

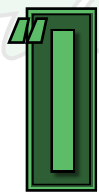
Hauling Freight

The .338 Marlin Express

Drawing on decades of combined experience in lever-action rifles and innovative cartridges, Marlin and Hornady have partnered once again to wring maximum range and energy from a medium-bore cartridge.

BY AARON CARTER, Managing Editor

From Marlin's 338 MXLR lever-action rifle, the .338 Marlin Express (above) achieves .30-'06 Sprg. performance. To optimize external and terminal ballistics, Hornady created a new 200-gr. FTX bullet (r).



In terms of terminal performance, we always intended for this cartridge to be completely legitimate for anything in North America out to 400 yds." The statement, sent to me by e-mail from Hornady Chief Ballistics Scientist Dave

Emary, would ordinarily not have been surprising in a discussion about a high-power center-fire hunting rifle. What's intriguing, though, and surely incomprehensible for some, is that Emary was referring to the company's newest lever-action cartridge, the .338 Marlin Express.

Brainchild of Emary, and sibling to the .308 Marlin Express, the cartridge's predecessor, the .338 Marlin Express was designed to duplicate .30-'06 Sprg. performance—with a 180-gr. bullet—and to closely approximate that of the .338 Federal—all from a tubular magazine-fed lever-action rifle. Lofty aspirations, to be sure, given the numerous challenges imposed by the firearms that would house the cartridge, Marlin's Model 338 MXLR and 338 MX—derivatives of the Model 1895.

To attain these goals, Emary resurrected technological innovations utilized in recent projects. "This cartridge was envisioned after the .308 Marlin Express as a way to make use of all the technology—propellant and projectile—that came out of the LEVERevolution work and the .308 Marlin Express and to get everything possible from a lever-action rifle," said Emary.

Revisiting The Past

Traditionally, tubular magazine-fed lever-action rifles have been relegated to short-range "brush" work, and for good reason. In order to prevent an accidental discharge due to a primer strike during recoil, the cartridges they chambered featured ballistically inferior flat- or round-nose projectiles that experienced rapid velocity loss, thereby negatively affecting external and terminal ballistics.

In 2006 Hornady unveiled its FTX bullet—loaded in the company's LEVERevolution (March 2006, p.30) ammunition line—to combat this performance-robbing variable. The projectile's red elastomeric polymer tip allowed these cartridges to be used in tubular magazine-fed lever-action rifles without the risk of an accidental discharge. Under recoil the tip compressed so as not to set off the primer against which it rested, but quickly returned to its original shape. The spitzer profile also significantly increased the projectile's ballistic coefficient, particularly if it had a boattail base, resulting in better downrange performance. Besides enhancing external ballistics, the tip helped initiate expansion.

Like Hornady's InterLock bullets, FTXs featured a mechanically "locked" drawn gilding metal jacket and 3 percent antimony lead core. However, the FTX's interlocking ring was positioned closer to the bullet's ogive, halting expansion at that point and resulting in additional weight retention. Typically, FTXs retain 70 to 80 percent of their original weight.

The FTX first appeared in traditional, lever-action rifle cartridges such as .30-30 Win., .35 Rem., .444 Marlin, .45-70 Gov't and .450 Marlin. It has since been loaded in .308 Marlin Express, .32 Spl., .460 S&W Mag., .500 S&W Mag., .450 Bushmaster and, more recently, .357 Mag., .44 Mag. and .45 Colt. For 2009, and for the first time, some FTXs will be available to consumers as components.

It was, then, mandatory that an FTX be used when developing Hornady's then-new (2007) high-performance lever-action cartridge, the .308 Marlin Express (May 2007, p.42). And while the .30-cal., 160-gr. FTX bullet, different than that used in the .30-30 Win. load, contributed significantly to the .308 Marlin Express' end goal—approaching .308 Win. performance from a tubular magazine-fed lever-action rifle—it was the highly progressive-burning, high-energy, double-based ball propellants that allowed the company to meet it. By using these non-canister propellants, which are not currently available to consumers, the company was able to attain 2660 f.p.s. with the 160-gr. FTX, as compared to Hornady's 165-gr. BTSP load in .308 Win., which has a listed velocity of 2700 f.p.s.

Creating A Cartridge

"At the very start of the project we set a goal of at least matching the .30-'06 Sprg. for performance, and ... as close as we could to the .338 Federal," said Emary. To meet this end required careful consideration with regard to projectile diameter, weight and profile, propellant choice and case design.

Why a .338? According to Emary, "We wanted a cartridge that would deliver the highest possible energy at the longest practical hunting ranges, so it became a study of aerodynamics and what caliber gave us a usable bullet weight—for terminal performance—that could be driven at a respectable velocity and achieve the highest ballistic coefficient within the envelope. Further, we needed a large enough bullet with proper construction to give a lot of penetration along with significant wound cavities at these ranges on large game, and .338 fit the bill perfectly."



As for the bullet, Emary designed a 200-gr. .338 FTX with a boattail base, giving it a ballistic coefficient of .430 for enhanced downrange performance. Considering that a 225-gr. Nosler Partition of the same caliber has a BC of .454—according to Nosler's website—and Hornady's 200- and 225-gr. SP bullets have BCs of .361 and .397, respectively, that's quite an accomplishment. Even Hornady's sleek 200-gr. SST has a BC of only .455.

Speaking of the .338 Marlin Express' lone 200-gr. FTX offering, Emary said, "We feel this bullet would do pretty much anything anyone would need." He did report, however, that additional bullet weights may be available in the future.

Unlike many new cartridges, including several of Hornady's recent offerings, the .338 Marlin Express' case is not based upon that of its predecessor—the .308 Marlin Express. Why not? According to Emary, "...we wanted a bit more case capacity to get more performance." The .308 Marlin Express' case capacity is approximately 50.0 grs. of water. Using the case of the .308 Marlin Express would also necessarily result in an abrupt neck.

What other factors determined the .338 Marlin Express' case dimensions? "Marlin defined the rim diameter to give the best fit and angles for feed and function," stated Emary. "But, we also looked a long time at case capacity and what we could get with

propellant designs that existed to maximize performance from a 22" to 24" barrel."

In the end, Hornady designed a new case with a base diameter (0.507") loosely based on that of the .376 Steyr (0.506"), and added a 0.553"-wide by 0.050"-thick rim and a 25-degree shoulder angle. Case length was set at 1.890", which is slightly shorter than that of the .308 Marlin Express, and the maximum cartridge overall length was set at 2.600". Case capacity is 59.4 grains of water. For comparison, the cartridge's closest competitors, the .30-'06 Sprg. and the .338 Federal, have capacities of approximately 65.7 and 53.3 grs. of water, respectively.

Crunching The Numbers

How does the new cartridge stack up to the stalwart .30-'06 Sprg., or the newfangled .338 Federal? A battery of tests revealed that the .338 Marlin Express is at least equal to, and in some ways, better than, the .30-'06 Sprg. The cartridge's external ballistics also closely follow those of the .338 Federal, and in some cases, better them. When considering the rate of fire and magazine capacity of Marlin's lever-action 338 MXLR or 338 MX, the .338 Marlin Express becomes all that more attractive.

When fired from a 338 MXLR's 24" barrel, and through an Oehler Model 43 chronograph, the 200-gr. FTX's muzzle velocity averaged 2601 f.p.s. for 10



Marlin's 338 MXLR And MX Rifles

Crafted of stainless steel and featuring a laminated fore-end and buttstock, the Marlin MXLR is suitable for the most unpleasant hunting conditions.

Like the .308 Marlin Express, its younger, but larger, sibling will be available in two rifles: the 338 MXLR and the 338 MX. Both rifles feature a right-hand loading gate and ejection, a five-round tubular magazine, a hammer block safety and cut checkering. Additionally, they have an adjustable, semi-buckhorn folding rear sight, ramp front sight with brass bead and Wide-Scan hood and a solid-top receiver that is drilled and tapped for the addition of a scope. To enhance purchase of the hammer when a scope is added, an offset hammer spur (right or left hand) is included. Swivel studs are standard. As for the firing controls, their location and function are identical to those on Marlin's Model 1895.

The two versions differ in finish, barrel length and stock material. The 338 MXLR has stainless steel receiver and matching 24" barrel, and the rifle's pistol grip buttstock and fore-end are manufactured from a black/grey laminate. Capping the buttstock is a deluxe recoil pad.

Meanwhile, the 338 MX follows a more traditional approach to lever-actions, having a rich blue finish and shorter 22" barrel that, while handier, will slightly affect the external ballistics of the high-performance .338 Marlin Express cartridge. The rifle has a black walnut buttstock and fore-end, and is capped with a standard rubber recoil pad.

So what changes were made to accommodate the .338 Marlin

Express cartridge? According to Brand Manager of Marlin/H&R Firearms Tim Looney, "The 338 MX and 338 MXLR are based on the 1895M (.450 Marlin) receiver platform with modifications to the internal geometry to allow for proper functioning with the .338 ME cartridge." Explaining further, Looney said, "The breech bolt was designed around the .338 Marlin Express' 0.553" rim diameter, including the extraction system, and the tubular magazine system does not include the bulged area found in the 1895 and 444 Big Bore rifle platforms."

The suggested retail prices are \$806 for the 338 MXLR and \$611 for the 338 MX.

—AARON CARTER,
MANAGING EDITOR

SHOOTING RESULTS (100 YDS.)

.338 MARLIN EXPRESS CARTRIDGE	VEL. @ 10' (F.P.S.)	ENERGY (FT.-LBS.)	GROUP SIZE IN INCHES		
			SMALLEST	LARGEST	AVERAGE
HORNADY No. 82240 200-GR. FTX	2601 AVG. 12 SD	3,006	1.19	2.38	1.80

MEASURED AVERAGE VELOCITY FOR 10 ROUNDS FROM A 24" BARREL THROUGH AN OEHLER MODEL 43 CHRONOGRAPH. RANGE TEMPERATURE 57° F. HUMIDITY 24 %. ACCURACY FOR FIVE CONSECUTIVE, FIVE-SHOT GROUPS AT 100 YDS. FROM A CALDWELL LEAD SLED. ABBREVIATIONS: FTX, (FLEX TIP EXPANDING), SD (STANDARD DEVIATION).



Photo by Linda Powell

consecutive shots, resulting in 3,006 ft.-lbs. of muzzle energy. Hornady's literature conservatively lists the load at 2565 f.p.s. The cartridge achieves this velocity with an established Maximum Average Pressure (MAP) of 46,000 p.s.i., whereas the .30-'06 Sprg.'s MAP is 60,000 p.s.i. and the .338 Federal's is 62,000 p.s.i.

So, is Emary's earlier claim that the .338 Marlin Express is "legitimate for anything in North America out to 400 yds." justified by the numbers? At 400 yds., the 200-gr. FTX is still traveling at 1848 f.p.s., producing 1,517 ft.-lbs. of energy—ample for all North American game animals.

As for trajectory, with a 200-yd. zero the FTX impacts 2.28" high at 100 yds., 9.43" low at 300 yds. and 27.38" low at 400 yds. With a 250-yd. zero, the bullet strikes 3.77" high at 100 yds., 2.99" high at 200 yds., 4.94" low at 300 yds. and 21.40" low at 400 yds.

In comparison, Hornady's 180-gr SP .30-'06 Sprg. load has a published muzzle velocity of 2700 f.p.s., producing 2,913 ft.-lbs. of muzzle energy—93 ft.-lbs. less than the .338 Marlin Express. At 400 yds., the 180-gr. SP—with a BC of .425—is traveling 1921 f.p.s. and retains 1,475 ft.-lbs. of energy, which is 42 ft.-lbs. less than the .338 Marlin Express at the same distance—nearly the same. With a 200-yd. zero, the SP hits 2.10" high at 100 yds., 8.70" low at 300 yds. and 25.30" low at 400 yds. Once again, the differences are minute.

As for the .338 Federal, Federal Cartridge Company's website lists its 210-gr. Nosler Partition load

as having a muzzle velocity of 2630 f.p.s., resulting in 3,225 ft.-lbs. of energy—a reasonable increase over that of the .338 Marlin Express. At 400 yds., the Partition is traveling 1,820 f.p.s., producing 1,545 ft.-lbs. of energy—only 28 ft.-lbs. more than the lighter FTX produces in the .338 Marlin Express. With a 200-yd. zero, the projectile strikes 2.3" high at 100 yds., 9.4" low at 300 yds. and 27.3" low at 400 yds.—nearly identical to those of the 200-gr. FTX from the .338 Marlin Express. Federal's 185-gr. Barnes TSX load has a muzzle velocity of 2750 f.p.s., generating 3,106 ft.-lbs. of energy.

At 400 yds. the TSX is traveling 1818 f.p.s. for 1,357 ft.-lbs. of energy, or 160 ft.-lbs. less than the .338 Marlin Express. With a 200-yd. zero, the bullet impacts 2" high at 100, 8.9" low at 300 and 26.2" low at 400 yds. Once again, the differences between the two .33-cal. cartridges are negligible.

Although not the ideal test bed, as it doesn't duplicate flesh, organs and bodily fluids accurately, I shot the

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MARLIN 338 MXLR

MANUFACTURER: MARLIN FIREARMS CO.
(DEPT. AR) P.O. Box 248
NORTH HAVEN, CT 06473
(203) 239-5621

WWW.MARLINFIREARMS.COM

CALIBER: .338 MARLIN EXPRESS

ACTION TYPE: LEVER-ACTION, REPEATING
CENTER-FIRE RIFLE

RECEIVER: STAINLESS STEEL

BARREL LENGTH: 24"

RIFLING: 1:12" RH TWIST,
SIX-GROOVE, BROACHED

MAGAZINE: TUBULAR, FIVE-ROUND CAPACITY

SIGHTS: ADJUSTABLE SEMI-BUCKHORN
FOLDING REAR; RAMP FRONT WITH BRASS
BEAD AND HOOD

TRIGGER PULL: SINGLE-STAGE, 3 LBS.,
4 OZS.

STOCK: BLACK/GREY HARDWOOD LAMINATE;
LENGTH OF PULL, 13½"; DROP AT HEEL,
1½"; DROP AT COMB, 1⅞"

OVERALL LENGTH: 42¼"

WEIGHT: 7 LBS., 1 OZ.

ACCESSORIES: OWNER'S MANUAL, LOCK

SUGGESTED RETAIL PRICE: \$806

The .338 Marlin Express cartridge was developed to handle the largest North American game animals, such as this Alberta moose.



The .338 Marlin Express' (l.) MAP is significantly less than that of the .338 Federal (center) and the .30-'06 Sprg (r.), but the cartridge offers comparable performance.

sole Hornady offering into wax test media at 50 yds. to evaluate penetration and expansion characteristics of the 200-gr. FTX. The bullet performed admirably. The recovered bullet weighed 138.5 grs., expanded to 0.692" wide and penetrated approximately 12¾" of the medium, including an aluminum divider. Expansion began within 1/2" of impact, and the wound cavity peaked at approximately 5½", measuring approximately 2⅜" wide.

When shooting for accuracy from a Caldwell Lead Sled at 100 yds., the Marlin 338 MXLR and Hornady's 200-gr. FTX load turned in five consecutive, five-shot groups that averaged 1.80", though fliers opened up groups on occasion. Still, nothing to complain about. What's more, after accuracy testing I spent considerable time shooting from various positions in preparation for an upcoming moose hunt, and the gun's 8.8-lb. weight (with optic) resulted in an easily tolerable 19.7 ft.-lbs. of recoil, which made shooting enjoyable, especially knowing the impressive energies it produced on the front end.

Cartridge Concerns

Handloaders, such as myself, will quickly realize the .338 Marlin Express' lone weakness—reloadability. The 200-gr. Hornady FTX bullet is currently unavailable as a handloading component, though that will change, and other current-production .338" bullets are unsuitable for the cartridge. Also, the progressive, high-energy non-canister propellants used to achieve the .338 Marlin Express' factory velocities are unavailable to handloaders—at least for now, though Hornady

is pushing to get them out there. On a more positive note, Emary reported, "Several canister-grade propellants will offer respectable performance, but won't quite match the factory ammunition."

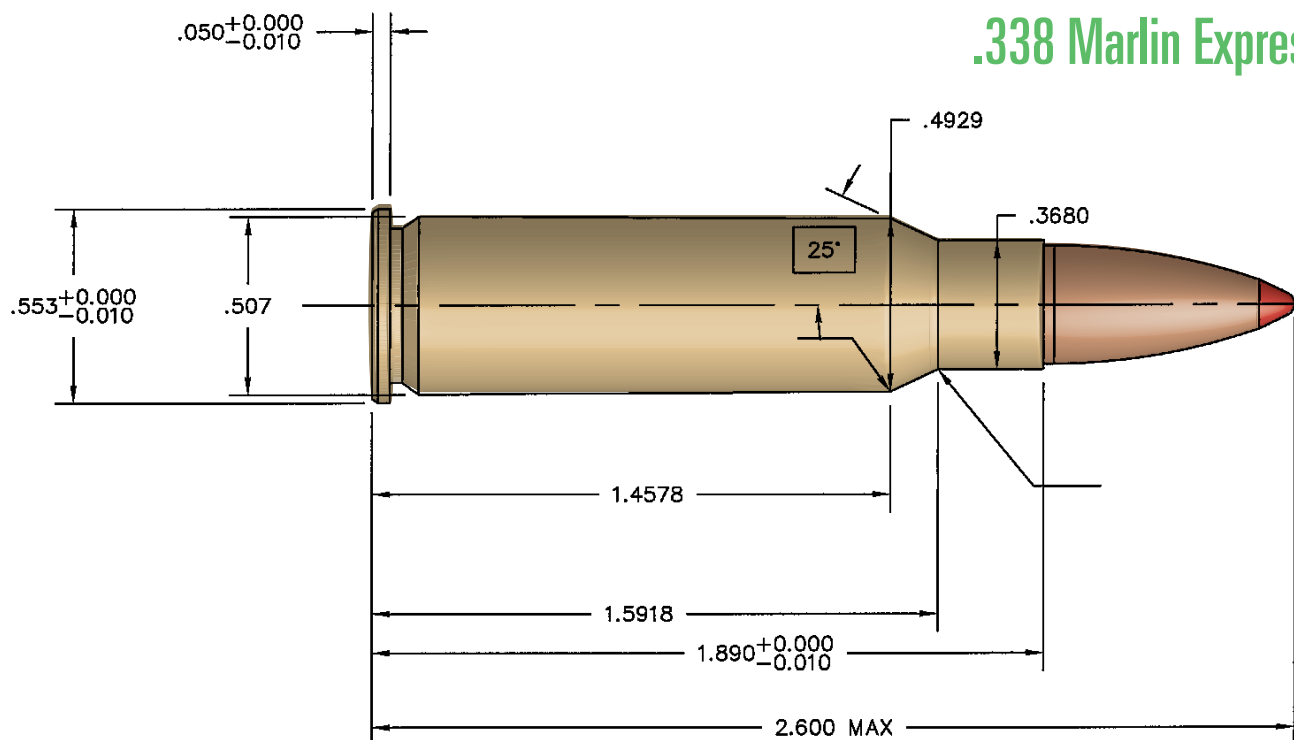
All of this makes the cartridge, at least for now, a factory-only proposition. But don't fret, as the Hornady .338 Marlin Express ammunition retails for \$36.88 a box, though real-world pricing will likely be much less.

It also only seems fitting that firearm and ammunition manufacturer Remington would make available a .338 Marlin Express load—with its signature Core-Lokt bullet—to accompany the rifles produced by Marlin, which is owned by the same parent company. Early indications point toward a 200-gr. SP version, which, because of its lower BC, would hamper long-range performance a bit—one of the hallmarks of the cartridge. On the other hand, it would likely make an excellent close-range projectile due to the Core-Lokt design. But, at this point it will likely not be offered during 2009.

.338 Marlin Express Meets Moose ... And More!

It is often said, "Seeing is believing." Well, when it comes to the .338 Marlin Express, nothing could be more true. Last September, while hunting with W&L Guide Services (www.wandlguides.com) outside of High Level, Alberta, Canada, I was fortunate enough to be among the first to field-test the yet-to-be-announced cartridge—on moose, no less.

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.338 Marlin Express

Although encounters were unusually scarce because of the freakishly warm weather, not to mention many bulls' unwillingness to part with their cows, my opportunity came on the second morning. After an unsuccessful attempt to lure two separate bulls—unbeknownst to us there were actually three—from their haunts by cow calling earlier in the morning, guide Randy Erasmos and myself, leaving Remington Arms' Senior Public Relations Manager, Linda Powell, to guard our flank, eased toward the more vocal of the bulls.

We had made it no more than 75 yds. when, after Randy called to try to pinpoint the distant bull's location, the two behind us had a sudden change of mind. We scrambled back toward Linda and got into position. I stood against a small cluster of aspens while Randy lay on the ground approximately 30 yds. directly behind me. As soon as I got into position, I dialed the Swarovski Z6 1.7-10X 42 mm riflescope to 2X in anticipation of a close encounter.

The dominant bull approached from my right, and in doing so passed mere feet from Linda. Unfortunately, she could not get a shot before the bull spooked and disappeared over the hillside. In doing so, a smaller bull, which we heard raking its antlers violently against the aspens earlier but was obviously too skittish to approach, evidently fled the dominant bull in the direction

of the call and ended up in front of me. The dominant bull made a semi-circle-shape route that had it just over the hill and out of sight to my left.

Meanwhile, the younger bull appeared from my right, quartering toward me. Recognizing immediately that it was a "shooter" while it was en route, I was prepared when it stepped into an opening, offering an unobstructed broadside shot. The first 200-gr. FTX bullet centered the lungs, and the bull whirled back to my right at impact. But, before it could gain momentum a second bullet impacted the middle of the shoulder, knocking it off-balance, and effectively turning it back toward my left. The lethally hit bull then darted to my left. Fortunately, I was able to thread the needle through the aspen stand and deliver another FTX, albeit not in the best location, but the only shot I had. The bullet traversed the left flank and lodged in the spine, dropping the 38" half-ton-plus bull.

The first FTX destroyed the lungs—no pieces larger than 4" were remaining—and a small fragment exited, while the second bullet penetrated the shoulder and stopped short of exiting. The third FTX penetrated the flank, shattering the ball joint in the process, and continued into the spine. There's no doubt the first one, or even two, would have killed the bull, but an extra 100 yds. is a long way to carry near-100 lb. moose

hindquarters, among the other meat and antlers. Unfortunately, none of the bullets were recovered.

Since my Alberta moose hunt, I've had an opportunity to use test the .338 Marlin Express/338 MXLR on Virginia's whitetail deer, and they performed as expected. While still-hunting one mid-November morning, I happened upon a small buck grazing alongside a hardwood woodland. A mere 40 yds. distant, the FTX entered behind the buck's right shoulder and exited through the center of the left shoulder. In its wake, the bullet left approximately a 1¼"-wide entrance wound and a 2"-plus exit. Damage to the lungs and heart was tremendous. Suffice it to say no tracking was necessary for recovery.

Before my moose hunt and, more recently, pursuing Virginia's whitetails, it had been more than a decade since I last hunted with a lever-action rifle, and ironically, it too was a Marlin—a Model 336 in .30-30 Win. In that period, I had forgotten just how effective these firearms are, especially for close-range work and in thick cover. But, when teamed with a high-performance cartridge such as the .338 Marlin Express, the lever-action takes on an alter ego. No longer is the lever-action banished to the backwoods, best kept to close range or maxed out on medium-size game, it becomes something more, something different. It indeed becomes, "... legitimate for anything in North America out to 400 yds." 🦌

The .338 Marlin Express' 200-gr. FTX penetrated all 19" of 10 percent ordnance gelatin at 125 yds.

For More Information:

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