RELOADING GUIDE

FOR CENTERFIRE CARTRIDGES

2021

VIHTAVUORI®

The Power of Accuracy

THE POWER OF ACCURACY

For almost a hundred years, Vihtavuori powders have formed the heart of many of the world's most renowned cartridges. Reloaders know they can trust in Vihtavuori powder's performance and uniform high quality – cartridge after cartridge – to create a perfect product for successful shooting. When choosing Vihtavuori powders you know your ammo is up to the task, even in the toughest conditions.

Manufacturing propellants entirely in-house ensures their high quality. All Vihtavuori powders are made using nitro-cellulose produced by linters at our own plant. Premium quality Vihtavuori powders deliver consistently flawless firing performance – for you this means reliable reloading and ammunition you demand.

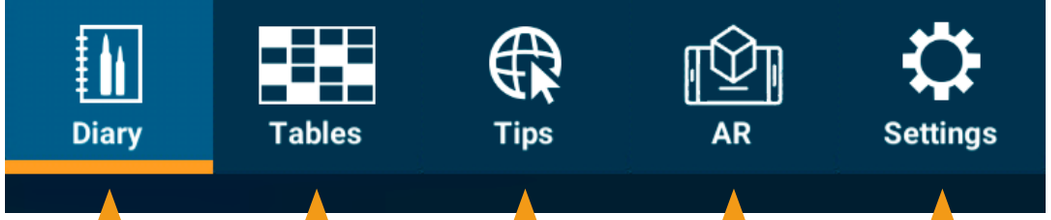
Each stage of the production process is subject to stringent quality control by the Vihtavuori experts to ensure that each production lot has the exact ballistic performance required. Each and every batch produced is inspected by comparing them to selected reference batches.

All Vihtavuori powders for small arms are extruded propellants. Propellant grains are perforated cylinders of various sizes, flat ribbon flakes or other shapes extruded for special applications. The grain geometry of different powder types provides the wanted combustion characteristics for the chosen cartridge application.

The estimated shelf-life of Vihtavuori powders is a minimum of 10 years, if stored and sealed in its original containers at a temperature ca 68 °F and relative humidity of 55 -65%.

All Vihtavuori reloading powders are packed into bottles and canisters and further in cardboard boxes.

Go ahead, take Vihtavuori and make the perfect shot.



Store your recipes in the Diary section

Tables show all Vihtavuori Reload data

Link to reloading info on our web site

Try the AR ('Augmented reality') mode!

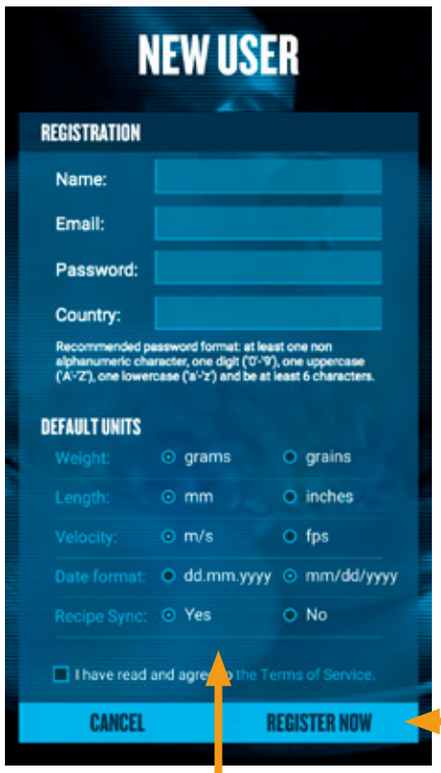
Your profile settings

Edit existing recipe

Create copy of selected recipe

Send selected recipe to your email

Delete selected recipe



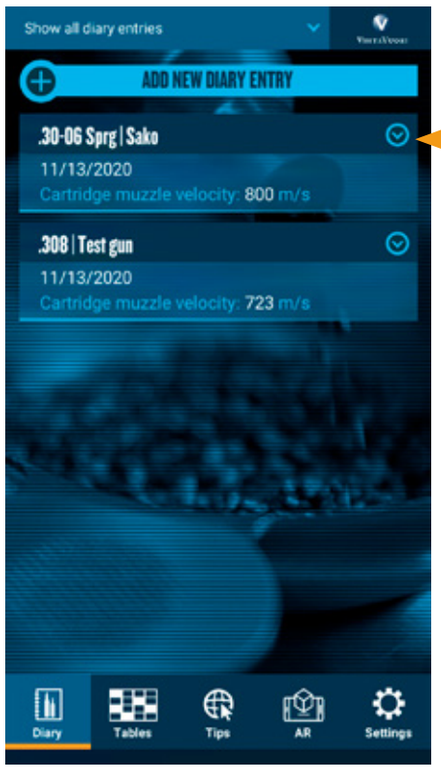
Settings can also be modified on each recipe

After registration you can send saved recipes to your e-mail, modify app settings and access your saved data even when switching devices

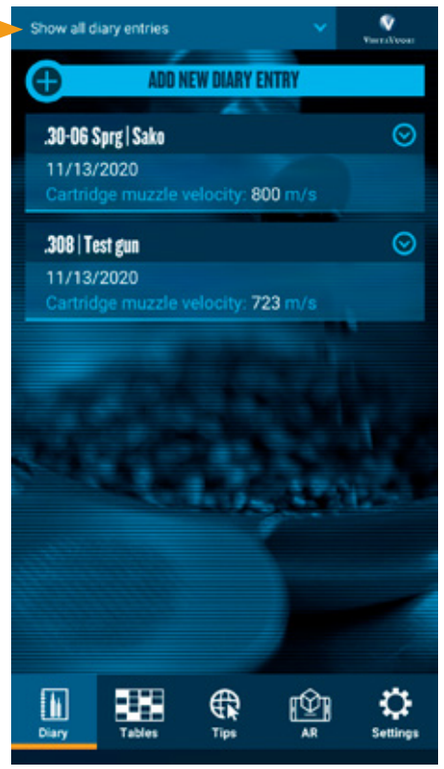
Add even more details to your recipe

Select weapon from your list

Rate your recipe. Rating is only for your own use

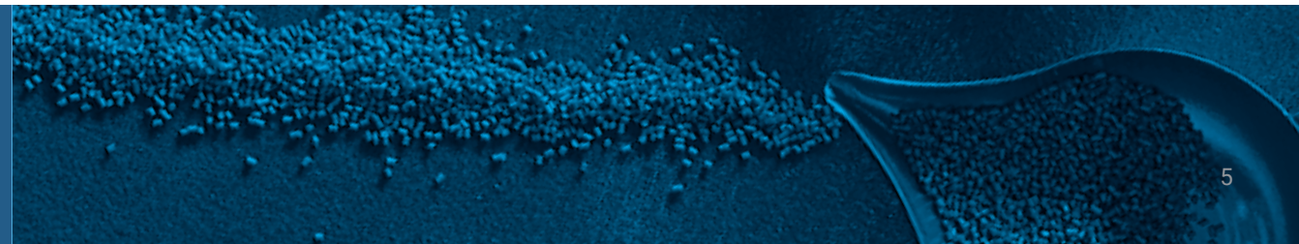


Tap arrow to open/close your recipe



View to all your recipes by weapon or caliber

Did you know that if you have registered a profile in Vihtavuori Reload, you can access your data even if you lose or change your mobile device to a new one.



PREMIUM N100 POWDERS

The N100 series powders are primarily rifle powders with different burning rates to optimize your loads.

N110

Our fastest burning powder suitable for small rifle cartridges such as the .22 Hornet and .30 Carbine, but also well suited to many of the more powerful Magnum handgun rounds. It is particularly applicable for the .44 Rem Magnum, .454 Casull, .500 S&W Mag and similar high-performance revolver cartridges.

N120

A well-balanced powder specifically for some of the intermediate cases such as the .300 Blackout and 7.62x39. It operates best at a somewhat higher pressure than the faster N110, and gives good results in a variety of the small to mid-capacity cases such as the .221 Rem. Fireball and .30-30 Win.

N130

A fast-burning rifle powder well suited to both small cases like the .22 calibers and 6 mm PPCs, and large straight-walled cases such as the. 45-70 Govt and .458 Win Mag. N130 is also an excellent choice for lighter bullets in such cartridges as the .222 and .223 Rems. Exceptional accuracy combined with the benefits of our anti-coppering technology.

N133

The preferred choice of most leading benchrest competitors and standard rifle shooters, and the powder used to set an incredible number of the current benchrest rifle records. Ideally suited to the 6mm PPC, but it's also versatile enough to serve in a wide variety of cartridges. Especially where a relatively fast-burning powder is called for, ranging from the .222 Rem to the .45-70 Govt.

N135

N135 is a relatively fast powder that delivers outstanding accuracy, velocity and consistent performance. An excellent choice for .308 Win loads with bullet weight less than 155 grains. Well suited to cartridges like the 6 mm BR Norma, .222 and .223 Rem, as well as large straight-walled cases such as the .458 Win. Mag.

N140

An incredibly versatile powder, well suited to a wide range of cartridges and bullet weights. From the .223 Rem with heavy bullets, to full sized powerhouses like the .375 H&H Magnum, our N140 is an ideal choice. Giving good velocities, clean performance and exceptional stability, this is the standard go-to powder for a wide variety of cases.

Strict quality acceptance limits have helped reloaders and cartridge manufacturers to achieve similar loads regardless of the production lot for almost 100 years.

N150

Our N150 is a slow burning powder, well suited to most common mid-sized cartridges when used with heavier bullets in accuracy and hunting loads. An excellent choice for 185-220 grain bullets in the .30-06, 140-160 grain bullets in the 6.5x55, and 175-200 grain bullets in the .308 Win. Great for 6.5 Creedmoor. Combining Vihtavuori's latest decoppering technology and enhanced temperature stability, N150 is a tremendously versatile powder.

N160

A slow-burning powder well suited to a broad range of Magnums, and large capacity/small bore cartridges like the 6.5-284 Norma. It is an ideal combination when used with the 270 Win, .25-06 Rem and a variety of belted Magnums, and it is great for 6.5 Creedmoor as well. An excellent choice for lighter to mid-weight bullets in these cartridges, N160 is temperature stable and exceptionally clean burning.

N165

N165 is a very slow burning powder, making it a superior choice for the same range of cartridges as our N160 when using heavier bullets. Delivering slightly higher velocities with these projectiles makes N165 a wise choice when long-range performance is the goal. It delivers superb accuracy with heavy bullets in calibers ranging from 6,5x55 SE all the way to .416 Rigby, and is a top choice for the .338 Lapua Magnum.

N170

Our slowest burning N100 series powder, recommended for the very large capacity cases such as the .300 Weatherby Mag. and the .300 Rem Ultra Mag. Good performances in most of the belted Magnum cartridges. N170 is one of the slowest canister-grade powders readily available from any manufacturer.

24N41

Vihtavuori 24N41 is a single-based treated rifle powder very similar to the 20N29. It has a very large grain size (length 2,3 mm by diameter 1,3 mm) and an extremely slow burning rate ideally suited to the .50 BMG. It can also be used for some large capacity cases, such as the .300 Lapua Magnum, .300 Rem. Ultra Mag, and the .338 Lapua Magnum. Of the two, 24N41 is slightly faster than 20N29, with a renewed relative burning rate of 39 for the 24N41 compared to 36 for the 20N29, when N110 is given the index 100.

20N29

Vihtavuori 20N29 was originally developed for .50 BMG and military use, and even the name 20N29 originates from the Finnish Army standards.
20N29 is a single-based, surface treated powder with grain dimensions of 2,3 mm length and 1,3 mm diameter. The burning rate is slower and grain size larger than those of the N100 series powders. 20N29 is primarily used in large caliber and magnum applications with heavy bullets and in long-range target shooting. It is ideally suited for the .50 BMG, but has also gained a good reputation when used eg. in .300 Lapua Magnum and .30-378 Weatherby Magnum.

PREMIUM N300 HANDGUN POWDERS

The N300 series powders are ideal for handgun and shotgun loads.

N310

N310 is an extremely fast-burning pistol powder, ideally suited to light, target type loads. It gives outstanding accuracy in a wide range of cartridges from the .32 S&W Long to the .45 ACP wadcutter loadings. Clean burning, consistent and easy to load, N310 is the top choice for the competitive Bullseye pistol shooter.

N320

A fast-burning powder for use in light to mid-range target loads, in cartridges ranging from the 9 mm and .38 Special, up to the .44 Special and .45 ACP. Capable of producing higher velocities at acceptable pressures than our N310, N320 provides the handloader a bit more versatility at the loading bench.

N32C (TIN STAR)

This is a specialized powder intended to provide low bulk density for cartridges that were originally designed for Cowboy Action Shooters shooting lead bullets with single-action revolvers and lever-action rifles. The use of more conventional powder results in poor load density, and fails to adequately fill the case. Our N32C corrects this problem, and is ideally suited to many of the older cartridges used in Cowboy Action shooting, such as the .38 Special, .44 Special and .45 Colt.

N330

N330 provides a wide range of latitude for the handgun shooter, serving well for everything from light target to heavier high-velocity loadings. This is a versatile powder suitable for an exceptionally broad range of applications, especially designed for 9 mm Luger but also suitable for .38 Special, .40 S&W, .44 S&W Special and .45 Colt.

N105 SUPER MAGNUM

N105 Super Magnum is our slowest burning pistol powder, intended for the most powerful handgun cartridges in use today, particularly with heavy bullets and/or large case volume. Many of these specialized rounds operate at rifle pressures. Delivering this type of performance is precisely what prompted the development of N105. For such powerhouses as the .454 Casull or .500 S&W, N105 is an excellent powder choice.

N340

A flexible powder that serves well in medium to heavy high-velocity loadings. N340 is a good performer in high intensity rounds like the .357 and .44 Magnums, the 40 S&W and the .357 SIG cartridges.

N350

Our N350 is the slowest in the N300 series of handgun powders, and is ideal for very heavy loadings, and top end velocities and energies from a broad range of pistol and revolver cartridges. It is very well suited to loading powerful rounds for example in calibers 9 mm Luger, 10 mm AUTO and .45 ACP.

3N37

Originally developed as a powder for loading .22 rimfire cartridges, 3N37 has a burn rate very similar to N350, and can be used for many of the same applications. As handgun shooters began to experiment with 3N37, they found that this fine-grained powder loaded evenly through a measure and gave excellent results from a range of competitive cartridges used for USPSA and IPSC shooting.

3N38

The 3N38 is a specialized powder designed specifically for competitive handgun shooting with high-velocity loads in the 9mm and .40 S&W cartridges. A relatively slow-burning powder, 3N38 is a perfect choice for making Major with good accuracy and the clean-burning characteristics for which Vihtavuori is renowned.

PREMIUM N500 HIGH ENERGY POWDERS

The N500 series of Vihtavuori propellants provide the utmost in performance for added velocity and range with heavy bullets. Nitroglycerine has been added to the traditional single base powder to get better energy content. The series offers eight different reloading powders with different burning rates.

N530

The fastest of our N500 High Energy series, N530 is an ideal for many of the smaller bottlenecked cases like the .223/5.56, or large straight-walled cases such as the .45-70 Springfield. It is also a useful powder for medium capacity cases like the .308 Win, when using lighter weight bullets of 155 grains or less.

N540

N540 is a mid-range powder in the N500 series, and an excellent choice for cartridges running from the .223/5.56mm, .308 Win and .30-06 Springfield with appropriate bullet weights. This is also a great powder for 6.5x47 Lapua and 6.5 Creedmoor as well as the .223 when using heavy bullets from 69 to 82 grains. It is exceptionally clean-burning and delivers outstanding accuracy.

N550

A slower burning powder very well suited to a wide range of medium to large cartridges, especially with heavier bullet weights. An ideal fit for many of the 30 caliber magnums with lighter bullets, but useful across a wide range of bore sizes. Particularly well matched to heavy bullet loadings in the 6.5x55 and .30-06 Springfield cartridges.

N555

Vihtavuori's N555 rifle powder is designed for precision rifle platforms chambered in cartridges such as 6mm & 6.5 Creedmoor, .284 Winchester, .260 Remington, .30-06 Springfield, and for rifle calibers with large case volume and comparatively small bullet diameters, among others. Competitive shooters and hunters will benefit from its insensitivity in extreme weather conditions. N555 is the most temperature stable powder in its class, and features unprecedented performance in the 6.5 Creedmoor. It includes an anti-fouling agent that minimizes barrel fouling to extend the length of your competitive shooting stages. Its unmatched lot-to-lot consistency also eliminates costly range time re-developing your favorite loads.

N560

A very slow-burning powder for large, magnum style cases, particularly when heavy bullets and high velocities are required. A perfect selection for the .270 Win, 7 mm Remington or Weatherby Magnums, .300 Winchester, RUM or Weatherby Magnums. A very good choice for the .338 Lapua Magnum when using lighter bullets of 250 grains or less.

N565

N500 series powder developed specially for the 250 gr bullet weight loads in .338 Lapua Magnum. N565 roughly splits the difference in burn-rate between N560 and N570, but is a bit closer to N570. It will cover many of the same cartridges and bullets as the first two, but allows the loader another option in fine tuning a load to the perfect combination. While N565 was tailored specifically for military sniping applications, it also has a wide range of sporting uses, particularly within long range shooting. The N565 will prove to be an ideal choice for calibers such as the 7mm Rem Magnum, the .30-06, .300 Win Mag, .300 Norma Mag as well as the .338 Norma Mag.

NEW!

N568

N568 is the ideal choice for today's most popular large capacity magnum cartridges, such as the 6.5 PRC, .300 PRC, .300 Winchester Magnum, and .338 Lapua Magnum. N568's slow burning characteristics and short-cut grains provide extremely consistent metering for long range competitive shooters, accuracy enthusiasts, and hunters alike. N568 excels with heavy-for-caliber projectiles and provides exceptional temperature stability and is insensitive to humidity changes. An excellent choice for classic belted magnum cartridges such as 7mm Remington Magnum, .300 RUM, .338 Winchester Magnum and more.

N570

The slowest burning member of the N500 line, N570 is the perfect choice for those tasks requiring heavy bullets and the largest capacity cases. Its burn rate is very close to that of our N170, but will generally provide a bit more velocity in the same cartridges, and using the same bullet weights. The burn-rate characteristics of N570 allow it to deliver the very best possible performance from such cartridges as the 6.5x284, .300 Rem Ultra Mag, and .338 Lapua Magnum.

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PREFACE

Dear Vihtavuori customer,

The new Vihtavuori Reloading Guide 2021 is an updated version of the previous Vihtavuori Reloading Guides.

The contents of this updated issue has been revised with loading data for the following calibers:

Centerfire rifle
New calibers: .224 Valkyrie
Updated data: .223 Remington, 6 mm Creedmoor, .243 Winchester, 6.5 Creedmoor, .260 Remington, 6.5 x 55 Swedish Mauser, 6.5 x 55 SE / 6.5 x 55 SKAN, .284 Winchester, .308 Winchester, .30-06 Springfield

Centerfire handgun
Updated data: 9 mm Browning court / .380 Auto, 9 mm Luger / 9x19 mm, .45 Auto / .45 ACP

Shotgun
New data for caliber 12/76 (3”) with lead shot and steel shot nickel plated

The now published new rifle and pistol reloading data is expanding and revising the powder selection for existing bullets.

As a courtesy to the reloader the load tables contain notes of compressed loads and loads to fill the case up. For flexible usage this guide features data in metric and imperial dimension systems i.e. charge weight in grams and grains as well as muzzle velocity in meters and feet per second. This reloading guide also includes the accuracy loads noted in the load tables. These loads utilize worldwide well-known Lapua cartridge components and are factory tested either for even pressure / muzzle velocity and accuracy. These loads are highlighted in the load tables with dark grey shadowing.

All the loads in this guide are pressure tested according to the C.I.P. method. The maximum loads given in the tables are determined according to the C.I.P. and SAAMI maximum pressure specifications. The listed maximum loads should never be exceeded. Due to the differences in the cartridge components, individual weapons, shooting temperatures etc., always start developing your load by using the starting load according to the loading data. If there is no indication of the starting load, use 15 % lower charge than the listed maximum load as your starting load.

The Vihtavuori powders are manufactured by Nammo Vihtavuori Oy at the Vihtavuori plants. Sales and marketing of the reloading powders is carried out by Nammo Lapua Oy and Nammo Vihtavuori Oy. The contact details of Vihtavuori customer service and a listing of Vihtavuori Distributors can be found at the end of this guide. For latest updates of data and distributors check also **vihtavuori.com**, where this guide can also be downloaded in PDF format. Check also Apple App Store and Google Play store for the **Vihtavuori RELOAD app**. Latest reloading information and the possibilibity to save your own reloading recipes, at hand everywhere you go.

We wish you successful reloading with Vihtavuori powders.

VIHTAVUORI

ABOUT THE DATA

Disclaimer

As Nammo Vihtavuori Oy has no control over improper storage, handling, loading or use of our powders after they have left the factory, we make no warranty of any kind, either expressed or implied, limited or full. We specifically disclaim all warranties of fitness for a particular purpose and merchantability. We specifically disclaim all liability for consequential damages of any kind whatsoever, whether or not due to seller's negligence or based on strict product liability or principle of indemnity or contribution, Nammo Vihtavuori Oy neither assumes nor authorizes any person to assume for it any liability in connection with the use of this product.

How to Use the Data

Our rifle and handgun data listings generally contain maximum charges which are not to be exceeded. In some instances starting loads are also listed. Currently this booklet contains all of the data we can supply. Be certain you use the correct data and the specific bullet weight shown.

By staying 5 % below the maximum powder charge weight, pressures will be reduced by about 10 % while velocities will be only about 3 % lower than listed.

Caution: When loading handgun cartridges it is vital to maintain the minimum cartridge overall length (C.O.L.) listed in the tables. Shorter overall lengths may double chamber pressures. Longer lengths are permissible so long as the functioning of the handgun will not be impaired.

The data in the loading tables were obtained at an ambient temperature of 68 degrees Fahrenheit and relative humidity of 55 %. The values obtained were under carefully controlled conditions and may vary from those obtained with your firearm, specific component lots, loading dimensions, and loading procedures. The maximum charges must NEVER be exceeded. **Start loading with the starting load according to the loading data. If there is no indication of the starting load, use 15 % lower charge than the listed maximum**. When loading cartridges for which the listed charge is 10 grains or less, after firing 10 rounds at the minimum weight (15 % below maximum), increase charge weights by 0.2 grains and fire another 10 rounds. Repeat this procedure, if necessary, until you reach, but do not exceed, the maximum listed charge. The same process is followed for heavier charges except that charge weights from 11 to 25 grains use increments of 0.5 grains. For charges over 25 grains increments of 1.0 grains will be correct.

If even a single test round shows signs of excessive pressure discontinue the use of the load. Do not fire even a single additional cartridge. Seek qualified help before proceeding! The traditional sign of overpressure is a flattened primer. When flattened primers start to occur, it is a definite warning that the charge should be reduced, quickly. Brass getting into the ejector and extractor cavities is a worse case. Blown out primers are worse still. If a case ruptures it may be a sign of a defective case or a truly lethal chamber pressure.

In case of overpressure signs it is wiser to back off, to be safe rather than sorry. Why risk potentially fatal injury? Better to stop shooting and immediately discard all such reloads.

Read also the Reloading Safety Rules on pages 16 and 17.

Pressure

There are numerous factors which can change the ballistic performance of a load even when the data is followed exactly. For example: The internal dimensions of a firearm can vary greatly even between two of the same make and model. Pressures can vary to extremes as different firearms are used. Each change in brand and even within different lots of a specific brand component can cause notable ballistic changes. Too, changes in ambient temperature can also cause ballistic altering pressures. Not every bullet of a given diameter and weight will produce alike pressure. Changes in case brand can also effect ballistics. There are numerous other causes of varying pressure levels.

Therefore it is essential that the reloader be well versed in the methods of carefully working up a reload powder charge in small increments as outlined in the various reloading handbooks that are available from reliable sources. The data in this book is not intended for use by persons not thoroughly versed in such procedures.

This guide should be supplemented by a good recognized reloading handbook that offers all appropriate information.

PROPERTIES AND STORAGE OF SMOKELESS POWDER

Smokeless powders, or propellants, are essentially mixtures of chemicals designed to burn under controlled conditions at the proper rate to propel a projectile from a gun.

Smokeless powders are made in three forms:

1. Thin, circular flakes or wafers
2. Small cylinders
3. Small spheres

Single-base smokeless powders derive their main source of energy from nitrocellulose.

The energy released from double-base smokeless powders is derived from both nitrocellulose and nitroglycerine.

All smokeless powders are extremely flammable by design, they are intended to bum rapidly and vigorously when ignited.

Oxygen from the air is not necessary for the combustion of smokeless powders since they contain sufficient built-in oxygen to burn completely, even in an enclosed space such as the chamber of a firearm.

In effect, ignition occurs when the powder granules are heated above their ignition temperature. This can occur by exposing powder to:

1. A flame such as a match or primer flash.
2. An electrical spark or the sparks from welding, grinding, etc..
3. Heat from an electric hot plate or a fire directed or near a closed container even if the powder itself is not exposed to the flame.

When smokeless powder burns, a great deal of gas at high temperature is formed. If the powder is confined, this gas will create pressure in the surrounding structure. The rate of gas generation is such, however, that the pressure can be kept at a low level if sufficient space is available or if the gas can escape.

In this respect smokeless powder differs from blasting agents or high explosives such as dynamite or blasting gelatin, although smokeless powder may contain chemical ingredients common to some of these products.

High explosives such as dynamite are made to detonate, that is, to change from solid state to gaseous state with evolution of intense heat at such a rapid rate that shock waves are propagated through any medium in contact with them. Such shock waves exert pressure on anything they contact, and, as a matter of practical consideration, it is almost impossible to satisfactorily vent away the effects of a detonation involving any appreciable quantity of dynamite.

Smokeless powder differs considerably in its burning characteristics from common "black powder".

Black powder burns essentially at the same rate out in the open (unconfined) as when in a gun.

When ignited in an unconfined state, smokeless powder burns inefficiently with an orange-colored flame. It produces a considerable amount of light brown noxious smelling smoke. It leaves a residue of ash and partially burned powder. The flame is hot enough to cause severe burns.

The opposite is true when it burns under pressure as in a cartridge fired in a gun. Then it produces very little smoke, a small glow, and leaves very little or no residue. The burning rate of smokeless powder increases with increased pressure.

If burning smokeless powder is confined, gas pressure will rise and eventually can cause the container to burst. Under such circumstances, the bursting of a strong container creates effects similar to an explosion.

For this reason, the Department of Transportation (formerly Interstate Commerce Commission) sets specifications for shipping containers for propellants and requires tests for loaded containers - under actual fire conditions - before approving them for use.

When smokeless powder in D.O.T. approved containers is ignited during such tests, container seams split open or lids pop off - to release gases and powder from confinement at low pressure.

PROPERTIES AND STORAGE OF SMOKELESS POWDER

How to Check Smokeless Powder for Deterioration

Although modern smokeless powders are basically free from deterioration under proper storage conditions, safe practices require a recognition of the signs of deterioration and its possible effects.

Powder deterioration can be checked by opening the cap on the container and smelling the contents.

Powder undergoing deterioration has an irritating acidic odor. (Don't confuse this with common solvent odors such as alcohol, ether and acetone).

Check to make certain that powder is not exposed to extreme heat as this may cause deterioration. Such exposure produces an acidity which accelerates further reaction and has been known, because of the heat generated by the reaction, to cause spontaneous combustion.

Never salvage powder from old cartridges and do not attempt to blend salvaged powder with new powder. Don't accumulate old powder stocks. The best way to dispose of deteriorated smokeless powder is to burn it out in the open at an isolated location in small shallow piles (not over 1" deep). The quantity burned in any one pile should never exceed one pound. Use an ignition train of slow burning combustible material so that the person may retreat to a safe distance before powder is ignited.

Considerations for Storage of Smokeless Powder

Smokeless powder is intended to function by burning, so it must be protected against accidental exposure to flame, sparks or high temperatures.

For these reasons, it is desirable that storage enclosures be made of insulating materials to protect the powder from external heat sources.
Once smokeless powder begins to burn, it will normally continue to burn (and generate gas pressure) until it is consumed.

D.O.T. approved containers are constructed to open up at low internal pressures to avoid the effects normally produced by the rupture or bursting of a strong container.
Storage enclosures for smokeless powder should be constructed in a similar manner:

1. Of fire-resistant and heat-insulating materials to protect contents from external heat.

2. Sufficiently large to satisfactorily vent the gaseous products of combustion which would result if the quantity of smokeless powder within the enclosure accidentally ignited.

If a small, tightly enclosed storage enclosure is loaded to capacity with containers of smokeless powder, the walls of the enclosure will expand or move outwards to release the gas pressure - if the powder in storage is accidentally ignited.

Under such conditions, the effects of the release of gas pressure are similar or identical to the effects produced by an explosion.

Hence only the smallest practical quantities of smokeless powder should be kept in storage, and then in strict compliance with all applicable regulations and recommendations of the National Fire Protection Association.

PROPERTIES AND STORAGE OF SMOKELESS POWDER

Recommendations for Storage of Smokeless Powder

STORE IN A COOL, DRY PLACE. Be sure the storage area selected is free from any possible sources of excess heat and is isolated from open flame, furnaces, hot water heaters, etc. Do not store smokeless powder where it will be exposed to the sun's rays. Avoid storage in areas where mechanical or electrical equipment is in operation. Restrict from the storage areas heat or sparks which may result from improper, defective or overloaded electrical circuits.

DO NOT STORE SMOKELESS POWDER IN THE SAME AREA WITH SOLVENTS, FLAMMABLE GASES OR HIGHLY COMBUSTIBLE MATERIALS. STORE ONLY IN DEPARTMENT OF TRANSPORTATION APPROVED CONTAINERS.

Do not transfer the powder from an approved container into one which is not approved.

DO NOT SMOKE IN AREAS WHERE POWDER IS STORED OR USED. Place appropriate "NO SMOKING" signs in these areas. THE STORAGE CABINETS SHOULD BE CONSTRUCTED OF INSULATING MATERIALS AND WITH A WEAK WALL, SEAMS OR JOINTS TO PROVIDE AN EASY MEANS OF SELFVENTING.

DO NOT KEEP OLD OR SALVAGED POWDERS. Check old powders for deterioration regularly. Destroy deteriorated powders immediately.

OBEY ALL REGULATIONS REGARDING QUANTITY AND METHODS OF STORING. Do not store all your powders in one place. If you can, maintain separate storage locations. Many small containers are safer than one or more large containers.

KEEP YOUR STORAGE AND USE AREA CLEAN. Clean up spilled powder promptly. Make sure the surrounding area is free of trash or other readily combustible materials.
The above information has been provided with permission from SAAMI: SPORTING ARMS AND AMMUNITION MANUFACTURERS' INSTITUTE, INC. P.O. Box 838, Branford, CT 06405.

RELOADING SAFETY

Reloading is an enjoyable and rewarding hobby that is easily conducted with safety. But like many other human endeavours, carelessness or negligence can make reloading hazardous. The essence of reloading safety is proper handling and storage of primers and powder. As important is strict following of the instructions given by the manufacturers of the reloading equipment as well as the reloading components.

Before you get started, read the safety rules below and keep them in mind whenever reloading. Attention paid to detail and patience ensures safety and quality!

■ Reload only when you can give it your undivided attention. **Do not reload**, when fatigued or ill. Develop your own reloading routine to avoid mistakes. Avoid haste, load at a leisurely place and keep in mind that **absolutely no reloading under the influence of alcohol or drugs!**

■ Always wear proper eye protection. It is an unnecessary risk to reload without safety glasses.

■ Store powder and primers out of reach of children and away from heat and open fire. **Follow the manufacturer's instructions on your powder canister. Never smoke during a reloading session!**

■ Keep no more powder than needed available. Immediately return the unused powder to its original factory container to preserve its identity and usable life time.

■ Do not use any powder unless its identity is positively known. Scrap all unidentified powders according to the manufacturer's instructions on your powder canister. **Keep in mind that the trial-and-error method may lead to serious injury!**

■ **Do not store primers in bulk! Doing so will create a bomb!** Bulk primers will very likely mass detonate. The blast of a few hundred primers corresponds to a hand grenade in a room! Do not force primers in any circumstances. Take special care when filling and handling auto primer feed tubes. Keep primers in their original factory packing until used. Return unused primers to their original packing.

■ Do not use primers if their identity is lost. Discard them according to the manufacturer's instructions.

■ Start loading with the starting load according to the loading data. If there is no indication of the starting load, use 15 % lower charge than the listed maximum load. Increase the charge using small steps watching for overpressure signs from the primer and the case head at each step. **If you detect overpressures immediately stop shooting and reduce the charge.** Immediately disassemble the defective cartridges. **NEVER EXCEED THE MAXIMUM LOADS!**

■ Check visually the powder level in the cases so you are absolutely sure that you have no double powder charge. When a double powder charge is fired it may result in a gun damage, personal injury, even death.

■ If you change the lot of any component or if you change any of the components of your reload, you must develop your load from the starting load again. A different component as well as a component from a different manufacturing lot may cause changes in cartridge pressure.

■ You must absolutely follow the given cartridge overall lengths (C.O.L.) according to the reloading tables. The change in the bullet seating depth has a significant influence on the cartridge pressure.

■ Never reduce loads under the listed starting load.

■ Keep your reloading bench in good order. Clean up spilled powder and primers promptly and completely. Remember that the reloading bench is not a temporary store for other tools, used car spare parts etc.

■ Use your reloading equipment according to the manufacturer's recommendations. Study the instructions carefully and don't hesitate to ask, if you don't understand everything.

■ Be safe, be conscientious!

RELOADING SAFETY

Lead Exposure

A continuous lead exposure has been found out to create lead accumulation to living bodies, specially to the nervous system causing little by little serious physical impairment. Some unused reloading components as well as fired cases can contain lead or lead compounds, it is possible to a reloader to get exposed during reloading. Primers and bullets contain lead and it may be present as a residue in fired cartridge cases, too.

There are different ways lead may enter the body. However, the two most common are considered to be the mouth and the breathing. Therefore with simple precautions described underneath the possible lead exposure and its dangerous consequences can be avoided.

■ **WASH YOUR HANDS** thoroughly with warm water and soap after shooting or reloading.

■ **DO NOT EAT OR DRINK** during a reloading session. When handling fired cartridge cases the residual containing lead most likely gets to your hands. Therefore eating something requiring a straight hand contact during a reloading session hazards the reloader to lead exposure. Keep your hands away from your nose or your mouth during a reloading session.

■ **KEEP GOOD HOUSEHOLD AT YOUR RELOADING SITE.** Regular cleaning prevents the accumulation of residuals. Use a damp cloth or mop to clean up the reloading bench as well as the floor underneath. **DO NOT USE A VACUUM CLEANER!** The use of it poses a potential risk of exposure due to the spilled powder it collects up. Furthermore, an ordinary vacuum cleaner more spreads than collects the dust containing residuals.. Do not use any carpet at your reloading site. Carpet is hard to keep dust-free and it can create static electricity that can accidentally fire a primer.

■ **PROTECT YOUR BREATHING AGAINST THE DUST IN THE RELOADING AREA.** When using a dry tumbling media in cleaning the cartridge cases, keep in mind that the lead residue from the fired cases moves to the tumbling media, where it accumulates by use. Wear always a dust mask when pouring the dry cleaning media out of the tumbler and be careful not to spill the media on your reloading bench.

RIFLE RELOADING DATA

Disclaimer

All of this reloading information has been provided by Nammo Lapua Oy and Nammo Vihtavuori Oy. The data given here were obtained in laboratory conditions following strictly the CIP (Commission International Permanente) June 13, 1990 and November 9, 1993 rules. The listed maximum loads have been determined according to the respective CIP/SAAMI maximum pressure specification, whichever is lower.

These test methods have been deemed to be safe throughout the world.
Pressure is measured at the case mouth or from inside the case according to the CIP.

DO NOT ATTEMPT ANY EXTRAPOLATIONS. PLEASE FOLLOW THE DATA AS WRITTEN.
IT IS A MUST FOR EVERY RELOADER TO READ THE RELOADING SAFETY RULES ON THE PAGES 16 AND 17 OF THIS GUIDE.

.204 Ruger

Test barrel:	24¾", 1 in 12" twist
Primers:	Small Rifle
Cases:	Hornady, trim-to length 1.843"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
32	Sierra	Blitz King	2.248	N130	22.8	3629	25.0	3980
				N530	24.1	3510	27.0	4019
				N135	24.5	3648	27.0	4029
40	Hornady	V-Max	2.248	N133	23.1	3317	25.3	3698
				N530	23.1	3323	25.8	4055
				N140	26.2	3369	28.1	3625
50	Berger	HPBT	2.248	N133	21.6	2812	23.8	3110
				N530	22.1	2841	24.1	3166
				N140	24.2	2900	27.2	3251

.22 Hornet

Test barrel:	23½", 1 in 16" twist
Primers:	Small Rifle
Cases:	Sako, trim-to length 1.394"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
40	Speer	Spire Point	1.713	N110	8.0	2338	10.1	2668
45	Speer	Spitzer	1.713	N110	7.3	2144	9.3	2448
50	Speer	Spitzer	1.713	N110	7.3	1997	8.7	2274
				N120	9.5	2008	11.3	2375
55	Speer	Spitzer	1.713	N110	6.4	1841	8.2F	2111
				N120	9.0	1884	10.6	2229
F = Case full								

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.221 Remington Fireball

Test barrel:	14", 1 in 12" twist
Primers:	Small Rifle
Cases:	Lapua, trim-to length 1.394"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
40	Sierra	Blitz King	1.831	N120	16.4	2874	17.3	3031
				N130	18.2	2884	19.3F	3054
52	Sierra	MatchKing	1.831	N120	14.8	2543	16.2	2644
				N130	15.4	2339	17.3	2671
				N133	18.5	2602	19.3F	2700
55	Lapua	FMJ	1.831	N120	14.2	2402	15.4	2556
				N130	15.4	2454	16.5	2598
				N133	18.2	2539	18.8F	2618
55	Lapua	Soft Point	1.831	N120	13.3	2356	15.4	2552
				N130	16.4	2467	17.4	2612
				N133	18.2	2507	19.3F	2648
F = Case full								

.224 Valkyrie

Test barrel:	24", 1 in 7" twist
Primers:	Small Rifle, Remington 7 1/2 BR
Cases:	Starline, trim-to length 1.590"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
53	Hornady	V-Max	2.205	N133	22.8	3022	24.7	3228
				N135	23.9	3061	25.9	3281
				N140	25.8	3100	27.9	3317
65	Sierra	SBT	2.146	N133	20.5	2677	22.4	2861
				N135	21.1	2677	23.6	2897
				N140	23.5	2779	25.6	2979
				N540	24.4	2844	26.5	3051
				N150	23.5	2779	25.9	2989
				N550	26.4	2884	28.2	3091
69	Lapua	OTM Scenar-L	2.142	N133	20.4	2612	22.1	2792
				N530	20.8	2608	22.8	2858
				N135	22.2	2703	23.6	2877
				N140	23.9	2740	25.5	2917
				N540	24.1	2753	25.0	2904
				N150	23.1	2657	25.5A	2894
				N550	25.9	2756	27.2	2930
69	Sierra	MatchKing	2.157	N133	20.5	2680	22.4	2822
				N135	22.4	2733	23.5	2858
				N140	24.4	2772	26.2	2963
				N540	24.7	2802	26.2	2989
				N150	24.4	2782	26.2A	2966
				N550	26.2	2776	28.1C	2982
70	Hornady	GMX	2.197	N135	20.4	2493	22.2	2703
				N140	21.9	2562	24.1	2785
				N150	21.3	2470	23.5	2687
				N550	23.9	2618	25.6	2808
77	Lapua	OTM Scenar-L	2.185	N135	20.1	2451	21.9	2625
				N140	22.1	2516	23.8	2687
				N540	23.1	2618	24.1	2746
				N150	22.4	2543	23.6	2680
				N550	24.2	2569	26.2	2776
80	Berger	VLD Target	2.260	N135	20.1	2421	21.8	2562

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.224 Valkyrie cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N140	21.6	2477	23.5	2644
				N540	22.4	2533	24.1	2726
				N150	20.8	2461	23.5	2631
				N550	24.2	2595	26.1	2785
85.5	Berger	Long Range Hybrid Target	2.260	N135	20.8	2418	21.6	2487
				N140	22.2	2451	23.9	2605
				N540	22.8	2480	24.1	2651
				N150	22.4	2457	23.8	2592
				N550	24.7	2556	25.9	2707
88	Hornady	ELD Match	2.260	N530	20.1	2343	21.6	2523
				N135	20.2	2329	21.6	2464
				N140	21.3	2343	23.5	2556
				N540	22.4	2425	24.4	2635
				N150	21.9	2379	23.9	2559
				N550	23.9	2467	25.6	2657
				N555	25.5	2405	26.2C	2474
90	Berger	VLD Target	2.260	N135	20.8	2339	21.5	2408
				N140	21.6	2329	23.3	2516
				N540	22.4	2434	23.8	2579
				N150	21.6	2346	23.5	2523
				N550	24.1	2451	25.3	2618

A = Accuracy load C = Compressed load

.222 Remington

Test barrel:	23”, 1 in 14” twist
Primers:	Small Rifle
Cases:	Lapua, trim-to length 1.693”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
35	Hornady	V-Max	2.047	N110	14.4	3235	18.5	3638
				N120	20.2	3399	21.8	3701
				N130	22.2	3455	23.9	3730
40	Sierra	Blitz King	2.126	N110	14.2	3091	17.3	3465
				N120	20.4	3025	22.1	3294
				N130	21.3	3271	22.4	3468
45	Sierra	Soft Point	2.126	N120	18.8	3038	20.8	3350
				N130	20.7	3120	22.5	3392
				N133	22.1	3097	24.1F	3350
50	Hornady	SPSX	2.087	N120	18.5	2940	20.1	3163
				N130	20.1	2992	21.5	3235
				N133	21.3	2979	23.0	3212
50	Lapua	Naturalis N566	2.087	N120	16.8	2848	19.0	3097
				N130	18.7	2907	20.2	3133
				N133	20.5	2972	22.1	3222
				N530	20.8	2887	22.2	3143
51	Lapua	HPCE	2.126	N120	18.2	2923	20.1	3169
				N130	19.8	2949	21.3	3205
				N133	21.1	2999	23.1	3291
52	Sierra	HPBT	2.126	N120	17.9	2874	19.6	3140
				N130	19.8	2949	21.3	3199
				N133	21.1	3005	23.1	3274
55	Lapua	FMJ	2.126	N120	17.7	2782	19.6	3025
				N130	19.4	2854	21.0	3091
				N133	21.0	2871	22.7	3120
				N135	21.3	2923	23.1F	3169

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.222 Remington cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
55	Lapua	Soft Point	2.106	N120	18.4	2815	19.6	2995
				N130	19.4	2858	20.7	3061
				N133	20.8	2897	22.7	3114
				N135	21.6	2940	23.1	3136
60	Hornady	HP	2.126	N120	16.5	2644	18.5	2890
				N130	18.7	2697	20.2	2966
				N133	20.1	2772	21.6	3009
				N135	20.5	2799	22.8F	3061

F = Case full

.223 Remington

Test barrel:	25”, 1 in 12” twist
Primers:	Small Rifle
Cases:	Lapua, trim-to length 1.752”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
40	Speer	Spire Point	2.075	N120	19.0	3159	23.0	3668
				N130	22.5	3386	25.5	3763
				N133	23.8	3402	25.9F	3625
45	Speer	Spitzer	2.126	N120	19.3	3061	22.8	3517
				N130	22.2	3251	25.0	3583
				N133	23.3	3238	25.9F	3579
				N135	25.3	3314	25.9F	3392
50	Lapua	Naturalis N566	2.205	N130	18.1	2825	21.6	3238
				N133	20.7	2927	24.1	3337
				N530	21.0	2913	23.8	3301
				N135	21.9	2972	25.6	3366
50	Sierra	Blitzking	2.260	N130	21.1	3091	23.0	3356
				N133	23.3	3176	25.3	3448
				N530	23.1	3114	25.3	3406
				N135	24.2	3199	26.2	3471
				N140	25.5	3120	27.0C	3333
50	Speer	TNT-HP	2.244	N120	19.3	2989	22.7	3399
				N130	22.1	3107	24.5	3432
				N133	24.1	3248	25.9F	3533
				N135	25.5	3278	25.9F	3340
51	Lapua	HPCE	2.244	N120	19.0	2982	21.1	3251
				N130	20.8	3051	23.3	3340
				N133	22.4	3094	24.8A	3389
				N530	23.6	3159	25.6	3451
				N135	23.8	3140	25.9F	3392
52	Berger	FB Varmint	2.260	N130	21.1	2972	23.5	3310
				N133	23.0	3048	25.0	3343
				N530	23.6	3068	25.8	3369
				N135	24.1	3054	26.7	3373
				N140	25.0	2982	26.2	3146
52	Sierra	HPBT	2.244	N130	21.1	3071	23.8	3373
				N133	22.5	3110	25.0	3389
				N135	23.8	2651	25.6F	3409
53	Hornady	V-Max	2.256	N130	20.8	3025	22.7	3274
				N133	22.8	3077	24.7	3337
				N530	22.8	3084	24.7	3314
				N135	23.9	3133	25.8	3376
55	Berger	FB Varmint	2.260	N130	20.7	2877	23.0	3196
				N133	22.4	2933	24.7	3251

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.223 Remington cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N530	23.1	2969	25.2	3268
				N135	23.8	2956	26.2	3271
				N140	24.7	2917	26.5	3166
55	Hornady	FMJBT	2.244	N120	18.7	2917	20.7	3150
				N130	21.8	3136	23.5	3323
				N133	22.1	3045	24.5	3301
				N530	23.1	3087	25.0	3353
				N135	23.3	3077	25.6	3337
				N140	24.7	3051	26.8	3343
55	Hornady	V-Max	2.260	N130	20.4	2812	23.0	3166
				N133	21.5	2782	25.0	3222
				N530	23.0	2927	25.3	3261
				N135	23.5	2900	26.2	3212
				N140	25.3	2900	26.5	3045
55	Lapua	FMJ	2.244	N120	18.7	2874	20.8	3127
				N130	20.5	2936	23.1	3232
				N133	22.1	2989	24.5	3278
				N530	23.3	3054	25.3	3330
				N135	23.3	3041	25.9F	3278
				N140	24.8	3009	27.3F	3294
55	Lapua	Soft Point	2.224	N120	16.8	2690	20.2	3081
				N130	18.7	2812	21.9	3146
				N133	21.0	2874	24.1	3215
				N530	22.2	2923	24.8	3264
				N135	22.1	2949	25.3F	3294
				N140	24.2	3002	26.9F	3327
60	Berger	FB Varmint	2.260	N133	21.5	2782	24.2	3107
				N530	22.4	2822	24.4	3156
				N135	23.0	2822	25.8	3140
				N140	23.9	2818	26.2	3068
				N540	24.8	2897	27.2	3219
60	Hornady	HP	2.244	N130	20.5	2867	23.1	3173
				N133	22.1	2913	24.7	3209
				N135	23.1	2930	25.8	3202
				N140	25.0	2936	26.8F	3166
62	Barnes	TAC-X BT	2.260	N133	20.7	2730	23.1	2966
				N530	21.6	2694	24.4	3100
				N135	21.0	2618	25.2	3054
				N140	23.5	2694	26.2	3031
				N540	23.9	2756	27.2	3159
62	Speer	FMJBT	2.260	N530	22.1	2825	24.1	3127
				N135	22.1	2795	24.7	3091
				N140	25.0	2956	26.2F	3094
62	Swift	Scirocco II	2.260	N530	21.1	2661	23.8	2982
				N135	21.0	2572	24.4	2972
				N140	23.5	2638	26.7	3015
				N540	23.8	2720	26.5	3087
65	Sierra	SBT	2.244	N130	19.0	2687	21.0	2927
				N133	20.7	2733	22.7	2989
				N135	21.6	2766	23.8	3025
				N140	23.8	2808	25.6	3054
				N540	23.5	2769	25.6	3058
69	Lapua	Scenar[1)]	2.260	N133	20.2	2589	21.9	2785
				N530	21.1	2654	22.7	2851
				N135	21.1	2612	23.0	2828

.223 Remington cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N140	22.8	2700	24.7	2884
				N540	23.1	2648	25.5	2936
69	Sierra	HPBT[1)]	2.244	N133	20.7	2598	22.8	2844
				N135	21.6	2638	23.8	2871
				N140	23.6	2690	25.9	2943
				N540	24.1	2703	26.4	2986
70	Hornady	GMX	2.240	N133	19.3	2552	20.2	2667
				N530	19.3	2474	21.1	2736
				N135	19.3	2467	21.8	2740
				N140	21.6	2497	24.5	2828
				N540	21.9	2523	24.4	2854
73	Berger	BT Target	2.260	N133	18.5	2451	21.8	2697
				N530	20.5	2533	23.1	2910
				N135	20.2	2438	23.3	2805
				N140	21.9	2503	25.3	2871
				N540	22.7	2582	25.5	2949
75	Berger	VLD Target	2.260	N133	18.7	2402	21.9	2746
				N530	20.8	2546	23.1	2894
				N135	20.8	2503	23.8	2835
				N140	22.2	2530	25.5	2877
				N540	22.7	786	25.9	2963
75	Hornady	BTHP[2)]	2.260	N135	20.7	2467	23.3	2723
				N140	22.1	2474	25.0	2766
				N540	23.1	2536	25.8	2831
75	Hornady	ELD Match	2.260	N530	20.5	2549	23.3	2910
				N135	21.3	2513	24.4	2874
				N140	22.8	2523	26.2C	2917
				N540	22.7	2595	25.8C	2956
75	Swift	Scirocco II	2.260	N530	19.8	2323	22.4	2671
				N135	19.0	2290	22.4	2608
				N140	21.8	2356	25.0	2674
				N540	22.1	2438	25.3	2776
77	Lapua	Scenar	2.260	N530	19.3	2336	22.2	2664
				N135	18.8	2300	21.5	2635
				N140	20.8	2310	24.2	2628
				N540	21.8	2362	24.5	2671
77	Sierra	HPBT[2)]	2.260	N530	19.8	2336	22.1	2608
				N135	19.6	2316	22.5	2595
				N140	21.0	2336	24.7	2657
				N540	22.7	2428	25.3	2717
77	Sierra	TMK	2.260	N530	20.2	2441	22.7	2789
				N135	19.9	2375	23.0	2707
				N140	22.2	2441	25.5	2795
				N540	22.5	2477	25.2	2854
80	Sierra	HPBT[3)]	2.551[8)]	N530	20.0	2339	23.1	2630
				N135	18.8	2333	21.6	2587
				N140	20.7	2395	23.0	2646
				N540	21.4	2395	23.7	2652
85.5	Berger	Long Range Hybrid Target	2.323[5)]	N133	19.3	2375	21.3	2602
				N135	20.1	2408	22.1	2638
				N140	21.9	2477	23.9	2710
				N540	22.8	2523	24.7	2746
				N150	22.4	2487	24.7C	2700
88	Hornady	ELD Match	2.323[4)]	N133	19.3	2352	21.3	2559
				N530	19.3	2365	21.8	2605

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.223 Remington cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N135	20.1	2365	21.9	2575
				N140	21.6	2434	23.5C	2631
				N540	21.9	2431	24.2	2687
				N150	21.9	2411	23.1C	2539
90	Berger	HPBT	2.457[6]	N140	19.3	2119	21.8	2411
				N540	20.7	2238	23.0	2490
				N150	19.4	2136	22.5	2431
90	Sierra	HPBT	2.354[7]	N140	19.3	2100	22.2	2434
				N540	20.7	2224	23.5	2500
				N150	19.1	2126	22.8	2454

A = Accuracy load C = Compressed load F = Case full [1] 1 in 10" twist [2] 1 in 7" twist [3] Test barrel with a long throat to accept the C.O.L. of 2,559" [4] The cartridge overall length exceeds the CIP maximum. [5] The cartridge overall length exceeds the CIP maximum. [6] The cartridge overall length exceeds the CIP maximum. [7] The cartridge overall length exceeds the CIP maximum. [8] The cartridge overall length exceeds the CIP maximum.

.223 WSSM

Test barrel:	25", 1 in 8" twist
Primers:	Large Rifle
Cases:	Winchester, trim-to length 1.661"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
51	Lapua	HPCE	2.150	N530	34.3	3461	40.0	3953
				N135	32.4	3317	40.3	3871
				N140	38.4	3524	43.7	3881
55	Lapua	Soft Point	2.146	N530	33.0	3310	38.3	3763
				N135	32.3	3284	38.4	3671
				N140	34.6	3268	41.4	3740
69	Lapua	Scenar	2.232	N140	35.3	3061	40.3	3379
				N540	36.3	3150	41.4	3533
				N150	36.0	3107	40.3	3438
				N550	38.3	3189	43.8	3537

.22 PPC-USA

Test barrel:	24", 1 in 14" twist
Primers:	Small Rifle
Cases:	Sako, trim-to length 1.508"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
52	Sierra	HPBT	2.024	N120	20.5	3016	24.1	3408
				N130	22.1	3063	25.6	3507
				N133	23.3	3107	27.3	3565
				N135	25.5	3185	29.2	3607
55	Speer	Spitzer	2.039	N130	21.8	2946	26.1	3367
				N133	22.4	2956	27.4	3409
				N135	25.9	3151	29.7	3617

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.22-250 Remington

Test barrel:	22", 1 in 14" twist
Primers:	Large Rifle
Cases:	Lapua .22-250 Remington, trim-to length 1.902"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
40	Sierra	Blitz King	2.319	N130	27.6	3599	30.6	3917
				N133	30.4	3606	33.2	3953
				N135	31.3	3599	33.6	3960
				N140	33.8	3645	36.9	3973
45	Sierra	SP	2.319	N130	25.6	3356	30.7	3757
				N133	28.9	3389	32.4	3694
				N135	28.9	3356	33.6	3786
				N150	31.8	3389	35.8	3730
50	Lapua	Naturalis N566	2.323	N135	25.0	2995	26.4	3238
				N140	27.9	3071	31.5	3399
				N540	30.9	3209	34.1	3510
				N150	28.1	3097	31.8	3422
51	Lapua	HPCE	2.346	N133	27.0	3179	30.7	3491
				N135	26.5	3146	30.2	3461
				N140	30.7	3241	33.8	3566
				N540	32.1	3284	35.8	3625
55	Lapua	FMJ	2.346	N135	27.0	3071	30.6	3412
				N140	29.9	3146	33.5	3445
				N540	31.3	3189	35.3	3560
				N150	30.6	3176	34.7	3468
55	Lapua	Soft Point	2.343	N135	25.0	2959	28.1	3248
				N140	27.9	3058	31.5	3337
				N540	32.3	3219	35.3	3527
				N150	28.2	2963	32.1	3343
60	Hornady	HP	2.346	N135	25.0	2772	28.7	3133
				N140	27.9	2910	32.4	3245
				N540	31.8	3077	35.0	3422
				N150	29.5	2976	33.3	3320
62	Barnes	TSX	2.350	N140	25.8	2726	29.3	3051
				N540	28.1	2838	32.3	3196
				N150	26.5	2766	30.6	3094
69	Lapua	HPBT[1]	2.346	N140	26.4	2690	30.6	2999
				N540	28.5	2766	32.4	3081
				N150	27.3	2743	31.6	3022
				N550	30.6	2802	34.6	3127

[1] 1 in 10" twist

6 mm PPC-USA

Test barrel:	23", 1 in 14" twist
Primers:	Small Rifle
Cases:	Sako, trim-to length 1.508"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
68	Euber	HPFB	2.110	N130	23.4	2766	25.9	3045
				N133	25.2	2756	28.2C	3120
70	Sierra	HPBT	2.110	N120	21.5	2654	23.9	2956
				N130	22.7	2690	26.1	3064
				N133	24.6	2710	27.6C	3068

C = Compressed load

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

6 mm BR Norma

Test barrel:	25½”, 1 in 8” twist
Primers:	Small Rifle
Cases:	Lapua, trim-to length 1.551”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
70	Sierra	HPBT	2.244	N133	25.3	2834	28.7	3140
				N135	29.0	2956	33.9	3310
77	Lapua	HP	2.244	N135	27.9	2887	31.0	3140
				N140	29.9	2894	33.2	3166
				N540	30.9	2913	33.6	3215
77	Lapua	HP SJ	2.362	N133	28.5	2900	31.0A	3163
				N140	31.6	2953	34.3	3222
				N540	33.0	2999	35.6	3278
85	Barnes	TSX	2.303	N140	25.0	2543	29.0	2877
				N540	26.5	2635	30.4	2979
				N150	25.2	2546	29.3	2867
90	Lapua	Naturalis	2.154	N140	27.0	2592	31.3	2884
				N540	29.2	2677	32.6	3002
				N150	27.9	2608	32.4	2910
90	Lapua	Scenar	2.362	N140	26.0	2584	29.8	2858
				N540	26.1	2484	33.9	3123
100	Lapua	Mega	2.177	N140	25.6	2419	29.0	2707
				N540	27.9	2533	31.0	2812
105	Lapua	Scenar	2.362	N140	25.8	2447	28.9	2694
				N540	27.0	2480	30.4	2776

A = Accuracy load

6 mm Creedmoor

Test barrel:	26”, 1 in 8” twist
Primers:	Small Rifle
Cases:	Lapua, trim-to length 1.919”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
55	Nosler	Ballistic Tip Varmint	2.539	N135	39.2	3645	41.7	3924
				N140	41.7	3694	44.3	3970
				N540	42.9	3734	45.8	4068
				N150	42.0	3648	44.9	3937
				N550	44.8	3711	47.8F	4055
65	Hornady	V-Max	2.555	N140	37.2	3310	41.5	3642
				N540	39.2	3402	42.6	3727
				N150	37.8	3330	41.8	3632
				N550	42.0	3425	45.4	3757
70	Sierra	Blitz King	2.598	N140	39.2	3307	41.8	3560
				N540	39.8	3379	42.7	3675
				N150	39.2	3301	42.3	3560
				N550	42.7	3386	45.1	3678
80	Barnes	TTSX BT	2.480	N150	34.0	2999	37.7	3261
				N550	38.7	3097	41.7	3379
				N160	40.4	3064	44.8	3363
				N560	44.0	3071	47.8F	3363
87	Berger	VLD Hunting	2.669	N140	33.8	2907	38.1	3186
				N540	36.0	2999	39.4	3284
				N150	34.1	2923	38.4	3196
				N550	38.9	3041	42.3	3323
				N555	42.4	3100	46.3C	3369
				N160	42.0	3048	45.5	3317

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
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6 mm Creedmoor cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N560	44.3	3028	48.1	3317
90	Lapua	Naturalis	2.756	N540	35.0	2877	38.7	3159
				N150	33.3	2772	37.7	3045
				N550	38.4	2933	42.1	3212
				N160	38.7	2831	45.2	3186
				N560	44.3	2949	48.0	3238
90	Lapua	Scenar-L	2.756	N540	34.3	2904	38.0	3186
				N150	33.2	2808	36.7	3048
				N550	37.5	2946	41.2	3241
				N555	43.2	3084	45.5F	3241
				N160	39.2	2887	44.0	3186
				N560	42.6	2946	46.6	3251
90	Nosler	Ballistic Tip Hunting	2.736	N540	36.6	2917	40.0	3199
				N150	34.6	2792	38.3	3048
				N550	38.6	2949	42.3	3235
				N555	40.9	3058	45.5F	3212
				N160	43.2	2927	46.6F	3209
90	Swift	Scirocco II	2.776	N540	34.0	2799	38.0	3104
				N150	31.8	2684	36.0	2949
				N550	36.7	2864	41.1	3176
				N555	41.7	2982	45.2	3209
				N160	37.7	2772	43.1	3091
				N560	42.9	2900	47.1	3212
95	Sierra	MatchKing	2.756	N540	34.4	2851	37.7	3120
				N150	33.2	2789	36.6	3018
				N550	37.7	2913	41.4	3199
				N555	41.7	2949	45.1	3209
				N160	40.9	2881	44.3	3150
				N560	43.4	2923	47.1	3219
95	Berger	Classic Hunter	2.717	N540	32.9	2756	36.4	3028
				N150	31.3	2707	34.4	2910
				N550	35.5	2812	39.7	3094
				N555	41.4	2940	44.9	3196
				N160	34.7	2694	41.5	3045
				N560	40.9	2835	45.7	3140
95	Berger	VLD Hunting	2.701	N540	34.7	2871	38.3	3150
				N150	34.3	2815	38.0	3074
				N550	38.4	2959	41.2	3205
				N555	41.5	2989	45.1	3241
				N160	42.0	2917	45.8	3189
				N560	43.7	2930	46.9	3212
105	Berger	Hybrid Target	2.795	N540	32.1	2644	36.0	2917
				N150	29.9	2539	34.9	2812
				N550	35.0	2694	39.4	2982
				N555	39.4	2779	42.7	3028
				N160	35.5	2641	40.9	2936
				N560	40.6	2736	44.9	3022
105	Berger	VLD Target	2.795	N540	33.2	2664	36.7	2943
				N150	31.9	2585	35.8	2838
				N550	36.6	2756	40.0	3009
				N555	40.0	2805	43.5	3048
				N160	40.1	2720	44.1	2982
				N560	42.0	2776	45.5	3048
105	Lapua	Scenar	2.795	N540	31.9	2635	35.5	2897
				N150	30.1	2507	34.4	2792

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

6 mm Creedmoor

cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N550	35.0	2707	38.6	2966
				N555	40.1	2815	43.7	3041
				N160	36.1	2641	41.1	2923
				N560	40.3	2736	44.4	3025
				N565	42.1	2779	46.3	3028
108	Berger	BT Target	2.783	N540	30.4	2589	34.6	2841
				N150	29.2	2484	33.0	2733
				N550	33.3	2638	37.2	2897
				N160	37.0	2759	38.7	2854
				N560	40.0	2707	43.4	2979
108	Berger	Elite Hunter	2.795	N540	34.0	2710	37.2	2933
				N150	31.6	2598	35.5	2815
				N550	36.1	2740	39.8	2976
				N555	40.1	2802	43.8	3031
				N160	40.1	2726	43.5	2963
				N560	41.1	2740	45.4	3028
108	Sierra	MatchKing	2.606	N540	32.1	2638	35.5	2897
				N150	30.6	2539	34.3	2795
				N550	35.0	2690	38.6	2966
				N160	37.2	2667	41.2	2920
				N560	40.6	2736	44.3	3012
109	Berger	Long Range Hybrid Target	2.795	N540	32.9	2690	37.0	2907
				N150	32.3	2569	35.5	2799
				N550	35.8	2717	39.2	2959
				N555	39.8	2776	43.5	3009
				N160	39.7	2720	43.5	2940
				N560	42.0	2736	45.7	3025
110	Sierra	MatchKing	2.795	N540	31.6	2602	35.0	2874
				N150	30.1	2480	33.8	2740
				N550	34.3	2661	38.0	2927
				N555	38.3	2710	41.8	2953
				N160	36.3	2602	40.9	2884
				N560	40.1	2703	43.4	2963
115	Berger	VLD Hunting	2.795	N540	31.5	2516	34.7	2769
				N150	30.1	2441	33.6	2671
				N550	34.3	2579	37.3	2799
				N555	37.8	2641	41.5	2881
				N160	35.5	2533	40.4	2808
				N560	39.4	2625	42.9	2904
115	Berger	VLD Target	2.799	N540	30.2	2484	34.1	2730
				N150	28.2	2382	33.2	2657
				N550	33.6	2562	37.5	2815
				N555	37.5	2615	41.4	2867
				N160	33.5	2493	39.2	2779
				N560	39.2	2615	43.4	2897

C = Compressed load F = Case full

.243 WSSM

Test barrel:	27”, 1 in 10” twist
Primers:	Small Rifle
Cases:	Winchester, trim-to length 1.660”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
77	Lapua	HP	2.339	N140	38.0	3192	42.3	3514
				N540	38.9	3241	43.2	3596
				N150	38.3	3209	43.8	3547
90	Lapua	Naturalis	2.283	N540	36.1	2940	41.4	3284
				N150	35.8	2877	41.1	3212
				N550	39.5	2982	43.8	3343
100	Lapua	SP	2.244	N140	34.0	2730	38.0	2999
				N540	33.6	2766	39.4	3104
				N550	37.2	2848	42.4	3176

.243 Winchester

Test barrel:	23”, 1 in 10” twist
Primers:	Large Rifle
Cases:	Lapua, trim-to length 2.039”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
58	Hornady	V-Max	2.579	N135	35.6	3402	39.3	3698
				N140	39.0	3422	43.2	3730
				N540	37.8	3448	44.3	3776
				N550	40.9	3501	44.4	3822
70	Sierra	Blitz King	2.681	N135	33.5	2940	38.4	3241
				N140	36.6	2995	41.7	3310
				N550	42.6	3071	45.7	3402
77	Lapua	HP	2.638	N135	30.7	2805	35.8	3176
				N140	34.4	2897	39.2	3255
				N150	34.6	2890	39.8	3264
				N550	39.7	3012	43.2	3386
80	Hornady	FMJ	2.638	N140	31.5	2726	37.2	3114
				N150	31.8	2756	37.5	3107
				N550	37.3	2936	43.1	3287
				N160	39.2	2920	45.4	3258
85	Barnes	TSX	2.638	N540	33.8	2812	39.5	3219
				N150	33.2	2717	39.4	3114
				N550	39.5	3064	42.0	3255
				N160	40.9	2822	46.0	3189
85	Nosler	Partition	2.677	N540	33.5	2822	38.6	3186
				N150	29.3	2628	35.2	3025
				N550	36.4	2841	41.8	3205
				N160	37.3	2776	43.8	3179
90	Lapua	Naturalis	2.638	N540	34.9	2756	39.0	3100
				N150	31.2	2621	36.9	2963
				N550	37.7	2776	42.0	3123
				N160	37.5	2700	44.0	3091
90	Lapua	Scenar	2.689	N540	35.0	2822	39.2	3156
				N150	32.1	2680	37.7	2999
				N550	38.0	2838	41.4	3173
				N160	38.9	2779	43.7	3123
90	Sierra	FMJ	2.689	N540	33.5	2762	38.4	3104
				N150	30.6	2641	35.5	2959
				N550	35.6	2782	40.6	3123
				N160	37.2	2743	42.6	3087

.243 Winchester cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
90	Swift	Scirocco II	2.689	N550	33.5	2585	38.3	2884
				N555	34.0	2579	42.0	2936
				N160	27.9	2343	35.0	2687
				N165	34.0	2520	43.2	2854
				N560	38.0	2546	43.4	2884
95	Berger	Classic Hunter	2.681	N555	37.8	2644	42.4	2946
				N160	35.8	2516	41.2	2828
				N165	41.8	2638	46.0	2917
				N560	40.6	2608	44.6	2910
95	Norma	FMJ	2.508	N550	34.7	2549	39.5	2848
				N555	36.4	2582	42.4	2900
				N160	34.7	2461	40.9	2769
				N165	41.4	2582	45.2	2844
				N560	40.0	2549	44.0	2841
96	Brenneke	TOG	2.638	N540	33.2	2690	38.6	3045
				N550	38.0	2766	41.4	3081
				N160	40.1	2703	45.2	3048
100	Speer	Grand Slam	2.689	N540	30.4	2526	36.0	2881
				N150	28.7	2369	34.4	2753
				N550	34.1	2582	38.3	2904
				N160	34.4	2523	39.8	2864
105	Lapua	Scenar[1)]	2.689	N150	30.1	2392	35.0	2694
				N550	36.1	2566	40.0	2920
				N160	37.5	2513	41.7	2851
				N165	40.4	2569	46.3	2933
108	Berger	BT Target	2.709	N550	33.0	2451	37.3	2713
				N555	35.5	2461	40.4	2743
				N160	34.0	2372	40.1	2680
				N165	38.7	2451	43.8	2736
				N560	38.9	2457	43.2	2749
108	Berger	Elite Hunter	2.709	N550	34.0	2461	38.4	2746
				N555	38.1	2530	41.8	2785
				N160	36.4	2398	41.8	2703
				N165	41.8	2516	45.7	2766
				N560	39.4	2487	43.4	2756
				N565	41.4	2500	45.4C	2766
109	Berger	Long Range Hybrid Target	2.795[2)]	N550	33.8	2434	38.3	2720
				N555	35.8	2438	41.8	2756
				N160	31.8	2290	38.4	2615
				N165	38.0	2408	45.1	2736
				N560	38.1	2444	43.2	2749
				N565	40.0	2464	45.1	2749

C = Compressed load [1)] The test barrel rifle twist 1 in 8" [2)] The cartridge overall length exceeds the CIP maximum.

6 XC

Test barrel:	24", 1 in 8" twist
Primers:	Large Rifle
Cases:	Norma, trim-to length 1.898"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
58	Hornady	V-Max	2.441	N135	34.9	3428	39.4	3812
				N140	38.3	3465	42.7	3855
				N550	39.2	3540	43.5	3983
69	Sierra	MatchKing	2.480	N540	37.2	3274	41.1	3642
				N150	34.1	3081	40.4	3497

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

6 XC cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N550	31.6	2520	43.5	3638
77	Lapua	HP	2.520	N540	35.3	3041	39.8	3488
				N150	34.9	2989	40.0	3373
				N550	37.8	3084	42.3	3507
90	Lapua	Naturalis	2.512	N540	32.1	2776	38.1	3179
				N150	31.0	2664	36.7	3022
				N550	34.6	2792	40.3	3189
90	Lapua	Scenar	2.717	N540	32.3	2818	37.5	3241
				N150	29.9	2680	36.3	3091
				N550	34.4	2844	40.1	3258
105	Lapua	Scenar	2.717	N540	29.0	2559	34.0	2894
				N550	31.9	2612	36.6	2936
				N160	31.6	2516	37.5	2871

6 mm Remington

Test barrel:	26", 1 in 10" twist
Primers:	Large Rifle
Cases:	Remington, trim-to length 2.228"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
58	Hornady	V-Max	2.772	N140	38.1	3455	43.2	3848
				N540	41.4	3556	46.5	3960
				N150	38.6	3461	44.9	3858
77	Lapua	HP	2.772	N140	36.7	3061	41.8	3432
				N540	39.4	3186	43.8	3520
				N150	38.6	3117	43.2	3448
				N550	42.1	3189	46.5	3586
85	Nosler	Partition	2.772	N140	30.4	2815	38.4	3225
				N540	34.7	2949	40.9	3320
				N150	32.6	2848	38.1	3192
				N550	37.2	2963	44.0	3353
90	Lapua	Naturalis	2.772	N150	30.9	2690	38.6	3058
				N550	36.6	2864	44.4	3314
				N160	37.0	2851	46.1	3261
				N165	43.7	2871	50.0	3284
90	Lapua	Scenar	2.825	N150	34.0	2844	40.1	3202
				N550	38.9	2959	43.5	3314
				N160	38.4	2841	46.3	3261
				N165	45.2	2972	50.9	3340

.240 Weatherby Magnum

Test barrel:	23½", 1 in 10" twist
Primers:	Large Rifle Magnum
Cases:	Norma, trim-to length 2.488"

CAUTION: Loads less than the listed starting loads may cause excessive chamber pressure and must not be used!

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
75	Hornady	HP	3.075	N150	45.4	3266	48.9	3532
				N550	49.4	3371	52.2	3645
				N160	51.6	3314	54.2	3589
77	Lapua	HP	3.075	N150	45.8	3248	48.7	3460
				N550	49.3	3327	51.9	3591
				N160	51.5	3297	54.1	3556
90	Lapua	Scenar	3.075	N550	46.0	3081	49.6	3325

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.240 Weatherby Magnum cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N160	49.3	3077	52.6	3327
				N165	53.6	3114	57.2	3383
100	Lapua	Mega	3.075	N550	45.4	2923	48.7	3170
				N160	47.2	2936	50.3	3137
				N165	53.6	3114	55.8	3246
105	Speer	Spitzer	3.063	N160	43.6	2795	48.7	3068
				N165	51.3	2936	55.2	3180
				N560	49.8	2910	53.5	3157

.25-06 Remington

Test barrel:	23”, 1 in 10” twist
Primers:	Large Rifle
Cases:	Remington, trim-to length 2.484”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
87	Speer	SPBT	3.122	N140	36.2	2873	42.3	3153
				N150	38.7	2925	44.9	3215
				N160	48.6	3069	54.8	3346
				N165	54.3	3149	60.9	3442
100	Speer	SPBT	3.197	N140	40.0	2864	42.9	3031
				N150	41.0	2881	44.1	3051
				N160	50.0	2990	52.2	3169
				N165	53.0	3024	56.5	3212
				N560	48.8	2954	55.4	3248
				N170	54.7	2902	62.5	3199
120	Sierra	HPBT	3.155	N160	42.4	2597	47.7	2858
				N165	46.8	2681	52.2	2917
				N560	45.6	2685	51.4	2963
				N170	51.7	2682	58.8	2966
120	Speer	Spitzer	3.157	N150	30.1	2270	35.8	2546
				N160	38.6	2491	45.4	2769
				N165	41.5	2548	48.3	2799
				N560	43.3	2619	50.0	2920
				N170	48.9	2630	55.4	2864

6,5 mm Grendel

Test barrel:	24”, 1 in 10” twist
Primers:	Small Rifle
Cases:	Lapua, trim-to length 1.516”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
100	Lapua	FMJ	2.087	N130	20.4	2313	23.8	2572
				N133	23.3	2388	26.5	2661
				N530	24.1	2392	27.6	2720
100	Lapua	Scenar	2.248	N130	21.6	2211	27.2	2756
				N133	24.2	2388	29.3	2802
				N530	24.7	2392	29.3	2815
108	Lapua	Scenar	2.248	N130	21.6	2201	26.1	2595
				N133	23.3	2260	27.8	2638
				N530	22.2	2264	26.7	2694
120	Barnes	TSX	2.087	N133	18.1	1896	24.4	2224
				N530	20.7	1942	25.0	2320
				N540	24.4	2070	29.0	2464
123	Lapua	Scenar	2.248	N133	21.0	1998	26.7	2444
				N530	22.7	2083	26.7	2503

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

6,5 mm Grendel cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N135	19.9	1946	27.0	2431
136	Lapua	Scenar-L	2.248	N530	22.7	2113	25.5	2379
				N135	20.5	1959	25.5	2300
				N140	24.5	2149	28.2	2398
				N540	25.8	2169	28.2	2431
139	Lapua	Scenar	2.248	N530	21.6	1988	24.7	2277
				N135	19.0	1795	23.9	2178
				N140	24.2	2034	27.5	2316
				N540	25.3	2106	28.1	2379
140	Lapua	Naturalis N507	2.264	N530	21.8	1952	25.5	2277
				N140	21.9	1900	26.9	2231
				N540	24.5	2021	28.7	2343
144	Lapua	FMJBT	2.248	N530	21.6	2001	24.2	2228
				N135	18.4	1814	21.1	2037
				N140	23.0	2100	27.3	2310
				N540	24.7	2093	27.8	2356
156	Lapua	Mega	2.260	N530	19.8	1768	23.1	2018
				N140	20.2	1683	25.0	2057
				N540	21.3	1762	25.8	2123
				N150	20.1	1677	25.0	2018

6,5 x 47 Lapua

Test barrel:	27½”, 1 in 8½” twist
Primers:	Small Rifle
Cases:	Lapua, trim-to length 1.843”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
100	Lapua	FMJ	2.461	N133	29.5	2552	34.0	2907
				N135	29.5	2510	34.0	2871
				N140	33.2	2628	38.3	2979
100	Lapua	Scenar	2.736	N133	32.4	2854	34.9	3035
				N135	34.0	2920	35.6	3051
				N140	37.0	2953	39.5	3117
				N540	35.8	2867	40.7	3255
				N150	33.5	2726	39.0	3130
108	Lapua	Scenar	2.736	N133	30.2	2648	33.9	2894
				N135	31.5	2671	34.4	2904
				N140	34.4	2717	38.7	2986
				N540	35.0	2753	39.4	3094
				N150	36.3	2785	40.6	3051
				N550	36.9	2743	41.4	3110
120	Barnes	TSX	2.539	N540	34.0	2454	38.3	2776
				N150	30.7	2264	37.5	2723
				N550	36.3	2461	41.7	2861
120	Lapua	Scenar-L	2.736	N140	27.8	2398	36.3	2799
				N540	33.0	2533	37.8	2917
				N150	31.8	2441	37.5	2818
				N550	35.6	2546	40.4	2936
123	Lapua	Scenar	2.736	N140	33.2	2520	36.4	2756
				N540	35.7	2685	39.7	2976
				N150	34.4	2585	37.8	2805
				N550	34.9	2559	39.7	2881
125	Nosler	Partition	2.559	N140	30.1	2346	36.3	2690
				N540	33.6	2493	37.7	2815
				N150	31.0	2385	37.0	2720

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
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6,5 x 47 Lapua cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
130	Barnes	TSX	2.539	N540	32.1	2267	37.3	2687
				N150	27.9	1959	35.6	2510
				N550	34.4	2277	40.1	2694
136	Lapua	Scenar-L	2.736	N140	27.8	2398	35.5	2598
				N540	32.7	2402	36.9	2720
				N150	31.3	2293	36.3	2612
				N550	35.3	2411	39.7	2733
139	Lapua	Scenar	2.736	N140	30.9	2302	34.7	2536
				N540	33.5	2468	37.4	2744
				N150	32.4	2384	36.0	2582
				N550	33.2	2369	37.7	2674
140	Lapua	Naturalis N563	2.598	N140	27.8	2060	32.6	2421
				N540	29.5	2172	34.1	2539
				N150	27.3	2051	32.6	2421
				N550	31.5	2218	36.6	2579
156	Lapua	Mega	2.488	N540	31.0	2133	34.9	2470
				N150	27.5	1962	32.7	2329
				N550	32.7	2283	37.5	2523

6,5 Creedmoor

Test barrel:	25½”, 1 in 8” twist
Primers:	Small Rifle, Remington 7 1/2 BR
Cases:	Lapua, trim-to length 1.909”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
95	Hornady	V-Max	2.677	N140	38.6	2972	42.1	3219
				N540	39.4	3041	43.1	3323
				N150	38.6	3005	42.1	3219
				N550	42.6	3061	45.5	3340
100	Lapua	FMJ	2.535	N140	36.1	2756	40.3	3015
				N540	37.7	2831	41.5	3123
				N150	35.3	2671	39.5	2995
				N550	41.4	2900	44.6	3169
				N555	44.8	2972	46.3F	3087
100	Lapua	Scenar	2.677	N140	37.2	2851	42.3	3212
				N540	37.3	2890	42.3	3284
				N150	36.9	2828	42.1	3205
108	Lapua	Scenar	2.677	N540	35.6	2766	40.7	3182
				N150	33.6	2677	40.6	3071
				N550	38.3	2772	43.7	3189
120	Barnes	TTSX BT	2.787	N140	30.9	2415	34.1	2526
				N150	27.8	2224	32.1	2454
				N550	34.6	2464	40.9	2822
				N555	40.3	2635	44.6	2877
				N160	36.3	2500	37.0	2546
120	Hornady	GMX	2.776	N140	30.9	2343	35.2	2625
				N540	33.6	2477	37.7	2802
				N150	29.3	2320	35.0	2625
				N550	36.3	2546	40.6	2851
120	Lapua	Scenar-L	2.677	N540	33.6	2592	38.9	2936
				N150	31.3	2480	38.1	2854
				N550	36.7	2638	42.1	2995
				N555	41.2	2749	45.4C	2992
123	Lapua	Scenar	2.677	N540	35.6	2621	40.4	2963
				N150	34.3	2523	39.8	2874

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

6,5 Creedmoor cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N550	38.0	2631	42.9	2989
				N555	41.2	2736	45.2C	2963
129	Hornady	Interlock SP	2.697	N140	31.9	2329	36.0	2575
				N540	34.0	2480	38.3	2740
				N150	32.4	2333	36.3	2569
				N550	37.0	2546	40.6	2782
				N555	40.9	2608	44.9F	2854
				N160	39.7	2480	44.1	2726
				N560	42.0	2566	46.6	2825
130	Barnes	TSX	2.717	N540	29.9	2228	36.0	2638
				N150	26.2	2021	34.3	2523
				N550	31.3	2280	38.6	2687
130	Berger	AR Hybrid OTM Tactical	2.677	N150	32.4	2441	36.6	2677
				N550	37.5	2556	40.6	2808
				N555	40.1	2605	44.1	2851
				N160	40.3	2572	44.1	2815
				N560	43.1	2585	47.2	2874
130	Berger	VLD Target	2.795	N540	34.1	2510	37.8	2779
				N150	32.4	2421	36.1	2654
				N550	36.6	2556	40.4	2812
				N555	40.9	2644	44.1	2851
				N160	40.3	2572	44.0	2812
				N560	42.9	2592	46.8	2871
				N565	44.4	2608	48.8	2867
130	Swift	Scirocco II	2.650	N150	31.3	2388	35.3	2631
				N550	35.8	2470	39.4	2723
				N555	39.4	2566	43.8	2792
				N160	38.6	2592	41.8	2697
				N165	44.0	2608	44.8F	2651
				N560	41.2	2510	46.9	2812
136	Lapua	Scenar-L	2.677	N540	32.4	2425	37.7	2756
				N150	32.1	2375	38.3	2733
				N550	35.8	2480	41.1	2838
				N555	40.1	2595	44.1C	2822
				N160	40.0	2526	46.0C	2854
139	Lapua	Scenar	2.717	N540	30.9	2339	36.7	2680
				N150	29.3	2264	35.5	2602
				N550	34.0	2411	39.7	2759
				N555	37.8	2500	42.6	2749
				N160	33.0	2297	42.1	2733
				N560	40.4	2474	44.4	2730
140	Berger	Hybrid Target	2.717	N150	31.3	2329	35.3	2552
				N550	35.3	2444	39.0	2677
				N555	40.1	2556	43.4	2740
				N160	37.2	2441	41.8	2667
				N560	41.1	2487	45.4	2746
				N565	42.7	2516	47.1F	2733
140	Lapua	Naturalis N563	2.724	N540	29.0	2201	34.0	2523
				N150	25.8	1985	31.6	2339
				N550	30.6	2224	36.0	2546
140	Nosler	Accubond	2.795	N540	30.2	2247	35.5	2592
				N150	28.9	2178	35.0	2526
				N550	32.1	2287	38.3	2651
142	Sierra	HPBT	2.697	N150	30.4	2244	34.3	2467
				N550	35.5	2418	39.0	2664

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

6,5 Creedmoor

cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N555	38.6	2454	42.0	2684
				N160	36.7	2356	41.4	2628
				N560	40.6	2467	44.1	2717
				N565	42.4	2464	46.9	2720
143	Hornady	ELD-X	2.709	N150	30.6	2280	34.4	2503
				N550	34.6	2431	37.7	2628
				N555	37.8	2434	41.7	2664
				N160	36.4	2392	41.4	2628
				N560	40.6	2457	44.9	2733
				N565	42.3	2493	47.1	2703
144	Berger	Long Range Hybrid Target	2.795	N150	30.9	2234	35.3	2461
				N550	35.5	2425	39.0	2651
				N555	39.7	2552	43.2	2746
				N160	38.6	2369	43.1	2638
				N560	41.7	2516	44.6	2740
				N565	43.2	2543	47.1C	2746
144	Lapua	FMJBT	2.717	N540	28.5	2211	34.9	2585
				N150	27.6	2172	35.3	2562
				N550	31.3	2280	37.7	2664
				N555	37.0	2402	41.2	2631
				N160	33.5	2241	40.3	2566
				N560	39.7	2418	44.1	2700
				N565	41.5	2457	45.7	2694
153.5	Berger	Long Range Hybrid Target	2.795	N540	32.1	2300	36.0	2526
				N150	30.4	2201	34.3	2425
				N550	34.9	2326	38.1	2546
				N555	37.8	2392	41.7	2618
				N160	37.3	2343	41.4	2569
				N165	42.0	2448	46.9C	2680
				N560	40.1	2372	43.8	2625
				N565	41.7	2418	46.8C	2648
156	Lapua	Mega	2.697	N540	28.2	2083	34.0	2425
				N150	26.4	1978	33.5	2385
				N550	30.7	2152	36.6	2503
				N160	29.8	2051	38.3	2474
156	Norma	Vulkan	2.717	N140	28.1	2064	31.6	2264
				N540	28.1	2073	32.9	2343
				N150	27.2	2028	30.7	2231
				N550	30.6	2152	35.5	2425
				N160	34.4	2218	38.9	2457
				N560	37.0	2260	41.1	2507
				N565	38.9	2306	43.2	2526

C = Compressed load F = Case full

.260 Remington

Test barrel:	18¾", 1 in 9" twist
Primers:	Large Rifle
Cases:	Lapua .260 Remington, trim-to length 2.028"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
100	Lapua	FMJ	2.598	N140	32.1	2510	37.7	2828
				N540	35.8	2615	40.6	2923
				N150	32.7	2523	38.7	2825
100	Lapua	Scenar	2.717	N140	36.0	2677	40.4	2966
				N540	38.4	2700	42.9	3054

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.260 Remington

cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N150	37.5	2687	41.7	2966
100	Sierra	HPFB	2.657	N140	35.5	2708	39.9	2973
				N540	36.9	2725	41.2	2992
				N150	35.7	2669	40.3	2926
108	Lapua	Scenar	2.795	N540	36.2	2631	39.9	2876
				N150	35.1	2594	39.1	2837
				N160	41.0	2670	45.0	2947
120	Barnes	TTSX BT	2.772	N140	32.9	2329	37.8	2641
				N540	34.1	2457	38.7	2782
				N150	29.5	2205	37.0	2625
120	Berger	BT Target	2.795	N540	35.3	2598	39.7	2874
				N150	33.8	2510	38.4	2779
				N550	38.9	2628	42.6	2907
				N160	42.1	2657	45.8	2904
120[1)]	Lapua	Scenar-L	2.795	N540	35.3	2425	39.8	2805
				N150	35.8	2497	39.4	2736
				N550	39.2	2585	42.1	2818
				N160	41.8	2530	45.4	2792
120	Speer	SP	2.795	N540	34.2	2456	38.2	2706
				N550	36.5	2511	40.7	2741
				N160	38.2	2478	43.2	2750
123	Lapua	Scenar	2.795	N150	33.2	2405	38.6	2677
				N550	37.5	2287	41.5	2746
				N160	41.2	2516	44.6	2759
130	Barnes	TSX	2.787	N540	33.5	2362	37.7	2657
				N550	34.9	2352	40.0	2677
				N160	35.8	2303	42.4	2651
130	Berger	Hybrid OTM Tactical	2.795	N540	34.3	2500	38.7	2769
				N150	33.5	2448	38.0	2694
				N550	37.8	2549	41.7	2805
				N160	41.8	2579	45.8	2828
130	Berger	VLD Target	2.795	N140	32.6	2425	36.7	2671
				N540	33.8	2497	38.3	2766
				N150	32.3	2431	37.3	2674
				N550	38.0	2552	41.5	2808
				N555	40.0	2598	43.8	2835
130	Swift	Scirocco II	2.795	N140	31.8	2359	35.8	2575
				N540	32.7	2408	37.8	2687
				N150	31.2	2369	36.1	2608
				N550	35.5	2434	40.1	2717
				N560	42.3	2500	46.3	2776
135	Berger	Classic Hunter	2.795	N540	32.9	2415	37.3	2687
				N150	32.3	2365	36.6	2621
				N550	37.3	2487	40.9	2733
				N160	40.0	2484	44.0	2723
				N560	43.1	2520	46.6	2776
136[1)]	Lapua	Scenar-L	2.795	N550	38.1	2477	41.7	2740
				N160	41.8	2487	46.1	2759
				N560	43.5	2500	47.8	2766
139	Lapua	Scenar	2.795	N550	37.0	2480	39.5	2657
				N160	40.1	2480	43.4	2674
				N560	42.0	2461	46.1	2723
140	Berger	Elite Hunter	2.795	N150	31.6	2303	36.1	2562
				N550	36.3	2421	39.7	2661
				N160	36.3	2415	43.1	2661

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.260 Remington cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N560	42.4	2470	46.1	2736
				N565	43.4	2484	48.9	2749
140	Berger	VLD Target	2.795	N540	32.7	2375	37.7	2644
				N150	32.6	2336	36.6	2569
				N550	36.9	2441	40.1	2671
				N160	40.3	2464	44.3	2703
				N560	42.0	2461	46.1	2733
				N565	43.5	2480	48.3	2733
140	Lapua	Naturalis N507	2.886	N550	33.5	2257	39.2	2546
				N160	34.7	2208	40.3	2513
				N560	38.1	2234	43.8	2556
140	Lapua	Naturalis N563	2.756	N150	29.3	2188	34.0	2451
				N550	33.5	2310	38.4	2602
				N555	36.6	2365	41.5	2615
				N160	34.0	2260	40.4	2582
				N560	39.7	2362	45.1	2680
140[1)]	Nosler	Accubond	2.756	N550	36.1	2362	40.9	2661
				N160	37.5	2343	44.0C	2612
				N560	39.5	2415	44.8C	2700
140	Swift	A-Frame	2.795	N550	31.5	2198	37.3	2507
				N160	28.5	2057	38.3	2467
				N560	37.0	2297	43.8	2621
				N565	40.0	2375	45.1	2628
144	Berger	Long Range Hybrid Target	2.795	N540	33.6	2398	38.1	2635
				N150	32.4	2287	36.3	2516
				N550	36.6	2431	40.1	2667
				N555	40.4	2490	45.2C	2733
				N160	40.6	2428	44.8C	2667
				N560	42.9	2461	47.4F	2730
144	Lapua	FMJBT	2.795	N550	33.2	2221	38.4	2520
				N555	37.2	2385	41.1	2621
				N160	36.0	2231	41.1	2500
				N560	39.5	2579	44.8	2559
				N565	41.7	2415	46.1	2664
153.5	Berger	Long Range Hybrid Target	2.795	N540	32.7	2267	37.0	2520
				N150	30.9	2178	35.0	2392
				N550	35.5	2320	39.0	2559
				N555	40.1	2408	44.6C	2638
				N160	40.1	2329	43.7C	2552
				N560	42.4	2326	46.8C	2641
155	Lapua	Mega	2.736	N160	33.0	2134	37.1	2332
				N165	38.8	2208	43.7	2478
				N560	36.6	2137	42.0	2412

C = Compressed load F = Case full [1)]Test barrel 23½" 1 in 9" twist

6,5 x 55 Swedish Mauser

Test barrel:	26½", 1 in 8½" twist
Primers:	Large Rifle
Cases:	Lapua, trim-to length 2.157"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
85	Sierra	HP	2.799	N150	44.5	3073	46.8	3323
100	Lapua	FMJ	2.756	N530	36.1	2887	39.0	3077
				N135	34.1	2631	39.3A	2933
				N140	36.7	2657	42.4	2986

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

6,5 x 55 Swedish Mauser cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N540	41.8	2986	44.8	3192
				N150	37.8	2700	43.0	2690
				N160	47.5	2828	52.3	3104
100	Lapua	Scenar	2.953	N530	36.3	2949	39.2	3120
				N135	33.2	2592	37.6	2917
				N140	35.8	2592	40.7	3002
				N540	36.3	2592	41.7	3031
				N150	36.6	2602	41.5A	2853
				N550	39.8	2592	45.8	3077
				N160	42.9	2592	46.4	3045
100	Sierra	HP	2.850	N140	40.4	2822	42.8	2990
				N540	40.9	2815	44.4	3078
				N150	41.5	2822	44.1	3003
				N550	43.5	2900	46.8	3150
				N160	48.3	2881	51.4	3090
108	Lapua	Scenar	3.071	N530	35.3	2818	38.3	2992
				N140	37.6	2644	40.8	2887
				N540	38.6	2713	41.5	2943
				N150	39.5	2723	41.5	2853
				N550	42.0	2798	45.4	3070
				N555	45.8	2953	48.8C	3140
				N160	43.2	2690	47.1	3018
				N165	48.8	2822	50.7F	2959
				N560	49.2	2843	51.7	3117
120	Barnes	TSX	2.803	N160	42.0	2674	46.1	2907
				N165	50.0	2828	52.5	2982
				N560	47.2	2749	50.2	2959
120	Lapua	Scenar-L	3.031	N135	32.1	2503	35.6	2690
				N140	33.6	2579	37.3	2697
				N150	35.6	2625	38.9	2805
				N555	44.6	2795	47.1	2966
				N160	43.8	2762	45.7	2887
				N560	46.8	2779	49.8	2976
120	Sierra	HPBT	3.024	N140	38.1	2477	40.5	2795
				N540	38.4	2536	41.5	2684
				N150	39.3	2526	41.7	2753
				N550	40.6	2625	44.5	2914
				N160	45.8	2707	50.7	2975
				N560	48.1	2700	52.7	3056
123	Lapua	Scenar	3.071	N530	33.5	2598	36.3	2782
				N140	34.0	2444	37.0	2657
				N540	37.7	2456	41.4	2715
				N150	34.6	2428	38.1	2674
				N550	41.2	2746	44.4	2956
				N555	44.1	2759	46.9	2949
				N160	41.5	2648	45.1	2851
				N560	46.8	2759	49.2	2946
130	Barnes	TSX	2.930	N160	35.3	2382	42.0	2671
				N165	47.5	2651	51.2	2854
				N560	45.1	2612	48.5	2822
130	Norma	HPBT	3.150	N140	35.3	2395	40.7	2663
				N540	35.8	2457	39.6	2690
				N150	35.8	2329	40.1	2651
				N550	39.2	2520	43.8	2795
				N160	43.0	2507	47.3	2757

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

6,5 x 55 Swedish Mauser cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N560	46.4	2635	50.2	2882
136	Lapua	Scenar-L	3.071	N540	36.9	2575	40.0	2743
				N150	35.3	2470	38.0	2635
				N550	39.7	2625	42.1	2759
				N555	42.4	2635	45.4	2812
				N160	42.1	2552	45.2	2756
				N165	46.6	2667	49.4	2825
				N560	44.8	2631	47.4	2812
139	Lapua	Scenar	3.071	N540	36.3	2507	39.0	2687
				N150	32.7	2316	35.2	2497
				N550	36.6	2418	40.0	2641
				N555	41.1	2572	43.8	2733
				N160	37.0	2402	41.2	2592
				N165	44.1	2513	47.8	2733
				N560	42.1	2415	47.2	2710
139	Norma	HPBT	3.071	N150	35.2	2310	39.4	2555
				N550	38.6	2438	41.8	2667
				N160	42.1	2421	46.0	2656
				N165	46.3	2510	49.9	2732
				N560	44.4	2470	49.4	2777
140	Berger	Hybrid Target	3.150	N150	32.4	2270	36.0	2467
				N550	37.0	2392	40.7	2612
				N160	37.7	2346	41.5	2533
				N165	44.0	2474	47.2	2657
				N560	43.8	2497	47.4	2710
				N565	45.2	2536	48.5	2723
140	Lapua	Naturalis N563	2.953	N540	34.7	2434	38.1	2612
				N150	31.3	2280	34.7	2467
				N550	36.1	2431	40.0	2635
				N160	35.8	2372	41.1	2592
				N165	39.4	2464	46.3	2667
				N560	41.8	2503	45.7	2703
140	Sierra	HPBT	3.110	N150	36.3	2306	39.1	2511
				N550	39.8	2457	42.1	2644
				N160	43.4	2490	46.7	2687
				N165	46.3	2513	50.0	2735
				N560	45.2	2556	48.3	2770
140	Swift	A-Frame	3.071	N150	25.5	1919	30.2	2175
				N160	24.2	1837	31.2	2162
				N560	34.7	2192	43.1	2523
				N565	39.8	2349	44.3	2543
144	Lapua	FMJBT	3.110	N150	31.5	2163	37.0	2520
				N160	40.7	2352	44.0	2677
				N165	41.7	2362	49.1	2746
				N560	44.8	2479	48.6	2789
				N170	47.5	2346	52.6C	2674
				N570	48.0	2461	49.7F	2575
155	Sierra	HPBT	3.110	N150	32.4	2142	36.0	2331
				N550	36.4	2260	40.1	2447
				N160	40.7	2290	45.9	2522
				N165	42.4	2264	47.6	2522
				N560	41.0	2303	45.2	2556
				N170	44.7	2221	51.2C	2555
156	Lapua	Mega	2.874	N165	42.3	2222	49.0	2478
				N560	42.0	2248	48.0	2537

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

6,5 x 55 Swedish Mauser cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N170	46.8	2238	51.2C	2447
				N570	46.6	2395	49.4F	2539

A = Accuracy load C = Compressed load F = Case full

6,5 x 55 SE / 6,5 x 55 SKAN

Test barrel:	Sauer STR 200
Primers:	Large Rifle
Cases:	Lapua, trim-to length 2.157”

WARNING: This reloading data is intended to use at modern rifles in good condition such as Sauer, Sako or Blaser chambered to 6,5 x 55 SKAN or 6,5 x 55 SE

WARNING: DO NOT USE with Krag-Jörgensen, Mauser M1896 or similar rifles. This data has max loads set at pressure of 380 MPa!

NOTE: Data contains velocity information for standard barrel lengths of Sauer STR200 rifles

Barrel length: 26½”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
100	Lapua	Scenar GB504	2.953	N530	31.9	2625	39.2	3120
				N135	33.6	2625	37.7	2917
				N140	36.3	2625	40.7	3002
				N540	37.0	2625	41.7	3031
				N150	37.3	2625	41.5	2854
				N550	40.1	2625	45.8	3077
				N160	43.2	2625	46.5	3045
108	Lapua	GB464 Scenar	3.071	N140	35.8	2610	41.7	2921
				N540	41.1	2762	45.5	3091
				N150	36.9	2624	42.9	2947
				N550	43.2	2785	46.9	3084
				N555	45.8	2881	48.8	3068
				N160	43.4	2745	48.8	3047
				N560	48.5	2726	54.0	3114
120	Lapua	GB547 Scenar-L	3.031	N135	32.1	2425	37.5	2720
				N140	33.6	2497	40.0	2769
				N540	35.8	2625	43.4	2920
				N150	35.6	2464	40.9	2759
				N550	40.4	2677	45.5	2933
				N555	44.6	2743	49.4	3002
				N160	43.8	2533	47.4	2812
				N560	46.8	2657	51.2	2956
123	Lapua	GB489 Scenar	3.071	N140	34.0	2462	39.4	2734
				N540	38.1	2586	43.1	2892
				N150	34.6	2432	40.1	2724
				N550	41.2	2641	45.4	2895
				N555	44.1	2664	48.9	2982
				N160	41.8	2502	46.6	2773
				N560	46.9	2628	50.5	2913
136	Lapua	GB546 Scenar-L	3.071	N540	36.9	2415	42.0	2759
				N150	35.3	2333	39.8	2694
				N550	39.7	2484	43.2	2808
				N555	42.4	2589	47.7	2877
				N160	42.1	2431	47.1	2795
				N165	46.6	2556	50.9C	2848
				N560	44.8	2579	49.4	2900
139	Lapua	GB458 Scenar	3.071	N150	32.7	2284	37.0	2563

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

6,5 x 55 SE / 6,5 x 55 SKAN cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N550	36.6	2421	42.0	2705
				N555	41.1	2523	46.1	2864
				N160	37.2	2373	43.8	2679
				N165	44.1	2488	50.2	2777
				N560	44.3	2529	49.1	2842

Barrel length: 27½”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
108	Lapua	GB464 Scenar	3.071	N140	35.8	2639	41.7	2953
				N540	41.1	2795	45.5	3128
				N150	36.9	2654	42.9	2980
				N550	43.2	2815	46.9	3109
				N555	45.8	2917	48.8	3100
				N160	43.4	2769	48.8	3074
				N560	48.5	2753	54.0	3146
120	Lapua	GB547 Scenar-L	3.031	N135	32.1	2441	37.5	2736
				N140	33.6	2516	40.0	2785
				N540	35.8	2628	43.4	2946
				N150	35.6	2474	40.9	2782
				N550	40.4	2690	45.5	2966
				N555	44.6	2762	49.4	3054
				N160	43.8	2572	47.4	2867
				N560	46.8	2690	51.2	3005
123	Lapua	GB489 Scenar	3.071	N140	34.0	2477	39.4	2750
				N540	38.1	2607	43.1	2915
				N150	34.6	2454	40.1	2749
				N550	41.2	2676	45.4	2934
				N555	44.1	2733	48.9	3025
				N160	41.8	2557	46.6	2835
				N560	46.9	2669	50.5	2958
136	Lapua	GB546 Scenar-L	3.071	N540	36.9	2434	42.0	2776
				N150	35.3	2356	39.8	2703
				N550	39.7	2503	43.2	2828
				N555	42.4	2608	47.7	2900
				N160	42.1	2454	47.1	2812
				N165	46.6	2582	50.9	2874
				N560	44.8	2605	49.4	2927
139	Lapua	GB458 Scenar	3.071	N150	32.7	2295	37.0	2575
				N550	36.6	2438	42.0	2724
				N555	41.1	2543	46.1	2890
				N160	37.2	2395	43.8	2704
				N165	44.1	2508	50.2	2801
				N560	44.3	2546	49.1	2862

Barrel length: 29”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
108	Lapua	GB464 Scenar	3.071	N140	35.8	2677	41.7	2995
				N540	41.1	2838	45.5	3176
				N150	36.9	2694	42.9	3025
				N550	43.2	2854	46.9	3153
				N555	45.8	2953	48.8	3140
				N160	43.4	2802	48.8	3110
				N560	48.5	2789	54.0	3189

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

6,5 x 55 SE / 6,5 x 55 SKAN cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
120	Lapua	GB547 Scenar-L	3.031	N135	32.1	2467	37.5	2762
				N140	33.6	2539	40.0	2808
				N540	35.8	2648	43.4	2976
				N150	35.6	2497	40.9	2808
				N550	40.4	2713	45.5	3009
				N555	44.6	2795	49.4	3104
				N160	43.8	2595	47.4	2949
				N560	46.8	2717	51.2	3058
123	Lapua	GB489 Scenar	3.071	N140	34.0	2497	39.4	2772
				N540	38.1	2635	43.1	2946
				N150	34.6	2484	40.1	2782
				N550	41.2	2723	45.4	2986
				N555	44.1	2759	48.9	3084
				N160	41.8	2631	46.6	2917
				N560	46.9	2723	50.5	3018
136	Lapua	GB546 Scenar-L	3.071	N540	36.9	2457	42.0	2795
				N150	35.3	2382	39.8	2723
				N550	39.7	2523	43.2	2854
				N555	42.4	2635	47.7	2936
				N160	42.1	2477	47.1	2838
				N165	46.6	2608	50.9	2904
				N560	44.8	2628	49.4	2956
139	Lapua	GB458 Scenar	3.071	N150	32.7	2310	37.0	2592
				N550	36.6	2461	42.0	2749
				N555	41.1	2572	46.1	2851
				N160	37.2	2411	43.8	2723
				N165	44.1	2536	50.2	2831
				N560	44.3	2569	49.1	2887

C = Compressed load

6,5 - 284 Norma

Test barrel:	26”, 1 in 9” twist
Primers:	Large Rifle
Cases:	Lapua, trim-to length 2.161”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
100	Lapua	FMJ	2.756	N150	41.8	2861	49.7	3192
				N550	47.7	2936	53.7	3343
				N160	47.5	2805	58.2	3287
100	Lapua	Scenar	2.953	N150	43.1	2986	49.8	3278
				N550	47.5	2927	53.7	3343
				N160	47.8	2838	58.2	3294
108	Lapua	Scenar	3.110	N550	45.8	3018	52.3	3368
				N160	47.5	2972	53.9	3308
				N165	54.3	3025	62.4	3419
				N560	53.5	3041	58.9	3384
120	Lapua	Scenar-L	3.110	N550	43.7	2697	50.3	3084
				N160	44.1	2628	54.5	3051
				N165	52.5	2736	58.6	3091
				N560	51.2	2726	57.6	3136
123	Lapua	Scenar	3.110	N160	40.0	2608	50.8	3035
				N165	46.8	2723	56.4	3106
				N560	50.6	2844	56.3	3158
136	Lapua	Scenar-L	3.110	N550	42.4	2526	48.3	2884
				N160	43.7	2474	52.2	2848

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

6,5 - 284 Norma

cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N165	50.3	2569	56.3	2927
				N560	49.7	2608	55.9	3068
139	Lapua	Scenar	3.110	N160	43.2	2533	47.2	2740
				N560	48.1	2602	56.0	3015
140	Lapua	Naturalis N507	2.941	N160	44.3	2470	49.4	2703
				N165	48.9	2520	54.8	2835
				N560	49.5	2579	54.8	2871
140	Lapua	Naturalis N563	2.953	N550	39.8	2418	46.5	2730
				N160	40.3	2339	48.1	2710
				N165	39.7	2303	52.9	2792
				N560	44.4	2418	53.1	2825
144	Lapua	FMJBT	3.110	N160	43.2	2569	48.5	2759
				N165	44.7	2513	55.7	2871
				N560	49.1	2631	52.9	2874
				N570	54.6	2618	57.1F	2723
156	Lapua	Mega	2.913	N560	47.7	2477	53.2	2759
				N570	53.4	2562	56.3	2651

F = Case full

.270 WSM

Test barrel:	20½", 1 in 9" twist
Primers:	Large Rifle Magnum
Cases:	Winchester, trim-to length 2.091"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
90	Sierra	HP	2.701	N160	61.7	3350	69.0	3707
				N165	70.8	3415	73.3F	3553
				N560	67.7	3346	73.8	3724
140	Barnes	XFB	2.795	N160	49.4	2625	57.2	2949
				N165	57.9	2730	63.3	2995
				N560	53.9	2644	60.6	3012
160	Nosler	Partition	2.795	N160	49.4	2418	53.5	2707
				N165	50.9	2523	60.2	2831
				N560	51.8	2539	58.9	2864

F = Case full

.270 Winchester

Test barrel:	24⅜", 1 in 10" twist
Primers:	Large Rifle
Cases:	Remington, trim-to length 2.531"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
100	Speer	Spitzer	3.150	N150	44.5	2945	52.8	3273
				N160	58.6	3127	65.8C	3468
				N165	61.7	3170	69.9C	3509
115	Sierra	MatchKing	3.287	N150	39.5	2733	45.4	3031
				N550	44.3	2858	49.1	3130
				N160	46.0	2769	54.6	3143
130	Remington	SP	3.228	N160	51.5	2779	58.0	3083
				N560	56.2	2873	61.3	3132
130	Speer	SPBT	3.268	N165	54.6	2787	62.0	3089
135	Sierra	HPBT	3.268	N160	44.8	2697	56.5	3048
				N165	56.3	2769	60.2	3041
				N560	55.9	2874	60.3	3140
140	Barnes	TSX	3.209	N550	37.7	2418	46.5	2822

.270 Winchester

cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N165	44.8	2533	52.8	2828
				N560	48.1	2618	53.7	2894
140	Swift	A-Frame	3.228	N550	40.6	2487	47.5	2818
				N165	47.1	2592	55.4	2844
				N560	48.1	2589	55.6	2913
150	Barnes	TSX	3.228	N550	37.7	2336	45.2	2694
				N165	41.8	2339	50.5	2687
				N560	44.8	2448	51.9	2779
150	Nosler	Ballistic Tip	3.287	N160	45.1	2395	52.3	2762
				N165	47.8	2408	57.7	2854
				N560	48.3	2434	56.5	2854
160	Nosler	Partition	3.331	N160	38.6	2293	44.6	2562
				N165	44.4	2411	51.1	2661
				N560	46.5	2444	52.8	2779

C = Compressed load

.270 Weatherby Magnum

Test barrel:	25½", 1 in 12" twist
Primers:	Large Rifle Magnum
Cases:	Remington, trim-to length 2.531"

CAUTION: Loads less than the listed starting load may cause excessive chamber pressure and must not be used!

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
100	Remington	PSP	3.110	N550	66.8	3401	71.7	3666
				N160	71.0	3421	74.9	3634
				N165	78.4	3428	83.0	3658
130	Remington	PSPCL	3.236	N160	66.5	3080	71.1	3284
				N165	71.3	3055	76.0	3270
				N560	72.7	3108	76.9	3294
135	Sierra	HPBT	3.268	N160	65.0	2964	68.3	3167
				N165	70.2	3029	72.5	3244
				N560	71.2	3137	74.2	3323
150	Nosler	Partition	3.248	N165	67.0	2876	72.2	3072
				N560	67.6	2954	71.0	3134
				N170	73.4	2906	78.8	3134

7 mm-08 Remington

Test barrel:	24", 1 in 9½" twist
Primers:	Large Rifle
Cases:	Lapua, .308 Win. necked down, trim-to length 2.028"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
120	Sierra	SP	2.736	N135	36.0	2697	41.1	3002
				N140	40.7	2838	44.8	3064
				N540	41.4	2844	45.5	3136
				N150	41.8	2825	45.8	3071
130	Sierra	HPBT	2.780	N135	35.5	2612	38.3	2805
				N140	38.4	2664	41.8	2894
				N540	40.6	2789	43.7	3012
				N150	40.4	2707	44.0	2949
140	Nosler	Ballistic Tip	2.740	N135	34.1	2490	37.3	2710
				N140	37.0	2536	41.1	2795
				N540	39.2	2628	42.7	2877
				N150	39.4	2595	43.1	2825

7mm-08 Remington

cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
150	Barnes	TSX	2.736	N540	37.3	2431	41.1	2703
				N550	40.1	2428	44.4	2707
				N160	44.0	2477	47.1	2648
150	Lapua	Scenar-L	2.795	N140	34.3	2372	37.7	2598
				N540	35.6	2461	39.2	2700
				N150	34.4	2398	38.1	2605
				N550	37.7	2448	41.8	2733
150	Sierra	MatchKing	2.736	N140	34.9	2388	39.7	2667
				N540	37.7	2500	41.5	2766
				N150	36.4	2418	41.5	2703
				N550	40.9	2523	44.4	2792
155	Lapua	Naturalis N564	2.756	N540	34.1	2277	38.6	2546
				N150	32.3	2172	37.0	2428
				N550	35.8	2264	40.3	2539
				N160	40.0	2323	45.1	2585
160	Lapua	Naturalis	2.736	N540	33.3	2274	36.7	2497
				N150	31.5	2162	35.6	2395
				N550	35.8	2287	39.4	2513
				N160	38.4	2310	42.3	2516
160	Sierra	SBT	2.776	N540	34.6	2352	39.0	2602
				N150	33.8	2277	38.4	2513
				N550	37.5	2349	41.8	2631
				N160	41.1	2372	45.8	2644
168	Sierra	HPBT	2.791	N540	36.1	2372	40.0	2605
				N150	34.1	2231	39.8	2552
				N550	39.4	2392	42.7	2618
				N160	44.0	2470	45.5	2562
175	Barnes	TSX	2.736	N150	31.3	1988	36.1	2257
				N550	36.7	2133	41.5	2415
				N560	43.1	2215	48.1	2467
180	Lapua	Scenar-L	2.795	N140	30.2	2067	34.3	2300
				N150	32.3	2133	34.7	2316
				N550	35.5	2218	39.5	2457
				N160	38.4	2260	44.0	2497

.284 Winchester

Test barrel:	24”, 1 in 10” twist
Primers:	Large Rifle, Remington 9 1/2
Cases:	Peterson, trim-to length 2.170”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
120	Hornady	V-Max	2.799	N140	43.2	2743	49.1	3041
				N540	44.8	2795	50.0	3130
				N150	44.6	2776	49.8	3061
				N550	49.1	2858	54.0	3169
				N555	53.6	2946	59.0	3219
				N160	55.6	2933	60.3F	3176
140	Nosler	E-Tip[1)]	2.894	N150	39.8	2457	47.7	2769
				N550	47.1	2589	52.2	2900
				N555	50.9	2618	57.3C	2969
				N160	49.4	2572	57.9	2910
				N560	54.8	2618	61.6C	2972
150	Berger	Classic Hunter	2.795	N140	41.7	2569	46.3	2789
				N540	39.7	2520	47.4	2861
				N150	39.7	2503	47.5	2799

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.284 Winchester

cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N550	46.5	2608	51.7	2910
				N555	50.8	2667	56.2	2956
				N160	54.0	2723	57.9	2943
				N560	55.6	2684	59.9	2943
150	Hornady	ELD-X[1)]	2.913	N150	40.1	2500	46.1	2736
				N550	46.3	2615	50.9	2851
				N555	50.9	2697	55.9	2920
				N160	50.6	2602	55.9	2861
				N560	54.0	2612	60.2	2930
150	Lapua	Scenar-L	2.894[1)]	N540	40.1	2484	46.6	2805
				N150	39.4	2474	46.3	2740
				N550	45.1	2569	50.0	2848
				N555	49.4	2644	54.2	2894
				N160	50.0	2575	55.6	2864
				N560	52.2	2589	57.7	2910
155	Lapua	Naturalis N564	2.854[1)]	N540	39.4	2326	44.4	2602
				N150	39.4	2356	43.2	2497
				N550	44.0	2428	48.9	2684
				N555	47.1	2461	53.7	2756
				N160	40.3	2205	52.5	2654
				N560	50.9	2461	57.1	2759
162	Hornady	ELD Match[1)]	2.913	N150	40.1	2474	45.2	2651
				N550	44.3	2493	49.7	2766
				N555	48.6	2552	53.9	2799
				N160	49.4	2513	54.9	2779
				N560	52.5	2530	58.3	2818
168	Berger	Classic Hunter	2.795	N150	40.4	2375	45.8	2628
				N550	45.5	2474	49.8	2730
				N555	49.4	2523	55.4	2792
				N160	48.8	2474	54.5	2746
				N560	52.3	2477	58.8	2792
168	Sierra	HPBT	2.795	N550	43.4	2434	48.6	2707
				N555	47.8	2500	53.1	2749
				N160	48.3	2454	53.7	2726
				N560	51.7	2484	58.0	2792
175	Berger	Elite Hunter[1)]	2.913	N550	43.7	2388	48.9	2657
				N555	48.1	2451	54.3	2720
				N160	49.1	2431	54.2	2694
				N560	51.4	2434	57.9	2743
180	Lapua	Scenar-L	2.913[1)]	N150	39.4	2316	41.7	2418
				N550	41.2	2270	46.5	2549
				N555	45.7	2346	50.6	2595
				N160	45.5	2293	51.1	2559
				N165	50.9	2369	57.7C	2651
				N560	49.4	2382	55.2	2661
				N565	51.7	2431	57.7	2651

C = Compressed load F = Case full [1)] The cartridge overall length exceeds the CIP maximum.

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

7 x 57

Test barrel:	22”, 1 in 9½” twist
Primers:	Large Rifle
Cases:	Sako, trim-to length 2.236”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
120	Sierra	Spitzer	3.012	N135	41.1	2670	44.2	2887
				N140	43.5	2704	47.2	2942
				N150	44.0	2717	47.6	2946
140	Nosler	Ballistic Tip	3.051	N140	39.7	2415	43.5	2630
				N150	40.9	2451	44.8	2657
160	Sierra	SPBT	3.051	N150	38.6	2267	42.7	2474
				N160	47.0	2381	50.3	2603
175	Speer	Mag-Tip	3.031	N160	42.5	2162	47.1	2383
				N165	45.4	2184	51.2	2429

7 x 57R

Test barrel:	22”, 1 in 9½” twist
Primers:	Large Rifle
Cases:	RWS, trim-to length 2.236”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
120	Sierra	Spitzer	3.012	N135	39.7	2574	43.1	2812
				N140	41.9	2594	45.8	2855
				N150	42.3	2613	46.3	2863
140	Nosler	Ballistic Tip	3.051	N140	38.1	2320	42.2	2549
				N150	39.0	2354	43.4	2581
150	Barnes	TSX	3.012	N540	36.7	2283	39.8	2490
				N150	34.4	2175	38.7	2392
				N550	39,8	2303	42.7	2516
150	Brenneke	TOG	3.012	N540	36.0	2297	41.2	2533
				N150	35.8	2247	39.7	2421
				N550	41.2	2356	44.1	2556
				N160	46.1	2372	49.2	2546
150	Lapua	Scenar-L	3.012	N540	37.0	2385	39.8	2559
				N150	36.0	2320	39.7	2520
				N550	38.6	2379	41.7	2566
				N160	43.8	2431	47.2	2618
160	Lapua	Naturalis	2.953	N140	33.5	2110	37.2	2300
				N540	34.9	2116	39.0	2346
				N150	32.1	1978	38.1	2303
160	Sierra	SPBT	3.051	N150	36.8	2171	41.0	2397
				N160	45.2	2272	49.3	2539
174	Barnes	TSX	3.012	N550	34.9	1975	38.9	2218
				N160	38.1	1978	43.2	2205
				N560	43.2	2087	48.5	2333
175	Speer	Mag-Tip	3.031	N160	40.6	2065	45.4	2298
				N165	42.8	2072	48.9	2333

7 x 64

Test barrel:	23½”, 1 in 10” twist
Primers:	Large Rifle
Cases:	Norma, trim-to length 2.512”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
120	Nosler	Ballistic Tip	3.228	N540	46.8	2913	51.5	3222
				N150	45.4	2831	50.0	3104
				N550	48.8	2900	54.8	3225
				N160	54.3	2927	57.1C	3051
140	Swift	A-Frame	3.205	N540	42.3	2585	48.6	2910
				N150	41.1	2513	47.8	2808
				N550	46.9	2631	51.2	2917
				N160	51.1	2615	55.6	2917
				N560	54.9	2661	59.9	2982
150	Barnes	TSX	3.299	N540	42.3	2470	47.2	2776
				N150	40.9	2365	46.1	2667
				N550	45.4	2510	50.0	2805
				N160	49.2	2493	55.7	2825
				N560	54.3	2582	60.3	2927
150	Lapua	Scenar-L	3.307	N540	41.8	2556	46.8	2841
				N150	40.7	2484	46.5	2772
				N550	45.1	2582	48.8	2844
				N160	49.7	2605	55.1	2890
				N560	51.4	2612	56.3	2900
150	Nosler	Partition	3.299	N540	41.4	2539	48.5	2858
				N150	41.1	2487	47.7	2766
				N550	46.9	2608	51.4	2858
				N160	50.9	2592	55.4	2867
				N560	52.9	2625	58.0	2913
155	Lapua	Naturalis N564	3.268	N150	40.1	2415	45.7	2677
				N550	43.4	2461	48.8	2756
				N160	49.2	2507	54.3	2746
				N560	51.4	2451	57.3	2841
160	Nosler	Accubond	3.307	N540	40.7	2448	46.9	2740
				N150	39.5	2398	46.1	2657
				N550	45.1	2490	49.4	2753
				N160	50.5	2516	55.6C	2802
174	Barnes	TSX	3.201	N540	37.7	2149	45.5	2510
				N550	42.9	2215	50.0	2572
				N160	46.9	2218	53.6	2562
174	Sierra	Game King	3.307	N540	39.7	2356	46.0	2635
				N550	43.8	2405	47.7	2641
				N160	48.1	2418	52.6	2664
				N165	52.5	2467	57.9C	2700
				N560	51.1	2461	57.1	2746
177	Brenneke	TIG	3.240	N540	39.0	2254	45.1	2539
				N550	43.4	2300	48.0	2569
				N160	47.2	2306	53.4	2595
				N165	52.9	2375	58.6C	2674
				N560	51.1	2395	57.4	2671
180	Lapua	Scenar-L	3.307	N540	39.7	2303	44.1	2562
				N550	42.4	2300	46.6	2582
				N160	46.9	2349	52.5	2621
				N165	52.6	2438	55.6	2589
				N560	49.4	2300	56.6	2694

C = Compressed load

7 x 65R

Test barrel:	26”, 1 in 9” twist
Primers:	Large Rifle
Cases:	Lapua, trim-to length 2.551”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
120	Nosler	Ballistic Tip	3.287	N540	46.5	2907	50.5	3169
				N150	44.6	2795	48.6	3054
				N550	49.1	2897	52.8	3163
				N160	54.0	2904	57.4	3143
140	Swift	A-Frame	3.240	N540	42.6	2582	48.1	2861
				N150	41.1	2484	46.0	2726
				N550	46.5	2621	50.0	2858
150	Barnes	TSX	3.287	N540	42.1	2474	46.3	2736
				N150	40.0	2349	44.8	2612
				N550	44.8	2510	48.6	2759
				N160	49.4	2480	53.9	2740
				N560	53.9	2569	57.7	2831
150	Lapua	Scenar-L	3.240	N540	41.7	2569	46.3	2808
				N150	40.4	2480	45.4	2720
				N550	45.2	2602	48.1	2815
				N160	49.7	2602	53.9	2848
				N560	52.5	2615	56.6	2871
150	Nosler	Partition	3.287	N540	41.2	2526	47.1	2785
				N150	40.7	2461	45.7	2690
				N550	46.1	2585	50.0	2808
156	Lapua	Naturalis	3.287	N540	41.8	2434	45.4	2654
				N150	40.0	2343	43.8	2549
				N550	44.1	2461	47.4	2651
				N160	47.8	2326	52.6	2654
				N560	51.7	2490	57.3	2769
160	Nosler	Accubond	3.287	N540	41.8	2441	45.5	2661
				N150	39.7	2346	44.8	2575
				N550	44.3	2454	47.7	2677
				N160	47.8	2444	52.5	2690
				N560	51.7	2513	56.9	2776
175	Barnes	TSX	3.240	N540	39.0	2159	43.2	2428
				N550	42.3	2205	46.6	2464
				N160	44.1	2152	50.6	2451
				N560	51.4	2343	56.6	2625
175	Sierra	Game King	3.287	N540	36.6	2238	44.4	2569
				N550	43.8	2392	47.4	2612
				N160	48.3	2408	51.4	2612
				N165	53.2	2500	57.7	2717
				N560	51.4	2454	55.4	2697
177	Brenneke	TIG	3.287	N160	47.1	2297	52.0	2536
				N165	53.1	2402	57.4	2625
				N560	51.7	2395	56.5	2644
180	Lapua	Scenar-L	3.291	N540	40.3	2333	43.5	2533
				N550	42.1	2346	45.8	2546
				N160	47.2	2369	50.9	2579
				N165	52.6	2467	56.8	2674
				N560	51.1	2431	55.2	2657

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

7 mm WSM

Test barrel:	26”, 1 in 9.5” twist
Primers:	Large Rifle Magnum
Cases:	Winchester, trim-to length 2.093”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
110	Speer	TNT-HP	2.823	N150	53.1	3166	61.0	3484
				N550	59.9	3238	65.4	3563
				N160	64.7	3235	71.3	3507
140	Nosler	Partition	2.831	N160	53.4	2805	61.7	3140
				N165	62.7	2904	69.4	3182
				N560	58.6	2874	67.0	3212
154	Hornady	Interbond	2.831	N160	52.3	2687	60.5	2992
				N165	59.9	2762	69.6	3087
				N560	57.1	2759	65.6	3104
160	Lapua	Naturalis	2.811	N160	45.2	2566	54.9	2766
				N165	51.5	2503	60.2	2818
				N560	52.2	2556	59.4	2881
160	Sierra	SBT	2.850	N160	52.2	2612	60.6	2927
				N165	60.3	2736	66.5	2999
				N560	57.1	2713	64.0	3025

7 mm Remington Magnum

Test barrel:	24”, 1 in 9” twist
Primers:	Large Rifle Magnum
Cases:	Lapua, trim-to length 2.492”

CAUTION: Loads less than the listed starting load may cause excessive chamber pressure and must not be used!

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
140	Swift	A-Frame	3.268	N160	53.2	2717	62.2	3068
				N165	59.9	2831	67.4	3133
				N560	59.3	2795	67.3	3169
150	Lapua	Scenar-L	3.287	N160	50.5	2605	59.7	2930
				N165	57.4	2690	66.1	3035
				N560	59.6	2779	66.7	3120
150	Nosler	Partition	3.287	N160	54.5	2703	60.8	2992
				N165	59.0	2779	66.7	3054
				N560	60.0	2792	67.1	3110
155	Lapua	Naturalis N564	3.268	N160	46.1	2349	52.8	2644
				N165	50.9	2438	60.6	2795
				N560	54.0	2536	60.2	2884
160	Lapua	Naturalis	3.220	N160	48.6	2470	58.0	2818
				N165	56.3	2579	63.0	2848
				N560	56.6	2766	62.2	3094
160	Speer	Grand Slam	3.228	N160	51.1	2572	61.6	2887
				N165	59.1	2664	68.1	2982
				N560	60.3	2700	68.7	3035
168	Sierra	HPBT	3.287	N160	50.3	2516	59.6	2828
				N165	55.7	2585	63.9	2799
				N560	57.9	2661	65.7	2963
				N170	58.3	2552	69.8	2910
175	Sierra	SBT	3.287	N160	47.7	2418	56.2	2710
				N165	52.6	2448	62.7	2802
				N560	56.5	2595	64.5	2904
				N170	57.6	2497	67.1	2828
180	Berger	Hybrid Target	3.287	N160	48.1	2398	54.2	2615

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

7 mm Remington Magnum cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N560	52.9	2507	59.7	2766
				N565	55.6	2582	62.7	2799
180	Lapua	Scenar-L	3.287	N160	42.9	2224	50.0	2510
				N165	44.3	2228	53.7	2569
				N560	47.8	2388	53.2	2651
				N170	48.1	2224	58.5	2644
194	Berger	Elite Hunter	3.287	N165	54.9	2415	60.8	2625
				N560	56.5	2477	62.3	2713
				N565	57.4	2487	63.7	2720
				N170	56.9	2415	62.8	2638

7 mm Weatherby Magnum

Test barrel:	26”, 1 in 9” twist
Primers:	Large Rifle Magnum
Cases:	Weatherby, trim-to length 2.539”

CAUTION: Loads less than the listed starting load may cause excessive chamber pressure and must not be used!

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
100	Hornady	HP	3.209	N160	73.5	3512	78.7	3770
				N560	76.8	3561	81.8	3839
120	Sierra	Spitzer	3.248	N160	69.8	3245	74.5	3468
				N165	75.5	3290	80.2	3517
				N560	73.9	3310	78.2	3540
160	Sierra	Spitzer	3.248	N160	63.1	2799	67.7	2992
				N165	68.0	2834	72.4	3031
				N560	65.7	2846	69.9	3041
168	Sierra	HPBT	3.209	N160	61.7	2730	65.3	2884
				N165	66.5	2755	69.6	2913
				N560	64.3	2771	68.2	2982

7 mm RUM

Test barrel:	26”, 1 in 9” twist
Primers:	Large Rifle Magnum
Cases:	Remington, trim-to length 2.840”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
120	Nosler	Ballistic Tip	3.484	N160	83.2	3330	90.0	3632
				N165	86.3	3432	93.5	3750
				N560	88.9	3346	94.9	3684
160	Lapua	Naturalis	3.583	N560	50.9	2464	70.1	2966
				N170	56.2	2487	72.8	2920
				N570	54.8	2598	76.4	3064
168	Sierra	MatchKing	3.602	N560	78.2	2943	85.0	3209
				N170	86.6	3012	92.0	3271
				N570	86.3	2992	93.7	3291
175	Swift	A-Frame	3.602	N560	74.4	2799	81.3	3068
				N170	81.2	2887	85.0	2999
				N570	81.9	2864	89.8	3133

.30 Carbine

Test barrel:	18”, 1 in 10” twist
Primers:	Small Rifle
Cases:	Federal, trim-to length 1.283”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
100	Speer	Plinker	1.673	N110	13.6	2001	15.0	2196
110	Speer	Spire Point	1.673	N110	12.1	1786	14.0	1983

.300 AAC Blackout

Test barrel:	14”, 1 in 8” twist
Primers:	Small Rifle
Cases:	Lapua 221 Rem. Fireball, trim-to length 1.362”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
100	Lapua	HPCE / OTCE	1.831	N105	10.3	1867	13.0	2110
				N110	14.4	2077	17.0	2257
123	Lapua	FMJ	1.976	N105	10.3	1575	11.9	1775
				N110	14.5	1857	15.9	1991
125	Nosler	Accubond	2.024	N105	10.2	1699	11.9	1893
				N110	13.7	1903	15.3	2024
125	Sierra	MatchKing	2.209	N105	10.2	1742	11.7	1811
				N110	14.2	1864	15.7	2011
150	Lapua	LockBase	2.244	N120	9.3	1040	19.6	2018
155	Lapua	Scenar	2.244	N120	9.6	1037	18.4	1929
167	Lapua	Scenar	2.244	N120	9.4	1027	18.1	1841
185	Lapua	Scenar	2.244	N120	10.2	1043	16.8	1713
200	Lapua	FMJBT	2.244	N110	8.3	1047	12.2	1430
				N120	10.2	1037	15.7	1506

.308 Winchester

Test barrel:	24”, 1 in 12” twist
Primers:	Large Rifle
Cases:	Lapua, trim-to length 2.008”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
57	Lapua	ALS[1)]	2.638	N110	27.5	3481	34.5	3993
100	Lapua	HPCE / OTCE	2.638	N110	20.4	2333	27.8	2854
				N120	30.6	2663	36.0	3051
				N130	33.7	2794	40.1	3203
				N133	40.6	3012	45.5F	3356
				N530	41.4	3002	46.5	3425
				N135	38.1	2837	46.1	3255
110	Barnes	TSX FB	2.697	N130	38.0	2887	41.7	3127
				N133	41.7	2986	45.4	3225
				N530	43.5	2995	47.1	3274
				N135	43.2	2999	46.3	3186
110	Hornady	V-Max	2.697	N130	37.2	2871	40.3	3081
				N133	40.6	2943	43.8	3163
				N530	42.1	2969	45.5	3189
				N135	42.6	3002	46.5	3215
				N140	46.0	2992	49.4C	3199
110	Sako	HP	2.657	N120	35.8	2769	41.2	3157
				N130	38.9	2826	45.7	3242
				N133	42.1	2868	49.1	3311
123	Lapua	FMJ	2.634	N120	32.1	2664	36.9	2940
				N130	34.9	2566	42.9	3028

.308 Winchester cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N133	40.4	2815	44.3	3084
				N530	40.0	2789	44.4	3146
				N135	42.0	2723	47.2F	3022
125	Nosler	Ballistic Tip	2.756	N130	37.0	2684	43.0	3068
				N133	40.1	2721	46.3	3120
				N135	41.6	2732	48.9	3143
				N140	44.1	2739	49.8F	3071
125	Sierra	TMK	2.795	N130	35.2	2664	39.4	2900
				N133	39.7	2756	42.4	2953
				N530	38.7	2733	44.0	3048
				N135	40.4	2759	43.4	2979
				N140	43.2	2743	47.2	2986
130	Barnes	TSX BT	2.783	N130	35.3	2615	39.0	2848
				N133	38.6	2697	41.7	2904
				N530	40.4	2723	43.8	2953
				N135	40.1	2720	43.7	2946
				N140	43.4	2740	47.1	2976
140	LOS	Hunting Tactic	2.776	N135	39.4	2664	42.9	2894
				N140	41.7	2654	45.7	2894
				N540	42.0	2677	45.8	2943
150	Barnes	TTSX BT	2.795	N135	35.2	2379	39.4	2625
				N140	39.2	2474	42.7	2697
				N540	39.7	2497	43.5C	2756
				N150	40.1	2507	43.5C	2720
				N550	42.9	2484	47.8C	2776
150	Hornady	GMX	2.795	N135	36.3	2359	39.7	2608
				N140	39.0	2411	43.1	2657
				N540	40.1	2441	43.7	2713
				N150	39.4	2415	43.5	2661
150	Lapua	LockBase	2.756	N530	37.8	2605	42.6	2927
				N135	39.5	2657	43.7	2904
				N140	42.4	2625	44.7F	2799
				N540	42.9	2648	46.3	2956
				N150	43.2	2635	45.2F	2740
150	Lapua	Mega	2.567	N135	36.3	2451	41.4	2762
				N140	36.3	2346	45.5	2703
				N540	40.7	2382	45.8	2733
150	LOS	Tactic	2.780	N530	36.7	2536	40.7	2799
				N135	38.0	2566	41.4	2766
				N140	40.7	2559	45.5	2805
				N540	41.2	2589	45.5	2864
150	Norma	FMJ	2.693	N130	31.2	2362	36.4	2631
				N133	35.8	2484	39.0	2697
				N530	37.0	2503	39.8	2713
				N135	37.8	2539	41.2	2736
				N140	40.6	2562	44.1	2785
150	Red Moose	TARVAS	2.724	N135	38.6	2595	41.7	2795
				N140	40.9	2582	45.4	2838
				N540	42.7	2651	46.6C	2881
				N150	42.4	2635	46.1C	2825
				N550	45.5	2654	47.8C	2792
150	Sierra	HPBT	2.795	N140	40.4	2467	47.3	2851
				N540	41.8	2487	48.3	2956
				N150	42.2	2545	48.4C	2869
				N550	44.5	2534	50.3F	2855

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.308 Winchester cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
150	Sierra	SPBT	2.756	N133	35.0	2391	44.1	2831
				N135	39.5	2505	45.7	2857
				N140	41.8	2516	47.1	2815
				N150	43.6	2545	49.9	2880
150	Swift	Scirocco II	2.795	N135	35.2	2448	38.3	2621
				N140	38.6	2484	42.4	2697
				N540	39.4	2533	42.7	2733
				N150	39.4	2526	42.9	2713
				N550	42.4	2503	46.0	2726
150	Woodleigh	Weldcore PP	2.795	N135	37.3	2464	41.4	2680
				N140	39.0	2444	44.3	2697
				N540	40.6	2520	45.2	2802
154	Brenneke	TAG	2.740	N140	41.1	2510	45.4	2772
				N540	41.5	2546	46.1	2858
				N150	42.3	2533	46.3	2782
155	Berger	Hybrid Target	2.795	N135	37.2	2461	40.3	2664
				N140	39.8	2474	43.2	2687
				N540	40.7	2520	44.0	2762
				N150	40.3	2497	43.8	2720
				N550	42.6	2490	46.5	2756
155	Lapua	Scenar	2.795	N530	34.6	2385	41.0	2769
				N135	34.4	2254	40.7	2638
				N140	36.7	2251	43.4	2648
				N540	40.6	2562	44.9	2900
				N150	39.0	2359	46.8	2683
				N550	44.4	2605	50.2F	2956
155	LOS	Hunting	2.752	N140	40.4	2513	44.4	2743
				N540	41.1	2556	44.8	2805
				N150	41.4	2546	45.4	2776
155	Sierra	HPBT	2.795	N135	35.1	2337	41.3	2674
				N140	37.0	2354	44.2	2712
				N540	37.9	2337	45.1	2750
				N150	40.6	2466	46.5	2790
				N550	42.5	2479	49.7C	2888
155	Sierra	TMK	2.795	N135	37.3	2470	40.1	2654
				N140	39.8	2464	43.1	2677
				N540	40.4	2513	43.7	2753
				N150	40.6	2497	44.0	2710
				N550	42.9	2510	46.5	2759
165	Barnes	TSX	2.795	N140	37.8	2303	43.1	2674
				N150	38.9	2346	44.6	2703
				N550	41.8	2382	47.1	2733
165	Brenneke	TOG	2.697	N140	38.4	2392	42.1	2585
				N540	39.0	2415	43.5	2690
				N150	38.7	2359	43.4	2605
165	Hornady	GMX	2.795	N140	38.0	2238	41.2	2480
				N540	37.2	2247	41.7	2549
				N150	37.3	2234	41.7	2497
				N550	40.3	2293	45.2	2592
165	Red Moose	TARVAS	2.724	N140	40.1	2490	43.5	2687
				N540	40.9	2484	45.1	2736
				N150	40.9	2477	44.6	2684
				N550	43.7	2516	47.7C	2743
165	Rhino	Solid Shank	2.657	N140	39.5	2415	42.9	2612
				N540	40.1	2425	44.0	2651

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.308 Winchester cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N150	41.5	2487	44.0	2651
				N550	44.1	2444	47.4	2667
165	Speer	SPBT	2.795	N133	36.8	2345	41.9	2653
				N135	38.3	2376	44.1	2703
				N140	40.1	2390	46.3	2750
				N150	41.0	2411	47.9	2761
				N550	44.1	2495	49.3	2789
165	Swift	Scirocco II	2.795	N140	36.9	2346	40.6	2549
				N540	37.7	2349	41.5	2579
				N150	38.1	2372	41.7	2566
				N550	41.4	2375	45.2	2615
167	Lapua	Scenar	2.795	N135	36.7	2425	40.0	2667
				N140	40.0	2356	44.0	2628
				N540	39.8	2405	44.0	2661
				N150	41.8	2451	44.8A	2744
				N550	44.4	2503	48.9F	2743
168	Barnes	TSX	2.795	N140	40.0	2425	44.1	2664
				N540	41.4	2448	45.4	2749
				N150	40.6	2428	44.9	2671
168	Berger	Hybrid Target	2.795	N140	38.6	2346	41.8	2556
				N540	39.8	2415	42.9	2654
				N150	39.5	2398	42.8	2602
				N550	42.1	2425	45.0	2661
168	Sierra	HPBT	2.795	N135	38.1	2451	42.1	2697
				N140	36.2	2247	42.8	2558
				N540	37.7	2266	44.5	2654
				N150	38.6	2321	44.5	2636
				N550	41.6	2379	47.2	2729
170	Lapua	LockBase	2.795	N135	37.4	2328	42.9	2645
				N140	39.5	2345	45.5A	2696
				N540	40.1	2308	46.3	2762
				N150	40.2	2361	45.5	2734
				N550	42.8	2360	48.5	2772
170	Lapua	Naturalis LR	2.795	N140	39.2	2441	43.8	2707
				N150	41.2	2493	44.6	2674
				N550	42.9	2418	48.3F	2733
170	Lapua	Naturalis N558	2.795	N140	38.0	2372	42.0	2615
				N540	39.7	2467	44.1	2703
				N150	39.5	2395	42.7	2635
				N550	42.0	2415	45.8	2621
175	Lapua	Scenar-L	2.795	N135	35.3	2362	38.6	2579
				N140	38.0	2411	41.4	2635
				N540	38.7	2448	42.4	2697
				N150	39.2	2431	42.1	2638
175	Sierra	HPBT/VLD	2.795	N140	35.3	2177	41.4	2501
				N540	37.7	2253	43.1	2586
				N150	36.8	2236	43.5	2573
				N550	39.6	2290	45.8	2631
180	Barnes	TTSX BT	2.795	N135	32.1	2110	36.7	2333
				N140	36.9	2185	40.7	2415
				N540	36.9	2215	40.7	2454
				N150	36.4	2198	40.6	2421
				N550	39.7	2234	43.4	2464
180	Barnes	XFB	2.795	N540	32.2	1938	39.3	2346
				N550	35.5	2043	42.4	2408

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.308 Winchester cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
180	Berger	Elite Hunter	2.795	N135	36.4	2274	39.0	2448
				N140	37.8	2277	41.1	2487
				N540	39.0	2339	42.1	2549
				N150	38.3	2287	41.7	2493
				N550	41.2	2346	44.8	2575
180	Hornady	SP	2.795	N135	36.0	2169	41.8	2510
				N140	38.1	2196	44.1	2561
				N150	38.3	2220	46.3	2601
180	Lapua	Naturalis	2.681	N140	40.1	2320	43.8	2533
				N540	40.6	2306	44.7	2523
				N150	42.4	2385	45.5	2552
				N550	43.8	2349	48.3	2595
180	Norma	Oryx	2.709	N530	34.6	2274	36.7	2441
				N135	34.3	2231	37.0	2418
				N140	37.3	2287	41.1	2493
				N540	37.8	2323	41.1	2526
				N150	37.5	2303	41.4	2507
				N550	40.0	2336	43.4	2539
180	RWS	HMK	2.661	N140	38.1	2274	41.4	2474
				N540	38.4	2300	42.4	2533
				N150	38.3	2287	42.1	2493
				N550	42.3	2336	46.9C	2585
180	RWS	UNI Classic	2.646	N140	37.5	2260	41.5	2470
				N540	37.8	2264	41.7	2497
				N150	38.6	2290	42.1	2487
				N550	41.7	2310	46.0C	2552
185	Berger	Hybrid Target	2.795	N540	37.3	2244	40.4	2484
				N150	37.2	2205	40.6	2421
185	Berger	Juggernaut Target	2.795	N140	37.0	2192	40.3	2395
				N540	37.8	2254	41.1	2487
				N150	37.5	2211	40.6	2408
				N550	40.6	2293	43.4	2507
185	Lapua	D46	2.795	N135	36.0	2188	41.0	2495
				N140	37.6	2215	43.7A	2551
				N540	39.2	2335	43.8	2595
				N150	39.7	2388	43.8	2641
				N550	42.1	2398	46.8F	2697
185	Lapua	Mega	2.657	N135	36.9	2208	39.7	2398
				N140	39.0	2215	43.5	2480
				N540	40.6	2320	45.1	2628
				N150	40.9	2257	45.2	2480
				N550	42.6	2247	47.4	2520
185	Lapua	Scenar	2.795	N140	37.7	2316	41.5	2552
				N540	36.7	2379	42.6	2628
				N150	37.3	2179	42.0	2575
				N550	40.5	2203	46.9A	2608
190	Sierra	HPBT	2.795	N140	37.3	2222	42.9	2508
				N540	37.6	2204	43.7	2579
				N150	38.4	2218	43.6	2516
				N550	40.6	2279	47.2	2624
200	Speer	SP	2.795	N140	35.2	1999	41.2	2335
				N150	34.5	1982	42.2	2344
205	Berger	Elite Hunter	2.795	N140	36.0	2126	39.4C	2316
				N540	37.8	2195	41.5	2415
				N150	36.9	2136	40.4C	2323

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.308 Winchester cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N550	40.4	2224	44.4C	2457
208	Hornady	A-MAX	2.795	N140	35.2	2080	38.4C	2267
				N540	37.8	2192	41.2C	2395
				N150	37.0	2123	40.1C	2293
				N550	40.1	2208	43.8C	2418
220	Sako	Hammerhead	2.776	N140	35.5	1998	39.2	2192
				N540	35.0	1978	38.4	2182
				N150	34.9	1946	38.9	2152
				N550	40.1	2087	43.1	2270

A = Accuracy load C = Compressed load F = Case full [1] A muzzle velocity exceeding 3300 fps) may lead to severe barrel fouling!

.30-30 Winchester

Test barrel:	20”, 1 in 12” twist
Primers:	Large Rifle
Cases:	Remington, trim-to length 2.031”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
105	Lapua	HP	2.539	N120	22.8	2271	26.8	2562
				N130	26.3	2329	30.1	2623
				N133	28.7	2395	33.8	2732
130	Speer	FSP	2.547	N120	21.7	2024	25.8	2314
				N130	24.5	2103	28.4	2389
				N133	26.4	2143	30.4	2432
				N135	27.7	2129	32.0	2419
150	Speer	FSP	2.539	N120	19.1	1701	22.5	1946
				N130	22.1	1831	25.4	2070
				N133	22.8	1839	26.5	2086
				N135	26.4	1927	29.7	2165
				N140	28.5	1956	31.8	2203
170	Speer	FSP	2.539	N130	20.7	1692	24.7	1962
				N133	21.9	1678	25.8	1931
				N135	24.4	1759	27.7	1981
				N140	25.5	1747	29.2	2002

.300 Savage

Test barrel:	23½”, 1 in 12” twist
Primers:	Large Rifle
Cases:	Remington, trim-to length 1.862”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
100	Lapua	HP / OTCE	2.461	N120	33.9	2881	37.8	3199
				N130	37.1	2993	40.0	3235
				N133	39.9	2932	44.0	3192
125	Speer	TNT-HP	2.579	N120	31.8	2507	35.0	2746
				N130	34.1	2606	37.3	2831
				N133	39.1	2698	41.8	2900
150	Lapua	Mega	2.421	N130	29.2	2243	33.6	2464
				N135	34.6	2315	38.6	2533
				N140	37.6	2360	42.0	2602
165	Sierra	SBT	2.598	N133	33.9	2264	37.3	2490
				N135	36.2	2297	39.0	2507
				N140	37.9	2341	41.4	2582
185	Lapua	Mega	2.598	N135	33.2	2072	37.6	2313
				N140	35.5	2131	40.0	2346
				N540	36.4	2113	41.0	2362

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

7,62 x 53R (7,62 Russian)

Test barrel:	26”, 1 in 10” twist
Primers:	Large Rifle
Cases:	Lapua, trim-to length 2.098”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
100	Lapua	HPCE / OTCE	2.677	N120	40.0	3061	44.4	3346
				N130	43.2	3136	46.8	3399
				N133	46.0	3150	49.4F	3343
123	Lapua	FMJ	2.697	N130	43.3	2896	49.1	3171
				N133	47.4	2954	52.6	3209
				N135	49.2	2956	54.0	3229
150	Lapua	LockBase	2.874	N133	41.8	2661	45.1	2858
				N135	44.8	2707	48.1	2917
				N140	47.7	2779	51.7	3005
150	Lapua	Mega	2.791	N133	37.5	2384	43.6	2709
				N135	41.7	2497	47.1	2790
				N140	44.1	2540	49.2	2829
155	Lapua	Scenar	2.972	N135	42.3	2579	46.7	2839
				N140	44.8	2625	49.3	2900
				N150	46.2	2635	48.6A	2906
156	Sako	SPBT	2.776	N135	44.6	2589	49.0	2840
				N140	46.5	2612	49.2	2772
				N150	48.7	2655	51.4	2812
167	Lapua	Scenar	2.953	N140	46.3	2573	47.8A	2723
				N540	45.3	2541	48.1	2664
				N150	48.1	2590	50.5	2736
				N550	49.5	2616	52.5	2756
168	Sierra	HPBT	2.976	N140	45.4	2541	49.1	2723
				N540	46.7	2581	48.1	2664
				N150	47.5	2591	50.5	2736
				N550	50.3	2638	52.5	2756
170	Lapua	LockBase	2.874	N140	43.5	2536	46.9	2736
				N540	45.1	2569	49.1	2808
				N150	46.5	2575	50.0	2776
				N550	49.1	2582	53.4	2828
170	Lapua	Naturalis	2.835	N140	42.9	2477	46.9	2700
				N540	45.5	2539	49.5	2776
				N150	44.6	2516	48.5	2730
170	Lapua	Naturalis N558	2.835	N140	43.2	2441	47.1	2680
				N540	44.3	2510	48.6	2769
				N150	43.7	2461	47.7	2680
180	Lapua	Naturalis	2.854	N140	43.2	2323	47.4	2562
				N540	44.0	2343	47.8	2589
				N150	43.4	2323	47.8	2566
				N550	47.8	2365	52.5	2667
185	Lapua	D46	3.024	N140	44.3	2418	47.8	2641
				N540	46.0	2454	49.8	2700
				N150	45.2	2428	48.8	2644
				N560	48.5	2474	52.2	2723
185	Lapua	Mega	2.756	N140	43.2	2324	48.1	2585
				N540	44.4	2363	48.9	2621
				N150	45.1	2355	49.4	2598
				N550	48.3	2446	53.5	2740
185	Lapua	Scenar	2.953	N135	42.2	2384	46.0	2609
				N140	44.3	2429	46.8A	2581
				N540	43.9	2431	48.5	2684

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

7,62 x 53R (7,62 Russian) cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N150	45.9	2434	50.0	2674
				N550	46.7	2452	52.6	2779
200	Lapua	D166	2.992	N140	36.4	2083	40.0A	2326
				N540	38.1	2152	41.5	2362
				N150	36.4	2103	40.7	2333
200	Sierra	HPBT	3.035	N140	42.0	2292	47.4	2556
				N540	42.4	2306	47.2	2556
				N150	43.6	2316	48.5	2562
				N550	46.8	2389	51.5	2648
220	Sierra	HPBT	3.035	N540	40.6	2151	44.3	2388
				N150	40.3	2095	45.7	2388
				N550	43.9	2215	48.1	2470

A = Accuracy load F = Case full

7,5 x 55 Swiss GP31

Test barrel:	23½", 1 in 10" twist
Primers:	Large Rifle
Cases:	Norma, trim-to length 2.181"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
155	Lapua	Scenar	2.972	N140	46.3	2490	49.1	2661
				N540	47.1	2513	50.1	2762
				N150	46.8	2503	49.7	2674
167	Lapua	Scenar	2.972	N140	42.9	2297	45.7	2493
				N540	40.9	2297	47.4	2530
				N150	42.9	2306	47.5	2497
185	Lapua	Scenar	2.972	N140	37.8	2277	41.8	2329
				N540	42.3	2257	44.3	2369
				N150	44.0	2287	45.2	2372

.30-06 Springfield

Test barrel:	24½", 1 in 10" twist
Primers:	Large Rifle
Cases:	Lapua, trim-to length 2.484"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
57	Lapua	ALS[1)]	3.110	N110	31.1	3527	38.4	3994
100	Lapua	HP / OTCE	3.142	N130	39.8	2851	48.6	3274
				N133	47.4	2989	53.9	3333
				N135	50.1	3041	56.5	3389
				N140	54.0	3038	61.1	3425
				N540	55.4	3081	63.0	3471
110	Hornady	RN	2.913	N133	48.6	2864	53.7	3225
				N135	48.5	2835	53.5	3163
				N140	52.2	2890	57.7	3205
				N150	55.1	2969	60.8	3287
123	Lapua	FMJ	3.142	N130	40.3	2749	46.4	3064
				N133	45.5	2707	51.1	3025
				N135	49.2	2795	53.7	3074
				N140	51.7	2799	57.6	3123
				N540	53.9	2831	59.1	3143
				N150	55.4	2887	60.3	3202
125	Nosler	Ballistic Tip	3.307	N135	47.8	2838	52.5	3068
				N140	51.1	2881	56.2	3143
				N540	53.9	2887	60.3	3261

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.30-06 Springfield cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N150	51.5	2894	58.8	3169
				N550	57.1	2936	60.3	3117
130	Barnes	TSX BT	3.280	N530	46.8	2822	51.5	3068
				N140	49.4	2835	53.6	3071
				N540	51.4	2897	55.9	3150
				N150	50.2	2848	54.8	3077
				N550	54.6	2894	60.0	3173
150	Barnes	TTSX BT	3.339	N150	45.4	2559	49.5	2792
				N550	49.4	2621	54.3	2887
				N555	55.6	2743	61.1F	2982
				N160	56.8	2687	61.7F	2927
150	Hornady	SST	3.252	N530	43.5	2651	47.8	2867
				N140	47.1	2703	50.5	2894
				N540	48.6	2753	52.3	2972
				N150	47.5	2717	51.4	2923
				N550	51.9	2749	55.2	2963
				N160	56.5	2802	60.5	3012
150	Lapua	LockBase	3.307	N135	45.2	2589	49.8	2792
				N140	48.3	2631	53.2	2861
				N540	48.8	2598	54.6	2894
				N150	50.1	2635	55.2	2877
				N550	54.2	2687	59.7	3009
150	Lapua	Mega	3.028	N135	40.1	2333	47.7	2740
				N140	43.7	2402	51.2	2812
				N540	45.4	2434	53.5	2930
				N150	44.1	2549	49.7	2815
				N550	48.1	2628	53.7	2907
150	LOS	HT	3.268	N540	49.5	2835	54.0	3084
				N150	49.5	2799	53.9	3025
				N550	52.5	2841	58.6	3123
150	Norma	FMJ	3.228	N540	47.8	2710	52.8	2966
				N150	47.8	2697	51.9	2900
				N550	51.7	2736	55.4	2966
				N555	57.1	2831	61.0F	3012
				N160	56.3	2657	60.2F	2854
150	Red Moose	TARVAS	3.264	N140	50.5	2749	53.7	2943
				N540	52.5	2805	55.9	3035
				N150	50.9	2730	54.6	2940
				N550	55.6	2844	59.1	3051
150	Sierra	HPBT	3.307	N140	47.5	2618	52.8	2858
				N540	50.5	2654	56.2	2972
				N150	50.8	2648	56.3	2936
				N550	54.6	2733	59.7	3005
155	Brenneke	TAG	3.220	N150	44.6	2493	50.2	2762
				N550	50.6	2612	54.3	2848
				N160	52.9	2572	57.9C	2769
155	Lapua	Scenar	3.307	N140	42.9	2477	49.8	2789
				N540	47.1	2539	53.3	2907
				N150	43.0	2516	50.9	2831
				N550	49.2	2661	53.7	2949
				N160	53.2	2680	58.2	2959
155	Sierra	HPBT Palma	3.339	N140	47.8	2694	51.5	2874
				N540	48.8	2720	52.6	2946
				N150	48.1	2694	51.4	2884
				N550	53.2	2766	56.2	2959

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.30-06 Springfield cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N160	56.6	2772	60.2F	2940
156	Sako	SPBT	3.169	N135	45.8	2546	50.8	2792
				N140	47.8	2543	52.8	2818
				N150	49.1	2562	54.5	2831
165	Brenneke	TOG	3.189	N150	38.6	2238	44.8	2507
				N550	45.7	2421	51.4	2677
				N160	44.8	2323	54.5	2657
165	Hornady	GMX	3.287	N550	45.2	2451	48.3	2664
				N555	49.2	2523	53.9	2726
				N160	46.9	2428	53.4	2703
				N560	51.9	2434	55.7	2677
165	Red Moose	TARVAS	3.260	N540	50.5	2661	53.7	2877
				N150	48.3	2566	51.9	2759
				N550	52.8	2671	56.3	2874
				N555	58.2	2746	62.5C	2897
				N160	58.8	2687	63.3C	2894
165	Swift	Scirocco II	3.307	N540	46.0	2520	49.8	2740
				N150	43.2	2464	48.1	2667
				N550	49.5	2566	53.4	2782
				N555	51.5	2585	57.6	2828
				N160	52.6	2585	56.6	2785
				N560	55.9	2552	61.0	2795
167	Lapua	Scenar	3.307	N135	42.4	2449	46.6	2651
				N140	45.5	2418	50.1A	2664
				N540	45.4	2418	52.0	2743
				N150	47.2	2454	52.2	2694
				N550	49.7	2556	55.1	2805
				N160	55.5	2457	61.7	2762
168	Barnes	TSX	3.217	N540	42.1	2411	47.7	2703
				N550	45.7	2411	50.3	2707
				N160	50.2	2444	56.3	2733
168	Sierra	TMK	3.307	N140	44.6	2500	48.8	2730
				N540	46.0	2592	50.0	2835
				N150	45.5	2539	49.7	2772
				N550	48.9	2625	53.4	2874
170	Lapua	LockBase	3.307	N140	44.9	2352	50.0	2621
				N540	45.7	2392	51.5	2694
				N150	47.2	2411	52.6	2674
				N550	48.9	2448	55.7	2762
				N160	56.3	2510	62.5	2799
170	Lapua	Naturalis LR	3.228	N150	39.2	2470	48.1	2697
				N550	48.8	2497	52.8	2772
				N160	52.3	2480	57.7	2776
170	Lapua	Naturalis N558	3.228	N540	44.0	2425	48.6	2694
				N150	40.4	2277	46.1	2530
				N550	46.5	2490	51.4	2766
				N555	52.9	2579	56.8	2776
				N160	52.2	2549	57.6	2812
				N560	53.6	2480	60.3	2776
175	Lapua	Scenar-L	3.331	N540	46.8	2493	50.3	2720
				N150	46.3	2464	49.5	2648
				N550	50.9	2549	53.2	2733
				N555	53.2	2582	57.3	2766
				N160	55.6	2549	59.0	2740
				N560	56.6	2516	61.0C	2743

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.30-06 Springfield cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
178	Hornady	ELD-X	3.339	N540	46.5	2507	50.6	2746
				N150	46.6	2441	50.3	2671
				N550	49.2	2513	53.1	2753
				N555	52.6	2539	56.9	2733
				N160	54.2	2510	59.9	2766
180	Barnes	TSX	3.217	N540	42.0	2339	46.1	2569
				N550	44.6	2329	49.4	2585
				N160	48.5	2336	54.6	2598
180	Berger	Elite Hunter	3.339	N540	47.1	2569	51.1	2789
				N150	46.1	2497	50.3	2707
				N550	50.6	2575	54.3	2818
				N555	53.7	2569	57.9C	2772
				N160	54.6	2585	60.3	2828
				N560	57.3	2575	63.0	2841
180	Hornady	GMX	3.264	N140	41.4	2254	44.4	2418
				N540	41.8	2287	45.4	2464
				N150	39.8	2185	44.9	2434
				N550	43.7	2280	48.3	2536
				N555	48.6	2388	54.9	2625
				N160	45.8	2280	52.6	2556
				N560	53.6	2349	61.1	2648
180	Lapua	Naturalis	3.165	N140	42.7	2274	48.3	2572
				N150	42.4	2352	48.3	2589
				N550	49.4	2470	54.0	2723
				N160	52.5	2510	55.9	2687
				N560	53.2	2405	59.7	2720
180	Norma	Oryx	3.228	N150	41.1	2359	46.0	2556
				N550	44.1	2402	48.5	2612
				N160	49.5	2454	55.7	2687
				N560	53.1	2454	57.7	2677
180	Sierra	SBT	3.331	N540	45.4	2451	49.2	2667
				N150	44.1	2405	49.2	2612
				N550	48.1	2503	52.2	2710
				N555	54.0	2585	59.4C	2808
				N160	54.6	2523	59.0	2730
185	Berger	Classic Hunter	3.331	N540	47.8	2546	51.9	2762
				N150	46.5	2461	51.1	2690
				N550	50.9	2543	54.5	2776
				N555	53.9	2539	57.4C	2717
				N160	55.1	2533	60.0	2782
				N560	58.2	2552	63.4	2822
185	Berger	Hybrid Target	3.307	N150	45.7	2448	49.5	2667
				N550	49.2	2536	52.6	2756
				N160	53.9	2516	59.4	2762
				N560	56.2	2510	61.4	2789
185	Brenneke	Basic	3.189	N540	44.4	2408	49.5	2644
				N550	47.5	2448	50.9	2638
				N160	52.8	2461	56.9	2664
185	Lapua	Mega	3.130	N540	43.5	2388	48.9	2661
				N150	42.4	2270	50.6	2595
				N550	46.6	2388	53.4	2664
				N160	52.2	2425	57.2	2674
				N560	54.0	2418	60.0	2710
185	Lapua	Scenar	3.307	N540	44.1	2257	48.8	2530
				N150	44.4	2283	50.3A	2552

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.30-06 Springfield cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N550	46.6	2300	51.8	2598
				N160	53.7	2375	59.4	2654
				N560	54.3	2375	61.9	2677
190	Sierra	HPBT	3.307	N150	44.7	2280	49.4	2516
				N550	47.4	2323	53.9	2664
				N160	52.8	2375	58.8	2608
				N560	55.1	2365	62.3	2707
200	Lapua	Mega	3.130	N150	42.4	2270	47.8	2451
				N550	48.1	2395	50.6	2516
				N160	52.2	2425	53.7	2503
200	Nosler	Partition	3.307	N150	43.0	2195	47.5	2375
				N160	52.2	2310	57.6	2510
200	Swift	A-Frame	3.307	N550	49.2	2362	52.8	2572
				N160	52.5	2323	56.8	2552
				N165	59.4	2428	63.9	2638
205	Berger	Elite Hunter	3.327	N140	42.1	2244	45.7	2431
				N540	44.3	2323	48.0	2513
				N150	43.2	2254	46.9	2434
				N550	46.3	2343	49.8	2533
				N555	51.4	2405	56.0	2605
				N160	52.3	2369	56.3	2559
208	Berger	Long Range Hybrid Target	3.339	N140	42.0	2224	44.8	2382
				N540	43.5	2290	46.6	2480
				N150	42.4	2221	46.0	2405
				N550	45.5	2313	49.2	2510
				N555	52.2	2408	56.0	2585
				N160	52.5	2356	56.3C	2556
208	Hornady	A-MAX	3.315	N550	46.8	2333	50.6	2523
				N160	50.5	2333	54.9	2539
				N560	54.9	2402	59.1	2618
				N565	55.1	2392	60.0	2566
215	Berger	Hybrid Target	3.339	N550	46.9	2310	50.6	2520
				N555	50.2	2313	54.5	2497
				N165	58.0	2385	61.0	2539
				N560	54.8	2359	60.8	2625
220	Berger	Long Range Hybrid Target	3.339	N150	41.4	2139	44.6	2303
				N550	44.3	2228	48.3	2428
				N555	51.2	2333	55.2C	2516
				N160	50.9	2274	54.5	2461
220	Hornady	RN	3.307	N160	50.8	2146	56.0	2369
				N560	53.5	2205	61.3	2516
220	Lapua	Scenar-L	3.339	N150	41.8	2116	45.7	2300
				N550	46.3	2228	49.1	2411
				N555	48.6	2251	52.8	2431
				N160	49.4	2211	54.6	2408
				N165	55.6	2297	60.0C	2493
				N560	52.8	2244	57.3C	2464
220	Rhino	Solid Shank	3.213	N150	41.1	2073	45.2	2251
				N550	46.0	2182	48.6	2339
				N160	49.4	2205	53.2	2379
				N560	53.7	2231	59.9C	2467
				N565	57.9	2287	61.6C	2461
240	Woodleigh	Weldcore	3.307	N165	53.2	2159	60.2	2392
				N560	51.1	2123	56.6	2382
				N565	53.7	2188	59.7	2402

A = Accuracy load C = Compressed load F = Case full [1] A muzzle velocity exceeding 3300 fps) may lead to severe barrel fouling!

.300 H&H Magnum

Test barrel:	24”, 1 in 10” twist
Primers:	Large Rifle Magnum
Cases:	Winchester, trim-to length 2.842”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
155	Lapua	Scenar	3.598	N150	58.0	2913	61.3	3068
				N550	61.4	2999	65.8	3187
				N160	66.0	2982	70.5	3174
185	Lapua	Scenar	3.598	N160	60.9	2690	64.9	2862
				N165	67.1	2766	71.4	2937
				N560	66.5	2792	70.9	2978
200	Sierra	HPBT	3.598	N160	59.7	2598	62.4	2719
				N165	65.4	2667	68.6	2799
				N560	65.0	2694	68.1	2834

.300 WSM

Test barrel:	24½”, 1 in 10” twist
Primers:	Large Rifle Magnum
Cases:	Winchester, trim-to length 2.091”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
100	Lapua	HPCE / OTCE	2.638	N540	60.3	3419	66.2	3760
				N150	59.4	3366	65.0	3632
				N550	63.9	3369	70.2	3540
123	Lapua	FMJ	2.709	N150	59.0	3159	63.3	3386
				N550	62.7	3117	67.7	3468
				N160	66.1	3127	72.5	3428
150	Lapua	LockBase	2.835	N550	57.7	2894	64.0	3212
				N160	60.0	2881	69.4	3209
				N560	67.3	2907	74.2	3245
150	Lapua	Mega	2.618	N550	54.2	2822	61.7	3136
				N160	57.9	2785	67.0	3120
				N560	63.9	2828	71.0	3179
165	Swift	Scirocco	2.894	N550	58.2	2828	64.2	3140
				N160	59.7	2762	66.8	3074
				N165	66.7	2848	73.1	3156
				N560	65.3	2815	71.5	3146
167	Lapua	Scenar	2.839	N550	54.9	2730	61.3	3025
				N160	53.9	2598	64.0	2979
				N560	62.2	2733	69.1	3054
170	Lapua	Naturalis	2.839	N160	52.2	2592	61.9	2917
				N165	60.2	2694	68.7	2979
				N560	61.0	2671	67.9	3005
170	Lapua	Naturalis N558	2.618	N160	54.2	2592	63.6	2923
				N165	61.1	2680	69.4	2956
				N560	60.5	2661	67.9	2995
185	Lapua	Mega	2.752	N550	52.6	2572	59.1	2844
				N160	51.7	2467	60.5	2792
				N560	61.0	2628	66.8	2890
185	Lapua	Scenar	3.031	N160	59.1	2621	65.1	2894
				N165	64.5	2700	71.3	2989
				N560	63.4	2671	69.4	2972
200	Lapua	Mega	2.756	N160	56.6	2457	64.0	2746
				N165	63.3	2549	70.4	2841
				N560	61.4	2533	68.5	2835
200	Lapua	Naturalis	2.677	N160	54.9	2405	61.7	2674

.300 WSM

cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N165	60.2	2487	68.7	2736
				N560	58.6	2438	66.4	2749

.300 Norma Magnum

Test barrel:	26”, 1 in 10” twist
Primers:	Large Rifle Magnum
Cases:	Lapua, trim-to length 2.480”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
170	Lapua	Naturalis N558	3.287	N560	69.4	2789	81.8	3196
				N565	75.6	2854	86.0	3205
				N170	69.9	2690	87.8	3140
				N570	79.5	2910	89.7	3264
185	Lapua	Scenar	3.406	N560	72.8	2769	82.6	3110
				N565	75.8	2831	85.0	3140
				N170	76.9	2707	88.7	3081
				N570	79.6	2828	88.7	3182
215	Berger	Hybrid Target	3.406	N560	70.4	2592	78.7	2917
				N565	72.7	2621	81.0	2930
				N170	71.8	2536	84.9	2890
				N570	77.9	2684	87.3	3009
220	Lapua	Scenar-L	3.406	N560	66.4	2500	76.9	2841
				N565	68.1	2523	79.8	2867
				N170	66.4	2559	81.8	2808
				N570	71.3	2559	82.9	2910
230	Berger	Hybrid Target	3.406	N560	67.1	2474	75.9	2799
				N565	69.9	2503	78.9	2808
				N570	71.0	2507	83.5	2861

.300 Winchester Magnum

Test barrel:	24½”, 1 in 10” twist
Primers:	Large Rifle Magnum
Cases:	Lapua, trim-to length 2.610”

CAUTION: Loads less than the listed starting loads may cause excessive chamber pressure and must not be used!

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
110	Hornady	SP	3.268	N160	83.3	3488	87.1	3679
123	Lapua	FMJ	3.224	N150	61.6	3094	69.9	3383
				N550	65.7	3110	72.8	3448
				N160	69.0	3081	77.9	3409
150	Lapua	LockBase	3.307	N160	70.8	2900	78.4	3222
				N165	78.7	2953	84.1	3212
				N560	75.6	2949	81.6	3261
150	Lapua	Mega	3.130	N160	58.5	2674	69.1	3068
				N165	66.2	2769	81.0	3120
				N560	73.5	2887	81.2	3225
150	Nosler	Ballistic Tip	3.339	N160	73.9	2994	77.3	3234
				N165	80.2	3084	82.6C	3271
154	Lapua	Scenar	3.307	N160	70.1	2828	76.2	3153
				N165	77.8	2904	81.0C	3077
				N560	74.2	2884	81.6	3225
165	Hornady	GMX	3.327	N160	57.7	2664	65.6	2956
				N165	69.4	2881	81.8	3159
				N560	68.7	2851	77.0	3166

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.300 Winchester Magnum

cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N565	69.3	2822	81.3	3176
165	LOS	HT	3.339	N160	69.0	2907	75.6	3176
				N165	74.7	2976	81.6	3235
				N560	73.6	2989	79.5	3261
				N565	75.9	2999	83.6	3251
167	Lapua	Scenar	3.339	N160	72.4	2887	77.3	3117
				N165	77.5	2927	83.2C	3171
				N560	72.5	2776	78.1	3081
168	Sierra	TMK	3.327	N165	72.5	2874	79.6	3143
				N560	70.1	2877	76.9	3143
				N565	73.8	2917	80.4	3163
170	Lapua	LockBase	3.339	N160	68.4	2785	74.4	3071
				N165	74.4	2841	79.5	3120
				N560	74.1	2792	78.5	3123
170	Lapua	Naturalis	3.339	N160	57.1	2530	63.7	2825
				N165	61.7	2589	74.1A	2949
				N560	65.7	2684	73.8	3028
170	Lapua	Naturalis N558	3.307	N160	63.1	2703	71.5	2999
				N165	66.7	2726	75.9	3035
				N560	68.4	2782	76.4	3094
175	Lapua	Scenar-L	3.307	N160	67.6	2664	73.9	2956
				N165	72.8	2726	79.5	3045
				N560	71.0	2726	78.1	3048
180	Lapua	Naturalis	3.374[1)]	N160	62.5	2743	69.9	2881
				N165	68.7	2753	76.1	2910
				N560	74.1	2864	77.3	2995
180	Nosler	Partition	3.339	N160	69.8	2765	76.1	3004
				N165	75.0	2795	81.1	3033
185	Lapua	Mega	3.248	N160	52.5	2362	70.7	2818
				N165	60.2	2470	79.8	2907
				N560	69.6	2631	77.5	2956
185	Lapua	Scenar	3.339	N160	65.7	2641	72.5	2933
				N165	72.8	2707	78.7A	3002
				N560	71.0	2677	77.3	3009
190	Sierra	HPBT	3.339	N165	69.2	2676	77.3	2893
				N560	66.9	2701	75.3	2947
				N170	67.8	2586	78.0	2826
200	Barnes	LRX BT	3.327	N165	52.8	2329	62.5	2615
				N560	57.9	2464	67.7	2782
				N565	59.0	2470	67.4	2756
200	Berger	Hybrid Target	3.339	N160	59.3	2487	67.3	2762
				N165	67.9	2615	75.2	2864
				N560	66.4	2644	72.5	2904
				N565	68.8	2680	75.6	2927
200	Lapua	Mega	3.327	N165	63.3	2454	71.7	2700
				N560	61.7	2470	70.2	2736
				N170	66.5	2428	76.4	2703
200	Lapua	Naturalis	3.307	N165	56.3	2306	66.2	2625
				N560	61.4	2444	67.9	2687
				N170	65.3	2388	72.5	2657
200	Sierra	HPBT	3.339	N160	62.0	2495	70.3	2741
				N165	64.0	2518	73.8	2774
				N560	60.9	2526	70.9	2795
				N170	62.4	2438	74.8	2717
				N570	74.7	2615	81.9	2923

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.300 Winchester Magnum cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
200	Woodleigh	Weldcore	3.307	N560	58.0	2484	68.1	2792
				N565	56.2	2457	71.6	2822
215	Berger	Hybrid Target	3.366	N165	62.3	2444	71.8	2717
				N560	63.9	2533	70.4	2779
				N565	65.7	2556	73.1	2805
220	Lapua	Scenar-L	3.327	N165	66.2	2372	75.3	2677
				N560	67.0	2464	73.1	2723
				N170	71.5	2408	80.2	2667
				N570	77.8	2566	81.8	2753
230	Berger	Hybrid Target	3.339	N165	61.9	2375	69.8	2615
				N560	62.2	2438	69.1	2694
				N565	65.9	2493	72.2	2713

A = Accuracy load C = Compressed load [1] The cartridge overall length exceeds the CIP maximum.

.300 Weatherby Magnum

Test barrel:	26”, 1 in 10” twist
Primers:	Large Rifle Magnum
Cases:	Weatherby, trim-to length 2.815”

CAUTION: Loads less than the listed starting loads may cause excessive chamber pressure and must not be used!

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
125	Nosler	Ballistic Tip	3.543	N160	80.2	3430	85.2	3623
150	Nosler	Ballistic Tip	3.547	N160	75.2	3102	80.6	3291
				N165	81.3	3113	86.3	3343
165	Speer	SPBT	3.555	N160	74.8	3028	79.6	3200
				N165	80.9	3057	85.9	3228
180	Hornady	SP	3.555	N160	71.9	2872	77.3	3050
				N165	77.7	2912	83.8	3098
200	Lapua	Naturalis	3.484	N165	58.6	2493	66.2	2625
				N560	64.2	2677	68.5	2762
				N170	69.4	2625	74.4	2756
200	Sierra	HPBT	3.555	N165	67.7	2609	75.1	2814
				N560	69.0	2694	74.2	2862
				N170	68.5	2562	78.9	2817

.300 Lapua Magnum

Test barrel:	27”, 1 in 9½” twist
Primers:	Large Rifle Magnum
Cases:	Lapua, trim-to length 2.713”

CAUTION: Loads less than the listed starting loads may cause excessive chamber pressure and must not be used!

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
155	Lapua	Scenar	3.661	N160	75.5	3192	80.7	3355
				N560	80.9	3192	88.4	3468
				N170	92.7	3258	99.0	3491
170	Lapua	LockBase	3.661	N560	79.0	3091	84.7	3293
				N170	87.3	3081	94.1	3292
				24N41	94.9	3100	101.2	3331
185	Lapua	Scenar	3.661	N560	74.4	2884	81.9	3131
				N170	83.3	2930	90.9	3158
				24N41	91.5	3005	97.2	3166
200	Sierra	HPBT	3.661	N170	78.5	2792	85.8	3003
				24N41	85.8	2841	92.8	3044

.300 Lapua Magnum cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
220	Sierra	HPBT	3.661	24N41	78.7	2638	87.4	2871
				20N29	93.5	2808	99.6	2980

.300 Remington Ultra Magnum

Test barrel:	26”, 1 in 10” twist
Primers:	Large Rifle Magnum
Cases:	Remington, trim-to length 2.839”

CAUTION: Loads less than the listed starting loads may cause excessive chamber pressure and must not be used!

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
155	Lapua	Scenar	3.524	N160	81.6	3140	89.5	3425
				N165	86.4	3123	95.5	3451
				N560	86.4	2838	94.0	3501
165	Nosler	Partition	3.524	N160	76.7	2940	87.0	3214
				N165	85.9	3015	94.4	3311
				N560	83.2	2959	94.5	3371
167	Lapua	Scenar	3.543	N165	77.9	2894	94.1	3304
				N560	81.6	3035	91.8	3376
				N170	82.9	2936	100.0	3317
170	Lapua	LockBase	3.543	N165	70.4	2792	88.4	3202
				N560	73.0	2949	88.6	3301
				N170	77.5	2838	98.1	3255
180	Barnes	XFB	3.524	N165	69.7	2733	83.3	3079
				N560	71.7	2802	86.3	3137
				N170	75.6	2756	94.4	3124
185	Lapua	Mega	3.484	N165	73.3	2710	89.8	3074
				N560	79.9	2867	90.0	3179
				N170	80.6	2746	97.4	3127
185	Lapua	Scenar	3.598	N165	79.9	2838	94.0	3148
				N560	84.2	2913	91.5	3213
				N170	92.3	2871	98.7	3170
				N570	91.0	2979	100.9	3356
200	Lapua	Mega	3.516	N165	76.4	2726	88.0	3025
				N560	80.9	2927	90.3	3146
				N570	88.0	2877	98.3	3143
200	Lapua	Naturalis	3.512	N165	73.3	2710	86.7	3028
				N560	75.1	2762	85.9	3061
				N170	79.6	2733	89.8	2992
				N570	83.9	2822	92.7	3153
				24N41	86.4	2720	94.3	2999

.30-.378 Weatherby Magnum

Test barrel:	26½”, 1 in 10” twist
Primers:	Large Rifle Magnum
Cases:	Weatherby, trim-to length 2.902”

CAUTION: Loads less than the listed starting loads may cause excessive chamber pressure and must not be used!

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
155	Lapua	Scenar	3.661	N160	94.1	3294	98.9	3484
				N165	103.1	3337	107.1	3527
				N170	111.6	3307	116.3	3507
170	Lapua	LockBase	3.661	N160	86.9	3061	91.2	3192
				N165	97.7	3140	102.9	3287

.30-.378 Weatherby Magnum cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N170	107.1	3140	111.1	3307
				24N41	112.8	3215	120.8	3478
185	Lapua	Scenar	3.661	N160	86.6	2995	91.8	3159
				N560	92.0	3025	96.6	3219
				N170	103.2	3104	109.9	3310
				24N41	110.5	3146	117.0	3356
				20N29	122.5	3186	126.2	3291
200	Sierra	HPBT	3.661	24N41	74.1	2267	107.4	3114
				20N29	116.0	3012	121.6	3215
220	Sierra	HPBT	3.661	20N29	110.2	2868	117.9	3077

7,62 x 39

Test barrel:	16”, 1 in 9½” twist
Primers:	Large Rifle
Cases:	Lapua, trim-to length 1.516”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
57	Lapua	ALS	2.193	N110	24.1	3035	27.5	3233
100	Lapua	HP / OTCE	2.181	N110	18.8	2247	21.8	2503
				N120	25.5	2257	27.8	2494
110	H&N	RN HS	1.988	N110	13.9	1634	15.4	1729
				N120	18.5	1670	19.3	1798
123	Lapua	FMJ	2.193	N120	24.7	2175	27.3	2361
125	Sierra	TMK	2.283	N110	16.2	1991	18.4	2152
				N120	23.1	2156	25.3	2359
				N130	25.3	2165	27.8	2336
150	Lapua	LockBase	2.205	N120	22.1	1985	24.4	2185
150	X-Treme Bullets	Flat Point	2.165	N110	13.9	1526	15.4	1755
				N120	17.0	1391	20.1	1755
200	Lapua	B416 Subsonic	2.205	N110	13.4	1427	15.0	1578
				N120	18.7	1617	20.5	1778
				N130	20.1	1637	22.4	1814

.303 British

Test barrel:	23½”, 1 in 10” twist
Primers:	Large Rifle
Cases:	Remington, trim-to length 2.213”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
57	Lapua	ALS[1)]	2.886	N110	25.9	3219	34.1	3865
123	Lapua	FMJ	2.886	N120	33.6	2687	36.6	2864
				N130	36.9	2756	40.0	2936
				N133	39.8	2815	42.6	2999
150	Lapua	Mega	2.776	N130	36.7	2726	39.3	2900
				N133	38.4	2753	41.7	2949
174	Sierra	HPBT	3.071	N135	35.3	2333	38.4	2497
				N140	38.4	2379	41.7	2566
				N540	39.7	2388	42.9	2595
180	Sierra	Spitzer	3.071	N135	33.2	2178	36.4	2343
				N140	36.0	2241	39.7	2425
				N540	38.3	2287	41.7	2487

[1)] A muzzle velocity exceeding 3300 fps) may lead to severe barrel fouling!

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

8 x 57 IS (8 mm Mauser)

Test barrel:	24½”, 1 in 9½” twist
Primers:	Large Rifle
Cases:	Lapua, trim-to length 2.236”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
125	Hornady	SP	2.913	N130	43.2	2867	48.1	3117
				N133	48.5	2897	54.0	3212
				N135	49.7	2894	55.1	3196
150	Speer	Spitzer	2.992	N135	45.8	2628	51.1	2887
				N140	48.3	2621	53.9	2927
160	Barnes	TTSX	3.031	N135	41.2	2467	46.6	2736
				N140	44.3	2516	48.5	2759
				N540	46.5	2566	51.4	2854
170	Speer	SP	3.031	N135	44.1	2454	49.1	2720
				N140	46.1	2451	51.4	2749
				N150	48.3	2497	53.7	2799
180	Lapua	Naturalis N559	3.189	N135	41.7	2395	45.5	2635
				N140	44.3	2438	48.0	2638
				N540	44.6	2451	48.5	2671
				N150	44.6	2441	48.5	2654
181	Brenneke	TOG	3.031	N140	43.8	2313	48.8	2566
				N540	45.2	2448	49.7	2697
				N150	45.2	2372	49.1	2585
181	Nosler	E-Tip	3.031	N135	39.8	2336	45.7	2595
				N140	42.7	2359	48.0	2608
				N540	42.9	2356	49.1	2651
				N150	44.8	2411	48.6	2628
198	Brenneke	TIG	3.031	N140	43.5	2287	48.1	2490
				N540	44.9	2346	49.2	2569
				N150	45.2	2323	49.4	2520
200	Barnes	TSX	3.039	N540	42.7	2221	48.0	2493
				N150	43.1	2228	47.5	2444
				N550	47.8	2300	52.5	2516
200	Nosler	Accubond	3.114	N540	42.4	2300	46.3	2510
				N150	43.1	2274	47.4	2513
				N550	45.8	2339	51.4	2572
				N160	51.2	2316	54.0	2448
200	Nosler	Partition	3.189	N160	50.5	2234	56.2	2575
200	Sierra	MatchKing	3.114	N540	43.5	2346	47.1	2562
				N150	42.3	2293	46.8	2507
				N550	46.3	2349	50.2	2569
200	Speer	Spitzer	3.130	N140	42.7	2169	47.5	2490
				N150	44.1	2231	49.2	2503
200	Swift	A-Frame	2.953	N540	44.0	2343	48.3	2585
				N150	44.9	2326	49.7F	2579
				N550	46.1	2339	49.2	2536
220	Sierra	Game King	3.189	N140	42.3	2215	46.8	2434
				N540	43.1	2257	47.7	2490
				N150	42.4	2228	47.4	2448
				N550	45.1	2260	50.2	2507
				N160	52.2	2346	52.5F	2369

F = Case full

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

8 x 57 IRS

Test barrel:	24½”, 1 in 9½” twist
Primers:	Large Rifle
Cases:	Lapua, trim-to length 2.236”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
150	Speer	Spitzer	2.953	N140	48.5	2615	51.7	2815
				N540	48.1	2602	54.3	2920
				N150	43.7	2336	47.5	2920
180	Lapua	Naturalis N559	3.130	N135	38.1	2303	40.9	2434
				N140	40.6	2333	43.7	2487
				N540	42.7	2405	45.4	2552
				N150	40.6	2352	43.7	2487
198	Brenneke	TIG	3.031	N140	43.2	2323	45.5	2425
				N540	45.2	2365	47.4	2487

8 x 68 S

Test barrel:	26”, 1 in 11” twist
Primers:	Large Rifle
Cases:	RWS, trim-to length 2.646”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
150	Sierra	Pro Hunter Spitzer	3.402	N150	61.7	3031	69.1	3350
				N550	66.7	3104	73.3	3425
				N160	72.4	3100	79.0	3383
160	Barnes	TTSX	3.402	N150	54.8	2789	62.8	3123
				N550	58.5	2874	66.1	3245
				N160	64.2	2877	72.1	3238
174	Brenneke	TAG	3.425	N550	59.4	2792	65.9	3091
				N160	62.0	2746	71.8	3107
				N560	67.9	2799	76.7	3140
180	Lapua	Naturalis N559	3.402	N150	54.3	2687	61.7	2976
				N550	59.1	2779	65.1	3068
				N160	63.9	2756	71.3	3074
180	Nosler	E-Tip	3.425	N150	51.7	2592	60.5	2904
				N550	58.5	2707	65.0	3022
				N160	59.0	2635	71.3	3028
200	Barnes	TSX	3.425	N160	55.6	2411	65.0	2802
				N560	64.0	2569	71.8	2913
				N565	68.4	2612	77.2	2884
200	Nosler	Accubond	3.425	N550	58.5	2654	64.2	2913
				N160	63.7	2657	70.4	2920
				N560	68.7	2674	76.7	2992
219	Brenneke	TOG	3.425	N160	55.2	2323	63.4	2641
				N560	61.0	2415	68.2	2726
				N565	64.5	2457	74.8	2782

.338 Winchester Magnum

Test barrel:	24½”, 1 in 10” twist
Primers:	Large Rifle Magnum
Cases:	Lapua, trim-to length 2.492”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
200	Hornady	SP	3.346[1)]	N540	60.2	2671	67.0	2913
				N150	59.4	2628	67.0	2864
				N550	64.0	2697	71.1	2949
				N160	72.7	2362	80.7F	2969

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.338 Winchester Magnum cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
225	Hornady	SP	3.307	N160	70.4	2617	74.1	2809
				N560	73.8	2689	79.4	2785
231	Lapua	Naturalis LR	3.319	N550	58.6	2467	66.5	2749
				N160	65.6	2464	73.1	2766
				N560	69.4	2523	74.8F	2730
250	Lapua	Scenar	3.307	N550	62.7	2509	65.8	2657
				N160	65.3	2494	70.1	2669
				N560	72.9	2581	77.5	2765
250	Sierra	SBT	3.339	N160	65.6	2488	70.7	2659
				N165	71.4	2555	77.4	2738
				N560	67.7	2540	73.7	2728
250	Speer	Grand Slam	3.299	N160	69.3	2470	74.5	2655
				N165	74.3	2511	80.0	2698
275	Speer	SP	3.346[1)]	N165	71.5	2398	77.3	2576
275	Swift	A-Frame	3.406[1)]	N160	54.8	2080	64.0	2352
				N165	58.5	2136	67.1	2379
				N560	58.0	2136	66.3	2398
300	Sierra	HPBT	3.339	N160	62.7	2270	68.3	2445
				N560	64.7	2295	71.9	2479
300	Woodleigh	RNSP	3.287	N160	55.2	2054	63.3	2270
				N165	60.5	2090	68.8	2333
				N560	60.5	2159	70.2	2398

F = Case full [1)] The cartridge overall length exceeds the CIP maximum.

.338 Lapua Magnum

Test barrel:	27½”, 1 in 10” twist
Primers:	Large Rifle Magnum
Cases:	Lapua, trim-to length 2.714”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
200	Hornady	SP	3.583	N160	89.6	3038	96.0	3259
				N165	96.3	3068	102.8	3297
225	Hornady	SP	3.583	N160	78.3	2723	87.0	2953
				N165	83.2	2753	92.8	3000
				N560	82.6	2838	90.5	3065
				N170	88.8	2779	97.6	3009
231	Lapua	Naturalis LR	3.563	N160	73.0	2602	82.6	2874
				N165	77.2	2615	89.5	2943
				N560	80.1	2680	88.7	2995
250	Berger	Hybrid OTM Tactical	3.681	N165	78.7	2582	89.5	2851
				N560	79.6	2635	89.0	2907
				N565	85.3	2697	92.1	2920
				N170	86.3	2618	94.3	2858
				N570	89.7	2713	96.9	2959
250	Lapua	LockBase	3.602	N165	75.5	2562	87.5	2858
				N560	77.8	2562	88.1	2936
				N565	80.6	2648	90.9	2897
				N170	82.7	2589	96.1	2927
				N570	86.4	2723	96.0	3018
250	Lapua	Scenar	3.681	N165	76.4	2566	86.6	2835
				N560	76.2	2552	84.9	2900
				N565	80.4	2635	90.3	2881
				N170	84.9	2615	95.2	2897
				N570	86.0	2720	96.0	3018
250	Swift	A-Frame	3.496	N165	69.1	2418	83.3	2736

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.338 Lapua Magnum cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N560	68.1	2470	83.0	2825
				N570	81.2	2608	93.4	2917
265	Barnes	LRX BT	3.670	N565	73,9	2490	83.2	2723
280	Barnes	LRX BT	3.681	N565	69.9	2352	79.6	2598
285	Barnes	TSX	3.661	N560	63.6	2244	73.8	2533
				N170	66.4	2146	80.2	2520
				N570	72.5	2388	81.9	2644
285	Hornady	HPBT	3.681	N165	74.2	2405	84.7	2664
				N560	76.1	2490	84.6	2746
				N170	81.0	2431	92.0	2726
				N570	84.0	2562	93.7	2831
300	Berger	Elite Hunter	3.681	N560	72.8	2362	81.3	2592
				N565	75.5	2375	85.6	2638
				N570	80.7	2441	89.5	2674
300	Berger	HPBT	3.681	N560	71.6	2441	82.4	2726
				N170	71.3	2362	87.7	2700
				N570	65.4	2333	85.6	2733
300	Lapua	Scenar	3.681	N165	69.0	2247	81.8	2575
				N560	71.6	2326	82.3	2671
				N170	75.6	2336	88.6	2661
				N570	80.1	2402	92.4	2746
				24N41	83.8	2392	96.1	2694
300	Sierra	HPBT	3.602	N165	70.5	2281	80.2	2513
				N560	72.5	2370	82.8	2624
				N170	79.4	2360	90.4	2599
				N570	83.2	2546	91.3	2710
				24N41	85.2	2410	96.8	2653

9,3 x 62

Test barrel:	22¾", 1 in 14" twist
Primers:	Large Rifle
Cases:	Lapua, trim-to length 2.433"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
220	Lapua	Naturalis LR	3.228	N530	46.4	2254	53.7	2598
				N135	45.5	2172	56.6	2566
				N140	53.9	2405	59.9	2648
225	Brenneke	TAG	3.228	N530	48.8	2356	54.3	2582
				N540	55.9	2444	62.3	2680
				N150	55.7	2418	61.3	2625
250	Barnes	TTSX BT	3.291	N130	36.3	1873	43.1	2142
				N530	42.4	2021	48.5	2303
				N135	41.5	1988	48.3	2274
				N140	47.1	2083	55.2	2379
				N540	48.0	2064	54.6	2388
250	Lapua	Naturalis	3.283	N140	53.1	2270	58.2	2500
				N540	52.5	2303	59.3	2543
				N150	54.5	2300	58.8	2487
250	Nosler	Accubond	3.228	N530	46.1	2224	51.2	2444
				N140	52.0	2274	57.6	2493
				N540	53.4	2300	61.4	2605
250	Woodleigh	Weldcore	3.173	N130	39.7	2041	47.5	2320
				N135	50.2	2218	55.7	2451
270	Lapua	Naturalis	3.248	N135	43.2	2106	50.9	2293
				N140	52.3	2208	57.1	2405

9,3 x 62 cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N540	54.3	2228	58.2	2398
				N150	54.0	2244	58.9	2444
285	Lapua	Mega	3.236	N135	44.0	1985	48.5	2218
				N140	46.3	2014	52.3	2208
				N540	47.1	1991	54.0	2277
				N150	48.9	2057	55.6	2297
286	Barnes	TSX	3.248	N540	48.1	1991	53.6	2228
				N150	43.7	1834	51.2	2146
				N550	44.4	1752	60.8	2287
286	Woodleigh	Weldcore	3.264	N130	37.0	1824	43.8	2054
293	Brenneke	TUG	3.228	N540	51.1	2083	55.1	2287
				N150	49.4	2031	55.2	2234
				N550	54.0	2093	60.0	2306
300	Swift	A-Frame	3.146	N540	45.1	1909	50.8	2142
				N150	44.6	1867	50.2	2041
				N550	48.3	1936	54.0	2159
320	Woodleigh	RNSP	3.228	N540	53.2	2067	57.4	2244
				N150	54.0	2057	57.6	2215
				N550	57.1	2087	62.3	2297

9,3 x 66 Sako

Test barrel:	24¾", 1 in 14" twist
Primers:	Large Rifle
Cases:	Sako, trim-to length 2.591"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
270	Lapua	Naturalis	3.346	N140	52.5	2244	61.7	2536
				N540	59.3	2415	64.0	2589
				N550	63.7	2444	67.4F	2595
300	Swift	A-Frame	3.307	N540	47.2	2041	54.5	2260
				N150	47.7	1965	52.8	2198
				N550	54.0	2159	57.9	2303
320	Woodleigh	RNSP	3.346	N540	53.5	2224	60.3	2339
				N150	53.1	1975	58.6	2290
				N550	57.1	2133	65.6	2405

F = Case full

9,3 x 74R

Test barrel:	24", 1 in 14" twist
Primers:	Large Rifle
Cases:	RWS, trim-to length 2.933"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
193	S&B	JFP	3.500	N120	46.0	2441	51.4	2656
				N130	52.8	2595	56.5	2746
220	Lapua	Naturalis LR	3.717	N530	46.9	2323	52.5	2566
				N135	46.6	2303	54.0	2559
				N140	52.3	2365	59.9	2644
231	Norma	SP	3.626	N140	57.4	2356	66.2	2656
250	Lapua	Naturalis N560	3.701	N135	46.0	2218	50.9	2398
				N140	48.0	2251	53.4	2428
				N540	48.6	2264	55.7	2490
256	Sako	SP	3.630	N140	54.0	2146	61.8	2463
270	Lapua	Naturalis	3.701	N135	47.8	2129	50.9	2316
				N140	50.9	2152	57.9	2349

9,3 x 74R

cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N540	53.7	2149	59.1	2372
285	Lapua	Mega	3.630	N135	43.2	1890	52.9	2182
				N140	53.2	2087	58.3	2277
				N540	50.0	2028	58.3	2300
293	RWS	TUG	3.760[1)]	N140	52.7	2088	57.4	2281
300	Swift	A-Frame	3.630	N135	41.7	1795	45.4	1946
				N140	44.7	1844	49.5	2011
				N540	46.9	1886	52.5	2087
320	Woodleigh	RNSP	3.701	N135	44.7	1785	49.1	1972
				N140	47.5	1831	52.0	2001
				N540	48.6	1873	53.7	2067

[1)] The cartridge overall length exceeds the CIP maximum.

.375 H&H Magnum

Test barrel:	24½”, 1 in 12” twist
Primers:	Large Rifle Magnum
Cases:	Remington, trim-to length 2.842”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
235	Speer	Spitzer	3.583	N140	70.2	2677	75.8	2884
				N540	63.4	2392	79.9	2920
				N150	73.3	2736	78.7	2907
250	Sierra	SBT	3.583	N540	68.5	2615	74.4	2808
				N150	69.7	2621	75.1	2795
270	Barnes	XFB	3.583	N140	60.2	2083	70.2	2582
				N540	64.8	2385	73.4	2667
				N150	65.6	2372	72.7	2612
270	Speer	SP	3.583	N140	61.7	2356	70.5	2641
				N540	66.7	2516	72.7	2707
				N150	67.3	2523	75.1	2723
270	Woodleigh	RNSP	3.583	N135	59.4	2320	65.9	2530
				N540	68.7	2513	74.8	2713
				N150	64.8	2411	72.5	2621
285	Speer	Grand Slam	3.583	N140	60.2	2182	68.0	2572
				N540	65.1	2402	71.0	2592
				N150	65.0	2405	72.4	2598
300	Swift	A-Frame	3.583	N140	57.9	2156	65.9	2415
				N540	62.0	2270	67.0	2438
				N150	57.1	2133	65.4	2382

.416 Rigby

Test barrel:	24½”, 1 in 12” twist
Primers:	Large Rifle Magnum
Cases:	Norma, trim-to length 2.890”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
350	Swift	A-Frame	3.622	N160	84.1	2228	91.8	2415
				N165	85.6	2238	96.4	2451
				N560	88.4	2247	92.9	2388
400	Barnes	XFB	3.720	N160	72.5	1965	83.3	2165
				N165	90.0	2070	92.1	2172
				N560	78.7	2041	83.8	2169
400	Swift	A-Frame	3.622	N160	74.8	2005	82.7	2205
				N165	84.1	2136	91.2	2290
				N560	77.2	2021	85.5	2165

.416 Rigby

cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
410	Woodleigh	RNSP	3.642	N160	83.8	2090	89.5	2280
				N165	91.5	2165	99.1	2362
				N560	90.4	2149	96.9	2333
450	Woodleigh	RNSP	3.720	N160	80.2	2014	87.5	2175
				N165	90.0	2070	95.2	2238
				N560	88.0	2077	94.7	2231

.444 Marlin

Test barrel:	22”, 1 in 38” twist
Primers:	Large Rifle
Cases:	Remington, trim-to length 2.216”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
200	Hornady	HP/XTP	2.535	N110	41.0	2362	47.1	2613
				N120	50.6	2565	57.8	2851
240	Hornady	JTC-Sil	2.539	N120	44.9	2243	53.0	2560
				N130	49.8	2286	56.8	2558
265	Hornady	FP	2.559	N120	43.5	2129	50.5	2415
				N130	47.7	2157	53.2	2401

.45-70 Government

Test barrel:	22”, 1 in 20” twist
Primers:	Large Rifle
Cases:	Remington, trim-to length 2.098”

WARNING: These loads are to be used only in modern rifles like Ruger #1 or .45-70’s chambered on Mauser type bolt actions.
They MUST NOT be used in old rifles with weaker actions like Trapdoor and old Marlin mod. 1895.
The listed maximum loads do not exceed 210 MPa.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
300	Barnes	TSX FN	2.547	N120	37.8	1647	44.9	1949
				N530	46.6	1509	52.5	1867
300	Barnes	XFN	2.551	N130	47.8	1795	52.0	1975
300	Sierra	FN HP	2.547	N120	45.5	1900	50.2	2136
				N130	52.2	1998	57.1	2251
				N530	56.3	1955	60.2	2139
350	Hornady	RN	2.547	N130	48.0	1713	53.4	2014
				N133	50.3	1663	57.4	2037
				N530	53.2	1670	58.9	1988
400	Speer	FN	2.547	N130	44.7	1604	49.7	1834
				N133	47.2	1591	52.5	1883
				N530	49.4	1568	54.3	1864

.458 Winchester Magnum

Test barrel:	25”, 1 in 14” twist
Primers:	Large Rifle Magnum
Cases:	Winchester, trim-to length 2.492”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
350	Hornady	RN	2.949	N120	63.7	2336	69.9	2454
				N130	68.8	2395	74.1	2536
				N133	72.8	2395	75.6F	2480
400	Barnes	XFB	3.268	N130	61.7	2070	67.3	2257
				N530	69.4	2116	72.5F	2211
				N135	66.3	2051	68.2F	2113
400	Swift	A-Frame	3.228	N130	66.3	2211	70.2	2329

.458 Winchester Magnum cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N530	75.6	2267	78.7F	2369
				N135	74.1	2221	75.6F	2270
500	Hornady	RN	3.307	N130	55.5	1827	63.4	2044
				N133	59.4	1850	69.7	2116
				N530	64.8	1932	73.4	2149
F = Case full								

.50 Browning

Test barrel:	45”, 1 in 16½” twist
Primers:	CCI35
Cases:	IMI, trim-to length 3.902”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
647	Speer	FMJBT	5.413	N170	201.1	2629	227.8	2932
				24N41	213.8	2688	227.2	2915
				20N29	239.7	2744	256.3	3024
700	Barnes	Solid	5.413	24N41	211.2	2652	231.5	2910
				20N29	235.6	2687	256.3	2978
750	Barnes	Solid	5.413	24N41	204.6	2520	224.4	2815
				20N29	226.0	2565	250.5	2857
750	Hornady	A-MAX	5.413	N170	190.0	2490	215.8	2763
				24N41	200.2	2508	218.0	2765
				20N29	225.2	2556	246.4	2829
750	Lapua	Bullex-N	5.433	24N41	213.4	2618	230.4	2838
				20N29	240.3	2710	255.9	2936
800	Barnes	Solid	5.413	24N41	181.9	2369	198.1	2592
				20N29	219.1	2557	245.0	2788
800	Lapua	Bullex-N	5.413	24N41	199.5	2480	219.6	2710
				20N29	230.7	2612	243.7	2812
850	Barnes	Solid	5.413	24N41	190.5	2349	208.3	2573
				20N29	214.7	2447	238.0	2716

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

HANDGUN RELOADING DATA

Disclaimer

All of this reloading information has been provided by Nammo Lapua Oy and Nammo Vihtavuori Oy. The data given here were obtained in laboratory conditions following strictly the CIP (Commission International Permanente) June 13, 1990 and November 9, 1993 rules. The listed maximum loads have been determined according to the respective CIP/SAAMI maximum pressure specification, whichever is lower.

These test methods have been deemed to be safe throughout the world.
Pressure is measured at the case mouth or from inside the case according to the CIP.

DO NOT ATTEMPT ANY EXTRAPOLATIONS. PLEASE FOLLOW THE DATA AS WRITTEN.
IT IS A MUST FOR EVERY RELOADER TO READ THE RELOADING SAFETY RULES ON THE PAGES 16 AND 17 OF THIS GUIDE.

7 mm TCU

Test barrel:	14”, 1 in 10” twist
Primers:	Small Rifle
Cases:	Necked-up Lapua .223 Rem., trim-to length 1.752”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
100	Hornady	HP	2.461	N120	22.8	2188	25.3	2441
				N130	25.0	2205	27.6	2470
				N133	27.3	2280	30.2	2539
120	Hornady	SSSP	2.500	N120	20.4	1988	22.4	2149
				N130	22.4	2001	24.8	2208
				N133	25.0	2067	27.9	2300
130	Speer	Spitzer	2.559	N120	19.1	1778	21.3	1955
				N130	21.6	1880	23.9	2054
				N133	22.5	1890	25.0	2077
150	Sierra	SBT	2.559	N120	18.1	1683	20.1	1844
				N130	20.2	1755	22.4	1923
				N133	21.3	1778	23.6	1965
				N135	22.2	1765	24.7	1959
160	Sierra	SBT	2.598	N120	17.3	1575	19.3	1742
				N130	19.4	1657	21.8	1831
				N133	20.2	1677	22.4	1834
				N135	22.4	1742	24.8	1909
				N540	22.8	1785	25.2	1962
NOTE: This cartridge is not supported by CIP or SAAMI. The maximum loads do not exceed 300 MPa.								

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

7 mm BR Remington

Test barrel:	14½”, 1 in 10” twist
Primers:	Small Rifle
Cases:	Remington, trim-to length 1.512”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
100	Hornady	HP	2.205	N120	28.0	2539	29.8	2720
				N130	30.5	2568	32.4	2749
120	Hornady	SSSP	2.228	N120	25.8	2255	27.8	2421
				N130	27.9	2318	29.9	2572
				N133	30.0	2343	32.6	2530
140	Nosler	Ballistic Tip	2.374	N120	22.4	1954	24.4	2100
				N130	25.0	2006	26.7	2169
				N133	26.3	2044	28.4	2201
150	Nosler	Ballistic Tip	2.374	N120	21.9	1890	23.8	2031
				N130	23.8	1931	25.8	2083
				N133	25.1	1952	27.3	2106
				N135	27.0	1988	28.9	2133
160	Sierra	HPBT	2.350	N120	20.1	1770	21.9	1903
				N130	21.9	1834	23.9	1975
				N133	24.1	1886	26.1	2031
				N135	25.8	1929	27.6	2067

7 mm GJW

Test barrel:	15”, 1 in 8” twist
Primers:	Small Rifle
Cases:	Munitionsfabrik Thun, trim-to length 1.920”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
150	Nosler	Ballistic Tip	2.953	N130	24.4	2013	25.8	2106
				N133	25.5	2013	26.8	2113
				N135	27.5	2065	28.7	2159
168	Sierra	HPBT	2.953	N130	23.7	1913	25.2	2005
				N133	25.1	1927	26.4	2024
				N135	27.1	1984	28.2	2070
				N140	28.2	1991	29.5	2087

7,62 x 25 Tokarev

Test barrel:	6”, 1 in 10” twist
Primers:	Large Pistol
Cases:	Fiocchi 7,63 Mauser, trim-to length 0.976”

NOTE: FOR FIREARMS CHAMBERED FOR THE 7,62 x 25 TOKAREV CARTRIDGE ONLY.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
60	Speer	HP[2)]	1.260	N320	4.4	1284	5.5	1574
				N340	5.9	1425	7.1	1713
71	Sierra	FMJ[2)]	1.299	N340	5.5	1345	6.7	1569
				3N37	6.0	1352	7.6	1616
				3N38	8.1	1546	9.5	1708
74	Lapua	FMJ[1)]	1.299	N340	5.5	1331	6.6	1546
				3N37	5.9	1322	7.6	1569
90	Sierra	JHC[2)]	1.280	N340	4.5	1011	5.7	1329
				3N37	5.2	1116	6.6	1366
				3N38	7.1	1326	8.1	1482
93	Lapua	FMJ[1)]	1.339	N340	4.7	1122	5.9	1316
				3N37	5.1	1146	7.1	1370

7,62 x 25 Tokarev cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				3N38	6.6	1241	8.6	1460

[1)] Bullet cal. 0,309” [2)] Bullet cal. 0,312”

.32 S&W Long N.P.

Test barrel:	7”, 1 in 18½” twist
Primers:	Small Pistol
Cases:	Lapua, trim-to length 0.913”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
83	Lapua	LWC	0.969	N310	1.4	758	1.7	846
98	Lapua	LRN	1.272	N310	1.9	840	2.2	909
98	Lapua	LWC	0.969	N310	1.1	610	1.2	682

.32 S&W Long Wadcutter

Test barrel:	6”, 1 in 18¾” twist
Primers:	Small Pistol
Cases:	Lapua, trim-to length 0.913”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
83	Lapua	LWC	0.969	N310	1.7	807	2.0	938
98	Lapua	LWC	0.969	N310	1.4	764	1.9	843

9 mm Browning court / .380 Auto

Test barrel:	3”, 1 in 10” twist
Primers:	Small Pistol
Cases:	X-Treme Bullets, trim-to length 0.680”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
90	Sig Sauer	V-Crown JHP	0.984	N310	2.5	909	2.8	961
				N320	3.2	886	3.5	1010
90	Hornady	HP-XTP	0.980	N310	2.1	807	2.6	951
				N320	3.1	873	3.6	1047
				N32C	3.4	886	3.6	879
95	Speer	TMJ	0.984	N310	2.3	817	2.6	925
				N320	3.2	869	3.5	1014
				N330	3.7	869	4.2	1033
100	Berry’s	HBRN	0.984	N310	2.2	715	2.5	823
				N320	2.9	820	3.4	978
				N330	3.4	843	3.9	968
100	Berry’s	Hybrid Hollow Point	0.984	N310	2.2	686	2.6	843
				N320	2.9	791	3.4	958
				N330	3.5	833	4.0	971
100	H&N	HP HS	0.984	N310	2.0	761	2.2	876
				N320	2.8	830	3.2	984
100	Hornady	FMJ	0.984	N310	2.0	761	2.4	886
				N320	2.7	797	3.2	971
				N330	3.2	797	3.9	1004
100	X-Treme Bullets	RNFP	0.957	N310	2.2	810	2.6	896
				N320	2.8	814	3.3	974
				N32C	2.7	784	3.4	919

9 mm Luger / 9x19 mm

Test barrel:	4”, 1 in 10” twist
Primers:	Small Pistol
Cases:	Lapua, trim-to length 0.748”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
90	Hornady	HP-XTP	1.063	N310	3.9	1212	4.2	1260
				N320	4.8	1316	5.3	1380
				N330	5.6	1379	6.1	1440
				N340	5.5	1387	6.2	1483
				N350	6.4	1391	7.2	1496
				3N37	6.4	1434	7.2	1512
100	H&N	HP HS	1.102	N310	3.2	1066	3.9	1224
				N320	4.2	1165	4.8	1316
				N330	4.9	1214	5.6	1381
				N340	4.8	1220	5.7	1398
100	Speer	HP	1.083	N320	4.7	1222	5.1	1307
				N330	5.4	1290	5.9	1365
				N340	5.7	1290	6.4	1407
				3N37	6.4	1306	7.3	1423
115	Barnes	TAC-XP	1.126	N320	2.8	866	3.4	1010
				N340	3.5	915	4.1	1073
				3N37	4.2	955	4.8	1093
				3N38	4.9	932	6.3C	1125
115	Berry´s	HB RN TP	1.142	N320	4.1	1047	4.7	1184
				N330	4.8	1096	5.7	1260
				N340	5.0	915	5.8	1273
				3N37	5.6	1119	6.7	1299
				3N38	7.2	1181	8.7C	1401
115	Hornady	HP-XTP	1.142	N320	4.0	1118	4.5	1188
				N330	4.8	1166	5.4	1251
				N340	5.2	1198	5.9	1301
				N350	5.9	1225	6.4	1299
				3N37	6.0	1214	6.7	1305
115	Lapua	FMJ-RN	1.142	N320	3.9	997	4.5	1119
				N330	4.5	1076	5.4	1227
				N340	4.8	1129	5.4	1220
				N350	5.4	1129	6.5	1293
				3N37	5.6	1129	6.5	1289
115	Sierra	JHP	1.035	N320	3.4	919	4.0	1070
				N330	4.0	984	4.9	1178
				N340	4.0	978	4.9	1181
				3N37	4.9	1024	5.7	1188
115	X-Treme Bullets	RN HPCB	1.142	N320	3.9	978	4.6	1135
				N330	4.6	1037	5.4	1194
				N340	4.6	1033	5.6	1214
				N350	5.1	1050	6.2	1240
				3N37	5.4	1053	6.5	1240
				3N38	6.5	1099	7.9	1299
120	Lapua	CEPP	1.130	N320	3.7	978	4.3	1083
				N330	4.5	1070	5.1	1181
				N340	4.5	1070	5.2	1211
				N350	5.2	1115	5.9	1250
				3N37	5.7	1135	6.5	1280
124	Berry’s	Hybrid Hollow Point	1.126	N320	3.5	912	4.3	1079
				N330	4.2	945	4.9	1109
				N340	4.2	974	4.9	1115

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				3N37	4.9	961	5.9	1138
				3N38	5.9	1020	7.1	1191
124	Hornady	FMJ/FP	1.142	N320	3.9	1017	4.3	1096
				N330	4.8	1108	5.2	1178
				N340	5.3	1139	5.7	1214
				N350	5.4	1144	6.0	1214
				3N37	6.1	1172	6.5	1236
124	Lapua	FMJ-RN	1.142	N320	3.4	951	4.0	1070
				N330	4.3	1033	4.9	1178
				N340	4.5	1086	5.1	1181
				N350	4.9	1119	5.7	1237
				3N37	5.2	1102	6.2	1243
124	X-Treme Bullets	RN HPCB	1.142	N320	3.7	915	4.3	1066
				N330	4.3	981	5.1	1132
				N340	4.3	971	5.1	1135
				N350	4.8	1001	5.6	1168
				3N37	5.1	1007	6.0	1178
				3N38	5.9	1010	7.4	1220
124	Berry´s	HB RN TP	1.142	N320	3.4	886	4.1	1070
				N340	4.1	984	4.9	1155
				N350	4.5	1020	5.2	1175
				3N37	4.7	1014	5.5	1184
				3N38	5.8	1076	6.7	1250
125	Hornady	HAP	1.102	N310	2.5	774	3.0	909
				N320	3.2	856	3.9	1024
				N330	3.9	928	4.5	1073
				N340	3.9	925	4.6	1089
				3N37	4.6	948	5.5	1099
125	Sierra	JHP	1.035	N320	3.2	896	3.8	1037
				N330	3.9	945	4.5	1086
				N340	3.7	922	4.4	1063
				3N37	4.3	892	5.2	1076
130	Sierra	FMJ	1.142	N320	3.6	981	4.0	1046
				N330	4.0	1031	4.5	1094
				N340	4.4	1066	4.8	1119
				N350	5.2	1083	5.5	1135
				3N37	4.9	1067	5.5	1130
				N105	7.0	1151	7.4	1232
135	X-Treme Bullets	RNFP Copper Plated	1.122	N320	3.0	807	3.7	978
				N330	3.5	886	4.3	1050
				N340	3.7	909	4.4	1079
				3N37	4.3	938	5.2	1109
				3N38	5.1	968	6.1	1152
140	Alsa Pro	RN	1.142	N310	2.3	732	2.7	830
				N320	2.9	810	3.5	942
				N330	3.5	876	4.2	1010
				N340	3.5	899	4.0	988
				N350	3.9	892	4.6	1037
				3N37	4.2	889	4.9	1040
145	H&N	RN	1.142	N310	2.6	794	3.3	915
				N320	3.1	830	3.8	968
				N330	4.0	928	4.6	1056
				N340	4.1	945	4.7	1056
147	Berry’s	Hybrid Hollow Point	1.083	N320	2.8	771	3.4	906
				N330	3.4	830	4.0	958

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9 mm Luger / 9x19 mm

cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N340	3.4	840	4.0	961
				3N37	4.0	827	4.9	1001
147	Hornady	HP/XTP	1.142	N320	3.1	784	3.9	978
				N330	3.9	964	4.3	1032
				N340	3.9	948	4.3	1015
				N350	4.5	991	5.0	1070
				3N37	4.7	979	5.1	1052
				3N38	6.3	1171	6.9	1207
				N105	6.1	1039	6.4	1108
147	X-Treme Bullets	RN Heavy Plate	1.157	N310	2.3	686	2.8	817
				N320	3.1	810	3.7	948
				N330	3.6	860	4.4	1010
				N340	3.8	863	4.5	1014
150	Lapua	CEPP	1.130	N330	3.5	867	3.8	929
				N340	3.8	903	4.1	966
				N350	4.2	936	4.6	997
				3N37	4.2	904	4.7	976
165	X-Treme Bullets	RN Copper Plated HP	1.130	N320	2.6	692	3.1	820
				N330	3.0	735	3.5	866
				N340	3.0	745	3.6	869
				N350	3.4	764	4.0	902
				3N37	3.5	768	4.3	909
				3N38	4.4	807	5.4	981
				N105	5.1	892	6.0	1020

C = Compressed load

9 x 23 Winchester

Test barrel:	5”, 1 in 16” twist
Primers:	Small Pistol
Cases:	Winchester, trim-to length 0.896”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
115	Sierra	FMJ	1.280	N340	6.3	1395	7.2	1474
				N350	7.4	1374	8.8	1496
				3N37	7.3	1392	8.3	1517
123	Lapua	FMJ	1.280	N340	5.9	1261	6.9	1385
				N350	6.9	1272	7.8	1394
				3N37	6.6	1302	7.5	1400

NOTE: This cartridge is not supported by CIP or SAAMI. The maximum loads do not exceed 300 MPa.

.357 SIG

Test barrel:	5”, 1 in 16” twist
Primers:	Small Pistol
Cases:	Starline, trim-to length 0.858”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
95	Sierra	FMJ	1.140	N340	7.8	1512	8.9	1652
				N350	8.8	1537	10.1	1699
				3N37	8.7	1539	10.0	1686
115	Sierra	FMJ	1.140	N340	6.3	1325	7.7	1473
				N350	7.3	1347	8.6	1509
				3N37	7.5	1365	8.6	1502
123	Lapua	FMJ-RN	1.140	N340	6.0	1250	7.4	1398
				N350	7.2	1293	8.3	1440
				3N37	7.2	1287	8.3	1431

.38 Super Auto

Test barrel:	5½”, 1 in 16” twist
Primers:	Small Pistol
Cases:	Remington +P, trim-to length 0.893”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
115	Hornady	HP-XTP	1.240	N320	5.1	1188	5.5	1253
				N340	6.0	1250	6.5	1324
				N350	5.6	1171	6.3	1266
				3N37	6.5	1263	7.2	1347
115	Lapua	FMJ	1.240	N330	5.2	1148	6.1	1294
115	Sierra	FMJ	1.276	N350	7.9	1358	8.5	1439
				3N37	7.4	1296	7.9	1375
123	Lapua	FMJ	1.240	N330	4.9	1188	5.8	1254
124	Hornady	FMJ-FP	1.260	N320	4.6	1083	5.0	1142
				N330	5.6	1191	6.4	1340
				N340	6.0	1207	6.6	1281
				N350	6.3	1201	6.9	1275
				3N37	7.1	1227	7.4	1271
				N105	9.9	1407	10.4	1501
130	Sierra	FMJ	1.260	N320	4.2	1040	4.6	1101
				N330	4.9	1060	5.6	1178
				N340	5.6	1145	5.9	1202
				3N37	6.3	1181	6.8	1245
				N105	9.3	1319	9.6	1388
147	Hornady	HP/XTP	1.260	N340	5.1	1033	5.5	1097
				N350	5.7	1073	6.1	1134
				3N37	5.9	1096	6.3	1158
				N105	7.9	1181	8.2	1237

.38 Special

Test barrel:	6½”, 1 in 18” twist
Primers:	Small Pistol
Cases:	Lapua, trim-to length 1.146”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
85	H&N	WC H-HB	1.161	N310	3.4	909	4.6	1152
				N320	4.6	928	5.6	1171
				N32C	4.5	922	5.9	1063
110	Hornady	HP/XTP	1.437	N320	5.4	1120	6.1	1272
				N340	6.2	1130	6.9	1267
				N350	6.6	1165	7.7	1305
				3N37	7.3	1156	8.2	1308
125	Berry´s	Flat Point	1.496	N310	4.7	928	5.5	1132
				N320	5.4	1040	6.3	1230
				N32C	7.8	1093	8.2	1125
				N340	6.5	1129	7.2	1289
125	Hornady	FP/XTP	1.437	N320	4.9	981	5.6	1121
				N340	5.8	1042	6.7	1178
				N350	6.5	1058	7.5	1224
				3N37	6.8	1045	7.5	1204
140	Speer	HP	1.437	N320	4.6	878	5.3	1051
				N340	5.6	902	6.2	1079
				N350	6.2	925	6.9	1102
				3N37	6.2	925	7.1	1117
146	Speer	JHP	1.378	N340	4.6	856	5.4	1004
				N350	5.2	869	5.9	1010
				3N37	5.4	863	6.1	1018
148	Berry´s	Double End WC	1.161	N310	2.9	564	3.4	764
				N320	3.7	755	4.2	932
				N32C	4.3	794	4.7	899
				N340	4.5	846	4.9	1001
148	Sako	LWC	1.181	N320	3.0	776	3.5	876
				N330	3.3	784	3.8	910
				N340	3.6	812	4.1	926
				N350	4.1	835	4.6	964
158	Berry´s	Flat Point	1.535	N310	3.9	699	4.4	892
				N320	5.4	896	5.8	1040
				N340	6.0	948	6.8	1089
158	H&N	HP HS	1.520	N320	4.3	866	4.9	971
				N330	5.2	951	5.9	1056
				N340	5.4	955	6.0	1079
158	H&N	SWC	1.437	N310	3.3	784	3.8	883
				N320	4.6	886	5.0	1014
				N340	5.3	948	6.0	1093
158	Hornady	HP/XTP	1.441	N310	3.7	689	4.1	801
				N320	4.5	801	5.1	961
				N340	5.2	856	5.8	1017
				3N37	6,1	876	6.7	1050
158	LOS	Flat Point	1.547	N310	4.4	614	4.9	833
				N320	5.2	866	6.0	1027
				N330	5.8	915	6.5	1066
				N340	6.0	925	6.7	1079
				3N37	7.2	902	7.8	1115
158	Speer	HP	1.437	N320	3.9	715	4.6	892
				N340	4.9	791	5.6	983
				N350	5.5	855	6.3	1013

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.38 Special cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				3N37	5.9	848	6.6	999
158	X-Treme Bullets	SWC CP	1.437	N310	3.4	676	3.9	869
				N320	4.4	863	5.2	997
				N32C	5.4	873	6.0	994
				N340	5.6	942	6.0	1066
				3N37	6.5	991	6.9	1096
158		LSWC/HP	1.437	N320*)	3.3	755	3.8	840
				N330*)	3.6	787	4.1	883
180	H&N	HP HS	1.547	N310	3.7	725	4.2	810
				N320	4.6	823	5.2	932
				N340	5.3	856	5.9	988
				N350	5.7	883	6.4	1017
				3N37	5.9	879	6.3	1010
180	LOS	Flat Point	1.547	N310	3.8	410	4.2	666
				N320	4.5	728	5.1	869
				N340	5.2	758	5.8	935
				N350	5.6	807	6.2	978
				3N37	5.9	787	6.7	961

*) Cowboy Action Shooting load

.357 Magnum

Test barrel:	7”, 1 in 18½” twist
Primers:	Small Pistol Magnum
Cases:	Remington, trim-to length 1.283”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
110	Hornady	HP/XTP	1.575	N310	6.6	1355	7.0	1402
				N320	7.9	1460	8.3	1516
				N340	9.3	1558	9.8	1639
				N350	10.6	1631	11.2	1697
				3N37	10.5	1627	11.3	1701
				N110	18.5	1716	20.8F	2006
110	Sierra	JHP	1.575	N320	7.4	1424	8.8	1604
				N340	8.6	1506	10.3	1713
				3N37	9.6	1555	11.8	1775
				N105	12.3	1693	16.7	1995
				N110	18.2	1765	19.0C	1854
125	Hornady	FP/XTP	1.575	N310	6.0	1217	6.4	1284
				N320	6.9	1312	7.5	1379
				N340	8.6	1444	9.3	1517
				N350	9.6	1496	10.2	1561
				N110	16.8	1601	18.4F	1772
125	Sierra	JHP	1.575	N320	7.3	1329	8.8	1470
				N340	8.3	1401	9.7	1558
				N350	9.0	1450	10.7	1614
				N105	12.1	1591	14.8	1795
				N110	17.3	1683	18.5C	1811
140	Speer	HP	1.575	N340	8.2	1325	8.7	1385
				N350	8.9	1365	9.5	1433
				3N37	9.1	1368	9.8	1440
				N110	15.7	1499	17.1F	1647
158	Berry´s	Flat Point	1.575	N340	7.1	1188	7.7	1240
				3N37	7.1	1148	8.0	1263
				N105	8.5	1076	9.3	1253
				N110	11.6	1175	12.3	1257

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.357 Magnum cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
158	CBC	SJSP	1.575	N320	5.9	1106	7.3	1250
				N340	6.9	1178	8.6	1358
				N350	7.4	1204	9.4	1404
				3N37	7.9	1247	9.6	1421
				N105	9.8	1332	12.4	1549
				N110	14.1	1430	17.2	1667
158	Hornady	FP/XTP	1.575	N105	11.7	1401	12.4	1466
158	Hornady	HP/XTP	1.575	N340	7.1	1178	8.6	1365
				3N38	8.8	1247	11.1	1493
				N110	13.5	1398	16.3	1637
158	Speer	HP	1.575	N320	6.2	1099	6.6	1160
				N340	7.3	1184	7.7	1239
				N350	8.3	1263	8.9	1314
				3N37	8.2	1237	8.8	1305
				N110	15.1	1480	15.9	1569
158		LSWC/HP	1.575	N330*)	3.9	791	5.0	997
				N340*)	4.5	804	5.9	1050
180	LOS	Copper Plated HP	1.575	N340	6.3	1053	7.6	1191
				N350	6.8	1076	8.2	1240
				3N37	7.2	1115	8.7	1273
				N105	9.3	1214	10.9	1378
				N110	12.0	1260	14.6	1483

C = Compressed load F = Case full *) Cowboy Action Shooting load

.357 Remington Maximum

Test barrel:	12”, 1 in 18½” twist
Primers:	Small Rifle
Cases:	Remington, trim-to length 1.598”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
158	Hornady	FP/XTP	1.890	N350	9.9	1453	10.9	1541
				3N37	10.8	1512	11.3	1568
				N105	13.1	1591	14.3	1683
				N110	18.7	1827	19.5	1898
180	Nosler	Silhouette	1.894	N105	12.2	1453	13.1	1534
				N110	16.5	1640	17.3	1704
				N120	21.6	1693	22.5	1762
200	Speer	TMJ	2.000[1)]	N110	15.3	1444	16.1	1508
				N120	20.1	1503	20.9	1584

[1)] The cartridge overall length exceeds the CIP maximum.

.40 S&W

Test barrel:	5½”, 1 in 16” twist
Primers:	Small Pistol
Cases:	Remington, trim-to length 0.843”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
135	Hornady	HP-XTP	1.126	N320	5.2	1106	5.5	1134
				N330	6.0	1142	6.2	1172
				N340	6.0	1132	6.3	1171
				N350	6.6	1152	7.0	1189
				3N37	7.3	1171	7.6	1210
135	Nosler	HP	1.126	N320	6.0	1224	6.2	1259
				N340	7.4	1322	7.8	1364

.40 S&W cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				3N37	8.3	1322	8.6	1367
165	PMC	TC-FMJ	1.126	N320	4.9	994	5.2	1038
				N340	6.3	1096	6.6	1137
				3N37	7.3	1125	7.5	1166
				3N38	9.6	1211	9.8	1252
170	Hornady	HP	1.126	N340	5.2	1027	5.6	1063
				N350	5.9	1056	6.2	1091
				3N37	6.0	1056	6.3	1093
180	Fiocchi	LTC	1.126	N320	3.5	883	4.1	968
				N340	4.6	948	5.2	1034
				3N37	5.4	948	6.1	1049
180	Speer	HP	1.126	N340	5.4	1001	5.7	1037
				N350	5.9	1047	6.2	1078
				3N37	5.9	994	6.2	1035
200	Speer	TMJ	1.126	N340	4.6	876	4.9	910
				N350	5.2	892	5.5	925
				3N37	5.1	869	5.4	909
				3N38	6.9	997	7.3	1038
				N105	7.6	1053	7.7	1076

10 mm AUTO

Test barrel:	5½”, 1 in 16” twist
Primers:	Large Pistol
Cases:	Remington, trim-to length 0.988”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
155	Hornady	HP-XTP	1.256	N340	6.2	1165	7.1	1225
				N350	6.4	1178	7.8	1247
				3N37	6.6	1178	7.9	1247
180	Speer	HP	1.256	N340	5.6	1024	6.4	1089
				N350	5.2	1076	6.6	1130
				3N37	6.1	1093	7.2	1147
				N105	8.6	1220	9.9	1280
200	Hornady	FMJ/FP	1.256	N340	4.6	876	5.3	945
				N350	4.7	932	5.8	989
				3N37	5.4	955	6.3	1014
				N105	7.3	1066	8.2	1111

.41 Remington Magnum

Test barrel:	6”, 1 in 18¾” twist
Primers:	Large Pistol
Cases:	W-W Super, trim-to length 1.280”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
170	Sierra	JHC	1.579	N350	11.1	1362	12.5	1480
				N105	15.3	1526	16.9	1642
				N110	21.8	1640	23.2	1746
210	Hornady	HP/XTP	1.579	N350	10.3	1224	11.4	1312
				N105	13.0	1329	14.6	1435
				N110	18.5	1430	19.8	1529

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.44 S&W Special

Test barrel:	6”, 1 in 18” twist
Primers:	Large Pistol
Cases:	Remington, trim-to length 1.153”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
180	Hornady	HP-XTP	1.469	N320	6.8	935	7.6	1033
				N330	7.7	1010	8.6	1109
				N340	8.8	1047	9.6	1145
				N350	9.9	1043	10.5	1148
200	Hornady	HP-XTP	1.469	N320	6.3	886	6.9	965
				N330	7.7	942	8.5	1033
				N340	8.3	961	9.1	1066
				N350	9.1	971	9.9	1079
220	Sierra	FPJ-Match	1.469	N320	5.2	725	6.0	837
				N330	6.2	761	7.1	889
				N340	6.6	814	7.4	912
				N350	7.7	833	8.6	948
240		SWC/HP	1.539	N320*)	4.7	702	5.9	853
				N330*)	5.5	751	6.3	886
240	Hornady	JTC-Sil	1.480	N320	4.8	633	5.6	732
				N330	5.4	676	6.2	768
				N340	6.3	728	7.1	827
				N350	7.6	784	8.2	889
250	Sierra	FPJ	1.469	N320	4.8	633	5.6	741
				N330	4.9	627	6.0	748
				N340	5.6	646	6.5	778
				N350	6.8	751	7.6	853
267		LFN	1.539	N320*)	3.8	633	5.3	794
				N330*)	4.9	709	5.9	833
				N340*)	6.6	856	7.3	925

*) Cowboy Action Shooting load

.44 Remington Magnum

Test barrel:	7”, 1 in 20” twist
Primers:	Large Pistol
Cases:	Remington, trim-to length 1.275”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
180	Hornady	HP-XTP	1.602	N320	10.6	1335	11.8	1432
				N340	13.0	1440	14.1	1549
				N350	13.7	1470	15.3	1578
				N105	19.0	1634	21.6	1781
				N110	25.2	1614	27.1	1751
200	Hornady	HP-XTP	1.602	N320	10.0	1250	11.3	1339
				N340	11.7	1345	13.0	1434
				N350	12.8	1365	14.6	1487
				3N37	13.7	1421	15.2	1515
				N105	16.8	1506	19.4	1642
				N110	24.4	1621	26.3	1740
220	Sierra	FPJ-Match	1.602	N320	9.1	1148	10.4	1232
				N340	11.1	1250	12.3	1328
				N350	12.8	1319	14.8	1441
				N105	16.7	1417	18.8	1542
240	Hornady	JTC-Sil	1.602	N320	8.9	1086	9.7	1161
				N340	10.3	1175	11.5	1247
				N350	11.9	1230	12.8	1308

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.44 Remington Magnum cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				3N37	12.0	1220	13.3	1318
				N105	14.7	1325	16.6	1434
				N110	20.4	1427	22.1	1541
250	Sierra	FPJ-Match	1.602	N320	8.5	1030	9.7	1130
				N340	10.0	1119	11.2	1213
				N350	11.6	1201	13.1	1295
				N105	13.4	1253	16.7	1406
267		LFN	1.575	N340*)	5.9	735	7.5	945
267		LSWC	1.681	N32C*)	7.7	889	9.3	988
300	Hornady	HP-XTP	1.717[1)]	N340	9.6	997	10.5	1061
				N350	10.5	1033	11.7	1128
				3N37	10.3	1010	11.4	1102
				N105	13.1	1145	14.6	1231
				N110	18.7	1260	20.2	1374
300	Sierra	JSP	1.717[1)]	N340	9.4	971	10.2	1046
				N350	9.9	971	11.1	1071
				3N37	10.0	1001	11.2	1089
				N105	12.7	1122	13.8	1208
				N110	17.7	1211	19.1	1305

[1)] The cartridge overall length exceeds the CIP maximum. *) Cowboy Action Shooting load

.45 Auto / .45 ACP

Test barrel:	5”, 1 in 16” twist
Primers:	Large Pistol
Cases:	Remington, trim-to length 0.893”

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
185	Berry´s	Flat Point	1.118	N310	4.2	820	4.8	938
				N320	5.6	919	6.3	1043
				N330	6.5	938	7.5	1102
				N340	6.6	945	7.7	1099
185	Berry´s	HBRN	1.264	N310	4.7	860	5.5	981
				N320	6.3	945	7.3	1086
				N32C	6.6	906	8.2	1060
				N330	7.5	978	8.5	1135
				N340	7.6	978	8.6	1142
185	Berry's	Hybrid Hollow Point	1.220[3)]	N320	6.3	961	7.3	1096
				N340	7.6	1007	8.2	1129
				N350	8.2	981	9.4	1188
				3N37	8.5	955	10.2	1152
185	H&N	HP	1.181	N310	4.2	863	4.9	971
				N320	5.7	928	6.7	1076
				N32C	6.0	915	7.2	1047
				N330	7.0	974	7.9	1135
				N340	6.0	961	8.1	1135
185	Hornady	HP/XTP	1.228	N310	4.4	820	5.2	935
				N320	6.0	932	7.0	1070
				N340	7.1	974	8.2	1132
				N350	7.7	958	9.1	1161
				N105	12.2	1040	13.3	1263
195	H&N	SWC	1.220	N310	3.9	827	4.6	928
				N320	5.5	902	6.3	1027
				N32C	5.5	873	6.4	981
				N330	6.3	912	7.3	1066
				N340	6.5	932	7.4	1066

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.45 Auto / .45 ACP cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
200	Berry´s	HB Flat Point	1.157	N310	3.9	728	4.7	866
				N320	5.6	853	6.4	994
				N330	6.6	892	7.5	1053
				N340	6.5	899	7.6	1053
				N350	7.1	899	8.3	1066
				3N37	7.4	860	8.9	1066
				3N38	9.1	899	10.3	1086
200	Berry's	Hybrid Hollow Point	1.220[2)]	N320	5.9	892	6.8	1043
				N340	6.6	948	7.9	1079
				N350	7.6	938	8.6	1093
				3N37	7.9	873	9.6	1096
200	H&N	RN	1.220	N310	4.2	833	4.9	935
				N320	5.8	899	6.6	1033
				N32C	6.1	892	7.3	1014
				N330	6.7	925	7.7	1076
				N340	6.9	938	8.0	1096
				N350	7.6	945	8.7	1115
				3N37	7.9	925	9.3	1112
				3N38	9.5	938	11.3	1158
200	H&N	SWC	1.209	N310	4.0	823	4.7	928
				N320	5.5	886	6.2	1020
				N32C	5.5	853	6.7	984
				N330	6.2	899	7.2	1053
				N340	6.2	906	7.4	1070
				N350	6.8	889	7.9	1060
				3N37	6.8	856	8.0	1037
				3N38	8.7	892	10.1	1096
200	Hornady	HAP	1.240	N310	3.9	797	4.6	906
				N320	5.5	886	6.3	1017
				N32C	5.5	853	6.7	984
				N330	6.6	912	7.7	1076
				N340	6.5	912	7.7	1073
				N350	7.4	928	8.4	1066
				3N37	7.5	899	9.0	1099
				3N38	9.2	919	10.8	1138
				N105	10.4	935	12.0	1178
200	Sig Sauer	V-Crown JHP	1.256	N320	6.0	915	6.9	1037
				N340	7.1	961	8.0	1079
				N350	7.9	942	8.8	1099
				3N37	8.3	909	9.6	1093
225	X-Treme Bullets	FB	1.177	N310	3.4	627	4.1	758
				N320	4.7	738	5.5	883
				N32C	4.5	722	5.3	833
				N330	5.7	807	6.5	938
				N340	5.7	807	6.6	942
				N350	6.2	801	7.3	965
				3N37	6.6	784	7.8	961
				3N38	8.1	804	9.4	984
				N105	9.0	817	10.5	1040
230	Berry's	Hybrid Hollow Point	1.197[1)]	N320	4.6	748	5.6	902
				N340	5.7	814	6.6	951
				N350	6.3	814	7.3	961
				3N37	6.6	748	8.2	968
230	Hornady	HP / XTP	1.244[1)]	N320	4.6	768	5.6	886
				N340	5.6	781	6.5	932

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.45 Auto / .45 ACP cont.

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
				N350	6.5	827	7.4	974
				3N37	6.6	778	8.0	981
230	LOS	RN	1.220	N310	3.5	712	4.2	814
				N320	4.9	797	5.7	925
				N330	5.6	817	6.6	965
				N340	5.8	820	6.6	961
				N350	6.5	830	7.3	974
				3N37	6.5	797	7.8	968
				3N38	7.9	810	9.2	997

[1)] X-Treme Bullets case [2)] X-Treme Bullets case [3)] X-Treme Bullets case

.45 Colt

Test barrel:	6", 1 in 16" twist
Primers:	Large Pistol
Cases:	Remington, trim-to length 1.279"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
185	Hornady	HP/XTP	1.594	N320	8.7	1096	9.6	1181
				N340	10.9	1122	11.8	1237
				N350	12.3	1135	13.2	1253
185	Rainier	FN	1.594	N320	8.9	1076	9.6	1175
				N330	10.4	1093	11.2	1204
				N340	11.1	1125	12.1	1257
				N350	12.3	1135	13.6	1276
200	Hornady	FMJ-CT	1.594	N320	8.1	1040	8.9	1122
200	Hornady	LSWC	1.594	N320	8.7	1070	9.4	1138
				N340	10.9	1119	11.6	1194
230	Sierra	FMJ-Match	1.594	N320	7.5	938	8.3	1004
				N340	9.7	988	10.4	1083
250	Hornady	HP-XTP	1.594	N320	7.3	843	7.8	919
				N340	9.2	922	9.8	1007
				N350	10.7	974	11.2	1053
				N105	14.1	971	15.0	1129

.45 Winchester Magnum

Test barrel:	12", 1 in 16" twist
Primers:	Large Pistol
Cases:	Winchester, trim-to length 1.192"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
185	Hornady	HP/XTP	1.516	N350	12.5	1478	15.3	1678
				3N37	14.0	1662	15.9	1750
				N105	17.4	1714	20.5	1888
200	Hornady	FMJ-CT	1.555	N105	16.5	1583	19.0	1744
200	Speer	TMJ-SWC	1.516	3N37	14.0	1598	15.4	1683
				N110	22.9	1731	25.2	1885
230	Hornady	FMJ-RN	1.555	3N37	12.7	1344	14.2	1478
				N110	21.8	1622	23.9	1744
250	Hornady	HP-XTP	1.504	N350	10.0	1014	12.0	1224
				3N37	11.6	1160	12.8	1314
				N105	13.8	1289	15.8	1414
				N110	18.4	1448	21.1	1576

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.454 Casull

Test barrel:	9½”, 1 in 24” twist
Primers:	Small Rifle
Cases:	Freedom Arms, trim-to length 1.311”

Bullet				**Powder**	**Starting load**		**Maximum load**	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
185	Hornady	HP/XTP[1)]	1.642	N350	18.2	1762	21.4	1946
				3N37	17.6	1742	21.0	1929
				N105	26.5	1988	29.3	2142
225	Speer	HP	1.681	3N37	16.8	1555	19.6	1716
				N105	24.5	1759	26.7	1903
				N110	30.9	1857	33.5	2014
250	Hornady	HP/XTP	1.685	3N37	15.6	1434	18.2	1598
				N105	21.4	1578	24.2	1759
				N110	28.1	1716	30.7	1867
300	Speer	Plated HP	1.752	3N37	15.3	1299	17.0	1421
				N105	19.8	1414	23.0	1588
				N110	26.4	1555	28.7	1686

[1)] The crimping is done is over the bullet ogive.

.50 AE

Test barrel:	6”, 1 in 19” twist
Primers:	Large Pistol
Cases:	Speer, trim-to length 1.280”

Bullet				**Powder**	**Starting load**		**Maximum load**	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
300	IMI	JHP	1.575	N105	19.4	1296	21.3	1430
				N110	25.3	1299	28.7	1496
				N120	32.6	1191	36.0	1368
325	Speer	UCHP	1.575	N105	17.7	1171	19.4	1332
				N110	24.1	1266	27.0	1434
				N120	30.7	1142	34.4	1339

.500 S&W Magnum

Test barrel:	11”, 1 in 18” twist
Primers:	Large Rifle
Cases:	Starline, trim-to length 1.614”

Bullet				**Powder**	**Starting load**		**Maximum load**	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
300	Speer	TMJ	2.008	3N38	29.3	1755	33.9	1913
				N105	30.6	1759	36.0	1965
				N110	40.0	1870	45.5	2139
350	Hornady	HP/XTP	1.984	3N38	25.3	1535	30.9	1762
				N105	27.0	1598	31.2	1713
				N110	33.8	1709	38.7	1883
				N120	42.6	1650	44.7F	1768
400	Sierra	JSP	2.051	3N38	25.2	1447	28.5	1594
				N105	25.0	1444	31.0	1657
				N110	32.6	1591	37.3	1759

F = Case full

PERSONAL LOADS

Caliber	Bullet, type and weight [g] or [grs]	Powder	Charge [g] or [grs]	Muzzle vel. [m/s] or [fps]	Notes

VIHTAVUORI SMOKELESS LOADS FOR
COWBOY ACTION SHOOTING

These loads are developed to give the velocities required for the cowboy action shooting using revolvers with lead bullets. The maximum load is determined by the velocity limit about 300 m/s, or by the maximum pressure limit according to the CIP October 1, 1992 rules. The bold text in the tables indicate the maximum load according to CIP pressure level. The maximum loads must never be exceeded.

All the listed loads are intended to be used in modern firearms, which are according to the SAAMI requirements. Please use a competent gunsmith to evaluate that the condition of your gun is adequate to be used with the pressures indicated in the tables. The starting loads are the lowest charges which appeared to give clean burning, i.e. no unburned residues in the barrel or in the case, in our test shooting. This limit may, however vary according to the revolver used.

There are some special features, which must be considered, when using reduced loads like the ones presented in the tables below. The same facts are equally valid always when using any smokeless powder in such loads.

1) Double charges

Some of these loads are so small that throwing the load twice in the same case is possible because of the large case volume. Doubling the charge accidentally causes most probably truly lethal chamber pressures. Therefore, it is a must for everyone using this data to check visually every single load for the double charge before seating the bullet.

2) Free space in the case

When using charges which leave large amount of free space in the case, the shooting characteristics may vary largely depending on where the powder is located in the case. If the powder lies totally in the bottom of the case (i.e. in the end where primer is), the muzzle velocity and especially the maximum pressure become much higher. The maximum pressure may even be doubled when same powder charge is moved from the bullet end to the primer end of the case. This can simply be demonstrated by shaking the revolver barrel upwards or barrel downwards just before turning it smoothly in horizontal position, aiming and shooting. Also the recoil may transfer the powder in either end of the case. This is sometimes seen as a velocity change between the first shot and the following shots.

The shot to shot deviations in velocity and pressure are normally increased when using load which leaves the cases half empty. For this reason such loads are not recommended for target loads. The data below is tested in a way that the powder is as much as possible in the primer side before firing, and therefore, the pressures and the velocities represent the maximum values which were obtained using our test equipment and cartridge components indicated in the table.

3) Risk for underload detonation

This risk is always present when using highly reduced loads of any smokeless powder. The large free space in the case may generate a pressure wave which can cause, in the worst case, powder to burn as a shock wave, i.e. to detonate, instead of normal fast burning process. The extremely sharp pressure peaks involved in detonation can destroy the weapon and may lead to serious injury.

All these loads given here are extensively pressure tested and no signs of underload detonation were found. We strongly recommend everyone to follow strictly these tables to minimize the risk for underload detonation.

Smokeless powder differs considerably in its burning characteristics from common "black powder". Black powder burns essentially at the same rate in the open (unconfined) as when in a gun. The burning rate of smokeless powder increases with increasing pressure. If burning smokeless powder is confined, gas pressure will rise and eventually can cause the container or chamber to burst. A slight increase in smokeless powder charge after maximum load causes sharp increase in maximum pressure in the chamber. **Never exceed the maximum loads.**

.38 Special

Test barrel:	5", 1 in 18" twist
Primers:	Small Pistol
Cases:	Remington, trim-to length 1.146"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
145		LSWC	1.476	N32C	4.9	1007	5.7	1030
158		LSWC/HP	1.437	N320	3.3	755	3.8	840
				N330	3.6	787	4.1	883

.357 Magnum

Test barrel:	6", 1 in 18½" twist
Primers:	Small Rifle
Cases:	Remington, trim-to length 1.283"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
158		LSWC/HP	1.575	N330	3.9	791	5.0	997
				N340	4.5	804	5.9	1050

.44 S&W Special

Test barrel:	6½", 1 in 18" twist
Primers:	Large Pistol
Cases:	Remington, trim-to length 1.153"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
240		SWC/HP	1.539	N320	4.7	702	5.9	853
				N330	5.5	751	6.3	886
267		LFN	1.539	N320	3.8	633	5.3	794
				N330	4.9	709	5.9	833
				N340	6.6	856	7.3	925

.44 Remington Magnum

Test barrel:	7", 1 in 20" twist
Primers:	Large Pistol
Cases:	Remington, trim-to length 1.276"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
267		LFN	1.575	N340	5.9	735	7.5	945
267		LSWC	1.681	N32C	7.7	889	9.3	988

.45 Colt

Test barrel:	6", 1 in 16" twist
Primers:	Large Pistol
Cases:	Remington, trim-to length 1.280"

Bullet				Powder	Starting load		Maximum load	
Weight [grs]	Mfg	Type/Name	C.O.L. [in.]	Type	Weight [grs]	Velocity [fps]	**Weight [grs]**	**Velocity [fps]**
200		LRN	1.594	N320	6.8	850	8.7	1043
				N330	8.0	876	8.6	978
250		LRN	1.594	N320	5.6	751	6.9	915
				N330	6.3	781	7.5	961

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

RELOADING DATA FOR
SHOTGUN 12/76 (3”)

Lead Shot — Shell: Fiocchi Plastic Green

Shot Load 36 g / 11/4 oz					Starting load		Maximum load	
					Weight	Velocity	Weight	Velocity
Powder	Primer	Wad	Overshot card	Crimp	[grs]	[fps]	[grs]	[fps]
N320	Fio. 616	B&P Z2M H-24	Paper	Roll Crimp	27.0	1316	28.1	1348
N340	Fio. 616	B&P Z2M H-24	Paper	Roll Crimp	27.0	1204	33.2	1385
3N37	Fio. 616	B&P Z2M H-24	Paper	Roll Crimp	30.9	1220	37.0	1430

Lead Shot — Shell: Fiocchi Plastic Green

Shot Load 40 g / 13/8 oz					Starting load		Maximum load	
					Weight	Velocity	Weight	Velocity
Powder	Primer	Wad	Overshot card	Crimp	[grs]	[fps]	[grs]	[fps]
N320	Fio. 616	B&P Z2M H-21	Paper	Roll Crimp	24.7	1204	26.9	1263
N340	Fio. 616	B&P Z2M H-21	Paper	Roll Crimp	28.5	1240	32.4	1365
3N37	Fio. 616	B&P Z2M H-24	Paper	Roll Crimp	30.9	1191	39.4	1421
N105	Fio. 616	B&P Z2M H-21	Paper	Roll Crimp	41.7	1181	61.9	1709

Lead Shot — Shell: Fiocchi Plastic Green

Shot Load 44 g / 11/2 oz					Starting load		Maximum load	
					Weight	Velocity	Weight	Velocity
Powder	Primer	Wad	Overshot card	Crimp	[grs]	[fps]	[grs]	[fps]
N340	Fio. 616	B&P Z2M H-24	Paper	Roll Crimp	26.7	1171	29.3	1243
3N37	Fio. 616	B&P Z2M H-24	Paper	Roll Crimp	31.6	1171	38.6	1371
N105	Fio. 616	B&P Z2M H-24	Paper	Roll Crimp	41.7	1188	51.7	1460

Lead Shot — Shell: Fiocchi Plastic Green

Shot Load 48 g / 15/8 oz					Starting load		Maximum load	
					Weight	Velocity	Weight	Velocity
Powder	Primer	Wad	Overshot card	Crimp	[grs]	[fps]	[grs]	[fps]
3N37	Fio. 616	B&P Z2M H-18	Paper	Roll Crimp	28.5	1171	36.4	1302

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

Steel Shot Nickel Plated — Shell: Fiocchi T4 Plastic

Shot Load 28 g / 1 oz					Starting load		Maximum load	
					Weight	Velocity	Weight	Velocity
Powder	Primer	Wad	Overshot card	Crimp	[grs]	[fps]	[grs]	[fps]
N320	Fio. 616	B&P Steel 28	Paper	Roll Crimp	18.5	1175	23.9	1358
N340	Fio. 616	B&P Steel 28	Paper	Roll Crimp	24.7	1201	28.5	1345
3N37	Fio. 616	B&P Steel 28	Paper	Roll Crimp	24.7	1181	28.5	1263
N105	Fio. 616	B&P Steel 28	Paper	Roll Crimp	35.5	1175	46.3	1407

Steel Shot Nickel Plated — Shell: Fiocchi T4 Plastic

Shot Load 32 g / 11/8 oz					Starting load		Maximum load	
					Weight	Velocity	Weight	Velocity
Powder	Primer	Wad	Overshot card	Crimp	[grs]	[fps]	[grs]	[fps]
N320	Fio. 616	B&P Steel 32	Paper	Roll Crimp	20.1	1194	22.4	1289
N340	Fio. 616	B&P Steel 32	Paper	Roll Crimp	23.1	1207	25.5	1322
3N37	Fio. 616	B&P Steel 32	Paper	Roll Crimp	25.5	1165	30.1	1365
N105	Fio. 616	B&P Steel 32	Paper	Roll Crimp	35.5	1188	40.0	1362

Steel Shot Nickel Plated — Shell: Fiocchi T4 Plastic

Shot Load 35 g / 11/4 oz					Starting load		Maximum load	
					Weight	Velocity	Weight	Velocity
Powder	Primer	Wad	Overshot card	Crimp	[grs]	[fps]	[grs]	[fps]
N340	Fio. 616	B&P Steel 35	Paper	Roll Crimp	21.6	1194	23.1	1230
3N37	Fio. 616	B&P Steel 35	Paper	Roll Crimp	25.5	1211	26.4	1260
N105	Fio. 616	B&P Steel 35	Paper	Roll Crimp	34.0	1178	40.3	1365

Steel Shot Nickel Plated — Shell: Fiocchi T4 Plastic

Shot Load 44 g / 11/2 oz					Starting load		Maximum load	
					Weight	Velocity	Weight	Velocity
Powder	Primer	Wad	Overshot card	Crimp	[grs]	[fps]	[grs]	[fps]
3N37	Fio. 616	B&P Steel 44	Paper	Roll Crimp	24.7	1175	25.5	1188
3N38	Fio. 616	B&P Steel 44	Paper	Roll Crimp	26.2	1020	30.9	1188
N105	Fio. 616	B&P Steel 44	Paper	Roll Crimp	35.5	1207	38.6	1306

This data has been obtained using a 28” test barrel.
Velocity has been measured using light gate digital sensors at a distance of 2,5 m from muzzle acc. to C.I.P. method.
All loads have been pressure tested according to the C.I.P. method.
Data has been obtained using 3 mm shots (U.S. size No. 5) with loads measured in [g]. All [oz] weights are indicative.

GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

PERSONAL LOADS

Caliber	Bullet, type and weight [g] or [grs]	Powder	Charge [g] or [grs]	Muzzle vel. [m/s] or [fps]	Notes

PERSONAL LOADS

Caliber	Bullet, type and weight [g] or [grs]	Powder	Charge [g] or [grs]	Muzzle vel. [m/s] or [fps]	Notes

MEET THE VIHTAVUORI TEAM


Tony Tello


Wayne Campbell


Victor Terblanche


Oliver Milanovic


Dan Pohlabel


Gabrielle 'Gabby' Hendricks


Anastasia 'Nastja' Mustonen


Bruce Piatt


Ian Klemm


Paul Phillips


Gene 'Evil Roy' Pearcey


Halvor Thrane Svendsen


Steve Reiter


Tony Boyer


Paul Hill


Johan Eriksson


Alexander Kreutz

TONY TELLO (USA)
is an accomplished high power and smallbore silhouette rifle as well as Cowboy lever action shooter. He loves all Vihtavuori powders, N130, N133, N135, N140 and N150.

WAYNE CAMPBELL (USA)
is a Hall of Fame and multiple World Team benchrest shooter. He uses, naturally, the Vihtavuori N133 powder.

VICTOR TERBLANCHE (ZAF)
shoots F-Open class and has won back to back South African Championships in 2018 and 2019.

OLIVER MILANOVIC (USA)
is a Palma and Target rifle shooter. Oliver, also known as 'Slink', started out as a pistol shooter, but after trying target rifle at 500 yards in 2010 he never looked back. Oliver's favorite Vihtavuori powder is the N140.

DAN POHLABEL (USA)
competes in F/TR at mid range and long range, and ELR matches like the King of 2 Miles, the NRA mile challenge, and others out to a distance of 2 miles.

GABRIELLE HENDRICKS (USA)
shoots Long-Range, Mid-Range, Across the Course Match Rifle and High Power Rifle. She has been shooting rifles competitively for four years now with great success.

ANASTASIA MUSTONEN (FIN)
shoots IPSC practical handgun and rifle and her favorite Vihtavuori powders are N320 handgun powder and N133 rifle powder.

BRUCE PIATT (USA)
competes in Action Pistol, Tactical 3-Gun, USPSA/IPSC, Steel Challenge and Sportsman's Team Challenge competitions. He is also a gunsmithing instructor.

IAN KLEMM (USA)
started shooting F-class in 2010 and, has since then excelled in the sport, with top ten results in nearly all F-class US National Championships.

PAUL PHILLIPS (USA)
is a former United States Marine Corp Infantryman and graduated top of his class in FBI sniper school. Paul has set, tied or broken over 45 NRA National Shooting Records. He uses N133 powder and shoots long range.

EVIL ROY (USA)
is a Cowboy Action shooting legend. His favorite powder is the N320 and he uses it for .45 ACP, .45 Colt, 9mm and .38 Special.

HALVOR THRANE SVENDSEN (NOR)
is a 200 / 300 m big bore and small bore shooter, and has been using Vihtavuori powders for 15 years. His favorite powder is N150 which he uses to reload his 6.5×55 ammo.

STEVE REITER (USA)
is a legend of his own within bullseye pistol shooting. Through the years, he has competed in free pistol, standard pistol, air pistol and centerfire events as well as rifle.

TONY BOYER (USA)
is widely regarded as the best American short-range benchrest shooter in history. He's been shooting for 40 years, has won several World Championship titles and has been named Shooter of the Year over ten times. Tony relies on his N133 to do the job.

PAUL HILL (GBR)
is an F-Class and FTR shooter using N160 and N165 powders. Paul has been reloading with Vihtavuori powders over twenty years and his ambition is to shoot at the 2021 South Africa World Championships and win.

JOHAN ERIKSSON (SWE)
is a long range and PRS shooter. Of Vihtavuori products, Johan prefers the N100 series because it gives good barrel life and gives him the results he anticipates.

ALEXANDER KREUTZ (GER)
has won numerous German nationals titles in 100 and 300 meter rifle disciplines, and his number one discipline is F-Class. In 2018, he took home the gold at Bisley at the GBFCA European Championships.

PHOTO CHALLENGE WINNER!

Vihtavuori fan wins coveted picture spot on new label

In 2020, Vihtavuori decided to host a photo contest in order to get a new, authentic image to use for our bottle label. We received many excellent submissions, but one picture in particular caguht our eye. It was a picture of and by 35-year-old geologist **Alessandro Bertani**, a shooter from a little village in the center of Italy called Bettona.

"I have two main hobbies: photography and shooting at the range. I began shooting about 8 years ago and for 4 years now, I have been part of a tactical sport shooting association called OP.07 Training Division. I go to the range around twice a week to practice and test weapons and gear, or do photography. I've competed only once with a handgun in a local challenge.

I like to shoot rifles, especially sniper rifle. Why? Because I can make the best ammo for my guns myself, and at the range there is no rush and I'm completely relaxed when shooting at 300, 500, 700 meters.

I have been a reloader for seven years, and I use a lot of Vihtavuori products: N340, N120, N130 and N140. I also use Lapua Brass: 7.62x39, 7.62x53, .308win and Lapua bullets: cal. 30 scenar 155gr and 168gr."

The story behind the winning photo

"It was a selfie during a training day with op.07 training division on long gun handling at a range near Rome (Bracciano). My friend let me try his new rifle (a Barrett mrad .338 Lapua Magnum). I had never tried an expensive rifle like that before at the time. I'm enthusiastic about winning - I can't wait to see my photo on the Vihtavuori bottle label!"

For more pictures by Alessandro,
check out his instagram page @alex.bertani85

EXPERIENCED CRAFTMANSHIP FOR THE PERFECT AMMO

For almost 100 years, Vihtavuori has been known for producing high quality propellants with reliable ballistic performance, long shelf-life and wide variety selection. All of our powders meet the strict requirements of both civilian and military needs.

Vihtavuori powders come in three different series: N100 offers traditional single base propellants for rifle calibers, N300/3N offers porous single base powders and precise measuring capability for pistol cartridges, rimfire ammunition and shotgun shells, and N500 series powders are special high energy rifle propellants enhanced with nitroglycerin for extra ballistic performance.

N100 Reloading Powders for Rifles

	N110	N120	N130	N133	N135	N140	N150	N160	N165	N170	24N41	20N29
Bulk density (g/l)	800	860	870	870	870	910	910	920	920	960	970	960
Energy content (J/g)	3950	3700	3750	3600	3550	3700	3750	3650	3500	3700	3700	3600

N300 Reloading Powders for Handguns

	N310	N320	N32C	N330	N340	N350	3N37	3N38	N105
Bulk density (g/l)	560	550	420	620	620	660	720	730	730
Energy content (J/g)	4100	4100	3050	4100	4100	4100	4100	4000	3950

N500 High Energy Reloading Powders for Rifles

	N530	N540	N550	N555	N560	N565	N568	N570
Bulk density (g/l)	930	940	940	900	960	960	960	960
Energy content (J/g)	3950	4000	3900	3700	4000	4000	3850	4000

Relative burning rate of powder types mentioned above decreases from left to right.

CONSUMER PACKAGE INFORMATION

Consumer package, bottle 0,6 ltr (36.6 in³) Measures: sides & height 95 x 75 x 140 mm	net weight	gross weight
N110, N120, N130, N133, N135, N140, N150, N160, N165, N170 24N41, 20N29	1.0 lbs	1.1 lbs
N530, N540, N550, N555, N560, N565, N568, N570	1.0 lbs	1.1 lbs

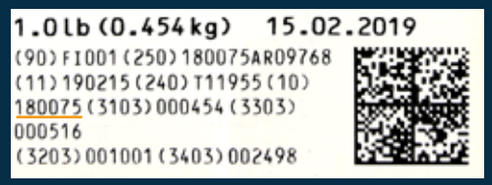
Consumer package, bottle 1,2 ltr (73.2 in³) Measures: sides & height 95 x 75 x 226 mm	net weight	gross weight
N110, N120, N130, N133, N135, N140, N150, N160, N165, N170	1,0 kg	1,1 kg
24N41, 20N29, N530, N540, N550, N555, N560, N565, N568, N570	1,0 kg	1,1 kg
N310, N320, N32C, N330, N340, N350, 3N37, 3N38, N105	0,5 kg	0,6 kg
N310, N320, N32C, N330, N340, N350, 3N37, 3N38, N105	1.0 lbs	1.2 lbs

Consumer package, canister 4,5 ltr (274.6 in³) Measures: sides & height 135 x 189 x 260 mm	net weight	gross weight
N110, N140, N150, N160	3,5 kg	3,7 kg
N310, N320, N340, 3N37, 3N38	2,0 kg	2,2 kg
N110, N120, N130, N133, N135, N140, N150, N160, N165, 24N41, 20N29, N530, N540, N550, N555, N560, N565, N568, N570	8.0 lbs	8.4 lbs
N310, N320, N330, N340, N350, 3N37, 3N38	4.0 lbs	4.4 lbs

All Vihtavuori reloading powders are packed into bottles and canisters and further in cardboard boxes.

LOT NUMBER

All Vihtavuori powder bottle labels have a white area with specific information shown in number sequences. The lot information is shown after item number (10). For instance, the lot number in the example picture is 180075.



BURNING RATE CHART

Current canister powders in order of *approximate* burning rate.
This list is for reference only and **not** to be used for developing loads.

Fast Burning

Vihtavuori	Norma	RWS	VECTAN	Reload Swiss	IMR	Hodgdon	Accurate	W-W	Alliant	Ramshot
						Titewad				
									E³	
	R1						Nitro 100	WST		
N310		P805	Ba10			HP38				
		P801			Trail Boss	Titegroup	Solo 1000	231	Bullseye	
						Clays		452		Competition
N320				RS12	Hi-Skor700X		No. 2	WSL	Red Dot	
			AS		PB	Clays Int'l	Solo 1250	473	American Select	
N32C					SR7625				Promo	Zip
		P804	A1						Green Dot	
		P803				Clays Univer.	No. 5	WSF	Unique	
N330			Ba9			HS-6		540	Power Pistol	
N340			SP8	RS20	SR4756	CFE Pistol		WAP	Herco	Silhouette
3N37			A0			Longshot				
N350					Hi-Skor 800X					True Blue
3N38			SP2 Pract.	RS24				571	Blue Dot	
N105						HS-7	No. 7		Steel	
									2400	Enforcer
	R-123		SP3				No. 9			
		P806			SR4759	H110	4100			
N110		R910		RS30	IMR4227	H4198		296		
			Ba6			Li'l Gun		680		
	200	R901				H4227	5744		410	
N120			Tubal2000		IMR4198		1680		Reloder 7	
							2015			
		R902			IMR3031	Benchmark			Reloder 11	
						H322	2230			
N130	201		SP10			BL(C)-2	2460	748	Reloder 10X	
N133	202		Tubal3000		8208XBR	CFE 223				X-Terminator
		R903				H335	2495			
			SP9		IMR4895	Leverevolution	2520			
N530				RS40	IMR4166	H4895	4064		Reloder 12	TAC
N135					IMR4064					
			SP7		IMR4320	Varget				
N140	203B	R907		RS50		H380	2700		Reloder 15	Big Game
N540				RS52		H414		760		
N150	URP	R904	Tubal5000			H4350	4350		Reloder 17	
N550				RS60	IMR4350	HYBRID 100V			Reloder 19	
N555	204		SP11	RS62	IMR4451	H450		WMR		Hunter
N160			Tubal7000		IMR4831	H4831SC		785		
N560	MRP	R905			IMR4955	H4831	3100			
N165	MRP(2)		Tubal8000	RS70	IMR7828SSC	Super-Performance	MagPro	WXR	Reloder 22	
					IMR7828	H1000			Reloder 25	Magnum
N170					IMR7977	Retumbo	8700			
N565			SP13	RS76		H870				
N568										
N570				RS80		50BMG			Reloder 50	
24N41						US869				
20N29										

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AUSTRIA
Rohof Waffenhandel GmbH
Hermannsplatz 17, Postfach 27
AT-2560 Berndorf, Austria
Tel: +43 2672 825 71
Fax: +43 2672 827 673
gerhard.rohrbacher@
rohofwaffen.at
www.rohofwaffen.at

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Humberto de Campos, 3220
Ribeirão Pires – São Paulo,
Brasil
Tel: +55 11 2139 8200
clubes@cbc.com.br
www.cbc.com.br

BRITAIN
Hannam's Reloading Ltd
Peckfield Lodge
Great North Road
Leeds, LS25 5LJ
North Yorkshire, England
Tel: +44 1977 681 639
Fax: +44 1977 684 272
sales@hannamsreloading.com
www.hannamsreloading.com

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CANADA
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Lake Echo, NS, B3E 1N1, Canada
Tel: +1 902 829 2932
Fax: +1 902 829 2782
peterdobson@ns.sympatico.ca
www.hirschprecision.com

DENMARK
Leo Nielsen Trading ApS.
Klostermarken 5
DK-9000 Aalborg, Denmark
Tel: +45 98 102909
Fax: +45 98 102940
mail@98102909.dk
www.benelli.dk

ESTONIA
UAB Albatros prekyba
Elektrėnų 1E
LT-51191 KAUNAS
LITHUANIA
+370 699 60 962
deividas@albatros.lt

FINLAND
Nordic Distribution Oy NorDis
P.O. Box 5
FI-62101 Lapua, Finland
Tel: +358 10 5233 600
info@nordis.fi
www.nordis.fi

FRANCE
B.G.M
15, Route de Meaux - RN3
Le Bois Fleuri
FR-77410 Claye-Souilly, France
Tel: +33 1 60 26 13 07
Fax: +33 1 60 26 14 77
mary@bgmwinfield.com
www.bgmwinfield.com

GERMANY
Essing Sprengtechnik GmbH
Brückenwaage 8
D-49124 Georgsmarienhütte
Germany
Tel: +49 5401 2026
Fax: +49 5401 2449
info@essing-sprengtechnik.de
www.essing-sprengtechnik.de

Technischer Großhandel
Dipl. Ing. Franz Müller
Ranham 12
DE-83349 Palling, Germany
Tel: +49 8629 1702
Fax: +49 8629 9854 14
franz.mueller@pulver-mueller.de

LHS-Germany GmbH
Breiter Rasen 4
DE-97647 Nordheim v. d. Rhoen
Germany
Tel: +49 9779 8144 34
Fax: +49 9779 8144 22
horst.landgraf@LHS-Germany.de
www.LHS-Germany.de

HOLLAND
Dutch Firearms Trading
Essenweg 6 , P.O. Box 23
NL-7587 ZG De Lutte (OV),
The Netherlands
Tel: +31 541 552 555
Fax: +31 541 552 550
firearms@firearms.nl
www.firearms.nl

ICELAND
Hlad ehf
Bildshöfda 12
IS-110 Reykjavik, Iceland
Tel: +354 567 5333
Fax: +354 567 5313
hlad@hlad.is
www.hlad.is

ITALY
Fiocchi Munizioni S.P.A.
Via S. Barbara, 4
P.O. Box 236
IT-23900 Lecco, Italy
Tel: +39 0341 473 243
Fax: +39 0341 473 203
r.cassin@fiocchi.com
www.fiocchigfl.com

KAZAKHSTAN
SAYGA Firm LLP
115 B Ac. Bekturov str.
140001 Pavlodar City
Kazakhstan
Tel: +7 7182 30 1410
Fax: + 7 7182 32 0494
info@sayga.kz
www.sayga.kz

LATVIA
UAB Albatros prekyba
Elektrėnų 1E
LT-51191 KAUNAS
LITHUANIA
+370 699 60 962
deividas@albatros.lt

LITHUANIA
UAB Albatros prekyba
Elektrėnų 1E
LT-51191 KAUNAS
LITHUANIA
+370 699 60 962
deividas@albatros.lt

LUXEMBOURG
Armurerie Henry Freylinger
Zone Industrielle & Commerciale
L-3378 Livange,
Grand-Duche de Luxembourg
Tel: +352 520 015
Fax: +352 520 010
info@armurerie.lu
www.armurerie.lu

NAMIBIA
Outdoor Centre
Shop No. 4
Metro Hyper Building
Kleine Kuppe, Windhoek
Namibia
Tel: +264 61 241367
info@outdoorcentre.com.na
www.outdoorcentre.com.na

NEW ZEALAND
NZ Ammunition Company Ltd.
P.O.Box 40401
Upper Hutt, New Zealand
Tel: +64 4 526 9253
Fax: +64 4 526 9243
info@nzammo.co.nz
www.nzammo.co.nz

NORWAY
Magne Landrø A/S
Stillverksveien 1
NO-2004 Lillestrøm, Norway
Tel: +47 64 84 75 75
Fax: +47 64 84 75 70
morten@landro.no
www.landro.no

PHILIPPINES
Stronghand Inc.
La Defense Building
1160 E. Rodriguez Sr. Avenue
PH-1111 Quezon City,
Philippines
Tel: +63 2 721 7171
Fax: +63 2 721 7173
open@stronghand.ph
www.stronghand.ph

POLAND
INCORSA sp. z o.o.
ul. Marconich 3
PL-02954 Warsaw, Poland
Tel: +48 22 858 2036
Fax: +48 22 858 2323
incorsa@incorsa.pl
www.incorsa.pl

PORTUGAL
Cacicambra, S.A.
Zona Industrial do Roligo
Apt 3021 - Espargo
PT-4524-904 S.M.Feira
info@cacicambra.pt
www.cacicambra.pt

SLOVENIA
Artek d.o.o.,
Cankarjeva ulica 10
SI-3272 Rimske Toplice, Slovenia
Tel: +386 3 734 6078
Fax: +386 3 734 6079
info@artek.si
www.artek.si

SPAIN
Ardesa S.A.
Camino de Talleri s/n
ES-48170 Zamudio (Vizcaya)
Tel: +34 94 452 0152
Fax: +34 94 452 1372
ardesa@ardesa.com
www.ardesa.com

SOUTH AFRICA
Normark Africa (Pty) Ltd
No. 1489 Zeiss Road
Laser Park Ext. 5
Honeydew, 2040
Republic of South Africa
Tel: +27 (11) 794 6950
info@rapalavmc.co.za
www.rapalasa.co.za

SWEDEN
Frisport AB
Västra Industrigatan 15
SE-782 33 Malung, Sweden
Tel: +46 (0) 31 701 7700
info@frisport.se
www.frisport.se

Skyttеprecision AB
Sockenvägen 31
SE-82661 Söderala, Sweden
Tel: +46 270 287 350
Fax: +46 270 287 250
info@skyttеprecision.se
www.skyttеprecision.se

SWITZERLAND
Grünig & Elmiger
Industriestrasse 22
CH-6102 Malters, Switzerland
Tel: +41 41 499 9040
Fax: +41 41 499 9049
info@gruenel.ch
www.gruenel.ch

UKRAINE
Europe Arm Sport
7 Boulevard Drouzby
01042 KIEV -42, Ukraine
Tel: +380 44 529 95 22
Fax: +380 44 529 70 40
office@ibis-arm.kiev.ua
www.ibis.net.ua

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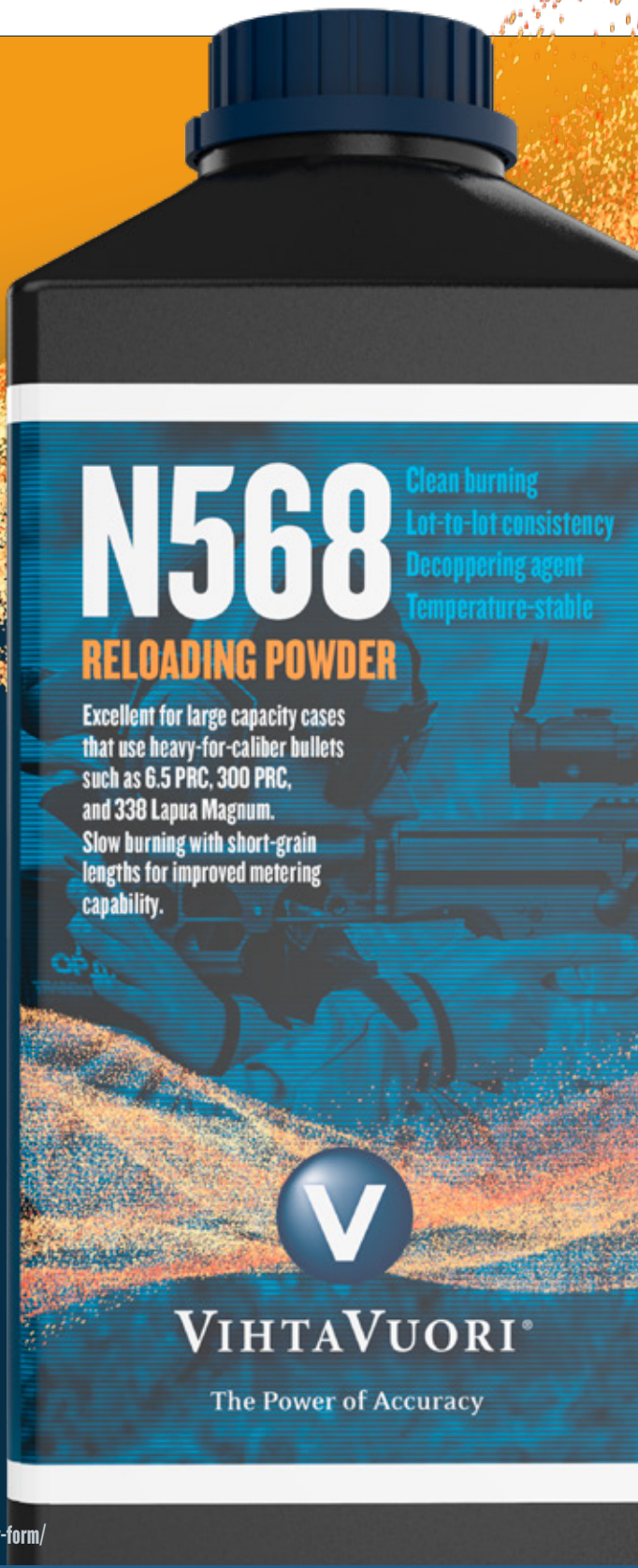

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