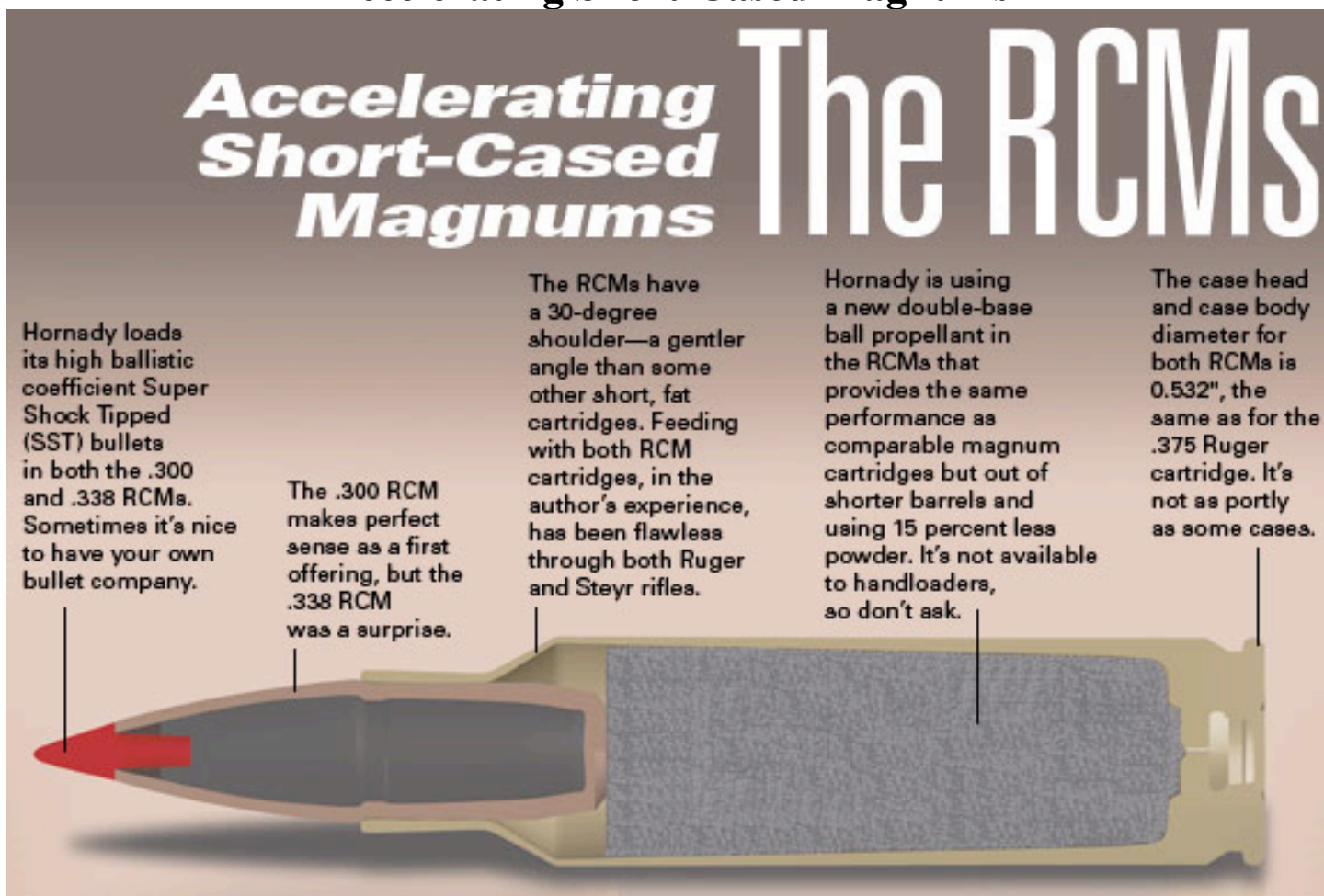


Accelerating Short-Cased Magnums



By John Zent, Editorial Director

Mr. Ling, a true fan of American Rifleman who is proud that he has not missed an issue in nearly 60 years, recently informed me he does not care for articles about new cartridges. “You’re just splitting hairs going on and on about some whiz-bang that’s five or 10 f.p.s. faster than the last one,” he chided. “Listen, you make a good shot, and none of them are any better than what we already have. Who needs them?”

Mr. Hornady is equally attentive when the new Rifleman arrives at his desk, but you can bet he takes a different view of new-cartridge articles. The company that bears the family name and was

founded by Steve’s father, the late Joyce Hornady, seems determined to keep our attention focused on new developments in ammunition.

Over the past decade, Hornady has introduced an amazing array of new rounds. There are little, fun ones like .17 HMR and .204 Ruger; big brutes like .376 Steyr and .375 Ruger; efficient deer-stoppers like .30 T/C and .308 Marlin Express; and highly specialized numbers like .480 Ruger and 6.5 Creedmoor. Hornady’s latest whiz-bangs, the .300 and .338 Ruger Compact Magnums, may well be the most mainstream of the lot because they are



targeted at a huge user group—North American big-game hunters.

So let the hair splitting begin.

The hairs in this case were covering the shoulder of a 6x6 bull elk that had just turned for one last look in our direction. For several minutes it had been walking straight away, effectively denying me a shot, and very shortly it would follow the rest of its herd over the horizon. “Five-twelve,” ranged outfitter John Porter, no longer bothering to whisper. “You know where to hold.” Thanks to an insightful pre-hunt range session with Porter and Steve Hornady, I knew precisely what to expect from my pre-production, custom-barreled .338 RCM. Rested on my pack, the rifle was as steady as could be, and from the prone position I was as steady as I can be. Accordingly, the 225-gr. Hornady SP bullet did indeed split those shoulder hairs and abruptly slammed the bull to the turf.

Mr. Ling’s contention, that if we “make a good shot” with whatever rifle/cartridge we’re using, the result will be a hit, I can’t argue with; but I will offer my observations on the RCM cartridges as a way of pointing out how our equipment can play a pivotal role in helping us to make that good shot.

The RCM Objective: Start Fast

RCM development was focused more on rapid acceleration than ultimate velocity. Instead of gaining incremental f.p.s. on competitors, Hornady R&D engineers sought to match ballistics of two dominant big-game rounds, the .300 Win. Mag. and .338 Win. Mag. The trick was doing so with shorter and lighter rifles.

“We wanted to design an entirely new cartridge generation around new propellants that would be extremely efficient and allow us to obtain true magnum performance in a 20-inch-barreled

compact rifle,” explains Chief Engineer Dave Emary. “We did not want to pursue another cartridge that simply put the biggest possible case in the available envelope, fill it with as much powder as possible and have yet another hard-recoiling system. And we weren’t willing to give up 40 to 50 f.p.s. for each inch when the barrel was shortened.”

Hornady’s ongoing work with emerging double-base ball propellant technology has driven several highly acclaimed achievements, and certainly that component was the linchpin of the RCM project. “This propellant is entirely new and has never been made before,” said Emary. “It provides the same performance [as comparable magnums] with 15 percent less powder. The performance in shorter barrels is significantly higher because of a more efficient progressive burning of the powder.” Simply put, the burn rate tightens the pressure curve so that the cartridge accelerates faster than with previous propellants. Even so, pressures remain at around 62,500 p.s.i. for Hornady’s factory loadings, while the maximum average pressure is 65,000 p.s.i.—the same as .270 Win. and the WSMs.

The RCM concept surfaced during work on the .375 Ruger (see “Ruger’s Excellent Magnum,” June 2007, p. 40), which succeeded in surpassing the ballistic performance of the .375 H&H Mag. even though its case is significantly shorter. And while the two projects followed different tracks, they shared a central theme: Provide shooters with ammunition that meets existing performance expectations, but do so from rifles that are more compact and more shootable than those presently available. Emary notes that the highly efficient powder burn also reduces recoil, muzzle blast and muzzle flash.

The RCMs also inherited the .375 Ruger’s 0.532-inch case head, while shortening the case from 2.580 to 2.100 inches in the .300 (the .338 is marginally shorter at 2.015 inches). They were



purposely configured to avoid patent infringement questions that have clouded the future of other short-cased magnums, most notably in their smaller body and rim diameters. The .300 WSM rim measures 0.535 inches and its fatter body starts at 0.555 inches, compared to the RCMs' 0.532-inch body diameter. Hornady built a 30-degree shoulder into the RCMs, whereas the WSM shoulder angles at 35 degrees.

Although marketing announcements and ads from both Hornady and Ruger take aim at conventional magnums, we know the shooting public will want direct comparisons with other short-cased magnums. We did too. Through our Oehler Model 43 chronograph, the 20-inch Ruger Hawkeye in .300 RCM launched 165-gr. Hornady SSTs to an average of 2992 f.p.s., while a 24-inch barreled Kimber in .300 WSM averaged 3061 f.p.s. with Winchester's 150-gr. Ballistic Silvertip load. In a more direct comparison, with regard to barrel length, we then fired a Tikka Big Boar with a 19-inch barrel in .300 WSM, and it averaged 2837 f.p.s. with the 150-gr. Winchester loading. Obviously, Hornady, Emary and associates are on to something here.

I have hunted with both of the RCMs, and while such times aren't really ideal for evaluating every facet of rifle/cartridge performance, a couple key questions are inevitably answered. On the Wyoming elk hunt referenced previously I used the .338 RCM, then a few months later switched to the .300 RCM to pursue free-ranging oryx in New Mexico. Even though I pushed the limits of effective range—those two shots averaged more than 400 yards—both animals went down with amazing finality. It was not my intention to take long-range shots, but both situations dictated it, and I knew if I did my part the equipment would perform. On neither occasion did I experience the balky feeding that has plagued previous short-cased cartridges, nor have I found that a problem on the

range. The recoil is noticeable, on par with what one experiences with any medium-bore magnum and, perhaps, a bit less.

What's especially interesting are the calibers Hornady chose. While the .300 is a given for commercial success, conventional sales wisdom would have suggested a .270 or 7 mm instead of the .338. Both of the sub-.30 calibers are highly appropriate and popular among deer hunters, while the .338 is not. It stands to reason that the technology applies more to the larger game typically hunted with .338s, and that compact RCM rifles will be most beneficial in the physically demanding gamelands of the Mountain West and Alaska. But did Hornady cost itself a jumpstart at sales counters by pursuing this big and bigger-bore strategy?

Rifles Chambering

I can foresee the .338 RCM making inroads in Alaska, where its heavier bullets will settle matters with bears, moose and everything else, and where the short rifles will be deemed pretty darned handy in bush planes and riverboats and hanging from a pack. Many elk hunters also count on enhanced knockdown from a .338, so that's an easy correlation, too, especially when it involves hard hiking in rugged country. The .338 RCM is offered in 200- and 225-gr. loadings with Hornady's SST bullet.

I wouldn't be surprised if the .300 RCM eventually turns up in hunting camps coast-to-coast. It is being loaded in 150-, 165- and 180-gr. SST bullets, and so this new caliber will surely account for everything from little southeastern whitetails to bigger game like elk, moose and bears. Sheep and goat hunters will particularly appreciate the long-range reach from dinky, easy-carrying rifles.



The RCMs

In this first year, rifles chambering the Ruger Compact Magnums are understandably limited. Thankfully there are options in make, materials, weight, appearance and pricing. Ruger was Hornady's developmental partner, and its first RCM rifles seek to take full advantage of the intent to generate maximum results from a short-barreled platform. At first glance, the Ruger Hawkeyes recall the abbreviated appearance of other classic carbines and are ideal for fast reaction and maneuverability. Unlike previous carbines, the new Rugers need not limit performance expectations.

As was the case with the .375 Ruger, the new cartridges are being chambered in the two-year-old M77 Hawkeye, whose improved LC6 trigger and redesigned stock updated the company's familiar Mauser-type bolt-action. The RCM rifles are fitted with 20-inch factory hammer-forged barrels that measure 0.583 inches at the muzzle. Along with the proprietary integral base mounts, there are U-notch rear and barrel-band front sights.

Buyers can choose from two configurations. Matte-blue metalwork is paired with a slender-grip walnut stock enhanced by wrap-around cut checkering and a red Ruger buttplate. The wood is reinforced by a steel crossbolt just behind the receiver ring. Alternately, a matte stainless/black synthetic version is suited to hard use in inclement conditions. Both versions are equipped with hinged steel floorplates bearing an eagle-logo monogram reading "Ruger Compact Magnum."

Our test Rugers—a walnut-stocked .300 RCM and a synthetic/stainless .338—were quick to the shoulder and held steadily for field marksmanship. In bench shooting off sandbags both grouped around 2 inches at 100 yards, and there were no misfires or malfunctions. At 6 $\frac{3}{4}$ pounds, they

clearly belong in the light-rifle discussion but are heavier by 1/4 to 1/2 pound than some prominent competitors with 24-inch barrels. In order to exploit a market segment where a few ounces can be a deal-breaker, perhaps Ruger should consider ways to lighten the package. The Hawkeye sports a handsome, classic look, but modifications that trim it to 6 pounds or so might help the RCM carbines to press the advantage of their short barrels. At a suggested retail price of \$995, these intriguing lightweight Rugers are certainly affordable.

Building on a history of teaming with Hornady, the Austrian gunmaker Steyr is getting in on the RCM ground floor, but it is taking a somewhat different approach than Ruger. Steyr Pro Alaskans chambered for .338 RCM will launch from a 23-inch barrel, more in keeping with typical magnum platforms. The Pro Alaskan weighs 7 $\frac{3}{4}$ pounds, and so it is no trim mountain rifle, and in fact carries that weight in a blocky buttstock whose Euro-modernist lines may look clunky to American shooters. Nevertheless, everyone who examined our test gun commented on its smooth ergonomics. The rifle's camo synthetic stock has a tactile surface that feels like high-end rubber handgun grips, so shooters have no worries about losing the handle in wet weather. The Steyr's satin stainless, hammer-forged barrel revealed its distinctive spiral finish treatment, and it was supplied with factory adjustable sights. It measured 0.650 inches at the muzzle and was finished with a recessed crown.

Why New Cartridges Happen

Cartridges are developed for various reasons, and while ammunition companies naturally aspire to earn profits, they know that to do so a new product must fill a need. But how can there be a need, wonder long-time shooters like Mr. Ling, when tried-and-true chamberings have been so successful for so long in taking the same game animals we hunt today in the same forests and mountains? How



can there be a need when practically every number from .17 to .500 has long since been filled?

It's because our ammunition needs to change with shooter preferences, with the way rifles have evolved to meet those preferences, and here of late with advances in propellant and bullet technology.

Many hunters today want lighter rifles. Responsive gun makers, in virtually perfecting the slimmed-down mountain rifle, have found it essential to build around a short receiver, and that means chambering for a short-action cartridge.

Thus the recent push for magnum results from stubby cartridges whose overall length stops around 2.8 inches.

Old favorites certainly can do the same jobs they did before, but as we are seeing, newly created cartridges are often better than existing rounds at addressing converging trends. Hornady's RCMs extend an opportunity for compact-rifle fans to get magnum performance previously available only through bigger guns.

The Why And How Of The RCMs

The Ruger Compact Magnums are the latest chapter in a thread of development for a short-action-length round that is surprisingly powerful and yet provides the superior accuracy potential many have believed is inherent to short, wide powder columns.

The Ruger Compact Magnums are a milestone CEO Steve Hornady credits to the company being "very capable in R&D" but "small and flexible enough to do relatively small runs." The RCMs are not quite so fat as the WSMs, and their case capacities top out at 73 grs. for the .300 and 70 grs. for the .338, some 8 to 10 percent less than can be found in conventional and previous short magnums. Even so, the greater efficiency achieved with Hornady's

newly developed propellant allows the RCMs to keep pace, and the results (see the Comparative Velocities table) speak for themselves. We have been encouraged by everything we've seen on the range and in the field, and certainly look forward to feedback from NRA members who take the plunge.

The RCMs' overall impact will be determined largely by how many gunmakers eventually jump on the bandwagon and will really kick up a notch if and when other ammunition companies start loading these cartridges. Given the conflicting proprietary interests involved, it could take some time.