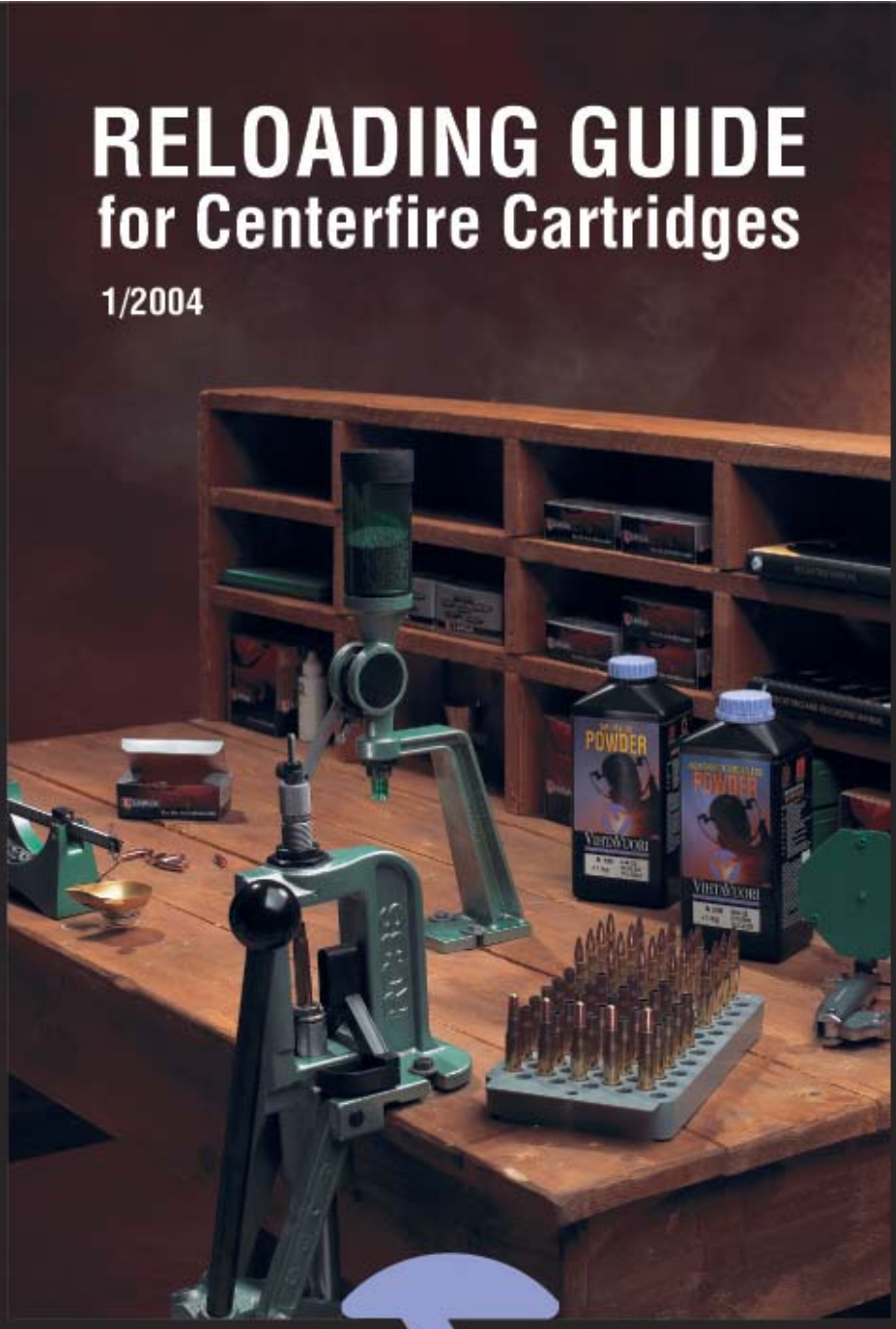
RELOADING GUIDE
for Centerfire Cartridges

1/2004



VIHTAVUORI

Burning Rate Chart

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

CONTACT YOUR LOCAL DEALER OR NAMMO LAPUA OY, www.nammo.com.

	Vihtavuori	Norma	RWS	VECTAN	PRB	IMR	Alliant	Hodgdon	Accurate	W-W
Fast Burning					PCL514			Clays		
		R1						Clays Int.		
	N310		P805	Ba10	PCL504			HP38		
			P801		PCL505		Bullseye		Solo 1000	
					PCL505					231
	N320				PCL506	700X	Red Dot	Trap100	No. 2	452
						PB	Green Dot			
						SR7625				
			P804							473
			P803				Unique	Clays Universal	No. 5	
	N330			Ba9	PCL501			HS-6		540
	N340					SR4756	Herco			
	3N37									
	N350									
	3N38						Blue Dot			571
	N105							HS-7	No.7	
							Hercules 2400			
		R-123							No. 9	
			P806	S10		SR4759		H110		
	N110		R910	Tubal1	PCL512	IMR4227		H4198		296
										680
		200	R901					H4227	MP 5744	
	N120					IMR4198	Reloader 7		1680	
				Tubal2					2015	
			R902	Tubal3	PCL508	IMR3031	Reloader 11			
	N130	201			PCL507			H322	2230	
	N133	202						BL-(C)2	2460	748
								H335		
			R903							
						IMR4064			2520	
	N530					IMR4895	Reloader 12	H4895		
	N135			Tubal4						
						IMR4320		Varget		
	N140	203B	R907	Tubal5	PCL511		Reloader15	H380	2700	
	N540			Tubal6				H414		760
	N150		R904					H4350	4350	
	N550			Tubal7		IMR4350	Reloader 19			
		204						H450		
	N160					IMR4831				785
	N560	MRP	R905	Tubal8				H4831	3100	
Slow Burning	N165	MRP(2)					Reloader 22			
						IMR7828		H1000		
	N170								8700	
								H870		
	24N41							50BMG		
	20N29									

Table of Contents

Preface

Dear Vihtavuori customer,

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

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

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

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

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

The Vihtavuori powders are manufactured by Nexplo Vihtavuori Oy in Vihtavuori plant. Sales and marketing of reloading powders as well as customer service are carried out by Nammo Lapua Oy. Contact details of our customer service and the list of Vihtavuori Distributors can be found in the back of this guide. For latest updates of data and distributors check also at www.vihtavuori.fi/ www.lapua.com, where this guide can also be downloaded in pdf-format.

We wish you successful reloading with Vihtavuori powders.

VIHTAVUORI

Rifle Powders

N100 series

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

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

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

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

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

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

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

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

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

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

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

N500 series

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

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

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

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

Geometrically the powders in the N500 series are equal to the N100 series. Although these new powders have a higher energy content, they do not cause greater wear to the gun. This is because the surface of the powder has been treated with an agent designed to reduce barrel wear.

N500 series powders work well at different temperatures, even better than the traditional N100 and N300 series. Temperature sensitivity naturally depends very much on the weapon and on the cartridge. The manufacturing technique employed permits a very high bulk density, which in turn makes it possible to use a bigger charge in a certain limited loading volume.

Vihtavuori High Energy powders are available in for burning rates:

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

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

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

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

Powders For .50 BMG

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

Handgun Powders

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

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

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

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

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

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

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

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

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

About the Data

Disclaimer

As Nammo Lapua Oy has no control over improper storage, handling, loading or use of our powders after they have left the factory, we make no warranty of any kind, either expressed or implied, limited or full. We specifically disclaim all warranties of fitness for a particular purpose and merchantability. We specifically 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 9 and 10.

Pressure

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

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

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

Properties of Smokeless Powder

Smokeless powders, or propellants, are essentially mixtures of chemicals designed to 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 bums.

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

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

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

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

How to Check Smokeless Powder for Deterioration

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

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

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

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

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

Considerations for Storage of Smokeless Powder

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

For these reasons, it is desirable that storage enclosures be made of insulating materials to protect the powder from external heat sources.

Once smokeless powder begins to burn, it will normally continue to burn (and generate gas pressure) until it is consumed.

D.O.T. approved containers are constructed to open up at low internal pressures to avoid the effects normally produced by the rupture or bursting of a strong container.

Storage enclosures for smokeless powder should be constructed in a similar manner:

1. Of fire-resistant and heat-insulating materials t o protect contents from external heat.
2. Sufficiently large to satisfactorily vent the gaseous products of combustion which would result if the quantity of smokeless powder within the enclosure accidentally ignited.

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

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

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

Recommendations for Storage of Smokeless Powder

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

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

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

DO NOT SMOKE IN AREAS WHERE POWDER IS STORED OR USED. Place appropriate "NO SMOKING" signs in these areas.

DO NOT SUBJECT THE STORAGE CABINETSSHOULD BE CONSTRUCTED OF INSULATING MATERIALS AND WITH A WEAK WALL, SEAMS OR JOINTS TO PROVIDE AN EASY MEANS OF SELFVENTING.

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

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

KEEP YOUR STORAGE AND USE AREA CLEAN. Clean up spilled powder promptly. Make sure the surrounding area is free of trash or other readily combustible materials.

The above information has been provided with permission from SAAMI: SPORTING ARMS AND AMMUNITION MANUFACTURERS' INSTITUTE, INC. P.O. Box 838, Branford, CT 06405.

Reloading Safety

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

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

- Reload only when you can give it your undivided attention. **Do not reload**, when fatigued or ill. Develop your own reloading routine to avoid mistakes. Avoid haste, load at a leisurely place and keep in mind that **absolutely no reloading under the influence of alcohol or drugs!**
- Always wear proper eye protection. It is an unnecessary risk to reload without safety glasses.
- Store powder and primers out of reach of children and away from heat and open fire. **Follow the manufacturer's instructions on your powder canister. Never smoke during a reloading session!**
- Keep no more powder than needed available. Immediately return the unused powder to its original factory container to preserve its identity and usable life time.
- Do not use any powder unless its identity is positively known. Scrap all unidentified powders according to the manufacturer's instructions on your powder canister. **Keep in mind that the trial-and-error method may lead to serious injury!**
- **Do not store primers in bulk! Doing so will create a bomb!** Bulk primers will very likely mass detonate. The blast of a few hundred primers corresponds to a hand grenade in a room! Do not force primers in any circumstances. Take special care when filling and handling auto primer feed tubes. Keep primers in their original factory packing until used. Return unused primers to their original packing.
- Do not use primers if their identity is lost. Discard them according to the manufacturer's instructions.
- Start loading with the starting load according to the loading data. If there is no indication of the starting load, use 15 % lower charge than the listed maximum load. Increase the charge using small steps watching for overpressure signs from the primer and the case head at each step. **If you detect overpressure signs immediately stop shooting and reduce the charge.** Disassemble always the defected cartridges. **NEVER EXCEED THE MAXIMUM LOADS!**
- Check visually the powder level in the cases so you are absolutely sure that you have no double powder charge. When a double powder charge is fired it may result in a gun damage, personal injury, even death.
- If you change the lot of any component or if you change any of the components of your reload, you must develop your load from the starting load again. A different component as well as a component from a different manufacturing lot may cause changes in cartridge pressure.
- You must absolutely follow the given cartridge overall lengths (C.O.L.) according to the reloading tables. The change in the bullet seating depth has a significant influence on the cartridge pressure.
- **Never reduce loads under the listed starting load.**
- Keep your reloading bench in good order. Clean up spilled powder and primers promptly and completely. Remember that the reloading bench is not a temporary store for other tools, used car spare parts etc.
- Use your reloading equipment according to the manufacturer's recommendations. Study the instructions carefully and don't hesitate to ask, if you don't understand everything.
- **Be safe, be conscientious!**

Reloading Safety

LEAD EXPOSURE

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

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

- **WASH YOUR HANDS** thoroughly with warm water and soap after shooting or reloading.
- **DO NOT EAT OR DRINK** during a reloading session. When handling fired cartridge cases the residual containing lead most likely gets to your hands. Therefore eating something requiring a straight hand contact during a reloading session hazards the reloader to lead exposure. Keep your hands away from your nose or your mouth during a reloading session.
- **KEEP GOOD HOUSEHOLD AT YOUR RELOADING SITE.** Regular cleaning prevents the accumulation of residuals. Use a damp cloth or mop to clean up the reloading bench as well as the floor underneath. **DO NOT USE A VACUUM CLEANER!** The use of it dues to a potential risk of exposure because of spilled powder it collects up. Furthermore an ordinary vacuum cleaner more spreads than collects up the dust containing residuals. Do not use any carpet at your reloading site. Carpet is hard to keep dust-free and it can create static electricity that can accidentally fire a primer.
- **PROTECT YOUR BREATHING AGAINST THE DUST IN THE RELOADING AREA.** When using a dry cleaning media in tumbling the cartridge cases keep in mind that the lead residual from the fired cases moves to the dry cleaning media, where it accumulates by use. Wear always a dust mask when pouring the dry cleaning media out of the tumbler and be careful not to spill the media on your reloading bench.

RIFLE RELOADING DATA

DISCLAIMER

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

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

DO NOT ATTEMPT ANY EXTRAPOLATIONS. PLEASE FOLLOW THE DATA AS WRITTEN.

IT IS A MUST FOR EVERY RELOADER TO READ THE RELOADING SAFETY RULES ON THE PAGES 9 AND 10 OF THIS GUIDE.

.22 Hornet

Test barrel: 600 mm (23½"), 1 in 16" twist
Primers: Small Rifle
Cases: Sako, trim-to length 35.40 mm (1.394")

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	**[g]**	**[grs]**	**[m/s]**	**[fps]**
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

.222 Remington

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	**[g]**	**[grs]**	**[m/s]**	**[fps]**
2,6	**40**	Spire Point	Speer	53,0	2,087	N110	0,97	15,0	930	3052	**1,15**	**17,7**	**1035**	**3397**
		Hornet	Sierra	52,0	2,047	N120	1,29	19,9	981	3220	**1,42**	**21,8**	**1077**	**3532**
		Spire Point	Speer	52,0	2,047	N120	1,32	20,4	999	3278	**1,46**	**22,5**	**1116**	**3661**
				52,5	2,067	N130	1,44	22,2	998	3273	**1,60**	**24,7**	**1109**	**3637**
				52,0	2,047	N133	1,48	22,8	984	3228	**1,63**	**25,2**	**1072**	**3517**
2,9	**45**	Spitzer	Speer	53,0	2,087	N110	0,92	14,2	871	2858	**1,10**	**17,0**	**975**	**3197**
						N120	1,28	19,8	948	3109	**1,42**	**21,8**	**1050**	**3444**
		Hornet	Hornady	53,6	2,110	N130	1,44	22,2	973	3193	**1,58**	**24,3**	**1074**	**3523**
		Spitzer	Speer	53,0	2,087	N133	1,50	23,2	967	3173	**1,62**	**25,0**	**1051**	**3448**
3,2	**50**	SXSP	Hornady	53,8	2,118	N120	1,24	19,1	898	2946	**1,38**	**21,2**	**997**	**3271**
						N130	1,36	21,0	912	2992	**1,51**	**23,4**	**1016**	**3332**
						N133	1,48	22,8	930	3051	**1,64**	**25,3**	**1043**	**3420**
						N135	1,50	23,1	907	2975	**1,62F**	**25,0F**	**998**	**3274**

F = Case full

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

.222 Remington

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
3,3	**51**	HPCE	LAPUA	54,0	2,126	N120	1,15	17,7	863	2831	**1,27**	**19,6**	**956**	**3136**
						N130	1,26	19,4	877	2877	**1,39**	**21,4**	**979**	**3212**
						N133	1,35	20,8	909	2982	**1,47**	**22,7**	**971**	**3186**
3,4	**52**	HPBT	Sierra	54,0	2,126	N130	1,31	20,2	883	2898	**1,49**	**23,0**	**970**	**3184**
						N133	1,43	22,0	883	2897	**1,59**	**24,6**	**955**	**3133**
						N135	1,53	23,6	909	2981	**1,62**	**25,0**	**953**	**3126**
3,6	**55**	SP	Sako	54,2	2,134	N120	1,20	18,6	856	2809	**1,35**	**20,9**	**957**	**3139**
		FMJBT	Hornady	53,8	2,118	N130	1,32	20,4	877	2876	**1,47**	**22,7**	**979**	**3211**
		SP	Sako	54,2	2,134	N133	1,44	22,3	892	2927	**1,59**	**24,6**	**987**	**3237**
						N135	1,50	23,1	892	2928	**1,62**	**25,0**	**972**	**3188**
3,6	**55**	FMJ	LAPUA	53,9	2,122	N120	1,15	17,7	837	2746	**1,25**	**19,3**	**911**	**2989**
						N130	1,25	19,3	865	2838	**1,36**	**21,0**	**938**	**3077**
						N133	1,31	20,2	850	2789	**1,34**	**20,7**	**908**	**2979**
						N135	1,40	21,6	858	2815	**1,45**	**22,4**	**916**	**3005**
3,9	**60**	HP	Hornady	54,0	2,126	N120	1,15	17,7	803	2633	**1,33**	**20,5**	**909**	**2983**
				53,8	2,118	N130	1,29	19,9	829	2720	**1,47**	**22,7**	**937**	**3074**
				54,0	2,126	N133	1,39	21,4	844	2769	**1,55**	**23,9**	**952**	**3123**
						N135	1,40	21,6	836	2743	**1,64F**	**25,3F**	**900**	**2953**
4,5	**69**	HPBT	Sierra	54,0	2,126	N130	1,21	18,6	768	2519	**1,33**	**20,5**	**852**	**2794**
						N133	1,30	20,1	785	2577	**1,44**	**22,1**	**863**	**2832**
						N135	1,35	20,8	792	2597	**1,53**	**23,6**	**880**	**2888**
						N140	1,47	22,7	798	2617	**1,61**	**24,8**	**886**	**2907**

F = Case full

= accuracy load

.223 Remington

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

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

F = Case full

= accuracy load

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

.223 Remington

Test barrel: 620 mm (25"), 1 in 12" twist (* 1 in 7" twist)
Primers: Small Rifle
Cases: LAPUA, trim-to length 44.50 mm (1.752")

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

F = Case full
1) 1 in 7" twist
2) Test barrel with a long throat to accept the C.O.L. of 65 mm (2,559")

22 PPC-USA

Test barrel: 610 mm (24"), 1 in 14" twist
Primers: Small Rifle
Cases: Sako, trim-to length 38.30 mm (1.508")

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
3,4	**52**	HPBT	Sierra	51,4	2,024	N120	1,33	20,5	919	3016	**1,56**	**24,1**	**1039**	**3408**
						N130	1,43	22,1	934	3063	**1,66**	**25,6**	**1069**	**3507**
						N133	1,51	23,3	947	3107	**1,77**	**27,3**	**1087**	**3565**
						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**

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

.22-250 Remington

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

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

6 PPC-USA

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
4,4	**68**	HPFB	Euber	53,6	2,110	N130	1,52	23,4	843	2766	**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 B.R. Norma

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
4,5	**70**	HPBT	Sierra	57,0	2,244	N133	1,64	25,3	864	2834	**1,86**	**28,7**	**957**	**3140**
						N135	1,88	29,0	901	2956	**2,20**	**33,9**	**1009**	**3310**
5,0	**77**	Silver Jacket HP	LAPUA	60,0	2,362	N133	1,85	28,5	884	2900	**2,01**	**31,0**	**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**
5,8	**90**	FMJ	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**

= accuracy load

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

6 mm B.R. Norma

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
5,8	**90**	Silver Jacket Scenar	LAPUA	60,0	2,362	N135	1,85	28,5	830	2723	**2,00**	**30,9**	**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**	Silver Jacket Scenar	LAPUA	60,0	2,362	N140	1,83	28,2	763	2503	**2,00**	**30,9**	**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**

= accuracy load

.243 Winchester

Test barrel: 580 mm (23"), 1 in 10" twist
Primers: Large Rifle
Cases: LAPUA, trim-to length 51.80 mm (2.039")

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

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

.240 Weatherby Magnum

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

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
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	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**
						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**

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

.260 Remington

Test barrel: 475 mm (18¾"), 1 in 9" twist
Primers: Large Rifle
Cases: Necked-up LAPUA .243 Winchester, trim-to length 51.50 mm (2.028")

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
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**
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**	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**
9,0	**139**	Scenar	LAPUA	71,0	2,795	N550	2,15	33,1	690	2263	**2,46**	**38,0**	**772**	**2533**
						N160	2,32	35,8	692	2272	**2,63**	**40,6**	**771**	**2529**
						N560	2,57	39,6	704	2311	**2,86**	**44,1**	**788**	**2586**
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**

6,5 x 55 Swedish Mauser

Test barrel: 630 mm (26½"), 1 in 8½" twist
Primers: Large Rifle
Cases: LAPUA, trim-to length 54.80 mm (2.157")

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
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	N160	3,08	47,5	862	2828	**3,39**	**52,3**	**946**	**3104**
6,5	**100**	Scenar	LAPUA	75,0	2,953	N135	2,15	33,2	790	2592	**2,55**	**39,4**	**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	**2,74**	**42,3**	**903**	**2963**
						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	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	3,04	46,9	849	2785	**3,16**	**48,8**	**891**	**2923**
						N560	3,19	49,2	867	2843	**3,42**	**52,7**	**939**	**3079**
						N165	3,16	48,8	860	2822	**3,28F**	**50,7F**	**902**	**2959**
7,0	**108**	Silver Jacket Scenar	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	**2,70**	**41,7**	**889**	**2917**

F = Case full

= accuracy load

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

6,5 x 55 Swedish Mauser

Test barrel: 630 mm (26½"), 1 in 8½" twist
Primers: Large Rifle
Cases: LAPUA, trim-to length 54.80 mm (2.157")

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
7,8	**120**	HPBT	Sierra	76,8	3,024	N140	2,47	38,1	855	2805	**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**
8,0	**123**	Scenar	LAPUA	80,0	3,150	N140	2,35	36,3	738	2420	**2,59**	**40,0**	**812**	**2663**
						N540	2,44	37,7	749	2456	**2,68**	**41,4**	**827**	**2715**
						N150	2,47	38,1	743	2436	**2,69**	**41,6**	**819**	**2686**
8,0	**123**	Silver Jacket Scenar	LAPUA	80,0	3,150	N150	2,40	37,0	780	2559	**2,62**	**40,4**	**834**	**2738**
						N550	2,41	37,2	768	2520	**2,73**	**42,1**	**857**	**2811**
						N160	2,75	42,4	792	2598	**2,88**	**44,5**	**831**	**2726**
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**
9,0	**139**	HPBT	Norma	78,0	3,071	N150	2,28	35,2	704	2310	**2,55**	**39,4**	**779**	**2555**
						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	N150	2,17	33,5	673	2208	**2,49**	**38,4**	**749**	**2458**
						N550	2,45	37,8	724	2375	**2,60**	**40,1**	**795**	**2608**
						N160	2,73	42,1	752	2467	**2,92**	**45,1**	**813**	**2666**
						N560	2,87	44,3	767	2516	**3,09**	**47,6**	**837**	**2746**
						N165	2,96	45,7	761	2497	**3,22**	**49,8**	**829**	**2721**
9,0	**139**	Silver Jacket	LAPUA	80,0	3,150	N550	2,37	36,6	712	2336	**2,61**	**40,3**	**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**
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	**3,41F**	**52,6F**	**815**	**2674**
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	**3,32F**	**51,2F**	**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	**3,32**	**51,2**	**746**	**2447**

F = Case full

= accuracy load

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

6,5 - 284 Norma

Test barrel: 660 mm (26"), 1 in 9" twist
Primers: Large Rifle
Cases: LAPUA, trim-to length 54.90 mm (2.161")

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
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**	Silver Jacket Scenar	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**
8,0	**123**	Silver Jacket Scenar	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**
9,0	**139**	Scenar	LAPUA	79,0	3,110	N560	3,12	48,1	824	2703	**3,63**	**56,0**	**947**	**3108**
9,0	**139**	Silver Jacket Scenar	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**

.270 Winchester Short Magnum

Test barrel: 520 mm (24½"), 1 in 9" twist
Primers: Large Rifle Magnum
Cases: Winchester, trim-to length 53,1 mm (2,090")

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
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	**4,75**	**73,3**	**1083**	**3553**
9,1	**140**	X	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	**160**	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**

.270 Winchester

Test barrel: 620 mm (24.5"), 1 in 10" twist
Primers: Large Rifle
Cases: Remington, trim-to length 64.30 mm (2.531")

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
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**
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**
10,4	**160**	Partition	Nosler	84,6	3,331	N160	3,02	46,6	743	2438	**3,48**	**53,8**	**826**	**2711**
						N165	3,10	47,8	747	2451	**3,64**	**56,2**	**837**	**2745**

C = Compressed load

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

.270 Weatherby Magnum

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

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
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**

7mm-08 Remington

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

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

C = Compressed load

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

7 x 57

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
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**

7mm Remington Magnum

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

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

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

F = Case full

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

7mm Weatherby Magnum

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

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
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**

.30 Carbine

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
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**

.30-30 Winchester

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
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**

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

.300 Savage

Test barrel: 600 mm (23½"), twist 12"
Primers: Large Rifle
Cases: Remington, trim to-length 47,3 mm (1,862")

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
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	Sierre	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**
12,0	**200**	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	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**
						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	N130	2,26	34,9	782	2566	**2,78**	**42,9**	**923**	**3028**
						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	71,0	2,795	N135	2,05	31,6	664	2178	**2,55**	**39,3**	**789**	**2588**
						N140	2,09	32,2	653	2142	**2,67**	**41,2**	**791**	**2596**
						N540	2,26	34,9	671	2201	**2,80**	**43,2**	**803**	**2635**
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	71,0	2,795	N540	2,73	42,1	765	2510	**3,17**	**48,9**	**894**	**2932**
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**

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

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

.308 Winchester

Test barrel: 610 mm (24"), 1 in 12" twist
Primers: Large Rifle
Cases: LAPUA, trim-to length 51.00 mm (2.008")

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
10,0	**155**	Scenar	LAPUA	71,0	2,795	N135	2,23	34,4	687	2254	**2,66**	**41,0**	**809**	**2653**
						N140	2,38	36,7	686	2251	**2,83**	**43,6**	**812**	**2664**
						N150	2,53	39,0	719	2359	**3,03**	**46,8**	**818**	**2683**
10,0	**155**	Silver Jacket Scenar	LAPUA	71,0	2,795	N140	2,60	40,1	746	2448	**2,95**	**45,5**	**855**	**2805**
						N150	2,65	40,9	760	2492	**3,04**	**46,9**	**860**	**2822**
						N540	2,64	40,7	760	2494	**3,05**	**47,1**	**870**	**2854**
10,0	**155**	HPBT Palma	Sierra	71,0	2,795	N135	2,28	35,1	712	2337	**2,68**	**41,3**	**815**	**2674**
						N140	2,40	37,0	717	2354	**2,86**	**44,2**	**827**	**2712**
						N540	2,46	37,9	712	2337	**2,92**	**45,1**	**838**	**2750**
						N150	2,63	40,6	752	2466	**3,01**	**46,5**	**850**	**2790**
						N550	2,76	42,5	756	2479	**3,22**	**49,7**	**880**	**2888**
10,1	**156**	SPBT	Sako	68,2	2,685	N135	2,51	38,8	729	2390	**2,87**	**44,3**	**838**	**2750**
						N140	2,64	40,7	727	2384	**3,03**	**46,8**	**849**	**2787**
						N150	2,78	42,9	751	2464	**3,24**	**49,9**	**873**	**2865**
10,7	**165**	SPBT	Speer	71,0	2,795	N133	2,38	36,8	715	2345	**2,72**	**41,9**	**809**	**2653**
						N135	2,48	38,3	724	2376	**2,86**	**44,1**	**824**	**2703**
						N140	2,60	40,1	729	2390	**3,00**	**46,3**	**838**	**2750**
						N150	2,66	41,0	735	2411	**3,10**	**47,9**	**842**	**2761**
						N550	2,86	44,1	760	2495	**3,19**	**49,3**	**850**	**2789**
10,9	**167**	Scenar	LAPUA	71,0	2,795	N140	2,56	39,5	711	2332	**2,94**	**45,3**	**819**	**2687**
						N540	2,51	38,8	707	2318	**2,95**	**45,5**	**833**	**2734**
						N150	2,64	40,8	723	2370	**2,90**	**44,8**	**836**	**2744**
						N550	2,78	42,9	732	2400	**3,25C**	**50,1C**	**848**	**2784**
10,9	**167**	Silver Jacket Scenar	LAPUA	71,0	2,795	N140	2,61	40,2	743	2437	**2,80**	**43,2**	**828**	**2717**
						N150	2,64	40,7	737	2418	**2,97**	**45,8**	**828**	**2717**
						N540	2,62	40,5	732	2401	**3,00**	**46,3**	**837**	**2746**
10,9	**168**	HPBT	Sierra	71,0	2,795	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**
11,0	**170**	FMJBT	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	**2,95**	**45,5**	**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	**3,25C**	**50,1C**	**883**	**2896**
11,3	**175**	HPBT/VLD	Sierra/Berger	71,0	2,795	N140	2,29	35,3	664	2177	**2,68**	**41,4**	**762**	**2501**
						N540	2,44	37,7	687	2253	**2,79**	**43,1**	**788**	**2586**
						N550	2,57	39,6	698	2290	**2,97**	**45,8**	**802**	**2631**
						N150	2,39	36,8	681	2236	**2,82**	**43,5**	**784**	**2573**
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**	X	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	70,6	2,780	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**	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	**2,83**	**43,7**	**778**	**2551**
						N540	2,54	39,2	712	2335	**2,84**	**43,8**	**791**	**2595**

C = Compressed load

= accuracy load

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

.308 Winchester

Test barrel: 610 mm (24"), 1 in 12" twist
Primers: Large Rifle
Cases: LAPUA, trim-to length 51.00 mm (2.008")

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
12,0	**185**	Scenar	LAPUA	71,0	2,795	N150	2,42	37,3	664	2179	**2,72**	**42,0**	**785**	**2575**
						N550	2,62	40,5	672	2203	**3,04**	**46,9**	**795**	**2608**
12,0	**185**	Silver Jacket Scenar	LAPUA	71,0	2,795	N140	2,46	38,0	689	2259	**2,77**	**42,7**	**776**	**2546**
						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**

= accuracy load

7,62x53R (7,62 Russian)

Test barrel: 660 mm (26"), 1 in 10" twist
Primers: Large Rifle
Cases: LAPUA, trim-to length 53.30 mm (2.098")

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
8,0	**123**	FMJ	LAPUA	68,5	2,697	N130	2,81	43,3	883	2896	**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**
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	**3,15**	**48,6**	**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	**3,31**	**51,1**	**879**	**2885**
						N150	3,16	48,7	809	2655	**3,45**	**53,2**	**890**	**2921**
10,9	**167**	Scenar	LAPUA	75,0	2,953	N140	3,00	46,3	784	2573	**3,10**	**47,8**	**862**	**2828**
						N540	2,94	45,3	774	2541	**3,24**	**50,0**	**854**	**2802**
						N150	3,12	48,1	790	2590	**3,38**	**52,1**	**865**	**2838**
						N550	3,21	49,5	797	2616	**3,54**	**54,6**	**885**	**2904**
10,9	**168**	HPBT	Sierra	75,6	2,976	N140	2,94	45,4	775	2541	**3,24**	**50,0**	**848**	**2782**
						N150	3,08	47,5	790	2591	**3,35**	**51,7**	**863**	**2831**
						N540	3,03	46,7	787	2581	**3,34**	**51,5**	**869**	**2851**
						N550	3,26	50,3	804	2638	**3,52**	**54,4**	**879**	**2884**
11,7	**180**	Naturalis	LAPUA	72,5	2,854	N140	2,80	43,2	708	2323	**3,07**	**47,4**	**781**	**2562**
						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	**3,03**	**46,8**	**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**

= accuracy load

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

7,62x53R (7,62 Russian)

Test barrel: 660 mm (26"), 1 in 10" twist
Primers: Large Rifle
Cases: LAPUA, trim-to length 53.30 mm (2.098")

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
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**	D166	LAPUA	76,0	2,992	N140	2,36	36,4	635	2083	**2,59**	**40,0**	**709**	**2326**
						N150	2,36	36,4	641	2103	**2,64**	**40,7**	**711**	**2333**
						N540	2,47	38,1	656	2152	**2,69**	**41,5**	**720**	**2362**
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**

= accuracy load

7,5 x 55 Swiss GP31

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
10,0	**155**	Scenar	LAPUA	75,5	2,972	N140	3,00	46,3	759	2490	**3,18**	**49,1**	**811**	**2661**
						N150	3,03	46,8	763	2503	**3,22**	**49,7**	**815**	**2674**
						N540	3,05	47,1	766	2513	**3,25**	**50,1**	**842**	**2762**
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**
						N150	2,85	44,0	697	2287	**2,93**	**45,2**	**723**	**2372**
						N540	2,74	42,3	688	2257	**2,87**	**44,3**	**722**	**2369**

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

.30-06 Springfield

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

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

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

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

.30-06 Springfield

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

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

= accuracy load

.300 H&H Magnum

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
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**

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

.300 Winchester Short Magnum

Test barrel: 620 mm (24"), 1 in 10" twist
Primers: Large Rifle Magnum
Cases: Winchester, max. length 51,34 mm (2,021")

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
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**
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**	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 (24"), 1 in 10" twist
Primers: Large Rifle Magnum
Cases: LAPUA, trim-to length 66,3 mm (2.610")

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
7,1	**110**	SP	Hornady	83,0	3,268	N160	5,40	83,3	1063	3488	**5,65**	**87,1**	**1122**	**3679**
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**	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	**5,35F**	**82,6F**	**997**	**3271**
10,9	**167**	Scenar	LAPUA	84,8	3,339	N160	4,70	72,4	880	2887	**5,01**	**77,3**	**950**	**3117**
						N165	5,02	77,5	892	2927	**5,39**	**83,2**	**967**	**3171**
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**
11,7	**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**
						N165	4,45	68,7	839	2753	**4,93**	**76,1**	**887**	**2910**
						N560	4,80	74,1	873	2864	**5,01**	**77,3**	**913**	**2995**
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	**5,10**	**78,7**	**915**	**3002**
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**	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**
14,3	**220**	HPBT	Sierra	84,8	3,339	N560	3,40	52,5	694	2278	**4,12**	**63,6**	**782**	**2567**
						N165	3,27	50,4	667	2187	**4,24**	**65,4**	**772**	**2531**
						N170	3,65	56,3	688	2256	**4,31**	**66,5**	**767**	**2515**

F = Case full

= accuracy load

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

.300 Weatherby Magnum

Test barrel: 660 mm (26"), 1 in 10" twist
Primers: Large Rifle Magnum
Cases: Weatherby, trim-to length 71.50 mm (2.815")

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
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	75,3	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**	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**

.300 LAPUA Magnum

Test barrel: 690 mm (27"), 1 in 9½ twist
Primers: Large Rifle Magnum
Cases: LAPUA, trim to-length 68,9 mm (2,713")

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
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)

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
10,7	**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**
11,7	**180**	X	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**	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**

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

.30-.378 Weatherby Magnum

Test barrel: 670 mm (26½"), twist 10"
Primers: Large Rifle Magnum
Cases: Weatherby, trim to-length 73,7 mm (2,902")

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
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	974	3196	**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	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	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	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**

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

8mm Mauser (8 x 57 JS)

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

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

.338 Winchester Magnum

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
13,0	**200**	SP	Hornady	85,0[1)]	3,346	N160	5,09	78,6	878	2881	**5,37**	**82,8**	**932**	**3057**
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**
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	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**
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**

[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	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**
16,2	**250**	Lock Base	LAPUA	91,5	3,602	N560	5,05	78,0	812	2663	**5,56**	**85,9**	**879**	**2883**
						N165	4,85	74,9	780	2558	**5,74**	**88,5**	**886**	**2906**
						N170	5,19	80,1	785	2577	**5,90**	**91,0**	**858**	**2816**

= accuracy load

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

.338 LAPUA Magnum

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
16,2	**250**	Scenar	LAPUA	93,5	3,681	N560	4,83	74,5	802	2630	**5,40**	**83,3**	**866**	**2841**
						N165	4,89	75,5	789	2589	**5,39**	**83,2**	**846**	**2775**
						N170	5,52	85,2	800	2625	**6,09**	**93,9**	**870**	**2854**
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**
						24N41	5,52	85,2	735	2410	**6,28**	**96,8**	**809**	**2653**

= accuracy load

9,3 x 62

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
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

9,3 x 74R

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
15,0	**231**	SP	Norma	92,1	3,626	N140	3,72	57,4	718	2356	**4,29**	**66,2**	**810**	**2656**
16,5	**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**
18,5	**285**	X	Barnes	97,6[1)]	3,483	N140	3,17	48,9	623	2045	**3,61**	**55,6**	**688**	**2256**
19,0	**293**	TUG	RWS	95,5[1)]	3,760	N140	3,42	52,7	637	2088	**3,72**	**57,4**	**695**	**2281**

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

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

.375 H&H Magnum

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
15,2	**235**	Spitzer	Speer	91,0	3,583	N140	4,55	70,2	816	2677	**4,91**	**75,8**	**879**	**2884**
						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**	SP	Speer	91,0	3,583	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**
18,5	**285**	Grand Slam	Speer	91,0	3,583	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**

.444 Marlin

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

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
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	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**	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 check	Gunhill	64,7	2,547	N120[1)]	1,70	26,2	360	1181	**1,90**	**29,3**	**408**	**1339**
						N130[1)]	2,00	30,9	389	1276	**2,30**	**35,5**	**495**	**1624**

[1)] Cowboy Action Shooting-load.

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

.458 Winchester Magnum

Test barrel: 635 mm (25"), 1 in 14" twist
Primers: Large Rifle Magnum
Cases: Winchester, trim-to length 63.30 mm (2.492")

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
22,7	**350**	RN	Hornady	74,9	2,949	N120	4,13	63,7	712	2336	**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**	X	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

.50 BMG

Test barrel: 1140 mm (45"), rifle twist 16½"
Primers: CCI35
Cases: IMI, trim-to length 99.10 mm

Bullet						Powder	Starting load				Maximum load			
Weight		Type	Mfg.	C.O.L.		Type	Weight		Velocity		Weight		Velocity	
[g]	[grs]			[mm]	[in.]		[g]	[grs]	[m/s]	[fps]	[g]	[grs]	[m/s]	[fps]
41,9	**647**	FMJBT	SPEER	137,5	5,413	N170	13,03	201,1	801	2629	**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**

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

Notes

Dear Customer,

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

AUSTRALIA
D.W. Custer Pty. Ltd.
P.O.B. 1023
Auburn, N.S.W. 1835
Australia
Tel: +61-2-9749 9222
Fax: +61-2-9749 9296
custer@powerup.com.au
www.custer.com.au

AUSTRIA
Rohof GmbH
Hermannsplatz 17, Postfach 21
A-2560 Berndorf
Österreich
Tel: +43-2672-82571
Fax: +43-2672-827 673
gerhard.rohof@rohofwaffen.at
www.rohofwaffen.at

BRITAIN
Tim Hannam
Peckfield Lodge
Great North Road
Leeds, LS25 5LJ
North Yorkshire
England
Tel: +44-1977-681 639
Fax: +44-1977-684 272
timhannam@hotmail.com

CANADA
Hirsch Precision
34 Johnson Avenue
Timberlea
Nova Scotia, B3T 1E3
Canada
Tel: +1-902-876-8690
Fax: +1-902-431-6326
peterdobson@eastlink.ca

DENMARK
Leo Nielsen Trading A/S
Klostermarken 5
DK-9000 Aalborg
Danmark
Tel: +45-98-102909
Fax: +45-98-102940
intrade@intrade.dk
www.intrade.dk

Guntex A/S
Jaegervej 7
DK-6900 Skjern
Danmark
Tel: +45-96-802000
Fax: +45-96-802010
info@guntex.dk
www.guntex.dk

ESTONIA
AS Drillinki
Kuristiku 7
EE-10127 Tallin
Estonia
Tel: +372-601-4544
Fax: +372-601-4545
anti@ejs.ee

FINLAND
NorDis Oy
P.O. Box 5
FIN-62101 Lapua
Finland
Tel: +358-6-4310 301
Fax: +358-6-4310 295
www.nordis.fi
info@nordis.fi

FRANCE
B.G.M
15, Route de Meaux
Le Bois - Fleuri
F-77410 Claye-Souilly
France
Tel: +33-1-60 26 13 07
Fax: +33-1-60 26 14 77

GERMANY
FA Gustaf Jehn GmbH
Josefkirchstrasse 3
Postfach 1827
D-59528 Lippstadt
Deutschland
Tel: +49 2941-29090
Fax: +49 2941-23418
gustav@jehn.de
www.jehn.de

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

ICELAND
Hlad Sf
Bildshöfda 12
112 Reykjavik
Iceland
Tel: +354-567 5333
Fax: +354-567 5313
hjalli@hlad.is
www.hlad.is

ITALY
Fiocchi Munizioni S.P.A.
Via S. Barbara, 4
P.O.Box 236
I-23900 Lecco
Italy
Tel: +39-0341-473 111
Fax: +39-0341-473 203
r.degliagosti@fiocchigfl.it
www.fiocchigfl.com

Armeria Bersaglio Mobile
Via Zacchetti, 14
I-42100 Reggio Emilia
Italy
Tel: +39-0522-518 344
Fax: +39-0522-518 354
info@bersagliomobile.com
www.bersagliomobile.com

JAPAN
Gunsmith of Kunitomo Co. Ltd.
Teramachi Bukoji Shimogyo
Kyoto
Japan
Tel: +81-75-3513037
Fax: +81-75-3513041
trade@kunitomogs.co.jp
www.kunitomogs.co.jp

LUXEMBOURG
Armurerie Henry Freylinger
Zone Industrielle & Commerciale
L-3378 Livange
Grand-Duche de Luxembourg
Tel: +352-520 017
Fax: +352-520 010

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

PHILIPPINES
Stronghand Inc.
74 A, Roces Avenue
Quezon City
Metro Manila (1103)
Philippines
Tel: +63-2-373 2311
Fax: +63-2-374 2476
open@stronghandinc.com
www.stronghandinc.com

POLAND
NAT
Brechta 3
PL-03-472 Warszawa
Poland
Tel: +48-22-818 7684
Fax: +48-22-618 8450
nat@nat.com.pl

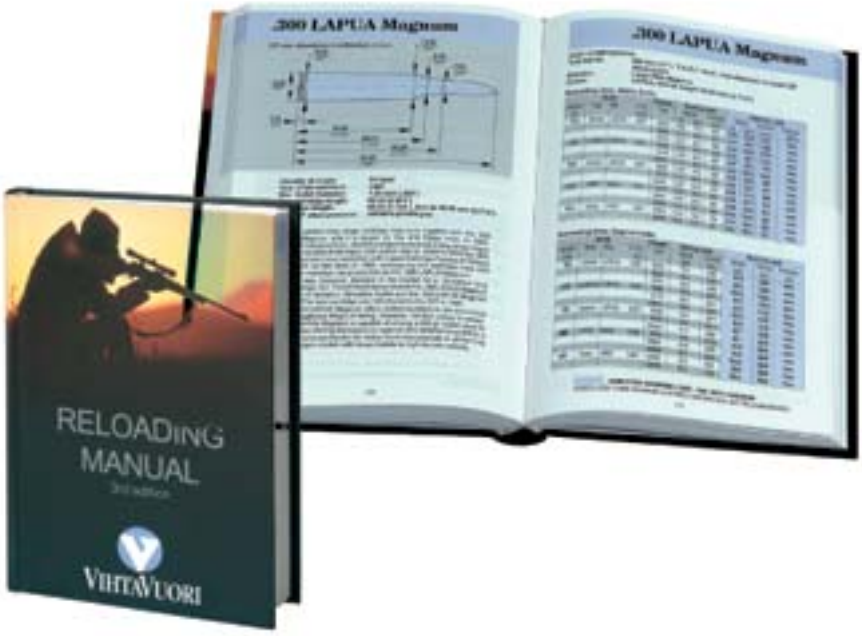
SLOVENIA
LORS Ltd.
Cankarjeva c.10
3272 Rimske Toplice
Slovenia
Tel: +386-3-734 6078
Fax: +386-3-734 6079
info@lors.si
www.lors.si

SWEDEN
Winscan AB
Box 4
S-546 23, Karlsborg
Sverige
Tel: +46-505-18250
Fax: +46-505-18257
johan.lintgdgren@nammo.com

Classic Vapen
Box 21
S-517 01 Bollebygd
Sverige
Tel: +46-33-284 790
Fax: +46-33-284 922
classic@classicvapen.com
www.classicvapen.com

SWITZERLAND
Waffen Wildi AG
Strengelbacherstrasse 11
Postfach 73
CH-4800 Zofingen
Switzerland
Tel: +41-62-752 86 31
Fax: +41-62-751 41 82
info@waffenwildi.ch
www.waffenwildi.ch

UNITED STATES
Kaltron Pettibone Inc.
1241 Ellis Street
Bensenville
IL 60106
U.S.A.
Tel: +1-630-350 1116
Fax: +1-630 350 1606
www.vihtavuori-lapua.com
jbolda@kaltron.com



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

VIHTAVUORI

Customer service:
Nammo Lapua Oy
P.O. BOX 5, FIN-62101 Lapua, Finland
tel. +358 6 4310 111, fax. +358 6 4310 317
www.vihtavuori.fi

CE

EN8/P/011/00