

# RELOADING GUIDE for Centerfire Cartridges

1/2004



# VIHTAVUORI

# 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.

CONTACT YOUR LOCAL DEALER OR NAMMO LAPUA OY, [www.nammo.com](http://www.nammo.com).

	Vihtavuori	Norma	RWS	VECTAN	PRB	IMR	Alliant	Hodgdon	Accurate	W-W	
Fast Burning	N310	R1	P805 P801	Ba10	PCL514 PCL504 PCL505 PCL505 PCL506			Clays Clays Int. HP38			
	N320					700X PB SR7625	Bullseye Red Dot Green Dot	Solo 1000 Trap100		231 452	
	N330		P804 P803	Ba9	PCL501		Unique	Clays Universal HS-6	No. 5	473 540	
	N340					SR4756	Herco				
	3N37										
	N350										
	3N38						Blue Dot			571	
	N105							Hercules 2400	HS-7 No.7		
		R-123							No. 9		
	N110		P806 R910	S10 Tubal1	PCL512	SR4759 IMR4227			H110 H4198		296 680
	N120	200	R901				IMR4198	Reloader 7	H4227	MP 5744	
				Tubal2						1680 2015	
	N130	201	R902	Tubal3	PCL508 PCL507	IMR3031		Reloader 11			
	N133	202							H322 BL-(C)2 H335	2230 2460	748
			R903								
N530						IMR4064			2520		
N135			Tubal4			IMR4895	Reloader 12	H4895			
N140	203B	R907	Tubal5	PCL511				Varget			
N540			Tubal6				Reloader15	H380 H414	2700	760	
N150		R904						H4350	4350		
N550			Tubal7			IMR4350	Reloader 19				
	204							H450			
N160						IMR4831				785	
N560	MRP	R905	Tubal8					H4831	3100		
N165	MRP(2)						Reloader 22				
						IMR7828		H1000			
N170									8700		
24N41								H870			
20N29								50BMG			

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# Preface

Dear Vihtavuori customer,

The new Vihtavuori Reloading Guide 1/2004 for Centerfire Ammunition is an updated version of the previous Vihtavuori Reloading Guides. The contents of this new issue has been revised with loading data for the following popular calibres

- .270 Winchester Short Magnum
- .300 Winchester Short Magnum
- 7,62 x 25 Tokarev

Furthermore the loading data has been updated with many new premium-class hunting and match grade bullets. To keep the load data as current as possible, many obsolete bullets has been removed from the tables. As a courtesy to the reloader the load tables contain now notes of compressed loads and loads to fill the case up. For increased usability this new edition features data in both measuring systems i.e. charge weight in grams and grains as well as muzzle velocity in meters and feet per second.

A completely new feature in the Vihtavuori Reloading Guide is the accuracy loads noted in the load tables. These loads utilise world-wide well-known LAPUA cartridge components and are factory-tested either for even pressure/muzzle velocity characters or even grouping, or both. These loads are highlighted in the load tables by grey shadowing.

All the loads in this guide are pressure tested according to the CIP method. The maximum loads given in the tables are determined according to the CIP/SAAMI maximum pressure specifications, whichever is lower. The listed maximum loads must 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 Nexplo Vihtavuori Oy in Vihtavuori plant. Sales and marketing of reloading powders as well as customer service are carried out by Nammo Lapua Oy. Contact details of our customer service and the list of Vihtavuori Distributors can be found in the back of this guide. For latest updates of data and distributors check also at [www.vihtavuori.fi/](http://www.vihtavuori.fi/) [www.lapua.com](http://www.lapua.com), where this guide can also be downloaded in pdf-format.

We wish you successful reloading with Vihtavuori powders.



## Rifle Powders

### N100 series

The series N100 powders are primarily rifle powders, with suitable speeds to optimize handloading from the tiny .17 Remington and .22 Hornet all the way to the monster bashing .458 Winchester Magnum. There are ten speeds in this series and they include:

**N110:** This is a very fast burning propellant that can be used in applications which previously used Hercules 2400, Hodgdon H110, or Winchester 296. Typical applications include: .22 Hornet, .25-20 Winchester, .357 S&W Magnum, .357 Maximum, .44 Magnum, and .45 Winchester Magnum.

**N 120:** This speed needs higher pressure than N110 in order to optimize burning. Burning rate falls near the various 4227s. It works superbly with comparatively light bullets in .22 caliber cartridges. It is, by nature, a limited application propellant.

**N130:** Burning rate is between IMR4227 and the discontinued Winchester 680. This is the powder used in factory loaded .22 and 6mm PPC.

**N133:** This speed is very close to IMR 4198 in quickness. Thus, it is ideal for the .222 Remington, .223 Remington, and .45-70 Government and other applications where a relatively fast burning rifle propellant is needed.

**N135:** This is a moderate burning propellant. It will fit applications similar to Hercules Reloder 12, IMR-4895 or IMR 4064. Applications range from the .17 Remington to the .458 Winchester.

**N140:** This powder can usually be used in place of Hercules Reloder 15, IMR 4320, and Hodgdon H380. Applications include: .222 Remington Magnum, .22-250 Remington (factory powder), .30-30 Winchester, .308 Winchester, .30-06 Springfield, .375 H&H Magnum, and so on.

**N150:** This is a moderately slow powder that can help refine rifle cartridge ballistics when N140 is just a tad too fast and N160 is a tad too slow. Works well in many applications previously filled by 760, H414, and IMR 4350.

**N160:** A relatively slow powder ideally suited to many magnum and standard rounds requiring a slow propellant. It has characteristics that makes it work well for applications previously using various 4350's, Hercules Reloder 19, and the various 4831's. For example some ideal applications are: .243 Winchester, .25-06 Remington, .264 Winchester Magnum, .270 Winchester (factory load), 7mm Remington Magnum, .30-06 Springfield, .300 Winchester Magnum, .338 Winchester Magnum, .375 H&H Magnum, etc. This is destined to being one of our most popular powders.

**N165:** A very slow burning magnum propellant for use with heavy bullets. Applications begin very heavy bullets in the .30-06, and include the .338 Winchester Magnum.

**N170:** Our slowest speed N100-series propellant. Excellent for e. g. .300 Winchester Magnum heavy bullet loads.

### N500 series

Adding nitroglycerol to the traditional single base powder makes possible in addition to geometry and coating a third controlled variable of ballistic properties: energy content. Vihtavuori calls powders which have nitroglycerol added (maximum 25 %) high energy NC-powders, which form N500 series.

Adding nitroglycerol to the high energy N500 series is done by impregnation. After that the grains are coated with a new type of chemical which results in very progressive burning characteristics.

The composition of a typical high energy powder is as follows:

- \* nitrocellulose
- \* coating agent
- \* flame reducing agent
- \* nitroglycerol
- \* stabilizer
- \* wear reducing agent

Geometrically the powders in the N500 series are equal to the N100 series. Although these new powders have a higher energy content, they do not cause greater wear to the gun. This is because the surface of the powder has been treated with an agent designed to reduce barrel wear. N500 series powders work well at different temperatures, even better than the traditional N100 and N300 series. Temperature sensitivity naturally depends very much on the weapon and on the cartridge. The manufacturing technique employed permits a very high bulk density, which in turn makes it possible to use a bigger charge in a certain limited loading volume.

Vihtavuori High Energy powders are available in for burning rates:

**N530:** Burning rate close to N135. Especially for .223 Remington. Excellent also for .45-70 Government.

**N540:** Burning rate like N140. Especially for .308 Winchester.

**N550:** Burning rate like N150. Especially for .308 Winchester and .30-06 Springfield.

**N560:** Burning rate like N160. Especially for .270 Winchester and 6.5 x 55 Swedish Mauser.

### Powders For .50 BMG

For .50 BMG there are two special Vihtavuori powders available, 24N41 and 20N29. They are, like N100 series, single base surface treated powders. The burning rate of them is slower and their grain size is larger than that of the N100 series rifle powders. 24N41 is slightly faster burning than 20N29.



## Handgun Powders

Handgun powders include five N300 series propellants and three special propellants:

**N310:** Very fast burning and competitive with Bullseye and Accurate No.2. It has applications in a very wide range from the .25 ACP to the 9mm Luger.

**N320** is a handgun powder of comparatively fast burning rate. Useful in many popular cartridges. Currently available data includes 9mm Luger, .38 Special, .357 Magnum, .44 Magnum, .45 ACP and .45 (Long) Colt. Burning rate generally is perhaps a tad faster than 231 or generally about like Red Dot.

**N330:** This is a handgun powder that has a burning rate similar to Green Dot, No. 5, or PB. Data is currently available for 9mm Luger, .38 Special, .40 S&W, .44 S&W Special and .45 (Long) Colt.

**N340:** With a burning rate not dissimilar to Winchester 540 or Herco, this powder is a wide application type. Data for the following handgun cartridges is currently available: .30 Luger, 9mm Luger, .38 S&W (Colt New Police), .38 Super Auto, .38 Special, .357 Magnum, .44 Magnum, .45 Auto and .45 (Long) Colt.

**N350:** This is the slowest burning propellant in the N300 series. Burning speed is about like Blue Dot, "Hi-Skor" 800-X or No. 7. Data is currently available for: 9mm Luger, .38 Super Auto, .38 Special, .357 Magnum, .44 Magnum and .45 Auto.

**3N37:** Burning speed is between N340 and N350, close to "Hi-Skor" 800-X, and it therefore has applications also in handgun cartridges. Data is currently available for all popular handgun calibers. The characteristics of this propellant makes it very desirable for competitive handgun shooting.

**3N38:** A powder for the high velocity loads of the 9mm Luger and the .38 Super with moderate bullet weight. Designed specially for competitive handgun shooting.

**N105 Super Magnum:** This special powder has a burning rate between N350 and N110. It is especially developed for handgun cartridges with heavy bullets and/or large case volume. Reloading data is currently available for 9 x 21mm, .38 Super Auto, .357 Magnum, .40 S&W, 10mm Auto, .44 Remington Magnum and .45 Winchester Magnum.

## About the Data

### Disclaimer

As Nammo Lapua 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 dis-

claim 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 Lapua 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 9 and 10.

## 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 must be supplemented by a good reloading handbook such as the Lapua Reloading Manual, the DBI Metallic Cartridge Reloading, the Vihtavuori Reloading Manual or other recognized manuals that may offer all appropriate information.

## Properties 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 burn 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.

## 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 bum 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.

## 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.

**DO NOT SUBJECT THE STORAGE CABINETSSHOULD 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 overpressure signs immediately stop shooting and reduce the charge.** Disassemble always the defected 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 dues to a potential risk of exposure because of spilled powder it collects up. Furthermore an ordinary vacuum cleaner more spreads than collects up 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 cleaning media in tumbling the cartridge cases keep in mind that the lead residual from the fired cases moves to the dry cleaning 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. 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 9 AND 10 OF THIS GUIDE.

### .22 Hornet

Test barrel: 600 mm (23½"), 1 in 16" twist

Primers: Small Rifle

Cases: Sako, trim-to length 35.40 mm (1.394")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>2,6</b>	<b>40</b>	Spire Point	Speer	43,5	1,713	N110	0,52	8,0	713	2338	<b>0,65</b>	<b>10,1</b>	<b>813</b>	<b>2668</b>
<b>2,9</b>	<b>45</b>	Spitzer	Speer	43,5	1,713	N110	0,48	7,3	654	2144	<b>0,60</b>	<b>9,3</b>	<b>746</b>	<b>2448</b>
<b>3,2</b>	<b>50</b>	Spitzer	Speer	43,5	1,713	N110	0,47	7,3	609	1997	<b>0,56</b>	<b>8,7</b>	<b>693</b>	<b>2274</b>
<b>3,6</b>	<b>55</b>	Spitzer	Speer	43,5	1,713	N120	0,62	9,5	612	2008	<b>0,74</b>	<b>11,3</b>	<b>724</b>	<b>2375</b>
						N110	0,41	6,4	561	1841	<b>0,53F</b>	<b>8,2F</b>	<b>644</b>	<b>2111</b>
						N120	0,58	9,0	574	1884	<b>0,69</b>	<b>10,6</b>	<b>679</b>	<b>2229</b>

F = Case full

### .222 Remington

Test barrel: 580 mm (23"), 1 in 14" twist

Primers: Small Rifle

Cases: LAPUA, trim-to length 43.00 mm (1.693")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>2,6</b>	<b>40</b>	Spire Point	Speer	53,0	2,087	N110	0,97	15,0	930	3052	<b>1,15</b>	<b>17,7</b>	<b>1035</b>	<b>3397</b>
		Hornet	Sierra	52,0	2,047	N120	1,29	19,9	981	3220	<b>1,42</b>	<b>21,8</b>	<b>1077</b>	<b>3532</b>
		Spire Point	Speer	52,0	2,047	N120	1,32	20,4	999	3278	<b>1,46</b>	<b>22,5</b>	<b>1116</b>	<b>3661</b>
<b>2,9</b>	<b>45</b>	Spitzer	Speer	53,0	2,087	N130	1,44	22,2	998	3273	<b>1,60</b>	<b>24,7</b>	<b>1109</b>	<b>3637</b>
						N133	1,48	22,8	984	3228	<b>1,63</b>	<b>25,2</b>	<b>1072</b>	<b>3517</b>
						N110	0,92	14,2	871	2858	<b>1,10</b>	<b>17,0</b>	<b>975</b>	<b>3197</b>
						N120	1,28	19,8	948	3109	<b>1,42</b>	<b>21,8</b>	<b>1050</b>	<b>3444</b>
<b>2,9</b>	<b>45</b>	Hornet	Hornady	53,6	2,110	N130	1,44	22,2	973	3193	<b>1,58</b>	<b>24,3</b>	<b>1074</b>	<b>3523</b>
						N133	1,50	23,2	967	3173	<b>1,62</b>	<b>25,0</b>	<b>1051</b>	<b>3448</b>
						N110	0,92	14,2	871	2858	<b>1,10</b>	<b>17,0</b>	<b>975</b>	<b>3197</b>
<b>3,2</b>	<b>50</b>	SXSP	Hornady	53,8	2,118	N120	1,24	19,1	898	2946	<b>1,38</b>	<b>21,2</b>	<b>997</b>	<b>3271</b>
						N130	1,36	21,0	912	2992	<b>1,51</b>	<b>23,4</b>	<b>1016</b>	<b>3332</b>
						N133	1,48	22,8	930	3051	<b>1,64</b>	<b>25,3</b>	<b>1043</b>	<b>3420</b>
						N135	1,50	23,1	907	2975	<b>1,62F</b>	<b>25,0F</b>	<b>998</b>	<b>3274</b>

F = Case full

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

## .222 Remington

Test barrel: 580 mm (23"), 1 in 14" twist  
 Primers: Small Rifle  
 Cases: LAPUA, trim-to length 43.00 mm (1.693")

Bullet					Powder	Starting load					Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
3,3	51	HPCE	LAPUA	54,0	2,126	N120	1,15	17,7	863	2831	1,27	19,6	956	3136
						N130	1,26	19,4	877	2877	1,39	21,4	979	3212
						N133	1,35	20,8	909	2982	1,47	22,7	971	3186
3,4	52	HPBT	Sierra	54,0	2,126	N130	1,31	20,2	883	2898	1,49	23,0	970	3184
						N133	1,43	22,0	883	2897	1,59	24,6	955	3133
						N135	1,53	23,6	909	2981	1,62	25,0	953	3126
3,6	55	SP FMJBT SP	Sako	54,2	2,134	N120	1,20	18,6	856	2809	1,35	20,9	957	3139
			Hornady	53,8	2,118	N130	1,32	20,4	877	2876	1,47	22,7	979	3211
			Sako	54,2	2,134	N133	1,44	22,3	892	2927	1,59	24,6	987	3237
3,6	55	FMJ	LAPUA	53,9	2,122	N135	1,50	23,1	892	2928	1,62	25,0	972	3188
						N120	1,15	17,7	837	2746	1,25	19,3	911	2989
						N130	1,25	19,3	865	2838	1,36	21,0	938	3077
3,9	60	HP	Hornady	54,0	2,126	N130	1,29	19,9	829	2720	1,47	22,7	937	3074
				53,8	2,118	N133	1,39	21,4	844	2769	1,55	23,9	952	3123
				54,0	2,126	N135	1,40	21,6	836	2743	1,64F	25,3F	900	2953
4,5	69	HPBT	Sierra	54,0	2,126	N120	1,15	17,7	803	2633	1,33	20,5	909	2983
						N130	1,21	18,6	768	2519	1,33	20,5	852	2794
						N133	1,30	20,1	785	2577	1,44	22,1	863	2832
4,5	69	HPBT	Sierra	54,0	2,126	N135	1,35	20,8	792	2597	1,53	23,6	880	2888
						N140	1,47	22,7	798	2617	1,61	24,8	886	2907

F = Case full

= accuracy load

## .223 Remington

Test barrel: 620 mm (25"), 1 in 12" twist  
 Primers: Small Rifle  
 Cases: LAPUA, trim-to length 44.50 mm (1.752")

Bullet					Powder	Starting load					Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
2,6	40	Spire Point	Speer	52,7	2,075	N120	1,49	22,9	1055	3461	1,60	24,6	1136	3727
						N130	1,62	25,0	1065	3494	1,74	26,8	1152	3780
						N133	1,69	26,1	1067	3500	1,84F	28,4F	1172	3846
2,9	45	Spitzer	Speer	54,0	2,126	N120	1,45	22,3	999	3278	1,56	24,0	1083	3553
						N130	1,57	24,2	1014	3327	1,71	26,3	1098	3602
						N133	1,66	25,6	1021	3351	1,80F	27,7F	1118	3669
3,2	50	TNT-HP	Speer	57,0	2,244	N135	1,67	25,7	982	3221	1,80F	27,8F	1078	3536
						N120	1,41	21,8	956	3136	1,54	23,8	1037	3402
						N130	1,53	23,6	972	3188	1,65	25,5	1055	3460
3,3	51	HPCE	LAPUA	57,0	2,244	N133	1,63	25,1	978	3209	1,74	26,8	1065	3494
						N135	1,65	25,5	964	3163	1,75	27,1	1042	3419
						N120	1,19	18,4	886	2907	1,39	21,4	997	3271
3,3	51	HPCE	LAPUA	57,0	2,244	N130	1,38	21,3	928	3045	1,51	23,3	1016	3333
						N133	1,42	21,9	920	3018	1,58	24,4	1019	3343
						N135	1,50	23,1	932	3058	1,64F	25,3F	1021	3350
3,4	52	HPBT	Sierra	57,0	2,244	N530	1,50	23,1	937	3074	1,65F	25,5F	1036	3399
						N130	1,45	22,3	935	3069	1,62	24,9	1032	3387
						N133	1,58	24,3	949	3112	1,72	26,5	1044	3424
3,4	52	HPBT	Sierra	57,0	2,244	N135	1,64	25,3	953	3126	1,82F	28,1F	1051	3447

F = Case full

= accuracy load

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

# .223 Remington

Test barrel: 620 mm (25"), 1 in 12" twist (\* 1 in 7" twist)

Primers: Small Rifle

Cases: LAPUA, trim-to length 44.50 mm (1.752")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
3,6	55	FMJBT	Hornady	57,0	2,244	N120	1,33	20,6	892	2925	1,52	23,5	987	3237
						N130	1,47	22,7	922	3026	1,60	24,7	1010	3315
						N133	1,53	23,7	923	3028	1,69	26,1	1016	3333
						N135	1,63	25,2	938	3077	1,78	27,5	1025	3363
3,6	55	FMJ	LAPUA	57,0	2,244	N140	1,68	25,9	902	2961	1,82F	28,1F	988	3241
						N120	1,18	18,2	848	2782	1,35	20,8	945	3100
						N130	1,25	19,3	852	2795	1,47	22,7	966	3169
						N133	1,45	22,4	909	2982	1,59	24,5	990	3248
3,9	60	HP	Hornady	57,0	2,244	N530	1,50	23,1	911	2989	1,65	25,5	1013	3323
						N135	1,50	23,1	911	2989	1,66	25,6	1008	3307
						N140	1,63	25,2	913	2995	1,70F	26,2F	954	3130
						N130	1,43	22,1	879	2885	1,59	24,6	961	3154
4,5	69	HPBT	Sierra	57,0	2,244	N133	1,51	23,2	876	2874	1,68	25,9	969	3179
						N135	1,59	24,6	894	2932	1,72	26,6	959	3145
						N140	1,65	25,5	865	2837	1,76	27,2	924	3030
						N133	1,38	21,3	809	2653	1,54	23,8	889	2916
4,5	69	Scenar	LAPUA	57,4	2,260	N135	1,50	23,1	822	2698	1,65	25,5	913	2997
						N140	1,60	24,6	835	2741	1,80F	27,8F	936	3069
						N540	1,66	25,7	849	2785	1,82	28,1	942	3091
						N135	1,40	21,6	847	2779	1,49	23,0	905	2969
4,9	75	BTHP <sup>1)</sup>	Hornady	57,4	2,260	N140	1,48	22,8	835	2740	1,63	25,2	917	3009
						N540	1,56	24,1	878	2281	1,70	26,2	969	3179
						N530	1,38	21,3	793	2602	1,48	22,9	859	2817
						N135	1,43	22,0	787	2582	1,60	24,6	868	2848
5,2	80	HPBT <sup>1,2)</sup>	Sierra	64,8	2,551	N140	1,55	23,8	795	2608	1,72	26,5	887	2910
						N540	1,59	24,6	806	2644	1,75	27,0	896	2940
						N135	1,22	18,8	711	2333	1,40	21,6	788	2587
						N530	1,30	20,0	713	2339	1,50	23,1	801	2630
5,2	80	HPBT <sup>1,2)</sup>	Sierra	64,8	2,551	N140	1,34	20,7	730	2395	1,49	23,0	807	2646
						N540	1,39	21,4	730	2395	1,53	23,7	808	2652

F = Case full

1) 1 in 7" twist

2) Test barrel with a long throat to accept the C.O.L. of 65 mm (2,559")

# 22 PPC-USA

Test barrel: 610 mm (24"), 1 in 14" twist

Primers: Small Rifle

Cases: Sako, trim-to length 38.30 mm (1.508")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
3,4	52	HPBT	Sierra	51,4	2,024	N120	1,33	20,5	919	3016	1,56	24,1	1039	3408
						N130	1,43	22,1	934	3063	1,66	25,6	1069	3507
						N133	1,51	23,3	947	3107	1,77	27,3	1087	3565
3,6	55	Spitzer	Speer	51,8	2,039	N135	1,65	25,5	971	3185	1,90	29,2	1099	3607
						N130	1,41	21,8	898	2946	1,69	26,1	1026	3367
						N133	1,45	22,4	901	2956	1,78	27,4	1039	3409
						N135	1,68	25,9	961	3151	1,93	29,7	1103	3617

**BOLD TEXT INDICATES MAXIMUM LOAD - USE WITH CAUTION!**

LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED



## .22-250 Remington

Test barrel: 580 mm (22"), 1 in 14" twist  
 Primers: Large Rifle  
 Cases: Remington, trim-to length 48.30 mm (1.902")

Bullet					Powder	Starting load					Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity			Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]	
2,9	45	Spitzer	Speer	58,9	2,319	N130	1,99	30,7	1106	3628	<b>2,15</b>	<b>33,2</b>	<b>1180</b>	<b>3872</b>	
						N135	2,19	33,8	1102	3614	<b>2,34</b>	<b>36,1</b>	<b>1180</b>	<b>3872</b>	
						N140	2,32	35,8	1108	3634	<b>2,50</b>	<b>38,6</b>	<b>1197</b>	<b>3926</b>	
3,2	50	Spitzer	Speer	59,6	2,346	N130	1,75	27,1	958	3143	<b>1,95</b>	<b>30,1</b>	<b>1068</b>	<b>3506</b>	
						N135	1,94	30,0	983	3227	<b>2,15</b>	<b>33,2</b>	<b>1086</b>	<b>3563</b>	
						N140	2,08	32,1	977	3206	<b>2,34</b>	<b>36,1</b>	<b>1088</b>	<b>3571</b>	
						N150	2,14	32,9	978	3208	<b>2,40</b>	<b>37,0</b>	<b>1087</b>	<b>3565</b>	
3,6	55	Spitzer	Speer	59,6	2,346	N135	1,98	30,6	974	3197	<b>2,15</b>	<b>33,2</b>	<b>1051</b>	<b>3449</b>	
						N140	2,16	33,3	986	3233	<b>2,31</b>	<b>35,6</b>	<b>1058</b>	<b>3472</b>	
						N150	2,22	34,3	988	3242	<b>2,41</b>	<b>37,2</b>	<b>1069</b>	<b>3507</b>	
3,9	60	HP	Hornady	59,6	2,346	N140	2,03	31,3	929	3046	<b>2,22</b>	<b>34,2</b>	<b>1006</b>	<b>3301</b>	
						N150	2,07	32,0	924	3030	<b>2,29</b>	<b>35,3</b>	<b>1007</b>	<b>3303</b>	
4,5	69	HPBT	Sierra	59,6	2,346	N140	1,83	28,2	832	2731	<b>2,16</b>	<b>33,4</b>	<b>949</b>	<b>3114</b>	
						N150	1,91	29,4	845	2773	<b>2,24</b>	<b>34,6</b>	<b>956</b>	<b>3138</b>	
						N160	2,36	36,4	863	2830	<b>2,66</b>	<b>41,0</b>	<b>981</b>	<b>3219</b>	
						N540	1,90	29,4	857	2812	<b>2,22</b>	<b>34,3</b>	<b>977</b>	<b>3205</b>	
						N550	2,07	31,9	878	2879	<b>2,39</b>	<b>36,9</b>	<b>1001</b>	<b>3284</b>	
						N560	2,33	35,9	866	2842	<b>2,76</b>	<b>42,6</b>	<b>1002</b>	<b>3288</b>	

## 6 PPC-USA

Test barrel: 580 mm (23"), 1 in 14" twist  
 Primers: Small Rifle  
 Cases: Sako, trim to 38,30 mm (1,508")

Bullet					Powder	Starting load					Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity			Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]	
4,4	68	HPFB	Euber	53,6	2,110	N130	1,52	23,4	843	2766	<b>1,68</b>	<b>25,9</b>	<b>928</b>	<b>3045</b>	
						N133	1,63	25,2	840	2756	<b>1,83C</b>	<b>28,2C</b>	<b>951</b>	<b>3120</b>	
4,5	70	HPBT	Sierra	53,6	2,110	N120	1,39	21,5	809	2654	<b>1,55</b>	<b>23,9</b>	<b>901</b>	<b>2956</b>	
						N130	1,47	22,7	820	2690	<b>1,69</b>	<b>26,1</b>	<b>934</b>	<b>3064</b>	
						N133	1,59	24,6	826	2710	<b>1,79C</b>	<b>27,6C</b>	<b>935</b>	<b>3068</b>	

C = Compressed load

## 6 mm B.R. Norma

Test barrel: 650 mm (25½"), 1 in 8" twist  
 Primers: Small Rifle  
 Cases: LAPUA, trim-to length 39,4 mm (1,551")

Bullet					Powder	Starting load					Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity			Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]	
4,5	70	HPBT	Sierra	57,0	2,244	N133	1,64	25,3	864	2834	<b>1,86</b>	<b>28,7</b>	<b>957</b>	<b>3140</b>	
						N135	1,88	29,0	901	2956	<b>2,20</b>	<b>33,9</b>	<b>1009</b>	<b>3310</b>	
5,0	77	Silver Jacket HP	LAPUA	60,0	2,362	N133	1,85	28,5	884	2900	<b>2,01</b>	<b>31,0</b>	<b>964</b>	<b>3163</b>	
						N140	2,05	31,6	900	2953	<b>2,22</b>	<b>34,3</b>	<b>982</b>	<b>3222</b>	
						N540	2,14	33,0	914	2999	<b>2,31</b>	<b>35,6</b>	<b>999</b>	<b>3278</b>	
							N140	1,68	26,0	788	2584	<b>1,93</b>	<b>29,8</b>	<b>871</b>	<b>2858</b>
5,8	90	FMJ	LAPUA	60,0	2,362	N540	1,69	26,1	757	2484	<b>2,20</b>	<b>33,9</b>	<b>952</b>	<b>3123</b>	

= accuracy load

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

# 6 mm B.R. Norma

Test barrel: 650 mm (25½"), 1 in 8" twist

Primers: Small Rifle

Cases: LAPUA, trim-to length 39,4 mm (1,551")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>5,8</b>	<b>90</b>	Silver Jacket Scenar	LAPUA	60,0	2,362	N135	1,85	28,5	830	2723	<b>2,00</b>	<b>30,9</b>	<b>906</b>	<b>2972</b>
						N140	1,96	30,2	847	2779	<b>2,12</b>	<b>32,7</b>	<b>922</b>	<b>3025</b>
						N540	2,02	31,2	854	2802	<b>2,19</b>	<b>33,8</b>	<b>936</b>	<b>3071</b>
<b>6,5</b>	<b>100</b>	Mega	LAPUA	55,3	2,177	N140	1,66	25,6	737	2419	<b>1,88</b>	<b>29,0</b>	<b>825</b>	<b>2707</b>
						N540	1,81	27,9	772	2533	<b>2,01</b>	<b>31,0</b>	<b>857</b>	<b>2812</b>
<b>6,8</b>	<b>105</b>	Scenar	LAPUA	60,0	2,362	N140	1,67	25,8	746	2447	<b>1,87</b>	<b>28,9</b>	<b>821</b>	<b>2694</b>
						N540	1,75	27,0	756	2480	<b>1,97</b>	<b>30,4</b>	<b>846</b>	<b>2776</b>
<b>6,8</b>	<b>105</b>	Silver Jacket Scenar	LAPUA	60,0	2,362	N140	1,83	28,2	763	2503	<b>2,00</b>	<b>30,9</b>	<b>843</b>	<b>2766</b>
						N150	1,85	28,5	769	2523	<b>2,05</b>	<b>31,6</b>	<b>841</b>	<b>2759</b>
						N540	1,88	29,0	777	2549	<b>2,08</b>	<b>32,1</b>	<b>861</b>	<b>2825</b>

= accuracy load

# .243 Winchester

Test barrel: 580 mm (23"), 1 in 10" twist

Primers: Large Rifle

Cases: LAPUA, trim-to length 51.80 mm (2.039")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>4,5</b>	<b>70</b>	SXSP	Hornady	67,0	2,638	N133	2,16	33,3	940	3084	<b>2,39</b>	<b>36,9</b>	<b>981</b>	<b>3219</b>
						N135	2,36	36,4	901	2956	<b>2,62</b>	<b>40,4</b>	<b>1009</b>	<b>3310</b>
						N140	2,51	38,7	915	3002	<b>2,80</b>	<b>43,2</b>	<b>1033</b>	<b>3389</b>
						N150	2,57	39,7	920	3018	<b>2,86</b>	<b>44,1</b>	<b>1031</b>	<b>3383</b>
						N160	2,99	46,1	916	3005	<b>3,32</b>	<b>51,2</b>	<b>1052</b>	<b>3451</b>
<b>5,2</b>	<b>80</b>	FMJ	Hornady	68,0	2,677	N135	2,18	33,6	865	2838	<b>2,40</b>	<b>37,0</b>	<b>928</b>	<b>3045</b>
						N140	2,30	35,5	870	2854	<b>2,55</b>	<b>39,4</b>	<b>942</b>	<b>3091</b>
						N150	2,27	35,0	877	2877	<b>2,52</b>	<b>38,9</b>	<b>935</b>	<b>3068</b>
<b>5,6</b>	<b>87</b>	HPBT	Hornady	68,3	2,689	N160	2,83	43,7	874	2867	<b>3,15</b>	<b>48,6</b>	<b>982</b>	<b>3222</b>
						N140	2,22	34,3	835	2740	<b>2,48</b>	<b>38,3</b>	<b>907</b>	<b>2976</b>
						N150	2,19	33,8	840	2756	<b>2,46</b>	<b>38,0</b>	<b>898</b>	<b>2946</b>
						N160	2,72	42,0	836	2743	<b>3,02</b>	<b>46,6</b>	<b>940</b>	<b>3084</b>
						N560	2,80	43,2	881	2890	<b>3,11</b>	<b>48,0</b>	<b>960</b>	<b>3150</b>
<b>5,8</b>	<b>90</b>	FMJ	LAPUA	68,3	2,689	N150	1,51	23,3	712	2336	<b>2,13</b>	<b>32,8</b>	<b>886</b>	<b>2907</b>
						N550	1,98	30,6	791	2595	<b>2,53</b>	<b>39,0</b>	<b>959</b>	<b>3146</b>
						N160	2,02	31,1	794	2605	<b>2,65</b>	<b>40,9</b>	<b>953</b>	<b>3127</b>
<b>6,2</b>	<b>95</b>	X	Barnes	68,8	2,709	N560	1,85	28,5	679	2228	<b>2,44</b>	<b>37,7</b>	<b>831</b>	<b>2726</b>
<b>6,5</b>	<b>100</b>	Mega	LAPUA	68,3	2,689	N150	1,53	23,6	693	2274	<b>2,10</b>	<b>32,4</b>	<b>874</b>	<b>2867</b>
						N550	2,13	32,8	782	2566	<b>2,76</b>	<b>42,0</b>	<b>975</b>	<b>3199</b>
						N160	2,33	35,9	809	2654	<b>2,78</b>	<b>42,8</b>	<b>940</b>	<b>3084</b>
<b>6,5</b>	<b>100</b>	SPBT	Hornady	67,3	2,650	N160	2,65	40,9	797	2615	<b>2,94</b>	<b>45,4</b>	<b>885</b>	<b>2904</b>
						N560	2,68	41,4	822	2697	<b>2,96</b>	<b>45,7</b>	<b>903</b>	<b>2963</b>
						N165	2,85	44,0	807	2648	<b>3,19</b>	<b>49,2</b>	<b>894</b>	<b>2933</b>
						N160	2,28	35,2	744	2441	<b>2,54</b>	<b>39,2</b>	<b>803</b>	<b>2635</b>
<b>6,8</b>	<b>105</b>	Spitzer	Speer	68,5	2,697	N560	2,28	35,2	758	2487	<b>2,52</b>	<b>38,9</b>	<b>829</b>	<b>2720</b>
						N160	2,28	35,2	744	2441	<b>2,54</b>	<b>39,2</b>	<b>803</b>	<b>2635</b>
<b>6,8</b>	<b>105</b>	Scenar	LAPUA <sup>1)</sup>	68,3	2,689	N550	2,24	34,6	786	2579	<b>2,62</b>	<b>40,4</b>	<b>891</b>	<b>2923</b>
						N160	2,36	36,4	786	2579	<b>2,77</b>	<b>42,8</b>	<b>895</b>	<b>2936</b>
						N165	2,74	42,2	803	2635	<b>3,14</b>	<b>48,5</b>	<b>918</b>	<b>3012</b>

<sup>1)</sup> The test barrel rifle twist 1 in 8"

**BOLD TEXT INDICATES MAXIMUM LOAD - USE WITH CAUTION!**

LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

## .240 Weatherby Magnum

Test barrel: 600 mm (25"), 1 in 10" twist  
 Primers: Large Rifle Magnum  
 Cases: Norma, trim-to length 63.20 mm (2.488")

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

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>4,9</b>	<b>75</b>	HP	Hornady	78,1	3,075	N150	2,94	45,4	995	3266	<b>3,17</b>	<b>48,9</b>	<b>1076</b>	<b>3532</b>
						N550	3,20	49,4	1028	3371	<b>3,38</b>	<b>52,2</b>	<b>1111</b>	<b>3645</b>
						N160	3,34	51,6	1010	3314	<b>3,52</b>	<b>54,2</b>	<b>1094</b>	<b>3589</b>
<b>5,0</b>	<b>77</b>	HP	Lapua	78,1	3,075	N150	2,97	45,8	990	3248	<b>3,15</b>	<b>48,7</b>	<b>1055</b>	<b>3460</b>
						N550	3,20	49,3	1014	3327	<b>3,37</b>	<b>51,9</b>	<b>1095</b>	<b>3591</b>
						N160	3,34	51,5	1005	3297	<b>3,51</b>	<b>54,1</b>	<b>1084</b>	<b>3556</b>
<b>5,8</b>	<b>90</b>	Scenar	Lapua	78,1	3,075	N550	2,98	46,0	939	3081	<b>3,22</b>	<b>49,6</b>	<b>1013</b>	<b>3325</b>
						N160	3,20	49,3	938	3077	<b>3,41</b>	<b>52,6</b>	<b>1014</b>	<b>3327</b>
						N165	3,47	53,6	949	3114	<b>3,71</b>	<b>57,2</b>	<b>1031</b>	<b>3383</b>
<b>6,5</b>	<b>100</b>	Mega	Lapua	78,1	3,075	N550	2,94	45,4	891	2923	<b>3,16</b>	<b>48,7</b>	<b>966</b>	<b>3170</b>
						N160	3,06	47,2	895	2936	<b>3,26</b>	<b>50,3</b>	<b>956</b>	<b>3137</b>
						N165	3,47	53,6	949	3114	<b>3,62</b>	<b>55,8</b>	<b>989</b>	<b>3246</b>
<b>6,8</b>	<b>105</b>	Spitzer	Speer	77,8	3,063	N160	2,83	43,6	852	2795	<b>3,15</b>	<b>48,7</b>	<b>935</b>	<b>3068</b>
						N560	3,23	49,8	887	2910	<b>3,47</b>	<b>53,5</b>	<b>962</b>	<b>3157</b>
						N165	3,33	51,3	895	2936	<b>3,57</b>	<b>55,2</b>	<b>969</b>	<b>3180</b>

## .25-06 Remington

Test barrel: 580 mm (23"), 1 in 10" twist  
 Primers: Large Rifle  
 Cases: Remington, trim-to length 63.10 mm (2.484")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>5,6</b>	<b>87</b>	SPBT	Speer	79,3	3,122	N140	2,35	36,2	876	2873	<b>2,74</b>	<b>42,3</b>	<b>961</b>	<b>3153</b>
						N150	2,51	38,7	892	2925	<b>2,91</b>	<b>44,9</b>	<b>980</b>	<b>3215</b>
						N160	3,15	48,6	935	3069	<b>3,55</b>	<b>54,8</b>	<b>1020</b>	<b>3346</b>
<b>6,5</b>	<b>100</b>	SPBT	Speer	81,2	3,197	N165	3,52	54,3	960	3149	<b>3,95</b>	<b>60,9</b>	<b>1049</b>	<b>3442</b>
						N140	2,60	40,0	873	2864	<b>2,78</b>	<b>42,9</b>	<b>924</b>	<b>3031</b>
						N150	2,66	41,0	878	2881	<b>2,86</b>	<b>44,1</b>	<b>930</b>	<b>3051</b>
<b>7,8</b>	<b>120</b>	Spizer	Speer	80,2	3,157	N160	3,24	50,0	911	2990	<b>3,38</b>	<b>52,2</b>	<b>966</b>	<b>3169</b>
						N560	3,16	48,8	900	2954	<b>3,59</b>	<b>55,4</b>	<b>990</b>	<b>3248</b>
						N165	3,44	53,0	922	3024	<b>3,66</b>	<b>56,5</b>	<b>979</b>	<b>3212</b>
<b>7,8</b>	<b>120</b>	Spizer	Speer	80,2	3,157	N170	3,55	54,7	885	2902	<b>4,05</b>	<b>62,5</b>	<b>975</b>	<b>3199</b>
						N150	1,95	30,1	692	2270	<b>2,32</b>	<b>35,8</b>	<b>776</b>	<b>2546</b>
						N160	2,50	38,6	759	2491	<b>2,94</b>	<b>45,4</b>	<b>844</b>	<b>2769</b>
<b>7,8</b>	<b>120</b>	HPBT	Sierra	80,0	3,155	N560	2,81	43,3	798	2619	<b>3,24</b>	<b>50,0</b>	<b>890</b>	<b>2920</b>
						N165	2,69	41,5	777	2548	<b>3,13</b>	<b>48,3</b>	<b>853</b>	<b>2799</b>
						N170	3,17	48,9	802	2630	<b>3,59</b>	<b>55,4</b>	<b>873</b>	<b>2864</b>
<b>7,8</b>	<b>120</b>	HPBT	Sierra	80,0	3,155	N160	2,75	42,4	791	2597	<b>3,09</b>	<b>47,7</b>	<b>871</b>	<b>2858</b>
						N560	2,95	45,6	818	2685	<b>3,33</b>	<b>51,4</b>	<b>903</b>	<b>2963</b>
						N165	3,03	46,8	817	2681	<b>3,38</b>	<b>52,2</b>	<b>889</b>	<b>2917</b>
						N170	3,35	51,7	817	2682	<b>3,81</b>	<b>58,8</b>	<b>904</b>	<b>2966</b>

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

# .260 Remington

Test barrel: 475 mm (18¾"), 1 in 9" twist

Primers: Large Rifle

Cases: Necked-up LAPUA .243 Winchester, trim-to length 51.50 mm (2.028")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>6,5</b>	<b>100</b>	HPFB	Sierra	67,5	2,657	N140	2,30	35,5	825	2708	<b>2,59</b>	<b>39,9</b>	<b>906</b>	<b>2973</b>
						N150	2,31	35,7	813	2669	<b>2,61</b>	<b>40,3</b>	<b>892</b>	<b>2926</b>
						N540	2,39	36,9	831	2725	<b>2,67</b>	<b>41,2</b>	<b>912</b>	<b>2992</b>
<b>7,0</b>	<b>108</b>	Scenar	LAPUA	71,0	2,795	N150	2,28	35,1	791	2594	<b>2,54</b>	<b>39,1</b>	<b>865</b>	<b>2837</b>
						N540	2,35	36,2	802	2631	<b>2,58</b>	<b>39,9</b>	<b>877</b>	<b>2876</b>
						N160	2,66	41,0	814	2670	<b>2,92</b>	<b>45,0</b>	<b>898</b>	<b>2947</b>
<b>7,8</b>	<b>120</b>	SP	Speer	71,0	2,795	N540	2,22	34,2	749	2456	<b>2,48</b>	<b>38,2</b>	<b>825</b>	<b>2706</b>
						N550	2,36	36,5	765	2511	<b>2,64</b>	<b>40,7</b>	<b>835</b>	<b>2741</b>
						N160	2,47	38,2	755	2478	<b>2,80</b>	<b>43,2</b>	<b>838</b>	<b>2750</b>
<b>9,0</b>	<b>139</b>	Scenar	LAPUA	71,0	2,795	N550	2,15	33,1	690	2263	<b>2,46</b>	<b>38,0</b>	<b>772</b>	<b>2533</b>
						N160	2,32	35,8	692	2272	<b>2,63</b>	<b>40,6</b>	<b>771</b>	<b>2529</b>
						N560	2,57	39,6	704	2311	<b>2,86</b>	<b>44,1</b>	<b>788</b>	<b>2586</b>
<b>10,1</b>	<b>155</b>	Mega	LAPUA	69,5	2,736	N160	2,14	33,0	651	2134	<b>2,41</b>	<b>37,1</b>	<b>711</b>	<b>2332</b>
						N560	2,37	36,6	651	2137	<b>2,72</b>	<b>42,0</b>	<b>735</b>	<b>2412</b>
						N165	2,52	38,8	673	2208	<b>2,83</b>	<b>43,7</b>	<b>755</b>	<b>2478</b>

# 6,5 x 55 Swedish Mauser

Test barrel: 630 mm (26½"), 1 in 8½" twist

Primers: Large Rifle

Cases: LAPUA, trim-to length 54.80 mm (2.157")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>5,5</b>	<b>85</b>	HP	Sierra	71,1	2,799	N150	2,88	44,5	937	3073	<b>3,03</b>	<b>46,8</b>	<b>1013</b>	<b>3323</b>
<b>6,5</b>	<b>100</b>	HP	Sierra	72,4	2,850	N140	2,62	40,4	860	2822	<b>2,78</b>	<b>42,8</b>	<b>911</b>	<b>2990</b>
						N540	2,65	40,9	858	2815	<b>2,88</b>	<b>44,4</b>	<b>938</b>	<b>3078</b>
						N150	2,69	41,5	860	2822	<b>2,86</b>	<b>44,1</b>	<b>915</b>	<b>3003</b>
						N550	2,82	43,5	884	2900	<b>3,03</b>	<b>46,8</b>	<b>960</b>	<b>3150</b>
						N160	3,13	48,3	878	2881	<b>3,33</b>	<b>51,4</b>	<b>942</b>	<b>3090</b>
<b>6,5</b>	<b>100</b>	FMJ	LAPUA	70,0	2,756	N160	3,08	47,5	862	2828	<b>3,39</b>	<b>52,3</b>	<b>946</b>	<b>3104</b>
						<b>6,5</b>	<b>100</b>	Scenar	LAPUA	75,0	2,953	N135	2,15	33,2
N140	2,32	35,8	790	2592	<b>2,64</b>							<b>40,7</b>	<b>915</b>	<b>3002</b>
N540	2,35	36,3	790	2592	<b>2,70</b>							<b>41,7</b>	<b>924</b>	<b>3031</b>
N150	2,37	36,6	793	2602	<b>2,74</b>							<b>42,3</b>	<b>903</b>	<b>2963</b>
N550	2,58	39,8	790	2592	<b>2,97</b>							<b>45,8</b>	<b>938</b>	<b>3077</b>
N160	2,78	42,9	790	2592	<b>3,01</b>							<b>46,4</b>	<b>928</b>	<b>3045</b>
<b>7,0</b>	<b>108</b>	Scenar	LAPUA	78,0	3,071							N140	2,44	37,6
						N540	2,50	38,6	827	2713	<b>2,69</b>	<b>41,5</b>	<b>897</b>	<b>2943</b>
						N150	2,56	39,5	830	2723	<b>2,69</b>	<b>41,5</b>	<b>870</b>	<b>2853</b>
						N550	2,72	42,0	853	2798	<b>2,94</b>	<b>45,4</b>	<b>936</b>	<b>3070</b>
						N160	3,04	46,9	849	2785	<b>3,16</b>	<b>48,8</b>	<b>891</b>	<b>2923</b>
<b>7,0</b>	<b>108</b>	Silver Jacket Scenar	LAPUA	80,0	3,150	N560	3,19	49,2	867	2843	<b>3,42</b>	<b>52,7</b>	<b>939</b>	<b>3079</b>
						N165	3,16	48,8	860	2822	<b>3,28F</b>	<b>50,7F</b>	<b>902</b>	<b>2959</b>
						N140	2,42	37,3	825	2707	<b>2,68</b>	<b>41,3</b>	<b>893</b>	<b>2931</b>
						N540	2,52	38,9	827	2713	<b>2,74</b>	<b>42,2</b>	<b>902</b>	<b>2958</b>
						N150	2,49	38,4	819	2687	<b>2,70</b>	<b>41,7</b>	<b>889</b>	<b>2917</b>

F = Case full

= accuracy load

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

# 6,5 x 55 Swedish Mauser

Test barrel: 630 mm (26½"), 1 in 8½" twist

Primers: Large Rifle

Cases: LAPUA, trim-to length 54.80 mm (2.157")

Bullet					Powder	Starting load					Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
7,8	120	HPBT	Sierra	76,8	3,024	N140	2,47	38,1	855	2805	<b>2,63</b>	<b>40,5</b>	<b>852</b>	<b>2795</b>
						N540	2,49	38,4	773	2536	<b>2,69</b>	<b>41,5</b>	<b>818</b>	<b>2684</b>
						N150	2,55	39,3	770	2526	<b>2,71</b>	<b>41,7</b>	<b>839</b>	<b>2753</b>
						N550	2,63	40,6	800	2625	<b>2,88</b>	<b>44,5</b>	<b>888</b>	<b>2914</b>
						N160	2,97	45,8	825	2707	<b>3,29</b>	<b>50,7</b>	<b>907</b>	<b>2975</b>
8,0	123	Scenar	LAPUA	80,0	3,150	N560	3,12	48,1	823	2700	<b>3,41</b>	<b>52,7</b>	<b>932</b>	<b>3056</b>
						N140	2,35	36,3	738	2420	<b>2,59</b>	<b>40,0</b>	<b>812</b>	<b>2663</b>
						N540	2,44	37,7	749	2456	<b>2,68</b>	<b>41,4</b>	<b>827</b>	<b>2715</b>
						N150	2,47	38,1	743	2436	<b>2,69</b>	<b>41,6</b>	<b>819</b>	<b>2686</b>
						N150	2,40	37,0	780	2559	<b>2,62</b>	<b>40,4</b>	<b>834</b>	<b>2738</b>
8,0	123	Silver Jacket Scenar	LAPUA	80,0	3,150	N550	2,41	37,2	768	2520	<b>2,73</b>	<b>42,1</b>	<b>857</b>	<b>2811</b>
						N160	2,75	42,4	792	2598	<b>2,88</b>	<b>44,5</b>	<b>831</b>	<b>2726</b>
						N140	2,29	35,3	730	2395	<b>2,64</b>	<b>40,7</b>	<b>812</b>	<b>2663</b>
8,4	130	HPBT	Norma	80,0	3,150	N540	2,32	35,8	749	2457	<b>2,57</b>	<b>39,6</b>	<b>820</b>	<b>2690</b>
						N150	2,32	35,8	710	2329	<b>2,60</b>	<b>40,1</b>	<b>808</b>	<b>2651</b>
						N550	2,54	39,2	768	2520	<b>2,84</b>	<b>43,8</b>	<b>852</b>	<b>2795</b>
						N160	2,79	43,0	764	2507	<b>3,06</b>	<b>47,3</b>	<b>840</b>	<b>2757</b>
						N560	3,01	46,4	803	2635	<b>3,25</b>	<b>50,2</b>	<b>878</b>	<b>2882</b>
9,0	139	HPBT	Norma	78,0	3,071	N150	2,28	35,2	704	2310	<b>2,55</b>	<b>39,4</b>	<b>779</b>	<b>2555</b>
						N550	2,50	38,6	743	2438	<b>2,71</b>	<b>41,8</b>	<b>813</b>	<b>2667</b>
						N160	2,73	42,1	738	2421	<b>2,98</b>	<b>46,0</b>	<b>810</b>	<b>2656</b>
						N560	2,88	44,4	753	2470	<b>3,20</b>	<b>49,4</b>	<b>846</b>	<b>2777</b>
						N165	3,00	46,3	765	2510	<b>3,23</b>	<b>49,9</b>	<b>833</b>	<b>2732</b>
9,0	139	Scenar	LAPUA	80,0	3,150	N150	2,17	33,5	673	2208	<b>2,49</b>	<b>38,4</b>	<b>749</b>	<b>2458</b>
						N550	2,45	37,8	724	2375	<b>2,60</b>	<b>40,1</b>	<b>795</b>	<b>2608</b>
						N160	2,73	42,1	752	2467	<b>2,92</b>	<b>45,1</b>	<b>813</b>	<b>2666</b>
						N560	2,87	44,3	767	2516	<b>3,09</b>	<b>47,6</b>	<b>837</b>	<b>2746</b>
						N165	2,96	45,7	761	2497	<b>3,22</b>	<b>49,8</b>	<b>829</b>	<b>2721</b>
9,0	139	Silver Jacket	LAPUA	80,0	3,150	N550	2,37	36,6	712	2336	<b>2,61</b>	<b>40,3</b>	<b>799</b>	<b>2622</b>
						N160	2,54	39,2	748	2454	<b>2,80</b>	<b>43,3</b>	<b>795</b>	<b>2610</b>
						N560	2,73	42,1	736	2415	<b>3,06</b>	<b>47,3</b>	<b>826</b>	<b>2711</b>
9,1	140	HPBT	Sierra	79,0	3,110	N150	2,35	36,3	703	2306	<b>2,54</b>	<b>39,1</b>	<b>765</b>	<b>2511</b>
						N550	2,58	39,8	749	2457	<b>2,73</b>	<b>42,1</b>	<b>806</b>	<b>2644</b>
						N160	2,81	43,4	759	2490	<b>3,03</b>	<b>46,7</b>	<b>819</b>	<b>2687</b>
						N560	2,93	45,2	779	2556	<b>3,13</b>	<b>48,3</b>	<b>844</b>	<b>2770</b>
						N165	3,00	46,3	766	2513	<b>3,24</b>	<b>50,0</b>	<b>834</b>	<b>2735</b>
9,3	144	FMJBT	LAPUA	79,0	3,110	N150	2,04	31,5	659	2163	<b>2,40</b>	<b>37,0</b>	<b>768</b>	<b>2520</b>
						N160	2,64	40,7	717	2352	<b>2,85</b>	<b>44,0</b>	<b>816</b>	<b>2677</b>
						N560	2,91	44,8	756	2479	<b>3,15</b>	<b>48,6</b>	<b>850</b>	<b>2789</b>
						N165	2,70	41,7	720	2362	<b>3,18</b>	<b>49,1</b>	<b>837</b>	<b>2746</b>
						N170	3,08	47,5	715	2346	<b>3,41F</b>	<b>52,6F</b>	<b>815</b>	<b>2674</b>
10,0	155	HPBT	Sierra	79,0	3,110	N150	2,10	32,4	653	2142	<b>2,33</b>	<b>36,0</b>	<b>711</b>	<b>2331</b>
						N550	2,36	36,4	689	2260	<b>2,60</b>	<b>40,1</b>	<b>746</b>	<b>2447</b>
						N160	2,64	40,7	698	2290	<b>2,97</b>	<b>45,9</b>	<b>769</b>	<b>2522</b>
						N560	2,66	41,0	702	2303	<b>2,93</b>	<b>45,2</b>	<b>779</b>	<b>2556</b>
						N165	2,75	42,4	690	2264	<b>3,08</b>	<b>47,6</b>	<b>769</b>	<b>2522</b>
						N170	2,90	44,7	677	2221	<b>3,32F</b>	<b>51,2F</b>	<b>779</b>	<b>2555</b>
						N165	2,74	42,3	677	2222	<b>3,17</b>	<b>49,0</b>	<b>755</b>	<b>2478</b>
10,1	156	Mega	LAPUA	73,0	2,874	N560	2,72	42,0	685	2248	<b>3,11</b>	<b>48,0</b>	<b>773</b>	<b>2537</b>
						N170	3,03	46,8	682	2238	<b>3,32</b>	<b>51,2</b>	<b>746</b>	<b>2447</b>

F = Case full

= accuracy load

**BOLD TEXT INDICATES MAXIMUM LOAD - USE WITH CAUTION!**

LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED



## 6,5 - 284 Norma

Test barrel: 660 mm (26"), 1 in 9" twist

Primers: Large Rifle

Cases: LAPUA, trim-to length 54.90 mm (2.161")

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>7,0</b>	<b>108</b>	Scenar	LAPUA	79,0	3,110	N550	2,97	45,8	920	3018	<b>3,39</b>	<b>52,3</b>	<b>1027</b>	<b>3368</b>
						N160	3,08	47,5	906	2972	<b>3,49</b>	<b>53,9</b>	<b>1008</b>	<b>3308</b>
						N560	3,47	53,5	927	3041	<b>3,81</b>	<b>58,9</b>	<b>1031</b>	<b>3384</b>
						N165	3,52	54,3	922	3025	<b>4,04</b>	<b>62,4</b>	<b>1042</b>	<b>3419</b>
<b>7,0</b>	<b>108</b>	Silver Jacket Scenar	LAPUA	79,0	3,110	N160	3,11	48,0	883	2897	<b>3,73</b>	<b>57,6</b>	<b>1002</b>	<b>3287</b>
						N560	3,51	54,2	911	2989	<b>3,85</b>	<b>59,5</b>	<b>1023</b>	<b>3357</b>
						N165	3,61	55,7	919	3015	<b>4,10</b>	<b>63,2</b>	<b>1033</b>	<b>3391</b>
<b>8,0</b>	<b>123</b>	Scenar	LAPUA	79,0	3,110	N160	2,59	40,0	795	2608	<b>3,29</b>	<b>50,8</b>	<b>925</b>	<b>3035</b>
						N165	3,03	46,8	830	2723	<b>3,65</b>	<b>56,4</b>	<b>947</b>	<b>3106</b>
						N560	3,28	50,6	867	2844	<b>3,65</b>	<b>56,3</b>	<b>963</b>	<b>3158</b>
<b>8,0</b>	<b>123</b>	Silver Jacket Scenar	LAPUA	79,0	3,110	N160	2,94	45,4	833	2733	<b>3,38</b>	<b>52,2</b>	<b>935</b>	<b>3068</b>
						N560	3,37	52,0	872	2861	<b>3,77</b>	<b>58,2</b>	<b>981</b>	<b>3218</b>
						N165	3,35	51,7	859	2818	<b>3,98</b>	<b>61,5</b>	<b>971</b>	<b>3186</b>
<b>9,0</b>	<b>139</b>	Scenar	LAPUA	79,0	3,110	N560	3,12	48,1	824	2703	<b>3,63</b>	<b>56,0</b>	<b>947</b>	<b>3108</b>
<b>9,0</b>	<b>139</b>	Silver Jacket Scenar	LAPUA	79,0	3,110	N160	2,60	40,1	758	2487	<b>3,19</b>	<b>49,2</b>	<b>869</b>	<b>2851</b>
						N560	3,22	49,7	812	2664	<b>3,53</b>	<b>54,5</b>	<b>904</b>	<b>2967</b>
						N165	3,02	46,6	793	2602	<b>3,62</b>	<b>55,9</b>	<b>899</b>	<b>2948</b>

## .270 Winchester Short Magnum

Test barrel: 520 mm (24½"), 1 in 9" twist

Primers: Large Rifle Magnum

Cases: Winchester, trim-to length 53,1 mm (2,090")

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>5,8</b>	<b>90</b>	HP	Sierra	68,6	2,701	N160	4,00	61,7	1021	3350	<b>4,47</b>	<b>69,0</b>	<b>1130</b>	<b>3707</b>
						N560	4,39	67,7	1020	3346	<b>4,78</b>	<b>73,8</b>	<b>1135</b>	<b>3724</b>
						N165	4,59	70,8	1041	3415	<b>4,75</b>	<b>73,3</b>	<b>1083</b>	<b>3553</b>
<b>9,1</b>	<b>140</b>	X	Barnes	71,0	2,795	N160	3,20	49,4	800	2625	<b>3,71</b>	<b>57,2</b>	<b>899</b>	<b>2949</b>
						N560	3,49	53,9	806	2644	<b>3,93</b>	<b>60,6</b>	<b>918</b>	<b>3012</b>
						N165	3,75	57,9	832	2730	<b>4,10</b>	<b>63,3</b>	<b>913</b>	<b>2995</b>
<b>10,4</b>	<b>160</b>	Partition	Nosler	71,0	2,795	N160	3,20	49,4	737	2418	<b>3,47</b>	<b>53,5</b>	<b>825</b>	<b>2707</b>
						N560	3,36	51,8	774	2539	<b>3,82</b>	<b>58,9</b>	<b>873</b>	<b>2864</b>
						N165	3,30	50,9	769	2523	<b>3,90</b>	<b>60,2</b>	<b>863</b>	<b>2831</b>

## .270 Winchester

Test barrel: 620 mm (24.5"), 1 in 10" twist

Primers: Large Rifle

Cases: Remington, trim-to length 64.30 mm (2.531")

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>6,5</b>	<b>100</b>	Spitzer	Speer	80,0	3,150	N150	2,88	44,5	898	2945	<b>3,42</b>	<b>52,8</b>	<b>998</b>	<b>3273</b>
						N160	3,80	58,6	953	3127	<b>4,27C</b>	<b>65,8C</b>	<b>1057</b>	<b>3468</b>
						N165	4,00	61,7	966	3170	<b>4,53C</b>	<b>69,9C</b>	<b>1070</b>	<b>3509</b>
<b>8,4</b>	<b>130</b>	SP	Remington	82,0	3,228	N160	3,34	51,5	847	2779	<b>3,76</b>	<b>58,0</b>	<b>940</b>	<b>3083</b>
						N560	3,64	56,2	876	2873	<b>3,97</b>	<b>61,3</b>	<b>955</b>	<b>3132</b>
<b>8,4</b>	<b>130</b>	SPBT	Speer	83,0	3,268	N165	3,54	54,6	850	2787	<b>4,02</b>	<b>62,0</b>	<b>942</b>	<b>3089</b>
<b>10,4</b>	<b>160</b>	Partition	Nosler	84,6	3,331	N160	3,02	46,6	743	2438	<b>3,48</b>	<b>53,8</b>	<b>826</b>	<b>2711</b>
						N165	3,10	47,8	747	2451	<b>3,64</b>	<b>56,2</b>	<b>837</b>	<b>2745</b>

C = Compressed load

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

## .270 Weatherby Magnum

Test barrel: 650 mm (25½"), 1 in 12 twist  
 Primers: Large Rifle Magnum  
 Cases: Norma, trim-to length 64.50 mm (2.539")

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

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>6,5</b>	<b>100</b>	PSP	Remington	79,0	3,110	N550	4,33	66,8	1037	3401	<b>4,64</b>	<b>71,7</b>	1117	<b>3666</b>
						N160	4,60	71,0	1043	3421	<b>4,85</b>	<b>74,9</b>	1108	<b>3634</b>
						N165	5,08	78,4	1045	3428	<b>5,38</b>	<b>83,0</b>	1115	<b>3658</b>
<b>8,5</b>	<b>130</b>	PSPCL	Remington	82,2	3,236	N160	4,31	66,5	939	3080	<b>4,61</b>	<b>71,1</b>	1001	<b>3284</b>
						N165	4,62	71,3	931	3055	<b>4,93</b>	<b>76,0</b>	997	<b>3270</b>
						N560	4,71	72,7	947	3108	<b>4,98</b>	<b>76,9</b>	1004	<b>3294</b>
<b>8,7</b>	<b>135</b>	HPBT	Sierra	83,0	3,268	N160	4,21	65,0	903	2964	<b>4,43</b>	<b>68,3</b>	965	<b>3167</b>
						N165	4,55	70,2	923	3029	<b>4,70</b>	<b>72,5</b>	989	<b>3244</b>
						N560	4,61	71,2	956	3137	<b>4,81</b>	<b>74,2</b>	1013	<b>3323</b>
<b>9,7</b>	<b>150</b>	Partition	Nosler	82,5	3,248	N165	4,34	67,0	877	2876	<b>4,68</b>	<b>72,2</b>	936	<b>3072</b>
						N560	4,38	67,6	900	2954	<b>4,60</b>	<b>71,0</b>	955	<b>3134</b>
						N170	4,76	73,4	886	2906	<b>5,11</b>	<b>78,8</b>	955	<b>3134</b>

## 7mm-08 Remington

Test barrel: 610 mm (24"), 1 in 9½" twist  
 Primers: Large Rifle  
 Cases: Remington, trim-to length 51.50 mm (2.028")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>6,5</b>	<b>100</b>	HP	Hornady	69,0	2,717	N130	2,43	37,5	880	2886	<b>2,74</b>	<b>42,2</b>	975	<b>3199</b>
						N133	2,48	38,3	874	2868	<b>2,95</b>	<b>45,4</b>	992	<b>3255</b>
						N135	2,76	42,6	906	2971	<b>3,04</b>	<b>46,9</b>	1001	<b>3284</b>
						N140	2,84	43,9	900	2953	<b>3,16</b>	<b>48,7</b>	1004	<b>3293</b>
						N150	2,94	45,3	907	2974	<b>3,32C</b>	<b>51,2C</b>	1017	<b>3336</b>
<b>7,8</b>	<b>120</b>	Spitzer	Sierra	69,6	2,740	N135	2,60	40,1	826	2711	<b>2,85</b>	<b>44,0</b>	908	<b>2978</b>
						N140	2,72	42,0	827	2714	<b>3,04</b>	<b>46,9</b>	929	<b>3048</b>
						N150	2,80	43,2	837	2747	<b>3,15</b>	<b>48,6</b>	935	<b>3066</b>
<b>9,1</b>	<b>140</b>	Ballistic Tip	Nosler	69,6	2,740	N135	2,35	36,3	724	2374	<b>2,61</b>	<b>40,3</b>	807	<b>2649</b>
						N140	2,56	39,5	751	2464	<b>2,70</b>	<b>41,7</b>	837	<b>2746</b>
						N150	2,56	39,5	742	2434	<b>2,72</b>	<b>42,0</b>	814	<b>2671</b>
<b>10,4</b>	<b>160</b>	SPBT	Sierra	71,0	2,795	N140	2,34	36,1	685	2248	<b>2,73</b>	<b>42,2</b>	784	<b>2573</b>
						N150	2,36	36,4	687	2253	<b>2,77</b>	<b>42,7</b>	775	<b>2542</b>
						N160	2,97	45,8	738	2421	<b>3,38C</b>	<b>52,1C</b>	847	<b>2780</b>
<b>10,9</b>	<b>168</b>	HPBT	Sierra	71,0	2,795	N150	2,22	34,3	672	2204	<b>2,52</b>	<b>38,9</b>	740	<b>2428</b>
						N550	2,38	36,8	696	2282	<b>2,72</b>	<b>41,9</b>	781	<b>2561</b>
						N160	2,78	42,8	709	2326	<b>3,14C</b>	<b>48,5C</b>	799	<b>2621</b>
<b>11,3</b>	<b>175</b>	Mag-Tip	Speer	71,0	2,795	N140	2,13	32,9	615	2018	<b>2,45</b>	<b>37,8</b>	694	<b>2276</b>
						N150	2,03	31,4	586	1923	<b>2,39</b>	<b>36,9</b>	675	<b>2215</b>
						N160	2,55	39,3	640	2100	<b>2,90</b>	<b>44,8</b>	728	<b>2387</b>

C = Compressed load

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

# 7 x 57

Test barrel: 550 mm (22"), 1 in 9½" twist  
 Primers: Large Rifle  
 Cases: Sako, trim-to length 56.80 mm (2.236")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>7,8</b>	<b>120</b>	Spitzer	Sierra	76,5	3,012	N135	2,67	41,1	814	2670	<b>2,87</b>	<b>44,2</b>	<b>880</b>	<b>2887</b>
						N140	2,82	43,5	824	2704	<b>3,06</b>	<b>47,2</b>	<b>897</b>	<b>2942</b>
						N150	2,85	44,0	828	2717	<b>3,09</b>	<b>47,6</b>	<b>898</b>	<b>2946</b>
<b>9,1</b>	<b>140</b>	Ballistic Tip	Nosler	77,5	3,051	N140	2,58	39,7	736	2415	<b>2,82</b>	<b>43,5</b>	<b>802</b>	<b>2630</b>
						N150	2,65	40,9	747	2451	<b>2,90</b>	<b>44,8</b>	<b>810</b>	<b>2657</b>
<b>10,4</b>	<b>160</b>	SPBT	Sierra	77,5	3,051	N150	2,50	38,6	691	2267	<b>2,76</b>	<b>42,7</b>	<b>754</b>	<b>2474</b>
						N160	3,04	47,0	726	2381	<b>3,26</b>	<b>50,3</b>	<b>793</b>	<b>2603</b>
<b>11,3</b>	<b>175</b>	Mag-Tip	Speer	77,0	3,031	N160	2,76	42,5	659	2162	<b>3,06</b>	<b>47,1</b>	<b>726</b>	<b>2383</b>
						N165	2,94	45,4	666	2184	<b>3,32</b>	<b>51,2</b>	<b>740</b>	<b>2429</b>

# 7mm Remington Magnum

Test barrel: 610 mm (24"), 1 in 9" twist  
 Primers: Large Rifle Magnum  
 Cases: LAPUA, trim-to length 63.30 mm (2.492")

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

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>6,5</b>	<b>100</b>	HP	Hornady	81,0	3,189	N160	4,70	72,6	1053	3455	<b>5,07</b>	<b>78,2</b>	<b>1135</b>	<b>3722</b>
						N560	4,78	73,8	1046	3431	<b>5,29F</b>	<b>81,6F</b>	<b>1146</b>	<b>3760</b>
<b>7,8</b>	<b>120</b>	Spitzer	Sierra	83,0	3,268	N160	4,48	69,2	971	3186	<b>4,85</b>	<b>74,8</b>	<b>1048</b>	<b>3438</b>
						N165	4,77	73,6	969	3179	<b>5,17F</b>	<b>79,8F</b>	<b>1053</b>	<b>3455</b>
<b>9,4</b>	<b>145</b>	SPBT	Speer	83,0	3,268	N560	4,51	69,5	980	3215	<b>5,09</b>	<b>78,5</b>	<b>1074</b>	<b>3524</b>
						N160	3,88	59,9	852	2795	<b>4,30</b>	<b>66,3</b>	<b>927</b>	<b>3041</b>
<b>10,4</b>	<b>160</b>	Grand Slam	Speer	82,0	3,228	N560	4,04	62,3	896	2941	<b>4,46</b>	<b>68,8</b>	<b>977</b>	<b>3206</b>
						N165	4,21	65,0	870	2854	<b>4,62</b>	<b>71,4</b>	<b>945</b>	<b>3100</b>
						N160	3,45	53,3	773	2536	<b>3,91</b>	<b>60,4</b>	<b>850</b>	<b>2789</b>
<b>10,4</b>	<b>160</b>	Spitzer	Sierra	82,0	3,228	N560	3,62	55,9	827	2713	<b>4,14</b>	<b>63,9</b>	<b>860</b>	<b>2822</b>
						N165	3,71	57,3	790	2593	<b>4,22</b>	<b>65,1</b>	<b>871</b>	<b>2859</b>
						N160	3,74	57,7	814	2671	<b>4,17</b>	<b>64,3</b>	<b>867</b>	<b>2844</b>
<b>10,9</b>	<b>168</b>	HPBT	Sierra	83,5	3,287	N165	3,52	54,2	771	2530	<b>4,76</b>	<b>73,4</b>	<b>919</b>	<b>3015</b>
						N560	3,86	59,5	832	2731	<b>4,79</b>	<b>73,9</b>	<b>949</b>	<b>3114</b>
						N560	3,93	60,6	819	2687	<b>4,52</b>	<b>69,7</b>	<b>896</b>	<b>2940</b>
<b>11,3</b>	<b>175</b>	SBT	Sierra	83,5	3,287	N165	3,97	61,3	798	2619	<b>4,58</b>	<b>70,7</b>	<b>866</b>	<b>2841</b>
						N170	4,39	67,8	812	2663	<b>4,82</b>	<b>74,4</b>	<b>880</b>	<b>2887</b>
						N560	3,57	55,1	772	2533	<b>4,14</b>	<b>63,9</b>	<b>874</b>	<b>2867</b>
						N165	3,47	53,5	754	2474	<b>4,17</b>	<b>64,3</b>	<b>845</b>	<b>2772</b>
						N170	4,06	62,6	784	2573	<b>4,67</b>	<b>72,1</b>	<b>851</b>	<b>2792</b>

F = Case full

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

## 7mm Weatherby Magnum

Test barrel: 660 mm, 1 in 9" twist  
 Primers: Large Rifle Magnum  
 Cases: Weatherby, trim-to length 64,50 mm

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

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>6,5</b>	<b>100</b>	HP	Hornady	81,5	3,209	N160	4,76	73,5	1071	3512	<b>5,10</b>	<b>78,7</b>	<b>1149</b>	<b>3770</b>
						N560	4,98	76,8	1085	3561	<b>5,30</b>	<b>81,8</b>	<b>1170</b>	<b>3839</b>
<b>7,8</b>	<b>120</b>	Spitzer	Sierra	82,5	3,248	N160	4,52	69,8	989	3245	<b>4,83</b>	<b>74,5</b>	<b>1057</b>	<b>3468</b>
						N165	4,89	75,5	1003	3290	<b>5,20</b>	<b>80,2</b>	<b>1072</b>	<b>3517</b>
						N560	4,79	73,9	1009	3310	<b>5,07</b>	<b>78,2</b>	<b>1079</b>	<b>3540</b>
<b>10,4</b>	<b>160</b>	Spitzer	Sierra	82,5	3,248	N160	4,09	63,1	853	2799	<b>4,39</b>	<b>67,7</b>	<b>912</b>	<b>2992</b>
						N165	4,41	68,0	864	2834	<b>4,69</b>	<b>72,4</b>	<b>924</b>	<b>3031</b>
						N560	4,26	65,7	868	2846	<b>4,53</b>	<b>69,9</b>	<b>927</b>	<b>3041</b>
<b>10,9</b>	<b>168</b>	HPBT	Sierra	81,5	3,209	N160	4,00	61,7	832	2730	<b>4,23</b>	<b>65,3</b>	<b>879</b>	<b>2884</b>
						N165	4,31	66,5	840	2755	<b>4,51</b>	<b>69,6</b>	<b>888</b>	<b>2913</b>
						N560	4,17	64,3	845	2771	<b>4,42</b>	<b>68,2</b>	<b>909</b>	<b>2982</b>

## .30 Carbine

Test barrel: 460 mm (18"), 1 in 10" twist  
 Primers: Small Rifle  
 Cases: Federal, trim-to length 32.60 mm (1.283")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>6,5</b>	<b>100</b>	Plinker	Speer	42,5	1,673	N110	0,88	13,6	610	2001	<b>0,97</b>	<b>15,0</b>	<b>669</b>	<b>2196</b>
<b>7,1</b>	<b>110</b>	Spire Point	Speer	42,5	1,673	N110	0,79	12,1	545	1786	<b>0,91</b>	<b>14,0</b>	<b>605</b>	<b>1983</b>

## .30-30 Winchester

Test barrel: 510 mm (20"), 1 in 12" twist  
 Primers: Large Rifle  
 Cases: Remington, trim-to length 51.60 mm (2.031")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>6,8</b>	<b>105</b>	HP	LAPUA	64,5	2,539	N120	1,48	25,9	692	2271	<b>1,73</b>	<b>26,8</b>	<b>781</b>	<b>2562</b>
						N130	1,70	29,9	710	2329	<b>1,95</b>	<b>30,1</b>	<b>800</b>	<b>2623</b>
						N133	1,86	32,6	730	2395	<b>2,19</b>	<b>33,8</b>	<b>833</b>	<b>2732</b>
<b>8,5</b>	<b>130</b>	FSP	Speer	64,7	2,547	N120	1,41	24,7	617	2024	<b>1,67</b>	<b>25,8</b>	<b>705</b>	<b>2314</b>
						N130	1,59	27,9	641	2103	<b>1,84</b>	<b>28,4</b>	<b>728</b>	<b>2389</b>
						N133	1,71	30,0	653	2143	<b>1,97</b>	<b>30,4</b>	<b>741</b>	<b>2432</b>
<b>9,7</b>	<b>150</b>	FSP	Speer	64,5	2,539	N135	1,80	31,5	649	2129	<b>2,08</b>	<b>32,0</b>	<b>737</b>	<b>2419</b>
						N120	1,23	21,7	519	1701	<b>1,46</b>	<b>22,5</b>	<b>593</b>	<b>1946</b>
						N130	1,43	25,2	558	1831	<b>1,65</b>	<b>25,4</b>	<b>631</b>	<b>2070</b>
						N133	1,48	25,9	560	1839	<b>1,72</b>	<b>26,5</b>	<b>636</b>	<b>2086</b>
<b>11,0</b>	<b>170</b>	FSP	Speer	64,5	2,539	N135	1,71	30,0	587	1927	<b>1,93</b>	<b>29,7</b>	<b>660</b>	<b>2165</b>
						N140	1,85	32,4	596	1956	<b>2,06</b>	<b>31,8</b>	<b>672</b>	<b>2203</b>
						N130	1,34	23,5	516	1692	<b>1,60</b>	<b>24,7</b>	<b>598</b>	<b>1962</b>
						N133	1,42	24,9	511	1678	<b>1,67</b>	<b>25,8</b>	<b>589</b>	<b>1931</b>
						N135	1,58	27,7	536	1759	<b>1,80</b>	<b>27,7</b>	<b>604</b>	<b>1981</b>
						N140	1,66	29,0	533	1747	<b>1,89</b>	<b>29,2</b>	<b>610</b>	<b>2002</b>

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

## .300 Savage

Test barrel: 600 mm (23½"), twist 12"

Primers: Large Rifle

Cases: Remington, trim to-length 47,3 mm (1,862")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>6,5</b>	<b>100</b>	HP	LAPUA	62,5	2,461	N120	2,19	33,9	878	2881	<b>2,45</b>	<b>37,8</b>	<b>975</b>	<b>3199</b>
						N130	2,41	37,1	912	2993	<b>2,59</b>	<b>40,0</b>	<b>986</b>	<b>3235</b>
						N133	2,59	39,9	894	2932	<b>2,85</b>	<b>44,0</b>	<b>973</b>	<b>3192</b>
<b>8,1</b>	<b>125</b>	TNT-HP	Speer	65,5	2,579	N120	2,06	31,8	764	2507	<b>2,27</b>	<b>35,0</b>	<b>837</b>	<b>2746</b>
						N130	2,21	34,1	794	2606	<b>2,42</b>	<b>37,3</b>	<b>863</b>	<b>2831</b>
						N133	2,53	39,1	822	2698	<b>2,71</b>	<b>41,8</b>	<b>884</b>	<b>2900</b>
<b>9,7</b>	<b>150</b>	Mega	LAPUA	61,5	2,421	N130	1,89	29,2	684	2243	<b>2,18</b>	<b>33,6</b>	<b>751</b>	<b>2464</b>
						N135	2,24	34,6	706	2315	<b>2,50</b>	<b>38,6</b>	<b>772</b>	<b>2533</b>
						N140	2,44	37,6	719	2360	<b>2,72</b>	<b>42,0</b>	<b>793</b>	<b>2602</b>
<b>10,7</b>	<b>165</b>	SBT	Sierra	66,0	2,598	N133	2,20	33,9	690	2264	<b>2,42</b>	<b>37,3</b>	<b>759</b>	<b>2490</b>
						N135	2,35	36,2	700	2297	<b>2,53</b>	<b>39,0</b>	<b>764</b>	<b>2507</b>
						N140	2,46	37,9	713	2341	<b>2,68</b>	<b>41,4</b>	<b>787</b>	<b>2582</b>
<b>12,0</b>	<b>200</b>	Mega	LAPUA	66,0	2,598	N135	2,15	33,2	631	2072	<b>2,44</b>	<b>37,6</b>	<b>705</b>	<b>2313</b>
						N140	2,30	35,5	649	2131	<b>2,59</b>	<b>40,0</b>	<b>715</b>	<b>2346</b>
						N540	2,36	36,4	644	2113	<b>2,66</b>	<b>41,0</b>	<b>720</b>	<b>2362</b>

## .308 Winchester

Test barrel: 610 mm (24"), 1 in 12" twist

Primers: Large Rifle

Cases: LAPUA, trim-to-length 51.00 mm (2.008")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>3,7</b>	<b>57</b>	ALS <sup>1)</sup>	LAPUA	67,0	2,638	N110	1,78	27,5	1061	3481	<b>2,24</b>	<b>34,5</b>	<b>1217</b>	<b>3993</b>
<b>6,5</b>	<b>100</b>	HPCE	LAPUA	67,0	2,638	N110	1,32	20,4	711	2333	<b>1,80</b>	<b>27,8</b>	<b>870</b>	<b>2854</b>
						N120	1,98	30,6	812	2663	<b>2,33</b>	<b>36,0</b>	<b>930</b>	<b>3051</b>
						N130	2,18	33,7	852	2794	<b>2,60</b>	<b>40,1</b>	<b>976</b>	<b>3203</b>
						N135	2,47	38,1	865	2837	<b>2,99</b>	<b>46,1</b>	<b>992</b>	<b>3255</b>
						N120	2,32	35,8	844	2769	<b>2,67</b>	<b>41,2</b>	<b>962</b>	<b>3157</b>
<b>7,1</b>	<b>110</b>	HP	Sako	67,5	2,657	N130	2,52	38,9	862	2826	<b>2,96</b>	<b>45,7</b>	<b>988</b>	<b>3242</b>
						N133	2,73	42,1	874	2868	<b>3,19</b>	<b>49,1</b>	<b>1009</b>	<b>3311</b>
						N130	2,26	34,9	782	2566	<b>2,78</b>	<b>42,9</b>	<b>923</b>	<b>3028</b>
<b>8,0</b>	<b>123</b>	FMJ	LAPUA	66,9	2,634	N135	2,72	42,0	830	2723	<b>3,06F</b>	<b>47,2F</b>	<b>921</b>	<b>3022</b>
						N130	2,40	37,0	818	2684	<b>2,79</b>	<b>43,0</b>	<b>935</b>	<b>3068</b>
<b>8,1</b>	<b>125</b>	Ballistic Tip	Nosler	70,0	2,756	N133	2,60	40,1	829	2721	<b>3,00</b>	<b>46,3</b>	<b>951</b>	<b>3120</b>
						N135	2,70	41,6	833	2732	<b>3,17</b>	<b>48,9</b>	<b>958</b>	<b>3143</b>
						N140	2,86	44,1	835	2739	<b>3,23F</b>	<b>49,8F</b>	<b>936</b>	<b>3071</b>
						N135	2,58	39,7	782	2567	<b>3,02</b>	<b>46,7</b>	<b>907</b>	<b>2975</b>
<b>8,5</b>	<b>130</b>	HP	LAPUA	68,0	2,677	N140	2,75	42,4	786	2579	<b>3,15</b>	<b>48,7</b>	<b>903</b>	<b>2963</b>
						N135	2,05	31,6	664	2178	<b>2,55</b>	<b>39,3</b>	<b>789</b>	<b>2588</b>
						N140	2,09	32,2	653	2142	<b>2,67</b>	<b>41,2</b>	<b>791</b>	<b>2596</b>
<b>9,7</b>	<b>150</b>	Mega	LAPUA	71,0	2,795	N540	2,26	34,9	671	2201	<b>2,80</b>	<b>43,2</b>	<b>803</b>	<b>2635</b>
						N133	2,27	35,0	729	2391	<b>2,86</b>	<b>44,1</b>	<b>863</b>	<b>2831</b>
						N135	2,56	39,5	764	2505	<b>2,96</b>	<b>45,7</b>	<b>871</b>	<b>2857</b>
<b>9,7</b>	<b>150</b>	SPBT	Sierra	70,0	2,756	N140	2,71	41,8	767	2516	<b>3,05</b>	<b>47,1</b>	<b>858</b>	<b>2815</b>
						N150	2,82	43,6	776	2545	<b>3,23</b>	<b>49,9</b>	<b>878</b>	<b>2880</b>
						N133	2,27	35,0	729	2391	<b>2,86</b>	<b>44,1</b>	<b>863</b>	<b>2831</b>
						N135	2,56	39,5	764	2505	<b>2,96</b>	<b>45,7</b>	<b>871</b>	<b>2857</b>
<b>9,7</b>	<b>150</b>	Lock Base	LAPUA	71,0	2,795	N140	2,71	41,8	767	2516	<b>3,05</b>	<b>47,1</b>	<b>858</b>	<b>2815</b>
						N150	2,82	43,6	776	2545	<b>3,23</b>	<b>49,9</b>	<b>878</b>	<b>2880</b>
<b>9,7</b>	<b>150</b>	HPBT	Sierra	71,0	2,795	N540	2,73	42,1	765	2510	<b>3,17</b>	<b>48,9</b>	<b>894</b>	<b>2932</b>
						N140	2,62	40,4	752	2467	<b>3,06</b>	<b>47,3</b>	<b>869</b>	<b>2851</b>
						N540	2,71	41,8	758	2487	<b>3,13</b>	<b>48,3</b>	<b>901</b>	<b>2956</b>
						N150	2,74	42,2	776	2545	<b>3,14C</b>	<b>48,4C</b>	<b>874</b>	<b>2869</b>
						N550	2,88	44,5	772	2534	<b>3,26F</b>	<b>50,3F</b>	<b>870</b>	<b>2855</b>

<sup>1)</sup> A muzzle velocity exceeding 1000 m/s ( 3300 fps) may lead to severe barrel fouling!

F = Case full

C = Compressed load

**BOLD TEXT INDICATES MAXIMUM LOAD - USE WITH CAUTION!**

LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED



# .308 Winchester

Test barrel: 610 mm (24"), 1 in 12" twist

Primers: Large Rifle

Cases: LAPUA, trim-to length 51.00 mm (2.008")

Bullet					Powder	Starting load					Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity			Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]	
10,0	155	Scenar	LAPUA	71,0	2,795	N135	2,23	34,4	687	2254	2,66	41,0	809	2653	
						N140	2,38	36,7	686	2251	2,83	43,6	812	2664	
						N150	2,53	39,0	719	2359	3,03	46,8	818	2683	
10,0	155	Silver Jacket Scenar	LAPUA	71,0	2,795	N140	2,60	40,1	746	2448	2,95	45,5	855	2805	
						N150	2,65	40,9	760	2492	3,04	46,9	860	2822	
						N540	2,64	40,7	760	2494	3,05	47,1	870	2854	
10,0	155	HPBT Palma	Sierra	71,0	2,795	N135	2,28	35,1	712	2337	2,68	41,3	815	2674	
						N140	2,40	37,0	717	2354	2,86	44,2	827	2712	
						N540	2,46	37,9	712	2337	2,92	45,1	838	2750	
						N150	2,63	40,6	752	2466	3,01	46,5	850	2790	
						N550	2,76	42,5	756	2479	3,22	49,7	880	2888	
10,1	156	SPBT	Sako	68,2	2,685	N135	2,51	38,8	729	2390	2,87	44,3	838	2750	
						N140	2,64	40,7	727	2384	3,03	46,8	849	2787	
						N150	2,78	42,9	751	2464	3,24	49,9	873	2865	
10,7	165	SPBT	Speer	71,0	2,795	N133	2,38	36,8	715	2345	2,72	41,9	809	2653	
						N135	2,48	38,3	724	2376	2,86	44,1	824	2703	
						N140	2,60	40,1	729	2390	3,00	46,3	838	2750	
						N150	2,66	41,0	735	2411	3,10	47,9	842	2761	
						N550	2,86	44,1	760	2495	3,19	49,3	850	2789	
10,9	167	Scenar	LAPUA	71,0	2,795	N140	2,56	39,5	711	2332	2,94	45,3	819	2687	
						N540	2,51	38,8	707	2318	2,95	45,5	833	2734	
						N150	2,64	40,8	723	2370	2,90	44,8	836	2744	
						N550	2,78	42,9	732	2400	3,25C	50,1C	848	2784	
						N140	2,61	40,2	743	2437	2,80	43,2	828	2717	
10,9	167	Silver Jacket Scenar	LAPUA	71,0	2,795	N150	2,64	40,7	737	2418	2,97	45,8	828	2717	
						N540	2,62	40,5	732	2401	3,00	46,3	837	2746	
						N140	2,35	36,2	685	2247	2,78	42,8	780	2558	
10,9	168	HPBT	Sierra	71,0	2,795	N540	2,44	37,7	691	2266	2,89	44,5	809	2654	
						N150	2,50	38,6	707	2321	2,88	44,5	804	2636	
						N550	2,70	41,6	725	2379	3,06	47,2	832	2729	
						N135	2,42	37,4	710	2328	2,78	42,9	806	2645	
						N140	2,56	39,5	715	2345	2,95	45,5	822	2696	
11,0	170	FMJBT	LAPUA	71,0	2,795	N540	2,60	40,1	703	2308	3,00	46,3	842	2762	
						N150	2,61	40,2	720	2361	2,95	45,5	833	2734	
						N550	2,77	42,8	719	2360	3,25C	50,1C	883	2896	
						N140	2,29	35,3	664	2177	2,68	41,4	762	2501	
						N540	2,44	37,7	687	2253	2,79	43,1	788	2586	
11,3	175	HPBT/VLD	Sierra/Berger	71,0	2,795	N550	2,57	39,6	698	2290	2,97	45,8	802	2631	
						N150	2,39	36,8	681	2236	2,82	43,5	784	2573	
						N135	2,33	36,0	661	2169	2,71	41,8	765	2510	
11,7	180	SP	Hornady	71,0	2,795	N140	2,47	38,1	669	2196	2,86	44,1	781	2561	
						N150	2,48	38,3	677	2220	3,00	46,3	793	2601	
						N540	2,09	32,2	591	1938	2,55	39,3	715	2346	
11,7	180	X	Barnes	71,0	2,795	N550	2,30	35,5	623	2043	2,75	42,4	734	2408	
						N140	2,60	40,1	707	2320	2,84	43,8	772	2533	
						N540	2,63	40,6	703	2306	2,90	44,7	769	2523	
11,7	180	Naturalis	LAPUA	70,6	2,780	N150	2,75	42,4	727	2385	2,95	45,5	778	2552	
						N550	2,84	43,8	716	2349	3,13	48,3	791	2595	
						N135	2,33	36,0	667	2188	2,66	41,0	761	2495	
						N140	2,44	37,6	675	2215	2,83	43,7	778	2551	
						N540	2,54	39,2	712	2335	2,84	43,8	791	2595	

C = Compressed load

= accuracy load

**BOLD TEXT INDICATES MAXIMUM LOAD - USE WITH CAUTION!**

LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

# .308 Winchester

Test barrel: 610 mm (24"), 1 in 12" twist

Primers: Large Rifle

Cases: LAPUA, trim-to length 51.00 mm (2.008")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
12,0	185	Scenar	LAPUA	71,0	2,795	N150	2,42	37,3	664	2179	<b>2,72</b>	<b>42,0</b>	<b>785</b>	<b>2575</b>
						N550	2,62	40,5	672	2203	<b>3,04</b>	<b>46,9</b>	<b>795</b>	<b>2608</b>
12,0	185	Silver Jacket Scenar	LAPUA	71,0	2,795	N140	2,46	38,0	689	2259	<b>2,77</b>	<b>42,7</b>	<b>776</b>	<b>2546</b>
						N150	2,47	38,1	696	2283	<b>2,80</b>	<b>43,2</b>	<b>782</b>	<b>2566</b>
						N550	2,72	41,9	711	2331	<b>3,06</b>	<b>47,2</b>	<b>811</b>	<b>2661</b>
12,3	190	HPBT	Sierra	71,0	2,795	N140	2,42	37,3	677	2222	<b>2,78</b>	<b>42,9</b>	<b>764</b>	<b>2508</b>
						N540	2,44	37,6	672	2204	<b>2,83</b>	<b>43,7</b>	<b>786</b>	<b>2579</b>
						N150	2,49	38,4	676	2218	<b>2,82</b>	<b>43,6</b>	<b>767</b>	<b>2516</b>
						N550	2,63	40,6	695	2279	<b>3,06</b>	<b>47,2</b>	<b>800</b>	<b>2624</b>
13,0	200	SP	Speer	71,0	2,795	N140	2,28	35,2	609	1999	<b>2,67</b>	<b>41,2</b>	<b>712</b>	<b>2335</b>
						N150	2,24	34,5	604	1982	<b>2,74</b>	<b>42,2</b>	<b>715</b>	<b>2344</b>

= accuracy load

# 7,62x53R (7,62 Russian)

Test barrel: 660 mm (26"), 1 in 10" twist

Primers: Large Rifle

Cases: LAPUA, trim-to length 53.30 mm (2.098")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
8,0	123	FMJ	LAPUA	68,5	2,697	N130	2,81	43,3	883	2896	<b>3,19</b>	<b>49,1</b>	<b>967</b>	<b>3171</b>
						N133	3,07	47,4	900	2954	<b>3,41</b>	<b>52,6</b>	<b>978</b>	<b>3209</b>
						N135	3,19	49,2	901	2956	<b>3,50</b>	<b>54,0</b>	<b>984</b>	<b>3229</b>
9,7	150	Mega	LAPUA	70,9	2,791	N133	2,43	37,5	727	2384	<b>2,83</b>	<b>43,6</b>	<b>826</b>	<b>2709</b>
						N135	2,70	41,7	761	2497	<b>3,05</b>	<b>47,1</b>	<b>851</b>	<b>2790</b>
						N140	2,86	44,1	774	2540	<b>3,19</b>	<b>49,2</b>	<b>862</b>	<b>2829</b>
10,0	155	Scenar	LAPUA	75,5	2,972	N135	2,74	42,3	786	2579	<b>3,02</b>	<b>46,7</b>	<b>865</b>	<b>2839</b>
						N140	2,90	44,8	800	2625	<b>3,19</b>	<b>49,3</b>	<b>884</b>	<b>2900</b>
						N150	2,99	46,2	803	2635	<b>3,15</b>	<b>48,6</b>	<b>886</b>	<b>2906</b>
10,1	156	SPBT	Sako	70,5	2,776	N135	2,89	44,6	789	2589	<b>3,18</b>	<b>49,0</b>	<b>866</b>	<b>2840</b>
						N140	3,01	46,5	796	2612	<b>3,31</b>	<b>51,1</b>	<b>879</b>	<b>2885</b>
						N150	3,16	48,7	809	2655	<b>3,45</b>	<b>53,2</b>	<b>890</b>	<b>2921</b>
10,9	167	Scenar	LAPUA	75,0	2,953	N140	3,00	46,3	784	2573	<b>3,10</b>	<b>47,8</b>	<b>862</b>	<b>2828</b>
						N540	2,94	45,3	774	2541	<b>3,24</b>	<b>50,0</b>	<b>854</b>	<b>2802</b>
						N150	3,12	48,1	790	2590	<b>3,38</b>	<b>52,1</b>	<b>865</b>	<b>2838</b>
						N550	3,21	49,5	797	2616	<b>3,54</b>	<b>54,6</b>	<b>885</b>	<b>2904</b>
10,9	168	HPBT	Sierra	75,6	2,976	N140	2,94	45,4	775	2541	<b>3,24</b>	<b>50,0</b>	<b>848</b>	<b>2782</b>
						N150	3,08	47,5	790	2591	<b>3,35</b>	<b>51,7</b>	<b>863</b>	<b>2831</b>
						N540	3,03	46,7	787	2581	<b>3,34</b>	<b>51,5</b>	<b>869</b>	<b>2851</b>
						N550	3,26	50,3	804	2638	<b>3,52</b>	<b>54,4</b>	<b>879</b>	<b>2884</b>
11,7	180	Naturalis	LAPUA	72,5	2,854	N140	2,80	43,2	708	2323	<b>3,07</b>	<b>47,4</b>	<b>781</b>	<b>2562</b>
						N540	2,85	44,0	714	2343	<b>3,10</b>	<b>47,8</b>	<b>789</b>	<b>2589</b>
						N150	2,81	43,4	708	2323	<b>3,10</b>	<b>47,8</b>	<b>782</b>	<b>2566</b>
12,0	185	Scenar	LAPUA	75,0	2,953	N550	3,10	47,8	721	2365	<b>3,40</b>	<b>52,5</b>	<b>813</b>	<b>2667</b>
						N135	2,74	42,2	727	2384	<b>2,98</b>	<b>46,0</b>	<b>795</b>	<b>2609</b>
						N140	2,87	44,3	741	2429	<b>3,03</b>	<b>46,8</b>	<b>787</b>	<b>2581</b>
						N540	2,84	43,9	741	2431	<b>3,14</b>	<b>48,5</b>	<b>818</b>	<b>2684</b>
						N150	2,98	45,9	742	2434	<b>3,24</b>	<b>50,0</b>	<b>815</b>	<b>2674</b>
N550	3,03	46,7	747	2452	<b>3,41</b>	<b>52,6</b>	<b>847</b>	<b>2779</b>						

= accuracy load

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

## 7,62x53R (7,62 Russian)

Test barrel: 660 mm (26"), 1 in 10" twist

Primers: Large Rifle

Cases: LAPUA, trim-to length 53.30 mm (2.098")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>12,0</b>	<b>185</b>	Mega	LAPUA	70,0	2,756	N140	2,80	43,2	708	2324	<b>3,12</b>	<b>48,1</b>	<b>788</b>	<b>2585</b>
						N540	2,87	44,4	720	2363	<b>3,17</b>	<b>48,9</b>	<b>799</b>	<b>2621</b>
						N150	2,92	45,1	718	2355	<b>3,20</b>	<b>49,4</b>	<b>792</b>	<b>2598</b>
						N550	3,13	48,3	746	2446	<b>3,47</b>	<b>53,5</b>	<b>835</b>	<b>2740</b>
<b>13,0</b>	<b>200</b>	D166	LAPUA	76,0	2,992	N140	2,36	36,4	635	2083	<b>2,59</b>	<b>40,0</b>	<b>709</b>	<b>2326</b>
						N150	2,36	36,4	641	2103	<b>2,64</b>	<b>40,7</b>	<b>711</b>	<b>2333</b>
						N540	2,47	38,1	656	2152	<b>2,69</b>	<b>41,5</b>	<b>720</b>	<b>2362</b>
<b>13,0</b>	<b>200</b>	HPBT	Sierra	77,1	3,035	N140	2,72	42,0	698	2292	<b>3,07</b>	<b>47,4</b>	<b>779</b>	<b>2556</b>
						N540	2,75	42,4	703	2306	<b>3,06</b>	<b>47,2</b>	<b>779</b>	<b>2556</b>
						N150	2,83	43,6	706	2316	<b>3,14</b>	<b>48,5</b>	<b>781</b>	<b>2562</b>
						N550	3,04	46,8	728	2389	<b>3,34</b>	<b>51,5</b>	<b>807</b>	<b>2648</b>
<b>14,3</b>	<b>220</b>	HPBT	Sierra	77,1	3,035	N540	2,63	40,6	656	2151	<b>2,87</b>	<b>44,3</b>	<b>728</b>	<b>2388</b>
						N150	2,61	40,3	639	2095	<b>2,96</b>	<b>45,7</b>	<b>728</b>	<b>2388</b>
						N550	2,84	43,9	675	2215	<b>3,12</b>	<b>48,1</b>	<b>753</b>	<b>2470</b>

= accuracy load

## 7,5 x 55 Swiss GP31

Test barrel: 600 mm (23½"), twist 10"

Primers: Large Rifle

Cases: Norma, trim-to length 55,40 mm (2.181")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>10,0</b>	<b>155</b>	Scenar	LAPUA	75,5	2,972	N140	3,00	46,3	759	2490	<b>3,18</b>	<b>49,1</b>	<b>811</b>	<b>2661</b>
						N150	3,03	46,8	763	2503	<b>3,22</b>	<b>49,7</b>	<b>815</b>	<b>2674</b>
						N540	3,05	47,1	766	2513	<b>3,25</b>	<b>50,1</b>	<b>842</b>	<b>2762</b>
<b>10,8</b>	<b>167</b>	Scenar	LAPUA	75,5	2,972	N140	2,78	42,9	700	2297	<b>2,96</b>	<b>45,7</b>	<b>760</b>	<b>2493</b>
						N540	2,65	40,9	700	2297	<b>3,07</b>	<b>47,4</b>	<b>771</b>	<b>2530</b>
						N150	2,78	42,9	703	2306	<b>3,08</b>	<b>47,5</b>	<b>761</b>	<b>2497</b>
<b>12,0</b>	<b>185</b>	Scenar	LAPUA	75,5	2,972	N140	2,45	37,8	694	2277	<b>2,71</b>	<b>41,8</b>	<b>710</b>	<b>2329</b>
						N150	2,85	44,0	697	2287	<b>2,93</b>	<b>45,2</b>	<b>723</b>	<b>2372</b>
						N540	2,74	42,3	688	2257	<b>2,87</b>	<b>44,3</b>	<b>722</b>	<b>2369</b>

**BOLD TEXT INDICATES MAXIMUM LOAD - USE WITH CAUTION!**

LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

# .30-06 Springfield

Test barrel: 620 mm (24"), 1 in 10" twist

Primers: Large Rifle

Cases: LAPUA, trim-to length 63.10 mm (2.484")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>3,7</b>	<b>57</b>	ALS <sup>1)</sup>	LAPUA	79,0	3,110	N110	2,02	31,1	1075	3527	<b>2,49</b>	<b>38,4</b>	<b>1217</b>	<b>3994</b>
<b>6,5</b>	<b>100</b>	HP	LAPUA	79,8	3,142	N130	2,71	41,8	910	2986	<b>3,36</b>	<b>51,8</b>	<b>1053</b>	<b>3455</b>
						N133	3,17	48,9	947	3107	<b>3,64</b>	<b>56,1</b>	<b>1062</b>	<b>3483</b>
						N135	3,34	51,5	961	3153	<b>3,81</b>	<b>58,8</b>	<b>1070</b>	<b>3510</b>
						N140	3,60	55,5	964	3163	<b>4,12</b>	<b>63,5</b>	<b>1094</b>	<b>3589</b>
						N540	3,70	57,1	977	3205	<b>4,25F</b>	<b>65,6F</b>	<b>1109</b>	<b>3638</b>
<b>7,1</b>	<b>110</b>	RN	Hornady	74,0	2,913	N133	3,29	50,7	919	3015	<b>3,58</b>	<b>55,2</b>	<b>1015</b>	<b>3330</b>
						N135	3,31	51,0	914	2999	<b>3,55</b>	<b>54,8</b>	<b>989</b>	<b>3245</b>
						N140	3,57	55,0	931	3053	<b>3,83</b>	<b>59,0</b>	<b>1000</b>	<b>3281</b>
						N150	3,69	57,0	937	3075	<b>4,06</b>	<b>62,7</b>	<b>1034</b>	<b>3393</b>
<b>8,0</b>	<b>123</b>	FMJ	LAPUA	79,8	3,142	N130	2,61	40,3	838	2749	<b>3,01</b>	<b>46,4</b>	<b>934</b>	<b>3064</b>
						N133	3,04	46,9	858	2815	<b>3,40</b>	<b>52,5</b>	<b>965</b>	<b>3166</b>
						N135	3,24	50,0	879	2884	<b>3,58</b>	<b>55,3</b>	<b>977</b>	<b>3206</b>
						N140	3,44	53,1	885	2904	<b>3,86</b>	<b>59,6</b>	<b>995</b>	<b>3264</b>
						N540	3,57	55,1	895	2936	<b>3,94</b>	<b>60,8</b>	<b>1000</b>	<b>3281</b>
						N150	3,66	56,5	911	2989	<b>4,02</b>	<b>62,1</b>	<b>1018</b>	<b>3340</b>
<b>8,1</b>	<b>125</b>	Ballistic Tip	Nosler	84,0	3,307	N135	3,05	47,1	853	2800	<b>3,58</b>	<b>55,2</b>	<b>976</b>	<b>3202</b>
						N140	3,33	51,4	883	2898	<b>3,79</b>	<b>58,5</b>	<b>995</b>	<b>3266</b>
						N540	3,58	55,3	905	2970	<b>4,07</b>	<b>62,9</b>	<b>1038</b>	<b>3407</b>
						N150	3,52	54,3	901	2955	<b>3,95</b>	<b>61,0</b>	<b>999</b>	<b>3276</b>
						N550	3,81	58,8	933	3061	<b>4,31</b>	<b>66,4</b>	<b>1063</b>	<b>3487</b>
<b>8,5</b>	<b>130</b>	HP	LAPUA	84,0	3,307	N135	3,08	47,5	843	2766	<b>3,50</b>	<b>54,0</b>	<b>952</b>	<b>3123</b>
						N140	3,29	50,8	862	2828	<b>3,79</b>	<b>58,4</b>	<b>979</b>	<b>3213</b>
						N540	3,40	52,5	867	2844	<b>3,87</b>	<b>59,7</b>	<b>994</b>	<b>3261</b>
						N150	3,50	54,0	871	2858	<b>3,89</b>	<b>60,0</b>	<b>976</b>	<b>3202</b>
<b>9,7</b>	<b>150</b>	Lock Base	LAPUA	84,0	3,307	N135	3,00	46,2	803	2634	<b>3,35</b>	<b>51,6</b>	<b>875</b>	<b>2871</b>
						N140	3,17	48,9	811	2660	<b>3,59</b>	<b>55,4</b>	<b>903</b>	<b>2961</b>
						N540	3,24	50,0	821	2694	<b>3,67</b>	<b>56,6</b>	<b>922</b>	<b>3026</b>
						N150	3,31	51,0	816	2677	<b>3,72</b>	<b>57,3</b>	<b>907</b>	<b>2977</b>
						N550	3,62	55,8	848	2783	<b>4,00</b>	<b>61,7</b>	<b>951</b>	<b>3121</b>
<b>9,7</b>	<b>150</b>	Mega	LAPUA	82,0	3,228	N135	2,75	42,4	749	2459	<b>3,13</b>	<b>48,2</b>	<b>845</b>	<b>2773</b>
						N140	2,98	45,9	770	2526	<b>3,36</b>	<b>51,8</b>	<b>867</b>	<b>2845</b>
						N540	3,10	47,8	787	2583	<b>3,51</b>	<b>54,1</b>	<b>904</b>	<b>2966</b>
<b>9,7</b>	<b>150</b>	HPBT	Sierra	84,0	3,307	N140	3,16	48,7	814	2671	<b>3,55</b>	<b>54,8</b>	<b>899</b>	<b>2951</b>
						N540	3,35	51,7	831	2725	<b>3,78</b>	<b>58,4</b>	<b>944</b>	<b>3096</b>
						N150	3,62	55,9	863	2831	<b>3,98</b>	<b>61,5</b>	<b>955</b>	<b>3132</b>
						N550	3,61	55,8	851	2793	<b>4,00</b>	<b>61,7</b>	<b>948</b>	<b>3111</b>
<b>10,0</b>	<b>155</b>	Scenar	LAPUA	84,0	3,307	N140	2,91	45,0	787	2583	<b>3,15</b>	<b>48,6</b>	<b>861</b>	<b>2825</b>
						N150	2,88	44,4	788	2584	<b>3,34</b>	<b>51,6</b>	<b>875</b>	<b>2872</b>
						N540	3,11	48,1	797	2616	<b>3,45</b>	<b>53,3</b>	<b>900</b>	<b>2952</b>
<b>10,1</b>	<b>156</b>	SPBT	Sako	80,5	3,169	N135	2,97	45,8	776	2546	<b>3,45</b>	<b>53,2</b>	<b>889</b>	<b>2915</b>
						N140	3,14	48,5	786	2577	<b>3,56</b>	<b>54,9</b>	<b>896</b>	<b>2939</b>
						N150	3,22	49,7	791	2596	<b>3,68</b>	<b>56,8</b>	<b>899</b>	<b>2949</b>
<b>10,9</b>	<b>167</b>	Scenar	LAPUA	84,0	3,307	N140	2,99	46,1	746	2449	<b>3,20</b>	<b>49,4</b>	<b>845</b>	<b>2772</b>
						N540	3,04	46,9	762	2500	<b>3,51</b>	<b>54,1</b>	<b>891</b>	<b>2923</b>
						N150	3,12	48,1	761	2496	<b>3,51</b>	<b>54,2</b>	<b>851</b>	<b>2792</b>
						N550	3,22	49,7	779	2556	<b>3,75</b>	<b>57,8</b>	<b>893</b>	<b>2930</b>
						N160	3,71	57,2	785	2575	<b>4,13</b>	<b>63,7</b>	<b>884</b>	<b>2901</b>

<sup>1)</sup> A muzzle velocity exceeding 1000 m/s ( 3300 fps) may lead to severe barrel fouling!

F = Case full

**F** = accuracy load

**BOLD TEXT INDICATES MAXIMUM LOAD - USE WITH CAUTION!**

LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

## .30-06 Springfield

Test barrel: 620 mm (24"), 1 in 10" twist  
 Primers: Large Rifle  
 Cases: LAPUA, trim-to length 63.10 mm (2.484")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>11,0</b>	<b>170</b>	LockBase	LAPUA	84,0	3,307	N140	2,99	46,1	746	2448	<b>3,34</b>	<b>51,6</b>	<b>838</b>	<b>2748</b>
						N540	3,05	47,1	758	2487	<b>3,47</b>	<b>53,5</b>	<b>860</b>	<b>2822</b>
						N150	3,15	48,6	764	2507	<b>3,53</b>	<b>54,5</b>	<b>842</b>	<b>2763</b>
						N550	3,27	50,5	779	2556	<b>3,77</b>	<b>58,1</b>	<b>885</b>	<b>2903</b>
<b>11,7</b>	<b>180</b>	Spitzer	Speer	84,0	3,307	N160	3,39	52,3	730	2395	<b>3,90</b>	<b>60,2</b>	<b>825</b>	<b>2705</b>
						N550	3,20	49,3	715	2345	<b>3,70</b>	<b>57,0</b>	<b>829</b>	<b>2720</b>
<b>11,7</b>	<b>180</b>	X	Barnes	84,0	3,307	N550	3,20	49,3	715	2345	<b>3,70</b>	<b>57,0</b>	<b>829</b>	<b>2720</b>
						N150	2,75	42,4	717	2352	<b>3,13</b>	<b>48,3</b>	<b>789</b>	<b>2589</b>
<b>11,7</b>	<b>180</b>	Naturalis	LAPUA	82,4	3,244	N150	2,75	42,4	717	2352	<b>3,13</b>	<b>48,3</b>	<b>789</b>	<b>2589</b>
						N550	3,20	49,4	753	2470	<b>3,50</b>	<b>54,0</b>	<b>830</b>	<b>2723</b>
						N160	3,40	52,5	765	2510	<b>3,62</b>	<b>55,9</b>	<b>819</b>	<b>2687</b>
						N560	3,45	53,2	733	2405	<b>3,87</b>	<b>59,7</b>	<b>829</b>	<b>2720</b>
<b>12,0</b>	<b>185</b>	Scenar	LAPUA	84,0	3,307	N540	2,93	45,2	715	2346	<b>3,25</b>	<b>50,2</b>	<b>799</b>	<b>2621</b>
						N150	2,97	45,8	726	2382	<b>3,20</b>	<b>49,4</b>	<b>816</b>	<b>2677</b>
						N550	3,09	47,7	726	2382	<b>3,48</b>	<b>53,7</b>	<b>832</b>	<b>2730</b>
						N160	3,59	55,4	755	2477	<b>3,97</b>	<b>61,3</b>	<b>849</b>	<b>2784</b>
<b>12,3</b>	<b>190</b>	HPBT	Sierra	84,0	3,307	N560	3,65	56,3	756	2480	<b>4,18</b>	<b>64,6</b>	<b>857</b>	<b>2812</b>
						N150	2,97	45,8	780	2559	<b>3,29</b>	<b>50,8</b>	<b>860</b>	<b>2822</b>
						N550	3,17	48,9	743	2438	<b>3,63</b>	<b>56,0</b>	<b>859</b>	<b>2817</b>
						N160	3,53	54,5	755	2477	<b>4,09</b>	<b>63,2</b>	<b>854</b>	<b>2803</b>
<b>13,0</b>	<b>200</b>	Partition	Nosler	84,0	3,307	N560	3,68	56,8	755	2477	<b>4,21</b>	<b>64,9</b>	<b>871</b>	<b>2859</b>
						N150	2,81	43,3	673	2207	<b>3,00</b>	<b>46,3</b>	<b>744</b>	<b>2441</b>
						N160	3,42	52,8	712	2335	<b>3,53</b>	<b>54,5</b>	<b>782</b>	<b>2566</b>
<b>14,3</b>	<b>220</b>	RN	Hornady	84,0	3,307	N160	3,35	51,7	666	2185	<b>3,77</b>	<b>58,2</b>	<b>750</b>	<b>2461</b>
						N560	3,59	55,4	705	2313	<b>4,14</b>	<b>63,9</b>	<b>810</b>	<b>2657</b>

= accuracy load

## .300 H&H Magnum

Test barrel: 610 mm (24"), 1 in 10" twist  
 Primers: Large Rifle Magnum  
 Cases: Winchester, trim-to length 72.20 mm (2.842")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>10,0</b>	<b>155</b>	Scenar	Lapua	91,4	3,598	N150	3,76	58,0	888	2913	<b>3,97</b>	<b>61,3</b>	<b>935</b>	<b>3068</b>
						N550	3,98	61,4	914	2999	<b>4,26</b>	<b>65,8</b>	<b>971</b>	<b>3187</b>
						N160	4,28	66,0	909	2982	<b>4,57</b>	<b>70,5</b>	<b>967</b>	<b>3174</b>
<b>12,0</b>	<b>185</b>	Scenar	Lapua	91,4	3,598	N160	3,95	60,9	820	2690	<b>4,21</b>	<b>64,9</b>	<b>872</b>	<b>2862</b>
						N560	4,31	66,5	851	2792	<b>4,59</b>	<b>70,9</b>	<b>908</b>	<b>2978</b>
						N165	4,35	67,1	843	2766	<b>4,62</b>	<b>71,4</b>	<b>895</b>	<b>2937</b>
<b>13,0</b>	<b>200</b>	HPBT	Sierra	91,4	3,598	N160	3,87	59,7	792	2598	<b>4,04</b>	<b>62,4</b>	<b>829</b>	<b>2719</b>
						N560	4,21	65,0	821	2694	<b>4,42</b>	<b>68,1</b>	<b>864</b>	<b>2834</b>
						N165	4,24	65,4	813	2667	<b>4,45</b>	<b>68,6</b>	<b>853</b>	<b>2799</b>

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



## .300 Winchester Short Magnum

Test barrel: 620 mm (24"), 1 in 10" twist

Primers: Large Rifle Magnum

Cases: Winchester, max. length 51,34 mm (2,021")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>10,7</b>	<b>165</b>	Scirocco	Swift	73,5	2,894	N550	3,77	58,2	862	2828	<b>4,16</b>	<b>64,2</b>	<b>957</b>	<b>3140</b>
						N160	3,87	59,7	842	2762	<b>4,33</b>	<b>66,8</b>	<b>937</b>	<b>3074</b>
						N560	4,23	65,3	858	2815	<b>4,63</b>	<b>71,5</b>	<b>959</b>	<b>3146</b>
						N165	4,32	66,7	868	2848	<b>4,74</b>	<b>73,1</b>	<b>962</b>	<b>3156</b>
<b>12,0</b>	<b>185</b>	Scenar	LAPUA	77,0	3,031	N160	3,83	59,1	799	2621	<b>4,22</b>	<b>65,1</b>	<b>882</b>	<b>2894</b>
						N560	4,11	63,4	814	2671	<b>4,50</b>	<b>69,4</b>	<b>906</b>	<b>2972</b>
						N165	4,18	64,5	823	2700	<b>4,62</b>	<b>71,3</b>	<b>911</b>	<b>2989</b>
<b>13,0</b>	<b>200</b>	Mega	LAPUA	70,0	2,756	N160	3,67	56,6	749	2457	<b>4,15</b>	<b>64,0</b>	<b>837</b>	<b>2746</b>
						N560	3,98	61,4	772	2533	<b>4,44</b>	<b>68,5</b>	<b>864</b>	<b>2835</b>
						N165	4,10	63,3	777	2549	<b>4,56</b>	<b>70,4</b>	<b>866</b>	<b>2841</b>

## .300 Winchester Magnum

Test barrel: 620 mm (24"), 1 in 10" twist

Primers: Large Rifle Magnum

Cases: LAPUA, trim-to length 66,3 mm (2.610")

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

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>7,1</b>	<b>110</b>	SP	Hornady	83,0	3,268	N160	5,40	83,3	1063	3488	<b>5,65</b>	<b>87,1</b>	<b>1122</b>	<b>3679</b>
<b>8,5</b>	<b>130</b>	HP	LAPUA	84,2	3,315	N160	4,99	77,0	964	3162	<b>5,34</b>	<b>82,4</b>	<b>1041</b>	<b>3416</b>
<b>9,7</b>	<b>150</b>	Ballistic Tip	Nosler	84,8	3,339	N160	4,79	73,9	913	2994	<b>5,01</b>	<b>77,3</b>	<b>986</b>	<b>3234</b>
						N165	5,20	80,2	940	3084	<b>5,35F</b>	<b>82,6F</b>	<b>997</b>	<b>3271</b>
<b>10,9</b>	<b>167</b>	Scenar	LAPUA	84,8	3,339	N160	4,70	72,4	880	2887	<b>5,01</b>	<b>77,3</b>	<b>950</b>	<b>3117</b>
						N165	5,02	77,5	892	2927	<b>5,39</b>	<b>83,2</b>	<b>967</b>	<b>3171</b>
<b>11,0</b>	<b>170</b>	Lock Base	LAPUA	84,8	3,339	N160	4,43	68,4	849	2785	<b>4,82</b>	<b>74,4</b>	<b>936</b>	<b>3071</b>
						N560	4,80	74,1	851	2792	<b>5,09</b>	<b>78,5</b>	<b>952</b>	<b>3123</b>
						N165	4,82	74,4	866	2841	<b>5,15</b>	<b>79,5</b>	<b>951</b>	<b>3120</b>
<b>11,7</b>	<b>180</b>	Partition	Nosler	84,8	3,339	N160	4,52	69,8	843	2765	<b>4,94</b>	<b>76,1</b>	<b>916</b>	<b>3004</b>
						N165	4,86	75,0	852	2795	<b>5,26</b>	<b>81,1</b>	<b>925</b>	<b>3033</b>
<b>11,7</b>	<b>180</b>	Naturalis	LAPUA	85,7 <sup>1)</sup>	3,374	N160	4,05	62,5	836	2743	<b>4,53</b>	<b>69,9</b>	<b>878</b>	<b>2881</b>
						N165	4,45	68,7	839	2753	<b>4,93</b>	<b>76,1</b>	<b>887</b>	<b>2910</b>
						N560	4,80	74,1	873	2864	<b>5,01</b>	<b>77,3</b>	<b>913</b>	<b>2995</b>
						N160	4,26	65,7	805	2641	<b>4,70</b>	<b>72,5</b>	<b>894</b>	<b>2933</b>
<b>12,0</b>	<b>185</b>	Scenar	LAPUA	84,8	3,339	N560	4,60	71,0	816	2677	<b>5,01</b>	<b>77,3</b>	<b>917</b>	<b>3009</b>
						N165	4,72	72,8	825	2707	<b>5,10</b>	<b>78,7</b>	<b>915</b>	<b>3002</b>
						N160	4,26	65,7	805	2641	<b>4,70</b>	<b>72,5</b>	<b>894</b>	<b>2933</b>
<b>12,3</b>	<b>190</b>	HPBT	Sierra	84,8	3,339	N560	4,34	66,9	823	2701	<b>4,88</b>	<b>75,3</b>	<b>898</b>	<b>2947</b>
						N165	4,49	69,2	816	2676	<b>5,01</b>	<b>77,3</b>	<b>882</b>	<b>2893</b>
						N170	4,40	67,8	788	2586	<b>5,06</b>	<b>78,0</b>	<b>861</b>	<b>2826</b>
<b>13,0</b>	<b>200</b>	HPBT	Sierra	84,8	3,339	N170	4,05	62,4	743	2438	<b>4,85</b>	<b>74,8</b>	<b>828</b>	<b>2717</b>
						N560	3,95	60,9	770	2526	<b>4,60</b>	<b>70,9</b>	<b>852</b>	<b>2795</b>
						N160	4,02	62,0	760	2495	<b>4,56</b>	<b>70,3</b>	<b>835</b>	<b>2741</b>
						N165	4,15	64,0	768	2518	<b>4,79</b>	<b>73,8</b>	<b>846</b>	<b>2774</b>
						N560	3,40	52,5	694	2278	<b>4,12</b>	<b>63,6</b>	<b>782</b>	<b>2567</b>
<b>14,3</b>	<b>220</b>	HPBT	Sierra	84,8	3,339	N165	3,27	50,4	667	2187	<b>4,24</b>	<b>65,4</b>	<b>772</b>	<b>2531</b>
						N170	3,65	56,3	688	2256	<b>4,31</b>	<b>66,5</b>	<b>767</b>	<b>2515</b>
						N560	3,40	52,5	694	2278	<b>4,12</b>	<b>63,6</b>	<b>782</b>	<b>2567</b>

F = Case full

= accuracy load

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

## .300 Weatherby Magnum

Test barrel: 660 mm (26"), 1 in 10" twist

Primers: Large Rifle Magnum

Cases: Weatherby, trim-to length 71.50 mm (2.815")

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

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>8,1</b>	<b>125</b>	Ballistic Tip	Nosler	90,0	3,543	N160	5,19	80,2	1046	3430	<b>5,52</b>	<b>85,2</b>	<b>1104</b>	<b>3623</b>
<b>9,7</b>	<b>150</b>	Ballistic Tip	Nosler	90,1	3,547	N160	4,88	75,3	945	3102	<b>5,22</b>	<b>80,6</b>	<b>1003</b>	<b>3291</b>
						N165	5,27	81,3	949	3113	<b>5,59</b>	<b>86,3</b>	<b>1019</b>	<b>3343</b>
<b>10,7</b>	<b>165</b>	SPBT	Speer	90,3	3,555	N160	4,85	74,8	923	3028	<b>5,16</b>	<b>79,6</b>	<b>975</b>	<b>3200</b>
						N165	5,24	80,9	932	3057	<b>5,57</b>	<b>85,9</b>	<b>984</b>	<b>3228</b>
<b>11,7</b>	<b>180</b>	SP	Hornady	90,3	3,555	N160	4,66	71,9	875	2872	<b>5,01</b>	<b>77,3</b>	<b>930</b>	<b>3050</b>
						N165	5,04	77,7	888	2912	<b>5,43</b>	<b>83,8</b>	<b>944</b>	<b>3098</b>
<b>13,0</b>	<b>200</b>	HPBT	Sierra	90,3	3,555	N560	4,47	69,0	821	2694	<b>4,81</b>	<b>74,2</b>	<b>872</b>	<b>2862</b>
						N165	4,39	67,7	795	2609	<b>4,87</b>	<b>75,1</b>	<b>858</b>	<b>2814</b>
						N170	4,44	68,5	781	2562	<b>5,11</b>	<b>78,9</b>	<b>859</b>	<b>2817</b>

## .300 LAPUA Magnum

Test barrel: 690 mm (27"), 1 in 9½ twist

Primers: Large Rifle Magnum

Cases: LAPUA, trim to-length 68,9 mm (2,713")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>10,0</b>	<b>155</b>	Scenar	LAPUA	93,0	3,661	N160	4,89	75,5	973	3192	<b>5,23</b>	<b>80,7</b>	<b>1023</b>	<b>3355</b>
						N560	5,24	80,9	973	3192	<b>5,73</b>	<b>88,4</b>	<b>1057</b>	<b>3468</b>
						N170	6,01	92,7	993	3258	<b>6,41</b>	<b>99,0</b>	<b>1064</b>	<b>3491</b>
<b>11,0</b>	<b>170</b>	Lock Base	LAPUA	93,0	3,661	N560	5,12	79,0	942	3091	<b>5,49</b>	<b>84,7</b>	<b>1004</b>	<b>3293</b>
						N170	5,66	87,3	939	3081	<b>6,10</b>	<b>94,1</b>	<b>1003</b>	<b>3292</b>
						24N41	6,15	94,9	945	3100	<b>6,56</b>	<b>101,2</b>	<b>1015</b>	<b>3331</b>
<b>12,0</b>	<b>185</b>	Scenar	LAPUA	93,0	3,661	N560	4,82	74,4	879	2884	<b>5,31</b>	<b>81,9</b>	<b>954</b>	<b>3131</b>
						N170	5,40	83,3	893	2930	<b>5,89</b>	<b>90,9</b>	<b>962</b>	<b>3158</b>
						24N41	5,93	91,5	916	3005	<b>6,30</b>	<b>97,2</b>	<b>965</b>	<b>3166</b>
<b>13,0</b>	<b>200</b>	HPBT	Sierra	93,0	3,661	N170	5,09	78,5	851	2792	<b>5,56</b>	<b>85,8</b>	<b>915</b>	<b>3003</b>
						24N41	5,56	85,8	866	2841	<b>6,01</b>	<b>92,8</b>	<b>928</b>	<b>3044</b>
<b>14,3</b>	<b>220</b>	HPBT	Sierra	93,0	3,661	24N41	5,10	78,7	804	2638	<b>5,67</b>	<b>87,4</b>	<b>875</b>	<b>2871</b>
						20N29	6,06	93,5	856	2808	<b>6,45</b>	<b>99,6</b>	<b>908</b>	<b>2980</b>

## .300 Remington Ultra Magnum

Test barrel: 660 mm (26"), 1 in 10" twist

Primers: Large Rifle Magnum

Cases: Remington, trim-to length 72.10 mm (2.839)

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>10,7</b>	<b>165</b>	Partition	Nosler	89,5	3,524	N160	4,97	76,7	896	2940	<b>5,64</b>	<b>87,0</b>	<b>980</b>	<b>3214</b>
						N560	5,39	83,2	902	2959	<b>6,13</b>	<b>94,5</b>	<b>1027</b>	<b>3371</b>
						N165	5,57	85,9	919	3015	<b>6,12</b>	<b>94,4</b>	<b>1009</b>	<b>3311</b>
<b>11,7</b>	<b>180</b>	X	Barnes	89,5	3,524	N165	4,52	69,7	833	2733	<b>5,40</b>	<b>83,3</b>	<b>939</b>	<b>3079</b>
						N560	4,65	71,7	854	2802	<b>5,60</b>	<b>86,3</b>	<b>956</b>	<b>3137</b>
						N170	4,90	75,6	840	2756	<b>6,12</b>	<b>94,4</b>	<b>952</b>	<b>3124</b>
<b>12,0</b>	<b>185</b>	Scenar	LAPUA	91,4	3,598	N560	5,46	84,2	888	2913	<b>5,93</b>	<b>91,5</b>	<b>979</b>	<b>3213</b>
						N165	5,18	79,9	865	2838	<b>6,09</b>	<b>94,0</b>	<b>960</b>	<b>3148</b>
						N170	5,98	92,3	875	2871	<b>6,40</b>	<b>98,7</b>	<b>966</b>	<b>3170</b>

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

# .30-378 Weatherby Magnum

Test barrel: 670 mm (26½"), twist 10"

Primers: Large Rifle Magnum

Cases: Weatherby, trim to-length 73,7 mm (2,902")

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

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>10,0</b>	<b>155</b>	Scenar	LAPUA	93,0	3,661	N160	6,10	94,1	1004	3294	<b>6,41</b>	<b>98,9</b>	<b>1062</b>	<b>3484</b>
						N165	6,68	103,1	1017	3337	<b>6,94</b>	<b>107,1</b>	<b>1075</b>	<b>3527</b>
						N170	7,23	111,6	1008	3307	<b>7,54</b>	<b>116,3</b>	<b>1069</b>	<b>3507</b>
<b>11,0</b>	<b>170</b>	Lock Base	LAPUA	93,0	3,661	N160	5,63	86,9	933	3061	<b>5,91</b>	<b>91,2</b>	<b>973</b>	<b>3192</b>
						N165	6,33	97,7	957	3140	<b>6,67</b>	<b>102,9</b>	<b>1002</b>	<b>3287</b>
						N170	6,94	107,1	957	3140	<b>7,20</b>	<b>111,1</b>	<b>1008</b>	<b>3307</b>
						24N41	7,31	112,8	980	3215	<b>7,83</b>	<b>120,8</b>	<b>1060</b>	<b>3478</b>
<b>12,0</b>	<b>185</b>	Scenar	LAPUA	93,0	3,661	N160	5,61	86,6	913	2995	<b>5,95</b>	<b>91,8</b>	<b>963</b>	<b>3159</b>
						N560	5,96	92,0	922	3025	<b>6,26</b>	<b>96,6</b>	<b>981</b>	<b>3219</b>
						N170	6,69	103,2	946	3104	<b>7,12</b>	<b>109,9</b>	<b>1009</b>	<b>3310</b>
						24N41	7,16	110,5	959	3146	<b>7,58</b>	<b>117,0</b>	<b>1023</b>	<b>3356</b>
						20N29	7,94	122,5	971	3186	<b>8,18</b>	<b>126,2</b>	<b>1003</b>	<b>3291</b>
<b>13,0</b>	<b>200</b>	HPBT	Sierra	93,0	3,661	24N41	4,80	74,1	691	2267	<b>6,96</b>	<b>107,4</b>	<b>949</b>	<b>3114</b>
						20N29	7,52	116,0	918	3012	<b>7,88</b>	<b>121,6</b>	<b>980</b>	<b>3215</b>
						20N29	7,14	110,2	974	3196	<b>7,64</b>	<b>117,9</b>	<b>938</b>	<b>3077</b>

# 7,62 x 39

Test barrel: 415 mm (16"), 1 in 9½ twist

Primers: Large Rifle

Cases: LAPUA, trim-to length 38.50 mm (1.516")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>3,7</b>	<b>57</b>	ALS	LAPUA	55,7	2,193	N110	1,56	24,1	925	3035	<b>1,78</b>	<b>27,5</b>	<b>997</b>	<b>3233</b>
<b>6,5</b>	<b>100</b>	HP	LAPUA	55,4	2,181	N110	1,22	18,8	685	2247	<b>1,41</b>	<b>21,8</b>	<b>772</b>	<b>2503</b>
						N120	1,65	25,5	688	2257	<b>1,80</b>	<b>27,8</b>	<b>769</b>	<b>2494</b>
<b>8,0</b>	<b>123</b>	FMJ	LAPUA	55,7	2,193	N120	1,60	24,7	663	2175	<b>1,77</b>	<b>27,3</b>	<b>728</b>	<b>2361</b>
<b>8,1</b>	<b>125</b>	Mega	LAPUA	52,4	2,063	N120	1,55	23,9	658	2157	<b>1,68</b>	<b>26,0</b>	<b>712</b>	<b>2309</b>
						N130	1,68	25,8	677	2219	<b>1,79</b>	<b>27,6</b>	<b>728</b>	<b>2359</b>

# .303 British

Test barrel: 600 mm (23½"), 1 in 10" twist

Primers: Large Rifle

Cases: Remington, trim-to length 56,20 mm (2.213")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>3,7</b>	<b>57</b>	ALS	LAPUA	73,3	2,886	N110	1,68	25,9	981	3219	<b>2,21</b>	<b>34,1</b>	<b>1178</b>	<b>3865</b>
<b>8,0</b>	<b>123</b>	FMJ	LAPUA	73,3	2,886	N120	2,18	33,6	819	2687	<b>2,37</b>	<b>36,6</b>	<b>873</b>	<b>2864</b>
						N130	2,39	36,9	840	2756	<b>2,59</b>	<b>40,0</b>	<b>895</b>	<b>2936</b>
						N133	2,58	39,8	858	2815	<b>2,76</b>	<b>42,6</b>	<b>914</b>	<b>2999</b>
<b>9,7</b>	<b>150</b>	Mega	LAPUA	70,5	2,776	N130	2,38	36,7	831	2726	<b>2,55</b>	<b>39,3</b>	<b>884</b>	<b>2900</b>
						N133	2,49	38,4	839	2753	<b>2,70</b>	<b>41,7</b>	<b>899</b>	<b>2949</b>
<b>11,3</b>	<b>174</b>	HPBT	Sierra	78,0	3,071	N135	2,29	35,3	711	2333	<b>2,49</b>	<b>38,4</b>	<b>761</b>	<b>2497</b>
						N140	2,49	38,4	725	2379	<b>2,70</b>	<b>41,7</b>	<b>782</b>	<b>2566</b>
						N540	2,57	39,7	728	2388	<b>2,78</b>	<b>42,9</b>	<b>791</b>	<b>2595</b>
<b>11,7</b>	<b>180</b>	Spitzer	Sierra	78,0	3,071	N135	2,15	33,2	664	2178	<b>2,36</b>	<b>36,4</b>	<b>714</b>	<b>2343</b>
						N140	2,33	36,0	683	2241	<b>2,57</b>	<b>39,7</b>	<b>739</b>	<b>2425</b>
						N540	2,48	38,3	697	2287	<b>2,70</b>	<b>41,7</b>	<b>758</b>	<b>2487</b>

**BOLD TEXT INDICATES MAXIMUM LOAD - USE WITH CAUTION!**

LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

## 8mm Mauser (8 x 57 JS)

Test barrel: 620 mm (24"), 1 in 9½" twist  
 Primers: Large Rifle  
 Cases: SAKO, trim-to length 56.80 mm (2.236")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>8,1</b>	<b>125</b>	SP	Hornady	74,0	2,913	N130	2,89	44,7	896	2941	3,25	50,2	981	3219
						N133	3,29	50,8	924	3032	3,62	55,9	1011	3317
						N135	3,32	51,3	909	2982	3,71	57,3	1012	3320
<b>9,7</b>	<b>150</b>	Spitzer	Speer	76,0	2,992	N135	3,07	47,4	824	2704	3,45	53,2	913	2994
						N140	3,25	50,1	830	2723	3,63	56,0	928	3045
						N140	3,12	48,1	781	2561	3,46	53,3	872	2859
<b>11,0</b>	<b>170</b>	SP	Speer	77,0	3,031	N150	3,26	50,3	795	2608	3,61	55,7	887	2910
						N140	2,97	45,8	775	2543	3,30	51,0	861	2823
						N140	3,12	48,1	781	2561	3,46	53,3	872	2859
<b>13,0</b>	<b>200</b>	Spitzer	Speer	79,5	3,130	N140	2,92	45,0	708	2322	3,17	49,0	789	2588
						N150	2,99	46,2	713	2340	3,31	51,0	792	2599
						N150	2,99	46,2	713	2340	3,31	51,0	792	2599
<b>13,0</b>	<b>200</b>	Partition	Nosler	81,0	3,189	N160	3,42	52,7	723	2371	3,77	58,2	821	2695

## .338 Winchester Magnum

Test barrel: 620 mm (24"), 1 in 10" twist  
 Primers: Large Rifle Magnum  
 Cases: LAPUA, trim-to length 63.30 mm (2.492")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>13,0</b>	<b>200</b>	SP	Hornady	85,0 <sup>1)</sup>	3,346	N160	5,09	78,6	878	2881	<b>5,37</b>	<b>82,8</b>	<b>932</b>	<b>3057</b>
<b>14,6</b>	<b>225</b>	SP	Hornady	84,0	3,307	N160	4,56	70,4	798	2617	<b>4,80</b>	<b>74,1</b>	<b>856</b>	<b>2809</b>
						N560	4,78	73,8	820	2689	<b>5,15</b>	<b>79,4</b>	<b>849</b>	<b>2785</b>
						N160	4,49	69,3	753	2470	<b>4,83</b>	<b>74,5</b>	<b>809</b>	<b>2655</b>
<b>16,2</b>	<b>250</b>	Grand Slam	Speer	83,8	3,299	N165	4,81	74,3	766	2511	<b>5,19</b>	<b>80,0</b>	<b>823</b>	<b>2698</b>
						N160	4,25	65,6	758	2488	<b>4,58</b>	<b>70,7</b>	<b>810</b>	<b>2659</b>
						N560	4,39	67,7	774	2540	<b>4,78</b>	<b>73,7</b>	<b>831</b>	<b>2728</b>
<b>16,2</b>	<b>250</b>	SBT	Sierra	84,8	3,339	N165	4,63	71,4	779	2555	<b>5,02</b>	<b>77,4</b>	<b>835</b>	<b>2738</b>
						N560	4,06	62,7	765	2509	<b>4,27</b>	<b>65,8</b>	<b>810</b>	<b>2657</b>
						N160	4,23	65,3	760	2494	<b>4,55</b>	<b>70,1</b>	<b>813</b>	<b>2669</b>
<b>16,2</b>	<b>250</b>	Scenar	LAPUA	84	3,307	N560	4,72	72,9	787	2581	<b>5,03</b>	<b>77,5</b>	<b>843</b>	<b>2765</b>
						N165	4,63	71,5	731	2398	<b>5,01</b>	<b>77,3</b>	<b>843</b>	<b>2765</b>
						N160	4,06	62,7	692	2270	<b>4,43</b>	<b>68,3</b>	<b>745</b>	<b>2445</b>
<b>17,8</b>	<b>275</b>	SP	Speer	85,0 <sup>1)</sup>	3,346	N165	4,63	71,5	731	2398	<b>5,01</b>	<b>77,3</b>	<b>843</b>	<b>2765</b>
<b>19,4</b>	<b>300</b>	HPBT	Sierra	84,8	3,339	N160	4,06	62,7	692	2270	<b>4,43</b>	<b>68,3</b>	<b>745</b>	<b>2445</b>
						N560	4,20	64,7	700	2295	<b>4,66</b>	<b>71,9</b>	<b>756</b>	<b>2479</b>

<sup>1)</sup> The cartridge overall length exceeds the CIP maximum.

## .338 LAPUA Magnum

Test barrel: 700 mm (27½"), 1 in 10" twist  
 Primers: Large Rifle Magnum  
 Cases: LAPUA, trim-to length 69.00 mm (2.714")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>13,0</b>	<b>200</b>	SP	Hornady	91,0	3,583	N160	5,81	89,6	926	3038	<b>6,22</b>	<b>96,0</b>	<b>993</b>	<b>3259</b>
						N165	6,24	96,3	935	3068	<b>6,66</b>	<b>102,8</b>	<b>1005</b>	<b>3297</b>
<b>14,6</b>	<b>225</b>	SP	Hornady	91,0	3,583	N160	5,07	78,3	830	2723	<b>5,64</b>	<b>87,0</b>	<b>900</b>	<b>2953</b>
						N560	5,35	82,6	865	2838	<b>5,86</b>	<b>90,5</b>	<b>934</b>	<b>3065</b>
						N165	5,40	83,2	839	2753	<b>6,01</b>	<b>92,8</b>	<b>915</b>	<b>3000</b>
						N170	5,75	88,8	847	2779	<b>6,33</b>	<b>97,6</b>	<b>917</b>	<b>3009</b>
<b>16,2</b>	<b>250</b>	Lock Base	LAPUA	91,5	3,602	N560	5,05	78,0	812	2663	<b>5,56</b>	<b>85,9</b>	<b>879</b>	<b>2883</b>
						N165	4,85	74,9	780	2558	<b>5,74</b>	<b>88,5</b>	<b>886</b>	<b>2906</b>
						N170	5,19	80,1	785	2577	<b>5,90</b>	<b>91,0</b>	<b>858</b>	<b>2816</b>

= accuracy load

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

# .338 LAPUA Magnum

Test barrel: 700 mm (27½"), 1 in 10" twist  
 Primers: Large Rifle Magnum  
 Cases: LAPUA, trim-to length 69.00 mm (2.714")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>16,2</b>	<b>250</b>	Scenar	LAPUA	93,5	3,681	N560	4,83	74,5	802	2630	<b>5,40</b>	<b>83,3</b>	<b>866</b>	<b>2841</b>
						N165	4,89	75,5	789	2589	<b>5,39</b>	<b>83,2</b>	<b>846</b>	<b>2775</b>
						N170	5,52	85,2	800	2625	<b>6,09</b>	<b>93,9</b>	<b>870</b>	<b>2854</b>
<b>19,4</b>	<b>300</b>	HPBT	Sierra	91,5	3,602	N165	4,57	70,5	695	2281	<b>5,20</b>	<b>80,2</b>	<b>766</b>	<b>2513</b>
						N560	4,70	72,5	722	2370	<b>5,37</b>	<b>82,8</b>	<b>800</b>	<b>2624</b>
						N170	5,15	79,4	719	2360	<b>5,86</b>	<b>90,4</b>	<b>792</b>	<b>2599</b>
						24N41	5,52	85,2	735	2410	<b>6,28</b>	<b>96,8</b>	<b>809</b>	<b>2653</b>

= accuracy load

# 9,3 x 62

Test barrel: 580 mm (22¾"), 1 in 14" twist  
 Primers: Large Rifle  
 Cases: LAPUA, trim-to length 61.80 mm (2.433")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>17,5</b>	<b>270</b>	Naturalis	LAPUA	82,5	3,248	N135	2,80	43,2	642	2106	3,30	50,9	699	2293
						N140	3,39	52,3	673	2208	3,70	57,1	733	2405
						N540	3,52	54,3	679	2228	3,77	58,2	731	2398
						N150	3,50	54,0	684	2244	3,82	58,9	745	2444
<b>18,5</b>	<b>285</b>	Mega	LAPUA	82,2	3,236	N135	2,85	44,0	605	1985	3,14	48,5	676	2218
						N140	3,00	46,3	614	2014	3,39	52,3	673	2208
						N540	3,05	47,1	607	1991	3,50	54,0	694	2277

# 9,3 x 74R

Test barrel: 610 mm (24"), 1 in 14" twist  
 Primers: Large Rifle  
 Cases: RWS, trim-to length 74.50 mm (2.933")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>15,0</b>	<b>231</b>	SP	Norma	92,1	3,626	N140	3,72	57,4	718	2356	<b>4,29</b>	<b>66,2</b>	<b>810</b>	<b>2656</b>
<b>16,5</b>	<b>256</b>	SP	Sako	92,2	3,630	N140	3,50	54,0	654	2146	<b>4,00</b>	<b>61,8</b>	<b>751</b>	<b>2463</b>
<b>17,5</b>	<b>270</b>	Naturalis	LAPUA	94,0	3,701	N135	3,10	47,8	649	2129	<b>3,30</b>	<b>50,9</b>	<b>706</b>	<b>2316</b>
						N140	3,30	50,9	656	2152	<b>3,75</b>	<b>57,9</b>	<b>716</b>	<b>2349</b>
						N540	3,48	53,7	655	2149	<b>3,83</b>	<b>59,1</b>	<b>723</b>	<b>2372</b>
						N135	2,80	43,2	576	1890	<b>3,43</b>	<b>52,9</b>	<b>665</b>	<b>2182</b>
<b>18,5</b>	<b>285</b>	Mega	LAPUA	92,2	3,630	N140	3,45	53,2	636	2087	<b>3,78</b>	<b>58,3</b>	<b>694</b>	<b>2277</b>
						N540	3,24	50,0	618	2028	<b>3,78</b>	<b>58,3</b>	<b>701</b>	<b>2300</b>
						N140	3,17	48,9	623	2045	<b>3,61</b>	<b>55,6</b>	<b>688</b>	<b>2256</b>
<b>19,0</b>	<b>293</b>	TUG	RWS	95,5 <sup>1)</sup>	3,760	N140	3,42	52,7	637	2088	<b>3,72</b>	<b>57,4</b>	<b>695</b>	<b>2281</b>

<sup>1)</sup> The cartridge overall length exceeds the CIP maximum.

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

## .375 H&H Magnum

Test barrel: 620 mm (24"), 1 in 12" twist  
 Primers: Large Rifle Magnum  
 Cases: Remington, trim-to length 72.20 mm (2.842")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>15,2</b>	<b>235</b>	Spitzer	Speer	91,0	3,583	N140	4,55	70,2	816	2677	<b>4,91</b>	<b>75,8</b>	<b>879</b>	<b>2884</b>
						N150	4,75	73,3	834	2736	<b>5,10</b>	<b>78,7</b>	<b>886</b>	<b>2907</b>
<b>16,2</b>	<b>250</b>	SBT	Sierra	91,0	3,583	N540	4,44	68,5	797	2615	<b>4,82</b>	<b>74,4</b>	<b>856</b>	<b>2808</b>
						N150	4,52	69,7	799	2621	<b>4,87</b>	<b>75,1</b>	<b>852</b>	<b>2795</b>
<b>17,5</b>	<b>270</b>	SP	Speer	91,0	3,583	N540	4,32	66,7	767	2516	<b>4,71</b>	<b>72,7</b>	<b>825</b>	<b>2707</b>
						N150	4,36	67,3	769	2523	<b>4,87</b>	<b>75,1</b>	<b>830</b>	<b>2723</b>
<b>18,5</b>	<b>285</b>	Grand Slam	Speer	91,0	3,583	N540	4,22	65,1	732	2402	<b>4,60</b>	<b>71,0</b>	<b>790</b>	<b>2592</b>
						N150	4,21	65,0	733	2405	<b>4,69</b>	<b>72,4</b>	<b>792</b>	<b>2598</b>

## .444 Marlin

Test barrel: 560 mm (22"), 1 in 38" twist  
 Primers: Large Rifle  
 Cases: Remington, trim-to length 56.30 mm (2.216")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>13,0</b>	<b>200</b>	HP/XTP	Hornady	64,4	2,535	N110	2,66	41,0	720	2362	<b>3,05</b>	<b>47,1</b>	<b>797</b>	<b>2613</b>
						N120	3,28	50,6	782	2565	<b>3,75</b>	<b>57,8</b>	<b>869</b>	<b>2851</b>
<b>15,6</b>	<b>240</b>	JTC-SIL	Hornady	64,5	2,539	N120	2,91	44,9	684	2243	<b>3,43</b>	<b>53,0</b>	<b>780</b>	<b>2560</b>
						N130	3,23	49,8	697	2286	<b>3,68</b>	<b>56,8</b>	<b>780</b>	<b>2558</b>
<b>17,2</b>	<b>265</b>	FP	Hornady	65,0	2,559	N120	2,82	43,5	649	2129	<b>3,27</b>	<b>50,5</b>	<b>736</b>	<b>2415</b>
						N130	3,09	47,7	657	2157	<b>3,45</b>	<b>53,2</b>	<b>732</b>	<b>2401</b>

## .45-70 Government

Test barrel: 560 mm (22"), 1 in 20" twist  
 Primers: Large Rifle  
 Cases: Remington, trim-to length 53.30 mm (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		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>19,4</b>	<b>300</b>	XFN	Barnes	64,8	2,551	N130	3,10	47,8	547	1795	<b>3,37</b>	<b>52,0</b>	<b>602</b>	<b>1975</b>
<b>22,7</b>	<b>350</b>	RN	Hornady	64,7	2,547	N130	3,11	48,0	522	1713	<b>3,46</b>	<b>53,4</b>	<b>614</b>	<b>2014</b>
						N133	3,26	50,3	507	1663	<b>3,72</b>	<b>57,4</b>	<b>621</b>	<b>2037</b>
						N530	3,45	53,2	509	1670	<b>3,82</b>	<b>58,9</b>	<b>606</b>	<b>1988</b>
<b>25,9</b>	<b>400</b>	FN	Speer	64,7	2,547	N130	2,90	44,7	489	1604	<b>3,22</b>	<b>49,7</b>	<b>559</b>	<b>1834</b>
						N133	3,06	47,2	485	1591	<b>3,40</b>	<b>52,5</b>	<b>574</b>	<b>1883</b>
						N530	3,20	49,4	478	1568	<b>3,52</b>	<b>54,3</b>	<b>568</b>	<b>1864</b>
<b>33,1</b>	<b>510</b>	LFN w/ gas check	Gunhill	64,7	2,547	N120 <sup>1)</sup>	1,70	26,2	360	1181	<b>1,90</b>	<b>29,3</b>	<b>408</b>	<b>1339</b>
						N130 <sup>1)</sup>	2,00	30,9	389	1276	<b>2,30</b>	<b>35,5</b>	<b>495</b>	<b>1624</b>

<sup>1)</sup> Cowboy Action Shooting-load.

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



# .458 Winchester Magnum

Test barrel: 635 mm (25"), 1 in 14" twist

Primers: Large Rifle Magnum

Cases: Winchester, trim-to length 63.30 mm (2.492")

Bullet					Powder	Starting load					Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity			Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]	
22,7	350	RN	Hornady	74,9	2,949	N120	4,13	63,7	712	2336	<b>4,53</b>	<b>69,9</b>	<b>748</b>	<b>2454</b>	
						N130	4,46	68,8	730	2395	<b>4,80</b>	<b>74,1</b>	<b>773</b>	<b>2536</b>	
						N133	4,72	72,8	730	2395	<b>4,90F</b>	<b>75,6F</b>	<b>756</b>	<b>2480</b>	
25,9	400	A-Frame	Swift	82,0	3,228	N130	4,30	66,3	674	2211	<b>4,55</b>	<b>70,2</b>	<b>710</b>	<b>2329</b>	
						N530	4,90	75,6	691	2267	<b>5,10F</b>	<b>78,7F</b>	<b>722</b>	<b>2369</b>	
						N135	4,80	74,1	677	2221	<b>4,90F</b>	<b>75,6F</b>	<b>692</b>	<b>2270</b>	
25,9	400	X	Barnes	83,0	3,268	N130	4,00	61,7	631	2070	<b>4,36</b>	<b>67,3</b>	<b>688</b>	<b>2257</b>	
						N530	4,50	69,4	645	2116	<b>4,70F</b>	<b>72,5F</b>	<b>674</b>	<b>2211</b>	
						N135	4,30	66,3	625	2051	<b>4,42F</b>	<b>68,2F</b>	<b>644</b>	<b>2113</b>	
32,4	500	RN	Hornady	84,0	3,307	N130	3,60	55,5	557	1827	<b>4,11</b>	<b>63,4</b>	<b>623</b>	<b>2044</b>	
						N133	3,85	59,4	564	1850	<b>4,52</b>	<b>69,7</b>	<b>645</b>	<b>2116</b>	
						N530	4,20	64,8	589	1932	<b>4,76</b>	<b>73,4</b>	<b>655</b>	<b>2149</b>	

F = Case full

# .50 BMG

Test barrel: 1140 mm (45"), rifle twist 16½"

Primers: CCI35

Cases: IMI, trim-to length 99.10 mm

Bullet					Powder	Starting load					Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity			Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]	
41,9	647	FMJBT	SPEER	137,5	5,413	N170	13,03	201,1	801	2629	<b>14,76</b>	<b>227,8</b>	<b>894</b>	<b>2932</b>	
						24N41	13,86	213,8	819	2688	<b>14,72</b>	<b>227,2</b>	<b>888</b>	<b>2915</b>	
						20N29	15,53	239,7	836	2744	<b>16,61</b>	<b>256,3</b>	<b>922</b>	<b>3024</b>	
45,4	700	Solid	Barnes	137,5	5,413	24N41	13,69	211,2	808	2652	<b>15,00</b>	<b>231,5</b>	<b>887</b>	<b>2910</b>	
						20N29	15,27	235,6	819	2687	<b>16,61</b>	<b>256,3</b>	<b>908</b>	<b>2978</b>	
48,6	750	A-MAX	Hornady	137,5	5,413	N170	12,31	190,0	759	2490	<b>13,99</b>	<b>215,8</b>	<b>842</b>	<b>2763</b>	
						24N41	12,97	200,2	764	2508	<b>14,13</b>	<b>218,0</b>	<b>843</b>	<b>2765</b>	
						20N29	14,59	225,2	779	2556	<b>15,97</b>	<b>246,4</b>	<b>862</b>	<b>2829</b>	
48,6	750	Bullex-N	LAPUA	138,0	5,433	24N41	13,83	213,4	798	2618	<b>14,93</b>	<b>230,4</b>	<b>865</b>	<b>2838</b>	
						20N29	15,57	240,3	826	2710	<b>16,58</b>	<b>255,9</b>	<b>895</b>	<b>2936</b>	
48,6	750	Solid	Barnes	137,5	5,413	24N41	13,26	204,6	768	2520	<b>14,54</b>	<b>224,4</b>	<b>858</b>	<b>2815</b>	
						20N29	14,64	226,0	782	2565	<b>16,23</b>	<b>250,5</b>	<b>871</b>	<b>2857</b>	
51,8	800	Bullex-N	LAPUA	137,5	5,413	24N41	12,93	199,5	756	2480	<b>14,23</b>	<b>219,6</b>	<b>826</b>	<b>2710</b>	
						20N29	14,95	230,7	796	2612	<b>15,79</b>	<b>243,7</b>	<b>857</b>	<b>2812</b>	
51,8	800	Solid	Barnes	137,5	5,413	24N41	11,79	181,9	722	2369	<b>12,84</b>	<b>198,1</b>	<b>790</b>	<b>2592</b>	
						20N29	14,19	219,1	779	2557	<b>15,88</b>	<b>245,0</b>	<b>850</b>	<b>2788</b>	
55,1	850	Solid	Barnes	137,5	5,413	24N41	12,34	190,5	716	2349	<b>13,50</b>	<b>208,3</b>	<b>784</b>	<b>2573</b>	
						20N29	13,91	214,7	746	2447	<b>15,42</b>	<b>238,0</b>	<b>828</b>	<b>2716</b>	

**BOLD TEXT 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. The data given here were obtained in laboratory conditions following strictly the CIP (Commission Internationale 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 9 AND 10 OF THIS GUIDE.

### 7mm TCU

Test barrel: 360 mm (14"), 1 in 10" twist

Primers: Small Rifle

Cases: Necked-up LAPUA .223 Rem., trim-to length 44.50 mm (1.752")

Bullet		Powder		Starting load				Maximum load						
Weight [g]	Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity		
			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]	
<b>6,5</b>	<b>100</b>	HP	Hornady	62,5	2,461	N120	1,48	22,8	667	2 188	<b>1,64</b>	<b>25,3</b>	<b>744</b>	<b>2 441</b>
						N130	1,62	25,0	672	2 205	<b>1,79</b>	<b>27,7</b>	<b>753</b>	<b>2 470</b>
						N133	1,77	27,3	695	2 280	<b>1,96</b>	<b>30,2</b>	<b>774</b>	<b>2 539</b>
<b>7,8</b>	<b>120</b>	SSSP	Hornady	63,5	2,500	N120	1,32	20,4	606	1 988	<b>1,45</b>	<b>22,4</b>	<b>655</b>	<b>2 149</b>
						N130	1,45	22,4	610	2 001	<b>1,61</b>	<b>24,9</b>	<b>673</b>	<b>2 208</b>
						N133	1,62	25,0	630	2 067	<b>1,81</b>	<b>27,9</b>	<b>701</b>	<b>2 300</b>
<b>8,4</b>	<b>130</b>	Spitzer	Speer	65,0	2,559	N120	1,24	19,1	542	1 778	<b>1,38</b>	<b>21,3</b>	<b>596</b>	<b>1 955</b>
						N130	1,40	21,6	573	1 880	<b>1,55</b>	<b>23,9</b>	<b>626</b>	<b>2 054</b>
						N133	1,46	22,5	576	1 890	<b>1,62</b>	<b>25,0</b>	<b>633</b>	<b>2 077</b>
<b>9,7</b>	<b>150</b>	SBT	Sierra	65,0	2,559	N120	1,17	18,0	513	1 683	<b>1,30</b>	<b>20,0</b>	<b>562</b>	<b>1 844</b>
						N130	1,31	20,2	535	1 755	<b>1,45</b>	<b>22,4</b>	<b>586</b>	<b>1 923</b>
						N133	1,38	21,2	542	1 778	<b>1,53</b>	<b>23,6</b>	<b>599</b>	<b>1 965</b>
<b>10,4</b>	<b>160</b>	SBT	Sierra	66,0	2,598	N135	1,44	22,2	538	1 765	<b>1,60</b>	<b>24,8</b>	<b>597</b>	<b>1 959</b>
						N120	1,12	17,3	480	1 575	<b>1,25</b>	<b>19,3</b>	<b>531</b>	<b>1 742</b>
						N130	1,26	19,5	505	1 657	<b>1,41</b>	<b>21,7</b>	<b>558</b>	<b>1 831</b>
						N133	1,31	20,2	511	1 677	<b>1,45</b>	<b>22,4</b>	<b>559</b>	<b>1 834</b>
						N135	1,45	22,4	531	1 742	<b>1,61</b>	<b>24,9</b>	<b>582</b>	<b>1 909</b>
						N540	1,48	22,9	544	1 785	<b>1,63</b>	<b>25,2</b>	<b>598</b>	<b>1 962</b>

NOTE: This cartridge is not supported by CIP or SAAMI. The maximum loads do not exceed 320 MPa.

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LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

## 7mm BR Remington

Test barrel: 375 mm (14½"), 1 in 10" twist  
 Primers: Small Rifle  
 Cases: Remington, trim-to length 38.40 mm (1.512")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>6,5</b>	<b>100</b>	HP	Hornady	56,0	2,205	N120	1,82	28,0	774	2539	<b>1,93</b>	<b>29,8</b>	<b>829</b>	<b>2720</b>
						N130	1,97	30,5	783	2568	<b>2,10</b>	<b>32,4</b>	<b>838</b>	<b>2749</b>
<b>7,8</b>	<b>120</b>	SSSP	Hornady	56,6	2,228	N120	1,67	25,8	687	2255	<b>1,80</b>	<b>27,8</b>	<b>738</b>	<b>2421</b>
						N130	1,81	27,9	707	2318	<b>1,94</b>	<b>29,9</b>	<b>784</b>	<b>2572</b>
						N133	1,94	30,0	714	2343	<b>2,11</b>	<b>32,6</b>	<b>771</b>	<b>2530</b>
<b>9,1</b>	<b>140</b>	Ballistic Tip	Nosler	60,3	2,374	N120	1,45	22,4	595	1954	<b>1,58</b>	<b>24,4</b>	<b>640</b>	<b>2100</b>
						N130	1,62	25,0	612	2006	<b>1,73</b>	<b>26,7</b>	<b>661</b>	<b>2169</b>
						N133	1,71	26,3	623	2044	<b>1,84</b>	<b>28,4</b>	<b>671</b>	<b>2201</b>
						N120	1,42	21,9	576	1890	<b>1,54</b>	<b>23,8</b>	<b>619</b>	<b>2031</b>
<b>9,7</b>	<b>150</b>	Ballistic Tip	Nosler	60,3	2,374	N130	1,54	23,8	589	1931	<b>1,67</b>	<b>25,8</b>	<b>635</b>	<b>2083</b>
						N133	1,62	25,1	595	1952	<b>1,77</b>	<b>27,3</b>	<b>642</b>	<b>2106</b>
						N135	1,75	27,0	606	1988	<b>1,87</b>	<b>28,9</b>	<b>650</b>	<b>2133</b>
						N120	1,30	20,1	539	1770	<b>1,42</b>	<b>21,9</b>	<b>580</b>	<b>1903</b>
<b>10,4</b>	<b>160</b>	HPBT	Sierra	59,7	2,350	N130	1,42	21,9	559	1834	<b>1,55</b>	<b>23,9</b>	<b>602</b>	<b>1975</b>
						N133	1,56	24,1	575	1886	<b>1,69</b>	<b>26,1</b>	<b>619</b>	<b>2031</b>
						N135	1,67	25,8	588	1929	<b>1,79</b>	<b>27,6</b>	<b>630</b>	<b>2067</b>

## 7mm GJW

Test barrel: 380 mm (15"), 1 in 8" twist  
 Primers: Small Rifle  
 Cases: Thune, trim-to length 48.80 mm (1.920")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>9,7</b>	<b>150</b>	Ballistic Tip	Nosler	75,0	2,953	N130	1,58	24,4	613	2013	<b>1,67</b>	<b>25,8</b>	<b>642</b>	<b>2106</b>
						N133	1,65	25,5	614	2013	<b>1,74</b>	<b>26,8</b>	<b>644</b>	<b>2113</b>
						N135	1,78	27,5	629	2065	<b>1,86</b>	<b>28,7</b>	<b>658</b>	<b>2159</b>
<b>10,9</b>	<b>168</b>	HPBT	Sierra	75,0	2,953	N130	1,54	23,7	583	1913	<b>1,63</b>	<b>25,2</b>	<b>611</b>	<b>2005</b>
						N133	1,62	25,1	587	1927	<b>1,71</b>	<b>26,4</b>	<b>617</b>	<b>2024</b>
						N135	1,76	27,1	605	1984	<b>1,83</b>	<b>28,2</b>	<b>631</b>	<b>2070</b>
						N140	1,83	28,2	607	1991	<b>1,91</b>	<b>29,5</b>	<b>636</b>	<b>2087</b>

## 7,62 x 25 Tokarev

Test barrel: 150 mm (6"), 1 in 10" twist, groove calibre 7,85 mm (0,309")  
 Primers: Large Pistol  
 Cases: Focchi 7,63 Mauser, trim-to length 24,80 mm (0,976")

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

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>3,9</b>	<b>60</b>	HP <sup>1)</sup>	Speer	32,0	1,260	N320	0,29	4,4	391	1284	<b>0,36</b>	<b>5,5</b>	<b>480</b>	<b>1574</b>
						N340	0,39	5,9	434	1425	<b>0,46</b>	<b>7,1</b>	<b>522</b>	<b>1713</b>
<b>4,6</b>	<b>71</b>	FMJ <sup>1)</sup>	Sierra	33,0	1,299	N340	0,36	5,5	410	1345	<b>0,43</b>	<b>6,7</b>	<b>478</b>	<b>1569</b>
						3N37	0,39	6,0	412	1352	<b>0,49</b>	<b>7,6</b>	<b>493</b>	<b>1616</b>
						3N38	0,53	8,1	471	1546	<b>0,61</b>	<b>9,5</b>	<b>521</b>	<b>1708</b>

<sup>1)</sup> Bullet cal. 7,92 mm (0,312")

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

## 7,62 x 25 Tokarev

Test barrel: 150 mm (6"), 1 in 10" twist, groove calibre 7,85 mm (0,309")  
 Primers: Large Pistol  
 Cases: Fiochi 7,63 Mauser, trim-to length 24,80 mm (0,976")

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

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>4,8</b>	<b>74</b>	FMJ <sup>1)</sup>	LAPUA	33,0	1,299	N340	0,35	5,5	406	1331	<b>0,43</b>	<b>6,6</b>	<b>471</b>	<b>1546</b>
						3N37	0,39	5,9	403	1322	<b>0,49</b>	<b>7,6</b>	<b>478</b>	<b>1569</b>
<b>5,8</b>	<b>90</b>	JHC <sup>2)</sup>	Sierra	32,5	1,280	N340	0,29	4,5	308	1011	<b>0,37</b>	<b>5,7</b>	<b>405</b>	<b>1329</b>
						3N37	0,34	5,2	340	1116	<b>0,43</b>	<b>6,6</b>	<b>416</b>	<b>1366</b>
						3N38	0,46	7,1	404	1326	<b>0,53</b>	<b>8,1</b>	<b>452</b>	<b>1482</b>
<b>6,0</b>	<b>93</b>	FMJ <sup>1)</sup>	LAPUA	34,0	1,339	N340	0,31	4,7	342	1122	<b>0,39</b>	<b>5,9</b>	<b>401</b>	<b>1316</b>
						3N37	0,33	5,1	349	1146	<b>0,46</b>	<b>7,1</b>	<b>418</b>	<b>1370</b>
						3N38	0,43	6,6	378	1241	<b>0,56</b>	<b>8,6</b>	<b>445</b>	<b>1460</b>

<sup>1)</sup> Bullet cal. 7,84 mm (0,309")

<sup>2)</sup> Bullet cal. 7,92 mm (0,312")

## .32 S.&W. Long N.P.

Test barrel: 175 mm (7"), 1 in 18½" twist  
 Primers: Small Pistol  
 Cases: LAPUA, trim-to length 23.20 mm (.913")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>5,4</b>	<b>83</b>	LWC	LAPUA	24,6	0,969	N310	0,09	1,5	231	758	<b>0,11</b>	<b>1,7</b>	<b>258</b>	<b>846</b>
<b>6,4</b>	<b>98</b>	LWC	LAPUA	24,6	0,969	N310	0,07	1,1	186	610	<b>0,08</b>	<b>1,3</b>	<b>208</b>	<b>682</b>
<b>6,4</b>	<b>98</b>	LRN	LAPUA	32,3	1,272	N310	0,12	1,9	256	840	<b>0,14</b>	<b>2,2</b>	<b>277</b>	<b>909</b>

## .32 S.&W. Long Wadcutter

Test barrel: 150 mm (6"), 1 in 18¾" twist  
 Primers: Small Pistol  
 Cases: LAPUA, trim-to length 23.20 mm (.913")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>5,4</b>	<b>83</b>	LWC	LAPUA	24,6	0,969	N310	0,11	1,7	246	807	<b>0,13</b>	<b>2,0</b>	<b>286</b>	<b>938</b>
<b>6,4</b>	<b>98</b>	LWC	LAPUA	24,6	0,969	N310	0,09	1,4	233	764	<b>0,12</b>	<b>1,9</b>	<b>257</b>	<b>843</b>

## 9mm Luger

Test barrel: 100 mm (4"), 1 in 10" twist  
 Primers: Small Pistol  
 Cases: LAPUA, trim-to length 19,00 mm (0,748")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>5,8</b>	<b>90</b>	HP-XTP	Hornady	27,0	1,063	N310	0,26	3,9	369	1212	<b>0,27</b>	<b>4,2</b>	<b>384</b>	<b>1260</b>
						N320	0,31	4,8	401	1316	<b>0,34</b>	<b>5,3</b>	<b>421</b>	<b>1380</b>
						N330	0,36	5,6	420	1379	<b>0,39</b>	<b>6,1</b>	<b>439</b>	<b>1440</b>
						N340	0,36	5,5	423	1387	<b>0,40</b>	<b>6,2</b>	<b>452</b>	<b>1483</b>
						N350	0,42	6,4	424	1391	<b>0,47</b>	<b>7,2</b>	<b>456</b>	<b>1496</b>
						3N37	0,42	6,4	437	1434	<b>0,47</b>	<b>7,2</b>	<b>461</b>	<b>1512</b>
<b>6,5</b>	<b>100</b>	HP	Speer	27,5	1,083	N320	0,30	4,7	373	1222	<b>0,33</b>	<b>5,1</b>	<b>398</b>	<b>1307</b>
						N330	0,35	5,4	393	1290	<b>0,38</b>	<b>5,9</b>	<b>416</b>	<b>1365</b>
						N340	0,37	5,7	393	1290	<b>0,42</b>	<b>6,4</b>	<b>429</b>	<b>1407</b>
						3N37	0,42	6,4	398	1306	<b>0,47</b>	<b>7,3</b>	<b>434</b>	<b>1423</b>

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

# 9mm Luger

Test barrel: 100 mm (4"), 1 in 10" twist

Primers: Small Pistol

Cases: LAPUA, trim-to length 19,00 mm (0,748")

Bullet		Mfg.	C.O.L.		Powder Type	Starting load				Maximum load				
Weight [g]	Weight [grs]		Type	[mm]		[in.]	Weight [g]	Weight [grs]	Velocity [m/s]	Velocity [fps]	Weight [g]	Weight [grs]	Velocity [m/s]	Velocity [fps]
7,5	115	HP-XTP	Hornady	29,0	1,142	N320	0,26	4,0	341	1118	<b>0,29</b>	<b>4,5</b>	<b>362</b>	<b>1188</b>
						N330	0,31	4,8	356	1166	<b>0,35</b>	<b>5,4</b>	<b>381</b>	<b>1251</b>
						N340	0,34	5,2	365	1198	<b>0,38</b>	<b>5,9</b>	<b>397</b>	<b>1301</b>
						3N37	0,39	6,0	370	1214	<b>0,44</b>	<b>6,7</b>	<b>398</b>	<b>1305</b>
						N350	0,38	5,9	373	1225	<b>0,42</b>	<b>6,4</b>	<b>396</b>	<b>1299</b>
7,5	115	RN	Rainier	29,0	1,142	N320	0,25	3,9	326	1068	<b>0,28</b>	<b>4,4</b>	<b>347</b>	<b>1139</b>
						N330	0,30	4,7	342	1123	<b>0,33</b>	<b>5,1</b>	<b>361</b>	<b>1185</b>
						N340	0,32	5,0	353	1157	<b>0,35</b>	<b>5,4</b>	<b>374</b>	<b>1228</b>
						N350	0,37	5,7	364	1195	<b>0,41</b>	<b>6,4</b>	<b>391</b>	<b>1282</b>
						3N37	0,39	6,1	364	1195	<b>0,42</b>	<b>6,5</b>	<b>383</b>	<b>1256</b>
7,8	120	CEPP	LAPUA	28,7	1,130	N320	0,25	3,9	308	1012	<b>0,28</b>	<b>4,3</b>	<b>331</b>	<b>1085</b>
						N330	0,30	4,7	339	1113	<b>0,33</b>	<b>5,1</b>	<b>362</b>	<b>1188</b>
						N340	0,32	4,9	346	1135	<b>0,36</b>	<b>5,5</b>	<b>370</b>	<b>1214</b>
						N350	0,38	5,9	358	1174	<b>0,41</b>	<b>6,4</b>	<b>383</b>	<b>1256</b>
						3N37	0,36	5,6	339	1113	<b>0,39</b>	<b>6,1</b>	<b>363</b>	<b>1189</b>
8,0	124	LSWC	Intercast	29,0	1,142	N320	0,24	3,8	327	1073	<b>0,27</b>	<b>4,1</b>	<b>343</b>	<b>1125</b>
						N330	0,28	4,4	345	1131	<b>0,31</b>	<b>4,8</b>	<b>358</b>	<b>1175</b>
						N340	0,30	4,7	346	1136	<b>0,33</b>	<b>5,1</b>	<b>369</b>	<b>1211</b>
						3N37	0,35	5,4	352	1156	<b>0,38</b>	<b>5,9</b>	<b>371</b>	<b>1218</b>
						N350	0,32	5,0	346	1134	<b>0,35</b>	<b>5,4</b>	<b>363</b>	<b>1191</b>
8,0	124	FMJ/FP	Hornady	29,0	1,142	N320	0,25	3,9	310	1017	<b>0,28</b>	<b>4,3</b>	<b>334</b>	<b>1096</b>
						N330	0,31	4,8	338	1108	<b>0,34</b>	<b>5,2</b>	<b>359</b>	<b>1178</b>
						N340	0,34	5,3	347	1139	<b>0,37</b>	<b>5,7</b>	<b>370</b>	<b>1214</b>
						3N37	0,39	6,1	357	1172	<b>0,42</b>	<b>6,5</b>	<b>377</b>	<b>1236</b>
						N350	0,35	5,4	349	1144	<b>0,39</b>	<b>6,0</b>	<b>370</b>	<b>1214</b>
8,0	124	RN	Rainier	29,0	1,142	N320	0,24	3,8	305	1000	<b>0,27</b>	<b>4,1</b>	<b>326</b>	<b>1069</b>
						N330	0,27	4,2	324	1063	<b>0,30</b>	<b>4,7</b>	<b>344</b>	<b>1129</b>
						N340	0,30	4,7	328	1077	<b>0,33</b>	<b>5,1</b>	<b>351</b>	<b>1152</b>
						N350	0,34	5,2	340	1115	<b>0,38</b>	<b>5,9</b>	<b>364</b>	<b>1196</b>
						3N37	0,35	5,4	346	1136	<b>0,39</b>	<b>6,0</b>	<b>365</b>	<b>1199</b>
8,4	130	FMJ	Sierra	29,0	1,142	N320	0,23	3,6	299	981	<b>0,26</b>	<b>4,0</b>	<b>319</b>	<b>1046</b>
						N330	0,26	4,0	314	1031	<b>0,29</b>	<b>4,5</b>	<b>333</b>	<b>1094</b>
						N340	0,28	4,4	325	1066	<b>0,31</b>	<b>4,8</b>	<b>341</b>	<b>1119</b>
						N350	0,33	5,2	330	1083	<b>0,36</b>	<b>5,5</b>	<b>346</b>	<b>1135</b>
						3N37	0,32	4,9	325	1067	<b>0,36</b>	<b>5,5</b>	<b>344</b>	<b>1130</b>
9,4	145	LRN	Intercast	29,0	1,142	N105	0,45	7,0	351	1151	<b>0,48</b>	<b>7,4</b>	<b>375</b>	<b>1232</b>
						N330	0,22	3,5	285	935	<b>0,25</b>	<b>3,8</b>	<b>305</b>	<b>1000</b>
						N340	0,25	3,9	299	982	<b>0,28</b>	<b>4,3</b>	<b>318</b>	<b>1044</b>
						N350	0,27	4,2	296	972	<b>0,30</b>	<b>4,7</b>	<b>319</b>	<b>1047</b>
						3N37	0,29	4,5	299	982	<b>0,32</b>	<b>5,0</b>	<b>322</b>	<b>1055</b>
9,5	147	HP/XTP	Hornady	29,0	1,142	N330	0,25	3,9	294	964	<b>0,28</b>	<b>4,3</b>	<b>315</b>	<b>1032</b>
						N340	0,25	3,9	289	948	<b>0,28</b>	<b>4,3</b>	<b>309</b>	<b>1015</b>
						3N37	0,30	4,7	298	979	<b>0,33</b>	<b>5,1</b>	<b>321</b>	<b>1052</b>
						N350	0,29	4,5	302	991	<b>0,32</b>	<b>5,0</b>	<b>326</b>	<b>1070</b>
						N105	0,40	6,1	317	1039	<b>0,41</b>	<b>6,4</b>	<b>338</b>	<b>1108</b>
						3N38	0,41	6,3	357	1171	<b>0,45</b>	<b>6,9</b>	<b>368</b>	<b>1207</b>

**BOLD TEXT INDICATES MAXIMUM LOAD - USE WITH CAUTION!**

LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED



# 9mm Luger

Test barrel: 100 mm (4"), 1 in 10" twist  
 Primers: Small Pistol  
 Cases: LAPUA, trim-to length 19,00 mm (0,748")

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>9,5</b>	<b>147</b>	RN	Rainier	29,0	1,142	N330	0,22	3,5	272	893	<b>0,25</b>	<b>3,8</b>	287	942
						N340	0,24	3,8	272	892	<b>0,27</b>	<b>4,1</b>	293	960
						N350	0,27	4,2	285	935	<b>0,30</b>	<b>4,7</b>	309	1014
						3N37	0,29	4,5	286	937	<b>0,32</b>	<b>4,9</b>	307	1008
<b>9,7</b>	<b>150</b>	CEPP	Lapua	28,7	1,130	N330	0,23	3,5	264	867	<b>0,24</b>	<b>3,8</b>	283	929
						N340	0,24	3,8	275	903	<b>0,27</b>	<b>4,1</b>	294	966
						N350	0,27	4,2	285	936	<b>0,30</b>	<b>4,6</b>	304	997
						3N37	0,27	4,2	275	904	<b>0,30</b>	<b>4,7</b>	298	976

# 9mm x 21

Test barrel: 140 mm (5½"), 1 in 10" twist  
 Primers: Small Pistol  
 Cases: Tanfoglio, trim-to length 21.00 mm (.826")

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>6,5</b>	<b>100</b>	HP	Speer	29,0	1,142	N340	0,39	5,9	416	1363	<b>0,43</b>	<b>6,6</b>	444	1455
						3N37	0,43	6,7	427	1400	<b>0,48</b>	<b>7,4</b>	453	1485
						N350	0,46	7,0	433	1420	<b>0,50</b>	<b>7,6</b>	459	1505
<b>7,5</b>	<b>115</b>	FMJ	Sierra	29,5	1,161	N340	0,35	5,3	381	1248	<b>0,38</b>	<b>5,9</b>	401	1314
						3N37	0,39	5,9	375	1229	<b>0,43</b>	<b>6,6</b>	402	1319
						N350	0,39	5,9	388	1274	<b>0,43</b>	<b>6,6</b>	410	1346
						N105	0,53	8,1	410	1344	<b>0,57</b>	<b>8,7</b>	438	1435
<b>8,0</b>	<b>123</b>	FMJ	LAPUA	29,5	1,161	N340	0,31	4,7	348	1142	<b>0,34</b>	<b>5,2</b>	364	1194
						3N37	0,35	5,3	354	1160	<b>0,39</b>	<b>5,9</b>	372	1222
						N350	0,35	5,3	348	1143	<b>0,38</b>	<b>5,9</b>	370	1213
						N105	0,45	6,9	372	1220	<b>0,48</b>	<b>7,4</b>	397	1301
<b>9,5</b>	<b>147</b>	HP-XTP	Hornady	29,5	1,161	3N37	0,32	4,9	310	1016	<b>0,34</b>	<b>5,3</b>	329	1079
						N350	0,30	4,6	324	1064	<b>0,32</b>	<b>5,0</b>	338	1110
						N105	0,38	5,8	326	1071	<b>0,41</b>	<b>6,3</b>	347	1139

# 9 x 23 Winchester

Test barrel: 130 mm (5"), 1 in 16" twist  
 Primers: Small Pistol  
 Cases: Winchester, trim-to length 22.75 mm (0.896")

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>7,5</b>	<b>115</b>	FMJ	Sierra	32,5	1,280	N340	0,41	6,3	425	1395	<b>0,46</b>	<b>7,2</b>	449	1474
						3N37	0,47	7,3	424	1392	<b>0,54</b>	<b>8,3</b>	462	1517
						N350	0,48	7,4	419	1374	<b>0,57</b>	<b>8,8</b>	456	1496
<b>8,0</b>	<b>123</b>	FMJ	LAPUA	32,5	1,280	N340	0,38	5,9	384	1261	<b>0,45</b>	<b>6,9</b>	422	1385
						3N37	0,43	6,6	397	1302	<b>0,48</b>	<b>7,5</b>	427	1400
						N350	0,45	6,9	388	1272	<b>0,50</b>	<b>7,8</b>	425	1394
<b>8,0</b>	<b>123</b>	Megashock	LAPUA	30,2	1,189	N340	0,37	5,7	382	1254	<b>0,42</b>	<b>6,5</b>	419	1373
						N350	0,44	6,8	391	1282	<b>0,48</b>	<b>7,3</b>	423	1386
						3N37	0,41	6,4	391	1281	<b>0,50</b>	<b>7,7</b>	432	1416
<b>8,5</b>	<b>130</b>	RN B	Rainier	32,5	1,280	N340	0,37	5,7	366	1202	<b>0,41</b>	<b>6,3</b>	401	1315
						3N37	0,43	6,6	377	1238	<b>0,48</b>	<b>7,5</b>	412	1351
						N350	0,40	6,1	361	1184	0,47	<b>7,3</b>	405	1328

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

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

# .357 SIG

Test barrel: 130 mm (5"), 1 in 16" twist

Primers: Small Pistol

Cases: Starline, trim-to length 21.80 mm (0.858")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
6,2	95	FMJ	Sierra	30,5	1,201	N340	0,51	7,8	461	1512	<b>0,58</b>	<b>8,9</b>	<b>504</b>	<b>1652</b>
						3N37	0,56	8,7	469	1539	<b>0,65</b>	<b>10,0</b>	<b>514</b>	<b>1686</b>
						N350	0,57	8,8	469	1537	<b>0,66</b>	<b>10,1</b>	<b>518</b>	<b>1699</b>
7,5	115	FMJ	Sierra	30,5	1,201	N340	0,41	6,3	404	1325	<b>0,50</b>	<b>7,7</b>	<b>449</b>	<b>1473</b>
						3N37	0,49	7,5	416	1365	<b>0,56</b>	<b>8,6</b>	<b>458</b>	<b>1502</b>
						N350	0,47	7,3	411	1347	<b>0,56</b>	<b>8,6</b>	<b>460</b>	<b>1509</b>
8,0	123	FMJ	LAPUA	30,5	1,201	N340	0,39	6,0	381	1250	<b>0,48</b>	<b>7,4</b>	<b>426</b>	<b>1398</b>
						3N37	0,47	7,2	392	1287	<b>0,54</b>	<b>8,3</b>	<b>436</b>	<b>1431</b>
						N350	0,47	7,2	394	1293	<b>0,54</b>	<b>8,3</b>	<b>439</b>	<b>1440</b>
8,0	123	Megashock	LAPUA	30,5	1,201	N340	0,39	6,0	381	1249	<b>0,48</b>	<b>7,4</b>	<b>427</b>	<b>1400</b>
						3N37	0,45	7,0	393	1291	<b>0,54</b>	<b>8,3</b>	<b>437</b>	<b>1435</b>
						N350	0,45	6,9	389	1276	<b>0,54</b>	<b>8,4</b>	<b>440</b>	<b>1445</b>
8,5	130	RN B	Rainier	30,5	1,201	N340	0,40	6,1	370	1213	<b>0,46</b>	<b>7,1</b>	<b>409</b>	<b>1343</b>
						3N37	0,46	7,1	381	1249	<b>0,52</b>	<b>8,1</b>	<b>405</b>	<b>1330</b>
						N350	0,44	6,8	383	1257	<b>0,53</b>	<b>8,1</b>	<b>428</b>	<b>1404</b>

# .38 Super Auto

Test barrel: 140 mm (5½"), 1 in 16" twist

Primers: Small Pistol

Cases: Remington +P, trim-to length 22.70 mm (.893")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
7,5	115	HP-XTP	Hornady	31,5	1,240	N320	0,33	5,1	362	1 188	<b>0,38</b>	<b>5,9</b>	<b>402</b>	<b>1 319</b>
						N340	0,39	6,0	381	1 250	<b>0,45</b>	<b>6,9</b>	<b>426</b>	<b>1 398</b>
						3N37	0,42	6,5	385	1 263	<b>0,51</b>	<b>7,9</b>	<b>436</b>	<b>1 430</b>
						N350	0,36	5,5	357	1 171	<b>0,46</b>	<b>7,1</b>	<b>415</b>	<b>1 362</b>
7,5	115	FMJ	Sierra	32,4	1,276	N350	0,51	7,9	414	1 358	<b>0,59</b>	<b>9,1</b>	<b>463</b>	<b>1 519</b>
						3N37	0,48	7,5	395	1 296	<b>0,54</b>	<b>8,4</b>	<b>443</b>	<b>1 453</b>
7,5	115	RN	Rainier	31,5	1,240	N320	0,31	4,8	357	1 171	<b>0,37</b>	<b>5,7</b>	<b>394</b>	<b>1 293</b>
						N340	0,39	6,0	382	1 253	<b>0,45</b>	<b>7,0</b>	<b>426</b>	<b>1 398</b>
						N350	0,43	6,6	388	1 273	<b>0,52</b>	<b>7,9</b>	<b>438</b>	<b>1 437</b>
						3N37	0,44	6,9	390	1 280	<b>0,51</b>	<b>7,9</b>	<b>432</b>	<b>1 417</b>
8,0	124	FMJ-FP	Hornady	32,0	1,260	N320	0,30	4,7	330	1 083	<b>0,35</b>	<b>5,4</b>	<b>366</b>	<b>1 201</b>
						N340	0,39	6,0	368	1 207	<b>0,46</b>	<b>7,1</b>	<b>413</b>	<b>1 355</b>
						3N37	0,46	7,1	374	1 227	<b>0,50</b>	<b>7,7</b>	<b>401</b>	<b>1 316</b>
						N350	0,41	6,4	366	1 201	<b>0,49</b>	<b>7,5</b>	<b>411</b>	<b>1 348</b>
						N105	0,64	10,0	429	1 407	<b>0,71</b>	<b>10,9</b>	<b>486</b>	<b>1 594</b>
8,0	124	LSWC	Intercast	32,0	1,260	N320	0,26	4,0	334	1 096	<b>0,32</b>	<b>5,0</b>	<b>369</b>	<b>1 211</b>
						N340	0,35	5,4	367	1 204	<b>0,41</b>	<b>6,4</b>	<b>405</b>	<b>1 329</b>
						N350	0,39	6,0	371	1 217	<b>0,46</b>	<b>7,1</b>	<b>415</b>	<b>1 362</b>
						3N37	0,41	6,3	377	1 237	<b>0,48</b>	<b>7,4</b>	<b>417</b>	<b>1 368</b>
8,4	130	FMJ	Sierra	32,0	1,260	N320	0,27	4,2	317	1 040	<b>0,33</b>	<b>5,1</b>	<b>354</b>	<b>1 161</b>
						N340	0,36	5,5	349	1 145	<b>0,41</b>	<b>6,3</b>	<b>384</b>	<b>1 260</b>
						3N37	0,41	6,3	360	1 181	<b>0,47</b>	<b>7,3</b>	<b>399</b>	<b>1 309</b>
						N105	0,60	9,3	402	1 319	<b>0,65</b>	<b>10,1</b>	<b>444</b>	<b>1 457</b>
8,4	130	RN	Rainier	32,0	1,260	N320	0,29	4,4	312	1 024	<b>0,33</b>	<b>5,2</b>	<b>350</b>	<b>1 148</b>
						N340	0,35	5,4	344	1 129	<b>0,40</b>	<b>6,2</b>	<b>375</b>	<b>1 230</b>
						N350	0,38	5,9	347	1 138	<b>0,45</b>	<b>6,9</b>	<b>388</b>	<b>1 273</b>
						3N37	0,41	6,3	355	1 165	<b>0,47</b>	<b>7,2</b>	<b>392</b>	<b>1 286</b>

**BOLD TEXT INDICATES MAXIMUM LOAD - USE WITH CAUTION!**

LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

## .38 Super Auto

Test barrel: 140 mm (5½"), 1 in 16" twist

Primers: Small Pistol

Cases: Remington +P, trim-to length 22.70 mm (.893")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Weight		Velocity		Weight		Velocity		
[g]	[grs]			[mm]	[in.]	[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]	
9,4	145	LRN	Intercast	32,0	1,260	N340	0,28	4,3	315	1 033	<b>0,33</b>	<b>5,2</b>	<b>350</b>	<b>1 148</b>
						3N37	0,36	5,5	329	1 079	<b>0,41</b>	<b>6,3</b>	<b>368</b>	<b>1 207</b>
						N350	0,33	5,1	319	1 047	<b>0,39</b>	<b>6,0</b>	<b>358</b>	<b>1 175</b>
9,5	147	HP/XTP	Hornady	32,0	1,260	N340	0,33	5,1	315	1 033	<b>0,38</b>	<b>5,9</b>	<b>354</b>	<b>1 161</b>
						3N37	0,38	5,9	334	1 096	<b>0,44</b>	<b>6,8</b>	<b>372</b>	<b>1 220</b>
						N350	0,37	5,7	327	1 073	<b>0,42</b>	<b>6,5</b>	<b>364</b>	<b>1 194</b>
9,5	147	RN	Rainier	32,0	1,260	N105	0,51	7,8	360	1 181	<b>0,55</b>	<b>8,4</b>	<b>394</b>	<b>1 293</b>
						N340	0,32	5,0	321	1 053	<b>0,37</b>	<b>5,7</b>	<b>348</b>	<b>1 142</b>
						N350	0,34	5,3	307	1 007	<b>0,40</b>	<b>6,1</b>	<b>345</b>	<b>1 132</b>
						3N37	0,36	5,5	316	1 037	<b>0,41</b>	<b>6,3</b>	<b>349</b>	<b>1 145</b>

## .38 Super LAPUA

Test barrel: 140 mm (5½"), 1 in 16" twist

Primers: Small Pistol

Cases: LAPUA, trim-to length 22.70 mm (.893")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Weight		Velocity		Weight		Velocity		
[g]	[grs]			[mm]	[in.]	[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]	
7,5	115	FMJ	LAPUA	31,5	1,240	N340	0,40	6,2	373	1 224	<b>0,44</b>	<b>6,8</b>	<b>406</b>	<b>1 330</b>
						3N37	0,47	7,3	379	1 243	<b>0,52</b>	<b>8,0</b>	<b>415</b>	<b>1 361</b>
						3N38	0,60	9,3	413	1 355	<b>0,68</b>	<b>10,4</b>	<b>454</b>	<b>1 489</b>
8,0	123	FMJ	LAPUA	32,0	1,260	N340	0,39	6,0	357	1 171	<b>0,43</b>	<b>6,7</b>	<b>387</b>	<b>1 270</b>
						3N37	0,47	7,3	372	1 220	<b>0,52</b>	<b>8,0</b>	<b>402</b>	<b>1 319</b>
						3N38	0,57	8,8	394	1 293	<b>0,62</b>	<b>9,6</b>	<b>434</b>	<b>1 424</b>
8,4	130	FMJ	Sierra	32,0	1,260	N340	0,38	5,9	347	1 138	<b>0,41</b>	<b>6,4</b>	<b>376</b>	<b>1 234</b>
						3N37	0,46	7,1	360	1 181	<b>0,50</b>	<b>7,7</b>	<b>392</b>	<b>1 285</b>
						3N38	0,53	8,2	373	1 224	<b>0,58</b>	<b>8,9</b>	<b>411</b>	<b>1 350</b>

## .38 Special

Test barrel: 170 mm (6½"), 1 in 18" twist

Primers: Small Pistol

Cases: LAPUA, trim-to length 29.10 mm (1.146")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Weight		Velocity		Weight		Velocity		
[g]	[grs]			[mm]	[in.]	[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]	
7,1	110	HP/XTP	Hornady	36,5	1,437	N320	0,35	5,4	342	1120	<b>0,40</b>	<b>6,1</b>	<b>388</b>	<b>1272</b>
						N340	0,40	6,2	345	1130	<b>0,45</b>	<b>6,9</b>	<b>386</b>	<b>1267</b>
						3N37	0,48	7,3	353	1156	<b>0,53</b>	<b>8,2</b>	<b>399</b>	<b>1308</b>
						N350	0,43	6,6	355	1165	<b>0,50</b>	<b>7,7</b>	<b>398</b>	<b>1305</b>
8,0	124	LSWC	Intercast	36,5	1,437	N320	0,29	4,5	310	1015	<b>0,34</b>	<b>5,2</b>	<b>353</b>	<b>1159</b>
						N340	0,37	5,7	324	1063	<b>0,42</b>	<b>6,4</b>	<b>367</b>	<b>1203</b>
						3N37	0,41	6,3	329	1079	<b>0,46</b>	<b>7,0</b>	<b>367</b>	<b>1205</b>
8,1	125	FP/XTP	Hornady	36,5	1,437	N350	0,39	5,9	336	1101	<b>0,44</b>	<b>6,8</b>	<b>370</b>	<b>1215</b>
						N320	0,32	4,9	299	981	<b>0,37</b>	<b>5,6</b>	<b>342</b>	<b>1121</b>
						N340	0,38	5,8	318	1042	<b>0,43</b>	<b>6,7</b>	<b>359</b>	<b>1178</b>
8,1	125	FP	Rainier	36,5	1,437	3N37	0,44	6,8	319	1045	<b>0,49</b>	<b>7,5</b>	<b>367</b>	<b>1204</b>
						N350	0,42	6,5	323	1058	<b>0,49</b>	<b>7,5</b>	<b>373</b>	<b>1224</b>
						N320	0,29	4,5	293	960	<b>0,34</b>	<b>5,2</b>	<b>332</b>	<b>1089</b>
						N340	0,34	5,2	306	1002	<b>0,41</b>	<b>6,3</b>	<b>349</b>	<b>1146</b>
						N350	0,38	5,9	304	997	<b>0,45</b>	<b>6,9</b>	<b>354</b>	<b>1160</b>
						3N37	0,40	6,2	310	1017	<b>0,47</b>	<b>7,2</b>	<b>362</b>	<b>1187</b>

**BOLD TEXT INDICATES MAXIMUM LOAD - USE WITH CAUTION!**

LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

# .38 Special

Test barrel: 170 mm (6½"), 1 in 18" twist

Primers: Small Pistol

Cases: LAPUA, trim-to length 29.10 mm (1.146")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>9,1</b>	<b>140</b>	HP	Speer	36,5	1,437	N320	0,30	4,6	268	878	<b>0,35</b>	<b>5,3</b>	<b>320</b>	<b>1051</b>
						N340	0,36	5,6	275	902	<b>0,41</b>	<b>6,2</b>	<b>329</b>	<b>1079</b>
						3N37	0,41	6,2	282	925	<b>0,46</b>	<b>7,1</b>	<b>341</b>	<b>1117</b>
						N350	0,40	6,2	282	925	<b>0,45</b>	<b>6,9</b>	<b>336</b>	<b>1102</b>
<b>9,4</b>	<b>145</b>	LSWC	Intercast	37,5	1,476	N320	0,25	3,9	270	886	<b>0,30</b>	<b>4,6</b>	<b>306</b>	<b>1004</b>
						N340	0,33	5,1	295	966	<b>0,38</b>	<b>5,8</b>	<b>341</b>	<b>1118</b>
						3N37	0,36	5,5	287	940	<b>0,39</b>	<b>6,0</b>	<b>328</b>	<b>1077</b>
						N350	0,35	5,4	296	969	<b>0,42</b>	<b>6,4</b>	<b>346</b>	<b>1136</b>
<b>9,5</b>	<b>146</b>	JHP	Speer	35,0	1,378	N340	0,30	4,6	261	856	<b>0,35</b>	<b>5,4</b>	<b>306</b>	<b>1004</b>
						3N37	0,35	5,4	263	863	<b>0,40</b>	<b>6,1</b>	<b>310</b>	<b>1018</b>
						N350	0,34	5,2	265	869	<b>0,39</b>	<b>5,9</b>	<b>308</b>	<b>1010</b>
<b>9,6</b>	<b>148</b>	LWC	Sako	30,0	1,181	N320	0,20	3,0	237	776	<b>0,23</b>	<b>3,5</b>	<b>267</b>	<b>876</b>
						N330	0,22	3,3	239	784	<b>0,25</b>	<b>3,8</b>	<b>277</b>	<b>910</b>
						N340	0,24	3,6	248	812	<b>0,27</b>	<b>4,1</b>	<b>282</b>	<b>926</b>
						N350	0,27	4,1	255	835	<b>0,30</b>	<b>4,6</b>	<b>294</b>	<b>964</b>
						N320	0,25	3,9	218	715	<b>0,30</b>	<b>4,6</b>	<b>272</b>	<b>892</b>
						N340	0,32	4,9	241	791	<b>0,37</b>	<b>5,6</b>	<b>300</b>	<b>983</b>
<b>10,2</b>	<b>158</b>	HP	Speer	36,5	1,437	3N37	0,38	5,9	259	848	<b>0,43</b>	<b>6,6</b>	<b>305</b>	<b>999</b>
						N350	0,36	5,5	261	855	<b>0,41</b>	<b>6,3</b>	<b>309</b>	<b>1013</b>
						N320	0,26	3,9	237	776	<b>0,31</b>	<b>4,8</b>	<b>283</b>	<b>927</b>
						N340	0,32	4,9	247	809	<b>0,37</b>	<b>5,7</b>	<b>295</b>	<b>967</b>
<b>10,2</b>	<b>158</b>	FP	Rainier	37,5	1,476	N350	0,36	5,5	261	856	<b>0,41</b>	<b>6,3</b>	<b>306</b>	<b>1004</b>
						3N37	0,37	5,6	260	853	<b>0,42</b>	<b>6,5</b>	<b>310</b>	<b>1015</b>
						N340	0,33	5,1	297	974	<b>0,38</b>	<b>5,8</b>	<b>338</b>	<b>1107</b>
<b>10,4</b>	<b>160</b>	LFN	Intercast	37,5	1,476	N340	0,33	5,1	297	974	<b>0,38</b>	<b>5,8</b>	<b>338</b>	<b>1107</b>
						3N37	0,35	5,3	277	909	<b>0,40</b>	<b>6,2</b>	<b>324</b>	<b>1064</b>
						N350	0,35	5,4	294	963	<b>0,40</b>	<b>6,1</b>	<b>328</b>	<b>1077</b>

# .357 Magnum

Test barrel: 175 mm (7"), 1 in 18½" twist

Primers: Small Rifle

Cases: Remington, trim-to length 32.60 mm (1.283")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>7,1</b>	<b>110</b>	HP/XTP	Hornady	40,0	1,575	N310	0,43	6,6	413	1 355	<b>0,46</b>	<b>7,1</b>	<b>433</b>	<b>1 420</b>
						N320	0,51	7,8	445	1 460	<b>0,55</b>	<b>8,4</b>	<b>468</b>	<b>1 537</b>
						N340	0,60	9,2	475	1 558	<b>0,65</b>	<b>10,1</b>	<b>509</b>	<b>1 669</b>
						3N37	0,68	10,5	496	1 627	<b>0,75</b>	<b>11,6</b>	<b>527</b>	<b>1 728</b>
						N350	0,69	10,6	497	1 631	<b>0,74</b>	<b>11,4</b>	<b>525</b>	<b>1 722</b>
<b>8,0</b>	<b>124</b>	LSWC	Intercast	41,0 <sup>1)</sup>	1,614	N110	1,20	18,5	523	1 716	<b>1,38</b>	<b>21,2</b>	<b>626</b>	<b>2 055</b>
						N340	0,56	8,6	443	1 453	<b>0,61</b>	<b>9,4</b>	<b>469</b>	<b>1 540</b>
						N350	0,59	9,1	446	1 463	<b>0,65</b>	<b>10,0</b>	<b>472</b>	<b>1 547</b>
						N110	1,11	17,1	510	1 673	<b>1,21</b>	<b>18,7</b>	<b>553</b>	<b>1 813</b>
<b>8,1</b>	<b>125</b>	FP/XTP	Hornady	40,0	1,575	N310	0,39	5,9	371	1 217	<b>0,43</b>	<b>6,6</b>	<b>399</b>	<b>1 309</b>
						N320	0,45	7,0	400	1 312	<b>0,50</b>	<b>7,7</b>	<b>428</b>	<b>1 404</b>
						N340	0,56	8,7	440	1 444	<b>0,62</b>	<b>9,5</b>	<b>471</b>	<b>1 545</b>
						N350	0,62	9,5	456	1 496	<b>0,68</b>	<b>10,5</b>	<b>483</b>	<b>1 585</b>
						N110	1,09	16,8	488	1 601	<b>1,19</b>	<b>18,4</b>	<b>540</b>	<b>1 772</b>

<sup>1)</sup> The cartridge overall length exceeds the CIP maximum.

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

# .357 Magnum

Test barrel: 175 mm (7"), 1 in 18½" twist  
 Primers: Small Rifle  
 Cases: Remington, trim-to length 32.60 mm (1.283")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>9,1</b>	<b>140</b>	HP	Speer	40,0	1,575	N340	0,53	8,2	404	1 325	<b>0,57</b>	<b>8,9</b>	<b>429</b>	<b>1 407</b>
						3N37	0,59	9,2	417	1 368	<b>0,65</b>	<b>10,0</b>	<b>447</b>	<b>1 467</b>
						N350	0,58	9,0	416	1 365	<b>0,63</b>	<b>9,7</b>	<b>445</b>	<b>1 459</b>
						N110	1,02	15,8	457	1 499	<b>1,11</b>	<b>17,1</b>	<b>502</b>	<b>1 647</b>
<b>9,4</b>	<b>145</b>	LSWC	Intercast	41.0 <sup>1)</sup>	1,614	N320	0,41	6,4	376	1 234	<b>0,45</b>	<b>6,9</b>	<b>396</b>	<b>1 299</b>
						N340	0,47	7,3	398	1 306	<b>0,51</b>	<b>7,9</b>	<b>421</b>	<b>1 380</b>
						3N37	0,54	8,4	412	1 352	<b>0,60</b>	<b>9,2</b>	<b>440</b>	<b>1 443</b>
						N350	0,51	7,9	404	1 325	<b>0,58</b>	<b>9,0</b>	<b>436</b>	<b>1 429</b>
<b>10,2</b>	<b>158</b>	HP	Speer	40,0	1,575	N110	0,98	15,1	479	1 572	<b>1,06</b>	<b>16,4</b>	<b>511</b>	<b>1 677</b>
						N320	0,40	6,2	335	1 099	<b>0,44</b>	<b>6,7</b>	<b>361</b>	<b>1 183</b>
						N340	0,47	7,3	361	1 184	<b>0,51</b>	<b>7,8</b>	<b>384</b>	<b>1 259</b>
						3N37	0,53	8,2	377	1 237	<b>0,59</b>	<b>9,1</b>	<b>406</b>	<b>1 331</b>
<b>10,2</b>	<b>158</b>	FP/XTP	Hornady	40,0	1,575	N350	0,54	8,3	385	1 263	<b>0,59</b>	<b>9,1</b>	<b>406</b>	<b>1 333</b>
						N105	0,76	11,8	427	1 401	<b>0,82</b>	<b>12,6</b>	<b>454</b>	<b>1 490</b>
						N110	0,98	15,1	451	1 480	<b>1,05</b>	<b>16,3</b>	<b>488</b>	<b>1 602</b>
						N340	0,45	6,9	376	1 234	<b>0,49</b>	<b>7,6</b>	<b>394</b>	<b>1 291</b>
<b>10,2</b>	<b>158</b>	HP	Speer	40,0	1,575	3N37	0,51	7,8	383	1 257	<b>0,55</b>	<b>8,5</b>	<b>410</b>	<b>1 346</b>
						N350	0,48	7,5	383	1 257	<b>0,54</b>	<b>8,3</b>	<b>405</b>	<b>1 329</b>
						N110	0,92	14,1	456	1 496	<b>0,99</b>	<b>15,3</b>	<b>487</b>	<b>1 597</b>
						N340	0,45	6,9	321	1 053	<b>0,49</b>	<b>7,6</b>	<b>348</b>	<b>1 142</b>
<b>10,4</b>	<b>160</b>	LFN	Intercast	40,0	1,575	3N37	0,50	7,7	336	1 102	<b>0,55</b>	<b>8,5</b>	<b>366</b>	<b>1 201</b>
						N350	0,47	7,3	325	1 066	<b>0,53</b>	<b>8,2</b>	<b>360</b>	<b>1 182</b>
						N105	0,65	10,1	379	1 243	<b>0,73</b>	<b>11,3</b>	<b>409</b>	<b>1 342</b>
						N110	0,82	12,7	382	1 253	<b>0,91</b>	<b>14,0</b>	<b>425</b>	<b>1 394</b>
<b>11,7</b>	<b>180</b>	TMJ	Speer	42.6 <sup>1)</sup>	1,677	3N37	0,46	7,1	297	974	<b>0,51</b>	<b>7,9</b>	<b>325</b>	<b>1 066</b>
						N350	0,45	6,9	288	945	<b>0,50</b>	<b>7,7</b>	<b>324</b>	<b>1 063</b>
						N105	0,60	9,2	337	1 106	<b>0,66</b>	<b>10,2</b>	<b>366</b>	<b>1 199</b>
						N110	0,79	12,1	362	1 188	<b>0,85</b>	<b>13,1</b>	<b>389</b>	<b>1 277</b>

<sup>1)</sup> The cartridge overall length exceeds the CIP maximum.

# .357 Remington Maximum

Test barrel: 300 mm (12"), 1 in 18½" twist  
 Primers: Small Rifle  
 Cases: Remington, trim-to length 40.60 mm (1.598")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>10,2</b>	<b>158</b>	FP/XTP	Hornady	48,0	1,890	3N37	0,70	10,8	461	1 512	<b>0,76</b>	<b>11,6</b>	<b>488</b>	<b>1 600</b>
						N350	0,64	9,9	443	1 453	<b>0,74</b>	<b>11,5</b>	<b>485</b>	<b>1 591</b>
						N105	0,85	13,1	485	1 591	<b>0,97</b>	<b>14,9</b>	<b>529</b>	<b>1 736</b>
						N110	1,21	18,7	557	1 827	<b>1,30</b>	<b>20,0</b>	<b>591</b>	<b>1 938</b>
<b>10,2</b>	<b>158</b>	FP	Rainier	48,0	1,890	N350	0,71	11,0	440	1 444	<b>0,81</b>	<b>12,5</b>	<b>490</b>	<b>1 608</b>
						3N37	0,69	10,6	445	1 460	<b>0,78</b>	<b>12,0</b>	<b>489</b>	<b>1 604</b>
						N105	0,86	13,3	490	1 608	<b>0,98</b>	<b>15,2</b>	<b>532</b>	<b>1 745</b>
						N110	1,27	19,6	559	1 834	<b>1,35</b>	<b>20,8</b>	<b>594</b>	<b>1 949</b>

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

# .357 Remington Maximum

Test barrel: 300 mm (12"), 1 in 18½" twist

Primers: Small Rifle

Cases: Remington, trim-to length 40.60 mm (1.598")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>10,4</b>	<b>160</b>	LFN	Intercast	48,0	1,890	N37	0,66	10,1	465	1 526	<b>0,75</b>	<b>11,6</b>	<b>491</b>	<b>1 611</b>
						N350	0,66	10,1	459	1 506	<b>0,72</b>	<b>11,0</b>	<b>482</b>	<b>1 580</b>
						N105	0,87	13,4	517	1 696	<b>0,99</b>	<b>15,3</b>	<b>555</b>	<b>1 820</b>
<b>11,7</b>	<b>180</b>	Silhouette	Nosler	48,1	1,894	N105	0,79	12,2	443	1 453	<b>0,88</b>	<b>13,6</b>	<b>482</b>	<b>1 580</b>
						N110	1,07	16,6	500	1 640	<b>1,15</b>	<b>17,8</b>	<b>530</b>	<b>1 740</b>
						N120	1,40	21,7	516	1 693	<b>1,50</b>	<b>23,1</b>	<b>549</b>	<b>1 801</b>
						N110	0,99	15,3	440	1 444	<b>1,07</b>	<b>16,5</b>	<b>471</b>	<b>1 545</b>
<b>13,0</b>	<b>200</b>	TMJ	Speer	50.8 <sup>1)</sup>	2,000	N110	0,99	15,3	440	1 444	<b>1,07</b>	<b>16,5</b>	<b>471</b>	<b>1 545</b>
						N120	1,30	20,1	458	1 503	<b>1,39</b>	<b>21,4</b>	<b>497</b>	<b>1 631</b>

<sup>1)</sup> The cartridge overall length exceeds the CIP maximum.

# .40 S.&W.

Test barrel: 140 mm (5½"), 1 in 16" twist

Primers: Small Pistol

Cases: Remington, trim-to length 21.40 mm (.843")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>8,7</b>	<b>135</b>	HP	Nosler	28,6	1,126	N320	0,39	6,0	373	1 224	<b>0,42</b>	<b>6,5</b>	<b>400</b>	<b>1 311</b>
						N340	0,48	7,4	403	1 322	<b>0,54</b>	<b>8,3</b>	<b>435</b>	<b>1 426</b>
						3N37	0,54	8,3	403	1 322	<b>0,59</b>	<b>9,1</b>	<b>437</b>	<b>1 434</b>
<b>10,0</b>	<b>155</b>	HP-XTP	Hornady	28,6	1,126	N320	0,34	5,2	337	1 106	<b>0,37</b>	<b>5,8</b>	<b>359</b>	<b>1 177</b>
						N330	0,39	6,0	348	1 142	<b>0,42</b>	<b>6,5</b>	<b>371</b>	<b>1 218</b>
						N340	0,39	6,0	345	1 132	<b>0,44</b>	<b>6,8</b>	<b>375</b>	<b>1 230</b>
						3N37	0,47	7,3	357	1 171	<b>0,52</b>	<b>8,0</b>	<b>386</b>	<b>1 267</b>
						N350	0,43	6,6	351	1 152	<b>0,49</b>	<b>7,5</b>	<b>379</b>	<b>1 245</b>
<b>10,0</b>	<b>155</b>	FP	Rainier	28,6	1,126	N320	0,34	5,3	331	1 086	<b>0,37</b>	<b>5,8</b>	<b>353</b>	<b>1 157</b>
						N330	0,39	6,0	344	1 129	<b>0,42</b>	<b>6,5</b>	<b>368</b>	<b>1 208</b>
						N340	0,41	6,4	352	1 155	<b>0,46</b>	<b>7,1</b>	<b>383</b>	<b>1 256</b>
						N350	0,46	7,2	357	1 171	<b>0,51</b>	<b>7,9</b>	<b>389</b>	<b>1 275</b>
						3N37	0,49	7,5	359	1 178	<b>0,54</b>	<b>8,3</b>	<b>388</b>	<b>1 274</b>
<b>10,7</b>	<b>165</b>	TC-FMJ	PMC	28,6	1,126	N320	0,32	4,9	303	994	<b>0,37</b>	<b>5,7</b>	<b>336</b>	<b>1 103</b>
						N340	0,41	6,3	334	1 096	<b>0,46</b>	<b>7,1</b>	<b>366</b>	<b>1 200</b>
						3N37	0,47	7,3	343	1 125	<b>0,51</b>	<b>7,9</b>	<b>374</b>	<b>1 226</b>
						3N38	0,62	9,6	369	1 211	<b>0,66</b>	<b>10,2</b>	<b>401</b>	<b>1 315</b>
<b>11,0</b>	<b>170</b>	HP	Hornady	28,6	1,126	N340	0,34	5,3	313	1 027	<b>0,39</b>	<b>6,0</b>	<b>341</b>	<b>1 117</b>
						3N37	0,39	6,0	322	1 056	<b>0,44</b>	<b>6,8</b>	<b>350</b>	<b>1 147</b>
						N350	0,38	5,8	322	1 056	<b>0,43</b>	<b>6,6</b>	<b>349</b>	<b>1 144</b>
<b>11,7</b>	<b>180</b>	HP	Speer	28,6	1,126	N340	0,35	5,5	305	1 001	<b>0,39</b>	<b>6,0</b>	<b>333</b>	<b>1 091</b>
						3N37	0,38	5,8	303	994	<b>0,43</b>	<b>6,6</b>	<b>334</b>	<b>1 095</b>
						N350	0,38	5,9	319	1 047	<b>0,43</b>	<b>6,6</b>	<b>343</b>	<b>1 126</b>
<b>13,0</b>	<b>200</b>	TMJ	Speer	28,6	1,126	N340	0,30	4,7	267	876	<b>0,34</b>	<b>5,3</b>	<b>293</b>	<b>961</b>
						3N37	0,33	5,1	265	869	<b>0,38</b>	<b>5,9</b>	<b>295</b>	<b>968</b>
						N350	0,34	5,3	272	892	<b>0,38</b>	<b>5,9</b>	<b>297</b>	<b>974</b>
						3N38	0,45	6,9	304	997	<b>0,50</b>	<b>7,7</b>	<b>335</b>	<b>1 099</b>
						N105	0,49	7,5	321	1 053	<b>0,51</b>	<b>7,9</b>	<b>341</b>	<b>1 118</b>

**BOLD TEXT INDICATES MAXIMUM LOAD - USE WITH CAUTION!**

LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED



# 10mm AUTO

Test barrel: 140 mm (5½"), 1 in 16" twist  
 Primers: Large Pistol  
 Cases: Remington, trim-to length 25.00 mm (.988")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>10,0</b>	<b>155</b>	HP-XTP	Hornady	31,9	1,256	N340	0,43	6,7	355	1 165	<b>0,47</b>	<b>7,3</b>	<b>380</b>	<b>1 246</b>
						3N37	0,47	7,2	359	1 178	<b>0,53</b>	<b>8,2</b>	<b>387</b>	<b>1 270</b>
						N350	0,46	7,1	359	1 178	<b>0,52</b>	<b>8,0</b>	<b>387</b>	<b>1 270</b>
<b>10,0</b>	<b>155</b>	FP	Rainiers	31,9	1,256	N340	0,47	7,2	369	1 211	<b>0,50</b>	<b>7,8</b>	<b>392</b>	<b>1 285</b>
						N350	0,52	8,0	379	1 243	<b>0,56</b>	<b>8,6</b>	<b>406</b>	<b>1 333</b>
						3N37	0,53	8,2	373	1 224	<b>0,56</b>	<b>8,7</b>	<b>398</b>	<b>1 305</b>
<b>11,7</b>	<b>180</b>	HP	Speer	31,9	1,256	N340	0,39	6,0	312	1 024	<b>0,42</b>	<b>6,5</b>	<b>339</b>	<b>1 111</b>
						3N37	0,43	6,6	333	1 093	<b>0,48</b>	<b>7,4</b>	<b>355</b>	<b>1 165</b>
						N350	0,38	5,9	328	1 076	<b>0,44</b>	<b>6,8</b>	<b>350</b>	<b>1 148</b>
						N105	0,60	9,3	372	1 220	<b>0,65</b>	<b>10,1</b>	<b>396</b>	<b>1 299</b>
<b>13,0</b>	<b>200</b>	FMJ/FP	Hornady	31,9	1,256	N340	0,32	5,0	267	876	<b>0,35</b>	<b>5,5</b>	<b>295</b>	<b>968</b>
						3N37	0,38	5,9	291	955	<b>0,42</b>	<b>6,5</b>	<b>315</b>	<b>1 033</b>
						N350	0,34	5,3	284	932	<b>0,39</b>	<b>6,0</b>	<b>307</b>	<b>1 008</b>
						N105	0,50	7,7	325	1 066	<b>0,54</b>	<b>8,3</b>	<b>343</b>	<b>1 125</b>

# .41 Remington Magnum

Test barrel: 150 mm (6"), 1 in 18¾" twist  
 Primers: Large Pistol  
 Cases: W-W Super, trim-to length 32,50 mm (1,280")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>11,0</b>	<b>170</b>	JHC	Sierra	40,1	1,579	N350	0,72	11,1	415	1362	<b>0,81</b>	<b>12,5</b>	<b>451</b>	<b>1480</b>
						N105	0,99	15,3	465	1526	<b>1,10</b>	<b>16,9</b>	<b>500</b>	<b>1642</b>
						N110	1,41	21,8	500	1640	<b>1,50</b>	<b>23,2</b>	<b>532</b>	<b>1746</b>
<b>13,6</b>	<b>210</b>	HP/XTP	Hornady	40,1	1,579	N350	0,67	10,3	373	1224	<b>0,74</b>	<b>11,4</b>	<b>400</b>	<b>1312</b>
						N105	0,84	13,0	405	1329	<b>0,95</b>	<b>14,6</b>	<b>437</b>	<b>1435</b>
						N110	1,20	18,5	436	1430	<b>1,28</b>	<b>19,8</b>	<b>466</b>	<b>1529</b>

# .44 S.&W. Special

Test barrel: 150 mm (6"), 1 in 18" twist  
 Primers: Large Pistol  
 Cases: Remington, trim-to length 29.30 mm (1.153")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>11,7</b>	<b>180</b>	HP-XTP	Hornady	37,3	1,469	N320	0,44	6,8	285	935	<b>0,49</b>	<b>7,5</b>	<b>315</b>	<b>1 033</b>
						N330	0,50	7,7	308	1 010	<b>0,56</b>	<b>8,6</b>	<b>338</b>	<b>1 109</b>
						N340	0,57	8,8	319	1 047	<b>0,62</b>	<b>9,5</b>	<b>349</b>	<b>1 145</b>
						N350	0,64	9,9	318	1 043	<b>0,68</b>	<b>10,5</b>	<b>350</b>	<b>1 148</b>
<b>13,0</b>	<b>200</b>	HP-XTP	Hornady	37,3	1,469	N320	0,41	6,4	270	886	<b>0,45</b>	<b>7,0</b>	<b>294</b>	<b>965</b>
						N330	0,50	7,7	287	942	<b>0,55</b>	<b>8,5</b>	<b>315</b>	<b>1 033</b>
						N340	0,54	8,3	293	961	<b>0,59</b>	<b>9,1</b>	<b>325</b>	<b>1 066</b>
						N350	0,59	9,1	296	971	<b>0,64</b>	<b>9,9</b>	<b>329</b>	<b>1 079</b>

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

# .44 S.&W. Special

Test barrel: 150 mm (6"), 1 in 18" twist

Primers: Large Pistol

Cases: Remington, trim-to length 29.30 mm (1.153")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
14,3	220	FPJ-Match	Sierra	37,3	1,469	N320	0,34	5,2	221	725	<b>0,39</b>	<b>5,9</b>	<b>255</b>	<b>837</b>
						N330	0,40	6,2	232	761	<b>0,46</b>	<b>7,0</b>	<b>271</b>	<b>889</b>
						N340	0,43	6,6	248	814	<b>0,48</b>	<b>7,4</b>	<b>278</b>	<b>912</b>
						N350	0,50	7,7	254	833	<b>0,56</b>	<b>8,6</b>	<b>289</b>	<b>948</b>
15,6	240	JTC-Sil	Hornady	37,6	1,480	N320	0,31	4,9	193	633	<b>0,36</b>	<b>5,6</b>	<b>223</b>	<b>732</b>
						N330	0,35	5,5	206	676	<b>0,40</b>	<b>6,2</b>	<b>234</b>	<b>768</b>
						N340	0,41	6,3	222	728	<b>0,46</b>	<b>7,1</b>	<b>252</b>	<b>827</b>
						N350	0,49	7,5	239	784	<b>0,53</b>	<b>8,2</b>	<b>271</b>	<b>889</b>
16,2	250	FPJ	Sierra	37,3	1,469	N320	0,31	4,7	193	633	<b>0,36</b>	<b>5,5</b>	<b>226</b>	<b>741</b>
						N330	0,32	5,0	191	627	<b>0,39</b>	<b>6,0</b>	<b>228</b>	<b>748</b>
						N340	0,36	5,5	197	646	<b>0,42</b>	<b>6,5</b>	<b>237</b>	<b>778</b>
						N350	0,44	6,7	229	751	<b>0,49</b>	<b>7,6</b>	<b>260</b>	<b>853</b>
17,3	267	LFN	Intercast	39,1	1,539	N320	0,34	5,3	242	794	<b>0,39</b>	<b>6,0</b>	<b>262</b>	<b>860</b>
						N330	0,41	6,3	261	856	<b>0,45</b>	<b>7,0</b>	<b>281</b>	<b>922</b>
						N340	0,42	6,5	256	840	<b>0,46</b>	<b>7,1</b>	<b>278</b>	<b>912</b>
						N350	0,47	7,3	259	850	<b>0,52</b>	<b>8,0</b>	<b>282</b>	<b>925</b>

# .44 Remington Magnum

Test barrel: 175 mm (7"), 1 in 20" twist

Primers: Large Pistol

Cases: Remington, trim-to length 32.40 mm (1.275")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
11,7	180	HP-XTP	Hornady	40,7	1,602	N320	0,69	10,7	407	1 335	<b>0,77</b>	<b>11,8</b>	<b>437</b>	<b>1 432</b>
						N340	0,84	12,9	439	1 440	<b>0,92</b>	<b>14,1</b>	<b>472</b>	<b>1 549</b>
						N350	0,89	13,8	448	1 470	<b>0,99</b>	<b>15,3</b>	<b>481</b>	<b>1 578</b>
						N105	1,23	19,0	498	1 634	<b>1,40</b>	<b>21,6</b>	<b>543</b>	<b>1 781</b>
						N110	1,63	25,1	492	1 614	<b>1,76</b>	<b>27,1</b>	<b>534</b>	<b>1 751</b>
13,0	200	HP-XTP	Hornady	40,7	1,602	N320	0,65	10,1	381	1 250	<b>0,73</b>	<b>11,3</b>	<b>408</b>	<b>1 339</b>
						N340	0,76	11,8	410	1 345	<b>0,84</b>	<b>13,0</b>	<b>437</b>	<b>1 434</b>
						3N37	0,89	13,7	433	1 421	<b>0,98</b>	<b>15,2</b>	<b>462</b>	<b>1 515</b>
						N350	0,83	12,8	416	1 365	<b>0,95</b>	<b>14,6</b>	<b>453</b>	<b>1 487</b>
						N105	1,09	16,8	459	1 506	<b>1,26</b>	<b>19,4</b>	<b>500</b>	<b>1 642</b>
14,3	220	FPJ-Match	Sierra	40,7	1,602	N110	1,58	24,4	494	1 621	<b>1,71</b>	<b>26,3</b>	<b>530</b>	<b>1 740</b>
						N320	0,59	9,0	350	1 148	<b>0,67</b>	<b>10,4</b>	<b>375</b>	<b>1 232</b>
						N340	0,72	11,2	381	1 250	<b>0,80</b>	<b>12,3</b>	<b>405</b>	<b>1 328</b>
						N350	0,83	12,8	402	1 319	<b>0,96</b>	<b>14,8</b>	<b>439</b>	<b>1 441</b>
						N105	1,08	16,7	432	1 417	<b>1,22</b>	<b>18,8</b>	<b>470</b>	<b>1 542</b>
15,6	240	JTC-Sil	Hornady	40,7	1,602	N320	0,58	9,0	331	1 086	<b>0,63</b>	<b>9,7</b>	<b>354</b>	<b>1 161</b>
						N340	0,67	10,4	358	1 175	<b>0,75</b>	<b>11,5</b>	<b>380</b>	<b>1 247</b>
						3N37	0,78	12,0	372	1 220	<b>0,86</b>	<b>13,3</b>	<b>402</b>	<b>1 318</b>
						N350	0,77	11,8	375	1 230	<b>0,83</b>	<b>12,8</b>	<b>399</b>	<b>1 308</b>
						N105	0,95	14,7	404	1 325	<b>1,08</b>	<b>16,6</b>	<b>437</b>	<b>1 434</b>
16,2	250	FPJ-Match	Sierra	40,7	1,602	N110	1,32	20,4	435	1 427	<b>1,43</b>	<b>22,1</b>	<b>470</b>	<b>1 541</b>
						N320	0,55	8,5	314	1 030	<b>0,63</b>	<b>9,7</b>	<b>344</b>	<b>1 130</b>
						N340	0,65	10,1	341	1 119	<b>0,73</b>	<b>11,2</b>	<b>370</b>	<b>1 213</b>
						N350	0,75	11,6	366	1 201	<b>0,85</b>	<b>13,1</b>	<b>395</b>	<b>1 295</b>
						N105	0,87	13,4	382	1 253	<b>1,08</b>	<b>16,7</b>	<b>429</b>	<b>1 406</b>

**BOLD TEXT INDICATES MAXIMUM LOAD - USE WITH CAUTION!**

LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

# .44 Remington Magnum

Test barrel: 175 mm (7"), 1 in 20" twist

Primers: Large Pistol

Cases: Remington, trim-to length 32.40 mm (1.275")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>17,3</b>	<b>267</b>	LFN	Intercast	42,7 <sup>1)</sup>	1,681	N340	0,68	10,5	357	1 171	<b>0,75</b>	<b>11,5</b>	<b>376</b>	<b>1 232</b>
						3N37	0,77	11,8	365	1 198	<b>0,85</b>	<b>13,2</b>	<b>391</b>	<b>1 284</b>
						N350	0,74	11,4	360	1 181	<b>0,82</b>	<b>12,7</b>	<b>385</b>	<b>1 262</b>
						N110	1,32	20,3	422	1 385	<b>1,41</b>	<b>21,8</b>	<b>450</b>	<b>1 476</b>
<b>19,4</b>	<b>300</b>	HP-XTP	Hornady	43,6 <sup>1)</sup>	1,717	N340	0,62	9,5	304	997	<b>0,68</b>	<b>10,5</b>	<b>323</b>	<b>1 061</b>
						3N37	0,67	10,3	308	1 010	<b>0,74</b>	<b>11,4</b>	<b>336</b>	<b>1 102</b>
						N350	0,68	10,5	315	1 033	<b>0,76</b>	<b>11,7</b>	<b>344</b>	<b>1 128</b>
						N105	0,85	13,1	349	1 145	<b>0,94</b>	<b>14,6</b>	<b>375</b>	<b>1 231</b>
						N110	1,21	18,6	384	1 260	<b>1,31</b>	<b>20,2</b>	<b>419</b>	<b>1 374</b>
<b>19,4</b>	<b>300</b>	JSP	Sierra	43,6 <sup>1)</sup>	1,717	N340	0,61	9,3	296	971	<b>0,66</b>	<b>10,2</b>	<b>319</b>	<b>1 046</b>
						3N37	0,65	10,1	305	1 001	<b>0,73</b>	<b>11,2</b>	<b>332</b>	<b>1 089</b>
						N350	0,64	9,9	296	971	<b>0,72</b>	<b>11,1</b>	<b>326</b>	<b>1 071</b>
						N105	0,82	12,6	342	1 122	<b>0,90</b>	<b>13,8</b>	<b>368</b>	<b>1 208</b>
						N110	1,15	17,8	369	1 211	<b>1,23</b>	<b>19,1</b>	<b>398</b>	<b>1 305</b>

<sup>1)</sup> The cartridge overall length exceeds the CIP maximum.

# .45 AUTO

Test barrel: 150 mm (6"), 1 in 16" twist

Primers: Large Pistol

Cases: Remington, trim-to length 22.70 mm (.893")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>10,0</b>	<b>154</b>	LSWC	Intercast	31,5	1,240	N320	0,38	5,9	315	1033	<b>0,41</b>	<b>6,4</b>	<b>341</b>	<b>1117</b>
						N340	0,49	7,6	344	1129	<b>0,53</b>	<b>8,2</b>	<b>369</b>	<b>1211</b>
<b>11,7</b>	<b>180</b>	LSWC	Intercast	31,6	1,244	N320	0,35	5,4	296	971	<b>0,39</b>	<b>6,0</b>	<b>321</b>	<b>1053</b>
						N340	0,44	6,8	311	1020	<b>0,48</b>	<b>7,4</b>	<b>337</b>	<b>1104</b>
<b>12,0</b>	<b>185</b>	TMJ-SWC	Speer	31,5	1,240	N310	0,27	4,2	258	846	<b>0,30</b>	<b>4,6</b>	<b>277</b>	<b>909</b>
						N320	0,36	5,6	278	913	<b>0,39</b>	<b>6,1</b>	<b>301</b>	<b>988</b>
						N340	0,46	7,1	303	993	<b>0,50</b>	<b>7,7</b>	<b>330</b>	<b>1082</b>
<b>12,0</b>	<b>185</b>	FN	Rainier	30,5	1,201	N320	0,37	5,8	291	955	<b>0,41</b>	<b>6,3</b>	<b>316</b>	<b>1037</b>
						N340	0,47	7,3	303	994	<b>0,51</b>	<b>7,9</b>	<b>333</b>	<b>1093</b>
						N350	0,57	8,8	325	1065	<b>0,61</b>	<b>9,4</b>	<b>357</b>	<b>1170</b>
<b>13,0</b>	<b>200</b>	LSWC	Intercast	31,5	1,240	N310	0,24	3,7	252	827	<b>0,26</b>	<b>4,0</b>	<b>272</b>	<b>892</b>
						N320	0,30	4,7	271	888	<b>0,33</b>	<b>5,1</b>	<b>292</b>	<b>958</b>
						N340	0,39	6,1	295	966	<b>0,43</b>	<b>6,6</b>	<b>317</b>	<b>1039</b>
<b>13,0</b>	<b>200</b>	FMJ-CT	Hornady	31,5	1,240	N320	0,32	5,0	261	855	<b>0,35</b>	<b>5,4</b>	<b>283</b>	<b>928</b>
						N340	0,40	6,2	276	906	<b>0,44</b>	<b>6,8</b>	<b>300</b>	<b>986</b>
						N350	0,43	6,7	279	916	<b>0,47</b>	<b>7,3</b>	<b>303</b>	<b>996</b>
<b>14,9</b>	<b>230</b>	FMJ-RN	Hornady	32,0	1,260	N310	0,24	3,7	219	719	<b>0,27</b>	<b>4,2</b>	<b>235</b>	<b>771</b>
						N320	0,32	4,9	239	784	<b>0,34</b>	<b>5,2</b>	<b>259</b>	<b>850</b>
						N340	0,38	5,9	253	830	<b>0,41</b>	<b>6,4</b>	<b>278</b>	<b>912</b>
						N350	0,43	6,7	257	845	<b>0,47</b>	<b>7,2</b>	<b>280</b>	<b>920</b>

**BOLD TEXT INDICATES MAXIMUM LOAD - USE WITH CAUTION!**

LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

# .45 Colt

Test barrel: 150 mm (6"), 1 in 16" twist

Primers: Large Pistol

Cases: Remington, trim-to length 32.50 mm (1.279")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
11,7	180	LSWC	Intercast	40,5	1,594	N320	0,55	8,6	341	1 119	<b>0,60</b>	<b>9,2</b>	<b>367</b>	<b>1 204</b>
						N330	0,66	10,1	362	1 188	<b>0,71</b>	<b>10,9</b>	<b>389</b>	<b>1 276</b>
						N340	0,69	10,7	362	1 188	<b>0,74</b>	<b>11,5</b>	<b>391</b>	<b>1 283</b>
						N350	0,75	11,6	363	1 191	<b>0,83</b>	<b>12,8</b>	<b>399</b>	<b>1 309</b>
12,0	185	HP/XTP	Hornady	40,5	1,594	N320	0,57	8,7	334	1 096	<b>0,62</b>	<b>9,6</b>	<b>360</b>	<b>1 181</b>
						N340	0,71	10,9	342	1 122	<b>0,76</b>	<b>11,8</b>	<b>377</b>	<b>1 237</b>
						N350	0,80	12,3	346	1 135	<b>0,86</b>	<b>13,2</b>	<b>382</b>	<b>1 253</b>
12,0	185	FN	Rainier	40,5	1,594	N320	0,57	8,9	328	1 076	<b>0,62</b>	<b>9,6</b>	<b>358</b>	<b>1 175</b>
						N330	0,67	10,4	333	1 093	<b>0,73</b>	<b>11,2</b>	<b>367</b>	<b>1 204</b>
						N340	0,72	11,1	343	1 125	<b>0,78</b>	<b>12,1</b>	<b>383</b>	<b>1 257</b>
						N350	0,80	12,3	346	1 135	<b>0,88</b>	<b>13,6</b>	<b>389</b>	<b>1 276</b>
13,0	200	FMJ-CT	Hornady	40,5	1,594	N320	0,52	8,1	317	1 040	<b>0,58</b>	<b>8,9</b>	<b>342</b>	<b>1 122</b>
13,0	200	LSWC	Hornady	40,5	1,594	N320	0,56	8,7	326	1 070	<b>0,61</b>	<b>9,4</b>	<b>347</b>	<b>1 138</b>
						N340	0,70	10,9	341	1 119	<b>0,75</b>	<b>11,6</b>	<b>364</b>	<b>1 194</b>
						N350	0,79	11,6	346	1 135	<b>0,83</b>	<b>12,8</b>	<b>399</b>	<b>1 309</b>
14,9	230	FMJ-Match	Sierra	40,5	1,594	N320	0,49	7,5	286	938	<b>0,54</b>	<b>8,3</b>	<b>306</b>	<b>1 004</b>
						N340	0,63	9,7	301	988	<b>0,68</b>	<b>10,4</b>	<b>330</b>	<b>1 083</b>
16,2	250	HP-XTP	Hornady	40,5	1,594	N320	0,47	7,3	257	843	<b>0,51</b>	<b>7,8</b>	<b>280</b>	<b>919</b>
						N340	0,60	9,2	281	922	<b>0,64</b>	<b>9,8</b>	<b>307</b>	<b>1 007</b>
						N350	0,69	10,7	297	974	<b>0,72</b>	<b>11,2</b>	<b>321</b>	<b>1 053</b>
						N105	0,91	14,1	296	971	<b>0,97</b>	<b>15,0</b>	<b>344</b>	<b>1 129</b>

# .45 Winchester Magnum

Test barrel: 300 mm (12"), 1 in 16" twist

Primers: Large Pistol

Cases: Winchester, trim-to length 30.30 mm (1.192")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
12,0	185	HP/XTP	Hornady	38,5	1,516	N350	0,90	13,9	481	1 578	<b>1,04</b>	<b>16,1</b>	<b>529</b>	<b>1 735</b>
						3N37	0,97	15,0	520	1 706	<b>1,06</b>	<b>16,4</b>	<b>541</b>	<b>1 776</b>
						N105	1,23	18,9	549	1 801	<b>1,39</b>	<b>21,4</b>	<b>591</b>	<b>1 938</b>
13,0	200	TMJ-SWC	Speer	38,5	1,516	3N37	0,95	14,6	500	1 640	<b>1,02</b>	<b>15,7</b>	<b>520</b>	<b>1 707</b>
						N110	1,56	24,1	551	1 808	<b>1,68</b>	<b>25,9</b>	<b>588</b>	<b>1 929</b>
13,0	200	FMJ-CT	Hornady	39,5	1,555	N105	1,15	17,7	507	1 663	<b>1,28</b>	<b>19,7</b>	<b>546</b>	<b>1 790</b>
14,9	230	FMJ-RN	Hornady	39,5	1,555	3N37	0,87	13,4	430	1 411	<b>0,95</b>	<b>14,6</b>	<b>462</b>	<b>1 516</b>
						N110	1,48	22,8	513	1 683	<b>1,59</b>	<b>24,5</b>	<b>542</b>	<b>1 778</b>
16,2	250	HP-XTP	Hornady	38,2	1,504	N350	0,71	10,9	341	1 119	<b>0,81</b>	<b>12,5</b>	<b>391</b>	<b>1 284</b>
						3N37	0,79	12,2	377	1 237	<b>0,85</b>	<b>13,2</b>	<b>414</b>	<b>1 358</b>
						N105	0,96	14,9	412	1 352	<b>1,06</b>	<b>16,4</b>	<b>442</b>	<b>1 450</b>
						N110	1,28	19,8	461	1 512	<b>1,41</b>	<b>21,8</b>	<b>492</b>	<b>1 613</b>

**BOLD TEXT INDICATES MAXIMUM LOAD - USE WITH CAUTION!**

LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

# .454 Casull

Test barrel: 240 mm (9½"), 1 in 24" twist

Primers: Small Rifle

Cases: Freedom Arms, trim-to length 33,30 mm (1,311")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>12,0</b>	<b>185</b>	HP/XTP	Hornady	41,7	1,642	3N37	1,14	17,6	531	1742	<b>1,36</b>	<b>21,0</b>	588	1929
						N350	1,18	18,2	537	1762	<b>1,39</b>	<b>21,4</b>	593	1946
						N105	1,72	26,5	606	1988	<b>1,90</b>	<b>29,3</b>	653	2142
14,6	225	HP	Speer	42,7	1,681	3N37	1,09	16,8	474	1555	<b>1,27</b>	<b>19,6</b>	523	1716
						N105	1,59	24,5	536	1759	<b>1,73</b>	<b>26,7</b>	580	1903
						N110	2,00	30,9	566	1857	<b>2,17</b>	<b>33,5</b>	614	2014
16,2	250	HP/XTP	Hornady	42,8	1,685	3N37	1,01	15,6	437	1434	<b>1,18</b>	<b>18,2</b>	487	1598
						N105	1,39	21,4	481	1578	<b>1,57</b>	<b>24,2</b>	536	1759
						N110	1,82	28,1	523	1716	<b>1,99</b>	<b>30,7</b>	569	1867
19,4	300	Plated HP	Speer	44,5	1,752	3N37	0,99	15,3	396	1299	<b>1,10</b>	<b>17,0</b>	433	1421
						N105	1,28	19,8	431	1414	<b>1,49</b>	<b>23,0</b>	484	1588
						N110	1,71	26,4	474	1555	<b>1,86</b>	<b>28,7</b>	514	1686

# .50 AE

Test barrel: 150 mm (6"), 1 in 19" twist

Primers: Large Pistol

Cases: Speer, trim-to length 32,50 mm (1,280")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>19,4</b>	<b>300</b>	JHP	IMI	40,0	1,575	N105	1,26	19,4	395	1296	<b>1,38</b>	<b>21,3</b>	436	1430
						N110	1,64	25,3	396	1299	<b>1,86</b>	<b>28,7</b>	456	1496
						N120	2,11	32,6	363	1191	<b>2,33</b>	<b>36,0</b>	417	1368
21,1	325	UCHP	Speer	40,0	1,575	N105	1,15	17,7	357	1171	<b>1,26</b>	<b>19,4</b>	406	1332
						N110	1,56	24,1	386	1266	<b>1,75</b>	<b>27,0</b>	437	1434
						N120	1,99	30,7	348	1142	<b>2,23</b>	<b>34,4</b>	408	1339

**BOLD TEXT INDICATES MAXIMUM LOAD - USE WITH CAUTION!**

LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

# Vihtavuori Smokeless Loads for Cowboy Action Shooting

## About the Data

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 bellow. 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.

## Warnings

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: 125 mm (5"), 1 in 18" twist

Primers: Small Pistol

Cases: Remington, trim-to length 29,10 mm (1,146")

Bullet				Powder		Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>10,3</b>	<b>158</b>	LSWC/HP		36,5	1,437	N320	0,21	3,3	230	755	0,25	3,8	256	840
						N330	0,23	3,6	240	787	0,27	4,1	269	883

**BOLD TEXT INDICATES MAXIMUM LOAD - USE WITH CAUTION!**

LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED



## .357 Magnum

Test barrel: 150 mm (6"), 1 in 18½" twist  
Primers: Small Rifle  
Cases: Remington, trim-to length 32,60 mm (1,283")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>10,3</b>	<b>158</b>	LSWC/HP		40,0	1,575	N330	0,25	3,9	241	791	<b>0,32</b>	<b>5,0</b>	304	997
						N340	0,29	4,5	245	804	<b>0,38</b>	<b>5,9</b>	320	1050

## .44 S.&W. Special

Test barrel: 165 mm (6½"), 1 in 18" twist  
Primers: Large Pistol  
Cases: Remington, trim-to length 29,30 mm (1,153")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>15,6</b>	<b>240</b>	SWC/HP		39,1	1,539	N320	0,30	4,7	214	702	<b>0,38</b>	<b>5,9</b>	260	853
						N330	0,36	5,5	229	751	<b>0,41</b>	<b>6,3</b>	270	886
<b>17,3</b>	<b>267</b>	LFN		39,1	1,539	N320	0,25	3,8	193	633	<b>0,34</b>	<b>5,3</b>	242	794
						N330	0,32	4,9	216	709	<b>0,38</b>	<b>5,9</b>	254	833
						N340	0,43	6,6	261	856	<b>0,47</b>	<b>7,3</b>	282	925

## .44 Remington Magnum

Test barrel: 175 mm (7"), 1 in 20" twist  
Primers: Large Pistol  
Cases: Remington, trim-to length 32,40 mm (1,276")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>17,3</b>	<b>267</b>	LFN		40,0	1,575	N340	0,38	5,9	224	735	<b>0,49</b>	<b>7,5</b>	288	745

## .45 Colt

Test barrel: 150 mm (6"), 1 in 16" twist  
Primers: Large Pistol  
Cases: Remington, trim-to length 32,50 mm (1,280")

Bullet					Powder	Starting load				Maximum load				
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
<b>13,0</b>	<b>200</b>	RN		40,5	1,594	N320	0,44	6,8	259	850	<b>0,56</b>	<b>8,7</b>	318	1043
						N330	0,52	8,0	267	876	<b>0,56</b>	<b>8,6</b>	298	978
<b>16,2</b>	<b>250</b>	RN		40,5	1,594	N320	0,36	5,6	229	751	<b>0,45</b>	<b>6,9</b>	279	915
						N330	0,41	6,3	238	781	<b>0,49</b>	<b>7,5</b>	293	961

For more Vihtavuori CAS loads please check for [www.longhunt.com](http://www.longhunt.com)

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



## Dear Customer,

The **Vihtavuori Powders** and these booklets are available worldwide thorough our distributors listed below. Most of these Vihtavuori distiributos carry also full line of Lapua reloading components. Please check the availability.

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### CANADA

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**Guntex A/S**

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### GERMANY

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### HOLLAND

**Dutch Firearms Trading**

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### UNITED STATES

**Kaltron Pettibone Inc.**

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Bensenville

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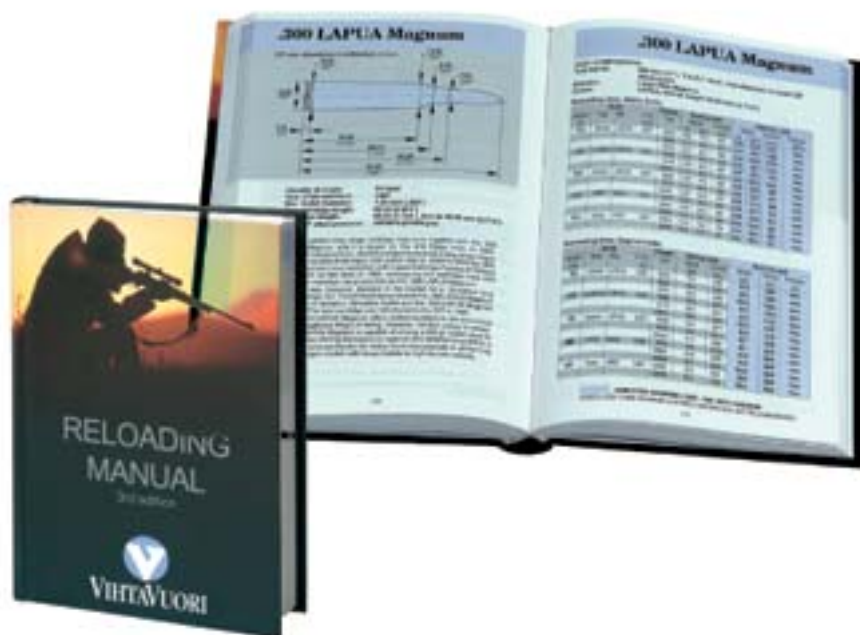
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**The Vihtavuori Reloading Manual** (3rd edition) contains comprehensive information about internal and external ballistics, as well as interesting articles on various precision shooting disciplines. The manual is available from Vihtavuori/Lapua distributors.



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