

The first question you have to ask when designing a new cartridge is, “WHY?”

# THE GUNWERKS 7MM LONG RANGE MAGNUM (7LRM)

by Aaron Davidson

## THE NEW 7LRM SPECS

**T**he 7LRM (Long Range Magnum) is a non-belted case that has the same overall length as the 7mm Rem Mag with a standard magnum case head. However, the body diameter is larger with no belt. The case neck is longer and the shoulder angle is 30 degrees. The case will fit and feed from a standard magazine box. Velocity with a 180 grain bullet is 3075 to 3100 fps from a 26-inch

barrel length. See below for a comparison of different 7mm cases.

The brass dimensions and tolerances are outlined in Figure 2. Gunwerks has a very nice no-turn-neck, piloted reamer available to do custom barreling on your action—or start from scratch and have us build a full custom rifle. This is not a standard SAMMI cartridge; it is important to use a reamer with correct dimensions and clearances to ensure best accuracy, and longest brass life.



Case comparison: 7WSM, 7mm Rem Mag, Loaded 7LRM, Fired 7LRM, 7RUM



The LR-1000 long range package is the best handling long range rifle configuration Gunwerks offers.

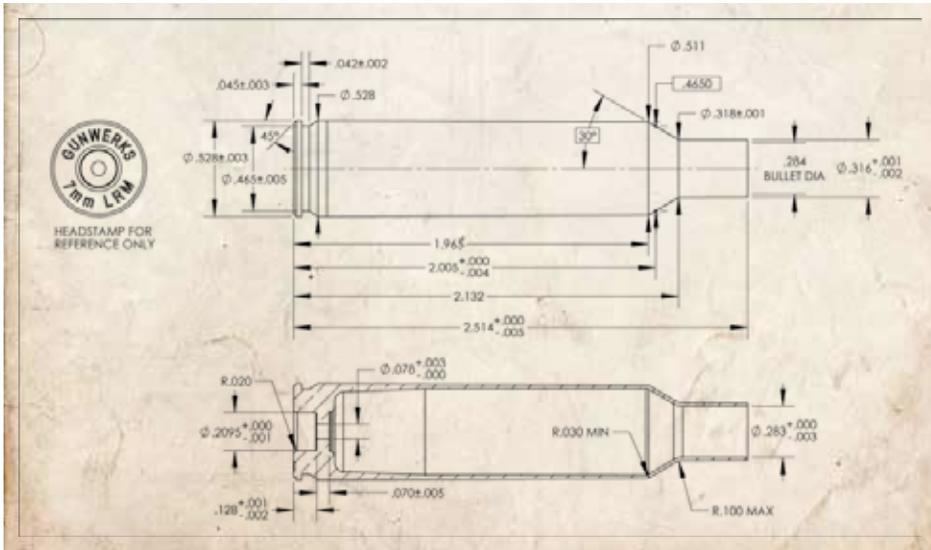


Figure 2. 7mm LRM case dimensions and tolerances.

for the novice. The Gunwerks crew lives for long range gear and shots, but the number of animals killed at, or beyond 1000-yards, can be counted on one hand. Maybe this is because we film our hunts, and can't afford a miss or bad shot placement.

We needed to balance the requirement of a minimum-velocity threshold of 2000 fps at 1000 yards with a hunting weight bullet, and wind deflection numbers that will allow 30-50% uncertainty in our wind estimation against recoil, cost, and case life for reloading. We wanted a cartridge of modern design that fit in a standard magazine box and would take any game we wanted to chase in all conditions—basically, the ultimate hunting cartridge.

First off, we settled on the 7mm diameter bullet because of the high ballistic coefficients of hunting-weight bullets from 160 to 180+

## DEVELOPING A NEW CARTRIDGE

The first question you have to ask when designing a new cartridge is Why? When we are talking about long range shooting, usually the quest is for more case capacity to drive the bullets faster. This “faster is better” mentality is a hold-over from old school long range shooting philosophy. With modern rangefinder and scope technology, bullet drop is not nearly as significant as it was 10 years ago. Now, the informed long range hunter sets his sights on less wind deflection and increased terminal velocity. The ability to range the distance to target precisely eliminates the importance of laser-flat super magnums because we can get the wind and terminal velocity required by using better bullets with higher BC's.

Another fact that is often overlooked is that, no matter how masculine or macho a shooter is, recoil DOES affect your ability to shoot. To combat recoil, most super magnum shooters use massive (and loud) muzzle breaks—another cause of poor shooting performance—or, they build rifles that are not intended to get very far from their truck.

The development goal behind the design of the 7LRM was to achieve balance, not extreme performance. In reality, shooting at animals beyond 1000 yards is a tricky proposition—not



Comparing cartridge case designs of our all-time favorite cartridges. 6XC, 6.5-284 Norma, 7LRM

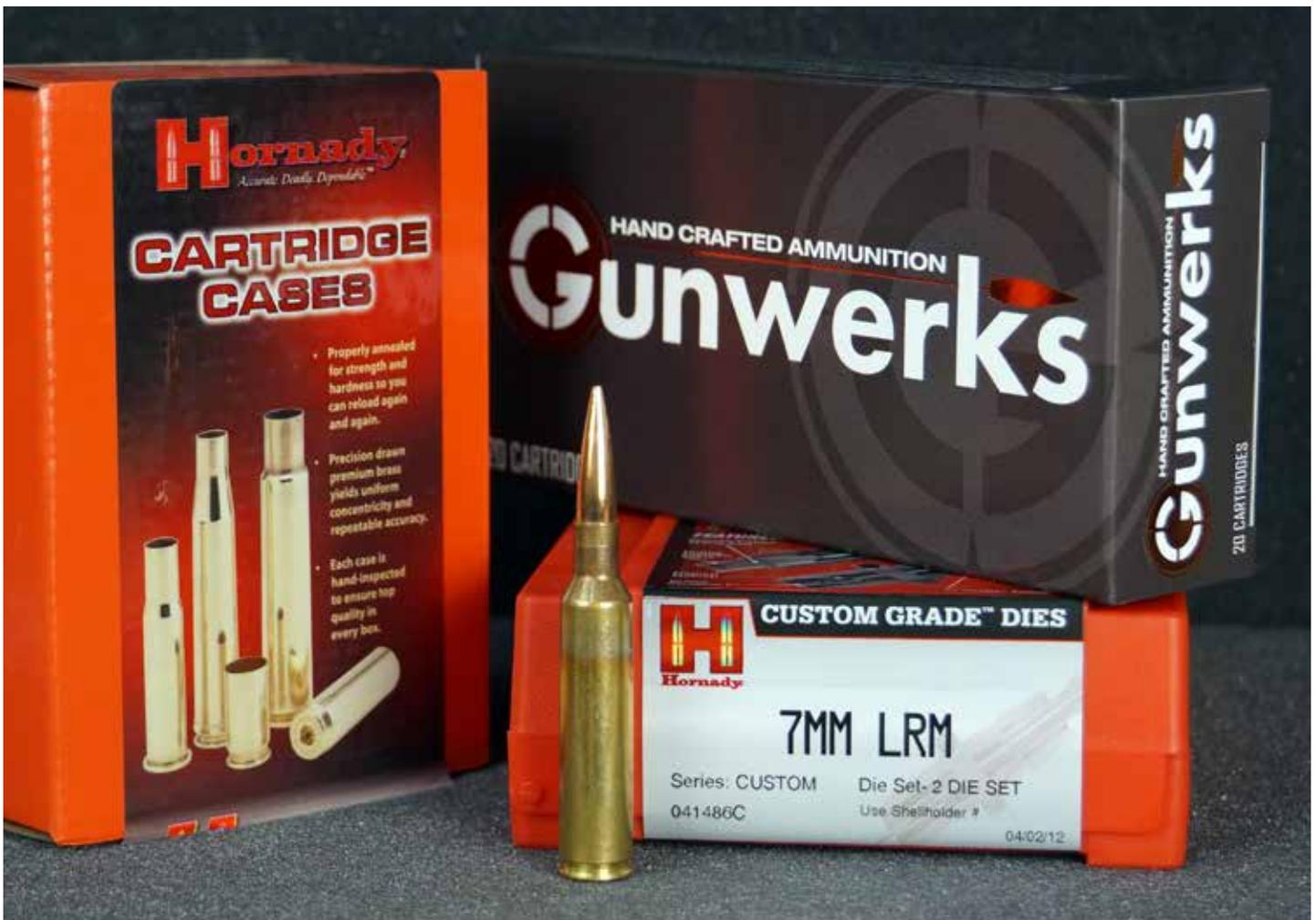


grains. Then we looked for a case to base the cartridge from, saving thousands in tooling costs. The 375 Ruger from Hornady was perfect. The 375 is very similar to the genius 30 Newton cartridge from 100 years ago. This cartridge case fits a standard magnum bolt face without modification, and there is no rebated rim as on the massive Ultra Magnum case. We fit the neck length to the longer 180 grain bullet, with the overall case length of 2.5 inches. With a 30-degree shoulder and mini-

mum body taper, we achieve nearly 3100 fps velocity with a 180 grain bullet. If one compares the LRM case against two of our other favorite cartridges (the 6XC and 6.5-284 Norma) you will notice some striking similarity.

For the shooter sending thousands of rounds downrange, the fact that there is no belt on the

case indicates long brass life with no special sizing dies required to resize the base portion of the brass just in front of the belt. Loaded ammunition, brass, and custom Hornady dies are all available from Gunwerks. ☺



*Dies, brass, and loaded ammo are available from Gunwerks for the new 7LRM cartridge.*