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Performance at the Range.

Regardless of the numbers observed in the reloading lab, the most important test for any rifle brass is how it performs when loaded and fired. To compare the three brands from Phase 1, the following tests were exercised at the Illinois Reloading Lab training and research facility:

1) Quantity (12) of the most consistent cases (using the data from Phase 1) were selected from within each brands 50 count lot.
2) Each piece was "neck sized only" on a Redding sizing die to ensure all neck's ID (Internal Dimensions) were perfectly concentric. During manufacturing and shipping cases can get dinged and left with a small flat area on the mouth (the die was set to neck size only, so no changes to the body were made)
3) Each case was loaded with:
    a. Federal 210M (Match Grade) primers seated "by feel" using an RCBS hand priming tool
    b. 40.10 grains of IMR 4451 (weighed to 0.01gr precision on a Sartorius precision scale
4) Quantity (36) Hornady 140 grain 6.5 ELD Match bullets were weight sorted and selected from a single box of 100
5) Each bullet was seated to the same exact depth for all cases with a Redding precision micrometer seater die and verified with digital calipers and Hornady Lock-N-Load bullet comparator tool.

Since the intent of the assessment was to illustrate the differences between the brands, no case uniforming, resizing, trimming or deburring was done to any of these cases. This allowed us to show how each brand performed straight "out of the box".

The Rifle utilized for this test was as follows:

- Ruger Precision Rifle Gen 1 in 6.5 Creedmoor
- Insite Arms Heathen Brake
- Seekins Precision RPR handguard SP3R
- Seekins Precision Ambi Safety
- Timney RPR Straight Trigger set at 20 oz
- LRI Bold Shroud
- Vortex Viper PST 6-24 x 50 FFP Gen 1 scope

All shots were from a bench rest (Caldwell Rock BR Competition Rifle Front Shooting Rest and rear bag) at 100 laser measured yards. Weather conditions in Bristol Wisconsin were 40 degrees with moderate humidity and a 6-15mph quarter value variable wind. We purposely choose this range due to its real world conditions.

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A special thanks to our precision rifleman/tester D. Gonzalez.
Exceptional shooting in not the best conditions!

The session started with 3 fouling rounds to allow the rifle to settle in and carbon condition the barrel for testing.

Evaluation rounds were fired in 3-shot groups with 3 minutes between each shot to allow for barrel cooling and to catch the best possible wind condition.

After each 3-shot group, the rifle was left to cool for 5 minutes before the next brand was fired.
The order of firing was Hornady, Nosler, then Kinetic. Four 3-shot groups were fired from each brand in round robin fashion to eliminate any shooter errors from impacting the results. The best **3 - shot group** was chosen (as long as it was consistent with the other three).

Hornady Kinetic Nosler

Group Sizes were measured using the <u>center</u> of the two furthest bullet holes with a digital caliper.

Hornady Group Size = .6920 3rd Place
Kinetic Group Size = .2780 2nd Place
Nosler Group Size = .1880 1st Place

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Final Conclusion – All three of our "American Made" brass companies are making outstanding 6.5 Creedmoor brass! Considering the incredible groups we shot in mixed wind conditions, all three of these brands are winners in our book. Also remember these were not fire-formed in our barrel yet!

Post firing measurements were taken to determine how the brass reacted to being fired. Brass that differs in hardness and composition will show up as slight variations in case to case headspace after firing.

- All 12 Hornady measured a post fire headspace of 1.5300
- All 12 Kinetic measured a post fire headspace of 1.5310
- All 12 Nosler measured a post fire headspace of 1.5305

Our detailed testing shows that good quality brass, made properly from quality materials will provide exceptional results where it matters, "On the Paper".

Street prices (simple search from mail order websites) for our participants are as follows:

Prices - Quantity 50 (as reported in Phase I of this report)

Nosler	$66.99 or $1.34 each
Kinetic	$50.20 or $1.00 each
Hornady	$37.99 or $0.76 each

Price aligned precisely with the value achieved in our test group results:,

Hornady at the lowest cost per case showed the largest group size. BUT, please remember we are still talking about sub minute of angle on first firing. Wow, what a great price for this excellent brass! The Hornady brass tipped the scales as the lightest case weight of the three, but showed excellent consistency in nearly all out measurements. Excellent showing by Hornady!!

Kinetic at the mid-price in our group printed two outstanding groups out of four with the smallest below a third of a minute of angle in group size. Excellent accuracy! Another exceptional product from Kinetic Industries. The Kinetic 6.5 Creedmoor brass showed great consistency with the heaviest case weight of the three brands and won the GOLD in overall case length measurements. The team at Kinetic can really be proud of this finished product.

Nosler is our premium priced, top shelf brass manufacturer in this assessment. When a company puts out a product at the highest price, you know the customer will demand performance. Well, there is no denying that you get what you pay for with Nosler 6.5 Creedmoor brass. Winning Gold in nearly all our categories in our Phase 1 testing, and printing an astounding .1610 inch 3-shot group in our live fire testing, all we can say is "SENSATIONAL!".

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A special thanks to Nosler, Hornady and Kinetic! Not all companies we reached out to were as confident as these three. Only Nosler, Hornady and Kinetic were willing to put their product on the line and be subjected to independent testing and validation. I'll let you the reader come to your own conclusion about the others.

Overall, I can say that American shooters using American rifle brass are blessed to have such great companies producing the best products in the world.

"This independent study was performed by Illinois Reloading Lab's, the premier US Rifle, Pistol and Shotgun Shell Reloading training facility. Reloading courses are available for all levels - beginner to highly advanced competitors and hunters. Courses and schedules can be found at the Reloading Instructor Website.

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