

Lightweight Bullets In The .308 Winchester

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My interest in handloading and shooting lightweight bullets in the .308 Winchester started when the girl next door, Kendal Boe, shot my Colt LE901-16S .308 autoloader. Kendal really likes shooting the rifle. But her grin soon degenerated to a grimace from the recoil generated by firing 150- and 165-grain bullets. The milder recoil from lightweight bullets put the smile back on Kendal's face and ever since, I've started handloading these light bullets to shoot in the .308 autoloader and a couple of bolt-action rifles for general shooting and some varmint hunting.

Along the way I learned and recalled a few things about handloading and shooting such light bullets. One is that powder selection is important to produce uniform velocities for good accuracy. Another is bullet styles contribute greatly to accuracy. Still another is 110- to 135-grain bullets, with a muzzle velocity of around 3,000 feet per second (fps), provide a flat enough trajectory to

hit the tiny targets of ground squirrels about as far away as I can clearly see the little varmints with the magnification in a scope on a hunting rifle.

.308 RIFLE AND CASES

I used a Colt M-2012Lt308G bolt-action rifle to shoot the loads listed in the accompanying load chart. The rifle is made for Colt by Cooper Firearms of Montana on a modified Cooper Model 22 short-action. This rifle wears a medium-heavy, tapered 22-inch chrome-moly barrel with straight flutes and a removable Cooper muzzle brake threaded onto the muzzle. Its gray laminated hardwood stock has a slender profile. The rifle weighs 8.5 pounds. With a Meopta MeoPro 3.5-10x44RD scope clamped on the rifle's receiver rail, the rifle weighs right at 10 pounds. I've been shooting the rifle for a few months and it has turned in some impressively tight three- and five-shot groups. I can tell you with no hesitation whatever I am not a good enough shot to realize

the rifle's full potential.

Commercial .308 cases are difficult to find, and expensive to purchase when they are available in today's tight market for handloading components. So to keep my .308s shooting I recently bought a big batch of once-fired military 7.62 NATO cases and prepared them for reloading (see sidebar). To compensate for the smaller capacity of the military cases compared to commercial cases, the charge weights listed in the load chart are three to five grains below the maximums listed in handloading manuals for commercial cases. Those lighter powder weights resulted in velocities about 100 to 200 fps slower than the maximum speeds listed in handloading manuals.

BULLET CHOICES

During my youth I owned one centerfire rifle. That Winchester bolt-action .30-06 served me for hunting elk in November to ground squirrels during the summer. I used to load Speer 110-grain

hollow-point or round nose bullets with IMR 4320 powder for gophers. However, my success with the bullets was less than stellar. A few shots landed right where I aimed and launched gophers into orbit. More often, though, bullets hit high or low of aim or off into outer space. That erratic accuracy probably was caused by the bullets' short bearing surface and their blunt form failing to stabilize in the .30-06's rifling twist.

With that at the back of my mind I selected bullets with a sleeker form and somewhat heavier weight for the .308. The .284 ballistic coefficient (BC) of Berger's 110-grain Flat Base Target bullet, with its elongated nose, is nearly twice that of blunt nose 110-grain bullets. Add a bit of weight and ballistic coefficients increase substantially. Nosler 125-grain Ballistic Tip bullets have a BC of .366.

Nosler .22 caliber 55-grain Ballistic Tip bullets have a BC of .267 and can be fired from a .223 Remington at 3,300 fps. That is significantly faster than the 3,000 fps my .308 shot 125-grain bullets. However, the .30 caliber bullet's higher BC cancels out the .22 caliber bullet's faster velocity and both bullets have nearly the same trajectory out to 400 yards.

Sierra 125-grain Pro-Hunter bullets leaving the barrel of a .308 at 2,900 fps and hitting 1.5 inches above aim at 100 yards drop four inches below aim at 250 yards. That's about as far as a small ground squirrel can be clearly seen through a 3-9x scope common on many .308 hunting rifles.

These relatively short 30 caliber bullets still have a long enough shank so when they are seated in the neck of a .308 case they are straight and held tightly. The base of a Berger 110-grain Flat Base Target bullet set about halfway down the neck has a cartridge length of 2.70 inches. The base of Berger 115-grain Flat Base Target and Sierra 125-grain Pro-Hunter bullets sat about $\frac{3}{4}$ down the neck with the same cartridge length. The base of Nosler 125-grain Ballistic Tip bullets was even with the bottom of the neck with a cartridge length of 2.80 inches. I ran a few of these cartridges through an RCBS Case Master Gauging Tool, and bullet run-out with the cases varied only slightly.

POWDER PICKS

I know now those misses years ago shooting 110-grain bullets from my .30-



TOP: Mikayla Midtlyng enjoys shooting the Colt M-2012 .308 with mild recoiling loads. **BOTTOM:** Light bullets fired from the .308 produce a flat trajectory to hit prairie dogs about as far away as they can be clearly seen through a hunting scope. **TITLE PAGE:** Kendal Boe is shooting away with an autoloading .308. The light bullet loads have a mild recoil that keeps Kendal smiling.



TOP: These light bullets were tested in a Colt M-2012 rifle. From the left they are the: Berger 110-grain FB Target, Berger 115-grain FB Target, Nosler 125-grain Ballistic Tip, Sierra 125-grain SPT Pro-Hunter, Sierra 125-grain HP MatchKing and Berger 135-gr. FB Target. **MIDDLE:** Once-fired military surplus 7.62 NATO brass works well for handloading the .308 Winchester once the cases are sized, primer pocket crimp removed and they are trimmed to length. **BOTTOM:** These are a few powders that produce uniform velocities with lightweight bullets loaded in the .308 Winchester.

06 were mostly caused by wide spreads in velocity. When I started using a chronograph in conjunction with shooting groups on targets I noticed a wide deviation in velocity usually caused a vertical spread of bullet impact points. (Once in a while, though, loads with 60 to 80 fps spreads of bullet velocity will produce very tight groups.)

Relatively lightweight bullets also have a tendency to increase the amount of velocity variation. I came up with an average of 23 fps as an extreme spread of velocity for a variety of powders loaded with 150- and 168-grain bullets fired from a .308. The average extreme spread of velocity was 53 fps for an assortment of powders loaded with 110- to 135-grain bullets. Still, quite a few powders listed in the load chart developed low extreme spreads of velocity and tight groups. H335, H322, IMR 3031, IMR 4895, LT-32 and TAC worked well in the .308.

Wide swings in bullet speed also can be caused by significantly reducing powder weight in order to lower velocity in an attempt to make easy-recoiling practice loads. H4895 has always been a good choice for reduced velocity loads. I used relatively faster burning H4198 with the Berger 135-grain bullet to assemble a light-recoiling .308 load. That combination had an extreme spread of velocity of 39 fps. Another practice load with uniform velocities I assembled for my Colt LE901 consists of 23.0 grains of SR4759 for a velocity of 1,857 fps with Speer 165-grain boat tail bullets. Even at that slow speed, the load cycled the autoloader's action.

SHOOTING

The Colt Model 2012 bolt-action has a muzzle brake and all of the light bullet loads developed recoil about like a .243 Winchester shooting 70-grain bullets. Even with the muzzle brake removed, recoil was only 12 foot-pounds from 135-grain bullets and 43.2 grains of IMR 3031. The H4198 practice load generated a gentle 4.4 foot-pounds of recoil. In contrast, 168-grain bullets with a velocity of 2,700 fps create 15 foot-pounds of recoil.

Kendal was shooting the Colt bolt-action last week. She commented on the rifle's mild recoil after shooting 20-some shells loaded with Sierra 125-grain Pro-Hunter bullets and IMR 4007 SSC powder. With a smile, she asked for

some more shells.



Sidebar

Loading Military Brass

To keep my .308 rifles shooting I searched a few Internet sites that sell military surplus once-fired 7.62x51 NATO cases. The best deal I found was at Everglades Ammo and Reloading (evergladesammo.com) that sells a box of 500 cases for \$85, delivered USPS to my door.

Everglades had cleaned the cases and they were as bright and shiny as new. Some of the case mouths were dinged, but a size die rounded them out. The lot contained a variety of headstamps such as LC (Lake City), FC (Federal Cartridge), and RA (Remington) with the NATO insignia headstamp of a cross in a circle from various years. The majority of the cases were Lake City.

These cases most likely had been fired in open-bolt machineguns and

their headspace was 0.011 of an inch longer measured to the datum point of the shoulder than Hornady commercial cases fired in my .308 bolt-action and autoloader. My size die set the shoulders back to the proper headspace dimension. Case necks lengthened quite a bit from that sizing and required trimming to bring them down to a length of 2.005 inches for the .308. Sizing the cases also knocked out the crimped-in spent primers. To remove the crimp around the primer pocket I ran the cases through an RCBS Primer Pocket Swager Tool that irons out the crimp around the primer pocket.

Military cases usually are thicker and contain less internal capacity than commercial cases. That was true of the LC cases that weighed 12.8 grains more and had four percent less total capacity than Hornady .308 Winchester cases. To compensate for that smaller volume I reduced maximum powder charges listed in handloading manuals by about four percent.



H4198 is a good powder for reduced velocity loads in the .308. This group was shot with Berger 135-grain bullets with a muzzle velocity of 2,000 fps.

.308 Winchester Light Bullet Shooting Results

Bullet	Powder/Weight (grains)	Velocity (feet per second)	Accuracy (inches)
Berger 110-grain FB, Target			
A2460	48.4	3,167	1.38
LT-32	42.2	2,971	1.15
X-Terminator	46.5	3,115	2.84
Berger 115-grain FB, Target			
A2520	50.8	3,044	0.87
H322	43.3	3,003	0.64
H335	45.6	2,996	1.73
Nosler 125-grain Ballistic Tip			
A2460	46.5	2,973	2.00
TAC	47.5	3,016	1.18
Sierra 125-grain SPT Pro-Hunter			
A2460	45.6	----	0.82
A2520	49.0	2,912	1.13
IMR 4007 SSC	47.0	2,574	0.69
X-Terminator	43.3	2,838	1.81
Sierra 125-grain HP MatchKing			
W760	47.5	2,759	2.42
H335	44.7	3,016	1.05
Berger 135-gr. FB, Target			
A2520	46.5	2,793	0.66
IMR3031	43.2	2,938	0.77
H4198	28.0	2,018	0.70
IMR 4895	45.0	2,820	0.83

All loads were assembled with LC cases and Winchester Large Rifle primers and shot through a Colt Model 2012. Velocities were recorded 10 feet in front of the Colt's 22-inch barrel. Temperature was 35 degrees.