
FEDERAL
THE PREFERRED AMMUNITION
The preferred shells...FEDERAL
First in Performance!... FEDERAL
...IT'S GOOD HUNTING with FEDERAL Sporting Ammunition
1981
The ultimate in high performance
Premium Ammunition by Federal
FEDERAL Hi-Power Ammunition
Premium
FEDERAL '78
FEDERAL 1977
FEDERAL
WORLD-CLASS • WORLDWIDE
THE DRIVING FORCE IN AMMUNITION
1989
FEDERAL
PRECISION SPORTING AMMUNITION
Ammunition 1988
Premium Ammunition 1987
FEDERAL
Hi-Power Ammunition 1987
FEDERAL
THE DRIVING FORCE IN AMMUNITION
FEDERAL
Hi-Power Ammunition 1986
FEDERAL
Focus
FEDERAL
1985 FEDERAL AMMUNITION | FEDERAL
2009 AMMUNITION CATALOG
FEDERAL PREMIUM
VITAL-SHOK
FEDERAL PREMIUM
FEDERAL PREMIUM
A CENTURY OF AUTHORITY
1922
100
2022
FEDERAL

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BUY FEDERAL DIRECT

We were the industry's first ammunition manufacturer to offer direct online sales. Today, we're offering more to those who shop online.

OUR NEXT CENTURY

A gambler probably wouldn't have bet on the little factory that sat shuttered and idle along the railroad tracks on the outskirts of Anoka, Minnesota, in 1922. The plant had failed under those who built it in back in 1916, but a man named Charles Horn saw something special between its simple fireproof walls and in the community around it. He envisioned what would happen when a team of hardworking Americans from the surrounding countryside and towns filled the plant and manned its machines. He knew the difference brilliant minds dedicated to innovation could make. He could see how the needs of shooters would evolve and grow.

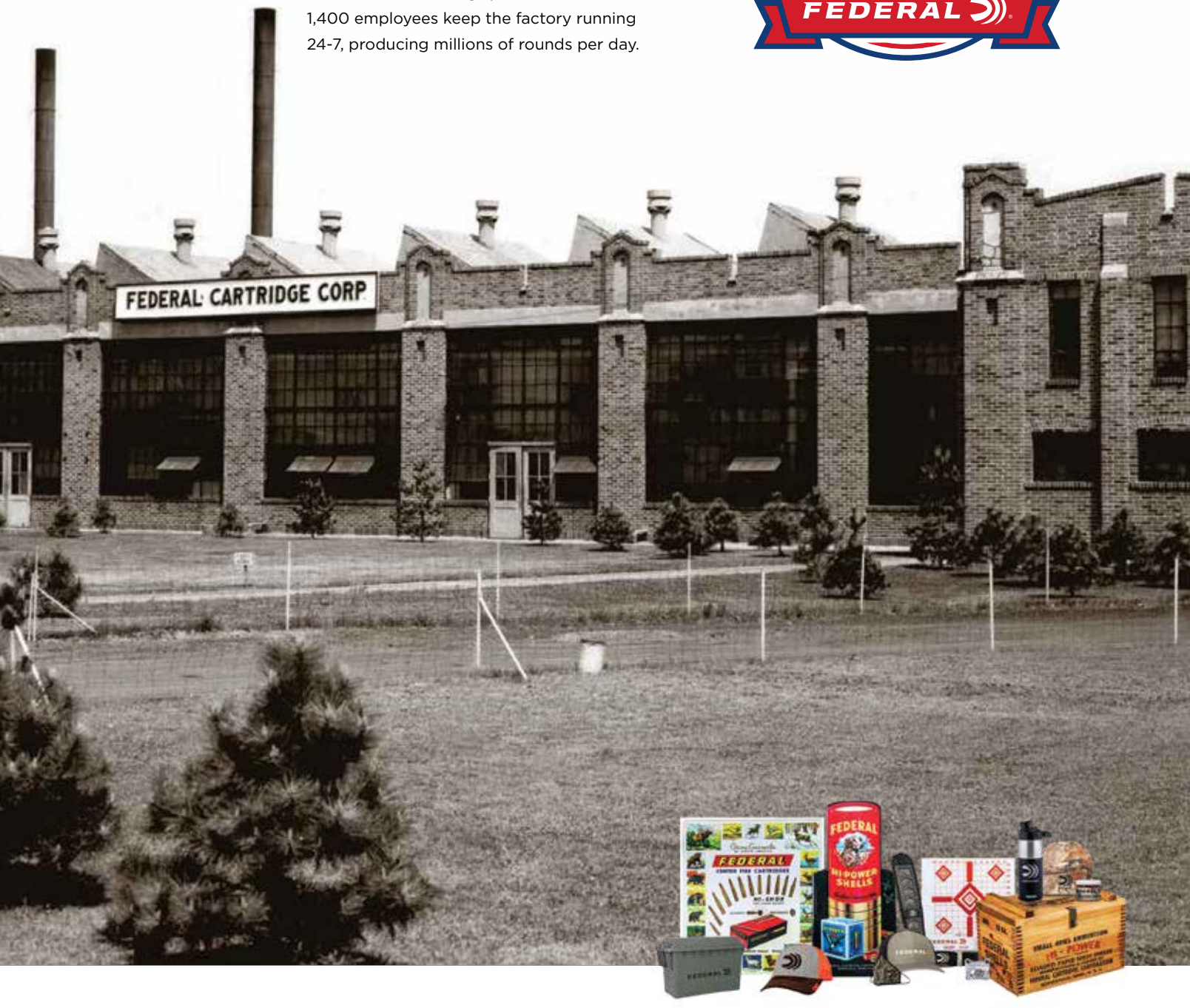
The 10 decades that have passed since Horn and his group of investors bought the factory have seen changes too numerous to even begin to list—to the company, shooting sports and the world as a whole. But the one constant has been the spirit of innovation we were founded on. It has guided us through thick and thin, fostered the development of products that have changed shooting, and transformed us into the world's leading ammunition manufacturer.

It's why we're so proud—and grateful—to mark our 100-year anniversary. We're celebrating this milestone all year long through the pages of this catalog, special events and limited-edition ammunition we hope you'll always cherish. Because we wouldn't be here today if it wasn't for you, our loyal customers. Thank you for shooting Federal—in the past, present and for our next 100 years.

Jason Vanderbrink
President

The Beginning Of Something Great

When the Federal facility was purchased in 1922, the original 320-by-60-foot fireproof building was the only structure. But from there it grew steadily, with several expansions added over the decades. Today, the facility sprawls across 175 acres with more than 700,000 square feet of manufacturing space. More than 1,400 employees keep the factory running 24-7, producing millions of rounds per day.



Connect, Shoot, Share

We're connecting with thousands of fans every day through social media. Share your passion for all things shooting on Facebook, YouTube, Twitter and Instagram.

Federal Merchandise

We're happy to offer a wide selection of Federal-branded apparel and gear. Go to ***federalpremium.com*** to start your order.

FEDERAL CUSTOM SHOP

Every shot is personal. It's just you. Your target. Your firearm. The nuances of all three come together to make every press of the trigger uniquely yours. Now there's ammunition built to match—handcrafted just for you: Federal® Custom Shop™. Each round is painstakingly handloaded to order by our team of expert engineers in our state-of-the-art workshop.

Veteran craftsmen handload Custom Shop loads with the best components for the most consistent velocity, accuracy and overall performance. Loads are hand-checked and cleaned before being custom-packed in durable packaging.

CUSTOM RIFLE

Look for Federal Custom Shop centerfire rifle offerings with a wide selection of the best bullets from Federal, Nosler®, Sierra®, Berger®, Swift® and Hornady®. Choose from more than a dozen cartridges.

CUSTOM SHOTSHELL

Get precision payloads for any shotgun or application. Federal Custom Shop offers a full array of handloaded Tungsten Super Shot loads for waterfowl, upland and turkey hunters.

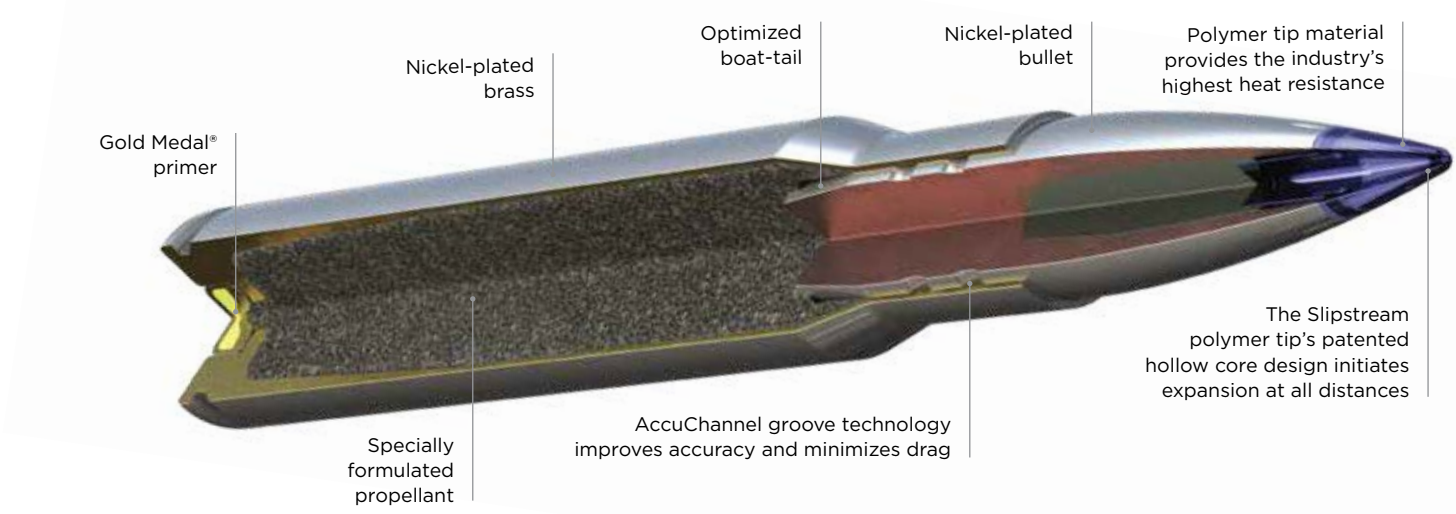
Start your order at ***federalpremium.com/custom-shop***.

Simply the best rifle bullet made. Period.

TERMINAL ASCENT

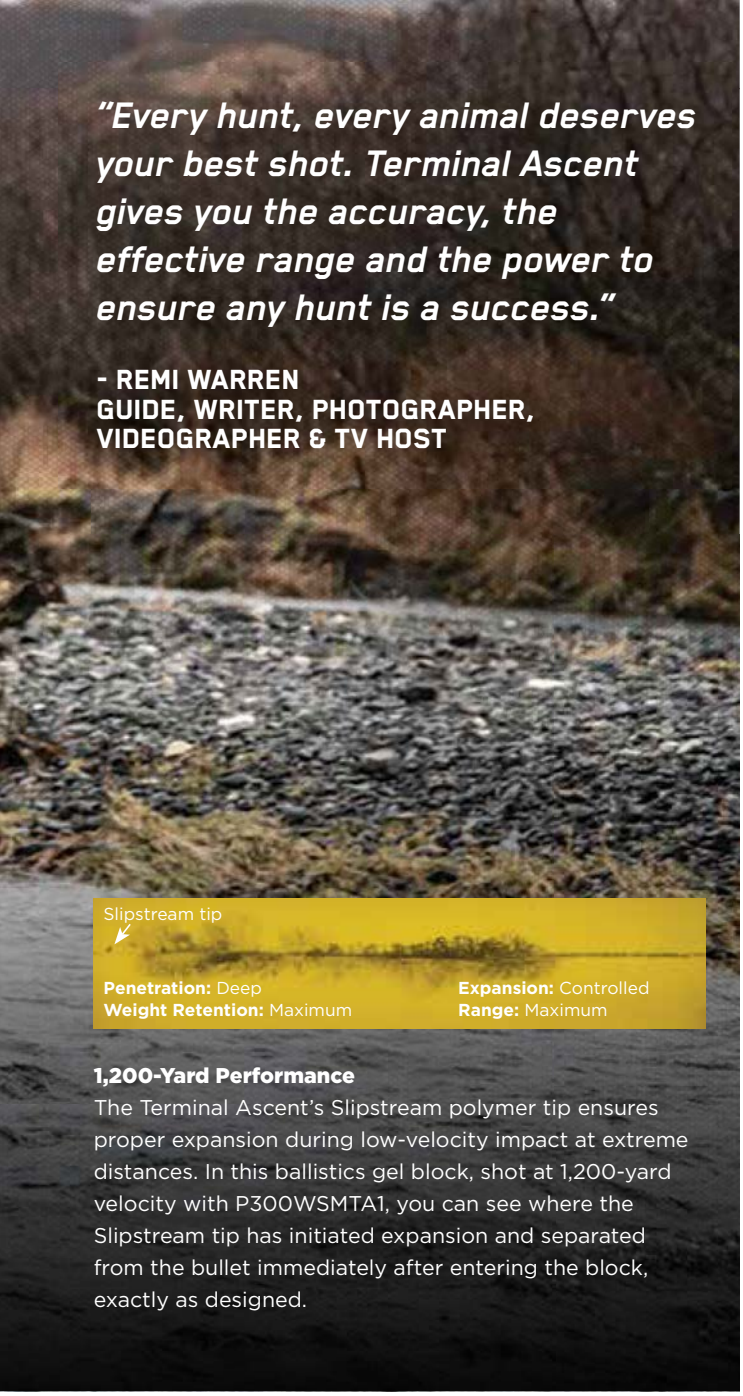
Any hunt. Any range. Go beyond what you ever thought possible with Federal Premium® Terminal Ascent™. Bonded construction penetrates deep on close targets, while the patented Slipstream® polymer tip initiates expansion at velocities 200 fps lower than comparable designs. The bullet's long, sleek profile offers an extremely high ballistic coefficient, and its AccuChannel® groove technology improves accuracy and minimizes drag.
Available in a full selection of long-range hunting cartridges.

Slipstream's Secret
The Slipstream tip provides a perfectly aerodynamic meplat, yet initiates expansion at 200 fps lower velocities than comparable bullets. The secret is its hollow core, which is exposed when the tip breaks off on impact, allowing target material into the bullet nose to start the expansion process.



"Every hunt, every animal deserves your best shot. Terminal Ascent gives you the accuracy, the effective range and the power to ensure any hunt is a success."

- REMI WARREN
GUIDE, WRITER, PHOTOGRAPHER, VIDEOGRAPHER & TV HOST



1,200-Yard Performance
The Terminal Ascent's Slipstream polymer tip ensures proper expansion during low-velocity impact at extreme distances. In this ballistics gel block, shot at 1,200-yard velocity with P300WSMTA1, you can see where the Slipstream tip has initiated expansion and separated from the bullet immediately after entering the block, exactly as designed.

"Last year I made the switch to Terminal Ascent and never looked back. I took it to Colorado and dropped my first bull elk."
-KELBY MESTAGH

"Just over 320 yards out. A shade under a 1/2 mil hold into a roughly 10 mph wind, a 175-grain Terminal Ascent round found its mark perfectly."
-TROY MILLER

"I was lucky enough to draw a Missouri River Breaks bull tag in 2020. My hubby ordered several types of ammo to test, and Terminal Ascent was the obvious winner."
-JACKIE FOREST

"A 200-yard shot stopped this bull within 5 yards."
-TOMMY BROWNING, FATHER OF FEDERAL AMBASSADOR AND CHAMPION SHOOTER KAYLE BROWNING

Bullet upsets captured from 200-grain 300 Win. Magnum load, P300WTA1

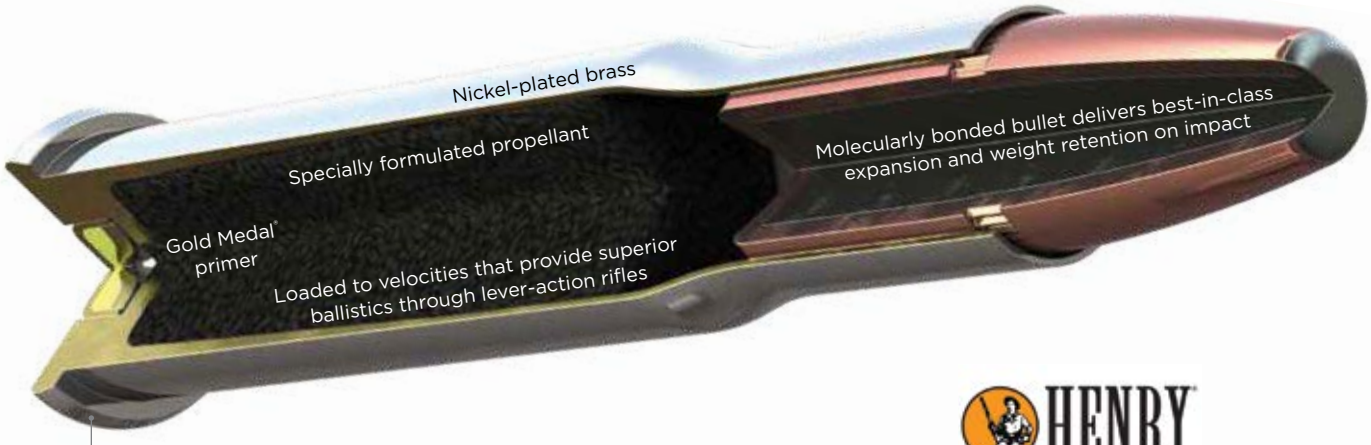
Expansion Redefined: Lethal extreme-range bullet performance doesn't look like the 2x expansion hunters see at conventional distances—it's not supposed to. With petals that open instantly and peel back uniformly every time, the Terminal Ascent transfers more energy to the animal on impact and carves straight, deadly wound channels at all velocities.

FOR A FULL LIST OF AVAILABLE LOADS AND BALLISTICS, REFER TO PAGES 17-28.

HAMMERDOWN

NEW

Make your lever-gun run like never before with the industry's only ammunition truly designed for optimal cycling and overall performance from the time-tested rifle platform. Velocities of Federal Premium® HammerDown™ loads are customized to produce superior ballistics and terminal performance through lever-action barrel lengths. The construction of the molecularly bonded soft point bullets has also been adjusted for the best accuracy and expansion at those velocities. The geometry of each round's case, bullet and cartridge ensures flawless cycling through tubular magazine and typical lever-action feeding systems. ***Now available in a full line of the most popular lever-action cartridges, including new 35 Rem. and 444 Marlin.***



Specialized patent-pending geometry improves cycling and doesn't hang up in tubular magazines and lever-action feeding systems

The Ultimate Leverage

Whether you're putting your lever-gun to work on bucks, bulls or boars, HammerDown's molecularly bonded bullets are optimized for terminal performance through lever-action barrel lengths.

HENRY

When you set out to build the best lever-action rifle ammunition, you go to the industry's leading lever-gun manufacturer. Federal is proud to have partnered with Henry Repeating Arms when developing HammerDown. Their insight into the classic firearm platform helped ensure the utmost reliability and accuracy from each and every load.

TROPHY BONDED TIP

Surgical accuracy. Terminal results. Trophy Bonded® Tip combines bonded construction and a bone-crushing solid copper shank with a boat-tail design and polymer tip that reduce wind resistance. The resulting toughness and accuracy make it a perfect choice for the full spectrum of medium and big game.

TROPHY COPPER NEW

Pinpoint precision and almost 100 percent weight retention have made Trophy® Copper the official ammunition of MeatEater. All loads in the line provide extreme accuracy and aggressive expansion. ***Now available in 120-grain 6.5 PRC.***

NOSLER BALLISTIC TIP

Hunters demand accuracy and versatility, and Nosler® Ballistic Tip® delivers. Its polymer tip and boat-tail design maximize downrange velocity and energy, while the tapered jacket provides fast yet controlled expansion. It's perfect for medium game at all ranges.

TROPHY BONDED BEAR CLAW

The world's toughest game calls for its toughest bullet. Its bonded jacket and core retain more than 95 percent of the bullet's weight for deep penetration. The design's grooved shank improves accuracy across all rifle platforms. ***Available in several loads with heavy-for-caliber bullets.***

NOSLER PARTITION

The Nosler® Partition® was the first bullet loaded in the Federal Premium® line, and it continues to be a standard for consistency and reliability. Its partitioned lead core allows the front half of the bullet to mushroom on impact, but keeps the back half intact for deep penetration.

NOSLER ACCUBOND

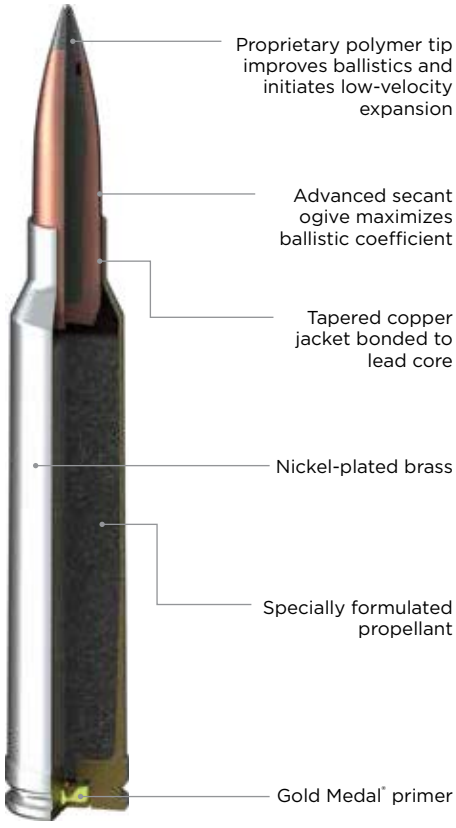
Shrink long distances down to size. Nosler® AccuBond® rifle loads' proven bullet design pairs a precision polymer tip with a highly concentric jacket bonded to a lead core. The result is fast expansion, moderate weight retention and lethal penetration.

FOR A FULL LIST OF AVAILABLE LOADS AND BALLISTICS, REFER TO PAGES 17-28.

All-Range Reality
The Swift Scirocco II uses a precise polymer tip to improve ballistics and initiate low-velocity expansion at long distances, while its bonded copper jacket maintains weight on close-range hits.

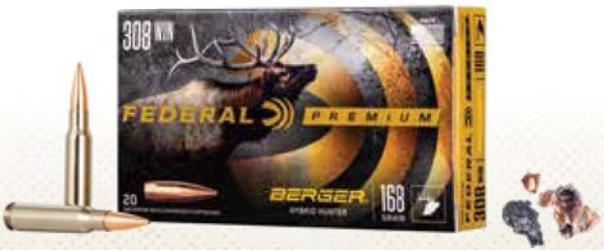
SWIFT SCIROCCO II

Push effective range to new extremes while delivering a more lethal blow on impact with Federal Premium® Swift® Scirocco® II loads. The polymer-tipped bullet's streamlined design and high ballistic coefficient produce flat trajectories, while retaining more velocity and energy downrange. Aided by its polymer tip, the bonded Scirocco II expands at minimal velocities yet offers high weight retention at close range. ***Now available in a complete range of popular hunting cartridges.***



BARNES TSX

We've brought back this proven all-copper hollow point. The Barnes® TSX® groups tightly and delivers consistent, deep penetration. The monolithic design retains nearly 100 percent of its weight, and its grooved shank minimizes barrel fouling and improves accuracy.



BERGER HYBRID HUNTER

The profile of a match bullet. The versatility of a traditional hunting projectile. Berger® Hybrid Hunter bullet weights have been fine-tuned to provide exceptional accuracy through factory rifles. Ballistic coefficients exceed those of comparable designs thanks to a hybrid nose design that combines tangent and secant ogive features.

NON-TYPICAL

Hunt whitetails with ammunition that's just as exceptional as they are. Non-Typical™ uses an optimized soft-point bullet with a concentric jacket to provide tag-punching accuracy and consistent, lethal wound channels on any deer.

FUSION NEW

Fusion® was the first rifle ammunition specifically built for deer hunting and it's still the best, offering the largest expansion and highest weight retention in head-to-head comparisons against the competition. Its concentric jacket is molecularly bonded to the lead core. ***Now available in 140-grain 6.5 PRC.***

FUSION MSR

The modern sporting rifle is a highly adapted hunting machine, and it needs ammunition that's just as customized. From primer to projectile, virtually every component is optimized for use in MSR platforms and peak ballistic performance through short barrels.

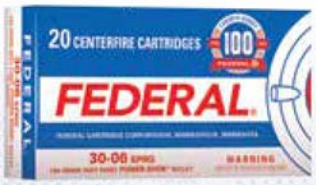
POWER-SHOK

The only tag these loads won't fill is the price tag. The jacketed lead-core bullets in Power-Shok® rifle loads fly straight and knock down a wide variety of medium and big game. ***Available in the widest selection of loads.***

POWER-SHOK COPPER

Practical hunters trust Power-Shok® rifle ammunition to fill freezers. Power-Shok Copper provides that same consistency and value, yet with a hollow-point, copper-alloy bullet that creates large wound channels.

100TH ANNIVERSARY LIMITED EDITIONS



Celebrate a century of Federal ammunition with special-edition packaging for some of our all-time favorite rifle loads. Though commemorative and collectible, with a limited quantity being built for each for 30-30 Win., 30-06 Sprg. and 45-70 Gov., the loads themselves offer all the same features and performance of their modern Federal Power-Shok® equivalent. ***Order them while supplies last at federalpremium.com.***

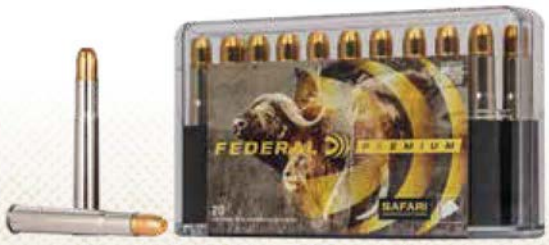
FOR A FULL LIST OF AVAILABLE LOADS AND BALLISTICS, REFER TO PAGES 17-28.

TROPHY BONDED BEAR CLAW

The world-famous Trophy Bonded® Bear Claw® has proven its reliability on large, heavy game from Africa to Alaska and everywhere in between. Its bonded jacket and core retain more than 95 percent of the bullet's weight for deep penetration.

Proven From Africa To Alaska
The solid core of the Trophy Bonded Bear Claw allows the bullet to penetrate deep—even through the world's toughest game.

Bear Attack
Although the rear core of the Trophy Bonded Bear Claw stays intact on impact, the nose upsets aggressively for large wound channels. Gel shot with 300-grain 375 H&H Magnum (P375T1) at 100 yards.



TROPHY BONDED SLEDGEHAMMER SOLID

The legendary Trophy Bonded® Sledgehammer® Solid bonds its core to a thick brass jacket for bone-crushing penetration. Its flat nose minimizes deflection to create a straight, deep wound cavity, and the grooved shank improves accuracy across an array of rifle platforms.

SWIFT A-FRAME

Those who hunt game that hunts back trust their lives to Federal Premium® Swift® A-Frame® loads. The bonded front core and progressively tapered jacket produce controlled expansion and energy release. The design stops expansion at its optimum point and maintains a longer shank for deep penetration

WOODLEIGH HYDRO SOLID

When targeting the largest and most dangerous game, hunters have long relied on solid, non-expanding bullets that blow through bone and thick hide. Woodleigh Hydro Solid loads offer that same unstoppable penetration while also creating a massive wound channel and large entry cavity that won't close.

FOR A FULL LIST OF AVAILABLE LOADS
AND BALLISTICS, REFER TO PAGES 17-28.

VARMINT & PREDATOR V-MAX

Now there are even more options for putting down everything from prairie dogs to coyotes. We've recently added 55-grain 22-250 Rem. and 75-grain 243 Win. loads to the Federal® Varmint & Predator lineup. Both bring the accuracy and explosive expansion of the proven Hornady® V-Max® bullet, loaded with our extremely reliable brass, primer and propellant. ***Available in both standard 20-count boxes and bulk packs.***

Ready To Explode
The V-Max bullet's polymer tip is carefully positioned over a hollow nose cavity to initiate violent fragmentation of the jacket and swaged lead core.

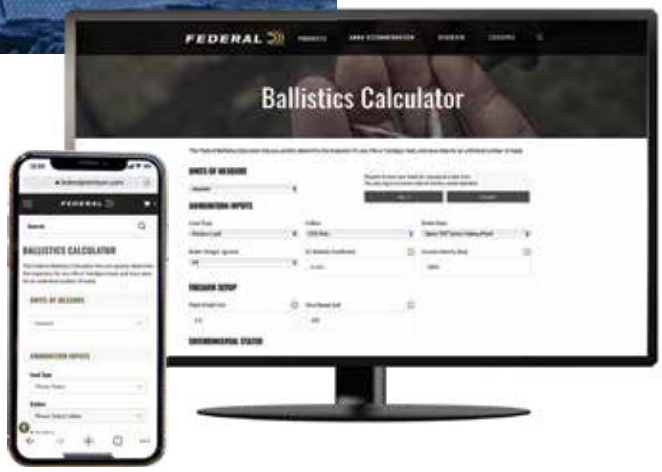
V-Max is a registered trademark of Hornady.

NOSLER BALLISTIC TIP VARMINT & PREDATOR

Long distances, stiff breezes and tough predators are no match for Nosler® Ballistic Tip® Varmint & Predator. The flat-shooting boat-tail's thin jacket unleashes its energy violently on impact and minimizes penetration for less hide damage.

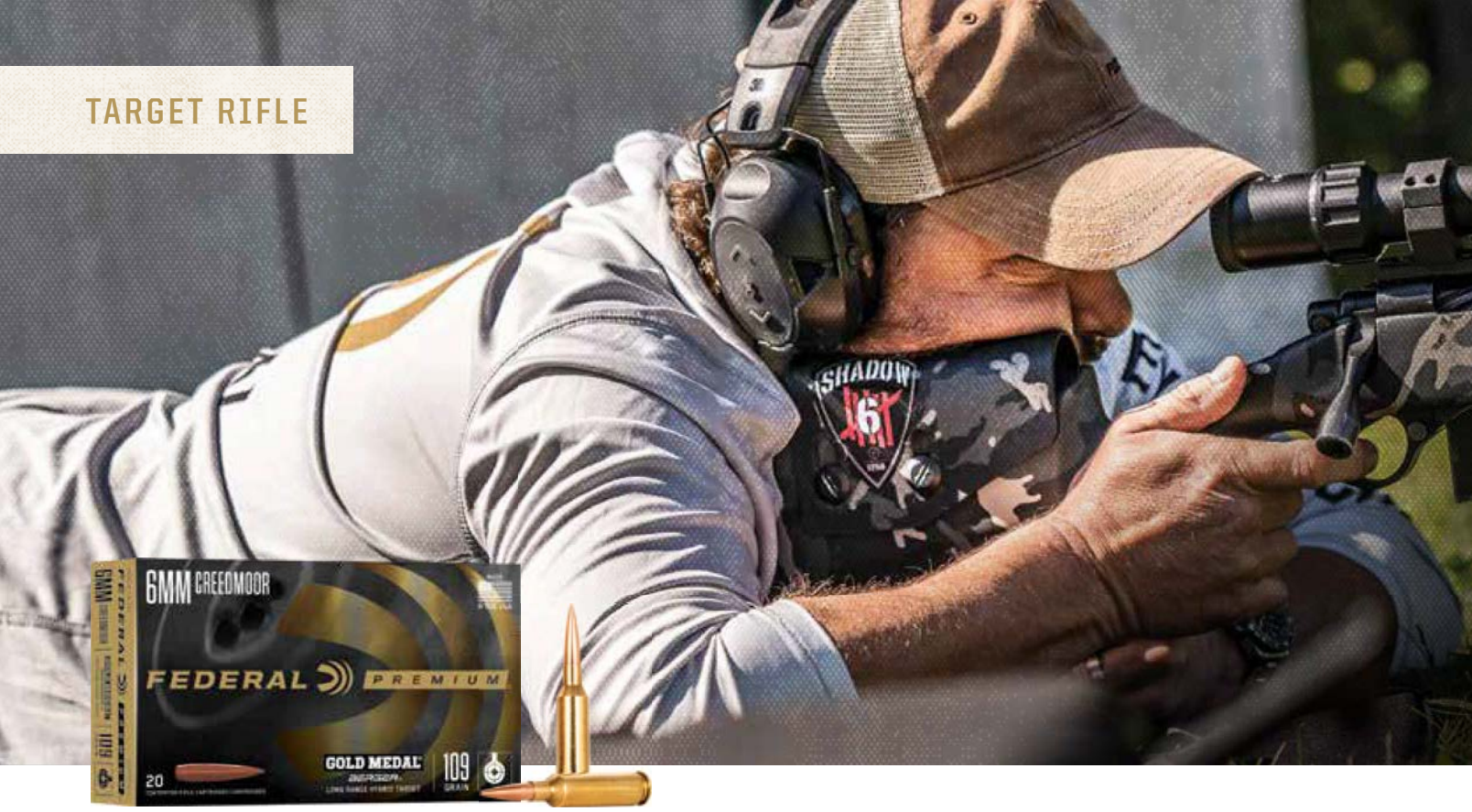
SPEER TNT GREEN

The only thing cleaner are the kills. Speer® TNT® Green® features a lead-free bullet that couples devastating terminal performance with match-grade accuracy. The thin jacket and compressed powdered core provide explosive expansion on varmints.



Ballistics On Demand
Quickly determine drift, drop and more out to 2,000 yards for any rifle or handgun load. Check it out at ***federalpremium.com/ballistics-calculator.***

FOR A FULL LIST OF AVAILABLE LOADS AND BALLISTICS, REFER TO PAGES 17-28.



GOLD MEDAL BERGER

NEW

The most sought-after bullets among competitors on the Precision Rifle Series are now loaded into the industry's most trusted factory rifle ammunition. Gold Medal® Berger® loads feature an advanced boat-tail bullet with a high ballistic coefficient to provide the flattest trajectories, least wind drift and best long-range accuracy. ***Now available in 109-grain 6mm Creedmoor and 140-grain 6.5 Creedmoor.***

Crafted For Accuracy

Whether loaded with the Berger Hybrid, BT Target, AR Hybrid Tactical, Long Range Hybrid Target or Juggernaut Tactical, Gold Medal Berger loads offer the flattest trajectories and most consistent ballistics possible for long-range target shooters.

BT Target | Juggernaut OTM | AR Hybrid OTM | Hybrid OTM | Long Range Hybrid Target

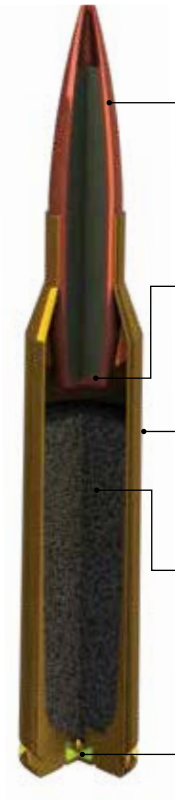
"The quality, control and consistency of Federal's Gold Medal match is simply unparalleled. It's factory ammunition with the precision and low standard deviation of handloads."

JIM GILLILAND
SNIPER SECTION LEADER
& COMPETITIVE LONG-RANGE SHOOTER

GOLD MEDAL SIERRA MATCHKING

Long range isn't just a distance. It's a state of mind. A dedication to push further. And it's why we build these loads. The precision-built Sierra® MatchKing® bullet is shot to win more matches than any other rifle bullet, and our exclusive primer design provides the best sensitivity and most consistent ballistics in the industry.

10 Shots, 1 Hole, No Comparison
Combine the ultra-precise Sierra MatchKing bullet with Federal Premium's legendary loading processes, benchrest-quality Gold Medal primers, and world-class brass, and this is what you get. This amazing .81-inch 10-shot group was shot with 168-grain 308 Win. Sierra MatchKing (GM308M) from an accuracy barrel at 200 yards.



AMERICAN EAGLE SUPPRESSOR

Turn down the volume without sacrificing performance. American Eagle® Suppressor ammunition doles out accuracy, reliability and cleanliness in suppressed firearms, thanks to carefully selected propellants, bullet weights and profiles.

AMERICAN EAGLE

Quality bullets, reloadable brass cases and dependable primers mean range-ready accuracy.

FOR A FULL LIST OF AVAILABLE LOADS AND BALLISTICS, REFER TO PAGES 17-28.

Abbreviation Key: BTHP = boat-tail hollow point; BTSP = boat-tail soft point; FN = flat nose; LRN = lead round nose; LSW = lead semi-wadcutter; LW = lead wadcutter; SWC = semi-wadcutter; SWHP = semi-wadcutter hollow point; CB = conical ball reduced power/noise; FP = flat point; CP = copper-plated; L = lead; J = jacketed; HP = hollow-point; RN = round nose; SHP = segmented hollow-point; SP = soft point; FMJ = full metal jacket; TSJ = total synthetic jacket; TMF = toxic-metal-free; TMJ = totally encapsulated bullet; V = vented barrel; HE = high energy (not for use in semi-automatic rifles); † = not for revolvers; ◊ = nickel-plated case; CLM=cartridge length longer than SAAMI max, may not fit in all magazines. *Molycoat: molybdenum disulfide dry film lubricant

Federal Premium® Rifle

ATT.	USAGE	FEDERAL LOAD NO.	CARTRIDGE	BULLET WEIGHT IN GRAINS	BULLET WEIGHT IN GRAMS	BULLET STYLE	GOLD MEDAL PRIMER	BALLISTIC COEFFICIENT G1	BALLISTIC COEFFICIENT G7	VELOCITY IN FEET PER SECOND (TO NEAREST 10 FPS) MUZZLE	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.
FEDERAL PREMIUM BIG GAME															
◊	12	P223TC1	**223 REM.**	55	3.56	TROPHY COPPER	X	0.305		3240	2915	2613	2330	2066	1819
◊	2	P223S	**223 REM.**	55	3.56	BARNES TRIPLE-SHOCK X	X	0.209		3200	2738	2320	1940	1604	1323
◊	2	P223Q	**223 REM.**	60	3.89	NOSLER PARTITION	X	0.227		3160	2737	2350	1998	1679	1403
◊	2	P22250G	**22-250 REM.**	60	3.89	NOSLER PARTITION	X	0.227		3500	3043	2630	2253	1908	1601
◊	2	P224VLKBTSX1	**224 VALKYRIE**	78	5.05	BARNES TRIPLE-SHOCK X	X	0.383		2850	2611	2385	2170	1966	1774
◊	2	P243TC1	**243 WIN.**	85	5.51	TROPHY COPPER	X	0.391		3200	2947	2708	2481	2265	2061
◊	2	P243K	**243 WIN.**	85	5.51	BARNES TRIPLE-SHOCK X	X	0.333		3200	2904	2628	2367	2122	1891
◊	2	P243A1	**243 WIN.**	90	5.83	NOSLER ACCUBOND	X	0.376		3100	2843	2600	2370	2152	1945
◊	2	P243SS1	**243 WIN.**	90	5.83	SWIFT SCIROCCO II	X	0.419		3100	2869	2649	2440	2240	2050
◊	2	P243BCH1	**243 WIN.**	95	6.16	BERGER HYBRID HUNTER	X	0.434	0.223	3050	2829	2619	2418	2226	2043
◊	2	P243J	**243 WIN.**	95	6.16	NOSLER BALLISTIC TIP	X	0.378		3025	2774	2536	2310	2096	1893
◊	2	P243E	**243 WIN.**	100	6.48	NOSLER PARTITION	X	0.384		2850	2612	2386	2171	1968	1776
◊	2	P2506H	**25-06 REM.**	100	6.48	BARNES TRIPLE-SHOCK X	X	0.336		3210	2916	2641	2382	2138	1908
◊	2	P2506TC1	**25-06 REM.**	100	6.48	TROPHY COPPER	X	0.409		3210	2967	2737	2519	2311	2113
◊	2	P2506D	**25-06 REM.**	100	6.48	NOSLER BALLISTIC TIP	X	0.394		3220	2968	2729	2503	2288	2084
◊	2	P2506E	**25-06 REM.**	115	7.45	NOSLER PARTITION	X	0.389		3030	2785	2553	2333	2124	1925
◊	2	P260B	**260 REM.**	120	7.78	NOSLER BALLISTIC TIP	X	0.417		2950	2725	2512	2308	2113	1928
◊	2	P65CRDTC1	**6.5 CREEDMOOR**	120	7.78	TROPHY COPPER	X	0.453		2875	2689	2510	2338	2174	2015
◊	23	P65CRDTA1	**6.5 CREEDMOOR**	130	8.42	TERMINAL ASCENT	X	0.532	0.263	2800	2629	2464	2305	2152	2005
◊	2	P65CRDBTSX1	**6.5 CREEDMOOR**	130	8.42	BARNES TRIPLE-SHOCK X	X	0.365		2825	2576	2341	2118	1906	1711
◊	2	P65CRDSS1	**6.5 CREEDMOOR**	130	8.42	SWIFT SCIROCCO II	X	0.571		2800	2640	2486	2337	2193	2054
◊	2	P65CRDBCH1	**6.5 CREEDMOOR**	135	8.75	BERGER HYBRID HUNTER	X	0.584	0.303	2775	2620	2469	2324	2184	2049
◊	2	P65CRDA1	**6.5 CREEDMOOR**	140	9.07	NOSLER ACCUBOND	X	0.509		2675	2501	2334	2173	2018	1870
NEW ◊	2	P65PRCTC1	**6.5 PRC**	120	7.78	TROPHY COPPER	X	0.453		3100	2886	2681	2486	2299	2120
◊	23	P65PRCTA1	**6.5 PRC**	130	8.42	TERMINAL ASCENT	X	0.532	0.263	3000	2821	2649	2483	2324	2170
◊	2	P270L	**270 WIN.**	130	8.42	BARNES TRIPLE-SHOCK X	X	0.374		3060	2804	2562	2333	2115	1909
◊	2	P270BCH1	**270 WIN.**	140	9.07	BERGER HYBRID HUNTER	X	0.528	0.271	2950	2772	2600	2435	2276	2123
◊	2	P270A1	**270 WIN.**	140	9.07	NOSLER ACCUBOND	X	0.496		2950	2760	2579	2404	2236	2075
◊	23	P270TA1	**270 WIN.**	136	8.81	TERMINAL ASCENT	X	0.493	0.247	3000	2807	2622	2445	2274	2111
◊	2	P270F	**270 WIN.**	130	8.42	NOSLER BALLISTIC TIP	X	0.496		3060	2837	2626	2424	2231	2046
◊	2	P270P	**270 WIN.**	130	8.42	NOSLER PARTITION	X	0.416		3060	2829	2610	2401	2202	2012
◊	2	P270TC1	**270 WIN.**	130	8.42	TROPHY COPPER	X	0.459		3060	2850	2650	2459	2275	2100
◊	2	P270TT1	**270 WIN.**	130	8.42	TROPHY BONDED TIP	X	0.440		3060	2841	2633	2434	2244	2063
◊	2	P270SS1	**270 WIN.**	130	8.42	SWIFT SCIROCCO II	X	0.450		3050	2837	2633	2439	2253	2075
◊	2	P270TT3	**270 WIN.**	140	9.07	TROPHY BONDED TIP	X	0.455		2950	2744	2547	2358	2177	2004
◊	2	P270E	**270 WIN.**	150	9.72	NOSLER PARTITION	X	0.466		2830	2634	2446	2266	2093	1928
◊	2	P270WSMA1	**270 WIN. SHORT MAGNUM**	130	8.42	NOSLER ACCUBOND	X	0.435		3250	3019	2800	2592	2392	2202
◊	2	P270WSMD	**270 WIN. SHORT MAGNUM**	130	8.42	BARNES TRIPLE-SHOCK X	X	0.374		3280	3011	2758	2518	2291	2076
◊	2	P270WSMB	**270 WIN. SHORT MAGNUM**	130	8.42	NOSLER BALLISTIC TIP	X	0.433		3300	3065	2843	2632	2430	2237
◊	2	P270WSMTC1	**270 WIN. SHORT MAGNUM**	130	8.42	TROPHY COPPER	X	0.459		3280	3059	2850	2650	2458	2275
◊	2	P270WSMTT1	**270 WIN. SHORT MAGNUM**	130	8.42	TROPHY BONDED TIP	X	0.440		3280	3050	2832	2624	2426	2236
◊	2	P270WSMSS1	**270 WIN. SHORT MAGNUM**	130	8.42	SWIFT SCIROCCO II	X	0.450		3300	3074	2860	2655	2460	2273
◊	23	P270WSMTA1	**270 WIN. SHORT MAGNUM**	136	8.81	TERMINAL ASCENT	X	0.493	0.247	3240	3036	2842	2655	2477	2305
◊	2	P270WSMBCH1	**270 WIN. SHORT MAGNUM**	140	9.07	BERGER HYBRID HUNTER	X	0.528	0.271	3200	3011	2830	2657	2489	2328
◊	2	P270WSMTT3	**270 WIN. SHORT MAGNUM**	140	9.07	TROPHY BONDED TIP	X	0.455		3200	2982	2774	2575	2385	2204
◊	2	P270WSMC	**270 WIN. SHORT MAGNUM**	150	9.72	NOSLER PARTITION	X	0.466		3100	2891	2692	2502	2319	2145
◊	2	P708A1	**7MM-08 REM.**	140	9.07	NOSLER ACCUBOND	X	0.485		2850	2660	2479	2304	2137	1976
◊	2	P708C	**7MM-08 REM.**	140	9.07	BARNES TRIPLE-SHOCK X	X	0.394		2820	2589	2370	2162	1963	1777
◊	2	P708B	**7MM-08 REM.**	140	9.07	NOSLER BALLISTIC TIP	X	0.485		2800	2613	2433	2260	2094	1935
◊	2	P708TC2	**7MM-08 REM.**	140	9.07	TROPHY COPPER	X	0.489		2800	2614	2435	2264	2100	1942
◊	2	P708TT2	**7MM-08 REM.**	140	9.07	TROPHY BONDED TIP	X	0.430		2800	2589	2388	2196	2012	1838
◊	2	P280TC2	**280 REM.**	140	9.07	TROPHY COPPER	X	0.489		2950	2758	2573	2396	2227	2064
◊	2	P280TT2	**280 REM.**	140	9.07	TROPHY BONDED TIP	X	0.430		2950	2732	2524	2326	2136	1956
◊	2	P280A	**280 REM.**	150	9.72	NOSLER PARTITION	X	0.457		2890	2687	2494	2308	2130	1960
◊	2	P280AITC1	**280 ACKLEY IMPROVED**	140	9.07	TROPHY COPPER	X	0.489		3075	2877	2688	2506	2332	2165
◊	34	P280AITA1	**280 ACKLEY IMPROVED**	155	10.04	TERMINAL ASCENT	X	0.586	0.300	2930	2770	2615	2465	2321	2181
◊	2	P280AIBCH1	**280 ACKLEY IMPROVED**	168	10.89	BERGER HYBRID HUNTER	X	0.566	0.290	2830	2668	2511	2360	2214	2073
◊	2	P7RG	**7MM REM. MAGNUM**	140	9.07	NOSLER PARTITION	X	0.434		3150	2924	2709	2504	2308	2122
◊	2	P7RTC2	**7MM REM. MAGNUM**	140	9.07	TROPHY COPPER	X	0.489		3150	2949	2756	2572	2395	2226
◊	2	P7RTT2	**7MM REM. MAGNUM**	140	9.07	TROPHY BONDED TIP	X	0.430		3150	2922	2705	2499	2301	2113
◊	3	P7RTC3	**7MM REM. MAGNUM**	150	9.72	TROPHY COPPER	X	0.498		3025	2833	2649	2472	2302	2139
◊	2	P7RH	**7MM REM. MAGNUM**	150	9.72	NOSLER BALLISTIC TIP	X	0.495		3025	2832	2647	2469	2298	2134
◊	3	P7RSS1	**7MM REM. MAGNUM**	150	9.72	SWIFT SCIROCCO II	X	0.515		3050	2863	2684	2511	2345	2186
◊	23	P7RTA1	**7MM REM. MAGNUM**	155	10.04	TERMINAL ASCENT	X	0.586	0.300	3000	2837	2680	2528	2382	2240
◊	3	P7RA1	**7MM REM. MAGNUM**	160	10.37	NOSLER ACCUBOND	X	0.531		2900	2725	2556	2393	2237	2086
◊	3	P7RTT1	**7MM REM. MAGNUM**	160	10.37	TROPHY BONDED TIP	X	0.520		2900	2721	2549	2383	2224	2070
◊	3	P7RF	**7MM REM. MAGNUM**	160	10.37	NOSLER PARTITION	X	0.475		2950	2752	2563	2381	2207	2040
◊	3	P7RN	**7MM REM. MAGNUM**	160	10.37	BARNES TRIPLE-SHOCK X	X	0.392		2940	2702	2476	2261	2057	1863
◊	2	P7RBCH1	**7MM REM. MAGNUM**	168	10.89	BERGER HYBRID HUNTER	X	0.566	0.290	2870	2706	2549	2396	2249	2107
◊	3	P7WSMA1	**7MM WIN. SHORT MAGNUM**	160	10.37	NOSLER ACCUBOND	X	0.531		3000	2821	2648	2482	2322	2169
◊	3	P7WSMTC3	**7MM WIN. SHORT MAGNUM**	150	9.72	TROPHY COPPER	X	0.498		3140	2943	2754	2573	2399	2232
◊	3	P7WBTT1	**7MM WEATHERBY MAGNUM**	160	10.37	TROPHY BONDED TIP	X	0.520		3100	2913	2733	2561	2394	2235
◊	2	P3030TC1	**30-30 WIN.**	150	9.72	TROPHY COPPER	X	0.222		2300	1943	1625	1354	1150	1021
◊	2	P3030G	**30-30 WIN.**	150	9.72	BARNES TRIPLE-SHOCK X	X	0.184		2220	1803	1447	1178	1017	919
◊	2	P3030D	**30-30 WIN.**	170	11.02	NOSLER PARTITION	X	0.254		2200	1894	1619	1380	1191	1060
◊	2	P308F	**308 WIN.**	150	9.72	NOSLER BALLISTIC TIP	X	0.435		2820	2611	2410	2219	2037	1863
◊	2	P308S	**308 WIN.**	150	9.72	NOSLER PARTITION	X	0.387		2840	2604	2380	2168	1966	1776
◊	2	P308V	**308 WIN.**	150	9.72	BARNES TRIPLE-SHOCK X	X	0.369		2820	2574	2341	2120	1911	1717
◊	2	P308TC3	**308 WIN.**	150	9.72	TROPHY COPPER	X	0.469		2820	2625	2439	2260	2089	1925
◊	2	P308A1	**308 WIN.**	165	10.69	NOSLER ACCUBOND	X	0.475		2700	2513	2333	2161	1997	1838
◊	2	P308TC2	**308 WIN.**	165	10.69	TROPHY COPPER	X	0.503		2700	2510	2329	2155	1988	1829
◊	2	P308TT2	**308 WIN.**	165	10.69	TROPHY BONDED TIP	X	0.450		2700	2503	2314	2133	1960	1797
◊	3	P308H	**308 WIN.**	165	10.69	BARNES TRIPLE-SHOCK X	X	0.398		2650	2430	2220	2021	1833	1659
◊	2	P308SS1	**308 WIN.**	165	10.69	SWIFT SCIROCCO II	X	0.470		2700	2511	2329	2156	1990	1830

Usage Key: 1 = Varmints, predators, small game; 2 = medium game; 3 = large, heavy game; 4 = dangerous game; 5 = target shooting, training, practice; 6 = self defense; 7 = competition shooting; 8 = pest control; 9 = low noise, training, specialty.

These trajectory tables were calculated by computer using the best available data for each load. Trajectories are representative of the nominal behavior of each load at standard conditions (59°F temperature; barometric pressure of 29.53 inches; altitude at sea level). Shooters are cautioned that actual trajectories may differ due to variations in altitude, atmospheric conditions, guns, sights and ammunition.

	ENERGY IN FOOT-POUNDS (TO NEAREST 5 FOOT-POUNDS)					WIND DRIFT IN INCHES 10 MPH CROSSWIND						HEIGHT OF BULLET TRAJECTORY IN INCHES ABOVE OR BELOW LINE OF SIGHT IF ZEROED AT ⊕ YARDS. SIGHTS 1.5 INCHES ABOVE BORE LINE.									TEST BARREL LENGTH
												AVERAGE RANGE				LONG RANGE					
MUZZLE	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.	50 YDS.	100 YDS.	200 YDS.	300 YDS.	50 YDS.	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.	INCHES
1282	1038	834	663	521	404	0.9	3.7	8.8	16.6	27.5	-0.3	⊕	-2.6	-10.3	0.4	1.3	⊕	-6.4	-19.3	-40.2	24
1250	915	657	460	314	214	1.3	5.8	14.1	27.7	47.5	-0.3	⊕	-3.2	-12.9	0.5	1.6	⊕	-8.1	-25.8	-57.5	24
1330	998	736	532	375	262	1.2	5.3	13.1	25.2	42.9	-0.2	⊕	-3.2	-12.7	0.5	1.6	⊕	-8.0	-24.8	-54.4	24
1632	1234	922	676	485	341	1.1	4.7	11.3	21.6	36.9	-0.3	⊕	-2.3	-9.6	0.2	1.1	⊕	-6.2	-19.3	-42.4	24
1407	1181	985	815	669	545	0.9	3.4	8.2	15.2	24.9	-0.2	⊕	-3.6	-13.4	0.7	1.8	⊕	-8.0	-23.3	-47.7	24
1933	1639	1384	1162	969	801	0.7	2.9	6.8	12.5	20.5	-0.3	⊕	-2.5	-9.8	0.3	1.3	⊕	-6.0	-17.6	-36.2	24
1933	1592	1303	1057	850	675	0.8	3.5	8.1	15.2	24.9	-0.3	⊕	-2.7	-10.3	0.4	1.3	⊕	-6.3	-19.0	-39.2	24
1920	1615	1351	1122	925	756	0.7	3.2	7.3	13.8	22.4	-0.3	⊕	-2.8	-10.8	0.4	1.4	⊕	-6.5	-19.3	-39.5	24
1920	1644	1402	1189	1003	840	0.6	2.8	6.5	12.1	19.7	-0.3	⊕	-2.8	-10.4	0.4	1.4	⊕	-6.3	-18.5	-37.6	24
1962	1688	1446	1233	1045	880	0.6	2.8	6.4	11.9	19.3	-0.2	⊕	-2.9	-10.8	0.5	1.4	⊕	-6.5	-18.9	-38.4	24
1930	1623	1356	1126	927	756	0.8	3.2	7.6	14.2	23.0	-0.2	⊕	-3.0	-11.5	0.5	1.5	⊕	-6.9	-20.4	-41.6	24
1803	1515	1264	1047	860	701	0.9	3.4	8.2	15.2	24.8	-0.2	⊕	-3.6	-13.4	0.7	1.8	⊕	-8.0	-23.3	-47.6	24
2288	1888	1549	1260	1015	808	0.8	3.4	7.9	15	24.5	-0.3	⊕	-2.6	-10.2	0.4	1.3	⊕	-6.3	-18.8	-38.7	24
2288	1955	1664	1409	1185	991	0.7	2.7	6.4	11.8	19.3	-0.3	⊕	-2.5	-9.6	0.3	1.2	⊕	-5.9	-17.2	-35.2	24
2302	1955	1654	1391	1162	964	0.7	2.8	6.6	12.3	20.1	-0.3	⊕	-2.5	-9.6	0.3	1.2	⊕	-5.9	-17.3	-35.5	24
2344	1981	1665	1390	1152	946	0.7	3.1	7.3	13.7	22.2	-0.2	⊕	-3.0	-11.3	0.5	1.5	⊕	-6.8	-20.1	-40.9	24
2319	1979	1681	1419	1190	990	0.7	3.0	7.0	13.1	21.2	-0.2	⊕	-3.2	-11.9	0.6	1.6	⊕	-7.1	-20.8	-42.1	24
2202	1926	1679	1457	1259	1082	0.7	2.6	6.0	11.1	17.9	-0.2	⊕	-3.3	-12.1	0.6	1.7	⊕	-7.1	-20.8	-41.6	24
2263	1995	1752	1533	1337	1160	0.7	2.5	5.8	10.7	17.2	-0.2	⊕	-3.5	-12.8	0.7	1.8	⊕	-7.5	-21.6	-43.1	24
2303	1916	1581	1294	1049	845	0.9	3.7	8.8	16.2	26.9	-0.2	⊕	-3.7	-13.9	0.8	1.9	⊕	-8.3	-24.2	-50.0	24
2263	2012	1784	1576	1388	1218	0.6	2.4	5.3	9.9	15.9	-0.2	⊕	-3.5	-12.5	0.7	1.7	⊕	-7.3	-21.1	-42.1	24
2308	2057	1828	1619	1430	1258	0.6	2.3	5.3	9.8	15.7	-0.1	⊕	-3.6	-12.8	0.7	1.8	⊕	-7.5	-21.5	-42.7	24
2224	1944	1693	1467	1266	1086	0.6	2.7	6.5	11.9	19.2	-0.1	⊕	-4.1	-14.6	0.9	2.0	⊕	-8.5	-24.3	-48.4	24
2560	2218	1916	1647	1408	1198	0.6	2.6	6	11	18	-0.3	⊕	-2.7	-10.2	0.4	1.4	⊕	-6.2	-17.9	-36.4	24
2598	2297	2025	1780	1558	1359	0.5	2.3	5.3	9.6	15.6	-0.2	⊕	-2.9	-10.7	0.5	1.5	⊕	-6.4	-18.4	-36.9	24
2703	2269	1895	1571	1292	1052	0.7	3.2	7.5	14.1	23	-0.2	⊕	-2.9	-11.2	0.5	1.5	⊕	-6.7	-20.0	-40.8	24
2705	2388	2102	1843	1610	1401	0.6	2.4	5.4	9.9	16.2	-0.2	⊕	-3.1	-11.2	0.5	1.5	⊕	-6.6	-19.1	-38.5	24
2705	2368	2067	1796	1554	1338	0.6	2.5	5.8	10.7	17.4	-0.2	⊕	-3.1	-11.3	0.6	1.5	⊕	-6.7	-19.5	-39.3	24
2718	2379	2076	1805	1562	1345	0.6	2.5	5.7	10.5	17.1	-0.2	⊕	-2.9	-10.9	0.5	1.5	⊕	-6.5	-18.8	-38.0	24
2703	2324	1990	1695	1436	1209	0.6	2.8	6.4	11.9	19.4	-0.3	⊕	-2.9	-10.7	0.5	1.4	⊕	-6.4	-18.8	-38.2	24
2703	2310	1966	1664	1399	1168	0.7	2.9	6.6	12.4	20.2	-0.2	⊕	-2.9	-10.8	0.5	1.4	⊕	-6.5	-19.1	-38.8	24
2703	2345	2027	1745	1494	1273	0.6	2.6	6.0	11.0	18.0	-0.3	⊕	-2.8	-10.5	0.4	1.4	⊕	-6.3	-18.4	-37.3	24
2703	2330	2001	1711	1454	1228	0.6	2.7	6.3	11.6	18.9	-0.3	⊕	-2.8	-10.6	0.5	1.4	⊕	-6.4	-18.7	-38.0	24
2685	2322	2001	1717	1465	1242	0.6	2.7	6.1	11.4	18.5	-0.2	⊕	-2.9	-10.7	0.5	1.4	⊕	-6.4	-18.7	-37.9	24
2705	2340	2016	1728	1473	1249	0.7	2.8	6.3	11.9	19.2	-0.2	⊕	-3.1	-11.6	0.6	1.6	⊕	-6.9	-20.1	-40.6	24
2667	2310	1992	1709	1459	1238	0.7	2.8	6.6	12.3	19.7	-0.2	⊕	-3.5	-12.8	0.7	1.7	⊕	-7.6	-22.0	-44.1	24
3049	2631	2263	1939	1652	1400	0.6	2.5	5.9	10.8	17.6	-0.3	⊕	-2.3	-9.1	0.3	1.2	⊕	-5.6	-16.3	-33.3	24
3105	2616	2195	1830	1515	1244	0.7	2.9	6.9	12.7	20.9	-0.3	⊕	-2.3	-9.3	0.3	1.2	⊕	-5.8	-17.0	-34.9	24
3143	2712	2333	1999	1704	1444	0.6	2.5	5.8	10.6	17.3	-0.3	⊕	-2.2	-8.7	0.2	1.1	⊕	-5.4	-15.8	-32.2	24
3105	2702	2344	2026	1744	1494	0.6	2.3	5.5	10.1	16.3	-0.3	⊕	-2.2	-8.7	0.2	1.1	⊕	-5.4	-15.8	-31.9	24
3105	2685	2315	1988	1699	1443	0.6	2.4	5.8	10.5	17.1	-0.3	⊕	-2.2	-8.8	0.2	1.1	⊕	-5.5	-16.0	-32.4	24
3143	2728	2360	2035	1746	1491	0.6	2.4	5.6	10.2	16.5	-0.3	⊕	-2.2	-8.6	0.2	1.1	⊕	-5.4	-15.6	-31.7	24
3170	2783	2438	2129	1852	1604	0.5	2.2	5.2	9.4	15.2	-0.3	⊕	-2.3	-8.9	0.3	1.1	⊕	-5.5	-15.9	-31.9	24
3183	2818	2490	2194	1926	1685	0.5	2.1	4.9	8.9	14.3	-0.3	⊕	-2.3	-9.0	0.3	1.2	⊕	-5.6	-16.0	-32.0	24
3183	2763	2391	2062	1768	1509	0.6	2.4	5.7	10.4	17.1	-0.3	⊕	-2.4	-9.4	0.3	1.2	⊕	-5.8	-16.7	-33.8	24
3200	2784	2414	2085	1792	1532	0.6	2.5	5.8	10.6	17.4	-0.3	⊕	-2.7	-10.1	0.4	1.3	⊕	-6.1	-17.8	-36.0	24
2525	2200	1910	1650	1419	1214	0.7	2.7	6.2	11.6	18.7	-0.2	⊕	-3.4	-12.5	0.7	1.7	⊕	-7.3	-21.4	-42.9	24
2472	2084	1746	1452	1198	982	0.9	3.4	8.1	14.9	24.4	-0.2	⊕	-3.7	-13.6	0.8	1.8	⊕	-8.1	-23.6	-48.1	24
2437	2122	1839	1587	1363	1164	0.7	2.7	6.4	11.9	19.1	-0.2	⊕	-3.6	-13.1	0.7	1.8	⊕	-7.7	-22.3	-44.5	24
2437	2124	1844	1593	1370	1172	0.7	2.7	6.4	11.8	18.9	-0.2	⊕	-3.6	-13.0	0.7	1.8	⊕	-7.7	-22.2	-44.4	24
2437	2084	1772	1498	1258	1050	0.8	3.1	7.4	13.6	22.1	-0.1	⊕	-3.7	-13.5	0.8	1.8	⊕	-8.0	-23.2	-46.8	24
2705	2364	2059	1785	1541	1324	0.6	2.6	5.9	10.9	17.7	-0.2	⊕	-3.1	-11.4	0.6	1.5	⊕	-6.7	-19.6	-39.5	24
2705	2320	1980	1681	1419	1189	0.7	2.9	6.8	12.7	20.5	-0.2	⊕	-3.2	-11.8	0.6	1.6	⊕	-7.0	-20.6	-41.6	24
2782	2405	2071	1774	1511	1279	0.7	2.9	6.5	12.2	19.6	-0.2	⊕	-3.3	-12.2	0.6	1.7	⊕	-7.2	-21.1	-42.4	24
2939	2573	2246	1953	1691	1457	0.5	2.4	5.5	10.2	16.6	-0.3	⊕	-2.7	-10.2	0.4	1.4	⊕	-6.1	-17.8	-36.0	24
2954	2640	2353	2092	1854	1637	0.5	2.2	4.9	8.9	14.5	-0.2	⊕	-3.1	-11.2	0.6	1.5	⊕	-6.6	-18.8	-37.7	24
2987	2655	2352	2078	1829	1604	0.6	2.3	5.3	9.8	15.8	-0.2	⊕	-3.4	-12.2	0.7	1.7	⊕	-7.2	-20.7	-41.3	24
3084	2657	2281	1949	1656	1399	0.6	2.6	6.1	11.3	18.5	-0.3	⊕	-2.6	-9.9	0.4	1.3	⊕	-6.0	-17.6	-35.8	24
3084	2703	2362	2057	1783	1540	0.5	2.3	5.4	9.8	16.0	-0.3	⊕	-2.5	-9.6	0.3	1.3	⊕	-5.9	-16.9	-34.1	24
3084	2654	2275	1941	1646	1388	0.6	2.7	6.2	11.4	18.7	-0.3	⊕	-2.6	-10.0	0.4	1.3	⊕	-6.1	-17.6	-35.9	24
3047	2673	2337	2035	1765	1524	0.6	2.4	5.6	10.2	16.7	-0.2	⊕	-2.9	-10.7	0.5	1.4	⊕	-6.4	-18.4	-37.1	24
3047	2670	2333	2030	1759	1517	0.6	2.4	5.6	10.3	16.8	-0.2	⊕	-2.9	-10.7	0.5	1.4	⊕	-6.4	-18.4	-37.2	24
3098	2730	2399	2101	1832	1592	0.5	2.3	5.3	9.7	15.8	-0.3	⊕	-2.8	-10.3	0.4	1.4	⊕	-6.2	-17.8	-36.0	24
3097	2770	2472	2200	1952	1727	0.5	2.1	4.7	8.6	13.9	-0.2	⊕	-2.9	-10.5	0.5	1.4	⊕	-6.2	-17.9	-35.7	24
2988	2637	2321	2035	1777	1546	0.6	2.4	5.5	10.2	16.5	-0.2	⊕	-3.2	-11.7	0.6	1.6	⊕	-6.9	-19.9	-39.9	24
2988	2630	2308	2017	1757	1523	0.6	2.5	5.6	10.4	16.9	-0.2	⊕	-3.2	-11.7	0.6	1.6	⊕	-6.9	-20.0	-40.2	24
3091	2691	2333	2014	1730	1479	0.6	2.7	6.0	11.3	18.2	-0.2	⊕	-3.1	-11.5	0.6	1.6	⊕	-6.8	-19.8	-40.0	24
3071	2593	2178	1816	1503	1234	0.8	3.2	7.6	14.2	23.0	-0.2	⊕	-3.3	-12.2	0.6	1.6	⊕	-7.3	-21.5	-43.7	24
3072	2732	2423	2141	1886	1656	0.6	2.3	5.2	9.6	15.5	-0.2	⊕	-3.3	-11.8	0.6	1.6	⊕	-6.9	-20.0	-40.0	24
3197	2826	2491	2189	1916	1671	0.5	2.3	5.3	9.6	15.6	-0.2	⊕	-2.9	-10.7	0.5	1.5	⊕	-6.4	-18.4	-37.0	24
3284	2884	2526	2205	1917	1660	0.5	2.3	5.3	9.7	15.7	-0.3	⊕	-2.5	-9.7	0.3	1.3	⊕	-5.9	-16.9	-34.1	24
3414	3014	2653	2329	2036	1774	0.5	2.2	5.2	9.4	15.2	-0.3	⊕	-2.6	-9.9	0.4	1.3	⊕	-6.0	-17.2	-34.6	24
1762	1258	880	611	441	347	2.0	8.9	21.5	41.0	67.0	0.2	⊕	-7.9	-29.0	2.2	3.9	⊕	-17.2	-53.8	-117.0	24
1641	1083	697	462	344	281	2.6	11.5	28.4	53.2	84.2	0.3	⊕	-9.4	-35.8	2.7	4.7	⊕	-21.7	-68.6	-147.8	24
1827	1354	990	719	535	424	1.8	8.1	19.4	36.7	59.9	0.3	⊕	-8.4	-30.0	2.4	4.2	⊕	-17.4	-53.5	-114.4	24
2648	2270	1935	1640	1382	1156	0.8	3.0	7.2	13.3	21.5	-0.2	⊕	-3.6	-13.2	0.7	1.8	⊕	-7.8	-22.7	-45.8	24
2686	2259	1887	1565	1287	1050	0.9	3.4	8.2	15.1	24.7	-0.2	⊕	-3.6	-13.4	0.7	1.8	⊕	-8.0	-23.4	-47.8	24
2648	2207	1825	1497	1217	982	0.9	3.6	8.7	16.0	26.6	-0.2	⊕	-3.7	-13.9	0.8	1.9	⊕	-8.3	-24.2	-49.9	24
2648	2296	1981	1701	1453	1234	0.7	2.8	6.6	12.2	19.7	-0.2	⊕	-3.5	-12.9	0.7	1.8	⊕	-7.6	-22.2	-44.4	24
2671	2313	1994	1711	1460	1238	0.7	2.9	7.0	12.9	20.6	-0.1	⊕	-4.0	-14.5	0.9	2.0	⊕	-8.5	-24.4	-48.7	24
2671	2309	1986	1701	1448	1225	0.7	2.9	7.1	13.0	20.9	-0.1	⊕	-4.0	-14.5	0.9	2.0	⊕	-8.5	-24.5	-49.0	24
2671	2294	1961	1667	1408	1182	0.7	3.1	7.4	13.6	22.1	-0.1	⊕	-4.1	-14.7	0.9	2.0	⊕	-8.6	-24.7	-49.9	24
2573	2163	1806	1497	1231	1008	0.8	3.7	8.7	16	26.7	-0.1	⊕	-4.4	-15.9	1.0	2.2	⊕	-9.3	-26.9	-55.4	24
2671	2310	1988	1702	1450	1227	0.7	2.9	7	13	20.9	-0.1	⊕	-4	-14.5	0.9	2	⊕	-8.5	-24.5	-48.9	24

Abbreviation Key: BTHP = boat-tail hollow point; BTSP = boat-tail soft point; FN = flat nose; LRN = lead round nose; LSW = lead semi-wadcutter; LW = lead wadcutter; SWC = semi-wadcutter; SWHP = semi-wadcutter hollow point; CB = conical ball reduced power/noise; FP = flat point; CP = copper-plated; L = lead; J = jacketed; HP = hollow-point; RN = round nose; SHP = segmented hollow-point; SP = soft point; FMJ = full metal jacket; TSJ = total synthetic jacket; TMF = toxic-metal-free; TMJ = totally encapsulated bullet; V = vented barrel; HE = high energy (not for use in semi-automatic rifles); † = not for revolvers; ◊ = nickel-plated case; CLM=cartridge length longer than SAAMI max, may not fit in all magazines. *Molycoat: molybdenum disulfide dry film lubricant

Federal Premium® Rifle

	ATT.	USAGE	FEDERAL LOAD NO.	CARTRIDGE	BULLET WEIGHT IN GRAINS	BULLET WEIGHT IN GRAMS	BULLET STYLE	GOLD MEDAL PRIMER	BALLISTIC COEFFICIENT G1	BALLISTIC COEFFICIENT G7	VELOCITY IN FEET PER SECOND (TO NEAREST 10 FPS) MUZZLE	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.
	◊	2	P308BCH1	**308 WIN.**	168	10.89	BERGER HYBRID HUNTER	X	0.489	0.251	2700	2518	2343	2176	2015	1860
	◊	2 3	P308TA1	**308 WIN.**	175	11.34	TERMINAL ASCENT	X	0.520	0.258	2600	2432	2271	2116	1967	1824
	◊	3	P308E	**308 WIN.**	180	11.66	NOSLER PARTITION	X	0.474		2570	2388	2213	2045	1885	1734
	◊	2	P308TT1	**308 WIN.**	180	11.66	TROPHY BONDED TIP	X	0.500		2620	2445	2277	2116	1960	1812
	◊	2	P3006A3	**30-06 SPRING.**	150	9.72	NOSLER ACCUBOND	X	0.435		2910	2696	2493	2298	2112	1934
	◊	2	P3006P	**30-06 SPRING.**	150	9.72	NOSLER BALLISTIC TIP	X	0.434		2910	2696	2492	2296	2110	1932
	◊	2	P3006A2	**30-06 SPRING.**	165	10.69	NOSLER ACCUBOND	X	0.475		2800	2609	2425	2249	2081	1919
	◊	2	P3006Q	**30-06 SPRING.**	165	10.69	NOSLER BALLISTIC TIP	X	0.475		2800	2609	2425	2249	2081	1919
	◊	2	P3006TC2	**30-06 SPRING.**	165	10.69	TROPHY COPPER	X	0.503		2800	2619	2445	2278	2118	1963
	◊	2	P3006TT2	**30-06 SPRING.**	165	10.69	TROPHY BONDED TIP	X	0.450		2800	2598	2405	2221	2044	1875
	◊	2	P3006AD	**30-06 SPRING.**	165	10.69	NOSLER PARTITION	X	0.409		2830	2607	2395	2193	2000	1818
	◊	2	P3006AF	**30-06 SPRING.**	165	10.69	BARNES TRIPLE-SHOCK X	X	0.398		2800	2573	2356	2151	1955	1771
	◊	2	P3006SS1	**30-06 SPRING.**	165	10.69	SWIFT SCIROCCO II	X	0.470		2800	2607	2421	2244	2074	1910
	◊	2	P3006BCH1	**30-06 SPRING.**	168	10.89	BERGER HYBRID HUNTER	X	0.489	0.251	2800	2614	2435	2264	2100	1942
	◊	2 3	P3006TA1	**30-06 SPRING.**	175	11.34	TERMINAL ASCENT	X	0.520	0.258	2730	2558	2391	2232	2078	1930
	◊	3	P3006A1	**30-06 SPRING.**	180	11.66	NOSLER ACCUBOND	X	0.507		2700	2524	2355	2193	2037	1887
	◊	3	P3006F	**30-06 SPRING.**	180	11.66	NOSLER PARTITION	X	0.474		2700	2512	2332	2160	1995	1837
	◊	2	P3006TT1	**30-06 SPRING.**	180	11.66	TROPHY BONDED TIP	X	0.500		2700	2522	2351	2186	2029	1877
	◊	3	P3006TC1	**30-06 SPRING.**	180	11.66	TROPHY COPPER	X	0.523		2700	2530	2366	2208	2056	1910
	◊	3	P3006AE	**30-06 SPRING.**	180	11.66	BARNES TRIPLE-SHOCK X	X	0.453		2700	2504	2316	2137	1965	1802
	◊	2	P300WR	**300 WIN. MAGNUM**	165	10.69	BARNES TRIPLE-SHOCK X	X	0.398		3050	2810	2582	2365	2159	1963
	◊	2	P300WK	**300 WIN. MAGNUM**	165	10.69	NOSLER PARTITION	X	0.409		3050	2816	2594	2382	2180	1989
	◊	2	P300WTT2	**300 WIN. MAGNUM**	165	10.69	TROPHY BONDED TIP	X	0.450		3050	2837	2633	2439	2253	2075
	◊	2	P300WTC2	**300 WIN. MAGNUM**	165	10.69	TROPHY COPPER	X	0.503		3050	2859	2675	2499	2330	2167
	◊	3	P300WA1	**300 WIN. MAGNUM**	180	11.66	NOSLER ACCUBOND	X	0.507		2960	2774	2595	2424	2259	2100
	◊	3	P300WTT1	**300 WIN. MAGNUM**	180	11.66	TROPHY BONDED TIP	X	0.500		2960	2771	2591	2417	2250	2089
	◊	3	P300WTC1	**300 WIN. MAGNUM**	180	11.66	TROPHY COPPER	X	0.523		2960	2780	2606	2439	2279	2124
	◊	3	P300WD2	**300 WIN. MAGNUM**	180	11.66	NOSLER PARTITION	X	0.361		2960	2701	2456	2224	2005	1799
	◊	3	P300WP	**300 WIN. MAGNUM**	180	11.66	BARNES TRIPLE-SHOCK X	X	0.453		2960	2752	2554	2364	2182	2009
	◊	2 3	P300WSS1	**300 WIN. MAGNUM**	180	11.66	SWIFT SCIROCCO II	X	0.520		2950	2769	2595	2428	2266	2112
	◊	2	P300WBCH1	**300 WIN. MAGNUM**	185	11.99	BERGER HYBRID HUNTER	X	0.533	0.273	2950	2773	2603	2440	2282	2130
	◊	2 3	P300WTA1	**300 WIN. MAGNUM**	200	12.96	TERMINAL ASCENT	X	0.608	0.304	2810	2660	2514	2373	2236	2105
	◊	2	P300WSMD	**300 WIN. SHORT MAGNUM**	150	9.72	NOSLER BALLISTIC TIP	X	0.435		3250	3019	2800	2592	2392	2202
	◊	2	P300WSME	**300 WIN. SHORT MAGNUM**	165	10.69	NOSLER PARTITION	X	0.411		3120	2883	2659	2445	2241	2047
	◊	3	P300WSMTT2	**300 WIN. SHORT MAGNUM**	165	10.69	TROPHY BONDED TIP	X	0.450		3130	2913	2706	2508	2319	2138
	◊	2	P300WSMTC2	**300 WIN. SHORT MAGNUM**	165	10.69	TROPHY COPPER	X	0.503		3120	2926	2739	2561	2389	2224
	◊	2	P300WSMG	**300 WIN. SHORT MAGNUM**	165	10.69	BARNES TRIPLE-SHOCK X	X	0.398		3130	2885	2653	2433	2224	2024
	◊	3	P300WSMA1	**300 WIN. SHORT MAGNUM**	180	11.66	NOSLER ACCUBOND	X	0.507		2960	2774	2595	2424	2259	2100
	◊	3	P300WSMTT1	**300 WIN. SHORT MAGNUM**	180	11.66	TROPHY BONDED TIP	X	0.500		2960	2771	2591	2417	2250	2089
	◊	3	P300WSMB	**300 WIN. SHORT MAGNUM**	180	11.66	NOSLER PARTITION	X	0.474		2980	2780	2589	2406	2231	2063
	◊	3	P300WSMTC1	**300 WIN. SHORT MAGNUM**	180	11.66	TROPHY COPPER	X	0.523		2960	2780	2606	2439	2279	2124
	◊	3	P300WSMF	**300 WIN. SHORT MAGNUM**	180	11.66	BARNES TRIPLE-SHOCK X	X	0.453		2980	2771	2572	2381	2199	2025
	◊	2 3	P300WSMSS1	**300 WIN. SHORT MAGNUM**	180	11.66	SWIFT SCIROCCO II	X	0.520		2960	2779	2604	2436	2275	2120
	◊	2	P300WSMBCH1	**300 WIN. SHORT MAGNUM**	185	11.99	BERGER HYBRID HUNTER	X	0.533	0.273	2950	2773	2603	2440	2282	2130
	◊	2 3	P300WSMTA1	**300 WIN. SHORT MAGNUM**	200	12.96	TERMINAL ASCENT	X	0.608	0.304	2810	2660	2514	2373	2236	2105
	◊	2	P300RUMA1	**300 REM. ULTRA MAGNUM**	180	11.66	NOSLER ACCUBOND	X	0.507		3100	2908	2724	2548	2378	2214
	◊	3	P338FTC2	**338 FEDERAL**	200	12.96	TROPHY COPPER	X	0.425		2630	2424	2228	2041	1863	1697
	◊	3	P338FTT2	**338 FEDERAL**	200	12.96	TROPHY BONDED TIP	X	0.440		2630	2431	2241	2060	1887	1725
	◊	2, 3	P338TT2	**338 WIN. MAGNUM**	200	12.96	TROPHY BONDED TIP	X	0.440		2930	2718	2515	2321	2137	1960
	◊	3	P338A2	**338 WIN. MAGNUM**	210	13.61	NOSLER PARTITION	X	0.398		2830	2601	2383	2176	1980	1794
	◊	3	P338TC1	**338 WIN. MAGNUM**	225	14.58	TROPHY COPPER	X	0.480		2800	2611	2429	2255	2087	1927
	◊	3	P338B2	**338 WIN. MAGNUM**	250	16.2	NOSLER PARTITION	X	0.473		2660	2474	2295	2124	1960	1803
	◊	3	P338A1	**338 WIN. MAGNUM**	225	14.58	NOSLER ACCUBOND	X	0.550		2800	2634	2475	2320	2172	2028
	◊	3	P338LMA1	**338 LAPUA MAGNUM**	300	19.44	NOSLER ACCUBOND	X	0.720		2650	2527	2407	2291	2178	2068
	◊	3	P338LTC1	**338 LAPUA MAGNUM**	250	16.2	TROPHY COPPER	X	0.625		2850	2702	2559	2420	2286	2156
	◊	3	P375T4	**375 H&H MAGNUM**	250	16.2	TROPHY BONDED BEAR CLAW	X	0.340		2670	2412	2169	1940	1728	1534
	◊	4	P375F	**375 H&H MAGNUM**	300	19.44	NOSLER PARTITION	X	0.398		2440	2230	2031	1841	1666	1504
	◊	3	P4570T4	**45-70 GOVERNMENT**	300	19.44	TROPHY BONDED BEAR CLAW	X	0.215		1850	1612	1401	1227	1099	1011
FEDERAL PREMIUM HAMMERDOWN™																
	◊	2	LG327F1	**327 FEDERAL MAGNUM**	127	8.23	BONDED HOLLOW POINT	X	0.195		1650	1341	1120	990	905	838
	◊	2	LG45C1	**45 COLT**	250	16.2	BONDED HOLLOW POINT	X	0.165		1400	1125	975	881	808	746
	◊	2	LG30301	**30-30 WIN.**	150	9.72	BONDED HOLLOW POINT	X	0.268		2390	2086	1805	1553	1337	1167
	◊	2	LG3571	**357 MAGNUM**	170	11.02	BONDED HOLLOW POINT	X	0.185		1610	1296	1084	963	881	815
NEW	◊	2	LG35R1	**35 REM.**	220	14.26	BONDED HOLLOW POINT	X	0.286		1990	1734	1505	1309	1155	1048
	◊	2	LG441	**44 REM. MAGNUM**	270	17.5	BONDED HOLLOW POINT	X	0.193		1715	1390	1150	1006	916	846
NEW	◊	3	LG444M1	**444 MARLIN**	270	17.5	BONDED HOLLOW POINT	X	0.193		2250	1848	1500	1225	1049	945
	◊	2	LG45701	**45-70 GOVERNMENT**	300	19.44	BONDED HOLLOW POINT	X	0.290		1850	1612	1401	1227	1099	1011
FEDERAL PREMIUM SAFARI																
	◊	4	P9362SA	**9.3X62 MAUSER**	286	18.53	SWIFT A-FRAME	X	0.385		2360	2147	1945	1756	1582	1423
	◊	4	P9362WH	**9.3X62 MAUSER**	286	18.53	WOODLEIGH HYDRO	X	0.260		2360	2049	1763	1509	1295	1133
	◊	4	P9374SA	**9.3X74 R**	286	18.53	SWIFT A-FRAME	X	0.385		2360	2147	1945	1756	1582	1423
	◊	4	P9374WH	**9.3X74 R**	286	18.53	WOODLEIGH HYDRO	X	0.260		2360	2049	1763	1509	1295	1133
	◊	4	P370SA	**370 SAKO MAGNUM**	286	18.53	SWIFT A-FRAME	X	0.385		2550	2328	2117	1916	1730	1557
	◊	4	P370WH	**370 SAKO MAGNUM**	286	18.53	WOODLEIGH HYDRO	X	0.260		2450	2132	1839	1576	1349	1172
	◊	4	P375SA	**375 H&H MAGNUM**	300	19.44	SWIFT A-FRAME	X	0.325		2450	2194	1953	1730	1527	1349
	◊	4	P375T1	**375 H&H MAGNUM**	300	19.44	TROPHY BONDED BEAR CLAW	X	0.342		2400	2159	1932	1721	1529	1359
	◊	4	P375T2	**375 H&H MAGNUM**	300	19.44	TROPHY BONDED SLEDGEHAMMER SOLID	X	0.253		2440	2115	1815	1548	1321	1147
	◊	4	P375WH	**375 H&H MAGNUM**	300	19.44	WOODLEIGH HYDRO	X	0.260		2500	2179	1881	1614	1380	1195
	◊	4	P416SA	**416 RIGBY**	400	25.92	SWIFT A-FRAME	X	0.367		2350	2128	1917	1722	1542	1381
	◊	4	P416T1	**416 RIGBY**	400	25.92	TROPHY BONDED BEAR CLAW	X	0.374		2300	2084	1880	1691	1517	1362
	◊	4	P416T2	**416 RIGBY**	400	25.92	TROPHY BONDED SLEDGEHAMMER SOLID	X	0.273		2370	2073	1798	1551	1339	1171
	◊	4	P416WH	**416 RIGBY**	400	25.92	WOODLEIGH HYDRO	X	0.260		2400	2086	1797	1539	1319	1149
	◊	4	P416RSA	**416 REM. MAGNUM**	400	25.92	SWIFT A-FRAME	X	0.367		2400	2175	1962	1763	1580	1413
	◊	4	P416RT1	**416 REM. MAGNUM**	400	25.92	TROPHY BONDED BEAR CLAW	X	0.373		2400	2179	1969	1772	1591	1426
	◊	4	P416RT2	**416 REM. MAGNUM**	400	25.92	TROPHY BONDED SLEDGEHAMMER SOLID	X	0.273		2400	2100	1823	1574	1357	1185
	◊	4	P416RWH	**416 REM. MAGNUM**	400	25.92	WOODLEIGH HYDRO	X	0.260		2400	2086	1797	1539	1319	1149

Usage Key: 1 = Varmints, predators, small game; 2 = medium game; 3 = large, heavy game; 4 = dangerous game; 5 = target shooting, training, practice; 6 = self defense; 7 = competition shooting; 8 = pest control; 9 = low noise, training, specialty.

These trajectory tables were calculated by computer using the best available data for each load. Trajectories are representative of the nominal behavior of each load at standard conditions (59°F temperature; barometric pressure of 29.53 inches; altitude at sea level). Shooters are cautioned that actual trajectories may differ due to variations in altitude, atmospheric conditions, guns, sights and ammunition.

ENERGY IN FOOT-POUNDS (TO NEAREST 5 FOOT-POUNDS)						WIND DRIFT IN INCHES 10 MPH CROSSWIND						HEIGHT OF BULLET TRAJECTORY IN INCHES ABOVE OR BELOW LINE OF SIGHT IF ZEROED AT ⊕ YARDS. SIGHTS 1.5 INCHES ABOVE BORE LINE.									TEST BARREL LENGTH
												AVERAGE RANGE				LONG RANGE					
MUZZLE	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.	50 YDS.	100 YDS.	200 YDS.	300 YDS.	50 YDS.	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.	INCHES
2719	2365	2048	1766	1514	1291	0.7	2.8	6.7	12.3	19.9	-0.1	⊕	-4	-14.4	0.9	2.0	⊕	-8.4	-24.1	-48.1	24
2627	2299	2004	1740	1503	1292	0.6	2.8	6.7	12.1	19.6	-0.1	⊕	-4.4	-15.6	1	2.2	⊕	-9	-25.6	-51.2	24
2640	2278	1957	1672	1420	1202	0.7	3.2	7.5	13.6	22.5	-0.1	⊕	-4.7	-16.4	1.1	2.3	⊕	-9.4	-26.9	-54.7	24
2743	2389	2072	1789	1536	1313	0.6	2.9	6.9	12.5	20.3	-0.1	⊕	-4.3	-15.4	1.0	2.2	⊕	-8.9	-25.5	-51.1	24
2820	2421	2069	1758	1485	1246	0.7	3.0	6.8	12.8	20.6	-0.2	⊕	-3.3	-12.2	0.6	1.6	⊕	-7.2	-21.1	-42.6	24
2820	2420	2068	1756	1483	1243	0.7	3.0	6.9	12.8	20.6	-0.2	⊕	-3.3	-12.2	0.6	1.6	⊕	-7.2	-21.1	-42.6	24
2872	2493	2155	1853	1586	1349	0.7	2.8	6.6	12.2	19.6	-0.2	⊕	-3.6	-13.1	0.7	1.8	⊕	-7.8	-22.4	-44.9	24
2872	2493	2155	1853	1586	1349	0.7	2.8	6.6	12.2	19.6	-0.2	⊕	-3.6	-13.1	0.7	1.8	⊕	-7.8	-22.4	-44.9	24
2872	2513	2190	1901	1643	1412	0.7	2.6	6.2	11.4	18.4	-0.2	⊕	-3.5	-12.9	0.7	1.8	⊕	-7.6	-22.0	-44.0	24
2872	2473	2119	1806	1531	1288	0.8	2.9	7.0	12.9	20.9	-0.2	⊕	-3.6	-13.3	0.8	1.8	⊕	-7.9	-22.8	-45.8	24
2934	2490	2101	1761	1465	1210	0.8	3.2	7.7	14.2	23.1	-0.2	⊕	-3.6	-13.3	0.7	1.8	⊕	-7.9	-23.0	-46.8	24
2872	2425	2034	1694	1400	1149	0.9	3.4	8.1	14.9	24.4	-0.1	⊕	-3.7	-13.8	0.8	1.9	⊕	-8.2	-23.8	-48.7	24
2872	2489	2148	1844	1575	1337	0.7	2.8	6.7	12.3	19.8	-0.2	⊕	-3.6	-13.2	0.7	1.8	⊕	-7.8	-22.5	-45.0	24
2924	2549	2212	1912	1644	1406	0.7	2.7	6.4	11.8	18.9	-0.2	⊕	-3.6	-13.0	0.7	1.8	⊕	-7.7	-22.2	-44.4	24
2896	2542	2222	1935	1678	1447	0.7	2.6	6.2	11.4	18.2	-0.1	⊕	-3.8	-13.7	0.8	1.9	⊕	-8.1	-23.1	-45.9	24
2913	2547	2217	1922	1658	1423	0.7	2.7	6.5	11.9	19.0	-0.1	⊕	-3.9	-14.2	0.9	2.0	⊕	-8.3	-23.8	-47.4	24
2913	2523	2174	1865	1591	1348	0.7	2.9	7.0	12.9	20.7	-0.1	⊕	-4.0	-14.5	0.9	2.0	⊕	-8.5	-24.4	-48.7	24
2913	2542	2208	1911	1644	1408	0.7	2.7	6.6	12.0	19.4	-0.1	⊕	-3.9	-14.3	0.9	2.0	⊕	-8.4	-23.9	-47.7	24
2913	2557	2236	1948	1689	1457	0.6	2.6	6.2	11.5	18.4	-0.1	⊕	-3.9	-14.1	0.9	2.0	⊕	-8.3	-23.6	-46.9	24
2913	2506	2144	1824	1543	1297	0.7	3.1	7.3	13.5	21.9	-0.1	⊕	-4.0	-14.7	0.9	2.0	⊕	-8.6	-24.7	-49.7	24
3408	2892	2442	2049	1707	1411	0.7	3.0	7.0	13.2	21.4	-0.2	⊕	-2.9	-11.0	0.5	1.5	⊕	-6.6	-19.6	-39.9	24
3408	2905	2464	2078	1742	1449	0.7	3.0	6.8	12.8	20.8	-0.2	⊕	-2.9	-10.9	0.5	1.5	⊕	-6.6	-19.4	-39.5	24
3408	2948	2540	2179	1859	1577	0.6	2.7	6.1	11.4	18.5	-0.2	⊕	-2.9	-10.7	0.5	1.4	⊕	-6.4	-18.7	-37.9	24
3408	2994	2622	2289	1989	1721	0.5	2.4	5.5	10.0	16.3	-0.3	⊕	-2.8	-10.4	0.4	1.4	⊕	-6.3	-18.0	-36.3	24
3502	3075	2692	2348	2039	1763	0.6	2.5	5.6	10.4	16.8	-0.2	⊕	-3.0	-11.2	0.5	1.5	⊕	-6.6	-19.2	-38.7	24
3502	3070	2682	2334	2023	1745	0.6	2.5	5.7	10.5	17.1	-0.2	⊕	-3.1	-11.2	0.5	1.5	⊕	-6.6	-19.3	-38.9	24
3502	3088	2715	2378	2075	1803	0.6	2.4	5.4	10.0	16.3	-0.2	⊕	-3.0	-11.1	0.5	1.5	⊕	-6.6	-19.0	-38.3	24
3502	2915	2411	1978	1607	1294	0.9	3.5	8.3	15.4	25.3	-0.2	⊕	-3.3	-12.3	0.6	1.6	⊕	-7.4	-21.9	-45.0	24
3502	3027	2607	2233	1904	1612	0.7	2.8	6.3	11.8	19.2	-0.2	⊕	-3.1	-11.5	0.6	1.6	⊕	-6.8	-20	-40.4	24
3478	3064	2691	2355	2053	1782	0.6	2.4	5.5	10.1	16.4	-0.2	⊕	-3.1	-11.2	0.6	1.5	⊕	-6.6	-19.2	-38.7	24
3575	3159	2784	2445	2139	1864	0.6	2.4	5.3	9.8	16	-0.2	⊕	-3	-11.2	0.5	1.5	⊕	-6.6	-19.1	-38.3	24
3506	3141	2806	2500	2221	1967	0.6	2.2	4.9	9.1	14.8	-0.2	⊕	-3.4	-12.3	0.7	1.7	⊕	-7.2	-20.6	-41.1	24
3518	3036	2611	2237	1906	1615	0.6	2.5	5.9	10.8	17.6	-0.3	⊕	-2.3	-9.1	0.3	1.2	⊕	-5.6	-16.3	-33.3	24
3566	3045	2590	2190	1840	1536	0.6	2.8	6.6	12.2	20.0	-0.3	⊕	-2.7	-10.3	0.4	1.4	⊕	-6.2	-18.3	-37.4	24
3589	3108	2682	2305	1970	1675	0.6	2.6	5.9	10.9	17.9	-0.3	⊕	-2.6	-10.0	0.4	1.3	⊕	-6.0	-17.6	-35.7	24
3566	3135	2749	2403	2091	1813	0.5	2.3	5.3	9.6	15.7	-0.3	⊕	-2.6	-9.8	0.4	1.3	⊕	-5.9	-17.1	-34.5	24
3589	3049	2579	2169	1811	1501	0.7	2.9	6.8	12.7	20.7	-0.3	⊕	-2.7	-10.3	0.4	1.4	⊕	-6.3	-18.4	-37.7	24
3502	3075	2692	2348	2039	1763	0.6	2.5	5.6	10.4	16.8	-0.2	⊕	-3.0	-11.2	0.5	1.5	⊕	-6.6	-19.2	-38.7	24
3502	3070	2682	2334	2023	1745	0.6	2.5	5.7	10.5	17.1	-0.2	⊕	-3.1	-11.2	0.5	1.5	⊕	-6.6	-19.3	-38.9	24
3549	3089	2680	2314	1989	1700	0.6	2.6	6.0	11.1	18.0	-0.2	⊕	-3.0	-11.2	0.5	1.5	⊕	-6.6	-19.4	-39.1	24
3502	3088	2715	2378	2075	1803	0.6	2.4	5.4	10.0	16.3	-0.2	⊕	-3.0	-11.1	0.5	1.5	⊕	-6.6	-19.0	-38.3	24
3549	3069	2644	2266	1933	1638	0.6	2.7	6.3	11.7	19	-0.2	⊕	-3.1	-11.3	0.5	1.5	⊕	-6.7	-19.7	-39.8	24
3502	3085	2710	2372	2068	1796	0.6	2.4	5.5	10.1	16.4	-0.2	⊕	-3	-11.1	0.5	1.5	⊕	-6.6	-19.1	-38.4	24
3575	3159	2784	2445	2139	1864	0.6	2.4	5.3	9.8	16	-0.2	⊕	-3.0	-11.2	0.5	1.5	⊕	-6.6	-19.1	-38.3	24
3506	3141	2806	2500	2221	1967	0.6	2.2	4.9	9.1	14.8	-0.2	⊕	-3.4	-12.3	0.7	1.7	⊕	-7.2	-20.6	-41.1	24
3841	3379	2966	2594	2259	1960	0.5	2.3	5.3	9.6	15.7	-0.3	⊕	-2.6	-10.0	0.4	1.3	⊕	-6.0	-17.3	-34.9	24
3071	2610	2205	1850	1541	1279	0.8	3.5	8.1	15.0	24.8	-0.1	⊕	-4.5	-15.9	1.0	2.2	⊕	-9.2	-26.6	-54.6	24
3071	2625	2231	1884	1581	1321	0.7	3.3	7.9	14.4	23.7	-0.1	⊕	-4.4	-15.8	1.0	2.2	⊕	-9.2	-26.3	-53.6	24
3812	3280	2809	2393	2027	1706	0.7	2.9	6.7	12.5	20.1	-0.2	⊕	-3.2	-11.9	0.6	1.6	⊕	-7.1	-20.7	-41.8	24
3734	3155	2648	2208	1827	1500	0.9	3.3	7.9	14.7	24.0	-0.2	⊕	-3.6	-13.4	0.7	1.8	⊕	-8.0	-23.3	-47.5	24
3917	3405	2947	2539	2177	1855	0.7	2.8	6.5	12.0	19.3	-0.2	⊕	-3.6	-13.1	0.7	1.8	⊕	-7.7	-22.4	-44.7	24
3927	3396	2923	2503	2131	1805	0.7	3.0	7.1	13.1	21.2	-0.1	⊕	-4.2	-15.0	1.0	2.1	⊕	-8.8	-25.1	-50.5	24
3917	3467	3059	2689	2356	2055	0.6	2.4	5.6	10.3	16.6	-0.2	⊕	-3.5	-12.7	0.7	1.8	⊕	-7.4	-21.4	-42.6	24
4678	4253	3860	3495	3159	2847	0.4	1.8	4.4	8.3	13.2	-0.1	⊕	-3.9	-13.9	0.9	2	⊕	-8	-22.7	-44.7	24
4508	4053	3635	3252	2901	2581	0.6	2.1	4.7	8.7	14	-0.2	⊕	-3.3	-11.8	0.6	1.6	⊕	-6.9	-19.8	-39.4	24
3957	3230	2612	2089	1657	1305	1.0	4.4	10.2	19.4	32.1	-0.1	⊕	-4.5	-16.4	1.1	2.3	⊕	-9.6	-28.6	-59.4	24
3966	3313	2747	2259	1850	1506	1.0	4.2	9.7	18.5	30.0	⊕	-0.1	-5.7	-19.7	0.1	⊕	-5.5	-19.3	-43.9	-80.5	24
2280	1731	1307	1003	804	681	2.3	8.7	20.6	37.6	59.3	0.7	⊕	-11.9	-41.6	3.7	5.9	⊕	-23.8	-70.9	-146.5	24
768	507	354	276	231	198	3.5	14.9	33.2	57.1	85.9	1.2	⊕	-18.0	-63.4	5.7	9	⊕	-36.4	-107.0	-217.6	20
1088	703	528	431	362	308	4.7	17.6	37	62	92.4	2.1	⊕	-25.7	-86.9	8.5	12.8	⊕	-48.4	-139.7	-281.7	20
1902	1449	1085	803	595	453	1.6	6.6	16.2	30.8	51.1	0.1	⊕	-6.5	-23.9	1.7	3.2	⊕	-14.2	-42.8	-91.5	24
978	634	444	350	293	251	3.8	15.9	34.9	59.6	89.2	1.4	⊕	-19.3	-67.7	6.2	9.7	⊕	-38.7	-113.3	-230.2	20
1934	1469	1106	837	652	537	1.9	8	19.2	35.7	57.3	0.5	⊕	-10.1	-35.8	3.1	5	⊕	-20.6	-61.6	-128.8	24
1763	1158	792	607	503	429	3.4	14.7	33.2	57.6	86.8	1.1	⊕	-16.7	-59.6	5.2	8.3	⊕	-34.5	-102.2	-208.7	20
3035	2047	1349	900	660	535	2.4	10.7	26.3	49.7	79.5	0.3	⊕	-8.9	-33.5	2.5	4.4	⊕	-20.2	-63.9	-138.4	24
2280	1731	1307	1003	804	681	2.3	8.7	20.6	37.6	59.3	0.7	⊕	-11.9	-41.6	3.7	5.9	⊕	-23.8	-70.9	-146.5	24
3537	2928	2403	1959	1589	1285	1.2	4.5	10.8	20.2	32.9	0.1	⊕	-6.0	-21.3	1.6	3.0	⊕	-12.3	-36.1	-73.4	24
3537	2666	1974	1446	1065	815	1.7	7.1	17.1	32.6	53.9	0.1	⊕	-6.8	-24.9	1.9	3.4	⊕	-14.7	-45.0	-96.5	24
3537	2928	2403	1959	1589	1285	1.2	4.5	10.8	20.2	32.9	0.1	⊕	-6.0	-21.3	1.6	3.0	⊕	-12.3	-36.1	-73.4	24
3537	2666	1974	1446	1065	815	1.7	7.1	17.1	32.6	53.9	0.1	⊕	-6.8	-24.9	1.9	3.4	⊕	-14.7	-45.0	-96.5	24
4129	3440	2845	2331	1899	1540	0.9	4.1	9.4	17.9	29.4	0.0	⊕	-5.0	-17.6	1.2	2.5	⊕	-10.1	-30.0	-61.5	24
3812	2887	2147	1578	1156	872	1.6	6.6	16.2	30.9	51.5	0.1	⊕	-6.1	-22.8	1.6	3.1	⊕	-13.6	-41.3	-88.7	24
3998	3206	2541	1994	1553	1213	1.3	5.2	12.4	23.3	38.6	0.1	⊕	-5.7	-20.7	1.5	2.9	⊕	-12.1	-35.8	-74.8	24
3837	3105	2486	1974	1557	1230	1.3	5.0	12.1	22.6	37.3	⊕	-0.2	-6.3	-21.9	0.1	⊕	-5.9	-21.3	-48.5	-90.7	24
3966	2978	2194	1597	1163	877	1.7	6.9	16.9	32.2	53.6	0.1	⊕	-6.3	-23.4	1.7	3.1	⊕	-13.9	-42.6	-91.6	24
4163	3161	2357	1735	1269	951	1.5	6.4	15.8	30.0	50.1	0.1	⊕	-5.8	-21.7	1.5	2.9	⊕	-13.0	-39.4	-84.6	24
4905	4021	3264	2633	2111	1693	1.2	4.7	11.5	21.5	35.2	⊕	-0.3	-6.6	-22.6	0.1	⊕	-6.1	-21.9	-49.4	-91.6	24
4698	3859	3139	2540	2043	1647	1.2	4.8	11.6	21.6	35.4	0.2	⊕	-6.4	-23.0	1.8	3.2	⊕	-13.3	-38.6	-79.3	24
4988	3815	2870	2137	1591	1217	1.6	6.6	16.1	30.5	50.5	0.1	⊕	-6.6	-24.2	1.8	3.3	⊕	-14.3	-43.1	-91.8	24
5115	3865	2867	2103	1545	1173	1.7	6.8	16.7	31.9	52.8	0.1	⊕	-6.5	-24.0	1.7	3.2	⊕	-14.2	-43.4	-92.9	24
5115	4202	3419	2760	2216	1774	1.2	4.7	11.1	20.9	34.1	⊕	-0.2	-6.2	-21.3	0.1	⊕	-5.8	-20.8	-47.1	-87.1	24
5115	4215	3443	2789	2248	1806	1.2	4.6	10.9	20.5	33.4	0.1	⊕	-5.8	-20.6	1.5	2.9	⊕	-11.9	-35.1	-71.8	24
5115	3918	2951	2200	1636	1246	1.6	6.5	15.8	29.9	49.7	0.1	⊕	-6.4	-23.5	1.7	3.2	⊕	-13.9	-41.9	-89.2	24
5115	3865	2867	2103	1545	1173	1.7	6.8	16.7	31.9	52.8	0.1	⊕	-6.5	-24.0	1.7	3.2	⊕	-14.2	-43.4	-92.9	24

RIFLE BALLISTICS

Abbreviation Key: BTHP = boat-tail hollow point; BTSP = boat-tail soft point; FN = flat nose; LRN = lead round nose; LSW = lead semi-wadcutter; LW = lead wadcutter; SWC = semi-wadcutter; SWHP = semi-wadcutter hollow point; CB = conical ball reduced power/noise; FP = flat point; CP = copper-plated; L = lead; J = jacketed; HP = hollow-point; RN = round nose; SHP = segmented hollow-point; SP = soft point; FMJ = full metal jacket; TSJ = total synthetic jacket; TMF = toxic-metal-free; TMJ = totally encapsulated bullet; V = vented barrel; HE = high energy (not for use in semi-automatic rifles); † = not for revolvers; ◊ = nickel-plated case; CLM=cartridge length longer than SAAMI max, may not fit in all magazines. *Molycoat: molybdenum disulfide dry film lubricant

Federal Premium® Rifle

	ATT.	USAGE	FEDERAL LOAD NO.	CARTRIDGE	BULLET WEIGHT IN GRAINS	BULLET WEIGHT IN GRAMS	BULLET STYLE	GOLD MEDAL PRIMER	BALLISTIC COEFFICIENT G1	BALLISTIC COEFFICIENT G7	VELOCITY IN FEET PER SECOND (TO NEAREST 10 FPS) MUZZLE	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.
	◊	4	P458T1	**458 WIN. MAGNUM**	400	25.92	TROPHY BONDED BEAR CLAW	X	0.353		2250	2025	1813	1619	1442	1290
	◊	4	P458T2	**458 WIN. MAGNUM**	500	32.4	TROPHY BONDED BEAR CLAW	X	0.282		2090	1822	1580	1369	1198	1076
	◊	4	P458T3	**458 WIN. MAGNUM**	500	32.4	TROPHY BONDED SLEDGEHAMMER SOLID	X	0.328		1950	1729	1528	1352	1205	1096
	◊	4	P458WH	**458 WIN. MAGNUM**	500	32.4	WOODLEIGH HYDRO	X	0.260		2050	1764	1510	1296	1133	1025
	◊	4	P458SA	**458 WIN. MAGNUM**	500	32.4	SWIFT A-FRAME	X	0.361		2090	1878	1683	1503	1345	1212
	◊	4	P458LT1	**458 LOTT**	500	32.4	TROPHY BONDED BEAR CLAW	X	0.282		2300	2016	1755	1520	1319	1161
	◊	4	P458LT2	**458 LOTT**	500	32.4	TROPHY BONDED SLEDGEHAMMER SOLID	X	0.328		2300	2055	1825	1616	1427	1267
	◊	4	P458LWH	**458 LOTT**	500	32.4	WOODLEIGH HYDRO	X	0.260		2250	1947	1672	1430	1232	1090
	◊	4	P470SA	**470 NITRO EXPRESS**	500	32.4	SWIFT A-FRAME	X	0.364		2150	1936	1738	1555	1391	1251
	◊	4	P470T1	**470 NITRO EXPRESS**	500	32.4	TROPHY BONDED BEAR CLAW	X	0.299		2150	1892	1657	1445	1268	1131
	◊	4	P470T2	**470 NITRO EXPRESS**	500	32.4	TROPHY BONDED SLEDGEHAMMER SOLID	X	0.280		2150	1875	1627	1406	1226	1094
	◊	4	P470WH	**470 NITRO EXPRESS**	500	32.4	WOODLEIGH HYDRO	X	0.260		2150	1855	1591	1361	1180	1056
	◊	4	P500NSA	**500 NITRO EXPRESS**	570	36.94	SWIFT A-FRAME	X	0.306		2100	1851	1625	1422	1252	1122
	◊	4	P500NWH	**500 NITRO EXPRESS**	570	36.94	WOODLEIGH HYDRO	X	0.260		2100	1809	1550	1328	1156	1040
FEDERAL PREMIUM VARMINT & PREDATOR																
	◊	1	P204B	**204 RUGER**	32	2.07	NOSLER BALLISTIC TIP	X	0.206		4030	3465	2968	2523	2119	1755
	◊	1	P204C	**204 RUGER**	40	2.59	NOSLER BALLISTIC TIP	X	0.239		3650	3200	2793	2421	2079	1766
	◊	1	P22D	**22 HORNET**	30	1.94	SPEER TNT GREEN	X	0.090		3150	2154	1387	990	828	715
	◊	1	P222D	**222 REM.**	43	2.79	SPEER TNT GREEN	X	0.151		3400	2745	2176	1683	1290	1048
	◊	1	P223F	**223 REM.**	55	3.56	NOSLER BALLISTIC TIP	X	0.266		3240	2870	2528	2212	1918	1653
	◊	1	P224VLKBT1	**224 VALKYRIE**	60	3.89	NOSLER BALLISTIC TIP	X	0.270		3300	2930	2589	2273	1979	1710
	◊	1	P22250D	**22-250 REM.**	43	2.79	SPEER TNT GREEN	X	0.151		4000	3252	2618	2065	1590	1224
	◊	1	P22250F	**22-250 REM.**	55	3.56	NOSLER BALLISTIC TIP	X	0.267		3670	3263	2892	2550	2233	1939
	◊	1	P243H	**243 WIN.**	55	3.56	NOSLER BALLISTIC TIP	X	0.276		3850	3438	3064	2721	2402	2105
	◊	1	P243F	**243 WIN.**	70	4.54	NOSLER BALLISTIC TIP	X	0.309		3450	3113	2802	2511	2238	1983
	◊	1	P2506G	**25-06 REM.**	85	5.51	NOSLER BALLISTIC TIP	X	0.329		3550	3226	2925	2643	2379	2130
FEDERAL PREMIUM GOLD MEDAL®																
		5	GM223M	**223 REM.**	69	4.47	SIERRA MATCHKING BTHP	X	0.301	0.165	2950	2642	2353	2084	1832	1604
		5	GM223BH73	**223 REM.**	73	4.73	BERGER BT TARGET	X	0.348	0.178	2800	2541	2296	2065	1847	1648
		5	GM223M3	**223 REM.**	77	4.99	SIERRA MATCHKING BTHP	X	0.372	0.188	2720	2481	2255	2041	1838	1652
		5	GM224VLKBH2	**224 VALKYRIE**	80.5	5.22	BERGER BT TARGET	X	0.441	0.226	2925	2713	2512	2318	2134	1958
		5	GM224VLK1	**224 VALKYRIE**	90	5.83	SIERRA MATCHKING BTHP	X	0.563	0.274	2700	2542	2388	2241	2098	1961
		5	GM6CRDBH1	**6MM CREEDMOOR**	105	6.8	BERGER HYBRID	X	0.536	0.275	3025	2846	2674	2509	2350	2196
		5	GM6CRDM1	**6MM CREEDMOOR**	107	6.93	SIERRA MATCHKING BTHP	X	0.547	0.271	3000	2826	2658	2497	2341	2191
NEW		5	GM6CRDLRHT1	**6MM CREEDMOOR**	109	7.06	BERGER HYBRID	X	0.568	0.292	2975	2808	2647	2492	2342	2197
		5	GM65GDLBH130	**6.5 GRENDEL**	130	8.42	BERGER AR HYBRID OTM	X	0.560	0.287	2400	2251	2108	1969	1836	1711
		5	GM65CRDBH130	**6.5 CREEDMOOR**	130	8.42	BERGER HYBRID OTM	X	0.560	0.287	2825	2661	2503	2351	2204	2062
		5	GM65CRD1	**6.5 CREEDMOOR**	140	9.07	SIERRA MATCHKING BTHP	X	0.535	0.261	2675	2509	2350	2196	2048	1905
NEW		5	GM65CRDBH2	**6.5 CREEDMOOR**	140	9.07	BERGER HYBRID	X	0.607	0.311	2725	2577	2434	2295	2161	2031
		5	GM65PRCBH1	**6.5 PRC**	140	9.07	BERGER HYBRID	X	0.607	0.311	2925	2770	2621	2476	2336	2201
		5	GM308M	**308 WIN.**	168	10.89	SIERRA MATCHKING BTHP	X	0.462	0.224	2650	2460	2277	2103	1936	1778
		5	GM308M2	**308 WIN.**	175	11.34	SIERRA MATCHKING BTHP	X	0.505	0.250	2600	2427	2262	2102	1949	1803
		5	GM308BH185	**308 WIN.**	185	11.99	BERGER JUGGERNAUT OTM	X	0.552	0.283	2600	2442	2289	2143	2001	1864
		5	GM3006M	**30-06 SPRING.**	168	10.89	SIERRA MATCHKING BTHP	X	0.463	0.224	2700	2508	2324	2148	1980	1819
		5	GM300WM	**300 WIN. MAGNUM**	190	12.31	SIERRA MATCHKING BTHP	X	0.533	0.275	2900	2725	2557	2395	2239	2089
		5	GM300WMBH1	**300 WIN. MAGNUM**	215	13.93	BERGER HYBRID	X	0.691	0.354	2825	2692	2563	2437	2315	2196
		5	GM300NMBH1	**300 NORMA MAG**	215	13.93	BERGER HYBRID	X	0.691	0.354	2925	2789	2657	2528	2404	2283
		5	GM338LM	**338 LAPUA MAG**	250	16.2	SIERRA MATCHKING BTHP	X	0.587	0.318	2950	2789	2634	2484	2339	2199
		5	GM338LM2	**338 LAPUA MAG**	300	19.44	SIERRA MATCHKING BTHP	X	0.768	0.387	2580	2466	2355	2248	2143	2040

Usage Key: 1 = Varmints, predators, small game; 2 = medium game; 3 = large, heavy game; 4 = dangerous game; 5 = target shooting, training, practice; 6 = self defense; 7 = competition shooting; 8 = pest control; 9 = low noise, training, specialty.

These trajectory tables were calculated by computer using the best available data for each load. Trajectories are representative of the nominal behavior of each load at standard conditions (59°F temperature; barometric pressure of 29.53 inches; altitude at sea level). Shooters are cautioned that actual trajectories may differ due to variations in altitude, atmospheric conditions, guns, sights and ammunition.

ENERGY IN FOOT-POUNDS (TO NEAREST 5 FOOT-POUNDS)						WIND DRIFT IN INCHES 10 MPH CROSSWIND					HEIGHT OF BULLET TRAJECTORY IN INCHES ABOVE OR BELOW LINE OF SIGHT IF ZEROED AT ⊕ YARDS. SIGHTS 1.5 INCHES ABOVE BORE LINE.										TEST BARREL LENGTH
												AVERAGE RANGE				LONG RANGE					
MUZZLE	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.	50 YDS.	100 YDS.	200 YDS.	300 YDS.	50 YDS.	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.	INCHES
4496	3641	2919	2327	1846	1478	1.3	5.3	12.9	23.8	39.2	0.2	⊕	-7.0	-24.8	1.9	3.5	⊕	-14.3	-41.6	-86.3	24
4849	3684	2773	2080	1594	1285	1.7	7.7	18.3	34.4	55.8	0.4	⊕	-9.2	-32.2	2.7	4.6	⊕	-18.5	-55.8	-117.6	24
4221	3320	2593	2028	1613	1333	1.8	7.2	16.9	31.2	50.2	0.6	⊕	-10.2	-35.3	3.1	5.1	⊕	-20.1	-59.2	-122.6	24
4665	3455	2530	1864	1425	1167	2.0	8.6	20.7	38.7	62.0	0.5	⊕	-9.8	-35.0	2.9	4.9	⊕	-20.4	-61.6	-129.9	24
4849	3916	3144	2508	2009	1631	1.2	5.9	13.7	25.7	41.8	⊕	-0.7	-9.9	-31.1	0.3	⊕	-8.5	-29.2	-65.5	-121.1	24
5873	4514	3419	2566	1933	1496	1.6	6.7	16.1	30.5	50.3	0.2	⊕	-7.1	-25.6	2.0	3.6	⊕	-14.9	-45.2	-95.7	24
5873	4689	3699	2900	2260	1782	1.4	5.6	13.6	25.2	41.7	0.2	⊕	-6.7	-24.1	1.8	3.3	⊕	-14.1	-41.2	-86.0	24
5620	4209	3105	2269	1686	1320	1.7	7.6	18.2	34.7	56.9	0.2	⊕	-7.8	-28.0	2.2	3.9	⊕	-16.3	-50.0	-107.0	24
5132	4163	3353	2685	2148	1736	1.2	5.5	13.2	24.4	39.9	⊕	-0.6	-9.0	-29.0	0.3	⊕	-7.9	-27.3	-61.0	-113.0	24
5132	3973	3047	2318	1784	1419	1.5	7.0	16.4	31.0	50.6	0.3	⊕	-8.4	-29.3	2.4	4.2	⊕	-16.7	-50.5	-106.1	24
5132	3902	2937	2195	1669	1329	1.6	7.5	17.8	33.5	54.7	0.3	⊕	-8.6	-30.2	2.5	4.3	⊕	-17.3	-52.6	-111.3	24
5132	3819	2809	2057	1546	1238	1.8	8.1	19.4	36.7	59.6	0.3	⊕	-8.8	-31.3	2.5	4.4	⊕	-18.1	-55.4	-117.8	24
5581	4336	3342	2559	1985	1594	1.5	7.0	16.5	31.0	50.5	⊕	-0.7	-10.2	-32.8	0.3	⊕	-8.8	-30.7	-70.1	-131.9	24
5581	4143	3041	2232	1691	1369	1.8	8.4	20.1	37.7	60.8	0.4	⊕	-9.3	-33.1	2.7	4.6	⊕	-19.2	-58.3	-123.7	24
1154	853	626	452	319	219	1	4.4	10.6	20.4	34.6	-0.4	⊕	-1.4	-6.8	-0.1	0.7	⊕	-4.7	-14.9	-33.1	24
1183	909	693	520	384	277	1	4.2	10.0	19.1	32.2	-0.4	⊕	-1.9	-8.3	0.1	1.0	⊕	-5.4	-16.9	-36.5	24
661	309	128	65	46	34	3.5	17.5	46.9	88.9	140.9	-0.1	⊕	-6.6	-32.7	1.5	3.3	⊕	-22.8	-78.7	-179.7	24
1104	719	452	270	159	105	1.8	7.9	20.0	40.4	70.7	-0.3	⊕	-3.2	-14.0	0.5	1.6	⊕	-9.2	-31.4	-75.9	24
1282	1006	781	597	449	333	1.0	4.3	10.4	19.6	33.2	-0.3	⊕	-2.8	-11.0	0.4	1.4	⊕	-6.8	-20.8	-44.6	24
1451	1144	893	688	522	390	1.0	4.2	9.9	18.8	31.6	-0.3	⊕	-2.6	-10.4	0.3	1.3	⊕	-6.5	-19.8	-42.1	24
1528	1010	654	407	241	143	1.5	6.4	15.9	31.9	56.7	-0.4	⊕	-1.8	-8.9	0.0	0.9	⊕	-6.1	-20.8	-50.5	24
1645	1300	1021	794	609	459	0.9	3.7	8.7	16.5	27.4	-0.4	⊕	-1.8	-7.7	0.1	0.9	⊕	-5.1	-15.5	-33.0	24
1810	1444	1147	904	704	541	0.8	3.4	7.9	14.9	24.7	-0.4	⊕	-1.5	-6.6	-0.1	0.7	⊕	-4.4	-13.6	-28.9	24
1850	1507	1220	980	778	611	0.8	3.4	8.0	15.0	24.8	-0.3	⊕	-2.1	-8.6	0.2	1.0	⊕	-5.5	-16.5	-34.6	24
2378	1964	1614	1319	1068	856	0.7	3.0	7.2	13.3	22.0	-0.4	⊕	-1.8	-7.8	0.1	0.9	⊕	-5.0	-15.0	-31.2	24
1333	1069	848	665	514	394	1.0	4.3	10.3	19.3	32.4	-0.2	⊕	-3.5	-13.3	0.7	1.7	⊕	-8.1	-24.1	-51.0	24
1271	1046	854	691	553	440	1.0	3.9	9.4	17.4	29.1	-0.1	⊕	-3.9	-14.4	0.8	1.9	⊕	-8.6	-25.2	-52.6	24
1265	1053	869	712	578	466	0.9	3.8	9.0	16.7	27.9	-0.1	⊕	-4.2	-15.2	0.9	2.1	⊕	-9.0	-26.1	-54.1	24
1529	1316	1127	961	814	685	0.7	2.9	6.7	12.5	20.1	-0.2	⊕	-3.2	-11.9	0.6	1.6	⊕	-7.1	-20.8	-42.0	24
1457	1291	1140	1003	880	768	0.6	2.4	5.7	10.6	16.9	-0.1	⊕	-3.8	-13.9	0.8	1.9	⊕	-8.1	-23.2	-45.9	24
2133	1889	1668	1468	1287	1124	0.5	2.2	5.1	9.4	15.3	-0.2	⊕	-2.8	-10.5	0.5	1.4	⊕	-6.2	-18.0	-36.1	24
2138	1897	1679	1481	1302	1140	0.5	2.2	5.2	9.3	15.1	-0.2	⊕	-2.9	-10.7	0.5	1.4	⊕	-6.4	-18.2	-36.6	24
2142	1908	1696	1503	1327	1168	0.5	2.2	5	9	14.6	-0.2	⊕	-2.9	-10.8	0.5	1.5	⊕	-6.4	-18.3	-36.8	24
1663	1463	1282	1119	973	845	0.8	3.1	6.9	12.5	20.6	0.1	⊕	-5.4	-18.6	1.4	2.7	⊕	-10.4	-29.7	-59.8	24
2303	2044	1809	1595	1402	1227	0.6	2.3	5.4	10.0	16.1	-0.2	⊕	-3.4	-12.3	0.7	1.7	⊕	-7.2	-20.9	-41.6	24
2224	1957	1716	1499	1303	1128	0.6	2.6	6.2	11.3	18.1	-0.1	⊕	-4.0	-14.4	0.9	2.0	⊕	-8.4	-23.9	-47.5	24
2308	2064	1841	1637	1452	1283	0.6	2.2	5.2	9.6	15.4	-0.1	⊕	-3.7	-13.3	0.8	1.9	⊕	-7.7	-22.2	-44	24
2659	2386	2135	1906	1696	1506	0.5	2.1	4.8	8.6	13.9	-0.2	⊕	-3.1	-11.1	0.6	1.5	⊕	-6.6	-18.7	-37.5	24
2619	2257	1935	1650	1398	1179	0.7	3.1	7.4	13.4	22.0	-0.1	⊕	-4.3	-15.3	1.0	2.1	⊕	-8.9	-25.5	-51.5	24
2627	2290	1987	1717	1476	1264	0.6	2.9	6.9	12.5	20.3	-0.1	⊕	-4.4	-15.7	1.0	2.2	⊕	-9.1	-25.8	-51.8	24
2777	2449	2153	1886	1644	1428	0.6	2.6	6.2	11.3	18.2	-0.1	⊕	-4.3	-15.4	1.0	2.2	⊕	-8.9	-25.2	-50.0	24
2719	2346	2015	1721	1462	1234	0.7	3.0	7.2	13.2	21.3	-0.1	⊕	-4.0	-14.6	0.9	2.0	⊕	-8.5	-24.5	-49.2	24
3548	3133	2758	2420	2115	1841	0.6	2.4	5.5	10.1	16.4	-0.2	⊕	-3.2	-11.6	0.6	1.6	⊕	-6.9	-19.9	-39.9	24
3810	3459	3135	2835	2558	2303	0.5	1.9	4.3	7.8	12.7	-0.2	⊕	-3.3	-11.8	0.7	1.7	⊕	-6.9	-19.7	-39.1	24
4084	3713	3369	3052	2758	2487	0.4	1.9	4.1	7.4	12	-0.2	⊕	-3	-10.9	0.5	1.5	⊕	-6.4	-18.2	-36.0	24
4830	4318	3851	3426	3037	2685	0.5	2.1	4.9	8.8	14.3	-0.2	⊕	-3.0	-11.0	0.5	1.5	⊕	-6.5	-18.5	-37.1	24
4434	4052	3696	3365	3058	2772	0.4	1.8	4.3	8.0	12.8	-0.1	⊕	-4.2	-14.7	1.0	2.1	⊕	-8.5	-23.8	-46.6	24

RIFLE BALLISTICS

Abbreviation Key: BTHP = boat-tail hollow point; BTSP = boat-tail soft point; FN = flat nose; LRN = lead round nose; LSW = lead semi-wadcutter; LW = lead wadcutter; SWC = semi-wadcutter; SWHP = semi-wadcutter hollow point; CB = conical ball reduced power/noise; FP = flat point; CP = copper-plated; L = lead; J = jacketed; HP = hollow-point; RN = round nose; SHP = segmented hollow-point; SP = soft point; FMJ = full metal jacket; TSJ = total synthetic jacket; TMF = toxic-metal-free; TMJ = totally encapsulated bullet; V = vented barrel; HE = high energy (not for use in semi-automatic rifles); † = not for revolvers; ◊ = nickel-plated case; CLM=cartridge length longer than SAAMI max, may not fit in all magazines. *Molycoat: molybdenum disulfide dry film lubricant

Federal® Rifle

ATT	USAGE	FEDERAL LOAD NO.	CARTRIDGE	BULLET WEIGHT IN GRAINS	BULLET WEIGHT IN GRAMS	BULLET STYLE	VELOCITY IN FEET PER SECOND (TO NEAREST 10 FPS) MUZZLE	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.
FEDERAL POWER•SHOK®												
	1	222A	**222 REM.**	50	3.24	SP	3140	2626	2166	1755	1408	1152
	1	223A	**223 REM.**	55	3.56	SP	3240	2800	2400	2035	1705	1420
	2	223L	**223 REM.**	64	4.15	SP	3050	2682	2342	2027	1740	1485
	1	22250A	**22-250 REM.**	55	3.56	SP	3650	3136	2679	2264	1888	1558
	2	243AS	**243 WIN.**	80	5.18	SP	3330	3051	2790	2543	2309	2088
	2	24385LFA	**243 WIN.**	85	5.51	COPPER HP	3200	2783	2403	2054	1737	1459
	2	243B	**243 WIN.**	100	6.48	SP	2960	2697	2448	2213	1991	1783
	2	6B	**6MM REM.**	100	6.48	SP	3100	2827	2571	2329	2100	1883
	2	2506BS	**25-06 REM.**	117	7.58	SP	3030	2767	2519	2283	2061	1851
	2	65CRDB	**6.5 CREEDMOOR**	140	9.07	SP	2725	2522	2327	2142	1964	1796
	2	6555B	**6.5X55 SWEDISH**	140	9.07	SP	2650	2450	2258	2075	1900	1736
	2	270A	**270 WIN.**	130	8.42	SP	3060	2803	2560	2329	2111	1904
	2	270130LFA	**270 WIN.**	130	8.42	COPPER HP	3060	2729	2422	2135	1867	1625
	2	270B	**270 WIN.**	150	9.72	SPRN	2830	2486	2166	1871	1606	1374
	2	270WSME	**270 WIN. SHORT MAGNUM**	130	8.42	SP	3250	2978	2722	2480	2251	2034
	2	7B	**7MM MAUSER**	140	9.07	SP	2660	2454	2256	2069	1889	1722
	2	7A	**7MM MAUSER**	175	11.34	SPRN	2390	2090	1812	1564	1348	1177
	2	708CS	**7MM-08 REM.**	150	9.72	SP	2650	2438	2235	2043	1859	1689
	2	280B	**280 REM.**	150	9.72	SP	2890	2667	2455	2253	2060	1877
	2	7RA	**7MM REM. MAGNUM**	150	9.72	SP	3110	2841	2587	2347	2120	1905
	3	7RB	**7MM REM. MAGNUM**	175	11.34	SP	2860	2646	2441	2246	2060	1882
	2	7WSME	**7MM WIN. SHORT MAGNUM**	150	9.72	SP	3100	2831	2578	2338	2112	1898
	1	30CA	**30 CARBINE**	110	7.13	SPRN	1990	1564	1231	1031	919	839
	2	300BLK120LFA	**300 BLACKOUT**	120	7.78	COPPER HP	2100	1799	1533	1307	1136	1024
	2	300BLKB	**300 BLACKOUT**	150	9.72	SOFT POINT	1900	1685	1490	1320	1181	1079
	2	76239B	**7.62X39MM SOVIET**	123	7.97	SP	2350	2055	1783	1539	1329	1164
	1	3030C	**30-30 WIN.**	125	8.1	HP	2570	2083	1656	1309	1079	952
	2	3030A	**30-30 WIN.**	150	9.72	SPFN	2390	2019	1686	1399	1179	1037
	2	3030B	**30-30 WIN.**	170	11.02	SPRN	2200	1894	1619	1380	1191	1060
	2	300A	**300 SAVAGE**	150	9.72	SP	2630	2353	2094	1850	1629	1430
	2	300B	**300 SAVAGE**	180	11.66	SP	2350	2137	1934	1745	1571	1412
	2	308A	**308 WIN.**	150	9.72	SP	2820	2532	2261	2007	1771	1557
	2	308150LFA	**308 WIN.**	150	9.72	COPPER HP	2820	2497	2195	1915	1661	1434
	2	308B	**308 WIN.**	180	11.66	SP	2570	2345	2131	1929	1740	1565
	1	3006CS	**30-06 SPRING.**	125	8.1	SP	3140	2779	2446	2136	1850	1593
	2	3006A	**30-06 SPRING.**	150	9.72	SP	2910	2616	2340	2081	1839	1619
	2	3006150LFA	**30-06 SPRING.**	150	9.72	COPPER HP	2910	2580	2273	1988	1725	1491
	2	3006B	**30-06 SPRING.**	180	11.66	SP	2700	2470	2252	2045	1848	1667
	2	3006HS	**30-06 SPRING.**	220	14.26	SP	2400	2120	1859	1623	1412	1238
	2	300WGS	**300 WIN. MAGNUM**	150	9.72	SP	3150	2898	2661	2435	2221	2017
	3	300WBS	**300 WIN. MAGNUM**	180	11.66	SP	2960	2746	2542	2346	2160	1982
	3	300W180LFA	**300 WIN. MAGNUM**	180	11.66	COPPER HP	2960	2693	2441	2203	1979	1769
	3	300WSMC	**300 WIN. SHORT MAGNUM**	180	11.66	SP	2980	2736	2504	2284	2075	1877
	3	300WSM180LFA	**300 WIN. SHORT MAGNUM**	180	11.66	COPPER HP	2950	2684	2432	2195	1971	1761
	2	303B	**303 BRITISH**	150	9.72	SP	2690	2442	2208	1988	1780	1590
	2	303AS	**303 BRITISH**	180	11.66	SP	2460	2206	1966	1744	1542	1363
	2	32A	**32 WIN. SPECIAL**	170	11.02	SPFN	2250	1923	1630	1376	1179	1047
	2	338FJ	**338 FEDERAL**	200	12.96	SP	2700	2484	2278	2082	1895	1721
	2	8A	**8MM MAUSER**	170	11.02	SP	2250	2025	1814	1620	1444	1292
	2	C357G	**357 MAGNUM**	180	11.66	HP	1550	1282	1095	982	904	841
	2	35A	**35 REM.**	200	12.96	SPRN	2080	1697	1374	1138	999	910
	2	350LA	**350 LEGEND**	180	11.66	SP	2100	1793	1520	1292	1123	1013
	3	375A	**375 H&H MAGNUM**	270	17.5	SP	2690	2418	2162	1922	1700	1500
	3	375B	**375 H&H MAGNUM**	300	19.44	SP	2530	2267	2021	1790	1581	1394
	2	C44A	**44 REM. MAGNUM**	240	15.55	HP	1760	1387	1123	978	885	813
	2	4570AS	**45-70 GOVERNMENT**	300	19.44	HP	1850	1612	1400	1226	1097	1010
	2	450BMB	**450 BUSHMASTER**	300	19.44	SP	1900	1602	1346	1153	1028	945
FEDERAL® NON-TYPICAL												
	2	243DT100	**243 WIN.**	100	6.48	SP	2960	2697	2448	2213	1991	1783
	2	65CDT1	**6.5 CREEDMOOR**	140	9.07	SP	2725	2522	2327	2142	1964	1796
	2	270DT130	**270 WIN.**	130	8.42	SP	3060	2803	2560	2329	2111	1904
	2	270DT150	**270 WIN.**	150	9.72	SPRN	2830	2486	2166	1871	1606	1374
	2	3030DT150	**30-30 WIN.**	150	9.72	SPFN	2390	2019	1686	1399	1179	1037
	2	708DT1	**7MM-08 REM.**	150	9.72	SP	2650	2438	2235	2043	1859	1689
	2	3030DT170	**30-30 WIN.**	170	11.02	SPRN	2200	1894	1619	1380	1191	1060
	2	308DT150	**308 WIN.**	150	9.72	SP	2820	2532	2261	2007	1771	1557
	2	308DT180	**308 WIN.**	180	11.66	SP	2570	2345	2131	1929	1740	1565
	2	3006DT150	**30-06 SPRING.**	150	9.72	SP	2910	2616	2340	2081	1839	1619
	2	3006DT180	**30-06 SPRING.**	180	11.66	SP	2700	2470	2252	2045	1848	1667
	2	7RDT150	**7MM REM. MAGNUM**	150	9.72	SP	3110	2841	2587	2347	2120	1905
	2	300WDT150	**300 WIN. MAGNUM**	150	9.72	SP	3150	2898	2661	2435	2221	2017
	3	300WDT180	**300 WIN. MAGNUM**	180	11.66	SP	2960	2746	2542	2346	2160	1982
	2	350LDT1	**350 LEGEND**	180	11.66	SP	2100	1793	1520	1292	1123	1013

Usage Key: 1 = Varmints, predators, small game; 2 = medium game; 3 = large, heavy game; 4 = dangerous game; 5 = target shooting, training, practice; 6 = self defense; 7 = competition shooting; 8 = pest control; 9 = low noise, training, specialty.

These trajectory tables were calculated by computer using the best available data for each load. Trajectories are representative of the nominal behavior of each load at standard conditions (59°F temperature; barometric pressure of 29.53 inches; altitude at sea level). Shooters are cautioned that actual trajectories may differ due to variations in altitude, atmospheric conditions, guns, sights and ammunition.

ENERGY IN FOOT-POUNDS (TO NEAREST 5 FOOT-POUNDS)						WIND DRIFT IN INCHES 10 MPH CROSSWIND						HEIGHT OF BULLET TRAJECTORY IN INCHES ABOVE OR BELOW LINE OF SIGHT IF ZEROED AT ⊕ YARDS. SIGHTS 1.5 INCHES ABOVE BORE LINE. AVERAGE RANGE | LONG RANGE								TEST BARREL LENGTH
MUZZLE	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.	50 YDS.	100 YDS.	200 YDS.	300 YDS.	50 YDS.	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.	INCHES
1095	765	521	342	220	147	1.6	6.9	17.2	34.0	58.9	-0.2	⊕	-3.6	-14.8	0.7	1.8	⊕	-9.3	-30.4	-70.1	24
1282	957	703	505	355	246	1.2	5.3	12.9	25.0	42.6	-0.3	⊕	-3.0	-12.0	0.5	1.5	⊕	-7.6	-23.8	-52.3	24
1322	1022	779	584	430	313	1.2	4.9	11.8	22.6	38.2	-0.2	⊕	-3.3	-13.1	0.6	1.7	⊕	-8.1	-24.7	-53.2	24
1627	1201	876	626	435	296	1.2	4.9	11.9	22.9	39.4	-0.4	⊕	-2.1	-9.0	0.1	1.0	⊕	-5.9	-18.7	-41.8	24
1970	1654	1382	1148	947	774	0.7	3.0	6.9	12.8	21.1	-0.3	⊕	-2.2	-9.0	0.2	1.1	⊕	-5.6	-16.6	-34.2	24
1933	1462	1090	796	569	402	1.2	5.1	12.4	23.9	40.5	-0.3	⊕	-3.0	-12.1	0.5	1.5	⊕	-7.6	-23.6	-51.4	24
1945	1615	1331	1087	880	706	0.9	3.6	8.4	15.8	25.9	-0.2	⊕	-3.3	-12.4	0.6	1.6	⊕	-7.5	-22.1	-45.4	24
2134	1775	1468	1204	979	787	0.8	3.4	7.9	14.8	24.1	-0.3	⊕	-2.9	-11.0	0.5	1.4	⊕	-6.7	-19.9	-40.7	24
2385	1989	1648	1354	1104	890	0.8	3.4	8	14.9	24.4	-0.2	⊕	-3.1	-11.6	0.5	1.5	⊕	-7.0	-20.8	-42.5	24
2308	1977	1683	1426	1199	1003	0.8	3.1	7.5	13.8	22.5	-0.1	⊕	-4	-14.4	0.9	2	0	-8.5	-24.4	-49.4	24
2183	1865	1585	1338	1122	937	0.7	3.3	7.8	14.3	23.6	-0.1	⊕	-4.3	-15.5	1.0	2.2	⊕	-9.0	-25.9	-52.8	24
2703	2267	1891	1566	1286	1046	0.8	3.2	7.6	14.2	23.1	-0.2	⊕	-3.0	-11.2	0.5	1.5	⊕	-6.7	-20.0	-40.9	24
2703	2150	1693	1315	1006	763	1.0	4.3	10.3	19.3	32.6	-0.2	⊕	-3.2	-12.4	0.6	1.6	⊕	-7.6	-22.7	-48.4	24
2667	2057	1563	1166	859	629	1.3	5.4	12.8	24.9	41.7	-0.1	⊕	-4.2	-15.7	0.9	2.1	⊕	-9.4	-29.2	-62.6	24
3049	2559	2138	1775	1462	1194	0.7	3.0	7.1	13.2	21.7	-0.3	⊕	-2.4	-9.6	0.3	1.2	⊕	-5.9	-17.5	-36.0	24
2199	1871	1583	1330	1109	922	0.8	3.4	8.0	14.7	24.3	-0.1	⊕	-4.3	-15.5	1.0	2.1	⊕	-9.0	-25.9	-53.1	24
2219	1697	1276	950	706	538	1.6	6.5	16.0	30.2	50.2	0.1	⊕	-6.5	-23.7	1.7	3.2	⊕	-14.1	-42.4	-90.4	24
2339	1979	1664	1390	1151	950	0.8	3.5	8.3	15.3	25.4	-0.1	⊕	-4.4	-15.7	1.0	2.2	⊕	-9.2	-26.5	-54.4	24
2782	2369	2008	1690	1414	1173	0.8	3.1	7.3	13.6	22.0	-0.2	⊕	-3.4	-12.6	0.7	1.7	⊕	-7.5	-21.9	-44.2	24
3221	2687	2229	1834	1497	1209	0.8	3.3	7.7	14.5	23.6	-0.3	⊕	-2.8	-10.8	0.4	1.4	⊕	-6.6	-19.6	-40.1	24
3178	2720	2316	1961	1649	1377	0.8	3.0	7.2	13.3	21.4	-0.2	⊕	-3.5	-12.8	0.7	1.7	⊕	-7.6	-22.1	-44.6	24
3200	2669	2213	1821	1486	1199	0.8	3.3	7.7	14.5	23.7	-0.3	⊕	-2.9	-10.9	0.5	1.4	⊕	-6.6	-19.7	-40.4	24
967	597	370	260	206	172	3.5	15.1	35.8	63.7	97.4	0.7	⊕	-13.0	-49.1	3.9	6.5	⊕	-29.7	-90.9	-190.2	18
1175	863	626	455	344	279	1.9	8.7	20.9	39.2	63.2	0.4	⊕	-9.4	-33.7	2.7	4.7	⊕	-19.6	-59.9	-127.1	16
1202	946	739	580	465	388	1.9	7.4	17.4	31.9	51	0.6	⊕	-10.8	-37.3	3.3	5.4	⊕	-21.2	-62.4	-128.7	24
1508	1153	868	646	482	370	1.6	6.7	16.2	30.7	50.8	0.2	⊕	-6.7	-24.6	1.8	3.4	⊕	-14.5	-43.9	-93.3	20
1833	1204	761	476	323	252	2.3	10.2	25.6	49.9	81.6	0.1	⊕	-6.7	-26.4	1.7	3.3	⊕	-16.4	-53.7	-120.6	24
1902	1358	947	652	463	358	2.0	8.6	20.8	40.0	65.9	0.1	⊕	-7.2	-26.7	1.9	3.6	⊕	-15.9	-50.1	-109.8	24
1827	1354	990	719	535	424	1.8	8.1	19.4	36.7	59.9	0.3	⊕	-8.4	-30	2.4	4.2	⊕	-17.4	-53.5	-114.4	24
2304	1844	1460	1140	884	681	1.1	4.9	11.5	22.1	36.4	-0.1	⊕	-4.8	-17.5	1.2	2.4	⊕	-10.2	-31.1	-64.8	24
2207	1825	1495	1217	986	797	1.2	4.5	10.9	20.5	33.3	0.1	⊕	-6.1	-21.6	1.6	3.0	⊕	-12.5	-36.5	-74.4	24
2648	2134	1702	1341	1044	807	1.1	4.4	10.4	19.7	32.9	-0.1	⊕	-3.9	-14.7	0.8	2.0	⊕	-8.8	-26.3	-55.2	24
2648	2076	1605	1221	918	685	1.2	5.0	12.0	23.0	38.4	-0.1	⊕	-4.1	-15.4	0.9	2.1	⊕	-9.2	-28.3	-59.9	24
2640	2197	1816	1486	1209	979	0.9	4.1	9.4	17.8	29.4	0.0	⊕	-4.9	-17.3	1.2	2.4	⊕	-10.0	-29.5	-60.7	24
2736	2143	1660	1267	949	704	1.0	4.5	10.8	20.4	34.6	-0.3	⊕	-3.0	-11.9	0.5	1.5	⊕	-7.4	-22.3	-48.0	24
2820	2279	1823	1442	1126	873	1.0	4.2	10.0	18.7	31.4	-0.2	⊕	-3.6	-13.6	0.7	1.8	⊕	-8.2	-24.4	-51.3	24
2820	2217	1721	1316	991	740	1.2	4.8	11.5	21.9	36.7	-0.2	⊕	-3.7	-14.3	0.8	1.9	⊕	-8.7	-26.2	-55.7	24
2913	2439	2026	1671	1365	1111	0.9	3.7	8.8	16.2	27.0	-0.1	⊕	-4.2	-15.3	1.0	2.1	⊕	-9.0	-26.2	-54.0	24
2813	2196	1688	1286	974	748	1.5	5.9	14.6	27.3	45.4	0.1	⊕	-6.2	-22.7	1.7	3.1	⊕	-13.5	-40.0	-84.5	24
3305	2798	2358	1975	1643	1355	0.7	3.0	6.9	12.9	21.1	-0.3	⊕	-2.7	-10.2	0.4	1.3	⊕	-6.2	-18.3	-37.5	24
3502	3013	2582	2200	1864	1570	0.7	2.9	6.6	12.3	20.0	-0.2	⊕	-3.1	-11.6	0.6	1.6	⊕	-6.9	-20.3	-41.0	24
3502	2898	2382	1940	1565	1250	0.9	3.6	8.6	16.0	26.4	-0.2	⊕	-3.3	-12.5	0.6	1.6	⊕	-7.5	-22.2	-45.8	24
3549	2991	2506	2084	1721	1408	0.8	3.2	7.6	14.2	23.0	-0.2	⊕	-3.2	-11.9	0.6	1.6	⊕	-7.1	-21.0	-42.7	24
3478	2878	2364	1925	1552	1240	0.9	3.6	8.6	16.1	26.5	-0.2	⊕	-3.3	-12.6	0.6	1.7	⊕	-7.6	-22.4	-46.2	24
2410	1987	1624	1316	1055	842	0.9	4.1	9.7	18.0	30.0	-0.1	⊕	-4.4	-15.9	1.0	2.2	⊕	-9.3	-27.4	-56.9	24
2418	1944	1545	1215	950	742	1.2	5.1	12.2	23.0	37.9	0.1	⊕	-5.7	-20.4	1.5	2.8	⊕	-11.9	-35.3	-73.6	24
1911	1395	1002	715	524	414	1.8	8.4	20.1	38.3	62.5	0.2	⊕	-8.1	-29.3	2.3	4.0	⊕	-17.2	-53.1	-114.4	24
3237	2740	2304	1824	1594	1313	0.8	3.4	8.2	15.0	24.9	-0.1	⊕	-4.1	-15.0	0.9	2.1	⊕	-8.8	-25.5	-52.2	24
1911	1548	1242	991	786	630	1.3	5.3	12.8	23.7	39.1	0.2	⊕	-6.9	-24.8	1.9	3.5	⊕	-14.3	-41.6	-86.1	24
960	657	479	385	326	283	3.5	14.2	31.2	53.4	79.9	1.5	⊕	-19.7	-68.1	6.4	9.9	⊕	-38.5	-111.9	-225.7	18
1921	1278	838	575	443	368	2.8	12.0	29.1	53.5	83.6	0.5	⊕	-10.7	-40.2	3.2	5.4	⊕	-24.1	-75.1	-159.2	24
1762	1284	924	668	504	410	2	8.9	21.6	40.4	64.9	0.4	⊕	-9.4	-34.1	2.8	4.7	⊕	-20	-61	-129.6	16
4338	3505	2803	2214	1733	1348	1.0	4.6	10.7	20.4	33.9	-0.1	⊕	-4.5	-16.4	1.0	2.3	⊕	-9.6	-28.9	-60.3	24
4263	3424	2720	2135	1665	1294	1.2	5.0	11.8	22.5	37.1	0.0	⊕	-5.3	-19.1	1.3	2.6	⊕	-11.1	-33.5	-69.5	24
1651	1025	672	509	417	352	3.9	16.5	37.1	64.0	96.4	1.0	⊕	-16.8	-60.9	5.2	8.4	⊕	-35.6	-106.0	-217.7	20
2280	1730	1305	1001	802	679	2.3	8.8	20.7	37.8	59.5	0.7	⊕	-11.9	-41.7	3.7	5.9	⊕	-23.9	-71.0	-146.8	24
2405	1708	1208	885	703	595	2.7	10.8	25.6	46.5	72.4	0.7	⊕	-12.2	-43.7	3.7	6.1	⊕	-25.4	-77.1	-160.6	24
1945	1615	1331	1087	880	706	0.9	3.6	8.4	15.8	25.9	-0.2	⊕	-3.3	-12.4	0.6	1.6	⊕	-7.5	-22.1	-45.4	24
2308	1977	1683	1426	1199	1003	0.8	3.1	7.5	13.8	22.5	-0.1	⊕	-4.0	-14.4	0.9	2.0	⊕	-8.5	-24.4	-49.4	24
2703	2267	1891	1566	1286	1046	0.8	3.2	7.6	14.2	23.1	-0.2	⊕	-3.0	-11.2	0.5	1.5	⊕	-6.7	-20.0	-40.9	24
2667	2057	1563	1166	859	629	1.3	5.4	12.8	24.9	41.7	-0.1	⊕	-4.2	-15.7	0.9	2.1	⊕	-9.4	-29.2	-62.6	24
1902	1358	947	652	463	358	2.0	8.6	20.8	40.0	65.9	0.1	⊕	-7.2	-26.7	1.9	3.6	⊕	-15.9	-50.1	-109.8	24
2339	1979	1664	1390	1151	950	0.8	3.5	8.3	15.3	25.4	-0.1	⊕	-4.4	-15.7	1	2.2	⊕	-9.2	-26.5	-54.4	24
1827	1354	990	719	535	424	1.8	8.1	19.4	36.7	59.9	0.3	⊕	-8.4	-30	2.4	4.2	⊕	-17.4	-53.5	-114.4	24
2648	2134	1702	1341	1044	807	1.1	4.4	10.4	19.7	32.9	-0.1	⊕	-3.9	-14.7	0.8	2.0	⊕	-8.8	-26.3	-55.2	24
2640	2197	1816	1486	1209	979	0.9	4.1	9.4	17.8	29.4	0.0	⊕	-4.9	-17.3	1.2	2.4	⊕	-10.0	-29.5	-60.7	24
2820	2279	1823	1442	1126	873	1.0	4.2	10.0	18.7	31.4	-0.2	⊕	-3.6	-13.6	0.7	1.8	⊕	-8.2	-24.4	-51.3	24
2913	2439	2026	1671	1365	1111	0.9	3.7	8.8	16.2	27.0	-0.1	⊕	-4.2	-15.3	1.0	2.1	⊕	-9.0	-26.2	-54.0	24
3221	2687	2229	1834	1497	1209	0.8	3.3	7.7	14.5	23.6	-0.3	⊕	-2.8	-10.8	0.4	1.4	⊕	-6.6	-19.6	-40.1	24
3305	2798	2358	1975	1643	1355	0.7	3.0	6.9	12.9	21.1	-0.3	⊕	-2.7	-10.2	0.4	1.3	⊕	-6.2	-18.3	-37.5	24
3502	3013	2582	2200	1864	1570	0.7	2.9	6.6	12.3	20.0	-0.2	⊕	-3.1	-11.6	0.6	1.6	⊕	-6.9	-20.3	-41.0	24
1762	1284	924	668	504	410	2	8.9	21.6	40.4	64.9	0.4	⊕	-9.4	-34.1	2.8	4.7	⊕	-20.0	-61.0	-129.6	16

RIFLE BALLISTICS

Abbreviation Key: BTHP = boat-tail hollow point; BTSP = boat-tail soft point; FN = flat nose; LRN = lead round nose; LSW = lead semi-wadcutter; LW = lead wadcutter; SWC = semi-wadcutter; SWHP = semi-wadcutter hollow point; CB = conical ball reduced power/noise; FP = flat point; CP = copper-plated; L = lead; J = jacketed; HP = hollow-point; RN = round nose; SHP = segmented hollow-point; SP = soft point; FMJ = full metal jacket; TSJ = total synthetic jacket; TMF = toxic-metal-free; TMJ = totally encapsulated bullet; V = vented barrel; HE = high energy (not for use in semi-automatic rifles); † = not for revolvers; ◊ = nickel-plated case; CLM=cartridge length longer than SAAMI max, may not fit in all magazines. *Molycoat: molybdenum disulfide dry film lubricant

Federal® Rifle

USAGE	FEDERAL LOAD NO.	CARTRIDGE	BULLET WEIGHT IN GRAINS	BULLET WEIGHT IN GRAMS	BULLET STYLE	VELOCITY IN FEET PER SECOND (TO NEAREST 10 FPS) MUZZLE	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.
FEDERAL VARMINT & PREDATOR											
1	AE17H20TVP	**17 HORNET**	20	1.3	TIPPED VARMINT	3610	3042	2541	2092	1694	1361
1	AE22H35TVP	**22 HORNET**	35	2.27	TIPPED VARMINT	3000	2188	1526	1094	908	795
1	V204VM32	**204 RUGER**	32	2.07	HORNADY® V-MAX®	4100	3536	3040	2596	2193	1827
1, 5	AE22350VP	**223 REM.**	50	3.24	JHP	3325	2839	2402	2006	1653	1355
1	V223VM53	**223 REM.**	53	3.43	HORNADY V-MAX	3400	3046	2720	2416	2132	1868
1	V223VM53B	**223 REM.**	53	3.43	HORNADY V-MAX	3400	3046	2720	2416	2132	1868
1	V224VLKM60	**224 VALKYRIE**	60	3.89	HORNADY V-MAX	3300	2923	2577	2255	1958	1687
1	V22250VM2	**22-250 REM.**	55	3.56	HORNADY V-MAX	3670	3244	2858	2504	2176	1873
1	V22250VM2B	**22-250 REM.**	55	3.56	HORNADY V-MAX	3670	3244	2858	2504	2176	1873
1, 5	AE22250VP	**22-250 REM.**	50	3.24	JHP	3850	3303	2819	2384	1990	1639
1	AE24375VP	**243 WIN.**	75	4.86	JHP	3375	2943	2551	2191	1861	1569
1	V243VM75	**243 WIN.**	75	4.86	HORNADY V-MAX	3425	3111	2819	2545	2286	2044
1	AE65GDL90VP	**6.5 GRENDEL**	90	5.83	SPEER TNT	3000	2641	2309	2002	1721	1472
1	V65CRDVM95	**6.5 CREEDMOOR**	95	6.16	HORNADY V-MAX	3300	3023	2763	2518	2285	2065
1	V65CRDVM95B	**6.5 CREEDMOOR**	95	6.16	HORNADY V-MAX	3300	3023	2763	2518	2285	2065
1	AE6890VP	**6.8 SPC**	90	5.83	JACKETED HOLLOW POINT	2990	2651	2335	2043	1772	1530
1	V308VM110	**308 WIN.**	110	7.13	HORNADY V-MAX	3300	2954	2635	2336	2058	1799
1	V308VM110B	**308 WIN.**	110	7.13	HORNADY V-MAX	3300	2954	2635	2336	2058	1799
1	AE308130VP	**308 WIN.**	130	8.42	JHP	3050	2691	2359	2052	1769	1516
1	V76239VP1	**7.62X39MM SOVIET**	130	8.42	JACKETED HOLLOW POINT	2300	1997	1720	1473	1269	1116

American Eagle® Rifle

AMERICAN EAGLE											
5	AE5728A	**5.7X28 MM**	40	2.59	TMJ	2250	1606	1151	942	825	735
1, 5	AE223G	**223 REM.**	50	3.24	JHP	3325	2839	2402	2006	1653	1355
5	AE223	**223 REM.**	55	3.56	FMJ BT	3240	2874	2536	2222	1931	1667
5	AE223N	**223 REM.**	62	4.02	FMJ BT	3020	2713	2426	2156	1904	1674
5	AE223T75	**223 REM.**	75	4.86	TMJ	2775	2550	2336	2132	1938	1756
5	AE224VLK1	**224 VALKYRIE**	75	4.86	TMJ	3000	2763	2539	2325	2122	1929
1, 5	AE22250G	**22-250 REM.**	50	3.24	JHP	3850	3303	2819	2384	1990	1639
5	AE65GDL1	**6.5 GRENDEL**	120	7.97	OTM	2580	2410	2246	2089	1938	1794
5	AE65CRD2	**6.5 CREEDMOOR**	120	7.78	OTM	2900	2680	2470	2270	2079	1897
5	AE68A	**6.8 SPC**	115	7.45	FMJ	2675	2442	2221	2012	1815	1633
5	AE65CRD3	**6.5 CREEDMOOR**	120	7.78	TMJ	2900	2672	2455	2248	2052	1865
5	AE65CRD4	**6.5 CREEDMOOR**	123	7.97	OTM	2875	2667	2468	2277	2096	1922
5	AE30CB	**30 CARBINE**	110	7.13	FMJ	1990	1564	1231	1031	919	839
5	AE300BLK1	**300 BLACKOUT**	150	9.72	FMJ BT	1900	1724	1561	1411	1282	1174
5	AE300BLKSUP2	**300 BLACKOUT**	220	14.26	OTM	1000	970	944	920	897	876
5	A76239A	**7.62X39MM SOVIET**	124	8.04	FMJ	2350	2078	1824	1595	1392	1224
5	AE308D	**308 WIN.**	150	9.72	FMJ BT	2820	2597	2385	2183	1990	1808
5	A76251M1A	**7.62X51MM**	168	10.89	OTM	2650	2459	2276	2101	1933	1774
5	AE3006M1	**30-06 SPRING.**	150	9.72	FMJ BT	2740	2522	2314	2116	1928	1751
5	AE3006N	**30-06 SPRING.**	150	9.72	FMJ BT	2910	2683	2466	2260	2064	1877
5	AE338L	**338 LAPUA MAG**	250	16.2	JSP	2875	2708	2547	2392	2242	2097

Usage Key: 1 = Varmints, predators, small game; 2 = medium game; 3 = large, heavy game; 4 = dangerous game; 5 = target shooting, training, practice; 6 = self defense; 7 = competition shooting; 8 = pest control; 9 = low noise, training, specialty.

These trajectory tables were calculated by computer using the best available data for each load. Trajectories are representative of the nominal behavior of each load at standard conditions (59°F temperature; barometric pressure of 29.53 inches; altitude at sea level). Shooters are cautioned that actual trajectories may differ due to variations in altitude, atmospheric conditions, guns, sights and ammunition.

	ENERGY IN FOOT-POUNDS (TO NEAREST 5 FOOT-POUNDS)					WIND DRIFT IN INCHES 10 MPH CROSSWIND					HEIGHT OF BULLET TRAJECTORY IN INCHES ABOVE OR BELOW LINE OF SIGHT IF ZEROED AT ⊕ YARDS. SIGHTS 1.5 INCHES ABOVE BORE LINE.										TEST BARREL LENGTH
												AVERAGE RANGE				LONG RANGE					
MUZZLE	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.	50 YDS.	100 YDS.	200 YDS.	300 YDS.	50 YDS.	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.	INCHES
579	411	287	194	127	82	1.3	5.7	14.0	27.5	47.7	-0.4	⊕	-2.3	-10.1	0.2	1.1	⊕	-6.6	-21.4	-49.1	24
699	372	181	93	64	49	3.0	14.4	38.3	74.2	118.8	-0.1	⊕	-6.1	-28.3	1.4	3.1	⊕	-19.1	-66.9	-152.6	24
1194	888	657	479	342	237	1	4.2	10.2	19.4	32.8	-0.4	⊕	-1.3	-6.4	-0.1	0.6	⊕	-4.4	-14.1	-31.1	24
1227	895	640	447	303	204	1.3	5.6	13.8	27.1	46.5	-0.3	⊕	-2.8	-11.8	0.4	1.4	⊕	-7.5	-24.0	-53.7	24
1360	1092	871	687	535	410	0.9	3.7	8.7	16.5	27.3	-0.3	⊕	-2.3	-9.2	0.2	1.1	⊕	-5.8	-17.7	-37.1	24
1360	1092	871	687	535	410	0.9	3.7	8.7	16.5	27.3	-0.3	⊕	-2.3	-9.2	0.2	1.1	⊕	-5.8	-17.7	-37.1	24
1451	1138	884	678	511	379	1	4.3	10.2	19.3	32.4	-0.3	⊕	-2.6	-10.4	0.3	1.3	⊕	-6.5	-20.0	-42.8	24
1645	1285	998	766	578	428	0.9	3.9	9.2	17.5	29.1	-0.4	⊕	-1.8	-7.9	0.1	0.9	⊕	-5.2	-16.0	-34.1	24
1645	1285	998	766	578	428	0.9	3.9	9.2	17.5	29.1	-0.4	⊕	-1.8	-7.9	0.1	0.9	0	-5.2	-16	-34.1	24
1645	1211	882	631	439	298	1.1	4.7	11.3	21.9	37.5	-0.4	⊕	-1.7	-7.8	0.0	0.9	⊕	-5.3	-16.8	-37.5	24
1897	1443	1084	800	577	410	1.1	4.8	11.5	21.9	37.3	-0.3	⊕	-2.5	-10.5	0.3	1.3	⊕	-6.7	-20.6	-45.1	24
1953	1612	1323	1078	871	696	0.8	3.2	7.5	13.9	23	-0.3	⊕	-2.1	-8.6	0.2	1	⊕	-5.5	-16.3	-33.8	24
1798	1394	1065	801	592	433	1.2	4.9	11.9	22.8	38.3	-0.2	⊕	-3.5	-13.6	0.7	1.7	⊕	-8.3	-25.5	-54.6	24
2297	1928	1610	1337	1101	900	0.7	3	7	13	21.4	-0.3	⊕	-2.3	-9.2	0.3	1.2	⊕	-5.7	-16.9	-34.9	24
2297	1928	1610	1337	1101	900	0.7	3	7	13	21.4	-0.3	⊕	-2.3	-9.2	0.3	1.2	0	-5.7	-16.9	-34.9	24
1786	1404	1090	834	628	468	1.1	4.6	11.2	21.2	35.7	-0.2	⊕	-3.5	-13.4	0.7	1.7	⊕	-8.2	-24.7	-52.6	24
2660	2132	1695	1333	1034	791	0.9	3.9	9.1	17.2	28.6	-0.3	⊕	-2.5	-10	0.3	1.3	⊕	-6.2	-19.0	-39.9	24
2660	2132	1695	1333	1034	791	0.9	3.9	9.1	17.2	28.6	-0.3	0	-2.5	-10	0.3	1.3	0	-6.2	-19	-39.9	24
2685	2090	1606	1215	903	664	1.1	4.7	11.5	21.8	36.8	-0.2	⊕	-3.3	-12.9	0.6	1.7	⊕	-8.0	-24.3	-52.0	24
1527	1151	854	627	464	359	1.8	7.3	17.5	33.2	54.8	0.2	⊕	-7.3	-26.4	2	3.6	⊕	-15.5	-47.3	-101.1	20
450	229	118	79	60	48	4.4	20.2	48.0	84.7	129.1	0.5	⊕	-12.6	-51.3	3.6	6.3	⊕	-32.4	-101.1	-216.1	24
1227	895	640	447	303	204	1.3	5.6	13.8	27.1	46.5	-0.3	⊕	-2.8	-11.8	0.4	1.4	⊕	-7.5	-24.0	-53.7	24
1282	1008	785	603	455	339	1.0	4.3	10.2	19.4	32.7	-0.3	⊕	-2.7	-10.9	0.4	1.4	⊕	-6.8	-20.6	-44.2	24
1255	1013	810	640	499	386	1.0	4.0	9.7	18.1	30.4	-0.2	⊕	-3.2	-12.4	0.6	1.6	⊕	-7.6	-22.6	-47.6	24
1282	1083	908	757	625	514	0.8	3.4	8.1	14.9	24.6	-0.1	⊕	-3.8	-14.1	0.8	1.9	⊕	-8.4	-24.2	-49.6	24
1499	1272	1073	900	750	619	0.7	3.1	7.2	13.4	21.8	-0.2	⊕	-3.1	-11.5	0.5	1.5	⊕	-6.9	-20.4	-41.3	24
1645	1211	882	631	439	298	1.1	4.7	11.3	21.9	37.5	-0.4	⊕	-1.7	-7.8	0.0	0.9	⊕	-5.3	-16.8	-37.5	24
1818	1586	1378	1192	1026	879	0.6	2.9	6.9	12.5	20.3	-0.1	⊕	-4.5	-16.0	1.1	2.3	⊕	-9.2	-26.1	-52.5	24
2241	1913	1626	1373	1152	959	0.8	3.1	7.2	13.3	21.5	-0.2	⊕	-3.3	-12.4	0.6	1.7	⊕	-7.4	-21.6	-43.5	24
1827	1523	1260	1034	841	681	0.9	3.8	9.1	16.9	28.0	-0.1	⊕	-4.4	-15.8	1.0	2.2	⊕	-9.2	-27.0	-55.8	24
2241	1902	1606	1347	1122	927	0.8	3.2	7.5	13.9	22.5	-0.2	⊕	-3.4	-12.5	0.7	1.7	⊕	-7.5	-21.9	-44.3	24
2257	1942	1663	1416	1199	1009	0.8	2.9	6.8	12.7	20.5	-0.2	⊕	-3.4	-12.5	0.7	1.7	⊕	-7.4	-21.6	-43.4	24
967	597	370	260	206	172	3.5	15.1	35.8	63.7	97.4	0.7	⊕	-13.0	-49.1	3.9	6.5	⊕	-29.7	-90.9	-190.2	18
1202	990	811	663	547	459	1.6	6.1	13.7	25.3	40.6	0.6	⊕	-10.3	-34.7	3.2	5.1	⊕	-19.3	-56.3	-114.5	16
488	460	435	413	393	375	0.7	3.3	7.2	12.5	19.1	3.7	⊕	-35.6	-110.4	12.6	17.8	⊕	-56.9	-154.7	-294.9	16
1520	1189	916	701	533	412	1.5	6.0	14.7	27.6	45.7	0.1	⊕	-6.5	-23.8	1.8	3.3	⊕	-14.0	-41.5	-87.5	20
2648	2246	1894	1586	1319	1089	0.8	3.3	7.8	14.4	23.3	-0.2	⊕	-3.6	-13.5	0.8	1.8	⊕	-8.0	-23.3	-47.2	24
2619	2255	1932	1646	1394	1174	0.7	3.1	7.4	13.5	22.1	-0.1	⊕	-4.3	-15.3	1.0	2.1	⊕	-8.9	-25.5	-51.6	24
2500	2118	1783	1492	1238	1021	0.8	3.4	8.0	14.7	24.3	-0.1	⊕	-4.0	-14.5	0.9	2.0	⊕	-8.6	-24.7	-50.5	24
2820	2397	2026	1701	1419	1173	0.8	3.2	7.4	13.7	22.2	-0.2	⊕	-3.3	-12.4	0.6	1.7	⊕	-7.4	-21.7	-43.8	24
4588	4070	3601	3175	2789	2442	0.6	2.4	5.3	9.8	15.9	-0.2	⊕	-3.2	-11.8	0.6	1.6	⊕	-6.9	-20.0	-40.1	24

RIFLE BALLISTICS

Abbreviation Key: BTHP = boat-tail hollow point; BTSP = boat-tail soft point; FN = flat nose; LRN = lead round nose; LSW = lead semi-wadcutter; LW = lead wadcutter; SWC = semi-wadcutter; SWHP = semi-wadcutter hollow point; CB = conical ball reduced power/noise; FP = flat point; CP = copper-plated; L = lead; J = jacketed; HP = hollow-point; RN = round nose; SHP = segmented hollow-point; SP = soft point; FMJ = full metal jacket; TSJ = total synthetic jacket; TMF = toxic-metal-free; TMJ = totally encapsulated bullet; V = vented barrel; HE = high energy (not for use in semi-automatic rifles); † = not for revolvers; ◊ = nickel-plated case; CLM=cartridge length longer than SAAMI max, may not fit in all magazines. *Molycoat: molybdenum disulfide dry film lubricant

Fusion® Rifle

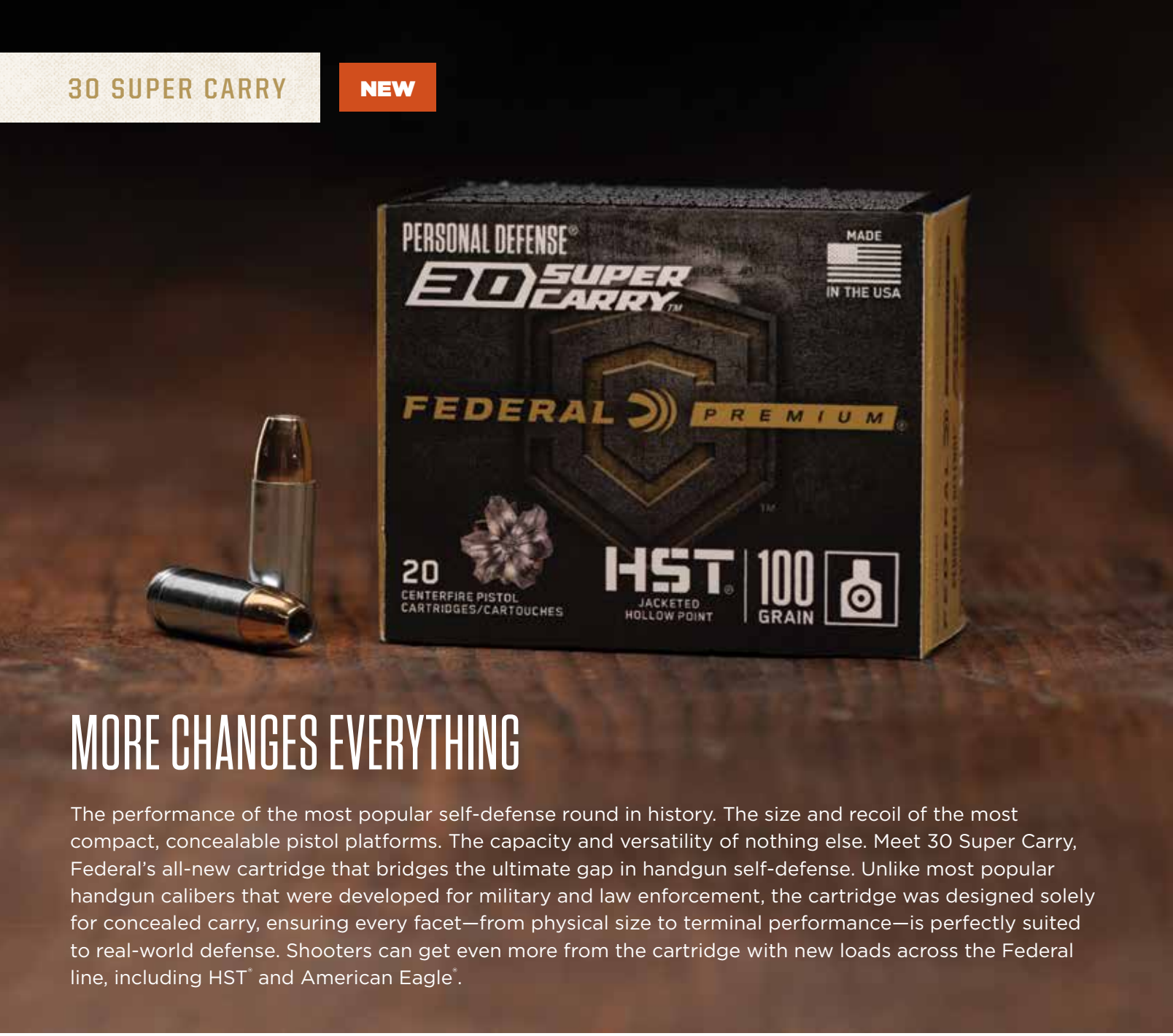
	USAGE	FEDERAL LOAD NO.	CARTRIDGE	BULLET WEIGHT IN GRAINS	BULLET WEIGHT IN GRAMS	BULLET STYLE	VELOCITY IN FEET PER SECOND (TO NEAREST 10 FPS) MUZZLE	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.
FUSION												
	2	F223FS1	**223 REM.**	62	4.02	FUSION	3000	2697	2413	2148	1898	1671
	2	F224VLKMSR1	**224 VALKYRIE**	90	5.83	FUSION	2700	2491	2291	2101	1919	1749
	2	F22250FS1	**22-250 REM.**	55	3.56	FUSION	3600	3108	2667	2267	1902	1580
	2	F243FS1	**243 WIN.**	95	6.16	FUSION	2980	2730	2493	2268	2056	1854
	2	F2506FS1	**25-06 REM.**	120	7.78	FUSION	2980	2778	2585	2399	2222	2052
	2	F65CRDFS1	**6.5 CREEDMOOR**	140	9.07	FUSION	2725	2522	2327	2142	1964	1796
	3	F6555FS1	**6.5X55 SWEDISH**	140	9.07	FUSION	2530	2336	2150	1973	1804	1648
NEW	2	F65PRCFS1	**6.5 PRC**	140	9.07	FUSION	2925	2713	2510	2316	2131	1954
	2	F6555FSI2	**6.5X55 SWEDISH**	156	10.11	FUSION	2500	2326	2159	1999	1845	1702
	2	F260FS1	**260 REM.**	120	7.78	FUSION	2950	2710	2483	2266	2061	1866
	2	F270FS1	**270 WIN.**	130	8.42	FUSION	3050	2811	2584	2368	2163	1968
	2	F270FS2	**270 WIN.**	150	9.72	FUSION	2850	2655	2468	2289	2117	1953
	2	F270WSMFS1	**270 WIN. SHORT MAGNUM**	150	9.72	FUSION	3060	2867	2682	2504	2333	2169
	2	F708FS2	**7MM-08 REM.**	120	7.78	FUSION	3000	2719	2455	2206	1971	1753
	2	F708FS1	**7MM-08 REM.**	140	9.07	FUSION	2850	2615	2393	2181	1980	1791
	2	F280FS1	**280 REM.**	140	9.07	FUSION	2990	2794	2607	2427	2255	2089
	3	F7RFS1	**7MM REM. MAGNUM**	150	9.72	FUSION	3050	2861	2680	2505	2338	2177
	3	F7RFS2	**7MM REM. MAGNUM**	175	11.34	FUSION	2760	2592	2430	2274	2123	1978
	2	F76239FS1	**7.62X39MM SOVIET**	123	7.97	FUSION	2350	2077	1823	1593	1389	1222
	2	F3030FS1	**30-30 WIN.**	150	9.72	FUSION	2390	2086	1805	1553	1337	1167
	2	F3030FS2	**30-30 WIN.**	170	11.02	FUSION	2200	1950	1719	1510	1329	1182
	2	F308FS1	**308 WIN.**	150	9.72	FUSION	2820	2600	2391	2191	2001	1821
	2	F308FS2	**308 WIN.**	165	10.69	FUSION	2700	2501	2310	2128	1954	1789
	2	F308FS3	**308 WIN.**	180	11.66	FUSION	2600	2427	2260	2101	1947	1801
	2	F3006FS1	**30-06 SPRING.**	150	9.72	FUSION	2900	2674	2459	2254	2059	1874
	2	F3006FS2	**30-06 SPRING.**	165	10.69	FUSION	2790	2590	2399	2217	2042	1875
	2	F3006FS3	**30-06 SPRING.**	180	11.66	FUSION	2700	2521	2349	2185	2026	1874
	2	F300WFS1	**300 WIN. MAGNUM**	150	9.72	FUSION	3200	2958	2729	2512	2304	2107
	2	F300WFS2	**300 WIN. MAGNUM**	165	10.69	FUSION	3080	2865	2660	2464	2276	2097
	2	F300WFS3	**300 WIN. MAGNUM**	180	11.66	FUSION	2960	2766	2580	2401	2230	2065
	2	F300WSMFS3	**300 WIN. SHORT MAGNUM**	150	9.72	FUSION	3250	3005	2774	2555	2345	2146
	2	F300WSMFS1	**300 WIN. SHORT MAGNUM**	165	10.69	FUSION	3100	2885	2680	2484	2296	2116
	2	F300WSMFS2	**300 WIN. SHORT MAGNUM**	180	11.66	FUSION	2950	2756	2570	2391	2220	2055
	2	F338FFS2	**338 FEDERAL**	200	12.96	FUSION	2700	2487	2284	2090	1905	1733
	2	F35FS1	**35 WHELEN**	200	12.96	FUSION	2800	2537	2289	2055	1835	1634
	2	F350LFS1	**350 LEGEND**	160	10.37	FUSION	2300	1993	1712	1463	1257	1107
	2	F4570FS1	**45-70 GOVERNMENT**	300	19.44	FUSION	1850	1612	1401	1227	1099	1011
	2	F450BMFS1	**450 BUSHMASTER**	260	16.85	FUSION	2200	1777	1419	1155	1002	907
FUSION MSR												
	2	F223MSR1	**223 REM.**	62	4.02	FUSION	2750	2463	2194	1942	1710	1500
	2	F224VLKMSR1	**224 VALKYRIE**	90	5.83	FUSION	2700	2491	2291	2101	1919	1749
	2	F65GDLMSR1	**6.5 GRENDEL**	120	7.78	FUSION	2600	2346	2107	1881	1674	1485
	2	F68MSR2	**6.8 SPC**	90	5.83	FUSION	2850	2524	2221	1939	1682	1453
	2	F68MSR1	**6.8 SPC**	115	7.45	FUSION	2470	2248	2037	1838	1654	1485
	2	F300BMSR2	**300 BLACKOUT**	150	9.72	FUSION	1900	1685	1490	1320	1181	1079
	2	F308MSR1	**308 WIN.**	150	9.72	FUSION	2770	2553	2345	2148	1960	1782
	2	F338FMSR2	**338 FEDERAL**	185	11.99	FUSION	2680	2447	2226	2016	1819	1636

Usage Key: 1 = Varmints, predators, small game; 2 = medium game; 3 = large, heavy game; 4 = dangerous game; 5 = target shooting, training, practice; 6 = self defense; 7 = competition shooting; 8 = pest control; 9 = low noise, training, specialty.

These trajectory tables were calculated by computer using the best available data for each load. Trajectories are representative of the nominal behavior of each load at standard conditions (59°F temperature; barometric pressure of 29.53 inches; altitude at sea level). Shooters are cautioned that actual trajectories may differ due to variations in altitude, atmospheric conditions, guns, sights and ammunition.

ENERGY IN FOOT-POUNDS (TO NEAREST 5 FOOT-POUNDS)						WIND DRIFT IN INCHES 10 MPH CROSSWIND					HEIGHT OF BULLET TRAJECTORY IN INCHES ABOVE OR BELOW LINE OF SIGHT IF ZEROED AT ✦ YARDS. SIGHTS 1.5 INCHES ABOVE BORE LINE.										TEST BARREL LENGTH
												AVERAGE RANGE				LONG RANGE					
MUZZLE	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.	50 YDS.	100 YDS.	200 YDS.	300 YDS.	50 YDS.	100 YDS.	200 YDS.	300 YDS.	400 YDS.	500 YDS.	INCHES
1239	1001	802	635	496	384	1.0	4.0	9.7	18.1	30.4	-0.2	⊕	-3.3	-12.6	0.6	1.6	⊕	-7.7	-22.8	-48.0	24
1457	1240	1049	882	736	611	0.8	3.3	7.9	14.5	23.8	-0.1	0	-4.1	-14.9	0.9	2	0	-8.8	-25.2	-51.4	24
1583	1179	869	627	442	305	1.1	4.8	11.6	22.3	38.3	-0.4	⊕	-2.1	-9.2	0.2	1.1	⊕	-6.0	-18.8	-41.8	24
1873	1572	1311	1085	891	725	0.8	3.3	7.8	14.6	23.7	-0.2	⊕	-3.2	-11.9	0.6	1.6	⊕	-7.2	-21.2	-43.2	24
2366	2056	1780	1534	1315	1122	0.6	2.6	6.0	11.3	18.3	-0.2	⊕	-3.0	-11.2	0.5	1.5	⊕	-6.7	-19.5	-39.3	24
2308	1977	1683	1426	1199	1003	0.8	3.1	7.5	13.8	22.5	-0.1	⊕	-4.0	-14.4	0.9	2.0	⊕	-8.5	-24.4	-49.4	24
1990	1696	1437	1210	1012	844	0.8	3.6	8.3	15.3	25.3	0.0	⊕	-4.9	-17.4	1.2	2.5	⊕	-9.9	-28.7	-58.7	24
2659	2287	1958	1667	1411	1187	0.7	2.9	6.7	12.5	20.2	-0.2	⊕	-3.2	-12	0.6	1.6	⊕	-7.1	-20.8	-42.0	24
2165	1874	1614	1384	1179	1003	0.7	3.3	7.7	13.7	22.7	0.0	⊕	-5.0	-17.5	1.2	2.5	⊕	-10.0	-28.3	-57.5	24
2319	1957	1642	1369	1132	928	0.8	3.3	7.6	14.2	23.0	-0.2	⊕	-3.2	-12.1	0.6	1.6	⊕	-7.3	-21.4	-43.4	24
2685	2280	1927	1618	1350	1117	0.7	3.0	7.0	13.1	21.3	-0.2	⊕	-2.9	-11.0	0.5	1.5	⊕	-6.6	-19.6	-39.8	24
2705	2347	2029	1745	1493	1270	0.7	2.8	6.5	12.0	19.3	-0.2	⊕	-3.4	-12.6	0.7	1.7	⊕	-7.4	-21.6	-43.3	24
3118	2737	2395	2088	1813	1567	0.5	2.4	5.5	10.0	16.3	-0.3	⊕	-2.8	-10.3	0.4	1.4	⊕	-6.2	-17.9	-36.1	24
2398	1970	1605	1296	1035	819	0.9	3.7	8.8	16.5	27.3	-0.2	⊕	-3.2	-12.2	0.6	1.6	⊕	-7.4	-22.0	-45.6	24
2525	2126	1779	1479	1219	997	0.9	3.4	8.0	14.9	24.3	-0.2	⊕	-3.6	-13.3	0.7	1.8	⊕	-7.9	-23.2	-47.2	24
2779	2427	2113	1831	1580	1357	0.6	2.5	5.8	10.7	17.5	-0.2	⊕	-3.0	-11.0	0.5	1.5	⊕	-6.5	-19.1	-38.5	24
3098	2726	2391	2091	1820	1578	0.5	2.3	5.4	9.8	16.0	-0.3	⊕	-2.8	-10.4	0.4	1.4	⊕	-6.2	-17.9	-36.1	24
2960	2610	2294	2008	1751	1521	0.7	2.5	5.8	10.8	17.4	-0.1	⊕	-3.6	-13.2	0.8	1.8	⊕	-7.8	-22.3	-44.5	24
1508	1178	907	693	527	407	1.5	6.0	14.8	27.7	45.9	0.1	⊕	-6.5	-23.8	1.8	3.3	⊕	-14.0	-41.6	-87.7	24
1902	1449	1085	803	595	453	1.6	6.6	16.2	30.8	51.1	0.1	⊕	-6.5	-23.9	1.7	3.2	⊕	-14.2	-42.8	-91.5	24
1827	1435	1115	860	666	527	1.4	6.3	15.1	28.5	46.7	0.3	⊕	-7.7	-27.2	2.2	3.9	⊕	-15.6	-46.8	-97.8	24
2648	2252	1903	1599	1333	1104	0.8	3.2	7.6	14.1	22.9	-0.2	⊕	-3.6	-13.4	0.7	1.8	⊕	-8.0	-23.1	-46.9	24
2671	2291	1955	1660	1399	1173	0.7	3.1	7.5	13.7	22.3	-0.1	⊕	-4.1	-14.7	0.9	2.0	⊕	-8.6	-24.8	-50.1	24
2702	2354	2042	1763	1515	1296	0.6	2.9	6.9	12.6	20.4	-0.1	⊕	-4.4	-15.7	1.0	2.2	⊕	-9.1	-25.8	-51.9	24
2801	2382	2014	1693	1412	1169	0.8	3.1	7.4	13.7	22.2	-0.2	⊕	-3.4	-12.5	0.7	1.7	⊕	-7.5	-21.8	-44.1	24
2852	2458	2109	1800	1527	1287	0.8	2.9	7.0	12.9	20.7	-0.1	⊕	-3.7	-13.4	0.8	1.8	⊕	-7.9	-22.9	-46.0	24
2913	2540	2206	1907	1640	1403	0.7	2.7	6.6	12.1	19.4	-0.1	⊕	-4.0	-14.3	0.9	2.0	⊕	-8.4	-23.9	-47.8	24
3410	2915	2481	2101	1769	1479	0.6	2.7	6.4	11.8	19.4	-0.3	⊕	-2.5	-9.6	0.3	1.2	⊕	-5.9	-17.3	-35.4	24
3475	3006	2591	2223	1898	1610	0.6	2.6	6.1	11.2	18.3	-0.3	⊕	-2.8	-10.4	0.4	1.4	⊕	-6.3	-18.3	-37.1	24
3502	3057	2659	2304	1987	1704	0.6	2.6	5.9	10.9	17.7	-0.2	⊕	-3.1	-11.3	0.6	1.5	⊕	-6.7	-19.5	-39.4	24
3518	3008	2563	2173	1832	1534	0.6	2.7	6.3	11.6	18.9	-0.3	⊕	-2.4	-9.3	0.3	1.2	⊕	-5.7	-16.7	-34.2	24
3521	3048	2630	2260	1931	1641	0.6	2.6	6.0	11.1	18.1	-0.3	⊕	-2.7	-10.2	0.4	1.4	⊕	-6.2	-18.0	-36.5	24
3478	3035	2639	2285	1969	1688	0.6	2.6	5.9	11.0	17.9	-0.2	⊕	-3.1	-11.4	0.6	1.5	⊕	-6.8	-19.7	-39.7	24
3237	2746	2316	1940	1612	1334	0.8	3.4	8.1	14.8	24.4	-0.1	⊕	-4.1	-15.0	0.9	2.1	⊕	-8.8	-25.3	-51.9	24
3481	2858	2327	1876	1495	1185	1.0	4.0	9.5	17.7	29.6	-0.1	⊕	-3.9	-14.5	0.8	2.0	⊕	-8.7	-25.4	-53.0	24
1879	1411	1041	760	562	435	1.8	7.4	17.8	33.9	55.8	0.2	⊕	-7.3	-26.6	2	3.7	⊕	-15.6	-47.8	-102.4	16
2280	1731	1307	1003	804	681	2.3	8.7	20.6	37.6	59.3	0.7	⊕	-11.9	-41.6	3.7	5.9	⊕	-23.8	-70.9	-146.5	24
2794	1823	1162	770	579	475	2.7	12	29.5	54.9	86.4	0.4	⊕	-9.7	-177.1	2.8	4.9	⊕	-22.5	-71.2	-152.8	24
1041	835	663	519	402	310	1.1	4.6	10.9	20.8	34.6	-0.1	⊕	-4.3	-15.7	1.0	2.1	⊕	-9.3	-28.1	-58.8	16
1457	1240	1049	882	736	611	0.8	3.3	7.9	14.5	23.8	-0.1	⊕	-4.1	-14.9	0.9	2.0	⊕	-8.8	-25.2	-51.4	24
1801	1467	1183	943	747	588	1.0	4.5	10.6	20.2	33.3	0.0	⊕	-4.9	-17.5	1.2	2.4	⊕	-10.1	-30.5	-63.1	24
1623	1273	986	751	565	422	1.2	5.0	11.8	22.7	37.8	-0.1	⊕	-4.0	-15.0	0.9	2.0	⊕	-9.0	-27.6	-58.4	16
1558	1290	1059	862	699	563	1.0	4.3	10.1	19.3	31.5	0.0	⊕	-5.4	-19.1	1.4	2.7	⊕	-11.0	-32.7	-66.8	16
1202	946	739	580	465	388	1.9	7.4	17.4	31.9	51.0	0.6	⊕	-10.8	-37.3	3.3	5.4	⊕	-21.2	-62.4	-128.7	16
2555	2170	1832	1536	1279	1058	0.8	3.3	7.8	14.4	23.6	-0.1	⊕	-3.8	-14.1	0.8	1.9	⊕	-8.3	-24.1	-48.9	20
2950	2459	2035	1670	1358	1100	0.9	3.8	9.0	16.8	28.0	-0.1	⊕	-4.3	-15.7	1.0	2.2	⊕	-9.2	-26.8	-55.5	20

NEW



MORE CHANGES EVERYTHING

The performance of the most popular self-defense round in history. The size and recoil of the most compact, concealable pistol platforms. The capacity and versatility of nothing else. Meet 30 Super Carry, Federal's all-new cartridge that bridges the ultimate gap in handgun self-defense. Unlike most popular handgun calibers that were developed for military and law enforcement, the cartridge was designed solely for concealed carry, ensuring every facet—from physical size to terminal performance—is perfectly suited to real-world defense. Shooters can get even more from the cartridge with new loads across the Federal line, including HST® and American Eagle®.

More Rounds

The 30 Super Carry's slimmed-down dimensions result in a simple physical truth. A magazine the size of your standard 9mm Luger pistol's will carry additional rounds—two more in initially available handgun models. You get the proven power of a 9mm Luger with added capacity that can make all the difference in a real-world self-defense scenario.

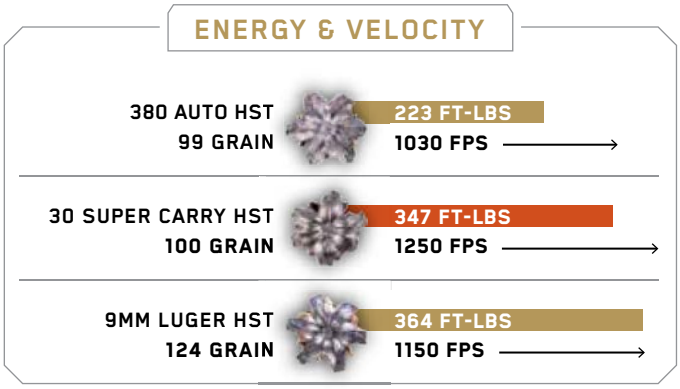
When More Matters

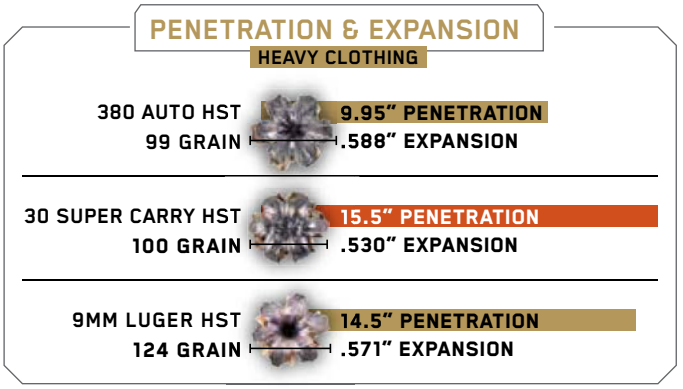
When lives are on the line, accuracy can evaporate. Statistics don't lie: In armed threat scenarios, only one out of every five shots finds the mark. That's why 30 Super Carry's added capacity is so important. Every round you have available significantly boosts your chances of walking away from a dangerous encounter.

*Cartridges shown at actual size

More Power, No Tradeoffs

The .312-inch-diameter projectile used in 30 Super Carry allows more magazine capacity than 9mm Luger, yet delivers equal muzzle energy and performance.





NO COMPROMISES: MORE ROUNDS PER MAGAZINE WITH PERFORMANCE THAT MATCHES 9MM LUGER

More Effective Training

The best defensive cartridge will only perform to its full potential for the user through diligent training with ballistically comparable practice ammunition. American Eagle 30 Super Carry fills this role, providing an extremely similar feel and point of impact as its HST counterpart.

More Handguns

A great cartridge demands a firearm that's just as good. That's why we worked hand-in-hand with Nighthawk Custom and Smith & Wesson while engineering 30 Super Carry to help these trusted manufacturers develop handguns that will extract all the cartridge offers. Initially available models include the Nighthawk Custom President and GRP and the Smith & Wesson M&P Shield™ Plus and Shield EZ®. Learn more at federalpremium.com/30supercarry.

FOR A FULL LIST OF AVAILABLE LOADS AND BALLISTICS, REFER TO PAGES 43-44.

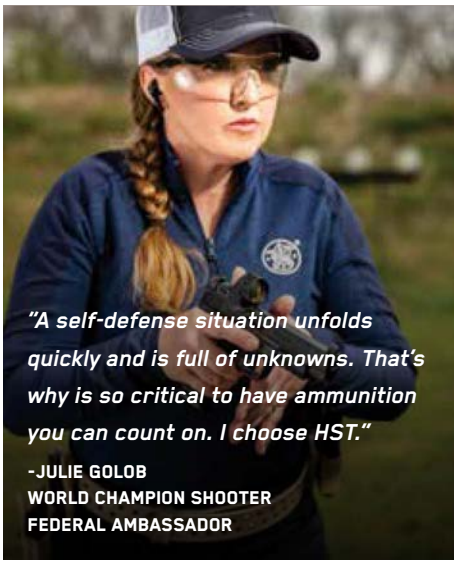
HST

NEW

Whether you want to maximize the power of your magnum revolver or get the most from the game-changing 30 Super Carry cartridge, Federal Premium® HST® is there with new options that define performance. Like all HST rounds, the new 357 Magnum, 327 Federal Magnum and 30 Super Carry offerings boost expansion and hit critical penetration depths through a variety of barriers, with nearly 100 percent weight retention. ***Available in the full line of self-defense loads.***

Consistency Counts

The exclusive HST bullet is engineered to expand extremely reliably and retain nearly all of its weight through almost every kind of barrier. The result is consistent, nearly identical penetration and expansion in any situation, shot after shot. Bare gelatin shot with 10mm Auto HST (P10HST1S) at 10 feet.

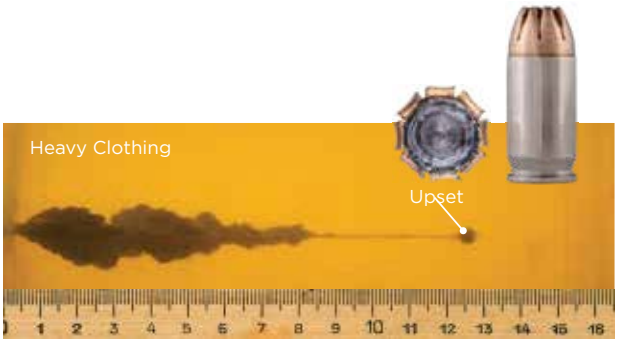


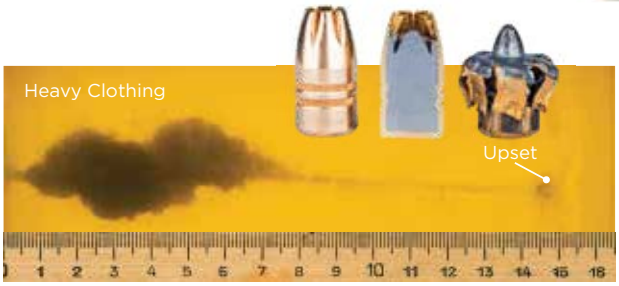
"A self-defense situation unfolds quickly and is full of unknowns. That's why is so critical to have ammunition you can count on. I choose HST."

-JULIE GOLOB
WORLD CHAMPION SHOOTER
FEDERAL AMBASSADOR

HYDRA-SHOK DEEP

A redesigned center post and core push the performance of Hydra-Shok Deep® further. All loads in the lineup hit penetration depths that have been optimized for self-defense situations through the most common barriers—without overpenetrating.





380 Auto Redefined

Powered by the Hydra-Shok Deep design, the 380 Auto easily meets the FBI's penetration guidelines, surpassing the 12-inch mark. Bare gel shot with 38 Special (P380HSD1) at 10 feet; 13.5 inches of penetration.

Deep Defense

A beefed-up center post and redesigned core give Hydra-Shok Deep loads the ability to hit critical depths through the most common self-defense barriers. Bare gelatin shot with 9mm Luger (P9HSD1) at 10 feet, 15 inches of penetration.

HYDRA•SHOK

Original Hydra-Shok remains one of the most popular choices among self-defense experts. We use stringent manufacturing processes and rigorous testing to ensure Hydra-Shok loads perform accurately and consistently.

PRACTICE & DEFEND PACKS

We pair 50 HST loads with 50 Syntech Training Match™ rounds in Practice & Defend packs for the most complete combination available. All produce identical velocities, trajectories and point of impact for the most realistic training and the utmost protection.

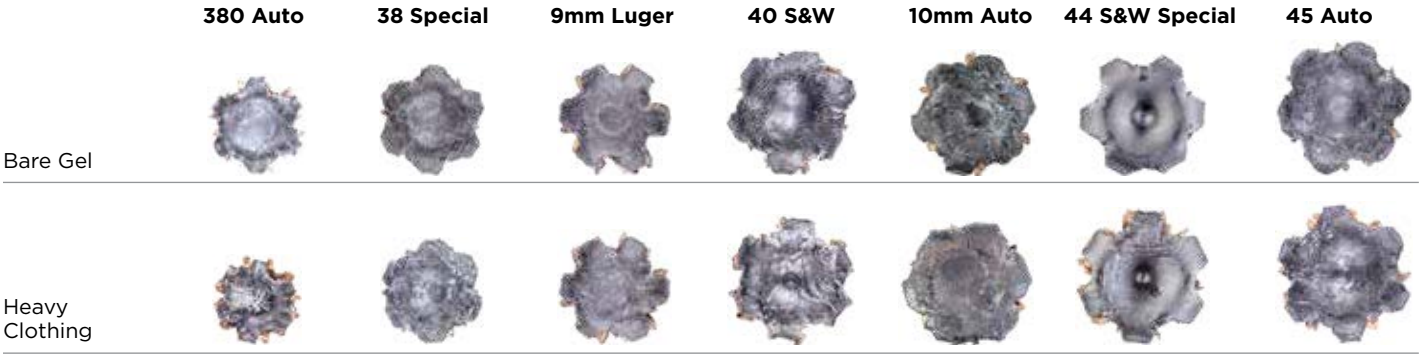
GO RETRO

Celebrate a century of Federal ammunition with special-edition packaging for some of our all-time favorites. These throwback loads honor classic Federal handgun products including 1960s-era Monark Match in 45 Auto and 1980s Hydra-Shok in 45 Auto. **Order yours before they're gone at federalpremium.com.**

FOR A FULL LIST OF AVAILABLE LOADS AND BALLISTICS, REFER TO PAGES 43-44.

PUNCH NEW

Any cartridge should be able to deliver a knockout blow. That was the mindset that guided the development of Punch™ ammunition, and what keeps pushing us to develop more loads like this year's new 44 S&W Special. Like all Punch offerings, it delivers on the promise to provide penetration and expansion needed in real-world self-defense situations.



SYNTECH DEFENSE

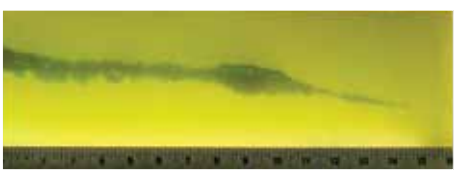
Syntech® changed the range forever. Now the technology is revolutionizing protection as well. Syntech Defense™ provides dynamic terminal performance with a hollow-point bullet that separates into three segments and a deep-penetrating core on impact. The core penetrates 12 to 18 inches through bare ballistics gel and heavy clothing—a critical benchmark in self-defense situations and the best terminal performance of any round in its class. The petals create three secondary wound channels, each more than 6 inches deep, adding to the terminal effect.

TRAIN + PROTECT

Honor the American birthright to bear arms. Federal® Train + Protect uses the VHP bullet design to provide both precise, practical, performance at the range, and instant reliable expansion on impact.

PUNCH RIMFIRE

With 12 to 16 inches of penetration in ballistics gelatin, new Punch 22 LR loads exceed depths of centerfire cartridges including 25 Auto and 32 Auto. Combined with a non-expanding, nickel-plated bullet, it makes 22 LR a legitimate defense option—whether as a backup gun or for recoil-sensitive shooters.

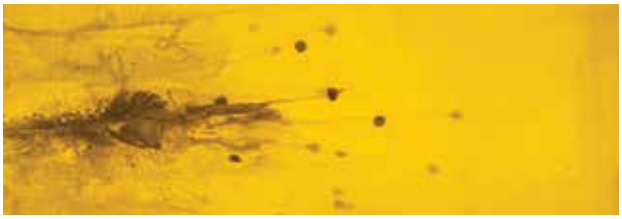


FOR A FULL LIST OF AVAILABLE LOADS AND BALLISTICS, REFER TO PAGES 43-44.

FORCE X2

Turn your shotgun into the ultimate defensive platform with Force X2™ from Federal Premium®. Its nine copper-plated 00 FX2 buckshot pellets are specially engineered to split into two equal-size pieces on impact. This potentially doubles the number of wound channels from nine to 18, improves the transfer of energy from the payload to the target, and minimizes the potential for over-penetration, reducing the risk to bystanders. Force X2 is also loaded for more manageable recoil, allowing the shooter to stay on target for faster follow-ups and better accuracy in a self-defense situation.

Double Trouble
Split pellets are designed to separate on impact, as much as doubling the number of wound channels.



FORCE X2 SHORTY NEW

We've combined the power of our newest technologies to create a shotshell option that changes the nature of self-defense. Force X2 Shorty™ shells measure just 1 ¾ inches, but hold a payload of six 00 segmenting buckshot. When used with firearms designed to cycle sub-length shotshells like the Mossberg 590S, the loads offer much higher magazine capacities with up to twice the wound channels over standard buckshot loads.

BUCKSHOT

Make the threat scatter. Federal Premium buckshot penetrates to optimal depths for effective self-defense. Loads with the FLITECONTROL® wad system deliver the tightest patterns possible. ***Now available in a full range of offerings, including a special NRA edition 9-pellet 00 buckshot load.***

.410 HANDGUN

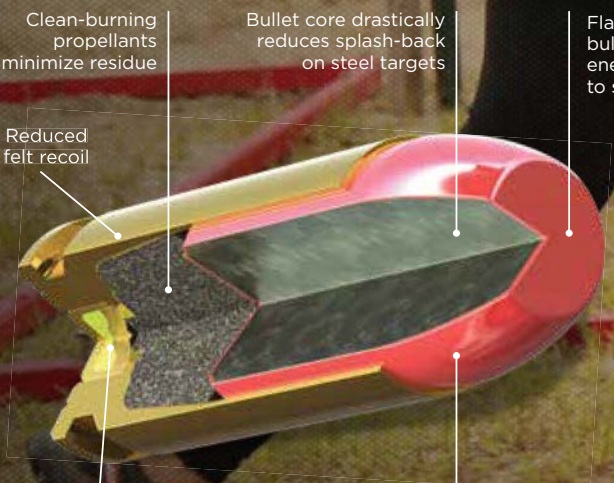
The .410 handgun has emerged as a popular option for self-defense, and Federal Premium® offers a variety of loads for these specialized firearms. A customized hull design, optimal brass thickness and fine-tuned payloads make these perfect for .410 handguns.

FOR A FULL LIST OF AVAILABLE LOADS AND BALLISTICS, REFER TO PAGE 69.

SYNTECH ACTION PISTOL

Syntech Action Pistol® loads are specifically designed for competition and loaded to power factor requirements with heavy, flatter-nosed bullets for more reliable knock-downs on steel targets.

CATALYST®
CLEANER BURNING
PRIMER TECHNOLOGY



Less Muzzle Rise For Faster Follow-ups

Syntech Action Pistol's unique blend of propellants, bullet weights and the Total Synthetic Jacket result in as much as 14 percent less muzzle rise than comparable target loads. This allows competitive shooters to get back on target more quickly, for faster follow-up shots and stage times. Still frame from high-speed video showing 150-grain 9mm Luger (AE9SJAP1) fired through a Tangfolio Stock II.

SYNTECH RANGE

An exclusive polymer coating prevents metal-on-metal contact between the bullet and bore, eliminating copper and lead fouling.

SYNTECH TRAINING MATCH

If practice isn't realistic, it's not really practice. Make range time matter with Syntech Training Match® loads that offer the same velocity, trajectory and point of impact as equivalent Federal Premium® HST® ammunition.

Cleaner

With a polymer-encapsulated bullet, all Syntech loads virtually eliminate barrel fouling and airborne lead.

Official Ammunition Of The USPSA

Syntech Action Pistol is the official ammunition of the United States Practical Shooting Association (USPSA). The alliance supports the organization's tireless stewardship of competitive practical shooting.

SYNTECH PCC

Velocity and accuracy of Syntech PCC® are optimized for long gun barrel lengths, with a bullet profile that provides excellent accuracy and reliable feeding in a variety of carbine platforms.

Safer On Steel

Without a copper jacket, all Syntech varieties drastically reduce the amount of splash-back on steel targets.

Catalyst Primer

This lead-free primer technology provides the most reliable, consistent ignition possible in range ammunition.

"To stay at the top of my game, I rely on an intense regimen of drills. Federal Syntech loads let me do it while being easier on my guns."

-JOSH FROELICH
CHAMPION SHOOTER

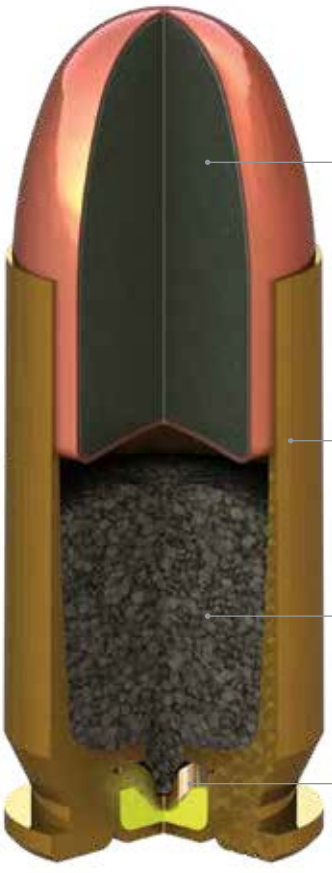
FOR A FULL LIST OF AVAILABLE LOADS AND BALLISTICS, REFER TO PAGES 43-44.

GOLD MEDAL

Demand the performance to compete. Gold Medal® Handgun loads are built with the finest components and held to the tightest tolerances to deliver in competitive shooting situations. The loads feature match-grade primers and bullets, with consistent powders and the best Federal® brass.

Short Barrels, Tight Groups

Gold Medal's award-winning accuracy—five-round group, 0.450-inch extreme spread. Target shot with 185-grain 45 Auto Gold Medal (GM45B) from a Springfield Trophy Match at 25 yards, fired with open sights from a rest.



AMERICAN EAGLE

Hit your target and train harder with this proven line. It provides performance similar to self-defense and competition loads for a familiar feel and realistic practice.

"Training is everything—whether you're looking to compete or defend. I know I can trust Federal American Eagle to build my skills and keep them sharp."

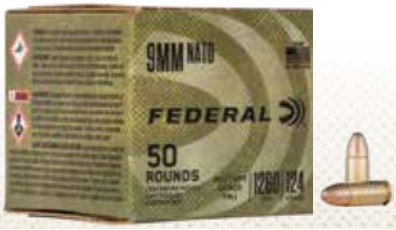
-KRYSTAL DUNN
COMPETITION SHOOTER

AMERICAN EAGLE IRT

Safe range time starts here. American Eagle® Indoor Range Training (IRT) has a reduced-lead bullet fully encapsulated in copper for safer, economical training. It's powered by a toxic metal-free primer and produces ballistics matched to those of equivalent self-defense rounds.

AMERICAN EAGLE IRT LEAD FREE

We've made the firing line even cleaner with American Eagle IRT Lead Free. Its proprietary bullets are completely lead-free and its Federal® Catalyst™ primer offers the same reliability, shelf life and ballistics of conventional lead styphnate primers—without the lead.



9MM NATO MILITARY GRADE BALL

Federal 9mm NATO features military-quality 124-grain FMJ bullets loaded to higher-velocities than rounds typically offered for the consumer market. The ammunition is built to NATO specifications and its sealed case ensures reliable ignition, cycling and ballistics.

CHAMPION

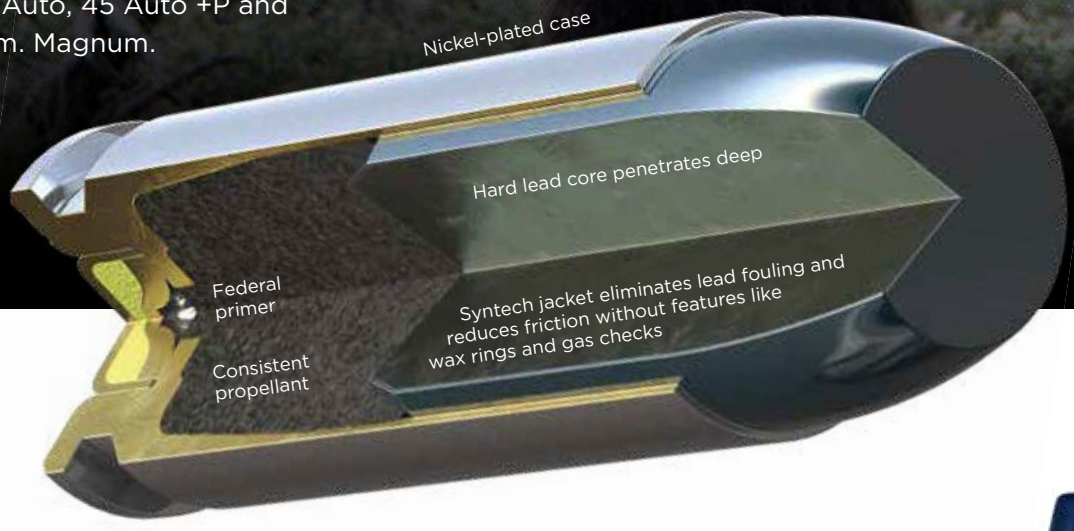
Loaded with Federal brass and quality primers, Champion™ handgun loads provide accurate, target-grade performance for shooters who put a lot of rounds downrange.

Federal Connection
We just introduced an all-new subscription service on select American Eagle handgun loads. Learn all the details and subscribe today at *federalpremium.com/federal-connection.html*.

FOR A FULL LIST OF AVAILABLE LOADS AND BALLISTICS, REFER TO PAGES 43-44.

SOLID CORE

Sometimes wild places can put you in a tight spot. That's why we designed Solid Core. Its extremely hard, flat-nose lead bullet holds together while blowing through bone, providing high weight retention and deep penetration. Syntech® polymer jacket technology reduces the friction and leading that plague hard cast bullets. Available in popular hunting and defense calibers, including 9mm Luger, 357 Magnum, 40 S&W, 10mm Auto, 45 Auto +P and 44 Rem. Magnum.



Go Deep

Solid Core's hard lead bullet blasts through the toughest hide and bone, for extremely deep penetration. Its Syntech polymer jacket improves performance without costly features like wax rings and gas checks.

TROPHY BONDED BEAR CLAW

Take complete advantage of 10mm Auto ballistics with Trophy Bonded® Bear Claw®. The full-power load and its tough, bonded bullet construction result in superb accuracy, high weight retention and deep penetration, It's just the thing for blasting through the vitals of bears, hogs, deer and more.

BARNES EXPANDER

The all-copper construction of the Barnes® Expander brings handgun hunting performance to new heights. The loads provide 100 percent weight retention, outstanding expansion and superb accuracy.

SWIFT A-FRAME

Handgun hunters leave nothing to chance when it comes to bullet choice. That's why we're proud to offer the robust Swift® A-Frame®. High weight retention and controlled expansion, regardless of distance, make these rounds ideal for big game.

FUSION

These handgun loads feature the same molecularly fused bullet construction as their rifle counterparts for the toughness, accuracy and terminal performance short-barrel hunters need. Bullet weights and velocities have also been optimized to be lethal on deer without punishing the shooter.

POWER-SHOK

Short barrel performance that goes the distance. Handgun hunters can get the reliability and accuracy they need at an affordable price with Federal® Power•Shok® loads. The rounds feature a powerful jacketed hollow-point bullet suited to a variety of medium and big game

FOR A FULL LIST OF AVAILABLE LOADS AND BALLISTICS, REFER TO PAGES 43-44.

HANDGUN BALLISTICS

Abbreviation Key: BTHP = boat-tail hollow point; BTSP = boat-tail soft point; FN = flat nose; LRN = lead round nose; LSW = lead semi-wadcutter; LW = lead wadcutter; SWC = semi-wadcutter; SWHP = semi-wadcutter hollow point; CB = conical ball reduced power/noise; FP = flat point; CP = copper-plated; L = lead; J = jacketed; HP = hollow-point; RN = round nose; SHP = segmented hollow-point; SP = soft point; FMJ = full metal jacket; TSJ = total synthetic jacket; TMF = toxic-metal-free; TMJ = totally encapsulated bullet; V = vented barrel; HE = high energy (not for use in semi-automatic rifles); † = not for revolvers; ◊ = nickel-plated case; CLM=cartridge length longer than SAAMI max, may not fit in all magazines. *Molycoat: molybdenum disulfide dry film lubricant

Federal Premium® Handgun

	USAGE	FEDERAL LOAD NO.	CARTRIDGE	BULLET WEIGHT IN GRAINS	GRAMS	BULLET STYLE	VELOCITY IN FEET PER SECOND (TO NEAREST 10 FPS) MUZZLE	25 YDS.	50 YDS.	75 YDS.	100 YDS.	ENERGY IN FOOT-POUNDS (TO NEAREST 5 FOOT-POUNDS) MUZZLE	25 YDS.	50 YDS.	75 YDS.	100 YDS.	TRAJECTORY SIGHTS .9 INCHES ABOVE BORE LINE 25 YDS.	50 YDS.	75 YDS.	100 YDS.	TEST BARREL LENGTH INCHES
	FEDERAL PREMIUM PERSONAL DEFENSE HST®																				
	6	P380HST1S	**380 AUTO**	99	6.42	HST	1030	986	948	915	885	233	213	197	184	172	⊕	-1.3	-5.1	-11.4	3.75
NEW	6	P327HST1S	**327 FEDERAL MAGNUM**	104	6.74	HST	1525	1080	895	781	690	537	270	185	141	110	⊕	-0.9	-4.4	-11.2	4
NEW	6	P30HST1S	**30 SUPER CARRY**	100	6.48	HST	1250	1185	1129	1081	1041	347	312	283	260	241	⊕	-0.6	-3	-7.2	4
	6	P9HST1S	**9MM LUGER**	124	8.04	HST	1150	1095	1049	1010	977	364	330	303	281	263	⊕	-0.9	-3.8	-8.8	4
	6	P9HST3S	**9MM LUGER +P**	124	8.04	HST	1200	1136	1083	1039	1002	396	355	323	297	277	⊕	-0.8	-3.4	-8	4
	6	P9HST2S	**9MM LUGER**	147	8.04	HST	1000	976	953	933	914	326	311	297	284	273	⊕	-1.4	-5.2	-11.5	4
NEW	6	P357HST1S	**357 MAGNUM**	154	9.98	HST	1340	1127	999	914	848	614	434	341	286	246	⊕	-0.8	-3.7	-9.2	4
	6	P357SHST1S	**357 SIG**	125	8.1	HST	1360	1275	1200	1136	1083	513	451	400	358	326	⊕	-0.4	-2.4	-6	4
	6	P40HST1S	**40 S&W**	180	11.66	HST	1010	980	954	930	908	408	384	364	346	329	⊕	-1.4	-5.1	-11.4	4
	6	P10HST1S	**10MM AUTO**	200	12.96	HST	1130	1051	991	943	902	567	490	436	395	361	⊕	-1.1	-4.3	-10	5
	6	P45HST2S	**45 AUTO**	230	14.9	HST	890	872	856	840	824	404	389	374	360	347	⊕	-2.0	-6.9	-15.0	5
	6	P45HST1S	**45 AUTO +P**	230	14.9	HST	950	929	909	890	873	461	440	422	405	389	⊕	-1.6	-5.9	-12.8	5
	FEDERAL PREMIUM PERSONAL DEFENSE PRACTICE & DEFEND																				
	6	P9HST1TM100	**9MM LUGER**	124	8.04	HST	1150	1095	1049	1010	977	364	330	303	281	263	⊕	-0.9	-3.8	-8.8	4
	6	P9HST2TM100	**9MM LUGER**	147	9.53	HST	1000	976	953	933	914	326	311	297	284	273	⊕	-1.4	-5.2	-11.5	4
	6	P40HST1TM100	**40 S&W**	180	11.66	HST	1010	980	954	930	908	408	384	364	346	329	⊕	-1.4	-5.1	-11.4	4
	6	P45HST2TM100	**45 AUTO**	230	14.9	HST	890	872	856	840	824	404	389	374	360	347	⊕	-2	-6.9	-15	5
	FEDERAL PREMIUM PERSONAL DEFENSE HYDRA-SHOK DEEP®																				
	6	P380HSD1	**380 AUTO**	99	6.42	HYDRA-SHOK DEEP	1000	949	907	869	835	220	198	181	166	153	⊕	-1.5	-5.7	-12.7	3.75
	6	P9HSD1	**9MM LUGER**	135	8.75	HYDRA-SHOK DEEP	1060	1026	996	970	946	337	316	298	282	268	⊕	-1.2	-4.5	-10.2	4
	6	P38HSD1	**38 SPECIAL +P**	130	8.42	HYDRA-SHOK JHP	900	877	856	836	816	234	222	211	202	192	⊕	-1.9	-6.9	-14.9	4-V
	6	P40HSD1	**40 S&W**	165	10.69	HYDRA-SHOK DEEP	100	1011	978	949	922	404	375	350	330	311	⊕	-1.2	-4.7	-10.6	4
	6	P45HSD1	**45 AUTO**	210	13.61	HYDRA-SHOK DEEP	980	952	927	903	882	448	423	400	381	363	⊕	-1.5	-5.5	-12.2	5
	FEDERAL PREMIUM PERSONAL DEFENSE® HYDRA-SHOK®																				
	6	P32HS1	**32 AUTO**	65	4.21	HYDRA-SHOK	925	892	862	834	808	123	115	107	100	94	⊕	-1.8	-6.6	-14.5	4
	6	PD380HS1 H	**380 AUTO**	90	5.83	HYDRA-SHOK	1000	953	914	879	847	200	182	167	154	143	⊕	-1.5	-5.6	-12.5	3.75
	6	P9HS1	**9MM LUGER**	124	8.04	HYDRA-SHOK	1120	1070	1028	993	961	345	315	291	271	255	⊕	-1.0	-4.0	-9.3	4
	6	PD38HS3 H	**38 SPECIAL**	110	7.13	HYDRA-SHOK	980	943	911	882	855	235	217	203	190	179	⊕	-1.5	-5.7	-12.6	4-V
	6	P38HS1	**38 SPECIAL +P**	129	8.36	HYDRA-SHOK	950	926	904	884	865	258	246	234	224	214	⊕	-1.6	-5.9	-13	4-V
	6	P357HS1	**357 MAGNUM**	158	10.24	HYDRA-SHOK	1240	1187	1139	1098	1063	539	494	455	423	396	⊕	-0.6	-3.0	-7.1	4-V
	6	P40HS3	**40 S&W**	165	10.69	HYDRA-SHOK	980	950	924	899	876	352	331	312	296	281	⊕	-1.5	-5.6	-12.3	4
	6	P44HS1	**44 REM. MAGNUM**	240	15.55	HYDRA-SHOK	1210	1152	1102	1060	1024	780	707	647	599	559	⊕	-0.7	-3.3	-7.7	4-V
	6	P45HS1	**45 AUTO**	230	14.9	HYDRA-SHOK	900	882	865	848	832	414	397	382	367	354	⊕	-1.9	-6.7	-14.6	5
	FEDERAL PREMIUM HUNTING HANDGUN																				
	2	P327SA	**327 FEDERAL MAGNUM**	100	6.47	SWIFT A-FRAME	1500	1411	1329	1254	1189	500	442	392	349	314	⊕	-0.2	-1.6	-4.4	4-V
	3 4	P9SHC1	**9MM LUGER**	147	9.53	SOLID CORE	1120	1082	1048	1019	993	409	382	359	339	322	⊕	-1.0	-3.9	-8.9	4
	2	P357XB1	**357 MAGNUM**	140	9.07	BARNES EXPANDER	1400	1326	1257	1196	1143	609	546	491	445	406	⊕	-0.3	-2.0	-5.3	6-V
	2	P357SA	**357 MAGNUM**	180	11.66	SWIFT A-FRAME	1130	1086	1049	1016	988	510	471	439	413	390	⊕	-0.9	-3.9	-8.9	6-V
	3 4	P357SHC1	**357 MAGNUM**	180	11.66	SOLID CORE	1400	1333	1270	1214	1163	783	710	645	589	541	⊕	-0.3	-2	-5.1	4-V
	3 4	P40SHC1	**40 S&W**	200	12.96	SOLID CORE	1000	976	953	933	914	444	423	404	386	371	⊕	-1.4	-5.2	-11.5	4
	3	P10T1	**10MM AUTO**	180	11.66	TROPHY BONDED JSP	1275	1192	1123	1067	1021	650	568	504	455	417	⊕	-0.6	-3.0	-7.2	5
	3 4	P10SHC1	**10MM AUTO**	200	12.96	SOLID CORE	1200	1143	1095	1054	1019	639	580	532	493	461	⊕	-0.8	-3.3	-7.9	5
	1 2	P10SA	**10MM AUTO**	200	12.96	SWIFT A-FRAME	1100	1062	1030	1001	975	537	501	471	445	423	⊕	-1.0	-4.1	-9.3	5
	2	P41XB1	**41 REM. MAGNUM**	180	11.66	BARNES EXPANDER	1340	1262	1193	1134	1084	718	636	569	514	470	⊕	-0.5	-2.5	-6.1	6-V
	2	P41SA	**41 REM. MAGNUM**	210	13.61	SWIFT A-FRAME	1360	1289	1224	1167	1118	862	775	698	635	582	⊕	-0.4	-2.3	-5.7	6-V
	2	P44XB1	**44 REM. MAGNUM**	225	14.58	BARNES EXPANDER	1280	1209	1147	1096	1052	818	730	658	600	553	⊕	-0.6	-2.8	-6.9	6-V
	2	P44SA	**44 REM. MAGNUM**	280	18.14	SWIFT A-FRAME	1170	1107	1056	1013	977	851	762	693	638	594	⊕	-0.9	-3.7	-8.6	6-V
	3 4	P44SHC1	**44 REM. MAGNUM**	300	19.44	SOLID CORE	1300	1230	1169	1117	1073	1126	1008	911	831	766	⊕	-0.5	-2.7	-6.5	4-V
	3 4	P45SHC1	**45 AUTO +P**	240	15.55	SOLID CORE	1000	973	949	926	906	533	505	480	457	437	⊕	-1.4	-5.2	-11.6	5
	2	P454XB1	**454 CASULL**	250	16.2	BARNES EXPANDER	1530	1423	1326	1239	1165	1299	1123	976	852	753	⊕	-0.2	-1.6	-4.4	5.7-V
	2	P454SA	**454 CASULL**	300	19.44	SWIFT A-FRAME	1520	1410	1311	1223	1149	1539	1324	1145	996	879	⊕	-0.2	-1.7	-4.6	5.7-V
	2	P460XB1	**460 S&W**	275	17.82	BARNES EXPANDER	1670	1595	1522	1453	1388	1703	1553	1415	1289	1177	⊕	0.1	-0.8	-2.7	8.4-V
	2	P460SA	**460 S&W**	300	19.44	SWIFT A-FRAME	1750	1625	1506	1397	1300	2040	1758	1510	1300	1125	⊕	0.1	-0.8	-2.8	8.4-V
	2	P500XB1	**500 S&W**	275	17.82	BARNES EXPANDER	1660	1544	1435	1337	1249	1682	1455	1257	1091	952	⊕	0.0	-1.1	-3.4	8.4-V
	3	P500SA	**500 S&W**	325	21.06	SWIFT A-FRAME	1800	1677	1559	1449	1350	2338	2028	1754	1515	1315	⊕	0.1	-0.6	-2.4	8.4-V
	FEDERAL PREMIUM GOLD MEDAL®																				
	7	GM38A	**38 SPECIAL**	148	9.59	LW MATCH	690	650	610	570	540	155	140	120	110	95	⊕	-4.3	-14.4	-31.2	4-V
	7	GM45B	**45 AUTO**	185	11.99	FMJ-SWC MATCH	770	740	700	670	640	245	220	205	185	170	⊕	-3.1	-10.6	-23.0	5
	7	GM45A	**45 AUTO**	230	14.90	FMJ MATCH	860	840	830	810	800	380	365	350	340	325	⊕	-2.2	-7.5	-16.1	5

Federal® Handgun

	USAGE	FEDERAL LOAD NO.	CARTRIDGE	BULLET WEIGHT IN GRAINS	GRAMS	BULLET STYLE	VELOCITY IN FEET PER SECOND (TO NEAREST 10 FPS) MUZZLE	25 YDS.	50 YDS.	75 YDS.	100 YDS.	ENERGY IN FOOT-POUNDS (TO NEAREST 5 FOOT-POUNDS) MUZZLE	25 YDS.	50 YDS.	75 YDS.	100 YDS.	TRAJECTORY SIGHTS .9 INCHES ABOVE BORE LINE 25 YDS.	50 YDS.	75 YDS.	100 YDS.	TEST BARREL LENGTH INCHES
	FEDERAL POWER•SHOK®																				
	2	C357G	**357 MAGNUM**	180	11.66	JHP	1080	1050	1020	1000	970	465	440	415	395	380	⊕	-1.1	-4.2	-9.6	4-V
	2	C41A	**41 REM. MAGNUM**	210	13.61	JHP	1230	1170	1120	1080	1040	705	640	585	545	505	⊕	-0.7	-3.1	-7.3	4-V
	2	C44B	**44 REM. MAGNUM**	180	11.66	JHP	1460	1340	1240	1160	1090	850	720	615	535	470	⊕	-0.3	-2.0	-5.4	4-V
	2	C44A	**44 REM. MAGNUM**	240	15.55	JHP	1230	1170	1120	1070	1040	805	730	665	615	570	⊕	-0.7	-3.1	-7.4	4-V
	FEDERAL PERSONAL DEFENSE PUNCH™																				
	6	PD22L1	**22 LONG RIFLE**	29	1.87	SOLID	1070	1020	978	843	912	74	67	62	57	54	⊕	-0.61	-3.5	-8.9	2
	6	PD380P1	**380 AUTO**	85	5.51	JHP	1000	949	907	869	835	189	170	155	143	132	⊕	-1.5	-5.7	-12.7	3.75
	6	PD9P1	**9MM LUGER**	124	8.04	JHP	1150	1095	1049	1010	977	364	330	303	281	263	⊕	-0.9	-3.8	-8.8	4
	6	PD38P1	**38 SPECIAL +P**	120	7.78	JHP	1000	949	907	869	835	266	240	219	201	186	⊕	-1.5	-5.7	-12.7	4-V
	6	PD40P1	**40 S&W**	165	10.69	JHP	1130	1078	1035	999	967	468	426	392	365	342	⊕	-1.0	-4.0	-9.1	4
	6	PD10P1	**10MM AUTO**	200	12.96	JHP	1100	1075	1052	1031	1012	537	513	491	472	454	⊕	-1.0	-3.9	-8.9	5
NEW	6	PD44SP1	**44 SPECIAL**	180	11.66	JHP	815	795	777	759	741	265	253	241	230	220	⊕	-2.5	-8.7	-18.6	4-V
	6	PD45P1	**45 AUTO**	230	14.9	JHP	890	872	856	840	824	404	389	374	360	347	⊕	-2.0	-6.9	-15	5
	FEDERAL PERSONAL DEFENSE REVOLVER																				
	6	C32HRB	**32 H&R MAGNUM**	85	5.51	JHP	1120	1070	1020	990	950	235	215	195	185	170	⊕	-1.0	-4.1	-9.4	5
	FEDERAL TRAIN+PROTECT™																				
	5 6	TP380VHP1	**380 AUTO**	85	5.51	JHP	1000	953	914	879	847	189	172	158	146	135	⊕	-1.5	-5.6	-12.5	3.75
	6, 7	TP9VHP1	**9MM LUGER**	115	7.45	JHP	1180	1110	1050	1000	960	355	310	280	255	235	⊕	-0.9	-3.7	-8.7	4
	5 6	TP38VHP1	**38 SPECIAL**	158	10.24	SWHP	830	816	802	789	776	242	233	226	218	211	⊕	-2.3	-8	-17.3	4-V
	6	TP357VHP1	**357 MAGNUM**	125	8.1	JHP	1440	1335	1240	1161	1096	575	494	427	374	333	⊕	-0.3	-2.1	-5.4	4-V
	6, 7	TP40VHP1	**40 S&W**	180	11.66	JHP	1000	970	950	920	900	400	375	360	340	325	⊕	-1.4	-5.3	-11.6	4
	6	TP45VHP1	**45 AUTO**	230	14.90	JHP	850	830	820	800	790	370	355	345	330	320	⊕	-2.2	-7.7	-16.4	5
	FEDERAL CHAMPION™																				
	5	C32HRA	**32 H&R MAGNUM**	95	6.16	LSW	1020	970	930	890	860	220	200	180	170	155	⊕	-1.4	-5.3	-12.0	5
	5	WM5199	**9MM LUGER**	115	7.45	FMJ	1125	1063	1013	972	936	323	288	262	241	224	0	-1	-4.1	-9.6	4
	5	WM5223	**40 S&W**	180	11.66	FMJ	1000	972	946	923	901	400	377	358	340	324	0	-1.4	-5.3	-11.6	4
	5	C44SA	**44 SPECIAL**	200	12.96	SWHP	870	850	830	810	790	335	320	305	290	275	⊕	-2.1	-7.4	-16.0	4-V
	5	WM5233	**45 AUTO**	230	14.9	FMJ	845	829	814	800	786	365	351	339	327	315	0	-2.3	-7.8	-16.6	5
	FEDERAL MILITARY GRADE																				
	5	C9N882	**9MM LUGER**	124	8.04	FMJ	1260	1187	1126	1074	1032	437	388	349	318	293	0	-0.6	-3.0	-7.2	4

Usage Key: 1 = Varmints, predators, small game; 2 = medium game; 3 = large, heavy game; 4 = dangerous game; 5 = target shooting, training, practice; 6 = self defense; 7 = competition shooting; 8 = pest control; 9 = low noise, training, specialty.

These trajectory tables were calculated by computer using the best available data for each load. Trajectories are representative of the nominal behavior of each load at standard conditions (59°F temperature; barometric pressure of 29.53 inches; altitude at sea level). Shooters are cautioned that actual trajectories may differ due to variations in altitude, atmospheric conditions, guns, sights and ammunition.

Syntech® Handgun

USAGE	FEDERAL LOAD NO.	CARTRIDGE	BULLET WEIGHT IN GRAINS	BULLET WEIGHT IN GRAMS	BULLET STYLE	VELOCITY IN FEET PER SECOND (TO NEAREST 10 FPS) MUZZLE	25 YDS.	50 YDS.	75 YDS.	100 YDS.	ENERGY IN FOOT-POUNDS (TO NEAREST 5 FOOT-POUNDS) MUZZLE	25 YDS.	50 YDS.	75 YDS.	100 YDS.	TRAJECTORY SIGHTS .9 INCHES ABOVE BORE LINE 25 YDS.	50 YDS.	75 YDS.	100 YDS.	TEST BARREL LENGTH INCHES
SYNTECH RANGE™																				
5	AE380SJ1	**380 AUTO**	95	6.16	TSJ	1000	953	914	879	847	211	192	176	163	151	⊕	-1.5	-5.6	-12.5	3.75
5	AE9SJ1	**9MM LUGER**	115	7.45	TSJ	1130	1105	1083	1062	1043	326	312	299	288	278	⊕	-0.9	-3.6	-8.3	4
5	AE9SJ2	**9MM LUGER**	124	8.04	TSJ	1050	1011	978	949	922	304	282	263	248	234	⊕	-1.2	-4.7	-10.6	4
5	AE38SJ1	**38 SPECIAL**	148	9.59	TSJ	880	858	838	819	800	254	242	231	220	210	⊕	-2.1	-7.2	-15.6	4-V
5	AE40SJ1	**40 S&W**	165	10.69	TSJ	1050	1027	1007	988	970	404	387	371	357	345	⊕	-1.2	-4.4	-10.0	4
5	AE45SJ1	**45 AUTO**	230	14.9	TSJ	830	821	812	803	795	352	344	337	329	322	⊕	-2.3	-7.9	-16.8	5
5	AE10SJ1	**10MM AUTO**	205	13.28	TSJ	1150	1101	1059	1023	992	602	551	510	477	448	⊕	-0.9	-3.7	-8.6	5
SYNTECH ACTION PISTOL™																				
5	AE9SJAP1	**9MM LUGER**	150	9.72	TSJ	870	854	839	824	810	252	243	234	226	219	⊕	-2.1	-7.3	-15.6	4
5	AE40SJAP1	**40 S&W**	205	13.28	TSJ	830	813	797	782	767	314	301	289	278	267	⊕	-2.4	-8.1	-17.5	4
5	AE45SJAP1	**45 AUTO**	220	14.26	TSJ	810	795	780	766	752	320	309	297	287	277	⊕	-2.5	-8.6	-18.5	5
SYNTECH PCC™																				
5	AE9SJPC1	**9MM LUGER**	130	8.42	TSJ	1130	1078	1035	999	967	369	336	309	288	270	⊕	-1.0	-4.0	-9.1	16
SYNTECH TRAINING MATCH®																				
5	AE9SJ4	**9MM LUGER**	124	8.04	TSJ	1150	1064	1000	949	907	364	312	275	248	226	⊕	-1.0	-4.2	-9.8	4
5	AE9SJ3	**9MM LUGER**	147	9.53	TSJ	1000	976	953	933	914	326	311	297	284	273	⊕	-1.4	-5.2	-11.5	4
5	AE40SJ2	**40 S&W**	180	11.66	TSJ	1010	958	914	876	842	408	367	334	307	283	⊕	-1.5	-5.5	-12.4	4
5	AE45SJ2	**45 AUTO**	230	14.9	TSJ	890	855	824	794	767	404	374	346	322	300	⊕	-2.1	-7.3	-16.0	5
SYNTECH DEFENSE™																				
6	S9SJT2	**9MM LUGER**	138	8.94	SHP	1050	989	940	899	862	338	300	271	248	228	⊕	-1.3	-5.1	-11.5	4
6	S40SJT2	**40 S&W**	175	11.34	SHP	1000	950	907	870	836	389	350	320	294	272	⊕	-1.5	-5.6	-12.7	4
6	S45SJT2	**45 AUTO**	205	13.28	SHP	970	926	887	853	821	428	390	358	331	307	⊕	-1.6	-6.0	-13.4	5

American Eagle® Handgun

USAGE	FEDERAL LOAD NO.	CARTRIDGE	BULLET WEIGHT IN GRAINS	BULLET WEIGHT IN GRAMS	BULLET STYLE	VELOCITY IN FEET PER SECOND (TO NEAREST 10 FPS) MUZZLE	25 YDS.	50 YDS.	75 YDS.	100 YDS.	ENERGY IN FOOT-POUNDS (TO NEAREST 5 FOOT-POUNDS) MUZZLE	25 YDS.	50 YDS.	75 YDS.	100 YDS.	TRAJECTORY SIGHTS .9 INCHES ABOVE BORE LINE 25 YDS.	50 YDS.	75 YDS.	100 YDS.	TEST BARREL LENGTH INCHES
AMERICAN EAGLE																				
5	AE5728A	**5.7X28MM**	40	2.59	TMJ	1655	1514	1387	1275	1179	243	204	171	144	124	⊕	0.0	-1.2	-3.8	4.8
5	AE25AP	**25 AUTO**	50	3.24	FMJ	760	738	717	697	677	64	60	57	54	51	⊕	-3.1	-10.4	-22.1	2
5	AE32AP	**32 AUTO**	71	4.6	FMJ	900	872	846	821	798	128	120	113	106	100	⊕	-2.0	-7.0	-15.2	4
5	AE327A	**327 FEDERAL MAGNUM**	85	5.51	JSP	1400	1306	1221	1150	1091	370	322	281	250	225	⊕	-0.4	-2.2	-5.7	4-V
6	AE327	**327 FEDERAL MAGNUM**	100	6.48	JSP	1500	1408	1324	1248	1181	500	440	389	346	310	⊕	-0.2	-1.6	-4.5	4-V
5	AE380AP	**380 AUTO**	95	6.16	FMJ	980	937	899	865	835	203	185	170	158	147	⊕	-1.6	-5.8	-13.0	3.75
5	AE30SCA	**30 SUPER CARRY**	100	6.48	FMJ FP	1250	1185	1129	1081	1041	347	312	283	260	241	⊕	-0.6	-3	-7.2	4
5	AE9DP	**9MM LUGER**	115	7.45	FMJ	1180	1106	1048	1001	961	356	312	280	256	236	⊕	-0.9	-3.7	-8.7	4
5	AE9AP	**9MM LUGER**	124	8.04	FMJ	1150	1095	1049	1010	977	364	330	303	281	263	⊕	-0.9	-3.8	-8.8	4
5	AE9FP	**9MM LUGER**	147	9.53	FMJ FP	1000	976	953	933	914	326	311	297	284	273	⊕	-1.4	-5.2	-11.5	4
5	AE38S3	**38 SUPER +P**	115	7.45	JHP	1130	1067	1016	974	938	326	290	264	242	225	⊕	-1.0	-4.1	-9.5	5
5	AE357S2	**357 SIG**	125	8.1	FMJ	1350	1266	1192	1130	1078	506	445	395	354	323	⊕	-0.5	-2.4	-6.1	4
5	AE38K	**38 SPECIAL**	130	8.42	FMJ	890	870	852	834	817	229	219	209	201	193	⊕	-2.0	-7.0	-15.1	4-V
5	AE38B	**38 SPECIAL**	158	10.24	LRN	770	758	745	733	722	208	201	195	189	183	⊕	-2.9	-9.8	-20.7	4-V
5	AE357A	**357 MAGNUM**	158	10.24	JSP	1240	1187	1139	1098	1063	539	494	455	423	396	⊕	-0.6	-3.0	-7.1	4-V
5	AE40R2	**40 S&W**	155	10.04	FMJ	1160	1095	1043	1000	963	463	413	374	344	319	⊕	-0.9	-3.8	-8.9	4
5	AE40R3	**40 S&W**	165	10.69	FMJ	1130	1078	1035	999	967	468	426	392	365	342	⊕	-1.0	-4.0	-9.1	4
5	AE40R1	**40 S&W**	180	11.66	FMJ	1000	972	946	923	901	400	377	358	340	324	⊕	-1.4	-5.3	-11.6	4
5	AE10A	**10MM AUTO**	180	11.66	FMJ	1030	998	970	945	921	424	398	376	357	339	⊕	-1.3	-4.9	-10.9	5
5	AE44A	**44 REM. MAGNUM**	240	15.55	JHP	1230	1169	1117	1073	1035	806	729	665	613	571	⊕	-0.7	-3.1	-7.4	4-V
5	AE45LC	**45 COLT**	225	14.58	JSP	860	844	828	813	799	369	356	343	330	319	⊕	-2.2	-7.5	-16.1	4
AMERICAN EAGLE IRT																				
5	AE9N1	**9MM LUGER**	124	8.04	TMJ	1120	1070	1028	993	961	345	315	291	271	255	⊕	-1.0	-4.0	-9.3	4
5	AE9N2	**9MM LUGER**	147	9.53	TMJ	1000	976	953	933	914	326	311	297	284	273	⊕	-1.4	-5.2	-11.5	4
5	AE40N1	**40 S&W**	180	11.66	TMJ	1000	972	946	923	901	400	377	358	340	324	⊕	-1.4	-5.3	-11.6	4
5	AE45N1	**45 AUTO**	230	14.9	TMJ	850	834	819	804	790	369	355	343	330	319	⊕	-2.2	-7.7	-16.4	5
AMERICAN EAGLE IRT LEAD FREE																				
5	AE380LF1	**380 AUTO**	70	4.54	RHT	1110	1035	977	930	890	191	166	148	135	123	⊕	-1.1	-4.5	-10.4	3.75
5	AE9LF1	**9MM LUGER**	70	4.54	RHT	1625	1457	1312	1190	1096	410	330	268	220	187	⊕	-0.1	-1.5	-4.4	4
5	AE38LF1	**38 SPECIAL**	100	6.48	RHT	960	935	913	892	872	205	194	185	177	169	⊕	-1.6	-5.8	-12.7	4-V
5	AE40LF1	**40 S&W**	120	7.78	RHT	1330	1199	1099	1026	970	471	383	322	280	251	⊕	-0.6	-3.0	-7.4	4
5	AE45LF1	**45 AUTO**	137	8.88	RHT	1200	1136	1083	1039	1002	438	393	357	329	306	⊕	-0.8	-3.4	-8.0	5

Fusion® Handgun

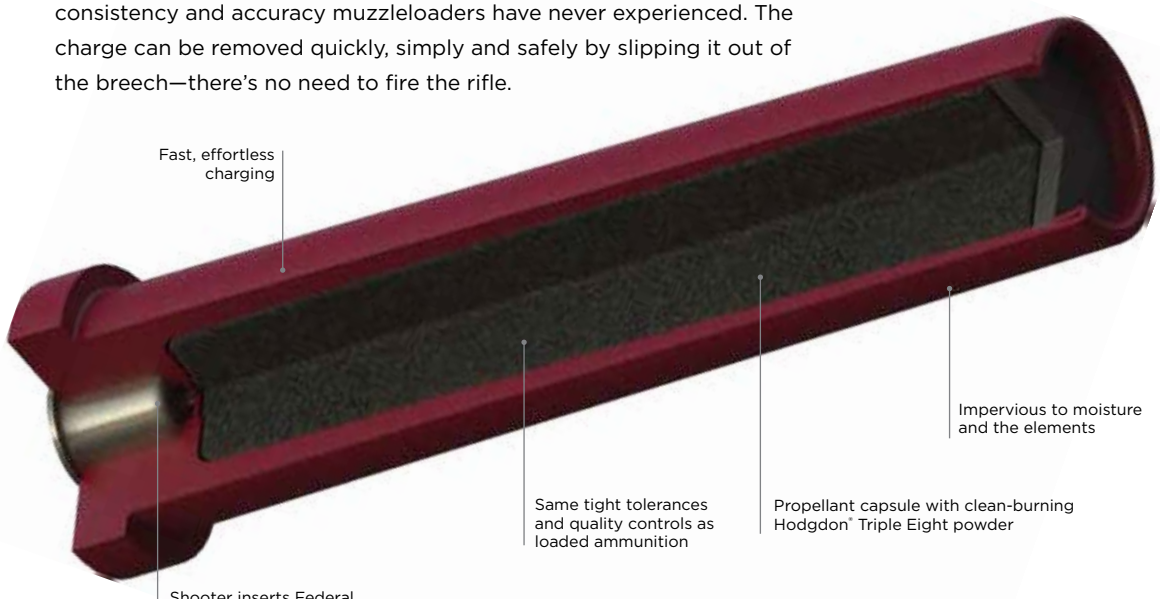
USAGE	FEDERAL LOAD NO.	CARTRIDGE	BULLET WEIGHT IN GRAINS	BULLET WEIGHT IN GRAMS	BULLET STYLE	VELOCITY IN FEET PER SECOND (TO NEAREST 10 FPS) MUZZLE	25 YDS.	50 YDS.	75 YDS.	100 YDS.	ENERGY IN FOOT-POUNDS (TO NEAREST 5 FOOT-POUNDS) MUZZLE	25 YDS.	50 YDS.	75 YDS.	100 YDS.	TRAJECTORY SIGHTS .9 INCHES ABOVE BORE LINE 25 YDS.	50 YDS.	75 YDS.	100 YDS.	TEST BARREL LENGTH INCHES
FUSION																				
2	F357FS1	**357 MAGNUM**	158	10.24	FUSION SP	1240	1187	1139	1098	1063	539	494	455	423	396	⊕	-0.6	-3.0	-7.1	4-V
2	F10FS1	**10MM AUTO**	200	12.96	FUSION SP	1200	1147	1102	1063	1030	639	585	539	502	471	⊕	-0.8	-3.3	-7.7	5
2	F41FS1	**41 REM. MAGNUM**	210	13.61	FUSION SP	1230	1172	1122	1079	1043	705	641	587	543	507	⊕	-0.7	-3.1	-7.3	4-V
2	F44FS1	**44 REM. MAGNUM**	240	15.55	FUSION SP	1290	1221	1162	1110	1067	887	795	719	657	607	⊕	-0.6	-2.7	-6.7	4-V
2	F454FS1	**454 CASULL**	260	16.85	FUSION SP	1350	1266	1192	1130	1078	1052	925	821	737	671	⊕	-0.5	-2.4	-6.1	5.7-V
2	F460FS1	**460 S&W**	260	16.85	FUSION SP	1600	1495	1397	1309	1229	1478	1289	1126	989	872	⊕	-0.1	-1.3	-3.7	8.4-V
2	F500FS2	**500 S&W**	325	21.06	FUSION SP	1450	1357	1272	1198	1134	1517	1329	1168	1035	929	⊕	-0.3	-1.9	-5.0	8.4-V
2	F50AEFS1	**50 ACTION EXPRESS**	300	19.44	FUSION SP	1550	1451	1361	1278	1205	1600	1402	1233	1088	967	⊕	-0.1	-1.5	-4.1	6

FIRESTICK

As long as there have been muzzleloading firearms, their shooters have been burdened by reliability, consistency and safety concerns. It all ends with Federal Premium® FireStick™, the critical component of a whole new ignition system that uses an encapsulated propellant charge that inserts from the breech, with the bullet loaded from the muzzle. It's the perfect match for Federal Premium Trophy® Copper or Lead Tipped muzzleloader bullets and is compatible with the new Traditions™ NitroFire rifle. **Now available in a 80-, 100- and 120-grain equivalent charges.**

Breech Breakthrough

FireStick's charge is completely impervious to moisture and built to the same tight tolerances as Federal Premium factory ammunition, ensuring shot-to-shot consistency and accuracy muzzleloaders have never experienced. The charge can be removed quickly, simply and safely by slipping it out of the breech—there's no need to fire the rifle.



FIRESTICK	
PART NO.	GRAIN EQUIVALENT
PMZFS80T8	80
PMZFS100T8	100
PMZFS120T8	120

"For us, muzzleloading is the ultimate season extender, and FireStick allows us to focus solely on the hunt. Combined with the Traditions NitroFire rifle, the system makes shooting a muzzleloader safer and simpler than it's ever been."

Lee & Tiffany Lakosky
Federal Ambassadors
Hosts of "Crush with Lee & Tiffany"

LEAD FREE BULLET

B.O.R. LOCK MZ TROPHY COPPER & LEAD

We redefined modern in-line performance with the B.O.R. Lock MZ® system. Available in Trophy® Copper and Lead Tipped versions, it provides outstanding accuracy in a non-sabot design that's easy to load, scrubs fouling from the breech and ensures consistent bullet seating.

209 MUZZLELOADING PRIMER

Ignition is everything. The specialized formulation of our 209 Muzzleloading Primer provides superior resistance to moisture, as well as hot, reliable ignition of both granulated powder and pellets in any conditions. The design eliminates the excessive breech fouling typical of standard shotshell primers.

TROPHY COPPER MUZZLELOADER BULLET WITH B.O.R. LOCK MZ

LOAD NO.	CALIBER	GR
PMZ50TC1*	50	270

LEAD MUZZLELOADER BULLET WITH B.O.R. LOCK MZ

LOAD NO.	CALIBER	GR
PMZ50LMZ1	50	350

MUZZLELOADING PRIMER

PART NO.	TYPE
PMZ209	209

**For best performance, use with magnum primers.*

AUTOMATCH

Fuel your semi-auto rimfire right with ammunition built specifically for it. Federal AutoMatch™ cycles reliably in the full range of semi-auto platforms and serves up the accuracy needed for the range, competition or backyard plinking.

Turning Lead Into Gold

In the 1990s, Federal invested a great deal in research and development to achieve what at the time seemed impossible: an American cartridge winning a gold medal at the Olympics. That's exactly what happened at the 1992 games in Barcelona: the U.S. Shooting Team captured gold and silver medals in rifle using Federal Gold Medal UltraMatch 22 LR ammunition. They were the first medals won by an American-made load since 1960.

SPEER TNT

Explosive on impact and pinpoint accurate. Federal Premium Speer® TNT® rimfire loads deliver at a distance.

GOLD MEDAL

Shoot at the highest levels of rimfire competition with Federal Premium® Gold Medal®. The rounds are built with precision bullets and ultra-tight tolerances that ensure peak performance and consistency.

BYOB

There's a party at the range, so BYOB. Federal® BYOB® rimfire buckets and bottles stack, store and carry easily. They're loaded with high-quality 17 HMR, 22 LR or 22 WMR rounds that are perfect for a day at the range or in the field.

V-MAX

If you hunt varmints with a rimfire rifle, extract maximum range and power from the platform with Federal Premium® V-Max® loads.

AMERICAN EAGLE

Whether you're shooting targets or small game, you'll get the precision and consistency you need with American Eagle® rimfire loads. They provide reliable, affordable performance with quality bullets, brass and priming.

AMERICAN EAGLE SUPPRESSOR

Sub-sonic loading slashes the volume of these rounds, yet their carefully selected propellants, bullet weights and primers mean they still perform to their ballistic peak and cycle flawlessly in suppressed firearms.

CHAMPION

Plinking. Targets. Training. Whatever rimfire pursuit drives you, get accurate, affordable performance with Federal® Champion™ rimfire. The reliable bullets, priming and brass are suited to a wide variety of rimfire range applications.

GAME LOADS

Whether you're after bushytails or bunnies, you'll put more in your bag with Federal Game Loads. The rimfire rounds offer consistent, reliable performance on small game, yet are affordably priced to keep you in the field for less.

FOR A FULL LIST OF AVAILABLE LOADS AND BALLISTICS, REFER TO PAGES 49-50.

RIMFIRE BALLISTICS

Abbreviation Key: BTHP = boat-tail hollow point; BTSP = boat-tail soft point; FN = flat nose; LRN = lead round nose; LSW = lead semi-wadcutter; LW = lead wadcutter; SWC = semi-wadcutter; SWHP = semi-wadcutter hollow point; CB = conical ball reduced power/noise; FP = flat point; CP = copper-plated; L = lead; J = jacketed; HP = hollow-point; RN = round nose; SHP = segmented hollow-point; SP = soft point; FMJ = full metal jacket; TSJ = total synthetic jacket; TMF = toxic-metal-free; TMJ = totally encapsulated bullet; V = vented barrel; HE = high energy (not for use in semi-automatic rifles); † = not for revolvers; ◊ = nickel-plated case; CLM=cartridge length longer than SAAMI max, may not fit in all magazines. *Molycoat: molybdenum disulfide dry film lubricant

Federal Premium® Rimfire

USAGE	FEDERAL LOAD NO.	CARTRIDGE	BULLET WEIGHT IN GRAINS	BULLET WEIGHT IN GRAMS	BULLET STYLE	VELOCITY IN FEET PER SECOND (TO NEAREST 10 FPS) MUZZLE	50 YDS.	100 YDS.	ENERGY IN FOOT-POUNDS (TO NEAREST 5 FOOT-POUNDS) MUZZLE	50 YDS.	100 YDS.	WIND DRIFT IN INCHES 10 MPH CROSSWIND 50 YDS.	100 YDS.	HEIGHT OF BULLET TRAJECTORY IN INCHES ABOVE OR BELOW LINE OF SIGHT IF ZEROED AT ⊕ YARDS. SIGHTS 1.5 INCHES ABOVE BORE LINE. AVERAGE RANGE 50 YDS.	100 YDS.
FEDERAL PREMIUM GOLD MEDAL®															
5	711B	**22 LONG RIFLE**	40	2.59	SOLID	1080	994	930	104	88	77	1.1	4.2	⊕	-7.3
5	719	**22 LONG RIFLE**	40	2.59	SOLID	1200	1075	991	128	103	87	1.3	4.9	⊕	-6.0
FEDERAL PREMIUM VARMINT															
1	P770	**17 HMR**	17	1.1	SPEER TNT JHP	2530	2150	1804	242	174	123	0.9	3.8	⊕	-0.4
1	P771	**17 HMR**	17	1.1	HORNADY® V-MAX®	2530	2194	1884	242	182	134	0.8	3.3	⊕	-0.3
FEDERAL PREMIUM PERSONAL DEFENSE PUNCH															
6	PD22L1	**22 LONG RIFLE**	29	1.87	SOLID	1070	978	912	74	62	54	1.25	2.2	⊕	-7.5

American Eagle® Rimfire

USAGE	FEDERAL LOAD NO.	CARTRIDGE	BULLET WEIGHT IN GRAINS	BULLET WEIGHT IN GRAMS	BULLET STYLE	VELOCITY IN FEET PER SECOND (TO NEAREST 10 FPS) MUZZLE	50 YDS.	100 YDS.	ENERGY IN FOOT-POUNDS (TO NEAREST 5 FOOT-POUNDS) MUZZLE	50 YDS.	100 YDS.	WIND DRIFT IN INCHES 10 MPH CROSSWIND 50 YDS.	100 YDS.	HEIGHT OF BULLET TRAJECTORY IN INCHES ABOVE OR BELOW LINE OF SIGHT IF ZEROED AT ⊕ YARDS. SIGHTS 1.5 INCHES ABOVE BORE LINE. AVERAGE RANGE 50 YDS.	100 YDS.
AMERICAN EAGLE															
5	AE22*	**22 LONG RIFLE**	38	2.46	CPHP	1260	1110	1010	134	104	86	1.5	5.5	⊕	-5.5
AMERICAN EAGLE SUPPRESSOR															
5	AE22SUP1	**22 LONG RIFLE**	45	2.92	CP Solid	970	908	856	94	82	73	1.0	3.7	⊕	-9.0

V-Max is a registered trademark of Hornady.

* 40-count box

Usage Key: 1 = Varmints, predators, small game; 2 = medium game; 3 = large, heavy game; 4 = dangerous game; 5 = target shooting, training, practice; 6 = self defense; 7 = competition shooting; 8 = pest control; 9 = low noise, training, specialty.

These trajectory tables were calculated by computer using the best available data for each load. Trajectories are representative of the nominal behavior of each load at standard conditions (59°F temperature; barometric pressure of 29.53 inches; altitude at sea level). Shooters are cautioned that actual trajectories may differ due to variations in altitude, atmospheric conditions, guns, sights and ammunition.

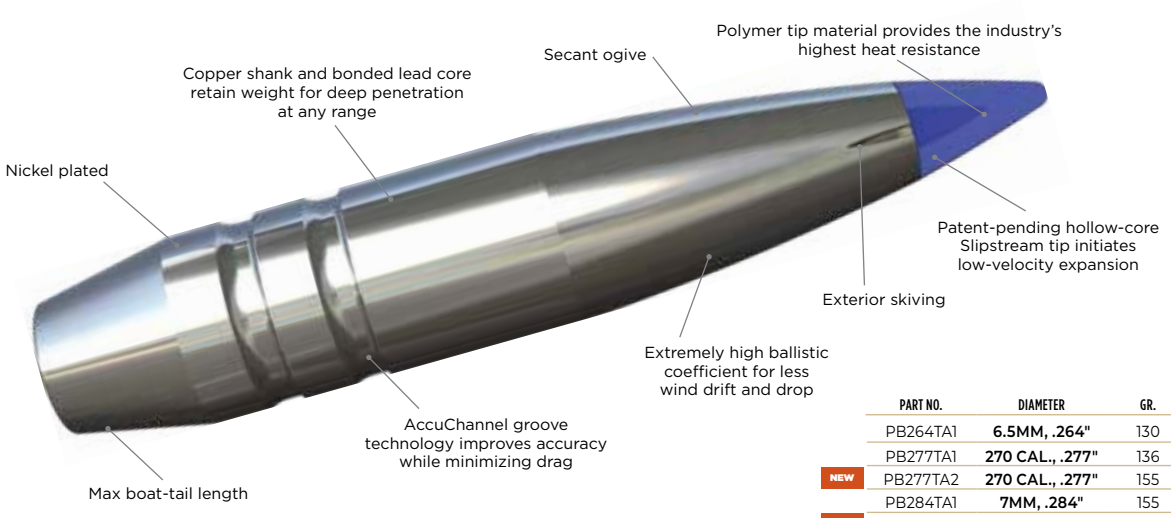
Federal® Rimfire

USAGE	FEDERAL LOAD NO.	CARTRIDGE	BULLET WEIGHT IN GRAINS	BULLET WEIGHT IN GRAMS	BULLET STYLE	VELOCITY IN FEET PER SECOND (TO NEAREST 10 FPS) MUZZLE	50 YDS.	100 YDS.	ENERGY IN FOOT-POUNDS (TO NEAREST 5 FOOT-POUNDS) MUZZLE	50 YDS.	100 YDS.	WIND DRIFT IN INCHES 10 MPH CROSSWIND 50 YDS.	100 YDS.	HEIGHT OF BULLET TRAJECTORY IN INCHES ABOVE OR BELOW LINE OF SIGHT IF ZEROED AT ⊕ YARDS. SIGHTS 1.5 INCHES ABOVE BORE LINE. AVERAGE RANGE 50 YDS.	100 YDS.
FEDERAL GAME LOAD															
1	716	**22 LONG RIFLE**	25	1.62	NO. 12 LEAD BIRD SHOT	-	-	-	-	-	-	-	-	-	-
5	724	**22 LONG RIFLE**	31	2.01	CPHP	1430	1197	1046	141	99	75	1.8	7.1	⊕	-4.6
1 5	712	**22 LONG RIFLE**	38	2.46	CPHP	1260	1110	1010	134	104	86	1.5	5.5	⊕	-5.5
5	710	**22 LONG RIFLE**	40	2.59	CP SOLID	1240	1103	1011	137	108	91	1.4	5.1	⊕	-5.6
5	757	**22 WMR**	50	3.24	JHP	1530	1347	1197	260	201	159	1.2	4.7	⊕	-3.3
FEDERAL CHAMPION™															
5	745***	**22 LONG RIFLE**	36	2.33	CPHP	1260	1104	1003	127	97	80	1.5	5.7	⊕	-5.6
5	AM22**	**22 LONG RIFLE**	40	2.59	SOLID	1200	1075	991	128	103	87	1.3	4.9	⊕	-6.0
5	510	**22 LONG RIFLE**	40	2.59	SOLID	1240	1103	1011	137	108	91	1.4	5.1	⊕	-5.6
5	737	**22 WMR**	40	2.59	FMJ	1880	1570	1311	314	219	153	1.4	5.8	⊕	-2.1
BYOB BULK PACKS															
5	750BTL450	**22 LONG RIFLE**	36	2.33	CPHP	1260	1104	1003	127	97	80	1.5	5.7	⊕	-5.6
5	750BKT1375	**22 LONG RIFLE**	36	2.33	CPHP	1260	1104	1003	127	97	80	1.5	5.7	⊕	-5.6
5	757BTL250	**22 WMR**	50	3.24	JHP	1530	1347	1197	260	201	159	1.2	4.7	⊕	-3.3
5	770BTL250	**17 HMR**	17	1.1	JHP	2530	2150	1804	242	174	123	0.9	3.8	⊕	-0.4

*** 525-count bulk pack
** 325-count bulk pack

TERMINAL ASCENT NEW

Harness the world's best all-range performance in every handload that leaves your press. Federal Premium® Terminal Ascent™ component bullets' bonded construction fuels deep penetration on close targets, while the patented Slipstream® polymer tip initiates expansion at velocities 200 fps lower than comparable designs. The bullet's long, sleek profile offers an extremely high ballistic coefficient, and its AccuChannel® groove technology improves accuracy and minimizes drag. Now available in a full selection of bullet weights and diameters, including new heavy for-caliber .277, .284 and .308 options.



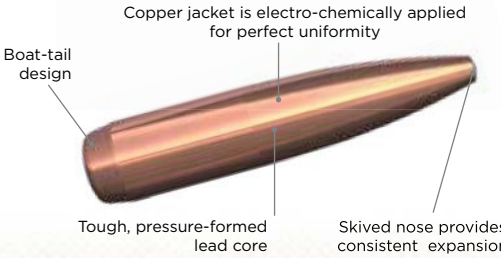
	PART NO.	DIAMETER	GR.	BALLISTIC COEFFICIENT G1	BALLISTIC COEFFICIENT G7	COUNT
	PB264TA1	**6.5MM, .264"**	130	0.532	0.263	50
	PB277TA1	**270 CAL., .277"**	136	0.493	0.247	50
NEW	PB277TA2	**270 CAL., .277"**	155	0.585	0.300	50
	PB284TA1	**7MM, .284"**	155	0.586	0.300	50
NEW	PB284TA2	**7MM, .284"**	175	0.625	0.320	50
	PB308TA1	**308 CAL, .308"**	175	0.520	0.258	50
	PB308TA2	**308 CAL., .308"**	200	0.608	0.304	50
NEW	PB308TA3	**308 CAL., .308"**	210	0.650	0.333	50

FUSION

Handloaders can roll their own with the bullet that changed hunting ammunition forever. Fusion® component bullets provide the largest expansion and highest weight retention in their class. With a molecularly fused jacket and a pressure-formed core, Fusion transfers maximum energy on target.

PART NO.	DIAMETER	GR.	BALLISTIC COEFFICIENT G1	COUNT
FB224F1	**224 CAL., .224"**	90	0.424	50
FB264F2	**6.5MM, .264"**	140	0.497	100
FB277F2	**270 CAL., .277"**	130	0.367	100
FB277F4	**270 CAL., .277"**	150	0.413	100
FB284F1	**7MM, .284"**	140	0.416	100
FB284F3	**7MM, .284"**	160	0.455	100
FB284F4	**7MM, .284"**	175	0.537	100

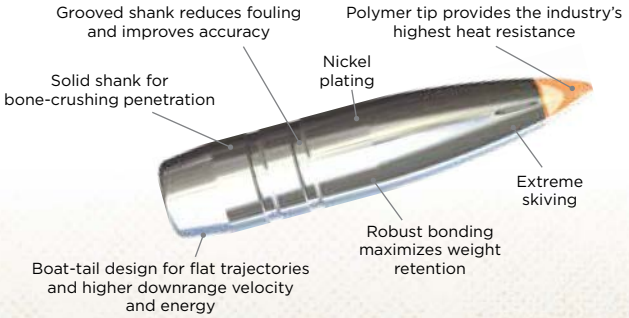
PART NO.	DIAMETER	GR.	BALLISTIC COEFFICIENT G1	COUNT
FB308F1	**30 CAL., 308"**	150	0.387	50
FB308F4	**30 CAL., 308"**	180	0.483	50
FB338F1	**338 CAL., .338"**	200	0.458	50
FB338F2	**338 CAL., .338"**	225	0.416	50
FB350F1	**350 CAL., .358"**	160	0.259	100
FB450F1	**450 CAL., .452"**	260	0.180	100



TROPHY BONDED TIP

This proven design stands apart from all other big game bullets, combining bonded construction, a bone-crushing copper shank, boat-tail design and a polymer tip that tightens groups at long range.

PART NO.	DIAMETER	GR.	BALLISTIC COEFFICIENT G1	COUNT
PB277TT130	**270 CAL., .277"**	130	0.440	50
PB277TT140	**270 CAL., .277"**	140	0.455	50
PB284TT140	**7MM, .284"**	140	0.430	50
PB284TT160	**7MM, .284"**	160	0.520	50
PB308TT165	**30 CAL., .308"**	165	0.450	50
PB308TT180	**30 CAL., .308"**	180	0.500	50

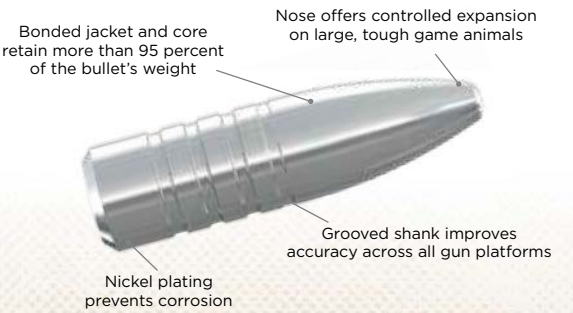


TROPHY BONDED BEAR CLAW

Deadly reliability made this bullet a legend across the wildest corners of the globe. Its bonded jacket and core provide controlled expansion and retain more than 95 percent of the bullet's weight to penetrate deep.

PART NO.	DIAMETER	GR.	BALLISTIC COEFFICIENT G1	COUNT
PB375TBBC250	**375 CAL., .375"**	250	0.375	25
PB375TBBC300	**375 CAL., .375"**	300	0.342	25
PB416TBBC400	**416 CAL., .416"**	400	0.373	25

PART NO.	DIAMETER	GR.	BALLISTIC COEFFICIENT G1	COUNT
PB458TBBC500	**458 CAL., .458"**	500	0.282	25
PB474TBBC500	**474 CAL., .474"**	500	0.299	25

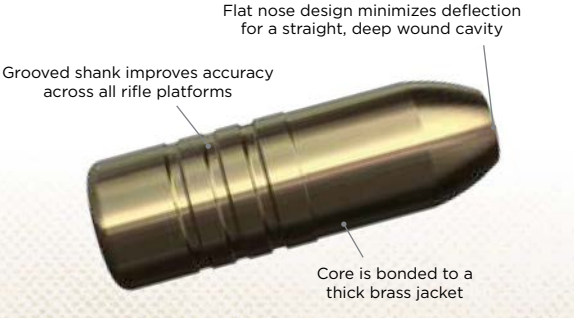


TROPHY BONDED SLEDGEHAMMER SOLID

This time-tested design bonds a lead core to a thick brass jacket to achieve bone-crushing penetration on the toughest, most dangerous game on the planet. Its flat nose minimizes deflection for a straight, deep wound cavity.

PART NO.	DIAMETER	GR.	BALLISTIC COEFFICIENT G1	COUNT
PB375TBSH300	**375 CAL., .375"**	300	0.253	25
PB416TBSH400	**416 CAL., .416"**	400	0.273	25

PART NO.	DIAMETER	GR.	BALLISTIC COEFFICIENT G1	COUNT
PB458TBSH500	**458 CAL., .458"**	500	0.328	25
PB474TBSH500	**474 CAL., .474"**	500	0.280	25



PODIUM WAD

NEW

Craft your own victory with the wad design that's about to change clay target shooting. The Podium™ wad's cylinder-shaped compression zone supports the payload and provides unmatched protection from deformation at ignition for the best patterns and fewer flyers. The wad profile allows it to be loaded in all tapered hulls.

	PART NO.	GUAGE	USE
NEW	12P1	12GA	1 OZ
NEW	12P118	12GA	1 1/8 OZ

UNPRIMED BRASS

Federal Premium® ammunition is loaded with the industry's finest brass, and we offer those same world-renowned unprimed cases to handloaders.

PART NO.	CARTRIDGE	COUNT
PR223UPB100	223 REM.	100
PR22250UPB100	22-250 REM.	100
PR224VLKUPB100	224 VALKYRIE	100
PR243UPB50	243 WIN.	50
PR65CRDUPB50	6.5 CREEDMOOR	50
PR270UPB50	270 WIN.	50
PR270WSMUPB50	270 WSM	50
PR7UPB50	7MM REM. MAGNUM	50
PR3030UPB50	30-30 WIN.	50
PR308UPB50	308 WIN.	50
PR3006UPB50	30-06 SPRG.	50
PR300UPB50	300 WIN. MAGNUM	50
PR300WSMUPB50	300 WSM	50
PR338FUPB50	338 FEDERAL	50
PH9UPB100	9MM LUGER	100
PH40UPB100	40 S&W	100
PH45UPB100	45 AUTO	100

GOLD MEDAL PRIMERS

The most exacting tolerances translate to ignition consistency that makes Federal Premium Gold Medal® cartridges the choice of match shooters everywhere.

CENTERFIRE PRIMERS			
PART NO.	TYPE	USE	NOMINAL DIA.
GM100M	SMALL PISTOL MATCH	STD. VELOCITY PISTOL AND REVOLVER	.175
GM150M	LARGE PISTOL MATCH	STD. AND MAGNUM PISTOL AND REVOLVER	.210
GM155M	LARGE MAGNUM PISTOL MATCH	MAGNUM REVOLVER	.210
GM200M	SMALL MAGNUM PISTOL MATCH	HIGH VELOCITY AND MAGNUM PISTOL AND REVOLVER	.175
GM205M	SMALL RIFLE MATCH	SMALL RIFLE	.175
GM210M	LARGE RIFLE MATCH	LARGE RIFLE	.210
GM215M	LARGE MAGNUM RIFLE MATCH	MAGNUM RIFLE	.210
AR CENTERFIRE PRIMERS			
GM205MAR	SMALL RIFLE AR MATCH	SMALL RIFLE AR	.175

CHAMPION WADS & PRIMERS

Affordable and reliable. Champion® components are consistent and affordable options for high-volume shooters and reloaders.

WADS		
PART NO.	TYPE	USE
28S1	28 GAUGE	¾ OZ. LOADS
410SC	.410 BORE	½ OZ. LOADS (SHOT CUP ONLY)

CENTERFIRE PRIMERS			
PART NO.	TYPE	USE	NOMINAL DIA.
100	SMALL PISTOL	STD. VELOCITY PISTOL AND REVOLVER	.175
150	LARGE PISTOL	STD. AND MAGNUM PISTOL AND REVOLVER	.210
155	LARGE MAGNUM PISTOL	MAGNUM REVOLVER	.210
200	SMALL MAGNUM PISTOL	HIGH VELOCITY AND MAGNUM PISTOL AND REVOLVER	.175
205	SMALL RIFLE	SMALL RIFLE	.175
210	LARGE RIFLE	LARGE RIFLE	.210
215	LARGE MAGNUM RIFLE	MAGNUM RIFLE	.210
SHOTSHELL PRIMERS			
209A	SHOTSHELL	10, 12, 20, 28 GAUGE AND .410 BORE	.243

RESOURCES TO CHOOSE THE RIGHT LOAD

Breaking clay targets, wingshooting gamebirds, launching slugs at big game, protecting your home—there's almost no limit to what a shotgun paired with the right ammunition can do. But to maximize the platform's potential, you need to choose the load that best fits the application. Use the resources here to make the right call no matter what your pursuit might be.

Average Pellet Count — Steel Shot

Shot Size	Payload Weight 3/4 (21.25)	7/8 (24.81)	15/16 (26.58)	1 (28.35)	1 1/8 (31.89)	1 1/4 (35.44)	1 3/8 (39.98)	1 1/2 (42.52)	1 9/16 (44.30)	1 5/8 (46.06)
7.5	316	369	395	422	475	527	580	633	659	685
6	236	275	295	315	354	394	433	472	492	512
5	182	212	228	243	273	304	334	364	380	395
4	144	168	180	192	216	240	264	288	300	312
3	118	136	143	158	178	197	217	237	247	257
2	94	109	117	125	141	156	172	187	195	203
1	77	90	97	103	116	129	142	154	161	167
BB	54	63	67	72	81	90	99	108	112	117
BBB	46	54	58	62	70	77	85	93	97	101
T	39	46	49	52	58	65	71	78	81	84

Weight of Shot in Ounces (Grams)

Average Pellet Count — Lead Shot

Shot Size	Payload Weight 1/2 (14.17)	11/16 (19.49)	3/4 (21.25)	7/8 (24.80)	1 (28.35)	1 1/8 (31.89)	1 1/4 (35.44)	1 5/16 (37.21)	1 3/8 (38.98)	1 1/2 (42.52)	1 5/8 (46.06)	1 3/4 (49.61)	1 7/8 (53.15)	2 (56.70)	2 1/4 (63.78)
9	292	402	439	512	585	658	731	767	804	877	951	1024	1097	1170	1316
8½	249	342	373	435	497	559	621	652	683	745	808	870	932	994	1118
8	205	282	307	359	410	461	512	538	564	615	666	718	769	820	922
7½	175	241	262	306	350	394	437	459	481	525	569	613	656	700	787
6	112	155	169	197	225	253	281	295	309	337	366	394	422	450	506
5	85	117	127	149	170	191	212	223	234	255	276	298	319	340	382
4	67	93	101	118	135	152	169	177	186	202	219	236	253	270	304
2	43	60	65	76	87	98	109	114	120	130	141	152	163	174	196
BB	25	34	37	44	50	56	62	65	69	75	81	88	94	100	112

Weight of Shot in Ounces (Grams) (3% Antimony)

Average Pellet Count — Bismuth Shot

Shot Size	Payload Weight 1 1/8 (31.89)	1 1/4 (35.44)	1 3/8 (39.98)
3	137	152	168
4	170	189	208
5	219	243	268

Average Pellet Count — HEAVYWEIGHT® TSS Shot

Shot Size	Payload Weight 13/16 (23.03)	1 1/8 (31.89)	1 1/2 (42.52)	1 5/8 (47.07)	1 3/4 (49.61)	2 (56.70)	2 1/4 (63.78)	2 1/2 (70.87)
9	294	408	544	–	634	–	815	–
7	–	–	283	–	330	–	424	–
7/9	–	–	–	470	–	610	–	718

Weight of Shot in Ounces (Grams)

10 GAUGE 12 GAUGE 16 GAUGE 20 GAUGE 28 GAUGE 410 BORE

Color Coding

To increase safety among shooters, Federal was the first manufacturer to use color-coding for shotshells. This safety measure became an industry norm after it was introduced in 1960.

Buckshot Sizes (Actual Size)

.24" (6.10mm)	.25" (6.35mm)	.27" (6.86mm)	.30" (7.62mm)	.33" (8.38mm)	.36" (9.14mm)

Shot Size Reference

PELLET	T	BBB	BB	1	2	3	4	5	6	7	7½	8	8½	9	10
DIAMETER INCHES	.20	.19	.18	.16	.15	.14	.13	.12	.11	.10	.095	.09	.085	.08	.07
DIAMETER MM	5.08	4.83	4.57	4.06	3.81	3.56	3.30	3.05	2.79	2.54	2.41	2.29	2.16	2.03	1.78

Game Guide

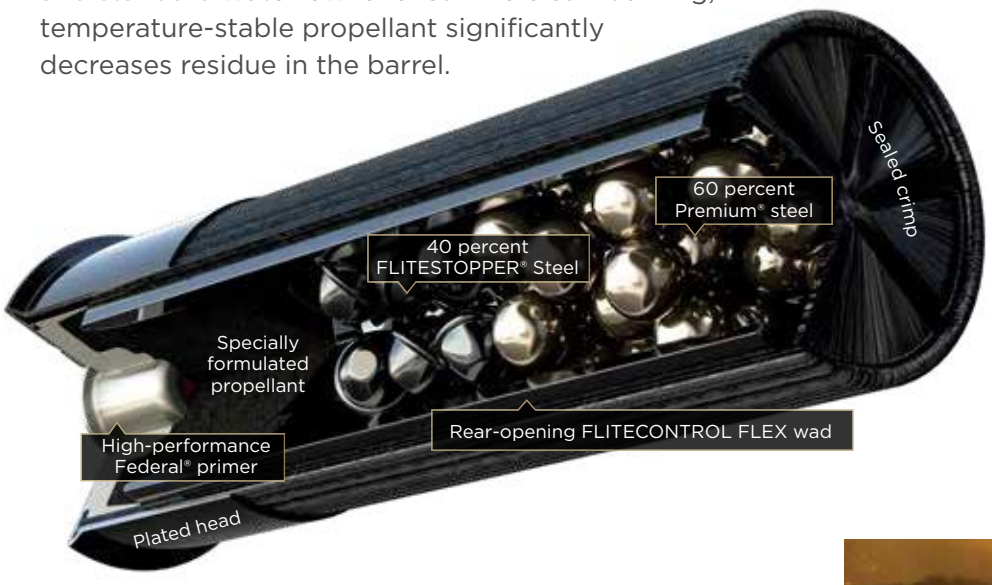
GAME	GAUGE	DISTANCE (YDS)	CHOKE	STEEL SHOT SIZES
LARGE DUCKS *(Mallard, Pintail, Black)*	10, 12, 16, 20	20-30	IC/M	1, 2, 3, 4
	10, 12, 16, 20	30+	IC/M/F	BB, 1, 2, 3
MEDIUM DUCKS *(Wood Duck, Scaup, Widgeon)*	12, 16, 20	20-30	IC/M	2, 3, 4, 6
	12, 16, 20	30+	IC/M/F	1, 2, 3, 4
SMALL DUCKS *(Teal, Bufflehead)*	12, 16, 20, 28, .410	20-30	IC/M/F	3, 4, 6, 7.5
	12, 16, 20	30+	IC/M/F	3, 4
LARGE GEESE *(Giant, Western Canada)*	10, 12	20-30	IC/M	T, BBB, BB
	10, 12	30+	IC/M	T, BBB, BB
MEDIUM GEESE *(Snow, Lesser Canada)*	10, 12	20-30	IC/M	BBB, BB, 1
	10, 12	30+	IC/M	BBB, BB, 1

GAME	GAUGE	DISTANCE (YDS)	CHOKE	HWT TSS SHOT SIZES	LEAD SHOT SIZES
TURKEY	10, 12, 20, .410	20-30	F	7, 9	4, 5, 6
	10, 12, 20	30+	F/EF	7, 9	4, 5, 6
	GAUGE	**DISTANCE (YDS)**	**CHOKE**	**STEEL SHOT SIZES**	**LEAD SHOT SIZES**
PHEASANT, PRAIRIE GROUSE	12, 16, 20, 28	20-30	IC/M	3, 4	4, 5, 6, 7.5
	12, 16, 20	30+	M/F	2, 3	4, 5, 6
RUFFED GROUSE, PARTRIDGE	12, 16, 20, 28	20-30	SK/IC/M	-	6, 7.5, 8, 9
	12, 16, 20	30+	IC/M	-	5, 6, 7.5
QUAIL, DOVE	12, 16, 20, 28	20-30	SK/IC/M	-	6, 7.5, 8, 9
	12, 16, 20	30+	IC/M	-	6, 7.5, 8
WOODCOCK, SNIPE	12, 16, 20, 28	20-30	SK/IC/M	-	7.5, 8, 9
	12, 16, 20	30+	IC/M	-	7.5, 8
RABBIT, SQUIRREL	12, 16, 20, 28, .410	20-30	IC/M	-	4, 5, 6, 7.5
	12, 16, 20	30+	IC/M/F	-	4, 5, 6

*Federal recommends patterning your gun to determine the optimum choke. *EF=Extra Full F = Full Choke M = Modified Choke IC = Improved Cylinder, SK=Skeet*

BLACK CLOUD

The best load in waterfowl hunting has never been so deadly. Black Cloud® FS Steel® is now equipped with the FLITECONTROL FLEX® wad to deliver improved pattern density and consistency through both ported and standard waterfowl chokes. The clean-burning, temperature-stable propellant significantly decreases residue in the barrel.



Cutting-Edge Technology—Literally
FLITESTOPPER Steel creates massive wound cavities visible in ballistic gelatin. Its amazing shot construction features a cutting edge that devastates on impact

30 Percent Better Patterns*
Produce more efficient patterns through both ported chokes and standard tubes with the FLITECONTROL FLEX wad. Patent-pending rear-deploying petals feature reinforced gussets to allow them to deploy when fired through ported chokes that decrease muzzle pressure. Side-mounted slits stimulate the payload for separation from the wad at the ideal moment for consistent, deadly patterns.
*Claim based on 10-round average pattern efficiency comparison of PWB134 BB and PWBX134 BB shot through Patternmaster®, Indian Creek Black Diamond Triumph and Kick's High Flyer™ chokes at 40 yards.

LEAD FREE SHOT

DUCKS UNLIMITED
BANQUET PARTNER

BLACK CLOUD TSS

Duck and goose hunting entered a deadly new age with the introduction of Black Cloud® TSS. Now hunters can get that same performance in both 12- and 20-gauge loads that blend FLITESTOPPER® Steel with 18 g/cc Tungsten Super Shot. More pellets. More range.

Partner Spotlight: Chad Belding

Chad Belding, host of Federal Premium-sponsored "The Fowl Life," has built a reputation as a diehard duck and goose hunter who puts birds down in any situation. That's why he loads his shotgun with Black Cloud on every hunt. It's the only ammunition that delivers the lethal performance he needs.

BLACK CLOUD HIGH VELOCITY

Shorten leads and hit birds even harder with Black Cloud® FS Steel® High Velocity. Faster. More lethal.

SPEED-SHOK

Speed kills ducks and geese. Now it kills even cleaner with redesigned Federal® Speed-Shok®. Its fast-burning powder dramatically reduces residue, while its optimized velocities knock birds out of the sky.

DELTA WATERFOWL

FOR A FULL LIST OF AVAILABLE LOADS, REFER TO PAGES 69-70.

BISMUTH

UPLAND & WATERFOWL

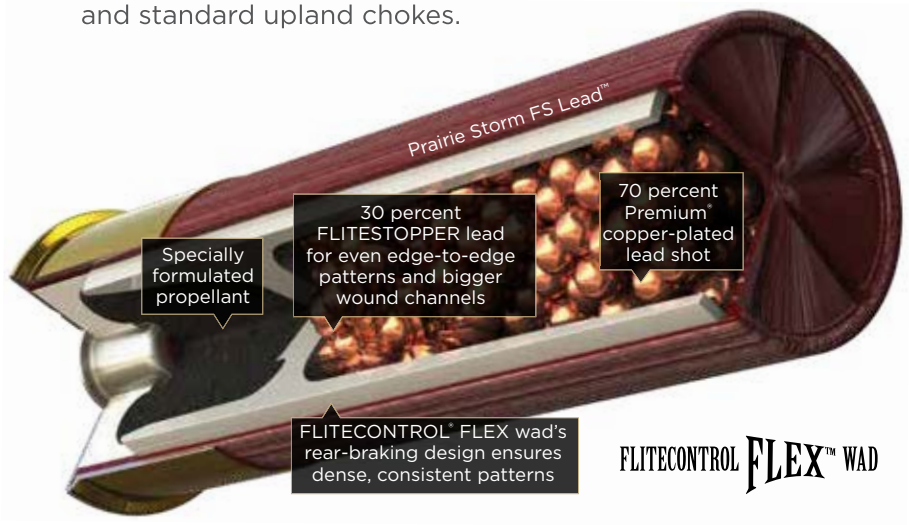
LEAD FREE SHOT

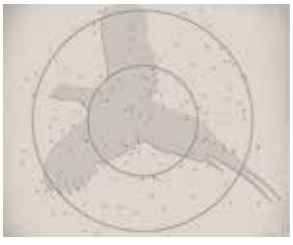
MEATEATER

Bring back the performance of lead—without the heavy metal. With high-quality bismuth pellets with a density of 9.6 g/cc, Federal Premium® Bismuth payloads pattern and hit birds like traditional lead, providing more killing power at longer ranges. The material is also softer than tungsten and steel, allowing use with older shotguns. The loads' FLITECONTROL FLEX® wad tightens patterns and increases lethality over comparable steel loads.

PRAIRIE STORM

Whatever choke you shoot, just keep your cheek down, follow through and watch the rooster fall. Federal Premium® Prairie Storm® FS Lead loads now use the updated FLITECONTROL FLEX® wad and a mixed payload of standard pellets and FLITESTOPPER® lead to produce full, consistent patterns through both ported and standard upland chokes.





Holes In The Bird, Not The Pattern
PFX154FS 4 puts more than 75 percent of its pattern in a 30-inch circle at 40 yards with a modified choke.

PRAIRIE STORM STEEL

Pheasants are fast, tough birds. That's why we combined the FLITECONTROL® FLEX wad and FLITESTOPPER® pellet technologies to create Prairie Storm® FS Steel. It puts more than 75 percent of its pellets in a 30-inch circle at 40 yards, with energy similar to the most popular lead loads.

HI-BIRD

Combine speed, hard-hitting pellets and a specialized wad to fold the highest upland birds. Hi-Bird® uses a two-piece wad with SoftCell™ technology to decrease perceived recoil and produce more consistent long-range patterns.

FEDERAL PREMIUM UPLAND

Upland loads feature Federal Premium® copper-plated lead shot and the best components for consistent, deadly patterns. Magnum loads have buffered shot for tighter patterns, less feather draw and maximum penetration.

PAPER FLYER

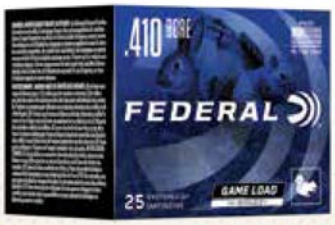
Hit upland birds harder and experience the unmistakable performance of paper hulls with Federal Premium® Paper Flyer loads. The exclusive waxed paper hull holds a powerful payload of extra-hard, copper-plated lead shot for patterns and penetration that drop the toughest, fastest upland birds.

UPLAND STEEL WITH PAPER WAD NEW

Put more birds on the ground—and less plastic. Federal Upland Steel with the new Paper Wad uses fiber construction to produce dove-dropping patterns.

UPLAND STEEL

Doves are done. Federal® Upland Steel serves up the patterns and power hunters need for hard-to-hit birds at a price that keeps them shooting all day. The loads are consistent and reliable, with high velocities that make the most of the steel payload.



FEDERAL GAME LOAD

Woods or fields. Fur or feathers. Federal® Game Load has you covered with carefully crafted loads packed with features that provide reliable, effective performance on a variety of small game and upland birds.

FOR A FULL LIST OF AVAILABLE LOADS, REFER TO PAGES 69-70.

LEAD FREE SHOT

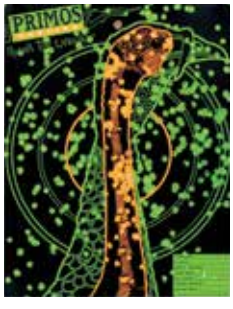
HEAVYWEIGHT TSS

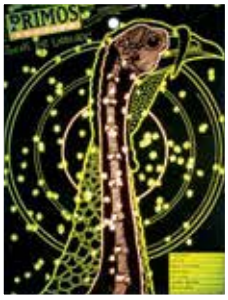
NEW

Kill gobblers at longer distances than ever before. Payloads of HEAVYWEIGHT® Tungsten Super Shot provide the highest pellet counts possible, with an 18 g/cc density that's 20 percent higher than standard tungsten and 56 percent more than lead. Its rear-braking FLITECONTROL FLEX® wad performs flawlessly through ported and standard turkey chokes for the most consistent, deadly patterns possible. Available in a new low-recoil 20-gauge, 2¾-inch load with 1⅛ ounce of No. 9.

More Pellets, More Power

Available in 7 or 9 shot, as well as blended loads with both sizes, HEAVYWEIGHT TSS offers extremely high pellet counts—topping 800 in some offerings—for unprecedented pattern density across the range spectrum. Target shot with 2-ounce load of No. 7 and 9 HEAVYWEIGHT TSS (PTSSX197F 79) at 40 yards.





.410 Performer

With the increased power and pellet counts of HEAVYWEIGHT TSS loads, hunters can get the patterns of hard-kicking 12-gauge lead loads while using a low-recoil .410. Target shot at 40 yards with PTSS419F 9 through a fixed full choke. Load does not include the FLITECONTROL FLEX wad.

A portion of the proceeds from all Federal Premium® turkey loads goes to support the National Wild Turkey Federation and its important conservation work.

3rd Degree
PTDX157 567

Conventional lead turkey load,
1¾-ounce No. 5 shot

MEATEATER

3RD DEGREE WITH HEAVYWEIGHT TSS

Rather than simply pattern tightly like conventional loads, 3rd Degree uses a three-stage payload consisting of No. 5 copper-plated lead, No. 6 FLITESTOPPER® lead and No. 7 HEAVYWEIGHT® TSS shot to deliver larger, more forgiving patterns at close range, while still providing deadly performance at long distance.

Close-Range Forgiveness

The FLITESTOPPER lead portion of the 3rd Degree payload spreads quickly, creating forgiving patterns close up. Targets shot with a 28-inch barrel and Indian Creek ported turkey choke at 12 yards; yellow area denotes effective pattern size.

GRAND SLAM

Extend the range and enhance the lethality of lead turkey payloads. Its FLITECONTROL FLEX wad system works in both standard and ported turkey chokes, and high-quality copper-plated lead pellets are cushioned with an advanced buffering compound to provide dense patterns and ample energy.

Payload Legacy

Through new weights, pellet shapes and materials, Federal has long been a turkey payload pioneer. The helmet-wearing Wiley Turkey character helped introduce some of our first gobbler-specific offerings to hunters in early print ads.

FOR A FULL LIST OF AVAILABLE LOADS, REFER TO PAGES 69-70.

RIFLED BARRELS

TROPHY COPPER SABOT

LEAD FREE BULLET

Harness the power of slugs without sacrifices. Trophy® Copper uses a unique sabot design to produce rifle-like accuracy at 200 yards through rifled barrels. The slug's deep, externally skived nose cavity provides superior expansion, while the polymer tip and sleek profile increase downrange velocity and game-dropping energy.

Unique sabot supports the slug base for clean, consistent separation

Polymer tip and sleek profile increase the ballistic coefficient for higher downrange velocity and energy

Deep, externally skived slug cavity for consistent, superior expansion across a broad velocity range

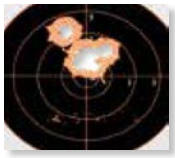
This is What Consistency Looks Like
By incorporating a deep, externally skived cavity in the nose, we ensure the Trophy Copper Slug opens consistently—whether it hits the target at 20 yards or 200-plus. Gelatin shot at 100 yards.

POWER-SHOK SABOT SLUG

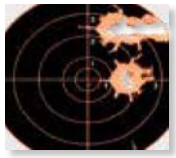
Power-Shok sabots provide accuracy and power through fully rifled barrels.

TRUBALL RIFLED SLUG

Forget what you think you know about smoothbore slug gun accuracy. The TruBall® is the most consistent smoothbore slug on the market, capable of groups as tight as 1.4 inches at 50 yards. The TruBall system locks the components together, centering and pushing the rifled slug out of the barrel.



50 YARDS



100 YARDS

SMOOTHBORE SALVATION

TruBall prints groups at 50 and even 100 yards that would rival some rifles. Targets shot with PB127 RS at 50 and 100 yards.

POWER-SHOK RIFLED SLUG

Get solid, reliable performance from your smoothbore shotgun with Power-Shok rifled slugs.

FEDERAL PREMIUM BUCKSHOT

Engineered to provide precision and power. Federal Premium Buckshot uses copper-plated pellets to produce more downrange energy. Loads equipped with the FLITECONTROL® wad system deliver the tightest patterns possible.

POWER-SHOK BUCKSHOT

Defense. Hunting. Consistency. The Triple Plus® wad system provides better shot alignment and granulated plastic buffer keeps pellets uniform in shape for tight patterns.

Conservation Continues

Since the era when founder Charles Horn helped pass the Pittman-Robinson Act, conservation has been a constant at Federal. The company ran a series of conservation themed ads in the 1930s promoting everything from observing bag limits to feeding birds in winter, but in the 1980s Federal became a leading voice for hunter-funded conservation. We began supporting Ducks Unlimited, the National Wild Turkey Federation, Rocky Mountain Elk Foundation, and other organizations—more than 20 in total—by the end of that decade. In the early 1990s, Federal sold "Another Hunter for Conservation" patches for hunting clothing and the proceeds went to conservation efforts. Today, conservation remains a focus for the company.

FOR A FULL LIST OF AVAILABLE LOADS AND BALLISTICS, REFER TO PAGES 69-70.

REALTREE®
OFFICIAL PARTNER

"It hits hard, kicks less and shoots like a dream."

- DERRICK MEIN
FEDERAL AMBASSADOR
CHAMPION SHOOTER
OLYMPIC QUALIFIER

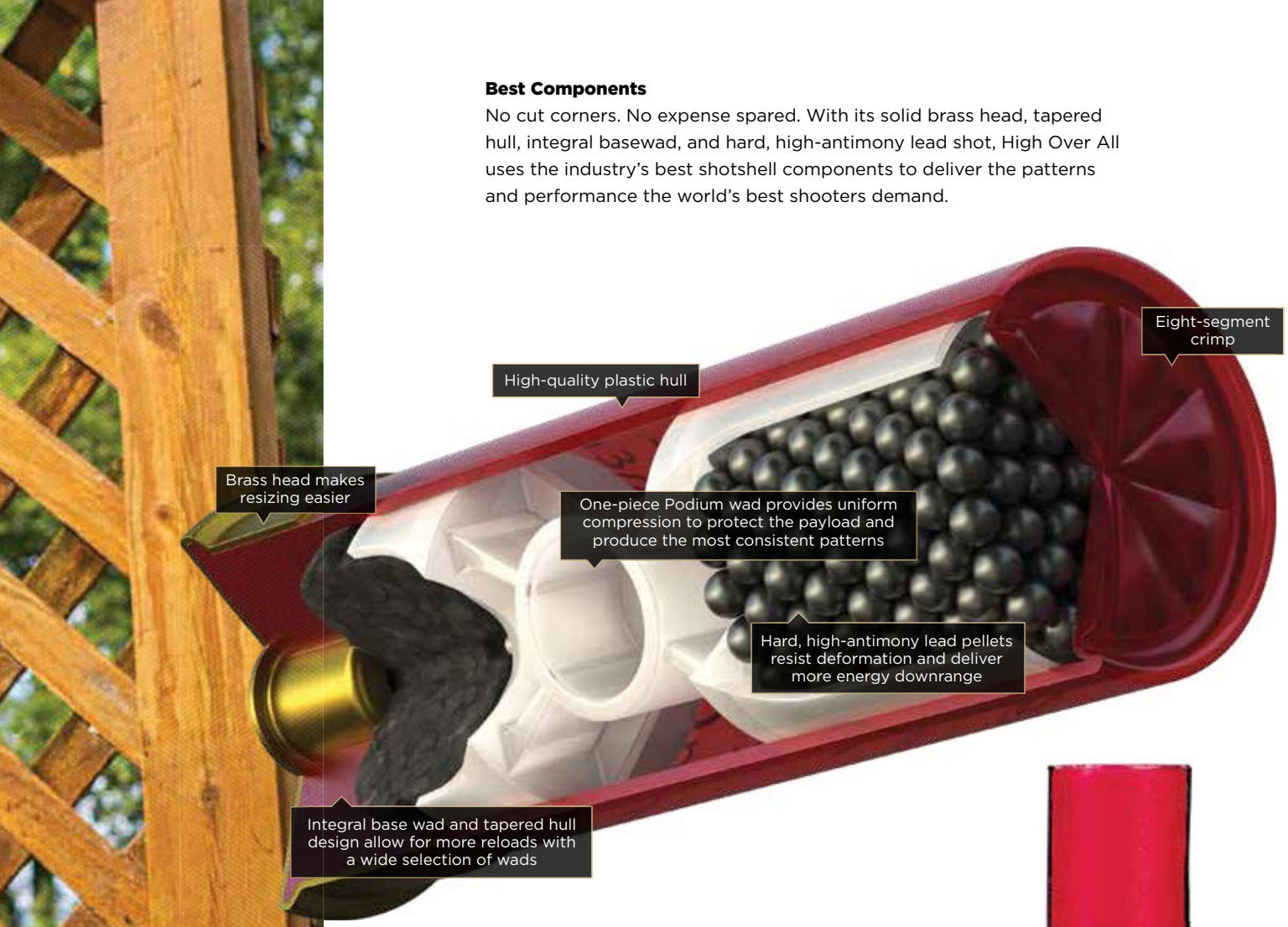
HIGH OVER ALL

NEW

Engineered for the most elite trap, skeet and sporting clays shooters, Federal Premium® High Over All™ leaves a trail of shattered targets in its wake and more reloads per shell. Its hard, high-antimony lead payload and exclusive one-piece Podium™ wad produce the most consistent patterns, while the solid brass head and tapered, one-piece hull make reloading easier than ever. It's the ultimate competition load for the world's best shooters.

Best Components

No cut corners. No expense spared. With its solid brass head, tapered hull, integral basewad, and hard, high-antimony lead shot, High Over All uses the industry's best shotshell components to deliver the patterns and performance the world's best shooters demand.



More Reloads, More Versatility

Supercharge your press. High Over All lets you pump out more reloads with an integral basewad and tapered hull that can be reloaded more often and are compatible with a wide range of available wads.

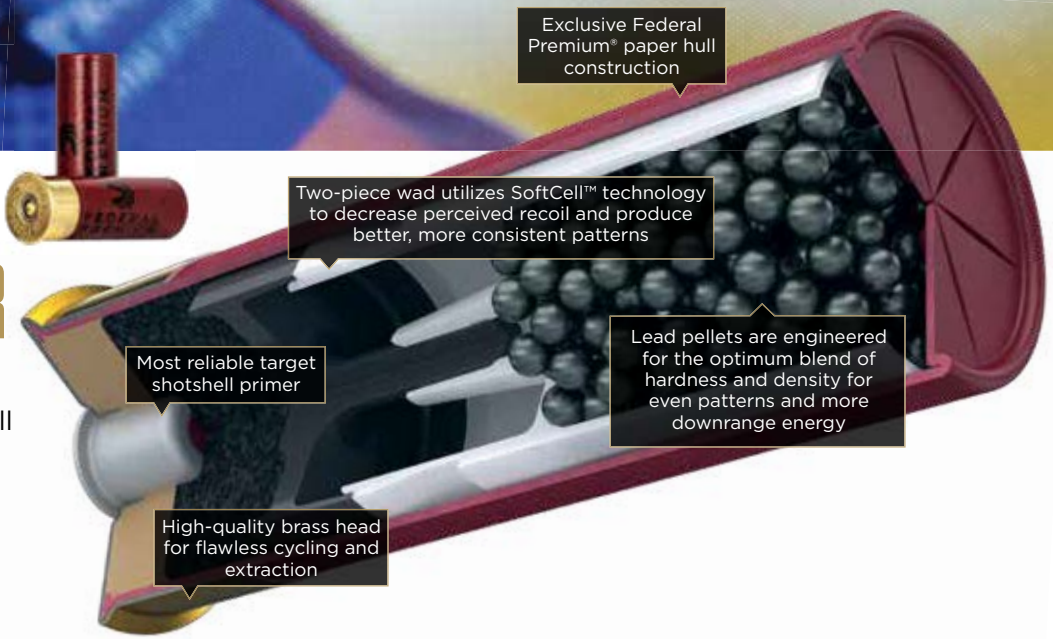
Compression Zone

We've virtually eliminated flyers with the Podium wad, featured in all 12-gauge High Over All offerings. Our engineers gave it a cylinder-shaped compression zone that supports the payload and provides the ultimate protection from deformation at ignition.

FOR A FULL LIST OF AVAILABLE LOADS AND BALLISTICS, REFER TO PAGES 69-70.

GOLD MEDAL® PAPER

Combine our classic paper hull and high-quality brass head with an improved design that provides less felt recoil and improved shot hardness.



A Century Of Cracking Clays

In Federal's early years, shotshells were the heart of the lineup. Target loads went by many names and had many looks over the years—from Hi-Power and Monark, Reliable and Champion and many more—but through it all, quality was the constant. To celebrate Federal's 100th anniversary, we're rolling out commemorative shotshell packaging throughout 2022 showcasing the classic designs here. ***Pick up each box and collect them all.***

The original Hi-Power® design used in 1922.

The Hi-Power box was revised in 1922 and used through 1924. It was the first to feature the iconic Federal® duck.

Federal® Monark Skeet Shells were introduced in 1952 as a companion product to Hi-Power® hunting loads.

In 1955, Monark packaging was revised and labeled "Target Load."

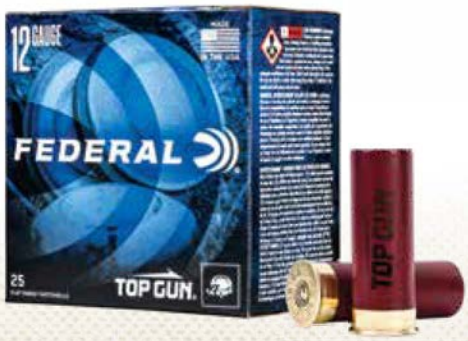
TOP GUN WITH PAPER WAD

NEW

Experience the clay-crushing performance of new Top Gun® with Paper Wad. Its exclusive fiber wad construction produces effective patterns with less plastic afield.

TOP GUN

Even the most challenging targets are no match for Top Gun. The loads' high-quality lead shot produce even patterns that crush clays. ***Also available in loads specifically designed for sporting clays and other competitive shooting.***



SHORTY

Great things really do come in small packages. Although just 1¾ inches long, Shorty shotshells offer similar patterns, energy and accuracy as full-size counterparts.

FOR A FULL LIST OF AVAILABLE LOADS AND BALLISTICS, REFER TO PAGES 69-70.

Team Federal Dominates

Federal ambassadors Vincent Hancock, Kayle Browning and Brian Burrows recently proved their mettle with a string of medals at the Tokyo Olympics.

Hancock made the Men's Skeet finals in a shoot-off and then bested the remaining five contenders hitting 59 of 60 targets. He is the first shooter to ever win three gold medals in this event, adding to the ones he won in Beijing in 2008 and London in 2012.

Browning captured a silver medal in Women's Trap. The Arkansas native shot her way into the finals in the sixth position and then climbed into the final pairing.

In his Olympic debut, Burrows claimed the bronze medal

"Our company couldn't be prouder of the performances of our sponsored team of world-class shooters at the Olympic games. They competed at the highest level against the world's best shotgun shooters and were simply amazing. It brings such pride to our dedicated American employees that these athletes achieved their dreams of standing on the podium with an Olympic medal having used our American-made products."

JASON VANDERBRINK
PRESIDENT OF FEDERAL AMMUNITION

SHOTSHELL LOAD DATA

Waterfowl

LOAD NO.	GAUGE	SHELL LENGTH	VELOCITY	PAYLOAD	SHOT
FEDERAL PREMIUM BLACK CLOUD® FS STEEL					
PWBX107	10	3½	1375	1⅝	BB, 2
PWBX134	12	3½	1500	1½	BBB, BB, 1, 2, 3, 4
PWBX142	12	3	1450	1¼	BBB, BB, 1, 2, 3, 4
PWBX147	12	2¾	1500	1⅛	2, 3, 4
PWBX209	20	3	1350	1	1, 2, 3, 4
FEDERAL PREMIUM BLACK CLOUD TSS					
PWBTSSX1427BB	12	3	1450	1¼	BB FS Steel/7 TSS
PWBTSSX142 39	12	3	1450	1¼	3 FS Steel/9 TSS
PWBTSSX209 39	20	3	1350	1	3 FS Steel/9 TSS
FEDERAL PREMIUM BLACK CLOUD FS STEEL HIGH VELOCITY					
PWBXH143	12	3	1635	1⅛	BB, 1, 2, 3, 4
SPEED•SHOK® WATERFOWL					
WF107	10	3½	1450	1½	T, BBB, BB, 2
WF133	12	3½	1550	1⅜	T, BBB, BB, 1, 2, 3, 4
WF134	12	3½	1500	1½	T, BBB, BB, 1, 2
WF143	12	3	1550	1⅛	T, BBB, BB, 1, 2, 3, 4,
WF142	12	3	1450	1¼	T, BBB, BB, 1, 2, 3, 4
WF145	12	2¾	1500	1⅛	BB, 2, 3, 4
WF168	16	2¾	1350	15⁄16	2, 4
WF209	20	3	1550	⅞	1, 2, 3, 4
WF208	20	2¾	1425	¾	4, 6, 7
WF283	28	2¾	1350	⅝	6
WF413	.410	3	1400	⅜	6

Buckshot

LOAD NO.	GAUGE	SHELL LENGTH	VELOCITY	PAYLOAD
FEDERAL PREMIUM BUCKSHOT WITH FLITECONTROL® WAD				
PFC157 00	12	3	1325	12 Pellets - 00 Buck
PFC154 00	12	2¾	1325	9 Pellets - 00 Buck
FEDERAL PREMIUM BUCKSHOT				
P108F 00	10	3½	1100	18 Pellets - 00 Buck
P135F 00	12	3½	1100	18 Pellets - 00 Buck
P158 4B	12	3	1100	41 Pellets - 4 Buck
P158 00	12	3	1100	15 Pellets - 00 Buck
P158 000	12	3	1225	10 Pellets - 000 Buck
P154 00	12	2¾	1325	9 Pellets - 00 Buck
P156 00	12	2¾	1290	12 Pellets - 00 Buck
P258 2B	20	3	1100	18 Pellets - 2 Buck
P256 3B	20	2¾	1175	20 Pellets - 3 Buck
POWER•SHOK® BUCKSHOT				
F131 00	12	3	1210	15 Pellets - 00 Buck
F131 4B	12	3	1210	41 Pellets - 4 Buck
F127 000	12	2¾	1325	8 Pellets - 000 Buck
F127 00	12	2¾	1325	9 Pellets - 00 Buck
F127 4B	12	2¾	1325	27 Pellets - 4 Buck
F130 00	12	2¾	1290	12 Pellets - 00 Buck
F164 1B	16	2¾	1225	12 Pellets - 1 Buck
F207 2B	20	3	1100	18 Pellets - 2 Buck
F203 3B	20	2¾	1200	20 Pellets - 3 Buck
POWER•SHOK BUCKSHOT - LOW RECOIL				
H132 00	12	2¾	1140	9 Pellets - 00 Buck

LOAD NO.	GAUGE	SHELL LENGTH	VELOCITY	PAYLOAD
PERSONAL DEFENSE SHOTSHELL WITH FLITECONTROL				
PD132	12	2¾	1145	9 Pellets - 00 Buck
FORCE X2 PERSONAL DEFENSE SHOTSHELL				
PD12FX2 00	12	2¾	1245	9 Pellet FX2 00 Buckshot
FORCE X2 PERSONAL DEFENSE SHORTY SHOTSHELL				
NEW PD129FX2 00	12	1¾	1245	6 Pellet FX2 00 Buckshot
PERSONAL DEFENSE SHOTSHELL				
PD156	12	2¾	1100	34 Pellets - 4 Buck
PD256	20	2¾	1100	24 Pellets - 4 Buck

LOAD NO.	SHELL LENGTH	VELOCITY	PAYLOAD
PERSONAL DEFENSE .410 HANDGUN			
PD413JGE 000	3	775	5 pellets–000 Buck
PD413JGE 4B	3	950	9 pellets–4 Buck
PD412JGE 000	2½	850	4 pellets - 000 Buck
PD412JGE 4	2½	950	7⁄16 ounce - 4 Shot

Turkey

LOAD NO.	GAUGE	SHELL LENGTH	VELOCITY	PAYLOAD	SHOT
FEDERAL PREMIUM 3RD DEGREE® WITH FLITECONTROL FLEX® WAD					
PTDX139 567	12	3½	1250	2	5-6-7
PTDX157 567	12	3	1250	1¾	5-6-7
PTDX258 567	20	3	1100	1½	5-6-7
FEDERAL PREMIUM GRAND SLAM® WITH FLITECONTROL FLEX WAD					
PFCX101F	10	3½	1200	2	4, 5
PFCX139F	12	3½	1200	2	4, 5, 6
PFCX157F	12	3	1200	1¾	4, 5, 6
PFCX156F	12	2¾	1200	1½	5
PFCX258F	20	3	1185	15⁄16	5
FEDERAL PREMIUM HEAVYWEIGHT® TSS WITH FLITECONTROL FLEX WAD					
PTSSX195F	12	3½	1000	2½	7/9
PTSSX191F	12	3½	1200	2¼	7, 9
PTSSX197F	12	3	1150	2	7/9
PTSSX193F	12	3	1200	1¾	7, 9
PTSSX295F	20	3	1000	1⅝	7/9
PTSSX259F	20	3	1100	1½	7, 9
NEW PTSSX257F	20	2¾	1000	1 1⁄8	9
PTSS419F	.410	3	1100	13⁄16	9

Upland

LOAD NO.	GAUGE	SHELL LENGTH	VELOCITY	PAYLOAD	SHOT
FEDERAL PREMIUM BISMUTH					
PBIX137	12	3	1450	1⅜	3, 4, 5
PBIX144	12	2¾	1350	1¼	3, 4, 5
PBIX244	20	3	1350	1⅛	3, 4, 5
FEDERAL PREMIUM HI-BIRD®					
HVF12H	12	2¾	1330	1¼	5, 6, 7.5
HVF12	12	2¾	1275	1⅛	7.5, 8
FEDERAL PREMIUM UPLAND MAGNUM					
P156	12	2¾	1315	1½	4, 6
P165	16	2¾	1260	1¼	4, 6
P258	20	3	1300	1¼	5, 6
FEDERAL PREMIUM UPLAND HIGH VELOCITY					
P129	12	3	1350	1⅝	4, 5, 6
P128	12	2¾	1500	1⅛	4, 6, 7.5
P138	12	2¾	1500	1⅜	4, 5, 6
P283	28	2¾	1295	¾	6, 7.5, 8
FEDERAL PREMIUM UPLAND PHEASANTS FOREVER HIGH VELOCITY					
PF154	12	2¾	1500	1¼	4, 5, 6, 7.5
PF163	16	2¾	1425	1⅛	4, 5, 6
PF204	20	2¾	1350	1	4, 5, 6, 7.5
FEDERAL PREMIUM PRAIRIE STORM® FS LEAD					
PFX129FS	12	3	1350	1⅝	4, 5, 6
PFX154FS	12	2¾	1500	1¼	4, 5, 6
PFX164FS	16	2¾	1425	1⅛	4, 5, 6
PFX258FS	20	3	1300	1¼	4, 5, 6
PFX204FS	20	2¾	1350	1	4, 5, 6
PFX289FS	28	2¾	1300	13⁄16	6
FEDERAL PREMIUM PRAIRIE STORM FS STEEL					
PFSX143FS	12	3	1600	1⅛	3, 4
PFSX147FS	12	2¾	1500	1⅛	3, 4
PFSX207FS	20	3	1500	⅞	3, 4
FEDERAL PREMIUM PAPER FLYER					
P154	12	2¾	1330	1¼	7.5, 8
UPLAND STEEL					
USH122	12	2¾	1375	1	6, 7.5
USH12	12	2¾	1400	1⅛	6, 7.5
USH20	20	2¾	1500	¾	6, 7.5
USH28	28	2¾	1350	⅝	6, 7.5
USH410	.410	3	1400	⅜	6, 7.5
UPLAND STEEL WITH PAPER WAD					
NEW USH122W	12	2¾	1330	1	7.5
GAME LOAD – HI-BRASS					
H126	12	2¾	1330	1¼	4, 5, 6, 7.5
H163	16	2¾	1295	1⅛	4, 6, 7.5
H204	20	2¾	1220	1	4, 5, 6, 7.5
H258	20	3	1300	1¼	5, 6
N124	24	2½	1280	11⁄16	8
H289	28	2¾	1220	1	5, 6, 7.5
N132	32	2½	1260	½	8
H413	.410	3	1135	11⁄16	4, 5, 6, 7.5
H412	.410	2½	1200	½	6, 7.5
GAME LOAD – HEAVY FIELD					
H123	12	2¾	1255	1⅛	4, 6, 7.5, 8
H125	12	2¾	1220	1¼	4, 5, 6, 7.5
H202	20	2¾	1165	1	6, 7.5, 8
GAME LOAD					
H121	12	2¾	1290	1	6, 7.5, 8
H160	16	2¾	1165	1	6, 7.5, 8
H200	20	2¾	1210	⅞	6, 7.5, 8

Usage Key: 1 = Varmints, predators, small game; 2 = medium game; 3 = large, heavy game; 4 = dangerous game; 5 = target shooting, training, practice; 6 = self defense; 7 = competition shooting; 8 = pest control; 9 = low noise, training, specialty.

These trajectory tables were calculated by computer using the best available data for each load. Trajectories are representative of the nominal behavior of each load at standard conditions (59°F temperature; barometric pressure of 29.53 inches; altitude at sea level). Shooters are cautioned that actual trajectories may differ due to variations in altitude, atmospheric conditions, guns, sights and ammunition.

Federal Premium Sabot Slug

USAGE	FEDERAL LOAD NO.	GAUGE	SHELL LENGTH INCHES	SHELL LENGTH MM	SLUG TYPE	SLUG WEIGHT OUNCES	SLUG WEIGHT GRAINS	VELOCITY IN FEET PER SECOND (TO NEAREST 10 FPS) MUZZLE	25 YDS.	50 YDS.	100 YDS.	150 YDS.	200 YDS.	ENERGY IN FOOT-POUNDS (TO NEAREST FOOT-POUND) MUZZLE	25 YDS.	50 YDS.	100 YDS.	150 YDS.	200 YDS.	HEIGHT OF SLUG TRAJECTORY IN INCHES ABOVE OR BELOW LINE OF SIGHT IF ZEROED AT ⊕ YARDS. SIGHTS .5 INCHES ABOVE BORE LINE. 25 YDS.	50 YDS.	100 YDS.	150 YDS.	200 YDS.	TEST BARREL LENGTH INCHES
FEDERAL PREMIUM TROPHY® COPPER (FULLY RIFLED SLUG BARREL)																									
2	P151 TC	12	3	76	Trophy Copper Slug	.69	300	2000	1900	1800	1620	1450	1310	2665	2400	2160	1745	1400	1135	1.3	2.6	2.9	⊕	-7.1	30
2	P152 TC	12	2¾	70	Trophy Copper Slug	.69	300	1900	1800	1710	1530	1380	1240	2405	2165	1945	1565	1260	1030	1.7	2.9	3.3	⊕	-7.9	30
2	P209 TC	20	3	76	Trophy Copper Slug	.63	275	1900	1790	1690	1500	1340	1200	2205	1965	1750	1380	1090	875	1.6	3.0	3.4	⊕	-8.3	30
2	P208 TC	20	2¾	70	Trophy Copper Slug	.63	275	1700	1600	1510	1340	1200	-	1765	1570	1390	1100	885	-	1.0	1.7	⊕	-6.5	-	30

Note: For optimum slug performance, we recommend matching the chamber length to the slug length. For example, use a 3-inch slug in a 3-inch chamber.

Federal Premium Smoothbore Slug

USAGE	FEDERAL LOAD NO.	GAUGE	SHELL LENGTH INCHES	SHELL LENGTH MM	SLUG TYPE	SLUG WEIGHT OUNCES	SLUG WEIGHT GRAINS	VELOCITY IN FEET PER SECOND (TO NEAREST 10 FPS) MUZZLE	25 YDS.	50 YDS.	100 YDS.	ENERGY IN FOOT-POUNDS (TO NEAREST FOOT-POUND) MUZZLE	25 YDS.	50 YDS.	100 YDS.	HEIGHT OF SLUG TRAJECTORY IN INCHES ABOVE OR BELOW LINE OF SIGHT IF ZEROED AT ⊕ YARDS. SIGHTS .5 INCHES ABOVE BORE LINE. 25 YDS.	50 YDS.	100 YDS.	TEST BARREL LENGTH INCHES
FEDERAL PREMIUM TRUBALL® RIFLED SLUGS (SMOOTHBORE BARREL)																			
2	PB127 LRS*	12	2¾	70	TruBall Rifled Slug	1	438	1300	1150	1040	910	1640	1275	1055	805	0.6	⊕	-7.4	30
2	PB127 RS	12	2¾	70	TruBall Rifled Slug	1	438	1600	1370	1180	970	2485	1810	1355	915	0.3	⊕	-5.7	30
2	PB131 RS	12	3	76	TruBall Rifled Slug	1	438	1700	1450	1240	1000	2805	2040	1505	970	0.3	⊕	-5.1	30
2	PB203 RS	20	2¾	70	TruBall Rifled Slug	¾	328	1600	1390	1220	1010	1865	1410	1090	745	0.3	⊕	-5.3	30
2	PB209 RS	20	3	76	TruBall Rifled Slug	¾	328	1700	1480	1290	1040	2105	1595	1215	795	0.3	⊕	-4.8	30
FEDERAL PREMIUM TRUBALL DEEP PENETRATOR RIFLED SLUGS (SMOOTHBORE BARREL)																			
3	PB127 DPRS	12	2¾	70	TruBall Rifled Slug	1	438	1350	1200	1090	950	1775	1400	1150	875	0.5	⊕	-6.8	30

** Low-recoil load*

Federal Slug

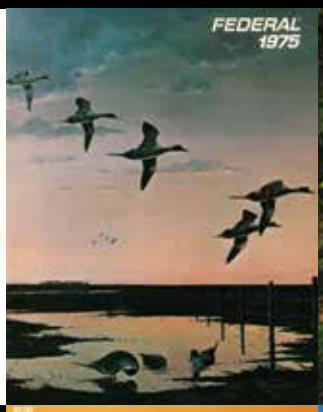
USAGE	FEDERAL LOAD NO.	GAUGE	SHELL LENGTH INCHES	SHELL LENGTH MM	SLUG TYPE	SLUG WEIGHT OUNCES	SLUG WEIGHT GRAINS	VELOCITY IN FEET PER SECOND (TO NEAREST 10 FPS) MUZZLE	25 YDS.	50 YDS.	75 YDS.	100 YDS.	125 YDS.	ENERGY IN FOOT-POUNDS (TO NEAREST FOOT-POUND) MUZZLE	25 YDS.	50 YDS.	75 YDS.	100 YDS.	125 YDS	HEIGHT OF SLUG TRAJECTORY IN INCHES ABOVE OR BELOW LINE OF SIGHTIF ZEROED AT ⊕ YARDS. SIGHTS .5 INCHES ABOVE BORE LINE. 25 YDS.	50 YDS.	75 YDS.	100 YDS.	125 YDS.	TEST BARREL LENGTH INCHES
FEDERAL POWER•SHOK® SABOT SLUG (FULLY RIFLED SLUG BARREL)																									
2	F127 SS2	12	2¾	70	Sabot HP	1	438	1500	1420	1350	1280	1220	1170	2190	1970	1775	1600	1455	1330	1.4	2.1	1.7	⊕	-3.2	30
2	F203 SS2	20	2¾	70	Sabot HP	⅞	383	1450	1350	1260	1180	1120	1070	1785	1550	1350	1190	1065	965	1.6	2.5	2.0	⊕	-3.8	30
FEDERAL POWER•SHOK RIFLED SLUG (SMOOTHBORE BARREL)																									
2	F103F RS	10	3½	89	HP	1¾	766	1280	1170	1090	1020	970	930	2785	2325	2000	1770	1600	1465	0.5	⊕	-2.4	-6.8	-13.6	32
2	F131 RS	12	3	76	HP	1¼	547	1600	1460	1330	1220	1130	1060	3110	2570	2140	1800	1545	1360	0.3	⊕	-1.5	-4.5	-9.1	30
2	F127 RS	12	2¾	70	HP	1	438	1610	1470	1340	1230	1140	1070	2520	2090	1745	1470	1260	1110	0.3	⊕	-1.5	-4.4	-8.9	30
2	F130 RS	12	2¾	70	HP	1¼	547	1520	1390	1270	1170	1090	1030	2805	2330	1950	1660	1445	1290	0.3	⊕	-1.7	-4.9	-10.0	30
2	F164 RS	16	2¾	70	HP	4/5	350	1600	1380	1210	1080	1000	930	1990	1490	1135	910	770	675	0.3	⊕	-1.8	-5.4	-11.2	28
2	F203 RS	20	2¾	70	HP	¾	328	1600	1430	1280	1160	1070	1000	1865	1480	1190	975	830	730	0.3	⊕	-1.6	-4.8	-10.0	26
2	F412 RS	.410	2½	64	HP	¼	109	1775	1540	1340	1180	1060	980	760	575	430	335	270	235	0.2	⊕	-1.4	-4.4	-9.3	26

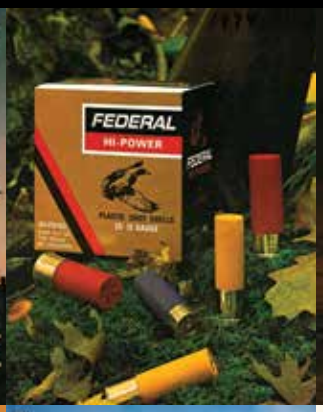
Target

	LOAD NO.	GAUGE	SHELL LENGTH	VELOCITY	DRAM	PAYLOAD	SHOT
	FEDERAL PREMIUM HIGH OVER ALL™						
NEW	HOA1224H	12	2¾	1335	3¼	24 gram	7.5, 9
NEW	HOA12L	12	2¾	1145	2¾	1⅛	7.5, 8, 9
NEW	HOA12H	12	2¾	1200	3	1⅛	7.5, 8
NEW	HOA12HC	12	2¾	1250	HDCP	1⅛	7.5, 8
NEW	HOA12L1	12	2¾	1200	2¾	1	7.5, 8
NEW	HOA12H1	12	2¾	1250	3	1	7.5, 8
NEW	HOA12HC1	12	2¾	1290	3¼	1	7.5, 8, 8.5
NEW	HOA20	20	2¾	1200	2½	⅞	7.5, 8
NEW	HOA20H	20	2¾	1275	3	⅞	7.5, 8
NEW	HOA28	28	2¾	1250	2	¾	8, 8.5, 9
NEW	HOA28H	28	2¾	1300	2¼	¾	8, 9
NEW	HOA410	.410	2½	1200	MAX	½	8, 8.5, 9
NEW	HOA410H	.410	2½	1275	MAX	½	8.5, 9
	FEDERAL PREMIUM GOLD MEDAL PAPER						
	GMT111	12	2¾	1290	3¼	1	7.5, 8
	GMT175	12	2¾	1180	2¾	1	8
	GMT117	12	2¾	1145	2¾	1⅛	7.5, 8
	GMT118	12	2¾	1200	3	1⅛	7.5, 8
	GMT171	12	2¾	1235	HDCP	1⅛	7.5, 8

	LOAD NO.	GAUGE	SHELL LENGTH	VELOCITY	PAYLOAD	SHOT
	TOP GUN TARGET					
	TG12EL	12	2¾	1200	⅞	8
	TG121	12	2¾	1180	1	7.5, 8
	TGSF128	12	2¾	1330	1	7.5, 8
	TGSH12	12	2¾	1300	1	7.5, 8
	TGS128	12	2¾	1250	1	7.5, 8
	TG12	12	2¾	1200	1⅛	7.5, 8
	TGL12	12	2¾	1145	1⅛	7.5, 8, 9
	TGL12US	12	2¾	1145	1⅛	8
	TGL12P	12	2¾	1145	1⅛	8
	TG20	20	2¾	1210	⅞	7.5, 8, 9
	TGS224	20	2¾	1250	⅞	7.5, 8
	TGS2821	28	2¾	1330	¾	7.5, 8, 9
	TGS41214	.410	2½	1330	½	7.5, 8, 9
	TOP GUN® WITH PAPER WAD					
NEW	TG12W	12	2¾	1200	1⅛	7.5, 8
	TOP GUN TARGET – STEEL WITH PAPER WAD					
NEW	TG12WS1	12	2¾	1250	1	7.5
NEW	TG12WS2	12	2¾	1300	1	7.5
	SHORTY SHOTSHELLS					
	SH129 4B	12	1¾	1200	15 Pellet	4 Buck
	SH129 RS	12	1¾	1200	1	Rifled slug
	SH129 8	12	1¾	1145	15/16	8


FEDERAL 1976


FEDERAL
1975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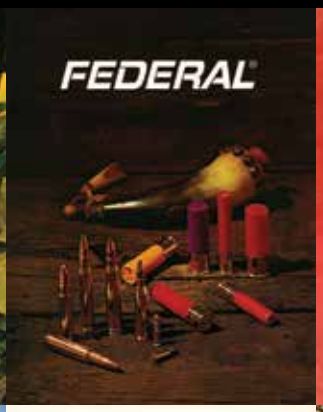
HI-POWER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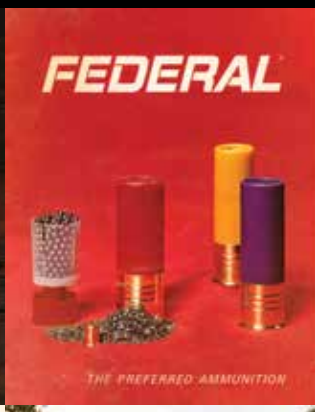
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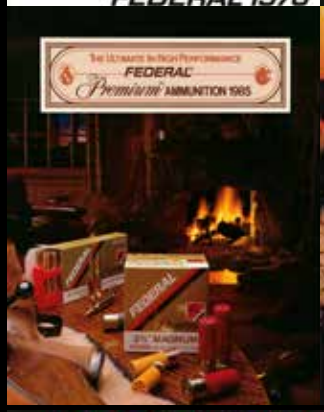
THE PREFERRED AMMUNITION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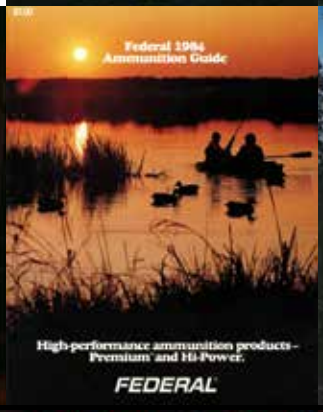
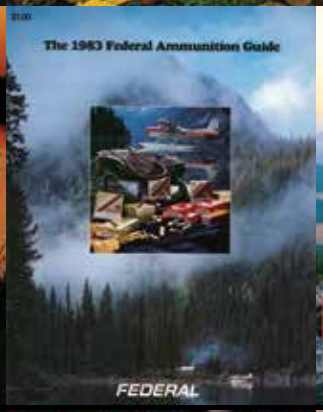
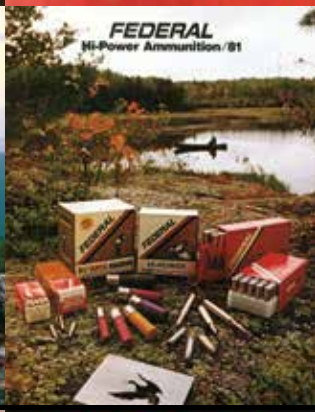

Federal 1984
Ammunition Guide
High-performance ammunition products –
Premium and Hi-Power.
FEDERAL


The 1983 Federal Ammunition Guide
FEDERAL


FEDERAL
Hi-Power Ammunition/82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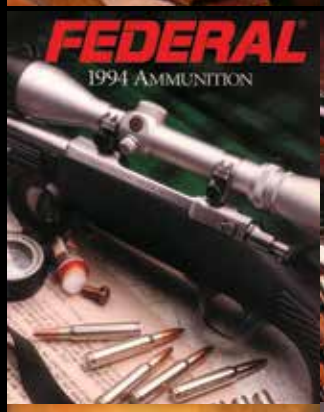
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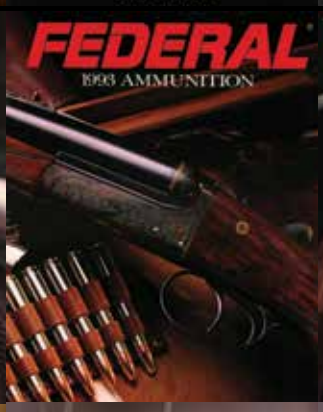
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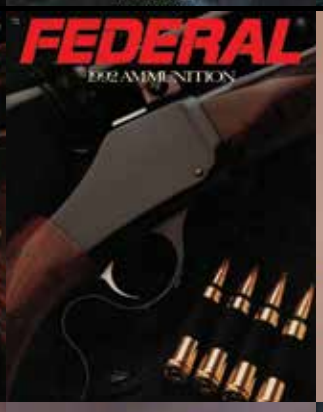
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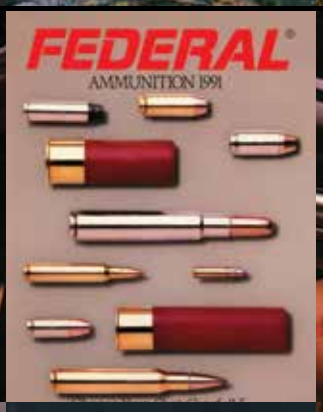
1992 Ammunition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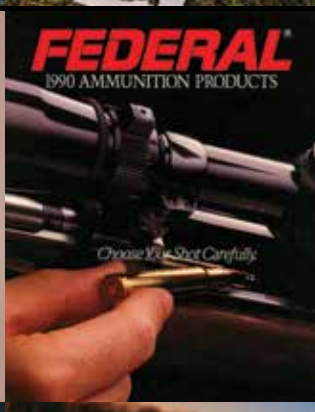
Ammunition 1991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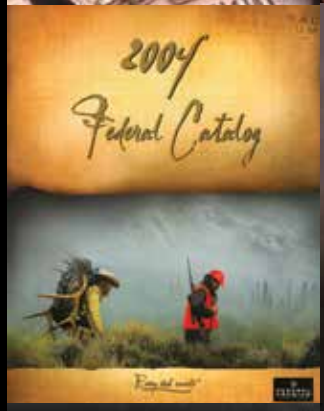
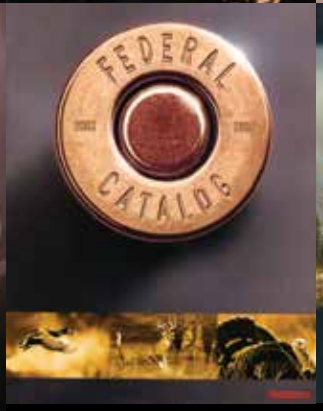
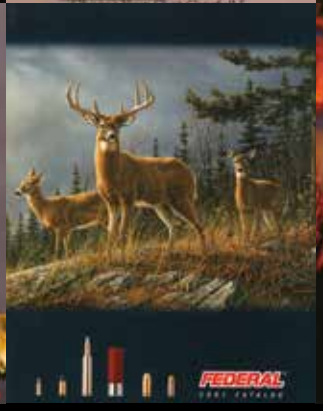
1990 Ammunition Products
Choose Your Shot Carefully


2004
Federal Catalog


EXCUSES CAN'T BE MADE
OVER THE FIRE PLACE


FEDERAL
CATALOG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EVERY SHOT COUNTS


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V2