RAVEN EYE CUSTOM

22LR RIM THICKNESS GAUGE

USAGE INSTRUCTIONS - SHEET 1 OF 4

READ PRIOR TO INSTALLATION

THIS GAUGE IS MADE TO MEASURE DIMENSIONS OF LIVE AMMUNITION. USE IT CAREFULLY!

DO NOT LET THE INDICATOR ARM SNAP DOWN ON THE RIM OF THE AMMUNITION!

As the end user of this product, you must accept full responsibility for the correct use of this product.

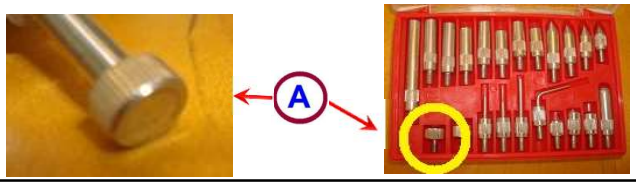
If you have any questions, please contact a gunsmith or us for assistance. Read instructions fully.

If you are unwilling to accept this, return the product to the address listed below for a full refund.

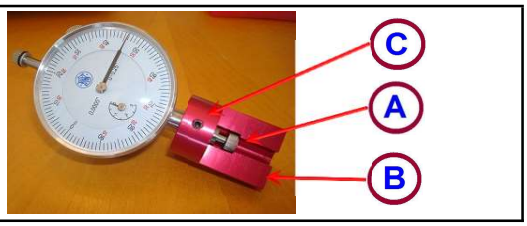
NOTE: The rim gauge can either be used with a dial indicator, or a dial caliper. We recommend a dial indicator for best accuracy. The instructions below show how to use both methods. The first two pages are for the dial indicator, the third for the dial caliper. The last page discusses the pros / cons of each method.

Dial indicator requirements The four main requirements of the dial indicator are the precision, length of travel, throat diameter, and contact point style. Note that a "dial test indicator" is a different product, and not compatible with this gauge.

1. The ideal precision is 0.0005" (5 ten thousandths of an inch). You can also use 0.0001" (one ten thousandth of an inch), however there will be noise in the reading. Note that the most common precision is 0.001 (one thousandth of an inch) which is too coarse for these measurements. A good type is Smith & Wesson #SW1073, Dial indicator, 0.0005" x 1/4" .
2. The length of travel, determines the range that measurements can be taken. Anything over 1/4" will work. Don't go over 1.00".
3. The throat diameter needs to be 3/8" (0.375). This dimension is standard on almost all dial indicators.
4. The contact point style supplied on most indicators is a tapered tip. The point needs to be changed to a flat point (A) Sets of dial indicator points can be purchased relatively inexpensively. See below for a similar kit, and the point style you need.



Dial indicator setup Change the contact point to the flat point (A). Insert the indicator into the gauge (B) as shown. Use the supplied hex wrench to tighten the set screw (C) Tighten until snug, but too tight can strip the threads on the gauge. (Continued on next page)



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22LR RIM THICKNESS GAUGE

USAGE INSTRUCTIONS - SHEET 2 OF 4

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Dial indicator setup (continued)

The dial reading needs to be zeroed. Loosen the adjustment knob (D) and turn the dial until it reads zero. Then tighten up the adjustment knob.

IMPORTANT SAFETY NOTE: You are about to measure live ammunition. The indicator contains a spring that causes the indicator to return to the zero position. Do not allow the indicator point to hit the rim hard, always guide the indicator tip down. This can easily be done by placing some pressure on the indicator stem as the tip moves down. Practice this before proceeding. Please take the extra care to be safe.

Measuring rim thicknesses

Raise the indicator stem, and place a 22LR round as shown. Place pressure on the stem to slow the decent of the stem. The reading shown is the rim thickness. The flat indicator point averages the top of the rim (best method) but there may be some variation if you rotate the round. Take an average of the readings, and then sort accordingly. Note: the dummy round is used for clarity in the photo only.

See the Notes on Rim Thickness sorting on Page 4 !

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22LR RIM THICKNESS GAUGE

USAGE INSTRUCTIONS - SHEET 3 OF 4

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Dial caliper requirements

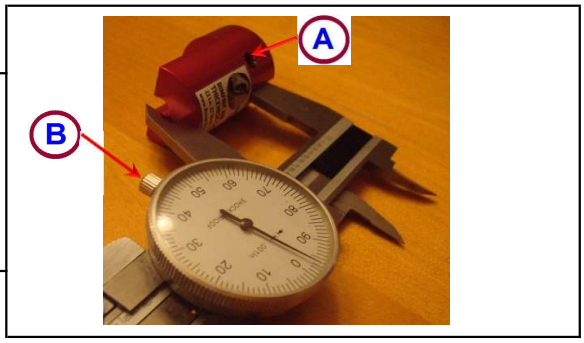
The two main requirements for a dial caliper are the precision and blade thickness.

1. Most dial calipers have a precision of 0.001" (one thousandth of an inch). Using a caliper with a higher precision may not correspond to a more precise reading; using the gauge with calipers does not have the ability to provide the accuracy that a dial indicator would. However it can be a useful means of looking for rounds that are considerably different than others. Therefore, a dial caliper with a precision of 0.001 should be adequate.

2. The blade thickness on dial calipers is nearly universal at 1/8' (0.125"). This refers to the thickness of the "jaws". Only micro-calipers (uncommon) have smaller blades.

Dial caliper setup

Open the jaws of the calipers. Install the upper jaw into the slot in the gauge. Then close the jaws on the gauge to get it to lay square to the surface. While closed, tighten the set screw (A) to secure the jaw. Do not overtighten, or you may damage the gauge threads.

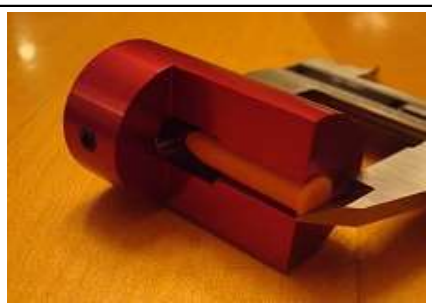


Adjusting the dial reading

The dial reading needs to be zeroed. Loosen the adjustment knob (B) and turn the dial until it reads zero. Then tighten up the adjustment knob.

Rim thickness measurement

Open the jaws of the caliper. Insert a 22LR round as shown. Slowly close the jaw until it contacts the rim. Note the reading on the caliper, and sort accordingly. Remove the 22LR round and repeat. (Dummy round shown for clarity)



SORTING WITH THE DIAL CALIPER

The caliper only measures a small cross section of the rim. Rotating the round may result in a different reading. For best results, test more than once, and average the results.

See the Notes on Rim Thickness sorting on Page 4 !

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Notes on measuring rim thicknesses using a Dial Indicator vs. a Dial Caliper

The greatest precision will be found using a dial indicator. This is because the flat point on the dial indicator will average the rim thickness of the entire round. Also, the indicator is more likely to remain perpendicular to the round, providing for consistency.

The dial caliper only measures a small cross section of the rim. Many rims have inconsistent thicknesses (even on the same round). Several measurements should be taken to determine whether the round is for plinking or benchrest. However, dial calipers are more common, and can serve to identify rounds where the rim is significantly different than others.

A dial test indicator is similar to a dial indicator, but uses a lever arm rather than an extending arm. This type of indicator is not compatible with the gauge.

Notes on sorting

1. There is no ideal rim size. Highest accuracy (smallest group size will occur when all the rounds share a common rim size.
2. Within 95% of all boxes of ammunition, there are rims that have significant differences in dimensions. When placed along side more consistent rims, the inconsistent rim is more likely to impact at a slightly offset location.
3. There are many other variables that can influence the point of impact (aside from the shooter). However, the rim thickness is the most significant variable that can be consistently measured.

There are many ways to sort them; into piles, on a number line, or about any other way you can imagine. You can even establish a range (for example 0.036 – 0.037") and sort them that way.

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