Reloading Guide | Edition 13

for Centerfire Cartridges

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.

	Vihtavuori	Norma	RWS	VECTAN	PB	IMR	Hodgdon	Accurate	W-W	Alliant	Ramshot
Fast Burning							Titewad				
										E^3	
		R1						Nitro 100	WST		
	N310		P805	Ba10			HP38				
			P801			Trail Boss	Titegroup	Solo 1000	231	Bullseye	
							Clays		452		Competition
	N320					Hi-Skor700X		No. 2	WSL	Red Dot	
				AS		PB	Clays Int'l	Solo 1250	473	American Select	
	N32C					SR7625				Promo	Zip
			P804	A1						Green Dot	
			P803				Clays Univer.	No. 5	WSF	Unique	
	N330			Ba9	PCL501		HS-6		540	Power Pistol	
	N340			SP8	PCL504	SR4756	Longshot		WAP	Herco	Silhouette
	3N37			A0							
	N350					Hi-Skor 800X					True Blue
	3N38			SP2 Pract.					571	Blue Dot	
	N105						HS-7	No. 7		Steel	
										2400	Enforcer
		R-123		SP3				No. 9			
			P806			SR4759	H110	4100			
	N110		R910		PCL512	IMR4227	H4198		296		
				Ba6			Li'l Gun		680		
		200	R901				H4227	5744		410	
	N120			Tubal2000		IMR4198		1680		Reloder 7	
								2015			
			R902			IMR3031	Benchmark			Reloder 11	
					PCL507		H322	2230			
	N130	201		SP10			BL(C)-2	2460	748	Reloder 10X	
	N133	202		Tubal3000		8208XBR	H335				X-Terminator
			R903					2495			
				SP9		IMR4895		2520			
	N530					IMR4064	H4895	4064		Reloder 12	TAC
	N135										
				SP7		IMR4320	Varget				
	N140	203B	R907		PCL511		H380	2700		Reloder 15	Big Game
	N540						H414		760		
	N150	URP	R904	Tubal5000			H4350	4350		Reloder 17	
	N550					IMR4350				Reloder 19	
		204		SP11			H450		WMR		Hunter
	N160			Tubal7000		IMR4831	H4831SC		785		
	N560	MRP	R905				H4831	3100			
Slow Burning	N165	MRP(2)		Tubal8000		IMR7828SSC		MagPro	WXR	Reloder 22	
						IMR7828	H1000			Reloder 25	Magnum
	N170						Retumbo	8700			
	N570			SP13	PCL520		H870				
	24N41						50BMG			Reloder 50	
	20N29										

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Preface

Dear Vihtavuori customer,

The new Vihtavuori Reloading Guide Edition 13 is an updated version of the previous Vihtavuori Reloading Guides. The contents of this updated issue has been revised with loading data for the following calibres:

Centerfire rifle

.221 Rem. Fireball, .300 AAC Blackout and .260 Remington.

Now published new rifle reloading data is expanding and revising the powder selection for existing bullets but also contains new caliber data for .221 Rem. Fireball and .300 AAC Blackout.

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

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

The Vihtavuori powders are manufactured by Nammo Vihtavuori Oy at the Vihtavuori plants. Sales and marketing of the reloading powders as well as customer service are carried out by Nammo Lapua Oy. The contact details of Lapua customer service and a listing of Vihtavuori Distributors can be found at the end of this guide. For latest updates of data and distributors check also www.vihtavuori.fi or 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 N100 –series powders are primarily rifle powders with suitable burning rates to optimize handloading from the .204 Ruger and .22 Hornet to the .338 Lapua Magnum and .30-378 Weatherby Magnum. There are ten types of powders with different burning rate available in this series:

N110
The fastest burning rifle powder from Vihtavuori. Similar to Hodgdon H110 and Winchester 296. N110 can be used in small rifle cases like .22 Hornet and .30 Carbine but also in magnum pistol and revolver cartridges like .357 S&W Magnum, .41 Magnum, .44 Magnum, .454 Casull and .500 S&W.

N120
Slower burning powder for small capacity rifle cases and for lighter bullets in many .22 caliber loads. N120 needs higher pressure than N110 in order to optimize burning. Burning rate is near to Accurate 1680, IMR 4198 and Reloder 7. N120 is suitable also for 7,62x39, .30-30 Winchester and .444 Marlin.

N130
This powder is used in many factory loaded caliber .22 and 6 mm PPC cartridges. Suitable also for lighter bullets in caliber .223 Remington and for straight-wall rifle cases like .45-70 Government and .458 Winchester Magnum. Burning rate is close to Hodgdon H322 and Accurate 2230.

N133
A choice of many bench rest and standard rifle shooters who are using 6 mm PPC. Used also in many loads of .222 Remington, .223 Remington and as well in other applications where a relatively fast burning powder is needed, like in .45-70 Government. Similarly burning powders are Norma 201, Hodgdon H335 and Vectan SP10.

N135
An excellent powder for .308 Winchester loads with bullet weight less than 10 grams (155 grains). It will fit applications similar to IMR4064, Hodgdon H4895 or Accurate 2520. Capability for various loads ranging from .222 Remington to .458 Winchester Magnum.

N140
A true multipurpose powder, which can usually be used in place of IMR4320, Reloder 15 or Hodgdon H380. Good choice also for .223 Remington, .22-250 Remington, .308 Winchester, .30-06 Springfield, 8x57 IS (8 mm Mauser) and .375 H&H Magnum.

N150
This powder burns a bit slower than N140 and works as well as Hodgdon H414 and Winchester 760. Typically used with heavier bullets in accuracy and hunting loads of cartridges with middle case volumes, like .308 Winchester, 6,5x55 SE and .30-06 Springfield.

N160
A slow burning powder for Magnum cartridges and calibers with large case volume and comparatively small bullet diameter. Burning speed of N160 is close to Reloder 19, Winchester WMR and the various 4831´s. For example some ideal applications are: .243 Winchester, 6,5-.284 Norma, 7 mm Weatherby Magnum, .300 Winchester Magnum, .338 Winchester Magnum and all the Winchester Short Magnums.

N165
A very slow burning powder for Magnum cartridges with heavy bullets. N165 offers performance equal to Norma MRP and Reloder 22. To be used with heavy bullets in calibers ranging from 6,5x55 SE all the way to .416 Rigby.

N170
The slowest burning N100 series rifle powder from Vihtavuori and one of the slowest canister reloading powders generally available from any manufacturer. It will fit applications similar to Hodgdon H1000 and Accurate 8700. Good performances in most of the belted Magnum cartridges like .300 Weatherby Magnum and suitable also for .300 Remington Ultra Magnum and .338 Lapua Magnum.

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.

Rifle Powders

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 five burning rates:

N530
This is the fastest burning powder in the N500 series and its burning rate is close to Vihtavuori N135 and Hodgdon BL-C(2). Developed especially for the 5,56 mm NATO-cartridges and it gives excellent performances in many .45-70 Government loads and also in .308 Winchester loads with bullet weight less than 10 grams (155 grains).

N540
Faster burning powder with a burning rate like with N140 and close to Hodgdon H414 and Winchester 760. To situations where more power is needed, especially for .223 Remington, .308 Winchester and .30-06 Springfield loads with heavier bullets.

N550
Burning rate is like with N150 and close to IMR 4350 and Reloder 19. Good choice for more powerful loads for 6,5x55 SE, .308 Winchester, .30-06 Springfield and for many others.

N560
Burning rate is between N160 and N165 and close to Norma MRP and Reloder 22. Powder especially for Magnum cartridges to get out the best power for example from .270 Winchester, 7 mm Remington Magnum, 7 mm Weatherby Magnum, .300 Winchester Magnum, .300 Weatherby Magnum and .338 Lapua Magnum.

N570
This is the newest member of the N500 series powders and also the slowest burning. The burning rate of N570 is near to N170 and it is faster burning than 24N41. The characteristics of this high energy powder with large grain size bring out the best in most of the large volume cases like for example in 6,5-.284 Norma, .300 Winchester Magnum, .300 Remington Ultra Magnum, .338 Lapua Magnum and .30-378 Weatherby Magnum.

Powders for the .50 BMG

For .50 BMG there are two special Vihtavuori reloading powders available: 24N41 and 20N29. They are, like N100 series, single base surface treated powders. Their burning rate is slower and grain size larger than that of the N100 series rifle reloading powders. The renewed relative burning rate of the 24N41 is 39 and that of the 20N29 respectively 36, when N110 is given the index 100, and therefore 24N41 is slightly faster burning than 20N29. There is reloading data available also for some other magnum rifle calibers with these powders and 20N29 has gained reputation also when used eg. in .300 Lapua Magnum and in .30-378 Weatherby Magnum.

Handgun Powders

Handgun powders include five N300 series propellants, three special propellants and one propellant applicated especially for Cowboy Action Shooting:

N310
Very fast burning and competitive with Alliant Bullseye, Hodgdon HP38 and Vectan Ba 10. It has applications in a very wide range from .32 S&W Long Wadcutter up to .45 ACP.

N320
A comparatively fast burning multipurpose handgun powder with burning rate about the same as Winchester 231 or Alliant Red Dot. Currently available reloading data for 9 mm Luger, .38 Super Auto, .38 Special, .357 Magnum, .40 S&W, .44 S&W Special, .44 Remington Magnum, .45 ACP and .45 Colt.

Tin Star (N32C)
Special powder developed for Cowboy Action Shooters shooting lead bullets with revolvers and single-action rifles. It has low bulk density (less free space in the case) and it burns very clean without residues with a burning rate between N320 and N330. Reloading data is currently available for .38 Special and .44 Magnum.

N330
Burning rate is a bit slower than with N320 and corresponding to Alliant Unique and Vectan Ba 9. Especially designed for 9 mm Luger but also suitable for .38 Special, .40 S&W, .44 S&W Special and .45 (Long) Colt.

N340
An excellent multipurpose handgun powder with burning rate generally about like Accurate No.5 or Alliant Herco. Wide application area covers the following handgun cartridges: 9 mm Luger, 9x21 mm, .357 SIG, .38 Super Auto, .38 Special, .357 Magnum, .40 S&W, 10 mm AUTO, .44 S&W Special, .44 Remington Magnum, .45 ACP and .45 Colt.

N350
This is the slowest burning N300 series handgun powder, which can usually be used instead of Accurate No.7, IMR Hi-Skor 800-X and Alliant Blue Dot. Appropriate choice for many powerful handgun loads, for example in calibers 9 mm Luger, 10 mm AUTO and .45 ACP.

3N37
Originally developed for .22 rimfire cartridges but has proven to be very versatile and desirable within all competitive handgun shooting disciplines. The burning speed of this small grain powder is near to N350 and Vectan A0. Reloading data available for all popular handgun cartridges.

3N38
This specially designed powder for competitive handgun shooting is recommended for high velocity loads of 9 mm Luger, .38 Super Auto and .40 S&W with moderate bullet weight. Burning rate is corresponding to Vectan SP 2.

N105 Super Magnum
Slow burning handgun powder filling the gap between N350 and N110. Especially developed for handgun cartridges with heavy bullets and/or large case volume. Reloading data is currently available for the following cartridges: 9x21 mm, .38 Super Auto, .357 Magnum, 357 Remington Maximum, .40 S&W, 10 mm AUTO, .41 Remington Magnum, .44 Remington Magnum, .45 Colt, .45 Winchester Magnum and .454 Casull.

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 disclaim all liability for consequential damages of any kind whatsoever, whether or not due to seller's negligence or based on strict product liability or principle of indemnity or contribution, Nammo 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 12 and 13.

Pressure

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

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

This guide should be supplemented by a good 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 and Storage of Smokeless Powder

Properties of Smokeless Powder

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

Smokeless powders are made in three forms:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Properties and Storage of Smokeless Powder

How to Check Smokeless Powder for Deterioration

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

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

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

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

Never salvage powder from old cartridges and do not attempt to blend salvaged powder with new powder. Don't accumulate old powder stocks. The best way to dispose of deteriorated smokeless powder is to 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.

Properties and Storage of Smokeless Powder

Recommendations for Storage of Smokeless Powder

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

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

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

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

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

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

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

Reloading Safety

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

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

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

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

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

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

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

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

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

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

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

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

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

■ Never reduce loads under the listed starting load.

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

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

■ Be safe, be conscientious!

Reloading Safety

Lead Exposure

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

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

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

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

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

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

Rifle Reloading Data

Disclaimer

All of this reloading information has been provided by Nammo Lapua Oy. 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 12 AND 13 OF THIS GUIDE.

.204 Ruger

Test barrel: 630 mm (24¾"), 1 in 12" twist
Primers: Small Rifle
Cases: Hornady, trim-to length 46,80 mm (1.843")

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		**Weight**		**Velocity**	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	**[g]**	**[grs]**	**[m/s]**	**[fps]**
2,1	32	Blitz King	Sierra	57,1	2.248	N130	1,48	22.8	1106	3629	1,62	25.0	1213	3980
						N135	1,59	24.5	1112	3648	1,75	27.0	1228	4029
						N530	1,56	24.1	1070	3510	1,75	27.0	1225	4019
2,6	40	V-Max	Hornady	57,1	2.248	N133	1,50	23.1	1011	3317	1,64	25.3	1127	3698
						N530	1,50	23.1	1013	3323	1,67	25.8	1236	4055
						N140	1,70	26.2	1027	3369	1,82	28.1	1105	3625

.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/Name	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	43,5	1.713	N110	0,52	8.0	713	2338	0,65	10.1	813	2668
2,9	45	Spitzer	Speer	43,5	1.713	N110	0,48	7.3	654	2144	0,60	9.3	746	2448
3,2	50	Spitzer	Speer	43,5	1.713	N110	0,47	7.3	609	1997	0,56	8.7	693	2274
						N120	0,62	9.5	612	2008	0,74	11.3	724	2375
3,6	55	Spitzer	Speer	43,5	1.713	N110	0,41	6.4	561	1841	0,53F	8.2F	644	2111
						N120	0,58	9.0	574	1884	0,69	10.6	679	2229

F = Case full

.221 Remington Fireball

Test barrel: 356 mm (14"), 1 in 12" twist
Primers: Small Rifle
Cases: Lapua, trim-to length 35,40 mm (1.394")

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	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	FMJ	Lapua	46,5	1.831	N120	0,93	14.4	738	2421	1,00	15.4	779	2556
						N130	1,00	15.4	748	2454	1,07	16.5	792	2598
						N133	1,18	18.2	774	2539	1,22F	18.8F	798	2618

F = Case full

LIGHT GREY TEXT BOX 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/Name	Mfg	C.O.L.		Type	Weight		Velocity		**Weight**		**Velocity**	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	**[g]**	**[grs]**	**[m/s]**	**[fps]**
2,3	35	V-Max	Hornady	52,0	2.047	N110	0,93	14.4	986	3235	1,20	18.5	1109	3638
						N120	1,31	20.2	1036	3399	1,41	21.8	1128	3701
						N130	1,44	22.2	1053	3455	1,55	23.9	1137	3730
2,6	40	Blitz King	Sierra	54,0	2.126	N110	0,92	14.2	942	3091	1,12	17.3	1056	3465
						N120	1,32	20.4	922	3025	1,43	22.1	1004	3294
						N130	1,38	21.3	997	3271	1,45	22.4	1057	3468
2,9	45	Soft Point	Sierra	54,0	2.126	N120	1,22	18.8	926	3038	1,35	20.8	1021	3350
						N130	1,34	20.7	951	3120	1,46	22.5	1034	3392
						N133	1,43	22.1	944	3097	1,56F	24.1F	1021	3350
3,2	50	SPSX	Hornady	53,0	2.087	N120	1,20	18.5	896	2940	1,30	20.1	964	3163
						N130	1,30	20.1	912	2992	1,39	21.5	986	3235
						N133	1,38	21.3	908	2979	1,49	23.0	979	3212
3,3	51	HPCE	Lapua	54,0	2.126	N120	1,18	18.2	891	2923	1,30	20.1	966	3169
						N130	1,28	19.8	899	2949	1,38	21.3	977	3205
						N133	1,37	21.1	914	2999	1,50	23.1	1003	3291
3,4	52	HPBT	Sierra	54,0	2.126	N120	1,16	17.9	876	2874	1,27	19.6	957	3140
						N130	1,28	19.8	899	2949	1,38	21.3	975	3199
						N133	1,37	21.1	916	3005	1,50	23.1	998	3274
3,6	55	Soft Point	Lapua	53,5	2.106	N120	1,19	18.4	858	2815	1,27	19.6	913	2995
						N130	1,26	19.4	871	2858	1,34	20.7	933	3061
						N133	1,35	20.8	883	2897	1,47	22.7	949	3114
						N135	1,40	21.6	896	2940	1,50	23.1	956	3136
3,6	55	FMJ	Lapua	54,0	2.126	N120	1,15	17.7	848	2782	1,27	19.6	922	3025
						N130	1,26	19.4	870	2854	1,36	21.0	942	3091
						N133	1,36	21.0	875	2871	1,47	22.7	951	3120
						N135	1,38	21.3	891	2923	1,50F	23.1F	966	3169
3,9	60	HP	Hornady	54,0	2.126	N120	1,07	16.5	806	2644	1,20	18.5	881	2890
						N130	1,21	18.7	822	2697	1,31	20.2	904	2966
						N133	1,30	20.1	845	2772	1,40	21.6	917	3009
						N135	1,33	20.5	853	2799	1,48F	22.8F	933	3061

F = Case full

.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/Name	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	1,23	19.0	963	3159	1,49	23.0	1118	3668
						N130	1,46	22.5	1032	3386	1,65	25.5	1147	3763
						N133	1,54	23.8	1037	3402	1,68F	25.9F	1105	3625
2,9	45	Spitzer	Speer	54,0	2.126	N120	1,25	19.3	933	3061	1,48	22.8	1072	3517
						N130	1,44	22.2	991	3251	1,62	25.0	1092	3583
						N133	1,51	23.3	987	3238	1,68F	25.9F	1091	3579
						N135	1,64	25.3	1010	3314	1,68F	25.9F	1034	3392
3,2	50	TNT-HP	Speer	57,0	2.244	N120	1,25	19.3	911	2989	1,47	22.7	1036	3399
						N130	1,43	22.1	947	3107	1,59	24.5	1046	3432
						N133	1,56	24.1	990	3248	1,68F	25.9F	1077	3533
						N135	1,65	25.5	999	3278	1,68F	25.9F	1018	3340
3,3	51	HPCE	Lapua	57,0	2.244	N120	1,23	19.0	909	2982	1,37	21.1	991	3251
						N130	1,35	20.8	930	3051	1,51	23.3	1018	3340
						N530	1,53	23.6	963	3159	1,66	25.6	1052	3451
						N133	1,45	22.4	943	3094	1,61A	24.8A	1033	3389
						N135	1,54	23.8	957	3140	1,68F	25.9	1034	3392
3,4	52	HPBT	Sierra	57,0	2.244	N130	1,37	21.1	936	3071	1,54	23.8	1028	3373
						N133	1,46	22.5	948	3110	1,62	25.0	1033	3389
						N135	1,54	23.8	808	2651	1,66F	25.6F	1039	3409

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

.223 Remington cont.

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	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	Soft Point	Lapua	56,5	2.224	N120	1,09	16.8	820	2690	1,31	20.2	939	3081
						N130	1,21	18.7	857	2812	1,42	21.9	959	3146
						N133	1,36	21.0	876	2874	1,56	24.1	980	3215
						N530	1,44	22.2	891	2923	1,61	24.8	995	3264
						N135	1,43	22.1	899	2949	1,64F	25.3F	1004	3294
						N140	1,57	24.2	915	3002	1,74F	26.9F	1014	3327
3,6	55	FMJBT	Hornady	57,0	2.244	N120	1,21	18.7	889	2917	1,34	20.7	960	3150
						N130	1,41	21.8	956	3136	1,52	23.5	1013	3323
						N530	1,50	23.1	941	3087	1,62	25.0	1022	3353
						N133	1,43	22.1	928	3045	1,59	24.5	1006	3301
						N135	1,51	23.3	938	3077	1,66	25.6	1017	3337
						N140	1,60	24.7	930	3051	1,74	26.8	1019	3343
3,6	55	FMJ	Lapua	57,0	2.244	N120	1,21	18.7	876	2874	1,35	20.8	953	3127
						N130	1,33	20.5	895	2936	1,50	23.1	985	3232
						N530	1,51	23.3	931	3054	1,64	25.3	1015	3330
						N133	1,43	22.1	911	2989	1,59	24.5	999	3278
						N135	1,51	23.3	927	3041	1,68F	25.9F	999	3278
						N140	1,61	24.8	917	3009	1,77F	27.3F	1004	3294
3,9	60	HP	Hornady	57,0	2.244	N130	1,33	20.5	874	2867	1,50	23.1	967	3173
						N133	1,43	22.1	888	2913	1,60	24.7	978	3209
						N135	1,50	23.1	893	2930	1,67	25.8	976	3202
						N140	1,62	25.0	895	2936	1,74F	26.8F	965	3166
4,0	62	FMJBT	Speer	57,4	2.260	N530	1,43	22.1	861	2825	1,56	24.1	953	3127
						N135	1,43	22.1	852	2795	1,60	24.7	942	3091
						N140	1,62	25.0	901	2956	1,70F	26.2F	943	3094
4,5	69	HPBT[1)]	Sierra	57,0	2.244	N133	1,34	20.7	792	2598	1,48	22.8	867	2844
						N135	1,40	21.6	804	2638	1,54	23.8	875	2871
						N140	1,53	23.6	820	2690	1,68	25.9	897	2943
						N540	1,56	24.1	824	2703	1,71	26.4	910	2986
4,5	69	Scenar[1)]	Lapua	57,4	2.260	N530	1,37	21.1	809	2654	1,47	22.7	869	2851
						N133	1,31	20.2	789	2589	1,42	21.9	849	2785
						N135	1,37	21.1	796	2612	1,49	23.0	862	2828
						N140	1,48	22.8	823	2700	1,60	24.7	879	2884
						N540	1,50	23.1	807	2648	1,65	25.5	895	2936
4,9	75	BTHP[2)]	Hornady	57,4	2.260	N135	1,34	20.7	752	2467	1,51	23.3	830	2723
						N140	1,43	22.1	754	2474	1,62	25.0	843	2766
						N540	1,50	23.1	773	2536	1,67	25.8	863	2831
5,0	77	Scenar	Lapua	57,4	2.260	N530	1,25	19.3	712	2336	1,44	22.2	812	2664
						N135	1,22	18.8	701	2300	1,39	21.5	803	2635
						N140	1,35	20.8	704	2310	1,57	24.2	801	2628
						N540	1,41	21.8	720	2362	1,59	24.5	814	2671
5,0	77	HPBT[2)]	Sierra	57,4	2.260	N530	1,28	19.8	712	2336	1,43	22.1	795	2608
						N135	1,27	19.6	706	2316	1,46	22.5	791	2595
						N140	1,36	21.0	712	2336	1,60	24.7	810	2657
						N540	1,47	22.7	740	2428	1,64	25.3	828	2717
5,2	80	HPBT[3)]	Sierra	64,8	2.551	N530	1,30	20.0	713	2339	1,50	23.1	801	2630
						N135	1,22	18.8	711	2333	1,40	21.6	788	2587
						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
5,8	90	HPBT	Sierra	59,8	2.354	N140	1,25	19.3	640	2100	1,44	22.2	742	2434
						N150	1,24	19.1	648	2126	1,48	22.8	748	2454
						N540	1,34	20.7	678	2224	1,52	23.5	762	2500
5,8	90	HPBT	Berger	62,4	2.457	N140	1,25	19.3	646	2119	1,41	21.8	735	2411
						N150	1,26	19.4	651	2136	1,46	22.5	741	2431
						N540	1,34	20.7	682	2238	1,49	23.0	759	2490

A = Accuracy load F = Case full

[1)] 1 in 10" twist [2)] 1 in 7" twist [3)] Test barrel with a long throat to accept the C.O.L. of 65 mm (2,559")

LIGHT GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!

LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.223 WSSM

Test barrel: 640 mm (25"), 1 in 8" twist
Primers: Large Rifle
Cases: Winchester, trim-to length 42,20 mm (1.661")

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	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	54,6	2.150	N135	2,10	32.4	1011	3317	2,61	40.3	1180	3871
						N530	2,22	34.3	1055	3461	2,59	40.0	1205	3953
						N140	2,49	38.4	1074	3524	2,83	43.7	1183	3881
3,6	55	Soft Point	Lapua	54,5	2.146	N135	2,09	32.3	1001	3284	2,49	38.4	1119	3671
						N530	2,14	33.0	1009	3310	2,48	38.3	1147	3763
						N140	2,24	34.6	996	3268	2,68	41.4	1140	3740
4,5	69	Scenar	Lapua	56,7	2.232	N140	2,29	35.3	933	3061	2,61	40.3	1030	3379
						N540	2,35	36.3	960	3150	2,68	41.4	1077	3533
						N150	2,33	36.0	947	3107	2,61	40.3	1048	3438
						N550	2,48	38.3	972	3189	2,84	43.8	1078	3537

.22 PPC-USA

Test barrel: 610 mm (24"), 1 in 14" twist
Primers: Small Rifle
Cases: Winchester, trim-to length 42,20 mm (1.661")

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	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
						N135	1,65	25.5	971	3185	1,90	29.2	1099	3607
3,6	55	Spitzer	Speer	51,8	2.039	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

.22-250 Remington

Test barrel: 580 mm (22"), 1 in 14" twist
Primers: Large Rifle
Cases: Lapua .22-250 Remington, trim-to length 48,30mm (1.902")

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	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	Blitz King	Sierra	56,9	2.240	N130	1,79	27.6	1097	3599	1,98	30.6	1194	3917
						N133	1,97	30.4	1099	3606	2,15	33.2	1205	3953
						N135	2,03	31.3	1097	3599	2,18	33.6	1207	3960
						N140	2,19	33.8	1111	3645	2,39	36.9	1211	3973
2,9	45	SP	Sierra	58,9	2.319	N130	1,66	25.6	1023	3356	1,99	30.7	1145	3757
						N133	1,87	28.9	1033	3389	2,10	32.4	1126	3694
						N135	1,87	28.9	1023	3356	2,18	33.6	1154	3786
						N150	2,06	31.8	1033	3389	2,32	35.8	1137	3730
3,3	51	HPCE	Lapua	59,6	2.346	N133	1,75	27.0	969	3179	1,99	30.7	1064	3491
						N135	1,72	26.5	959	3146	1,96	30.2	1055	3461
						N140	1,99	30.7	988	3241	2,19	33.8	1087	3566
						N540	2,08	32.1	1001	3284	2,32	35.8	1105	3625
3,6	55	FMJ	Lapua	59,6	2.346	N135	1,75	27.0	936	3071	1,98	30.6	1040	3412
						N140	1,94	29.9	959	3146	2,17	33.5	1050	3445
						N540	2,03	31.3	972	3189	2,29	35.3	1085	3560
						N150	1,98	30.6	968	3176	2,25	34.7	1057	3468
3,6	55	Soft Point	Lapua	59,5	2.343	N135	1,62	25.0	902	2959	1,82	28.1	990	3248
						N140	1,81	27.9	932	3058	2,04	31.5	1017	3337
						N540	2,09	32.3	981	3219	2,29	35.3	1075	3527
						N150	1,83	28.2	903	2963	2,08	32.1	1019	3343
3,9	60	HP	Hornady	59,6	2.346	N135	1,62	25.0	845	2772	1,86	28.7	955	3133
						N140	1,81	27.9	887	2910	2,10	32.4	989	3245
						N540	2,06	31.8	938	3077	2,27	35.0	1043	3422
						N150	1,91	29.5	907	2976	2,16	33.3	1012	3320

LIGHT GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!

LOADS LESS THAN MINIMUM CHARGES SHOWN ARE NOT RECOMMENDED

.22-250 Remington cont.

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
4,0	62	TSX	Barnes	59,7	2.350	N140	1,67	25.8	831	2726	1,90	29.3	930	3051
						N540	1,82	28.1	865	2838	2,09	32.3	974	3196
						N150	1,72	26.5	843	2766	1,98	30.6	943	3094
4,5	69	HPBT[1)]	Lapua	59,6	2.346	N140	1,71	26.4	820	2690	1,98	30.6	914	2999
						N540	1,85	28.5	843	2766	2,10	32.4	939	3081
						N150	1,77	27.3	836	2743	2,05	31.6	921	3022
						N550	1,98	30.6	854	2802	2,24	34.6	953	3127

[1)] 1 in 10" twist

6 mm PPC-USA

Test barrel: 580 mm (23"), 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/Name	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	1,68	25.9	928	3045
						N133	1,63	25.2	840	2756	1,83C	28.2C	951	3120
4,5	70	HPBT	Sierra	53,6	2.110	N120	1,39	21.5	809	2654	1,55	23.9	901	2956
						N130	1,47	22.7	820	2690	1,69	26.1	934	3064
						N133	1,59	24.6	826	2710	1,79C	27.6C	935	3068

C = Compressed load

6 mm BR Norma

Test barrel: 650 mm (25½"), 1 in 8" twist
Primers: Small Rifle
Cases: Lapua, trim-to length 39,40 mm (1.551")

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	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	1,86	28.7	957	3140
						N135	1,88	29.0	901	2956	2,20	33.9	1009	3310
5,0	77	HP	Lapua	57,0	2.244	N135	1,81	27.9	880	2887	2,01	31.0	957	3140
						N140	1,94	29.9	882	2894	2,15	33.2	965	3166
						N540	2,00	30.9	888	2913	2,18	33.6	980	3215
5,0	77	HP SJ	Lapua	60,0	2.362	N133	1,85	28.5	884	2900	2,01A	31.0A	964	3163
						N140	2,05	31.6	900	2953	2,22	34.3	982	3222
						N540	2,14	33.0	914	2999	2,31	35.6	999	3278
5,5	85	TSX	Barnes	58,5	2.303	N140	1,62	25.0	775	2543	1,88	29.0	877	2877
						N540	1,72	26.5	803	2635	1,97	30.4	908	2979
						N150	1,63	25.2	776	2546	1,90	29.3	874	2867
5,8	90	Naturalis	Lapua	54,7	2.154	N140	1,75	27.0	790	2592	2,03	31.3	879	2884
						N540	1,89	29.2	816	2677	2,11	32.6	915	3002
						N150	1,81	27.9	795	2608	2,10	32.4	887	2910
5,8	90	Scenar	Lapua	60,0	2.362	N140	1,68	26.0	788	2584	1,93	29.8	871	2858
						N540	1,69	26.1	757	2484	2,20	33.9	952	3123
5,8	90	Scenar SJ	Lapua	60,0	2.362	N135	1,85	28.5	830	2723	2,04A	31.5A	906	2972
						N140	1,96	30.2	847	2779	2,12	32.7	922	3025
						N540	2,02	31.2	854	2802	2,19	33.8	936	3071
6,5	100	Mega	Lapua	55,3	2.177	N140	1,66	25.6	737	2419	1,88	29.0	825	2707
						N540	1,81	27.9	772	2533	2,01	31.0	857	2812
6,8	105	Scenar	Lapua	60,0	2.362	N140	1,67	25.8	746	2447	1,87	28.9	821	2694
						N540	1,75	27.0	756	2480	1,97	30.4	846	2776
6,8	105	Scenar SJ	Lapua	60,0	2.362	N140	1,83	28.2	763	2503	2,02	31.2	843	2766
						N150	1,85	28.5	769	2523	2,05	31.6	841	2759
						N540	1,88	29.0	777	2549	2,08	32.1	861	2825

A = Accuracy load

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

.243 WSSM

Test barrel: 690 mm (27"), 1 in 10" twist
Primers: Small Rifle
Cases: Winchester, trim-to length 42,20 mm (1.660")

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
5,0	77	HP	Lapua	59,4	2.339	N140	2,46	38.0	973	3192	2,74	42.3	1071	3514
						N540	2,52	38.9	988	3241	2,80	43.2	1096	3596
						N150	2,48	38.3	978	3209	2,84	43.8	1081	3547
5,8	90	Naturalis	Lapua	58,0	2.283	N540	2,34	36.1	896	2940	2,68	41.4	1001	3284
						N150	2,32	35.8	877	2877	2,66	41.1	979	3212
						N550	2,56	39.5	909	2982	2,84	43.8	1019	3343
6,5	100	SP	Lapua	57,0	2.244	N140	2,20	34.0	832	2730	2,46	38.0	914	2999
						N540	2,18	33.6	843	2766	2,55	39.4	946	3104
						N550	2,41	37.2	868	2848	2,75	42.4	968	3176

.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/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
3,7	58	V-Max	Hornady	65,5	2.579	N135	2,31	35.6	1037	3402	2,55	39.3	1127	3698
						N140	2,53	39.0	1043	3422	2,80	43.2	1137	3730
						N540	2,45	37.8	1051	3448	2,87	44.3	1151	3776
						N550	2,65	40.9	1067	3501	2,88	44.4	1165	3822
5,0	77	HP	Lapua	67,0	2.638	N135	1,99	30.7	855	2805	2,32	35.8	968	3176
						N140	2,23	34.4	883	2897	2,54	39.2	992	3255
						N150	2,24	34.6	881	2890	2,58	39.8	995	3264
						N550	2,57	39.7	918	3012	2,80	43.2	1032	3386
5,2	80	FMJ	Hornady	67,0	2.638	N140	2,04	31.5	831	2726	2,41	37.2	949	3114
						N150	2,06	31.8	840	2756	2,43	37.5	947	3107
						N550	2,42	37.3	895	2936	2,79	43.1	1002	3287
						N160	2,54	39.2	890	2920	2,94	45.4	993	3258
5,5	85	TSX	Barnes	67,0	2.638	N150	2,15	33.2	828	2717	2,55	39.4	949	3114
						N540	2,19	33.8	857	2812	2,56	39.5	981	3219
						N550	2,56	39.5	934	3064	2,72	42.0	992	3255
						N160	2,65	40.9	860	2822	2,98	46.0	972	3189
5,5	85	Partition	Nosler	68,0	2.677	N540	2,17	33.5	860	2822	2,50	38.6	971	3186
						N150	1,90	29.3	801	2628	2,28	35.2	922	3025
						N550	2,36	36.4	866	2841	2,71	41.8	977	3205
						N160	2,42	37.3	846	2776	2,84	43.8	969	3179
5,8	90	Naturalis	Lapua	67,0	2.638	N540	2,26	34.9	840	2756	2,53	39.0	945	3100
						N150	2,02	31.2	799	2621	2,39	36.9	903	2963
						N550	2,44	37.7	846	2776	2,72	42.0	952	3123
						N160	2,43	37.5	823	2700	2,85	44.0	942	3091
5,8	90	FMJ	Sierra	68,3	2.689	N540	2,17	33.5	842	2762	2,49	38.4	946	3104
						N150	1,98	30.6	805	2641	2,30	35.5	902	2959
						N550	2,31	35.6	848	2782	2,63	40.6	952	3123
						N160	2,41	37.2	836	2743	2,76	42.6	941	3087
5,8	90	Scenar	Lapua	68,3	2.689	N540	2,27	35.0	860	2822	2,54	39.2	962	3156
						N150	2,08	32.1	817	2680	2,44	37.7	914	2999
						N550	2,46	38.0	865	2838	2,68	41.4	967	3173
						N160	2,52	38.9	847	2779	2,83	43.7	952	3123
6,5	100	Grand Slam	Speer	68,3	2.689	N540	1,97	30.4	770	2526	2,33	36.0	878	2881
						N150	1,86	28.7	722	2369	2,23	34.4	839	2753
						N550	2,21	34.1	787	2582	2,48	38.3	885	2904
						N160	2,23	34.4	769	2523	2,58	39.8	873	2864
6,8	105	Scenar[1)]	Lapua	68,3	2.689	N150	1,95	30.1	729	2392	2,27	35.0	821	2694
						N550	2,34	36.1	782	2566	2,59	40.0	890	2920
						N160	2,43	37.5	766	2513	2,70	41.7	869	2851
						N165	2,62	40.4	783	2569	3,00	46.3	894	2933

[1)] The test barrel rifle twist 1 in 8"

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

6 mm Remington

Test barrel: 660 mm (26”), 1 in 10” twist
Primers: Large Rifle
Cases: Remington, trim-to length 56,60 mm (2.228”)

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		**Weight**		**Velocity**	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	**[g]**	**[grs]**	**[m/s]**	**[fps]**
3,8	58	V-Max	Hornady	70,4	2.772	N140	2,47	38.1	1053	3455	2,80	43.2	1173	3848
						N540	2,68	41.4	1084	3556	3,01	46.5	1207	3960
						N150	2,50	38.6	1055	3461	2,91	44.9	1176	3858
5,5	85	Partition	Nosler	70,4	2.772	N140	1,97	30.4	858	2815	2,49	38.4	983	3225
						N150	2,11	32.6	868	2848	2,47	38.1	973	3192
						N540	2,25	34.7	899	2949	2,65	40.9	1012	3320
						N550	2,41	37.2	903	2963	2,85	44.0	1022	3353
5,0	77	HP	Lapua	70,4	2.772	N140	2,38	36.7	933	3061	2,71	41.8	1046	3432
						N540	2,55	39.4	971	3186	2,84	43.8	1073	3520
						N150	2,50	38.6	950	3117	2,80	43.2	1051	3448
						N550	2,73	42.1	972	3189	3,01	46.5	1093	3586
5,8	90	Scenar	Lapua	71,8	2.825	N150	2,20	34.0	867	2844	2,60	40.1	976	3202
						N550	2,52	38.9	902	2959	2,82	43.5	1010	3314
						N160	2,49	38.4	866	2841	3,00	46.3	994	3261
						N165	2,93	45.2	906	2972	3,30	50.9	1018	3340
5,8	90	Naturalis	Lapua	70,4	2.772	N150	2,00	30.9	820	2690	2,50	38.6	932	3058
						N550	2,37	36.6	873	2864	2,88	44.4	1010	3314
						N160	2,40	37.0	869	2851	2,99	46.1	994	3261
						N165	2,83	43.7	875	2871	3,24	50.0	1001	3284

.240 Weatherby Magnum

Test barrel: 600 mm (23½”), 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 cause excessive chamber pressure and must not be used!

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		**Weight**		**Velocity**	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	**[g]**	**[grs]**	**[m/s]**	**[fps]**
4,9	75	HP	Hornady	78,1	3.075	N150	2,94	45.4	995	3266	3,17	48.9	1076	3532
						N550	3,20	49.4	1028	3371	3,38	52.2	1111	3645
						N160	3,34	51.6	1010	3314	3,52	54.2	1094	3589
5,0	77	HP	Lapua	78,1	3.075	N150	2,97	45.8	990	3248	3,15	48.7	1055	3460
						N550	3,20	49.3	1014	3327	3,37	51.9	1095	3591
						N160	3,34	51.5	1005	3297	3,51	54.1	1084	3556
5,8	90	Scenar	Lapua	78,1	3.075	N550	2,98	46.0	939	3081	3,22	49.6	1013	3325
						N160	3,20	49.3	938	3077	3,41	52.6	1014	3327
						N165	3,47	53.6	949	3114	3,71	57.2	1031	3383
6,5	100	Mega	Lapua	78,1	3.075	N550	2,94	45.4	891	2923	3,16	48.7	966	3170
						N160	3,06	47.2	895	2936	3,26	50.3	956	3137
						N165	3,47	53.6	949	3114	3,62	55.8	989	3246
6,8	105	Spitzer	Speer	77,8	3.063	N160	2,83	43.6	852	2795	3,15	48.7	935	3068
						N560	3,23	49.8	887	2910	3,47	53.5	962	3157
						N165	3,33	51.3	895	2936	3,57	55.2	969	3180

.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/Name	Mfg	C.O.L.		Type	Weight		Velocity		**Weight**		**Velocity**	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	**[g]**	**[grs]**	**[m/s]**	**[fps]**
5,6	87	SPBT	Speer	79,3	3.122	N140	2,35	36.2	876	2873	2,74	42.3	961	3153
						N150	2,51	38.7	892	2925	2,91	44.9	980	3215
						N160	3,15	48.6	935	3069	3,55	54.8	1020	3346
						N165	3,52	54.3	960	3149	3,95	60.9	1049	3442
6,5	100	SPBT	Speer	81,2	3.197	N140	2,60	40.0	873	2864	2,78	42.9	924	3031

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

.25-06 Remington cont.

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		**Weight**		**Velocity**	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	**[g]**	**[grs]**	**[m/s]**	**[fps]**
						N150	2,66	41.0	878	2881	2,86	44.1	930	3051
						N160	3,24	50.0	911	2990	3,38	52.2	966	3169
						N560	3,16	48.8	900	2954	3,59	55.4	990	3248
						N165	3,44	53.0	922	3024	3,66	56.5	979	3212
						N170	3,55	54.7	885	2902	4,05	62.5	975	3199
7,8	120	Spizer	Speer	80,2	3.157	N150	1,95	30.1	692	2270	2,32	35.8	776	2546
						N160	2,50	38.6	759	2491	2,94	45.4	844	2769
						N560	2,81	43.3	798	2619	3,24	50.0	890	2920
						N165	2,69	41.5	777	2548	3,13	48.3	853	2799
						N170	3,17	48.9	802	2630	3,59	55.4	873	2864
7,8	120	HPBT	Sierra	80,0	3.155	N160	2,75	42.4	791	2597	3,09	47.7	871	2858
						N560	2,95	45.6	818	2685	3,33	51.4	903	2963
						N165	3,03	46.8	817	2681	3,38	52.2	889	2917
						N170	3,35	51.7	817	2682	3,81	58.8	904	2966

6,5 mm Grendel

Test barrel: 610 mm (24”), 1 in 10” twist
Primers: Small Rifle
Cases: Lapua, trim-to length 38,50 mm (1.516”)

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		**Weight**		**Velocity**	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	**[g]**	**[grs]**	**[m/s]**	**[fps]**
6,5	100	FMJ	Lapua	53,0	2.087	N130	1,32	20.4	705	2313	1,54	23.8	784	2572
						N133	1,51	23.3	728	2388	1,72	26.5	811	2661
						N530	1,56	24.1	729	2392	1,79	27.6	829	2720
6,5	100	Scenar	Lapua	57,1	2.248	N130	1,40	21.6	674	2211	1,76	27.2	840	2756
						N530	1,60	24.7	729	2392	1,90	29.3	858	2815
						N133	1,57	24.2	728	2388	1,90	29.3	854	2802
7,0	108	Scenar	Lapua	57,1	2.248	N130	1,40	21.6	671	2201	1,69	26.1	791	2595
						N530	1,44	22.2	690	2264	1,73	26.7	821	2694
						N133	1,51	23.3	689	2260	1,80	27.8	804	2638
7,8	120	TSX	Barnes	53,0	2.087	N530	1,34	20.7	592	1942	1,62	25.0	707	2320
						N133	1,17	18.1	578	1896	1,58	24.4	678	2224
						N540	1,58	24.4	631	2070	1,88	29.0	751	2464
8,0	123	Scenar	Lapua	57,1	2.248	N530	1,47	22.7	635	2083	1,73	26.7	763	2503
						N133	1,36	21.0	609	1998	1,73	26.7	745	2444
						N135	1,29	19.9	593	1946	1,75	27.0	741	2431
8,8	136	Scenar-L	Lapua	57,1	2.248	N530	1,47	22.7	644	2113	1,65	25.5	725	2379
						N135	1,33	20.5	597	1959	1,65	25.5	701	2300
						N140	1,59	24.5	655	2149	1,83	28.2	731	2398
						N540	1,67	25.8	661	2169	1,83	28.2	741	2431
9,0	139	Scenar	Lapua	57,1	2.248	N530	1,40	21.6	606	1988	1,60	24.7	694	2277
						N135	1,23	19.0	547	1795	1,55	23.9	664	2178
						N140	1,57	24.2	620	2034	1,78	27.5	706	2316
						N540	1,64	25.3	642	2106	1,82	28.1	725	2379
9,1	140	Naturalis	Lapua	57,5	2.264	N530	1,41	21.8	595	1952	1,65	25.5	694	2277
						N140	1,42	21.9	579	1900	1,74	26.9	680	2231
						N540	1,59	24.5	616	2021	1,86	28.7	714	2343
9,3	144	FMJBT	Lapua	57,1	2.248	N530	1,40	21.6	610	2001	1,57	24.2	679	2228
						N135	1,19	18.4	553	1814	1,37	21.1	621	2037
						N140	1,49	23.0	640	2100	1,77	27.3	704	2310
						N540	1,60	24.7	638	2093	1,80	27.8	718	2356
10,1	156	Mega	Lapua	57,4	2.260	N530	1,28	19.8	539	1768	1,50	23.1	615	2018
						N140	1,31	20.2	513	1683	1,62	25.0	627	2057
						N540	1,38	21.3	537	1762	1,67	25.8	647	2123
						N150	1,30	20.1	511	1677	1,62	25.0	615	2018

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

6,5 x 47 Lapua

Test barrel: 700 mm (27½"), 1 in 8½" twist
Primers: Small Rifle
Cases: Lapua, trim-to length 46,80 mm (1.843")

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
6,5	100	FMJ	Lapua	62,5	2.461	N133	1,91	29.5	778	2552	2,20	34.0	886	2907
						N135	1,91	29.5	765	2510	2,20	34.0	875	2871
						N140	2,15	33.2	801	2628	2,48	38.3	908	2979
6,5	100	Scenar	Lapua	69,5	2.736	N133	2,10	32.4	870	2854	2,26	34.9	925	3035
						N135	2,20	34.0	890	2920	2,31	35.6	930	3051
						N140	2,40	37.0	900	2953	2,56	39.5	950	3117
						N540	2,32	35.8	874	2867	2,64	40.7	992	3255
						N150	2,17	33.5	831	2726	2,53	39.0	954	3130
7,0	108	Scenar	Lapua	69,5	2.736	N133	1,96	30.2	807	2648	2,20	33.9	882	2894
						N135	2,04	31.5	814	2671	2,23	34.4	885	2904
						N140	2,23	34.4	828	2717	2,51	38.7	910	2986
						N540	2,27	35.0	839	2753	2,55	39.4	943	3094
						N150	2,35	36.3	849	2785	2,63	40.6	930	3051
						N550	2,39	36.9	836	2743	2,68	41.4	948	3110
7,8	120	Scenar-L	Lapua	69,5	2.736	N140	1,80	27.8	731	2398	2,35	36.3	853	2799
						N540	2,14	33.0	772	2533	2,45	37.8	889	2917
						N150	2,06	31.8	744	2441	2,43	37.5	859	2818
						N550	2,31	35.6	776	2546	2,62	40.4	895	2936
7,8	120	TSX	Barnes	64,5	2.539	N150	1,99	30.7	690	2264	2,43	37.5	830	2723
						N540	2,20	34.0	748	2454	2,48	38.3	846	2776
						N550	2,35	36.3	750	2461	2,70	41.7	872	2861
8,0	123	Scenar	Lapua	69,5	2.736	N140	2,15	33.2	768	2520	2,36	36.4	840	2756
						N540	2,31	35.7	818	2685	2,57	39.7	907	2976
						N150	2,23	34.4	788	2585	2,45	37.8	855	2805
						N550	2,26	34.9	780	2559	2,57	39.7	878	2881
8,1	125	Partition	Nosler	65,0	2.559	N140	1,95	30.1	715	2346	2,35	36.3	820	2690
						N150	2,01	31.0	727	2385	2,40	37.0	829	2720
						N540	2,18	33.6	760	2493	2,44	37.7	858	2815
8,4	130	TSX	Barnes	64,5	2.539	N150	1,81	27.9	597	1959	2,31	35.6	765	2510
						N540	2,08	32.1	691	2267	2,42	37.3	819	2687
						N550	2,23	34.4	694	2277	2,60	40.1	821	2694
8,8	136	Scenar-L	Lapua	69,5	2.736	N140	1,80	27.8	731	2398	2,30	35.5	792	2598
						N540	2,12	32.7	732	2402	2,39	36.9	829	2720
						N150	2,03	31.3	699	2293	2,35	36.3	796	2612
						N550	2,29	35.3	735	2411	2,57	39.7	833	2733
9,0	139	Scenar	Lapua	69,5	2.736	N140	2,00	30.9	702	2302	2,25	34.7	773	2536
						N540	2,17	33.5	752	2468	2,42	37.4	836	2744
						N150	2,10	32.4	727	2384	2,33	36.0	787	2582
						N550	2,15	33.2	722	2369	2,44	37.7	815	2674
9,1	140	Naturalis	Lapua	66,0	2.598	N140	1,95	30.1	660	2165	2,30	35.5	772	2533
						N150	2,00	30.9	663	2175	2,32	35.8	769	2523
						N540	2,10	32.4	697	2287	2,35	36.3	789	2589
						N550	2,25	34.7	698	2290	2,51	38.7	793	2602
10,1	156	Mega	Lapua	63,2	2.488	N150	1,78	27.5	598	1962	2,12	32.7	710	2329
						N540	2,01	31.0	650	2133	2,26	34.9	753	2470
						N550	2,12	32.7	696	2283	2,43	37.5	769	2523

.260 Remington

Test barrel: 475 mm (18¾"), 1 in 9" twist *Test barrel 600 mm (23½")
Primers: Large Rifle
Cases: Lapua .260 Remington, trim-to length 51,50mm (2.028")

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
6,5	100	FMJ	Lapua	66,0	2.598	N140	2,08	32.1	765	2510	2,44	37.7	862	2828
						N540	2,32	35.8	797	2615	2,63	40.6	891	2923
						N150	2,12	32.7	769	2523	2,51	38.7	861	2825

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

.260 Remington cont.

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
6,5	100	HPFB	Sierra	67,5	2.657	N140	2,30	35.5	825	2708	2,59	39.9	906	2973
						N150	2,31	35.7	813	2669	2,61	40.3	892	2926
						N540	2,39	36.9	831	2725	2,67	41.2	912	2992
6,5	100	Scenar	Lapua	69,0	2.717	N140	2,33	36.0	816	2677	2,62	40.4	904	2966
						N540	2,49	38.4	823	2700	2,78	42.9	931	3054
						N150	2,43	37.5	819	2687	2,70	41.7	904	2966
7,0	108	Scenar	Lapua	71,0	2.795	N150	2,28	35.1	791	2594	2,54	39.1	865	2837
						N540	2,35	36.2	802	2631	2,58	39.9	877	2876
						N160	2,66	41.0	814	2670	2,92	45.0	898	2947
7,8*	120	Scenar-L	Lapua	71,0	2.795	N150	2,32	35.8	761	2497	2,55	39.4	834	2736
						N540	2,29	35.3	739	2425	2,58	39.8	855	2805
						N550	2,54	39.2	788	2585	2,73	42.1	859	2818
						N160	2,71	41.8	771	2530	2,94	45.4	851	2792
7,8	120	SP	Speer	71,0	2.795	N540	2,22	34.2	749	2456	2,48	38.2	825	2706
						N550	2,36	36.5	765	2511	2,64	40.7	835	2741
						N160	2,47	38.2	755	2478	2,80	43.2	838	2750
8,0	123	Scenar	Lapua	71,0	2.795	N150	2,15	33.2	733	2405	2,50	38.6	816	2677
						N550	2,43	37.5	697	2287	2,69	41.5	837	2746
						N160	2,67	41.2	767	2516	2,89	44.6	841	2759
8,4*	130	TSX	Barnes	70,8	2.787	N540	2,17	33.5	720	2362	2,44	37.7	810	2657
						N550	2,26	34.9	717	2352	2,59	40.0	816	2677
						N160	2,32	35.8	702	2303	2,75	42.4	808	2651
8,8*	136	Scenar-L	Lapua	71,0	2.795	N550	2,47	38.1	755	2477	2,70	41.7	835	2740
						N160	2,71	41.8	758	2487	2,99	46.1	841	2759
						N560	2,82	43.5	762	2500	3,10	47.8	843	2766
9,0*	139	Scenar	Lapua	71,0	2.795	N550	2,40	37.0	756	2480	2,56	39.5	810	2657
						N160	2,60	40.1	756	2480	2,81	43.4	815	2674
						N560	2,72	42.0	750	2461	2,99	46.1	830	2723
9,1*	140	Accubond	Nosler	70,0	2.756	N550	2,34	36.1	720	2362	2,65	40.9	811	2661
						N160	2,43	37.5	714	2343	2,85C	44.0C	796	2612
						N560	2,56	39.5	736	2415	2,90C	44.8C	823	2700
9,1	140	Naturalis	Lapua	73,3	2.886	N550	2,17	33.5	688	2257	2,54	39.2	776	2546
						N160	2,25	34.7	673	2208	2,61	40.3	766	2513
						N560	2,47	38.1	681	2234	2,84	43.8	779	2556
9,3	144	MJBT	Lapua	71,0	2.795	N550	2,15	33.2	677	2221	2,49	38.4	768	2520
						N160	2,33	36.0	680	2231	2,66	41.1	762	2500
						N560	2,56	39.5	786	2579	2,90	44.8	780	2559
10,1	155	Mega	Lapua	69,5	2.736	N160	2,14	33.0	651	2134	2,41	37.1	711	2332
						N560	2,37	36.6	651	2137	2,72	42.0	735	2412
						N165	2,52	38.8	673	2208	2,83	43.7	755	2478

C = Compressed load *Test barrel 600 mm (23½"), 1 in 9" twist

6,5 x 55 Swedish Mauser

Test barrel: 670 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/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
5,5	85	HP	Sierra	71,1	2.799	N150	2,88	44.5	937	3073	3,03	46.8	1013	3323
6,5	100	HP	Sierra	72,4	2.850	N140	2,62	40.4	860	2822	2,78	42.8	911	2990
						N540	2,65	40.9	858	2815	2,88	44.4	938	3078
						N150	2,69	41.5	860	2822	2,86	44.1	915	3003
						N550	2,82	43.5	884	2900	3,03	46.8	960	3150
						N160	3,13	48.3	878	2881	3,33	51.4	942	3090
6,5	100	FMJ	Lapua	70,0	2.756	N530	2,34	36.1	880	2887	2,53	39.0	938	3077
						N135	2,21	34.1	802	2631	2,55A	39.3A	894	2933
						N140	2,38	36.7	810	2657	2,75	42.4	910	2986
						N540	2,71	41.8	910	2986	2,90	44.8	973	3192
						N150	2,45	37.8	823	2700	2,79	43.0	920	2690
						N160	3,08	47.5	862	2828	3,39	52.3	946	3104

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

6,5 x 55 Swedish Mauser cont.

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
6,5	100	Scenar	Lapua	75,0	2.953	N530	2,35	36.3	899	2949	2,54	39.2	951	3120
						N135	2,15	33.2	790	2592	2,44	37.6	889	2917
						N140	2,32	35.8	790	2592	2,64	40.7	915	3002
						N540	2,35	36.3	790	2592	2,70	41.7	924	3031
						N150	2,37	36.6	793	2602	2,69A	41.5A	870	2853
						N550	2,58	39.8	790	2592	2,97	45.8	938	3077
						N160	2,78	42.9	790	2592	3,01	46.4	928	3045
7,0	108	Scenar	Lapua	78,0	3.071	N530	2,29	35.3	859	2818	2,48	38.3	912	2992
						N140	2,44	37.6	806	2644	2,64	40.8	880	2887
						N540	2,50	38.6	827	2713	2,69	41.5	897	2943
						N150	2,56	39.5	830	2723	2,69	41.5	870	2853
						N550	2,72	42.0	853	2798	2,94	45.4	936	3070
						N160	2,80	43.2	820	2690	3,05	47.1	920	3018
						N560	3,19	49.2	867	2843	3,35	51.7	950	3117
						N165	3,16	48.8	860	2822	3,28F	50.7F	902	2959
7,0	108	Scenar SJ	Lapua	80,0	3.150	N140	2,42	37.3	825	2707	2,68	41.3	893	2931
						N540	2,52	38.9	827	2713	2,74	42.2	902	2958
						N150	2,49	38.4	819	2687	2,70A	41.7A	889	2917
						N550	2,85	44.0	891	2923	3,00	46.3	955	3133
						N160	2,97	45.8	881	2890	3,19	49.2	945	3100
						N560	3,19	49.2	887	2910	3,38	52.2	956	3136
7,8	120	HPBT	Sierra	76,8	3.024	N140	2,47	38.1	755	2477	2,63	40.5	852	2795
						N540	2,49	38.4	773	2536	2,69	41.5	818	2684
						N150	2,55	39.3	770	2526	2,71	41.7	839	2753
						N550	2,63	40.6	800	2625	2,88	44.5	888	2914
						N160	2,97	45.8	825	2707	3,29	50.7	907	2975
						N560	3,12	48.1	823	2700	3,41	52.7	932	3056
7,8	120	Scenar-L	Lapua	77,0	3.031	N135	2,08	32.1	763	2503	2,31	35.6	820	2690
						N140	2,18	33.6	786	2579	2,42	37.3	822	2697
						N150	2,31	35.6	800	2625	2,52	38.9	855	2805
						N160	2,84	43.8	842	2762	2,96	45.7	880	2887
						N560	3,03	46.8	847	2779	3,23	49.8	907	2976
8,0	123	Scenar	Lapua	80,0	3.150	N530	2,17	33.5	792	2598	2,35	36.3	848	2782
						N140	2,20	34.0	745	2444	2,40	37.0	810	2657
						N540	2,44	37.7	749	2456	2,68	41.4	827	2715
						N150	2,24	34.6	740	2428	2,47	38.1	815	2674
						N550	2,67	41.2	837	2746	2,88	44.4	901	2956
						N160	2,69	41.5	807	2648	2,92	45.1	869	2851
						N560	3,03	46.8	841	2759	3,19	49.2	898	2946
8,0	123	Scenar SJ	Lapua	80,0	3.150	N140	2,35	36.3	787	2582	2,56	39.5	842	2762
						N540	2,56	39.5	825	2707	2,74	42.3	883	2897
						N150	2,40	37.0	780	2559	2,62	40.4	834	2738
						N550	2,41	37.2	768	2520	2,73A	42.1A	857	2811
						N160	2,75	42.4	792	2598	2,88	44.5	831	2726
						N560	3,09	47.7	845	2772	3,22	49.7	901	2956
8,4	130	TSX	Barnes	71,2	2.803	N160	2,72	42.0	815	2674	2,99	46.1	886	2907
						N560	3,06	47.2	838	2749	3,25	50.2	902	2959
						N165	3,24	50.0	862	2828	3,40	52.5	909	2982
8,4	130	HPBT	Norma	80,0	3.150	N140	2,29	35.3	730	2395	2,64	40.7	812	2663
						N540	2,32	35.8	749	2457	2,57	39.6	820	2690
						N150	2,32	35.8	710	2329	2,60	40.1	808	2651
						N550	2,54	39.2	768	2520	2,84	43.8	852	2795
						N160	2,79	43.0	764	2507	3,06	47.3	840	2757
						N560	3,01	46.4	803	2635	3,25	50.2	878	2882
8,8	136	Scenar-L	Lapua	80,0	3.150	N540	2,39	36.9	785	2575	2,59	40.0	836	2743
						N150	2,29	35.3	753	2470	2,46	38.0	803	2635
						N550	2,57	39.7	800	2625	2,73	42.1	841	2759
						N160	2,73	42.1	778	2552	2,93	45.2	840	2756
						N560	2,90	44.8	802	2631	3,07	47.4	857	2812
						N165	3,02	46.6	813	2667	3,20	49.4	861	2825
9,0	139	HPBT	Norma	78,0	3.071	N150	2,28	35.2	704	2310	2,55	39.4	779	2555

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

6,5 x 55 Swedish Mauser cont.

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
						N550	2,50	38.6	743	2438	2,71	41.8	813	2667
						N160	2,73	42.1	738	2421	2,98	46.0	810	2656
						N560	2,88	44.4	753	2470	3,20	49.4	846	2777
						N165	3,00	46.3	765	2510	3,23	49.9	833	2732
9,0	139	Scenar	Lapua	80,0	3.150	N540	2,35	36.3	764	2507	2,53	39.0	819	2687
						N150	2,12	32.7	706	2316	2,28	35.2	761	2497
						N550	2,37	36.6	737	2418	2,59	40.0	805	2641
						N160	2,40	37.0	732	2402	2,67	41.2	790	2592
						N560	2,73	42.1	736	2415	3,06	47.2	826	2710
						N165	2,86	44.1	766	2513	3,10	47.8	833	2733
9,0	139	Scenar SJ	Lapua	80,0	3.150	N150	2,25	34.7	729	2392	2,48	38.3	785	2575
						N550	2,37	36.6	712	2336	2,61A	40.3A	799	2622
						N160	2,54	39.2	748	2454	2,80	43.3	795	2610
						N560	2,73	42.1	736	2415	3,06	47.3	826	2711
						N165	2,94	45.4	788	2585	3,12	48.1	841	2759
9,1	140	Naturalis	Lapua	76,5	3.012	N150	2,08	32.1	671	2201	2,36	36.4	744	2441
						N550	2,51	38.7	765	2510	2,68	41.4	815	2674
						N160	2,48	38.3	719	2359	2,79	43.1	791	2595
						N560	2,76	42.6	736	2415	3,12	48.1	821	2694
						N165	2,85	44.0	771	2530	3,09	47.7	831	2726
9,1	140	HPBT	Sierra	79,0	3.110	N150	2,35	36.3	703	2306	2,54	39.1	765	2511
						N550	2,58	39.8	749	2457	2,73	42.1	806	2644
						N160	2,81	43.4	759	2490	3,03	46.7	819	2687
						N560	2,93	45.2	779	2556	3,13	48.3	844	2770
						N165	3,00	46.3	766	2513	3,24	50.0	834	2735
9,3	144	FMJBT	Lapua	79,0	3.110	N150	2,04	31.5	659	2163	2,40	37.0	768	2520
						N160	2,64	40.7	717	2352	2,85	44.0	816	2677
						N560	2,91	44.8	756	2479	3,15	48.6	850	2789
						N165	2,70	41.7	720	2362	3,18	49.1	837	2746
						N170	3,08	47.5	715	2346	3,41C	52.6C	815	2674
						N570	3,11	48.0	750	2461	3,22F	49.7F	785	2575
10,0	155	HPBT	Sierra	79,0	3.110	N150	2,10	32.4	653	2142	2,33	36.0	711	2331
						N550	2,36	36.4	689	2260	2,60	40.1	746	2447
						N160	2,64	40.7	698	2290	2,97	45.9	769	2522
						N560	2,66	41.0	702	2303	2,93	45.2	779	2556
						N165	2,75	42.4	690	2264	3,08	47.6	769	2522
						N170	2,90	44.7	677	2221	3,32C	51.2C	779	2555
10,1	156	Mega	Lapua	73,0	2.874	N165	2,74	42.3	677	2222	3,17	49.0	755	2478
						N560	2,72	42.0	685	2248	3,11	48.0	773	2537
						N170	3,03	46.8	682	2238	3,32C	51.2C	746	2447
						N570	3,02	46.6	730	2395	3,20F	49.4F	774	2539

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

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

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

Test barrel: Sauer STR 200
Primers: Large Rifle
Cases: Lapua, trim-to length 54,80 mm (2.157")

WARNING: **This reloading data is intended to use at modern rifles in good condition such as Sauer, Sako or Blaser chambered to 6,5 x 55 SKAN or 6,5 x 55 SE**
WARNING: **DO NOT USE with the Krag-Jörgensen, Mauser M1896 or similar rifles. This data has max loads set at pressure of 380 MPa!**
NOTE: **Data contains velocity information for standard barrel lengths of Sauer STR200 rifles**

Bullet						**Powder**	**Starting load**				**Maximum load**			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity Barrel length 670 mm		**Weight**		**Velocity** Barrel length 670 mm	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	**[g]**	**[grs]**	**[m/s]**	**[fps]**
6,5	00	Scenar GB504	Lapua	75,0	2.953	N530	2,07	31.9	800	2625	2,54	39.2	951	3120
						N135	2,18	33.6	800	2625	2,44	37.7	889	2917
						N140	2,35	36.3	800	2625	2,64	40.7	915	3002
						N540	2,40	37.0	800	2625	2,70	41.7	924	3031
						N150	2,42	37.3	800	2625	2,69	41.5	870	2854
						N550	2,60	40.1	800	2625	2,97	45.8	938	3077
						N160	2,80	43.2	800	2625	3,01	46.5	928	3045

Bullet	7,0 g / 108 gr				Lapua GB464 Scenar				C.O.L. 80 mm / 3.150 inch							
Powder	**Starting load**								**Maximum load**							
Type	Weight		Velocity, barrel length [mm]						**Weight**		**Velocity, barrel length [mm]**					
			670		700		740				**670**		**700**		**740**	
	[g]	[grs]	[m/s]	[fps]	[m/s]	[fps]	[m/s]	[fps]	**[g]**	**[grs]**	**[m/s]**	**[fps]**	**[m/s]**	**[fps]**	**[m/s]**	**[fps]**
N140	2,32	35.8	796	2610	804	2639	816	2677	2,70	41.7	890	2921	900	2953	913	2995
N540	2,66	41.1	842	2762	852	2795	865	2838	2,95	45.5	942	3091	953	3128	968	3176
N150	2,39	36.9	800	2624	809	2654	821	2694	2,78	42.9	898	2947	908	2980	922	3025
N550	2,80	43.2	849	2785	858	2815	870	2854	3,04	46.9	996	3268	948	3109	961	3153
N160	2,81	43.4	837	2745	844	2769	854	2802	3,16	48.8	929	3047	937	3074	948	3110
N560	3,14	48.5	831	2726	839	2753	850	2789	3,50	54.0	949	3114	959	3146	972	3189

Bullet	7,8 g / 120 gr				Lapua GB547 Scenar-L				C.O.L. 77 mm / 3.031 inch							
Powder	**Starting load**								**Maximum load**							
Type	Weight		Velocity, barrel length [mm]						**Weight**		**Velocity, barrel length [mm]**					
			670		700		740				**670**		**700**		**740**	
	[g]	[grs]	[m/s]	[fps]	[m/s]	[fps]	[m/s]	[fps]	**[g]**	**[grs]**	**[m/s]**	**[fps]**	**[m/s]**	**[fps]**	**[m/s]**	**[fps]**
N135	2,08	32.1	739	2425	744	2441	752	2467	2,43	37.5	829	2720	834	2736	842	2762
N140	2,18	33.6	761	2497	767	2516	774	2539	2,59	40.0	844	2769	849	2785	856	2808
N540	2,32	35.8	800	2625	801	2628	807	2648	2,81	43.4	890	2920	898	2946	907	2976
N150	2,31	35.6	751	2464	754	2474	761	2497	2,65	40.9	841	2759	848	2782	856	2808
N550	2,62	40.4	816	2677	820	2690	827	2713	2,95	45.5	894	2933	904	2966	917	3009
N160	2,84	43.8	772	2533	784	2572	791	2595	3,07	47.4	857	2812	874	2867	899	2949
N560	3,03	46.8	810	2657	820	2690	828	2717	3,32	51.2	901	2956	916	3005	932	3058

Bullet	8,0 g / 123 gr				Lapua GB489 Scenar				C.O.L. 80 mm / 3.150 inch							
Powder	**Starting load**								**Maximum load**							
Type	Weight		Velocity, barrel length [mm]						**Weight**		**Velocity, barrel length [mm]**					
			670		700		740				**670**		**700**		**740**	
	[g]	[grs]	[m/s]	[fps]	[m/s]	[fps]	[m/s]	[fps]	**[g]**	**[grs]**	**[m/s]**	**[fps]**	**[m/s]**	**[fps]**	**[m/s]**	**[fps]**
N140	2,20	34.0	750	2462	755	2477	761	2497	2,55	39.4	833	2734	838	2750	845	2772
N540	2,47	38.1	788	2586	795	2607	803	2635	2,79	43.1	881	2892	889	2915	898	2946
N150	2,24	34.6	741	2432	748	2454	757	2484	2,60	40.1	830	2724	838	2749	848	2782
N550	2,67	41.2	805	2641	816	2676	830	2723	2,94	45.4	883	2895	894	2934	910	2986
N160	2,71	41.8	763	2502	779	2557	802	2631	3,02	46.6	845	2773	864	2835	889	2917
N560	3,04	46.9	801	2628	814	2669	830	2723	3,27	50.5	888	2913	902	2958	920	3018

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

Bullet	8,8 g / 136 gr				Lapua GB546 Scenar-L				C.O.L. 80 mm / 3.150 inch							
Powder	**Starting load**								**Maximum load**							
Type	Weight		Velocity, barrel length [mm]						**Weight**		**Velocity, barrel length [mm]**					
			670		700		740				**670**		**700**		**740**	
	[g]	[grs]	[m/s]	[fps]	[m/s]	[fps]	[m/s]	[fps]	**[g]**	**[grs]**	**[m/s]**	**[fps]**	**[m/s]**	**[fps]**	**[m/s]**	**[fps]**
N540	2,39	36.9	736	2415	742	2434	749	2457	2,72	42,0	841	2759	846	2776	852	2795
N150	2,29	35.3	711	2333	718	2356	726	2382	2,58	39,8	821	2694	824	2703	830	2723
N550	2,57	39.7	757	2484	763	2503	769	2523	2,80	43,2	856	2808	862	2828	870	2854
N160	2,73	42.1	741	2431	748	2454	755	2477	3,05	47,1	852	2795	857	2812	865	2838
N560	2,9	44.8	786	2579	794	2605	801	2628	3,20	49,4	884	2900	892	2927	901	2956
N165	3,02	46.6	779	2556	787	2582	795	2608	3,30C	50.9C	868	2848	876	2874	885	2904

Bullet	9,0 g / 139 gr				Lapua GB458 Scenar				C.O.L. 80 mm / 3.150 inch							
Powder	**Starting load**								**Maximum load**							
Type	Weight		Velocity, barrel length [mm]						**Weight**		**Velocity, barrel length [mm]**					
			670		700		740				**670**		**700**		**740**	
	[g]	[grs]	[m/s]	[fps]	[m/s]	[fps]	[m/s]	[fps]	**[g]**	**[grs]**	**[m/s]**	**[fps]**	**[m/s]**	**[fps]**	**[m/s]**	**[fps]**
N150	2,12	32.7	696	2284	699	2295	704	2310	2,40	37.0	781	2563	785	2575	790	2592
N550	2,37	36.6	738	2421	743	2438	750	2461	2,72	42.0	825	2705	830	2724	838	2749
N160	2,41	37.2	723	2373	730	2395	735	2411	2,84	43.8	817	2679	824	2704	830	2723
N560	2,87	44.3	771	2529	776	2546	783	2569	3,18	49.1	866	2842	872	2862	880	2887
N165	2,86	44.1	758	2488	765	2508	773	2536	3,25	50.2	847	2777	854	2801	863	2831

C = Compressed load

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/Name	Mfg	C.O.L.		Type	Weight		Velocity		**Weight**		**Velocity**	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	**[g]**	**[grs]**	**[m/s]**	**[fps]**
6,5	100	FMJ	Lapua	70	2.756	N150	2,71	41.8	872	2861	3,22	49.7	973	3192
						N550	3,09	47.7	895	2936	3,48	53.7	1019	3343
						N160	3,08	47.5	855	2805	3,77	58.2	1002	3287
6,5	100	Scenar	Lapua	75	2.953	N150	2,79	43.1	910	2986	3,23	49.8	999	3278
						N550	3,08	47.5	892	2927	3,48	53.7	1019	3343
						N160	3,10	47.8	865	2838	3,77	58.2	1004	3294
7,0	108	Scenar	Lapua	79,0	3.110	N550	2,97	45.8	920	3018	3,39	52.3	1027	3368
						N160	3,08	47.5	906	2972	3,49	53.9	1008	3308
						N560	3,47	53.5	927	3041	3,81	58.9	1031	3384
						N165	3,52	54.3	922	3025	4,04	62.4	1042	3419
7,0	108	Scenar SJ	Lapua	79,0	3.110	N160	3,11	48.0	883	2897	3,73	57.6	1002	3287
						N560	3,51	54.2	911	2989	3,85	59.5	1023	3357
						N165	3,61	55.7	919	3015	4,10	63.2	1033	3391
8,0	123	Scenar	Lapua	79,0	3.110	N160	2,59	40.0	795	2608	3,29	50.8	925	3035
						N165	3,03	46.8	830	2723	3,65	56.4	947	3106
						N560	3,28	50.6	867	2844	3,65	56.3	963	3158
7,8	120	Scenar-L	Lapua	79,0	3.110	N550	2,83	43.7	822	2697	3,26	50.3	940	3084
						N160	2,86	44.1	801	2628	3,53	54.5	930	3051
						N560	3,32	51.2	831	2726	3,73	57.6	956	3136
						N165	3,40	52.5	834	2736	3,80	58.6	942	3091
8,0	23	Scenar SJ	Lapua	79,0	3.110	N160	2,94	45.4	833	2733	3,38	52.2	935	3068
						N560	3,37	52.0	872	2861	3,77	58.2	981	3218
						N165	3,35	51.7	859	2818	3,98	61.5	971	3186
8,8	136	Scenar-L	Lapua	79,0	3.110	N550	2,75	42.4	770	2526	3,13	48.3	879	2884
						N160	2,83	43.7	754	2474	3,38	52.2	868	2848
						N560	3,22	49.7	795	2608	3,62	55.9	935	3068
						N165	3,26	50.3	783	2569	3,65	56.3	892	2927
9,0	139	Scenar	Lapua	79,0	3.110	N160	2,80	43.2	772	2533	3,06	47.2	835	2740
						N560	3,12	48.1	793	2602	3,63	56.0	919	3015
9,0	139	Scenar SJ	Lapua	79,0	3.110	N160	2,60	40.1	758	2487	3,19	49.2	869	2851
						N560	3,22	49.7	812	2664	3,53	54.5	904	2967
						N165	3,02	46.6	793	2602	3,62	55.9	899	2948

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

6,5 - 284 Norma cont.

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
9,1	140	Naturalis	Lapua	74,7	2.941	N160	2,87	44.3	753	2470	3,20	49.4	824	2703
						N165	3,17	48.9	768	2520	3,55	54.8	864	2835
						N560	3,21	49.5	786	2579	3,55	54.8	875	2871
9,3	144	FMJBT	Lapua	79,0	3.110	N160	2,80	43.2	783	2569	3,14	48.5	841	2759
						N560	3,18	49.1	802	2631	3,43	52.9	876	2874
						N165	2,90	44.7	766	2513	3,61	55.7	875	2871
						N570	3,54	54.6	798	2618	3,70F	57.1F	830	2723
10,1	156	Mega	Lapua	74,0	2.913	N560	3,09	47.7	755	2477	3,45	53.2	841	2759
						N570	3,46	53.4	781	2562	3,65	56.3	808	2651

F = Case full

.270 WSM

Test barrel: 520 mm (20½"), 1 in 9" twist
Primers: Large Rifle Magnum
Cases: Winchester, trim-to length 53,10 mm (2.091")

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
5,8	90	HP	Sierra	68,6	2.701	N160	4,00	61.7	1021	3350	4,47	69.0	1130	3707
						N560	4,39	67.7	1020	3346	4,78	73.8	1135	3724
						N165	4,59	70.8	1041	3415	4,75F	73.3F	1083	3553
9,1	140	XFB	Barnes	71,0	2.795	N160	3,20	49.4	800	2625	3,71	57.2	899	2949
						N560	3,49	53.9	806	2644	3,93	60.6	918	3012
						N165	3,75	57.9	832	2730	4,10	63.3	913	2995
10,4	60	Partition	Nosler	71,0	2.795	N160	3,20	49.4	737	2418	3,47	53.5	825	2707
						N560	3,36	51.8	774	2539	3,82	58.9	873	2864
						N165	3,30	50.9	769	2523	3,90	60.2	863	2831

F = Case full

.270 Winchester

Test barrel: 620 mm (24½"), 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/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
6,5	100	Spitzer	Speer	80,0	3.150	N150	2,88	44.5	898	2945	3,42	52.8	998	3273
						N160	3,80	58.6	953	3127	4,27C	65.8C	1057	3468
						N165	4,00	61.7	966	3170	4,53C	69.9C	1070	3509
7,5	115	Match King	Sierra	83,5	3.287	N150	2,56	39.5	833	2733	2,94	45.4	924	3031
						N550	2,87	44.3	871	2858	3,18	49.1	954	3130
						N160	2,98	46.0	844	2769	3,54	54.6	958	3143
8,4	130	SP	Remington	82,0	3.228	N160	3,34	51.5	847	2779	3,76	58.0	940	3083
						N560	3,64	56.2	876	2873	3,97	61.3	955	3132
8,4	130	SPBT	Speer	83,0	3.268	N165	3,54	54.6	850	2787	4,02	62.0	942	3089
8,8	135	HPBT	Sierra	83,0	3.268	N160	2,90	44.8	822	2697	3,66	56.5	929	3048
						N165	3,65	56.3	844	2769	3,90	60.2	927	3041
						N560	3,62	55.9	876	2874	3,91	60.3	957	3140
9,1	140	A-Frame	Swift	82,0	3.228	N550	2,63	40.6	758	2487	3,08	47.5	859	2818
						N560	3,12	48.1	789	2589	3,60	55.6	888	2913
						N165	3,05	47.1	790	2592	3,59	55.4	867	2844
9,1	140	TSX	Barnes	81,5	3.209	N550	2,44	37.7	737	2418	3,01	46.5	860	2822
						N560	3,12	48.1	798	2618	3,48	53.7	882	2894
						N165	2,90	44.8	772	2533	3,42	52.8	862	2828
9,7	150	Ballistic Tip	Nosler	83,5	3.287	N160	2,92	45.1	730	2395	3,39	52.3	842	2762
						N560	3,13	48.3	742	2434	3,66	56.5	870	2854
						N165	3,10	47.8	734	2408	3,74	57.7	870	2854
9,7	150	TSX	Barnes	82,0	3.228	N550	2,44	37.7	712	2336	2,93	45.2	821	2694
						N560	2,90	44.8	746	2448	3,36	51.9	847	2779
						N165	2,71	41.8	713	2339	3,27	50.5	819	2687

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

.270 Winchester cont.

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
10,4	160	Partition	Nosler	84,6	3.331	N160	2,50	38.6	699	2293	2,89	44.6	781	2562
						N165	2,88	44.4	735	2411	3,31	51.1	811	2661
						N560	3,01	46.5	745	2444	3,42	52.8	847	2779

C = Compressed load

.270 Weatherby Magnum

Test barrel: 650 mm (25½"), 1 in 12 twist
Primers: Large Rifle Magnum
Cases: Remington, trim-to length 64,30 mm (2.531")

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
6,5	100	PSP	Remington	79,0	3.110	N550	4,33	66.8	1037	3401	4,64	71.7	1117	3666
						N160	4,60	71.0	1043	3421	4,85	74.9	1108	3634
						N165	5,08	78.4	1045	3428	5,38	83.0	1115	3658
8,5	130	PSPCL	Remington	82,2	3.236	N160	4,31	66.5	939	3080	4,61	71.1	1001	3284
						N165	4,62	71.3	931	3055	4,93	76.0	997	3270
						N560	4,71	72.7	947	3108	4,98	76.9	1004	3294
8,7	135	HPBT	Sierra	83,0	3.268	N160	4,21	65.0	903	2964	4,43	68.3	965	3167
						N165	4,55	70.2	923	3029	4,70	72.5	989	3244
						N560	4,61	71.2	956	3137	4,81	74.2	1013	3323
9,7	150	Partition	Nosler	82,5	3.248	N165	4,34	67.0	877	2876	4,68	72.2	936	3072
						N560	4,38	67.6	900	2954	4,60	71.0	955	3134
						N170	4,76	73.4	886	2906	5,11	78.8	955	3134

7 mm-08 Remington

Test barrel: 610 mm (24"), 1 in 9½" twist
Primers: Large Rifle
Cases: Lapua, .308 Win. necked down, trim-to length 51,5 mm (2.028")

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	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	SP	Sierra	69,5	2.736	N135	2,33	36.0	822	2697	2,66	41.1	915	3002
						N140	2,64	40.7	865	2838	2,90	44.8	934	3064
						N150	2,71	41.8	861	2825	2,97	45.8	936	3071
						N540	2,68	41.4	867	2844	2,95	45.5	956	3136
8,4	130	HPBT	Sierra	70,6	2.780	N135	2,30	35.5	796	2612	2,48	38.3	855	2805
						N140	2,49	38.4	812	2664	2,71	41.8	882	2894
						N150	2,62	40.4	825	2707	2,85	44.0	899	2949
						N540	2,63	40.6	850	2789	2,83	43.7	918	3012
9,1	140	Ballistic Tip	Nosler	69,6	2.740	N135	2,21	34.1	759	2490	2,42	37.3	826	2710
						N140	2,40	37.0	773	2536	2,66	41.1	752	2467
						N150	2,55	39.4	791	2595	2,79	43.1	861	2825
						N540	2,54	39.2	801	2628	2,77	42.7	877	2877
9,7	150	Scenar-L	Lapua	71,0	2.795	N140	2,22	34.3	723	2372	2,44	37.7	792	2598
						N540	2,31	35.6	750	2461	2,54	39.2	823	2700
						N150	2,23	34.4	731	2398	2,47	38.1	794	2605
						N550	2,44	37.7	746	2448	2,71	41.8	833	2733
9,7	150	TSX	Barnes	69,5	2.736	N540	2,42	37.3	741	2431	2,66	41.1	824	2703
						N550	2,60	40.1	740	2428	2,88	44.4	825	2707
						N160	2,85	44.0	755	2477	3,05	47.1	807	2648
9,7	150	MatchKing	Sierra	69,5	2.736	N140	2,26	34.9	728	2388	2,57	39.7	813	2667
						N150	2,36	36.4	737	2418	2,69	41.5	824	2703
						N540	2,44	37.7	762	2500	2,69	41.5	843	2766
						N550	2,65	40.9	769	2523	2,88	44.4	851	2792
10,4	160	Naturalis	Lapua	69,5	2.736	N540	2,16	33.3	693	2274	2,38	36.7	761	2497
						N150	2,04	31.5	659	2162	2,31	35.6	730	2395
						N550	2,32	35.8	697	2287	2,55	39.4	766	2513
						N160	2,49	38.4	704	2310	2,74	42.3	767	2516

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

7 mm-08 Remington cont.

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
10,4	160	SBT	Sierra	70,5	2.776	N540	2,24	34.6	717	2352	2,53	39.0	793	2602
						N150	2,19	33.8	694	2277	2,49	38.4	766	2513
						N550	2,43	37.5	716	2349	2,71	41.8	802	2631
						N160	2,66	41.1	723	2372	2,97	45.8	806	2644
10,9	168	HPBT	Sierra	70,9	2.791	N540	2,34	36.1	723	2372	2,59	40.0	794	2605
						N150	2,21	34.1	680	2231	2,58	39.8	778	2552
						N550	2,55	39.4	729	2392	2,77	42.7	798	2618
						N160	2,85	44.0	753	2470	2,95	45.5	781	2562
11,3	175	TSX	Barnes	69,5	2.736	N150	2,03	31.3	606	1988	2,34	36.1	688	2257
						N550	2,38	36.7	650	2133	2,69	41.5	736	2415
						N560	2,79	43.1	675	2215	3,12	48.1	752	2467
11,7	181	Scenar-L	Lapua	71,0	2.795	N140	1,96	30.2	630	2067	2,22	34.3	701	2300
						N150	2,09	32.3	650	2133	2,25	34.7	706	2316
						N550	2,30	35.5	676	2218	2,56	39.5	749	2457
						N160	2,49	38.4	689	2260	2,85	44.0	761	2497

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/Name	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	Spitzer	Sierra	76,5	3.012	N135	2,67	41.1	814	2670	2,87	44.2	880	2887
						N140	2,82	43.5	824	2704	3,06	47.2	897	2942
						N150	2,85	44.0	828	2717	3,09	47.6	898	2946
9,1	140	Ballistic Tip	Nosler	77,5	3.051	N140	2,58	39.7	736	2415	2,82	43.5	802	2630
						N150	2,65	40.9	747	2451	2,90	44.8	810	2657
10,4	160	SPBT	Sierra	77,5	3.051	N150	2,50	38.6	691	2267	2,76	42.7	754	2474
						N160	3,04	47.0	726	2381	3,26	50.3	793	2603
11,3	175	Mag-Tip	Speer	77,0	3.031	N160	2,76	42.5	659	2162	3,06	47.1	726	2383
						N165	2,94	45.4	666	2184	3,32	51.2	740	2429

7 x 57R

Test barrel: 550 mm (22"), 1 in 9½" twist
Primers: Large Rifle
Cases: RWS, trim-to length 56,80 mm (2.236")

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	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	Spitzer	Sierra	76,5	3.012	N135	2,58	39.7	785	2574	2,79	43.1	857	2812
						N140	2,72	41.9	791	2594	2,97	45.8	870	2855
						N150	2,74	42.3	797	2613	3,00	46.3	873	2863
9,1	140	Ballistic Tip	Nosler	77,5	3.051	N140	2,47	38.1	707	2320	2,74	42.2	777	2549
						N150	2,53	39.0	718	2354	2,81	43.4	787	2581
10,4	160	Naturalis	Lapua	75,0	2.953	N140	2,17	33.5	643	2110	2,41	37.2	701	2300
						N150	2,08	32.1	603	1978	2,47	38.1	702	2303
						N540	2,26	34.9	645	2116	2,53	39.0	715	2346
10,4	160	SPBT	Sierra	77,5	3.051	N150	2,39	36.8	662	2171	2,66	41.0	731	2397
						N160	2,93	45.2	693	2272	3,19	49.3	774	2539
11,3	175	Mag-Tip	Speer	77,0	3.031	N160	2,63	40.6	629	2065	2,95	45.4	701	2298
						N165	2,78	42.8	631	2072	3,17	48.9	711	2333

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

7 x 64

Test barrel: 600 mm (23½"), 1 in 10" twist
Primers: Large Rifle
Cases: Norma, trim-to length 63,80 mm (2.512")

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	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	SP	Hornady	80,4	3.165	N140	2,95	45.5	846	2776	3,28	50.6	934	3064
						N150	3,04	46.9	818	2684	3,32	51.2	934	3064
						N160	3,45	53.2	859	2818	3,62	55.9	902	2959
9,0	139	BTSP	Hornady	83,5	3.287	N150	2,85	44.0	803	2635	3,17	48.9	874	2867
						N550	3,08	47.5	818	2684	3,39	52.3	902	2959
						N160	3,33	51.4	819	2687	3,63	56.0	873	2864
10,4	160	Naturalis	Lapua	84,0	3.307	N160	2,65	40.9	713	2339	3,16	48.8	780	2559
						N560	3,20	49.4	744	2441	3,45	53.2	816	2677
10,4	160	Partition	Nosler	84,0	3.307	N560	3,31	51.1	767	2516	3,63	56.0	841	2759
						N165	3,39	52.3	744	2441	3,60	55.5	844	2769
10,4	160	Accubond	Nosler	84,0	3.307	N160	2,94	45.4	770	2526	3,21	49.5	828	2717
						N560	3,21	49.5	768	2520	3,48	53.7	842	2762
						N165	2,85	44.0	792	2598	3,55	54.8	844	2769
11,3	175	Grand Slam	Speer	82,5	3.248	N160	2,83	43.7	707	2320	3,24	50.0	786	2579
						N165	3,18	49.1	731	2398	3,48	53.7	797	2615
						N560	3,26	50.3	752	2467	3,47	53.6	805	2641

7 mm WSM

Test barrel: 660 mm (26"), 1 in 9.5" twist
Primers: Large Rifle Magnum
Cases: Winchester, trim-to length 53,15 mm (2.093")

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
7,1	110	TNT HP	Speer	71,7	2.823	N150	3,44	53.1	965	3166	3,95	61.0	1062	3484
						N550	3,88	59.9	987	3238	4,24	65.4	1086	3563
						N160	4,19	64.7	986	3235	4,62	71.3	1069	3507
9,1	140	Partition	Nosler	71,9	2.831	N160	3,46	53.4	855	2805	4,00	61.7	957	3140
						N165	4,06	62.7	885	2904	4,50	69.4	970	3182
						N560	3,80	58.6	876	2874	4,34	67.0	979	3212
10,0	154	Interbond	Hornady	71,9	2.831	N160	3,39	52.3	819	2687	3,92	60.5	912	2992
						N165	3,88	59.9	842	2762	4,51	69.6	941	3087
						N560	3,70	57.1	841	2759	4,25	65.6	946	3104
10,4	160	SBT	Sierra	72,4	2.850	N160	3,38	52.2	796	2612	3,93	60.6	892	2927
						N165	3,91	60.3	834	2736	4,31	66.5	914	2999
						N560	3,70	57.1	827	2713	4,15	64.0	922	3025
10,4	160	Naturalis	Lapua	71,4	2.811	N160	2,93	45.2	782	2566	3,56	54.9	843	2766
						N165	3,34	51.5	763	2503	3,90	60.2	859	2818
						N560	3,38	52.2	779	2556	3,85	59.4	878	2881

7 mm 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 cause excessive chamber pressure and must not be used!

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
9,1	140	A-Frame	Swift	83,0	3.268	N160	3,45	53.2	828	2717	4,03	62.2	935	3068
						N165	3,88	59.9	863	2831	4,37	67.4	955	3133
						N560	3,84	59.3	852	2795	4,36	67.3	966	3169
9,7	150	Scenar-L	Lapua	83,5	3.287	N160	3,27	50.5	794	2605	3,87	59.7	893	2930
						N560	3,86	59.6	847	2779	4,32	66.7	951	3120
						N165	3,72	57.4	820	2690	4,28	66.1	925	3035
9,7	150	Partition	Nosler	83,5	3.287	N160	3,53	54.5	824	2703	3,94	60.8	912	2992
						N560	3,89	60.0	851	2792	4,35	67.1	948	3110
						N165	3,82	59.0	847	2779	4,32	66.7	931	3054

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

7 mm Remington Magnum cont.

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
10,4	160	Naturalis	Lapua	81,8	3.220	N160	3,15	48.6	753	2470	3,76	58.0	859	2818
						N560	3,67	56.6	843	2766	4,03	62.2	943	3094
						N165	3,65	56.3	786	2579	4,08	63.0	868	2848
10,4	160	Grand Slam	Speer	82,0	3.228	N160	3,31	51.1	784	2572	3,99	61.6	880	2887
						N560	3,91	60.3	823	2700	4,45	68.7	925	3035
						N165	3,83	59.1	812	2664	4,41	68.1	909	2982
10,9	168	HPBT	Sierra	83,5	3.287	N160	3,26	50.3	767	2516	3,86	59.6	862	2828
						N560	3,75	57.9	811	2661	4,26	65.7	903	2963
						N165	3,61	55.7	788	2585	4,14	63.9	853	2799
						N170	3,78	58.3	778	2552	4,52	69.8	887	2910
11,3	175	SBT	Sierra	83,5	3.287	N160	3,09	47.7	737	2418	3,64	56.2	826	2710
						N560	3,66	56.5	791	2595	4,18	64.5	885	2904
						N165	3,41	52.6	746	2448	4,06	62.7	854	2802
						N170	3,73	57.6	761	2497	4,35	67.1	862	2828
11,7	180	Scenar-L	Lapua	83,5	3.287	N160	2,78	42.9	678	2224	3,24	50.0	765	2510
						N560	3,10	47.8	728	2388	3,45	53.2	808	2651
						N165	2,87	44.3	679	2228	3,48	53.7	783	2569
						N170	3,12	48.1	678	2224	3,79	58.5	806	2644

7 mm Weatherby Magnum

Test barrel: 660 mm (26”),1 in 9” twist
Primers: Large Rifle Magnum
Cases: Weatherby, trim-to length 64,50 mm (2.539”)

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
6,5	100	HP	Hornady	81,5	3.209	N160	4,76	73.5	1071	3512	5,10	78.7	1149	3770
						N560	4,98	76.8	1085	3561	5,30	81.8	1170	3839
7,8	120	Spitzer	Sierra	82,5	3.248	N160	4,52	69.8	989	3245	4,83	74.5	1057	3468
						N165	4,89	75.5	1003	3290	5,20	80.2	1072	3517
						N560	4,79	73.9	1009	3310	5,07	78.2	1079	3540
10,4	160	Spitzer	Sierra	82,5	3.248	N160	4,09	63.1	853	2799	4,39	67.7	912	2992
						N165	4,41	68.0	864	2834	4,69	72.4	924	3031
						N560	4,26	65.7	868	2846	4,53	69.9	927	3041
10,9	168	HPBT	Sierra	81,5	3.209	N160	4,00	61.7	832	2730	4,23	65.3	879	2884
						N165	4,31	66.5	840	2755	4,51	69.6	888	2913
						N560	4,17	64.3	845	2771	4,42	68.2	909	2982

7 mm RUM

Test barrel: 660 mm (26”), 1 in 9” twist
Primers: Large Rifle Magnum
Cases: Remington, trim-to length 72.14 mm (2.840”)

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	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	Ballistic Tip	Nosler	88,5	3.484	N160	5,39	83.2	1015	3330	5,83	90.0	1107	3632
						N560	5,76	88.9	1020	3346	6,15	94.9	1123	3684
						N165	5,59	86.3	1046	3432	6,06	93.5	1143	3750
10,4	160	Naturalis	Lapua	91,0	3.583	N560	3,30	50.9	751	2464	4,54	70.1	904	2966
						N170	3,64	56.2	758	2487	4,72	72.8	890	2920
						N570	3,55	54.8	792	2598	4,95	76.4	934	3064
10,9	168	Match King	Sierra	91,5	3.602	N560	5,07	78.2	897	2943	5,51	85.0	978	3209
						N170	5,61	86.6	918	3012	5,96	92.0	997	3271
						N570	5,59	86.3	912	2992	6,07	93.7	1003	3291
11,3	175	A-Frame	Swift	91,5	3.602	N560	4,82	74.4	853	2799	5,27	81.3	935	3068
						N170	5,26	81.2	880	2887	5,51	85.0	914	2999
						N570	5,31	81.9	873	2864	5,82	89.8	955	3133

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

.30 Carbine

Test barrel: 460 mm (18”), 1 in 10” twis
Primers: Small Rifle
Cases: Federal, trim-to length 32,60 mm (1.283”)

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
6,5	100	Plinker	Speer	42,5	1.673	N110	0,88	13.6	610	2001	0,97	15.0	669	2196
7,1	110	Spire Point	Speer	42,5	1.673	N110	0,79	12.1	545	1786	0,91	14.0	605	1983

.300 AAC Blackout

Test barrel: 356 mm (14”), 1 in 8” twist
Primers: Small Rifle
Cases: Lapua 221 Rem. Fireball, trim-to length 34,60 mm (1.362”)

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	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	50,2	1.976	N105	0,67	10.3	480	1575	0,77	11.9	541	1775
						N110	0,94	14.5	566	1857	1,03	15.9	607	1991
13,0	200	FMJBT	Lapua	57,0	2.244	N110	0,54	8.3	319	1047	0,79	12.2	436	1430
						N120	0,66	10.2	316	1037	1,02	15.7	459	1506

.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/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
6,8	105	HP	Lapua	64,5	2.539	N120	1,48	22.8	692	2271	1,73	26.8	781	2562
						N130	1,70	26.3	710	2329	1,95	30.1	800	2623
						N133	1,86	28.7	730	2395	2,19	33.8	833	2732
8,5	130	FSP	Speer	64,7	2.547	N120	1,41	21.7	617	2024	1,67	25.8	705	2314
						N130	1,59	24.5	641	2103	1,84	28.4	728	2389
						N133	1,71	26.4	653	2143	1,97	30.4	741	2432
						N135	1,80	27.7	649	2129	2,08	32.0	737	2419
9,7	150	FSP	Speer	64,5	2.539	N120	1,23	19.1	519	1701	1,46	22.5	593	1946
						N130	1,43	22.1	558	1831	1,65	25.4	631	2070
						N133	1,48	22.8	560	1839	1,72	26.5	636	2086
						N135	1,71	26.4	587	1927	1,93	29.7	660	2165
						N140	1,85	28.5	596	1956	2,06	31.8	672	2203
11,0	170	FSP	Speer	64,5	2.539	N130	1,34	20.7	516	1692	1,60	24.7	598	1962
						N133	1,42	21.9	511	1678	1,67	25.8	589	1931
						N135	1,58	24.4	536	1759	1,80	27.7	604	1981
						N140	1,66	25.5	533	1747	1,89	29.2	610	2002

.300 Savage

Test barrel: 600 mm (23½”) 1 in 12” twist
Primers: Large Rifle
Cases: Remington, trim to-length 47,30 mm (1.862”)

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
6,5	100	HP	Lapua	62,5	2.461	N120	2,19	33.9	878	2881	2,45	37.8	975	3199
						N130	2,41	37.1	912	2993	2,59	40.0	986	3235
						N133	2,59	39.9	894	2932	2,85	44.0	973	3192
8,1	125	TNT-HP	Speer	65,5	2.579	N120	2,06	31.8	764	2507	2,27	35.0	837	2746
						N130	2,21	34.1	794	2606	2,42	37.3	863	2831
						N133	2,53	39.1	822	2698	2,71	41.8	884	2900
9,7	150	Mega	Lapua	61,5	2.421	N130	1,89	29.2	684	2243	2,18	33.6	751	2464
						N135	2,24	34.6	706	2315	2,50	38.6	772	2533
						N140	2,44	37.6	719	2360	2,72	42.0	793	2602
10,7	165	SBT	Sierra	66,0	2.598	N133	2,20	33.9	690	2264	2,42	37.3	759	2490
						N135	2,35	36.2	700	2297	2,53	39.0	764	2507
						N140	2,46	37.9	713	2341	2,68	41.4	787	2582

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

.300 Savage cont.

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	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	Mega	Lapua	66,0	2.598	N135	2,15	33.2	631	2072	2,44	37.6	705	2313
						N140	2,30	35.5	649	2131	2,59	40.0	715	2346
						N540	2,36	36.4	644	2113	2,66	41.0	720	2362

.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/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
3,7	57	ALS[1)]	Lapua	67,0	2.638	N110	1,78	27.5	1061	3481	2,24	34.5	1217	3993
6,5	100	HPCE	Lapua	67,0	2.638	N110	1,32	20.4	711	2333	1,80	27.8	870	2854
						N120	1,98	30.6	812	2663	2,33	36.0	930	3051
						N130	2,18	33.7	852	2794	2,60	40.1	976	3203
						N133	2,63	40.6	918	3012	2,95F	45.5F	1023	3356
						N530	2,68	41.4	915	3002	3,01	46.5	1044	3425
						N135	2,47	38.1	865	2837	2,99	46.1	992	3255
7,1	110	HP	Sako	67,5	2.657	N120	2,32	35.8	844	2769	2,67	41.2	962	3157
						N130	2,52	38.9	862	2826	2,96	45.7	988	3242
						N133	2,73	42.1	874	2868	3,19	49.1	1009	3311
8,0	123	FMJ	Lapua	66,9	2.634	N120	2,08	32.1	812	2664	2,39	36.9	896	2940
						N130	2,26	34.9	782	2566	2,78	42.9	923	3028
						N133	2,62	40.4	858	2815	2,87	44.3	940	3084
						N530	2,59	40.0	850	2789	2,88	44.4	959	3146
						N135	2,72	42.0	830	2723	3,06F	47.2F	921	3022
8,1	125	Ballistic Tip	Nosler	70,0	2.756	N130	2,40	37.0	818	2684	2,79	43.0	935	3068
						N133	2,60	40.1	829	2721	3,00	46.3	951	3120
						N135	2,70	41.6	833	2732	3,17	48.9	958	3143
						N140	2,86	44.1	835	2739	3,23F	49.8F	936	3071
8,5	130	HP	Lapua	68,0	2.677	N135	2,58	39.7	782	2567	3,02	46.7	907	2975
						N140	2,75	42.4	786	2579	3,15	48.7	903	2963
9,7	150	Mega	Lapua	65,2	2.567	N135	2,35	36.3	747	2451	2,68	41.4	842	2762
						N140	2,35	36.3	715	2346	2,95	45.5	824	2703
						N540	2,64	40.7	726	2382	2,97	45.8	833	2733
9,7	150	SPBT	Sierra	70,0	2.756	N133	2,27	35.0	729	2391	2,86	44.1	863	2831
						N135	2,56	39.5	764	2505	2,96	45.7	871	2857
						N140	2,71	41.8	767	2516	3,05	47.1	858	2815
						N150	2,82	43.6	776	2545	3,23	49.9	878	2880
9,7	150	Lock Base	Lapua	70,0	2.756	N530	2,45	37.8	794	2605	2,76	42.6	892	2927
						N135	2,56	39.5	810	2657	2,83	43.7	885	2904
						N140	2,75	42.4	800	2625	2,90F	44.7F	853	2799
						N540	2,78	42.9	807	2648	3,00	46.3	901	2956
						N150	2,80	43.2	803	2635	2,93F	45.2F	835	2740
9,7	150	HPBT	Sierra	71,0	2.795	N140	2,62	40.4	752	2467	3,06	47.3	869	2851
						N540	2,71	41.8	758	2487	3,13	48.3	901	2956
						N150	2,74	42.2	776	2545	3,14C	48.4C	874	2869
						N550	2,88	44.5	772	2534	3,26F	50.3F	870	2855
10,0	155	Scenar	Lapua	71,0	2.795	N530	2,24	34.6	727	2385	2,66	41.0	844	2769
						N135	2,23	34.4	687	2254	2,64	40.7	804	2638
						N140	2,38	36.7	686	2251	2,81	43.4	807	2648
						N540	2,63	40.6	781	2562	2,91	44.9	884	2900
						N150	2,53	39.0	719	2359	3,03	46.8	818	2683
						N550	2,88	44.4	794	2605	3,25F	50.2F	901	2956
10,0	155	Scenar SJ	Lapua	71,0	2.795	N530	2,45	37.8	778	2552	2,69	41.5	867	2844
						N135	2,49	38.4	783	2569	2,72	42.0	861	2825
						N140	2,66	41.0	767	2516	2,95A	45.5A	855	2805
						N540	2,64	40.7	760	2494	3,05A	47.1A	870	2854
						N150	2,71	41.8	782	2566	3,05	47.1	867	2844
10,0	155	HPBT	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

LIGHT GREY TEXT BOX INDICATES MAXIMUM LOAD - USE WITH CAUTION!
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.308 Winchester cont.

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
						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	3,22C	49.7C	880	2888
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
10,7	165	TSX	Barnes	71,0	2.795	N140	2,45	37.8	702	2303	2,79	43.1	815	2674
						N150	2,52	38.9	715	2346	2,89	44.6	824	2703
						N550	2,71	41.8	726	2382	3,05	47.1	833	2733
10,9	167	Scenar	Lapua	71,0	2.795	N135	2,38	36.7	739	2425	2,59	40.0	813	2667
						N140	2,59	40.0	718	2356	2,85	44.0	801	2628
						N540	2,58	39.8	733	2405	2,85	44.0	811	2661
						N150	2,71	41.8	747	2451	2,90A	44.8A	836	2744
						N550	2,88	44.4	763	2503	3,17F	48.9F	836	2743
10,9	167	Scenar SJ	Lapua	71,0	2.795	N135	2,49	38.4	783	2569	2,72	42.0	865	2838
						N140	2,61	40.2	743	2437	2,80A	43.2A	828	2717
						N540	2,62	40.5	732	2401	3,00	46.3	837	2746
						N150	2,64	40.7	737	2418	2,97	45.8	828	2717
						N550	2,87	44.3	769	2523	3,22F	49.7F	870	2854
10,9	168	HPBT	Sierra	71,0	2.795	N135	2,47	38.1	747	2451	2,73	42.1	822	2697
						N140	2,35	36.2	685	2247	2,78	42.8	780	2558
						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
10,9	168	TSX	Barnes	71,0	2.795	N140	2,59	40.0	739	2425	2,86	44.1	812	2664
						N150	2,63	40.6	740	2428	2,91	44.9	814	2671
						N540	2,68	41.4	746	2448	2,94	45.4	838	2749
11,0	170	LockBase	Lapua	71,0	2.795	N135	2,42	37.4	710	2328	2,78	42.9	806	2645
						N140	2,56	39.5	715	2345	2,95A	45.5A	822	2696
						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	3,14	48.5	845	2772
11,0	170	Naturalis LR	Lapua	71,0	2,795	N140	2,54	39.2	744	2441	2,84	43.8	825	2707
						N150	2,67	41.2	760	2493	2,89	44.6	815	2674
						N550	2,78	42.9	737	2418	3,13F	48.3F	833	2733
11,3	175	Scenar-L	Lapua	71,0	2.795	N135	2,29	35.3	720	2362	2,50	38.6	786	2579
						N140	2,46	38.0	735	2411	2,68	41.4	803	2635
						N540	2,51	38.7	746	2448	2,75	42.4	822	2697
						N150	2,54	39.2	741	2431	2,73	42.1	804	2638
11,3	175	HPBT/VLD	Sierra/	71,0	2.795	N140	2,29	35.3	664	2177	2,68	41.4	762	2501
			Berger			N540	2,44	37.7	687	2253	2,79	43.1	788	2586
						N150	2,39	36.8	681	2236	2,82	43.5	784	2573
						N550	2,57	39.6	698	2290	2,97	45.8	802	2631
11,7	180	SP	Hornady	71,0	2.795	N135	2,33	36.0	661	2169	2,71	41.8	765	2510
						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
11,7	180	XFB	Barnes	71,0	2.795	N540	2,09	32.2	591	1938	2,55	39.3	715	2346
						N550	2,30	35.5	623	2043	2,75	42.4	734	2408
11,7	180	Naturalis	Lapua	68,1	2.681	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
						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
12,0	185	Mega	Lapua	67,5	2.657	N135	2,39	36.9	673	2208	2,57	39.7	731	2398
						N140	2,53	39.0	675	2215	2,82	43.5	756	2480
						N540	2,63	40.6	707	2320	2,92	45.1	801	2628
						N150	2,65	40.9	688	2257	2,93	45.2	756	2480
						N550	2,76	42.6	685	2247	3,07	47.4	768	2520
12,0	185	FMJBT	Lapua	71,0	2.795	N135	2,33	36.0	667	2188	2,66	41.0	761	2495
						N140	2,44	37.6	675	2215	2,83A	43.7A	778	2551

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.308 Winchester cont.

Bullet Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
						N540	2,54	39.2	712	2335	2,84	43.8	791	2595
						N150	2,57	39.7	728	2388	2,84	43.8	805	2641
						N550	2,73	42.1	731	2398	3,03F	46.8F	822	2697
12,0	185	Scenar	Lapua	71,0	2.795	N140	2,44	37.7	706	2316	2,69	41.5	778	2552
						N540	2,38	36.7	725	2379	2,76	42.6	801	2628
						N150	2,42	37.3	664	2179	2,72	42.0	785	2575
						N550	2,62	40.5	672	2203	3,04A	46.9A	795	2608
12,0	185	Scenar SJ	Lapua	71,0	2.795	N140	2,46	38.0	689	2259	2,77	42.7	776	2546
						N540	2,64	40.7	729	2392	2,88	44.4	865	2838
						N150	2,47	38.1	696	2283	2,80	43.2	782	2566
						N550	2,72	41.9	711	2331	3,06	47.2	811	2661
12,3	190	HPBT	Sierra	71,0	2.795	N140	2,42	37.3	677	2222	2,78	42.9	764	2508
						N540	2,44	37.6	672	2204	2,83	43.7	786	2579
						N150	2,49	38.4	676	2218	2,82	43.6	767	2516
						N550	2,63	40.6	695	2279	3,06	47.2	800	2624
13,0	200	SP	Speer	71,0	2.795	N140	2,28	35.2	609	1999	2,67	41.2	712	2335
						N150	2,24	34.5	604	1982	2,74	42.2	715	2344

A = Accuracy load C = Compressed load F = Full case

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

7,62 x 53R (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 Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
6,5	100	HPCE	Lapua	68,0	2.677	N120	2,59	40.0	933	3061	2,88	44.4	1020	3346
						N130	2,80	43.2	956	3136	3,03	46.8	1036	3399
						N133	2,98	46.0	960	3150	3,20F	49.4F	1019	3343
8,0	123	FMJ	Lapua	68,5	2.697	N130	2,81	43.3	883	2896	3,19	49.1	967	3171
						N133	3,07	47.4	900	2954	3,41	52.6	978	3209
						N135	3,19	49.2	901	2956	3,50	54.0	984	3229
9,7	150	Mega	Lapua	70,9	2.791	N133	2,43	37.5	727	2384	2,83	43.6	826	2709
						N135	2,70	41.7	761	2497	3,05	47.1	851	2790
						N140	2,86	44.1	774	2540	3,19	49.2	862	2829
9,7	150	FMJBT	Lapua	73,0	2.874	N133	2,71	41.8	811	2661	2,92	45.1	871	2858
						N135	2,90	44.8	825	2707	3,12	48.1	889	2917
						N140	3,09	47.7	847	2779	3,35	51.7	916	3005
10,0	155	Scenar	Lapua	75,5	2.972	N135	2,74	42.3	786	2579	3,02	46.7	865	2839
						N140	2,90	44.8	800	2625	3,19	49.3	884	2900
						N150	2,99	46.2	803	2635	3,15A	48.6A	886	2906
10,1	156	SPBT	Sako	70,5	2.776	N135	2,89	44.6	789	2589	3,18	49.0	866	2840
						N140	3,01	46.5	796	2612	3,19	49.2	845	2772
						N150	3,16	48.7	809	2655	3,33	51.4	857	2812
10,9	167	Scenar	Lapua	75,0	2.953	N140	3,00	46.3	784	2573	3,10A	47.8A	830	2723
						N540	2,94	45.3	774	2541	3,12	48.1	812	2664
						N150	3,12	48.1	790	2590	3,27	50.5	834	2736
						N550	3,21	49.5	797	2616	3,40	52.5	840	2756
10,9	168	HPBT	Sierra	75,6	2.976	N140	2,94	45.4	775	2541	3,18	49.1	830	2723
						N540	3,03	46.7	787	2581	3,12	48.1	812	2664
						N150	3,08	47.5	790	2591	3,27	50.5	834	2736
						N550	3,26	50.3	804	2638	3,40	52.5	840	2756
11.0	170	Naturalis	Lapua	72,0	2.835	N140	2,78	42.9	755	2477	3,04	46.9	823	2700
						N540	2,95	45.5	774	2539	3,21	49.5	846	2776
						N150	2,89	44.6	767	2516	3,14	48.5	832	2730
11.0	170	FMJBT	Lapua	73,0	2.874	N140	2,82	43.5	773	2536	3,04	46.9	834	2736
						N540	2,92	45.1	783	2569	3,18	49.1	856	2808
						N150	3,01	46.5	785	2575	3,24	50.0	846	2776
						N550	3,18	49.1	787	2582	3,46	53.4	862	2828
11,7	180	Naturalis	Lapua	72,5	2.854	N140	2,80	43.2	708	2323	3,07	47.4	781	2562

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

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

Bullet Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
						N540	2,85	44.0	714	2343	3,10	47.8	789	2589
						N150	2,81	43.4	708	2323	3,10	47.8	782	2566
						N550	3,10	47.8	721	2365	3,40	52.5	813	2667
12,0	185	Scenar	Lapua	75,0	2.953	N135	2,74	42.2	727	2384	2,98	46.0	795	2609
						N140	2,87	44.3	741	2429	3,03A	46.8A	787	2581
						N540	2,84	43.9	741	2431	3,14	48.5	818	2684
						N150	2,98	45.9	742	2434	3,24	50.0	815	2674
						N550	3,03	46.7	747	2452	3,41	52.6	847	2779
12,0	185	FMJBT	Lapua	76,8	3.024	N140	2,87	44.3	737	2418	3,10	47.8	805	2641
						N540	2,98	46.0	748	2454	3,23	49.8	823	2700
						N150	2,93	45.2	740	2428	3,16	48.8	806	2644
						N560	3,14	48.5	754	2474	3,38	52.2	830	2723
12,0	185	Mega	Lapua	70,0	2.756	N140	2,80	43.2	708	2324	3,12	48.1	788	2585
						N540	2,87	44.4	720	2363	3,17	48.9	799	2621
						N150	2,92	45.1	718	2355	3,20	49.4	792	2598
						N550	3,13	48.3	746	2446	3,47	53.5	835	2740
13,0	200	FMJBT	Lapua	76,0	2.992	N140	2,36	36.4	635	2083	2,59A	40.0A	709	2326
						N540	2,47	38.1	656	2152	2,69	41.5	720	2362
						N150	2,36	36.4	641	2103	2,64	40.7	711	2333
13,0	200	HPBT	Sierra	77,1	3.035	N140	2,72	42.0	698	2292	3,07	47.4	779	2556
						N540	2,75	42.4	703	2306	3,06	47.2	779	2556
						N150	2,83	43.6	706	2316	3,14	48.5	781	2562
						N550	3,04	46.8	728	2389	3,34	51.5	807	2648
14,3	220	HPBT	Sierra	77,1	3.035	N540	2,63	40.6	656	2151	2,87	44.3	728	2388
						N150	2,61	40.3	639	2095	2,96	45.7	728	2388
						N550	2,84	43.9	675	2215	3,12	48.1	753	2470

A = Accuracy load F = Full case

7,5 x 55 Swiss GP31

Test barrel: 600 mm (23½”), 1 in 10” twist
Primers: Large Rifle
Cases: Norma, trim-to length 55,40 mm (2.181”)

Bullet Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
10,0	155	Scenar	Lapua	75,5	2.972	N140	3,00	46.3	759	2490	3,18	49.1	811	2661
						N540	3,05	47.1	766	2513	3,25	50.1	842	2762
						N150	3,03	46.8	763	2503	3,22	49.7	815	2674
10,8	167	Scenar	Lapua	75,5	2.972	N140	2,78	42.9	700	2297	2,96	45.7	760	2493
						N540	2,65	40.9	700	2297	3,07	47.4	771	2530
						N150	2,78	42.9	703	2306	3,08	47.5	761	2497
12,0	185	Scenar	Lapua	75,5	2.972	N140	2,45	37.8	694	2277	2,71	41.8	710	2329
						N540	2,74	42.3	688	2257	2,87	44.3	722	2369
						N150	2,85	44.0	697	2287	2,93	45.2	723	2372

.30-06 Springfield

Test barrel: 620 mm (24½”), 1 in 10” twist
Primers: Large Rifle
Cases: Lapua, trim-to length 63,10 mm (2.484”)

Bullet Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
3,7	57	ALS[1]	Lapua	79,0	3.110	N110	2,02	31.1	1075	3527	2,49	38.4	1217	3994
6,5	100	HP	Lapua	79,8	3.142	N130	2,58	39.8	869	2851	3,15	48.6	998	3274
						N133	3,07	47.4	911	2989	3,49	53.9	1016	3333
						N135	3,25	50.1	927	3041	3,66	56.5	1033	3389
						N140	3,50	54.0	926	3038	3,96	61.1	1044	3425
						N540	3,59	55.4	939	3081	4,08	63.0	1058	3471
7,1	110	RN	Hornady	74,0	2.913	N133	3,15	48.6	873	2864	3,48	53.7	983	3225
						N135	3,14	48.5	864	2835	3,47	53.5	964	3163
						N140	3,38	52.2	881	2890	3,74	57.7	977	3205

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

.30-06 Springfield cont.

Bullet Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
						N150	3,57	55.1	905	2969	3,94	60.8	1002	3287
8,0	123	FMJ	Lapua	79,8	3.142	N130	2,61	40.3	838	2749	3,01	46.4	934	3064
						N133	2,95	45.5	825	2707	3,31	51.1	922	3025
						N135	3,19	49.2	852	2795	3,48	53.7	937	3074
						N140	3,35	51.7	853	2799	3,73	57.6	952	3123
						N540	3,49	53.9	863	2831	3,83	59.1	958	3143
						N150	3,59	55.4	880	2887	3,91	60.3	976	3202
8,1	125	Ballistic Tip	Nosler	84,0	3.307	N135	3,10	47.8	865	2838	3,40	52.5	935	3068
						N140	3,31	51.1	878	2881	3,64	56.2	958	3143
						N540	3,49	53.9	880	2887	3,91	60.3	994	3261
						N150	3,34	51.5	882	2894	3,81	58.8	966	3169
						N550	3,70	57.1	895	2936	3,91	60.3	950	3117
8,5	130	HP	Lapua	84,0	3.307	N135	3,08	47.5	843	2766	3,50	54.0	952	3123
						N140	3,29	50.8	862	2828	3,79	58.4	979	3213
						N540	3,40	52.5	867	2844	3,87	59.7	994	3261
						N150	3,50	54.0	871	2858	3,89	60.0	976	3202
9,7	150	Lock Base	Lapua	84,0	3.307	N135	2,93	45.2	789	2589	3,23	49.8	851	2792
						N140	3,13	48.3	802	2631	3,45	53.2	872	2861
						N540	3,16	48.8	792	2598	3,54	54.6	882	2894
						N150	3,25	50.1	803	2635	3,58	55.2	877	2877
						N550	3,51	54.2	819	2687	3,87	59.7	917	3009
9,7	150	Mega	Lapua	76,9	3.028	N135	2,60	40.1	711	2333	3,09	47.7	835	2740
						N140	2,83	43.7	732	2402	3,32	51.2	857	2812
						N540	2,94	45.4	742	2434	3,47	53.5	893	2930
						N150	2,86	44.1	777	2549	3,22	49.7	858	2815
						N550	3,12	48.1	801	2628	3,48	53.7	886	2907
9,7	150	HPBT	Sierra	84,0	3.307	N140	3,08	47.5	798	2618	3,42	52.8	871	2858
						N540	3,27	50.5	809	2654	3,64	56.2	906	2972
						N150	3,29	50.8	807	2648	3,65	56.3	895	2936
						N550	3,54	54.6	833	2733	3,87	59.7	916	3005
10,0	155	Scenar	Lapua	84,0	3.307	N140	2,78	42.9	755	2477	3,23	49.8	850	2789
						N150	2,79	43.0	767	2516	3,30	50.9	863	2831
						N540	3,05	47.1	774	2539	3,45	53.3	886	2907
						N550	3,19	49.2	811	2661	3,48	53.7	899	2949
						N160	3,45	53.2	817	2680	3,77	58.2	902	2959
10,1	156	SPBT	Sako	80,5	3.169	N135	2,97	45.8	776	2546	3,29	50.8	851	2792
						N140	3,10	47.8	775	2543	3,42	52.8	859	2818
						N150	3,18	49.1	781	2562	3,53	54.5	863	2831
10,9	167	Scenar	Lapua	84,0	3.307	N135	2,75	42.4	746	2449	3,02	46.6	808	2651
						N140	2,95	45.5	737	2418	3,25A	50.1A	812	2664
						N540	2,94	45.4	737	2418	3,37	52.0	836	2743
						N150	3,06	47.2	748	2454	3,38	52.2	821	2694
						N550	3,22	49.7	779	2556	3,57	55.1	855	2805
						N160	3,60	55.5	749	2457	4,00	61.7	842	2762
10,9	168	TSX	Barnes	81,7	3.217	N540	2,73	42.1	735	2411	3,09	47.7	824	2703
						N550	2,96	45.7	735	2411	3,26	50.3	825	2707
						N160	3,25	50.2	745	2444	3,65	56.3	833	2733
11,0	170	LockBase	Lapua	84,0	3.307	N140	2,91	44.9	717	2352	3,24	50.0	799	2621
						N540	2,96	45.7	729	2392	3,34	51.5	821	2694
						N150	3,06	47.2	735	2411	3,41	52.6	815	2674
						N550	3,17	48.9	746	2448	3,61	55.7	842	2762
						N160	3,65	56.3	765	2510	4,05	62.5	853	2799
11,0	170	Naturalis LR	Lapua	82,0	3.228	N150	2,54	39.2	753	2470	3,12	48.1	822	2697
						N550	3,16	48.8	761	2497	3,42	52.8	845	2772
						N160	3,39	52.3	756	2480	3,74	57.7	846	2776
11,7	180	TSX	Barnes	81,7	3.217	N540	2,72	42.0	713	2339	2,99	46.1	783	2569
						N550	2,89	44.6	710	2329	3,20	49.4	788	2585
						N160	3,14	48.5	712	2336	3,54	54.6	792	2598
11,7	180	TSX	Barnes	84,0	3.307	N150	2,66	41.1	667	2188	3,14	48.5	777	2549
						N550	3,07	47.4	714	2343	3,38	52.2	809	2654
						N160	3,26	50.3	708	2323	3,68	56.8	814	2671

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

.30-06 Springfield cont.

Bullet Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
11,7	180	Naturalis	Lapua	80,4	3.165	N140	2,77	42.7	693	2274	3,13	48.3	784	2572
						N150	2,75	42.4	717	2352	3,13	48.3	789	2589
						N550	3,20	49.4	753	2470	3,50	54.0	830	2723
						N160	3,40	52.5	765	2510	3,62	55.9	819	2687
						N560	3,45	53.2	733	2405	3,87	59.7	829	2720
12,0	185	Scenar	Lapua	84,0	3.307	N540	2,86	44.1	688	2257	3,16	48.8	771	2530
						N150	2,88	44.4	696	2283	3,26A	50.3A	778	2552
						N550	3,02	46.6	701	2300	3,36	51.8	792	2598
						N160	3,48	53.7	724	2375	3,85	59.4	809	2654
						N560	3,52	54.3	724	2375	4,01	61.9	816	2677
12,3	190	HPBT	Sierra	84,0	3.307	N150	2,90	44.7	695	2280	3,20	49.4	767	2516
						N550	3,07	47.4	708	2323	3,49	53.9	812	2664
						N160	3,42	52.8	724	2375	3,81	58.8	795	2608
						N560	3,57	55.1	721	2365	4,04	62.3	825	2707
13,0	200	Mega	Lapua	79,5	3.130	N150	2,75	42.4	692	2270	3,10	47.8	747	2451
						N550	3,12	48.1	730	2395	3,28	50.6	767	2516
						N160	3,38	52.2	739	2425	3,48	53.7	763	2503
13,0	200	Partition	Nosler	84,0	3.307	N150	2,79	43.0	669	2195	3,08	47.5	724	2375
						N160	3,38	52.2	704	2310	3,73	57.6	765	2510
14,3	220	RN	Hornady	84,0	3.307	N160	3,29	50.8	654	2146	3,63	56.0	722	2369
						N560	3,47	53.5	672	2205	3,97	61.3	767	2516

A = Accuracy load
[1] A muzzle velocity exceeding 1000 m/s (3300 fps) may lead to severe barrel fouling!

.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 Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
10,0	155	Scenar	Lapua	91,4	3.598	N150	3,76	58.0	888	2913	3,97	61.3	935	3068
						N550	3,98	61.4	914	2999	4,26	65.8	971	3187
						N160	4,28	66.0	909	2982	4,57	70.5	967	3174
12,0	185	Scenar	Lapua	91,4	3.598	N160	3,95	60.9	820	2690	4,21	64.9	872	2862
						N560	4,31	66.5	851	2792	4,59	70.9	908	2978
						N165	4,35	67.1	843	2766	4,62	71.4	895	2937
13,0	200	HPBT	Sierra	91,4	3.598	N160	3,87	59.7	792	2598	4,04	62.4	829	2719
						N560	4,21	65.0	821	2694	4,42	68.1	864	2834
						N165	4,24	65.4	813	2667	4,45	68.6	853	2799

.300 WSM

Test barrel: 620 mm (24½”), 1 in 10” twist
Primers: Large Rifle Magnum
Cases: Winchester, trim-to length 53,10 mm (2.091”)

Bullet Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
6,5	100	HPCE	Lapua	67,0	2.638	N150	3,85	59.4	1026	3366	4,21	65.0	1107	3632
						N540	3,91	60.3	1042	3419	4,29	66.2	1146	3760
						N550	4,14	63.9	1027	3369	4,55	70.2	1079	3540
8,0	123	FMJ	Lapua	68,8	2.709	N150	3,82	59.0	963	3159	4,10	63.3	1032	3386
						N550	4,06	62.7	950	3117	4,39	67.7	1057	3468
						N160	4,28	66.1	953	3127	4,70	72.5	1045	3428
9,7	150	Mega	Lapua	66,5	2.618	N550	3,51	54.2	860	2822	4,00	61.7	956	3136
						N160	3,75	57.9	849	2785	4,34	67.0	951	3120
						N560	4,14	63.9	862	2828	4,60	71.0	969	3179
9,7	150	Lock Base	Lapua	72,0	2.835	N550	3,74	57.7	882	2894	4,15	64.0	979	3212
						N160	3,89	60.0	878	2881	4,50	69.4	978	3209
						N560	4,36	67.3	886	2907	4,81	74.2	989	3245

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

.300 WSM cont.

Bullet Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
10,7	165	Scirocco	Swift	73,5	2.894	N550	3,77	58.2	862	2828	4,16	64.2	957	3140
						N160	3,87	59.7	842	2762	4,33	66.8	937	3074
						N560	4,23	65.3	858	2815	4,63	71.5	959	3146
						N165	4,32	66.7	868	2848	4,74	73.1	962	3156
10,9	167	Scenar	Lapua	72,1	2.839	N550	3,56	54.9	832	2730	3,97	61.3	922	3025
						N160	3,49	53.9	792	2598	4,15	64.0	908	2979
						N560	4,03	62.2	833	2733	4,48	69.1	931	3054
11,0	170	Naturalis	Lapua	72,1	2.839	N160	3,38	52.2	790	2592	4,01	61.9	889	2917
						N165	3,90	60.2	821	2694	4,45	68.7	908	2979
						N560	3,95	61.0	814	2671	4,40	67.9	916	3005
12,0	185	Mega	Lapua	69,9	2.752	N550	3,41	52.6	784	2572	3,83	59.1	867	2844
						N160	3,35	51.7	752	2467	3,92	60.5	851	2792
						N560	3,95	61.0	801	2628	4,33	66.8	881	2890
12,0	185	Scenar	Lapua	77,0	3.031	N160	3,83	59.1	799	2621	4,22	65.1	882	2894
						N560	4,11	63.4	814	2671	4,50	69.4	906	2972
						N165	4,18	64.5	823	2700	4,62	71.3	911	2989
13,0	200	Naturalis	Lapua	68,0	2.677	N160	3,56	54.9	733	2405	4,00	61.7	815	2674
						N560	3,80	58.6	743	2438	4,30	66.4	838	2749
						N165	3,90	60.2	758	2487	4,45	68.7	834	2736
13,0	200	Mega	Lapua	70,0	2.756	N160	3,67	56.6	749	2457	4,15	64.0	837	2746
						N560	3,98	61.4	772	2533	4,44	68.5	864	2835
						N165	4,10	63.3	777	2549	4,56	70.4	866	2841

.300 Winchester Magnum

Test barrel: 620 mm (24½"), 1 in 10" twist
Primers: Large Rifle Magnum
Cases: Lapua, trim-to length 66,30 mm (2.610")

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

Bullet Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
7,1	110	SP	Hornady	83,0	3.268	N160	5,40	83.3	1063	3488	5,65	87.1	1122	3679
8,0	123	FMJ	Lapua	81,9	3.224	N150	3,99	61.6	943	3094	4,53	69.9	1031	3383
						N550	4,26	65.7	948	3110	4,72	72.8	1051	3448
						N160	4,47	69.0	939	3081	5,05	77.9	1039	3409
8,5	130	HP	Lapua	84,2	3.315	N160	4,99	77.0	964	3162	5,34	82.4	1041	3416
9,7	150	Mega	Lapua	79,5	3.130	N160	3,79	58.5	815	2674	4,48	69.1	935	3068
						N165	4,29	66.2	844	2769	5,25	81.0	951	3120
						N560	4,76	73.5	880	2887	5,26	81.2	983	3225
9,7	150	Lock Base	Lapua	84,0	3.307	N160	4,59	70.8	884	2900	5,08	78.4	982	3222
						N165	5,10	78.7	900	2953	5,45	84.1	979	3212
						N560	4,90	75.6	899	2949	5,29	81.6	994	3261
9,7	150	Ballistic Tip	Nosler	84,8	3.339	N160	4,79	73.9	913	2994	5,01	77.3	986	3234
						N165	5,20	80.2	940	3084	5,35C	82.6C	997	3271
10,0	154	Scenar	Lapua	84,0	3.307	N160	4,54	70.1	862	2828	4,94	76.2	961	3153
						N165	5,04	77.8	885	2904	5,25C	81.0C	938	3077
						N560	4,81	74.2	879	2884	5,29	81.6	983	3225
10,9	167	Scenar	Lapua	84,8	3.339	N160	4,70	72.4	880	2887	5,01	77.3	950	3117
						N560	4,70	72.5	846	2776	5,06	78.1	939	3081
						N165	5,02	77.5	892	2927	5,39C	83.2C	967	3171
10,9	167	Scenar SJ	Lapua	84,8	3.339	N160	4,39	67.7	830	2723	4,83	74.5	919	3015
						N560	4,77	73.6	844	2769	5,15	79.5	943	3094
						N165	4,73	73.0	846	2776	5,23	80.7	936	3071
11,0	170	Lock Base	Lapua	84,8	3.339	N160	4,43	68.4	849	2785	4,82	74.4	936	3071
						N560	4,80	74.1	851	2792	5,09	78.5	952	3123
						N165	4,82	74.4	866	2841	5,15	79.5	951	3120
11,0	170	Naturalis	Lapua	84,8	3.339	N160	3,70	57.1	771	2530	4,13	63.7	861	2825
						N560	4,26	65.7	818	2684	4,78	73.8	923	3028
						N165	4,00	61.7	789	2589	4,80A	74.1A	899	2949
11,3	175	Scenar-L	Lapua	84,0	3.307	N160	4,38	67.6	812	2664	4,79	73.9	901	2956

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

.300 Winchester Magnum cont.

Bullet Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
						N560	4,60	71.0	831	2726	5,06	78.1	929	3048
						N165	4,72	72.8	831	2726	5,15	79.5	928	3045
11,7	180	Partition	Nosler	84,8	3.339	N160	4,52	69.8	843	2765	4,94	76.1	916	3004
						N165	4,86	75.0	852	2795	5,26	81.1	925	3033
11,7	180	Naturalis	Lapua	85,7[1)]	3.374	N160	4,05	62.5	836	2743	4,53	69.9	878	2881
						N560	4,80	74.1	873	2864	5,01	77.3	913	2995
						N165	4,45	68.7	839	2753	4,93	76.1	887	2910
12,0	185	Mega	Lapua	82,5	3.248	N160	3,40	52.5	720	2362	4,58	70.7	859	2818
						N165	3,90	60.2	753	2470	5,17	79.8	886	2907
						N560	4,51	69.6	802	2631	5,02	77.5	901	2956
12,0	185	Scenar	Lapua	84,8	3.339	N160	4,26	65.7	805	2641	4,70	72.5	894	2933
						N560	4,60	71.0	816	2677	5,01	77.3	917	3009
						N165	4,72	72.8	825	2707	5,10A	78.7A	915	3002
12,0	185	Scenar SJ	Lapua	84,8	3.339	N160	4,22	65.1	795	2608	4,74	73.1	880	2887
						N560	4,62	71.3	814	2671	5,00	77.2	905	2969
						N165	4,64	71.6	819	2687	5,01	77.3	895	2936
12,3	190	HPBT	Sierra	84,8	3.339	N560	4,34	66.9	823	2701	4,88	75.3	898	2947
						N165	4,49	69.2	816	2676	5,01	77.3	882	2893
						N170	4,40	67.8	788	2586	5,06	78.0	861	2826
13,0	200	Mega	Lapua	84,5	3.327	N560	4,00	61.7	753	2470	4,55	70.2	834	2736
						N165	4,10	63.3	748	2454	4,65	71.7	823	2700
						N170	4,31	66.5	740	2428	4,95	76.4	824	2703
13,0	200	Naturalis	Lapua	84,0	3.307	N560	3,98	61.4	745	2444	4,40	67.9	819	2687
						N165	3,65	56.3	703	2306	4,29	66.2	800	2625
						N170	4,23	65.3	728	2388	4,70	72.5	810	2657
13,0	200	HPBT	Sierra	84,8	3.339	N170	4,05	62.4	743	2438	4,85	74.8	828	2717
						N560	3,95	60.9	770	2526	4,60	70.9	852	2795
						N160	4,02	62.0	760	2495	4,56	70.3	835	2741
						N165	4,15	64.0	768	2518	4,79	73.8	846	2774
						N570	4,84	74.7	797	2615	5,31	81.9	891	2923
14,3	220	Scenar-L	Lapua	84,5	3.327	N560	4,34	67.0	751	2464	4,74	73.1	830	2723
						N165	4,29	66.2	723	2372	4,88	75.3	816	2677
						N170	4,63	71.5	734	2408	5,20	80.2	813	2667
						N570	5,04	77.8	782	2566	5,30	81.8	839	2753

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

.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 cause excessive chamber pressure and must not be used!

Bullet Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
8,1	125	Ballistic Tip	Nosler	90,0	3.543	N160	5,19	80.2	1046	3430	5,52	85.2	1104	3623
9,7	150	Ballistic Tip	Nosler	90,1	3.547	N160	4,88	75.2	945	3102	5,22	80.6	1003	3291
						N165	5,27	81.3	949	3113	5,59	86.3	1019	3343
10,7	165	SPBT	Speer	90,3	3.555	N160	4,85	74.8	923	3028	5,16	79.6	975	3200
						N165	5,24	80.9	932	3057	5,57	85.9	984	3228
11,7	180	SP	Hornady	90,3	3.555	N160	4,66	71.9	875	2872	5,01	77.3	930	3050
						N165	5,04	77.7	888	2912	5,43	83.8	944	3098
13,0	200	Naturalis	Lapua	88,5	3.484	N560	4,16	64.2	816	2677	4,44	68.5	842	2762
						N165	3,80	58.6	760	2493	4,29	66.2	800	2625
						N170	4,50	69.4	800	2625	4,82	74.4	840	2756
13,0	200	HPBT	Sierra	90,3	3.555	N560	4,47	69.0	821	2694	4,81	74.2	872	2862
						N165	4,39	67.7	795	2609	4,87	75.1	858	2814
						N170	4,44	68.5	781	2562	5,11	78.9	859	2817

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

.300 Lapua Magnum

Test barrel: 690 mm (27”), 1 in 9½ twist
Primers: Large Rifle Magnum
Cases: Lapua, trim-to length 68,90 mm (2.713”)

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	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	93,0	3.661	N160	4,89	75.5	973	3192	5,23	80.7	1023	3355
						N560	5,24	80.9	973	3192	5,73	88.4	1057	3468
						N170	6,01	92.7	993	3258	6,41	99.0	1064	3491
11,0	170	Lock Base	Lapua	93,0	3.661	N560	5,12	79.0	942	3091	5,49	84.7	1004	3293
						N170	5,66	87.3	939	3081	6,10	94.1	1003	3292
						24N41	6,15	94.9	945	3100	6,56	101.2	1015	3331
12,0	185	Scenar	Lapua	93,0	3.661	N560	4,82	74.4	879	2884	5,31	81.9	954	3131
						N170	5,40	83.3	893	2930	5,89	90.9	962	3158
						24N41	5,93	91.5	916	3005	6,30	97.2	965	3166
13,0	200	HPBT	Sierra	93,0	3.661	N170	5,09	78.5	851	2792	5,56	85.8	915	3003
						24N41	5,56	85.8	866	2841	6,01	92.8	928	3044
14,3	220	HPBT	Sierra	93,0	3.661	24N41	5,10	78.7	804	2638	5,67	87.4	875	2871
						20N29	6,06	93.5	856	2808	6,45	99.6	908	2980

.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”)

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	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	89,5	3.524	N160	5,29	81.6	957	3140	5,80	89.5	1044	3425
						N560	5,60	86.4	865	2838	6,09	94.0	1067	3501
						N165	5,60	86.4	952	3123	6,19	95.5	1052	3451
10,7	165	Partition	Nosler	89,5	3.524	N160	4,97	76.7	896	2940	5,64	87.0	980	3214
						N560	5,39	83.2	902	2959	6,13	94.5	1027	3371
						N165	5,57	85.9	919	3015	6,12	94.4	1009	3311
10,85	167	Scenar	Lapua	90,0	3.543	N560	5,29	81.6	925	3035	5,95	91.8	1029	3376
						N165	5,05	77.9	882	2894	6,10	94.1	1007	3304
						N170	5,37	82.9	895	2936	6,48	100.0	1011	3317
11,0	170	Lock Base	Lapua	90,0	3.543	N560	4,73	73.0	899	2949	5,74	88.6	1006	3301
						N165	4,56	70.4	851	2792	5,73	88.4	976	3202
						N170	5,02	77.5	865	2838	6,36	98.1	992	3255
11,7	180	XFB	Barnes	89,5	3.524	N165	4,52	69.7	833	2733	5,40	83.3	939	3079
						N560	4,65	71.7	854	2802	5,60	86.3	956	3137
						N170	4,90	75.6	840	2756	6,12	94.4	952	3124
12,0	185	Mega	Lapua	88,5	3.484	N560	5,18	79.9	874	2867	5,83	90.0	969	3179
						N165	4,75	73.3	826	2710	5,82	89.8	937	3074
						N170	5,22	80.6	837	2746	6,31	97.4	953	3127
12,0	185	Scenar	Lapua	91,4	3.598	N560	5,46	84.2	888	2913	5,93	91.5	979	3213
						N165	5,18	79.9	865	2838	6,09	94.0	960	3148
						N170	5,98	92.3	875	2871	6,40	98.7	966	3170
						N570	5,90	91.0	908	2979	6,54	100.9	1023	3356
13,0	200	Mega	Lapua	89,3	3.516	N560	5,24	80.9	892	2927	5,85	90.3	959	3146
						N165	4,95	76.4	831	2726	5,70	88.0	922	3025
						N570	5,70	88.0	877	2877	6,37	98.3	958	3143
13,0	200	Naturalis	Lapua	89,2	3.512	N560	4,87	75.1	842	2762	5,57	85.9	933	3061
						N165	4,75	73.3	826	2710	5,62	86.7	923	3028
						N170	5,16	79.6	833	2733	5,82	89.8	912	2992
						N570	5,44	83.9	860	2822	6,01	92.7	961	3153
						24N41	5,60	86.4	829	2720	6,11	94.3	914	2999

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

.30-.378 Weatherby Magnum

Test barrel: 670 mm (26½”), 1 in 10” twist
Primers: Large Rifle Magnum
Cases: Weatherby, trim to-length 73,70 mm (2.902”)

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	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	93,0	3.661	N160	6,10	94.1	1004	3294	6,41	98.9	1062	3484
						N165	6,68	103.1	1017	3337	6,94	107.1	1075	3527
						N170	7,23	111.6	1008	3307	7,54	116.3	1069	3507
11,0	170	Lock Base	Lapua	93,0	3.661	N160	5,63	86.9	933	3061	5,91	91.2	973	3192
						N165	6,33	97.7	957	3140	6,67	102.9	1002	3287
						N170	6,94	107.1	957	3140	7,20	111.1	1008	3307
						24N41	7,31	112.8	980	3215	7,83	120.8	1060	3478
12,0	185	Scenar	Lapua	93,0	3.661	N160	5,61	86.6	913	2995	5,95	91.8	963	3159
						N560	5,96	92.0	922	3025	6,26	96.6	981	3219
						N170	6,69	103.2	946	3104	7,12	109.9	1009	3310
						24N41	7,16	110.5	959	3146	7,58	117.0	1023	3356
						20N29	7,94	122.5	971	3186	8,18	126.2	1003	3291
13,0	200	HPBT	Sierra	93,0	3.661	24N41	4,80	74.1	691	2267	6,96	107.4	949	3114
						20N29	7,52	116.0	918	3012	7,88	121.6	980	3215
14,3	220	HPBT	Sierra	93,0	3.661	20N29	7,14	110.2	874	2868	7,64	117.9	938	3077

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/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
3,7	57	ALS	Lapua	55,7	2.193	N110	1,56	24.1	925	3035	1,78	27.5	997	3233
6,5	100	HP	Lapua	55,4	2.181	N110	1,22	18.8	685	2247	1,41	21.8	772	2503
						N120	1,65	25.5	688	2257	1,80	27.8	769	2494
8,0	123	FMJ	Lapua	55,7	2.193	N120	1,60	24.7	663	2175	1,77	27.3	728	2361
8,1	125	Mega	Lapua	52,4	2.063	N120	1,55	23.9	658	2157	1,68	26.0	712	2309
						N130	1,68	25.8	677	2219	1,79	27.6	728	2359

.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/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
3,7	57	ALS[1)]	Lapua	73,3	2.886	N110	1,68	25.9	981	3219	2,21	34.1	1178	3865
8,0	123	FMJ	Lapua	73,3	2.886	N120	2,18	33.6	819	2687	2,37	36.6	873	2864
						N130	2,39	36.9	840	2756	2,59	40.0	895	2936
						N133	2,58	39.8	858	2815	2,76	42.6	914	2999
9,7	150	Mega	Lapua	70,5	2.776	N130	2,38	36.7	831	2726	2,55	39.3	884	2900
						N133	2,49	38.4	839	2753	2,70	41.7	899	2949
11,3	174	HPBT	Sierra	78,0	3.071	N135	2,29	35.3	711	2333	2,49	38.4	761	2497
						N140	2,49	38.4	725	2379	2,70	41.7	782	2566
						N540	2,57	39.7	728	2388	2,78	42.9	791	2595
11,7	180	Spitzer	Sierra	78,0	3.071	N135	2,15	33.2	664	2178	2,36	36.4	714	2343
						N140	2,33	36.0	683	2241	2,57	39.7	739	2425
						N540	2,48	38.3	697	2287	2,70	41.7	758	2487

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

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

8 x 57 IS (8 mm Mauser)

Test barrel: 620 mm (24½"), 1 in 9½" twist
Primers: Large Rifle
Cases: Lapua, trim-to length 56,80 mm (2.236")

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
8,1	125	SP	Hornady	74,0	2.913	N130	2,80	43.2	874	2867	3,12	48.1	950	3117
						N133	3,14	48.5	883	2897	3,50	54.0	979	3212
						N135	3,22	49.7	882	2894	3,57	55.1	974	3196
9,7	150	Spitzer	Speer	76,0	2.992	N135	2,97	45.8	801	2628	3,31	51.1	880	2887
						N140	3,13	48.3	799	2621	3,49	53.9	892	2927
11,0	170	SP	Speer	77,0	3.031	N135	2,86	44.1	748	2454	3,18	49.1	829	2720
						N140	2,99	46.1	747	2451	3,33	51.4	838	2749
						N150	3,13	48.3	761	2497	3,48	53.7	853	2799
11,7	180	Naturalis	Lapua	80,5	3.189	N135	2,56	39.5	717	2352	2,88	44.4	776	2546
						N140	2,93	45.2	733	2405	3,21	49.5	780	2559
						N540	2,98	46.0	716	2349	3,17	48.9	816	2677
						N150	2,93	45.2	731	2398	3,22F	49.7F	802	2631
13,0	200	Spitzer	Speer	79,5	3.130	N140	2,77	42.7	661	2169	3,08	47.5	759	2490
						N150	2,86	44.1	680	2231	3,19	49.2	763	2503
13,0	200	Partition	Nosler	81,0	3.189	N160	3,27	50.5	681	2234	3,64	56.2	785	2575

F = Case full

8 x 57 IRS

Test barrel: 620 mm (24½"), 1 in 9½" twist
Primers: Large Rifle
Cases: Lapua, trim-to length 56,80 mm (2.236")

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
9,7	150	Spitzer	Speer	75,0	2.953	N140	3,14	48.5	797	2615	3,35	51.7	858	2815
						N540	3,12	48.1	793	2602	3,52	54.3	890	2920
						N150	2,83	43.7	712	2336	3,08	47.5	890	2920
11,7	180	Naturalis	Lapua	81,0	3.189	N135	2,56	39.5	693	2348	2,73	42.1	740	2428
						N140	2,71	41.8	698	2290	2,94	45.4	756	2480
						N540	2,86	44.1	710	2329	3,02	46.6	763	2503
						N150	2,83	43.7	712	2336	3,08	47.5	769	2523

.338 Winchester Magnum

Test barrel: 620 mm (24½"), 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/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
13,0	200	SP	Hornady	85,0[1)]	3.346	N540	3,90	60.2	814	2671	4,34	67.0	888	2913
						N150	3,85	59.4	801	2628	4,34	67.0	873	2864
						N550	4,15	64.0	822	2697	4,61	71.1	899	2949
						N160	4,71	72.7	720	2362	5,23F	80.7F	905	2969
14,6	225	SP	Hornady	84,0	3.307	N160	4,56	70.4	798	2617	4,80	74.1	856	2809
						N560	4,78	73.8	820	2689	5,15	79.4	849	2785
15,0	231	Naturalis LR	Lapua	84,3	3.319	N550	3,80	58.6	752	2467	4,31	66.5	838	2749
						N160	4,25	65.6	751	2464	4,74	73.1	843	2766
						N560	4,50	69.4	769	2523	4,85F	74.8F	832	2730
16,2	250	Grand Slam	Speer	83,8	3.299	N160	4,49	69.3	753	2470	4,83	74.5	809	2655
						N165	4,81	74.3	766	2511	5,19	80.0	823	2698
16,2	250	SBT	Sierra	84,8	3.339	N160	4,25	65.6	758	2488	4,58	70.7	810	2659
						N560	4,39	67.7	774	2540	4,78	73.7	831	2728
						N165	4,63	71.4	779	2555	5,02	77.4	835	2738
16,2	250	Scenar	Lapua	84,0	3.307	N550	4,06	62.7	765	2509	4,27	65.8	810	2657
						N160	4,23	65.3	760	2494	4,55	70.1	813	2669
						N560	4,72	72.9	787	2581	5,03	77.5	843	2765
17,8	275	SP	Speer	85,0[1)]	3.346	N165	4,63	71.5	731	2398	5,01	77.3	785	2576
17,8	275	A-Frame	Swift	86,5[1)]	3.406	N160	3,55	54.8	634	2080	4,15	64.0	717	2352

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

.338 Winchester Magnum cont.

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
						N560	3,76	58.0	651	2136	4,30	66.3	731	2398
						N165	3,79	58.5	651	2136	4,35	67.1	725	2379
19,4	300	HPBT	Sierra	84,8	3.339	N160	4,06	62.7	692	2270	4,43	68.3	745	2445
						N560	4,20	64.7	700	2295	4,66	71.9	756	2479
19,4	300	RNSP	Woodleigh	83,5	3.287	N160	3,58	55.2	626	2054	4,10	63.3	692	2270
						N560	3,92	60.5	658	2159	4,55	70.2	731	2398
						N165	3,92	60.5	637	2090	4,46	68.8	711	2333

F = Case full

[1)] 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/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
13,0	200	SP	Hornady	91,0	3.583	N160	5,81	89.6	926	3038	6,22	96.0	993	3259
						N165	6,24	96.3	935	3068	6,66	102.8	1005	3297
14,6	225	SP	Hornady	91,0	3.583	N160	5,07	78.3	830	2723	5,64	87.0	900	2953
						N560	5,35	82.6	865	2838	5,86	90.5	934	3065
						N165	5,40	83.2	839	2753	6,01	92.8	915	3000
						N170	5,75	88.8	847	2779	6,33	97.6	917	3009
15,0	231	Naturalis LR	Lapua	90,5	3.563	N160	4,73	73.0	793	2602	5,35	82.6	876	2874
						N560	5,19	80.1	817	2680	5,75	88.7	913	2995
						N165	5,00	77.2	797	2615	5,80	89.5	897	2943
16,2	250	Lock Base	Lapua	91,5	3.602	N560	5,04	77.8	781	2562	5,71	88.1	895	2936
						N165	4,89	75.5	781	2562	5,67	87.5	871	2858
						N170	5,36	82.7	789	2589	6,23	96.1	892	2927
						N570	5,60	86.4	830	2723	6,22	96.0	920	3018
16,2	250	Scenar	Lapua	93,5	3.681	N560	4,94	76.2	778	2552	5,50	84.9	884	2900
						N165	4,95	76.4	782	2566	5,61	86.6	864	2835
						N170	5,50	84.9	797	2615	6,17	95.2	883	2897
						N570	5,57	86.0	829	2720	6,22	96.0	920	3018
18,5	285	TSX	Barnes	93,0	3.661	N560	4,12	63.6	684	2244	4,78	73.8	772	2533
						N170	4,30	66.4	654	2146	5,20	80.2	768	2520
						N570	4,70	72.5	728	2388	5,31	81.9	806	2644
18,5	285	HPBT	Hornady	93,5	3.681	N560	4,93	76.1	759	2490	5,48	84.6	837	2746
						N165	4,81	74.2	733	2405	5,49	84.7	812	2664
						N170	5,25	81.0	741	2431	5,96	92.0	831	2726
						N570	5,44	84.0	781	2562	6,07	93.7	863	2831
19,4	300	Scenar	Lapua	93,5	3.681	N165	4,47	69.0	685	2247	5,30	81.8	785	2575
						N560	4,64	71.6	709	2326	5,33	82.3	814	2671
						N170	4,90	75.6	712	2336	5,74	88.6	811	2661
						N570	5,19	80.1	732	2402	5,99	92.4	837	2746
						24N41	5,43	83.8	729	2392	6,23	96.1	821	2694
19,4	300	HPBT	Sierra	91,5	3.602	N165	4,57	70.5	695	2281	5,20	80.2	766	2513
						N560	4,70	72.5	722	2370	5,37	82.8	800	2624
						N170	5,15	79.4	719	2360	5,86	90.4	792	2599
						N570	5,39	83.2	776	2546	5,92	91.3	826	2710
						24N41	5,52	85.2	735	2410	6,28	96.8	809	2653

F = Case full

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/Name	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	Naturalis LR	Lapua	82,0	3.228	N530	3,01	46.4	687	2254	3,48	53.7	792	2598
						N135	2,95	45.5	662	2172	3,67	56.6	782	2566

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

9,3 x 62 cont.

Bullet Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
						N140	3,49	53.9	733	2405	3,88	59.9	807	2648
16,2	250	AccuBond	Nosler	82,0	3.228	N530	2,99	46.1	678	2224	3,32	51.2	745	2444
						N140	3,37	52.0	693	2274	3,73	57.6	760	2493
						N540	3,46	53.4	701	2300	3,98	61.4	794	2605
17,5	270	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
18,5	285	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
						N150	3,17	48.9	627	2057	3,60	55.6	700	2297
18,5	286	TSX	Barnes	82,5	3.248	N150	2,83	43.7	559	1834	3,32	51.2	654	2146
						N540	3,12	48.1	607	1991	3,47	53.6	679	2228
						N550	2,88	44.4	534	1752	3,94	60.8	697	2287
20,7	320	RNSP	Woodleigh	82,0	3.228	N540	3,45	53.2	630	2067	3,72	57.4	684	2244
						N150	3,50	54.0	627	2057	3,73	57.6	675	2215
						N550	3,70	57.1	636	2087	4,04	62.3	700	2297

9,3 x 66 Sako

Test barrel: 630 mm (24¾"), 1 in 14" twist
Primers: Large Rifle
Cases: Sako, trim-to length 65,80 mm (2.591")

Bullet Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
17,5	270	Naturalis	Lapua	85,0	3.346	N140	3,40	52.5	684	2244	4,00	61.7	773	2536
						N540	3,84	59.3	736	2415	4,15	64.0	789	2589
						N550	4,13	63.7	745	2444	4,37F	67.4F	791	2595
19,4	300	A-Frame	Swift	84,0	3.307	N540	3,06	47.2	622	2041	3,53	54.5	689	2260
						N150	3,09	47.7	599	1965	3,42	52.8	670	2198
						N550	3,50	54.0	658	2159	3,75	57.9	702	2303
20,7	320	RNSP	Woodleigh	85,0	3.346	N540	3,47	53.5	678	2224	3,91	60.3	713	2339
						N150	3,44	53.1	602	1975	3,80	58.6	698	2290
						N550	3,70	57.1	650	2133	4,25	65.6	733	2405

F = Case full

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 Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
12,5	193	JFP	S&B	88,9	3.500	N120	2,98	46.0	744	2441	3,33	51.4	810	2656
						N130	3,42	52.8	791	2595	3,66	56.5	837	2746
14,3	220	Naturalis LR	Lapua	94,4	3.717	N530	3,04	46.9	708	2323	3,40	52.5	782	2566
						N135	3,02	46.6	702	2303	3,50	54.0	780	2559
						N140	3,39	52.3	721	2365	3,88	59.9	806	2644
15,0	231	SP	Norma	92,1	3.626	N140	3,72	57.4	718	2356	4,29	66.2	810	2656
16,6	256	SP	Sako	92,2	3.630	N140	3,50	54.0	654	2146	4,00	61.8	751	2463
17,5	270	Naturalis	Lapua	94,0	3.701	N135	3,10	47.8	649	2129	3,30	50.9	706	2316
						N140	3,30	50.9	656	2152	3,75	57.9	716	2349
						N540	3,48	53.7	655	2149	3,83	59.1	723	2372
18,5	285	Mega	Lapua	92,2	3.630	N135	2,80	43.2	576	1890	3,43	52.9	665	2182
						N140	3,45	53.2	636	2087	3,78	58.3	694	2277
						N540	3,24	50.0	618	2028	3,78	58.3	701	2300
19,0	293	TUG	RWS	95,5[1)]	3.760	N140	3,42	52.7	637	2088	3,72	57.4	695	2281
19,4	300	A-Frame	Swift	92,2	3.630	N135	2,70	41.7	547	1795	2,94	45.4	593	1946
						N140	2,90	44.7	562	1844	3,21	49.5	613	2011
						N540	3,04	46.9	575	1886	3,40	52.5	636	2087

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

9,3 x 74R cont.

Bullet Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
20,7	320	RNSP	Woodleigh	94,0	3.701	N135	2,90	44.7	544	1785	3,18	49.1	601	1972
						N140	3,08	47.5	558	1831	3,37	52.0	610	2001
						N540	3,15	48.6	571	1873	3,48	53.7	630	2067

1) The cartridge overall length exceeds the CIP maximum.

.375 H&H Magnum

Test barrel: 620 mm (24½"), 1 in 12" twist
Primers: Large Rifle Magnum
Cases: Remington, trim-to length 72,20 mm (2.842")

Bullet Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
15,2	235	Spitzer	Speer	91,0	3.583	N140	4,55	70.2	816	2677	4,91	75.8	879	2884
						N540	4,11	63.4	729	2392	5,18	79.9	890	2920
						N150	4,75	73.3	834	2736	5,10	78.7	886	2907
16,2	250	SBT	Sierra	91,0	3.583	N540	4,44	68.5	797	2615	4,82	74.4	856	2808
						N150	4,52	69.7	799	2621	4,87	75.1	852	2795
17,5	270	XFB	Barnes	91,0	3.583	N140	3,90	60.2	635	2083	4,55	70.2	787	2582
						N540	4,20	64.8	727	2385	4,76	73.4	813	2667
						N150	4,25	65.6	723	2372	4,71	72.7	796	2612
17,5	270	SP	Speer	91,0	3.583	N140	4,00	61.7	718	2356	4,57	70.5	805	2641
						N540	4,32	66.7	767	2516	4,71	72.7	825	2707
						N150	4,36	67.3	769	2523	4,87	75.1	830	2723
17,5	270	RNSP	Woodleigh	91,0	3.583	N135	3,85	59.4	707	2320	4,27	65.9	771	2530
						N540	4,45	68.7	766	2513	4,85	74.8	827	2713
						N150	4,20	64.8	735	2411	4,70	72.5	799	2621
18,5	285	Grand Slam	Speer	91,0	3.583	N140	3,90	60.2	665	2182	4,41	68.0	784	2572
						N540	4,22	65.1	732	2402	4,60	71.0	790	2592
						N150	4,21	65.0	733	2405	4,69	72.4	792	2598
19,4	300	A-Frame	Swift	91,0	3.583	N140	3,75	57.9	657	2156	4,27	65.9	736	2415
						N540	4,02	62.0	692	2270	4,34	67.0	743	2438
						N150	3,70	57.1	650	2133	4,24	65.4	726	2382

.416 Rigby

Test barrel: 620 mm (24½"), 1 in 12" twist
Primers: Large Rifle Magnum
Cases: Norma, trim-to length 73,40 mm (2.890")

Bullet Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
22,7	350	A-Frame	Swift	92,0	3.622	N160	5,45	84.1	679	2228	5,95	91.8	736	2415
						N560	5,73	88.4	685	2247	6,02	92.9	728	2388
						N165	5,55	85.6	682	2238	6,25	96.4	747	2451
25,9	400	XFB	Barnes	94,5	3.720	N160	4,70	72.5	599	1965	5,40	83.3	660	2165
						N560	5,10	78.7	622	2041	5,43	83.8	661	2169
						N165	5,83	90.0	631	2070	5,97	92.1	662	2172
25,9	400	A-Frame	Swift	92,0	3.622	N160	4,85	74.8	611	2005	5,36	82.7	672	2205
						N560	5,00	77.2	616	2021	5,54	85.5	660	2165
						N165	5,45	84.1	651	2136	5,91	91.2	698	2290
26,6	410	RNSP	Woodleigh	92,5	3.642	N160	5,43	83.8	637	2090	5,80	89.5	695	2280
						N560	5,86	90.4	655	2149	6,28	96.9	711	2333
						N165	5,93	91.5	660	2165	6,42	99.1	720	2362
29,2	450	RNSP	Woodleigh	94,5	3.720	N160	5,20	80.2	614	2014	5,67	87.5	663	2175
						N560	5,70	88.0	633	2077	6,14	94.7	680	2231
						N165	5,83	90.0	631	2070	6,17	95.2	682	2238

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

.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/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
13,0	200	HP/XTP	Hornady	64,4	2.535	N110	2,66	41.0	720	2362	3,05	47.1	797	2613
						N120	3,28	50.6	782	2565	3,75	57.8	869	2851
15,6	240	JTC-SIL	Hornady	64,5	2.539	N120	2,91	44.9	684	2243	3,43	53.0	780	2560
						N130	3,23	49.8	697	2286	3,68	56.8	780	2558
17,2	265	FP	Hornady	65,0	2.559	N120	2,82	43.5	649	2129	3,27	50.5	736	2415
						N130	3,09	47.7	657	2157	3,45	53.2	732	2401

.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/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
19,4	300	FN HP	Sierra	64,7	2.547	N120	2,95	45.5	579	1900	3,25	50.2	651	2136
						N130	3,38	52.2	609	1998	3,70	57.1	686	2251
						N530	3,65	56.3	596	1955	3,90	60.2	652	2139
19,4	300	TSX FN	Barnes	64,7	2.547	N120	2,45	37.8	502	1647	2,91	44.9	594	1949
						N530	3,02	46.6	460	1509	3,40	52.5	569	1867
19,4	300	XFN	Barnes	64,8	2.551	N130	3,10	47.8	547	1795	3,37	52.0	602	1975
22,7	350	RN	Hornady	64,7	2.547	N130	3,11	48.0	522	1713	3,46	53.4	614	2014
						N133	3,26	50.3	507	1663	3,72	57.4	621	2037
						N530	3,45	53.2	509	1670	3,82	58.9	606	1988
25,9	400	FN	Speer	64,7	2.547	N130	2,90	44.7	489	1604	3,22	49.7	559	1834
						N133	3,06	47.2	485	1591	3,40	52.5	574	1883
						N530	3,20	49.4	478	1568	3,52	54.3	568	1864
33,1	510	LFN w/ gas	Gunhill	64,7	2.547	N120*)	1,70	26.2	360	1181	1,90	29.3	408	1339
		check				N130*)	2,00	30.9	389	1276	2,30	35.5	495	1624

*) Cowboy Action Shooting load

.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/Name	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	4,53	69.9	748	2454
						N130	4,46	68.8	730	2395	4,80	74.1	773	2536
						N133	4,72	72.8	730	2395	4,90F	75.6F	756	2480
25,9	400	A-Frame	Swift	82,0	3.228	N130	4,30	66.3	674	2211	4,55	70.2	710	2329
						N530	4,90	75.6	691	2267	5,10F	78.7F	722	2369
						N135	4,80	74.1	677	2221	4,90F	75.6F	692	2270
25,9	400	XFB	Barnes	83,0	3.268	N130	4,00	61.7	631	2070	4,36	67.3	688	2257
						N530	4,50	69.4	645	2116	4,70F	72.5F	674	2211
						N135	4,30	66.3	625	2051	4,42F	68.2F	644	2113
32,4	500	RN	Hornady	84,0	3.307	N130	3,60	55.5	557	1827	4,11	63.4	623	2044
						N133	3,85	59.4	564	1850	4,52	69.7	645	2116
						N530	4,20	64.8	589	1932	4,76	73.4	655	2149

F = Case full

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

.50 Browning

Test barrel: 1140 mm (45”), 1 in 16½” twist
Primers: CCI35
Cases: IMI, trim-to length 99,10 mm (3.902”)

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	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	14,76	227.8	894	2932
						24N41	13,86	213.8	819	2688	14,72	227.2	888	2915
						20N29	15,53	239.7	836	2744	16,61	256.3	922	3024
45,4	700	Solid	Barnes	137,5	5.413	24N41	13,69	211.2	808	2652	15,00	231.5	887	2910
						20N29	15,27	235.6	819	2687	16,61	256.3	908	2978
48,6	750	A-MAX	Hornady	137,5	5.413	N170	12,31	190.0	759	2490	13,99	215.8	842	2763
						24N41	12,97	200.2	764	2508	14,13	218.0	843	2765
						20N29	14,59	225.2	779	2556	15,97	246.4	862	2829
48,6	750	Bullex-N	Lapua	138,0	5.433	24N41	13,83	213.4	798	2618	14,93	230.4	865	2838
						20N29	15,57	240.3	826	2710	16,58	255.9	895	2936
48,6	750	Solid	Barnes	137,5	5.413	24N41	13,26	204.6	768	2520	14,54	224.4	858	2815
						20N29	14,64	226.0	782	2565	16,23	250.5	871	2857
51,8	800	Bullex-N	Lapua	137,5	5.413	24N41	12,93	199.5	756	2480	14,23	219.6	826	2710
						20N29	14,95	230.7	796	2612	15,79	243.7	857	2812
51,8	800	Solid	Barnes	137,5	5.413	24N41	11,79	181.9	722	2369	12,84	198.1	790	2592
						20N29	14,19	219.1	779	2557	15,88	245.0	850	2788
55,1	850	Solid	Barnes	137,5	5.413	24N41	12,34	190.5	716	2349	13,50	208.3	784	2573
						20N29	13,91	214.7	746	2447	15,42	238.0	828	2716

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

Handgun Reloading Data

Disclaimer

All of this reloading information has been provided by Nammo Lapua Oy. 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 12 AND 13 OF THIS GUIDE.

7 mm 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		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
6,5	100	HP	Hornady	62,5	2.461	N120	1,48	22.8	667	2188	1,64	25.3	744	2441
						N130	1,62	25.0	672	2205	1,79	27.6	753	2470
						N133	1,77	27.3	695	2280	1,96	30.2	774	2539
7,8	120	SSSP	Hornady	63,5	2.500	N120	1,32	20.4	606	1988	1,45	22.4	655	2149
						N130	1,45	22.4	610	2001	1,61	24.8	673	2208
						N133	1,62	25.0	630	2067	1,81	27.9	701	2300
8,4	130	Spitzer	Speer	65,0	2.559	N120	1,24	19.1	542	1778	1,38	21.3	596	1955
						N130	1,40	21.6	573	1880	1,55	23.9	626	2054
						N133	1,46	22.5	576	1890	1,62	25.0	633	2077
9,7	150	SBT	Sierra	65,0	2.559	N120	1,17	18.1	513	1683	1,30	20.1	562	1844
						N130	1,31	20.2	535	1755	1,45	22.4	586	1923
						N133	1,38	21.3	542	1778	1,53	23.6	599	1965
						N135	1,44	22.2	538	1765	1,60	24.7	597	1959
10,4	160	SBT	Sierra	66,0	2.598	N120	1,12	17.3	480	1575	1,25	19.3	531	1742
						N130	1,26	19.4	505	1657	1,41	21.8	558	1831
						N133	1,31	20.2	511	1677	1,45	22.4	559	1834
						N135	1,45	22.4	531	1742	1,61	24.8	582	1909
						N540	1,48	22.8	544	1785	1,63	25.2	598	1962

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

7 mm 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/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
6,5	100	HP	Hornady	56,0	2.205	N120	1,82	28.0	774	2539	1,93	29.8	829	2720
						N130	1,97	30.5	783	2568	2,10	32.4	838	2749
7,8	120	SSSP	Hornady	56,6	2.228	N120	1,67	25.8	687	2255	1,80	27.8	738	2421
						N130	1,81	27.9	707	2318	1,94	29.9	784	2572
						N133	1,94	30.0	714	2343	2,11	32.6	771	2530
9,1	140	Ballistic Tip	Nosler	60,3	2.374	N120	1,45	22.4	595	1954	1,58	24.4	640	2100

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

7 mm BR Remington cont.

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
						N130	1,62	25.0	612	2006	1,73	26.7	661	2169
						N133	1,71	26.3	623	2044	1,84	28.4	671	2201
9,7	150	Ballistic Tip	Nosler	60,3	2.374	N120	1,42	21.9	576	1890	1,54	23.8	619	2031
						N130	1,54	23.8	589	1931	1,67	25.8	635	2083
						N133	1,62	25.1	595	1952	1,77	27.3	642	2106
						N135	1,75	27.0	606	1988	1,87	28.9	650	2133
10,4	160	HPBT	Sierra	59,7	2.350	N120	1,30	20.1	539	1770	1,42	21.9	580	1903
						N130	1,42	21.9	559	1834	1,55	23.9	602	1975
						N133	1,56	24.1	575	1886	1,69	26.1	619	2031
						N135	1,67	25.8	588	1929	1,79	27.6	630	2067

7 mm GJW

Test barrel: 380 mm (15”), 1 in 8” twist
Primers: Small Rifle
Cases: Munitionsfabrik Thun, trim-to length 48,80 mm (1.920”)

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
9,7	150	Ballistic Tip	Nosler	75,0	2.953	N130	1,58	24.4	613	2013	1,67	25.8	642	2106
						N133	1,65	25.5	614	2013	1,74	26.8	644	2113
						N135	1,78	27.5	629	2065	1,86	28.7	658	2159
10,9	168	HPBT	Sierra	75,0	2.953	N130	1,54	23.7	583	1913	1,63	25.2	611	2005
						N133	1,62	25.1	587	1927	1,71	26.4	617	2024
						N135	1,76	27.1	605	1984	1,83	28.2	631	2070
						N140	1,83	28.2	607	1991	1,91	29.5	636	2087

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: Fiocchi 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/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
3,9	60	HP [2)]	Speer	32,0	1.260	N320	0,29	4.4	391	1284	0,36	5.5	480	1574
						N340	0,39	5.9	434	1425	0,46	7.1	522	1713
4,6	71	FMJ [2)]	Sierra	33,0	1.299	N340	0,36	5.5	410	1345	0,43	6.7	478	1569
						3N37	0,39	6.0	412	1352	0,49	7.6	493	1616
						3N38	0,53	8.1	471	1546	0,61	9.5	521	1708
4,8	74	FMJ [1)]	Lapua	33,0	1.299	N340	0,35	5.5	406	1331	0,43	6.6	471	1546
						3N37	0,39	5.9	403	1322	0,49	7.6	478	1569
5,8	90	JHC[2)]	Sierra	32,5	1.280	N340	0,29	4.5	308	1011	0,37	5.7	405	1329
						3N37	0,34	5.2	340	1116	0,43	6.6	416	1366
						3N38	0,46	7.1	404	1326	0,53	8.1	452	1482
6,0	93	FMJ [1)]	Lapua	34,0	1.339	N340	0,31	4.7	342	1122	0,39	5.9	401	1316
						3N37	0,33	5.1	349	1146	0,46	7.1	418	1370
						3N38	0,43	6.6	378	1241	0,56	8.6	445	1460

[1)] Bullet cal. 7,84 mm (0,309”) [2)] 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 (0.913”)

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
5,4	83	LWC	Lapua	24,6	0.969	N310	0,09	1.4	231	758	0,11	1.7	258	846
6,4	98	LWC	Lapua	24,6	0.969	N310	0,07	1.1	186	610	0,08	1.2	208	682
6,4	98	LRN	Lapua	32,3	1.272	N310	0,12	1.9	256	840	0,14	2.2	277	909

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

.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 (0.913”)

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
5,4	83	LWC	Lapua	24,6	0.969	N310	0,11	1.7	246	807	0,13	2.0	286	938
6,4	98	LWC	Lapua	24,6	0.969	N310	0,09	1.4	233	764	0,12	1.9	257	843

9 mm 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/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
5,8	90	HP-XTP	Hornady	27,0	1.063	N310	0,26	3.9	369	1212	0,27	4.2	384	1260
						N320	0,31	4.8	401	1316	0,34	5.3	421	1380
						N330	0,36	5.6	420	1379	0,39	6.1	439	1440
						N340	0,36	5.5	423	1387	0,40	6.2	452	1483
						N350	0,42	6.4	424	1391	0,47	7.2	456	1496
						3N37	0,42	6.4	437	1434	0,47	7.2	461	1512
6,5	100	HP	Speer	27,5	1.083	N320	0,30	4.7	373	1222	0,33	5.1	398	1307
						N330	0,35	5.4	393	1290	0,38	5.9	416	1365
						N340	0,37	5.7	393	1290	0,42	6.4	429	1407
						3N37	0,42	6.4	398	1306	0,47	7.3	434	1423
7,5	115	HP-XTP	Hornady	29,0	1.142	N320	0,26	4.0	341	1118	0,29	4.5	362	1188
						N330	0,31	4.8	356	1166	0,35	5.4	381	1251
						N340	0,34	5.2	365	1198	0,38	5.9	397	1301
						3N37	0,39	6.0	370	1214	0,44	6.7	398	1305
						N350	0,38	5.9	373	1225	0,42	6.4	396	1299
7,5	115	FMJ-RN	Lapua	29,0	1.142	N320	0,25	3.9	304	997	0,29	4.5	341	1119
						N330	0,29	4.5	328	1076	0,35	5.4	374	1227
						N340	0,31	4.8	344	1129	0,35	5.4	372	1220
						N350	0,35	5.4	344	1129	0,42	6.5	394	1293
						3N37	0,36	5.6	344	1129	0,42	6.5	393	1289
7,5	115	RN	Rainier	29,0	1.142	N320	0,25	3.9	326	1068	0,28	4.4	347	1139
						N330	0,30	4.7	342	1123	0,33	5.1	361	1185
						N340	0,32	5.0	353	1157	0,35	5.4	374	1228
						N350	0,37	5.7	364	1195	0,41	6.4	391	1282
						3N37	0,39	6.1	364	1195	0,42	6.5	383	1256
7,8	120	CEPP	Lapua	28,7	1.130	N320	0,24	3.7	298	978	0,28	4.3	330	1083
						N330	0,29	4.5	326	1070	0,33	5.1	360	1181
						N340	0,29	4.5	326	1070	0,34	5.2	369	1211
						N350	0,34	5.2	340	1115	0,38	5.9	381	1250
						3N37	0,37	5.7	346	1135	0,42	6.5	390	1280
8,0	124	LSWC	Intercast	29,0	1.142	N320	0,24	3.8	327	1073	0,27	4.1	343	1125
						N330	0,28	4.4	345	1131	0,31	4.8	358	1175
						N340	0,30	4.7	346	1136	0,33	5.1	369	1211
						3N37	0,35	5.4	352	1156	0,38	5.9	371	1218
						N350	0,32	5.0	346	1134	0,35	5.4	363	1191
8,0	124	FMJ/FP	Hornady	29,0	1.142	N320	0,25	3.9	310	1017	0,28	4.3	334	1096
						N330	0,31	4.8	338	1108	0,34	5.2	359	1178
						N340	0,34	5.3	347	1139	0,37	5.7	370	1214
						3N37	0,39	6.1	357	1172	0,42	6.5	377	1236
						N350	0,35	5.4	349	1144	0,39	6.0	370	1214
8,0	124	RN	Rainier	29,0	1.142	N320	0,24	3.8	305	1000	0,27	4.1	326	1069
						N330	0,27	4.2	324	1063	0,30	4.7	344	1129
						N340	0,30	4.7	328	1077	0,33	5.1	351	1152
						N350	0,34	5.2	340	1115	0,38	5.9	364	1196
						3N37	0,35	5.4	346	1136	0,39	6.0	365	1199
8,0	124	FMJ-RN	Lapua	29,0	1.142	N320	0,22	3.4	290	951	0,26	4.0	326	1070
						N330	0,28	4.3	315	1033	0,32	4.9	359	1178
						N340	0,29	4.5	331	1086	0,33	5.1	360	1181

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

9 mm Luger cont.

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
						N350	0,32	4.9	341	1119	0,37	5.7	377	1237
						3N37	0,34	5.2	336	1102	0,40	6.2	379	1243
8,0	124	Megashock	Lapua	28,7	1.130	N320	0,23	3.5	273	896	0,27	4.2	321	1053
						N330	0,27	4.2	299	981	0,32	4.9	344	1129
						N340	0,28	4.3	299	981	0,32	4.9	344	1129
						N350	0,33	5.1	321	1053	0,37	5.7	362	1188
						3N37	0,34	5.2	334	1096	0,39	6.0	375	1230
8,4	130	FMJ	Sierra	29,0	1.142	N320	0,23	3.6	299	981	0,26	4.0	319	1046
						N330	0,26	4.0	314	1031	0,29	4.5	333	1094
						N340	0,28	4.4	325	1066	0,31	4.8	341	1119
						N350	0,33	5.2	330	1083	0,36	5.5	346	1135
						3N37	0,32	4.9	325	1067	0,36	5.5	344	1130
						N105	0,45	7.0	351	1151	0,48	7.4	375	1232
9,4	145	LRN	Intercast	29,0	1.142	N330	0,22	3.5	285	935	0,25	3.8	305	1000
						N340	0,25	3.9	299	982	0,28	4.3	318	1044
						N350	0,27	4.2	296	972	0,30	4.7	319	1047
						3N37	0,29	4.5	299	982	0,32	5.0	322	1055
9,5	147	HP/XTP	Hornady	29,0	1.142	N320	0,20	3.1	239	784	0,25	3.9	298	978
						N330	0,25	3.9	294	964	0,28	4.3	315	1032
						N340	0,25	3.9	289	948	0,28	4.3	309	1015
						3N37	0,30	4.7	298	979	0,33	5.1	321	1052
						N350	0,29	4.5	302	991	0,32	5.0	326	1070
						3N38	0,41	6.3	357	1171	0,45	6.9	368	1207
						N105	0,40	6.1	317	1039	0,41	6.4	338	1108
9,5	147	RN	Rainier	29,0	1.142	N330	0,22	3.5	272	893	0,25	3.8	287	942
						N340	0,24	3.8	272	892	0,27	4.1	293	960
						N350	0,27	4.2	285	935	0,30	4.7	309	1014
						3N37	0,29	4.5	286	937	0,32	4.9	307	1008
9,7	150	CEPP	Lapua	28,7	1.130	N330	0,23	3.5	264	867	0,24	3.8	283	929
						N340	0,24	3.8	275	903	0,27	4.1	294	966
						N350	0,27	4.2	285	936	0,30	4.6	304	997
						3N37	0,27	4.2	275	904	0,30	4.7	298	976

9 x 21

Test barrel: 140 mm (5½”), 1 in 10” twist
Primers: Small Pistol
Cases: Tanfoglio, trim-to length 21,00 mm (0.826”)

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
6,5	100	HP	Speer	29,0	1.142	N340	0,39	5.9	416	1363	0,43	6.6	444	1455
						3N37	0,43	6.7	427	1400	0,48	7.4	453	1485
						N350	0,46	7.0	433	1420	0,50	7.6	459	1505
7,5	115	FMJ	Sierra	29,5	1.161	N340	0,35	5.3	381	1248	0,38	5.9	401	1314
						3N37	0,39	5.9	375	1229	0,43	6.6	402	1319
						N350	0,39	5.9	388	1274	0,43	6.6	410	1346
						N105	0,53	8.1	410	1344	0,57	8.7	438	1435
7,5	115	FMJHP	Fiocchi	29,5	1.161	N340	0,35	5.3	313	1027	0,40	6.2	409	1342
						3N37	0,40	6.2	324	1063	0,46	7.1	372	1220
						3N38	0,49	7.6	383	1257	0,61	9.4	452	1483
8,0	123	FMJ	Lapua	29,5	1.161	N340	0,31	4.7	348	1142	0,34	5.2	364	1194
						3N37	0,35	5.3	354	1160	0,39	5.9	372	1222
						N350	0,35	5.3	348	1143	0,38	5.9	370	1213
						N105	0,45	6.9	372	1220	0,48	7.4	397	1301
8,0	123	FMJTC	Fiocchi	29,5	1.161	N340	0,32	4.9	330	1083	0,37	5.7	398	1306
						3N37	0,38	5.9	345	1132	0,43	6.6	384	1260
						3N38	0,46	7.1	353	1158	0,53	8.2	406	1332
9,5	147	HP-XTP	Hornady	29,5	1.161	3N37	0,32	4.9	310	1016	0,34	5.3	329	1079
						N350	0,30	4.6	324	1064	0,32	5.0	338	1110
						N105	0,38	5.8	326	1071	0,41	6.3	347	1139

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

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/Name	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	FMJ	Sierra	32,5	1.280	N340	0,41	6.3	425	1395	0,46	7.2	449	1474
						3N37	0,47	7.3	424	1392	0,54	8.3	462	1517
						N350	0,48	7.4	419	1374	0,57	8.8	456	1496
8,0	123	FMJ	Lapua	32,5	1.280	N340	0,38	5.9	384	1261	0,45	6.9	422	1385
						3N37	0,43	6.6	397	1302	0,48	7.5	427	1400
						N350	0,45	6.9	388	1272	0,50	7.8	425	1394
8,0	123	Megashock	Lapua	30,2	1.189	N340	0,37	5.7	382	1254	0,42	6.5	419	1373
						N350	0,44	6.8	391	1282	0,48	7.3	423	1386
						3N37	0,41	6.4	391	1281	0,50	7.7	432	1416
8,5	130	RN B	Rainier	32,5	1.280	N340	0,37	5.7	366	1202	0,41	6.3	401	1315
						3N37	0,43	6.6	377	1238	0,48	7.5	412	1351
						N350	0,40	6.1	361	1184	0,47	7.3	405	1328

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

.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/Name	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	28,9	1.140	N340	0,51	7.8	461	1512	0,58	8.9	504	1652
						3N37	0,56	8.7	469	1539	0,65	10.0	514	1686
						N350	0,57	8.8	469	1537	0,66	10.1	518	1699
7,5	115	FMJ	Sierra	28,9	1.140	N340	0,41	6.3	404	1325	0,50	7.7	449	1473
						3N37	0,49	7.5	416	1365	0,56	8.6	458	1502
						N350	0,47	7.3	411	1347	0,56	8.6	460	1509
8,0	123	FMJ-RN	Lapua	28,9	1.140	N340	0,39	6.0	381	1250	0,48	7.4	426	1398
						3N37	0,47	7.2	392	1287	0,54	8.3	436	1431
						N350	0,47	7.2	394	1293	0,54	8.3	439	1440
8,0	123	Megashock	Lapua	28,9	1.140	N340	0,39	6.0	381	1249	0,48	7.4	427	1400
						3N37	0,45	7.0	393	1291	0,54	8.3	437	1435
						N350	0,45	6.9	389	1276	0,54	8.4	440	1445
8,5	130	RN B	Rainier	28,9	1.140	N340	0,40	6.1	370	1213	0,46	7.1	409	1343
						3N37	0,46	7.1	381	1249	0,52	8.1	405	1330
						N350	0,44	6.8	383	1257	0,53	8.1	428	1404

.38 Super Auto

Test barrel: 140 mm (5½”), 1 in 16” twist
Primers: Small Pistol
Cases: Remington +P, trim-to length 22,70 mm (0.893”)

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	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	1188	0,36	5.5	382	1253
						N340	0,39	6.0	381	1250	0,42	6.5	404	1324
						3N37	0,42	6.5	385	1263	0,47	7.2	411	1347
						N350	0,36	5.6	357	1171	0,41	6.3	386	1266
7,5	115	FMJ	Lapua	31,5	1.240	N330	0,34	5.2	350	1148	0,39	6.1	394	1294
7,5	115	FMJ	Sierra	32,4	1.276	N350	0,51	7.9	414	1358	0,55	8.5	439	1439
						3N37	0,48	7.4	395	1296	0,51	7.9	419	1375
7,5	115	RN	Rainier	31,5	1.240	N320	0,31	4.8	357	1171	0,34	5.2	376	1232
						N340	0,39	6.0	382	1253	0,42	6.5	404	1325
						N350	0,43	6.6	388	1273	0,48	7.3	413	1355
						3N37	0,44	6.8	390	1280	0,48	7.3	411	1348
8,0	123	FMJ	Lapua	31,5	1.240	N330	0,32	4.9	362	1188	0,37	5.8	382	1254
8,0	124	FMJ-FP	Hornady	32,0	1.260	N320	0,30	4.6	330	1083	0,33	5.0	348	1142
						N330	0,36	5.6	363	1191	0,42	6.4	409	1340

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

.38 Super Auto cont.

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
						N340	0,39	6.0	368	1207	0,43	6.6	391	1281
						3N37	0,46	7.1	374	1227	0,48	7.4	388	1271
						N350	0,41	6.3	366	1201	0,45	6.9	389	1275
						N105	0,64	9.9	429	1407	0,67	10.4	458	1501
8,0	124	LSWC	Intercast	32,0	1.260	N320	0,26	4.0	334	1096	0,29	4.5	352	1153
						N340	0,35	5.4	367	1204	0,38	5.9	386	1266
						N350	0,39	6.0	371	1217	0,43	6.6	393	1289
						3N37	0,41	6.3	377	1237	0,45	6.9	397	1302
8,4	130	FMJ	Sierra	32,0	1.260	N320	0,27	4.2	317	1040	0,30	4.6	336	1101
						N330	0,32	4.9	323	1060	0,37	5.6	359	1178
						N340	0,36	5.6	349	1145	0,39	5.9	367	1202
						3N37	0,41	6.3	360	1181	0,44	6.8	380	1245
						N105	0,60	9.3	402	1319	0,63	9.6	423	1388
8,4	130	RN	Rainier	32,0	1.260	N320	0,29	4.5	312	1024	0,31	4.8	331	1086
						N340	0,35	5.4	344	1129	0,38	5.8	360	1179
						N350	0,38	5.9	347	1138	0,42	6.4	368	1206
						3N37	0,41	6.3	355	1165	0,44	6.8	374	1225
9,4	145	LRN	Intercast	32,0	1.260	N340	0,28	4.3	315	1033	0,31	4.7	333	1091
						3N37	0,36	5.6	329	1079	0,39	5.9	349	1143
						N350	0,33	5.1	319	1047	0,36	5.6	339	1111
9,5	147	HP/XTP	Hornady	32,0	1.260	N340	0,33	5.1	315	1033	0,36	5.5	335	1097
						3N37	0,38	5.9	334	1096	0,41	6.3	353	1158
						N350	0,37	5.7	327	1073	0,40	6.1	346	1134
						N105	0,51	7.9	360	1181	0,53	8.2	377	1237
9,5	147	RN	Rainier	32,0	1.260	N340	0,32	4.9	321	1053	0,35	5.3	335	1097
						N350	0,34	5.2	307	1007	0,37	5.7	326	1070
						3N37	0,36	5.6	316	1037	0,39	5.9	333	1091

.38 Super Lapua

Test barrel: 140 mm (5½”), 1 in 16” twist
Primers: Small Pistol
Cases: Lapua, trim-to length 22,70 mm (0.893”)

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	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	FMJ	Lapua	31,5	1.240	N330	0,34	5.2	350	1148	0,41	6.3	407	1335
						N340	0,40	6.2	373	1224	0,44	6.8	406	1330
						3N37	0,47	7.3	379	1243	0,52	8.0	415	1361
						3N38	0,60	9.3	413	1355	0,68	10.4	454	1489
8,0	123	FMJ	Lapua	32,0	1.260	N330	0,32	4.9	362	1188	0,39	6.0	388	1273
						N340	0,39	6.0	357	1171	0,43	6.7	387	1270
						3N37	0,47	7.3	372	1220	0,52	8.0	402	1319
						3N38	0,57	8.8	394	1293	0,62	9.6	434	1424
8,4	130	FMJ	Sierra	32,0	1.260	N330	0,32	4.9	232	761	0,38	5.9	368	1207
						N340	0,38	5.9	347	1138	0,41	6.4	376	1234
						3N37	0,46	7.1	360	1181	0,50	7.7	392	1285
						3N38	0,53	8.2	373	1224	0,58	8.9	411	1350

.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/Name	Mfg	C.O.L.		Type	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	0,40	6.1	388	1272
						N340	0,40	6.2	345	1130	0,45	6.9	386	1267
						3N37	0,48	7.3	353	1156	0,53	8.2	399	1308
						N350	0,43	6.6	355	1165	0,50	7.7	398	1305
8,0	124	LSWC	Intercast	36,5	1.437	N320	0,29	4.5	310	1015	0,34	5.2	353	1159
						N340	0,37	5.7	324	1063	0,42	6.4	367	1203

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

.38 Special cont.

Bullet Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
						3N37	0,41	6.3	329	1079	0,46	7.0	367	1205
						N350	0,39	5.9	336	1101	0,44	6.8	370	1215
8,1	125	FP/XTP	Hornady	36,5	1.437	N320	0,32	4.9	299	981	0,37	5.6	342	1121
						N340	0,38	5.8	318	1042	0,43	6.7	359	1178
						3N37	0,44	6.8	319	1045	0,49	7.5	367	1204
						N350	0,42	6.5	323	1058	0,49	7.5	373	1224
8,1	125	FP	Rainier	36,5	1.437	N320	0,29	4.5	293	960	0,34	5.2	332	1089
						N340	0,34	5.2	306	1002	0,41	6.3	349	1146
						N350	0,38	5.9	304	997	0,45	6.9	354	1160
						3N37	0,40	6.2	310	1017	0,47	7.2	362	1187
9,1	140	HP	Speer	36,5	1.437	N320	0,30	4.6	268	878	0,35	5.3	320	1051
						N340	0,36	5.6	275	902	0,41	6.2	329	1079
						3N37	0,41	6.2	282	925	0,46	7.1	341	1117
						N350	0,40	6.2	282	925	0,45	6.9	336	1102
9,4	45	LSWC	Intercast	37,5	1.476	N320	0,25	3.9	270	886	0,30	4.6	306	1004
						N340	0,33	5.1	295	966	0,38	5.8	341	1118
						3N37	0,36	5.5	287	940	0,39	6.0	328	1077
						N350	0,35	5.4	296	969	0,42	6.4	346	1136
9,4	145	LSWC		37,5	1.476	N32C*)	0,32	4.9	307	1007	0,37	5.7	314	1030
9,5	146	JHP	Speer	35,0	1.378	N340	0,30	4.6	261	856	0,35	5.4	306	1004
						3N37	0,35	5.4	263	863	0,40	6.1	310	1018
						N350	0,34	5.2	265	869	0,39	5.9	308	1010
9,6	148	LWC	Sako	30,0	1.181	N320	0,20	3.0	237	776	0,23	3.5	267	876
						N330	0,22	3.3	239	784	0,25	3.8	277	910
						N340	0,24	3.6	248	812	0,27	4.1	282	926
						N350	0,27	4.1	255	835	0,30	4.6	294	964
10,2	158	HP	Speer	36,5	1.437	N320	0,25	3.9	218	715	0,30	4.6	272	892
						N340	0,32	4.9	241	791	0,37	5.6	300	983
						3N37	0,38	5.9	259	848	0,43	6.6	305	999
						N350	0,36	5.5	261	855	0,41	6.3	309	1013
10,2	158	FNCM	Gunhill	36,7	1.445	N32C*)	0,27	4.2	261	856	0,36	5.6	306	1004
10,3	158	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
10,2	158	FP	Rainier	37,5	1.476	N320	0,26	3.9	237	776	0,31	4.8	283	927
						N340	0,32	4.9	247	809	0,37	5.7	295	967
						N350	0,36	5.5	261	856	0,41	6.3	306	1004
						3N37	0,37	5.6	260	853	0,42	6.5	310	1015
10,4	160	LFN	Intercast	37,5	1.476	N340	0,33	5.1	297	974	0,38	5.8	338	1107
						3N37	0,35	5.3	277	909	0,40	6.2	324	1064
						N350	0,35	5.4	294	963	0,40	6.1	328	1077

*) Cowboy Action Shooting load

.357 Magnum

Test barrel: 175 mm (7"), 1 in 18½" twist
Primers: Small Pistol
Cases: Remington, trim-to length 32,60 mm (1.283")

Bullet Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
7,1	110	HP/XTP	Hornady	40,0	1.575	N310	0,43	6.6	413	1355	0,45	7.0	427	1402
						N320	0,51	7.9	445	1460	0,54	8.3	462	1516
						N340	0,60	9.3	475	1558	0,64	9.8	500	1639
						3N37	0,68	10.5	496	1627	0,73	11.3	518	1701
						N350	0,69	10.6	497	1631	0,73	11.2	517	1697
						N110	1,20	18.5	523	1716	1,35F	20.8F	612	2006
8,0	124	LSWC	Intercast	41,0[1)]	1.614	N340	0,56	8.6	443	1453	0,60	9.2	462	1516
						N350	0,59	9.1	446	1463	0,63	9.8	465	1524
						N110	1,11	17.1	510	1673	1,18	18.3	541	1775
8,1	125	FP/XTP	Hornady	40,0	1.575	N310	0,39	6.0	371	1217	0,42	6.4	391	1284
						N320	0,45	6.9	400	1312	0,49	7.5	420	1379

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

.357 Magnum cont.

Bullet Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
						N340	0,56	8.6	440	1444	0,60	9.3	462	1517
						N350	0,62	9.6	456	1496	0,66	10.2	476	1561
						N110	1,09	16.8	488	1601	1,19F	18.4F	540	1772
9,1	140	HP	Speer	40,0	1.575	N340	0,53	8.2	404	1325	0,56	8.7	422	1385
						3N37	0,59	9.1	417	1368	0,63	9.8	439	1440
						N350	0,58	8.9	416	1365	0,62	9.5	437	1433
						N110	1,02	15.7	457	1499	1,11F	17.1F	502	1647
9,4	145	LSWC	Intercast	41,0[1)]	1.614	N320	0,41	6.3	376	1234	0,44	6.7	390	1281
						N340	0,47	7.3	398	1306	0,50	7.7	415	1360
						3N37	0,54	8.3	412	1352	0,58	9.0	432	1418
						N350	0,51	7.9	404	1325	0,56	8.7	427	1401
						N110	0,98	15.1	479	1572	1,04	16.0	502	1649
10,2	158	HP	Speer	40,0	1.575	N320	0,40	6.2	335	1099	0,43	6.6	354	1160
						N340	0,47	7.3	361	1184	0,50	7.7	378	1239
						3N37	0,53	8.2	377	1237	0,57	8.8	398	1305
						N350	0,54	8.3	385	1263	0,58	8.9	400	1314
10,2	158	FP/XTP	Hornady	40,0	1.575	N105	0,76	11.7	427	1401	0,80	12.4	447	1466
10,2	158	HP	Speer	40,0	1.575	N110	0,98	15.1	451	1480	1,03	15.9	478	1569
10,2	158	FNCM	Gunhill	40,2	1.583	N32C*)	0,29	4.5	265	869	0,37	5.7	309	1014
10,3	158	LSWC/HP		40,0	1.575	N330*)	0,25	3.9	241	791	0,32	5.0	304	997
						N340*)	0,29	4.5	245	804	0,38	5.9	320	1050
10,4	160	LFN	Intercast	40,0	1.575	N340	0,45	6.9	376	1234	0,48	7.4	389	1276
						3N37	0,51	7.9	383	1257	0,54	8.4	403	1321
						N350	0,48	7.4	383	1257	0,52	8.1	399	1309
						N110	0,92	14.2	456	1496	0,97	15.0	478	1570
11,7	180	TMJ	Speer	42,6[1)]	1.677	N340	0,45	6.9	321	1053	0,48	7.4	341	1118
						3N37	0,50	7.7	336	1102	0,54	8.3	358	1174
						N350	0,47	7.3	325	1066	0,51	7.9	351	1150
						N105	0,65	10.0	379	1243	0,71	10.9	401	1315
						N110	0,82	12.7	382	1253	0,91F	14.0F	425	1394
13,0	200	TMJ	Speer	43,1[1)]	1.697	3N37	0,46	7.1	297	974	0,50	7.7	317	1041
						N350	0,45	6.9	288	945	0,49	7.7	314	1031
						N105	0,60	9.3	337	1106	0,64	10.2	358	1174
						N110	0,79	12.2	362	1188	0,83	12.8	382	1252

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

.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 Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
10,2	158	FP/XTP	Hornady	48,0	1.890	3N37	0,70	10.8	461	1512	0,74	11.3	478	1568
						N350	0,64	9.9	443	1453	0,71	10.9	470	1541
						N105	0,85	13.1	485	1591	0,92	14.3	513	1683
						N110	1,21	18.7	557	1827	1,27	19.5	578	1898
10,2	158	FP	Rainier	48,0	1.890	N350	0,71	11.0	440	1444	0,78	12.0	472	1548
						3N37	0,69	10.6	445	1460	0,75	11.5	473	1552
						N105	0,86	13.3	490	1608	0,94	14.5	517	1695
						N110	1,27	19.6	559	1834	1,32	20.3	581	1907
10,4	160	LFN	Intercast	48,0	1.890	3N37	0,66	10.2	465	1526	0,72	11.1	482	1580
						N350	0,66	10.2	459	1506	0,70	10.7	473	1553
						N105	0,87	13.4	517	1696	0,95	14.6	541	1775
11,7	180	Silhouette	Nosler	48,1	1.894	N105	0,79	12.2	443	1453	0,85	13.1	468	1534
						N110	1,07	16.5	500	1640	1,12	17.3	519	1704
						N120	1,40	21.6	516	1693	1,46	22.5	537	1762
13,0	200	TMJ	Speer	50.8[1)]	2.000	N110	0,99	15.3	440	1444	1,04	16.1	460	1508
						N120	1,30	20.1	458	1503	1,36	20.9	483	1584

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

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

.40 S&W

Test barrel: 140 mm (5½"), 1 in 16" twist
Primers: Small Pistol
Cases: Remington, trim-to length 21,40 mm (0.843")

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
8,7	135	HP-XTP	Hornady	28,6	1.126	N320	0,34	5.2	337	1106	0,35	5.5	346	1134
						N330	0,39	6.0	348	1142	0,40	6.2	357	1172
						N340	0,39	6.0	345	1132	0,41	6.3	357	1171
						3N37	0,47	7.3	357	1171	0,49	7.6	369	1210
						N350	0,43	6.6	351	1152	0,45	7.0	362	1189
8,7	135	HP	Nosler	28,6	1.126	N320	0,39	6.0	373	1224	0,40	6.2	384	1259
						N340	0,48	7.4	403	1322	0,50	7.8	416	1364
						3N37	0,54	8.3	403	1322	0,56	8.6	417	1367
10,0	155	FP	Rainier	28,6	1.126	N320	0,34	5.2	331	1086	0,35	5.5	340	1114
						N330	0,39	6.0	344	1129	0,40	6.2	354	1160
						N340	0,41	6.3	352	1155	0,43	6.6	364	1195
						N350	0,46	7.1	357	1171	0,48	7.4	370	1213
						3N37	0,49	7.6	359	1178	0,51	7.9	371	1216
10,7	165	TC-FMJ	PMC	28,6	1.126	N320	0,32	4.9	303	994	0,34	5.2	316	1038
						N340	0,41	6.3	334	1096	0,43	6.6	347	1137
						3N37	0,47	7.3	343	1125	0,49	7.5	355	1166
						3N38	0,62	9.6	369	1211	0,64	9.8	382	1252
11,0	170	HP	Hornady	28,6	1.126	N340	0,34	5.2	313	1027	0,36	5.6	324	1063
						3N37	0,39	6.0	322	1056	0,41	6.3	333	1093
						N350	0,38	5.9	322	1056	0,40	6.2	333	1091
11,7	180	HP	Speer	28,6	1.126	N340	0,35	5.4	305	1001	0,37	5.7	316	1037
						3N37	0,38	5.9	303	994	0,40	6.2	315	1035
						N350	0,38	5.9	319	1047	0,40	6.2	329	1078
11,7	180	LTC	Fiocchi	28,6	1.126	N320	0,23	3.5	269	883	0,26	4.1	295	968
						N340	0,30	4.6	289	948	0,34	5.2	315	1034
						3N37	0,35	5.4	289	948	0,39	6.1	320	1049
13,0	200	TMJ	Speer	28,6	1.126	N340	0,30	4.6	267	876	0,32	4.9	277	910
						3N37	0,33	5.1	265	869	0,35	5.4	277	909
						N350	0,34	5.2	272	892	0,36	5.5	282	925
						3N38	0,45	6.9	304	997	0,47	7.3	316	1038
						N105	0,49	7.6	321	1053	0,50	7.7	328	1076

10 mm AUTO

Test barrel: 140 mm (5½"), 1 in 16" twist
Primers: Large Pistol
Cases: Remington, trim-to length 25,00 mm (0.988")

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	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	HP-XTP	Hornady	31,9	1.256	N340	0,40	6.2	355	1165	0,46	7.1	374	1225
						3N37	0,43	6.6	359	1178	0,52	7.9	380	1247
						N350	0,42	6.4	359	1178	0,51	7.8	380	1247
10,0	155	FP	Rainier	31,9	1.256	N340	0,45	6.9	369	1211	0,50	7.6	386	1266
						N350	0,49	7.6	379	1243	0,55	8.5	400	1311
						3N37	0,51	7.8	373	1224	0,56	8.6	392	1284
11,7	180	HP	Speer	31,9	1.256	N340	0,37	5.6	312	1024	0,42	6.4	332	1089
						3N37	0,40	6.1	333	1093	0,47	7.2	350	1147
						N350	0,34	5.2	328	1076	0,43	6.6	345	1130
						N105	0,56	8.6	372	1220	0,64	9.9	390	1280
13,0	200	FMJ/FP	Hornady	31,9	1.256	N340	0,30	4.6	267	876	0,35	5.3	288	945
						3N37	0,35	5.4	291	955	0,41	6.3	309	1014
						N350	0,31	4.7	284	932	0,38	5.8	302	989
						N105	0,47	7.3	325	1066	0,53	8.2	339	1111

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

.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/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
11,0	170	JHC	Sierra	40,1	1.579	N350	0,72	11.1	415	1362	0,81	12.5	451	1480
						N105	0,99	15.3	465	1526	1,10	16.9	500	1642
						N110	1,41	21.8	500	1640	1,50	23.2	532	1746
13,6	210	HP/XTP	Hornady	40,1	1.579	N350	0,67	10.3	373	1224	0,74	11.4	400	1312
						N105	0,84	13.0	405	1329	0,95	14.6	437	1435

.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/Name	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	37,3	1.469	N320	0,44	6.8	285	935	0,49	7.6	315	1033
						N330	0,50	7.7	308	1010	0,56	8.6	338	1109
						N340	0,57	8.8	319	1047	0,62	9.6	349	1145
						N350	0,64	9.9	318	1043	0,68	10.5	350	1148
13,0	200	HP-XTP	Hornady	37,3	1.469	N320	0,41	6.3	270	886	0,45	6.9	294	965
						N330	0,50	7.7	287	942	0,55	8.5	315	1033
						N340	0,54	8.3	293	961	0,59	9.1	325	1066
						N350	0,59	9.1	296	971	0,64	9.9	329	1079
14,3	220	FPJ-Match	Sierra	37,3	1.469	N320	0,34	5.2	221	725	0,39	6.0	255	837
						N330	0,40	6.2	232	761	0,46	7.1	271	889
						N340	0,43	6.6	248	814	0,48	7.4	278	912
						N350	0,50	7.7	254	833	0,56	8.6	289	948
15,6	240	JTC-Sil	Hornady	37,6	1.480	N320	0,31	4.8	193	633	0,36	5.6	223	732
						N330	0,35	5.4	206	676	0,40	6.2	234	768
						N340	0,41	6.3	222	728	0,46	7.1	252	827
						N350	0,49	7.6	239	784	0,53	8.2	271	889
15,6	240	SWC/HP		39,1	1.539	N320*)	0,30	4.7	214	702	0,38	5.9	260	853
						N330*)	0,36	5.5	229	751	0,41	6.3	270	886
16,1	248	LRNFP	Gunhill	37,2	1.465	N32C*)	0,38	5.9	238	781	0,41	6.3	255	837
16,2	250	FPJ	Sierra	37,3	1.469	N320	0,31	4.8	193	633	0,36	5.6	226	741
						N330	0,32	4.9	191	627	0,39	6.0	228	748
						N340	0,36	5.6	197	646	0,42	6.5	237	778
						N350	0,44	6.8	229	751	0,49	7.6	260	853
17,3	267	LFN	Intercast	39,1	1.539	N320	0,34	5.2	242	794	0,39	6.0	262	860
						N330	0,41	6.3	261	856	0,45	6.9	281	922
						N340	0,42	6.5	256	840	0,46	7.1	278	912
						N350	0,47	7.3	259	850	0,52	8.0	282	925
17,3	267	LFN		39,1	1.539	N320*)	0,25	3.8	193	633	0,34	5.3	242	794
						N330*)	0,32	4.9	216	709	0,38	5.9	254	833
						N340*)	0,43	6.6	261	856	0,47	7.3	282	925

*) Cowboy Action Shooting load

.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/Name	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	10.6	407	1335	0,77	11.8	437	1432
						N340	0,84	13.0	439	1440	0,92	14.1	472	1549
						N350	0,89	13.7	448	1470	0,99	15.3	481	1578
						N105	1,23	19.0	498	1634	1,40	21.6	543	1781
						N110	1,63	25.2	492	1614	1,76	27.1	534	1751

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

.44 Remington Magnum cont.

Bullet Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
13,0	200	HP-XTP	Hornady	40,7	1.602	N320	0,65	10.0	381	1250	0,73	11.3	408	1339
						N340	0,76	11.7	410	1345	0,84	13.0	437	1434
						3N37	0,89	13.7	433	1421	0,98	15.2	462	1515
						N350	0,83	12.8	416	1365	0,95	14.6	453	1487
						N105	1,09	16.8	459	1506	1,26	19.4	500	1642
						N110	1,58	24.4	494	1621	1,71	26.3	530	1740
14,3	220	FPJ-Match	Sierra	40,7	1.602	N320	0,59	9.1	350	1148	0,67	10.4	375	1232
						N340	0,72	11.1	381	1250	0,80	12.3	405	1328
						N350	0,83	12.8	402	1319	0,96	14.8	439	1441
						N105	1,08	16.7	432	1417	1,22	18.8	470	1542
15,6	240	JTC-Sil	Hornady	40,7	1.602	N320	0,58	8.9	331	1086	0,63	9.7	354	1161
						N340	0,67	10.3	358	1175	0,75	11.5	380	1247
						3N37	0,78	12.0	372	1220	0,86	13.3	402	1318
						N350	0,77	11.9	375	1230	0,83	12.8	399	1308
						N105	0,95	14.7	404	1325	1,08	16.6	437	1434
						N110	1,32	20.4	435	1427	1,43	22.1	470	1541
16,1	248	LRNFP	Gunhill	40,5	1.594	N32C*)	0,49	7.6	272	892	0,62	9.6	309	1014
16,2	250	FPJ-Match	Sierra	40,7	1.602	N320	0,55	8.5	314	1030	0,63	9.7	344	1130
						N340	0,65	10.0	341	1119	0,73	11.2	370	1213
						N350	0,75	11.6	366	1201	0,85	13.1	395	1295
						N105	0,87	13.4	382	1253	1,08	16.7	429	1406
17,3	267	LFN	Intercast	42,7[1)]	1.681	N340	0,68	10.5	357	1171	0,75	11.5	376	1232
						3N37	0,77	11.9	365	1198	0,85	13.2	391	1284
						N350	0,74	11.4	360	1181	0,82	12.7	385	1262
						N110	1,32	20.4	422	1385	1,41	21.8	450	1476
17,3	267	LFN		40,0	1.575	N340*)	0,38	5.9	224	735	0,49	7.5	288	945
17,3	267	LSWC		40,5	1.681	N32C*)	0,50	7.7	271	889	0,60	9.3	301	988
19,4	300	HP-XTP	Hornady	43,6[1)]	1.717	N340	0,62	9.6	304	997	0,68	10.5	323	1061
						3N37	0,67	10.3	308	1010	0,74	11.4	336	1102
						N350	0,68	10.5	315	1033	0,76	11.7	344	1128
						N105	0,85	13.1	349	1145	0,94	14.6	375	1231
						N110	1,21	18.7	384	1260	1,31	20.2	419	1374
19,4	300	JSP	Sierra	43,6[1)]	1.717	N340	0,61	9.4	296	971	0,66	10.2	319	1046
						3N37	0,65	10.0	305	1001	0,73	11.2	332	1089
						N350	0,64	9.9	296	971	0,72	11.1	326	1071
						N105	0,82	12.7	342	1122	0,90	13.8	368	1208
						N110	1,15	17.7	369	1211	1,23	19.1	398	1305

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

.45 ACP

Test barrel: 150 mm (6"), 1 in 16" twist
Primers: Large Pistol
Cases: Remington, trim-to length 22,70 mm (0.893")

Bullet Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
10,0	154	LSWC	Intercast	31,5	1.240	N320	0,38	5.9	315	1033	0,41	6.4	341	1117
						N340	0,49	7.6	344	1129	0,53	8.2	369	1211
11,7	180	LSWC	Intercast	31,6	1.244	N320	0,35	5.4	296	971	0,39	6.0	321	1053
						N340	0,44	6.8	311	1020	0,48	7.4	337	1104
12,0	185	HP	Hornady	29,5	1.161	N330	0,39	6.0	285	935	0,44	6.8	311	1020
12,0	185	TMJ-SWC	Speer	31,5	1.240	N310	0,27	4.2	258	846	0,30	4.6	277	909
						N320	0,36	5.6	278	913	0,39	6.1	301	988
						N340	0,46	7.1	303	993	0,50	7.7	330	1082
12,0	185	FN	Rainier	30,5	1.201	N320	0,37	5.8	291	955	0,41	6.3	316	1037
						N340	0,47	7.3	303	994	0,51	7.9	333	1093
						N350	0,57	8.8	325	1065	0,61	9.4	357	1170
12,0	185	HP	Nosler	28,7	1.130	N310	0,28	4.3	249	817	0,33	5.1	286	938
						N320	0,34	5.2	249	817	0,38	5.9	280	919
						N340	0,45	6.9	290	951	0,51	7.9	328	1076

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

.45 ACP cont.

Bullet Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
13,0	200	FMJ-CT	Hornady	31,0	1.220	N330	0,37	5.7	263	863	0,41	6.3	291	955
						3N37	0,42	6.5	227	745	0,48	7.4	279	915
13,0	200	LSWC	Intercast	31,5	1.240	N310	0,24	3.7	252	827	0,26	4.0	272	892
						N320	0,30	4.7	271	888	0,33	5.1	292	958
						N340	0,39	6.1	295	966	0,43	6.6	317	1039
13,0	200	FMJ-CT	Hornady	31,5	1.240	N320	0,32	5.0	261	855	0,35	5.4	283	928
						N340	0,40	6.2	276	906	0,44	6.8	300	986
						N350	0,43	6.7	279	916	0,47	7.3	303	996
14,9	230	FMJ-RN	Hornady	32,0	1.260	N310	0,24	3.7	219	719	0,27	4.2	235	771
						N320	0,32	4.9	239	784	0,34	5.2	259	850
						N330	0,33	5.1	228	748	0,36	5.6	256	840
						N340	0,38	5.9	253	830	0,41	6.4	278	912
						3N37	0,37	5.7	205	673	0,43	6.6	253	830
						N350	0,43	6.7	257	845	0,47	7.2	280	920

.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 Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
11,7	180	LSWC	Intercast	40,5	1.594	N320	0,55	8.6	341	1119	0,60	9.2	367	1204
						N330	0,66	10.1	362	1188	0,71	10.9	389	1276
						N340	0,69	10.7	362	1188	0,74	11.5	391	1283
						N350	0,75	11.6	363	1191	0,83	12.8	399	1309
12,0	185	HP/XTP	Hornady	40,5	1.594	N320	0,57	8.7	334	1096	0,62	9.6	360	1181
						N340	0,71	10.9	342	1122	0,76	11.8	377	1237
						N350	0,80	12.3	346	1135	0,86	13.2	382	1253
12,0	185	FN	Rainier	40,5	1.594	N320	0,57	8.9	328	1076	0,62	9.6	358	1175
						N330	0,67	10.4	333	1093	0,73	11.2	367	1204
						N340	0,72	11.1	343	1125	0,78	12.1	383	1257
						N350	0,80	12.3	346	1135	0,88	13.6	389	1276
13,0	200	FMJ-CT	Hornady	40,5	1.594	N320	0,52	8.1	317	1040	0,58	8.9	342	1122
13,0	200	LSWC	Hornady	40,5	1.594	N320	0,56	8.7	326	1070	0,61	9.4	347	1138
						N340	0,70	10.9	341	1119	0,75	11.6	364	1194
13,0	200	LRN		40,5	1.594	N320*)	0,44	6.8	259	850	0,56	8.7	318	1043
						N330*)	0,52	8.0	267	876	0,56	8.6	298	978
14,9	230	FMJ-Match	Sierra	40,5	1.594	N320	0,49	7.5	286	938	0,54	8.3	306	1004
						N340	0,63	9.7	301	988	0,68	10.4	330	1083
16,2	250	HP-XTP	Hornady	40,5	1.594	N320	0,47	7.3	257	843	0,51	7.8	280	919
						N340	0,60	9.2	281	922	0,64	9.8	307	1007
						N350	0,69	10.7	297	974	0,72	11.2	321	1053
						N105	0,91	14.1	296	971	0,97	15.0	344	1129
16,2	250	LRN		40,5	1.594	N320*)	0,36	5.6	229	751	0,45	6.9	279	915
						N330*)	0,41	6.3	238	781	0,49	7.5	293	961
16,3	251	LRNFP	Gunhill	40,3	1.587	N32C*)	0,54	8.3	271	889	0,62	9.6	305	1001

*) Cowboy Action Shooting load

.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 Weight [g]	[grs]	Type/Name	Mfg	C.O.L. [mm]	[in.]	Powder Type	Starting load Weight [g]	[grs]	Velocity [m/s]	[fps]	Maximum load Weight [g]	[grs]	Velocity [m/s]	[fps]
12,0	185	HP/XTP	Hornady	38,5	1.516	N350	0,81	12.5	451	1478	0,99	15.3	512	1678
						3N37	0,91	14.0	507	1662	1,03	15.9	534	1750
						N105	1,13	17.4	523	1714	1,33	20.5	576	1888
13,0	200	TMJ-SWC	Speer	38,5	1.516	3N37	0,91	14.0	487	1598	1,00	15.4	513	1683

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

.45 Winchester Magnum cont.

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
13,0	200	FMJ-CT	Hornady	39,5	1.555	N105	1,07	16.5	483	1583	1,23	19.0	532	1744
13,0	200	TMJ-SWC	Speer	38,5	1.516	N110	1,49	22.9	528	1731	1,64	25.2	575	1885
14,9	230	FMJ-RN	Hornady	39,5	1.555	3N37	0,82	12.7	410	1344	0,92	14.2	451	1478
						N110	1,41	21.8	495	1622	1,55	23.9	532	1744
16,2	250	HP-XTP	Hornady	38,2	1.504	N350	0,65	10.0	309	1014	0,78	12.0	373	1224
						3N37	0,75	11.6	354	1160	0,83	12.8	401	1314
						N105	0,90	13.8	393	1289	1,03	15.8	431	1414
						N110	1,20	18.4	442	1448	1,37	21.1	481	1576

.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/Name	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[1)]	41,7	1.642	3N37	1,14	17.6	531	1742	1,36	21.0	588	1929
						N350	1,18	18.2	537	1762	1,39	21.4	593	1946
						N105	1,72	26.5	606	1988	1,90	29.3	653	2142
14,6	225	HP	Speer	42,7	1.681	3N37	1,09	16.8	474	1555	1,27	19.6	523	1716
						N105	1,59	24.5	536	1759	1,73	26.7	580	1903
						N110	2,00	30.9	566	1857	2,17	33.5	614	2014
16,2	250	HP/XTP	Hornady	42,8	1.685	3N37	1,01	15.6	437	1434	1,18	18.2	487	1598
						N105	1,39	21.4	481	1578	1,57	24.2	536	1759
						N110	1,82	28.1	523	1716	1,99	30.7	569	1867
19,4	300	Plated HP	Speer	44,5	1.752	3N37	0,99	15.3	396	1299	1,10	17.0	433	1421
						N105	1,28	19.8	431	1414	1,49	23.0	484	1588
						N110	1,71	26.4	474	1555	1,86	28.7	514	1686

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

.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/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
19,4	300	JHP	IMI	40,0	1.575	N105	1,26	19.4	395	1296	1,38	21.3	436	1430
						N110	1,64	25.3	396	1299	1,86	28.7	456	1496
						N120	2,11	32.6	363	1191	2,33	36.0	417	1368
21,1	325	UCHP	Speer	40,0	1.575	N105	1,15	17.7	357	1171	1,26	19.4	406	1332
						N110	1,56	24.1	386	1266	1,75	27.0	437	1434
						N120	1,99	30.7	348	1142	2,23	34.4	408	1339

.500 S&W Magnum

Test barrel: 280 mm (11"), 1 in 18" twist
Primers: Large Pistol
Cases: Starline, trim-to length 41,00 mm (1.614")

Bullet						Powder	Starting load				Maximum load			
Weight		Type/Name	Mfg	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
19,4	300	TMJ	Speer	51,0	2.008	3N38	1,90	29.3	535	1755	2,20	33.9	583	1913
						N105	1,98	30.6	536	1759	2,33	36.0	599	1965
						N110	2,59	40.0	570	1870	2,95	45.5	652	2139
22,7	350	HP/XTP	Hornady	50,4	1.984	3N38	1,64	25.3	468	1535	2,00	30.9	537	1762
						N105	1,75	27.0	487	1598	2,02	31.2	522	1713
						N110	2,19	33.8	521	1709	2,51	38.7	574	1883
						N120	2,76	42.6	503	1650	2,90F	44.7F	539	1768
25,9	400	JSP	Sierra	52,1	2.051	3N38	1,63	25.2	441	1447	1,85	28.5	486	1594
						N105	1,62	25.0	440	1444	2,01	31.0	505	1657
						N110	2,11	32.6	485	1591	2,42	37.3	536	1759

F = Full case

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 below. The same facts are equally valid always when using any smokeless powder in such loads.

1) Double charges

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

2) Free space in the case

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

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

3) Risk for underload detonation

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

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

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/Name	Mfg	C.O.L.		Type	Weight		Velocity		**Weight**		**Velocity**	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	**[g]**	**[grs]**	**[m/s]**	**[fps]**
9,4	145	LSWC		37,5	1.476	N32C	0,32	4.9	307	1007	0,37	5.7	314	1030
10,2	158	FNCM	Gunhill	36,7	1.445	N32C	0,27	4.2	261	856	0,36	5.6	306	1004
10,3	158	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

.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/Name	Mfg	C.O.L.		Type	Weight		Velocity		**Weight**		**Velocity**	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	**[g]**	**[grs]**	**[m/s]**	**[fps]**
10,2	158	FNCM	Gunhill	40,2	1.583	N32C	0,29	4.5	265	869	0,37	5.7	309	1014
10,3	158	LSWC/HP		40,0	1.575	N330	0,25	3.9	241	791	0,32	5.0	304	997
						N340	0,29	4.5	245	804	0,38	5.9	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/Name	Mfg	C.O.L.		Type	Weight		Velocity		**Weight**		**Velocity**	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	**[g]**	**[grs]**	**[m/s]**	**[fps]**
15,6	240	SWC/HP		39,1	1.539	N320	0,30	4.7	214	702	0,38	5.9	260	853
						N330	0,36	5.5	229	751	0,41	6.3	270	886
16,1	248	LRNFP	Gunhill	37,2	1.465	N32C	0,38	5.9	238	781	0,41	6.3	255	837
17,3	267	LFN		39,1	1.539	N320	0,25	3.8	193	633	0,34	5.3	242	794
						N330	0,32	4.9	216	709	0,38	5.9	254	833
						N340	0,43	6.6	261	856	0,47	7.3	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/Name	Mfg	C.O.L.		Type	Weight		Velocity		**Weight**		**Velocity**	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	**[g]**	**[grs]**	**[m/s]**	**[fps]**
16,1	248	LRNFP	Gunhill	40,5	1.594	N32C	0,49	7.6	272	892	0,62	9.6	309	1014
17,3	267	LFN		40,0	1.575	N340	0,38	5.9	224	735	0,49	7.5	288	945
17,3	267	LSWC		40,5	1.681	N32C	0,50	7.7	271	889	0,60	9.3	301	988

.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/Name	Mfg	C.O.L.		Type	Weight		Velocity		**Weight**		**Velocity**	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	**[g]**	**[grs]**	**[m/s]**	**[fps]**
13,0	200	LRN		40,5	1.594	N320	0,44	6.8	259	850	0,56	8.7	318	1043
						N330	0,52	8.0	267	876	0,56	8.6	298	978
16,2	250	LRN		40,5	1.594	N320	0,36	5.6	229	751	0,45	6.9	279	915
						N330	0,41	6.3	238	781	0,49	7.5	293	961
16,3	251	LRNFP	Gunhill	40,3	1.587	N32C	0,54	8.3	271	889	0,62	9.6	305	1001

Personal Loads

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

Personal Loads

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

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