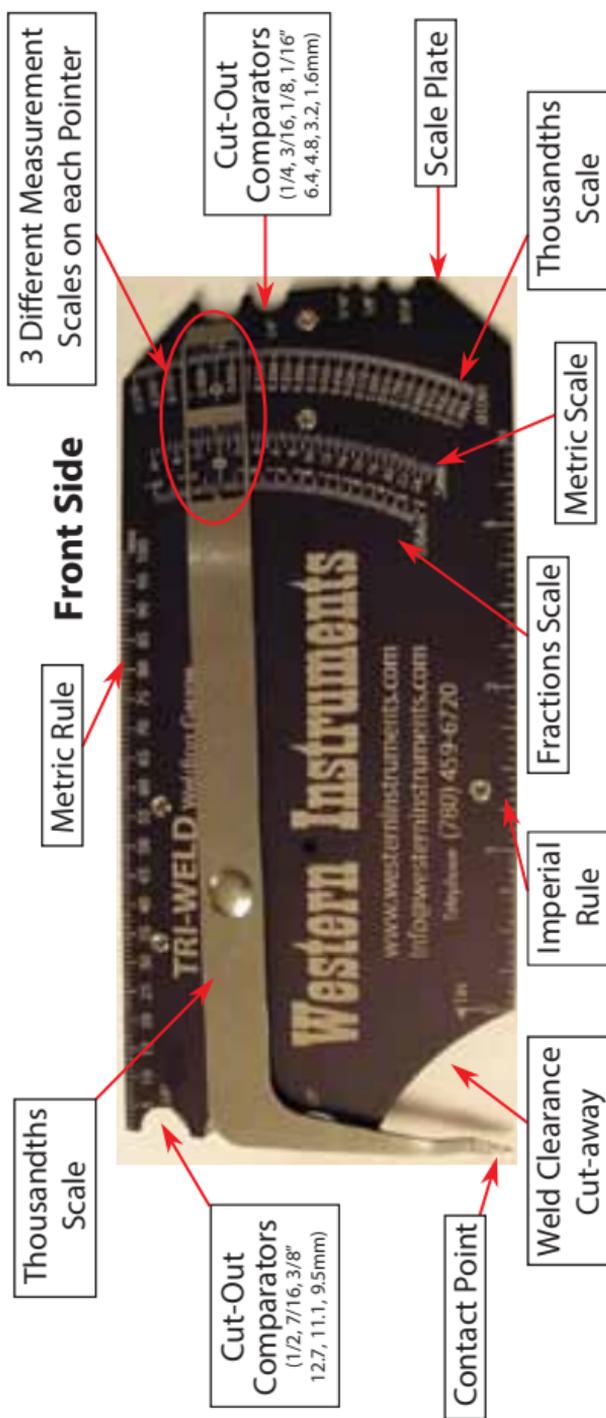


Based on customer encouragement and the success of Western Instruments Tri-Gauge® and Jr. Tri-Gauge®, we are pleased to introduce our new Tri-Weld® Welding Gauge. We have kept our signature prefix (Tri) as we have again provided this Welding Gauge with our 3 measurement scales; Thousandths and Fractions of an inch and Metric. As illustrated

in this guide, the Tri-Weld® provides easy to read measurements of the following welding and fit-up parameters; Internal Hi-Lo, Gap, Filet Height and Leg Length, Weld Height, Undercut Depth, Misalignment, and Angle of Preparation. The Tri-Weld® Gauge is equipped with separate Imperial (1/32") and Metric (1.0mm) Rules on the top and bottom of the Front of the Scale Plate. The Tri-Weld® Gauge is also fitted with 7 unique diameter comparators which are half circles in 1/16" to 1/2" in 1/16" increments (1.6mm to 12.7mm in 1.6mm increments) for convenient diameter estimates.

The Tri-Weld® Gauge does away with Single Purpose Welding Gauges, by consolidating the functions of the 4 most popular gauges, with over 9 measurement functions. The contrast of the scales against the black background, make the Tri-Weld® Gauge extremely easy to read on any of it's fine measurement scales. The Tri-Weld® is unique, a distinct improvement over existing gauges, so we've applied for a Patent on it.

Weld and Fit-Up parameters are outlined in numerous industry specifications, such as; AWS, ASME, API, ANSI, ISO, DIN, CEN, and Military Specifications. Of particular importance for AWS Inspectors, the Tri-Weld® Gauge will resolve and measure Undercut to +/- 0.010" (0.5mm), something no other Lever Type Welding Gauge can do.



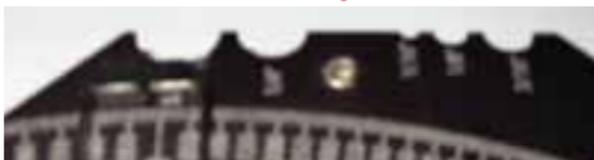
The 2 Rules have scales that are referenced to the outside of the Scale Plate making reaching measurements easy and convenient. These scales have an overall length of 4 1/2" in imperial and 100mm on the Metric Rule.



Large Comparators



Small Comparators



The Front of the Tri-Weld® Gauge is equipped with 7 unique Half Circle Comparators that are cut out from the side surfaces of the scale plate. These are used as comparators to accurately estimate the size of; Porosity, Fillet Welds, Rod Size, etc. These half circle comparators are from 1/16 to 1/2" (1.6 to 12.7mm) in 1/16" (1.6mm) increments. These half circle Comparators are grouped in a set of 3 larger, and 4 smaller half circles at each end of the Scale Plate.

These half circle Comparators are grouped in a set of 3 larger, and 4 smaller half circles at each end of the Scale Plate. The Internal Hi-Lo feature uses our Parallel Catch Sliders. This provides the welder with extremely accurate Mismatch measurements from the inside of a Tube / Pipe or Plate fit-up. The Parallel Sliders are slightly extended and the Catches are inserted into the ID through the Weld Gap. The Scale Plate is rotated by 90°, so the Catches align to the transverse axis of the weld. The Welder gently pulls up on the Scale Plate, until one of the Slides bottom out or when he knows the slides are normal to the OD surface. The operator removes the Tri-Weld from the weld joint and reads the offset distance between the two Parallel Sliders. The Scales for this function are in Metric (0.5mm), and Fractions of an inch (1/32")



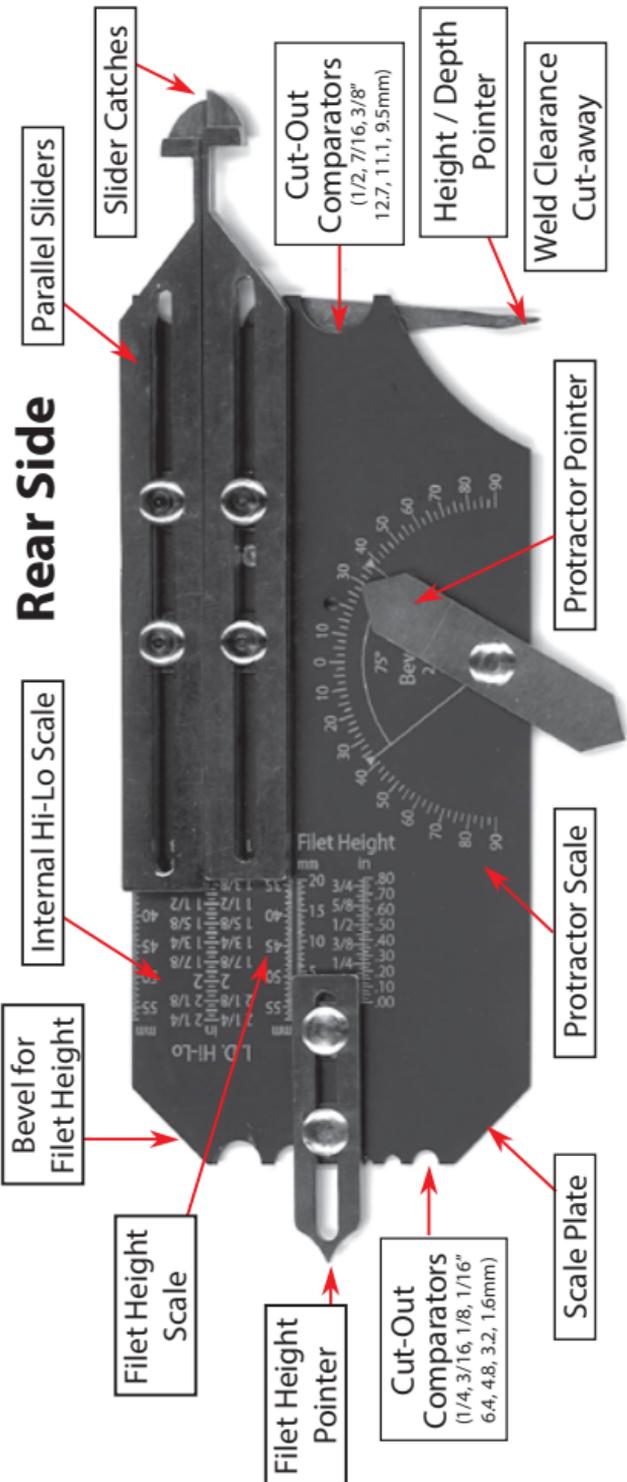
1/8" (3.2mm) Thickness

1/16" (1.6mm) Thickness



The **Gap Width** is measured against the 2 referenced thicknesses on the end of the Slider Catches, these are 1/16" (1.6mm) at the tip and step up to 1/8" (3.2mm) just in from the tip. The width of the 2 thickness on the Parallel Sliders is 1/16" so it will fit through most weld gaps.

The **Filet Height Pointer** is used to measure throat thickness. One or both of the 45° bevelled corners are put in contact with the workpiece. The Height Pointer is extended until it contacts the thickest portion on the Throat of the Weld. The throat thickness is measured at the opposite end of the pointer, to a maximum of 0.80", 13/16", or 20mm in respective increments of 0.025", 1/32", or 0.5mm.



Features The Height / Depth Pointer has an improved window layout, making all 3 scales very easy to read. The Pointers scale can read depths of Undercut of up to 0.250" / 1/4" (6mm), and Leg Length and Weld Height) of up to 1.00" (25mm). The Pointer is equipped with Western's Patented Offset Correction to eliminate parallax due to the Scale Plate not being normal to the surface being measured.

Filet Weld Height



Filet Weld Leg Length



Filet Weld Throat



The Tri-Weld® Gauge has a large Weld Clearance Cut-away, which enables it to reach across a Weld to measure misalignment, or up to a reinforcing pad to measure its thickness.

Weld Undercut



Weld Reinforcement



Weld Off-Set



Filet Weld Throat



Throat Height on Repad Fillet



Angle of Preparation



Angle of Preparation is measured using the protractor pointer, and can be used on either side of the Pointers Pivot. The Protractor is divided into 2.5° increments, with a common compound angle of 75° ($37.5^\circ \times 2$) indicated.

Pointer Calibration

The Tri-Weld® Gauge is assembled by a skilled technician, using appropriate tools and fixtures, to ensure the scales and Levers / Sliders are fully tested to ensure their linearity over the entire measuring range. During normal operation, the Contact Points (Height / Depth, and Fillet Height) can become worn or damaged, thus hindering the accuracy of the Tri-Weld® Gauge.

If a Tri-Weld® Gauge is found to have an inaccuracy, it can be tested by Western Instruments or an authorized calibration depot. However, with the right tools and a thickness standard, one can check and re-standardize the Tri-Weld® Gauge. The tools required are a small ball peen hammer, a fine file, and a thickness Standard. The Thickness Standard, preferably Cold Rolled Steel, must be less than the full deflection of the Tri-Weld's® Height/Depth range 3 to 25mm or 0.10" to 1.00".

After one determines the Contact Point (Height / Depth or Fillet Height) is too short or long, the contact point is easily adjusted. If these Contact Points are long (low measurements), lightly file the lower angled edge, on the Height / Depth Pointer, closest to the Scale Plate. On the Fillet Height Pointer, the point is lightly filed to make it a little more flat. After each draw of the fine file, the accuracy of the corresponding Points should be checked, on both the high and low end of the Height / Depth scale. On the Fillet Height scale, the pointers height is simply verified. If the Tri-Weld® Pointers are measuring high (short Contact Point), the bottom portion of the Contact Point should be placed flat on an anvil, that is the Gauge resting on its side. Give a light flat tap, with the broad face of your small Ball Peen Hammer, to the end of the Contact Point. Again, after each tap, the accuracy of the Gauge should be checked on the scales in the manner outlined above. While standardizing a Tri-Weld® Gauge in this manner, patience and thought go a long way.

The Tri-Weld® Gauge has passed many experienced Welder Inspector's critical Tests, you can put it in your back pocket, and nothing digs in!

Distributor _____

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 it's option, repair, replace, or condemn products that prove to be defective. Any warranty is void if the unit has been modified in any way or if it has been repaired by an unauthorized agency.

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