LOADING GUIDE

Accurate®

Smokeless Powders

Number Two

Accurate®
Smokeless
Powder

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McGowan Barrels
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Precision Machine
Redding-SAECO
Speer Bullets
Starline
Ultra Light Arms
Bill Wiseman

LEGEND

AF	A-Frame
BAR	Barnes
BRG	Berger
BT	Ballistic Tip
CCI	CCI, Division of Blount
FA	Freedom Arms
FC	Federal Cartridge
FIO	Fiocchi
FMJ	Full Metal Jacket
FN	Flatnose
FP	Flat Point
FPJ	Flatpoint Jacket
FS	Fail Safe
GC	Gas Check
GD	Gold Dot
GRSL	Grand Slam
H&R	Harrington & Richardson
HDY	Hornady
HPBT	Hollowpoint Boat-Tail
IHMSA	International Handgun Metallic Silhouette Assoc.
IMI	Israel Military Industries
JHP	Jacketed Hollowpoint
JSP	Jacketed Softpoint
L	Lead Bullet
MAX	Maximum
MC	Moly-Coated
MIN	Minimum
N100	Nitro 100
NBC	National Bullet Company
NM	National Match
NOS	Nosler
N/R	No Recommendation
OAL	Overall Length
PART	Nosler Partition
PMC	PMC/Eldorado Cartridge
PSPCL	Pointed Softpoint Core Lokt
RAN	Ranier Bullet Co.
REM	Remington
RN	Roundnose
RPM	Rock Pistol Manufacturing
S1000	Solo 1000
S1250	Solo 1250
S&W	Smith & Wesson
SAAMI	Sporting Arms and Ammunition Manufacturers' Institute, Inc.
SBT	Spitzer Boat-Tail
SC	Shot Capsules
SFB	Sinter Fire Bullets
SP	Softpoint
SPBT	Softpoint Boat Tail
SPGC	Spitzer Gas Check
SPR	Speer
SRA	Sierra
SSP	Semispitzer
SWC	Semiwadcutter
SWF	Swift
TC	Truncated Cone
T/C	Thompson/Center
TMJ	Total Metal Jacket
WW	Winchester Western
WIN	Winchester
X	X Hollow Point
XTP	Extreme Terminal Performance

CONTENTS

Introduction (Book Number Two) xiv
Introduction (Book Number One) 1
Propellant Storage and Safety 2
Powder Descriptions 4
The History of Reloading 6
Pressure Testing 12
The Folly of More Powder 13
What is Recoil? 16
Effects of Atmospheric Conditions on Interior Ballistics of Ammunition 19
Chronographing Metallic Ammunition 24
A Brief History of Computers in Ballistics 27
Shooting Cast Bullets 30
Reloading for Old Guns & Calibers 32
How Important is Accurate Recordkeeping? 37

HANDGUN CARTRIDGES

LOADING FOR HANDGUN CARTRIDGES 43
.22 HORNET 46
.218 BEE 47
.221 REMINGTON FIREBALL 48
.222 REMINGTON 49
.223 REMINGTON 51
6mm T/CU 53
6mm BR REMINGTON 55
.25 ACP (6.35 BROWNING) 57
6.5mm T/CU 58
6.5 JDJ 60
.270 R.E.N. 62
7mm T/CU 63
7mm BR REMINGTON 65
7mm IHMSA 67
7mm MERRILL 69
7-30 WATERS 70
7mm-08 REMINGTON 72
.30 M1 CARBINE 74

.30 HERRETT 75
.300 WHISPER 76
.30-30 WINCHESTER 77
.309 JDJ 79
7.62x25mm TOKAREV 80
.30 LUGER 82
.30 (7.63mm) MAUSER 83
.32 ACP 84
.32 SMITH & WESSON LONG 85
.32 H&R MAGNUM 86
.32-20 WINCHESTER 87
.32-20 T/C 88
.380 ACP (9mm KURZ) 89
9x18mm MAKAROV 90
9mm LUGER 91
.38 AUTOMATIC (.38 ACP) 93
.38 SUPER AUTOMATIC (+P) 94
.38 SMITH & WESSON SPECIAL 97
.38 SMITH & WESSON SPECIAL (+P) 99
.357 MAGNUM 100
    .357 MAGNUM TARGET LOADS 102
    DESERT EAGLE 102
.357 SIG 103
.357 REMINGTON MAXIMUM 105
.357 HERRETT 106
.35 REMINGTON 107
.357/44 BAIN & DAVIS 109
.38 SMITH & WESSON 110
.375 SUPER MAG 111
.375 JDJ 112
.38-40 WINCHESTER 114
.40 SMITH & WESSON/.41 AE 116
.400 CORBON 119
10mm AUTO 121
10mm MAGNUM 124
    LOAD FOR IAI GUNS ONLY 125
.41 REMINGTON MAGNUM 126
.44-40 WINCHESTER 128

.44 RUSSIAN 130
.44 SMITH & WESSON SPECIAL 131
.44 REMINGTON MAGNUM 133
.44 REMINGTON MAGNUM DESERT EAGLE 135
.445 SUPER MAG 136
.45 ACP 137
    .45 ACP (+P) 140
    .45 ACP WADCUTTER 140
.45 AUTO-RIM 141
.45 COLT 142
.45 COLT (RUGER & T/C ONLY) 144
.45 WINCHESTER MAGNUM 146
.45 S&W SCHOFIELD 148
.454 CASULL 149
.460 ROWLAND 151
.50 ACTION EXPRESS 152

COWBOY ACTION CARTRIDGES

COWBOY ACTION LOADS 155
SMOKELESS PISTOL LOADS
    .25-20 WCF RIFLE & PISTOL 156
    .32 S&W LONG 156
    .32 H&R MAGNUM 156
    .32-20 WINCHESTER 157
    .38 SPECIAL 157
    .357 MAGNUM 157
    .38-40 WINCHESTER 158
    .44-40 WCF 158
    .44 RUSSIAN 159
    .44 S&W SPECIAL 159
    .44 REMINGTON MAGNUM 160
    .44 S&W SCHOFIELD 160
    .45 COLT 161
LONG RANGE RIFLES
    .30-30 WINCHESTER 161
    .32-40 WINCHESTER 162
    .38-55 WINCHESTER 162
    .45-70 GOVERNMENT 162

SHOTSHELL DATA
12 GAUGE, $2^3/_4$" WINCHESTER PLASTIC AA TYPE SHELLS 163
12 GAUGE, $2^3/_4$" REMINGTON STS PLASTIC TARGET SHELLS 164
12 GAUGE, $2^3/_4$" FEDERAL GOLD MEDAL PLASTIC TARGET SHELLS 165
20 GAUGE, $2^3/_4$" PLASTIC SHELLS with 3/4 OZ. SHOT 165

RIFLE CARTRIDGES

LOADING RIFLE AMMUNITION 169
.17 CCM 173
.17 MACH IV 174
.17 REMINGTON 175
.22 CCM 176
.22 HORNET 177
.218 BEE 179
.221 FIREBALL 180
.222 REMINGTON 181
.222 REMINGTON MAGNUM 183
.223 REMINGTON 185
.223 REMINGTON SUBSONIC LOADS 187
.22 PPC 188
.22 BR REMINGTON 190
.219 ZIPPER 192
.225 WINCHESTER 194
.224 WEATHERBY MAGNUM 196
.22-250 REMINGTON 197
.220 SWIFT 200
6mm PPC 202
6mm BR REMINGTON 203
.243 WINCHESTER 205
6mm REMINGTON 207
.240 WEATHERBY MAGNUM 209
.25-20 WINCHESTER 210
.256 WINCHESTER MAGNUM 211
.25-35 WINCHESTER 212
.250-3000 SAVAGE 213
.257 ROBERTS 215
.257 ROBERTS (+P) 217
.257 ROBERTS ACKLEY IMPROVED (40°) 219
.25-06 REMINGTON 221

.257 WEATHERBY MAGNUM 223
.260 REMINGTON 224
6.5mm ARISAKA 227
6.5x55mm SWEDISH MAUSER 229
6.5mm REMINGTON MAGNUM 231
6.5-06 232
.264 WINCHESTER MAGNUM 233
.270 WINCHESTER 235
.270 WEATHERBY MAGNUM 237
7-30 WATERS 238
7x57mm MAUSER 239
7mm-08 REMINGTON 241
.280 REMINGTON (7mm EXPRESS REMINGTON) 244
.284 WINCHESTER 246
7mm REMINGTON MAGNUM 247
7mm WEATHERBY MAGNUM 249
7mm SHOOTING TIMES WESTERNER 251
.30 M1 CARBINE 252
.30-30 WINCHESTER 253
.30-40 KRAG 255
.300 SAVAGE 257
.307 WINCHESTER 259
.308 WINCHESTER 260
.30-06 SPRINGFIELD 263
.300 HOLLAND & HOLLAND MAGNUM 268
.30-338/.308 NORMA MAGNUM 270
.300 REMINGTON ULTRA MAG 272
.300 WINCHESTER MAGNUM 276
.300 WEATHERBY MAGNUM 279
.30-378 WEATHERBY 281
.303 BRITISH 282
7.62x39mm 284
7.62x54R RUSSIAN 286
7.65x53mm MAUSER 287
7.7x58mm JAPANESE ARISAKA 288
8x57mm MAUSER 289
8x57mm JS 291
8mm-06 292
8mm REMINGTON MAGNUM 294

.338-06 295
.338 REMINGTON ULTRA MAG 297
.338 WINCHESTER MAGNUM 299
.340 WEATHERBY MAGNUM 301
.348 WINCHESTER 302
9mm LUGER 304
.357 MAGNUM 306
.35 REMINGTON 308
.356 WINCHESTER 309
.358 WINCHESTER 310
.35 WHELEN 312
.350 REMINGTON MAGNUM 316
.358 NORMA MAGNUM 318
9.3x62mm MAUSER 319
9.3x74R 320
.375 WINCHESTER 321
.375 HOLLAND & HOLLAND MAGNUM 322
.378 WEATHERBY MAGNUM 324
.411 KDF/.416 TAYLOR 325
.416 REMINGTON MAGNUM 326
.416 WEATHERBY MAGNUM 328
.416 RIGBY 329
.44 REMINGTON MAGNUM 330
.444 MARLIN 331
.45 ACP 332
.45 COLT CARBINE 333
.45-70 GOVERNMENT 335
.45-70 GOVERNMENT (TRAPDOOR SPRINGFIELD) 336
.45-70 GOVERNMENT (RUGER, MARLIN, SHARPS, WINCHESTER) 337
.458 WINCHESTER MAGNUM 339
.460 WEATHERBY MAGNUM 341
.50 BROWNING 342

SCHEUTZEN CARTRIDGES

SCHEUTZEN RIFLE CARTRIDGES 345
.32 MILLER SHORT 346
.32-40 WINCHESTER SCHEUTZEN 348

OBSOLETE CARTRIDGES

OBSOLETE BLACK POWDER CARTRIDGES 351
.32-20 WINCHESTER (HV-92) 353
.32-40 WINCHESTER 355
.38-40 WINCHESTER 356
.38-55 WINCHESTER 357
.40-65 WINCHESTER 358
.44-40 WINCHESTER 359
.45-70 GOVERNMENT (TRAPDOOR SPRINGFIELD) 361
.45-90 WINCHESTER 363
.45-110 SHARPS STRAIGHT 2 7/8" 364
.45-120 SHARPS STRAIGHT 3 1/4" 365
.50-70 GOVERNMENT 366
.50-90 SHARPS 368
.50-110 SHARPS STRAIGHT 2 1/2" 370
.50-140 SHARPS 371

NRA CARTRIDGES

NRA HIGH POWER SERVICE RIFLE LOADS 375
.223 REMINGTON 376
7.62x51 MATCH 378
.30-06 SPRINGFIELD 379
LONG RANGE 381
    .308 WINCHESTER 381
    .30-06 SPRINGFIELD 382
    .300 HOLLAND & HOLLAND MAGNUM 382
    .30-338 383
    .300 WINCHESTER MAGNUM 383
SIERRA “PALMA” BULLET DATA 385
    .308 WINCHESTER 385
    .30-06 GOVERNMENT 386

APPENDIX

NOMINAL ROTOR CHARGE WEIGHTS 389
BUSHING CHARTS 390
GLOCK FUNCTION TEST RESULTS 390
RECOMMENDED READING LIST 391
NOMINAL BULLET DIAMETERS 392

INTRODUCTION

Book Number Two

After working on this revision for the past year, I have come to appreciate the massive effort that went into the original manuscript. Special thanks go to Bill Falin for his extra efforts to produce Book One and for all of his guidance for Book Two. Bill has been on Active Duty and we certainly missed his contribution for this volume. Special thanks also go to Garry Grinstead for all of the ballistic test data that he generated for Book One and for the data we have added for Book Two. We wish Garry the best in his new endeavors.

We decided it was time for a second revision when we realized that we had introduced two new propellants, XMP-5744 and XMR-4064, since Book One and thought we needed to add this data. We have tried to emphasize reduced loads with XMP-5744. We are hoping the ability to shoot reduced loads will add enjoyment to your shooting, i.e., less recoil=less pain.

Since Book One, a new shooting sport has emerged, Cowboy Action Shooting, that is gaining participants by leaps and bounds. We thought it worth an entire new section dedicated to this sport.

We have also added several new cartridges. For pistol, we've added ballistic data for the .300 Whisper, 7.62x25 Tokarev, .357 Sig, .400 Corbon, .44 Russian, .45 S&W Schofield, and the .460 Rowland. For rifle, we've added data for the .260 Remington, .300 Remington Ultra Mag, and the .338 Remington Ultra Mag. We've also added data for the .45-90, .45-110, .45-120 and the .50-110. Among others, we've got new data for Swift bullets, Berger bullets, Sinter-Fire bullets, sabots and the newer bullets from all of the popular bullet companies.

This new revision would not have been possible without the contribution of several people. We could not have done this second book without the help of Mark Harris and his excellent staff at Wolfe Publishing, especially Gerry Hudson and Becky Pinkley who patiently worked with us to revise this manual. Both Larry Adkins and David Kimble of the Accurate Ballistic Lab have contributed suggestions to the content of this new revision as well as performing ballistic testing for some of the more recent data. Last, but not least, special thanks to Ted Curtis who oversaw the development of the new test data and has contributed his years of expertise to this manual and to the Accurate Arms Company. We would not have been able to publish this new manual without Ted's help.

This manual is written for you. If you have any questions or suggestions, please contact us at 1-800-416-3006 or via our website at **www.accuratepowder.com**. We are always trying to improve on the type of information that you, the reloader, want and need. We are also there to help you should you have a question, especially concerning safety. We hope that you enjoy our newest book and our Accurate Smokeless Propellants.

– Dan Stigliano

INTRODUCTION

Book Number One

There are several compelling reasons to reload your own ammunition. It is a popular impression that you can save money by reloading and there is some basis of fact in that because the brass case is the most expensive component in most factory cartridges. In extreme examples -- the .600 Nitro Express comes to mind -- a single empty cartridge case can cost $16.00 or more. Most cases cost well below that figure but the price is still substantial. Because the typical cartridge case can be reloaded several times, significant savings can be realized each time.

The shooter who sticks with factory ammunition has a fixed number of loads that can be tested in a given gun. The reloader, on the other hand, can make up and test infinite variations of loads. Bullets of different makes, types, and weights can be matched to charges of powder in almost as many makes and types, with charge weights varying by as little as 0.1 grain. Different cartridge cases can be tested, primed by different primers. The bullet seating depth or cartridge overall length can be varied, often with surprising effects on group sizes.

It's an established fact that no two guns are exactly identical. A load that performs superbly in one gun may be disappointing in another even if both are the same make and model and were made and assembled at the same time. By reloading, you can test a great many different load combinations through a particular gun and, if you keep meticulous records, you can track down the component combination that delivers the best possible performance. When and if you manage to do so, I confide the sense of personal gratification is so intense that it borders on being painful.

A following chapter explains why different guns give different results. People who compile and publish reloading data source books, such as this one, have both my undiluted sympathy and good wishes. I've tackled such projects a few times myself. Every single listed load has to be made up and tested; a project that blots up time by the megabucket.

Quite a few years back, a new edition of one of the well-known reloading data sources listed a load for a given caliber and bullet weight that was astonishingly potent. At the time, I happened to own two nominally identical .38 Special revolvers. One of them doted upon that hot load and actually produced a little more velocity than the book listed. Fired cases dropped out of the chambers at the touch of the ejector rod. The other revolver -- same make, same model and barrel length -- developed substantially lower velocities and the empty cases had to be driven out of the chambers with a wood dowel and a small mallet.

You figure it out!

The loads listed in this book show starting charges and maximum charges. With what I've just discussed, I'd hope you perceive the wisdom of beginning with the starting loads and, if indications warrant, moving up toward the maximum loads in small, cautious stages.

Many shooters avoid reloading because they feel it is too complicated for them to understand. Actually, it's surprisingly simple. Is it dangerous? So far, I've lost three friends who slipped and died while taking showers and none (yet!) while reloading. I continue to take showers, but carefully. If you follow simple safety precautions, you can minimize the hazards.

You should get into the reloading game. I can't possibly wish for anything finer than to hope you get as much fun out of it as I have!

— Dean A. Grennell

PROPELLANT STORAGE AND SAFETY

SAFETY NOTES

WARNING: Important Information on Data. Read Before Using.

Handloading center-fire metallic cartridges should only be undertaken by someone familiar with safe reloading procedures. One must observe all precautions and practices related to the proper handling of any highly flammable material. We suggest you read up on correct reloading procedures. There are a number of excellent books on the subject.

All of our powders are test fired in our laboratory. Under these controlled conditions, our data shows that our powders produce safe cartridges. Your results may vary considerably, depending on the components used and the reloading techniques of the individual. Any component change or substitution can substantially change the ballistic performance and/or safety.

After powders leave our plant, we have no control over improper storage, handling, use, or over the condition of firearms or other components used. For these reasons, Accurate makes no warranty of any kind (either expressed or implied) including specifically, no warranty of merchantability or fitness for a particular use. All our loading data is intended solely for use in modern weapons properly chambered for the cartridge to be loaded.

Because all smokeless powders ignite easily and burn rapidly, use caution during handling. These recommendations for proper storage should be followed.

Recommendations for Proper Storage
Smokeless Powder
Extremely Flammable

1. Accurate Arms powders are packaged in approved containers. Do not transfer powders to containers that are not approved by the Department of Transportation.
2. Store in cool, dark, dry place.
3. Keep out of reach of children.
4. If possible, do not store all your containers in one place.
5. Do not smoke where powders are stored.
6. Keep powders away from electrical devices or machinery that could produce heat or sparks.
7. Keep powders away from other combustible materials or flammable liquids.
8. Storage cabinets should be self-venting, allowing combustible gasses to escape and, if possible, should be constructed of insulating materials to protect powders from heat.
9. Keep away from heat, sparks, and open flame. Keep out of reach of children.

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, 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 gasses 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. "No Smoking" signs in these areas are appropriate.

Do not subject powder storage cabinets to close confinement.

Storage cabinets should be constructed of insulating materials and have weak walls, seams, or joints to provide easy self-venting.

Do not keep old or salvaged powders. Check old powders for deterioration regularly, and if necessary, 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 several separate storage locations. Many small containers are safer than one or more large containers.

Keep your storage and reloading area clean. Clean up spilled powder promptly. Make sure the surrounding area is free of trash or other readily combustible materials.

Smokeless powder is intended to function by burning, so it must be protected against accidental exposure to flame, sparks or high temperatures. Use, if possible, insulating materials that will protect the powder from external heat sources.

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

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

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

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

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

If a small, tightly enclosed storage enclosure is loaded to capacity with containers of smokeless powder, the walls of the enclosure will expand or move outward 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.

POWDER DESCRIPTIONS

**ACCURATE®
SMOKELESS POWDERS**

The **Accurate® Smokeless Powders** listed below are in approximate burning order from fastest to slowest. All propellants are manufactured with nitrocotton as the main energy base-material. Double base propellants have nitroglycerin (glyceryl trinitrate) as the second energy ingredient.

SHOTSHELL PROPELLANT

Nitro 100 - A fast burning, double base flake propellant. Developed for 7/8, 1, and 1-1/8 ounces of shot in 12 gauge for trap, skeet, and light field loads. **Nitro 100** is excellent in low pressure revolver cartridges, and is especially well suited for the .45 Colt. Clean burning in all applications. **Nitro 100** is relatively temperature insensitive.

Solo 1000 - A fast, ultra clean burning, porous, single base flake powder ideal for all shotgun and select handgun loads. Excellent in Cowboy Action loads.

Solo 1250 - A single base, clean burning shotshell propellant ranging in use from 12-gauge field loads to 28-gauge.

PISTOL PROPELLANTS

No. 2 - A fast burning, low density, double base, ball propellant developed for use in .38 Special target loads. It is excellent for target loads in almost all handgun cartridges, especially where low pressure and clean burning are desirable. Its low charge weights help the handloader stretch his shooting dollar. The lasted version, **No. 2 Improved**, is identical to the original **No. 2** in terms of charge weight while being lower density to fill up more volume in the case.

No. 5 - A relatively fast burning double base, ball propellant developed for use in the .45 ACP that is somewhat slower than Unique. **No. 5** is used in more handgun cartridges than any of our other handgun propellants. This is our most popular propellant.

No. 7 - A double base, ball propellant originally developed for 9mm NATO carbine ammunition. It has become a favorite propellant for IPSC shooters. Somewhat more specialized in applications than **No. 2** or **No. 5**, it is well suited to high intensity cartridges. It is a good choice for magnum handgun cartridges (such as .357, .41 and .44 Magnum) when slightly less than full power loads are preferred.

No. 9 - Our slowest handgun propellant, **No. 9** is the best .44 Magnum powder available. This double base, ball propellant gives excellent velocities for the pressures generated, and with less flash than comparable powders. It is intended for use in large capacity handgun cartridges (.357, .41, .44 Magnum, and .454 Casull). **No. 9** is also suited to some small rifle cases (.25-20 Winchester, .30 M-1 Carbine) and the .410 shotgun. **No. 9** performs best with heavier bullets in most cartridges. A heavy bullet pull is required for consistent performance when using lighter bullets.

5744 - Currently sold as **XMP-5744**, this short cut, extruded double base rifle and pistol propellant is designed for use in Sharps rifle cartridges. It also works well in large capacity handgun cartridges of both conventional and IHMSA design. Shooters of cast bullets and reduced loads will find it useful in just about everything from the .22 Hornet to the .50-140 Sharps.

RIFLE PROPELLANTS

1680 - A double base, ball propellant which performs well in the 7.62x39 cartridge. It is the best powder for the .22 Hornet. Also suitable for small capacity cases such as the T/CU series, the .222 Remington and the .223 Remington with lighter bullets.

2015 - Also known as **XMR-2015** or **2015BR** is a single base, small-grained, extruded propellant developed specifically for "bench rest cartridges," such as the PPC and BR series. This powder was tested at the Bench Rest Nationals in 1990 and subsequently adopted by shooters such as Ferris Pindell and Sal Ventimiglia. **2015** is extremely flexible, giving excellent performance in many cartridges from .22 Hornet to .458 Winchester Magnum.

2230 (Formerly **MR-223**) - One of our most popular rifle propellants. A double base, ball propellant developed for use in the 223 Remington (5.56 NATO). **2230** is very popular with those shooters who load large quantities of .223 Remington ammo.

2460 - This medium-burning ball propellant is popular with NRA, IHMSA, and bench rest shooters. Useful in a wide variety of cartridges. It is slightly slower than **2230** and shows a small pressure advantage over **2230** in bores 7mm and over. An excellent choice in .308 Winchester, **2460** is appropriate for use with M1 and M14 (M1A) service rifles.

2495 - (Also known as **XMR-2495** and **2495BR**). Very similar to **4895**, this single base, extruded propellant gives satisfactory performance in a wide variety of cartridges. It offers service rifle shooters who prefer extruded propellants an **Accurate** alternative to our **2520**.

2520 - This medium-slow burning double base, ball propellant gives excellent results in medium capacity cases (308 class) and certain applications in large bore cartridges. This powder was in the winner's circle in NRA High Power competition before it had been on the market two years! **2520** is first choice for target shooters using 168 grain bullets in the 308 Winchester. **2520** has a pressure curve appropriate for use with M1 and M14 (M1A) service rifles. In fact, some shooters now call it the "Camp Perry" powder.

4064 - (Also known as **XMR-4064**). Similar to **IMR 4064**. This single base rifle propellant is short cut for better metering while meeting the needs of service rifle competitors and hunters who prefer the performance of extruded powders. Admirers of the .30-06 will especially like this propellant.

2700 - A double base ball propellant that fills the gap between **2520** and our **4350**. It is intended to be used as a heavy bullet powder in many cartridges. Excellent in the .22-250 Remington and the .220 Swift with varmint bullets.

4350 - (Also known as **XMR-4350)**. America's most popular reloading propellant for rifle cartridges. A single base, extruded propellant similar to **IMR 4350**. Delivers superb performance in cartridges from .243 Win. and .270 Win. to the largest magnums.

3100 - (Also known as **XMR-3100**). A single base extruded propellant that serves well from the .243 Winchester to the big magnums, particularly the 7mm Remington Magnum. It has proven to be a cost effective replacement for **IMR-4831** and **H-4831**.

8700 - The slowest powder available to reloaders. This slow-burning double base, ball propellant is best suited to the magnum rifle cases such as the .264 Winchester Magnum, 7mm Remington Magnum, .257 Weatherby Magnum, .270 Weatherby Magnum, and .300 Weatherby Magnum. **8700** may also be used in cartridges such as the .25-06 Remington and .270 Winchester (velocity and pressure will be reduced from normal, but accuracy is outstanding). Interestingly it performs well in a large variety of cartridges for cast bullet loads. Use of a magnum primer is recommended for best results.

THE HISTORY OF RELOADING

Reloading is approximately synonymous with handloading. The distinction lies in whether or not the cartridge case has been loaded and fired previously. If it has been, subsequent loadings are reloads. If the load is put up in virgin brass, that's handloading.

Books such as this one, containing listings of information on how much powder to load behind a given bullet for a specific cartridge, may be termed manuals or handbooks. There does not seem to be any distinction between one term or the other.

Curiously enough, few dictionaries list either "reload" or "handload," even though most such works cover some thoroughly improbable and unlikely words. The late Philip B. Sharpe published his original edition of "The Complete Guide to Handloading" in 1937, updating it several times in later years. In addition, I have written five editions of a book titled "ABC's of Reloading" (originally published in 1976). So both handload and reload have been solidly planted in the language for quite a few years.

The vernacular of reloading utilizes several words such as resize, deprime and reprime, which also seem to have been ignored by lexicographers. These words occur frequently in publications of the firearms press but such literature tends to be coolly overlooked by people who put dictionaries together.

It is rather difficult to establish the origin of reloading. On page 15 of Sharpe's book, he states that the Swedish king, Gustavus Adolphus started things along in the early 1600s. He ordered his troops to carry their powder and ball together in the form of a cartridge that was generally a cylinder of paper, twisted on both ends, with the charge of black gunpowder poured on top of the ball.

In use, the troops would bite or tear off the end of the cartridge, pour the powder down the muzzle, drop the ball on top of the charge and cram it all into place with the ramrod. The procedure saved some useful amount of time over the usual procedure of pouring the powder from a powder horn into a measure.

It was a Scottish clergyman named Alexander John Forsyth who adapted fulminate of mercury to the ignition of blackpowder in firearms, introducing percussion firearms that replaced the flintlock system. Fulminate of mercury had been produced earlier, but it was Forsyth who recognized its possibilities for an improvement in firearms ignition.

Some 87 years after Forsyth's death, a bronze memorial tablet was placed on the wall of the Tower of London, the only memorial in honor of an individual ever erected in that historic structure. Despite the significance of his contribution, most modern encyclopedias do not accord him even a brief listing. As you may be beginning to suspect, most scholarly works give painfully short shrift to many aspects of the ballistic arts.

Initially, a small amount of fulminate of mercury was placed in a copper cup. The percussion cap, as it was called, was pressed over a steel nipple whose central opening led to the charge of powder behind the ball. Pulling the trigger dropped the hammer on the cap which caused the fulminate to detonate into a stream of hot gasses and particles through the nipple.

This set off the powder charge and launched the projectile.

It becomes apparent that reloading, as a concept, dates back to the earliest examples of firearms. However, reloading as we know it today, stems from the development of the modern brass cartridge which appeared about the time of the American Civil War. Early specimens carried the priming compound within a hollow rim similar to contemporary rounds such as the .22 Short, Long, Long Rifle and Winchester Magnum Rimfire. As such, they were not readily reloadable, due to the difficulty of replacing the priming compound.

When centerfire cartridge cases were fully developed, there were two distinct forms in regard to the priming systems. The "Boxer" primer consists of a metal cup enclosing a wafer of priming compound beneath a disk of sealing foil with an anvil. The Boxer primer pocket has a single, central flash hole.

Cartridges using the "Berdan" priming system have a primer pocket with two smaller, off-center flash holes. The anvil is formed in the bottom of the primer pocket. The Berdan primer consists of the cup, wafer of priming compound, and the waterproofing foil.

Curiously enough, the Berdan system was developed in America and today finds its major use in ammunition produced outside the U.S. The Boxer primer was developed in England; however, it is the primary system used in U.S. domestic centerfire ammunition.

The key point is the flash hole of the Boxer-primed case, which allows a central decapping pin to push out the spent primer. Removing a spent Berdan primer is considerably more complicated because of the off-center flash holes. It is possible to reload Berdan-primed cases but it is more difficult than most reloaders care to cope with.

The advent of the centerfire brass cartridge case posed a problem insofar as using fulminate of mercury as the priming compound. Upon detonation, it breaks down into carbon monoxide, nitrogen and mercury. The detonation of one gram liberates a relatively significant amount of gas and the temperature of the reaction is about 7862°F/4350°C. Much of the released mercury remains on the inner walls of the brass cartridge case and, in a short time, it forms an amalgam with the brass, rendering the brass brittle and unfit for further reloading.

That led to the development of non-mercuric priming compounds. Early ones included some amount of potassium perchlorate and that, in turn, posed further problems. During combustion the oxygen is consumed, leaving potassium chloride, a close chemical cousin to sodium chloride or common table salt. Salts are hygroscopic, meaning they attract and retain moisture, and will quickly rust and corrode any iron-bearing metal. These primers are considered "corrosive."

Domestic military ammunition used priming compounds that were non-mercuric, but still corrosive, up through the early 1950s. One exception was the .30 M-1 Carbine cartridge which used non-mercuric, non-corrosive primers in all domestic production. Unless a gun is cleaned promptly after firing loads with corrosive primers, the bore will quickly become rusted and ruined for further use. Not all bore-cleaning fluids will dissolve and remove corrosive primer deposits.

I got my first exposure to the art of reloading at the age of 5 or 6. We lived on a dairy farm in Wisconsin and the bull became fractious, refusing to go back into the barn. As it was a valuable animal, my father didn't wish to cause him permanent injury so he went into the house, pried the overshot wad out of the end of a 12-gauge shotshell, dumped out the lead pellets and replaced them with navy beans before replacing the overshot wad and recrimping the mouth of the shotshell with a hand-powered shell crimper.

With the bean load in the chamber of the old Remington single, he returned to the barnyard. The bull stood atop a large heap of organic fertilizer, bellowing defiance to my father and the world in general. At the conclusion of one such bellow, my father took careful aim, touched off the old Remington and peppered the bull's nose with beans.

The effect was quite salutary. The bull went meekly back to his pen in the barn and that was the end of the matter. It all took place about the latter 1920s. I regret that I can provide little by way of reloading history for the decade of the 1930s. During the start of the 1940s, I was serving as an aerial gunnery instructor in the U.S. Army Air Corps at an advanced training base for B-24 crews near the tiny town of Tonopah, Nevada. During that interlude, I set off enough factory loads to make any taxpayer wince painfully, but I didn't get into reloading.

I have a Stoeger's "Shooter's Bible" I bought during that interlude (Number 36, dated 1945) and will endeavor to reproduce a few pertinent illustrations from it. Hardly any of the pictured items were available for the duration of WWII and not for some few years after.

Reloading items were covered on pages 263 through 279 of the Stoeger catalog, prefaced by a page of introduction by Phil Sharpe. In it, he notes, "Early in 1938 manufacturers of powder discontinued the release of handloading information. This involved the element of safety and it does not mean they consider it dangerous to handload. The true story of this has never been published.

"For many long years firearms editors have been warning handloaders against the use of mercuric primers. They gradually faded out of the picture but are today actually fading back in again. The answer is the non-corrosive primer.

"Non-corrosive primers are excellent but still far from being 100% developed. Changes in priming composition is [sic] constantly being made by our ammunition manufacturers. No announcement of this is being made to the public. Whenever they can improve they will improve.

"In their standard factory loads there are a great many mercuric primer numbers. *All components sold to reloaders for handloading purposes are positively non-mercuric primed*. No mercuric primers are sold. Nevertheless, the man who salvages miscellaneous shells may get into extreme difficulty with numbers previously fired with mercuric primers. It is well to bear this in mind."

Pages 264 and 265 were both footnoted, "Not available for the duration." In smokeless rifle powders, they listed Du Pont 4759, 4227, 3031, 4198, 4064 and 4320; none with the IMR- prefix familiar today. Hercules rifle powders included Lightning, Sharpshooter, Unique, 2400 and HiVel No. 3. Smokeless pistol powders were Du Pont 5, Du Pont 6 and Hercules Bullseye.

Hercules smokeless shotgun powders were E.C., Red Dot and Infallible. Du Pont smokeless shotgun powders were Du Pont MX, Du Pont Oval Lot No. 35 and Du Pont Smokeless; the last apparently the same as the post-war Du Pont "Bulk" powder. They also had King's Semi-Smokeless and black powders by Laflin & Rand and Du Pont.

Ideal, later to become Lyman, then featured two "nutcracker" tong tools, the No. 3 and No. 10 with the distinction that the 3 was for rimmed cases and the 10 was for rimless. After the war, the two were combined and marketed as the No. 310 tong tool. In presses there was the Ideal Tru-Line, using dies other than those for the tong tools, with a note Ideal had just introduced the Tru-Line Jr, model at $15, "a real bench tool using the same dies as the No. 3 and 10."

Pages 270 and 271 featured the Belding & Mull and Modern Bond equipment. Page 272 featured a Pacific press in what we've come to think of as the C-type design. It appears to have used dies with the 7/8-14 thread that have come to be more or less the universal standard although the universal shell holder had yet to make its debut. The same page showed a Schmitt Model 12 which, like many archaic presses of that day, was a horizontal design.

Wilson tools and gages were on page 273. Page 274 featured the Potter Reloading Machine, capable of complete reloading in one operation, at $57.50 for the complete unit.

Consumer goods were slow getting back into the commercial marketplace after the end of WWII. Things such as camera film and rimfire ammo trickled onto dealers' shelves and were snapped up as if by maddened piranhas. Centerfire ammunition was extremely scarce.

I remember walking into a gun store in Manitowoc, Wisconsin, about 1951, and being greeted by the proprietor's joyous announcement that he had some primers in stock. They must have been among the first-ever output of the CCI folks in Lewiston, Idaho, because that was the brand.

"What do you do with primers?" I asked him, in all dewy-eyed innocence.

"You reload cartridges with them!" was his reply.

I professed to be totally ignorant of the details of the process and he, bless his incautious heart, loaned me his copy of Phil Sharpe's immortal tome. Today, I'd no more loan someone a copy of my Sharpe book than I'd loan them my toothbrush. I'm proud to say I dutifully returned the loan copy three weeks later when I made the Manitowoc sales trip again and then I went out and bought my own copy.

In the interim, I'd gleaned a lot of info on the esoteric intricacies of the operation ... but a few details had eluded me.

In those days, I was a traveling sales engineer in wholesale heating, ventilating and air-conditioning supplies and part of my duties consisted of measuring houses, taking the sketch back and working up plans for dealers to install new systems.

In the course of measuring one such house, I brought my trusty tape measure into a room and paused in puzzled regard of a most intriguing-looking gizmo. Most of it was painted orange. I asked the home owner what it was and he was delighted to demonstrate by turning a spent .38 Special casing back into a live round by means of just a few deft operations.

Quite candidly, I was enchanted clean out of my gourd. During the 1930s, I'd seldom fired the old Remington 12-gauge but my father had paid Sears, Roebuck and Company $7.85 for a "Springfield" bolt-action, tubular-magazine repeater in .22 Short/Long/Long Rifle, made in Chicopee Falls, Massachusetts, and it was my constant companion whenever I could afford to feed it.

During that era, the E.C. Braun Hardware store in Eden, Wisconsin, sold Remington Kleenbore standard-velocity .22 Shorts at 18 cents for a box of 50, sales tax didn't come until years later. I could use up a box so fast you'd think I had a selector switch on full-auto.

English sparrows and starlings were the prime quarry, with an occasional crow or two. I had a pet tiger-striped tomcat who would come at a mad gallop when the rifle cracked. If I couldn't toss him at least a sparrow, he would impale me with an accusing glare that made my toes tingle.

I mention all that by way of explaining why a low-cost source of infinite ammo sounded like paradise personified when the homeowner demonstrated what turned out to be a Lyman Tru-Line Junior loading press to my glazed gaze.

I was by no means rich beyond dreams of avarice at the time. My routine cash-flow, I recall the figure painfully well, was $6.85 per week and a useful increase from the days when buying a box of .22 Shorts from Ed Braun left me a whole seven cents to spend in riotous living. I had bought a 4x5-inch Speed Graphic with most of my WWII mustering-out money and was somewhat into surreptitious professional photography. That activity enabled me to buy a Lyman Tru-Line Junior all my very own.

Curiously enough, I still have it, but would hesitate to guarantee I could resurrect .38 Special spent brass with it, down to the present. The Tru-Line Junior used its own distinctive size of reloading dies; smaller than the 7/8-14 thread size that has long since taken over the reloading world. The same dies were used in the Lyman No. 310 tong tools upon which I cut my reloading teeth, albeit precariously.

A nearby dentist friend named Gerry Kincannon had the tong tool and we both had .45 ACP M1911A1 pistols at the time. Government Issue ammo was still quite plentiful, much of it with the corrosive primers that were not phased out until after 1952 or so. Loads from Frankford Arsenal used a domestic primer that was somewhat smaller in diameter than the standard .210-inch large pistol primer and I recall great puzzlement as to why we couldn't seat regular primers into the FA cases.

I found a local policeman eager to swap his Smith & Wesson K-38 even-up for my .45 ACP Colt. One of my dealers in Edgerton, Wisconsin, still had a box of pre-WWII .38 Special ammo on the shelf for $1.75 and I glommed onto it. There is no way you could possibly begin to believe the brevity of the interval it took me to convert those loads into empty cases.

The dealer who set me up with the Tru-Line Jr., Elwood Gosse of Sheboygan, Wisconsin, also furnished me with a pair of Lyman bullet moulds for their No. 358316 and 358425 and again, almost incredibly, I still have both sets of blocks.

Coming home with my new press and the blocks, it was but the work of a moment to founder-up some cast bullets and take them down into the basement to seat them into the mouths of some charged cases.

I did not bother to put any bullet lubricant into the grooves of the cast bullets and that was a serious mistake, indeed. I took them out the next day, fired them off and ended with a bore that was lead-fouled like unto no tomorrow, verily.

On my next visit to Gosse's shop, he managed to scrounge up a spent .35 Remington case. I took it home, cut off the head with a hacksaw and soldered two small handles to the top end. I made up some shallow sheet metal trays into which I placed the bullets, nose-up. I concocted some homemade bullet lube by mixing beeswax with petroleum jelly. When melted, the lube was poured into the tray around the bullets to a suitable depth and set aside to cool. The bullets were then cut free with the punch improvised from the .35 Remington empty.

It was not a great system and I'd hate to have to do it that way today, but it did eliminate the bore-fouling problems. The Lyman No. 358425 was a neat little button-nosed wadcutter weighing about 115 grains, stabilizing quite nicely in the 1:18.75 pitch of the K-38 barrel. I improvised a homemade powder dipper by soldering a nail to a spent .25 ACP case and putting a small handle at the other end. I used Hercules Bullseye as my primary propellant and the dipper dispensed about 3.3 grains.

I did not discover that until after I'd loaded many thousands of rounds with my impromptu setup, finally breaking down and buying a powder scale. I'd like to stress that such a casual approach is definitely not the way to get started in the reloading game!

The Lyman Tru-Line Jr. press and its dies functioned by resizing only a short length of the case at the neck. As I got into working with other calibers, I found I sometimes needed to do full-length resizing, particularly in .30-06 Springfield cases. I bought a drive-in/knock-out die for the purpose and found it painfully educational. A sturdy old bench vise couldn't push the lubricated case all the way in and having done its best, was hard-put to push the case back out again.

A friend ran a downtown filling station and had a huge arbor press with a handle nearly six feet long. Even on that, with two of us chinning ourselves on the end of the handle, we still couldn't quite make it work.

So I broke down and bought one of the Pacific C-type presses and a set of 7/8-14 .30-06 dies and, as the phrase has it, came to know true happiness.

The decade of the 1950s saw a large increase in reloading interest on the part of the shooting public. The broadened market base brought more suppliers and wider assortments of components and equipment. That, in turn, increased consumer interest in a sort of self-fueling chain reaction. I think the shooters and reloaders of the present never had it any better and they should feel appropriately grateful.

In the early 1960s, Richard Lee devised the Lee Loader, small enough to be carried in a fairly spacious pocket. It sold for $9.95 at the time and the modest price induced a great many shooters to take up reloading. Not a press, it consisted of a series of dies into which the cases were driven in and back out by means of a mallet to resize the necks. It worked quite nicely if the given case had been fired in the same gun in which the reload would be fired. A dipper-type powder measure was supplied, with a chart listing powders and bullet weights to be used with it. At the time of its introduction, a four-cent stamp would mail a first class letter. Today, with more than a six-fold increase in postage, you can still buy one of the Lee Loaders for about $20.00.

As you'd suppose, the production rate of the Lee Loader was quite modest, although the resulting reloads were capable of highly gratifying accuracy. There was an obvious market for systems enabling the shooter to turn out more rounds per hour and soon various makers designed and marketed presses to boost production.

One of the earliest high-production systems was from Star Machine Company of San Diego, California. Their progressive press advanced cases automatically from one station to the next, producing a loaded round with each stroke of the operating handle. Star also produced a lube-sizer that pushed cast bullets straight down through the sizing die, rather than the usual down/up cycle.

Turret presses bypassed the tedious chore of turning dies into and back out of the single-station press, so the various operations could be performed quickly on a case in the shell holder. The Lyman Tru-Line Jr., for example, had a four-station turret accepting the smaller-diameter dies used in the Lyman tong tools. Lyman later introduced their All-American, using the standard 7/8-14 dies, but with non-standard shell holders, going on to offer presses such as the Spar-T with the so-called universal shell holders.

Lee Precision supplemented their Lee Loader kits with single-station and turret presses, culminating with their newest, the Load-Master. Once it is set up and going, it requires only that the operator work the handle and place a bullet on top of the charged case.

Dillon Precision offers progressive presses at various levels of sophistication. Their 650 and 1050 models can be had with optional case feeders and powder level checkers that sound a buzzer if the powder level is higher or lower than a preset point.

Hornady took over the Pacific operation and introduced the Pro-7 progressive press, refining it to the Pro-Jector model, with retrofit kits available to convert Pro-7 presses to full Pro-Jector capability. They also catalog three different progressive loaders for shotshells, the 366 Auto, Apex Standard and Apex Auto.

RCBS, now a subsidiary of Blount Industries, celebrated their 50th anniversary in 1993. Their current lineup of presses ranges from the small and inexpensive single-station Partner, the single-station Reloader Special-5, the single-station Rock Chucker and the progressive AmmoMaster. The AmmoMaster can be used as a single-station or progressive and it can be converted for loading larger cartridges such as the .50 BMG. RCBS also has the Piggyback II unit that can be installed on their Rock Chucker to convert it into a progressive.

Again, I think the shooters and reloaders of the present never had it any better and they should feel appropriately grateful.

— Dean A. Grennell

PRESSURE TESTING

The American National Standards Institute/Sporting Arms and Ammunition Manufacturers Institute recognizes two methods for pressure testing of small arms ammunition. These are with Copper Units of Pressure (CUP) and Piezo (PSI). **Accurate Arms Company** uses both methods.

The standards for pressure used by **Accurate Arms Company** in preparing this manual are contained in ANSI/SAAMI Z299.3-1990 and Z299.4-1992. All maximum loads are kept equal to or less than the Maximum Average Pressure as defined in the respective manual.

Accurate testing with C.U.P. is done in two methods. In the first the pressure is read off the case mouth. In the second the pressure is read through the case wall. The basic principle of measuring pressure with the copper crusher is to place a copper cylinder or crusher on top of the piston in the pressure barrel. The piston is protected on the bottom by a gas check and lubricated with non-detergent oil. The anvil screw holds the crusher firmly on top of the piston during firing. After firing the crusher is removed and measured with a micrometer. The degree of compression is converted to a pressure (C.U.P.) by means of a tarage table which is provided by the manufacturer for each lot of crusher.

Accurate testing in Piezo is also done by two methods. The first is through the use of a conformal transducer. This is the fastest and easiest method to use. A pressure barrel is fitted with a transducer whose diaphragm is contoured to conform to the outside of the cartridge case. The pressure applied to the diaphragm is read as P.S.I.. When this pressure is added to the offset pressure established for that lot of case you have the total pressure produced by that load. The offset is the amount of hydraulic pressure required to begin expansion of the brass case. This results in one of the drawbacks of this system. Only new cases can be used and they must be calibrated lot by lot for accurate pressure reading.

The other method of reading pressure in Piezo used by **Accurate** is derived from military small arms ammo testing procedures. A force transducer is used in lieu of the copper crusher in conjunction with a piston type barrel. When using this method a hole is drilled in the case allowing the gas to impinge directly on the gas check protecting the bottom of the piston. The voltage produced by the force transducer is read directly as Pounds per Square Inch (P.S.I.) on a peak meter. This method is especially useful in working with wildcats.

The pressures and velocities produced in all test methods are calibrated using SAAMI Reference ammo if available. If not, then factory ammo (if available) is fired and used to determine the pressure limit. In the case of a wildcat cartridge a pressure limit was selected using the most similar factory cartridge.

Every effort has been made at **Accurate** to provide safe, trouble-free, loads. Please feel free to contact our technical department if you have any questions regarding any of the loading data in this manual.

— William T. Falin, Jr.

THE FOLLY OF MORE POWDER

Alas, how many times have I seen handloaders exceed published loading data until their actions barely opened? And for the sake of a few extra FPS. Then they declare to the world how much more they know than those “wimps” who publish loading manuals.

They describe their ammunition as “maximum handloads.” My definition of what has just occurred is “dangerous handloads.” My next definition of “dangerous handloads” is when published loading data is exceeded, any time, for any reason, intentional or otherwise.

Yes, you may get away with “more powder” today but in the long run it will come back to haunt you. Let’s explore the realm of the sane and insane. Afterwards you can be the jury and you can decide how much “more powder” you want to put in your cases at your next reloading session.

For openers, the upper limit of powder shown in loading manuals is not only based on pressures measured in a ballistics lab, but it takes into account factors that many handloaders don’t realize exist. It’s not the maximum charge you can use that won’t impair you or your rifle. It’s the maximum charge that you can use *all the time* that keeps you out of trouble “no matter what.” And here are some “no matter what” situations.

It’s Saturday morning and you’re at the range with your loading gear working up loads with your favorite rifle powder. The loading manual shows X-grains as the upper limit. You cautiously work up to this charge with no pressure signs.

So now, of course, you go up one more grain, then two grains, then three grains, then four grains and then five grains. But now you back off one grain (things got a little sticky) so you’re at X + 4 grains as your so-called “maximum handload” and it works just fine and it’s accurate. The ambient temperature is 71°.

Now a friend arrives with a rifle that is the same caliber as yours. You show him this fine group you shot with X + 4 grains and ask him to try this load. Being good friends, he can’t refuse. He touches off the first round and immediately comments, “What was in that shell, TNT? I think the primer blew.”

Now things go from bad to worse, he can’t open the bolt of his favorite rifle. He gives you a look that could kill, and you immediately run his rifle down to the local gunsmith.

Two hours and $50 later you and your friend are back at the range. The gunsmith, thank God, barely got the bolt open and the case extracted. Yes, the primer had blown.

Now you must prove to your friend that the load you gave him was safe in your rifle (the ambient temperature at the range is now 92°). You touch a round off in your rifle and your heart sinks.

First, you notice more recoil than before and second, you can’t open your bolt. Your friend is furious, he grabs his gear and leaves. What happened?

For openers, your friend, or former friend, is not so innocent either. He’s as much to blame for the problems with his rifle as you are. Perhaps the first lesson we learned here is to NEVER SHOOT SOMEONE ELSE'S HANDLOADS, for MANY reasons.

With your friend's rifle, while your load worked in your rifle in the morning, his chamber dimensions were smaller. Yes, smaller. Surprised? Don't be; variations in chamber dimensions between rifles of the same caliber from different companies can be significant (even from the same company depending on the condition of the chambering reamer). Industry standards for reamer dimensions have enough leeway to cause the above.

One other item regarding chambers — throating. Our handloader's rifle probably had different throat dimensions or a worn throat from thousands of rounds. A rifle with a larger chamber and a worn throat will take heavier loads than will a rifle with a tight chamber and a good throat.

What happened to our friend in the afternoon? Why did his rifle jam from the same loads that worked in the morning? The answer is simple, AMBIENT TEMPERATURE. That's right, this is a good thing to remember, especially if you'll be where temperatures are high like in Africa or prairie dog hunting on the western prairies in the summer.

As the ambient temperature rises, so can the chamber pressure for any given load. This is also why factory ammunition is loaded to the levels it is. Manufacturers have no control over shooting temperature conditions.

CAUTION: Don't leave ammunition on the dash of your rig. It can heat up significantly in warm weather and, even if it doesn't jam your rifle, it can cause your point of impact to change on long shots. This is due to higher velocities caused by higher chamber pressures from higher ambient temperatures.

Let's look at a reversed scenario that happened to me. I was getting ready to hunt in Montana and worked up loads using the upper limits of published data in my 7mm Remington Magnum; the ambient temperature was 85°; when I got to Montana it was 12°.

When I sighted my rifle in, I had a big surprise. My point of impact was way off and the recoil was much less. This was due to the cold temperature that slowed the burning rate of the powder.

Hopefully, so far, the above has pointed out some of the pitfalls, of a "maximum handload" mentality; but they're only the tip of the iceberg. Many other common handloading scenarios exist that will send your rifle with "maximum handloads" to the gunsmith.

POWDERS: You've been using the X + 4 grains with no problems. You run out of your present supply and buy some more. Now you head for the range with X + 4 grains from this new lot and touch one off. Guess what — you jammed the bolt again. What happened this time?

Simple, you got a lot of powder with a slightly faster burning rate. Since you were borderline in the first place, this put you over the edge. Remember, powders, like chamber dimensions, have acceptable (to the manufacturer) variations in burning rates from lot to lot. Velocities can vary as much as 200 FPS between lots of the same powders when holding all other components constant.

PRIMERS: The same problems exist with primers from the same manufacture, as you change lots. Or even worse, if you change makes. Between Remington, Winchester, Federal and CCI, their primers will all give different chamber pressures and velocities with the same powder charge.

BRASS: Even though cases have the same external dimensions, different makes of brass, for the same caliber, won't give you the same pressures — they have different internal volumes.

Take three makes of brass in the same caliber and prime them with spent primers. Weigh each case separately; you'll have three different weights, thus showing a difference in their internal dimensions — wall thickness.

Now fill each case to the mouth with water and weigh them. Then subtract the weight of the empty case from the weight of the case when full of water. You'll have different water weights. This again verifies that differences do exist in internal volumes between case manufacturers.

So, you say, what does this mean to me? Plenty! If you're working with the brand of cases that has the largest water capacity and suddenly switched to the cases with the smallest water capacity — using "maximum handloads," you guessed it, it's gunsmith time again. Burning a given quantity of powder, X + 4 grains in a case with a smaller volume can send pressures over the edge.

That's not all you have to remember regarding cases. If you change lots of brass, even though you stay with the same make of brass you run the same risk due to differences in tooling from lot to lot.

Some years back I was using old .348 Winchester brass. I switched over to new cases and compared their water capacities. There were 13 grains difference between the old and new, the old brass having the greater capacities.

Concerning "maximum handloads" and BULLETS. You're using our infamous load of X + 4 grains and a Speer 140-grain, 7mm bullet; you run out of them and can only find Hornady 140-grain bullets. Now your first round jams your rifle, and it was because of THE OGIVE FACTOR: The bullet had a shorter ogive and engaged the rifling sooner. This is a great one for running up pressures.

In closing, let me leave you with some thoughts that plague me. Why do so many handloaders/hunters attempt to effect "maximum handloads?" Obviously, they perceive a greater striking velocity on game and flatter trajectories.

As a hunting guide for the last nine years, I usually ask myself the same $64,000 question every morning. At what range will we take game today?

And herein lies the further folly of "more powder." At reasonable hunting ranges, if an animal can detect the difference between being hit by a bullet loaded with published data or X + 4 grains of powder, I'll eat my hat.

Trajectory boys, chronograph your loads with published data and your X + 4 grains and then compare trajectories with the data in your loading manual. I think you'll be embarrassed at the small difference.

Published loads drive a 140-grain bullet in a 7mm Remington Magnum at approximately 3,100 FPS. Four more grains increases velocities by 150 FPS and this only extends the "maximum point blank range" by 8 yards and reduces bullet drop .2 inch when sighted in at 250 yards. Is it worth it?

AN INTERESTING STATISTICAL SCENARIO: You chronograph your "maximum handloads", the average is, from a five-shot string, 3,250 FPS. But that's only an average. It's made up of five separate shots: 2,950 FPS, 3,400 FPS, 3,225 FPS, 3,375 FPS and 3,300 FPS. This shot-to-shot velocity variation is common. Tell me if you can Mr. "maximum handloader," the next shot you take at an animal, what will be the muzzle velocity of what particular round? Will it be 2,950 FPS or 3,400 FPS?

Remember, the companies that publish loading data are on your side. The moral of this story is, STAY WITH PUBLISHED LOADING DATA. It's intended to keep you safe.

— John Kronfeld

WHAT IS RECOIL?

Webster's dictionary defines "recoil" as "...to fall back under pressure," or in the instance of a firearm "the action of recoiling," or "the kick-back of a gun upon firing."

Recoil is one of the unpleasant side effects that comes with shooting. In some cases, as with heavy magnum guns and loads, it can be severe, even painful. In other cases, it simply contributes to the shooter's inability to shoot a perfect score through flinch.

Recoil can be measured in two ways: one in the sense of physics expressed in foot-pounds of energy or momentum, commonly known as "free recoil," and another way through the shooter's perceived or "felt" recoil, frequently referred to as "kick," such as "That gun *really* kicks!"

Since the introduction of gunpowder and the development of hand-held firearms, men have been trying to develop various methods and means of reducing recoil in firearms. The objective was to eliminate or lessen the "kick" of a particular gun, but examined from a historical perspective it can be said these efforts have reached epic proportions since the turn of the 20th Century.

First, the development of fully-automatic machine guns, and then semi-automatic firearms fostered the search for improvements in recoil reduction for small arms used both in the role of shoulder fired guns, and as light weapons mounted in aircraft and other vehicles. To this end, early experiments were conducted with both precise laboratory controlled trials and haphazard field expedient methods.

For example, on the Browning Automatic Rifle, better known as the BAR, field expedient attempts included filing ports in the solid tube flash hider to create a crude compensator to lessen felt recoil and increase control.

Later, these efforts were realized in the Cutts Compensator seen on the Thompson Submachine Gun. The Cutts Compensator neutralized the muzzle climb of the heavy Thompson, and the same device was sold in the civilian market for use on shotguns. According to Julian S. Hatcher the Cutts Compensator reduced the recoil of shotguns anywhere from 15 to 30 percent.

A lot of factors come into play when we are discussing felt-recoil or the kick of a particular firearm, although it is an admittedly subjective area of evaluation. Most any long gun will "kick" differently to different shooters, and there is solid scientific reason behind this.

If the gun fits the shooter to the point the rifle, or shotgun, is pressed firmly into the shooter's shoulder, the shooter's body weight is essentially added to the weight of the firearm and the felt recoil is lessened.

If, however, the gun fits another shooter badly when the gun may be held loosely, or in an awkward manner, this allows the firearm to gain velocity through movement independent of the shooter's shoulder and its impact against his body will be felt as a severe blow.

Was the actual recoil any different between the two shooters, assuming the same gun and load was used?

No, but you will have a hard time convincing the second shooter his shoulder received the same blow the first shooter managed without difficulty.

To the second shooter, this particular gun will always "kick like a mule" while the first may find it a "sweet shooter."

Julian S. Hatcher wrote what probably has to rank as the greatest treatise on the subject of recoil in his book, *Hatcher's Notebook*, and in it he identifies the three elements of a firearm's recoil.

These three factors all contribute to the production of recoil when a firearm is discharged.

The first according to Hatcher is "...the reaction which accompanies the acceleration of the bullet from a state of rest to the velocity it possesses when it leaves the gun, that is, to its muzzle velocity."

The second element of recoil that Hatcher identifies is "...the reaction which accompanies the acceleration of the powder charge in the form of a gas to a velocity in the order of half the muzzle velocity of the bullet."

The third factor influencing recoil from firearms is "...the reaction due to the muzzle blast which occurs when the bullet leaves and releases the gas, which rushes out and gives the same kind of reaction or push that propels a rocket or a jet plane."

A lot of attention has been paid to this third factor by pistolsmiths and shooters competing in Unlimited IPSC competitions. It has given rise to a specific type of handgun — the comp gun. The comp gun is a highly modified semi-auto pistol that always possesses a muzzle mounted compensator.

Compensators are not new, like we said earlier, the Thompson Submachine Gun had a production compensator as early as 1928, and compensators have been used on a variety of competition handguns. We've even seen them on Olympic grade rapid fire pistols shooting the .22 Short cartridge, but it was IPSC competition that really prompted the development of first the single port, then the double port, and now today — the triple port compensator, as a means of increasing the control of the handgun, while also lessening or redirecting the felt recoil of the handgun.

The most popular caliber in IPSC is the .38 Super cartridge. It is a caliber that in the older single column magazine, 1911 style pistols offers both increased magazine capacity and "Major Caliber" power factors.

It used to be the .38 Super was loaded with 160 gr hard cast bullets and a sufficient charge of powder, like **Accurate No. 7**, to make Major. Today the movement is toward extremely light bullets and even higher velocities.

The problem, of course, is managing these loads at safe pressure levels, and that is extremely difficult to do. One of the reasons the shooters keep moving to yet ever lighter bullets is the reduction in felt-recoil, and the increase in gas pressure that accompanies these light bullet major loads. The light bullets "recoil" less in terms of barrel jump, while the increased pressure can be utilized more efficiently by today's triple port compensators.

But, we may be getting ahead of ourselves just a bit at this point, because recoil in handguns is a little different than it is in long guns.

The barrel of any handgun is almost always above the hand, in some cases well above the hand, meaning the handgun in recoil will pivot off the center of the shooter's wrist. Lowering the barrel in relation to the wrist will lessen the leverage the gun exerts on the wrist and that would lessen the recoil the handgunner would experience, but the slide on an auto-pistol must always clear the top of the hand during its operation, so the barrel remains above the hand on any auto-pistol.

This leverage on the wrist forces the barrel upward in an arc, and there is little the shooter can do physically to counteract this force, other than gripping the gun with a tighter and firmer grasp.

The advantage to the compensator is the baffles of the compensator deflect and redirect the high velocity muzzle gases. The deflection of gases redirects some part of the recoil energy and makes it easier for the shooter to control the pistol in the manner desired. It doesn't eliminate the recoil, but a good compensator will vector the recoil through jet effect in a manner that exxentially reduces the force through redirection.

The move toward lighter bullets is also understandable for the simple fact that all other factors remaining the same lighter bullets recoil less than heavier bullets.

The use of light bullets versus heavy bullets in terms of recoil is exactly what Hatcher was talking about in his first element of recoil. It naturally follows from Newton's third law of motion that to every action there is always an equal reaction. So, if a heavy projectile is launched from a firearm the resultant equal reaction is going to be heavier recoil.

Some will question what Hatcher's second element of recoil is all about, but what he was discussing here is the force generated when gas expands.

What Hatcher did was study the inside volume of a loaded .30-06 cartridge and compare that against the volume of the barrel and firing chamber on a 1903 Springfield rifle. Using these figures he compared the various volumes behind the bullet as it traveled down the barrel after firing and came to the conclusion the propellant gas in this situation was moving at a velocity 46.75% of the muzzle velocity of the .30-06 projectile.

Gas has mass, and this mass attains velocity, so it naturally follows that it will produce both momentum and recoil, the question remains to what extent does this element of recoil influence the shooter, and how great is its effect?

There are other factors that will influence felt recoil that have nothing whatsoever to do with free recoil, muzzle blast being the most prominent factor. Many experts feel muzzle blast, both in terms of noise and flash, contributes more to shooter flinch than any actual element of free recoil.

Have someone drop a plank behind you while standing on a concrete floor and see if you don't jump as a natural reaction to the noise! Muzzle blast has the same effect on many shooters and it is a difficult reaction to learn to control. Yet, muzzle blast has little or nothing to do with free recoil. Muzzle blast is a phenomenon that occurs outside the gun. The gases have left the muzzle and the projectile is long gone when this blast registers its effect upon the shooter.

All of these elements are part and parcel of recoil, and shooters are going to have to deal with them as long as we have metallic cartridge firearms. Certain aspects of recoil will remain even after ballistic science moves on to futuristic rail-guns and needle-like projectiles that reach velocities greater than 30,000 fps. The laws of physics remain true, but by then perhaps computers will help the shooter anticipate the sequence of events as they occur in microseconds and provide the appropriate countermeasures.

In the meantime, we will continue to work on improving our flinch and shooting ever tighter groups.

— Frank W. James

EFFECTS OF ATMOSPHERIC CONDITIONS ON INTERIOR BALLISTICS OF AMMUNITION

Experienced handloaders know that the performance of ammunition is affected by conditions in the surrounding atmosphere. They know, for example, that handloads developed in cool weather, using the usual subjective pressure signs to establish the maximum charge weight, sometimes show signs of excessive chamber pressure when they are fired on a hot day. The effects of atmospheric conditions on the interior-ballistic performance of ammunition can occur at four different stages in the life of the ammunition, namely: (1) during storage of the components before the ammunition is loaded; (2) during the process of loading; (3) during storage of the loaded ammunition; and (4) at the time of firing.

Temperature is the environmental factor that has the greatest effect on ammunition performance. It can affect the performance at all four stages in the life of ammunition, and it effects the flight of projectiles from gun muzzle to target as well. The exterior-ballistic effects of temperature on the trajectory are accurately predictable, but the interior-ballistic effects are not. The general trend, of course, is that lower ammunition temperatures are associated with lower muzzle velocities, and higher ammunition temperatures with higher muzzle velocities, but the magnitude of the velocity change that accompanies a given temperature change can vary quite widely from one situation to another.

There are, in fact, instances in which the trend is reversed. There are also exceptions to the rule that lower temperatures produce lower chamber pressures. At very cold temperatures, some powders, particularly some double-base powders having a relatively high nitroglycerine content, will be found to produce relatively wide round-to-round variations in velocity and pressure, and the highest pressures observed at cold temperature may then be higher than the highest pressures observed at normal or high temperatures.

The general trend is shown in a short Memorandum Report written by Barbara Wagoner of the U. S. Army Ballistic Research Laboratory, titled *CHANGE IN MUZZLE VELOCITY DUE TO A CHANGE IN PROPELLANT TEMPERATURE FOR SMALL ARMS AMMUNITION*. The detailed data on which the report is based are not given in the report. They involved ammunition of various calibers from

5.56mm to 30mm, with both single-base tubular-grain (IMR) propellants and double-base spherical-grain (Winchester) Ball propellants. The data pertain only to ammunition for rifles and machine guns, and do not necessarily apply to handgun ammunition or to shotshells. The temperature range covered is from -65° F. to +165° F. There is relatively wide scattering of points on the graph shown in the report, but the trend line that was established can be said to represent the typical relationship between muzzle velocity and temperature for ammunition of the types included. The following equations were derived from the information given in the report.

To find the muzzle velocity (VT) at any temperature (T) from -65° F. to +165° F., given the muzzle velocity (V70) at 70° F., the equation is:

$$VT = V70 * [1+.000405*(T-70)]$$

Similarly, to find the muzzle velocity (V70) at 70° F., given the velocity (VT) at temperature T, the equation is:

$$V70 = VT / [1+.000405*(T-70)]$$

The limitations of any such equations intended to predict the change in velocity corresponding to a given temperature change are illustrated by the following example. A test of three different primers was conducted at the former U. S. Army Frankford Arsenal, using the military equivalent of the .308 Winchester cartridge. All of the bullets were the same, all of the cartridge cases were the same, and all of the charges consisted of 43.0 grains of IMR 3031 powder. The tests were conducted with ammunition conditioned at temperatures of -70° F., +70° F. and +165° F., with the following results:

INSTRUMENTAL VELOCITY, FPS

PRIMER TYPE	TEMP. -70°	DIFFER-ENCE	TEMP. +70°	DIFFER-ENCE	TEMP. +165°
R39	2686	+55	2741	+35	2776
T53	2576	+134	2710	+77	2787
FA26	2528	+164	2692	+59	2751

These results demonstrate the difficulty of trying to find a general formula that will accurately predict the effect of ammunition temperature on muzzle velocity. As we see, a difference in even one component, in this case the primer, may produce distinctly different results in the relationship between ammunition temperature and muzzle velocity.

The effects discussed above pertain specifically to temperature of the ammunition at the time of firing. Temperatures during **storage** of the loaded ammunition, and/or the ammunition components, can also have significant effects on performance of the ammunition. The powder is the component most affected by storage temperature. All smokeless powders consist mostly of nitrocellulose, but **double-base** powders contain nitroglycerine as well, whereas **single-base** powders do not. Nitrocellulose is actually an unstable chemical compound, and it must eventually decompose into its constituent elements and/or into simpler chemical compounds. The life of smokeless powders is extended by the addition of a chemical **stabilizer**, usually diphenylamine, to the powder during manufacture. Powders that decompose very slowly are said to have good **chemical stability**. The chemical stability of powder depends not only on its nominal formulation, but also on the care exercised during its manufacture. For example, the chemical stability of a powder is compromised if the acids used in the production of the nitrocellulose are not thoroughly removed in later stages of the manufacturing process.

The early effects of chemical decomposition on ammunition performance are that average velocity and pressure are reduced, and round-to-round variations in velocity and pressure are increased. The powder may at this stage also show a reddish-brown “dust” on the surface of an undisturbed powder bed, and the “dust” will be found mixed in with the powder granules. The “dust” is an oxide of nitrogen, and it is toxic if inhaled or ingested. Moisture in the environment to which the powder is exposed will accelerate its deterioration. As decomposition progresses still further, the powder will attack and corrode metal containers in which it is kept. If loaded into ammunition at this stage, the powder will produce misfires, and the acidic products of the decomposition will attack metallic cartridge cases from the inside and ruin them.

At normal temperatures, the decomposition of well made smokeless powder proceeds so slowly that we may see no change in its ballistic performance during twenty or thirty years of storage. The rate at which the decomposition takes place is strongly dependent on temperature. There is no simple way to predict very accurately the rate at which a particular type and lot of smokeless powder will decompose, but if certain simplifying assumptions are made, we can apply a simple rule of physical chemistry to illustrate the kind of relationship that exists between storage temperature and powder life. It is a fact that the rate of many chemical reactions is approximately doubled for each rise of 10° Celsius (18° Fahrenheit) in temperature. If that rule is applied to the decomposition of smokeless powder, it indicates that a powder which is expected to have a life of 20 years when stored at a cool 60° F. in a powder magazine, would be expected to have a life of about 14 years at 70° F., 9 years at 80° F., 6 years at 90°F., and 4 years at 100° F.

Another type of stability in propellants is called **ballistic stability**. It refers to changes in the powder that are not chemical in nature, but like chemical changes, they affect adversely the interior-ballistic performance of the powder, and like chemical changes they are irreversible. Unlike the adverse effects of chemical deterioration, which tend to lower both velocity and pressure levels, changes related to ballistic stability cause increases in chamber pressures, usually without a commensurate increase in muzzle velocity. These changes in ballistic performance are brought about by changes in the distribution of the **deterrent coating**, which has been applied to the outer surface of the powder granules during manufacture to give the powder the quality of **progressive burning**. Deterrent coatings work to achieve progressive burning by decreasing the **linear burning rate** of the powder granules during the early stages of powder burning. To work effectively, deterrent coatings must remain on and very near to the outer surface of the powder granules. At very high storage temperatures - generally above about 140° Fahrenheit - the deterrent coating used on some propellants may migrate inward from the surface toward the center of the grain, where it can no longer serve effectively its intended purpose of reducing the initial burning rate of the powder.

Still another effect of storing powder at high temperature is to drive out some of the moisture, as well as some of the volatile solvents such as ether and/or alcohol and/or acetone, that normally remain in newly manufactured powder. This change in the powder is partly reversible and partly irreversible. Once driven out, the volatile solvents cannot be recovered, but the moisture content of the powder will increase or decrease upon exposure to the air, more or less, depending on the **relative humidity**. This property of giving up moisture or taking on moisture from the air is called **hygroscopicity**, and of course it is undesirable. Single-base powders are usually more hygroscopic than are double-base powders. The moisture content of newly manufactured single-base powders is approximately one percent by weight, and it is somewhat less for double-base powders. Powders are normally packaged in hermetically sealed containers, and the moisture content will remain constant until the seal on the container is broken.

When exposed to the atmosphere, powder will lose moisture or gain moisture, depending on the relative humidity of the air to which it is exposed. There is for each powder type, and for each value of relative humidity, a particular level of moisture content that is called the **equilibrium moisture**. The equilibrium moisture is that level at which the moisture content of the powder will remain unchanged, provided the corresponding level of relative humidity remains unchanged. The following table gives the approximate equilibrium moisture for two types of powder that have been used in loading .30-06 military rifle ammunition. The single-base powder is a tubular-grain IMR type, and the double-base powder is a tubular-grain type containing about 20 percent nitroglycerine. The entry *M. & V.* under *D. B. Powder* indicates that the percentages below include both moisture and volatile solvents.

RELATIVE HUMIDITY, PERCENT	S. B. POWDER MOISTURE, PERCENT	D. B. POWDER M. & V. PERCENT
10	0.20	0.25
30	0.55	0.45
50	0.80	0.60
70	1.05	0.90
90	1.55	1.05

Decreases in moisture content will increase pressure and velocity, while increases in moisture content will decrease pressure and velocity. The magnitude of the effect that variations in moisture content will have on the ballistic performance of the ammunition will depend on the particular powder, the particular cartridge in question, and other factors not discussed here. The typical magnitude can be illustrated, however, by figures for the powders mentioned above, if loaded in .30-06 military ammunition. The following table shows the effects of a change of **0.1 percent** in moisture content of the powders.

Type of Powder:

	SINGLE-BASE	DOUBLE-BASE
Change in Charge Weight (Grain) for Constant Velocity:	0.30	0.30
Change in Velocity (fps) for Constant Charge Weight:	15	13
Change in Pressure (psi) for Constant Charge Weight:	580	700

Another effect of powder temperature on the ballistic performance of ammunition becomes of some importance at the time of loading. That is the effect of temperature on the **gravimetric density** (sometimes called **bulk density**) of the powder. The gravimetric density of powder is the ratio of the weight of powder which fills a particular volume (under carefully prescribed conditions of filling), to the weight of water that would fill the same volume. The gravimetric density of a powder is important because it determines the amount of powder that will be dispensed from a volumetric measure of a particular capacity. Of course it is also important because it determines the weight of charge that can be accommodated by a particular cartridge case, and the amount of airspace or the degree of compression corresponding to a given charge weight in a particular cartridge.

Gravimetric density depends on several characteristics of the powder that are not discussed here, but it has been found in general that increasing temperature of the powder causes a reduction in the gravimetric density. For the single-base tubular-grain (IMR) powders that have been loaded in military ammunition, the increase in gravimetric density amounts to about one percent for a temperature change of 20° F. In practical terms, this means that the powder charge dropped by a volumetric measure set for 50.0 grains at 65° F. would weigh only about 49.5 grains at a temperature of 85° F. The corresponding changes in ballistics for the .30-06 are about 25 fps in velocity, and about 1200 psi in pressure. This is of some importance in loading plants, where the charges are dispensed from volumetric measures that are not easily adjusted, and it is important to maintain uniform velocities throughout a lot of ammunition. It is for this reason, among others, that the temperature of the powder and the surrounding atmosphere in a loading plant must be maintained at a reasonably constant level.

It is good advice also for handloaders to avoid, insofar as possible, conditions that can seriously affect the performance of the powder when it has been loaded into ammunition. Powder should be stored in a cool, dry place preferably in the hermetically sealed containers in which it was packaged by the manufacturer. If powder is brought into the loading area from a cold environment, such as an unheated building in wintertime, it should be left in its sealed container for several hours until it has come to room temperature before it is opened. If it is not, then condensation of moisture on the powder granules will in the short term reduce the gravimetric density and impede free flowing of the powder from a measure, and in the long term it will increase the moisture content significantly as the surface moisture is absorbed into the granules.

For good reasons, some of which have been mentioned before, it is likewise good advice to protect loaded ammunition from excessive humidity, and from extremes of temperature, and from frequent temperature changes. This is especially true of handloaded ammunition, because the individual cartridges of handloaded ammunition (and indeed of most non-military factory-loaded ammunition as well) are not hermetically sealed. Such ammunition "breathes" during temperature changes, because the air inside expands at high temperature and leaks out into the atmosphere, and it contracts at low temperature, drawing in air from the surrounding atmosphere. The powder inside the cartridge is thus exposed constantly to fluctuations in humidity of the surrounding atmosphere. Whatever care was used in the storage of components, and handling of them during loading, the good effects can be lost if the loaded ammunition is carelessly stored. Modern ammunition components are remarkably tolerant of adverse storage conditions, and will perform adequately under a wide variety of circumstances, but care in handling of the components and the ammunition at every step is nevertheless worthwhile.

— William C. Davis, Jr.

CHRONOGRAPHING METALLIC AMMUNITION

You've probably heard them — the reasons for not using a chronograph- — "What the heck do I need a chronograph for, a deer isn't going to know whether a bullet is going 2700 or 2800 feet-per-second when it hits him." Or this one — "I don't need a chronograph because the loading manuals tell me what the velocity is, and that's close enough."

If you hear a remark like one of these, it's a good bet that the shooter has not used a chronograph and really doesn't understand what a chronograph can do for him. It's certainly true that a chronograph isn't required for a given load to bag game, and it isn't necessary to own a chronograph to enjoy shooting. On the other hand, a chronograph is a lot more valuable than most shooters realize.

I've shot thousands of rounds over a chronograph. Even before I began writing about shooting I was using the old silver ink screens which had to be replaced for each shot. In fact, most of the rounds I've fired have been over a chronograph during the past 20 years and I have as good an idea as anyone what velocity a load is likely to turn up. One thing I've learned from all this chronographing is that I really don't know what velocity a load is going to produce from my firearm until I chronograph it. While loading manuals, such as this one, serve as excellent guides to the velocity you're likely to receive, they're only an approximation.

There are a lot of reasons for the velocity variation between published velocity and the velocity you receive from your own rifle or handgun. Firearms are different in terms of throating length and other dimensions in the chamber and bore. There is a considerable difference in cartridge brass thickness and capacity. The performance of each component might vary slightly from one lot to the next. The design of the bullet can affect pressure and hence muzzle velocity. While you can speculate all you want about the effects of various components or a change in barrel length, for example, you really don't know what the effects are without a chronograph. A chronograph cuts through all the speculation and gives you a bottom line figure exactly what your bullet's velocity is.

What a chronograph has to offer a shooter isn't all knowledge, a lot of it is pure enjoyment. It puts a lot more satisfaction into handloading and shooting if you <u>know</u> what velocity a particular load produces. Only then can you compare one load to the next.

With a chronograph you know whether the load you assemble today performs identically with the same recipe assembled last year when you used other lots of components. It can be a type of quality control check on your favorite load.

Besides velocity level, a chronograph is valuable for determining the consistency of a load. A load which produces shot-to-shot uniformity is likely a balanced load, with the primer, case, powder charge, and bullet being well-matched. While accuracy is a result of a variety of factors besides the load, a uniform load has a tendency to shoot more accurately.

If I'm developing a load, I'll generally chronograph several recipes, finding the ones which produce good velocity with a high degree of uniformity. Only then do I take the time to shoot the loads for group (three five-shot strings) on target. I find that this system saves lots of time in load development.

Given a specific bullet, the downrange performance of a load — everything from drop, to wind deflection, to energy, to expansion performance — is dependent upon muzzle velocity. At the same time, there's a lot more information to be gleaned from chronographing than merely the speed of a bullet.

One of the most valuable applications for a chronograph is in keeping loads safer. Loading manuals provide a guide, generally a suggested starting and maximum load. These load recipes are determined by careful loading and pressure testing. Maximum loads are based upon industry standard chamber pressure criteria. Generally speaking, with a given set of components, the higher the velocity, the higher the chamber pressure that is required to produce the velocity. If one of your loads produces velocity in excess of what a loading manual indicates, you can also assume that the pressure is in excess. If the velocity of one of your loads equals the maximum listed velocity in the loading manual (with a comparable barrel length), it's prudent not to exceed the powder charge level you're using, even though the quantity of powder you're using might be less than what is suggested as the maximum quantity in the manual.

While the data published in a loading manual can only approximate the velocity you might receive, the powder charges recommended should be taken as published. An unbelievable amount of time and effort goes into data development for this manual. The loads are pressure tested and checked for other factors to assure that the listed loads are not only safe, but good ones. Always confine your powder charge weights to those recommended in the manual.

Besides velocity, a chronograph can be used to determine the ballistic coefficient of the bullet/load/firearm combination you're using. Put simply, ballistic coefficient is a relative numerical value indicating how well a bullet overcomes the resistance of air during flight.

If you fire a roundnose bullet and a spitzer bullet, both of the same weight and diameter, starting at the same velocity, *with both being equally stabilized*, the spitzer will arrive on target first. If one mathematically combines muzzle velocity and ballistic coefficient, he can derive precise downrange figures for drop, wind deflection, velocity, energy, and time of flight.

Ballistic coefficient is much like velocity. You don't really know how well a specific bullet flies from your firearm unless you actually test it. Ballistic coefficient can be determined (over the test shooting distance) if a shooter knows the velocity of a bullet at two points, say 12 feet from the muzzle, and 100 yards from the muzzle.

You can use two chronographs, placing one near the muzzle and one downrange, to see the velocity loss for each bullet between the two points and then average the loss. Or you can use a single chronograph and shoot several shots for an average velocity at the near distance, and then move the chronograph downrange and shoot another average at the longer distance. These average velocity figures can then be used to determine velocity loss and compute ballistic coefficient.

You can find the formulas for deriving ballistic coefficient in several sources. I don't like to mess with the math and so I use a personal computer along with one of several ballistics programs to do the calculations for me. PACT (P.O. Box 535025, Grand Prairie, TX 75053) makes a chronograph with a ballistics computer built in.

Remember, ballistic coefficient tells you how fast, relative to other bullets, your bullet arrives on target. The variables here are not only the shape of the bullet, but the velocity, the ambient conditions, and *how stable your bullet is when it exits the muzzle*. Like velocity, there's no way to know the ballistic coefficient of your projectile without checking it. And like chronographed velocity which cuts through the red tape variables to give you a precise number for your load and firearm, chronograph-derived ballistic coefficient gives you a real number (not a speculation or a theory) for your gun and load.

So far, we've been talking about convential chronographs and what they can do. These range from the compact folding Chrony (Shooting Chrony, Inc., P.O. Box 101, Niagara Falls, NY 14304) with a one-foot screen spacing and the ProChrono (Competition Electronics, 3469 Precision Drive, Rockford, IL 61109) each at about $100, through several models from Oehler (P.O. Box 9135, Austin, TX 78766) and PACT, for just less than $400. There are all prices in between.

Generally speaking, as price goes up, one gains features in chronographs. Today, the ultimate chronograph for the average shooter is the Oehler Model 43 Personal Ballistics Laboratory. As the name implies, the unit is a lot more than just a chronograph. With acoustic target, and strain gauge measuring system, the unit provides information about internal chamber pressure, muzzle velocity, ballistic coefficient, group size, downrange velocity, energy, and a whole lot more numbers with each shot fired. The Oehler Model 43 PBL offers basically all the numbers regarding internal and external ballistics. All this information is captured and stored automatically (as fast as you can shoot it) in a personal computer. The price for this system far exceeds the other chronographs mentioned, yet its cost is not out of reach for a serious shooter.

We've seen that a chronograph can be used to determine a uniform, balanced load that's likely to be accurate. A chronograph can be used to make handloading safer. It can be a means for maintaining quality control of your loads. A chronograph can be used to determine the fastest, most efficient load. It saves time in load development. It can be used to determine ballistic coefficient and predict the most effective load downrange. And it sells for no more than the cost of a rifle. If I were a handloader without a chronograph, I wouldn't purchase another firearm until I had a chronograph. It's one of those things that you don't realize how useful it is until you own one. It's not only informational, it makes shooting a lot more fun.

— Rick Jamison

A BRIEF HISTORY OF COMPUTERS IN BALLISTICS

It is well known nowadays that the modern science of ballistics owes much to the development of electronic computers. But, it is not so well known that the development of modern computers owes at least as much to the science of ballistics. Nearly fifty years ago, the U.S. Army Ballistic Research Laboratory put the first high-speed electronic digital computer into operation. It was designed and built by engineers from the University of Pennsylvania under a contract let by the U.S. Army Chief of Ordnance. Completed in 1945, it was nicknamed the "ENIAC," which stood for the Electronic Numerical Integrator and Computer. The ENIAC was designed and built primarily to provide faster and more accurate calculation of the trajectories of bombs and gun-fired projectiles. Built before the invention of solid state electronics and miniaturized circuits, it contained about 19,000 vacuum tubes, 1500 electromechanical relays, and innumerable smaller parts. It weighed about 30 tons and consumed nearly 200,000 watts of electric power. Its computing capabilities were probably less than those of most modern desktop PCs, but it was nevertheless a truly remarkable achievement for the time. Its completion contributed significantly to the defense capability of the United States and our allies; but, perhaps even more important, it represented a giant step forward in the development of modern digital computers.

Though the **science** of ballistics is now about 300 years old, the study of ballistics as an art is older than the invention of firearms and so is the use of computing machines. The English word *ballistics* is derived from the Latin word *ballista*, the name given by the ancient Romans to a war machine that could hurl javelins, stones or other missiles, powered by the elasticity of twisted skeins of animal sinew. The abacus, a primitive computing machine, has existed in the Orient for at least five thousand years. Wars have been waged in the Orient since the dawn of history, and so we might reasonably speculate that the first computing machine applied to the study of ballistics was the abacus.

Computing machines are of two general types, *digital* and *analog*. The abacus is a primitive example of a *digital* machine because it consists of several parallel rows of small blocks or beads each of which represents an individual *digit*. The value of each bead depends upon the row it occupies and its position in that row. The slide rule, which was standard equipment for the working engineer before the advent of pocket calculators, is an *analog* computing machine, so called because the infinitely variable positions that can be taken along its logarithmic scales are *analogous* to the variables involved in the calculations.

The slide rule principal has also been used in some interesting computing devices intended **exclusively** for ballistic calculations. One such device was the military *Graphical Firing Table (GFT)* which was used by field artillerymen to solve gunnery problems during World War II. Some shooters will also be familiar with the

Speer Ballistics Calculator, the *Powley Computer for Handloaders*, and the *Powley PSI Calculator*, all ingenious slide rule devices invented by Homer S. Powley for making ballistic calculations. As late as the 1950s, there was in use at the U.S. Army Aberdeen Proving Ground a *film slide rule* consisting of greatly expanded slide rule scales marked on the edges of 35mm motion picture film so arranged that the film could be moved through a special projector and the scales could be read very accurately from the magnified images on the screen.

The first practical electronic analog computers also were built under supervision of U.S. Army Ordnance, at about the same time as the ENIAC, specifically for the purpose of solving complex problems in ballistics. The gunnery problems facing antiaircraft artillerymen before the days of "smart" surface-to-air missiles were incredibly difficult. To hit an airplane flying hundreds of miles per hour at a distance of thousands of yards with a single projectile from an antiaircraft gun is a feat comparable to bringing down a very distant high-flying duck with a single shot from a rifle.

The invention and development of tracking radar during WWII provided the capability of following a target airplane accurately while constantly measuring the range and the horizontal and vertical angles to the target. The path of the projectile and its time of flight to any point in space could also be calculated provided the muzzle velocity of the gun, the drag characteristics of the projectile and the prevailing atmospheric conditions were precisely known. The task to be done was then to constantly process the information on the path and speed of the target being tracked by the radar and thereby predict its future position. Simultaneously information about atmospheric conditions, muzzle velocity and ballistic properties of the projectile was also included to determine its time of flight and therefore, the lead required to aim and fire the gun so that the projectile and the target would arrive at the same distant point in space at exactly the same time. The timely solution of this complex problem was beyond the capabilities of any calculating machine then existing. Therefore, special purpose analog computers were designed and built during the 1940s for that specific purpose. They became the first practical, mobile radar tracker/detector systems. The beneficial spin-off of this work paved the way for development of other modern analog computers as well.

Software as we know it today was not used in the early computers. At first, programming the computer required actually changing connections of the wires that linked the various electronic components so as to perform each particular calculation. Later, input devices were developed so that explicit instructions could be given to the computer in the fundamental "machine language" which it "understands," but which would make no sense to any human except the specially trained programmer. Computer programming was, in those days, the exclusive province of professional programmers. Early input devices included punched cards and punched paper tape, followed later by magnetic cards and magnetic tape and, later still, by the direct keyboard entry, the magnetic disk, the light pen, the mouse, the optical scanner and other input devices that we use today.

Machine language requires that a problem to be solved must first be translated into *code* which bears no apparent resemblance to the original terms and numbers of the problem. That translation is difficult and time-consuming; and, even highly trained programmers make errors in the translation that are very hard to find. To overcome these difficulties, computer *languages* were soon developed, shifting much of the burden of translation from the human programmer to the machine itself. The programming language first and most widely adopted for mathematical and scientific use is called **FORTRAN**, which is the acronym for "**FOR**MULA **TRAN**SLATION." There are, however, many other programming languages now in more or less common use. Among these is **BASIC**, which stands for "**B**EGINNER'S **A**LL-PURPOSE **S**YMBOLIC **I**NSTRUCTION **C**ODE." As the name implies, the language and methods of BASIC closely resemble the common language and methods of problem-solving with which many people are already familiar. Thus, the usefulness of computers was extended to a group much wider than that of professional programmers. Consequently, beginning in the 1970s, the way was opened to the development of reasonably affordable personal computers.

A personal computer program for the accurate calculation of trajectories was published in the *American Rifleman* magazine of June 1983. Written in 1979 for the Radio Shack TRS-80 Model I, one of the few personal computers then available, this program appears to have been the first of its kind. With the phenomenal proliferation of personal computers during the 1980s, a great many other programs of interest to shooters have now become available, not only for the calculation of trajectories, but for other tasks as well.

Personal computers are now available at about the price of a high-quality rifle, and most of the programs require no special skill or knowledge of computer programming. The personal computer has taken its place alongside the modern electronic chronograph in the equipment of technically advanced, non-professional experimenters.

Though certainly not essential to the enjoyment of shooting and reloading, these sophisticated instruments have extended the capabilities of non-professional ballisticians into regions which were, until quite recently, the exclusive province of workers in professional ballistics laboratories. The technically inclined shooter who invests in a personal computer and learns the relatively simple rules for its use will almost certainly find his time and money well spent.

— *William C. Davis Jr.*

SHOOTING CAST BULLETS

Until the late 1800's, almost all projectiles shot from hand held firearms were made from lead. The reasons were simple. Lead was quite common and, in its pure form or alloyed with small amounts of tin or antimony, it is both heavy and (due to lead's low melting point) is readily cast into almost any shape.

Since the metal is also relatively soft, firing lead bullets repeatedly in those early firearms would not harm the barrel. Because it is heavy, lead was — and still is — the ideal material for projectiles shot in the relatively low pressure, low velocity, blackpowder-fueled firearms.

As you may know, blackpowder is a mixture of specific portions of sulphur, saltpeter and charcoal formed with water to make "cakes." When the cakes are completely dry, they are carefully broken up and separated into various granulations that are easy to ignite; in fact, often it was ignited accidentally to the dismay of the shooter. Blackpowder is also *hygroscopic*, i.e., it attracts water. So when the arm is charged — and especially after it's fired — the nitric compounds present will absorb moisture and form nitric acid. Left unattended, the acid will quickly corrode and damage the gun. Of course, blackpowder arms spew out clouds of smoke each time they're shot. Despite these drawbacks, however, blackpowder was used exclusively in firearms for more than 500 years.

However, in the mid-1800's, experiments with acids, cellulose, ether and alcohol produced an altogether new compound eventually called "smokeless" powder. The new propellant was also made in wet batches and then extruded into strings that varied in length and diameter. Because of its chemical composition, smokeless powder burns hotter and releases significantly more energy when consumed. More energy equates to higher pressures which, in turn, means higher bullet velocity.

Increased velocity and higher flame temperatures often cause lead bullets to foul the barrel with material that either strips or melts away from the projectile. This situation led to the development of jacketed bullets that prevents the bullet's lead core from contacting the bore. Over the years, materials and processes have continued to improve resulting in new and better bullets and propellants. However, with all of the progress made, the simple lead or lead alloy bullet is still the best choice in many ammunition applications. Lyman's *Cast Bullet Handbook* is an excellent source for those of you interested in learning more about the history of cast bullet shooting.

Because muzzle velocity is limited when using blackpowder, historically the bigger and more dangerous the game, the greater the size and weight of the bullet. The early European weapons employed in Africa and India graphically illustrate this fact. Even in America, the ever-changing frontier was quickly tamed by settlers armed with blackpowder firearms shooting lead bullets.

Handloaders often initially try cast bullets strictly because of the lower cost. Most of us start out by buying a few bullets from a local dealer or acquiring free samples from a generous friend. If the results are satisfactory, we may eventually become even more independent and just decide to "make our own." I think it's quite natural for us to be this way. Many of our potential ancestors were simply weeded out because they weren't independent enough to survive the rigors and hardships of frontier life. While it may not be politically popular today, the armed American citizen who also loads his or her ammunition is simply manifesting a heritage that we should be proud of.

Accurate Arms continues to respond to our customers' requests for more and better cast bullet loading data as time and component suitability allow. Our entire line of handgun propellants give excellent results with cast bullets and, in most instances, overall performance is comparable to that obtained with more expensive jacketed bullets.

However, as I noted earlier, using cast bullets with modern smokeless powders in rifle ammunition is a bit more complicated. Achieving good performance while minimizing excessive bore fouling are compatible objectives if hard cast and/or gas-checked bullets are fired at somewhat restricted muzzle velocities.

Our current loading manual includes cast bullet data for those cartridges that you have requested most often. Older, typically blackpowder cartridges have received special emphasis due to renewed interest in these firearms.

When you review our cast bullet reloading data for rifles, you will note quite a few loads listed using our "slow" burning rate propellants. We have found that these powders, especially the ball propellants, perform better at higher load densities (i.e., when the powder charge fills most or all of the case), especially in large capacity or low pressure cartridges. Our slow-burning 8700 propellant is most commonly recommended because it usually allows us to achieve an acceptable velocity level and excellent accuracy.

We have found three things are necessary to help assure the best results using 8700. First, always use a magnum primer to ensure better ignition. Second, slug your barrel to determine the actual bore diameter and then use cast bullets sized to nominally fit the rifle's bore or, better yet, about 0.001-inch over groove diameter. Finally, seat the bullet out as far as possible so that the bullet is lightly engraved by the rifling when each round is chambered.

Our test data indicates consistent one to two minutes of angle accuracy when used in this manner. In addition, one of the best things we noted about loads using 8700 is its repeatable performance. A minute-of-angle load you work up today will likely be a minute-of-angle load next week, next month or next year.

The great bulk of bullets used by handloaders are produced in Lyman, Lee, SAECO, H&G and RCBS moulds. In addition, there are several smaller manufacturers who make custom moulds for casting bullets of their design or yours. The selection and quality of casting equipment available today is unprecedented. Handloaders, especially those of us who cast our own bullets, have never had it so good!

There are numerous books and publications (in addition to Lyman's Handbook) that relate proper techniques for casting and loading lead bullets. These include ones available from the various equipment manufacturers, the National Rifleman Association (which every shooter should be a member of) and Wolfe Publishing. Shooters who are seriously interested in this fascinating activity are urged to join the Cast Bullet Association. Members of this organization are on the leading edge of cast bullet technology and experimentation and share new and exciting developments with other members in their publication.

Whether your interest in shooting cast bullets includes casual plinking, formal target shooting or hunting, we have attempted to provide useful and demonstrated data for the handloader. However, as you can appreciate, we could not anticipate everyone's needs and time didn't allow us to complete all of the load development we wished before we reached our publishing deadline. If your favorite Accurate Arms propellant is not recommended for a particular application or if you just have a question about the loading data given, please contact our technical staff.

Remember, safely developing an accurate load in your own firearm is always a satisfying experience. It is doubly so when you do it using a bullet you made yourself. Try it — you'll like it!

— William T. Falin Jr.

RELOADING FOR OLD GUNS & CALIBERS

History is always popular with a large segment of people, and for those who are both firearms and history oriented it is only natural to try to understand the capabilities and limitations of the guns related to any given era. In fact, my own opinion is that in the modern firearms scene one of the areas of greatest growth is in actually using the older cartridge guns (and replicas thereof) in their many obsolete chamberings.

One of the causes of this was the introduction and fantastic growth of several new shooting sports. One is "cowboy" type action shooting wherein the competitors shoot single action revolvers, lever action rifles, and vintage style shotguns. This type of shooting originated in southern California in the early 1980s, but now matches are being held all over the United States and in several foreign countries. Likewise with NRA's Black Powder Cartridge Rifle Silhouette competition, which centers around precision long range shooting with single shot rifles introduced prior to 1894. The inaugural match was held at Raton, New Mexico in 1985, but now NRA sanctioned matches are being put on in dozens of locations all over the country.

Besides having a purpose for using them now, another reason for the continuing popularity of antique and obsolete firearms is that there are simply so many of them floating around. Of course many reside in collections and museums, but an enormous number are still in individuals' hands. Let's look at a few of the more popular examples. For instance most of us realize that the production of Winchester Model 94s has passed four million. But, did you also know that production of the Model 1873 lasted until 1923 and passed the 700,000 mark? The Model 1892 lasted until 1941 and over one million of those were sold. Marlin was Winchester's main competition in those days, and they likewise have sold several models of lever guns collectively numbering in the millions. The handgun situation has been similar. Since 1873 over 500,000 Colt SAAs have been made in various calibers. But did you know that over 350,000 of the double action, swing out cylinder Colt New Service revolvers were made? Smith & Wesson only produced its large frame top break single action called the Model Number 3 (made in many variations) from 1879 to 1912, but total number produced exceeded 250,000.

These are just a few samples. Don't forget that these companies also made many other models in vast numbers, and that firms such as Remington, Savage, and others were striving for their share of the market. The U.S. Government also got into the act. In the early 1900s they sold off many hundreds of thousands of rifles and carbines. These were various models of the single shot Models 1868, 1873, and 1884 trapdoor Springfield in .45-70 and .50-70 calibers, or the bolt action, box magazine .30 U.S. (.30-40 Krag) caliber Models 1892 through 1898 which are commonly called Krags. These guns were all made at the Springfield Armory and are of superb quality.

Literally millions upon millions of guns were made in the era ranging from 75 to 125 years ago. So it is no surprise that untold thousands, even hundreds of thousands, of these old guns have been handed down from generation to generation. In almost all cases, if you have them, and want to shoot them, you certainly can. Varying degrees of effort may be required depending on the exact old gun. On one end I recently worked with a Colt New Service .38-40 that needed only that I buy a box of Winchester factory ammo in order to shoot it. On the other end, my .44-77 Sharps Sporting Rifle Model 1874 was a little more difficult. I had to form cases, and have a custom bullet mould made. Probably the most extreme I have gone to was to fit a centerfire breechblock (from S-S Firearms, 74-11 Myrtle Ave., Glendale, NY 11385) to a Civil War vintage Spencer carbine in .56-50 caliber. Then cases were cut down from .50-70s, and a custom mould made. It was a lot of work but the experience of actually shooting that Civil War vintage cartridge firing carbine was worth all the trouble.

So let's assume that you have Grandpa's old Model 1895 Winchester .405, or Uncle Fred's Colt Thunderer .41, or perhaps on a whim at a gun show you picked up an old military Remington Rolling Block caliber unknown like I did one time. How do you go about putting these old guns into action once again?

Well, the very first step is to see that they are given a clean bill of health by a gunsmith, AND THAT GUNSMITH MUST BE ONE FAMILIAR WITH ANTIQUE GUNS. Safety must come first. Metallurgy during the late 1800s just was not what it is today. Steels may have become stressed with use, or some guns may have been abused in their past. DON'T SHOOT THEM UNLESS THEY ARE CHECKED!

After a gunsmith has given a firearm the go-ahead in regards to safety and functioning, there are many cases when one must still confirm exactly what caliber it is. You see, back in the old days caliber was not always marked on the gun. I guess the makers assumed the buyer would know what he was getting. For instance, Remington did not stamp their military Rolling Blocks and chambered them for many different calibers from all around the world. The Sharps Rifle Company did usually stamp caliber on top of the barrel, but often neglected to mark the case length, which in some instances could be one of three to five choices. A gunsmith can do a chamber cast on unmarked guns, which when measured will reveal exactly what cartridge is required.

How did I determine exactly what cartridge my military Remington Rolling Block was chambered for? First I drove a lead slug down the barrel and measured it. The diameter was precisely .439 inch which is correct for a .43 Spanish. Next I acquired a .43 Spanish case from a friend, loaded it with a basic charge of smokeless pistol powder, and then filled the case with corn meal. When that case was fireformed in the Remington's chamber it did not change its basic shape and confirmed that I did indeed have a .43 Spanish caliber rifle on my hands.

One factor that I would like to stress is that an old gun DOES NOT have to have a perfectly smooth, clean bore in order to shoot well. In fact not many guns that made the trip down through the decades, especially those fired often with black powder or chlorate primers, have pristine barrel interiors. However, I have seen many (and own more than a few) with less than perfect bores that shoot just fine, especially if the propellent is smokeless powder. With sharp, deep rifling accuracy will still be good despite a surprising amount of pitting.

What does surprise me is what will come out of the barrels of some old guns when cleaned properly. Recently I acquired an 1889 vintage Winchester Model 1873 rifle in .44-40 caliber for competing in "cowboy" matches. Its accuracy was only mediocre with groups running about two inches at 25 yards. As a test I hooked it up to my new Outers Foul Out Machine (P.O. Box 39, Onalaska, WI 54650) and electrically deleaded it. Modern guns usually clean up in 30 minutes or so. This one took four hours and the lead removed could have been reused to cast, perhaps, a couple of .22 bullets! But: the very first 25 yard group I fired after treatment could be covered with a quarter.

A few days ago a fellow dropped by with a treasure someone had given him. It was a Winchester Model 1895 in .30-40 Krag caliber, but the bore looked dark and rough. In that caliber I knew the gun probably had never been fired much with lead bullets, but early .30-40 Krag ammo was famous for its copper fouling. We ran a patch soaked with Hoppe's new Bench Rest Solvent in it and let it soak while we had coffee. A half hour later the next patch came out bright green meaning that surely there was plenty of copper in there. When fully cleaned I bet that old rifle will be as accurate as ever.

Keep in mind, however, that no gun can perform any better than its ammunition will allow. When we get to the topic of ammo for old guns and calibers things can get confusing. Ammunition in a great many calibers has not been manufactured for decades. In some few instances such as .45-70, .44-40 or .38-40, factory ammo is still available. However, as it is loaded with jacketed bullets it should not be fired often in old guns lest the soft steel barrels be worn excessively.

As with having the old gun checked by a competent gunsmith WE MUST PUT THE SAFETY FACTOR FIRST HERE, followed closely by not wanting to wear out a valuable family heirloom. I want to use .44-40 caliber as an example. This cartridge was used in both rifles and handguns. During its early days the guns chambered for it were intended only for black powder, but it remained popular well into the smokeless era. For instance it was chambered in the Colt SAA model from about 1877 until 1941. However, that gun was not warranted for smokeless powders until 1900. Then, too, some guns chambered for it were of very strong design such as the Winchester Model 1892 lever action or the Model 1885 single shot, while others like the Model 1873 lever action are inherently weak.

The following is my basic rule of thumb: If the gun was intended for black powder by its maker, then that is what I use in it. If its maker knew that it would most likely be fired with smokeless loads then I feel free to go ahead and use modern smokeless propellants. Therefore, in my 1889 vintage Winchester Model 1873 I load my shells with black powder. With my 1911 vintage Colt SAA or 1914 vintage Winchester Model 1892 both also in .44-40 caliber, I feel free to use modern powders. For instance, I have found that Accurate No. 2 in a charge of 7.5 grains with 200 grain lead bullets is a finely accurate load for smokeless powder era .44-40 handguns. This load gives a velocity roughly equal to the old original black powder factory loads.

However, with none of those guns do I use jacketed bullets in any quantity because I want to minimize wear on the barrels. Cast bullets are my usual choice, but space will not allow extensive reloading details here. That may be another story someday. However, one thing should be stressed in referring to cast bullets for antique and obsolete firearms. You need to know exactly what the interior diameter of your old gun is before acquiring a bullet mould and sizing die. Old guns tend to run large in the bores compared to modern guns, and nothing in the world will shoot worse than an undersize cast bullet. For example, several reloading sources told me that my Winchester Model 1894 .38-55 required bullets of .377 inch. When I fired lead bullets of that diameter in it they merely tumbled. Then I slugged the bore to find it .379 inch across. So I ordered a new mould and a new sizing die of the proper size and instantly that old rifle became a tackdriver as I will discuss again shortly.

Now, if your old gun happens to be one originally intended for smokeless powders and jacketed bullets you will have it easy. A great many old calibers, even from the 1890s, were originally meant for jacketed bullets. The .25-35, .30-30, .30 Remington, .30-40 Krag, .33 WCF, .405 WCF, and many others were introduced as jacketed bullet rounds. I have a Winchester Model 1895 in .405 WCF and a Model 1886 in .33 WCF in which I use 300 grain Barnes and 200 grain Hornady jacketed soft points respectively. Those guns were built with jacketed bullets in mind and it's OK to stick with them.

In all the handloading for, and shooting I have done with, obsolete and antique firearms, no modern smokeless propellant that I have ever tried has worked as well for me as Accurate's 5744. This easy to ignite, extruded powder has proven a natural for use in big bore cases with lead bullets. Without going to all the trouble (and sometimes dangers) of over-powder fillers or wads this powder ignites and burns cleanly in large capacity cartridges. No other smokeless powder has given me as good accuracy in say the .45-70 or .38-55, as 5744. For instance, with my above-mentioned Winchester Model 1894 .38-55 using a gas check cast bullet cast in an Old West mould over 5744 I have actually gotten five shot

100 yard groups of 1.50" and less. Sights were a tang mounted peep rear with a blade front. Accurate's 5744 is not available as of this writing but officials of the company assure me that work is progressing to offer this superlative powder for the "old" gun shooter once again.

In one respect we old-gun lovers are living in a golden era. There is so much interest now in old guns and calibers that proper reloading tools, bullet moulds, and even brass cases are in plentiful supply. On my reloading bench I have die sets for many oddball calibers such as .33 WCF, .38-55, .40-65, .40-70 Straight, .44-77, .44 American, and .50-70 Govt. made by RCBS, Redding, Lyman, Hensley & Gibbs and Rapine Associates (for about any caliber ever invented). If what you want is not a stock item for the above companies then outfits such as Hoch Moulds, (P.O. Box 138, Fruita, CO 81521) and Old West Moulds (P.O. Box 519, Flora Vista, NM 87415) will make anything you desire.

However, one thing that is a necessity for shooting the old timers is the brass case. The really lucky fellows are the ones who want to shoot guns for which brass is still made like .38-40, .44-40, .38-55, or .45-70. You can even get new .50-70 cases from Dixie Gun Works. Next lucky are the ones wanting to shoot guns whose brass can be made from other existing cases. You can squeeze down .45-70s to make .40-65s, .38-56s, and .33 WCFs. You can even cut off .41 Magnum cases to make brass for the .44 S&W American. These are only samples; dozens of cases can be made from others.

A few years ago if you couldn't form existing cases to fit your old gun, you were just out of luck. But, about a dozen years ago the firm of Brass Extrusion Laboratories, Limited (B.E.L.L.) came to our aid. They began making a line of "basic" brass from which many old calibers could be formed. Their Basic .43 case could make .43 Spanish, .44-77s, and .44-90s. Their Basic .405 case could be made into .405 WCF, .40-50, .40-70, and .40-90 Sharps straight cases. About 1989 B.E.L.L. was absorbed by the PMC Corporation and as of now their situation is unclear.

However, we are not totally without cases for our old guns. A firm from Australia called Bertram Bullet Co. PTY, Ltd. (P.O. Box 313, Seymour, 3660, Victoria, Australia) is entering the market with enthusiasm. Bertram is making several sorts of "basic" brass, but to my unrestrained joy that company is going two steps further. They are making ready to load cases in a wide variety of old calibers, and, these cases are headstamped to the specific caliber. Now, for the first time in decades one can buy brass marked .40-82, or .30-56, or .45-90, etc. I have been using Bertram brass by the hundreds for reloading such calibers as .40-70 Sharps Straight, .40-65, .40-82, .41 Long Colt, .45-90, and .50-70. Overall I give Bertram good marks. For example, some of the .405 WCF cases which I reformed to .40-70 Sharps Straight caliber have been fired over 50 times and are still going strong. There were some bugs at first, especially in regards to consistency, but my most recent batches have been just fine. Bertram brass is imported by Huntington (P.O. Box 991, Oroville, CA 94965), or The Old Western Scrounger (12924 Highway A-12, Montague, CA 96064). From the reports I hear at this writing interest in obsolete calibers is so strong that several other companies are considering getting into the antique cartridge case business.

A question I am often asked by people preparing to put their old guns into use again is, "How well will it shoot?" Of course that depends on the condition of the gun and the quality of the ammo it is fed. Another point I want to stress, however, is that the old cartridge guns we are discussing here were made in an era when quality of manufacture was taken for granted. Just because a gun was made a long time ago doesn't mean it will barely be able to hit a barn. Some of them, when handled properly, will beat a great many modern guns hands down. My original .44-77 Sharps will group five shots into less than 3" at 100 yards. My Winchester Model 1895 .405 WCF will do likewise. Remember, these rifles aren't carrying scopes either. I recently test fired a S&W #3 .44 Russian of 1870s vintage which would group five shots into 1.50" at 25 yards. Modern guns in modern calibers may shoot bullets faster and at flatter trajectories, but your old guns will give them a hard run in terms of accuracy.

If you are interested in getting an old gun back into play, there are several items of read ing material I would like to recommend. A must is *Cartridges of the World* by Frank C. Barnes, published by DBI Books (4092 Commercial Avenue, Northbrook, IL 60062). This reference gives history and specifications for most old calibers. It is a must when trying to sort out which old cartridge your gun might be chambered for. For the lever action lover, there is *The Winchester Lever Legacy* by Clyde Williamson (3145 Church St., Zachary, LA 70791). Clyde gives firsthand experience on reloading for most of the obsolete model Winchesters. Also, there's the *SPG Lubricant's BP Cartridge Reloading Primer* (P.O. Box 761, Livingston, MT 59047) by myself and partner Steve Garbe. This is a 116-page soft cover book detailing reloading with black powder and cast bullets for over 20 different single shot cartridges.

Well, I think I've gotten the point across. Old guns are simply fun. They can be reloaded for and shot with safety IF THE SHOOTER WILL TAKE THE PROPER PRECAUTIONS BEFORE PUTTING THEM TO USE. By experiencing them as the early pioneers did, we shooters who are interested in history can gain some perspective of what life was like over 100 years ago.

— *Mike Venturino*

HOW IMPORTANT IS ACCURATE RECORDKEEPING?

Have you noticed how many of today's wonderful improvements have also made our lives more complicated? For example, when I was a teenager, I used to be able to work on my own car. Now it's difficult for me to *find* an air or oil filter under the hood of a new car, much less be able to replace it.

The same scenario holds true for reloading. It was much simpler back when firearms shot "loose" powder, ball and caps instead of modern, "fixed" ammunition.

"How can that be?," you ask.

Because before the mid to late 1800's, shooters needed just those few components to load their muzzleloading firearms. Black powder was the only propellant available and, although many mills turned out products whose quality varied greatly, most of it would reliably propel a patched lead bullet toward its intended target. Measuring the proper charge of powder was also simple to do. A good load for a musket was the amount needed to just cover the corresponding caliber round ball held in one's hand. Cap-and-ball revolving arms were typically charged using a copper or brass powder flask fitted with a handy spout and cutoff lever. With the appropriate size flask, the shooter could carry an ample supply of powder and readily dispense the right amount into each chamber.

In either case, a little more or less black powder didn't make much difference when the gun was fired. The loose bullet-to-bore fit and relatively low pressures generated by black powder combustion ensured an adequate margin of safety for both the gun and the shooter. In those days, every shooter was a reloader — out of necessity. This relatively "uncomplicated" situation began to unravel as cartridge ammunition was being developed.

Some of the first cartridge (e.g., pinfire and rimfire) ammunition didn't lend itself to being reloaded. Later, when centerfire ammo became prevalent, shooters still carried (in addition to ready-made factory rounds) a supply of black powder, lead, primers, and a simple "tong"-handled reloading tool. The shooter used the reloading tool to both cast new bullets and reprocess his fired cases and other components into "new" rounds of ammunition.

At first, black powder was still commonly loaded by the munitions factories and the individual shooter. Cartridges were sized to accommodate appropriate charges of black powder and were aptly labeled ".45-70" or ".44-40" to designate the caliber and charge weight, respectively. To reload, the shooter simply filled the case up with powder allowing room to seat the often "standard" weight lead bullet used in that particular round. Except for cleaning up the nasty mess you always have with black powder arms, shooting and reloading were still quite simple to do and widely practiced.

However, about this same time progress in the world of chemical science was in the making. Early versions of modern nitrocellulose-based propellants were being developed. These new powders had several things going for them compared to black powder. They were significantly safer to manufacture, store and handle and, ounce per ounce, they were much more powerful. In addition, they were relatively "smokeless," (i.e., much cleaner burning than black powder, and the residue was less tenacious or corrosive). The munitions factories quickly adopted the new technology and started loading factory ammo with smokeless propellants. Of course, shooters wanted to reload with the new powders, too.

Almost overnight, life became more complicated, in fact, sometimes down-right dangerous!

Firing a cartridge reloaded with a case full of smokeless in your favorite brass or iron-framed rifle or a beautifully figured damascus barrelled shotgun almost surely spelled ruin for the gun and potentially loss of life or limb for the shooter. Reloading had "progressed" so quickly that those who survived shooting the new smokeless propellants either went back to using black powder in their handloads or just bought "ready-made" ammo exclusively.

From about 1880 until 1910, countless more smokeless propellants were developed. The complications experienced by reloaders grew parallel with these new developments. In fact, by the early 1900's, reloading had almost ceased to exist. Except for a few experimenters, a whole new generation of shooters viewed handloading as a sort of "black art." The munitions makers also discouraged reloading although their reasons were more practical. They thought that the bottom line would benefit because profit margins were much higher on loaded ammunition compared to loading components.

Luckily, things started to improve after the First World War. Shooters with military backgrounds (e.g., Hatcher, Whelen and Sharpe) and civilians like Donaldson, Keith and Mann continued to experiment with handloading. What's even more important, these fellows kept excellent records and generously shared their ever-increasing knowledge with other handloaders through various firearms and shooting publications.

Gradually, more and more shooters rediscovered the benefits of reloading their own ammunition. They realized it wasn't really dangerous if one acquired adequate knowledge, mixed that with a little common sense and exercised strict discipline and caution. The key to successful reloading became obvious. First, determine precisely what to load. Then carefully record your loading data and the results you obtained when shooting your handloads at the range.

That seems simple enough, right?

Fifty years ago, handloading was again well established — although still practiced by relatively few shooters. There were less than two dozen propellants available from the two major domestic suppliers, DuPont and Hercules. Bullets, brass and primers were supplied primarily by the four remaining munitions companies: Remington, Peters, Winchester and Western. Handloaders had several choices available; but, with limited effort, a good load for a specific rifle or handgun was readily developed.

Today there are more than *one hundred* propellants available to American shooters from eight domestic and foreign manufacturers and importers. Although several "factory" bullets are still available, today the half dozen or so major independent bullet manufacturers supply hundreds of different styles, shapes and weights for every rifle and pistol. In addition, many other individual entrepreneurs make hundreds more strictly custom bullets — enough to satisfy every handloader's demands.

Brass for almost every conceivable cartridge of the past and present is made domestically or imported from all over the world. Primers are available in both large and small sizes for "regular" and "magnum" rifle and pistol loads from four domestic companies. Berdan-type primers are also imported for many uncommon or obsolete European cartridges.

With all of these "advances" in quantity and availability of components, actually reloading a round of ammunition is just as simple to do today as it was fifty years ago. However, taking advantage of the myriad choices of component combinations can really keep the experimenting handloader and shooter busy. As you can imagine, keeping good records is more important than ever before.

Let's look at a few "rules" you should consider following to help assure safe and consistent shooting performance and continued economical benefits when reloading.

COMPONENT RECORDS

Look at any can of powder or box of primers on your bench. In addition to the product name and prominent caution notices, you'll see that each package is marked with a series of numbers or numbers and letters. This designation is called the manufacturer's "lot number." As the word "lot" implies, components are usually manufactured in batches or discrete production runs using the same ingredients and/or materials. Because each production lot is uniquely marked tracking a specific component lot is easy to do — as long as the product remains in its original packaging, of course.

Although it's rare, problems sometimes occur with a certain lot of primers or powder. If the careful reloader has done his homework, he can readily determine if there are other suspect components on hand that should be safely disposed. And, he can trace these "bad" components to ammunition that's already loaded so further consequences can be avoided.

RULE #1 Accurately list each lot number of all chemically active components, (i.e., primers and propellants, in your reloading records).

AMMUNITION RECORDS

Most handloaders depend on one or more reloading manuals for information. After you've handloaded for a while, many of the cautions you've read about are more than just words in a book. You probably have experienced consequences by not heeding some of the warnings. For example, switching powder lots and/or types of bullets and primers without first reducing the charge and then redeveloping a safe load could invite an accident. (By the way, you'll know exactly when to heed that advice if you're tracking each component by their unique lot numbers.)

Many of the bullet makers include handy loading data sheets with each box of bullets. Preprinted, adhesive-backed data forms are sold by both your local dealers and national mail-order shooting sports suppliers. Typical information includes the cartridge loaded, primer type, brass, powder type and charge weight, bullet brand, type and weight, etc. It only takes a couple of minutes to fill out the data form, verify the entries made and put it on or in the box of reloaded ammunition.

RULE #2 Prepare a detailed data sheet and pack it securely with each batch of handloads.

RANGE RESULTS

MTM Products and Midway both offer a "handloader's notebook" for keeping reloading information handy. It's a simple loose-leaf binder that holds up to a hundred or so data sheets. Typical information that can be tabulated includes the reloading information noted above and ambient atmospheric conditions, chronograph data, group sizes, etc.

The range is where all of your time and effort pays off — whether the results are good or bad! How a rifle or handgun performs with each new concoction you put in the chamber is the real "proof of the pudding." Accurate and systematically acquired data will either tell you you're going in the right direction and when you've reached the "best" load or indicate there's just no hope for this or that combination of components. Your records can lead you to success and keep you from wasting time by repeating past mistakes.

RULE #3 Keep precise and comprehensive information about how good (or bad!) your handloads perform.

INVENTORY RECORDS

Should you keep detailed inventory records? I think you should — although many of the following comments may seem either trivial or very unnecessary to many handloaders.

If you only load one or two cartridges (or just a few rounds occasionally of several types), knowing what and how many components you have on hand is simple. You just look on the shelves and in a couple of drawers or cigar boxes, right? How about if you shoot hundreds of rounds of several different loads each month in your favorite pistol? Or, you reload ammo to shoot in different rifles for every varmint and game animal that's in season within a thousand miles of your home? If you keep track of your inventory the same as a low-volume handloader, you've probably been caught short right in the middle of a reloading session.

In either case, it's a good idea to keep a current tab on your component stocks. This can be done by simply jotting down the quantities of each item as you buy them in a notebook kept especially for that purpose. Then, at more or less regular time intervals, you could review all recent reloading data and update your inventory records accordingly. Complete inventory records should also include the lot numbers and dates of purchase for primers and powder. These items should be loaded on a "first-in, first-out" basis so that older stock is used up before new cans or cartons are opened.

RULE #4 Keep complete and accurate inventory records. It can save you time and trouble in the long run.

CONCLUSIONS

If you weren't already, I hope you're now convinced that adequate recordkeeping is important. However, manual methods can be a real drag — especially for the volume reloader. If you're so inclined, automation is the ticket. A personal computer and a basic spreadsheet program can take much of the drudgery out of recordkeeping. Inventory records, after they're initially set up in an organized format, can be easily revised periodically. Loading data and performance results for both handloaded and factory ammunition can be entered as it's shot and the information sorted into any type of summary report needed — including component usage totals that you could then feed back as debits to your inventory database.

A real whiz with a PC or MAC might tackle this task with a full-blown relational database. With today's advanced software, I'm sure it's feasible to program inventory, loading and performance data into an integrated recordkeeping system. (However, I suspect that those of you who pursue this route may be more interested in computing than in reloading and shooting!)

Well, it's like I told you. All of the new components and modern gadgets we enjoy can really make life complicated. In fact, as far as safe and successful reloading is concerned, the following statement is doubly true today:

"The job's not done until the paperwork is finished."

— Lane Pearce

HANDGUNS

LOADING FOR HANDGUN CARTRIDGES

While developing the data presented in this loading guide, we have determined several "rules of thumb" that we will attempt to highlight in the form of "helpful hints." But first we need to divide the discussion on loading handgun cartridges into two categories: straight walled and bottlenecked.

Let's examine straight-walled cartridges first. They are the most common configuration of handgun ammunition. Nearly every shooter has had at least one handgun chambered for a straight-walled cartridge at one time or another.

Several important factors must be considered when reloading this type of handgun cartridge. The first is variation in case length. Uniform length is mandatory to assure that a uniform crimp can be applied to the bullet. The reloader must measure and trim, if necessary, each case every time they're loaded.

Another factor is overall loaded length. An analogy can be made between a straight-walled pistol cartridge and a cylinder in an automobile engine. The pressure in the cartridge case varies directly with the bullet seating depth. The greater the pressure the higher the bullet's velocity (and therefore energy). Likewise, in the car engine, increasing the cylinder's compression ratio produces more power from a given amount of fuel. In both cases, the available fuel is burning in a confined volume. The smaller the volume — the greater the pressure. Therefore, if all other factors are the same, the deeper the bullet is seated into the case, the higher the pressure and the velocity will be.

We have listed the loaded length of each component combination in this edition. In order to duplicate our results as closely as possible, you must maintain the overall length noted as well as use the same components.

Another factor to consider is bullet "pull." This is the amount of force required to move a bullet that is securely seated and crimped in the cartridge case. Reloaders often think that bullet pull results from the crimp alone. Not so! The crimp does contribute significantly to the total value which is why uniform case length is so important. However, the more important factor is the degree of interference (i.e., the "fit") between the case and the bullet <u>before</u> the crimp is applied.

For this reason, lighter weight bullets are not recommended to be used in "magnum" handgun cartridges with Accurate's No. 9 propellant. Loading heavier (i.e., longer) bullets or faster burning powder partially offsets the problem of lower bullet pull. While this is not a dangerous condition, it is a concern for potentially poor performance due to large variations in bullet velocity.

Bullet diameter is also very important, especially when shooting cast bullets in revolvers. If the bullet is undersized for the cylinder throat, sufficient obturation (i.e., bullet expansion) must occur to seal off the powder gases. The harder the bullet metal is, the more pressure is required to expand the bullet.

By measuring the cylinder throat diameter, you may either make or buy cast bullets to match the revolver that the handloads will be fired in. If your gun's cylinder has excessively large throat dimensions, finding the right size bullet could be a problem. The only solution we can offer (short of having a new cylinder fitted to the gun) is to use a bullet of moderate hardness. The bullet should also have a flat base and the cartridge must be loaded to sufficiently high pressures to assure proper obturation.

Leading in revolver barrels is often the result of "gas cutting" (i.e., gas leaking around the bullet base which locally melts the metal) instead of excessive bullet velocity. The frustrating aspect of a leading problem is that when you reduce the velocity to try to improve the situation — it often gets worse! We're trying to point out the importance of matching the bullet diameter to the specific revolver's cylinder dimensions. In an automatic or single-shot handgun, the bullet diameter should match the barrel groove diameter or even be 0.001" over for best results.

We also need to touch briefly on primer selection — specifically, when to use "standard" vs. "magnum" primers. We have found no need for magnum primers with any handgun loads using our canister **Nitro 100**, **No. 2**, **No. 5**, **No. 7** or **No. 9** propellants, unless, of course, they provide better accuracy in your firearm.

In our tests we have found no significant effect on performance using magnum primers — with one exception. Winchester Small Pistol Magnum primers are significantly more powerful than most small rifle primers. If you use this primer in handgun loads with our propellants, **DO NOT EXCEED** the listed START CHARGE in the Loading Guide. Our tests with Accurate No. 9 powder indicate that this particular primer can raise pressures as much as 35%. This primer has a specific use and is not necessary or recommended for handloading Accurate propellants.

Another type of cartridge that needs special mention is the low pressure, originally black powder, handgun loads. These include the .38-40 WCF, the .44-40 WCF, the .44 S&W Special, and the venerable .45 Colt. When ball-type propellants are used to load these cartridges, often a relatively large volume of airspace remains. These cartridges were designed for a case full of black powder. Firearms chambered for these old loads, even when safe for use with smokeless propellant, are restricted to relatively low pressures. Even when the firearm is made of modern steel, the cartridge cases are not suitable for high pressure loads.

As a result, we find ourselves trying to balance a relatively weak cartridge case in a potentially weak firearm with a modern smokeless propellant having a high bulk density. Ball powders pack a lot of energy into a small space and were not intended to be used in a low density loading application. Fortunately, the situation is not as bleak as I have made it seem. Modern ball propellants are usable — if not ideal--in these old cartridges.

Because of these limitations, data for the .44-40 WCF is listed as "use as is, do not reduce." Pressures are already so low that it is pointless to reduce the charge weight any further. Use of these loads as listed should give satisfactory performance. Remember this note of caution: If you want magnum performance, then buy a gun chambered for a magnum cartridge.

That's enough of straight-walled handgun cartridges. Let's discuss the bottlenecked variety next.

Only a few of these cartridges were originally designed and chambered for handguns. Most of them were developed to function in foreign autoloading pistols like the 7.65 Borchardt, .30 Luger, 7.63 Mauser, 7.62 Tokarev and the 7mm and 8mm Japanese Nambu loadings. The only factory bottlenecked round that comes to mind that was designed for and actually chambered in a revolver is the .22 Remington Jet.

The .256 Winchester Magnum actually preceded the Jet and was also intended to be offered in a new Smith & Wesson revolver. However, functional problems involving the fired cases thrusting back against the recoil plate and locking the cylinder up scuttled that plan. The single-shot Ruger Hawkeye was chambered for the .256 Magnum in the early 1960s and was the only handgun available for the cartridge until the Contender came along a few years later.

The availability of what many shooters call a "hand-rifle" began with Remington's single-shot, bolt-action model XP-100 chambered for the .221 Fireball — again in the early 1960s. Since then several different types of these firearms have been introduced that fire typically rifle cartridges.

Since its introduction in the late 1960s, the Thompson Center Contender has really set the standard for high performance specialty handguns. The Contender is a break-action, single-shot handgun featuring interchangeable barrels. Different cartridges can be fired by just switching barrels on the same frame. In addition to more traditional handgun loadings, Contender barrels are also available in many factory and wildcat rifle cartridges. Several proprietary rounds were developed especially for the Contender. The .30 and .35 Herrett are both bottlenecked designs based on reformed .30-30 brass.

For the most part, bottlenecked handgun ammunition is hand loaded using techniques and methods associated with loading similarly shaped rifle ammo.

Let's discuss briefly some areas of specific concern regarding bottlenecked cartridges used in handguns. The first is the overall length for a loaded cartridge. When these cartridges are used in a single-shot firearm, the only limiting factor is the chamber throat. Originally, several of the wildcats listed were developed to use the existing pistol bullets. The recent developments of specialty single-shot pistol bullets for these cartridges have effectively invalidated the recommended OAL. When used in a single shot handgun any bullet must be seated adequately deep in the neck (one caliber is a good rule of thumb) to provide sufficient bullet pull in order to ensure consistant ignition. Otherwise, seating depth should provide the best accuracy in YOUR firearm. (Avoid seating jacketed bullets tightly into the lands as this will raise pressures.)

Another consideration is the headspace of the loaded round in the chamber. Bottleneck cartridges fired in handguns and especially in the T/C Contender "must" headspace on the shoulder. Improper sizing die adjustment will greatly reduce case life. The message usually comes through loud and clear when only the case head extracts from the chamber.

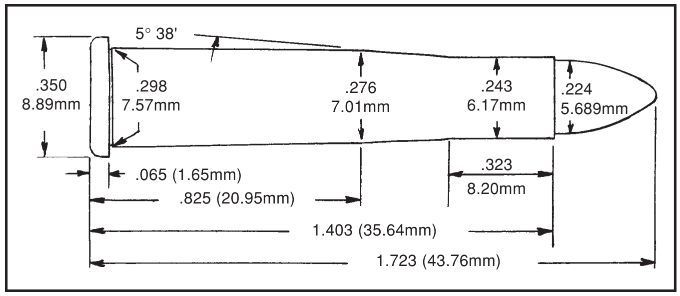
What this means is to adjust the sizing die to size all the various parts of the case **without** moving the shoulder back. If however, your chamber is considerably larger than the sizing die, you must move the shoulder back to the position it occupied prior to sizing since the brass will flow forward. If neck sized cases will properly chamber in your firearm then full length size only when the cases become too tight.

For more information, see "Loading Rifle Cartridges."

— William T. Falin Jr.

.22 HORNET

The .22 Hornet is a rifle cartridge that is an excellent choice for field use in handguns (T/C Contender). With the right components, accuracy is superb. **Accurate** powders will provide consistent results in this mild-mannered round. This cartridge is effective on varmints out to about 125 yards.



The SAAMI Maximum Average Pressure for the .22 Hornet is 43,000 C.U.P.

.22 HORNET

Gun	T/C	Max Length	1.403″
Barrel Length	10″	Trim Length	1.383″
Primer	CCI 500	OAL Max	1.723″
Case	WW	OAL Min	1.660″

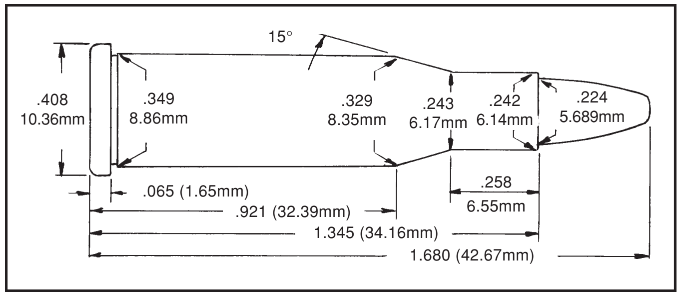
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
44 (L) RNGC	**1680**	10.4	1802	**1680**	11.5	2048	31,100	1.665″	LY225438
	2015	11.3	1621	**2015**	12.5	1842	29,700		Penny's
	N100	2.7	1321	**N100**	3.0	1501	32,600		
SRA 40 Hornet	**1680**	12.6	2109	**1680**	14.0	2397	43,000	1.715″	
	2015	11.3	1590	**2015**	12.5	1807	26,900		Compressed
NOS 45 Hornet	**1680**	11.1	1909	**1680**	12.3	2169	40,700	1.720″	
	2015	11.3	1646	**2015**	12.5	1870	32,100		Compressed
HDY 50 SX	**1680**	10.4	1831	**1680**	11.5	2081	42,400	1.780″	*
	2015	10.8	1566	**2015**	12.0	1780	35,000		Compressed

* Over SAAMI MAX OAL

.218 BEE

The .218 Bee chambered in the Thompson/Center Contender 14-inch barrel showed little velocity loss compared to rifle data. Additionally, the Contender pistol allows the use of pointed bullets which will greatly improve downrange ballistics.

The SAAMI Maximum Average Pressure for the .218 Bee is 40,000 C.U.P.



.218 BEE

Gun	T/C	Max Length	1.345″
Barrel Length	14″	Trim Length	1.325″
Primer	CCI 400	OAL Max	1.680″
Case	WW	OAL Min	1.645″

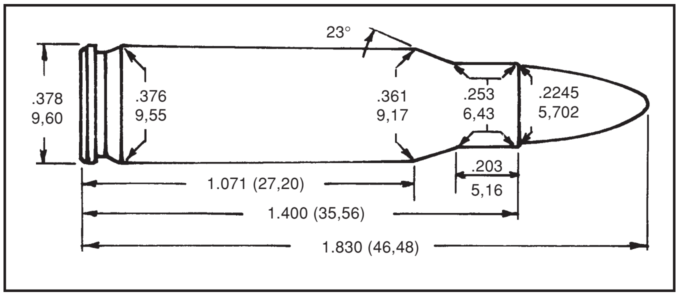
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
44 (L) RNGC	**1680**	9.9	1938	**1680**	11.0	2202	30,100	1.615″	LY225438
SRA 40 Hornet*	**1680**	13.5	2324	**1680**	15.0	2641	34,700	1.760″	
HDY 45 HP ‘Bee”	**1680**	12.6	2157	**1680**	14.0	2451	39,800	1.610″	
SPR 46 FN	**1680**	12.6	2152	**1680**	14.0	2445	38,600	1.670″	
HDY 50 SX*	**1680**	11.7	1991	**1680**	13.0	2263	36,600	1.780″	

* Not for use in firearms with a tubular magazine

.221 REMINGTON FIREBALL

Introduced in 1963 for the Remington XP-100 single shot bolt action pistol, the .221 Fireball is a shortened version of the .222 Remington.

To minimize the velocity loss in a 10″ barrel, Remington engineers established a Maximum Average Pressure of 52,000 C.U.P versus 46,000 C.U.P for the .222 Remington.



.221 REMINGTON FIREBALL

Gun	T/C	Max Length	1.400″
Barrel Length	14″	Trim Length	1.380″
Primer	REM 7˚	OAL Max	1.830″
Case	REM	OAL Min	1.780″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
NOS 45 SP	**1680**	16.5	2593	**1680**	18.3	2947	51,300	1.765″	
	2015	18.0	2420	**2015**	20.0	2750	47,100		Compressed
	2230	18.9	2393	**2230**	21.0	2719	49,500		Compressed
HDY 50 SX	**1680**	16.0	2475	**1680**	17.8	2813	51,500	1.825″	
	2015	17.6	2327	**2015**	19.5	2644	45,600		Compressed
	2230	18.9	2352	**2230**	21.0	2673	49,500		Compressed
NOS 55 SBT	**1680**	15.3	2380	**1680**	17.0	2700	52,000	1.850″	*
	2015	17.1	2268	**2015**	19.0	2577	48,700		Case Full
	2230	18.0	2245	**2230**	20.0	2551	51,600		Compressed

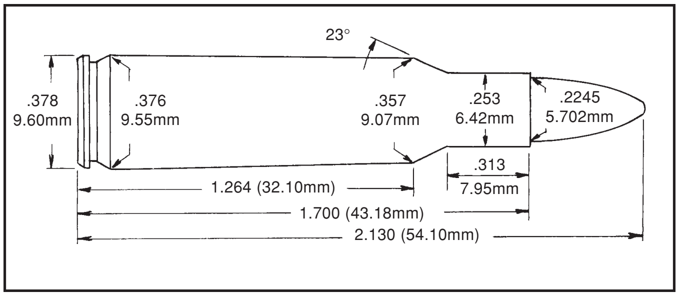
* Over SAAMI MAX OAL

.222 REMINGTON

The .222 Remington combines accuracy with a mild report even when chambered in a handgun.

The .222 Remington is a capable varmint cartridge out to about 200 yards.

The SAAMI Maximum Average Pressure for the .222 Remington is 50,000 P.S.I.



.222 REMINGTON

Gun	T/C	Max Length	1.700″
Barrel Length	14″	Trim Length	1.680″
Primer	REM 7˚	OAL Max	2.130″
Case	REM/WW	OAL Min	2.040″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
NOS 45 SB	**1680**	18.9	2698	**1680**	21.0	3066	48,500	2.065″	
	2015	22.1	2769	**2015**	24.5	3147	49,300		
	2230	24.3	2790	**2230**	27.0	3171	47,400		Compressed
	2460	24.3	2757	**2460**	27.0	3133	45,900		Compressed
	2495	21.6	2526	**2495**	24.0	2870	39,900		Compressed
	2520	22.5	2499	**2520**	25.0	2840	34,200		Compressed
HDY 50 SX	**1680**	16.8	2442	**1680**	18.5	2778	50,000	2.150″	*WW cases
	2015	21.2	2625	**2015**	23.5	2983	45,800		
	2230	22.1	2613	**2230**	24.5	2969	48,200		Compressed
	2460	22.1	2594	**2460**	24.5	2948	46,000		Compressed
	2495	21.6	2437	**2495**	24.0	2769	41,100		Compressed
	2520	22.5	2440	**2520**	25.0	2773	38,300		Compressed
HDY 53 HP Match	**1680**	17.1	2409	**1680**	19.0	2737	47,400	2.190″*	
	2015	21.2	2604	**2015**	23.5	2950	50,000		
	2230	22.1	2526	**2230**	24.5	2870	46,400		Compressed
	2460	22.1	2519	**2460**	24.5	2862	45,500		Compressed
	2495	21.6	2460	**2495**	24.0	2795	46,300		Compressed
	2520	22.5	2441	**2520**	25.0	2774	40,900		Compressed
NOS 55 SB	**1680**	17.1	2370	**1680**	19.0	2693	44,200	2.155″	*WW Cases
	2015	20.3	2482	**2015**	22.5	2820	46,100		
	2230	22.1	2521	**2230**	24.5	2865	46,200		
	2460	22.1	2494	**2460**	24.5	2834	45,000		
	2495	21.2	2328	**2495**	23.5	2645	42,100		Compressed
	2520	22.1	2335	**2520**	24.5	2653	36,300		Compressed

.222 REMINGTON (continued)

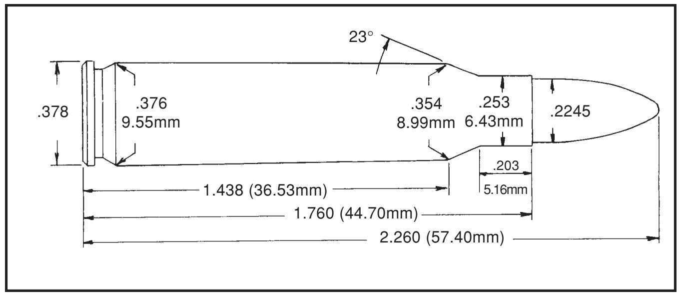
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 60 SP	**1680**	17.1	2294	**1680**	19.0	2607	50,000	2.200″	*
	2015	20.0	2407	**2015**	22.2	2735	47,800		
	2230	21.6	2384	**2230**	24.0	2709	48,100		
	2460	21.5	2380	**2460**	23.9	2704	46,100		
	2495	21.2	2350	**2495**	23.5	2670	49,400		Compressed
	2520	22.1	2325	**2520**	24.5	2642	43,900		Compressed

* Over SAAMI MAX OAL

.223 REMINGTON

The .223 Remington is a popular cartridge with varmint hunters both by virtue of its performance as well as the ready availability of surplus components.

The .223 Remington is a capable varmint cartridge out to 200 yards when chambered in a handgun.



The SAAMI Maximum Average Pressure for the .223 Remington is 52,000 C.U.P.

.223 REMINGTON

Gun	WILSON	Max Length	1.760″
Barrel Length	14″	Trim Length	1.740″
Primer	REM 7°	OAL Max	2.260″
Case	REM	OAL Min	2.165″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel	C.U.P.	Cartridge Length	Comment
NOS 45 SB	**1680**	18.5	2673	**1680**	20.5	3038	48,200	2.115″	
	2015	23.4	2840	**2015**	26.0	3227	49,100		
	2230	24.3	2798	**2230**	27.0	3180	50,500		
	2460	24.8	2814	**2460**	27.5	3198	49,300		
	2495	24.8	2660	**2495**	26.5	3023	47,000		Compressed
	2520	23.9	2712	**2520**	28.5	3082	42,000		Compressed
SPR 50 HP “TNT”	**1680**	18.5	2547	**1680**	20.5	2894	47,900	2.235″	
	2015	23.0	2712	**2015**	25.5	3082	46,400		
	2230	23.4	2706	**2230**	26.0	3075	49,800		
	2460	23.4	2695	**2460**	26.0	3063	47,100		
	2495	23.9	2541	**2495**	26.5	2888	44,400		Compressed
	2520	25.7	2709	**2520**	28.5	3078	42,200		Compressed
HDY 53 HP “Match”	**1680**	18.0	2467	**1680**	20.0	2803	49,600	2.225″	
	2015	22.1	2617	**2015**	24.5	2974	47,800		
	2230	23.4	2633	**2230**	26.0	2992	49,900		
	2460	23.0	2618	**2460**	25.5	2975	47,300		
	2495	23.4	2530	**2495**	26.0	2875	48,800		Compressed
	2520	24.8	2619	**2520**	27.5	2976	43,200		Compressed
NOS 55 SPBT	**1680**	18.5	2475	**1680**	20.5	2813	50,000	2.230″	
	2015	22.5	2628	**2015**	25.0	2986	49,800		
	2230	23.4	2604	**2230**	26.0	2959	50,300		
	2460	23.9	2616	**2460**	26.5	2973	49,200		
	2495	23.6	2530	**2495**	26.2	2875	51,100		Compressed
	2520	24.8	2610	**2520**	27.5	2966	43,300		Compressed

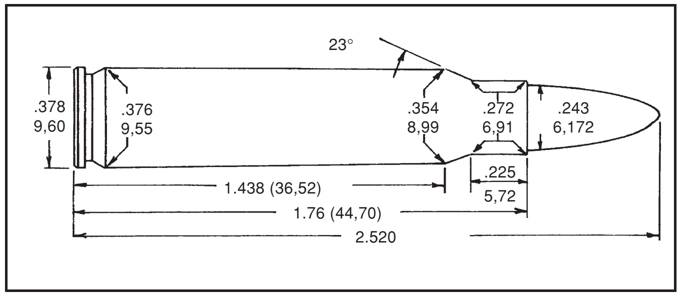
.223 REMINGTON (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
HDY 60 SP	**2015**	21.6	2532	**2015**	24.0	2877	49,100	2.235″	
	2230	22.1	2497	**2230**	24.5	2838	49,200		
	2460	22.7	2490	**2460**	25.2	2829	49,400		
	2495	22.2	2359	**2495**	24.7	2681	46,300		100% Density
	2520	24.8	2554	**2520**	27.5	2902	45,600		Compressed

6mm T/CU

One of the series of cartridges developed by Wes Ugalde and chambered originally by Thompson/Center Arms. This cartridge is essentially the .223 Remington case necked up to 6mm.

The 6mm T/CU is an effective varmint cartridge at ranges up to 200 yards.



There is no SAAMI pressure limit for the 6mm T/CU. Based on the recommendations of Thompson/Center, our maximum pressures do not exceed that of the .223 Remington.

6mm T/CU

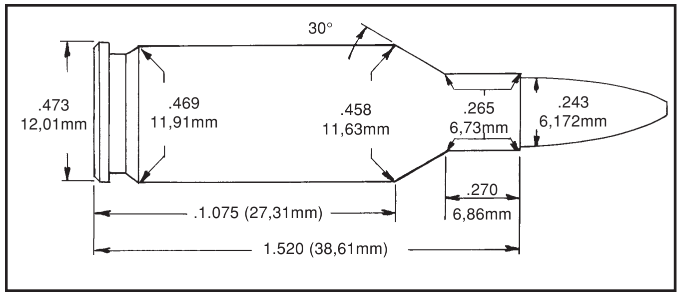
Gun	DOUGLAS	Max Length	1.760″
Barrel Length	14″	Trim Length	1.740″
Primer	CCI 400	OAL Max	2.520″
Case	REM	OAL Min	—

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 60 HP	**2015**	25.2	2515	**2015**	28.0	2858	47,400	2.320″	Compressed
	2230	25.7	2411	**2230**	28.5	2740	45,200		Case Full
	2460	26.1	2417	**2460**	29.0	2747	45,900		Case Full
	2495	24.3	2196	**2495**	27.0	2495	37,100		Compressed
	2520	26.1	2378	**2520**	29.0	2702	42,000		Compressed
HDY 70 SX	**2015**	24.3	2335	**2015**	27.0	2653	45,800	2.390″	Case Full
	2230	24.8	2277	**2230**	27.5	2588	45,900		
	2460	25.7	2325	**2460**	28.5	2642	46,600		
	2495	24.3	2185	**2495**	27.0	2483	40,300		Compressed
	2520	26.1	2285	**2520**	29.0	2597	43,000		Compressed
SPR 80 SP	**2015**	23.4	2236	**2015**	26.0	2541	47,600	2.380″	
	2230	24.3	2218	**2230**	27.0	2521	48,500		
	2460	24.8	2223	**2460**	27.5	2526	46,900		
	2495	24.3	2180	**2495**	27.0	2477	47,900		Compressed
	2520	25.2	2202	**2520**	28.0	2502	47,100		Compressed
SRA 85 HPBT	**2015**	22.5	2160	**2015**	25.0	2455	47,200	2.390″	
	2230	23.0	2119	**2230**	25.5	2408	48,200		
	2460	23.7	2153	**2460**	26.3	2447	49,400		
	2495	23.4	2119	**2495**	26.0	2408	48,600		Compressed
	2520	24.3	2182	**2520**	27.0	2480	48,700		

6mm T/CU (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 100 SBT	**2015**	21.2	2008	**2015**	23.5	2282	50,000	2.520″	
	2230	21.6	1952	**2230**	24.0	2218	50,000		
	2460	22.1	1964	**2460**	24.5	2232	47,500		
	2495	22.1	1985	**2495**	24.5	2256	49,800		
	2520	22.5	1984	**2520**	25.0	2254	48,500		

6mm BR REMINGTON



The 6mm BR Remington is the 7mm BR case necked down. Remington chambers their Model XP-100 pistol for this cartridge.

The 6mm BR Remington is effective on small game up to a range of 200 yards.

The SAAMI Maximum Average Pressure for the 6mm BR Remington is 52,000 C.U.P. We developed the data in our test barrel in P.S.I. Loads producing 54,000 P.S.I. in our pressure barrel produced 50,000 C.U.P. These loads do not exceed that pressure.

6mm BR REMINGTON

Gun	XP-100	Max Length	1.520″
Barrel Length	14˚″	Trim Length	1.552″
Primer	REM 7˚	OAL Max	2.200″
Case	REM	OAL Min	2.080″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 60 HP	**2015**	27.5	2750	**2015**	30.5	3125	52,700	2.125″	
	2230	30.2	2707	**2230**	33.5	3076	49,400		
	2460	31.1	2774	**2460**	34.5	3152	51,600		
	2495	29.7	2685	**2495**	33.0	3051	46,700		Compressed
	2520	31.5	2742	**2520**	35.0	3116	50,500		Compressed
	2700	33.3	2621	**2700**	35.0	2788	37,900		Compressed
SRA 70 HP	**2015**	27.5	2599	**2015**	30.5	2953	52,900	2.170″	
	2230	29.3	2578	**2230**	32.5	2930	52,500		
	2460	29.7	2594	**2460**	33.0	2948	51,600		
	2495	28.4	2584	**2495**	31.5	2936	50,500		Compressed
	2520	30.6	2600	**2520**	34.0	2955	51,900		Compressed
	2700	33.3	2495	**2700**	35.0	2654	37,900		Compressed
SPR 80 SP	**2015**	26.1	2411	**2015**	29.0	2740	50,200	2.120″	
	2230	27.9	2405	**2230**	31.0	2733	49,700		
	2460	28.8	2475	**2460**	32.0	2812	51,200		
	2495	27.0	2436	**2495**	30.0	2768	53,400		
	2520	29.7	2472	**2520**	33.0	2809	51,200		
	2700	33.3	2482	**2700**	35.0	2640	46,700		Compressed

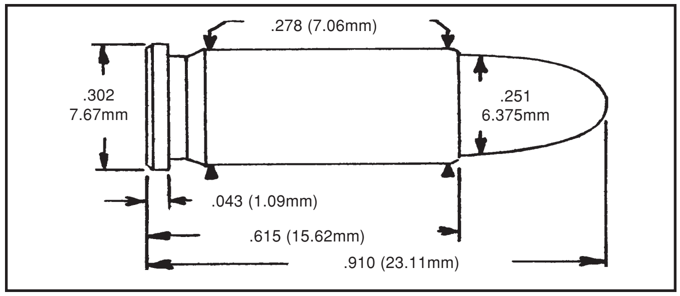
6mm BR REMINGTON (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 87 HPBT	**2015**	24.3	2262	**2015**	27.0	2570	52,000	2.225″	*
	2230	26.1	2262	**2230**	29.0	2570	50,500		
	2460	26.6	2285	**2460**	29.5	2597	50,700		
	2495	25.2	2287	**2495**	28.0	2599	51,200		
	2520	27.0	2291	**2520**	30.0	2603	51,800		
	2700	33.3	2472	**2700**	35.0	2630	53,000		Compressed
SPR 100 SBT	**2015**	22.5	2069	**2015**	25.0	2351	51,900	2.210″	*
	2230	25.2	2131	**2230**	28.0	2422	52,400		
	2460	25.2	2121	**2460**	28.0	2410	50,900		
	2495	23.4	2093	**2495**	26.0	2378	54,000		
	2520	25.7	2125	**2520**	28.5	2415	52,000		
	2700	30.4	2238	**2700**	32.0	2381	50,100		

* Over SAAMI MAX OAL

.25 ACP (6.35 BROWNING)

The .25 automatic pistol cartridge was introduced in 1908 for the Browning-designed, Colt .25 Pocket Automatic. This cartridge was also produced in Europe as the 6.35 Browning.



The .25 ACP has been and still is available in a myriad of inexpensive handguns. It is capable of reasonably high velocities for such a small cartridge.

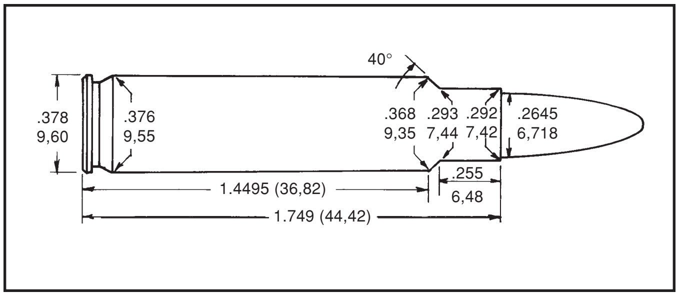
The SAAMI Maximum Average Pressure for the .25 ACP is 18,000 C.U.P.

.25 ACP

Gun	RAVEN	Max Length	0.615″
Barrel Length	2″	Trim Length	0.605″
Primer	WSP	OAL Max	0.910″
Case	HDY	OAL Min	0.860″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
HDY 50 FMJ	**No.2**	1.4	660	**No.2**	1.6	717	13,900	0.900″	

6.5mm T/CU



Another cartridge developed by Wes Ugalde and chambered originally by Thompson/Center Arms.

This cartridge is based on the .223 Remington case necked up to 6.5mm.

All the loads developed in our pressure barrel proved to be quite consistent. The 6.5 T/CU should be adequate for small game and varmints at ranges up to 200 yards. There is no SAAMI pressure limit for the 6.5 T/CU. Based on the recommendations of Thompson/Center, these loads are limited to the same pressures as the .223 Remington cartridge.

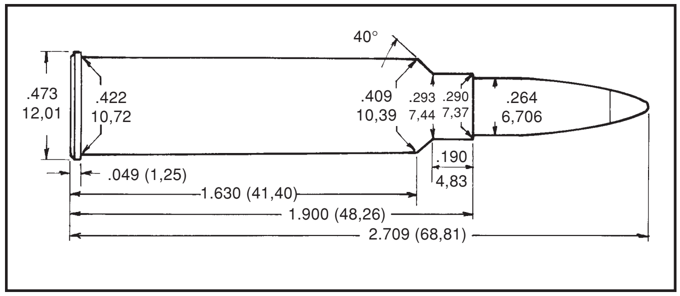
6.5mm T/CU

Gun	DOUGLAS	Max Length	1.749″
Barrel Length	14″	Trim Length	1.740″
Primer	CCI 400	OAL Max	2.600″
Case	REM	OAL Min	—

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 85 HP	**1680**	20.7	2094	**1680**	23.0	2379	43,600	2.400″	
	2015	25.2	2268	**2015**	28.0	2577	50,100		
	2230	26.6	2218	**2230**	29.5	2520	47,100		
	2460	27.0	2238	**2460**	30.0	2543	47,800		Compressed
	2495	25.7	2081	**2495**	28.5	2365	40,900		Compressed
	2520	27.9	2154	**2520**	31.0	2448	41,300		Compressed
SRA 100 HP	**1680**	19.2	1919	**1680**	21.3	2181	45,200	2.420″	
	2015	23.0	2057	**2015**	25.5	2338	49,200		
	2230	25.2	2114	**2230**	28.0	2402	49,500		
	2460	25.2	2103	**2460**	28.0	2390	47,400		
	2495	23.9	1934	**2495**	26.5	2198	40,300		Compressed
	2520	25.2	2035	**2520**	28.0	2312	41,100		Compressed
SRA 120 SP	**1680**	18.3	1730	**1680**	20.3	1966	45,900	2.495″	
	2015	22.1	1907	**2015**	24.5	2167	48,100		
	2230	23.4	1923	**2230**	26.0	2185	48,800		
	2460	23.9	1918	**2460**	26.5	2180	48,700		
	2495	23.4	1888	**2495**	26.0	2146	49,000		Compressed
	2520	25.2	1934	**2520**	28.0	2198	45,200		Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 140 HPBT	**1680**	17.1	1578	**1680**	19.0	1793	43,300	2.550″	
	2015	20.7	1765	**2015**	23.0	2006	50,200		
	2230	22.5	1807	**2230**	25.0	2053	50,000		
	2460	23.0	1823	**2460**	25.5	2072	47,600		
	2495	21.6	1705	**2495**	24.0	1937	40,600		Compressed
	2520	23.9	1826	**2520**	26.5	2075	47,400		Compressed
HDY 160 RN	**1680**	18.5	1553	**1680**	20.5	1765	46,300	2.570″	
	2015	21.2	1664	**2015**	23.5	1891	47,100		
	2230	22.5	1687	**2230**	25.0	1917	48,400		
	2460	23.0	1712	**2460**	25.5	1946	47,100		
	2495	23.0	1639	**2495**	25.5	1863	43,100		Compressed
	2520	23.9	1718	**2520**	26.5	1952	48,500		Compressed

6.5 JDJ



The 6.5 JDJ is one of the early examples of the JDJ series of cartridges. The .225 Winchester case was selected for the following reasons:

It is rimmed. Rimmed cartridges are more user friendly than rimless in the T/C. The .225 is the correct capacity to give maximum velocities in the normal barrel lengths found in the T/C and do it with less powder than many larger capacity cases. Most importantly, the .225 case is tough. Correctly loaded and sized it will last for a long time.

In loading the 6.5 simply expand the case neck from 22 to 6.5 in the tapered expander which is standard in the full length sizing die. Fire forming is necessary. There are many methods and most work okay. I prefer to seat 140 grain bullets to just engage the rifling; in fact, it's permissible to actually seat the bullet fully in the chamber by slamming the gun shut twice prior to firing. The load should be crisp — almost a hunting load to properly form the case on its first firing.

After forming never seat a bullet against the rifling as it definitely does increase pressures. I recommend against any use of the solid bullets such as the Barnes X-Bullet. If its use is to be contemplated the <u>bullet must be seated at least .050″ back from the rifling and the load reduced accordingly. Failure to follow this instruction can result in damaged guns.</u>

The 6.5 is at its best with bullets in the 120-140 grain weight range. With careful shot placement it will take anything in this country and has taken almost all of Africa's plains game. Obviously I don't recommend it for anything larger than mule deer due to the necessity of having a perfect shot on larger animals. Perfect shot opportunities seldom happen to me.

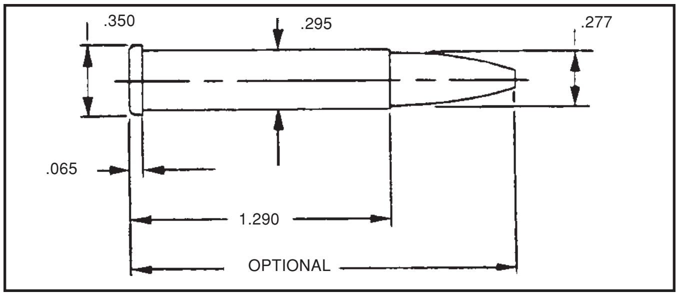
- J.D. Jones

6.5 JDJ

Gun	DOUGLAS	Max Length	1.900″
Barrel Length	14″	Trim Length	1.900″
Primer	FC 210	OAL Max	--
Case	WW	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 100 HP	**2015**	27.5	2156	**2015**	30.5	2450	46,300	2.695″	
	2230	30.2	2182	**2230**	33.5	2479	45,900		
	2460	31.1	2226	**2460**	34.5	2529	46,100		
	2495	31.5	2254	**2495**	35.0	2561	45,400		
	2520	31.5	2231	**2520**	35.0	2535	44,300		
	2700	34.2	2126	**2700**	38.0	2416	45,800		
	4350	34.7	2042	**4350**	38.5	2320	40,000		Compressed
SRA 120 SP	**2015**	26.6	2023	**2015**	29.5	2299	44,900	2.790″	
	2230	29.7	2079	**2230**	33.0	2362	46,800		
	2460	30.2	2086	**2460**	33.5	2370	46,100		
	2495	30.6	2113	**2495**	34.0	2401	47,600		
	2520	30.2	2058	**2520**	33.5	2339	47,300		
	2700	33.3	2035	**2700**	37.0	2312	46,900		
	4350	34.7	2019	**4350**	38.5	2294	44,000		Compressed
HDY 140 SP	**2015**	25.7	1896	**2015**	28.5	2154	46,800	2.925″	
	2230	27.5	1886	**2230**	30.5	2143	45,100		
	2460	27.5	1885	**2460**	30.5	2142	45,400		
	2495	28.4	1937	**2495**	31.5	2201	46,900		
	2520	28.4	1882	**2520**	31.5	2139	47,400		
	2700	32.4	1915	**2700**	36.0	2176	46,700		
	4350	33.8	1990	**4350**	37.5	2261	47,600		

.270 R.E.N.



This is a product of NRA pistol silhouette competition and was originated by Vern Juenke. It is the .22 Hornet necked up to take .270 caliber bullets. The cartridge produces minimal recoil, yet is capable of knocking down the NRA targets.

There is no SAAMI pressure limit for the .270 R.E.N. The maximum loads listed below are approved by the manufacturer of the Merrill single shot pistol, Jim Rock.

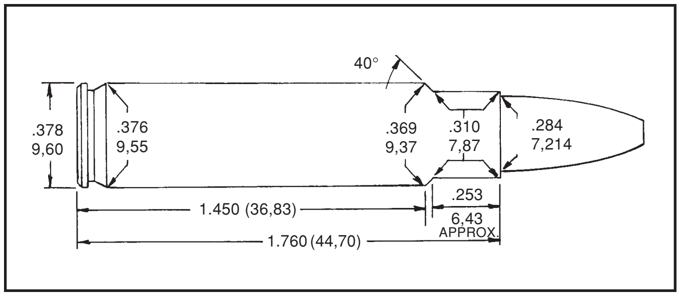
.270 R.E.N.

Gun	DOUGLAS	Max Length	1.290″
Barrel Length	10″	Trim Length	1.280″
Primer	CCI 400	OAL Max	--
Case	WW	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 90 HP	**No.7**	7.4	1452	**No.7**	8.2	1650	47,300	1.950″	
	No.9	10.0	1661	**No.9**	11.1	1888	47,200		
	1680	13.1	1594	**1680**	14.5	1811	38,900		Compressed
HDY 100 SP	**No.7**	7.4	1369	**No.7**	8.2	1556	50,300	1.935″	
	No.9	9.7	1583	**No.9**	10.8	1799	48,400		
	1680	13.1	1597	**1680**	14.5	1815	47,900		Compressed
SRA 110 SP	**No.7**	7.2	1297	**No.7**	8.0	1474	49,700	2.050″	
	No.9	9.2	1466	**No.9**	10.2	1666	48,100		
	1680	12.6	1474	**1680**	14.0	1675	36,000		Compressed

7mm T/CU

This necked-up .223 case is the most popular of the Thompson/Center Ugalde series, and one of the most popular cartridges ever to be fired in IHMSA competition. Modest recoil combined with a relatively flat trajectory and acceptable "ram-slamming" capability contributed to the popularity.



Lighter bullets can make the 7mm T/CU suitable for varmints. When used with the heavier bullets, it is capable of effectively taking deer-sized animals at ranges under 200 yards.

There is no SAAMI pressure limit for the 7mm T/CU. Based on the recommendations of Thompson/Center, these pressures do not exceed that of the .223 Remington.

7mm T/CU

Gun	DOUGLAS	Max Length	1.760″
Barrel Length	14″	Trim Length	1.740″
Primer	CCI 400	OAL Max	2.575″
Case	REM	OAL Min	—

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
145 (L) SIL	**5744**	18.0	1646	**5744**	20.0	1871	42,800	2.500"	RCBS
	1680	20.3	1675	**1680**	22.5	1903	40,700		
	2015	23.4	1739	**2015**	26.0	1976	41,800		
	2230	25.2	1810	**2230**	28.0	2057	47,000		
	2460	25.7	1833	**2460**	28.5	2083	45,300		
	2495	24.3	1632	**2495**	27.0	1855	33,100		Compressed
	2520	25.7	1790	**2520**	28.5	2034	41,600		Compressed
SRA 100 HP	**5744**	20.7	2041	**5744**	23.0	2320	47,700	2.430"	
	1680	25.2	2143	**1680**	28.0	2435	47,800		
	2015	25.2	1879	**2015**	28.0	2135	32,200		Compressed
	2230	27.0	1976	**2230**	30.0	2245	37,400		Compressed
	2460	27.0	1961	**2460**	30.0	2228	36,000		Compressed
	2495	24.3	1632	**2495**	27.0	1854	22,300		Compressed
	2520	25.2	1786	**2520**	28.0	2029	25,900		Compressed
SRA 120 SP	**5744**	19.8	1839	**5744**	22.0	2090	45,000	2.545"	
	1680	23.9	1959	**1680**	26.5	2226	48,000		
	2015	25.2	1881	**2015**	28.0	2137	39,700		Compressed
	2230	26.6	1912	**2230**	29.5	2173	42,600		Compressed
	2460	27.0	1914	**2460**	30.0	2175	42,200		Compressed
	2495	24.3	1668	**2495**	27.0	1896	27,800		Compressed
	2520	25.2	1737	**2520**	28.0	1974	27,700		Compressed

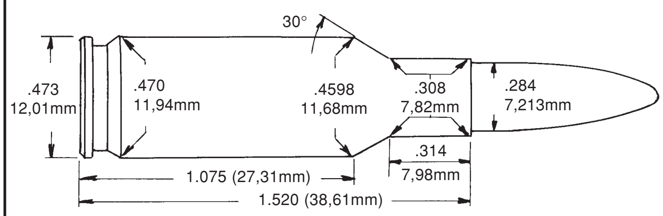
7mm T/CU (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SPR 130 SP	**5744**	18.4	1701	**5744**	20.5	1934	44,500	2.510"	
	1680	22.5	1813	**1680**	25.0	2060	48,200		
	2015	25.2	1878	**2015**	28.0	2134	47,400		Compressed
	2230	26.6	1896	**2230**	29.5	2155	45,200		Compressed
	2460	27.0	1888	**2460**	30.0	2145	43,600		Compressed
	2495	24.3	1716	**2495**	27.0	1950	36,500		Compressed
	2520	25.7	1782	**2520**	28.5	2025	35,300		Compressed
SRA 140 SBT	**5744**	18.4	1705	**5744**	20.5	1938	47,600	2.540"	
	1680	22.1	1769	**1680**	24.5	2010	49,200		
	2015	24.3	1811	**2015**	27.0	2058	46,400		Compressed
	2230	25.7	1850	**2230**	28.5	2102	47,700		Compressed
	2460	26.1	1856	**2460**	29.0	2109	47,700		Compressed
	2495	23.9	1651	**2495**	26.5	1876	38,800		Compressed
	2520	24.8	1718	**2520**	27.5	1952	36,500		Compressed
NOS 150 BT	**5744**	17.1	1559	**5744**	19.0	1772	45,700	2.575"	
	1680	19.8	1599	**1680**	22.0	1817	48,100		
	2015	23.4	1736	**2015**	26.0	1973	47,800		Compressed
	2230	24.8	1757	**2230**	27.5	1997	47,400		Compressed
	2460	25.2	1771	**2460**	28.0	2013	47,700		Compressed
	2495	23.0	1584	**2495**	25.5	1800	38,500		Compressed
	2520	24.8	1669	**2520**	27.5	1897	40,700		Compressed
HDY 162 HPBT	**5744**	16.6	1487	**5744**	18.5	1690	45,200	2.640"	*
	1680	20.3	1632	**1680**	22.5	1855	48,300		
	2015	23.4	1738	**2015**	26.0	1975	46,200		Compressed
	2230	24.3	1728	**2230**	27.0	1964	50,300		
	2460	24.8	1724	**2460**	27.5	1959	47,300		Compressed
	2495	23.0	1503	**2495**	25.5	1708	34,400		Compressed
	2520	24.8	1656	**2520**	27.5	1882	39,600		Compressed
REM 175 PSPCL	**5744**	16.2	1428	**5744**	18.0	1623	49,300	2.495"	
	1680	19.4	1434	**1680**	21.5	1629	48,400		
	2015	23.4	1627	**2015**	26.0	1849	46,500		Compressed
	2230	24.3	1573	**2230**	27.0	1787	49,500		Compressed
	2460	24.3	1586	**2460**	27.0	1802	49,900		Compressed
	2495	23.0	1345	**2495**	25.5	1528	26,700		Compressed
	2520	24.8	1558	**2520**	27.5	1771	39,200		Compressed

* Over MAX Recommended OAL

7mm BR REMINGTON

The 7mm BR Remington started out as a member of a unique class of cartridges which are chambered in factory firearms but for which there was no factory ammunition. The current factory load from Remington features a 140-grain PSP at a muzzle velocity of 2215 fps.



The 7mm BR is based on a thin-walled version of the .308 Winchester case that utilizes a small primer pocket and is shortened to 1.5″.

The 7mm BR unprimed cases are now available from Remington. The 7mm BR provides an excellent combination of accuracy and power for metallic silhouette shooting. It is also suitable for hunting of deer-sized game within 200 yards. A major factor in this cartridge's popularity is the excellent accuracy and great strength of the XP-100 bolt action pistol.

The SAAMI Maximum Average Pressure for the 7mm BR Remington is 52,000 C.U.P.

7mm BR REMINGTON

Gun	DOUGLAS	Max Length	1.520″
Barrel Length	15″	Trim Length	1.500″
Primer	REM 7˚	OAL Max	--
Case	REM	OAL Min	--

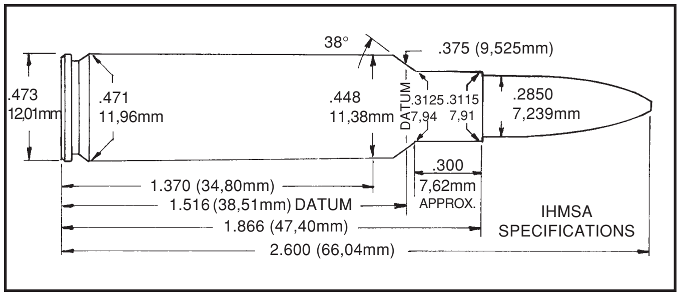
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
145 (L) GC	**5744**	16.0	1714	**5744**	22.0	2177	42,800	2.225"	Pennys
168 (L) GC	**5744**	15.0	1568	**5744**	21.0	2035	45,600	2.225"	Pennys
HDY 120 SSP	**2015**	26.1	2080	**2015**	29.0	2364	41,200	2.225″	
	2230	27.9	2077	**2230**	31.0	2360	44,300		
	2460	28.4	2089	**2460**	31.5	2374	42,900		
	2495	29.3	2142	**2495**	32.5	2434	41,900		Compressed
	2520	28.8	2109	**2520**	32.0	2397	43,600		
HDY 139 SP	**2015**	25.2	1928	**2015**	28.0	2191	40,400	2.305″	
	2230	27.0	1925	**2230**	30.0	2188	43,900		
	2460	27.9	1977	**2460**	31.0	2247	45,900		
	2495	28.4	1996	**2495**	31.5	2268	42,200		Compressed
	2520	27.9	1947	**2520**	31.0	2212	41,700		

7mm BR REMINGTON (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SRA 150 SBT	**2015**	24.8	1887	**2015**	27.5	2144	41,300	2.255″	
	2230	26.1	1868	**2230**	29.0	2123	43,200		
	2460	26.6	1892	**2460**	29.5	2150	44,100		
	2495	27.9	1981	**2495**	31.0	2251	45,100		Compressed
	2520	27.5	1917	**2520**	30.5	2178	43,100		
SRA 168 HPBT	**2015**	23.4	1724	**2015**	26.0	1959	41,100	2.310″	Compressed
	2230	25.2	1746	**2230**	28.0	1984	43,600		Compressed
	2460	25.7	1776	**2460**	28.5	2018	45,000		Compressed
	2495	25.7	1744	**2495**	28.5	1982	39,600		Compressed
	2520	27.0	1828	**2520**	30.0	2077	44,600		Compressed

7mm IHMSA

Created by Elgin Gates for handgun silhouette shooting. The 7mm IHMSA is based upon the .300 Savage case necked down to 7mm.



This cartridge was chambered in the Wichita bolt action single shot pistol. This cartridge is almost as powerful as the slightly larger 7mm-08 Remington.

There is no SAAMI pressure limit for the 7mm IHMSA. Based on the strength of the Wichita bolt action handgun, the maximum loads listed below do not exceed that of the 7mm-08 Remington.

7mm IHMSA

Gun	DOUGLAS	Max Length	1.866″
Barrel Length	14″	Trim Length	1.846″
Primer	CCI 200	OAL Max	2.600″
Case	REM	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 120 SSP	**2015**	32.4	2203	**2015**	36.0	2503	52,300	2.575″	
	2230	34.2	2168	**2230**	38.0	2464	46,500		
	2460	35.1	2204	**2460**	39.0	2505	49,200		
	2495	35.1	2164	**2495**	39.0	2459	48,000		
	2520	36.0	2203	**2520**	40.0	2503	48,700		
	2700	41.8	2212	**2700**	44.0	2353	43,700		Compressed
HDY 139 SP	**2015**	30.6	2022	**2015**	34.0	2298	50,000	2.765″	*
	2230	32.9	2046	**2230**	36.5	2325	49,900		
	2460	33.3	2066	**2460**	37.0	2348	52,000		
	2495	33.3	2059	**2495**	37.0	2340	49,800		
	2520	33.8	2055	**2520**	37.5	2335	51,500		
	2700	39.4	2147	**2700**	41.5	2284	50,500		
NOS 150 BT	**2015**	29.7	1945	**2015**	33.0	2210	51,000	2.650″	*
	2230	32.0	1976	**2230**	35.5	2245	50,100		
	2460	32.4	1978	**2460**	36.0	2248	51,700		
	2495	31.5	1935	**2495**	35.0	2199	48,900		
	2520	32.4	1942	**2520**	36.0	2207	49,500		
	2700	39.4	2114	**2700**	41.5	2249	49,900		

7mm IHMSA (continued)

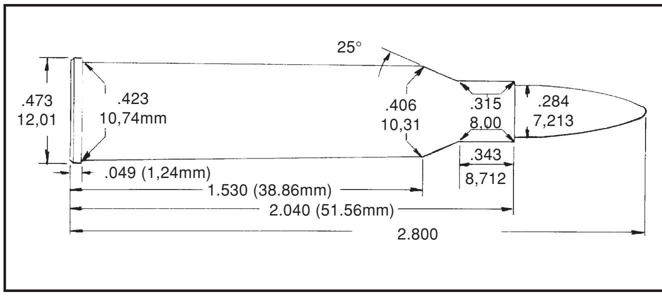
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 168 HPBT	**2015**	29.3	1843	**2015**	32.5	2094	50,100	2.650″	*
	2230	31.1	1848	**2230**	34.5	2100	49,500		
	2460	31.5	1868	**2460**	35.0	2123	48,200		
	2495	31.5	1860	**2495**	35.0	2114	46,900		
	2520	32.0	1876	**2520**	35.5	2132	50,000		
	2700	37.5	1998	**2700**	39.5	2126	51,000		
HDY 175 SP	**2015**	28.8	1810	**2015**	32.0	2057	51,600	2.700″	*
	2230	30.6	1784	**2230**	34.0	2027	47,800		
	2460	30.6	1782	**2460**	34.0	2025	48,000		
	2495	30.6	1818	**2495**	34.0	2066	51,000		
	2520	31.5	1827	**2520**	35.0	2076	51,100		
	2700	37.1	1939	**2700**	39.0	2063	50,100		

* Over MAX Recommended OAL

7mm MERRILL

The 7mm Merrill is the .225 Winchester case necked up to 7mm with no other change. This cartridge is used in the Merrill pistol manufactured by Rock Pistol Manufacturing.

There is no SAAMI pressure limit for the 7mm Merrill. The loads shown below are approved by the manufacturer of the Merrill pistol, Jim Rock.

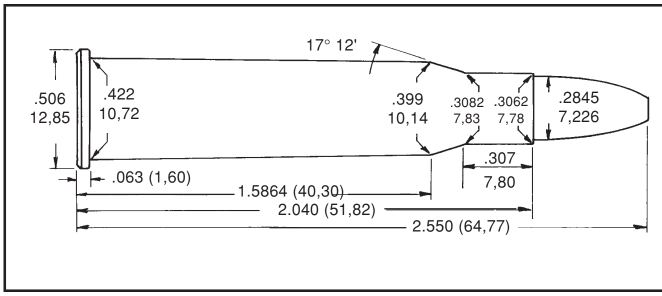


7mm MERRILL

Gun	DOUGLAS	Max Length	2.030″
Barrel Length	10˚″	Trim Length	2.020″
Primer	FC 210	OAL Max	2.800″
Case	WW	OAL Min	—

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 140 SBT	**2015**	25.7	1721	**2015**	28.5	1956	43,100	2.715″	
	2230	27.0	1768	**2230**	30.0	2009	45,700		
	2460	27.0	1742	**2460**	30.0	1979	43,300		
	2495	27.9	1711	**2495**	31.0	1944	43,200		
	2520	27.9	1745	**2520**	31.0	1983	41,100		
NOS 150 BT	**2015**	22.5	1578	**2015**	25.0	1793	40,500	2.735″	
	2230	26.1	1681	**2230**	29.0	1910	43,600		
	2460	26.6	1701	**2460**	29.5	1933	44,500		
	2495	27.9	1716	**2495**	31.0	1950	46,200		Compressed
	2520	27.9	1707	**2520**	31.0	1940	44,200		Compressed
SRA 168 HPBT	**2015**	21.6	1495	**2015**	24.0	1699	38,900	2.700″	
	2230	25.7	1649	**2230**	28.5	1874	47,200		
	2460	25.7	1629	**2460**	28.5	1851	45,500		
	2495	27.0	1666	**2495**	30.0	1893	48,600		Compressed
	2520	27.0	1654	**2520**	30.0	1879	46,200		Compressed
HDY 175 SP	**2015**	21.2	1500	**2015**	23.5	1704	46,100	2.690″	
	2230	25.2	1589	**2230**	28.0	1806	47,800		
	2460	25.2	1536	**2460**	28.0	1746	42,400		
	2495	27.0	1576	**2495**	30.0	1791	45,300		Compressed
	2520	27.0	1614	**2520**	30.0	1834	48,100		Compressed

7-30 WATERS



This cartridge was developed by the well known gun writer and ballistics expert Ken Waters. This is the result of his attempt to develop a flat trajectory cartridge for use in lever action carbines.

In 1983 U.S. Repeating Arms Company decided to chamber their Model 94 lever action rifle for this cartridge while the Federal Cartridge Company worked out the final version of the cartridge that became the commercial 7-30 Waters. Thompson/Center also chambered their Contender for the 7-30 Waters. It has become more popular as a handgun cartridge than as a rifle cartridge and is satisfactory for hunting deer and black bear at short to medium ranges.

The SAAMI Maximum Average Pressure for the 7-30 Waters is 40,000 C.U.P.

7-30 WATERS

Gun	T/C	Max Length	2.040″
Barrel Length	14″	Trim Length	2.020″
Primer	REM 9˚	OAL Max	2.550″
Case	REM	OAL Min	2.480″

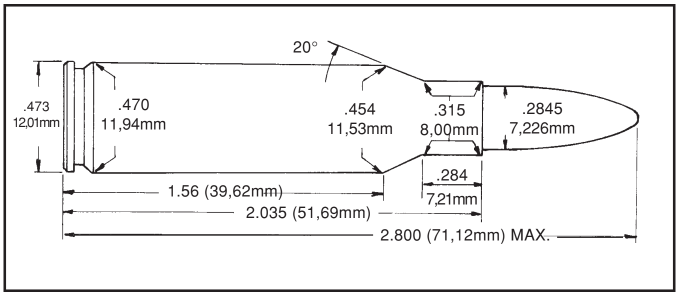
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SRA 100 HP	**2015**	32.4	2377	**2015**	36.0	2701	37,600	2.665″	
	2230	34.2	2393	**2230**	38.0	2719	37,800		
	2460	34.2	2349	**2460**	38.0	2669	37,900		
	2495	35.1	2391	**2495**	39.0	2717	32,700		Compressed
	2520	35.1	2326	**2520**	39.0	2643	36,300		
	2700	37.8	2167	**2700**	42.0	2462	37,900		Compressed
HDY 120 SSP	**2015**	29.7	2109	**2015**	33.0	2397	35,700	2.755″	
	2230	32.0	2189	**2230**	35.5	2487	37,400		
	2460	32.4	2174	**2460**	36.0	2471	37,300		
	2495	32.4	2179	**2495**	36.0	2476	36,400		
	2520	32.4	2126	**2520**	36.0	2416	35,500		
	2700	36.0	2078	**2700**	40.0	2361	39,000		
SPR 145 HPBT	**2015**	27.5	1925	**2015**	30.5	2188	39,000	2.740″	
	2230	29.7	1994	**2230**	33.0	2266	39,000		
	2460	29.7	1969	**2460**	33.0	2237	38,500		
	2495	30.6	2024	**2495**	34.0	2300	38,700		
	2520	30.6	1955	**2520**	34.0	2222	38,800		
	2700	34.2	1900	**2700**	38.0	2159	37,400		

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
NOS 150 BT	**2015**	26.1	1828	**2015**	29.0	2077	36,000	2.795″	
	2230	29.3	1933	**2230**	32.5	2197	37,600		
	2460	29.7	1934	**2460**	33.0	2198	39,500		
	2495	30.6	2006	**2495**	34.0	2280	38,400		
	2520	30.2	1900	**2520**	33.5	2159	37,000		
	2700	33.8	1857	**2700**	37.5	2110	38,800		
SRA 168 HPBT	**2015**	25.7	1767	**2015**	28.5	2008	38,700	2.770″	
	2230	27.9	1834	**2230**	31.0	2084	38,500		
	2460	28.8	1857	**2460**	32.0	2110	39,800		
	2495	29.7	1902	**2495**	33.0	2161	38,700		
	2520	28.8	1814	**2520**	32.0	2061	38,800		
	2700	31.5	1743	**2700**	35.0	1981	36,800		
HDY 175 SP	**2015**	25.2	1668	**2015**	28.0	1895	38,200	2.790″	
	2230	27.9	1764	**2230**	31.0	2004	38,700		
	2460	28.8	1765	**2460**	32.0	2006	39,700		
	2495	29.7	1800	**2495**	33.0	2045	39,100		
	2520	27.9	1673	**2520**	31.0	1901	36,100		
	2700	31.5	1675	**2700**	35.0	1903	36,200		

NOTE: All bullets listed for use in the T/C Contender exceed the SAAMI MAX OAL due to their Spitzer shape.

7mm-08 REMINGTON

Available from Remington as a chambering in the XP-100 bolt action pistol, the 7mm-08 is a rifle cartridge that has gained a following among the ranks of IHMSA shooters as well as handgun hunters.



This cartridge/handgun combination should provide all the performance from a 7mm handgun that anyone could want.

The SAAMI Maximum Average Pressure for the 7mm-08 Remington is 52,000 C.U.P.

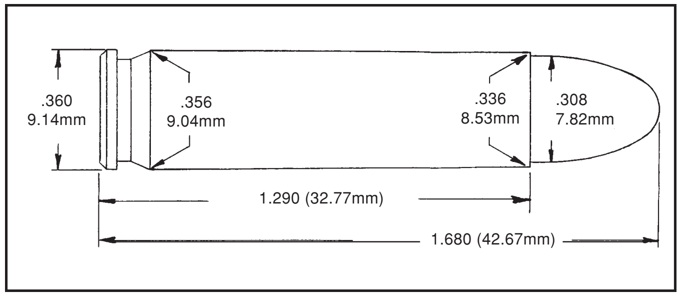
7mm-08 REMINGTON

Gun	XP-100	Max Length	2.035″
Barrel Length	15″	Trim Length	2.015″
Primer	CCI 200	OAL Max	2.800″
Case	REM	OAL Min	2.530″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SRA 100 HP	**2015**	36.5	2502	**2015**	40.5	2843	48,500	2.665″	
	2230	38.3	2557	**2230**	42.5	2906	49,800		
	2460	38.7	2567	**2460**	43.0	2917	49,500		
	2495	38.3	2411	**2495**	42.5	2740	48,500		
	2520	40.1	2559	**2520**	44.5	2908	48,400		
	2700	45.6	2573	**2700**	48.0	2737	50,700		
	4350	42.8	2227	**4350**	47.5	2531	44,200		Compressed
	3100	42.8	1978	**3100**	47.5	2248	40,600		Compressed
NOS 120 SP	**2015**	34.4	2312	**2015**	38.2	2627	49,000	2.765″	
	2230	36.3	2337	**2230**	40.3	2656	48,900		
	2460	36.6	2365	**2460**	40.7	2688	48,800		
	2495	36.0	2268	**2495**	40.0	2577	49,000		
	2520	37.3	2327	**2520**	41.4	2644	47,700		
	2700	44.2	2429	**2700**	46.5	2584	49,200		
	4350	42.8	2164	**4350**	47.5	2459	45,500		Compressed
	3100	42.8	1934	**3100**	47.5	2198	41,500		Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SPR 130 SP	**2015**	33.8	2236	**2015**	37.6	2541	52,000	2.770″	
	2230	35.4	2270	**2230**	39.3	2580	51,800		
	2460	35.8	2284	**2460**	39.8	2595	52,000		
	2495	35.1	2152	**2495**	39.0	2446	49,800		
	2520	35.6	2229	**2520**	39.6	2533	51,400		
	2700	42.8	2351	**2700**	45.0	2501	50,500		
	4350	42.8	2197	**4350**	47.5	2497	48,600		Compressed
	3100	42.8	1977	**3100**	47.5	2247	42,000		Compressed
SRA 140 SBT	**2015**	33.3	2161	**2015**	37.0	2456	49,300	2.800″	
	2230	35.1	2195	**2230**	39.0	2494	49,600		
	2460	36.0	2241	**2460**	40.0	2547	51,900		
	2495	34.7	2094	**2495**	38.5	2379	49,200		
	2520	35.6	2186	**2520**	39.5	2484	50,800		
	2700	42.3	2284	**2700**	44.5	2430	49,500		
	4350	42.8	2171	**4350**	47.5	2467	49,800		
	3100	42.8	1963	**3100**	47.5	2231	42,800		
SRA 150 SBT	**2015**	32.4	2064	**2015**	36.0	2346	50,300	2.800″	
	2230	34.2	2121	**2230**	38.0	2410	51,000		
	2460	34.5	2125	**2460**	38.3	2415	50,200		
	2495	33.6	2018	**2495**	37.3	2293	50,300		
	2520	35.1	2115	**2520**	39.0	2403	51,600		
	2700	41.3	2230	**2700**	43.5	2372	51,900		
	4350	41.9	2115	**4350**	46.5	2403	51,100		
	3100	42.3	1932	**3100**	47.0	2195	44,300		
NOS 160 SP (Part)	**2015**	31.5	1954	**2015**	35.0	2220	48,500	2.800″	
	2230	32.9	1971	**2230**	36.5	2240	47,300		
	2460	33.3	1985	**2460**	37.0	2256	48,500		
	2495	32.4	1897	**2495**	36.0	2156	49,900		
	2520	34.2	1988	**2520**	38.0	2259	48,500		
	2700	39.9	2079	**2700**	42.0	2212	45,600		
	4350	41.4	2036	**4350**	46.0	2314	49,400		Compressed
	3100	42.3	1899	**3100**	47.0	2158	43,400		Compressed
SRA 168 HPBT	**2015**	31.5	1936	**2015**	35.0	2200	49,300	2.800″	
	2230	33.3	1954	**2230**	37.0	2220	49,500		
	2460	33.3	1986	**2460**	37.0	2257	50,100		
	2495	34.2	1938	**2495**	38.0	2202	52,000		
	2520	33.3	1947	**2520**	37.0	2212	49,400		
	2700	37.8	1941	**2700**	42.0	2206	47,300		
	4350	41.4	2011	**4350**	46.0	2285	50,400		
	3100	42.3	1850	**3100**	47.0	2102	42,600		Compressed
REM 175 PSPCL	**2015**	31.5	1855	**2015**	35.0	2108	47,700	2.795″	
	2230	33.3	1921	**2230**	37.0	2183	49,600		
	2460	33.3	1916	**2460**	37.0	2177	49,800		
	2495	34.2	1823	**2495**	38.0	2072	47,900		
	2520	34.2	1914	**2520**	38.0	2175	51,200		
	2700	39.9	2019	**2700**	42.0	2148	47,400		
	4350	41.0	1937	**4350**	45.5	2201	49,400		
	3100	42.3	1778	**3100**	47.0	2070	42,600		Compressed

.30 M1 CARBINE



Both Ruger and Thompson/Center, as well as various foreign manufacturers, have chambered handguns for the .30 M1 Carbine. This was no doubt initially prompted by the ready availability of surplus .30 M1 Carbine ammunition. This appealed to the market for casual shooters and those desiring a companion handgun for their .30 M1 Carbine.

This cartridge in a handgun is well suited for hunter silhouette competition. It should also be suitable for the taking of small game within 125 yards.

The .30 M1 Carbine cartridge when fired in the T/C barrel experiences very little velocity loss compared to a rifle. Firing the T/C Contender in .30 M1 Carbine is a genuine pleasure; however, hearing protection is definitely recommended.

The SAAMI Maximum Average Pressure for the .30 M1 Carbine is 40,000 C.U.P.

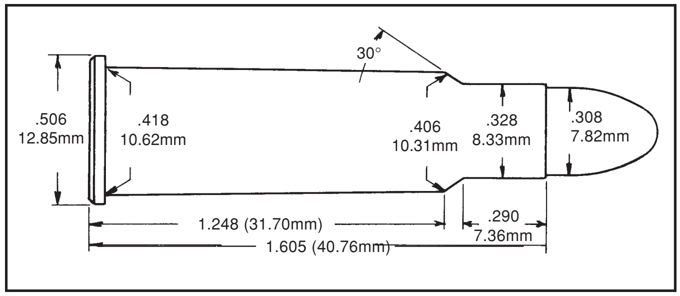
.30 M1 CARBINE

Gun	T/C	Max Length	1.290″
Barrel Length	10″	Trim Length	1.280″
Primer	CCI 400	OAL Max	1.680″
Case	REM	OAL Min	1.625″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
125 (L) RN	**No.9**	9.9	1448	**No.9**	11.0	1645	36,400	1.705″	*LY311410
	1680	13.5	1282	**1680**	15.0	1457	33,600		
SPR 100 Plinker	**No.9**	12.0	1646	**No.9**	13.3	1871	39,000	1.675″	
	1680	15.3	1357	**1680**	17.0	1542	24,200		Compressed
SPR 110 FMJ	**No.9**	11.3	1514	**No.9**	12.6	1721	39,800	1.670″	
	1680	14.4	1287	**1680**	16.0	1462	26,800		Compressed

* Over SAAMI MAX OAL

.30 HERRETT



Developed by Steve Herrett and Bob Milek, the .30 Herrett is a reformed and shortened .30-30 Winchester case intended for use in the Thompson/Center Contender handgun.

Although all of the loads listed below exceed the recommended maximum overall length due to their spitzer shape, there should be no problem when used in a single shot firearm.

There is no SAAMI pressure limit for the .30 Herrett. Based on the recommendations of Thompson/Center, the maximum loads listed below do not exceed 42,000 P.S.I.

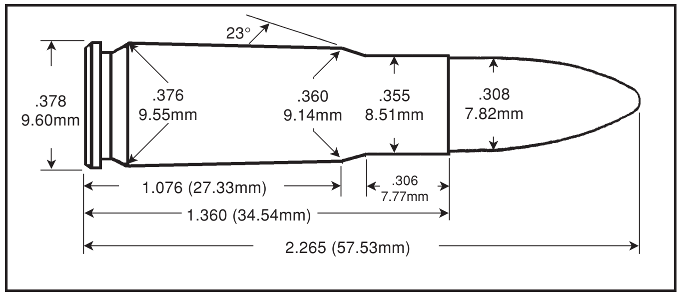
.30 HERRETT

Gun	DOUGLAS	Max Length	1.605″
Barrel Length	14″	Trim Length	1.595″
Primer	REM 9˚	OAL Max	2.200″
Case	REM	OAL Min	—

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 130 SSP	**2015**	27.0	1900	**2015**	30.0	2159	38,500	2.295″	Compressed
	2230	28.8	1870	**2230**	32.0	2125	39,000		Compressed
	2460	29.3	1871	**2460**	32.5	2126	38,700		Compressed
HDY 150 SP	**2015**	24.8	1713	**2015**	27.5	1947	37,800	2.385″	
	2230	27.0	1725	**2230**	30.0	1960	39,400		Compressed
	2460	27.5	1742	**2460**	30.5	1979	40,600		Compressed
SRA 165 SBT	**2015**	23.4	1632	**2015**	26.0	1854	40,900	2.490″	Case Full
	2230	24.8	1580	**2230**	27.5	1796	39,700		
	2460	25.2	1611	**2460**	28.0	1831	39,600		Case Full

.300 WHISPER

As the name implies, this cartridge is designed for subsconic velocities with medium to heavy bullets. Another load developed by JD Jones, who is proud of the fact that the .300 Whisper has gained acceptance as a hunting round for mid size game such as deer.



Maximum Average Pressures were based on the .221 Fireball which are 52,000 C.U.P.

.300 WHISPER

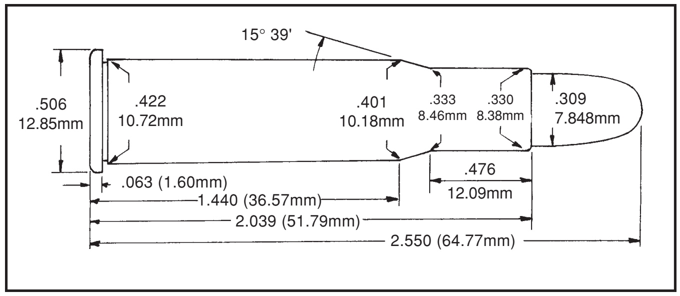
Gun	UR WISEMAN	Max Length	1.360″
Barrel Length	16″	Trim Length	1.350″
Primer	REM 7$^1/_2$ BR	OAL Max	2.265″
Case	REM	OAL Min	2.165″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 165 SPBT	**No.2**	–	–	**No.2**	5.8	1090	37,300	2.265″	
	No.5	–	–	**No.5**	5.6	1092	19,000		
	No.7	–	–	**No.7**	7.0	1097	22,600		
	No.9	–	–	**No.9**	7.5	1075	18,200		
SRA 190 HPBT	**No.2**	–	–	**No.2**	6.2	1087	49,200	2.265″	
	No.5	–	–	**No.5**	5.7	1075	24,300		
	No.7	–	–	**No.7**	7.2	1074	30,700		
	No.9	–	–	**No.9**	7.5	1060	24.300		
SRA 220 HPBT	**No.2**	–	–	**No.2**	5.5	889	52,600	2.265″	
	No.5	–	–	**No.5**	6.3	1062	38,200		
	No.7	–	–	**No.7**	7.5	1043	44,500		
	No.9	–	–	**No.9**	8.2	1056	39,500		

.30-30 WINCHESTER

Question: When is a cartridge considered more suitable for deer hunting when fired from a handgun than when fired from a rifle? Answer: When it's a .30-30 Winchester.

The .30-30 Winchester cartridge is an excellent chambering for the T/C Contender. The velocity loss in the 14" Contender barrel versus a 20" rifle is minimal.



When loaded for use in the Thompson/Center Contender, spitzer bullets greatly increase the down range effectiveness of the .30-30.

The SAAMI Maximum Average Pressure for the .30-30 is 42,000 P.S.I.

.30-30 WINCHESTER

Gun	T/C	Max Length	2.039″
Barrel Length	14″	Trim Length	2.020″
Primer	CCI 200	OAL Max	2.550″
Case	FC	OAL Min	2.450″

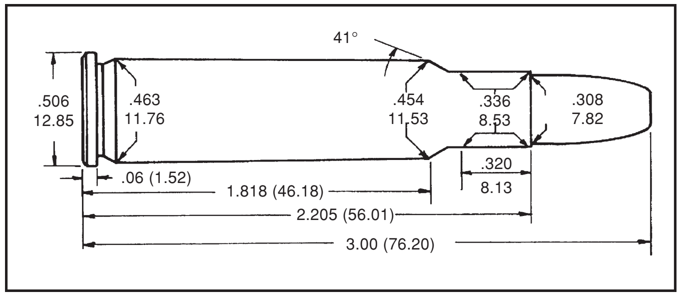
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
152 (L) RNGC	**2015**	23.0	1642	**2015**	25.5	1866	27,700	2.450″	LY311466
	2230	23.4	1614	**2230**	26.0	1834	27,800		
	2460	24.3	1617	**2460**	27.0	1838	26,400		
	2495	25.7	1476	**2495**	28.5	1677	28,400		
	2520	24.8	1628	**2520**	27.5	1850	25,700		
	2700	32.3	1801	**2700**	34.0	1916	28,100		
173 (L) FNGC	**2015**	23.4	1645	**2015**	26.0	1869	29,000	2.550″	LY31141
	2230	23.4	1599	**2230**	26.0	1817	27,400		
	2460	24.8	1633	**2460**	27.5	1856	28,300		
	2495	24.8	1453	**2495**	27.5	1651	35,100		
	2520	25.7	1662	**2520**	28.5	1889	29,300		
	2700	31.4	1747	**2700**	33.0	1859	32,800		
SPR 100 Plinker	**2015**	33.8	2230	**2015**	37.5	2534	39,900	2.345″	
	2230	35.1	2212	**2230**	39.0	2514	39,500		
	2460	35.1	2181	**2460**	39.0	2478	37,200		
	2495	33.3	1934	**2495**	37.0	2198	34,800		Case Full
	2520	34.2	2075	**2520**	38.0	2358	30,600		
	2700	38.0	2175	**2700**	40.0	2314	30,700		Compressed

.30-30 WINCHESTER (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 110 RN	**2015**	32.0	2110	**2015**	35.5	2398	40,900	2.440″	
	2230	32.4	2059	**2230**	36.0	2340	37,000		
	2460	33.3	2085	**2460**	37.0	2369	37,400		
	2495	33.3	1947	**2495**	37.0	2213	41,000		
	2520	34.2	2082	**2520**	38.0	2366	35,700		
	4064	35.1	1963	**4064**	39.0	2231	41,400		
	2700	38.0	2153	**2700**	40.0	2290	33,300		Compressed
HDY 130 SSP	**2015**	28.8	1908	**2015**	32.0	2168	39,700	2.625″	*
	2230	30.6	1903	**2230**	34.0	2162	39,900		
	2460	31.5	1905	**2460**	35.0	2165	39,700		
	2495	29.7	1734	**2495**	33.0	1971	40,300		
	2520	33.3	1998	**2520**	37.0	2270	40,700		Compressed
	2700	36.1	1977	**2700**	38.0	2103	34,500		Compressed
SPR 150 FN	**2015**	26.1	1698	**2015**	29.0	1929	38,400	2.540″	
	2230	28.5	1760	**2230**	31.7	2000	41,300		
	2460	29.3	1773	**2460**	32.5	2015	40,200		
	2495	27.5	1607	**2495**	30.5	1826	40,600		
	2520	30.2	1800	**2520**	33.5	2046	38,800		
	4064	29.7	1623	**4064**	33.0	1845	40,500		
	2700	35.2	1916	**2700**	37.0	2038	39,300		
NOS 170 FN	**2015**	24.3	1578	**2015**	27.0	1793	38,600	2.545″	
	2230	27.0	1645	**2230**	30.0	1869	42,000		
	2460	27.2	1640	**2460**	30.2	1864	39,900		
	2495	26.6	1512	**2495**	29.5	1718	40,200		
	2520	28.4	1649	**2520**	31.5	1874	38,400		
	4064	27.0	1480	**4064**	30.0	1682	39,900		
	2700	33.3	1775	**2700**	35.0	1888	39,700		

* Over SAAMI MAX OAL

.309 JDJ



"Why did you call it that?" is the most frequently asked question about it. Simple — someone was already using ".308" and I wanted to make the .30 caliber connection as well as being distinctive. The JDJ isn't for ego purposes — it's simply a positive identification for anyone who happens on one of the SSK-JDJ barrels. This enables anyone to get the correct dies, load data and other information quickly and easily.

The .309 is formed from UNFIRED .444 brass. Firing with a brisk load heavy enough to form the case fully on the first firing is essential to good case life. In this case seating the bullet against the lands does nothing more than increase pressure.

The 125 grain Ballistic tip works fairly well as does the 150. My choice for most North American hunting is the 165 ballistic tip. At truly long range it is superior to any of the lighter weight bullets. It will do about 2200 fps and give positive expansion on game at 300 yards. It also doesn't blow up completely at short range. The 165 Nosler Partition is excellent on larger animals or where greater penetration is desired.

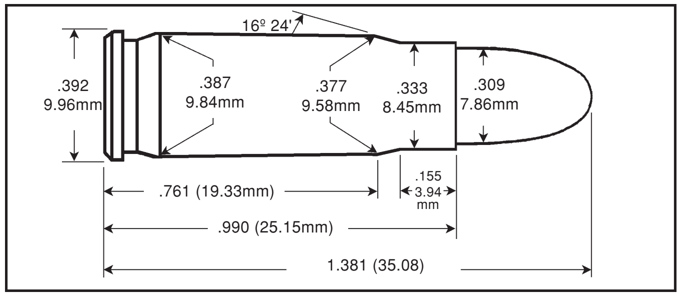
— J.D. Jones

.309 JDJ

Gun	DOUGLAS	Max Length	2.205″
Barrel Length	14″	Trim Length	2.195″
Primer	FC 210	OAL Max	--
Case	REM	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
NOS 125 BT	**2700**	44.1	2145	**2700**	49.0	2438	42,500	3.000″	
	4350	46.8	2151	**4350**	52.0	2444	42,600		
	3100	48.2	1956	**3100**	53.5	2223	35,900		Compressed
NOS 150 BT	**2700**	42.8	2020	**2700**	47.5	2296	42,800	3.100″	
	4350	45.5	2044	**4350**	50.5	2323	43,000		
	3100	48.2	1946	**3100**	53.5	2211	41,900		Compressed
NOS 165 BT	**2700**	41.4	1932	**2700**	46.0	2195	41,300	3.145″	
	4350	44.1	1952	**4350**	49.0	2218	41,700		
	3100	46.8	1895	**3100**	52.0	2153	42,900		

7.62x25mm TOKAREV



This handgun is increasing in popularity in the U.S. In determining the appropriate pressure limit for our load data we tested various military ammo from China, Austria, Bulgaria and the Czech Republic. Commercial ammo produced by Sellier and Berloit was also tested. Based on these test results we arrived at a maximum pressure for our load data of 42,000 C.U.P.

The pressure data shown here was developed in a 9" pressure barrel. We then fired the same loads through an issue CZ-52 to record the velocities. We felt that this would give a much better picture of the field performance of this data. The CZ-52 was kindly provided by Mr. Lane Pearce.

We feel that the maximum loads shown here are suitable for the CZ-52 so long as the firearm is in good condition. Other models of foreign handguns of lesser quality should probably be loaded in a more cautious manner.

7.62x25mm TOKAREV

Gun	DOUGLAS	Max Length	0.990"
Barrel Length	9″	Trim Length	0.980"
Primer	CCI 500	OAL Max	1.381"
Case	STARLINE	OAL Min	--

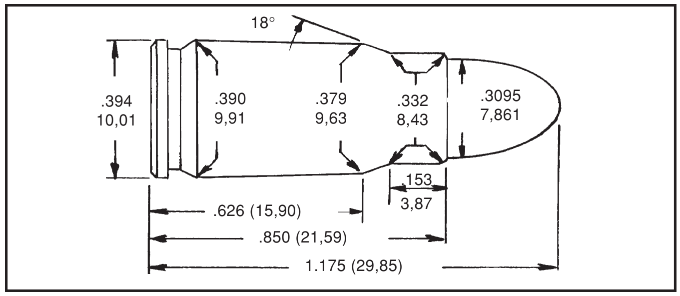
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SRA 85 RN	**No.2**	5.8	1443	**No.2**	6.5	1640	41,500	1.316″	
	No.5	7.6	1554	**No.5**	8.5	1766	40,400		
	No.7	9.2	1560	**No.7**	10.2	1773	41,000		
	No.9	11.8	1682	**No.9**	13.1	1972	41,000		
HDY 86 RN	**No.2**	5.8	1339	**No.2**	6.5	1522	41,300	1.316″	
	No.5	7.6	1510	**No.5**	8.5	1717	41,000		
	No.7	9.3	1521	**No.7**	10.3	1729	41,200		
	No.9	12.1	1683	**No.9**	13.5	1913	41,800		
HDY 93 RN	**No.2**	5.4	1443	**No.2**	6.0	1640	41,700	1.316″	
	No.5	7.6	1477	**No.5**	8.5	1679	40,900		
	No.7	9.0	1472	**No.7**	10.0	1673	41,200		
	No.9	11.1	1565	**No.9**	12.3	1779	41,000		

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SPR 100 PLINKER	**No.5**	7.2	1430	**No.5**	8.0	1625	41,500	1.300"	
	No.7	8.5	1452	**No.7**	9.5	1651	41,500		
	No.9	10.8	1541	**No.9**	12.0	1752	40,800		
SPR 110 RN	**No.2**	5.6	1273	**No.2**	6.2	1447	40,100	1.300″	
	No.5	7.2	1381	**No.5**	8.0	1570	41,700		
	No.7	8.5	1425	**No.7**	9.5	1620	42,000		
	No.9	10.5	1485	**No.9**	11.7	1688	41,800		

.30 LUGER

Introduced around 1900 by the Deutsche Waffen u. Munitions Fabriken, this 7.65mm bottlenecked round was the original cartridge for the Luger automatic pistol.

While not noted for stopping power, the .30 Luger is suitable for taking small game at close range.



The SAAMI Maximum Average Pressure for the .30 Luger is 28,000 C.U.P.

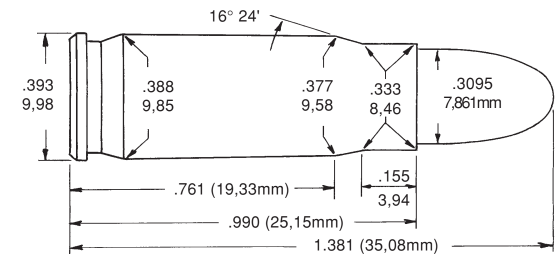
.30 LUGER

Gun	DOUGLAS	Max Length	0.850″
Barrel Length	6″	Trim Length	0.830″
Primer	CCI 500	OAL Max	1.175″
Case	FIOCCHI	OAL Min	1.130″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
HDY 86 RN	**No.2**	4.1	1158	**No.2**	4.5	1316	27,900	1.175″	
	No.5	5.6	1240	**No.5**	6.2	1409	28,000		
	No.7	6.8	1247	**No.7**	7.6	1417	26,800		
HDY 93 RN	**No.2**	4.1	1106	**No.2**	4.5	1257	28,000	1.170″	
	No.5	5.2	1145	**No.5**	5.8	1301	26,300		
	No.7	6.5	1177	**No.7**	7.2	1338	26,400		
SPR 100 Plinker	**No.2**	3.9	1085	**No.2**	4.3	1233	26,600	1.180″	*
	No.5	5.0	1126	**No.5**	5.5	1280	26,700		
	No.7	6.2	1139	**No.7**	6.9	1294	26,200		

* Over SAAMI MAX OAL

.30 (7.63mm) MAUSER



This cartridge was developed by an American, Hugo Borchardt, for the first commercially successful semi-automatic pistol.

It has been used mainly in Mauser military automatic pistols and has been copied all over the world.

Until the arrival of the .357 Magnum revolver cartridge, the .30 Mauser was the highest velocity pistol cartridge available.

While never very popular in the United States, it is nevertheless adequate for hunting small game and varmints at ranges up to 100 yards.

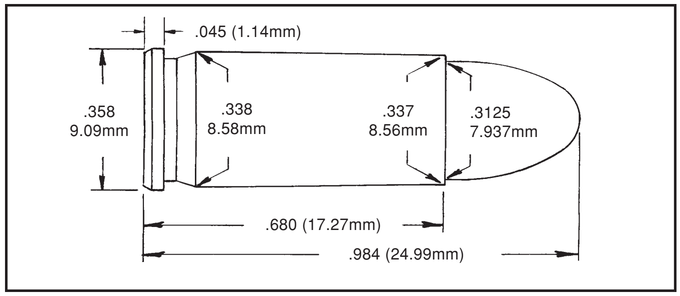
There is no SAAMI pressure limit for the .30 Mauser. Fiocchi factory ammunition produced pressures of 27,000 C.U.P in our test barrel. The maximum loads shown below do not exceed that pressure. (This loading data may also be used for the 7.62mm Russian Tokarev. The Tokarev is essentially identical to the .30 Mauser cartridge which operates at a lower pressure.)

.30 MAUSER

Gun	DOUGLAS	Max Length	0.990″
Barrel Length	9″	Trim Length	0.980″
Primer	CCI 500	OAL Max	1.381″
Case	FIOCCHI	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
HDY 86 RN	**No.2**	4.2	1170	**No.2**	4.7	1330	25,100	1.325″	
	No.5	5.7	1219	**No.5**	6.3	1385	24,600		
	No.7	6.9	1250	**No.7**	7.7	1421	24,400		
HDY 93 RN	**No.2**	4.2	1113	**No.2**	4.7	1265	25,000	1.325″	
	No.5	5.6	1182	**No.5**	6.2	1343	25,400		
	No.7	6.8	1199	**No.7**	7.5	1363	24,800		
SPR 100 Plinker	**No.2**	4.0	1056	**No.2**	4.4	1200	25,100	1.325″	
	No.5	5.2	1116	**No.5**	5.8	1268	24,700		
	No.7	6.5	1146	**No.7**	7.2	1302	24,300		

.32 ACP



Extremely popular in Europe where it is known as the 7.65mm Browning, the .32 ACP was first marketed by Fabrique Nationale about 1900. Virtually every European pistol manufacturer has chambered for it, as have several in the United States.

The .32 ACP is used in America primarily for back-up and self defense guns, while in Europe, it is considered appropriate as a primary police round.

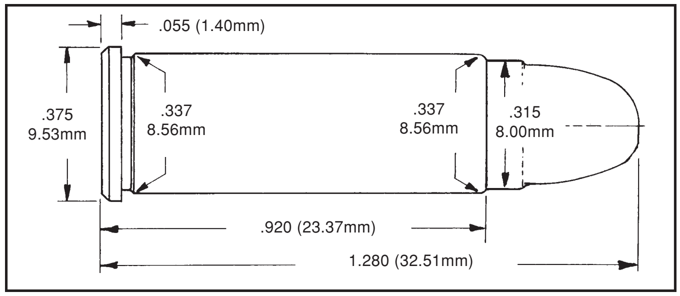
The SAAMI Maximum Average Pressure for the .32 Auto is 20,500 P.S.I.

.32 ACP			
Gun	HS PRECISION	Max Length	0.680″
Barrel Length	4″	Trim Length	0.660″
Primer	CCI 500	OAL Max	0.984″
Case	HDY	OAL Min	0.940″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
84 (L) RN	**No.2**	1.6	679	**No.2**	1.8	772	19,000	0.950″	RCBS-32ACP
	No.5	2.0	671	**No.5**	2.2	762	19,800		
SRA 71 FMJ	**No.2**	2.0	572	**No.2**	2.2	650	19,300	0.955″	
	No.5	2.9	619	**No.5**	3.2	703	19,700		
HDY 85 XTP	**No.2**	1.6	612	**No.2**	1.8	695	18,800	0.940″	
	No.5	2.2	615	**No.5**	2.4	699	19,100		

.32 SMITH & WESSON LONG

Also known as the .32 Colt New Police, this cartridge was introduced by Smith & Wesson in 1903.



For many years the .32 S&W Long was deemed adequate for police use in the United States and was quite popular with plain-clothesmen.

It has a reputation for excellent accuracy and, up until the 1960s, was widely used for target shooting in the United States. Using wadcutter loads in semiautomatics, the .32 S&W Long is still popular in International Centerfire Competition. For hunting its use should be limited to small game at close range.

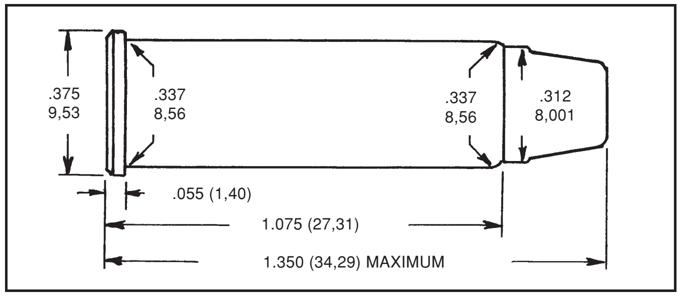
The SAAMI Maximum Average Pressure for the .32 S&W Long is 12,000 C.U.P.

.32 SMITH & WESSON LONG

Gun	DOUGLAS	Max Length	0.920″
Barrel Length	6″	Trim Length	0.900″
Primer	FC 100	OAL Max	1.280″
Case	REM	OAL Min	1.230″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
90 (L) HBWC	**No.2**	1.8	692	**No.2**	2.0	786	10,000	0.930″	HDY
	No.5	2.7	774	**No.5**	3.0	880	11,100		
90 (L) SWC	**No.2**	2.1	741	**No.2**	2.3	842	10,800	1.190″	HDY
	No.5	3.1	811	**No.5**	3.4	922	12,000		
HDY 85 XTP	**No.2**	2.1	769	**No.2**	2.3	875	12,000	1.175″	
	No.5	3.2	818	**No.5**	3.6	930	12,000		
SRA 90 JHP	**No.2**	2.3	780	**No.2**	2.5	886	12,000	1.190″	
	No.5	3.1	759	**No.5**	3.4	863	11,200		
HDY 100 XTP	**No.2**	1.9	614	**No.2**	2.1	700	12,000	1.160″	
	No.5	2.9	685	**No.5**	3.2	778	12,000		

.32 H&R MAGNUM



This "stretched" .32 S&W Long was a joint venture of Federal Cartridge and Harrington & Richardson. The initial ad campaign showed the cartridge to have more muzzle energy than the venerable .38 Special, yet with reduced recoil.

This cartridge is the .32 S&W Long lengthened by 0.155″. Any revolver chambered for the .32 H&R Magnum will also fire the .32 S&W Long and .32 S&W interchangeably. While this cartridge clearly exceeds the power of its predecessors, its label as a "magnum" is somewhat dubious.

The SAAMI Maximum Average Pressure for the .32 H&R Magnum is 21,000 C.U.P.

.32 H&R MAGNUM

Gun	DOUGLAS	Max Length	1.075″
Barrel Length	10″	Trim Length	1.055″
Primer	CCI 500	OAL Max	1.350″
Case	FC	OAL Min	1.300″

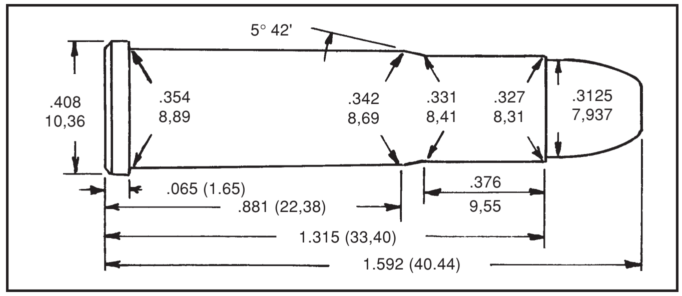
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
100 (L) SWC	**N100**	3.0	1048	**N100**	3.3	1191	20,800	1.310″	LY313631
	No.2	3.2	1021	**No.2**	3.6	1160	18,700		Penny's
	No.5	4.2	1110	**No.5**	4.7	1261	21,000		
	No.7	5.4	1126	**No.7**	6.0	1279	20,200		
HDY 85 JHP	**N100**	3.2	1082	**N100**	3.5	1229	19,800	1.325″	
	No.2	3.6	1117	**No.2**	4.0	1269	20,800		
	No.5	4.8	1176	**No.5**	5.3	1336	20,100		
	No.7	5.9	1200	**No.7**	6.5	1364	20,300		
SRA 90 JHC	**N100**	3.2	1058	**N100**	3.5	1202	20,300	1.340″	
	No.2	3.6	1096	**No.2**	4.0	1245	21,000		
	No.5	4.8	1137	**No.5**	5.3	1292	20,000		
	No.7	5.7	1149	**No.7**	6.3	1306	19,800		
SPR 100 JHP	**N100**	3.0	985	**N100**	3.3	1119	20,200	1.335″	
	No.2	3.3	1008	**No.2**	3.7	1146	20,700		
	No.5	4.5	1077	**No.5**	5.0	1224	21,000		
	No.7	5.4	1075	**No.7**	6.0	1222	20,200		

.32-20 WINCHESTER

The .32-20 Winchester was chambered in revolvers to provide a companion handgun to the owners of .32-20 rifles.

When used in a handgun, the .32-20 is adequate for small game and varmints at close range.

The SAAMI Maximum Average Pressure for the .32-20 Winchester is 16,000 C.U.P.



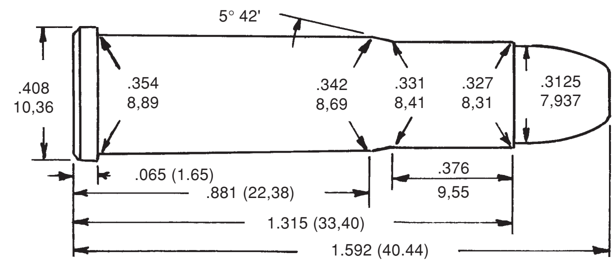
.32-20 WINCHESTER

Gun	RUGER BLACKHAWK	Max Length	1.315″
Barrel Length	6˚″	Trim Length	1.275″
Primer	CCI 400	OAL Max	1.592″
Case	REM	OAL Min	1.540″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
100 (L) SWC/GC	**No.5**	4.6	813	**No.5**	4.8	865	14,400	1.585″	LY313631
	No.7	5.8	869	**No.7**	6.1	924	16,000		
	No.9	6.7	869	**No.9**	7.0	924	15,500		
	1680	12.2	888	**1680**	12.8	945	15,100		
	2015	13.3	795	**2015**	14.0	846	16,000		Compressed
SRA 90 JHC	**No.5**	4.8	852	**No.5**	5.0	906	14,200	1.565″	
	No.7	5.8	881	**No.7**	6.1	937	13,400		
	No.9	6.9	927	**No.9**	7.3	986	13,600		
	1680	13.7	977	**1680**	14.4	1039	13,700		
	2015	14.3	823	**2015**	15.0	875	12,700		Compressed
HDY 100 XTP	**No.5**	4.5	793	**No.5**	4.7	844	15,200	1.565″	
	No.7	5.5	834	**No.7**	5.8	887	14,800		
	No.9	6.7	871	**No.9**	7.0	927	15,500		
	1680	11.9	917	**1680**	12.5	975	15,600		
	2015	14.0	824	**2015**	14.7	877	15,400		Compressed

.32-20 T/C

The venerable .32-20 Winchester can be loaded to the elevated pressures of the original high velocity rifle loadings when used in the Thompson/Center pistol. **Do not use this data in any other handgun.**

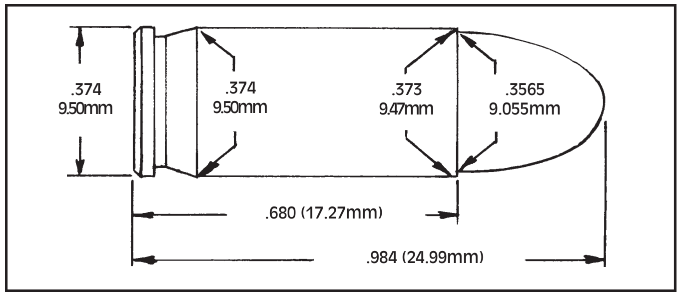


.32-20 T/C

Gun	DOUGLAS	Max Length	1.315″
Barrel Length	14″	Trim Length	1.275″
Primer	CCI 400	OAL Max	1.592″
Case	REM	OAL Min	1.540″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
100 (L) SWC/GC	**No.5**	5.4	1181	**No.5**	6.0	1342	23,300	1.585″	LY313631
	No.7	6.3	1166	**No.7**	7.0	1325	21,600		
	No.9	7.7	1249	**No.9**	8.5	1419	21,700		
	1680	12.6	1280	**1680**	14.0	1455	21,400		
	2015	15.3	1229	**2015**	17.0	1397	22,200		Compressed
SRA 90 JHC	**No.5**	5.6	1210	**No.5**	6.2	1375	21,100	1.565″	
	No.7	7.0	1286	**No.7**	7.8	1461	22,000		
	No.9	8.3	1346	**No.9**	9.2	1530	22,000		
	1680	14.9	1486	**1680**	16.5	1689	21,700		
	2015	16.2	1283	**2015**	18.0	1458	20,000		Compressed
HDY 100 XTP	**No.5**	5.4	1170	**No.5**	6.0	1330	23,800	1.585″	
	No.7	6.7	1201	**No.7**	7.4	1365	22,700		
	No.9	7.9	1280	**No.9**	8.8	1455	22,800		
	1680	14.0	1438	**1680**	15.5	1634	23,600		
	2015	15.8	1282	**2015**	17.5	1457	22,000		Compressed

.380 ACP (9mm KURZ)



Known in Europe as the 9mm Browning Short, the .380 Auto was introduced by John Browning in 1912 and has been chambered by nearly every manufacturer of semi-automatic pistols.

The .380 Auto is a much better choice for self defense than either the .25 or the .32 Autos and is routinely used by several foreign police and military organizations.

In the hunting field, it is adequate for small game with cast or jacketed bullets, but only at close range.

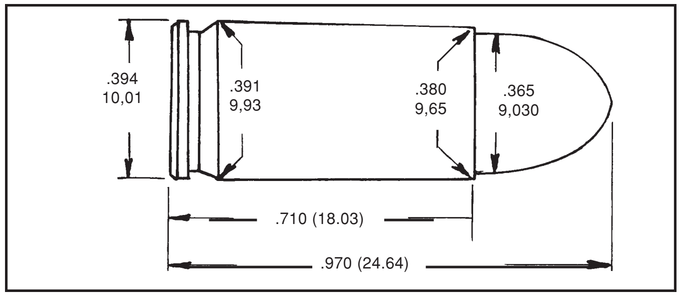
The SAAMI Maximum Average Pressure for the .380 Auto is 17,000 C.U.P.

.380 ACP

Gun	OBERMEYER	Max Length	0.680″
Barrel Length	3″	Trim Length	0.670″
Primer	CCI 500	OAL Max	0.984″
Case	FC	OAL Min	0.940″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
100 (L)	**No.2**	3.2	830	**No.2**	3.6	943	17,000	0.950″	Penny's
	No.5	4.1	811	**No.5**	4.5	922	16,900		SAECO 371
HDY 90 XTP	**No.2**	3.3	818	**No.2**	3.7	930	17,000	0.960″	
	No.5	4.3	810	**No.5**	4.8	920	16,700		
SRA 95 FMJ	**No.2**	3.3	822	**No.2**	3.7	934	14,600	0.945″	
	No.5	4.3	784	**No.5**	4.8	891	14,000		
HDY 100 FMJ	**No.2**	3.1	698	**No.2**	3.4	793	16,300	0.975″	
	No.5	4.4	788	**No.5**	4.9	895	17,000		

9x18mm MAKAROV



Developed by the Soviets after WWII, this cartridge is not a true 9mm since Makarov pistols typically have a bore diameter of .365″. The round is more comparable to the .380 than to the 9mm Luger in power.

The recent influx of inexpensive handguns chambered for the 9x18mm Makarov has prompted the development of loaded ammunition and reloading components.

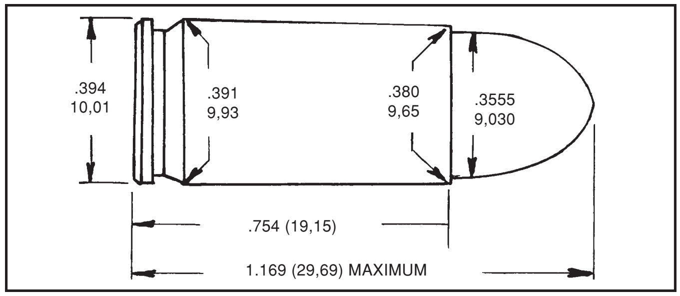
There is currently no SAAMI pressure limit for the 9x18mm Makarov. Factory ammunition fired in our test barrel produced pressures of 21,600 C.U.P.

9x18mm MAKAROV

Gun	HS	Max Length	.710″
Barrel Length	3.75″	Trim Length	.700″
Primer	WSP	OAL Max	.970″
Case	STARLINE	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
95 (L) RN	**No.2**	3.6	900	**No.2**	4.0	1023	17,200	0.955″	LY364653
	No.5	4.7	931	**No.5**	5.2	1058	17,200		
	No.7	6.5	921	**No.7**	7.2	1047	16,300		
HDY 95 XTP	**No.2**	3.8	918	**No.2**	4.2	1043	19,500	0.965″	
	No.5	5.0	936	**No.5**	5.6	1064	19,000		
	No.7	6.5	915	**No.7**	7.2	1040	18,100		
SRA 95 JHP	**No.2**	3.8	895	**No.2**	4.2	1017	17,900	0.965″	
	No.5	5.0	934	**No.5**	5.6	1061	19,400		
	No.7	6.5	919	**No.7**	7.2	1044	18,200		
SRA 100 FPJ	**No.2**	3.7	869	**No.2**	4.1	987	18,800	0.965″	
	No.5	4.7	853	**No.5**	5.2	969	16,600		
	No.7	6.5	907	**No.7**	7.2	1031	18,500		

9mm LUGER



Adopted by the German Navy in 1904 and the German Army in 1908, the 9mm Luger is the world's most widely used military handgun cartridge. In 1985 the United States Armed Forces adopted a Beretta semi-automatic pistol in 9mm to replace the aging Model 1911A1, .45 ACP.

It is used by numerous police and military organizations. Plus many IPSC shooters are currently using it in competition. (Hunting use should be restricted to small game and the use of expanding bullets.)

The SAAMI Maximum Average Pressure for the 9mm Luger is 33,000 C.U.P. and 35,000 P.S.I.

9mm LUGER

Gun	OBERMEYER	Max Length	0.754″
Barrel Length	4″	Trim Length	0.744″
Primer	WSP	OAL Max	1.169″
Case	FC	OAL Min	1.095″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
115 (L) SWC	**No.2**	4.4	1008	**No.2**	4.9	1146	32,900	1.100″	Lane
	No.5	5.7	1040	**No.5**	6.3	1182	33,000		
	No.7	7.8	1078	**No.7**	8.7	1225	33,000		
125 (L) RN	**No.2**	4.1	935	**No.2**	4.5	1063	30,100	1.100″	Penny's
	No.5	5.6	997	**No.5**	6.2	1133	32,800		
	No.7	7.5	1017	**No.7**	8.3	1156	32,500		
130 (L) RN	**No.2**	3.6	895	**No.2**	4.0	1017	31,100	1.095″	Clements
	No.5	5.4	1018	**No.5**	6.0	1157	33,000		
	No.7	7.4	1030	**No.7**	8.2	1170	33,000		
145 (L) RN	**No.2**	3.3	786	**No.2**	3.7	893	24,100	1.140″	Penny's
	No.5	4.6	866	**No.5**	5.1	984	26,800		
	No.7	6.5	926	**No.7**	7.2	1052	29,500		
PMC 90 JHP	**No.2**	4.8	1133	**No.2**	5.3	1287	33,000	1.095″	
	No.5	6.8	1209	**No.5**	7.5	1374	33,000		
	No.7	8.6	1158	**No.7**	9.5	1316	31,200		

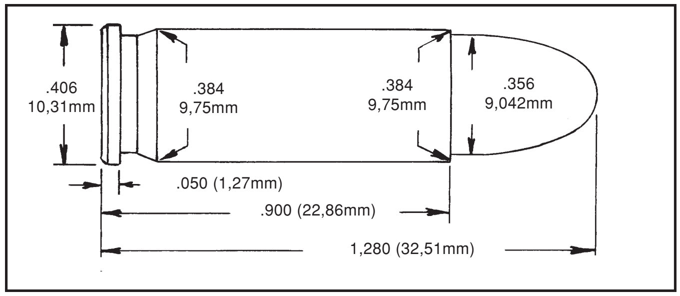
9mm Luger (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SFB 95 FP Frangible	**No.2***	3.8	1017	**No.2**	4.2	1156	34,900**	1.099″	
	No.5	5.2	982	**No.5**	5.8	1117	34,200**		
	No.7	7.4	1070	**No.7**	8.2	1217	35,300**		
IMI 95 FMJ	**No.2**	4.8	1110	**No.2**	5.3	1261	33,000	1.080″	
	No.5	6.5	1110	**No.5**	7.2	1261	30,700		
	No.7	8.2	1096	**No.7**	9.1	1246	29,100		
HDY 100 FMJ	**No.2**	4.9	1067	**No.2**	5.4	1213	33,000	1.095″	
	No.5	6.3	1091	**No.5**	7.0	1240	29,800		
	No.7	8.1	1103	**No.7**	9.0	1253	29,800		
HDY 115 FMJ	**No.2**	4.0	961	**No.2**	4.4	1092	29,900	1.095″	
	No.5	6.3	1049	**No.5**	7.0	1192	31,400		
	No.7	7.9	1052	**No.7**	8.8	1196	29,700		
RAN 115 RN	**No.2**	3.9	968	**No.2**	4.3	1100	33,300**	1.100″	
	No.5	5.2	967	**No.5**	5.8	1099	30,700**		
	No.7	6.6	968	**No.7**	7.3	1100	31,100**		
HDY 124 RN	**No.2**	3.7	930	**No.2**	4.1	1057	29,500	1.095″	
	No.5	5.8	1069	**No.5**	6.4	1200	33,000		
	No.7	7.2	1026	**No.7**	8.0	1166	29,800		
RAN 124 RN	**No.2**	3.7	923	**No.2**	4.1	1049	33,800**	1.100″	
	No.5	4.9	909	**No.5**	5.4	1034	32,100**		
	No.7	6.2	940	**No.7**	6.9	1069	33,600**		
RAN 124 FP	**No.2**	3.7	922	**No.2**	4.1	1048	34,700**	1.070″	
	No.5	4.9	921	**No.5**	5.4	1047	32,200**		
	No.7	6.2	929	**No.7**	6.9	1056	32,900**		
PMC 130 FMJ	**No.2**	4.2	906	**No.2**	4.7	1029	30,900	1.095″	
	No.5	5.3	929	**No.5**	5.9	1060	33,000		
	No.7	7.3	1004	**No.7**	8.1	1141	31,500		
Elite 135 FMJ	**No.2**	4.0	858	**No.2**	4.4	975	27,500	1.095″	
	No.5	5.5	974	**No.5**	6.1	1110	33,000		
	No.7	6.8	958	**No.7**	7.5	1089	31,000		
SPR 147 TMJ	**No.2**	3.6	781	**No.2**	4.0	888	29,200	1.095″	
	No.5	4.8	872	**No.5**	5.3	991	30,900		
	No.7	6.5	921	**No.7**	7.2	1047	31,900		
RAN 147 RN	**No.2**	3.0	750	**No.2**	3.3	853	31,300**	1.140″	
	No.5	4.0	769	**No.5**	4.4	874	30,300**		
	No.7	5.1	784	**No.7**	5.7	892	31,800**		

*May fail to cycle some guns. Use No.5 instead.
**HS Precision Barrel - Pressure data in P.S.I.

.38 AUTOMATIC (.38 ACP)

Designed by John Browning for Colt in 1900, this is the original cartridge that became known in 1929 as the .38 Super, the difference being an increase in pressure to improve the performance in the weapons for which it was chambered.



This data can also be used for loading the **9mm Steyr**, **9mm Largo** and the **9mm Bergmann-Bayard**.

The SAAMI Maximum Average Pressure for the .38 Auto is 23,000 C.U.P.

.38 AUTOMATIC

Gun	WILSON	Max Length	0.900″
Barrel Length	5″	Trim Length	0.890″
Primer	CCI 500	OAL Max	1.280″
Case	PMC	OAL Min	1.220″

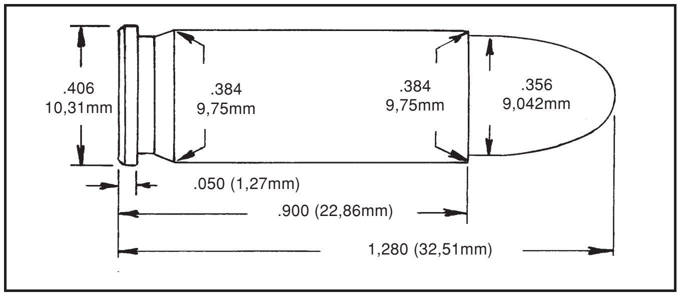
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
HDY 115 XTP	**No.2**	4.3	950	**No.2**	4.8	1030	23,000	1.225″	
	No.5	5.9	979	**No.5**	6.5	1113	22,400		
	No.7	7.4	980	**No.7**	8.2	1125	23,000		
HDY 124 XTP	**No.2**	4.3	912	**No.2**	4.8	1036	23,000	1.265″	
	No.5	5.7	945	**No.5**	6.3	1074	23,000		
	No.7	7.2	966	**No.7**	8.0	1103	23,000		
SRA 130 FMJ	**No.2**	4.0	876	**No.2**	4.5	995	23,000	1.300″	*
	No.5	5.5	892	**No.5**	6.1	1014	22,200		
	No.7	7.2	938	**No.7**	8.0	1066	23,000		

* Over SAAMI MAX OAL

.38 SUPER AUTOMATIC (+P)

An updated, high pressure version of the .38 ACP. Its popularity improved dramatically when IPSC competitors found they could use **Accurate No.7** and **No. 9** with heavier bullets and make Major Power Factor.

The SAAMI Maximum Average Pressure for the .38 Super is 33,000 C.U.P.



.38 SUPER AUTOMATIC (+P)

Gun	WILSON	Max Length	0.900″
Barrel Length	5″	Trim Length	0.890″
Primer	CCI 500	OAL Max	1.280″
Case	PMC	OAL Min	1.220″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
115 (L) SWC	**No.2**	4.3	992	**No.2**	4.8	1133	33,000	1.285″	** Lane
	No.5	6.8	1115	**No.5**	7.6	1267	32,600		
	No.7	8.8	1162	**No.7**	9.8	1320	33,000		
	No.9	11.3	1209	**No.9**	12.5	1374	32,400		Compressed
125 (L) RN	**No.2**	4.6	1030	**No.2**	5.1	1171	33,000	1.220″	CP
	No.5	6.5	1100	**No.5**	7.2	1260	33,000		
	No.7	8.6	1133	**No.7**	9.6	1287	33,000		
	No.9	10.8	1177	**No.9**	12.0	1338	31,200		Compressed
130 (L) RN	**No.2**	4.0	970	**No.2**	4.4	1102	33,000	1.220″	Clements
	No.5	6.3	1043	**No.5**	7.0	1185	31,900		
	No.7	8.1	1095	**No.7**	9.0	1244	32,000		
	No.9	10.4	1106	**No.9**	11.5	1257	29,100		Compressed
140 (L) SWC	**No.2**	4.3	948	**No.2**	4.8	1077	32,500	1.340″	** CP
	No.5	6.2	1015	**No.5**	6.9	1158	33,000		
	No.7	7.8	1033	**No.7**	8.7	1180	33,000		
	No.9	9.9	1079	**No.9**	11.0	1226	30,400		
145 (L) RN	**No.2**	4.3	949	**No.2**	4.8	1078	33,000	1.250″	CP
	No.5	6.1	1028	**No.5**	6.8	1168	33,000		
	No.7	7.7	1025	**No.7**	8.5	1165	31,400		
	No.9	9.5	1062	**No.9**	10.5	1207	30,700		Compressed *

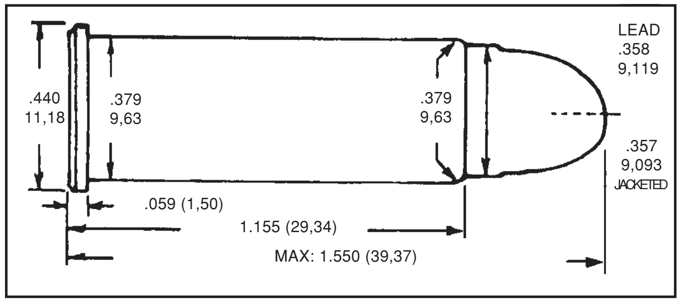
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
160 (L) RN	**No.2**	4.1	902	**No.2**	4.5	1025	32,500	1.250″	CP
	No.5	5.4	922	**No.5**	6.0	1048	33,000		
	No.7	7.2	981	**No.7**	8.0	1115	32,800		*
	No.9	8.6	982	**No.9**	9.5	1116	29,500	1.280″	Compressed*
SPR 90 JHP	**No.2**	5.2	1200	**No.2**	5.8	1379	33,000	1.195″	
	No.5	8.6	1370	**No.5**	9.6	1557	33,000		
	No.7	10.2	1324	**No.7**	11.3	1504	31,800		
IMI 95 FMJ	**No.2**	5.1	1161	**No.2**	5.7	1323	33,000	1.225″	
	No.5	8.2	1262	**No.5**	9.1	1434	31,500		
	No.7	10.3	1294	**No.7**	11.4	1471	31,700		
HDY 100 FMJ	**No.2**	5.3	1148	**No.2**	5.9	1300	33,000	1.240″	
	No.5	7.8	1252	**No.5**	8.7	1423	33,000		
	No.7	9.9	1270	**No.7**	11.0	1450	33,000		
	No.9	12.2	1256	**No.9**	13.5	1427	29,300		Compressed
HDY 115 FMJ	**No.2**	5.1	1056	**No.2**	5.7	1200	32,200	1.240″	
	No.5	7.5	1162	**No.5**	8.3	1321	33,000		
	No.7	9.3	1186	**No.7**	10.3	1340	33,000		
	No.9	11.7	1228	**No.9**	13.0	1395	32,800		Compressed
IMI 124 FMJ	**No.2**	4.9	1023	**No.2**	5.4	1163	32,200	1.245″	
	No.5	6.8	1079	**No.5**	7.6	1230	33,000		
	No.7	8.6	1111	**No.7**	9.6	1263	31,700		
	No.9	11.3	1184	**No.9**	12.5	1346	33,000		Compressed
PMC 130 FMJ	**No.2**	4.7	978	**No.2**	5.2	1116	33,000	1.250″	
	No.5	6.6	1057	**No.5**	7.3	1201	33,000		
	No.7	8.3	1060	**No.7**	9.2	1209	33,000		
	No.9	10.7	1148	**No.9**	11.9	1305	33,000		Compressed
RAN 130 RN	**No.2**	4.5	961	**No.2**	5.0	1093	30,100	1.280″	
	No.5	6.3	1011	**No.5**	7.0	1149	29,000		
	No.7	8.4	1087	**No.7**	9.4	1236	31,400		
	No.9	9.9	1061	**No.9**	11.0	1206	27,100		Compressed
CP 135 FMJ	**No.2**	4.9	1000	**No.2**	5.2	1140	33,000	1.250″	
	No.5	6.3	1003	**No.5**	7.0	1140	31,400		
	No.7	8.3	1045	**No.7**	9.0	1190	33,000		
	No.9	9.6	1055	**No.9**	10.7	1199	27,100		
SPR 147 TMJ	**No.2**	4.4	913	**No.2**	4.9	1038	33,000	1.230″	
	No.5	6.1	970	**No.5**	6.8	1100	33,000		
	No.7	7.8	1008	**No.7**	8.7	1146	31,500		
	No.9	9.2	1034	**No.9**	10.2	1175	29,400		
CP 150 FMJ	**No.2**	4.3	913	**No.2**	4.8	1038	32,300	1.250″	
	No.5	5.9	946	**No.5**	6.5	1075	30,100		
	No.7	7.7	1010	**No.7**	8.5	1148	32,700		
	No.9	8.7	978	**No.9**	9.7	1111	27,900		

.38 SUPER AUTOMATIC (+P) (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SRA 150 FMJ	**No.2**	4.8	932	**No.2**	5.3	1059	32,400	1.280″	
	No.5	5.8	970	**No.5**	6.5	1100	33,000		
	No.7	7.6	975	**No.7**	8.5	1115	33,000		
	No.9	9.9	1082	**No.9**	11.0	1229	33,000		*
HDY 158 JHP	**No.2**	3.9	850	**No.2**	4.3	970	33,000	1.250″	
	No.5	5.6	903	**No.5**	6.2	1026	31,400		
	No.7	7.2	936	**No.7**	8.0	1064	31,000		
	No.9	8.7	986	**No.9**	9.7	1121	31,000		*
RAN 151 RN	**No.2**	4.4	917	**No.2**	4.9	1043	31,100	1.280″	
	No.5	5.7	953	**No.5**	6.3	1083	30,700		
	No.7	7.7	1007	**No.7**	8.6	1145	30,900		
	No.9	8.9	955	**No.9**	9.9	1086	26,600		Compressed

* Major Power Factor
** Over SAAMI MAX OAL

.38 SMITH & WESSON SPECIAL



The .38 S&W Special continues to be the most popular handgun cartridge in the U.S. It is very accurate and is widely used for competitive shooting.

Also known as the .38 Colt Special, or more generally as the .38 Special, it was introduced by Smith & Wesson in 1902 for their military and police model revolver.

This is an excellent cartridge for the novice handgunner due to its inherent accuracy and low recoil. The .38 Special is also a popular sporting cartridge. Its hunting use should be restricted to small game at close range.

The SAAMI Maximum Average Pressure for the .38 S&W Special is 17,000 P.S.I.

.38 SMITH & WESSON SPECIAL

Gun	S&W K-38	Max Length	1.155″
Barrel Length	8-3/8″	Trim Length	1.135″
Primer	CCI 500	OAL Max	1.550″
Case	HDY	OAL Min	1.145″ (Wadcutter)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
148 (L) DEWC	**N100**	2.4	759	**N100**	2.7	863	15,300	1.252"	CP
	S1000	2.4	730	**S1000**	2.7	830	15,100		
	No.2	3.2	748	**No.2**	3.5	850	16,000		
	No.5	4.5	803	**No.5**	5.0	912	16,500		
148 (L) HBWC	**N100**	2.5	776	**N100**	2.8	882	17,500	1.152"	HDY
	S1000	2.5	736	**S1000**	2.8	837	15,800		
	No.2	2.6	634	**No.2**	2.9	720	15,500		
	No.5	3.6	710	**No.5**	4.0	807	16,200		
158 (L) SWC	**N100**	2.9	786	**N100**	3.3	894	16,600	1.481"	Bull-X
	S1000	3.0	754	**S1000**	3.4	857	14,900		
	No.2	3.6	764	**No.2**	4.0	868	14,100		
	No.5	5.3	827	**No.5**	5.9	940	16,100		
173 (L) SWC	**No.2**	3.6	721	**No.2**	4.0	819	16,300	1.515″	LY358429
	No.5	4.9	766	**No.5**	5.4	870	16,500		
195 (L) RN	**No.2**	3.2	706	**No.2**	3.5	803	16,900	1.550″	LY358430
	No.5	4.5	740	**No.5**	5.0	841	14,900		
	No.7	5.9	786	**No.7**	6.5	894	15,200		

.38 SMITH & WESSON SPECIAL (continued)

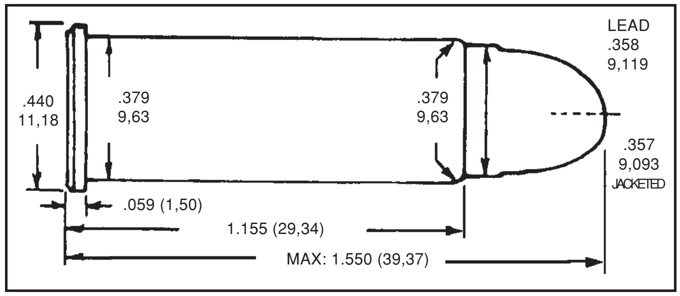
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 110 XTP	**N100**	3.9	1014	**N100**	4.4	1153	15,900	1.435"	
	S1000	3.9	962	**S1000**	4.4	1094	16,800		
	No.2	5.0	953	**No.2**	5.6	1083	16,800		
	No.5	6.6	959	**No.5**	7.3	1090	16,600		
SPR 125 JHP	**N100**	3.7	907	**N100**	4.1	1031	14,800	1.445"	
	S1000	3.7	888	**S1000**	4.1	1010	15,700		
	No.2	4.8	871	**No.2**	5.3	990	16,800		
	No.5	6.1	757	**No.5**	6.8	860	16,300		
RAN 125 FP	**No.2**	4.2	953	**No.2**	4.7	1083	17,000	1.430″	
	No.5	6.5	1030	**No.5**	7.2	1171	17,000		
SPR 140 JHP	**N100**	3.5	821	**N100**	3.9	933	16,900	1.445"	
	S1000	3.5	782	**S1000**	3.9	889	16,600		
	No.2	4.2	781	**No.2**	4.7	888	16,700		
	No.5	5.8	757	**No.5**	6.4	860	16,700		
RAN 148 DEWC	**No.2**	2.8	701	**No.2**	3.1	797	16,500	1.175″	
	No.5	4.5	768	**No.5**	5.0	873	15,900		
NOS 150 JHP	**N100**	3.3	791	**N100**	3.7	899	15,800	1.450"	
	S1000	3.3	755	**S1000**	3.7	859	16,200		
	No.2	4.2	751	**No.2**	4.7	853	17,000		
	No.5	5.9	715	**No.5**	6.5	813	16,600		
HDY 158 XTP	**N100**	2.9	691	**N100**	3.2	786	14,400	1.445"	
	S1000	3.1	702	**S1000**	3.4	798	15,900		
	No.2	3.6	665	**No.2**	4.0	756	16,500		
	No.5	5.2	740	**No.5**	5.8	841	16,500		
RAN 158 HP	**No.2**	3.4	739	**No.2**	3.8	840	16,500	1.430″	
	No.5	5.4	830	**No.5**	6.0	944	16,700		
RAN 158 RN	**No.2**	3.3	757	**No.2**	3.7	861	16,600	1.430″	
	No.5	5.1	829	**No.5**	5.7	943	16,900		
RAN 158 FN	**No.2**	3.3	727	**No.2**	3.7	827	16,100	1.430″	
	No.5	5.3	836	**No.5**	5.9	951	16,100		
Shot Capsules*									
105 SC	**No.5**	5.4	910	**No.5**	6.0	1035	16,500	1.500″	

* Shot capsules using 105 grains of No.9 shot.

.38 SMITH & WESSON SPECIAL (+P)

This is a higher pressure loading of the popular .38 S&W Special. This was originally developed for use by law enforcement agencies.

The SAAMI Maximum Average Pressure for the .38 S&W Special +P is 18,500 P.S.I.



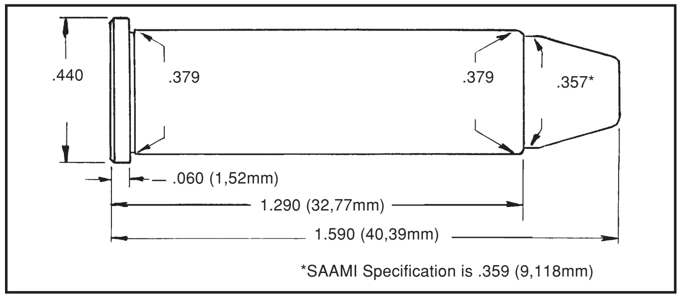
.38 SMITH & WESSON SPECIAL (+P)

Gun	S&W K-38	Max Length	1.155″
Barrel Length	8-3/8″	Trim Length	1.135″
Primer	CCI 500	OAL Max	1.550″
Case	HDY	OAL Min	1.400″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
158 (L) SWC	**No.2**	4.2	879	**No.2**	4.7	999	18,500	1.481″	Bull-X
	No.5	5.6	880	**No.5**	6.2	1000	18,400		
173 (L) SWC	**No.2**	3.8	748	**No.2**	4.2	850	18,000	1.515″	LY358429
	No.5	5.0	792	**No.5**	5.6	900	17,900		
HDY 110 XTP	**No.2**	5.2	996	**No.2**	5.8	1132	17,800	1.435″	
	No.5	6.8	1046	**No.5**	7.5	1189	17,400		
SPR 125 JHP	**No.2**	5.0	899	**No.2**	5.5	1022	17,700	1.445″	
	No.5	6.4	810	**No.5**	7.1	920	17,300		
SPR 140 JHP	**No.2**	4.4	775	**No.2**	4.9	881	18,300	1.445″	
	No.5	6.0	778	**No.5**	6.7	884	17,800		
NOS 150 JHP	**No.2**	4.4	791	**No.2**	4.9	899	17,600	1.450″	
	No.5	6.0	757	**No.5**	6.7	860	18,200		
HDY 158 XTP	**No.2**	3.8	702	**No.2**	4.2	798	17,800	1.445″	
	No.5	5.4	792	**No.5**	6.0	900	18,500		

.357 MAGNUM

Introduced in 1935 by S&W for their large frame revolver, the .357 Magnum is based on the .38 Special case lengthened 1/10th of an inch so it could not be chambered in a standard .38 Special revolver.



The .357 Magnum was the most powerful handgun cartridge for nearly 20 years, until the arrival of the .44 Magnum. The .357 Magnum has been chambered in almost countless revolvers.

While it has been used successfully on deer, black bear, and even larger game animals, the .357 Magnum cannot really be recommended for these animals unless ranges are 100 yards or less and it is used by a skilled hunter. Within these limitations, it can be quite effective on deer-sized big game.

The .357 Magnum is easy to handload, even with cast bullets. There is a wide variety of cast bullet designs available to the handloader.

The SAAMI Maximum Average Pressure for the .357 Magnum is 45,000 C.U.P. or 35,000 P.S.I. (Note: Most of this data is new and has been reshot using Copper Units of Pressure.)

.357 MAGNUM

Gun	Test Barrel	Max Length	1.290″
Barrel Length	8″	Trim Length	1.270″
Primer	CCI 500	OAL Max	1.590″
Case	REM	OAL Min	1.540″

	START LOADS			MAXIMUM LOADS			Pressure	Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	C.U.P.	Length	Comment
150 (L) RN	**No.2**	5.9	1097	**No.2**	6.5	1247	43,800	1.655″**	Penny's
	No.5	8.5	1250	**No.5**	9.4	1422	41,900		
	No.7	10.3	1297	**No.7**	11.4	1474	44,000		
	No.9	12.9	1375	**No.9**	14.3	1562	42,100		
158 (L) SWC	**No.2**	5.2	1011	**No.2**	5.8	1149	40,400	1.590″	Bull-X
	No.5	8.1	1192	**No.5**	9.0	1354	39,100		
	No.7	9.9	1243	**No.7**	11.0	1413	42,600		
	No.9	12.2	1319	**No.9**	13.5	1499	41,300		
173 (L) SWC	**No.2**	5.0	885	**No.2**	5.5	1006	41,100	1.660″ **	LY 358429
	No.5	8.6	1198	**No.5**	9.5	1361	43,500		
	No.7	9.5	1198	**No.7**	10.6	1361	41,600		
	No.9	12.2	1302	**No.9**	13.5	1480	42,700		
	5744	13.0	1197	**5744**	14.5	1361	34,400***		

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	Pressure C.U.P.	Cartridge Length	Comment
180 (L) TCGC *	**No.2**	4.9	786	**No.2**	5.4	894	42,500	1.675″ **	RCBS
	No.5	7.7	1101	**No.5**	8.5	1251	42,300		
	No.7	9.0	1121	**No.7**	10.0	1274	43,400		
	No.9	11.3	1204	**No.9**	12.6	1368	40,200		
	5744	11.7	1083	**5744**	13.0	1231	33,500***		
SPR 110 JHP	**No.2**	7.6	1475	**No.2**	8.4	1676	44,100	1.575″	
	No.5	10.8	1619	**No.5**	12.0	1840	41,600		
	No.7	12.6	1628	**No.7**	14.0	1850	41,700		
	No.9	16.6	1765	**No.9**	18.4	2006	43,700		
HDY 125 XTP	**No.2**	7.2	1370	**No.2**	8.0	1557	43,800	1.575″	
	No.5	10.4	1521	**No.5**	11.5	1728	42,800		
	No.7	11.9	1527	**No.7**	13.2	1735	42,700		
	No.9	15.3	1647	**No.9**	17.0	1872	45,100		
RAN 125 FP	**No.2**	6.2	1223	**No.2**	6.8	1390	32,100***	1.535″	
	No.5	8.0	1313	**No.5**	8.9	1493	32,200***		
	No.7	10.1	1388	**No.7**	11.2	1578	33,500***		
	No.9	11.8	1434	**No.9**	13.1	1630	32,200***		
SPR 140 JHP	**No.2**	6.7	1258	**No.2**	7.4	1429	43,900	1.575″	
	No.5	9.9	1436	**No.5**	11.0	1632	43,200		
	No.7	11.0	1408	**No.7**	12.2	1600	43,600		
	No.9	13.9	1495	**No.9**	15.4	1699	43,100		
NOS 150 SP	**No.2**	6.5	1180	**No.2**	7.2	1343	45,000	1.590″	
	No.5	9.5	1302	**No.5**	10.5	1480	42,700		
	No.7	11.8	1371	**No.7**	12.0	1558	43,400		
	No.9	13.7	1466	**No.9**	15.2	1666	43,000		
HDY 158 XTP	**No.2**	5.9	1109	**No.2**	6.6	1260	44,200	1.580″	
	No.5	8.8	1279	**No.5**	9.8	1453	43,500		
	No.7	10.3	1429	**No.7**	11.4	1624	43,900		
	No.9	13.5	1437	**No.9**	15.0	1633	44,900		
	5744	13.0	1203	**5744**	14.5	1368	31,600***		
RAN 158 RN	**No.2**	5.2	1006	**No.2**	5.8	1144	31,900***	1.555"	
	No.5	7.2	1154	**No.5**	8.0	1312	34,300***		
	No.7	8.8	1182	**No.7**	9.8	1344	34,500***		
	No.9	10.4	1224	**No.9**	11.6	1392	33,900***		
RAN 158 HP	**No.2**	5.2	990	**No.2**	5.8	1126	32,900***	1.545"	
	No.5	7.0	1064	**No.5**	7.8	1210	31,700***		
	No.7	9.0	1144	**No.7**	10.0	1300	35,000***		
	No.9	10.7	1232	**No.9**	11.9	1401	35,000***		
RAN 158 FP	**No.2**	5.2	986	**No.2**	5.8	1121	31,200***	1.550"	
	No.5	7.2	1107	**No.5**	8.0	1259	31,700***		
	No.7	9.1	1180	**No.7**	10.1	1342	34,100***		
	No.9	10.7	1236	**No.9**	11.9	1405	34,100***		
SRA 170 FMJ	**No.2**	5.4	1037	**No.2**	6.0	1178	44,200	1.565″	
	No.5	8.3	1222	**No.5**	9.2	1389	44,100		
	No.7	9.5	1207	**No.7**	10.5	1370	44,600		
	No.9	12.2	1304	**No.9**	13.5	1482	45,000		

.357 MAGNUM (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	Pressure C.U.P.	Cartridge Length	Comment
HDY 180 XTP	**No.2**	5.4	980	**No.2**	6.0	1114	43,900	1.575"	
	No.5	8.3	1167	**No.5**	9.2	1326	44,300		
	No.7	9.3	1170	**No.7**	10.3	1329	43,600		
	No.9	11.7	1265	**No.9**	13.0	1437	43,000		
	5744	11.7	1052	**5744**	13.0	1196	34,900***		
Shot Capsules******									
105 SC	**No.5**	6.3	1059	**No.5**	7.0	1204	24,200		

* For use in T/C Only
** Over SAAMI MAX OAL
*** Pressure Data in P.S.I.
**** Shot Capsules using 105 grains of No.9 Shot

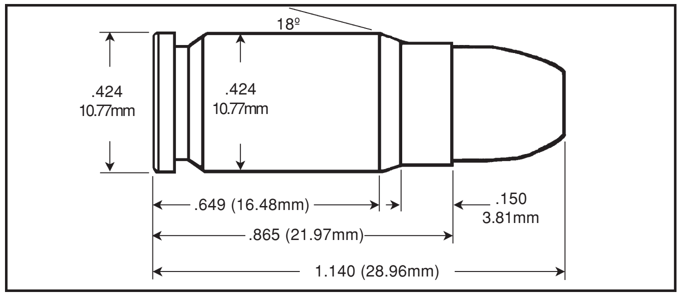
.357 MAGNUM TARGET LOADS

Bullet	LOADING DATA Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
148 (L) DEWC	**No.2**	3.0	746	15,000	1.370″	
	No.2	4.0	919	20,300		
148 (L) HBWC	**No.2**	2.5	645	13,500	1.320″	
	No.2	4.0	913	22,700		
158 (L) SWC	**No.2**	4.0	864	20,000	1.510″	
	No.2	5.0	1008	25,500		

DESERT EAGLE

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	Pressure C.U.P.	Cartridge Length	Comment
NOS 150 JSP	**No.9**	13.7	1466	**No.9**	15.2	1666	43,000	1.590″	
HDY 158 XTP	**No.9**	13.5	1437	**No.9**	15.0	1633	44,900	1.580″	
SRA 170 FMJ	**No.9**	12.2	1304	**No.9**	13.5	1482	45,000	1.565″	
HDY 180 XTP	**No.9**	11.7	1265	**No.9**	13.0	1437	43,000	1.575″	

.357 SIG



The .357 Sig is basically the .40 S&W cartridge necked down to take 9mm bullets. This cartridge was developed specifically for the law enforcement market. It is intended to duplicate the ballistics of the highly regarded 125 Grain JHP .357 Magnum load as fired in a 4" barrel revolver.

Reports from the field praise the accuracy of this round. Our No. 9 has proven to be well suited for this round.

This is without a doubt the most ballistically consistent handgun cartridge we have ever worked with. The standard deviation for every single load developed was less than 10 FPS. The average SD was 5 FPS. This is impressive for any cartridge but especially so for a handgun. The small bottleneck and high working pressure of the round must both contribute to this amazing consistency.

The SAAMI Maximum Average Pressure for the .357 Sig is 40,000 P.S.I.

.357 SIG

Gun	HS PRECISION	Max Length	0.865"
Barrel Length	4″	Trim Length	0.860"
Primer	FC 100	OAL Max	1.140"
Case	FC	OAL Min	1.120"

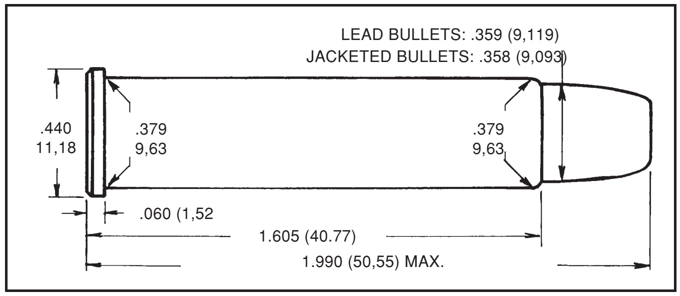
	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	P.S.I.	Length	Comment
115 (L) SWC	**No.2**	5.6	1099	**No.2**	6.2	1249	38,200	1.140″	Lane
	No.5	8.1	1160	**No.5**	9.0	1319	38,500		
	No.7	9.9	1182	**No.7**	11.0	1344	37,800		
	No.9	12.1	1258	**No.9**	13.5	1430	39,000		Compressed
122 (L) FN	**No.2**	5.2	1070	**No.2**	5.8	1217	38,100	1.140"	CP
	No.5	7.9	1144	**No.5**	8.8	1300	37,100		
	No.7	9.6	1162	**No.7**	10.7	1321	37,900		
	No.9	11.7	1217	**No.9**	13.0	1383	36,100		Compressed
147 (L) RN	**No.2**	4.2	923	**No.2**	4.7	1049	36,800	1.140"	Lane
	No.5	6.7	1029	**No.5**	7.5	1170	36,900		
	No.7	8.6	1071	**No.7**	9.6	1218	40,000		Major
	No.9	9.4	1029	**No.9**	10.5	1170	33,000		Compressed
SPR 88 JHP	**No.2**	7.1	1359	**No.2**	7.9	1545	39,100	1.130″	
	No.5	10.0	1422	**No.5**	11.1	1616	39,000		
	No.7	11.8	1408	**No.7**	13.1	1601	39,300		
	No.9	13.5	1359	**No.9**	15.0	1545	32,100		Compressed

.357 SIG (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 95 FMJ	**No.2**	6.8	1290	**No.2**	7.6	1467	37,100	1.135″	
	No.5	10.0	1383	**No.5**	11.0	1572	39,200		
	No.7	11.7	1374	**No.7**	13.0	1562	38,900		
	No.9	13.5	1346	**No.9**	15.0	1530	32,600		Compressed
HDY 100 FMJ	**No.2**	6.6	1244	**No.2**	7.3	1414	38,800	1.140″	
	No.5	9.4	1316	**No.5**	10.5	1496	38,800		
	No.7	11.0	1311	**No.7**	12.2	1490	38,500		
	No.9	13.0	1334	**No.9**	14.5	1516	35,100		Compressed
SFB 100 FP	**No.2**	5.4	1176	**No.2**	6.0	1337	37,800	1.135″	
Frangible	**No.5**	8.1	1267	**No.5**	9.0	1440	38,800		
	No.7	9.9	1276	**No.7**	11.0	1450	38,400		
	No.9	13.0	1305	**No.9**	14.5	1483	38,100		
HDY 115 XTP	**No.2**	5.7	1122	**No.2**	6.4	1276	38,600	1.140"	
	No.5	8.4	1191	**No.5**	9.4	1354	37,900		
	No.7	10.2	1218	**No.7**	11.3	1385	39,100		
	No.9	12.1	1261	**No.9**	13.5	1434	36,900		Compressed
HDY 124 XTP	**No.2**	5.4	1066	**No.2**	6.0	1212	38,900	1.140"	
	No.5	8.3	1166	**No.5**	9.2	1325	39,600		
	No.7	10.0	1161	**No.7**	11.0	1320	37,100		
	No.9	11.7	1220	**No.9**	13.0	1387	39,100		Compressed
SRA 130 FMJ	**No.2**	5.4	1037	**No.2**	6.0	1179	38,700	1.135"	
	No.5	7.9	1102	**No.5**	8.8	1253	38,300		
	No.7	9.4	1124	**No.7**	10.4	1278	39,300		
	No.9	10.8	1130	**No.9**	12.0	1285	35,900		Compressed
HDY 147 XTP	**No.2**	4.7	933	**No.2**	5.3	1061	39,800	1.140"	
	No.5	7.1	1019	**No.5**	7.9	1159	38,400		
	No.7	8.3	1020	**No.7**	9.2	1160	38,600		
	No.9	9.4	1018	**No.9**	10.5	1158	34,400		Compressed

.357 REMINGTON MAXIMUM

The .357 Maximum is a Ruger and Remington co-development, chambered initially in an enlarged Blackhawk revolver. This chambering is also available in the Dan Wesson revolver and the T/C Contender. The .357 Remington Maximum is a popular cartridge for IHMSA revolver class silhouette.



The .357 Maximum is a .357 Magnum case lengthened 0.315″.

The SAAMI Maximum Average Pressure for the .357 Remington Maximum is 48,000 C.U.P.

.357 REMINGTON MAXIMUM

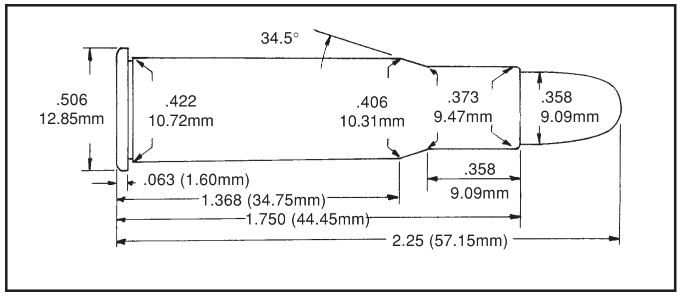
Gun	DOUGLAS	Max Length	1.605″
Barrel Length	14″	Trim Length	1.585″
Primer	CCI BR4	OAL Max	1.990″
Case	REM	OAL Min	1.940″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
210 (L) FNGC	**5744**	16.3	1335	**5744**	17.0	1518	45,300	1.965"	LY 358627
	1680	18.0	1451	**1680**	20.0	1649	42,200		
	2015	20.7	1374	**2015**	23.0	1561	38,700		Compressed
	2230	21.2	1265	**2230**	23.5	1438	39,800		Compressed
NOS 158 JHP	**5744**	18.9	1606	**5744**	21.0	1825	42,900	1.905"	
	1680	22.8	1758	**1680**	25.3	1998	38,300		
	2015	22.5	1356	**2015**	25.0	1541	22,200		Compressed
	2230	23.9	1390	**2230**	26.5	1580	29,200		Compressed
SRA 170 JHC	**5744**	18.0	1505	**5744**	20.0	1711	42,800	1.875"	
	1680	21.2	1727	**1680**	23.5	1962	38,400		
	2015	22.5	1364	**2015**	25.0	1550	24,800		Compressed
	2230	23.9	1362	**2230**	26.5	1548	31,600		Compressed
HDY 180 SSP *	**5744**	19.8	1567	**5744**	22.0	1781	44,100	2.190"	
	1680	23.9	1732	**1680**	26.5	1968	41,000		
	2015	22.5	1304	**2015**	25.0	1482	21,500		Compressed
	2230	24.3	1377	**2230**	27.0	1565	29,700		Compressed
SPR 200 TMJ	**5744**	16.2	1317	**5744**	18.0	1497	41,700	1.990"	
	1680	19.4	1474	**1680**	21.5	1675	41,900		
	2015	21.6	1347	**2015**	24.0	1531	35,500		Compressed
	2230	23.0	1284	**2230**	25.5	1459	41,300		Compressed

* T/C only

.357 HERRETT

The .357 Herrett was a joint effort of Steve Herrett and gun writer Bob Milek in an attempt to improve upon the performance of the .30 Herrett for big game hunting with a handgun.



The .357 Herrett is formed from .30-30 or .32 Winchester Special cases. Intended initially as a big game hunting cartridge for the T/C Contender, it developed a following among silhouette shooters.

In the hands of a skilled marksman the .357 Herrett is capable of taking most North American large game.

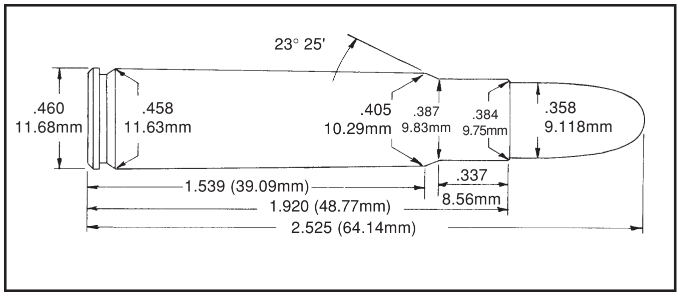
Based on the recommendations of Thompson/Center, the maximum loads listed below do not exceed 42,000 P.S.I.

.357 HERRETT

Gun	DOUGLAS	Max Length	1.750″
Barrel Length	14″	Trim Length	1.740″
Primer	CCI 300	OAL Max	2.250″
Case	REM	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
NOS 158 JHP	**1680**	30.6	1944	**1680**	34.0	2209	37,300	2.080″	Case Full
	2015	32.4	1837	**2015**	36.0	2087	35,900		Compressed
	2230	33.3	1741	**2230**	37.0	1978	35,100		Compressed
HDY 180 SSP	**5744**	23.8	1662	**5744**	26.5	1889	39,700	2.420"	
	1680	32.4	1945	**1680**	36.0	2210	41,100		
	2015	32.4	1730	**2015**	36.0	1966	31,700		Compressed
	2230	34.2	1692	**2230**	38.0	1923	32,400		Compressed
SRA 200 RN	**5744**	22.5	1539	**5744**	25.0	1749	39,000	2.310"	
	1680	30.6	1801	**1680**	34.0	2047	41,500		
	2015	31.5	1668	**2015**	35.0	1895	33,300		Compressed
	2230	34.2	1683	**2230**	38.0	1912	37,200		Compressed

.35 REMINGTON



The .35 Remington chambering in the XP-100 and T/C Contender is a favorite of both handgun hunters and the silhouette crowd.

The velocity loss in the 14″ barrel of the Contender, compared to a rifle, is not significant. Loading spitzer bullets for the T/C pistol will improve downrange ballistics. Accuracy of the Contender and XP-100 handgun is usually very good with both jacketed and cast bullets.

The SAAMI Maximum Average Pressure for the .35 Remington is 33,500 P.S.I.

.35 REMINGTON

Gun	T/C	Max Length	1.920″
Barrel Length	14″	Trim Length	1.900″
Primer	CCI 200	OAL Max	2.525″
Case	REM	OAL Min	2.460″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
200 (L) FNGC	**2015**	30.9	1529	**2015**	32.5	1627	30,800	2.410″	RCBS 35-200 FN
	2230	30.9	1560	**2230**	32.5	1660	29,700		
	2460	32.3	1604	**2460**	34.0	1706	30,300		
	2495	38.0	1700	**2495**	40.0	1809	24,000		
	2520	36.1	1763	**2520**	38.0	1875	30,900		
250 (L) SPGC	**2015**	25.7	1451	**2015**	27.0	1544	31,800	2.685″	* RCBS 35-250-SP
	2230	27.6	1543	**2230**	29.0	1641	33,500		
	2460	30.4	1614	**2460**	32.0	1717	32,200		
	2495	33.3	1595	**2495**	35.0	1697	26,100		
	2520	30.4	1550	**2520**	32.0	1649	30,700		
HDY 180 SSP	**2015**	33.7	1646	**2015**	35.5	1751	28,600	2.560″	*
	2230	33.7	1666	**2230**	35.5	1772	28,100		
	2460	34.2	1678	**2460**	36.0	1785	27,500		
	2495	38.0	1727	**2495**	40.0	1837	27,400		
	2520	36.1	1751	**2520**	38.0	1863	28,100		

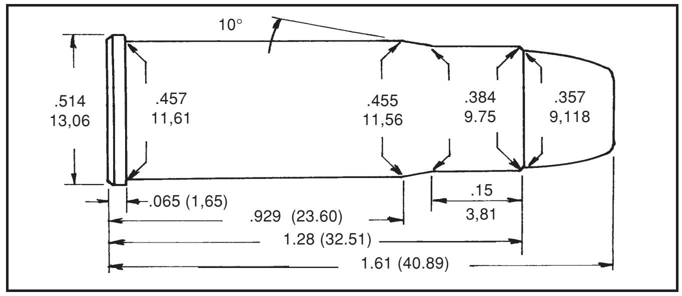
.35 REMINGTON (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 200 RN	**2015**	33.3	1663	**2015**	35.0	1769	31,000	2.470″	
	2230	33.3	1621	**2230**	35.0	1724	30,900		
	2460	35.2	1649	**2460**	37.0	1754	27,200		
	2495	38.0	1715	**2495**	40.0	1824	25,500		
	2520	37.1	1754	**2520**	39.0	1866	27,800		

* Over SAAMI MAX OAL

.357/44 BAIN & DAVIS

Developed in about 1964 by gunsmith Keith Davis, the .357/44 Bain & Davis was intended to be used in modified .44 Magnum revolvers in order to improve the velocity of 158 grain .357 caliber bullets compared to .357 Magnum performance. It also gave long barrel performance in a standard length barrel.



As implied by its name, the .357/44 Bain & Davis is made by necking down the .44 Magnum to .357″ without any other change. This is an easy cartridge to form and, for a time, was popular. The .357/44 Bain & Davis was also chambered in the T/C Contender.

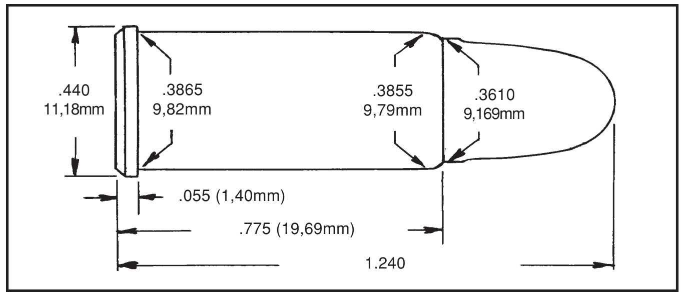
Based on the recommendations of Thompson/Center, the maximum loads listed below do not exceed 42,000 P.S.I.

.357/44 BAIN & DAVIS

Gun	DOUGLAS	Max Length	1.280″
Barrel Length	13˚″	Trim Length	1.270″
Primer	CCI 300	OAL Max	1.610″
Case	WW	OAL Min	--

	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	P.S.I.	Length	Comment
SPR 125 JHP	**No.7**	17.1	1843	**No.7**	19.0	2094	37,500	1.660″	
	No.9	19.8	1932	**No.9**	22.0	2196	39,700		
	1680	27.0	1867	**1680**	30.0	2122	21,900		Compressed
HDY 125 XTP	**No.7**	16.7	1800	**No.7**	18.5	2045	38,100	1.700″	
	No.9	19.4	1878	**No.9**	21.5	2134	40,600		
	1680	27.0	1835	**1680**	30.0	2085	24,000		Compressed
HDY 140 XTP	**No.9**	18.5	1733	**No.9**	20.5	1969	38,300	1.700″	
	1680	25.2	1676	**1680**	28.0	1905	22,500		Compressed
NOS 158 JHP	**No.9**	18.0	1651	**No.9**	20.0	1876	37,800	1.685″	
	1680	25.2	1672	**1680**	28.0	1900	30,300		Compressed
SRA 170 JHC	**No.9**	17.1	1544	**No.9**	19.0	1755	37,900	1.740″	
	1680	25.2	1617	**1680**	28.0	1838	31,000		Compressed

.38 SMITH & WESSON



The .38 S&W was developed in the late 1800s for use in Smith & Wesson's top-break revolvers. It was adapted as a British service load for the Webley revolver and called the .380/200. The British concluded that the shocking power of the 200 grain lead bullet loaded in this cartridge was of equal effectiveness as their older .45 caliber military cartridge. The U.S. Postal Service for many years used revolvers chambered for the .38 S&W cartridge for their security work.

The bore dimensions of handguns chambered for the .38 S&W tend to be somewhat larger than those in the .38 Special. For best results, the use of a cast bullet correctly fitted to the gun's cylinder and barrel dimensions is recommended.

The SAAMI Maximum Average Pressure for the .38 Smith & Wesson is 13,000 C.U.P.

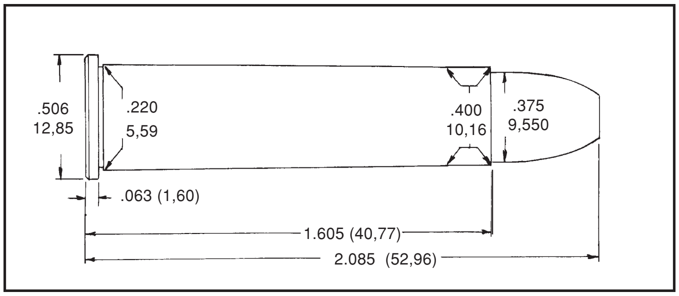
.38 SMITH & WESSON

Gun	OBERMEYER	Max Length	0.775″
Barrel Length	7˚″	Trim Length	0.755″
Primer	WSP	OAL Max	1.240″
Case	WW	OAL Min	1.160″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
158 (L) SWC	**N100**	2.1	635	**N100**	2.3	722	9,300	1.120″	CP Bullets
	No.2	2.5	664	**No.2**	2.8	754	10,700		
	No.5	3.3	675	**No.5**	3.7	767	10,100		
195 (L) RN	**No.2**	2.1	574	**No.2**	2.3	653	12,700	1.240"	Penny's
	No.5	2.7	539	**No.5**	3.0	613	10,600		

.375 SUPER MAG

Available in limited numbers from Dan Wesson and T/C, the .375 Super Mag is a .375 Winchester case shortened to fit the cylinder of a large frame Dan Wesson revolver.



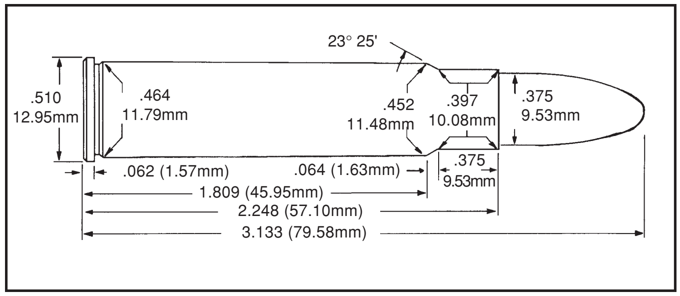
While developed primarily as a silhouette round, this cartridge is certainly capable of hunting big game.

Based on the recommendations of Thompson/Center, the maximum pressures of the loads shown below do not exceed those of the .44 Magnum.

.375 SUPER MAG			
Gun	DOUGLAS	Max Length	1.605″
Barrel Length	14″	Trim Length	1.585″
Primer	9˚	OAL Max	--
Case	WW	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SRA 200 FN	**No.7**	13.5	1304	**No.7**	15.0	1482	38,500	2.085″	
	No.9	16.7	1474	**No.9**	18.5	1675	39,000		
	1680	25.2	1585	**1680**	28.0	1801	37,600		Compressed
HDY 220 FN	**No.7**	12.6	1229	**No.7**	14.0	1397	38,500	2.090″	
	No.9	15.8	1388	**No.9**	17.5	1577	39,500		
	1680	22.5	1444	**1680**	25.0	1641	34,400		Case Full

.375 JDJ



The following information has been provided by the creator of this cartridge, J.D. Jones:

The .375 JDJ is "made by simply running a .444 case through the .375 JDJ full length sizing die, the .375 is exceptionally easy to make. It headspaces on the shoulder but will headspace off the rim, too. Full charge loads are loaded the first time around. No fireforming is necessary. Firing a full charge load in unfired brass is comparable to firing factory ammunition in anything.

"In loading this cartridge — and a lot of others for that matter — disregard the cannalure. Seat the 220s, 260s, 270s, and 285s with the base of the bullet seated to the end of the neck. Heavier bullets should be seated at least 0.025″ away from the lands.

"I've used this one on all huntable continents except South America which I intend to rectify in April of '94 on animals of practically all sizes and I have no intention of switching. When I'm serious about killing something big this is the one I take."

Editor's Note: The .375 JDJ has the distinction of being the cartridge that blew the outer framework off the gun port in our ballistic lab.

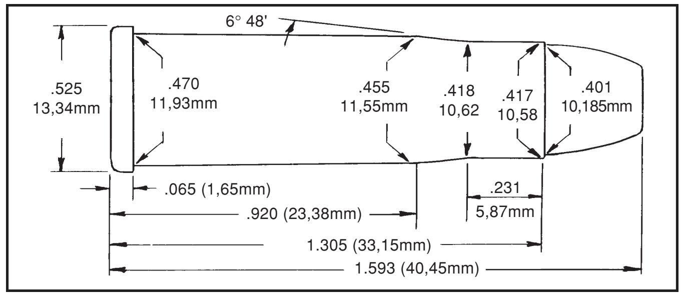
.375 JDJ

Gun	DOUGLAS	Max Length	2.248″
Barrel Length	14″	Trim Length	2.210″
Primer	FC 210	OAL Max	3.133″
Case	REM	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 200 FN	**2015**	43.2	1927	**2015**	48.0	2190	40,200	2.750″	
	2230	44.6	1898	**2230**	49.5	2157	40,200		
	2460	45.0	1912	**2460**	50.0	2173	40,600		
	2495	50.4	1901	**2495**	56.0	2160	36,500		Compressed
	2520	48.6	2009	**2520**	54.0	2283	41,800		
HDY 220 SP	**2015**	42.3	1881	**2015**	47.0	2138	41,900	2.755″	
	2230	43.2	1868	**2230**	48.0	2123	43,800		
	2460	43.2	1840	**2460**	48.0	2091	41,200		
	2495	46.8	1861	**2495**	52.0	2115	40,800		Compressed
	2520	48.6	1984	**2520**	54.0	2255	42,600		Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SPR 235 SP	**2015**	40.5	1763	**2015**	45.0	2003	38,200	2.960″	
	2230	43.2	1803	**2230**	48.0	2049	39,900		
	2460	43.2	1775	**2460**	48.0	2017	38,100		
	2495	45.9	1766	**2495**	51.0	2007	37,600		Case Full
	2520	45.9	1902	**2520**	51.0	2161	42,600		
BAR 250-X	**2015**	38.7	1734	**2015**	43.0	1971	40,800	3.050″	
	2230	38.7	1709	**2230**	43.0	1942	42,600		
	2460	39.6	1701	**2460**	44.0	1933	40,600		
	2495	39.6	1740	**2495**	44.0	1977	44,000		
	2520	43.2	1806	**2520**	48.0	2052	42,800		
HDY 270 SP	**2015**	38.7	1702	**2015**	43.0	1934	41,700	3.115″	
	2230	40.5	1722	**2230**	45.0	1957	43,500		
	2460	41.4	1740	**2460**	46.0	1977	44,200		
	2495	42.3	1699	**2495**	47.0	1931	42,400		
	2520	46.8	1844	**2520**	52.0	2096	45,100		

.38-40 WINCHESTER



Just as the .44-40 is not truly a .44 caliber, the .38-40 is not a .38 caliber cartridge. Originally introduced by Winchester in 1874, the .38-40 WCF is based on the .44-40 WCF case necked down to handle a .401" diameter bullet.

It was chambered in Winchester's Model 73 lever action rifle. Shortly thereafter Colt began chambering revolvers for it. Its popularity prompted other manufacturers to chamber rifles for it as well. At one time, Winchester produced a high pressure, high velocity loading for use in rifles only. This high pressure ammunition was not intended for use in revolvers.

As currently loaded by Winchester, the pressure and performance of this cartridge is quite moderate in deference to the older guns chambered for it.

This data was developed in a pressure barrel and then fired for velocity through a Ruger 6°″ barrel Blackhawk revolver.

The SAAMI Maximum Average Pressure for the .38-40 is 14,000 C.U.P.

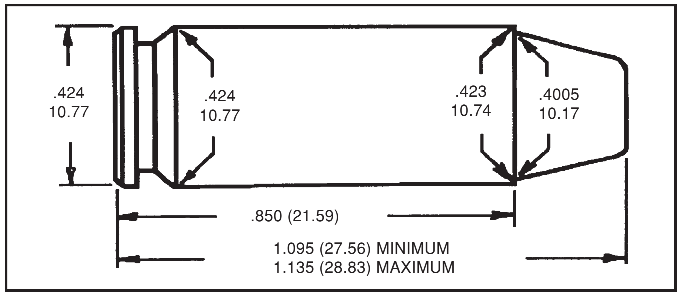
.38-40 WINCHESTER

Gun	RUGER	Max Length	1.305″
Barrel Length	6°″	Trim Length	1.285″
Primer	WLP	OAL Max	1.593″
Case	WW	OAL Min	1.560″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
145 (L) FP	**N100**	5.2	903	**N100**	5.8	1027	13,700	1.580″	Bull-X
	No.2	5.2	894	**No.2**	5.8	1016	13,200		
155 (L) RN	**5744**	14.8	891	**5744**	16.5	1013	12,700	1.585"	Penny's
165 (L) FP	**N100**	4.7	843	**N100**	5.2	959	13,700	1.580"	LY 40143
	No.2	4.9	832	**No.2**	5.4	946	13,500		Penny's
185 (L) FP-BB	**N100**	4.5	778	**N100**	5.0	885	13,000	1.580"	Colorado
	S1000	5.0	777	**S1000**	5.5	884	13,500		Cast Bullet
	No.2	4.5	766	**No.2**	5.0	871	13,400		
	5744	13.0	792	**5744**	14.5	900	11,900		
	1680	21.2	964	**1680**	23.5	1095	14,000		
	2015	22.5	821	**2015**	25.0	933	13,800		

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
200 (L) SWC	**N100**	4.3	735	**N100**	4.8	836	13,100	1.580"	Penny's
	No.2	4.3	717	**No.2**	4.8	815	12,800		
SRA 150 HP	**N100**	5.3	862	**N100**	5.9	980	13,600	1.575"	
	5744	15.7	914	**5744**	17.5	1039	13,200		
	1680	24.8	1096	**1680**	27.5	1246	13,200		
	2015	27.0	994	**2015**	30.0	1130	13,900		
SPR 180 HP	**N100**	4.6	734	**N100**	5.1	835	13,800	1.585"	
	5744	14.8	845	**5744**	16.5	961	13,700		
	1680	23.0	1052	**1680**	25.5	1196	14,000		
	2015	24.3	864	**2015**	27.0	982	14,000		

.40 SMITH & WESSON/.41 AE



Introduced in 1990, this cartridge was developed primarily for the law enforcement market. Guns chambered for the .40 S&W combine high-capacity magazines with acceptable stopping power. It is slightly less powerful than the 10mm Auto — which reduces the probability of over-penetration — but is considerably easier to control during rapid fire.

As a result of testing to optimize terminal ballistics on the 10mm Auto, the FBI adopted a reduced power loading. Smith & Wesson subsequently offered a cartridge with a similar power level chambered in a pistol with a high-capacity magazine.

In an amazingly short period, the .40 S&W has gained wide acceptance throughout the U.S. in the law enforcement field.

The .40 S&W is an easy cartridge to load and gives excellent performance with the complete line of Accurate's handgun propellants.

This data should also prove suitable for loading the **.41 Action Express**. The .41 Action Express has a rebated rim case permitting the owner of a 9mm handgun to change calibers by merely replacing the barrel and magazine. Its performance is nearly identical to that of the .40 S&W.

The SAAMI Maximum Average Pressure for the .40 S&W is 35,000 P.S.I.

.40 SMITH & WESSON / .41 AE

Gun	HS PRECISION	Max Length	0.850″
Barrel Length	4″	Trim Length	0.840″
Primer	CCI 500	OAL Max	1.135″
Case	HDY	OAL Min	1.095″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
145 (L) FN	**No.2**	5.9	1016	**No.2**	6.6	1155	33,400	1.115″	Bull-X
	No.5	7.2	1038	**No.5**	8.0	1179	34,900		
	No.7	9.0	1030	**No.7**	10.0	1171	33,700		
	No.9	10.8	988	**No.9**	12.0	1123	29,200		
155 (L) SWC	**No.2**	5.7	982	**No.2**	6.3	1116	34,100	1.130″	Master Cast
	No.5	6.8	1019	**No.5**	7.5	1158	35,000		Major
	No.7	8.7	1008	**No.7**	9.7	1146	34,600		Major
	No.9	10.8	1005	**No.9**	12.0	1142	32,100		Major

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
175 (L) SWC	**No.2**	4.8	858	**No.2**	5.3	975	34,200	1.115″	CP
	No.5	5.5	868	**No.5**	6.1	986	35,000		
	No.7	7.6	892	**No.7**	8.4	1014	35,000		Major
	No.9	9.2	878	**No.9**	10.2	998	34,900		
185 (L) FN	**No.2**	4.6	829	**No.2**	5.1	942	33,000	1.120″	Co. Custom
	No.5	5.4	858	**No.5**	6.0	975	35,000		Major
	No.7	7.4	871	**No.7**	8.2	990	35,000		Major
	No.9	8.7	841	**No.9**	9.7	956	33,500		
195 (L) FN	**No.2**	4.1	774	**No.2**	4.6	880	34,900	1.110″	Clements
	No.5	4.8	798	**No.5**	5.3	907	35,000		Major
	No.7	6.1	777	**No.7**	6.8	883	34,800		
	No.9	8.1	812	**No.9**	9.0	923	35,000		Major
205 (L) FN	**No.2**	3.9	737	**No.2**	4.3	838	32,400	1.110″	Clements
	No.5	4.5	736	**No.5**	5.0	836	32,600		
	No.7	5.9	744	**No.7**	6.6	845	33,700		
	No.9	7.8	774	**No.9**	8.7	880	35,000		Major
SFB 125 FP Frangible	**No.2**	5.1	1022	**No.2**	5.7	1162	34,700	1.160"	
	No.5	6.0	863	**No.5**	6.7	981	32,900		
	No.7	9.1	1041	**No.7**	10.1	1184	35,300		
SFB 130 SWC Frangible	**S1250**	4.7	949	**S1250**	5.2	1079	33,100	1.125"	
	No.2	4.3	887	**No.2**	4.8	1008	33,300		
	No.5	6.3	938	**No.5**	7.0	1066	33,900		
	No.7	8.3	939	**No.7**	9.2	1068	33,700		
NOS 135 JHP	**No.2**	6.8	1097	**No.2**	7.6	1247	34,700	1.125"	
	No.5	8.4	1114	**No.5**	9.3	1266	34,900		
	No.7	10.1	1089	**No.7**	11.2	1237	33,900		
	No.9		N/R	**No.9**		N/R			
NOS 150 JHP	**No.2**	6.3	1016	**No.2**	7.0	1155	34,200	1.120″	
	No.5	7.5	1030	**No.5**	8.3	1170	35,000		Major
	No.7	9.2	1000	**No.7**	10.2	1136	34,300		
	No.9		N/R	**No.9**		N/R			
RAN 155 FP	**No.2**	5.6	968	**No.2**	6.2	1100	35,000	1.125"	
	No.5	6.9	963	**No.5**	7.7	1095	32,100		
	No.7	9.3	998	**No.7**	10.3	1135	34,300		Major
	No.9	11.7	993	**No.9**	13.0	1129	28,700		Compressed
NOS 170 JHP	**No.2**	5.6	916	**No.2**	6.2	1041	35,000	1.125″	Major
	No.5	6.5	911	**No.5**	7.2	1035	34,000		Major
	No.7	8.4	923	**No.7**	9.3	1049	34,400		Major
	No.9	10.2	902	**No.9**	11.3	1025	30,800		Compressed
SPR 180 JHP	**No.2**	5.1	840	**No.2**	5.7	955	33,800	1.125″	
	No.5	6.3	873	**No.5**	7.0	992	35,000		Major
	No.7	7.9	866	**No.7**	8.8	984	34,400		Major
	No.9	9.9	875	**No.9**	11.0	994	32,100		Major

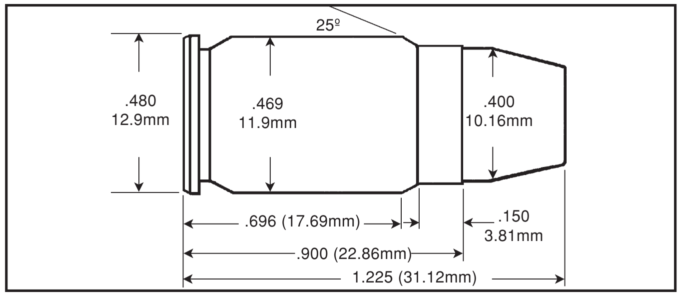
.40 SMITH & WESSON / .41 AE (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 180 XTP	**No.2**	5.0	851	**No.2**	5.6	967	35,000	1.135″	
	No.5	5.9	849	**No.5**	6.6	965	32,500		
	No.7	7.7	861	**No.7**	8.5	978	34,600		Major
	No.9	9.9	897	**No.9**	11.0	1019	35,000		Major
RAN 180 HP	**No.2**	4.3	794	**No.2**	4.8	903	33,400	1.125"	
	No.5	5.8	849	**No.5**	6.5	965	33,600		
	No.7	7.4	835	**No.7**	8.2	949	33,700		
	No.9	9.6	887	**No.9**	10.7	1008	34,500		Major
RAN 180 FP	**No.2**	4.5	836	**No.2**	5.0	950	35,000	1.120"	
	No.5	6.2	852	**No.5**	6.9	969	33,200		
	No.7	7.6	857	**No.7**	8.5	974	33,100		Major
	No.9	9.6	822	**No.9**	10.7	935	29,500		Compressed
SPR 190 TMJ	**No.2**	5.0	819	**No.2**	5.6	931	32,000	1.125″	Major
	No.5	6.0	828	**No.5**	6.7	950	35,000		Major
	No.7	7.7	848	**No.7**	8.6	964	34,300		Major
	No.9	9.9	877	**No.9**	11.0	997	32,700		Major
SPR 200 TMJ	**No.2**	4.9	791	**No.2**	5.4	899	34,800	1.135″	Major
	No.5	5.7	777	**No.5**	6.3	883	33,100		Major
	No.7	7.5	819	**No.7**	8.3	931	35,000		Major
	No.9	9.5	838	**No.9**	10.6	952	34,500		Major
HDY 200 XTP	**No.2**	4.2	717	**No.2**	4.7	815	33,500	1.130″	
	No.5	5.0	729	**No.5**	5.5	828	33,500		
	No.7	6.7	748	**No.7**	7.4	850	35,000		
	No.9	8.3	759	**No.9**	9.2	863	35,000		Good Load

.400 CORBON

The .400 Corbon was developed by necking a .45 ACP case down to .40 (10 mm). The .400 Corbon brass is available from Starline.

Maximum Average Pressures were based on the 10 mm Auto which are 37,500 P.S.I.



.400 CORBON

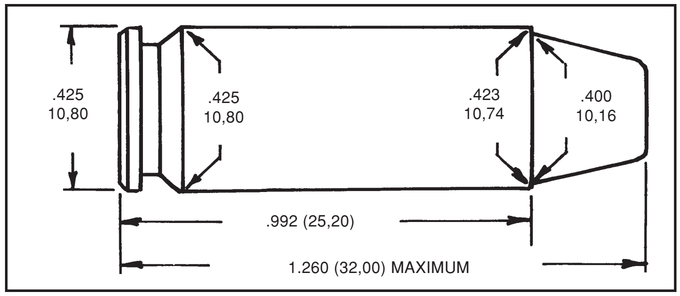
Gun	WISEMAN	Max Length	0.898″
Barrel Length	5″	Trim Length	0.878″
Primer	CCI 350	OAL Max	1.225″
Case	WIN	OAL Min	1.175″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
145 (L) FN	**No.2**	5.1	1009	**No.2**	5.7	1147	24,200	1.200″	Bull-X
	No.5	8.1	1017	**No.5**	9.0	1156	21,800		
	No.7	9.7	1037	**No.7**	10.8	1179	20,600		
	No.9	13.5	1220	**No.9**	15.0	1387	31,400		
165 (L) FN	**No.2**	5.5	1031	**No.2**	6.1	1172	33,500	1.200″	Penny's
	No.5	7.2	975	**No.5**	8.0	1109	23,200		
	No.7	8.9	988	**No.7**	9.9	1123	21,800		
	No.9	12.6	1136	**No.9**	14.0	1292	30,400		
170 (L) FN	**No.2**	5.6	1020	**No.2**	6.2	1160	33,200	1.200″	Clements
	No.5	7.0	938	**No.5**	7.8	1067	20,900		
	No.7	8.4	943	**No.7**	9.4	1072	19,800		
	No.9	12.2	1085	**No.9**	13.6	1233	27,200		
SRA 135 JHP	**No.2**	6.7	1180	**No.2**	7.5	1341	35,100	1.200″	
	No.5	10.5	1281	**No.5**	11.7	1456	33,800		
	No.7	12.1	1263	**No.7**	13.5	1436	33,600		
	No.9	14.6	1305	**No.9**	16.2	1484	33,800		
SRA 150 JHP	**No.2**	6.3	1094	**No.2**	7.0	1244	35,200	1.200″	
	No.5	9.9	1198	**No.5**	11.0	1362	34,100		
	No.7	11.2	1183	**No.7**	12.4	1345	33,700		
	No.9	13.7	1216	**No.9**	15.2	1382	32,300		
HDY 155 XTP	**No.2**	6.3	1068	**No.2**	7.0	1214	33,300	1.200″	
	No.5	9.9	1195	**No.5**	11.0	1359	35,100		
	No.7	11.1	1179	**No.7**	12.3	1340	34,900		
	No.9	13.5	1200	**No.9**	15.0	1364	33,200		

.400 CORBON (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 165 GD	**No.2**	6.0	992	**No.2**	6.7	1128	32,000	1.210″	
	No.5	9.4	1122	**No.5**	10.5	1275	34,100		
	No.7	10.6	1098	**No.7**	11.8	1248	33,400		
	No.9	13.2	1158	**No.9**	14.7	1316	33,900		

10mm AUTO



The 10mm Auto was introduced in 1983 along with the Bren Ten semi-automatic pistol by Dornaus and Dixon.

The ammunition was originally loaded by Norma using a 200 grain full metal jacketed bullet with a truncated cone shape. The Bren Ten pistol is now part of history; however, the 10mm Auto cartridge was too good to die and is now chambered by several manufacturers including Colt and Smith & Wesson.

The 10mm Auto provides a handgunner with the power of a .357 Magnum revolver with the increased magazine capacity and rapid reload capability of an automatic pistol.

The SAAMI Maximum Average Pressure for the 10mm Auto is 37,500 P.S.I.

10mm AUTO

Gun	HS PRECISION	Max Length	0.992″
Barrel Length	5″	Trim Length	0.984″
Primer	CCI 300	OAL Max	1.260″
Case	HDY	OAL Min	1.240″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
145 (L) FN	**No.2**	6.8	1138	**No.2**	7.5	1293	32,200	1.250″	Bull-X
	No.5	8.7	1190	**No.5**	9.7	1352	33,400		
	No.7	10.8	1203	**No.7**	12.0	1367	33,700		
	No.9	13.5	1251	**No.9**	15.0	1422	32,500		
165 (L) SWC	**No.2**	6.4	1082	**No.2**	7.1	1230	36,000	1.250″	Clements
	No.5	7.8	1085	**No.5**	8.7	1233	31,800		
	No.7	9.9	1120	**No.7**	11.0	1273	35,500		
	No.9	12.6	1174	**No.9**	14.0	1334	32,900		
175 (L) SWC	**No.2**	6.0	1027	**No.2**	6.7	1167	35,300	1.245″	CP
	No.5	7.5	1026	**No.5**	8.3	1166	31,500		
	No.7	9.4	1055	**No.7**	10.4	1199	35,200		
	No.9	12.2	1131	**No.9**	13.6	1285	34,900		
185 (L) FN	**No.2**	5.9	1000	**No.2**	6.6	1136	35,900	1.245″	Co. Custom
	No.5	7.5	1030	**No.5**	8.3	1171	35,800		
	No.7	9.2	1032	**No.7**	10.2	1173	34,500		
	No.9	11.7	1098	**No.9**	13.0	1248	34,700		

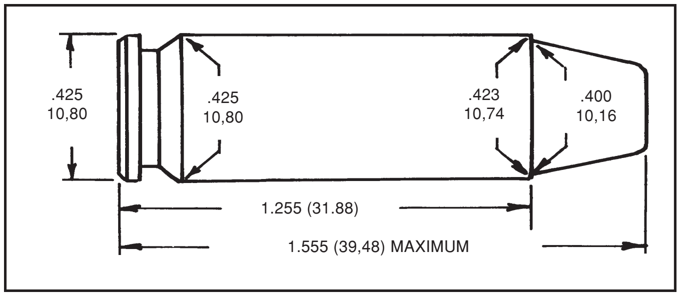
10mm AUTO (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
195 (L) FN	**No.2**	5.2	928	**No.2**	5.8	1055	35,500	1.245″	Clements
	No.5	6.6	965	**No.5**	7.3	1097	34,900		
	No.7	8.6	998	**No.7**	9.5	1134	35,400		
	No.9	10.7	1050	**No.9**	11.9	1193	35,600		
205 (L) FN	**No.2**	4.7	862	**No.2**	5.2	979	33,800	1.250″	Clements
	No.5	6.3	935	**No.5**	7.0	1063	35,700		
	No.7	8.4	960	**No.7**	9.3	1091	35,900		
	No.9	10.6	1018	**No.9**	11.8	1157	36,200		
NOS 135 JHP	**No.2**	8.2	1271	**No.2**	9.1	1444	36,300	1.250″	
	No.5	10.3	1323	**No.5**	11.4	1503	36,900		
	No.7	12.2	1299	**No.7**	13.6	1476	34,900		
	No.9	15.8	1326	**No.9**	17.5	1507	29,200		
NOS 150 JHP	**No.2**	7.6	1182	**No.2**	8.4	1343	36,700	1.245″	
	No.5	9.5	1229	**No.5**	10.6	1397	36,900		
	No.7	11.7	1236	**No.7**	13.0	1405	36,400		
	No.9	15.0	1284	**No.9**	16.7	1459	33,000		
HDY 155 JHP	**No.2**	7.2	1140	**No.2**	8.0	1296	35,700	1.250″	
	No.5	9.0	1174	**No.5**	10.0	1334	35,300		
	No.7	11.4	1214	**No.7**	12.7	1379	37,500		
	No.9	14.3	1244	**No.9**	15.9	1414	32,700		
RAN 155 FP	**No.2**	6.1	1087	**No.2**	6.8	1236	36,200	1.260″	
	No.5	8.9	1151	**No.5**	9.9	1309	34,300		
	No.7	11.2	1173	**No.7**	12.4	1333	34,500		
	No.9	13.5	1206	**No.9**	15.0	1371	35,000		
NOS 170 HP	**No.2**	6.9	1074	**No.2**	7.7	1220	36,400	1.250″	
	No.5	8.7	1122	**No.5**	9.7	1275	36,200		
	No.7	10.8	1148	**No.7**	12.0	1305	37,500		
	No.9	13.5	1180	**No.9**	15.0	1341	34,100		
SPR 180 JHP	**No.2**	6.7	1037	**No.2**	7.4	1178	36,700	1.250″	
	No.5	8.3	1069	**No.5**	9.2	1215	37,000		
	No.7	10.3	1084	**No.7**	11.4	1232	36,600		
	No.9	13.1	1135	**No.9**	14.5	1290	32,600		
HDY 180 XTP	**No.2**	6.1	986	**No.2**	6.8	1120	34,300	1.250″	
	No.5	7.8	1053	**No.5**	8.7	1197	36,800		
	No.7	9.6	1041	**No.7**	10.7	1183	35,300		
	No.9	12.2	1093	**No.9**	13.5	1242	34,100		
RAN 180 HP	**No.2**	5.3	947	**No.2**	5.9	1077	35,400	1.260″	
	No.5	7.9	1037	**No.5**	8.8	1179	36,300		
	No.7	9.9	1051	**No.7**	11.0	1195	36,200		
	No.9	12.1	1086	**No.9**	13.5	1235	35,500		
RAN 180 FP	**No.2**	5.5	967	**No.2**	6.1	1099	36,400	1.260″	
	No.5	7.9	1025	**No.5**	8.8	1165	33,700		
	No.7	9.9	1041	**No.7**	11.0	1184	34,000		
	No.9	12.1	1087	**No.9**	13.5	1236	34,200		

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SPR 190 TMJ	**No.2**	6.5	991	**No.2**	7.2	1126	34,400	1.250″	
	No.5	8.2	1044	**No.5**	9.1	1186	36,800		
	No.7	10.1	1054	**No.7**	11.2	1198	36,000		
	No.9	12.8	1115	**No.9**	14.2	1267	35,800		
SPR 200 TMJ	**No.2**	6.3	959	**No.2**	7.0	1090	37,500	1.250″	
	No.5	7.8	1003	**No.5**	8.7	1140	37,100		
	No.7	9.6	1007	**No.7**	10.7	1144	36,200		
	No.9	12.2	1056	**No.9**	13.5	1200	36,300		
HDY 200 XTP	**No.2**	5.7	916	**No.2**	6.3	1041	36,700	1.250″	
	No.5	7.0	938	**No.5**	7.8	1066	35,100		
	No.7	8.8	960	**No.7**	9.8	1091	36,500		
	No.9	11.3	1030	**No.9**	12.5	1170	37,000		

10mm MAGNUM

This proprietary cartridge was developed for Irwindale Arms, Inc. for use in their auto loading pistol.



The 10mm Magnum could be thought of as a rimless .401 Power Mag, if anyone should happen to remember Herter's proprietary revolver and cartridge. Both cartridges approximate the .41 Magnum in power.

This cartridge is a lengthened 10mm Auto and is loaded to pressure levels similar to the .44 Magnum for use in the IAI handguns.

10mm MAGNUM

Gun	IAI	Max Length	1.255″
Barrel Length	8″	Trim Length	1.245″
Primer	CCI 300	OAL Max	1.555″
Case	STARLINE	OAL Min	1.500″

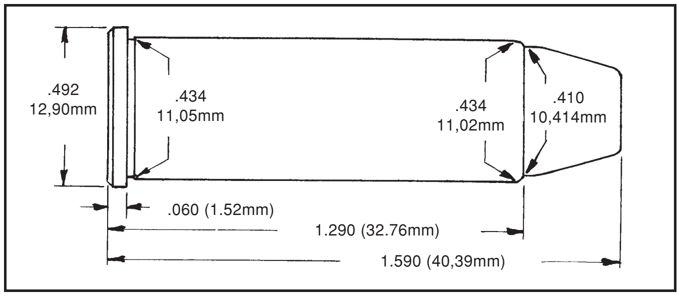
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
165 (L) SWC	**No.7**	13.0	1305	**No.7**	14.4	1483	31,400	1.520″	Clements
	No.9	15.1	1356	**No.9**	16.8	1541	30,700		
175 (L) SWC	**No.7**	12.4	1266	**No.7**	13.8	1439	32,100	1.520″	CP
	No.9	14.1	1285	**No.9**	15.7	1460	31,600		
185 (L) FPBB	**No.7**	11.9	1213	**No.7**	13.2	1378	31,400	1.520″	Co. Custom
	No.9	13.5	1231	**No.9**	15.0	1399	30,000		
195 (L) FN	**No.7**	11.5	1199	**No.7**	12.8	1363	31,500	1.500″	Clements
	No.9	12.9	1193	**No.9**	14.3	1356	30,300		
NOS 135 JHP	**No.7**	15.0	1494	**No.7**	16.7	1698	37,200	1.550″	
	No.9	17.8	1551	**No.9**	19.8	1763	36,800		
NOS 150 JHP	**No.7**	14.2	1358	**No.7**	15.8	1543	37,300	1.550″	
	No.9	16.7	1443	**No.9**	18.6	1640	36,300		
HDY 155 JHP	**No.7**	14.0	1371	**No.7**	15.5	1558	36,000	1.555″	
	No.9	16.2	1385	**No.9**	18.0	1574	36,700		
NOS 170 JHP	**No.7**	13.1	1271	**No.7**	14.5	1444	36,100	1.555″	
	No.9	15.3	1324	**No.9**	17.0	1505	35,800		

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SPR 180 JHP	**No.7**	13.2	1243	**No.7**	14.7	1412	37,600	1.550″	
	No.9	14.9	1280	**No.9**	16.6	1455	38,500		
SRA 190 FPJ	**No.7**	12.8	1206	**No.7**	14.2	1370	39,000	1.550″	
	No.9	14.7	1265	**No.9**	16.3	1438	36,100		
SPR 200 TMJ	**No.7**	12.4	1144	**No.7**	13.8	1300	37,600	1.550″	
	No.9	14.1	1222	**No.9**	15.7	1389	35,200		

LOAD FOR IAI GUNS ONLY

NOS 135 JHP	**No.9**	20.3	1672	**No.9**	22.5	1900	42,100	1.550″	
NOS 150 JHP	**No.9**	18.9	1558	**No.9**	21.0	1770	42,600	1.550″	
HDY 155 JHP	**No.9**	18.2	1507	**No.9**	20.2	1712	40,000	1.555″	
NOS 170 JHP	**No.9**	17.3	1421	**No.9**	19.2	1615	43,200	1.555″	
SPR 180 JHP	**No.9**	15.8	1323	**No.9**	17.5	1503	42,000	1.555″	
SRA 190 FPJ	**No.9**	15.8	1291	**No.9**	17.5	1467	40,500	1.550″	
SPR 200 TMJ	**No.9**	15.3	1260	**No.9**	17.0	1432	41,500	1.550″	

.41 REMINGTON MAGNUM



The .41 Remington Magnum was introduced in June of 1964 in the new S&W Model 57 revolver. No doubt the individuals most deserving of credit for the origination of this round are Elmer Keith and Bill Jordan.

The original intent of the .41 Magnum was to produce a cartridge for police use that was more effective than the .357 Magnum but not as powerful as the bruising .44 Magnum.

At the time of its introduction, both the police load and a more powerful hunting round were available. The .41 Magnum developed a small, but loyal, following. It's still in production but has not been an overwhelming success. At times both handguns and components chambered for the .41 Magnum are hard to come by. The .41 Magnum is basically the equal of the more popular .44 Magnum (in both accuracy and effectiveness in the field).

The SAAMI Maximum Average Pressure for the .41 Remington Magnum is 40,000 C.U.P, the same as the .44 Remington Magnum.

.41 REMINGTON MAGNUM

Gun	WILSON	Max Length	1.290″
Barrel Length	9½″	Trim Length	1.270″
Primer	CCI 300	OAL Max	1.590″
Case	WW	OAL Min	1.540″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
210 (L) SWC	**No.2**	8.3	1157	**No.2**	9.2	1315	40,000	1.675″	LY410459
	No.5	11.3	1264	**No.5**	12.5	1436	36,700		*
	No.7	13.1	1269	**No.7**	14.5	1442	37,000		
	No.9	16.2	1392	**No.9**	18.0	1582	38,600		Penny's
	5744	19.3	1259	**5744**	21.5	1431	38,000		
240 (L) RN	**No.2**	7.4	1047	**No.2**	8.2	1190	39,700	1.710″	LY410426
	No.5	10.8	1194	**No.5**	12.0	1357	40,000		*
	No.7	12.6	1197	**No.7**	14.0	1360	37,800		Penny's
	No.9	15.5	1305	**No.9**	17.2	1483	39,300		
	5744	18.0	1173	**5744**	20.0	1334	38,100		
290 (L) FN	**No.7**	10.0	1017	**No.7**	11.2	1156	38,500	1.710"	NEI-SSK
	No.9	12.1	1071	**No.9**	13.5	1218	38,900		*
	5744	13.9	972	**5744**	15.5	1105	35,800		Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SRA 170 JHP	**No.2**	9.0	1277	**No.2**	10.0	1451	39,600	1.565″	
	No.5	10.8	1314	**No.5**	12.0	1493	37,900		
	No.7	14.0	1368	**No.7**	15.5	1555	37,000		
	No.9	17.7	1500	**No.9**	19.7	1705	37,800		
	5744	21.6	1387	**5744**	24.0	1577	40,000		
HDY 210 XTP	**No.2**	8.6	1096	**No.2**	9.5	1245	40,000	1.570″	
	No.5	10.4	1163	**No.5**	11.5	1322	39,200		
	No.7	12.8	1214	**No.7**	14.2	1379	39,600		
	No.9	16.2	1338	**No.9**	18.0	1521	40,000		
	5744	18.4	1166	**5744**	20.5	1326	36,800		
SRA 220 SIL-FPJ	**No.2**	8.3	1081	**No.2**	9.2	1228	40,000	1.560″	
	No.5	10.4	1153	**No.5**	11.5	1310	39,400		
	No.7	12.8	1200	**No.7**	14.2	1364	39,400		
	No.9	16.2	1316	**No.9**	18.0	1496	37,700		
	5744	18.0	1153	**5744**	20.0	1311	37,700		
RAN 220 FP	**No.2**	7.4	1060	**No.2**	8.2	1205	38,700	1.590″	
	No.5	10.3	1188	**No.5**	11.5	1350	40,000		
	No.7	12.9	1236	**No.7**	14.3	1405	38,300		
	No.9	15.6	1305	**No.9**	17.3	1483	38,800		

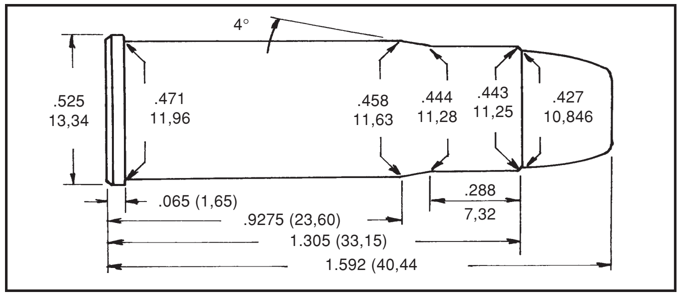
* Over SAAMI MAX OAL

DESERT EAGLE

HDY 210 XTP	**No.9**	16.2	1204	**No.9**	18.0	1295	40,000	1.560″	
SRA 220 SIL-FPJ	**No.9**	16.2	1176	**No.9**	18.0	1288	37,700	1.560″	

.44-40 WINCHESTER

Introduced by Winchester as the original cartridge for their famous Model 1873 lever action repeating rifle, Colt began chambering their Peacemaker revolver for this cartridge shortly there-after.



This was the beginning of American's love affair with rifle/handgun combinations chambered for the same cartridge. The logistical advantages of this was of paramount importance to settlers on the American Frontier and the blackpowder .44-40 Winchester was considered a very effective cartridge in either rifle or revolver for its time. It was probably the favorite cartridge of the Old West.

The SAAMI Maximum Average Pressure for the .44-40 Winchester is 13,000 C.U.P. The loads shown here were the minimum charge weights that would rupture the case wall for pressure readings. These loads duplicate factory performance and should be used as is.

.44-40 WINCHESTER

Gun	DOUGLAS	Max Length	1.305″
Barrel Length	7½″	Trim Length	1.285″
Primer	CCI 300	OAL Max	1.592″
Case	REM	OAL Min	1.540″

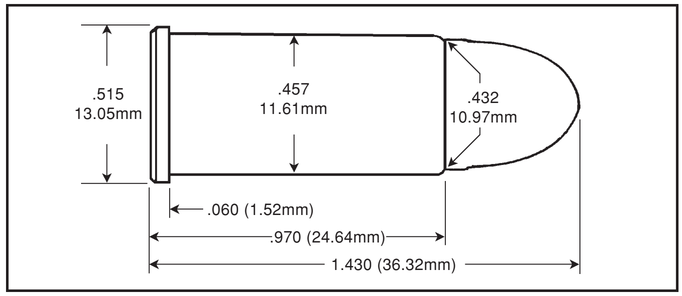
Bullet	LOADING DATA Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
190 (L) WC	**N100**	4.6	861	12,700	1.390"	Penny's
	S1000	4.9	860	12,400		
	No.2	5.2	891	14,500		
	No.5	8.5	950	12,700		
200 (L) FN	**N100**	5.3	954	13,700	1.575″	LY42798
	S1000	5.7	929	13,200		
	No.2	6.3	961	13,900		Penny's
	No.5	9.2	983	12,200		
215 (L) FN	**N100**	5.2	874	13,200	1.560″	LY429434
	S1000	5.7	877	13,400		
	No.2	5.5	846	11,300		Penny's
	No.5	8.8	949	12,800		
HDY 180 JHP	**N100**	6.0	860	12,600	1.510″	
	S1000	6.5	850	12,700		
	No.2	6.7	890	11,800		
	No.5	10.5	989	11,700		

Bullet	LOADING DATA Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
NOS 200 JHP	**N100**	5.5	832	12,500	1.600″	*
	S1000	6.0	818	12,900		
	No.2	6.0	826	11,600		
	No.5	10.0	1010	13,300		

* Over SAAMI MAX OAL

NOTE: DO NOT REDUCE THESE LOADS, USE AS IS.

.44 RUSSIAN



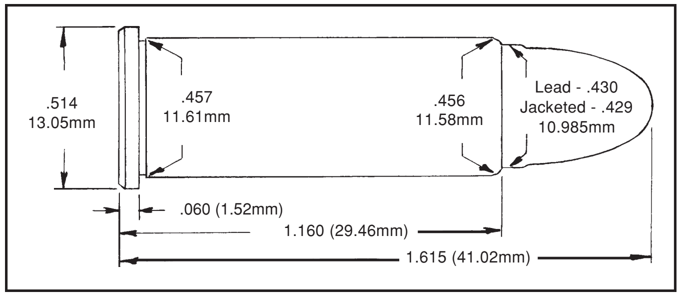
The following loading data has been developed so as to not exceed the pressures of the .44 Smith & Wesson Special. Use of this data must be restricted to those firearms which have been deemed safe for use with smokeless powder by a competent gunsmith. We anticipate the primary use of this load data will be by Cowboy Action shooters who will use .44 Russian brass and loads in order to produce low velocity/recoil loads in competition using modern firearms.

.44 RUSSIAN

Gun	DOUGLAS	Max Length	0.970"
Barrel Length	7½"	Trim Length	0.950"
Primer	CCI 300	OAL Max	1.430"
Case	STARLINE	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
200 (L) FN	**N100**	3.6	768	**N100**	4.0	873	11.700	1.240″	Clements
	S1000	4.1	812	**S1000**	4.6	923	12,900		
	No.2	4.3	826	**No.2**	4.8	939	13,600		
	No.5	6.7	806	**No.5**	7.5	917	12,000		
	5744	12.7	808	**5744**	13.0	919	11,100		
240 (L) SWC	**N100**	3.0	676	**N100**	3.3	769	11,400	1.280″	Bull-X
	S1000	3.3	687	**S1000**	3.7	781	11,000		
	No.2	3.8	725	**No.2**	4.2	824	12,800		
	No.5	5.9	716	**No.5**	6.6	814	11,200		
	5744	10.3	725	**5744**	11.5	824	10,900		

.44 SMITH & WESSON SPECIAL



The .44 S&W Special was based on the .44 Russian cartridge case, lengthened by 0.200″. The .44 Special was for many years considered our most accurate big bore revolver cartridge.

It was a favorite of handgunners such as Elmer Keith who developed the .44 Special into a big game handgun cartridge without peer until the advent of the .44 Remington Magnum.

With the introduction of the .44 Remington Magnum, there is no longer any justification to "overload" the .44 Special for hunting purposes. While the newly manufactured Smith & Wesson revolvers and some of the earlier large frame handguns would tolerate these heavy loads, there are many guns still in service which will not. Shooting high pressure loads in .44 Special revolvers is an unacceptable risk. The .44 S&W Special gives excellent results with cast bullets.

The SAAMI Maximum Average Pressure for the .44 S&W Special is 14,000 C.U.P.

.44 SMITH & WESSON SPECIAL

Gun	DOUGLAS	Max Length	1.160″
Barrel Length	7½″	Trim Length	1.140″
Primer	CCI 300	OAL Max	1.615″
Case	MIDWAY	OAL Min	1.560″

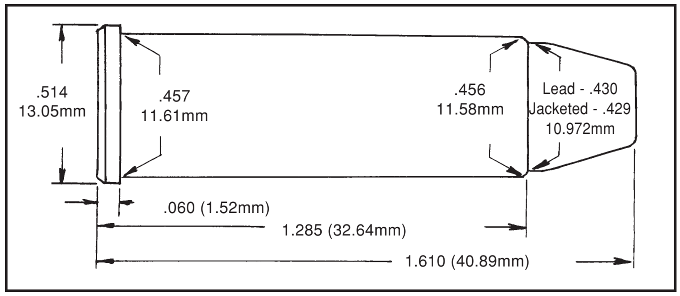
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
190 (L) WC	**N100**	3.3	724	**N100**	3.7	823	12,800	1.265"	NBC
	S1000	4.0	740	**S1000**	4.4	842	12,700		
	No.2	3.6	735	**No.2**	4.0	836	12,800		
	No.5	6.1	766	**No.5**	6.7	871	13,200		
200 (L) SWC	**N100**	3.7	762	**N100**	4.1	867	11,100	1.465″	Rucker
	S1000	3.9	715	**S1000**	4.3	813	9,400		
	No.2	4.7	827	**No.2**	5.2	905	14,000		
	No.5	6.4	876	**No.5**	7.4	959	14,000		
	No.7	8.6	873	**No.7**	9.5	992	14,000		
	No.9	10.4	898	**No.9**	11.5	1020	13,900		
215 (L) SWC	**N100**	4.3	780	**N100**	4.8	890	14,000	1.535″	LY429215
	No.2	4.8	790	**No.2**	5.3	900	14,000		Penny's
	No.5	7.0	844	**No.5**	7.8	959	14,000		
	No.7	8.6	839	**No.7**	9.5	953	14,000		
	No.9	10.3	869	**No.9**	11.4	988	13,800		

.44 SMITH & WESSON SPECIAL (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
245 (L) RN	**N100**	3.4	661	**N100**	3.8	752	14,100	1.600″	LY429383
	S1000	4.0	696	**S1000**	4.5	791	14,000		
	No.2	4.2	721	**No.2**	4.7	819	14,000		Penny’s
	No.5	6.1	757	**No.5**	6.8	860	14,000		
	No.7	7.8	792	**No.7**	8.7	900	14,000		
	No.9	19.7	818	**No.9**	10.8	930	14,000		
250 (L) SWC	**N100**	3.8	679	**N100**	4.2	772	14,000	1.575″	LY429421
	S1000	3.9	661	**S1000**	4.3	751	14,000		
	No.2	4.5	711	**No.2**	5.0	808	13,900		
	No.5	6.3	760	**No.5**	7.0	864	14,000		
	No.7	8.1	779	**No.7**	9.0	885	14,000		
	No.9	10.4	832	**No.9**	11.5	946	14,000		
	5744	11.9	692	**5744**	12.5	737	12,600		
HDY 180 JHP	**N100**	4.6	807	**N100**	5.2	920	14,000	1.485″	Good Load
	No.2	5.3	802	**No.2**	5.9	911	14,000		
	No.5	7.8	878	**No.5**	8.7	1000	14,000		
	No.7	9.9	880	**No.7**	10.5	1000	14,000		
	No.9		N/R	**No.9**		N/R			
NOS 200 JHP	**S1000**	4.4	687	**S1000**	4.6	731	12,200	1.490"	
	No.2	4.9	708	**No.2**	5.4	805	14,000		
	No.5	7.2	766	**No.5**	8.0	871	13,000		
	No.7	9.0	825	**No.7**	10.0	938	13,800		
	No.9		N/R	**No.9**		N/R			
IMI 240 JSP	**S1000**	3.6	516	**S1000**	4.0	587	14,100	1.485"	
	No.2	4.1	532	**No.2**	4.5	604	13,900		
	No.5	5.8	640	**No.5**	6.5	730	14,000		
	No.7	7.2	689	**No.7**	8.0	745	14,000		
	No.9		N/R	**No.9**		N/R			
Shot Capsules* 145 SC	**No.5**	7.4	926	**No.5**	8.2	1053	12,200	1.510"	

* Shot capsules using 145 grains of #9 shot.

.44 REMINGTON MAGNUM



The .44 Remington Magnum was developed in a joint effort by S&W and Remington in 1955 for a new heavy-framed .44 Magnum revolver now known as the Model 29.

A small but vocal group of handgun hunters led by Elmer Keith successfully lobbied the arms makers into producing this cartridge.

For many years the .44 Magnum was the world's most powerful commercial handgun cartridge. It has enjoyed a reputation for superb accuracy. With full power loads, however, this accuracy potential can only be realized by an expert handgunner due to the substantial recoil.

In the hands of a skilled hunter, the .44 Magnum is considered adequate for all North American big game, under ideal conditions.

The .44 Magnum is very flexible in that it can be loaded down to the velocity levels of the .44 Special while maintaining excellent accuracy. Cast bullet handloads give excellent results in the .44 Magnum.

Please note that several of the heavier bullets are over the maximum SAAMI OAL. These loads will fit the cylinders of both Smith & Wesson and Ruger revolvers.

The SAAMI Maximum Average Pressure for the .44 Magnum is 40,000 C.U.P.

.44 REMINGTON MAGNUM

Gun	RUGER REDHAWK	Max Length	1.285″
Barrel Length	7½″	Trim Length	1.265″
Primer	CCI 300	OAL Max	1.610″
Case	WW	OAL Min	1.535″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
215 (L) SWC	**No.2**	9.2	1155	**No.2**	10.2	1313	39,300	1.560″	Penny's
	No.5	13.3	1293	**No.5**	14.8	1469	38,900		
	No.7	16.5	1336	**No.7**	18.3	1518	40,000		
	No.9	21.2	1456	**No.9**	23.6	1655	40,000		

.44 REMINGTON MAGNUM (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
240 (L) SWC **	**No.2**	9.0	1126	**No.2**	10.0	1280	40,000	1.560″	Bull-X
	No.5	12.6	1235	**No.5**	14.0	1400	40,000		
	No.7	15.8	1283	**No.7**	17.5	1458	39,700		
	No.9	19.5	1364	**No.9**	21.7	1550	39,600		
	5744	21.6	1272	**5744**	24.0	1446	34,500		Compressed
280 (L) SWC	**No.2**	8.6	1002	**No.2**	9.5	1139	36,500	1.695″	* American
	No.5	10.6	1013	**No.5**	11.8	1151	29,400		
	No.7	14.0	1137	**No.7**	15.5	1277	34,800		
	No.9	17.1	1202	**No.9**	19.0	1350	40,000		
300 (L) SSK	**No.2**	8.6	1001	**No.2**	9.5	1138	38,800	1.720″	* Penny's
	No.5	10.4	1003	**No.5**	11.6	1140	32,300		
	No.7	13.5	1100	**No.7**	15.0	1245	34,000		
	No.9	16.6	1175	**No.9**	18.5	1320	40,000		
325 (L) SWC	**No.2**	8.5	982	**No.2**	9.5	1116	36,100	1.665"	LY 429650
	No.5	10.3	1041	**No.5**	11.5	1183	37,400		
	No.7	13.5	1123	**No.7**	15.0	1277	39,900		
	No.9	15.7	1163	**No.9**	17.5	1322	39,800		
	5744	16.2	952	**5744**	18.0	1082	27,800		Compressed
355 (L) FN	**No.2**	8.5	925	**No.2**	9.5	1052	38,800	1.715"	LY 429649
	No.5	10.3	970	**No.5**	11.5	1103	39,000		
	No.7	13.0	1041	**No.7**	14.5	1184	40,000		
	No.9	14.4	1060	**No.9**	16.0	1205	37,700		
	1680	18.0	911	**1680**	20.0	1036	20,900		Compressed
HDY 180 JHP	**No.2**	10.0	1271	**No.2**	11.1	1444	36,500	1.560″	
	No.5	14.8	1421	**No.5**	16.4	1615	38,100		
	No.7	18.5	1502	**No.7**	20.5	1707	40,000		
NOS 200 JHP	**No.2**	9.9	1181	**No.2**	11.0	1342	39,500	1.595″	
	No.5	14.2	1348	**No.5**	15.8	1532	40,000		
	No.7	16.8	1353	**No.7**	18.7	1538	37,500		
	No.9	22.5	1475	**No.9**	25.0	1676	37,800		
HDY 240 XTP	**5744**	21.6	1243	**5744**	24.0	1413	35,000	1.580"	Compressed
IMI 240 JHP	**No.2**	9.0	1100	**No.2**	10.0	1250	38,600	1.560″	
	No.5	13.0	1217	**No.5**	14.4	1383	39,800		
	No.7	15.6	1245	**No.7**	17.3	1415	40,000		
	No.9	19.1	1320	**No.9**	21.3	1500	40,000		
	5744	22.5	1349	**5744**	25.0	1534	39,900		
RAN 240 FP	**No.2**	9.3	1110	**No.2**	10.3	1262	36,000	1.575"	
	No.5	12.6	1205	**No.5**	14.0	1370	38,900		
	No.7	15.0	1264	**No.7**	16.8	1437	37,300		
	No.9	18.0	1326	**No.9**	20.0	1507	40,000		
RAN 240 HP	**No.2**	9.0	1106	**No.2**	10.0	1257	35,600	1.600"	
	No.5	12.6	1214	**No.5**	13.0	1380	37,400		
	No.7	15.0	1249	**No.7**	16.8	1420	37,400		
	No.9	18.3	1321	**No.9**	20.3	1502	39,700		

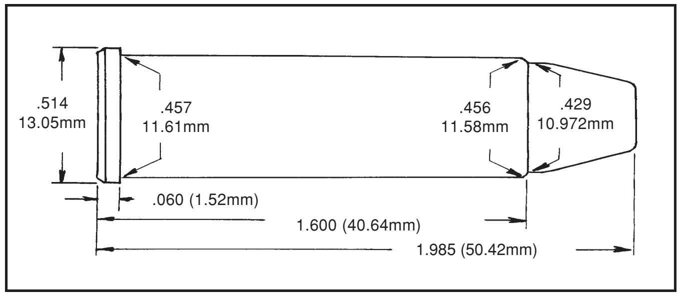
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SRA 250 FPJ	**No.2**	9.5	1083	**No.2**	10.5	1231	38,400	1.600″	
	No.5	13.1	1198	**No.5**	14.5	1361	39,700		
	No.7	15.3	1170	**No.7**	17.0	1330	37,700		
	No.9	18.9	1275	**No.9**	21.0	1449	39,200		
SRA 300 JSP	**No.2**	8.7	933	**No.2**	9.7	1060	38,700	1.735″	
	No.5	12.6	1080	**No.5**	14.0	1227	40,000		
	No.7	14.6	1074	**No.7**	16.2	1221	40,000		
	No.9	17.1	1106	**No.9**	19.0	1257	40,000		
HDY 300 XTP	**No.2**	8.8	975	**No.2**	9.8	1108	39,400	1.595″	
	No.5	11.7	1074	**No.5**	13.0	1220	39,000		
	No.7	13.1	1047	**No.7**	14.5	1190	38,000		
	No. 9	15.9	1121	**No. 9**	17.7	1274	38,320		
	5744	18.0	1048	**5744**	20.0	1191	31,400		Compressed
Shot Capsules ** 145 SC	**No.5**	9.0	1063	**No.5**	10.0	1208	14,300	1.570"	

* Over SAAMI MAX OAL
** Shot capsules using 145 grains of #9 shot.

DESERT EAGLE

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
IMI 240 JHP	**No. 7**	15.6	1063	**No. 7**	17.3	1224	40,000	1.560″	
	No. 9	19.1	1226	**No. 9**	21.3	1312	40,000		
SRA 250 FPJ	**No. 7**	15.3	1050	**No. 7**	17.0	1210	37,700	1.600″	
	No. 9	18.9	1206	**No. 9**	21.0	1299	39,200		
HDY 300 XTP	**No. 7**	13.1	934	**No. 7**	14.5	1041	38,000	1.595″	
	No. 9	15.9	1162	**No. 9**	17.7	1222	38,300		

.445 SUPER MAG



The .445 Super Mag is another cartridge for which there is no factory ammunition. This cartridge is basically a lengthened .44 Remington Magnum.

Developed by silhouette shooters to produce a revolver cartridge that would give a greater degree of reliability on the 200 meter rams, the .445 Super Mag readily achieves that goal.

Available in the Dan Wesson revolver and the T/C Contender, the .445 Super Mag easily exceeds the power of the standard .44 Remington Magnum.

The single-shot T/C Contender maximizes this cartridge's performance. **Accurate 1680** is the best propellant for the .445 Super Mag.

There is no SAAMI pressure limit for the .445 Super Mag.

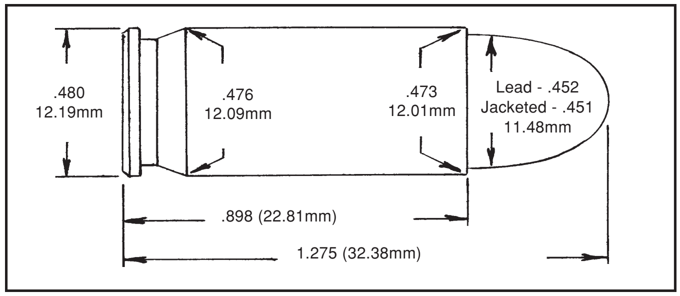
.445 SUPER MAG

Gun	DOUGLAS	Max Length	1.600″
Barrel Length	10″	Trim Length	1.590″
Primer	FC 155	OAL Max	1.985″
Case	STARLINE	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SSK 300 (L) FN	**1680**	28.8	1420	**1680**	32.0	1614	38,900	2.055″*	Compressed**
HDY 180 JHP	**1680**	37.8	1755	**1680**	42.0	1994	27,600	1.950″	Compressed
NOS 200 JHP	**1680**	36.0	1690	**1680**	40.0	1921	33,100	1.920″	Compressed
SRA 240 JHP	**1680**	33.8	1589	**1680**	37.5	1806	39,700	1.925″	
SRA 250 FMJ	**1680**	32.9	1520	**1680**	36.5	1727	38,100	1.925″	
HDY 265 FP	**1680**	31.5	1463	**1680**	35.0	1663	37,600	1.970″	
SRA 300 JSP	**1680**	28.8	1428	**1680**	32.0	1623	43,300	2.055″	**
SPR 300 JSP	**1680**	28.8	1398	**1680**	32.0	1589	41,400	2.050″	**
HDY 300 XTP	**1680**	28.4	1404	**1680**	31.5	1595	42,900	2.060″	**

* Over MAX Recommended OAL   ** Penny's Custom Casting

.45 ACP



Developed by John Browning, the .45 ACP was adopted as the official military handgun cartridge by the U.S. Ordnance Department along with the Colt-Browning automatic pistol in 1911. The .45 ACP has been the official military cartridge of several governments.

The .45 ACP was originally designed with a 200 grain bullet for the Colt Model 1905 semiautomatic pistol. It was standardized with a 230 grain bullet for the Colt Government Model 1911 pistol.

Since then it has been proven in combat worldwide. Along with the 1911A1 pistol, the .45 ACP has been developed into a first class match cartridge with accuracy fully equal to that of any other cartridge.

The .45 ACP cartridge and the Colt automatic began to be replaced in 1985 as the official military handgun cartridge by the Beretta 9mm in support of NATO standardization. However, the .45 ACP remains a favorite for competitive shooting.

The SAAMI Maximum Average Pressure for the .45 ACP is 21,000 P.S.I. The SAAMI Maximum Average Pressure for the .45 +P is 23,000 P.S.I.

.45 ACP

Gun	1911A1	Max Length	0.898″
Barrel Length	5″	Trim Length	0.888″
Primer	REM $2^1/_2$	OAL Max	1.275″
Case	REM	OAL Min	1.150″ (Match)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
155 (L) SWC	**N100**	5.0	956	**N100**	5.5	1087	16,000	1.240″	Behn
	S1000	5.9	1029	**S1000**	6.5	1170	19,100		
	No.2	6.8	1060	**No.2**	7.5	1204	20,600		
	No.5	9.0	1046	**No.5**	10.0	1189	18,500		
	No.7	12.0	1076	**No.7**	13.3	1223	20,200		
170 (L) SWC	**N100**	5.0	952	**N100**	5.6	1082	19,900	1.130″	Clements
	S1000	5.3	931	**S1000**	5.9	1059	17,800		
	No.2	5.9	950	**No.2**	6.5	1079	19,400		
	No.5	8.1	945	**No.5**	9.0	1074	17,800		
	No.7	11.3	1031	**No.7**	12.5	1172	20,800		

.45 ACP (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
200 (L) SWC	**N100**	4.4	825	**N100**	4.9	938	18,200	1.190″	HDY
	S1000	4.8	838	**S1000**	5.3	952	18,300		
	No.2	5.2	826	**No.2**	5.8	939	17,400		
	No.5	7.8	902	**No.5**	8.7	1025	19,400		
	No.7	10.4	899	**No.7**	11.5	1022	18,700		
230 (L) RN	**N100**	4.1	733	**N100**	4.5	834	18,600	1.230″	HDY
	S1000	4.6	790	**S1000**	5.1	898	18,300		
	No.2	5.0	766	**No.2**	5.6	870	17,200		
	No.5	7.7	852	**No.5**	8.5	968	19,800		
	No.7	9.9	862	**No.7**	11.0	979	19,400		
250 (L) SWC *	**S1000**	3.8	689	**S1000**	4.2	783	19,700	1.260"	Clements
	No.2	4.7	711	**No.2**	5.2	808	19,400		
	No.5	6.4	722	**No.5**	7.1	820	18,300		
	No.7	8.6	732	**No.7**	9.5	832	17,100		
	No.9	10.8	766	**No.9**	12.0	870	20,600		
SFB 155 FP	**N100**	4.5	894	**N100**	5.0	1016	17,400	1.240"	CCI 300 Primer
Frangible	**No.2**	5.0	912	**No.2**	5.6	1037	17,700		
	No.5	8.5	959	**No.5**	9.5	1090	17,300		
	No.7	10.8	984	**No.7**	12.0	1119	17,800		
SFB 170 SWC	**No.2**	4.7	758	**No.2**	5.2	862	20,400	1.250"	CCI 300 Primer
Frangible	**S1250**	5.2	810	**S1250**	5.8	921	21,500		
	No.5	7.6	843	**No.5**	8.5	959	22,200		
	No.7	9.0	797	**No.7**	10.0	906	21,300		
HDY 185 TGT	**N100**	5.2	876	**N100**	5.8	995	19,600	1.135″	
	S1000	5.2	873	**S1000**	5.8	993	19,500		
	No.2	5.9	876	**No.2**	6.5	996	18,700		
	No.5	8.6	952	**No.5**	9.5	1082	20,500		
	No.7	10.8	938	**No.7**	12.0	1066	20,600		
HDY 185 XTP	**N100**	4.8	842	**N100**	5.3	957	16,900	1.210″	
	S1000	5.5	862	**S1000**	6.1	980	19,400		
	No.2	6.8	948	**No.2**	7.5	1077	20,400		
	No.5	9.2	970	**No.5**	10.2	1102	19,900		
	No.7	11.7	962	**No.7**	13.0	1093	18,000		
REM 185 JHP	**No.5**	10.8	1080	**No.5**	12.0	1228	19,200	1.130"	Golden Sabre
RAN 185 FP	**No.2**	5.9	906	**No.2**	6.6	1030	20,000	1.215"	
	No.5	9.4	953	**No.5**	10.4	1084	18,800		
	No.7	11.7	986	**No.7**	13.0	1121	20,800		
HDY 200 XTP	**N100**	4.3	768	**N100**	4.8	873	16,500	1.225″	
	S1000	5.2	804	**S1000**	5.8	914	18,800		
	No.2	5.9	847	**No.2**	6.5	963	19,700		
	No.5	8.7	924	**No.5**	9.7	1050	20,600		
	No.7	10.8	912	**No.7**	12.0	1036	19,200		
RAN 200 SWC	**No.2**	5.2	836	**No.2**	5.8	951	19,700	1.220"	
	No.5	7.8	828	**No.5**	8.7	942	16,900		
	No.7	10.3	888	**No.7**	11.5	1010	18,900		

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
RAN 200 HP	**No.2**	5.2	821	**No.2**	5.8	933	18,300	1.205"	
	No.5	7.8	815	**No.5**	8.7	927	16,200		
	No.7	10.3	893	**No.7**	11.5	1015	19,200		
SRA 230 FMJ	**N100**	4.1	726	**N100**	4.5	825	19,100	1.250″	
	S1000	4.9	746	**S1000**	5.5	848	18,900		
	No.2	5.5	769	**No.2**	6.1	874	19,200		
	No.5	7.8	816	**No.5**	8.7	927	19,300		
	No.7	9.9	811	**No.7**	11.0	922	17,800		
SPR 230 HP	**N100**	4.9	718	**N100**	5.5	817	20,400	1.265"	Gold Dot
	No.2	5.4	734	**No.2**	6.0	835	20,600		
	No.5	7.8	817	**No.5**	8.7	929	20,200		
	No.7	9.9	828	**No.7**	11.0	942	20,500		
REM 230 JHP	**No.5**	7.8	775	**No.5**	8.7	881	16,700	1.230"	Golden Sabre
RAN 230 RN	**No.2**	4.9	760	**No.2**	5.4	864	20,500	1.245"	
	No.5	7.6	804	**No.5**	8.5	914	18,900		
	No.7	9.7	833	**No.5**	10.8	947	20,500		
SRA 240 JHP *	**N100**	3.8	672	**N100**	4.2	764	17,700	1.215″	
	S1000	4.4	670	**S1000**	4.9	762	17,600		
	No.2	5.1	714	**No.2**	5.7	811	19,600		
	No.5	7.5	769	**No.5**	8.3	874	20,300		
	No.7	9.5	793	**No.7**	10.5	901	20,100		
	No.9	11.3	774	**No.9**	12.5	879	18,200		
NOS 250 JHP *	**S1000**	4.2	665	**S1000**	4.7	756	19,000	1.230"	
	No.2	5.1	697	**No.2**	5.7	792	20,000		
	No.5	7.2	752	**No.5**	8.0	854	19,100		
	No.7	9.5	790	**No.7**	10.5	898	20,900		
	No.9	11.3	780	**No.9**	12.5	886	20,800		

* Velocities taken in S&W 25-2, 6½″ barrel.

.45 ACP (+P)

Gun	1911A1	Max Length	0.898″
Barrel Length	5″	Trim Length	0.888″
Primer	REM 2½	OAL Max	1.275″
Case	REM	OAL Min	1.150″ (Match)

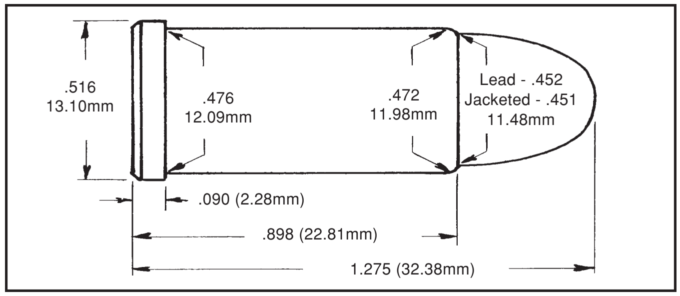
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 185 XTP	**S1000**	5.7	895	**S1000**	6.4	1018	20,700	1.210″	
	No.2	7.2	1016	**No.2**	8.0	1155	23,000		
	No.5	9.7	1049	**No.5**	10.8	1192	22,400		
	No.7	12.2	1039	**No.7**	13.5	1181	21,700		Compressed
HDY 200 XTP	**S1000**	5.5	850	**S1000**	6.1	966	21,300	1.225″	
	No.2	6.3	900	**No.2**	7.0	1023	23,000		
	No.5	9.0	951	**No.5**	10.0	1081	22,600		
	No.7	11.5	979	**No.7**	12.8	1112	23,000		

.45 ACP WADCUTTER

Gun	1911A1	Max Length	0.898″
Barrel Length	5″	Trim Length	0.888″
Primer	REM 2½	OAL Max	1.275″
Case	REM	OAL Min	1.150″ (Match)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 185 TGT	**N100**	3.6	638	**N100**	4.0	725	12,000	1.135″	
	No.2	4.1	629	**No.2**	4.5	715	11,900		
	No.5	6.8	726	**No.5**	7.5	825	14,200		
200 (L) SWC	**N100**	3.2	612	**N100**	3.5	696	11,400	1.190″	HDY
	No.2	3.6	616	**No.2**	4.0	700	11,500		
	No.5	6.3	720	**No.5**	7.0	818	13,100		

.45 AUTO-RIM



During WWI, both Colt and S&W made revolvers chambered for the .45 ACP cartridge. These revolvers required the use of a half-moon clip to support and eject the rimless .45 ACP brass.

After the war, thousands of these revolvers were sold to the public. In 1920 the Peters Cartridge Company introduced a rimmed version of the .45 ACP which eliminated the need for using the pesky clips in these revolvers. The .45 AR was also loaded with a lead bullet to reduce wear on the shallow rifling used in these revolvers.

The .45 AR, while nearly identical in performance to the .45 ACP, is better for handloading use in revolvers because it headspaces on the case rim allowing the use of almost any type of bullet and crimp.

The SAAMI Maximum Average Pressure for the .45 Auto-Rim is 15,000 C.U.P.

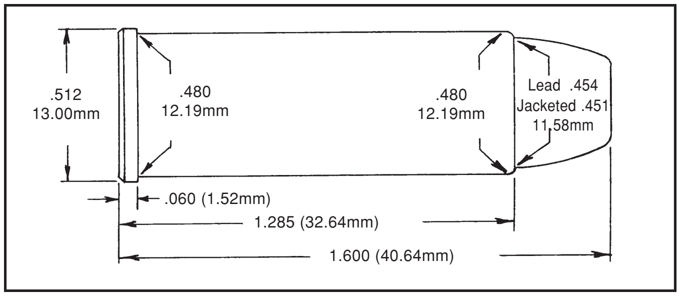
.45 AUTO-RIM

Gun	S&W 25-2	Max Length	0.898″
Barrel Length	6½″	Trim Length	0.878″
Primer	CCI 300	OAL Max	1.275″
Case	REM	OAL Min	1.225″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
200 (L) SWC *	**S1000**	4.5	762	**S1000**	5.0	866	14,000	1.175″	H&G #130
	No.2	5.6	863	**No.2**	6.2	981	14,600		
	No.5	7.7	848	**No.5**	8.6	964	15,000		
235 (L) RN *	**S1000**	4.3	725	**S1000**	4.8	824	14,400	1.265″	RCBS
	No.2	5.2	769	**No.2**	5.8	874	14,700		
	No.5	7.2	730	**No.5**	8.0	830	13,900		
255 (L) SWC	**S1000**	4.0	683	**S1000**	4.4	777	13,200	1.250″	LY452424
	No.2	4.7	710	**No.2**	5.2	807	14,800		
	No.5	6.2	733	**No.5**	6.9	833	15,000		
	No.7	8.6	744	**No.7**	9.5	846	13,600		
	No.9	10.8	769	**No.9**	12.0	874	14,400		

* 0.454″ bullet diameter

.45 COLT



The .45 Colt was introduced as one of the first cartridges for the Model P Colt Single Action Army revolver.

This cartridge was adopted by the U.S. Army in 1875 and served as their official military handgun cartridge for 17 years.

As originally developed, the .45 Colt was loaded with 40 grains of FFg powder with a 255 grain lead bullet for about 810 FPS.

The .45 Colt has been around for 120 years and still has a loyal following. It has become popular to fire higher pressure loads in modern revolvers such as the Ruger Blackhawk. Firing such loads in the blackpowder revolvers and replicas have caused disastrous results.

The large case capacity of the .45 Colt combined with its low SAAMI Maximum Average Pressure of 14,000 C.U.P produces a cartridge that cannot efficiently utilize most modern smokeless propellants. **Accurate Nitro 100** is an excellent choice to produce consistent ballistics at low pressures due to its low bulk density and excellent ignition characteristics.

.45 COLT

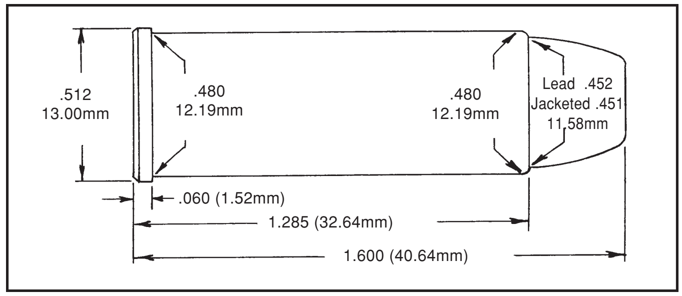
Gun	DOUGLAS	Max Length	1.285″
Barrel Length	7½″	Trim Length	1.265″
Primer	CCI 300	OAL Max	1.600″
Case	WW	OAL Min	1.550″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
215 (L) SWC	**N100**	6.3	846	**N100**	7.0	961	14,000	1.575″	CP
	No.5	10.9	904	**No.5**	12.1	1027	12,500		
225 (L) FN	**N100**	5.3	789	**N100**	5.9	897	12,200	1.620″	* CP
	S1000	5.8	799	**S1000**	6.5	909	13,500		
	No.2	5.8	820	**No.2**	6.1	873	11,900		
	No.5	10.9	909	**No.5**	12.1	1033	13,800		
240 (L) SWC	**N100**	5.1	790	**N100**	5.7	898	13,600	1.570″	Clements
	S100	6.0	799	**S1000**	6.3	851	11,600		
	No.2	5.4	743	**No.2**	6.0	845	11,900		
	No.5	10.2	869	**No.5**	11.3	988	14,000		
	5744	16.5	885	**5744**	18.5	959	11,600		

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
255 (L) SWC	**N100**	5.0	763	**N100**	5.5	868	13,100	1.600″	* LY454424
	S1000	5.2	710	**S1000**	5.8	807	12,500		
	No.2	5.3	715	**No.2**	5.9	813	12,500		
	No.5	9.4	846	**No.5**	10.4	961	13,400		
	5744	16.0	756	**5744**	17.8	860	13,100		
SRA 185 JHP	**N100**	6.2	873	**N100**	6.8	993	13,300	1.575"	
	S1000	6.8	903	**S1000**	7.6	1027	13,800		
	No.2	6.6	882	**No.2**	7.3	1003	13,600		
	No.5	10.8	946	**No.5**	12.0	1075	12,200		
	5744	18.4	948	**5744**	20.5	1078	12,000		
HDY 200 XTP	**N100**	5.8	839	**N100**	6.4	954	12,200	1.595″	
	S1000	6.3	820	**S1000**	7.0	932	13,000		
	No.2	6.2	819	**No.2**	6.9	931	13,000		
	No.5	10.4	908	**No.5**	11.5	1032	13,400		
HDY 230 XTP	**N100**	5.1	741	**N100**	5.7	843	12,300	1.595″	
	S1000	5.7	704	**S1000**	6.3	800	11,800		
	No.2	5.6	730	**No.2**	6.2	830	13,100		
	No.5	9.9	853	**No.5**	11.0	969	14,000		
	5744	16.6	835	**5744**	18.5	949	11,500		
SRA 240 JHP	**N100**	5.0	737	**N100**	5.6	838	13,000	1.590″	
	S1000	5.4	682	**S1000**	6.0	776	12,400		
	No.2	5.8	713	**No.2**	6.5	811	13,400		
	No.5	9.5	854	**No.5**	10.5	970	14,000		
	5744	16.6	845	**5744**	18.5	960	11,600		
HDY 250 XTP	**N100**	5.0	666	**N100**	5.5	757	12,900	1.570″	
	S1000	5.2	660	**S1000**	5.8	750	11,600		
	No.2	5.2	622	**No.2**	5.8	707	12,700		
	No.5	9.9	704	**No.5**	11.0	800	14,000		
	5744	16.2	817	**5744**	18.0	929	13,200		
RAN 250 FP	**No.2**	5.7	740	**No.2**	6.3	841	13,300	1.585"	
	No.5	9.4	765	**No.5**	10.4	870	12,900		
SPR 260 JHP	**N100**	4.8	641	**N100**	5.3	729	12,300	1.600″	
	S1000	5.2	611	**S1000**	5.8	695	11,500		
	No.2	5.4	676	**No.2**	6.0	769	14,100		
	No.5	9.5	671	**No.5**	10.5	762	14,000		

* Over SAAMI MAX OAL

.45 COLT (RUGER & T/C ONLY)



This loading data was developed in response to shooters' request for more powerful loads for use in Ruger and T/C handguns.

These loads develop the same pressures as +P .45 ACP loads. Despite occasional recommendations by other sources, do not handload .45 Colt ammo to .44 Magnum pressure levels. The .45 Colt brass is not as strong as .44 Magnum cases.

These loads must not be used in older, weaker firearms but should prove entirely satisfactory in the firearms for which they are intended.

45 COLT (RUGER & T/C ONLY)

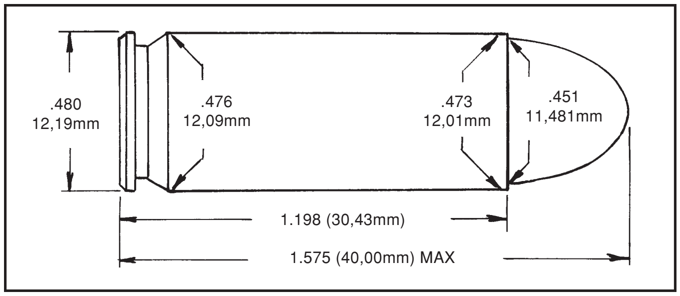
Gun	DOUGLAS	Max Length	1.285″
Barrel Length	7˚″	Trim Length	1.265″
Primer	CCI 300	OAL Max	1.600″
Case	WW	OAL Min	1.550″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
215 (L) SWC GC	**N100**	8.1	1023	**N100**	9.0	1162	20,700	1.550″	CP
	No.5	12.2	1090	**No.5**	13.6	1239	20,800		
	No.7	14.9	1104	**No.7**	16.6	1254	20,900		
225 (L) SWC	**N100**	7.9	1005	**N100**	8.8	1142	20,800	1.575″	CP
	No.5	12.2	1076	**No.5**	13.6	1223	21,400		
	No.7	14.8	1087	**No.7**	16.4	1235	21,000		
230 (L) RN	**N100**	7.7	965	**N100**	8.6	1097	20,300	1.600″	CP
	No.5	12.2	1065	**No.5**	13.5	1210	20,900		
	No.7	14.6	1062	**No.7**	16.2	1207	20,600		
240 (L) SWC	**N100**	7.6	954	**N100**	8.4	1084	20,300	1.570″	Clements
	No.5	11.1	1010	**No.5**	12.3	1148	20,000		
	No.7	14.1	1052	**No.7**	15.7	1196	20,600		
255 (L) SWC	**N100**	7.3	928	**N100**	8.1	1055	20,200	1.600″	LY454424
	No.5	10.6	950	**No.5**	11.8	1080	18,200		
	No.7	13.6	1010	**No.7**	15.1	1148	19,700		
	No.9	15.8	1038	**No.9**	17.6	1180	20,100		

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
280 (L) TC	**N100**	6.9	865	**N100**	7.7	983	19,100	1.650″	* LBT
	No.5	9.9	891	**No.5**	11.0	1012	18,300		
	No.7	12.6	940	**No.7**	14.0	1068	19,000		
	No.9	15.8	998	**No.9**	17.5	1134	19,300		
300 (L) FN	**N100**		N/R	**N100**		N/R		1.585″	D&J
	No.5		N/R	**No.5**		N/R			
	No.7	11.7	804	**No.7**	13.0	914	19,200		
	No.9	13.5	798	**No.9**	15.0	907	17,600		
SRA 200 FPJ	**N100**	8.3	1021	**N100**	9.2	1160	19,300	1.560″	
	No.5	13.1	1120	**No.5**	14.6	1273	20,000		
	No.7	14.8	1055	**No.7**	16.4	1199	15,300		
HDY 230 RN FMJ	**N100**	7.8	933	**N100**	8.7	1060	19,600	1.600″	
	No.5	11.7	1000	**No.5**	13.0	1136	18,600		
	No.7	13.9	1018	**No.7**	15.4	1157	18,500		
SRA 240 JHC	**N100**	7.7	920	**N100**	8.5	1045	20,100	1.570″	
	No.5	11.7	970	**No.5**	13.0	1102	18,300		
	No.7	14.0	1010	**No.7**	15.5	1148	20,400		
NOS 250 JHP	**N100**	7.5	887	**N100**	8.3	1008	19,300	1.585″	
	No.5	10.9	902	**No.5**	12.1	1025	18,100		
	No.7	13.7	971	**No.7**	15.2	1103	19,600		
RAN 250 FP	**No.2**	7.2	879	**No.2**	8.0	999	19,500	1.585"	
	No.5	11.1	873	**No.5**	12.3	993	19,800		
	No.7	13.1	900	**No.7**	14.6	1023	19,100		
	No.9	16.2	1008	**No.9**	18.0	1146	20,000		
SPR 260 JHP	**N100**	7.3	862	**N100**	8.1	980	19,700	1.595″	
	No.5	10.7	900	**No.5**	11.9	1023	19,300		
	No.7	13.5	953	**No.7**	15.0	1083	19,400		
SPR 300 SP	**N100**		N/R	**N100**		N/R		1.585″	
	No.5		N/R	**No.5**		N/R			
	No.7	11.7	730	**No.7**	13.0	830	20,300		
	No.9	13.5	745	**No.9**	15.0	847	19,200		
HDY 300 XTP	**N100**		N/R	**N100**		N/R		1.580″	
	No.5		N/R	**No.5**		N/R			
	No.7	11.7	693	**No.7**	13.0	788	20,700		
	No.9	13.5	710	**No.9**	15.0	807	19,500		

* Over SAAMI MAX OAL

.45 WINCHESTER MAGNUM



The .45 Winchester Magnum was introduced in 1979 for use in the Wildey gas-operated semi-automatic pistol and has since been adopted as a standard chambering for the T/C Contender and the L.A.R. Grizzly Mag.

The .45 Winchester Magnum is basically a lengthened .45 ACP loaded to the same pressures as a .44 Remington Magnum. Originally intended for silhouette competition, with suitable bullets the .45 Winchester Magnum is as capable a hunting cartridge as the .44 Remington Magnum.

The longer barrel and solid breech of the T/C Contender allow the .45 Winchester Magnum to achieve its full potential.

Accurate Arms propellants produced excellent results with all bullet weights tested.

The SAAMI Maximum Average Pressure for the .45 Winchester Magnum is 40,000 C.U.P.

.45 WINCHESTER MAGNUM

Gun	DOUGLAS	Max Length	1.198″
Barrel Length	8″	Trim Length	1.188″
Primer	WLP	OAL Max	1.575″
Case	WW	OAL Min	1.545″

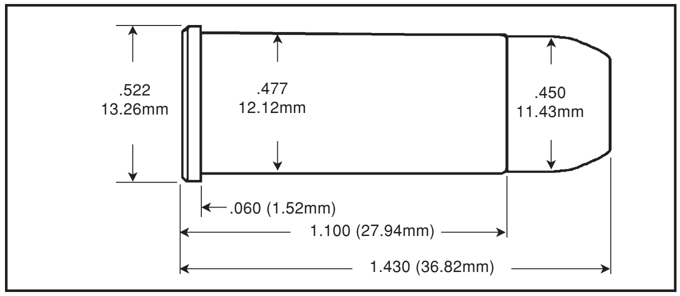
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SRA 185 JHP	**No.2**	12.6	1379	**No.2**	14.0	1567	37,800	1.555″	
	No.5	15.3	1426	**No.5**	17.0	1620	36,200		
	No.7	18.9	1452	**No.7**	21.0	1650	35,800		
	No.9	27.0	1662	**No.9**	30.0	1889	35,200		Compressed
HDY 200 XTP	**No.2**	12.2	1332	**No.2**	13.5	1514	40,000	1.570″	
	No.5	15.3	1398	**No.5**	17.0	1589	36,600		
	No.7	18.5	1404	**No.7**	20.5	1595	34,700		
	No.9	26.6	1632	**No.9**	29.5	1854	38,400		
NOS 230 FMJ	**No.2**	11.3	1194	**No.2**	12.5	1357	38,200	1.575″	
	No.5	14.0	1258	**No.5**	15.5	1430	35,200		
	No.7	17.1	1294	**No.7**	19.0	1470	34,400		
	No.9	24.8	1529	**No.9**	27.5	1738	38,700		

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SRA 240 JHP	**No.2**	9.9	1060	**No.2**	11.0	1205	38,500	1.490″	
	No.5	13.0	1225	**No.5**	14.5	1400	40,000		
	No.7	17.1	1274	**No.7**	19.0	1448	34,800		
	No.9	21.6	1413	**No.9**	24.0	1606	40,000		
HDY 250 XTP	**No.2**	9.0	971	**No.2**	10.0	1103	40,000	1.480″	
	No.5	13.1	1184	**No.5**	14.5	1345	39,000		
	No.7	16.9	1280	**No.7**	18.8	1454	39,600		
	No.9	19.3	1315	**No.9**	21.5	1500	40,000		
SPR 260 SP	**No.2**	9.9	1000	**No.2**	11.0	1136	39,100	1.515″	
	No.5	13.1	1140	**No.5**	14.5	1295	38,800		
	No.7	17.1	1268	**No.7**	19.0	1441	38,500		
	No.9	20.7	1331	**No.9**	23.0	1512	37,100		
	1680	27.0	1209	**1680**	30.0	1374	31,300		Compressed
SPR 300 SP	**No.2**	9.0	854	**No.2**	10.0	970	37,400	1.565″	
	No.5	12.2	1005	**No.5**	13.5	1142	38,800		
	No.7	15.8	1110	**No.7**	17.5	1261	38,200		
	No.9	19.4	1234	**No.9**	21.5	1402	37,900		
	1680	25.2	1164	**1680**	28.0	1323	39,900		Compressed

.45 S&W SCHOFIELD

The following load data has been developed for the Cowboy Action shooter.

Our data was limited to 14,000 C.U.P. (SAAMI limits for the .44 S&W Special).

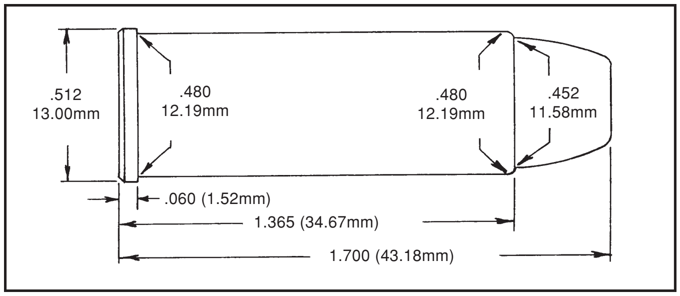


.45 S&W SCHOFIELD

Gun	HS PRECISION	Max Length	1.100"
Barrel Length	7½″	Trim Length	1.080"
Primer	CCI 300	OAL Max	1.430"
Case	STARLINE	OAL Min	1.100"

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
200 (L) SWC	**N100**	5.0	843	**N100**	5.6	959	13,300	1.450″	H&G #130
	S1000	5.6	837	**S1000**	6.3	952	13,000		
	No.2	5.0	759	**No.2**	5.6	863	12,200		
230 (L) RN	**N100**	4.5	762	**N100**	5.0	867	13,000	1.450″	Hornady
	S1000	5.2	749	**S1000**	5.8	852	11,100		
	No.2	4.7	765	**No.2**	5.3	870	13,200		
255 (L) SWC	**N100**	4.1	682	**N100**	4.6	775	11,800	1.450″	C.P.
	S1000	4.9	704	**S1000**	5.5	801	12,400		
	No.2	4.6	689	**No.2**	5.1	783	11,900		

.454 CASULL



The .454 Casull is a proprietary cartridge developed by Dick Casull and chambered by Freedom Arms in their five-shot revolver.

The .454 originated as a wildcat but is now available as factory ammunition. The cartridge cases are of thick wall construction and while .45 Colt cases can be chambered, they should never be reloaded with .454 data.

The pressure limits vary among the bullets listed below according to the bullet manufacturer's recommendation.

The .454 Casull represents about the maximum amount of power that can be managed in a revolver. This cartridge is not for the faint hearted. The maximum loads shown below are approved by Freedom Arms for use in their revolvers. **Accurate No. 9** is the propellant of choice for factory ammunition. It is recommended that a tight crimp is used to maximize bullet pull for this cartridge.

.454 CASULL

Gun	HS PRECISION	Max Length	1.365″
Barrel Length	7½″	Trim Length	1.365″
Primer	CCI 400	OAL Max	1.700″
Case	FA	OAL Min	—

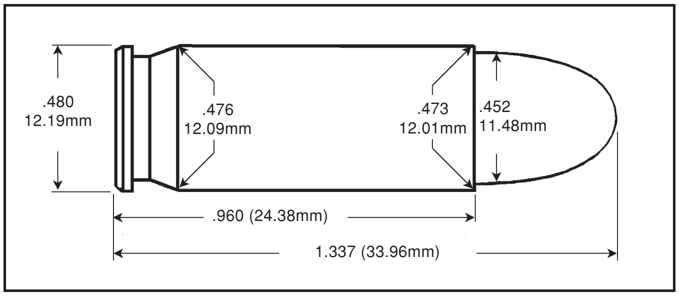
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Length	Cartridge Comment
250 (L) SWC	**No.9**	21.6	1326	**No.9**	24.0	1507	23,000	1.750"	Clements
	5744	26.1	1347	**5744**	29.0	1531	37,100		
300 (L) FP	**No.9**	18.9	1228	**No.9**	21.0	1396	30,200	1.690"	
	5744	24.3	1260	**5744**	27.0	1432	45,500		
	1680	27.0	1229	**1680**	30.0	1397	33,700		Full Case
SRA 240 JHP	**No.9**	25.2	1543	**No.9**	28.0	1753	39,800	1.705″	
	5744	31.5	1489	**5744**	35.0	1693	51,800		
	1680	32.4	1498	**1680**	36.0	1702	42,200		Compressed
FA 240 JHP	**No.9**	27.9	1686	**No.9**	31.0	1916	54,100	1.780″	
	5744	33.3	1593	**5744**	37.0	1811	54,000		Compressed
	1680	34.2	1557	**1680**	38.0	1769	46,500		Compressed

.454 CASULL (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
HDY 250 XTP	**No.9**	25.2	1558	**No.9**	28.0	1770	45,800	1.700″	
	5744	30.6	1518	**5744**	34.0	1726	52,600		
	1680	33.3	1547	**1680**	37.0	1758	49,100		Compressed
SPR 260 JHP	**No.9**	24.1	1458	**No.9**	26.8	1657	38,600	1.710″	
	5744	30.6	1485	**5744**	34.0	1688	52,000		
	1680	31.5	1448	**1680**	35.0	1646	42,500		
FA 260 JFP	**No.9**	27.0	1615	**No.9**	30.0	1835	52,800	1.765″	
	5744	32.4	1539	**5744**	36.0	1744	55,200		Compressed
	1680	34.7	1566	**1680**	38.5	1780	50,800		Compressed
SPR 300 JSP	**No.9**	23.4	1404	**No.9**	26.0	1596	46,200	1.765″	
	1680	30.2	1400	**1680**	33.5	1591	48,500		
HDY 300 XTP	**No.9**	23.4	1428	**No.9**	26.0	1623	50,000	1.765″	
	5744	28.8	1381	**5744**	32.0	1570	52,600		
	1680	30.2	1403	**1680**	33.5	1594	49,600		
FA 300 JFP	**No.9**	22.5	1386	**No.9**	25.0	1575	49,500	1.755″	
	5744	28.8	1376	**5744**	32.0	1564	54,000		Compressed
	1680	31.1	1427	**1680**	34.5	1622	54,500		

NOTE: Seating bullets to their cannelure resulted in a loaded overall length in excess of that recommended by Freedom Arms.

.460 ROWLAND



The 460 Rowland is based on the .45 Winchester Magnum case with a length 1/16" longer than that of the standard .45 ACP. This increased length is intended to prevent chambering the round in a firearm not specifically intended for it's use.

Based upon the design pressure limit of the .45 Winchester Magnum of 40,000 C.U.P. and discussions with Mr. Rowland the pressure limit for this cartridge has been set at 40,000 C.U.P. as well. The loading data shown below does not exceed this limit. These loads are considered maximum by the technical staff at Accurate Arms Company. Never exceed these loads. Never shoot .460 Rowland ammunition in any firearm not designed for it's use.

.460 ROWLAND

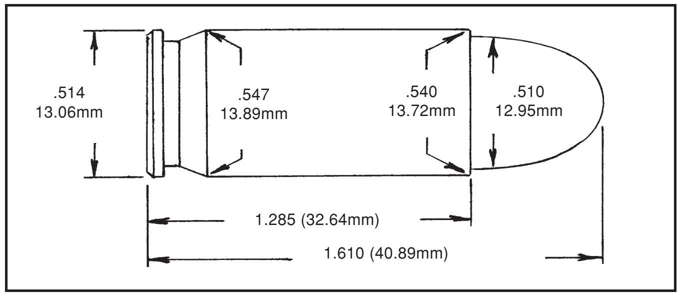
Gun	Test Barrel	Max Length	0.960"
Barrel Length	5"	Trim Length	0.950"
Primer	CCI 300	OAL Max	1.337"
Case	STARLINE	OAL Min	—

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
NOS 185 JHP	**No.2**	9.7	1232	**No.2**	10.8	1400	40,000	1.250"	
	No.5	13.0	1322	**No.5**	14.5	1503	38,400		
	No.7	16.6	1346	**No.7**	18.5	1530	38,800		
SPR 200 JHP	**No.5**	12.1	1264	**No.5**	13.5	1437	38,400	1.190"	
	No.7	16.2	1315	**No.7**	18.0	1495	39,300		
HDY 230 XTP	**No.5**	11.2	1180	**No.5**	12.5	1342	39,400	1.250″	
	No.7	14.2	1187	**No.7**	15.8	1349	39,500		

.50 ACTION EXPRESS

Developed by Action Arms, Magnum Research, and Israel Military Industries, the .50 AE is the largest legal handgun caliber.

The Desert Eagle gas-operated pistol gives superb accuracy in .50 Action Express with groups reported under 1″ at 25 yards provided the shooter can handle its considerable recoil.



The SAAMI Maximum Average Pressure for the .50 Action Express is 36,000 P.S.I.

.50 ACTION EXPRESS

Gun	DESERT EAGLE	Max Length	1.285″
Barrel Length	6″	Trim Length	1.275″
Primer	CCI 350	OAL Max	1.610″
Case	SPEER	OAL Min	1.560″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SPR 325 U-C	**No.9**	22.6	1157	**No.9**	23.8	1247	32,000	1.575″	
	1680	34.0	1157	**1680**	37.8	1305	32,000		Compressed

This data provided by Speer.

COWBOY ACTION

COWBOY ACTION LOADS

This relatively new sport is still enjoying ever increasing popularity and has had an impact on the world of shooting and reloading. The popularity has to do with the sport being less formal, although the dress code is somewhat formal requiring male and female participants to don Old West style clothing. The competition involves a combination of handgun, rifle, and shotgun shooting using original or replica blackpowder-style firearms.

From a smokeless propellant perspective,the resurgence of the old blackpowder cartridges created a challenge. Low velocity/low recoil loads are required for the sport as the targets are easily knocked over while the low recoil reduces shooter fatigue and increases enjoyment. The combination of the large case capacity and low velocity requirement make it especially difficult to use a smokeless propellant as consistent ignitability of a low charge becomes a major concern. The other concern is the low chamber pressures required so the original guns could be used safely. Loads with low pressures may not function properly if shot at cold temperature; please be aware of this and watch for bullets becoming lodged in the bore.

The following loads are tailored to meet these needs. Bullet weight and type should be as closely matched as possible as should the overall length of the round. Undersize bullets will not perform well so care should be taken to match bullet diameter to the inside diameter of the cylinder throat. The smaller diameter will allow for gas flow around the bullet resulting in low velocities, low pressures, more propellant residue, and increased likelihood of lead depositing in the cylinder and barrel. It is strongly recommended that a firm crimp be used as this will greatly aid ignition. **The other item to note is that most of our velocities are from a test barrel; we expect you will have 50fps to 175fps lower velocities when using a revolver.** We recommend that you chronograph your loads in your own firearms.

As we said above, these loads operate at pressures that are not normally suitable for smokeless propellants. The loads listed below have proven suitable but your favorite propellant may not work in every cartridge you desire. **Because of the low charge weight required, these large capacity cases could easily hold a double charge. Please exercise caution and rigorously inspect the ammunition throughout the loading process to ensure a double charge is not being loaded. If you are using a progressive dial loading machine and you have a stoppage or wreck, stop loading, clear the dial, and start anew. Do not assume it can't happen to you – IT CAN!** If you have any technical or safety related question, please contact us at 1-800-416-3006, Monday-Friday from 8:00 AM to 4:30 PM, central time.

.25-20 WCF RIFLE & PISTOL

Gun	TEST BARREL	Max Length	1.330"
Barrel Length	24″	Trim Length	1.305"
Primer	CCI 400	OAL Max	1.592"
Case	REM	OAL Min	1.530"

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	Pressure C.U.P.	Cartridge Length	Comment
PEN 60 (L) FN	**2015**	9.0	1144	**2015**	10.0	1300	14.100	1.592″	Compressed
LY 85 (L) FN	**2015**	9.5	1207	**2015**	10.5	1372	20,500	1.580″	Compressed
	No.5	--	--	**No.5**	4.8	1342	25,900		
	No.7	--	--	**No.7**	5.0	1349	25,800		

.32 S&W LONG

Gun	TEST BARREL	Max Length	0.920"
Barrel Length	6″	Trim Length	0.900"
Primer	CCI 500	OAL Max	1.280"
Case	REM	OAL Min	1.230"

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	Pressure C.U.P.	Cartridge Length	Comment
HDY 90 (L) HBWC	**No.2**	1.8	692	**No.2**	2.0	786	10,000	0.930″	
	No.5	2.7	774	**No.5**	3.0	880	11,100		
HDY 90 (L) SWC	**No.2**	2.1	741	**No.2**	2.3	842	10,800	1.190"	
	No.5	3.1	811	**No.5**	3.4	922	12,000		

.32 H&R MAGNUM

Gun	TEST BARREL	Max Length	1.075"
Barrel Length	10″	Trim Length	1.055"
Primer	CCI 500	OAL Max	1.350"
Case	FED	OAL Min	1.300"

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	Pressure C.U.P.	Cartridge Length	Comment
PEN 100 (L) SWC	**Nitro 100**	3.0	1048	**Nitro 100**	3.3	1191	20,800	1.310"	LY313631
	No.2	3.2	1021	**No.2**	3.6	1160	18,700		
	No.5	4.2	1110	**No.5**	4.7	1261	21,000		
	No.7	5.4	1126	**No.7**	6.0	1279	20,200		

.32-20 WINCHESTER

Gun	RUGER BLACKHAWK	Max Length	1.315"
Barrel Length	6½″	Trim Length	1.275"
Primer	CCI 400	OAL Max	1.592"
Case	REM	OAL Min	1.540"

	START LOADS			MAXIMUM LOADS			Pressure	Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	C.U.P.	Length	Comment
PEN 100 (L) SWC	**No.5**	4.6	813	**No.5**	4.8	865	14,400	1.585"	LY 313631
	No.7	5.8	869	**No.7**	6.1	924	16,000		
	No.9	6.7	869	**No.9**	7.0	924	15,500		

.38 SPECIAL

Gun	TEST BARREL	Max Length	1.155"
Barrel Length	9″	Trim Length	1.135"
Primer	CCI 500	OAL Max	1.550"
Case	HDY	OAL Min	1.145" (Wadcutter)

	START LOADS			MAXIMUM LOADS			Pressure	Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	C.U.P.	Length	Comment
LY 130 (L) SWC	**Nitro 100**	3.0	835	**Nitro 100**	3.3	949	13,100	1.420"	
	Solo 1000	3.1	803	**Solo 1000**	3.4	913	11,500		
BLX 158 (L) SWC	**Nitro 100**	3.0	790	**Nitro 100**	3.3	898	16,600	1.481"	
	Solo 1000	3.1	754	**Solo 1000**	3.4	857	14,900		
	No.2	3.6	764	**No.2**	4.0	868	14,100		
	No.5	5.3	821	**No.5**	5.9	940	16,100		

.357 MAGNUM

Gun	TEST BARREL	Max Length	1.290"
Barrel Length	6″	Trim Length	1.270"
Primer	CCI 500	OAL Max	1.590"
Case	HDY	OAL Min	1.540"

	START LOADS			MAXIMUM LOADS			Pressure	Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	C.U.P.	Length	Comment
LY 148 (L) DEWC	--	--	--	**No.2**	3.0	746	15,000	1.370"	
	--	--	--	**No.2**	4.0	919	20,300		
LY 148 (L) HBWC	--	--	--	**No.2**	2.5	645	13,500	1.320"	
	--	--	--	**No.2**	4.0	913	22,700		
LY 158 (L) SWC	--	--	--	**No.2**	4.0	864	20,000	1.510" *	
	--	--	--	**No.2**	5.0	1008	25,500		

* Seat bullet with front driving band flush with case mouth.

.38-40 WINCHESTER

Gun	RUGER BLACKHAWK	Max Length	0.775"
Barrel Length	$6\frac{1}{2}$"	Trim Length	0.755"
Primer	WLP	OAL Max	1.240"
Case	WIN	OAL Min	1.160"

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	Pressure C.U.P.	Cartridge Length	Comment
BLX 145 (L) FP	--	--	--	**Nitro 100**	5.8	1027	13,700	1.580"	
	--	--	--	**No.2**	5.8	1016	13,200		
PEN 165 (L) FP	--	--	--	**Nitro 100**	5.2	959	13,700	1.580"	LY 40143
	--	--	--	**No.2**	5.4	946	13,500		
LY 185 (L) FP	--	--	--	**Nitro 100**	5.0	885	13,000	1.580"	
	--	--	--	**No.2**	5.0	871	13,400		
LY 200 (L) FP	--	--	--	**Nitro 100**	4.8	836	13,100	1.580"	
	--	--	--	**No.2**	4.8	815	12,800		

.44-40 WCF

Gun	TEST BARREL	Max Length	1.305"
Barrel Length	$7\frac{1}{2}$"	Trim Length	1.285"
Primer	REM $2\frac{1}{2}$	OAL Max	1.592"
Case	REM	OAL Min	1.540"

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	Pressure C.U.P.	Cartridge Length	Comment
LY 190 (L) WC	--	--	--	**Nitro 100**	4.6	861	12,700	1.390"	
	--	--	--	**Solo 1000**	4.9	860	12,400		
	--	--	--	**No.2**	5.2	891	14,500		
	--	--	--	**No.5**	8.5	950	12,700		
PEN 200 (L) FN	--	--	--	**Nitro 100**	5.3	954	13,700	1.575"	LY 42798
	--	--	--	**Solo 1000**	5.7	929	13,100		
	--	--	--	**No.2**	6.3	961	13,900		
	--	--	--	**No.5**	9.2	983	12,200		

.44 RUSSIAN

Gun	TEST BARREL	Max Length	0.970"
Barrel Length	7½"	Trim Length	0.950"
Primer	CCI 300	OAL Max	1.430"
Case	STARLINE	OAL Min	1.400"

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	Pressure C.U.P.	Cartridge Length	Comment
LY 200 (L) FN	--	--	--	**Nitro 100**	4.0	873	11,700	1.240"	
	--	--	--	**Solo 1000**	4.6	923	12,900		
	--	--	--	**No.2**	4.8	939	13,600		
	--	--	--	**No.5**	7.5	917	12,000		
LY 240 (L) SWC	--	--	--	**Nitro 100**	3.3	769	11,400	1.280"	
	--	--	--	**Solo 1000**	3.7	781	11,000		
	--	--	--	**No.2**	4.2	824	12,800		
	--	--	--	**No.5**	6.6	814	11,200		

.44 S&W SPECIAL

Gun	TEST BARREL	Max Length	1.160"
Barrel Length	7½"	Trim Length	1.140"
Primer	CCI 300	OAL Max	1.615"
Case	MIDWAY	OAL Min	1.560"

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	Pressure C.U.P.	Cartridge Length	Comment
NBC 190 (L) WC	--	--	--	**Nitro 100**	3.7	823	12,800	1.265"	
	--	--	--	**Solo 1000**	4.4	842	12,700		
	--	--	--	**No.2**	4.0	836	12,800		
	--	--	--	**No.5**	6.7	871	13,200		
LY 200 (L) SWC	--	--	--	**Nitro 100**	4.1	867	11,100	1.465"	
	--	--	--	**Solo 1000**	4.3	813	9,400		
	--	--	--	**No.2**	5.2	905	14,000		
	--	--	--	**No.5**	7.4	959	14,000		
PEN 245 (L) RN	--	--	--	**Nitro 100**	3.8	752	14,100	1.600"	LY 429383
	--	--	--	**Solo 1000**	4.5	791	14,000		
	--	--	--	**No.2**	4.7	819	14,000		
	--	--	--	**No.5**	6.8	860	14,000		
LY 250 (L) SWC	--	--	--	**Nitro 100**	4.2	772	14,000	1.575"	LY 429421
	--	--	--	**Solo 1000**	4.3	751	14,000		
	--	--	--	**No.2**	5.0	808	13,900		
	--	--	--	**No.5**	7.0	864	14,000		

SMOKELESS PISTOL LOADS (continued)

.44 REMINGTON MAGNUM

Gun	TEST BARREL	Max Length	1.285"
Barrel Length	$7^1/_2$"	Trim Length	1.265"
Primer	CCI 300	OAL Max	1.610"
Case	WIN	OAL Min	1.535"

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	Pressure C.U.P.	Cartridge Length	Comment
LY 190 (L) WC	--	--	--	**Nitro 100**	5.0	964	12,500	1.390"	
	--	--	--	**Solo 1000**	5.5	946	12,800		
	--	--	--	**No.2**	5.5	955	13,300		
	--	--	--	**No.5**	8.0	951	9,100		
CLE 200 (L) SWC	--	--	--	**Nitro 100**	4.7	911	9,500	1.575" *	
	--	--	--	**Solo 1000**	5.0	928	8,600		
	--	--	--	**No.2**	5.0	885	10,100		
	--	--	--	**No.5**	7.6	880	7,200		
LY 250 (L) SWC	--	--	--	**Nitro 100**	4.5	826	11,700	1.620" *	
	--	--	--	**Solo 1000**	5.0	809	11,600		
	--	--	--	**No.2**	5.0	838	12,900		
	--	--	--	**No.5**	7.0	812	7,200		

* Seat bullet with front driving band flush with case mouth.

.45 S&W SCHOFIELD

Gun	TEST BARREL	Max Length	1.100"
Barrel Length	$7^1/_2$"	Trim Length	1.080"
Primer	CCI 300	OAL Max	1.430"
Case	STARLINE	OAL Min	1.100"

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	Pressure C.U.P.	Cartridge Length	Comment
LY 200 (L) WC	--	--	--	**Nitro 100**	5.6	959	13,300	1.450"	
	--	--	--	**Solo 1000**	6.3	952	13,000		
	--	--	--	**No.2**	5.6	863	12,200		
LY 230 (L) RN	--	--	--	**Nitro 100**	5.0	867	13,000	1.450"	
	--	--	--	**Solo 1000**	5.8	852	11,100		
	--	--	--	**No.2**	5.3	870	13,200		
LY 255 (L) SWC	--	--	--	**Nitro 100**	4.6	775	11,800	1.450"	
	--	--	--	**Solo 1000**	5.5	801	12,400		
	--	--	--	**No.2**	5.1	783	11,900		

.45 COLT

Gun	TEST BARREL	Max Length	1.285"
Barrel Length	7½″	Trim Length	1.265"
Primer	CCI 300	OAL Max	1.600"
Case	WIN	OAL Min	1.550"

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	Pressure C.U.P.	Cartridge Length	Comment
LY 200 (L) WC	--	--	--	**Nitro 100**	6.1	976	14,000	1.560"	H&G #130
	--	--	--	**Solo 1000**	6.7	940	12,400		
	--	--	--	**No.2**	6.4	952	13,300		
LY 225 (L) FN	--	--	--	**Nitro 100**	5.9	897	12,200	1.595"	LY 452424
	--	--	--	**Solo 1000**	6.5	909	13,300		
	--	--	--	**No.2**	6.1	873	11,900		
LY 240 (L) SWC	--	--	--	**Nitro 100**	5.7	898	13,600	1.660"	Clements
	--	--	--	**Solo 1000**	6.3	851	11,600		
	--	--	--	**No.2**	6.0	845	11,900		
LY 250/255 (L) FN	--	--	--	**Nitro 100**	5.5	868	13,100	1.600"	LY 454424
	--	--	--	**Solo 1000**	5.8	807	12,500		
	--	--	--	**No.2**	5.9	813	12,500		

LONG RANGE RIFLE

.30-30 WINCHESTER

Gun	TEST BARREL	Max Length	2.039"
Barrel Length	24″	Trim Length	2.020"
Primer	CCI 200	OAL Max	2.550"
Case	REM	OAL Min	2.450"

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	Pressure C.U.P.	Cartridge Length	Comment
LY 160 (L) PBFN	**5744**	11.3	1141	**5744**	12.6	1297	12,800	2.550"	Lyman

LONG RANGE RIFLE (continued)

.32-40 WINCHESTER

Gun	TEST BARREL	Max Length	2.130"
Barrel Length	24″	Trim Length	2.110"
Primer	CCI 200	OAL Max	2.500"
Case	REM	OAL Min	2.460"

	START LOADS			MAXIMUM LOADS			Pressure	Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	C.U.P.	Length	Comment
LY 165 (L) PBFN	**5744**	14.4	1264	**5744**	16.0	1436	14,600	2.500"	

.38-55 WINCHESTER

Gun	TEST BARREL	Max Length	2.085"
Barrel Length	24″	Trim Length	2.065"
Primer	CCI 200	OAL Max	2.510"
Case	WIN	OAL Min	2.470"

	START LOADS			MAXIMUM LOADS			Pressure	Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	C.U.P.	Length	Comment
LY 240 (L) PBFN	**5744**	14.4	1092	**5744**	16.0	1241	17,900	2.510"	

.45-70 GOVERNMENT

Gun	TEST BARREL	Max Length	2.105"
Barrel Length	24″	Trim Length	2.085"
Primer	CCI 200	OAL Max	2.550"
Case	REM NICKEL	OAL Min	2.490"

	START LOADS			MAXIMUM LOADS			Pressure	Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	C.U.P.	Length	Comment
CLE 300 (L) PB	**5744**	27.9	1405	**5744**	31.0	1597	18,500	2.550"	Firm Crimp
CLE 405 (L) PB	**5744**	24.7	1192	**5744**	27.5	1355	18,800	2.560"	Firm Crimp
LY 500 (L) PBRN	**5744**	22.5	1063	**5744**	25.0	1209	18,700	2.850"	Firm Crimp

12 GAUGE, 2 3/4" WINCHESTER PLASTIC AA TYPE SHELLS

SHOT WT. Ounces	POWDER	PRIMER	WAD	CHARGE WT. Grains	VELOCITY F.P.S.	PRESSURE P.S.I.
3/4	**Nitro 100**	WIN 209	FED 12S0	15.0	1176	4,000
				16.0	1232	4,500
				17.0	1295	5,100
				18.0	1361	6,100
3/4	**Solo 1000**	WIN 209	WAA12SL	17.0	1161	3,400
				18.0	1206	3,700
				19.0	1276	4,700
				20.0	1336	5,400
7/8	**Nitro 100**	WIN 209	FED12S0	15.0	1143	4,900
				16.0	1196	5,700
				17.0	1263	6,900
				18.0	1320	7,900
7/8	**Solo 1000**	WIN 209	WAA12SL	17.0	1148	4,100
				18.0	1203	5,000
				19.0	1247	5,400
				20.0	1305	6,200
1	**Nitro 100**	WIN 209	WAA12SL	15.0	1107	5,400
				16.0	1174	6,700
				17.0	1223	7,400
				18.0	1275	8,800
1	**Solo 1000**	WIN 209	WAA12	17.0	1138	5,900
				18.0	1190	7,200
				19.0	1221	7,300
				20.0	1271	8,600
1 1/8	**Nitro 100**	WIN 209	WAA12SL	15.0	1092	7,400
				16.0	1131	7,900
				17.0	1184	9,500
				18.0	1227	9,700
1 1/8	**Solo 1000**	WIN 209	WAA12	17.0	1108	7,500
				18.0	1164	9,300
				19.0	1194	9,500
				20.0	1237	10,300

SHOTSHELL DATA (continued)

12 GAUGE, 2 3/4" REMINGTON STS PLASTIC TARGET SHELLS

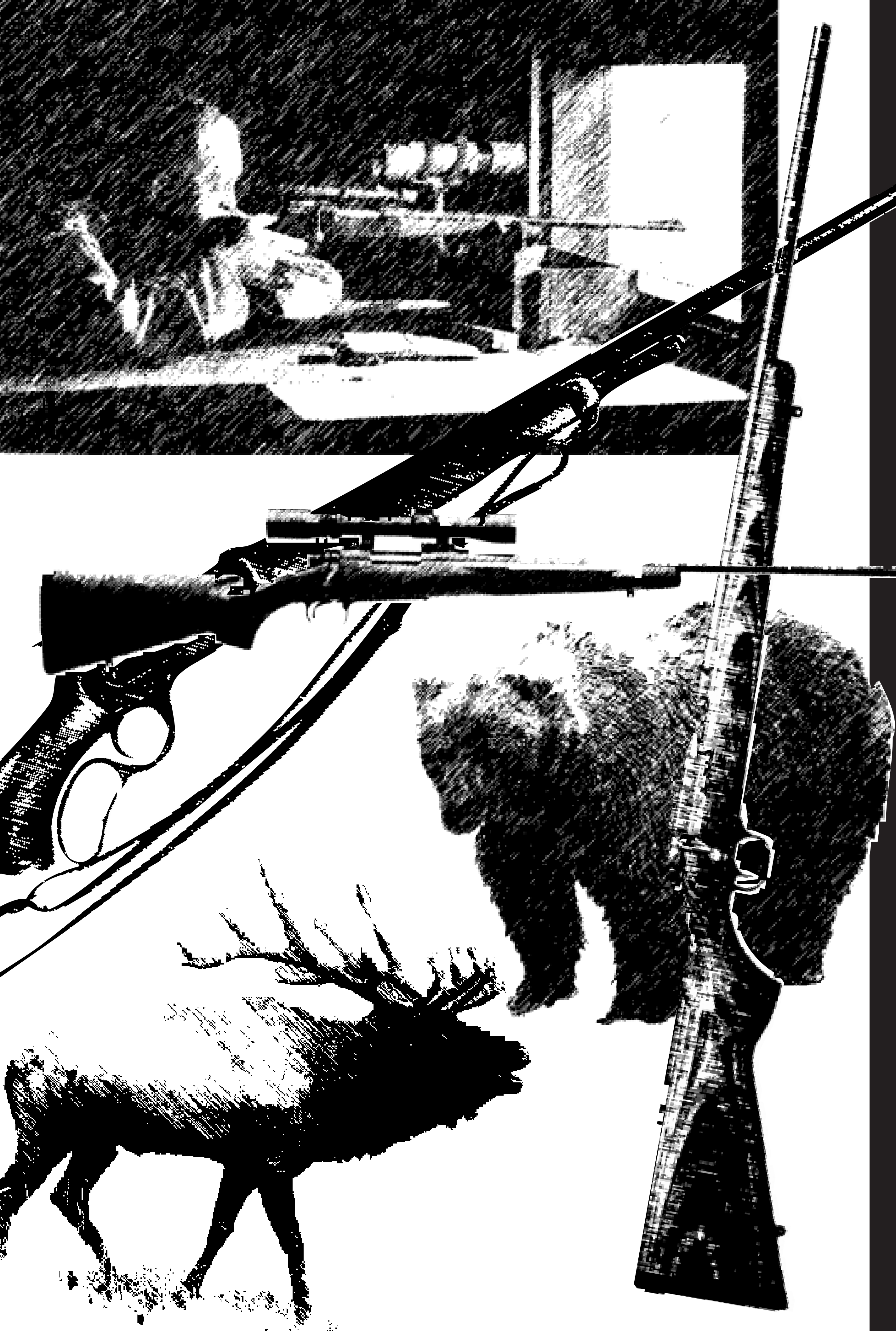
SHOT WT. Ounces	POWDER	PRIMER	WAD	CHARGE WT. Grains	VELOCITY F.P.S.	PRESSURE P.S.I.
3/4	**Nitro 100**	REM 209 STS	FED 12S0 +1-135	17.0	1281	5,500
				18.0	1344	6,400
				19.0	1404	7,100
				20.0	1446	7,800
3/4	**Solo 1000**	REM 209 STS	FED 12S0 +1-135	17.0	1171	4,300
				18.0	1224	4,800
				19.0	1286	5,700
				20.0	1343	6,500
7/8	**Nitro 100**	REM 209 STS	FED 12S0	17.0	1270	7.100
				18.0	1322	8,000
				19.0	1367	8,500
				20.0	1419	9,800
7/8	**Solo 1000**	REM 209 STS	FED 12S0	17.0	1169	5,600
				18.0	1215	6,200
				19.0	1281	7,300
				20.0	1314	7,600
1	**Nitro 100**	REM 209 STS	FED 12S0	15.0	1092	5,600
				16.0	1150	6,600
				17.0	1207	7,500
				18.0	1263	8,500
1	**Solo 1000**	REM 209 STS	FED 12S0	17.0	1100	5,200
				18.0	1153	5,900
				19.0	1220	7,200
				20.0	1270	8,400
1 1/8	**Nitro 100**	REM 209 STS	REM TGT 12	15.0	1074	6,500
				16.0	1122	7,300
				17.0	1163	8,100
				18.0	1236	10,100
1 1/8	**Solo 1000**	REM 209 STS	REM TGT 12	15.0	1010	5,600
				16.0	1051	6,100
				17.0	1110	7,600
				18.0	1146	8,000

12 GAUGE, 2 3/4" FEDERAL GOLD MEDAL PLASTIC TARGET SHELLS

SHOT WT. Ounces	POWDER	PRIMER	WAD	CHARGE WT. Grains	VELOCITY F.P.S.	PRESSURE P.S.I.
3/4	**Nitro 100**	FED 209A	FED 12S0 +1-135	15.0	1150	4,200
				16.0	1180	4,300
				17.0	1250	5,100
				18.0	1296	5,500
3/4	**Solo 1000**	FED 209A	FED 12S0 +1-135	17.0	1146	3,900
				18.0	1217	4,700
				19.0	1262	5,100
				20.0	1327	6,200
7/8	**Nitro 100**	FED 209A	FED 12S0 +1-135	15.0	1079	4,400
				16.0	1137	4,900
				17.0	1212	6,000
				18.0	1269	6,700
7/8	**Solo 1000**	FED 209A	FED 12S0 +1-135	17.0	1106	4,700
				18.0	1169	5,500
				19.0	1213	6,000
				20.0	1275	6,900
1	**Nitro 100**	FED 209A	FED 12S0	15.0	1087	5,500
				16.0	1125	5,900
				17.0	1193	6,900
				18.0	1257	7,900
1	**Solo 1000**	FED 209A	FED 12S0	17.0	1108	5,700
				18.0	1167	6,800
				19.0	1209	7,500
				20.0	1244	7,900
1 1/8	**Nitro 100**	FED 209A	FED 12S0	15.0	1062	6,600
				16.0	1113	7,400
				17.0	1172	8,700
				18.0	1216	9,500
1 1/8	**Solo 1000**	FED 209A	FED 12S3	17.0	1108	7,800
				18.0	1130	7,900
				19.0	1182	8,700
				20.0	1223	9,600

20 GAUGE, 2 3/4" PLASTIC SHELLS with 3/4 oz. SHOT

HULL	POWDER	PRIMER	WAD	CHARGE WT. Grains	VELOCITY F.P.S.	PRESSURE P.S.I.
WIN	**Nitro 100**	WIN 209	WAA	9.5	1037	7,400
	Solo 1000	WIN 209	WAA	10.4	990	7,100
REM	**Nitro 100**	REM 209	WAA+1-135	9.5	1021	7,400
	Solo 1000	REM 209	WAA+1-135	10.5	1030	7,600
FED	**Nitro 100**	FED 209A	WAA+1-135	10.5	1072	7,500
	Solo 1000	FED 209A	WAA+1-135	11.0	1042	7,400



RIFLES

LOADING RIFLE AMMUNITION

There are several combinations of rifle cartridges. They're all easy to handload if you learn, and follow, basic reloading methods carefully and cautiously.

CASE PREPARATION AND INSPECTION

First, each empty piece of brass (whether it is new or fired) must be properly prepared for reloading.

Brass fired in your rifles should first be cleaned and carefully inspected. Dirty cases don't make good reloads and may damage your reloading tools. Various types of tumblers with lightly abrasive media do an excellent job cleaning cartridge cases. Warning, don't ever use a cleaning solution or media polish that contains ammonia. It will chemically attack the brass and will cause the cases to become brittle and crack.

If you suspect your previous load might have been a little too "hot," inspect your cases carefully. If necessary, trash the abused brass and back off on your next load.

We reloaders are notorious scroungers but be advised the brass you pick up at the range requires special attention. Throw the cases that are obviously tarnished or damaged into the scrap pile. Being penny-wise and dollar foolish might save a few cents now; however, it could cost several hundred bucks and more than a little pain later. If you reload brass found at the range or obtained from another shooter, it must be full-length resized. Otherwise, it probably won't chamber in your rifle.

Assuming everything is okay, continue with the next step — resizing. Adjusting the sizer die (relative to the shellholder in the reloading press) to properly resize a cartridge case involves understanding what *headspace* means. Several chapters could be devoted to this important topic; however, I'm not going into much detail other than to point out that all bottlenecked cases (rimless and rimmed) should headspace on the case shoulder and most, if not all, straight-walled cases on the rim. My statement is somewhat different from the classical definition — but it's on the mark for all practical purposes. Suffice it to say, the case must be reformed to "just fit" the rifle's chamber for the best results with the handloads.

There are several types of rifle sizer dies; ones that are normally full-length size, others that full-length size slightly more than normal and those that neck-size only. The resizer die is usually equipped with a decapping/expander rod that performs two functions. First, it pushes the expended primer out as the case enters the die. The rod is also fitted with an expander button that opens the case neck back to the correct diameter as the case is pulled out.

Resizing dies are hardened leaded steel and require some amount of lubricant (on the brass) to prevent a case from seizing in the sizer die. How much lubricant needed is difficult to describe and is determined only by trial and error. Just remember, a little goes a long way. Too much lube will cause dents, usually on the case shoulder. (However, if you don't use enough, the reloading equipment folks sell "stuck case" removal kits.) The inside of the case neck must also be lubricated — again, sparingly — unless the sizer die is fitted with a carbide neck expander button. There are no carbide sizer dies for resizing the case like there are for most handgun brass.

"Normal" full-length sizing is okay for bottlenecked cases fired in bolt-action rifles and for all straight-walled brass. Lever-action, pump and autoloading rifles chambered bottlenecked cartridges may require fired cases to be resized a little smaller to ensure reliable chambering. Standard full-length sizer dies **cannot** be adjusted to do this. RCBS and other equipment makes offer special "small-base," full-length sizer dies for these applications.

In either case, the sizer die should be carefully adjusted in the press to assure the case shoulder is **not** set back. If this occurs, the proper fit, i.e., "headspace," of the cartridge in the chamber will be affected. The worst case scenario is the cartridge head separating when the round is fired. And, at best, the case will be overly stressed and will fail during a later firing.

Neck sizing dies can be used to rework cases fired in the same **bolt-action** rifle. However, many shooters consider neck sizing to be acceptable only for the range — not for hunting loads. Neck sizing (as the term indicates) affects only the neck diameter and leaves the case body expanded to the maximum dimensions of the rifle's chamber. Benefits include slightly increased case capacity and (by not full-length sizing) longer case life since there's less wear and tear caused by repetitive reworking of the whole case. However, a "tight" round can jam your rifle at the most inopportune time in the field causing the loss of a trophy or, worse yet, maybe serious injury of the hunter.

Some reloaders use a standard, full-length sizer die to neck size rifle brass. This technique will often work; however, you must be sure not to partially resize the case body. If you do, the expanded brass case will flow forward and if the headspace on the shoulder is not maintained the loaded cartridges won't chamber even in the rifle they were last fired in.

That brings up another point. If you choose to only neck size your hunting handloads anyway, it's wise to cycle each round through the magazine and into the chamber (fully closing the bolt) before you take them afield. **DO THIS ONLY AFTER YOU HAVE REMOVED THE FIRING PIN!** And remember! After going to all of this trouble, be sure to keep track of which ammo goes with which .30-06 on the rack.

Once the cases are all sized and inspected, case preparation can continue. The primer pockets of fired brass must be cleaned using one of several special tools made by the equipment suppliers just for this purpose. Next, each case is measured to make sure they're uniform length within the specified range for each cartridge. If not, they must be trimmed to meet these criteria. Again, several tools or fixtures are available that allow the handloader to properly trim, deburr and chamfer the case mouth.

Even new brass should be inspected for defects. Bulk-packed cases can easily have dented mouths. Occasionally, one won't have a flash hole leading from the primer pocket to the case cavity. It takes a little extra time to lubricate new cases, run them through the sizer die, wipe them clean and then trim each one to a uniform length. However, when you've finished, each case is as good as you can make it. Of course, remember to remove all traces of lubricant inside the case neck.

That's it for step one.

SELECTING AN APPROPRIATE COMBINATION OF COMPONENTS

Selecting a safe, starting load is relatively easy and depends, to a large degree, on whether or not you're good at following directions. Every loading manual, including this one, has hundreds of "recipes" for handloads that have been tested and are safe to shoot in most guns chambered for that specific cartridge.

First, decide what type of ammo you want to reload, i.e., are you going to hunt lion, deer or prairie dogs or just shoot at targets. Then select the bullets which are best suited for each purpose and which propellants might work best with each bullet style, shape and weight. Most manuals list both a starting load and a maximum load. If you compare data from several sources, rarely is there exact agreement on any specific load. Why is that?

Because each source uses a different firearm to test their loads and, when you shoot handloads in your rifle, **so will you**. That's why you should use the start charge listed in the loading manual.

Once you've developed a good load (if you shoot much at all) you will eventually run out of the original can of powder or box of primers. Or, you might work up a safe load with one type of bullet and want to try another style that's the same weight. If either of these situations occur, there's one important thing to remember. When you change any component in your original "good" combination, back off at least 5% on the powder charge and redevelop another "good" load. It probably won't be exactly the same as before.

There is literally an almost infinite number of combinations of powders, primers and bullets to try. That's the challenge (and the fun!) of handloading.

That's all I want to say about selecting loads. On to step three.

PUTTING THE LOAD TOGETHER

Actually reloading the case is pretty straightforward. First, you must reprime it. Single stage presses often are equipped with an accessory part to press a fresh primer into the primer pocket when the ram (with an empty, resized case mounted in the shellholder) is lowered onto the primer arm. However, I recommend that you use a separate hand tool or a screw-in die with the primer arm mounted on the ram so you can better "feel" the force required to push the new primer into the pocket.

Primer pockets are designed so that friction holds the primer in place. The primer must be seated flush — or just below flush — with the bottom of the case. **This is very important**. If the primer protrudes out past the base of the cartridge case, one of several events could happen. First, the round might accidentally fire when it's chambered. Or, the action might not close properly and the cartridge could jam in the gun (remember the previous comments about headspace?).

Last, but not least, failure to properly seat the primer may cause a misfire because the firing pin energy is expended seating the primer and does not crush the priming mix in the primer cup. If the primer doesn't ignite, then the powder charge won't either.

Pay attention to seating each primer properly.

Charging the primed case is the next step. This step is also as simple as it sounds. Once you've selected a propellant, use a powder measure and scale to dispense the exact amount into each case. You must do three things to make sure this part of the process stays in control. First, only have one can of powder on the loading bench. Next, after adjusting the powder measure to throw the correct volume (using the scales to set the desired propellant weight), weigh every tenth powder charge just to make sure the set-up hasn't changed. Then after each case in the loading block is filled, take a small light and shine the beam into each case to visually check that the same amount of powder is in every one of them. As you might expect, loading too much or too little powder (or the "wrong" powder!) can have serious consequences when that round is fired.

Pay attention to charging each case correctly.

Next, the bullet must be properly positioned in the case. Two things are important when seating the bullet. You mustn't seat them too deep into the case or too far out of the case.

Let me clarify my comment a little. There is a "proper" way to go about this. First, the cartridge maximum length can't be longer than what will fit in the rifle's magazine or clip — if it's not a single-shot, of course. Next, the bullet should not be seated out so far that (when the round is chambered) the bullet more than just barely touches the rifling in the barrel's throat. If the bullet is jammed into the rifling, pressures will surely skyrocket when the round is fired. Assuming nothing catastrophic happens, the bullet's flight will almost assuredly be erratic from shot to shot and accuracy will suffer.

Most handloaders seat the bullet ten-or fifteen-thousandths back from the rifling. This has two positive effects. Case capacity is maximized (and therefore chamber pressures reduced if the powder charge remains the same) and the bullet is less likely to lose its alignment with the bore by being unsupported over an extended gap when the round is fired. Both of these conditions have demonstrated repeatedly a none too subtle effect on a specific handload's performance.

Now that you understand how important it is to seat the bullet out as far as practical, don't forget the other limit. The bullet must be seated deep enough to allow the case's neck tension to hold it securely in place. My rule of thumb is to make sure that the minimum seating depth is at least one caliber. For example, a .30 caliber bullet must be inserted into the case at least three-tenths of an inch.

There are always special cases that don't conform to the general rules. For example, the .30-30 (and other level-action rifle cartridges) should be loaded with a bullet having a cannelure. That's because the case mouth must be crimped onto the cannelure to make sure the bullet stays in place when it is forced into the magazine tube pushing the cartridge ahead of it and later when the rounds bang against each other when the gun is fired.

Another example is the Barnes "X-bullet." It is reportedly an excellent hunting bullet. However, its solid copper alloy construction does not lend itself to being seated too close to the rifling. Best performance seems to be obtained when the bullet has room to freely move at least 0.050" before reaching the lands.

TESTING YOUR HANDLOADS

This is the last — but not the least — step in the reloading process. You've done your best at the loading bench. Now, let's see what happens at the range.

First, make sure the rifle is ready to test your handloads. The iron sights must be secure or, if you're using one, the scope must be mounted tightly. Next, the rifle should be carefully sighted in.

If you don't have a chronograph, find a friend who does and invite them to go shooting. This serves two purposes. Obviously, you have access to a chronograph which is especially important to better characterize the load's performance. In addition, and maybe just as important, you can share reloading experiences while shooting and pick up new ideas about successful loading techniques, special tools, etc.

Keeping good records of every load and its performance at the range (and, if applicable, in the field) is important for two reasons. First, you can always go back and find a favorite load that worked well in a certain rifle and make up another batch. You also can avoid the load combinations that have already proven to be unsatisfactory or unsafe.

CONCLUSIONS

That's about it. I did not intend to relate an exhaustive treatise on reloading rifle ammunition. If you've read this far, you're either already into reloading or seriously considering taking it up. I have only summarized the process to make sure that key facts, special techniques and instructions and important cautions were highlighted. If reloading sounds like it's a lot of trouble, then you're probably not cut out for it. Patience and caution are virtuous traits for safe and successful handloading. If you decide to take up reloading, try to find someone you trust who handloads and learn the basics from them.

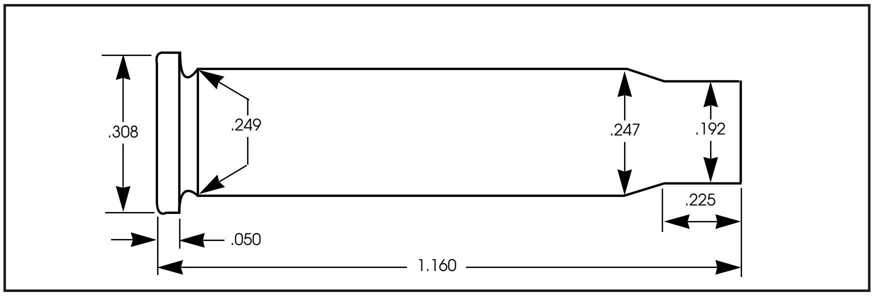
The reloading equipment manufacturers provide detailed instructions about how to use their products. They (and every component supplier) publish handloading manuals as well. You would be well advised to select material from several sources — in addition to Accurate's, of course — and read it carefully before you load the first round.

One final piece of advice:

MAKE ABSOLUTELY SURE YOU KNOW WHAT YOU'RE DOING BEFORE YOU LOAD THE FIRST CASE. IF YOU'RE NOT SURE ABOUT ANYTHING, STOP WHAT YOU'RE DOING, CHECK YOUR DATA TO VERIFY YOUR COMPONENT SELECTIONS. PROCEED ONLY WHEN YOU'RE ABSOLUTELY SURE IT'S SAFE TO DO SO!

— Lane Pearce

.17 CCM



The .17 CCM (Cooper Centerfire Magnum) is a necked down version of the .22 CCM. This cartridge was introduced in 1992 and was originally designed by Mike Hill. Dan Cooper (president of Cooper Arms) further refined the cartridge and chambering to put it into production in the Cooper Model 38 action.

The first brass to appear was turned. Properly work hardened, the brass performed rather well. In 1993, however, Cooper secured an agreement with Fiocchi of Italy to produce drawn brass for this cartridge. Superior in strength to the turned brass, the new Fiocchi cases also have larger powder capacity. Commercial ammunition is loaded with 8.5 grains of **Accurate 1680** using a 20-grain hollow point bullet.

The .17 CCM is designed specifically for varmint and small game hunting. Its major benefits are low noise, accuracy and minimal barrel temperature, which makes it a perfect cartridge for prairie dogs. It has an effective range of around 300 yards, but like any other .17 caliber it is sensitive to the wind out past 100 yards.

The maximum loads shown below are approved by Cooper Arms.

— D.L. Cooper

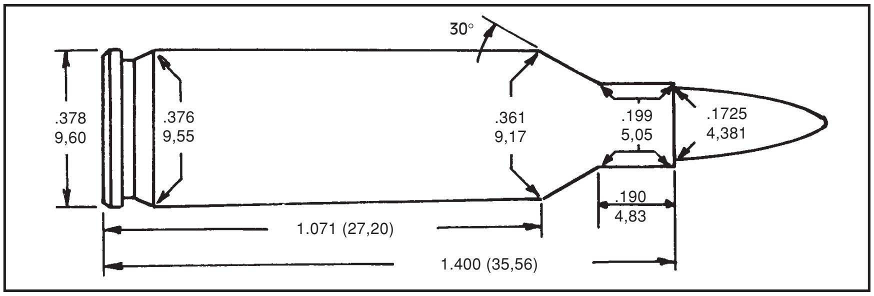
.17 CCM

Gun	SHILEN	Max Length	1.162″
Barrel Length	24″	Trim Length	1.158″
Primer	REM 1˚	OAL Max	--
Case	Fiocchi	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
Berger 15 HP	**1680**	8.6	2908	**1680**	9.5	3304	40,000	1.520″	Compressed
Hammett 20 HP	**1680**	8.6	2838	**1680**	9.5	3225	46,800	1.565″	Compressed
HDY 25 HP	**1680**	8.1	2596	**1680**	9.0	2950	51,300	1.600″	Compressed

.17 MACH IV

This wildcat cartridge is simply the .221 Remington Fireball case necked down to .17 caliber.



The O'Brien Rifle Company is the originator of this very efficient cartridge, a little powder goes a long way.

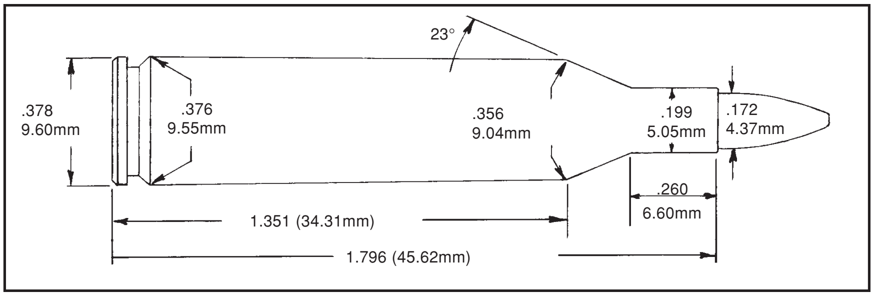
Based upon the parent case and the type of rifles used, we used a pressure limit of 52,000 C.U.P., the same as the .17 Remington. As there are no doubt many versions of this cartridge in existence, caution is advised in approaching the listed maximum charge.

.17 MACH IV

Gun	DOUGLAS	Max Length	1.400″
Barrel Length	24″	Trim Length	1.390″
Primer	REM 7˚	OAL Max	--
Case	REM	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
HDY 25 HP	**2015**	16.7	3388	**2015**	18.5	3850	50,200	1.770″	
	2230	18.3	3398	**2230**	20.3	3861	52,000		
	2460	18.5	3417	**2460**	20.5	3883	51,600		Compressed
	2520	18.5	3316	**2520**	20.5	3768	45,200		Compressed

.17 REMINGTON



This specialized varmint cartridge was introduced by Remington in 1971 in their M700 rifle.

The case is based on the .223 Remington necked down to .17 caliber with the shoulder set back to lengthen the neck.

With a muzzle velocity of 4,000 fps the factory 25 grain bullet kills well within practical varmint hunting ranges.

The SAAMI Maximum Average Pressure for the .17 Remington is 52,000 C.U.P. Accurate 2700 is an excellent choice for this cartridge, giving good loading density and high velocity.

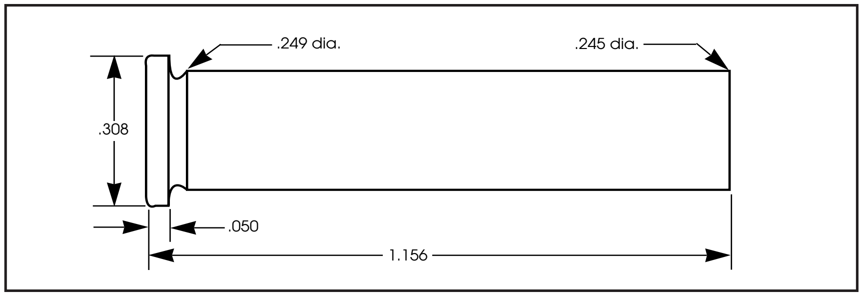
.17 REMINGTON

Gun	DOUGLAS	Max Length	1.796″
Barrel Length	24″	Trim Length	1.776″
Primer	REM 7½	OAL Max	2.150″
Case	REM	OAL Min	2.090″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
HDY 25 HP	**2015**	18.0	3442	**2015**	20.0	3911	48,400	2.170″	*
	2230	19.4	3412	**2230**	21.5	3877	47,900		
	2460	19.8	3489	**2460**	22.0	3965	49,600		
	2495	20.7	3569	**2495**	23.0	4056	51,100		
	2520	20.4	3496	**2520**	22.7	3973	51,600		
	4064	21.6	3560	**4064**	24.0	4045	50,100		
	2700	25.7	3838	**2700**	27.0	4083	49,900		Compressed

*Over SAAMI Maximum OAL

.22 CCM



The .22 Cooper Centerfire Magnum is the .22 Extra Long Centerfire reborn. The .22 Extra Long Centerfire was designed for the Model 1882 Maynard single shot hunting and gallery rifles. It was replaced by the .22 WCF.

The .22 CCM can be thought of as a reloadable .22 WMR. Its performance actually places it midway between the .22 WMR and the .22 Hornet.

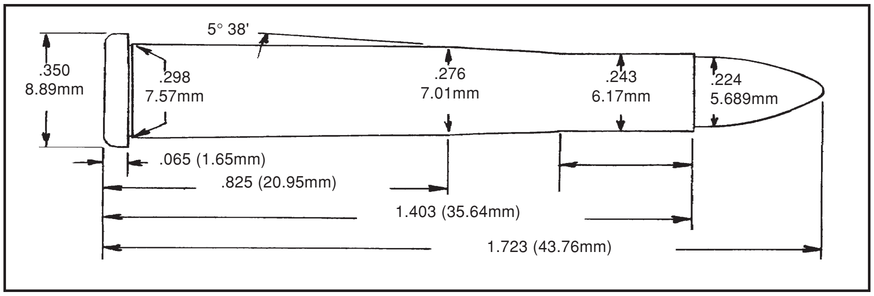
The maximum loads shown below are approved by Cooper Arms.

.22 CCM

Gun	SHILEN	Max Length	1.156″
Barrel Length	24″	Trim Length	1.154″
Primer	REM 1˚	OAL Max	--
Case	CCM	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
45 (L) RNGC	**N100**	2.0	1308	**N100**	3.0	1735	48,500	1.450″	LY225348
	No.9	5.4	1742	**No.9**	6.0	1980	39,600		
	1680	7.2	1646	**1680**	8.0	1870	39,500		Compressed
SRA 40 SP	**No.9**	5.9	1925	**No.9**	6.5	2188	47,100	1.480″	
	1680	7.7	1743	**1680**	8.5	1981	30,800		Compressed
HDY 45 “Bee”	**No.9**	5.4	1749	**No.9**	6.0	1988	46,300	1.450″	
	1680	6.3	1527	**1680**	7.0	1735	29,700		Compressed

.22 HORNET



The .22 Hornet, based on the black powder .22 Winchester, was developed during the late 1920s and early thirties. The .22 Winchester was modernized in Europe several years before the Hornet was developed in the United States by a group of experimenters at Springfield Armory. Col. Townsend Whelen and Captain G. L. Wotkyns were two of the more prominent experimenters associated with the .22 Hornet.

Winchester produced the first commercial ammunition about 1930 and within a few years it had been standardized by all American manufacturers. In 1932 Winchester announced that the Model 54 bolt action rifle would be made in .22 Hornet. Today, rifles chambered for the .22 Hornet are available from several manufacturers.

There are two bullet diameters available, .223″ and .224″. Early .22 Hornets were made from .22 LR barrels, hence the smaller bullet diameter. If your .22 Hornet has a custom barrel, ensure that you have the proper bullet diameter for best results.

The SAAMI Maximum Average Pressure for the .22 Hornet is 43,000 C.U.P. **Accurate 1680** propellant is an excellent choice for this cartridge.

.22 HORNET

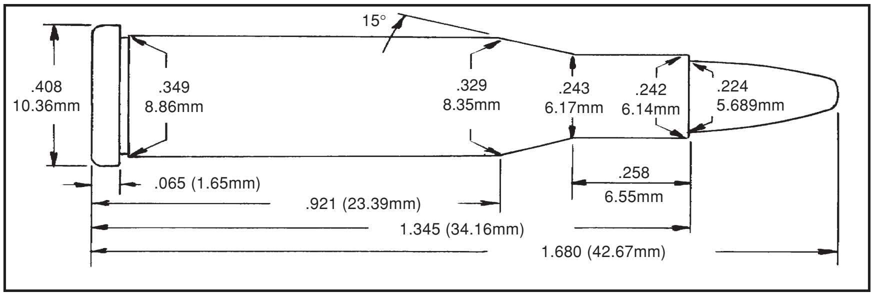
Gun	DOUGLAS	Max Length	1.403″
Barrel Length	24″	Trim Length	1.383″
Primer	CCI 500	OAL Max	1.723″
Case	WW	OAL Min	1.660″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
44 (L) RNGC	**N100**	2.7	1349	**N100**	3.0	1533	32,600	1.665″	LY225438
	5744	8.1	1797	**5744**	9.0	2042	37,500		
	1680	10.4	2069	**1680**	11.5	2351	31,100		Penny's
	2015	11.3	1801	**2015**	12.5	2047	29,700		
HDY 35 VMAX	**1680**	12.1	2516	**1680**	13.5	2860	41,900	1.775" *	
NOS 40 BT	**5744**	9.2	2092	**5744**	9.8	2307	41,300	1.855" *	
SRA 40 Hornet	**5744**	8.7	1943	**5744**	9.7	2208	43,000	1.715″	
	1680	12.6	2451	**1680**	14.0	2785	43,000		
	2015	11.3	1762	**2015**	12.5	2002	26,900		Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
NOS 45 Hornet	**1680**	11.1	2194	**1680**	12.3	2493	40,700	1.720″	
	2015	11.3	1829	**2015**	12.5	2078	32,100		Compressed
HDY 50 SX	**5744**	8.1	1717	**5744**	9.0	1951	42,400	1.780″*	
	1680	10.4	2105	**1680**	11.5	2392	42,400		
	2015	10.8	1780	**2015**	12.0	2023	35,000		Compressed

* Over SAAMI Maximum OAL

.218 BEE



Introduced by Winchester in 1938 in the Model 65 lever action rifle, the .218 Bee is based on the .32-20 Winchester case necked to .22 caliber.

Although more powerful than the .22 Hornet, the .218 Bee suffered from limitations of the Model 65. The blunt-nosed bullets that were required because of the tubular magazine reduced the effective range and individual rifles exhibited erratic accuracy.

The SAAMI Maximum Average Pressure for the .218 Bee is 40,000 C.U.P.

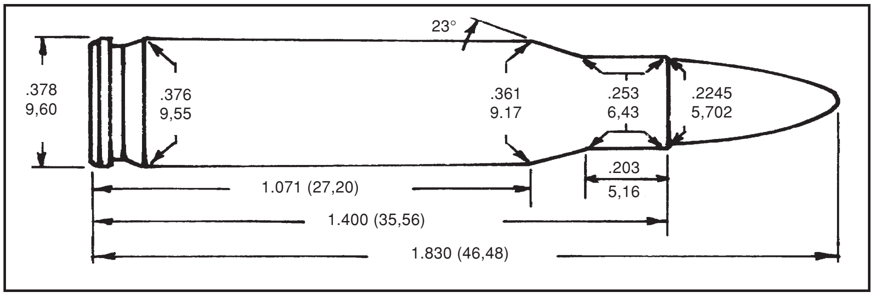
.218 BEE

Gun	DOUGLAS	Max Length	1.345″
Barrel Length	24″	Trim Length	1.325″
Primer	CCI 400	OAL Max	1.680″
Case	WW	OAL Min	1.645″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
44 (L) RNGC	**1680**	9.9	1976	**1680**	11.0	2246	30,100	1.615″	LY225438
HDY 35 VMAX	**1680**	13.5	2632	**1680**	15.0	2992	40,000	1.680"	
SRA 40 Hornet*	**1680**	13.5	2463	**1680**	15.0	2799	34,700	1.760″	
HDY 45 HP "Bee"	**1680**	12.6	2350	**1680**	14.0	2670	39,800	1.610″	
SPR 46 FN	**1680**	12.6	2339	**1680**	14.0	2658	38,600	1.670″	
HDY 50 SX*	**1680**	11.7	2165	**1680**	13.0	2460	36,600	1.780″	

*Note: Not for use in firearms with a tubular magazine

.221 FIREBALL



The .221 Fireball was developed by Remington in 1963 for the XP-100 single-shot, bolt action pistol. The .221 Fireball is a shortened version of the .222 Remington cartridge loaded to higher pressures in order to provide adequate power from the XP-100's 10-inch barrel when hunting small game.

Remington has never chambered a rifle in the .221 Fireball; however, Kimber manufactured their Model 84 bolt action for this cartridge. When used in a rifle-length barrel, the .221 Fireball is the equal of the .222 Remington. **Accurate 1680** is the best choice for high velocity loads in the .221 Fireball.

The SAAMI Maximum Average Pressure for the .221 Fireball is 52,000 C.U.P.

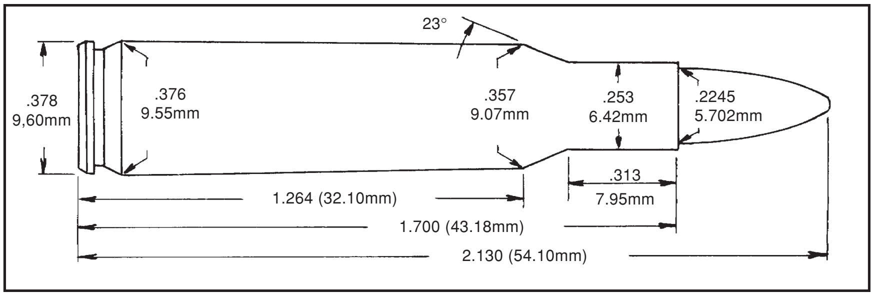
.221 FIREBALL

Gun	DOUGLAS	Max Length	1.400″
Barrel Length	24″	Trim Length	1.380″
Primer	REM 7½	OAL Max	1.830″
Case	REM	OAL Min	1.780″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
HDY 35 VMAX	**1680**	16.8	3092	**1680**	18.7	3514	51,700	1.775"	
NOS 40 BT	**1680**	18.4	3152	**1680**	20.5	3582	51,700	1.900" *	
	2015	18.0	2760	**2015**	20.0	3137	35,700		Compressed
	2230	18.9	2649	**2230**	21.0	3011	38,300		Compressed
NOS 45 SP	**1680**	16.5	2819	**1680**	18.3	3203	51,300	1.765″	
	2015	18.0	2659	**2015**	20.0	3022	47,100		Compressed
	2230	18.9	2600	**2230**	21.0	2955	49,500		Compressed
HDY 50 SX	**1680**	16.0	2691	**1680**	17.8	3058	51,500	1.825″	
	2015	17.6	2557	**2015**	19.5	2906	45,600		Compressed
	2230	18.9	2556	**2230**	21.0	2905	49,500		Compressed
NOS 55 SBT	**1680**	15.3	2600	**1680**	17.0	2950	52,000	1.850″	*
	2015	17.1	2498	**2015**	19.0	2839	48,700		Case Full
	2230	18.0	2431	**2230**	20.0	2763	51,600		Compressed

* Over SAAMI Maximum OAL

.222 REMINGTON



Introduced in 1950 by Remington in the Model 722 rifle (and still available in the M700), the "triple deuce" was an "overnight success." It has a well deserved reputation for accuracy and was for a long time the top contender at benchrest matches.

Its relatively mild pressure gives long barrel life while providing varmint hunting capability out to 250 yards.

In the years since its commercial introduction, the .223 Remington has made significant inroads into the .222's popularity. However, the 222's mild report and excellent accuracy continues to attract new shooters.

The SAAMI Maximum Average Pressure for the .222 Remington is 50,000 P.S.I. and 46,000 C.U.P.

.222 REMINGTON

Gun	DOUGLAS	Max Length	1.700″
Barrel Length	24″	Trim Length	1.680″
Primer	REM 7˚	OAL Max	2.130″
Case	REM/WW	OAL Min	2.040″

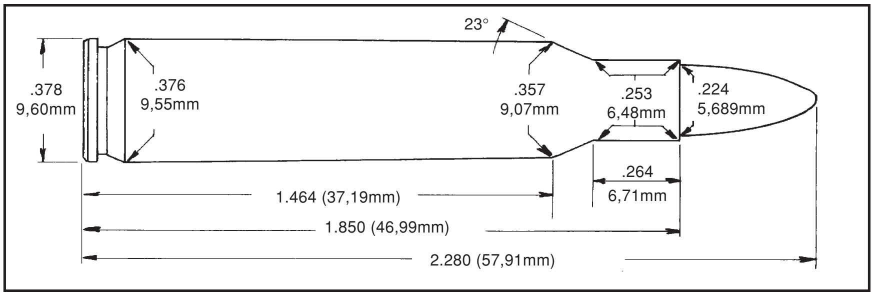
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
44(L) RNGC	**5744**	--	--	**5744**	12.0	2161	21,700*	1.930"	LY 225438
NOS 40 BT	**1680**	19.8	3168	**1680**	22.0	3601	49,400	2.140"	
	2015	21.6	3124	**2015**	24.0	3550	48,000		Compressed
	2230	24.3	3251	**2230**	27.0	3695	47,100		Compressed
	2460	24.3	3149	**2460**	27.0	3579	46,400		Compressed
	2495	21.6	2874	**2495**	24.0	3266	37,400		Compressed
	2520	22.5	2830	**2520**	25.0	3217	32,200		Compressed
NOS 45 SB	**5744**	15.7	2555	**5744**	17.5	2904	44,000*	2.065"	
	1680	18.9	2901	**1680**	21.0	3297	48,500		
	2015	22.1	2978	**2015**	24.5	3384	49,300		
	2230	24.3	3033	**2230**	27.0	3447	47,400		Compressed
	2460	24.3	2996	**2460**	27.0	3405	45,900		Compressed
	2495	21.6	2776	**2495**	24.0	3154	39,900		Compressed
	2520	22.5	2777	**2520**	25.0	3156	34,200		Compressed

.222 REMINGTON (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 50 SX ***	**1680**	16.6	2648	**1680**	18.5	3009	50,000	2.150″	**
	2015	21.2	2823	**2015**	23.5	3208	45,800		
	2230	22.1	2840	**2230**	24.5	3227	48,200		Compressed
	2460	22.1	2820	**2460**	24.5	3204	46,000		Compressed
	2495	21.6	2678	**2495**	24.0	3043	41,100		Compressed
	2520	22.5	2711	**2520**	25.0	3081	38,300		Compressed
SPR 50	**5744**	15.3	2457	**5744**	17.0	2792	44,700*	2.065"	
HDY 53 HP Match	**1680**	17.1	2590	**1680**	19.0	2943	47,400	2.190″	**
	2015	21.1	2811	**2015**	23.5	3194	50,000		
	2230	22.1	2746	**2230**	24.5	3120	46,400		Compressed
	2460	22.1	2738	**2460**	24.5	3111	45,500		Compressed
	2495	21.6	2702	**2495**	24.0	3071	46,300		Compressed
	2520	22.5	2712	**2520**	25.0	3082	40,900		Compressed
NOS 55 SB ***	**1680**	17.1	2548	**1680**	19.0	2896	44,200	2.155″	**
	2015	20.3	2681	**2015**	22.5	3047	46,100		
	2230	22.1	2733	**2230**	24.5	3106	46,200		
	2460	22.1	2720	**2460**	24.5	3091	45,000		
	2495	21.2	2570	**2495**	23.5	2920	42,100		Compressed
	2520	22.1	2607	**2520**	24.5	2962	36,300		Compressed
NOS 55 BT	**5744**	15.1	2360	**5744**	16.8	2682	45,900*	2.200"	
HDY 60 SP	**1680**	17.1	2467	**1680**	19.0	2803	50,000	2.200″	**
	2015	20.0	2588	**2015**	22.2	2941	47,800		
	2230	21.6	2592	**2230**	24.0	2945	48,100		
	2460	21.5	2586	**2460**	23.9	2939	46,100		
	2495	21.2	2582	**2495**	23.5	2934	49,400		Compressed
	2520	22.1	2583	**2520**	24.5	2935	43,900		Compressed

* Pressure data in C.U.P.
** Over SAAMI Maximum OAL
*** WW Cases

.222 REMINGTON MAGNUM



The .222 Remington Magnum was originally developed as an experimental military cartridge in a cooperative effort between Remington and Springfield Armory for use in light combat rifles. This cartridge is basically a lengthened .222 Remington. This gives it approximately a 20% greater case capacity and another 100 yards of effective range.

As a military cartridge, the .222 Remington Magnum eventually evolved into the 5.56x45 mm. The commercial version of the new military round is the .223 Remington.

The initial popularity of the .222 Magnum faded rapidly with the arrival of the .223.

The SAAMI Maximum Average Pressure for the .222 Remington Magnum is 50,000 C.U.P. Although this data was developed in P.S.I., it does not exceed the corresponding SAAMI limits.

.222 REMINGTON MAGNUM

Gun	DOUGLAS	Max Length	1.850″
Barrel Length	24″	Trim Length	1.830″
Primer	REM 7˚	OAL Max	2.280″
Case	REM	OAL Min	2.220″

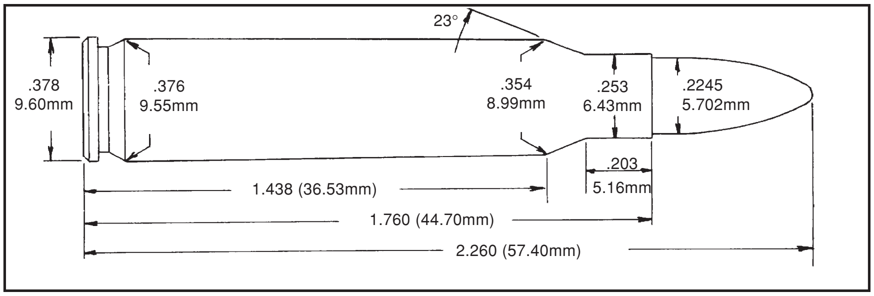
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
NOS 40 BT	**2015**	23.9	3194	**2015**	26.5	3630	48,500	2.345"	
	2230	25.6	3195	**2230**	28.5	3631	46,900		
	2460	26.1	3219	**2460**	29.0	3659	44,400		Compressed
	2520	26.1	3075	**2520**	29.0	3495	36,600		Compressed
	2700	26.1	2848	**2700**	29.0	3237	32,300		Compressed
NOS 45 "Hornet"	**2015**	24.3	3098	**2015**	27.0	3521	47,200	2.220″	*
	2230	25.8	3122	**2230**	28.7	3548	47,500		
	2460	26.4	3150	**2460**	29.3	3579	49,400		
	2520	26.1	3057	**2520**	29.0	3474	43,900		
	2700	27.6	2922	**2700**	29.0	3109	33,900		
SPR 50 HP	**2015**	23.9	2991	**2015**	26.5	3399	49,100	2.320″	*
	2230	25.4	3047	**2230**	28.2	3462	51,700		
	2460	25.5	3032	**2460**	28.3	3445	50,600		
	2520	26.1	2994	**2520**	29.0	3402	46,900		
	2700	27.6	2854	**2700**	29.0	3036	35,900		

.222 REMINGTON MAGNUM (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
NOS 52 HP	**2015**	23.2	2942	**2015**	25.8	3343	49,900	2.295″	*
	2230	24.9	2981	**2230**	27.7	3388	52,400		
	2460	25.5	2982	**2460**	28.3	3389	50,000		
	2520	26.1	2673	**2520**	29.0	3037	45,400		
	2700	27.6	2773	**2700**	29.0	2950	35,200		
NOS 55 SBT	**2015**	23.0	2833	**2015**	25.5	3219	47,200	2.310″	*
	2230	24.3	2861	**2230**	27.0	3251	49,200		
	2460	24.9	2896	**2460**	27.7	3291	50,900		
	2520	25.8	2884	**2520**	28.7	3277	46,800		
	2700	27.6	2774	**2700**	29.0	2951	36,700		
NOS 60 SP	**2015**	22.1	2716	**2015**	24.5	3086	48,800	2.330″	*
	2230	23.4	2717	**2230**	26.0	3088	49,300		
	2460	24.0	2752	**2460**	26.7	3127	49,100		
	2520	24.9	2772	**2520**	27.7	3150	48,800		
	2700	26.6	2668	**2700**	28.0	2838	37,700		
SRA 63 SP	**2015**	22.3	2700	**2015**	24.8	3068	50,300	2.280″	
	2230	22.5	2606	**2230**	25.0	2961	48,700		
	2460	23.0	2644	**2460**	25.5	3005	47,000		
	2520	24.3	2646	**2520**	27.0	3007	45,600		
	2700	25.2	2452	**2700**	28.0	2786	38,600		

* Over SAAMI Maximum OAL

.223 REMINGTON



In 1964 the .223 Remington was adopted as the 5.56mm Ball Cartridge M193, the new U.S. Military rifle cartridge. The .223 Remington is the commercial version of the 5.56mm. Several variations in chamber dimensions, principally in the chamber throat, have occurred since the 5.56 cartridge was adopted, the latest version to accommodate the heavier SS109 projectile.

The data presented here was developed in a barrel chambered to commercial .223 Remington specifications and this data may be used in firearms with military specification chambers. SAAMI has cautioned that some 5.56 ammo will produce excessive pressures when fired in rifles chambered for the .223 Remington cartridge.

Adoption as a U.S. military cartridge virtually guarantees commercial acceptance due to the availability of surplus components. However, the .223 Remington is an excellent varmint cartridge on its own merits. The military cases may be substantially heavier than the commercial products, and loads using military brass should be reduced at least 10%.

In the arena of NRA High Power Rifle competition, and particularly in the Service Rifle category, more and more AR-15 rifles are being used. We have included data for the 69 and 80 grain bullets for those shooters.

The .223 Remington was derived from the .222 Remington Magnum and will chamber in firearms of that caliber. The danger of cartridge case rupture due to excessive head space is real, and owners of firearms chambered for both these cartridges are advised to exercise extreme caution.

The SAAMI Maximum Average Pressure for the .223 Remington is 52,000 C.U.P. or 55,000 PSI.

.223 REMINGTON

Gun	WILSON	Max Length	1.760″
Barrel Length	24″	Trim Length	1.740″
Primer	REM 7½	OAL Max	2.260″
Case	REM	OAL Min	2.160″

Bullet	START LOADS Powder	Grains	Vel.	Powder	MAXIMUM LOADS Grains	Vel.	C.U.P.	Cartridge Length	Comment
44 (L) RNGC	**5744**	--	--	**5744**	11.0	1978	14,800**	2.040"	LY 224438
52 (L) RNGC	**5744**	--	--	**5744**	12.0	2078	19,500**	2.045"	Lyman

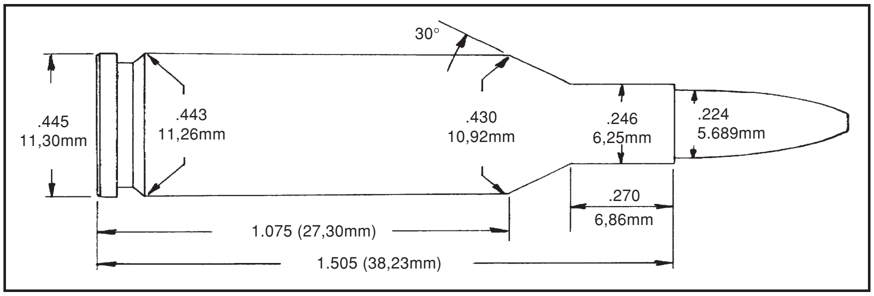
.223 REMINGTON (continued)

Bullet	START LOADS Powder	Grains	Vel.	Powder	MAXIMUM LOADS Grains	Vel.	C.U.P.	Length	Cartridge Comment
HDY 35 VMAX	**1680**	19.3	3235	**1680**	21.5	3677	51,100**	2.130"	
	5744	20.0	3234	**5744**	22.0	3675	52,900**		
	2015	23.4	3356	**2015**	26.0	3814	52,400**		
	2230	26.5	3471	**2230**	29.5	3945	47,300**		
NOS 40 BT	**5744**	19.3	3087	**5744**	21.5	3509	54,000**	2.260"	
	1680	20.2	3199	**1680**	22.5	3636	49,000		
	2015	23.8	3296	**2015**	26.5	3746	51,900		
	2230	24.7	3202	**2230**	27.5	3639	50,800		
	2460	25.2	3234	**2460**	28.0	3675	51,000		
	2495	23.8	3089	**2495**	26.5	3511	44,400		Compressed
	2520	25.6	3106	**2520**	28.5	3530	41,900		Compressed
NOS 45 SP	**1680**	18.5	2906	**1680**	20.5	3302	48,200	2.115″	
	2015	23.4	3120	**2015**	26.0	3546	49,100		
	2230	24.3	3041	**2230**	27.0	3456	50,500		
	2460	24.8	3059	**2460**	27.5	3476	49,300		
	2495	23.9	3023	**2495**	26.5	3435	47,000		Compressed
	2520	25.7	3013	**2520**	28.5	3424	42,000		Compressed
SPR 50 HP ‘TNT’	**5744**	18.5	2799	**5744**	20.5	3181	52,200**	2.235"	
	1680	18.5	2768	**1680**	20.5	3146	47,900		
	2015	23.0	2981	**2015**	25.5	3387	46,400		
	2230	23.4	2941	**2230**	26.0	3342	49,800		
	2460	23.4	2930	**2460**	26.0	3329	47,100		
	2495	23.9	2888	**2495**	26.5	3282	44,400		Compressed
	2520	25.7	2944	**2520**	28.5	3346	42,200		Compressed
BRG 52 HP	**2015**	21.2	2913	**2015**	23.6	3311	54,500**	2.250"	
	2230	22.0	2951	**2230**	24.5	3354	55,000**		
	2460	22.8	2933	**2460**	25.3	3334	55,000**		
	2520	25.2	2960	**2520**	28.0	3364	50,000**		Compressed
HDY 53 HP ‘Match’	**5744**	17.5	2680	**5744**	19.5	3046	53,100**	2.225"	
	1680	18.0	2681	**1680**	20.0	3047	49,600		
	2015	22.1	2876	**2015**	24.5	3268	47,800		
	2230	23.4	2862	**2230**	26.0	3252	49,900		
	2460	23.0	2846	**2460**	25.5	3234	47,300		
	2495	23.4	2874	**2495**	26.0	3266	48,800		Compressed
	2520	24.8	2847	**2520**	27.5	3235	43,200		Compressed
NOS 55 SPBT	**5744**	17.5	2665	**5744**	19.5	3029	54,300**	2.230"	
	1680	18.5	2691	**1680**	20.5	3058	50,000		
	2015	22.5	2887	**2015**	25.0	3281	49,800		
	2230	23.4	2830	**2230**	26.0	3216	50,300		
	2460	23.9	2843	**2460**	26.5	3231	49,200		
	2495	23.6	2878	**2495**	26.2	3271	51,100		Compressed
	2520	24.8	2837	**2520**	27.5	3224	43,300		Compressed
HDY 60 SP	**2015**	21.6	2752	**2015**	24.0	3127	49,100	2.235"	
	2230	22.1	2717	**2230**	24.5	3087	49,200		
	2460	22.7	2706	**2460**	25.2	3075	49,400		
	2495	22.2	2680	**2495**	24.7	3046	46,300		100% Density
	2520	24.8	2776	**2520**	27.5	3154	45,600		Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Length	Cartridge Comment
BRG 62 HP	**2015**	20.2	2668	**2015**	22.5	3032	55,000**	2.250"	
	2230	21.3	2677	**2230**	23.7	3043	54,600**		
	2460	21.9	2691	**2460**	24.3	3058	55,000**		
	2520	23.4	2728	**2520**	26.0	3101	55,000**		Full Case
BRG 64 HP	**2015**	19.8	2616	**2015**	22.0	2973	55,000**	2.250"	
	2230	21.1	2618	**2230**	23.4	2976	54,300**		
	2460	21.6	2624	**2460**	24.0	2982	53,100**		
	2520	23.4	2709	**2520**	26.0	3079	55,000**		Full Case
SRA 69 HPBT	**2015**	20.7	2567	**2015**	23.0	2917	48,400	2.250″	
	2230	22.1	2578	**2230**	24.5	2929	51,300		
	2460	22.2	2632	**2460**	24.7	2991	51,800		
	2495	22.5	2608	**2495**	25.0	2964	49,800		
	2520	24.3	2679	**2520**	27.0	3044	48,200		
BRG 70 VLD	**2015**	18.9	2522	**2015**	21.0	2867	54,200**	2.250"	
	2230	20.9	2539	**2230**	23.2	2886	54,700**		
	2460	22.0	2578	**2460**	24.5	2930	54,900**		
	2520	23.4	2596	**2520**	26.0	2951	53,200**		Full Case
HDY 75 HPBT	**2015**	19.3	2438	**2015**	21.5	2771	51,800	2.255"	
	2230	21.6	2503	**2230**	24.0	2845	50,800		
	2460	22.0	2507	**2460**	24.5	2849	49,700		
	2520	22.9	2573	**2520**	25.5	2924	51,800		
SRA 80 HPBT	**2015**	19.8	2382	**2015**	22.0	2707	49,000	2.450″	*
	2230	21.2	2424	**2230**	23.5	2754	49,100		
	2460	21.6	2453	**2460**	24.0	2788	49,500		
	2495	21.2	2453	**2495**	23.5	2788	51,600		
	2520	22.5	2460	**2520**	25.0	2796	49,700		
BRG 80 VLD	**2015**	18.7	2317	**2015**	20.8	2633	54,400**	2.340"	
	2230	20.2	2342	**2230**	22.5	2662	54,600**		
	2460	20.7	2336	**2460**	23.0	2655	53,600**		
	2520	22.3	2412	**2520**	24.8	2741	55,000**		
Subsonic Loads***									
IMI 55 FMJ	**S1250**	--	--	**S1250**	3.5	1139	13,500**	2.230"	
HDY 60 SP	**S1250**	--	--	**S1250**	4.2	1111	19,100**	2.235"	
HDY 75 HPBT	**S1250**	--	--	**S1250**	4.5	1052	22,100**	2.255"	

* Over SAAMI Maximum OAL
** Data in P.S.I.
*** Subsonic loads will not operate M-16 or AR-15 rifles.

.22 PPC



This wildcat cartridge was developed from the original 6mm PPC which is the brain child of Dr. Lou Palmisano and Ferris Pindell of benchrest fame. Both cartridges are based on the .220 Russian case and were originally formed from Sako brass. Factory cases are currently available from Sako.

The primary use of this cartridge is in benchrest competition although it is a completely satisfactory varmint cartridge.

There is no SAAMI pressure limit established for the 22 PPC. These loads are considered maximum by the Accurate Arms technical staff. The chamber for our pressure barrel is of "standard," not tight-necked, dimensions.

.22 PPC

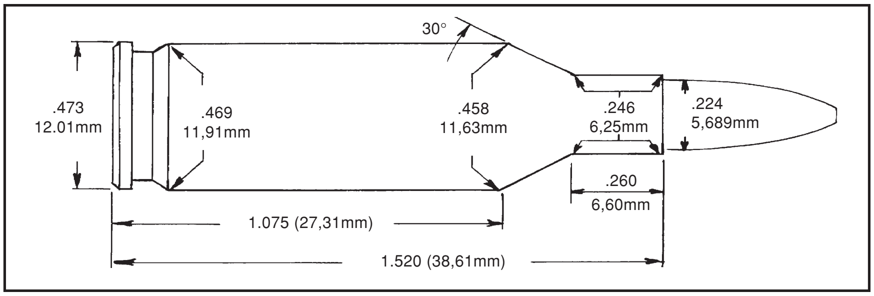
Gun	DOUGLAS	Max Length	1.505″
Barrel Length	24″	Trim Length	1.500″
Primer	REM 7˚	OAL Max	1.960″
Case	SAKO	OAL Min	—

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
NOS 40 BT	**2015**	24.7	3424	**2015**	27.5	3892	59,800	2.000"	
	2230	27.2	3408	**2230**	30.2	3873	55,400		
	2460	27.6	3414	**2460**	30.7	3880	54,000		
	2495	25.2	3100	**2495**	28.0	3523	40,500		Compressed
	2520	26.1	3156	**2520**	29.0	3587	39,500		Compressed
NOS 45 Hornet	**2015**	23.9	3160	**2015**	26.5	3591	51,600	1.890″	
	2230	26.3	3255	**2230**	29.2	3699	54,500		
	2460	26.7	3259	**2460**	29.7	3703	51,100		*
	2495	25.2	3153	**2495**	28.0	3583	48,300		Compressed
	2520	26.1	3129	**2520**	29.0	3556	43,600		Compressed
SPR 50 HP	**2015**	23.4	3047	**2015**	26.0	3462	51,300	2.000″	**, *
	2230	26.1	3183	**2230**	29.0	3617	54,600		
	2460	26.1	3148	**2460**	29.0	3577	54,800		*
	2495	25.2	3083	**2495**	28.0	3503	53,800		Compressed
	2520	26.1	3050	**2520**	29.0	3466	48,000		Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 53 HP	**2015**	23.0	2969	**2015**	25.5	3374	51,900	1.975″	**
	2230	25.7	3078	**2230**	28.5	3498	53,000		
	2460	26.1	3107	**2460**	29.0	3531	53,200		*
	2495	25.2	3084	**2495**	28.0	3504	57,200		Compressed
	2520	26.1	3019	**2520**	29.0	3431	47,700		Compressed
NOS 55 SP	**2015**	22.5	2885	**2015**	25.0	3278	53,200	1.960″	
	2230	25.2	2996	**2230**	28.0	3404	55,300		
	2460	25.2	2960	**2460**	28.0	3364	51,200		*
	2495	24.8	3010	**2495**	27.6	3421	56,400		Compressed
	2520	26.1	2962	**2520**	29.0	3366	50,900		Compressed
HDY 60 HP	**2015**	22.5	2834	**2015**	25.0	3220	54,800	1.985″	**
	2230	24.8	2920	**2230**	27.5	3318	54,600		
	2460	25.2	2948	**2460**	28.0	3350	56,200		*
	2495	23.9	2878	**2495**	26.5	3270	56,400		
	2520	26.1	2944	**2520**	29.0	3345	54,300		Compressed

* Very Consistent
** Over SAAMI Maximum OAL

.22 BR REMINGTON



This wildcat cartridge was developed from the Remington 7mm BR case. Like the 6mm BR Remington, (which is now available as a factory round), the .22 BR Remington is widely used by the benchrest shooting fraternity. In addition to its excellent accuracy, this cartridge produces surprisingly high velocities making it an excellent choice for long range varmint hunting.

There is no current SAAMI pressure limit for the .22 BR Remington. These loads are considered maximum by the Accurate Arms technical staff. The chamber of our pressure barrel is of "standard," not tight-necked, dimensions.

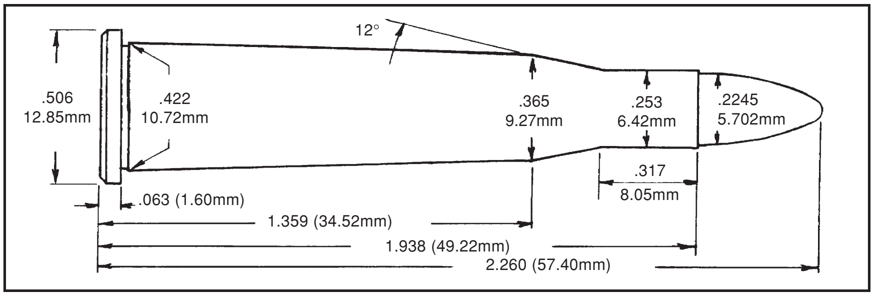
.22 BR REMINGTON

Gun	DOUGLAS	Max Length	1.520″
Barrel Length	26″	Trim Length	1.510″
Primer	REM 7½	OAL Max	--
Case	REM	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
NOS 40 BT	**5744**	23.8	3381	**5744**	26.5	3843	55,500	2.065"	
	2015	27.9	3512	**2015**	31.0	3992	57,400		
	2230	30.6	3575	**2230**	34.0	4063	52,800		
	2460	31.0	3596	**2460**	34.5	4087	53,800		
	2495	29.2	3424	**2495**	32.5	3892	48,100		Compressed
	2520	31.0	3524	**2520**	34.5	4005	51,700		Compressed
	2700	31.9	3169	**2700**	35.5	3602	40,500		Compressed
NOS 45 Hornet	**2015**	27.5	3356	**2015**	30.5	3814	57,000	1.895″	
	2230	30.2	3417	**2230**	33.5	3883	57,400		
	2460	30.6	3443	**2460**	34.0	3913	57,600		
	2495	29.3	3281	**2495**	32.5	3728	48,100		Compressed
	2520	30.9	3428	**2520**	34.3	3896	55,300		Compressed
	2700	33.7	3359	**2700**	35.5	3573	46,700		Compressed
SPR 50 TNT	**5744**	23.4	3135	**5744**	26.0	3563	58,700	2.000"	
	2015	27.5	3282	**2015**	30.5	3729	55,900		
	2230	30.0	3313	**2230**	33.3	3765	56,000		
	2460	30.2	3311	**2460**	33.5	3762	54,900		
	2495	28.8	3132	**2495**	32.0	3559	45,400		Compressed
	2520	30.3	3301	**2520**	33.7	3751	54,900		Compressed
	2700	33.3	3267	**2700**	35.0	3476	46,900		Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 53 HP	**5744**	22.5	3030	**5744**	25.0	3443	60,000	1.985"	
	2015	26.6	3150	**2015**	29.5	3579	56,600		
	2230	29.0	3183	**2230**	32.2	3617	57,900		
	2460	29.5	3215	**2460**	32.8	3653	57,300		
	2495	28.4	3116	**2495**	31.5	3541	52,400		
	2520	29.5	3186	**2520**	32.8	3620	56,400		
	2700	33.3	3111	**2700**	35.0	3310	46,600		Compressed
NOS 55 SBT	**5744**	22.0	2935	**5744**	24.5	3335	56,300	1.970"	
	2015	26.1	3071	**2015**	29.0	3490	56,500		
	2230	28.8	3138	**2230**	32.0	3566	55,700		
	2460	29.3	3172	**2460**	32.5	3605	59,900		
	2495	27.9	3033	**2495**	31.0	3447	49,600		Compressed
	2520	29.4	3159	**2520**	32.7	3590	57,400		Compressed
	2700	32.3	3156	**2700**	34.0	3357	47,600		Compressed
HDY 60 HP	**5744**	21.6	2826	**5744**	24.0	3211	56,000	1.990"	
	2015	25.7	2965	**2015**	28.5	3369	55,800		
	2230	28.1	3005	**2230**	31.2	3415	55,700		
	2460	28.5	3040	**2460**	31.7	3455	56,900		
	2495	27.9	3021	**2495**	31.0	3433	56,700		Compressed
	2520	28.4	2995	**2520**	31.5	3403	56,000		
	4064	29.2	3028	**4064**	32.5	3441	55,500		Compressed
	2700	32.3	3122	**2700**	34.0	3321	51,900		Compressed

.219 ZIPPER



The .219 Zipper was introduced in 1937 by Winchester in the Model 64 rifle. It is based on the .25-35 Winchester case necked to .22 caliber. The Model 64 lever action rifle did not prove sufficiently accurate for long-range shooting and did not allow easy use of telescopic sights. Winchester discontinued .219 Zipper ammunition in 1962 and Remington followed suit shortly thereafter.

In a single shot or bolt action rifle, the .219 Zipper was considered as accurate as any other .22 centerfire cartridge in its class. When used in rifles with tubular magazines, bullet selection is limited to flat or round nose points thereby limiting long-range performance.

There is no longer a SAAMI specification for .219 Zipper ammunition. Because it is based on the same case and used in the same type of rifles as is the .25-35 and .30-30 Winchester cartridges, a pressure limit of 42,000 P.S.I. was used by Accurate Arms' technical staff.

.219 ZIPPER

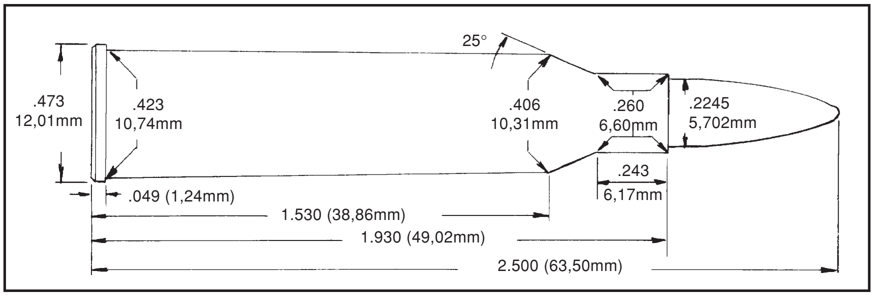
Gun	DOUGLAS	Max Length	1.938″
Barrel Length	26″	Trim Length	1.928″
Primer	CCI 200	OAL Max	2.260″
Case	WW	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SPR 46 FN	**2015**	21.6	2797	**2015**	24.0	3178	39,400	2.255″	
	2230	23.0	2834	**2230**	25.5	3220	39,800		
	2460	23.4	2842	**2460**	26.0	3230	38,700		
	2495	24.3	2930	**2495**	27.0	3300	42,000		Good load
	2520	24.8	2892	**2520**	27.5	3286	38,500		
	2700	27.9	2840	**2700**	31.0	3227	40,000		
HDY 50 SX *	**2015**	23.4	2844	**2015**	26.0	3232	40,800	2.350″	**
	2230	23.4	2811	**2230**	26.0	3194	40,800		
	2460	23.4	2778	**2460**	26.0	3157	37,900		
	2495	25.2	2913	**2495**	28.0	3310	42,000		
	2520	24.3	2814	**2520**	27.0	3198	38,400		
	2700	27.0	2700	**2700**	30.0	3068	36,300		

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
NOS 55 SBT *	**2015**	22.5	2716	**2015**	25.0	3086	40,800	2.375″	**
	2230	23.4	2725	**2230**	26.0	3097	41,800		
	2460	23.9	2740	**2460**	26.5	3114	41,700		
	2495	23.9	2728	**2495**	26.5	3100	40,000		
	2520	23.9	2696	**2520**	26.5	3064	37,100		
	2700	27.0	2696	**2700**	30.0	3064	42,000		

* Not for use in tubular magazine
**Over SAAMI Maximum OAL

.225 WINCHESTER



Amid all of the uproar over the demise of the pre-64 M-70, little notice was made of the passing of the .220 Swift. Rem-ington's introduction of the popular .22-250 wildcat as a factory cartridge may have influenced Winchester management to replace the Swift with a clone of another wildcat, the .219 Zipper Improved.

Only somewhat less powerful than the .22-250, the early .225 Winchester rifles and ammo were reported to be extremely accurate. It was — and still is — an excellent varmint cartridge. Unfortunately, technical excellence could not overcome the absolute indifference it encountered in the marketplace. Today, the continued production of .225 Winchester ammo and brass is almost certainly due to its being the parent case for several wildcat cartridges.

The SAAMI Maximum Average Pressure for the .225 Winchester is 50,000 C.U.P. Our data is in P.S.I. but does not exceed this limit.

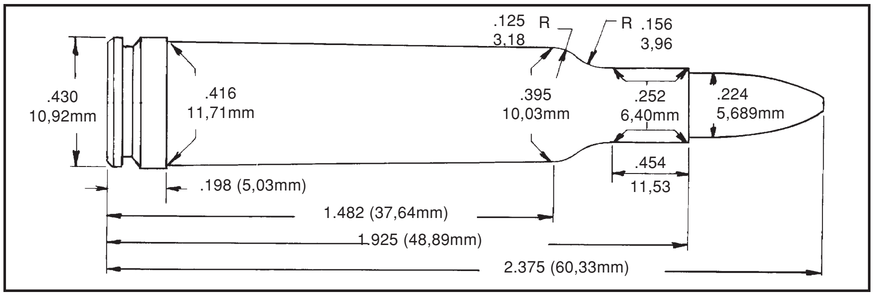
.225 WINCHESTER

Gun	DOUGLAS	Max Length	1.930″
Barrel Length	24″	Trim Length	1.910″
Primer	CCI 200	OAL Max	2.500″
Case	WW	OAL Min	2.420″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
NOS 40 BT	**2015**	28.7	3490	**2015**	32.0	3966	57,800	2.495"	
	2230	30.6	3508	**2230**	34.0	3987	57,200		
	2460	31.0	3544	**2460**	34.5	4028	58,100		
	2495	30.6	3519	**2495**	34.0	3999	57,200		
	2520	31.5	3532	**2520**	35.0	4014	56,700		
	2700	34.2	3285	**2700**	38.0	3733	46,900		
SPR 50 SP	**2015**	27.9	3206	**2015**	31.0	3643	57,200	2.400″	
	2230	28.8	3191	**2230**	32.0	3626	57,300		
	2460	29.3	3200	**2460**	32.5	3636	56,100		
	2495	28.6	3218	**2495**	31.8	3657	57,400		
	2520	30.0	3206	**2520**	33.3	3643	57,800		
	2700	35.6	3348	**2700**	37.5	3562	51,500		Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 53 HP	**2015**	27.7	3148	**2015**	30.8	3577	58,400	2.415″	
	2230	28.6	3088	**2230**	31.8	3509	55,800		
	2460	29.1	3115	**2460**	32.3	3540	56,800		
	2495	28.4	3197	**2495**	31.6	3633	60,700		
	2520	29.8	3130	**2520**	33.1	3557	58,100		
	2700	35.6	3264	**2700**	37.5	3472	51,600		Compressed
NOS 55 BT	**2015**	27.5	3076	**2015**	30.5	3495	58,500	2.425″	
	2230	29.3	3098	**2230**	32.6	3520	57,000		
	2460	29.5	3111	**2460**	32.8	3535	57,600		
	2495	28.1	3089	**2495**	31.2	3510	57,900		
	2520	29.9	3096	**2520**	33.2	3518	57,600		
	2700	35.2	3227	**2700**	37.0	3433	51,700		Case Full
HDY 60 HP	**2015**	27.0	2966	**2015**	30.0	3370	58,700	2.425″	
	2230	28.1	2966	**2230**	31.2	3370	58,100		
	2460	28.8	2989	**2460**	32.0	3397	56,400		
	2495	27.9	3003	**2495**	31.0	3413	59,000		
	2520	29.3	3000	**2520**	32.5	3409	59,600		
	2700	34.7	3131	**2700**	36.5	3331	51,000		Case Full

.224 WEATHERBY MAGNUM



In 1963, the .224 Varmintmaster was introduced by Weatherby in a reduced scale version of the famous Mark V rifle. At present, rifles chambered for the .224 Weatherby are only available from Weatherby. This is a proprietary cartridge with performance similar to the .22-250 Remington. The .224 Weatherby is an excellent choice for varmint hunters who prefer using Weatherby rifles.

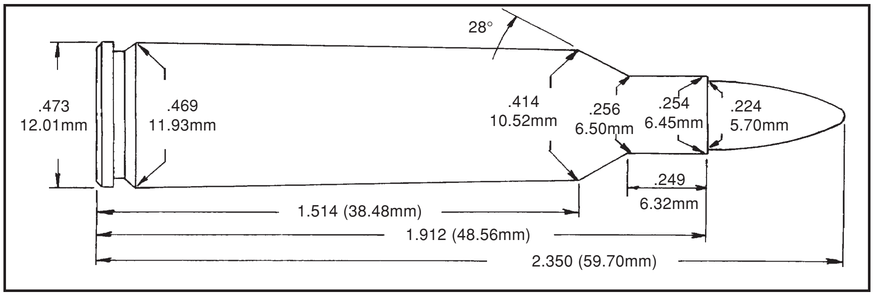
Factory ammo produced 56,000 P.S.I. in our pressure barrel. Our data does not exceed that pressure.

.224 WEATHERBY MAGNUM

Gun	DOUGLAS	Max Length	1.925″
Barrel Length	26″	Trim Length	1.913″
Primer	REM 9½	OAL Max	2.375″
Case	WBY	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SPR 50 HP	**2015**	27.5	3139	**2015**	30.5	3567	50,900	2.375″	
	2230	28.4	3129	**2230**	31.5	3556	52,700		
	2460	29.3	3191	**2460**	32.5	3626	51,500		
	2495	28.8	2981	**2495**	32.0	3387	41,800		Compressed
	2520	29.7	3060	**2520**	33.0	3477	45,400		Compressed
NOS 55 SBT	**2015**	27.0	3015	**2015**	30.0	3426	52,400	2.370″	
	2230	28.4	3005	**2230**	31.5	3415	51,100		
	2460	28.8	3016	**2460**	32.0	3427	50,000		
	2495	28.8	2964	**2495**	32.0	3368	47,900		Compressed
	2520	29.7	2988	**2520**	33.0	3395	48,900		Compressed
HDY 60 SP	**2015**	26.6	2910	**2015**	29.5	3307	54,000	2.375″	
	2230	28.4	2920	**2230**	31.5	3318	53,500		
	2460	28.8	2963	**2460**	32.0	3367	54,700		
	2495	28.8	2904	**2495**	32.0	3300	51,000		Compressed
	2520	29.7	2917	**2520**	33.0	3315	50,900		Compressed

.22-250 REMINGTON



Originally based on the .250-3000 Savage case, the .22-250 was one of America's most popular wildcat varmint and benchrest cartridges from the mid 1930s until its adoption by Remington in 1965 as a factory cartridge.

Presently rifles chambered for the .22-250 are available from almost every major rifle manufacturer. While not capable of the velocities produced by the .220 Swift, the .22-250 Remington is a well-balanced .22 varmint cartridge. The data for the Sierra 80 HPBT is for use only with rifles with a "fast twist" barrel.

The SAAMI Maximum Average Pressure for the .22-250 is 65,000 P.S.I.

.22-250 REMINGTON

Gun	APEX	Max Length	1.912″
Barrel Length	24″	Trim Length	1.892″
Primer	CCI 200	OAL Max	2.350″
Case	REM	OAL Min	2.315″

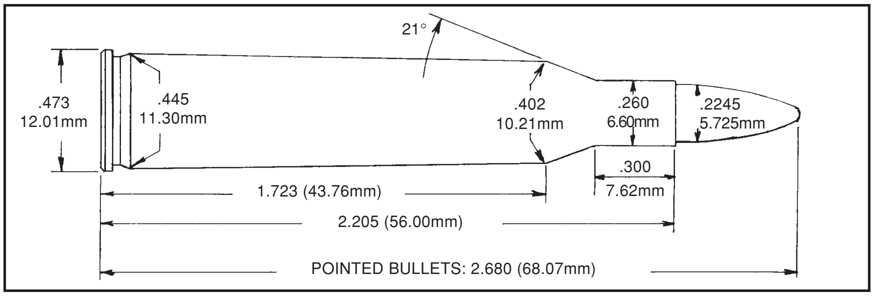
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
NOS 40 BT	**2015**	31.5	3669	**2015**	35.0	4170	63,200	2.405"	
	2230	33.3	3653	**2230**	37.0	4152	62,900		
	2460	33.7	3663	**2460**	37.5	4163	60,500		
	2495	34.2	3696	**2495**	38.0	4200	62,600		
	2520	34.6	3673	**2520**	38.5	4174	61,800		
	4064	35.5	3598	**4064**	39.5	4089	55,400		
	2700	39.1	3576	**2700**	43.5	4064	58,400		Compressed
	4350	36.0	3211	**4350**	40.0	3649	44,100		Compressed
	3100	36.0	2863	**3100**	40.0	3254	31,100		Compressed
SRA 40 SP	**2015**	31.1	3494	**2015**	34.5	3971	57,600	2.260″	
	2230	33.3	3560	**2230**	37.0	4045	60,000		
	2460	34.2	3600	**2460**	38.0	4091	61,600		
	2520	34.7	3555	**2520**	38.5	4040	58,500		
	4064	35.5	3526	**4064**	39.5	4007	54,800		
	4350	36.0	3081	**4350**	40.0	3501	38,900		Compressed
	3100	36.0	2688	**3100**	40.0	3055	28,400		Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
NOS 45 Hornet	**2015**	29.7	3354	**2015**	33.0	3811	58,500	2.305″	
	2230	32.0	3410	**2230**	35.5	3875	59,700		
	2460	32.4	3392	**2460**	36.0	3854	58,800		
	2520	33.8	3412	**2520**	37.5	3877	58,800		
	2700	40.4	3660	**2700**	42.5	3894	60,400		
	4350	36.0	3103	**4350**	40.0	3526	45,500		Compressed
	3100	36.0	2732	**3100**	40.0	3104	33,900		Compressed
HDY 45 HP	**4064**	35.1	3426	**4064**	39.0	3894	56,100	2.300"	
NOS 50 SP	**2015**	30.6	3335	**2015**	34.0	3790	60,700	2.350″	
	2230	32.4	3344	**2230**	36.0	3800	61,400		
	2460	32.9	3371	**2460**	36.5	3831	61,900		
	2520	33.3	3361	**2520**	37.0	3819	63,100		
	4064	34.2	3340	**4064**	38.0	3796	59,300		
	2700	39.0	3461	**2700**	41.0	3682	56,000		
	4350	36.0	3107	**4350**	40.0	3531	49,200		Compressed
	3100	36.0	2789	**3100**	40.0	3169	37,100		Compressed
HDY 53 HP	**2015**	30.2	3220	**2015**	33.5	3659	61,200	2.380″	*
	2230	30.6	3154	**2230**	34.0	3584	59,200		
	2460	31.5	3194	**2460**	35.0	3629	58,600		
	2520	32.0	3167	**2520**	35.5	3599	56,400		
	4064	33.7	3314	**4064**	37.5	3767	64,400		
	2700	39.0	3404	**2700**	41.0	3621	59,300		
	4350	36.0	3084	**4350**	40.0	3505	51,600		Compressed
	3100	36.0	2739	**3100**	40.0	3112	37,900		Compressed
NOS 55 SBT	**2015**	29.7	3166	**2015**	33.0	3598	59,600	2.370″	*
	2230	31.5	3176	**2230**	35.0	3609	59,700		
	2460	32.4	3230	**2460**	36.0	3670	62,300		
	2520	32.4	3172	**2520**	36.0	3605	59,700		
	4064	33.3	3236	**4064**	37.0	3678	59,500		
	2700	38.0	3436	**2700**	40.0	3655	60,700		
	4350	36.0	3050	**4350**	40.0	3466	51,500		Compressed
	3100	36.0	2699	**3100**	40.0	3067	37,400		Compressed
HDY 60 HP	**2015**	29.7	3077	**2015**	33.0	3497	61,500	2.400″	*
	2230	30.6	3014	**2230**	34.0	3425	57,600		
	2460	31.5	3079	**2460**	35.0	3499	60,100		
	2520	32.4	3091	**2520**	36.0	3512	62,300		
	4064	32.4	3086	**4064**	36.0	3507	58,700		
	2700	36.1	3269	**2700**	38.0	3478	61,100		
	4350	36.0	2988	**4350**	40.0	3395	53,200		Compressed
	3100	36.0	2623	**3100**	40.0	2981	37,500		Compressed
SRA 63 SP	**2015**	28.8	2959	**2015**	32.0	3363	60,700	2.325″	
	2230	29.7	2934	**2230**	33.0	3334	59,200		
	2460	29.7	2912	**2460**	33.0	3309	57,400		
	2520	30.6	2932	**2520**	34.0	3332	58,300		
	4064	31.0	2983	**4064**	34.5	3390	59,000		
	2700	35.6	3199	**2700**	37.5	3408	60,900		
	4350	36.0	2997	**4350**	40.0	3406	58,200		Compressed
	3100	36.0	2648	**3100**	40.0	3009	39,700		Compressed

START LOADS Bullet	Powder	MAXIMUM LOADS Grains	Vel.	Powder	Grains	Cartridge Vel.	P.S.I.	Length	Comment
SPR 70 SSP	**2015**	27.0	2751	**2015**	30.0	3126	58,900	2.325″	
	2230	27.9	2720	**2230**	31.0	3091	58,400		
	2460	27.9	2708	**2460**	31.0	3077	57,500		
	2520	29.3	2767	**2520**	32.5	3144	61,000		
	4064	29.0	2833	**4064**	32.2	3220	64,500		
	2700	32.8	2934	**2700**	34.5	3121	58,900		
	4350	34.2	2855	**4350**	38.0	3244	59,500		
	3100	34.2	2593	**3100**	38.0	2947	45,700		
SRA 80 HPBT	**4064**	29.2	2662	**4064**	32.5	3026	62,000		
	2700	32.3	2804	**2700**	34.0	2983	58,600	2.610″	*
	4350	33.3	2783	**4350**	37.0	3163	59,900		

* Over SAAMI Maximum OAL

.220 SWIFT



The .220 Swift may be the best varmint cartridge ever produced. This ballistic phenomenon was developed by Winchester and introduced in 1935 in the new Model 70 bolt action rifle. Discontinued by Winchester in 1964, it is currently available in rifles made by Remington, Ruger and Savage. If anything, the .220 Swift is more popular now than ever.

With a muzzle velocity of 4,110 FPS, the .220 Swift is still the fastest commercial cartridge in the world. Unlike many cartridges, the Swift will produce excellent accuracy at maximum velocities.

Accurate 2700 is the best choice for duplicating factory ballistics with 50-grain bullets. **Accurate 4350** also performed quite well, especially with heavier bullets.

The SAAMI Maximum Average Pressure for the .220 Swift is 54,000 C.U.P. Our data was developed in P.S.I., it does not exceed that pressure level.

.220 SWIFT

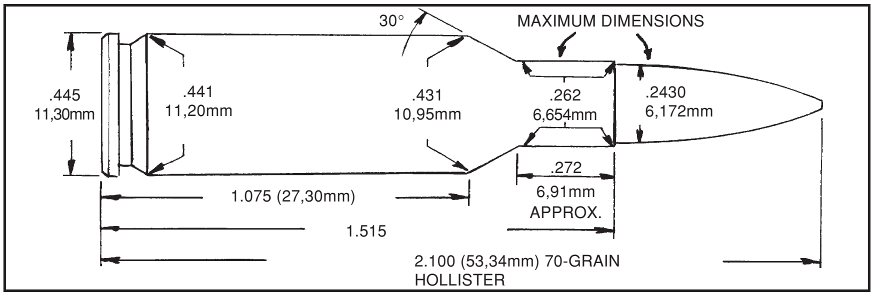
Gun	RUGER M77V	Max Length	2.205″
Barrel Length	26″	Trim Length	2.185″
Primer	FC 210	OAL Max	2.680″
Case	WW	OAL Min	2.650″

	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	P.S.I.	Length	Comment
NOS 40 BT	**2015**	34.6	3867	**2015**	38.5	4395	61,800	2.680"	
	2495	36.0	3879	**2495**	40.0	4409	59,500		
	2520	37.8	3939	**2520**	42.0	4477	63,500		
	4064	35.1	3573	**4064**	39.0	4061	49,200**		
	2700	42.3	3884	**2700**	47.0	4414	61,000		Compressed
	4350	39.6	3561	**4350**	44.0	4047	48,700		Compressed
	3100	39.6	3217	**3100**	44.0	3656	36,000		Compressed
SPR 50 HP	**2495**	33.8	3424	**2495**	37.5	3891	58,500	2.700″	*
	4064	35.1	3381	**4064**	39.0	3843	51,000**		
	2700	42.8	3793	**2700**	45.0	4035	62,500		
	4350	39.6	3467	**4350**	44.0	3940	56,700		Compressed
	3100	39.6	3158	**3100**	44.0	3589	45,100		Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
NOS 55 SBT	**2495**	32.4	3364	**2495**	36.0	3823	63,200	2.680″	
	4064	33.3	3138	**4064**	37.0	3566	52,200**		
	2700	41.3	3602	**2700**	43.5	3832	57,000		
	4350	39.6	3428	**4350**	44.0	3896	59,300		Compressed
	3100	39.6	3157	**3100**	44.0	3588	49,000		Compressed
HDY 60 HP	**2495**	31.1	3169	**2495**	34.5	3601	60,000	2.700″	*
	2700	39.9	3391	**2700**	42.0	3607	59,700		
	4350	39.6	3362	**4350**	44.0	3820	63,800		Compressed
	3100	39.6	3105	**3100**	44.0	3528	50,900		Compressed
SRA 63 SP	**2700**	39.0	3494	**2700**	41.0	3717	63,400	2.660"	
	4350	37.4	3208	**4350**	41.5	3646	58,600		
	3100	39.6	3152	**3100**	44.0	3582	56,300		
SPR 70 SP	**2700**	37.1	3229	**2700**	39.0	3435	64,000	2.660″	
	4350	37.4	3068	**4350**	41.5	3486	64,200		
	3100	39.6	3003	**3100**	44.0	3412	59,000		

* Over SAAMI Maximum OAL
** Pressure data in C.U.P.

6mm PPC



Introduced by Dr. Lou Palmisano and Ferris Pindell in 1975 for benchrest competition, this cartridge is based on the .220 Russian case. The objective of this wildcat was to utilize a small rifle primer in a shortened powder column to achieve more uniform ignition. The success of this research and development program is demonstrated by the 6mm PPC's continued success in benchrest competition. Although .220 Russian cases are very difficult to obtain, factory cases made by Sako are now available.

The chamber in our test barrel conforms to standard Sako factory dimensions. Benchrest competitors with guns having "custom" chambers should exercise caution due to the possibility of large variations in chamber dimensions.

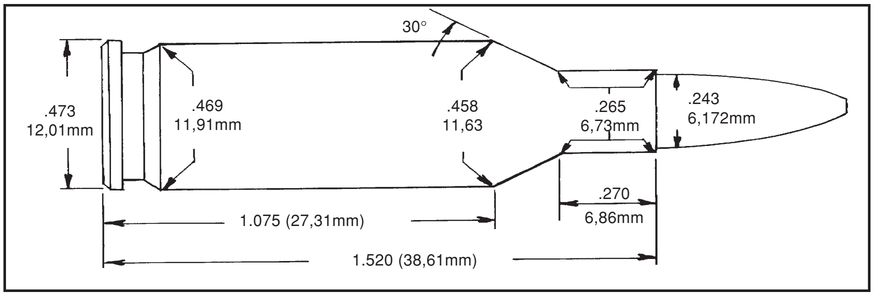
Factory ammunition produced 50,000 P.S.I. in our test barrel. Our loading data does not exceed that pressure.

6mm PPC

Gun	DOUGLAS	Max Length	1.515″
Barrel Length	24″	Trim Length	1.495″
Primer	REM 7˚	OAL Max	2.100″
Case	SAKO	OAL Min	—

	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	**Powder**	**Grains**	**Vel.**	**Powder**	**Grains**	**Vel.**	**P.S.I.**	**Length**	**Comment**
SRA 60 HP	**2015**	24.5	2783	**2015**	27.2	3163	49,200	2.050″	
	2230	26.6	2794	**2230**	29.5	3175	49,500		
	2460	27.0	2816	**2460**	30.0	3200	48,800		
	2495	25.7	2794	**2495**	28.5	3175	50,000		Compressed
HDY 70 SX	**2015**	24.3	2602	**2015**	27.0	2957	46,000	2.080″	
	2230	25.7	2573	**2230**	28.5	2924	49,000		
	2460	26.6	2623	**2460**	29.5	2981	46,600		
	2495R	25.7	2658	**2495**	28.5	3021	48,700		Compressed

6mm BR REMINGTON



The 6mm BR Remington is one of several cartridges available in the XP-100. Remington developed this cartridge from the popular 7mm BR cartridge case. While the 6mm BR has achieved significant popularity in handgun silhouette competition, it is also an able competitor in benchrest rifle matches. This cartridge also produces sufficiently high velocity to be classified as an effective varmint cartridge.

The SAAMI Maximum Average Pressure for the 6mm BR Remington is 52,000 C.U.P. Our data was measured in P.S.I. but does not exceed that pressure level.

6mm BR REMINGTON

Gun	DOUGLAS	Max Length	1.520″
Barrel Length	24″	Trim Length	1.500″
Primer	REM 7˚	OAL Max	2.200″
Case	REM	OAL Min	2.080″

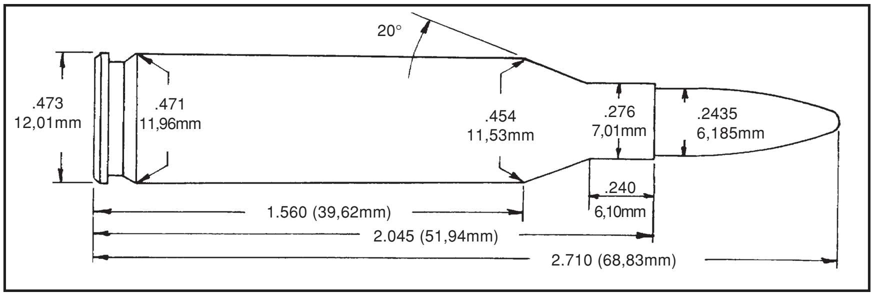
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 60 HP	**2015**	27.5	3055	**2015**	30.5	3472	52,700	2.125″	
	2230	30.2	3008	**2230**	33.5	3418	49,400		
	2460	31.1	3082	**2460**	34.5	3502	51,600		
	2495	29.7	2983	**2495**	33.0	3390	46,700		Compressed
	2520	31.5	3047	**2520**	35.0	3462	50,500		Compressed
	2700	33.3	2912	**2700**	35.0	3098	37,900		Compressed
SRA 70 HP	**2015**	27.5	2887	**2015**	30.5	3281	52,900	2.170″	
	2230	29.3	2865	**2230**	32.5	3256	52,500		
	2460	29.7	2882	**2460**	33.0	3275	51,600		
	2495	28.4	2871	**2495**	31.5	3262	50,500		Compressed
	2520	30.6	2889	**2520**	34.0	3283	51,900		Compressed
	2700	33.3	2772	**2700**	35.0	2949	37,900		Compressed
SPR 80 SP	**2015**	26.1	2679	**2015**	29.0	3044	50,200	2.120″	
	2230	27.9	2673	**2230**	31.0	3037	49,700		
	2460	28.8	2749	**2460**	32.0	3124	51,200		
	2495	27.0	2706	**2495**	30.0	3075	53,400		
	2520	29.7	2746	**2520**	33.0	3121	51,200		
	2700	33.3	2757	**2700**	35.0	2933	46,700		Compressed

6mm BR REMINGTON (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 87 HPBT	**2015**	24.3	2512	**2015**	27.0	2855	52,000	2.225″	*
	2230	26.1	2512	**2230**	29.0	2855	50,500		
	2460	26.6	2539	**2460**	29.5	2885	50,700		
	2495	25.2	2541	**2495**	28.0	2888	51,200		
	2520	27.0	2545	**2520**	30.0	2892	51,800		
	2700	33.3	2747	**2700**	35.0	2922	53,000		Compressed
SPR 100 SBT	**2015**	22.5	2299	**2015**	25.0	2612	51,900	2.210″	*
	2230	25.2	2368	**2230**	28.0	2691	52,400		
	2460	25.2	2357	**2460**	28.0	2678	50,900		
	2495	23.4	2325	**2495**	26.0	2642	54,000		
	2520	25.7	2361	**2520**	28.5	2683	52,000		
	2700	30.4	2487	**2700**	32.0	2646	50,100		
SRA 107	**2015**	22.0	2184	**2015**	24.5	2482	52,600	2.355"	
	2230	23.8	2218	**2015**	26.5	2521	52,200		
	2460	24.7	2285	**2460**	27.5	2597	54,000		
	2495	23.8	2246	**2495**	26.5	2553	54,000		
	2520	24.3	2236	**2520**	27.0	2542	51,400		
	4064	26.1	2327	**4064**	29.0	2645	52,000		
	2700	29.7	2367	**2700**	33.0	2690	54,300		Compressed
SRA 107 MC	**4064**	27.4	2379	**4064**	30.5	2704	51,800	2.355"	Moly-Coated

* Over SAAMI Maximum OAL

.243 WINCHESTER



Introduced by Winchester in 1955 for the Model 70 bolt action and Model 88 lever action rifles, the .243 Winchester is simply a necked-down .308 Winchester and is the result of a successful effort to develop a dual purpose cartridge for both varmint and deer-sized game.

Unlike the .308, the .243 can be a difficult cartridge to load with "faster" propellants. The best choice for all-around use in the .243 is either **Accurate 4350** or **3100**.

The SAAMI Maximum Average Pressure for the .243 Winchester is 52,000 C.U.P.

.243 WINCHESTER

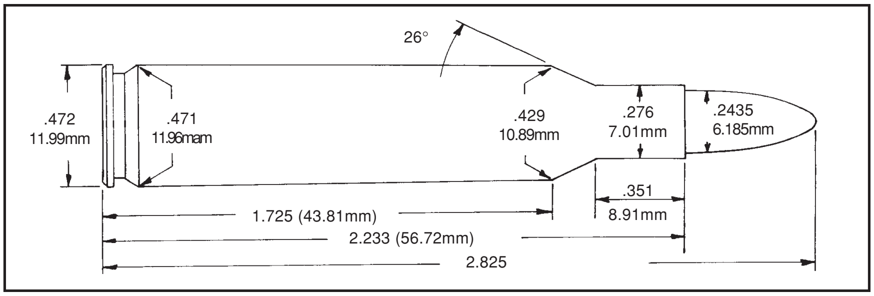
Gun	HS PRECISION	Max Length	2.045″
Barrel Length	24″	Trim Length	2.025″
Primer	CCI 200	OAL Max	2.710″
Case	WW	OAL Min	2.540″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
NOS 55 BT	**2015**	35.1	3283	**2015**	39.0	3731	48,600	2.605"	
	2230	37.3	3350	**2230**	41.5	3807	47,200		
	2460	38.7	3406	**2460**	43.0	3871	48,000		
	2520	39.1	3418	**2520**	43.5	3885	48,500		
	2700	43.6	3364	**2700**	48.5	3823	50,100		
	4350	42.7	3094	**4350**	47.5	3516	42,700		Compressed
	3100	42.7	2792	**3100**	47.5	3173	34,100		Compressed
SRA 60 HP	**2015**	34.2	3244	**2015**	38.0	3686	50,600	2.580″	
	2230	38.0	3478	**2230**	40.0	3700	50,800		
	2460	38.0	3466	**2460**	40.0	3687	50,500		
	2495	36.0	3232	**2495**	40.0	3673	51,500		
	2520	38.0	3376	**2520**	40.0	3591	49,900		
	4064	38.7	3241	**4064**	43.0	3684	49,300		
	2700	41.9	3225	**2700**	46.5	3665	50,800		
	4350	43.2	3196	**4350**	48.0	3632	48,300		
	3100	43.2	2915	**3100**	48.0	3313	43,400		

.243 WINCHESTER (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
HDY 70 SX	**2015**	32.9	2988	**2015**	36.5	3395	46,800	2.650″	
	2230	36.6	3224	**2230**	38.5	3430	50,200		
	2460	37.1	3234	**2460**	39.0	3440	50,400		
	2495	35.1	3070	**2495**	39.0	3489	49,900		
	2520	37.1	3163	**2520**	39.0	3365	48,200		
	4064	37.8	3061	**4064**	42.0	3479	48,400		
	2700	40.5	3078	**2700**	45.0	3498	50,100		
	4350	43.2	3107	**4350**	48.0	3531	47,600		Compressed
	3100	43.2	2830	**3100**	48.0	3216	42,200		Compressed
SPR 80 SP	**5744**	22.5	2285	**5744**	25.0	2597	36,500	2.700"	
	2015	30.2	2746	**2015**	33.5	3121	48,200		
	2495	32.4	2842	**2495**	36.0	3230	50,900		
	2520	32.3	2830	**2520**	34.0	3011	47,800		
	4064	33.3	2810	**4064**	37.0	3194	50,400		
	2700	39.9	3039	**2700**	42.0	3233	50,400		
	4350	39.6	2918	**4350**	44.0	3316	47,900		
	3100	42.3	2878	**3100**	47.0	3271	49,000		Compressed
SRA 85 HPBT	**2495**	31.5	2703	**2495**	35.0	3072	48,700	2.660″	
	4064	34.2	2763	**4064**	38.0	3140	49,000		
	2700	39.0	2952	**2700**	41.0	3140	49,200		
	4350	39.6	2899	**4350**	44.0	3294	49,800		
	3100	41.4	2756	**3100**	46.0	3132	46,800		
NOS 95 SP	**2495**	29.7	2535	**2495**	33.0	2881	51,400	2.700″	
	4064	30.6	2499	**4064**	34.0	2840	49,900		
	2700	37.1	2740	**2700**	39.0	2915	49,700		
	4350	36.0	2680	**4350**	40.0	3046	50,700		
	3100	39.6	2649	**3100**	44.0	3010	49,300		
SPR 100 SBT	**2495**	27.0	2335	**2495**	30.0	2653	50,300	2.700″	
	4064	27.9	2326	**4064**	31.0	2644	50,000		
	2700	34.2	2588	**2700**	36.0	2753	48,300		
	4350	35.1	2623	**4350**	39.0	2981	51,800		
	3100	38.7	2610	**3100**	43.0	2966	51,900		

6mm REMINGTON



Introduced by Remington in 1955 as the .244 Remington, this cartridge was chambered in the Model 722 bolt action and later in the Model 760 slide action rifles. The .244/ 6mm Remington is based on the .257 Roberts case necked down to .24 caliber and was originally a wildcat cartridge credited to RCBS's Fred Huntington.

When originally introduced, .244 Remington rifles were made with 12-inch twist barrels since Remington intended it to be only a varmint cartridge. This assumed, incorrectly, the shooting public would agree with them. Since the .243 Winchester would accurately shoot heavier bullets, it quickly became a legitimate deer cartridge and soon caused the demise of the ballistically superior .244 Remington.

In order to correct the situation, Remington renamed the cartridge and introduced new rifles with 9-inch twist barrels.

The SAAMI Maximum Average Pressure for the 6mm Remington is 65,000 P.S.I. This is nearly 10% higher than the pressure limit for the .243 Winchester. This fact, coupled with the increased case capacity of the 6mm Remington, allows greater flexibility for the handloader.

6mm REMINGTON

Gun	DOUGLAS	Max Length	2.233″
Barrel Length	24″	Trim Length	2.213″
Primer	CCI 200	OAL Max	2.825″
Case	FC	OAL Min	2.730″

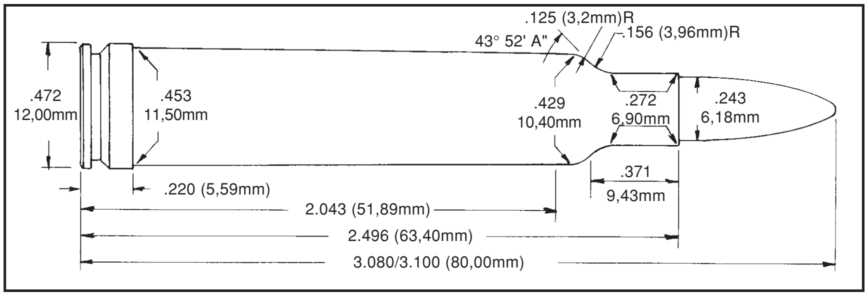
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
NOS 55 BT	**2015**	36.9	3427	**2015**	41.0	3895	47,300*	2.765"	
	2495	40.0	3449	**2495**	44.5	3920	49,000*		
	4064	40.5	3547	**4064**	45.0	4031	51,000*		
	2700	45.1	3445	**2700**	50.5	3915	50,800*		
	4350	45.9	3305	**4350**	51.0	3756	46,000*		Compressed
	3100	45.9	2975	**3100**	51.0	3381	37,000*		Compressed

6mm BR REMINGTON (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 60 HP	**2015**	37.9	3317	**2015**	42.1	3769	63,200	2.750″	
	2495	39.6	3339	**2495**	44.0	3794	63,300		
	4064	40.9	3432	**4064**	45.5	3901	63,600		
	2700	45.5	3295	**2700**	50.5	3744	60,300		
	4350	45.0	3101	**4350**	50.0	3524	48,300		Compressed
	3100	45.9	2839	**3100**	51.0	3226	36,700		Compressed
HDY 65 VMAX	**2015**	36.0	3237	**2015**	40.0	3679	63,100	2.775"	
	2520	38.7	3247	**2520**	43.0	3690	64,000		
	4064	40.9	3290	**4064**	45.5	3739	61,500		
HDY 70 SP	**2015**	36.7	3081	**2015**	40.8	3501	61,500	2.775″	
	2495	37.8	3140	**2495**	42.0	3568	61,800		
	4064	40.0	3235	**4064**	44.5	3677	63,200		
	2700	44.1	3145	**2700**	49.0	3574	62,500		
	4350	45.0	3017	**4350**	50.0	3428	51,900		Compressed
	3100	45.9	2805	**3100**	51.0	3187	41,200		Compressed
SPR 80 SP	**2015**	34.9	2883	**2015**	38.8	3276	65,000	2.825″	
	2495	36.0	2886	**2495**	40.0	3280	58,800		
	4064	39.1	3066	**4064**	43.5	3485	63,900		
	2700	43.2	3006	**2700**	48.0	3416	62,900		
	4350	44.6	2997	**4350**	49.5	3406	61,800		Compressed
	3100	45.9	2804	**3100**	51.0	3186	49,400		Compressed
HDY 87 SP	**2015**	34.7	2746	**2015**	38.5	3120	61,700	2.810″	
	2495	35.1	2747	**2495**	39.0	3122	59,000		
	4064	37.8	2882	**4064**	42.0	3275	60,600		
	2700	41.9	2852	**2700**	46.5	3241	59,800		
	4350	43.7	2879	**4350**	48.5	3272	62,000		
	3100	45.9	2825	**3100**	51.0	3210	56,700		Compressed
NOS 95 BT	**4064**	36.9	2777	**4064**	41.0	3156	61,300	2.895"	
NOS 100 SP	**2015**	32.9	2548	**2015**	36.5	2896	63,300	2.825"	
	4064	36.0	2701	**4064**	40.0	3070	61,300		
	2700	41.0	2692	**2700**	45.5	3059	61,400		
	4350	41.0	2676	**4350**	45.6	3041	61,000		
	3100	43.2	2623	**3100**	48.0	2981	55,300		Compressed
	8700	45.9	2234	**8700**	51.0	2539	34,000		Compressed
SPR 105 RNSP	**4064**	35.1	2612	**4064**	39.0	2969	63,700	2.825"	
	2700	40.1	2605	**2700**	44.5	2960	60,900		
	4350	39.6	2563	**4350**	44.0	2912	59,200		
	3100	42.3	2499	**3100**	47.0	2840	51,400		Compressed
	8700	45.9	2223	**8700**	51.0	2526	35,400		Compressed
BAR 115 RN	**4350**	39.6	2498	**4350**	44.0	2839	62,500	2.825	
	3100	42.3	2503	**3100**	47.0	2844	60,200		Compressed
	8700	45.9	2233	**8700**	51.0	2537	40,600		Compressed

* Pressure data in C.U.P.

.240 WEATHERBY MAGNUM



Introduced by Weatherby in 1968, this is a proprietary cartridge having a belted case that has about the same capacity as the .30-06. The rim diameter is also the same as the .30-06.

Having about the same power and performance capability of the .25-06 Remington, the .240 Weatherby represents the maximum performance one can obtain from a 6mm bore.

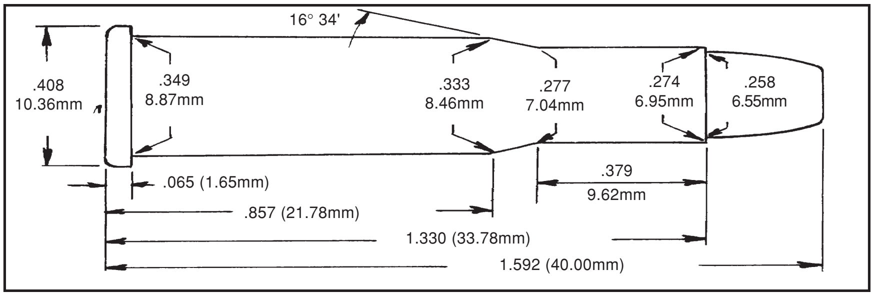
Weatherby factory ammunition produced pressures of 67,000 P.S.I. Our data does not exceed that pressure.

.240 WEATHERBY MAGNUM

Gun	DOUGLAS	Max Length	2.496″
Barrel Length	26″	Trim Length	2.480″
Primer	CCI 250	OAL Max	3.100″
Case	WBY	OAL Min	—

	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	P.S.I.	Length	Comment
SPR 80 SP	**4350**	45.9	3062	**4350**	51.0	3480	65,200	3.100″	
	3100	50.8	3120	**3100**	56.5	3570	67,000		Compressed
	8700	56.7	2727	**8700**	63.0	3099	46,100		Compressed
HDY 87 HPBT	**4350**	45.0	2968	**4350**	50.0	3373	65,200	3.100″	
	3100	50.0	3032	**3100**	55.5	3446	64,900		
	8700	56.7	2717	**8700**	63.0	3088	49,300		Compressed
NOS 95 (Part)	**4350**	44.1	2852	**4350**	49.0	3241	65,500	3.065″	
	3100	48.2	2871	**3100**	53.5	3262	62,300		
	8700	55.8	2648	**8700**	62.0	3009	50,300		Compressed
SPR 100 SBT	**4350**	43.2	2762	**4350**	48.0	3139	63,600	3.095″	
	3100	46.8	2798	**3100**	52.0	3179	63,600		
	8700	55.8	2680	**8700**	62.0	3045	56,100		Compressed

.25-20 WINCHESTER



Originally introduced about 1895, the .25-20 Winchester is based on the .32-20 Winchester necked down.

While not overly powerful, the .25-20 Winchester was once one of our most popular small game and varmint cartridges. Originally advertised as satisfactory for deer, it is generally accepted today that the .25-20 should be restricted to hunting small game. While accuracy in some of the original firearms was spotty, in a good bolt action or single shot it is capable of excellent performance.

The .25-20 is a popular cartridge for cast bullet shooting since it is easy to handload and obtain good results.

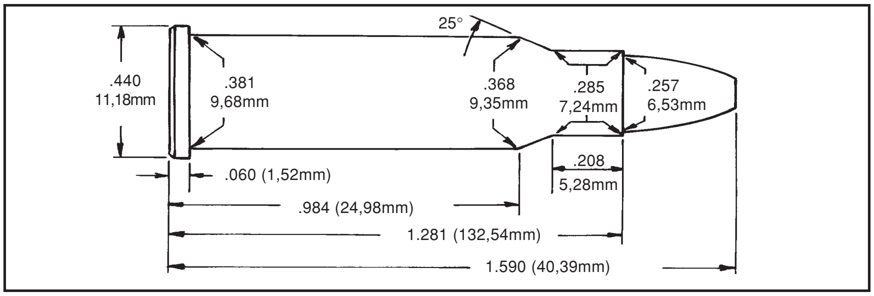
The SAAMI Maximum Average Pressure for this cartridge is 28,000 C.U.P.

.25-20 WINCHESTER

Gun	DOUGLAS	Max Length	1.330″
Barrel Length	24″	Trim Length	1.305″
Primer	CCI 400	OAL Max	1.592″
Case	REM	OAL Min	1.530″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
65 (L) FNGC	**No.9**	7.2	1606	**No.9**	8.0	1825	26,500	1.592″	LY257420
	5744	9.9	1649	**5744**	11.0	1874	26,400		
	1680	12.0	1818	**1680**	13.3	2138	28,000		
	2015	13.5	1670	**2015**	15.0	1898	24,600		Compressed
90 (L) FNGC	**No. 9**	6.6	1429	**No. 9**	7.3	1624	27,000	1.615"	Lyman
	5744	9.0	1474	**5744**	10.0	1675	27,400		
	1680	9.6	1552	**1680**	10.7	1764	23,800		
	2015	11.7	1559	**2015**	13.0	1772	28,000		
HDY 60 FP	**No.9**	7.7	1726	**No.9**	8.5	1961	27,700	1.592″	
	5744	10.3	1719	**5744**	11.4	1953	26,200		
	1680	12.6	1979	**1680**	14.0	2249	25,800		
	2015	14.4	1721	**2015**	16.0	1956	25,100		Compressed
SPR 75 FN	**No.9**	7.2	1510	**No.9**	8.0	1716	27,100	1.585″	
	5744	10.1	1628	**5744**	11.2	1850	28,000		
	1680	11.3	1745	**1680**	12.5	1983	27,600		
	2015	13.1	1624	**2015**	14.5	1846	25,700		

.256 WINCHESTER MAGNUM



The .256 Winchester Magnum was introduced in 1960 as a new handgun cartridge with no guns made for it. Soon after, however, the single-shot Ruger Hawkeye pistol was introduced. The anticipated Smith & Wesson and Ruger revolvers chambered for this cartridge never materialized due to technical problems associated with setback of the bottle-necked case when the cartridge is fired in a revolver.

The .256 Winchester Magnum is also listed as a rifle cartridge because Marlin produced the Model 62 lever action rifle in this chambering. The Thompson/Center Contender was also chambered for this round.

As a rifle cartridge, the .256 Winchester Magnum is somewhat more potent than the .25-20 and is considered an effective varmint cartridge out to about 150 yards.

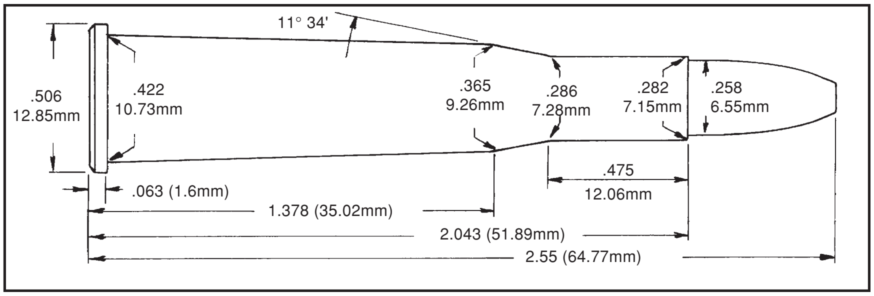
The SAAMI Maximum Average Pressure for the .256 Winchester is 43,000 C.U.P.

.256 WINCHESTER MAGNUM

Gun	DOUGLAS	Max Length	1.281″
Barrel Length	24″	Trim Length	1.261″
Primer	CCI 500	OAL Max	1.590″
Case	WW	OAL Min	1.540″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
65 (L) FNGC	**1680**	13.5	2034	**1680**	15.0	2311	29,300	1.585″	LY257420
	2015	16.2	1952	**2015**	18.0	2218	27,000		
HDY 60 FN	**1680**	16.2	2423	**1680**	18.0	2753	40,900	1.580″	
	2015	18.0	2138	**2015**	20.0	2430	30,600		Compressed
SPR 75 FN	**1680**	14.9	2120	**1680**	16.5	2409	37,400	1.575″	
	2015	18.0	2133	**2015**	20.0	2424	36,100		Compressed

.25-35 WINCHESTER



The .25-35 Winchester was developed by Winchester in 1895 for the Model 94 lever action rifle. Based on the .30-30 case, this was also one of the first small bore, smokeless powder cartridges developed in the United States. The .25-35 Winchester is considered one of the most accurate cartridges in the older lever action rifles. Reputedly it will shoot as accurately as any .25 caliber cartridge in a good single shot rifle. This cartridge is also quite popular in Europe where it was known as the 6.5x52R.

Although considered a deer cartridge, its power is about the minimum that should be used on large game. Loads for firearms having tubular magazines must be restricted to those with flat or round points.

The SAAMI Maximum Average Pressure for the .25-35 Winchester is 37,000 C.U.P.

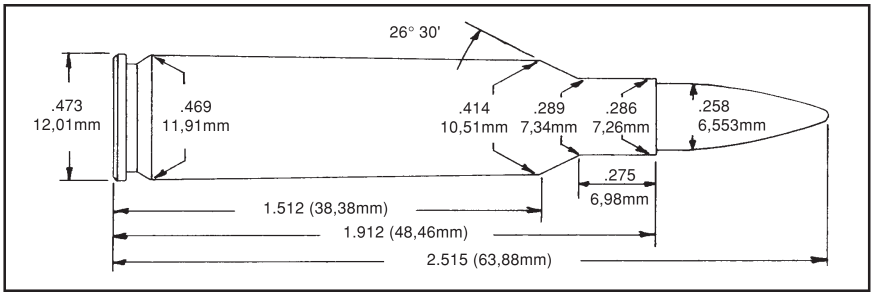
.25-35 WINCHESTER

Gun	DOUGLAS	Max Length	2.043″
Barrel Length	24″	Trim Length	2.018″
Primer	CCI 200	OAL Max	2.550″
Case	WW	OAL Min	2.505″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
HDY 60 FN	**2495**	27.5	2487	**2495**	30.5	2826	29,800	2.300″	Compressed
	2520	28.8	2674	**2520**	32.0	3039	35,000		Compressed
	2700	30.4	2559	**2700**	32.0	2722	33,800		Compressed
	4350	27.0	1930	**4350**	30.0	2193	22,300		Compressed
SPR 75 FN	**2495**	26.1	2346	**2495**	29.0	2666	32,900	2.310″	Case Full
	2520	26.1	2372	**2520**	29.0	2696	33,400		Case Full
	2700	30.4	2486	**2700**	32.0	2645	37,000		Compressed
	4350	27.0	1932	**4350**	30.0	2195	27,500		Compressed
HDY 117 RN	**2495**	22.5	1919	**2495**	25.0	2181	32,300	2.545″	
	2520	22.5	1952	**2520**	25.0	2218	33,900		
	2700	25.7	1987	**2700**	27.0	2114	37,000		
	4350	27.0	1925	**4350**	30.0	2187	33,600		Compressed

.250-3000 SAVAGE

Designed by Charles Newton for Savage Arms Company, the .250-3000 derives its name from its original loading which propelled an 87-grain bullet at 3,000 fps.



The .250 Savage (as it is known today) has been chambered in several firearms. It offers flat trajectory, excellent accuracy and adequate killing power on deer-sized animals while producing relatively light recoil and low noise. It is a fine choice for recoil sensitive shooters.

The SAAMI Maximum Average Pressure for this cartridge is 45,000 C.U.P.

.250-3000 SAVAGE

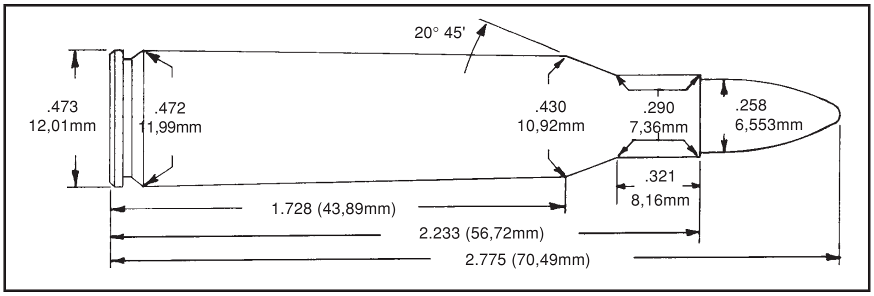
Gun	DOUGLAS	Max Length	1.912″
Barrel Length	24″	Trim Length	1.892″
Primer	REM 9˚	OAL Max	2.515″
Case	REM	OAL Min	2.320″

	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	C.U.P.	Length	Comment
90 (L) RNGC	**5744**	15.0	1929	**5744**	19.0	2291	30,600	2.230"	Lyman
105 (L) RNGC	**5744**	15.0	1840	**5744**	19.0	2204	32,900	2.325"	Lyman
SRA 75 HP	**2015**	28.4	2741	**2015**	31.5	3115	41,400	2.465″	
	2230	30.2	2740	**2230**	33.5	3114	43,800		
	2460	30.6	2798	**2460**	34.0	3179	44,300		
	2495	30.6	2789	**2495**	34.0	3169	42,600		
	2520	30.6	2746	**2520**	34.0	3121	41,300		
	4064	32.4	2789	**4064**	36.0	3170	41,500		
	2700	35.6	2859	**2700**	37.5	3041	43,100		
	4350	36.9	2670	**4350**	41.0	3034	43,600		Compressed
	3100	36.9	2407	**3100**	41.0	2735	36,500		Compressed
SRA 90 HPBT	**2015**	27.5	2578	**2015**	30.5	2929	41,400	2.460″	
	2230	28.8	2556	**2230**	32.0	2905	41,000		
	2460	28.8	2549	**2460**	32.0	2897	41,200		
	2495	29.3	2598	**2495**	32.5	2952	42,500		
	2520	29.3	2554	**2520**	32.5	2902	41,200		
	4064	31.5	2637	**4064**	35.0	2997	42,400		
	2700	34.2	2680	**2700**	36.0	2851	43,800		
	4350	36.0	2579	**4350**	40.0	2931	44,800		Compressed
	3100	36.9	2403	**3100**	41.0	2731	41,900		Compressed

.250-3000 SAVAGE (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
HDY 100 SP	**2015**	27.0	2457	**2015**	30.0	2792	43,100	2.500″	
	2230	27.0	2343	**2230**	30.0	2662	40,400		
	2460	27.9	2365	**2460**	31.0	2687	38,700		
	2495	28.8	2435	**2495**	32.0	2767	43,600		
	2520	28.8	2429	**2520**	32.0	2760	42,300		
	4064	31.5	2520	**4064**	35.0	2864	41,500		
	2700	33.3	2549	**2700**	35.0	2712	42,000		
	4350	35.1	2447	**4350**	39.0	2781	42,500		
	3100	36.9	2347	**3100**	41.0	2667	40,600		Compressed
SRA 117 SBT	**2015**	25.7	2262	**2015**	28.5	2571	45,000	2.515″	
	2230	26.1	2208	**2230**	29.0	2509	43,000		
	2460	26.6	2198	**2460**	29.5	2498	40,800		
	2495	27.0	2259	**2495**	30.0	2567	45,000		
	2520	27.0	2225	**2520**	30.0	2528	44,300		
	4064	28.8	2289	**4064**	32.0	2602	42,000		
	2700	31.4	2340	**2700**	33.0	2489	41,100		
	4350	33.3	2311	**4350**	37.0	2626	42,300		
	3100	36.9	2334	**3100**	41.0	2652	43,700		Compressed

.257 ROBERTS



Originally designed by Ned Roberts during the 1930s, the .257 Roberts is based on the 7x57mm Mauser necked to .25 caliber. When Remington introduced the commercial version of this cartridge in 1934, they changed the shoulder angle from 15° to 20°. The .257 Roberts was originally introduced in Remington's Model 30 bolt action rifle. Remington also produced the Model 722 bolt action and 760 Gamemaster pump chambered for this cartridge, as well as a limited run of the Model 700 Classic. Winchester chambered both their Model 54 and Model 70 rifles for this cartridge. Other manufacturers have likewise chambered for it.

While not as popular today as it once was, the .257 Roberts is an all-around cartridge for the handloader. It is an excellent long-range varmint cartridge and is suitable for large game up to and including black bear.

The SAAMI Maximum Average Pressure for the .257 Roberts cartridge is 54,000 P.S.I. Factory ammo produced 47,000 P.S.I in our test barrel. These loads do not exceed that pressure.

.257 ROBERTS

Gun	DOUGLAS	Max Length	2.233″
Barrel Length	24″	Trim Length	2.213″
Primer	CCI 200	OAL Max	2.775″
Case	REM	OAL Min	2.620″

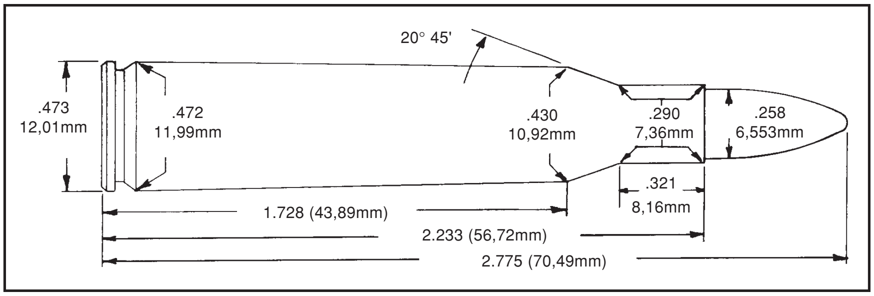
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
90 (L) GC	**5744**	17.0	1851	**5744**	22.0	2275	21,300	2.625"	Penny's
RCBS 100 (L) GC	**5744**	17.0	1756	**5744**	24.0	2301	27,800	2.705"	Penny's
	8700	47.7	2174	**8700**	53.0	2471	32,200	2.660″	
SRA 75 HP	**2520**	35.6	2789	**2520**	39.5	3169	42,100	2.745″	
	4064	38.1	2904	**4064**	42.3	3300	47,000		
	2700	43.7	3048	**2700**	46.0	3243	44,800		
	4350	42.3	2866	**4350**	47.0	3257	43,600		
	3100	45.9	2783	**3100**	51.0	3163	38,100		Compressed

.257 ROBERTS (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
BAR 85-X	**2520**	33.8	2622	**2520**	37.5	2980	44,000	2.770″	
	4064	36.4	2677	**4064**	40.5	3043	45,800		
	2700	40.9	2868	**2700**	43.0	3051	44,100		
	4350	41.4	2728	**4350**	46.0	3100	44,500		
	3100	44.1	2667	**3100**	49.0	3031	39,900		
SRA 90 HPBT	**2520**	33.3	2593	**2520**	37.0	2947	43,500	2.735″	
	4064	36.4	2694	**4064**	40.5	3062	46,200		
	2700	39.9	2810	**2700**	42.0	2989	42,700		
	4350	40.5	2641	**4350**	45.0	3001	42,100		
	3100	45.0	2689	**3100**	50.0	3056	44,000		Compressed
BAR 100-X	**2520**	30.6	2324	**2520**	34.0	2641	42,700	2.760″	
	4064	34.2	2460	**4064**	38.0	2796	45,800		
	2700	37.1	2522	**2700**	39.0	2683	42,700		
	4350	36.9	2410	**4350**	41.0	2739	42,700		
	3100	41.4	2381	**3100**	46.0	2706	37,800		
NOS 100 BT	**2520**	31.5	2416	**2520**	35.0	2745	43,400	2.785″	*
	4064	34.9	2534	**4064**	38.8	2880	47,000		
	2700	39.0	2683	**2700**	41.0	2854	44,000		
	4350	40.1	2550	**4350**	44.5	2898	44,100		
	3100	44.1	2520	**3100**	49.0	2864	39,900		Compressed
SRA 117 SBT	**2520**	30.6	2248	**2520**	34.0	2555	42,700	2.775″	
	4064	31.5	2235	**4064**	35.0	2540	46,500		
	2700	37.1	2462	**2700**	39.0	2619	43,200		
	4350	38.7	2376	**4350**	43.0	2700	44,100		
	3100	43.2	2408	**3100**	48.0	2736	43,700		Compressed

* Over SAAMI Maximum OAL

.257 ROBERTS (+P)



This data is only for use in modern firearms approved, by a gunsmith or manufacturer, for use with higher pressure +P ammo.

The SAAMI Maximum Average Pressure for the .257 Roberts +P is 58,000 P.S.I. Factory +P ammo produced 51,000 P.S.I. in our test barrel. These loads do not exceed that pressure.

.257 ROBERTS (+P)

Gun	DOUGLAS	Max Length	2.233″
Barrel Length	24″	Trim Length	2.213″
Primer	CCI 200	OAL Max	2.775″
Case	REM	OAL Min	2.620″

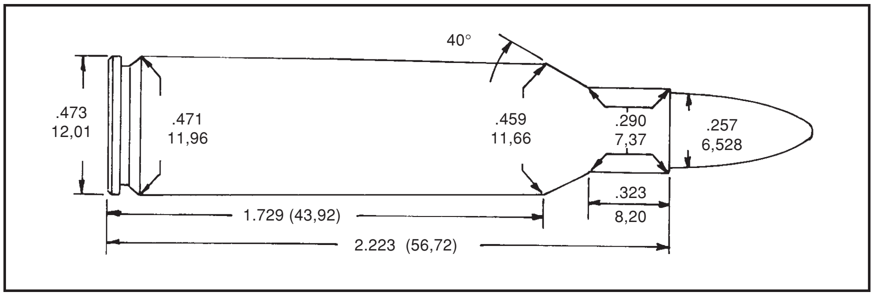
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 75 HP	**2520**	36.9	2912	**2520**	41.0	3309	48,100	2.745″	
	4064	39.0	2966	**4064**	43.3	3370	51,000		
	2700	44.7	3119	**2700**	47.0	3318	48,600		
	4350	44.1	2966	**4350**	49.0	3370	47,200		
BAR 85-X	**2520**	35.1	2709	**2520**	39.0	3078	48,700	2.770″	
	4064	37.3	2750	**4064**	41.5	3125	49,000		
	2700	42.8	2959	**2700**	45.0	3148	48,700		
	4350	42.3	2802	**4350**	47.0	3184	48,900		
SRA 90 HPBT	**2520**	34.7	2692	**2520**	38.5	3059	48,200	2.735″	
	4064	37.3	2755	**4064**	41.5	3131	49,400		
	2700	41.8	2954	**2700**	44.0	3143	50,300		
	4350	42.3	2786	**4350**	47.0	3166	49,900		
NOS 100 BT	**2520**	33.8	2525	**2520**	37.5	2869	48,700	2.785″	*
	4064	36.0	2594	**4064**	40.0	2948	50,800		
	2700	40.9	2761	**2700**	43.0	2937	49,200		
	4350	41.9	2682	**4350**	46.5	3048	50,800		
BAR 100-X	**2520**	33.3	2475	**2520**	37.0	2813	49,900	2.760″	
	4064	35.1	2533	**4064**	39.0	2879	49,600		
	2700	39.0	2640	**2700**	41.0	2808	47,800		
	4350	39.6	2570	**4350**	44.0	2920	50,300		
	3100	43.2	2577	**3100**	48.0	2928	47,800		Compressed

.257 ROBERTS (+P) (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 117 SBT	**2520**	32.9	2357	**2520**	36.5	2678	49,300	2.775″	
	4064	33.7	2347	**4064**	37.5	2668	49,300		
	2700	39.0	2532	**2700**	41.0	2694	48,000		
	4350	39.6	2410	**4350**	44.0	2739	48,400		

* Over SAAMI Maximum OAL

.257 ROBERTS ACKLEY IMPROVED (40°)



There are several "improved" versions of the .257 Roberts of which the .257 Ackley Improved is the most popular. The Ackley design has a 40° shoulder which increases case capacity to the maximum practical amount.

The .257 Ackley Improved is an excellent long-range varmint cartridge and is also suitable for most North American game.

There is no SAAMI pressure limit for the .257 Roberts Ackley Improved. We developed our loading data to the same pressure level as the .25-06 Remington.

.257 ACKLEY IMPROVED (40°)

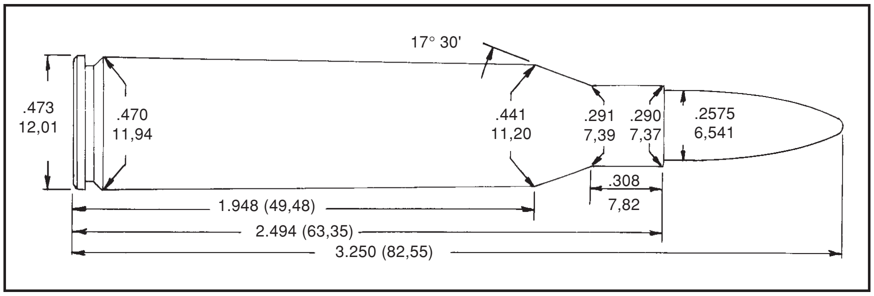
Gun	DOUGLAS	Max Length	2.233″
Barrel Length	26″	Trim Length	2.313″
Primer	CCI 200	OAL Max	--
Case	REM	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 75 HP	**2700**	50.4	3435	**2700**	53.0	3654	59,100	2.790″	
	4350	49.5	3213	**4350**	55.0	3651	58,900		
	3100	50.4	2966	**3100**	56.0	3371	45,600		
	8700	54.9	2496	**8700**	61.0	2836	37,000		Compressed
BAR 85-X	**2700**	48.5	3230	**2700**	51.0	3436	60,500	2.865″	
	4350	47.7	3056	**4350**	53.0	3473	61,700		
	3100	50.4	2931	**3100**	56.0	3331	53,000		
	8700	54.9	2435	**8700**	61.0	2767	40,200		Compressed
SRA 90 HPBT	**2700**	46.6	3100	**2700**	49.0	3298	57,400	2.835″	
	4350	47.7	3021	**4350**	53.0	3433	59,900		
	3100	50.4	2907	**3100**	56.0	3303	53,200		
	8700	54.9	2448	**8700**	61.0	2782	40,600		Compressed
NOS 100 BT	**2700**	46.1	2991	**2700**	48.5	3182	59,600	2.945″	
	4350	46.4	2886	**4350**	51.5	3279	61,600		
	3100	49.5	2825	**3100**	55.0	3210	56,600		Compressed
	8700	54.9	2380	**8700**	61.0	2705	39,500		Compressed

.257 ROBERTS ACKLEY IMPROVED (40º)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
BAR 100-X	**2700**	47.5	3008	**2700**	50.0	3200	59,900	2.885″	
	4350	46.8	2898	**4350**	52.0	3293	61,100		
	3100	49.5	2798	**3100**	55.0	3179	55,200		
	8700	54.9	2376	**8700**	61.0	2700	42,100		Compressed
NOS 115 (Part)	**2700**	44.7	2831	**2700**	47.0	3012	61,400	2.945″	
	4350	44.6	2685	**4350**	49.5	3051	60,200		
	3100	48.6	2727	**3100**	54.0	3099	59,800		Compressed
	8700	54.9	2384	**8700**	61.0	2709	42,700		Compressed
SPR 120 SBT	**2700**	44.7	2790	**2700**	47.0	2968	63,500	2.920″	
	4350	44.6	2660	**4350**	49.5	3023	61,700		
	3100	48.6	2689	**3100**	54.0	3056	60,000		Compressed
	8700	54.9	2364	**8700**	61.0	2686	43,000		Compressed

.25-06 REMINGTON



The .25-06, introduced by Remington in 1969, was originally a wildcat loading. It dates back to 1920 when it was developed by A. O. Niedner and was made by necking the .30-06 case down to .25 caliber.

The .25-06 was unable to achieve its full performance potential until the release of surplus 4350 and 4831 propellants following WWII. With the advent of these slower burning propellants, the .25-06 emerged as the finest of the .25 caliber wildcats. It was suitable for both varmint hunting at extreme ranges and, in the hands of a skilled hunter, most big game in North America.

Today, the .25-06 Remington is offered by almost every manufacturer of bolt action rifles sold in the United States.

The SAAMI Maximum Average Pressure for this cartridge is 63,000 P.S.I. **Accurate 3100** is an excellent choice for most bullet weights in this cartridge.

.25-06 REMINGTON

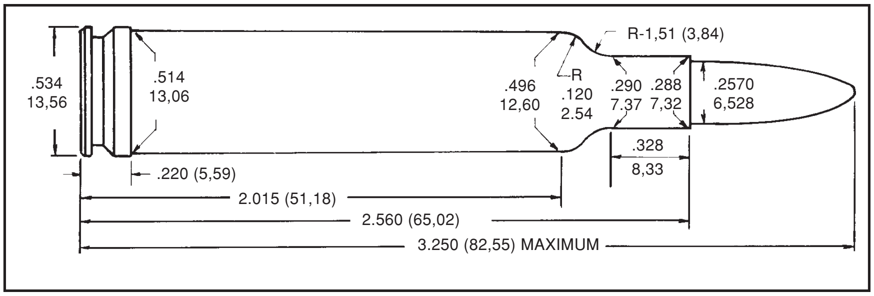
Gun	Wiseman	Max Length	2.494″
Barrel Length	24″	Trim Length	2.474″
Primer	CCI 250	OAL Max	3.250″
Case	REM	OAL Min	3.010″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
100 (L) FNGC	**5744**	19.8	1823	**5744**	22.0	2072	24,000	2.950"	Penny's
	8700	48.6	2124	**8700**	54.0	2414	29,500		Consistent
SRA 75 HP	**2700**	47.7	3302	**2700**	53.0	3753	62,500	3.065″	
	4350	53.1	3326	**4350**	59.0	3780	61,400		Compressed
	3100	54.0	3154	**3100**	60.0	3585	57,900		Compressed
SRA 90 HP	**2700**	45.0	3006	**2700**	50.0	3416	62,500	3.075″	
	4350	48.6	3055	**4350**	54.0	3472	62,900		
	3100	50.9	2965	**3100**	56.5	3370	59,700		Compressed
NOS 100 BT	**2700**	43.2	2827	**2700**	48.0	3213	63,000	3.190″	
	4350	46.8	2880	**4350**	52.0	3273	62,200		
	3100	49.5	2889	**3100**	55.0	3283	63,000		Compressed
	8700	58.5	2501	**8700**	65.0	2843	44,800		Compressed

.25-06 REMINGTON (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
NOS 115 (Part)	**2700**	41.1	2595	**2700**	45.7	2949	60,500	3.195″	
	4350	44.5	2686	**4350**	49.5	3053	60,600		
	3100	47.5	2691	**3100**	52.8	3059	61,400		
	8700	57.6	2466	**8700**	64.0	2803	46,900		Compressed
SRA 120 SPBT	**2700**	40.5	2545	**2700**	45.0	2893	62,800	3.120″	
	4350	44.1	2588	**4350**	49.0	2942	60,600		
	3100	46.8	2620	**3100**	52.0	2978	61,200		
	8700	57.6	2396	**8700**	64.0	2723	44,500		Compressed

.257 WEATHERBY MAGNUM



This proprietary cartridge was introduced by Weatherby in the late 1940s. As with most Weatherby designs, this cartridge case is notably "overbore" in case capacity. As a result only the slowest powders will give consistent ballistics in this cartridge.

Accurate 8700 is the best choice for all bullet weights in the .257 Weatherby Magnum. While higher velocities can be obtained with a light bullet using faster propellants, the air space resulting from the lower charge weight when using these propellants is not conducive to the same degree of consistency as that produced by **8700**.

There is no SAAMI pressure limit for the .257 Weatherby Magnum. Weatherby factory ammunition produced 63,000 P.S.I. in our test barrel. These loads do not exceed that pressure.

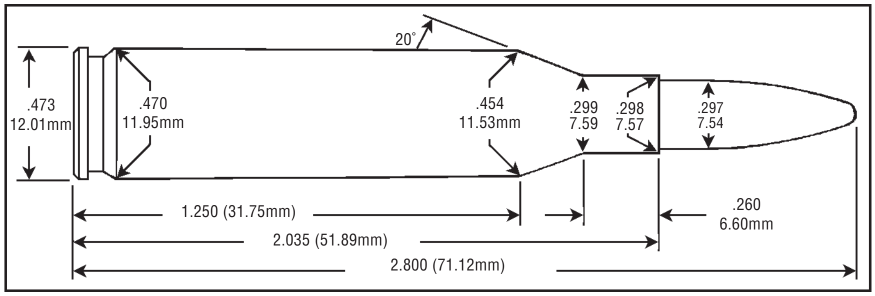
.257 WEATHERBY MAGNUM

Gun	DOUGLAS	Max Length	2.560″
Barrel Length	26″	Trim Length	2.530″
Primer	FC 215	OAL Max	3.250″
Case	WBY	OAL Min	—

	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	P.S.I.	Length	Comment
BAR 85-X	**4350**	61.8	3490	**4350**	65.0	3713	62,000	3.150″	
	3100	66.5	3435	**3100**	70.0	3654	61,200		
	8700	85.5	3318	**8700**	90.0	3530	51,500		Compressed
HDY 100 SP	**4350**	59.4	3301	**4350**	62.5	3512	61,100	3.180″	
	3100	65.6	3253	**3100**	69.0	3461	58,500		
	8700	85.5	3173	**8700**	90.0	3375	58,000		Compressed
NOS 115 SP	**4350**	56.1	3051	**4350**	59.0	3246	59,600	3.255″	*
	3100	63.7	3086	**3100**	67.0	3283	61,100		
	8700	81.7	3130	**8700**	86.0	3330	55,300		Compressed
SPR 120 SBT	**4350**	56.1	2999	**4350**	59.0	3190	60,100	3.215″	
	3100	62.7	3018	**3100**	66.0	3211	61,100		
	8700	80.8	3067	**8700**	85.0	3263	55,600		Compressed

* Over Recommended MAX OAL

.260 REMINGTON



The .260 Remington cartridge was wildcatted out of either .243 Winchester or .308 Winchester cases in various guises and names, the most common being the 6.5-08 which is an excellent description. The .260 is basically the .308 Win parent case-necked down to use a 6.5mm bullet. The 6.5mm on the 308 case has become quite a popular cartridge for High Power Rifle Silhouette competition. It combines good trajectory with adequate bullet weight and moderate recoil. Obviously, with it's ballistics, the 140 grain SP factory load is good for deer sized big game.

As a side note regarding bullet selection, bullets either heavier or longer than those shown are not deemed suitable. At least, not at the recommended O.A.L. required to fit in the magazines of the Remington rifles chambered for it. Deep seating with a large portion of the bullet intruding into the powder space below the case neck is not conducive to consistent internal ballistics. Generally, loads about 1.0 grain below the listed maximum charge weight were the most consistent of those tested.

SAAMI has established a maximum Average Pressure for the .260 Remington of 60,000 PSI. Remington's maximum O.A.L. for the .260 is 2.800". All of the bullets tested were seated so as not to be in contact with the rifling in our industry test barrel and to fit in the magazine of a Remington rifle.

.260 REMINGTON

Gun	HS PRECISION	Max Length	2.035"
Barrel Length	24″	Trim Length	2.025"
Primer	Remington 9 1/2	OAL Max	2.800"
Case	Remington	OAL Min	2.650"

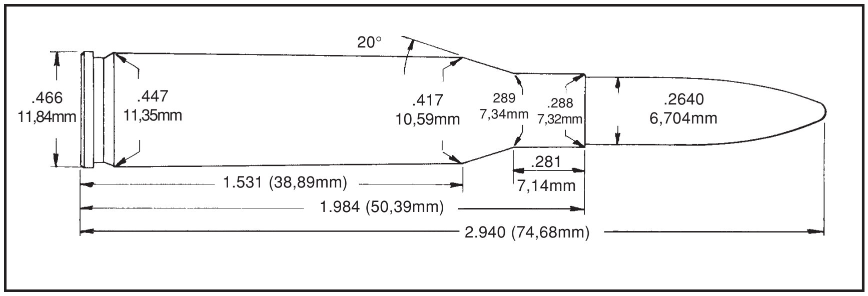
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 85 HP	**5744**	--	--	**5744**	20.0	2160	22,300	2.670"	
	5744	29.7	2828	**5744**	33.0	3214	57,800		
	4064	39.6	2947	**4064**	44.0	3349	58,700		
	2700	43.2	2939	**2700**	48.0	3340	58,700		
	4350	43.2	2837	**4350**	48.0	3224	51,100		Compressed
	3100	43.2	2571	**3100**	48.0	2922	41,200		Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 100 SP	**4064**	38.7	2787	**4064**	43.0	3168	58,300	2.750"	
	2700	42.3	2794	**2700**	47.0	3176	58,400		
	4350	44.1	2874	**4350**	49.0	3266	59,000		Compressed
	3100	45.0	2676	**3100**	50.0	3042	51,000		Compressed
BAR 100 X	**4064**	37.3	2719	**4064**	41.5	3090	57,200	2.750"	
	2700	38.5	2635	**2700**	42.8	2995	56,500		
	4350	43.2	2840	**4350**	48.0	3228	59,500		Compressed
	3100	45.0	2744	**3100**	50.0	3119	57,200		Compressed
NOS 100 BT	**4064**	36.9	2713	**4064**	41.0	3083	56,900	2.765"	
	2700	40.5	2746	**2700**	45.0	3121	58,900		
	4350	43.2	2845	**4350**	48.0	3234	58,700		Compressed
	3100	45.0	2698	**3100**	50.0	3066	52,800		Compressed
NOS 100 PART	**4064**	37.8	2781	**4064**	42.0	3161	59,200	2.720"	
	2700	41.0	2783	**2700**	45.5	3163	59,600		
	4350	43.6	2885	**4350**	48.5	3279	59,800		Compressed
	3100	45.0	2720	**3100**	50.0	3091	53,200		Compressed
SRA 107 HPBT	**5744**	--	--	**5744**	18.0	1899	23,500	2.800"	
	5744	27.9	2527	**5744**	31.0	2872	55,400		
	4064	37.8	2716	**4064**	42.0	3087	58,100		
	2700	41.4	2722	**2700**	46.0	3094	58,200		
	4350	43.2	2797	**4350**	48.0	3179	58,900		Compressed
	3100	43.2	2525	**3100**	48.0	2870	45,700		Compressed
SWF 120 SP	**4064**	35.1	2478	**4064**	39.0	2817	58,100	2.710"	
	2700	38.7	2487	**2700**	43.0	2827	57,200		
	4350	41.0	2600	**4350**	45.5	2955	58,700		
	3100	42.7	2507	**3100**	47.5	2849	53,700		Compressed
NOS 120 BT	**4064**	34.2	2427	**4064**	38.0	2758	58,200	2.800"	
	2700	37.8	2468	**2700**	42.0	2805	58,700		
	4350	40.0	2594	**4350**	44.5	2948	60,000		
	3100	43.2	2564	**3100**	48.0	2914	57,900		Compressed
SPR 120 SP	**4064**	34.6	2456	**4064**	38.5	2791	59,000	2.750"	
	2700	38.7	2499	**2700**	43.0	2840	58,100		
	4350	40.5	2600	**4350**	45.0	2955	59,900		
	3100	43.2	2544	**3100**	48.0	2891	56,700		Compressed
BAR 120 X	**4064**	33.3	2368	**4064**	37.0	2692	58,500	2.750"	
	2700	37.8	2410	**2700**	42.0	2739	57,200		
	4350	39.6	2543	**4350**	44.0	2890	60,000		
	3100	41.0	2462	**3100**	45.5	2798	57,300		Compressed
NOS 125 PART	**4064**	34.6	2430	**4064**	38.5	2762	59,000	2.780"	
	2700	37.8	2439	**2700**	42.0	2772	56,700		
	4350	40.5	2584	**4350**	45.0	2937	60,000		
	3100	43.2	2563	**3100**	48.0	2913	58,700		Compressed
HDY 129 SP	**4064**	34.2	2362	**4064**	38.0	2685	59,100	2.780"	
	2700	36.9	2366	**2700**	41.0	2689	57,100		
	4350	39.6	2493	**4350**	44.0	2833	58,400		
	3100	42.3	2547	**3100**	47.0	2895	56,600		Compressed

.260 REMINGTON (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
BAR 130 X	**4064**	31.2	2170	**4064**	34.7	2467	59,200	2.750"	
	2700	36.0	2264	**2700**	40.0	2573	58,100		
	4350	36.4	2323	**4350**	40.5	2640	58,600		
	3100	39.1	2324	**3100**	43.5	2642	57,500		
SWF 140 SP	**4064**	31.5	2194	**4064**	35.0	2494	58,600	2.740"	
	2700	35.1	2229	**2700**	39.0	2534	57,300		
	4350	37.3	2351	**4350**	41.5	2672	58,000		
	3100	40.5	2323	**3100**	45.0	2640	54,900		Compressed
SPR 140 SP	**4064**	31.5	2170	**4064**	35.0	2467	58,400	2.750"	
	2700	35.1	2242	**2700**	39.0	2548	58,600		
	4350	36.9	2348	**4350**	41.0	2669	59,600		
	3100	40.5	2362	**3100**	45.0	2685	59,700		Compressed
NOS 140 PART	**4064**	32.4	2235	**4064**	36.0	2540	58,900	2.780"	
	2700	36.0	2295	**2700**	40.0	2609	59,700		
	4350	38.2	2405	**4350**	42.5	2733	59,400		
	3100	40.5	2390	**3100**	45.0	2717	57,800		Compressed
SRA 140 SBT	**4064**	32.4	2200	**4064**	36.0	2501	53,700	2.750"	
	2700	35.1	2270	**2700**	39.0	2580	57,200		
	4350	39.1	2413	**4350**	43.5	2743	59,100		
	3100	41.4	2356	**3100**	46.0	2678	55,100		Compressed
HDY 140 SP	**4064**	32.8	2215	**4064**	36.5	2518	56,000	2.750"	
	2700	36.0	2271	**2700**	40.0	2581	58,000		
	4350	39.1	2412	**4350**	43.5	2742	60,000		
	3100	41.4	2379	**3100**	46.0	2704	57,400		Compressed
SRA 140 HPBT	**4064**	32.8	2260	**4064**	36.5	2569	57,600	2.775"	
	2700	36.0	2302	**2700**	40.0	2617	58,500		
	4350	38.7	2434	**4350**	43.0	2767	60,000		
	3100	41.4	2406	**3100**	46.0	2735	57,800		Compressed
SRA 142 HPBT	**4064**	33.7	2259	**4064**	37.5	2568	57,200	2.800"	
	2700	36.9	2323	**2700**	41.0	2640	58,800		
	4350	38.7	2414	**4350**	43.0	2744	57,500		
	3100	41.4	2354	**3100**	46.0	2676	54,600		Compressed

6.5mm ARISAKA



The 6.5x50mm Arisaka was the service cartridge for the Model 38 bolt action rifle used by the Imperial Japanese troops. Large numbers of these rifles were brought back to the United States by returning GI's from the Pacific theater of operations following VJ Day.

The 6.5x50mm has a semi-rimmed case with the smallest powder capacity of any of the military 6.5mm cartridges. Commercial ammunition and components are available from Norma.

Norma factory ammunition produced 40,000 P.S.I. in our test barrel. These loads do not exceed that pressure.

6.5mm ARISAKA

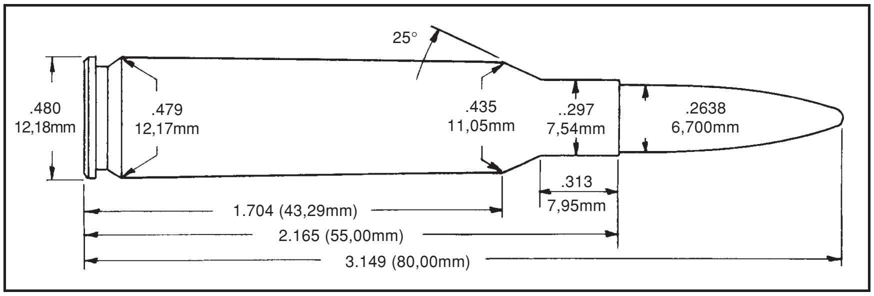
Gun	DOUGLAS	Max Length	1.984″
Barrel Length	24″	Trim Length	1.964″
Primer	CCI 200	OAL Max	2.940″
Case	NORMA	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 85 HP	**2495**	32.3	2524	**2495**	34.0	2685	28,900	2.625″	
	2700	34.2	2557	**2700**	36.0	2720	33,600		
	4350	36.0	2347	**4350**	40.0	2667	31,300		Compressed
	3100	36.0	2116	**3100**	40.0	2405	24,000		Compressed
HDY 100 SP	**2495**	31.4	2470	**2495**	33.0	2628	34,900	2.700″	
	2700	33.3	2421	**2700**	35.0	2576	36,300		
	4350	35.1	2311	**4350**	39.0	2626	37,200		Compressed
	3100	36.0	2109	**3100**	40.0	2397	27,600		Compressed
HDY 129 SP	**2495**	28.5	2138	**2495**	30.0	2274	37,700	2.770″	
	2700	31.4	2131	**2700**	33.0	2267	38,100		
	4350	32.4	2062	**4350**	36.0	2343	37,800		
	3100	34.2	1953	**3100**	38.0	2219	31,500		

6.5mm ARISAKA (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 140 SBT	**2495**	26.6	2035	**2495**	28.0	2165	35,900	2.850″	
	2700	30.4	2045	**2700**	32.0	2176	36,800		
	4350	31.5	1980	**4350**	35.0	2250	36,300		
	3100	34.2	1973	**3100**	38.0	2242	36,300		Compressed
	8700	38.7	1596	**8700**	43.0	1814	26,400		Compressed
HDY 160 RN	**2495**	28.5	1983	**2495**	30.0	2110	38,700	2.795″	
	2700	30.4	1938	**2700**	32.0	2062	37,800		
	4350	30.6	1865	**4350**	34.0	2119	35,900		
	3100	34.2	1897	**3100**	38.0	2156	36,600		Compressed
	8700	38.7	1566	**8700**	43.0	1779	27,800		Compressed

6.5x55mm SWEDISH MAUSER



The 6.5x55mm Swedish Mauser was adopted in 1894 and subsequently chambered in the Swedish Models 94, 96 and 38 rifles and carbines. In the Scandinavian countries, the 6.5x55mm has a reputation for both superb accuracy and effectiveness as a game cartridge.

The 6.5x55mm, while never very popular in the United States, is currently experiencing a resurgence. With the recent influx of surplus rifles and ammunition, availability of reloading components is improving.

The SAAMI Maximum Average Pressure for the 6.5x55mm Swedish Mauser is 46,000 C.U.P. Norma factory ammunition produced 51,000 P.S.I. in our test barrel. These loads were developed in P.S.I. and do not exceed the pressures of factory ammunition.

6.5x55mm SWEDISH MAUSER

Gun	DOUGLAS	Max Length	2.165″
Barrel Length	24″	Trim Length	2.145″
Primer	CCI 200	OAL Max	3.149″
Case	PMC	OAL Min	3.025″

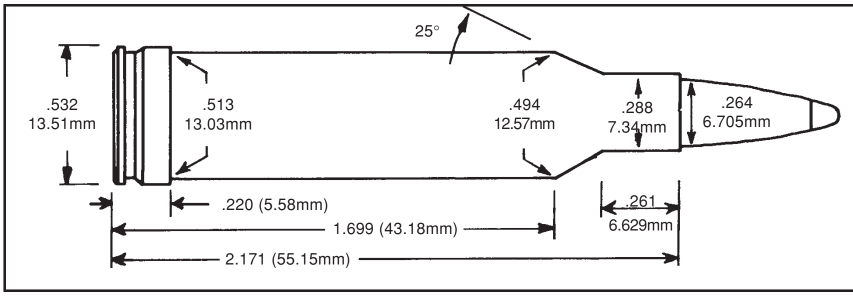
	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	**Powder**	**Grains**	**Vel.**	**Powder**	**Grains**	**Vel.**	**P.S.I.**	**Length**	**Comment**
140 (L) SPGC	**5744**	26.1	2086	**5744**	29.0	2371	49,900	3.020	RCBS 140 SP
	2495	29.7	2083	**2495**	33.0	2367	44,800		Penny's
	2520	30.6	2079	**2520**	34.0	2362	44,600		
	4064	34.2	2192	**4064**	38.0	2492	40,500*		
	2700	39.0	2358	**2700**	41.0	2509	46,100		
	4350	39.6	2218	**4350**	44.0	2521	43,500		
	3100	42.3	2179	**3100**	47.0	2476	40,200		Compressed
	8700	47.7	1932	**8700**	53.0	2196	32,600		Compressed
SRA 85 HP	**4064**	40.9	2866	**4064**	45.5	3257	41,700*	2.850"	
HDY 100 SP	**2495**	33.3	2550	**2495**	37.0	2898	50,300	2.975″	
	2520	36.9	2609	**2520**	41.0	2965	47,900		
	4064	39.6	2692	**4064**	44.0	3060	41,700*		
	2700	45.6	2907	**2700**	48.0	3093	50,100		
	4350	43.2	2578	**4350**	48.0	2929	41,900		Compressed
	3100	44.1	2397	**3100**	49.0	2724	34,100		Compressed

6.5x55 SWEDISH MAUSER (continued)

	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	P.S.I.	Length	Comment
HDY 129 SP	**2495**	32.4	2223	**2495**	36.0	2526	46,100	3.025″	
	2520	33.8	2251	**2520**	37.5	2558	49,200		
	4064	37.3	2409	**4064**	41.5	2738	45,400*		
	2700	40.9	2496	**2700**	43.0	2655	50,300		
	4350	41.4	2423	**4350**	46.0	2753	50,300		
	3100	44.1	2394	**3100**	49.0	2721	47,500		Compressed
SPR 140 SP	**2495**	30.6	2146	**2495**	34.0	2439	49,500	3.000″	
	2520	33.3	2202	**2520**	37.0	2502	50,400		
	4064	36.0	2260	**4064**	40.0	2569	42,600*		
	2700	39.9	2416	**2700**	42.0	2570	50,400		
	4350	40.5	2314	**4350**	45.0	2629	48,100		
	3100	42.3	2221	**3100**	47.0	2524	41,400		Compressed
	8700	47.7	1930	**8700**	53.0	2193	32,600		Compressed
SRA 155 HPBT	**4064**	33.7	2101	**4064**	37.5	2388	49,900	3.090"	
	2700	34.2	2090	**2700**	38.0	2375	49,200		
	4350	38.2	2235	**4350**	42.5	2540	51,200		
	3100	41.4	2234	**3100**	46.0	2539	51,100		
	8700	47.7	2123	**8700**	53.0	2413	42,700		Compressed
HDY 160 RN	**4064**	35.1	2133	**4064**	39.0	2424	51,100	2.970"	
	2700	35.1	2075	**2700**	39.0	2358	46,900		
	4350	39.6	2246	**4350**	44.0	2553	50,300		
	3100	41.4	2155	**3100**	46.0	2449	43,200		

* Pressure data in C.U.P.

6.5mm REMINGTON MAGNUM



The 6.5mm Remington Magnum was introduced in 1966 for the Model 600 carbine. The 6.5mm Remington Magnum is the .350 Remington Magnum case necked down to 6.5mm. As originally introduced, the Model 600 carbine had an 18.5-inch barrel. The later 660 carbine had a 20-inch barrel. Neither of these barrel lengths allowed the cartridge to fully develop its velocity potential.

The 6.5mm Remington Magnum was also chambered in Remington's Model 700 rifle with a 24-inch barrel. For a short time Ruger also produced Model 77s for this cartridge. At the present time no factory rifle is currently made for the 6.5mm Remington Magnum.

While intended to compete with the .270 Winchester, the 6.5mm Remington Magnum was handicapped by both the short barrels of the carbines and short magazines in the rifles. When chambered in a rifle that permits seating the bullets further out, one can attain .270 Winchester performance with comparable bullet weights.

The current Maximum Average Pressure for the 6.5mm Remington Magnum is 65,000 P.S.I.

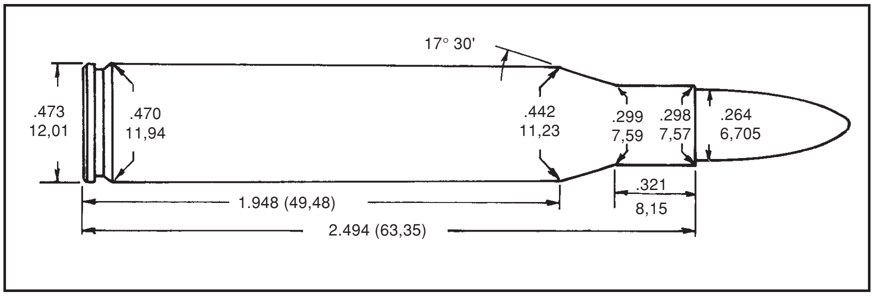
6.5mm REMINGTON MAGNUM

Gun	DOUGLAS	Max Length	2.171″
Barrel Length	24″	Trim Length	2.150″
Primer	REM 9˚ M	OAL Max	2.800″
Case	REM	OAL Min	2.740″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 85 HP	**2700**	55.1	3358	**2700**	58.0	3572	55,600	2.740″	
	4350	56.7	3337	**4350**	63.0	3792	63,900		Case Full
	3100	57.6	3032	**3100**	64.0	3446	47,200		Compressed
HDY 100 SP	**2700**	52.3	3168	**2700**	55.0	3370	57,900	2.800″	
	4350	54.9	3121	**4350**	61.0	3547	60,700		
	3100	56.3	2947	**3100**	62.5	3349	50,800		Compressed
HDY 129 SP	**2700**	48.9	2826	**2700**	51.5	3006	59,300	2.800″	
	4350	50.4	2759	**4350**	56.0	3135	60,400		
	3100	54.0	2737	**3100**	60.0	3110	56,700		

6.5-06

This wildcat is based on the .30-06 case necked down to accept .264″ diameter bullets. The 6.5-06 is very similar to the old .256 Newton cartridge loaded by the Western Cartridge Company from 1913 to 1938.



For fans of the 6.5mm bore, the 6.5-06 is an excellent choice. The cartridge cases are easy to form and the cartridge is suitable for long-range varmint shooting or hunting and even elk and moose with proper bullets.

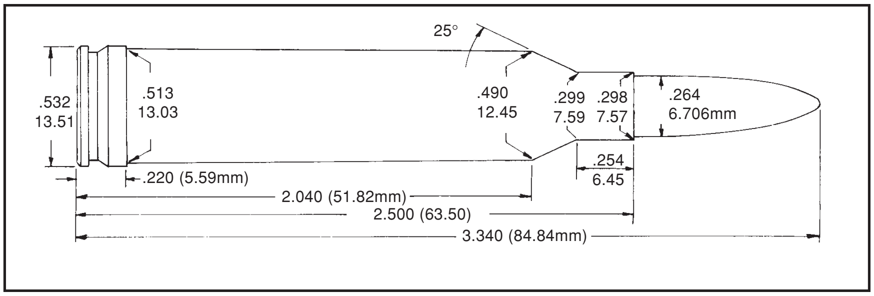
There is no SAAMI pressure limit for the 6.5-06. The Maximum Average Pressure for the .25-06 Remington is 63,000 P.S.I. The 6.5-06 and the .25-06 are very similar. These loads do not exceed the pressure limit of the .25-06.

6.5-06

Gun	DOUGLAS	Max Length	2.494″
Barrel Length	26″	Trim Length	2.470″
Primer	WLR	OAL Max	--
Case	IMI	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 100 SP	**2700**	49.4	3043	**2700**	52.0	3237	59,000	3.230″	
	4350	49.1	2881	**4350**	54.5	3274	58,400		
	3100	53.1	2821	**3100**	59.0	3206	50,000		Compressed
	8700	57.6	2394	**8700**	64.0	2721	37,100		Compressed
HDY 129 SP	**2700**	44.7	2641	**2700**	47.0	2810	59,300	3.240″	
	4350	44.6	2531	**4350**	49.5	2876	59,000		
	3100	49.1	2584	**3100**	54.5	2936	59,900		
	8700	57.6	2339	**8700**	64.0	2658	46,300		Compressed
SPR 140 SP	**2700**	43.7	2537	**2700**	46.0	2699	58,800	3.230″	
	4350	43.7	2432	**4350**	48.5	2764	57,900		
	3100	48.6	2495	**3100**	54.0	2835	57,800		
	8700	57.6	2354	**8700**	64.0	2675	51,400		Compressed
SRA 155 HPBT	**2700**	40.9	2356	**2700**	43.0	2506	57,300	3.265″	
	4350	42.3	2344	**4350**	47.0	2664	60,200		
	3100	46.8	2405	**3100**	52.0	2733	60,900		
	8700	56.7	2340	**8700**	63.0	2659	52,600		Compressed

.264 WINCHESTER MAGNUM



The .264 Winchester Magnum was introduced by Winchester in 1958. As originally introduced in Winchester's Model 70 "Westerner," it was available with a 26 inch stainless steel barrel. The .264 Winchester Magnum was designed to produce what Winchester hoped would be the ultimate open-country hunting cartridge for deer-sized big game. To accomplish this feat of engineering, Winchester's ballisticians utilized a 2-diameter bullet with only the section aft of the cannelure being full groove diameter.

Complaints by shooters who did not understand the necessity of the 26-inch barrel to produce the advertised ballistics caused Winchester to reduce the length of the rifle barrel to 24 inches. With its shortened barrel the .264 Winchester Magnum was unable to live up to its advertising claims and quickly fell from favor with the shooting public. This coincided with the introduction of Remington's 7mm Remington Magnum cartridge whose arrival sounded the death knell for the .264 Winchester Magnum.

As originally designed and produced the .264 Winchester Magnum was, and still is, an excellent cartridge for medium sized North American game.

The SAAMI Maximum Average Pressure for the .264 Winchester Magnum is 64,000 P.S.I.

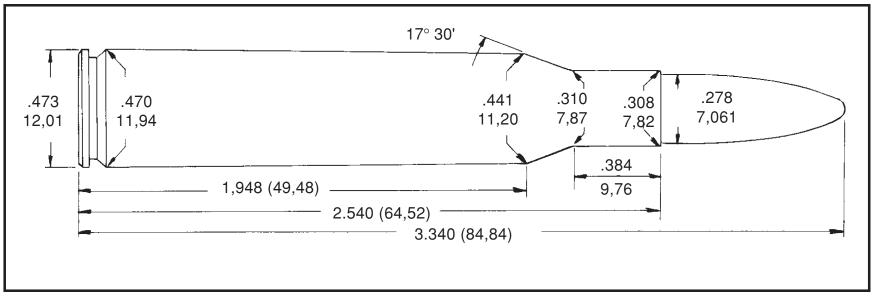
.264 WINCHESTER MAGNUM

Gun	DOUGLAS	Max Length	2.500″
Barrel Length	24″	Trim Length	2.480″
Primer	CCI 250	OAL Max	3.340″
Case	WW	OAL Min	3.160″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 100 SP	**4350**	60.3	3102	**4350**	67.0	3523	62,900	3.220″	
	3100	64.8	3054	**3100**	72.0	3471	61,900		
	8700	74.7	2732	**8700**	83.0	3105	40,800		Compressed
NOS 125 (Part)	**4350**	48.6	2502	**4350**	54.0	2843	60,800	3.265″	
	3100	52.2	2534	**3100**	58.0	2880	61,300		
	8700	69.3	2765	**8700**	77.0	3142	64,000		

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
NOS 140 (Part)	**4350**	47.7	2414	**4350**	53.0	2743	64,000	3.265"	
	3100	50.4	2402	**3100**	56.0	2729	61,600		
	8700	64.8	2559	**8700**	72.0	2908	62,700		

.270 WINCHESTER



Introduced by Winchester in 1925 for the Model 54 bolt action rifle, the .270 caused a flurry of controversy in shooting circles that has yet to completely die down.

People either love it or hate it. Depending upon the "expert," the .270 Winchester is either fit only for vermin or is one of the finest big game cartridges ever developed.

The intended use of the .270 at the time of its introduction was that of a long-range cartridge for use on big game. The .270 Winchester, despite some arguments to the contrary, is adequate for any North American big game, providing that proper bullets are used, with the possible exception of big bears in close quarters. Although not normally considered a varmint cartridge, the .270 Winchester does an excellent job when loaded with the lighter bullets.

The SAAMI Maximum Average Pressure for the .270 Winchester is 52,000 C.U.P.

.270 WINCHESTER

Gun	HS Precision	Max Length	2.540″
Barrel Length	24″	Trim Length	2.520″
Primer	REM 9˚	OAL Max	3.340″
Case	REM	OAL Min	3.065″

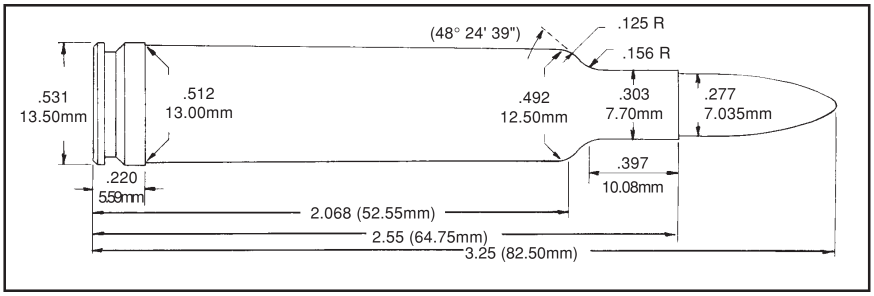
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
150 (L) SPGC	**5744**	18.0	1624	5744	26.0	2125	31,100*	3.250"	Penny's
	8700	54.0	2089	**8700**	60.0	2374	42,200		
SRA 90 HP	**5744**	36.0	2878	**5744**	40.0	3271	54,500*	3.090"	
	4064	47.7	3040	**4064**	53.0	3455	49,600		
	2700	54.2	3245	**2700**	57.0	3452	52,000		
	4350	54.9	3066	**4350**	61.0	3484	49,900		Compressed
	3100	54.9	2752	**3100**	61.0	3127	44,100		Compressed
HDY 100 SP	**5744**	36.0	2735	**5744**	40.0	3108	54,800*	3.175"	
	4064	46.8	2938	**4064**	52.0	3339	50,800		
	2700	53.2	3140	**2700**	56.0	3340	52,000		
	4350	54.0	2953	**4350**	60.0	3356	48,700		Compressed
	3100	54.9	2728	**3100**	61.0	3100	44,200		Compressed

.270 WINCHESTER (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SRA 110 SP	**4064**	45.9	2813	**4064**	51.0	3197	49,000	3.240"	
	2700	52.3	3038	**2700**	55.0	3232	52,000		
	4350	53.0	2900	**4350**	59.0	3300	52,000		
	3100	54.9	2753	**3100**	61.0	3128	47,200		Compressed
NOS 130 BT	**4064**	43.2	2569	**4064**	48.0	2920	51,200	3.330"	
	2700	49.4	2777	**2700**	52.0	2954	52,000		
	4350	49.5	2660	**4350**	55.0	3020	52,000		
	3100	54.9	2697	**3100**	61.0	3065	51,500		Compressed
BAR 130-X HP	**4064**	44.1	2557	**4064**	49.0	2906	49,800	3.330″	
	2700	50.4	2765	**2700**	53.0	2941	51,700		
	4350	52.2	2702	**4350**	58.0	3070	52,000		Compressed
	3100	54.9	2616	**3100**	61.0	2973	48,500		Compressed
HDY 140 SBT	**2700**	49.4	2719	**2700**	52.0	2893	51,600	3.330″	
	4350	50.4	2629	**4350**	56.0	2988	52,000		Compressed
	3100	54.0	2607	**3100**	60.0	2962	49,300		Compressed
	8700	57.6	2159	**8700**	64.0	2453	43,700		Compressed
WIN 140 FS	**2700**	45.0	2502	**2700**	50.0	2844	51,700	3.225"	
	4350	46.8	2590	**4350**	52.0	2944	52,000		
	3100	52.2	2606	**3100**	58.0	2962	51,100		Compressed
SRA 150 SBT	**5744**	30.6	2202	**5744**	34.0	2503	54,600*	3.300"	
	2700	47.5	2574	**2700**	50.0	2738	52,000		
	4350	47.0	2515	**4350**	53.0	2880	52,000		
	3100	52.2	2547	**3100**	58.0	2894	52,000		Compressed
	8700	56.7	2228	**8700**	63.0	2532	47,200		Compressed
NOS 160 (PART)	**2700**	47.5	2470	**2700**	50.0	2630	52,000	3.335″	
	4350	47.2	2375	**4350**	52.5	2705	52,000		
	3100	52.2	2442	**3100**	58.0	2775	52,000		Compressed
	8700	57.6	2138	**8700**	64.0	2429	44,900		Compressed

* Pressure data in P.S.I.

.270 WEATHERBY MAGNUM



The .270 Weatherby Magnum was developed about 1943, and was the first cartridge developed by Roy Weatherby based on the necked down .300 H&H case.

For fans of this bore size, the .270 Weatherby Magnum will deliver approximately 200 fps higher velocity than the .270 Winchester using bullets of the same weight. It does so by utilizing greatly increased powder charges and higher operating pressures.

There is no SAAMI pressure limit for the .270 Weatherby Magnum. Weatherby factory ammunition produced pressures of 71,000 P.S.I. in our test barrel. Our loads do not exceed that pressure.

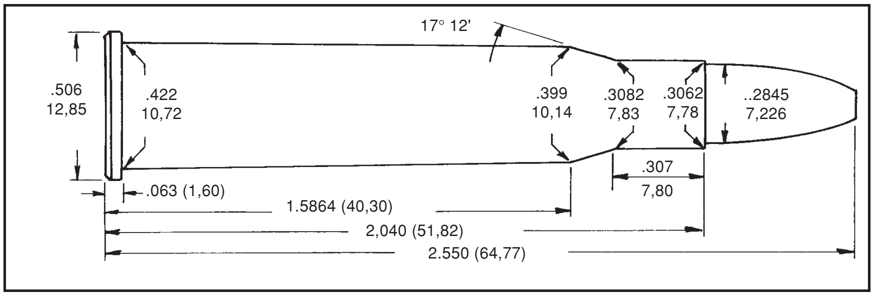
.270 WEATHERBY MAGNUM

Gun	DOUGLAS	Max Length	2.550″
Barrel Length	26″	Trim Length	2.539″
Primer	FC 215	OAL Max	3.250″
Case	WBY	OAL Min	—

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 110 HP	**4350**	62.1	3105	**4350**	69.0	3528	65,900	3.285″	*
	3100	67.5	2980	**3100**	75.0	3386	69,000		
	8700	80.1	2831	**8700**	89.0	3217	47,900		Compressed
BAR 130-X	**4350**	59.4	2840	**4350**	66.0	3227	62,900	3.295″	*
	3100	65.3	2937	**3100**	72.5	3338	67,000		
	8700	79.2	2806	**8700**	88.0	3189	55,000		Compressed
NOS 140 BT	**4350**	57.6	2761	**4350**	64.0	3137	65,300	3.295″	* Ballistic Tip
	3100	63.5	2853	**3100**	70.5	3242	68,100		
	8700	79.2	2759	**8700**	88.0	3135	54,500		Compressed
SRA 150 SBT	**4350**	57.6	2720	**4350**	64.0	3091	68,000	3.295″	*
	3100	63.0	2782	**3100**	70.0	3161	68,800		
	8700	79.2	2776	**8700**	88.0	3155	57,700		Compressed

* Over Recommended Maximum OAL

7-30 WATERS



This cartridge was developed by well known gun writer and ballistics expert Ken Waters. This is the result of his attempts to develop a flat trajectory cartridge for use in lever action rifles. By 1983 U.S. Repeating Arms Company had decided to chamber the Model 94 lever action rifle for this cartridge while Federal Cartridge Company worked out the final version of the cartridge.

The 7-30 Waters is an excellent deer and black bear cartridge at short to medium ranges. When loading for rifles with tubular magazines, flat or blunt nosed bullets must be used.

The SAAMI Maximum Average Pressure for the 7-30 Waters is 40,000 C.U.P.

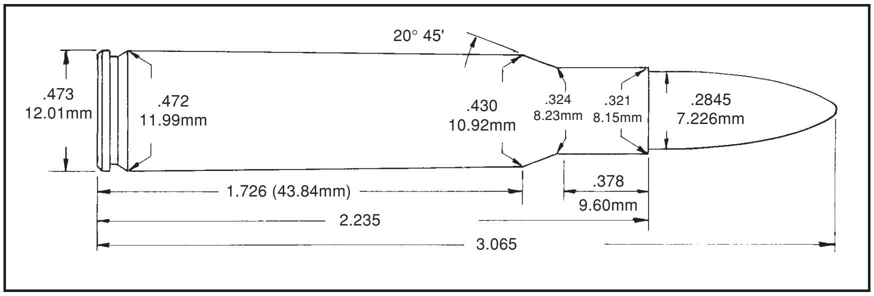
7-30 WATERS

Gun	DOUGLAS	Max Length	2.040″
Barrel Length	24″	Trim Length	2.020″
Primer	REM 9˚	OAL Max	2.550″
Case	REM	OAL Min	2.480″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
NOS 120 FN/BT	**2015**	29.7	2365	**2015**	33.0	2687	37,600	2.530″	
	2230	30.6	2328	**2230**	34.0	2646	38,800		
	2460	30.6	2300	**2460**	34.0	2614	35,800		
	2495	33.3	2372	**2495**	37.0	2696	35,100		
	2520	33.3	2406	**2520**	37.0	2734	39,400		
	4064	34.2	2398	**4064**	38.0	2725	38,200		
	2700	35.6	2240	**2700**	39.5	2546	36,300		
HDY 139 FN	**2015**	27.9	2115	**2015**	31.0	2403	38,900	2.665″	*
	2230	30.6	2237	**2230**	34.0	2542	40,000		
	2460	31.1	2242	**2460**	34.5	2548	39,300		
	2495	32.0	2210	**2495**	35.5	2511	38,100		
	2520	31.1	2175	**2520**	34.5	2472	36,000		
	4064	31.9	2228	**4064**	35.5	2532	39,800		
	2700	34.2	2131	**2700**	38.0	2422	38,200		

* Over SAAMI Maximum OAL

7x57mm MAUSER



Developed as a military cartridge by Mauser in 1892, it was adopted by the Spanish government in 1893 and later by several South American countries.

Americans were rudely introduced to the Model 1893 Spanish Mauser and its 7mm cartridge at San Juan Hill and The Chapel in Cuba. Its design so influenced the U.S. Military that the appearance soon thereafter of the Springfield rifle, and eventually the .30-06 cartridge, is not a coincidence. The courts didn't think so either and awarded Paul Mauser a royalty on each rifle built.

The 7mm Mauser is an excellent cartridge for light and medium sized game. While less powerful than the 270 Winchester and 280 Remington when loaded to its pressure limit, the 7mm Mauser has a reputation for good killing power combined with moderate recoil.

The SAAMI Maximum Average Pressure for the 7x57mm Mauser is 46,000 C.U.P.

7x57mm MAUSER

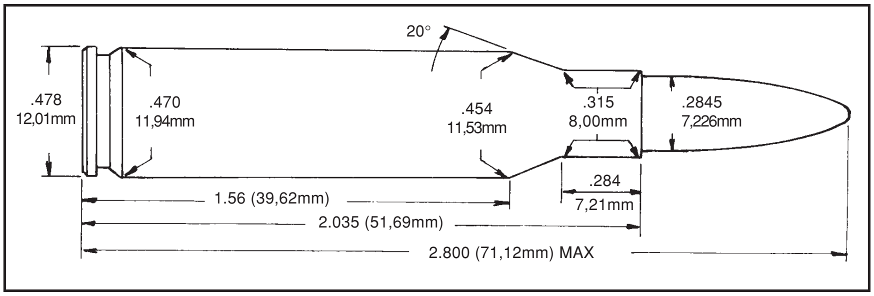
Gun	DOUGLAS	Max Length	2.235″
Barrel Length	24″	Trim Length	2.215″
Primer	CCI 200	OAL Max	3.065″
Case	WW	OAL Min	2.940″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
145 (L) SPGC	**5744**	18.0	1661	**5744**	27.0	2238	33,300	2.955"	Lyman
SPR 120 SP	**2495**	39.6	2569	**2495**	44.0	2919	42,300	2.900″	
	4064	39.1	2498	**4064**	43.5	2838	44,400		
	2700	47.5	2749	**2700**	50.0	2924	44,800		
	4350	45.9	2541	**4350**	51.0	2887	40,400		Compressed
	3100	45.9	2263	**3100**	51.0	2572	34,000		Compressed
SRA 140 SBT	**2495**	37.8	2416	**2495**	42.0	2745	43,400	3.025″	
	4064	37.8	2361	**4064**	42.0	2683	45,200		
	2700	45.1	2577	**2700**	47.5	2742	42,800		
	4350	45.9	2496	**4350**	51.0	2836	43,900		Compressed
	3100	45.9	2254	**3100**	51.0	2561	34,200		Compressed

7x57mm MAUSER (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
NOS 150 BT	**2495**	36.0	2269	**2495**	40.0	2578	44,400	3.060″	
	4064	36.0	2216	**4064**	40.0	2519	42,200		
	2700	43.7	2468	**2700**	46.0	2626	43,200		
	4350	44.1	2395	**4350**	49.0	2722	44,000		Compressed
	3100	45.9	2271	**3100**	51.0	2581	38,200		Compressed
SPR 160 SP	**2495**	34.2	2130	**2495**	38.0	2420	46,000	3.020″	
	4064	35.1	2117	**4064**	39.0	2406	43,600		
	2700	40.9	2255	**2700**	43.0	2399	39,700		
	4350	43.2	2308	**4350**	48.0	2623	45,100		
	3100	45.9	2238	**3100**	51.0	2543	39,000		Compressed
HDY 175 SP	**2495**	34.2	2026	**2495**	38.0	2302	45,400	3.040″	
	4064	35.1	2060	**4064**	39.0	2342	45,400		
	2700	40.9	2257	**2700**	43.0	2401	44,500		
	4350	42.3	2206	**4350**	47.0	2507	45,000		
	3100	45.0	2149	**3100**	50.0	2442	38,400		Compressed

7mm-08 REMINGTON



The 7mm-08 Remington was originally a wildcat developed for the game of High Power Rifle Metallic Silhouette Shooting. Basically, the .308 Winchester case necked down to accept 7mm caliber bullets, the 7mm-08 will reliably topple rams at 500 meters without excessive recoil.

These attributes prompted Remington to introduce the 7mm-08 as a factory cartridge in 1980. After initial rave reviews by members of the gun press, the 7mm-08 Remington was almost forgotten. It has maintained a niche in the market because of its ability to produce excellent external ballistics in a short, handy carbine.

The 7mm-08 Remington is an excellent cartridge for deer-sized game and is, again in the hands of a skilled hunter, suitable for elk and moose when proper bullets are used.

The SAAMI Maximum Average Pressure for the 7mm-08 Remington is 52,000 C.U.P.

7mm-08 REMINGTON

Gun	DOUGLAS	Max Length	2.035″
Barrel Length	24″	Trim Length	2.015″
Primer	CCI 200	OAL Max	2.800″
Case	REM	OAL Min	2.530″

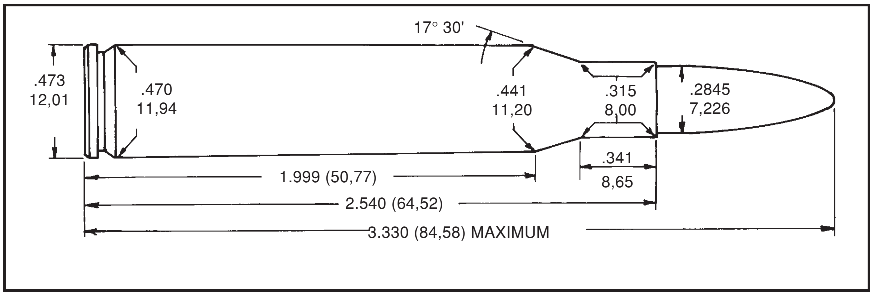
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
145 (L) GC	**5744**	20.0	1849	**5744**	27.0	2294	41,900	2.670"	Lyman
168 (L) GC	**5744**	20.0	1757	**5744**	27.0	2174	44,500	2.735"	Penny's
SRA 100 HP	**2015**	36.5	2749	**2015**	40.5	3124	48,500	2.665″	
	2230	38.3	2780	**2230**	42.5	3159	49,800		
	2460	38.7	2790	**2460**	43.0	3171	49,500		
	2495	38.3	2739	**2495**	42.5	3113	48,500		
	2520	40.1	2782	**2520**	44.5	3161	48,400		
	4064	41.4	2786	**4064**	46.0	3166	46,500		Compressed
	2700	45.6	2859	**2700**	48.0	3041	50,700		
	4350	42.8	2531	**4350**	47.5	2876	44,200		Compressed
	3100	42.8	2248	**3100**	47.5	2555	40,600		Compressed

7mm-08 REMINGTON (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
NOS 120 SP	**2015**	34.4	2541	**2015**	38.2	2887	49,000	2.765″	
	2230	36.3	2541	**2230**	40.3	2887	48,900		
	2460	36.6	2571	**2460**	40.7	2922	48,800		
	2495	36.0	2577	**2495**	40.0	2928	49,000		
	2520	37.3	2529	**2520**	41.4	2874	47,700		
	4064	38.7	2603	**4064**	43.0	2958	48,100		
	2700	44.2	2699	**2700**	46.5	2871	49,200		
	4350	42.8	2459	**4350**	47.5	2794	45,500		Compressed
	3100	42.8	2198	**3100**	47.5	2498	41,500		Compressed
SPR 130 SP	**2015**	33.8	2457	**2015**	37.6	2792	52,000	2.770″	
	2230	35.4	2468	**2230**	39.3	2804	51,800		
	2460	35.8	2482	**2460**	39.8	2821	52,000		
	2495	35.1	2446	**2495**	39.0	2779	49,800		
	2520	35.6	2423	**2520**	39.6	2753	51,400		
	4064	38.2	2502	**4064**	42.5	2844	51,200		
	2700	42.8	2612	**2700**	45.0	2779	50,500		
	4350	42.8	2497	**4350**	47.5	2838	48,600		Compressed
	3100	42.8	2247	**3100**	47.5	2553	42,000		Compressed
SRA 140 SBT	**2015**	33.3	2375	**2015**	37.0	2699	49,300	2.800″	
	2230	35.1	2386	**2230**	39.0	2711	49,600		
	2460	36.0	2436	**2460**	40.0	2768	51,900		
	2495	34.7	2379	**2495**	38.5	2703	49,200		
	2520	35.6	2376	**2520**	39.5	2700	50,800		
	4064	37.8	2442	**4064**	42.0	2775	49,700		
	2700	42.3	2538	**2700**	44.5	2700	49,500		
	4350	42.8	2467	**4350**	47.5	2803	49,800		
	3100	42.8	2231	**3100**	47.5	2535	42,800		
SRA 150 SBT	**2015**	32.4	2269	**2015**	36.0	2578	50,300	2.800″	
	2230	34.2	2306	**2230**	38.0	2620	51,000		
	2460	34.5	2310	**2460**	38.3	2625	50,200		
	2495	33.6	2293	**2495**	37.3	2606	50,300		
	2520	35.1	2299	**2520**	39.0	2612	51,600		
	4064	36.9	2346	**4064**	41.0	2667	49,800		
	2700	41.3	2477	**2700**	43.5	2635	51,900		
	4350	41.9	2403	**4350**	46.5	2731	51,100		
	3100	42.3	2195	**3100**	47.0	2494	44,300		
NOS 160 (Part)	**2015**	31.5	2147	**2015**	35.0	2440	48,500	2.800″	
	2230	32.9	2143	**2230**	36.5	2435	47,300		
	2460	33.3	2158	**2460**	37.0	2452	48,500		
	2495	32.4	2156	**2495**	36.0	2450	49,900		
	2520	34.2	2160	**2520**	38.0	2455	48,500		
	4064	36.0	2246	**4064**	40.0	2553	51,700		
	2700	39.9	2311	**2700**	42.0	2458	45,600		
	4350	41.4	2314	**4350**	46.0	2630	49,400		Compressed
	3100	42.3	2158	**3100**	47.0	2452	43,400		Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SRA 168 HPBT	**2015**	31.5	2127	**2015**	35.0	2417	49,300	2.800″	
	2230	33.3	2123	**2230**	37.0	2413	49,500		
	2460	33.3	2159	**2460**	37.0	2453	50,100		
	2495	34.2	2202	**2495**	38.0	2502	52,000		
	2520	33.3	2116	**2520**	37.0	2404	49,400		
	4064	35.5	2153	**4064**	39.5	2447	48,600		
	2700	39.9	2157	**2700**	42.0	2451	47,300		
	4350	41.4	2284	**4350**	46.0	2596	50,400		
	3100	42.3	2102	**3100**	47.0	2389	42,600		Compressed
REM 175 PSPCL	**2015**	31.5	2038	**2015**	35.0	2316	47,700	2.795″	
	2230	33.3	2088	**2230**	37.0	2373	49,600		
	2460	33.3	2082	**2460**	37.0	2366	49,800		
	2495	34.2	2072	**2495**	38.0	2354	47,900		
	2520	34.2	2080	**2520**	38.0	2364	51,200		
	4064	35.5	2083	**4064**	39.5	2368	47,800		
	2700	39.9	2244	**2700**	42.0	2387	47,400		
	4350	41.0	2201	**4350**	45.5	2501	49,400		
	8700	42.3	2070	**8700**	47.0	2352	42,600		Compressed

.280 REMINGTON/7mm EXPRESS REMINGTON



Originally introduced in 1957 to compete with the .270 Winchester, the .280 Remington is another derivative of the .30-06. It is very similar to the wildcat 7mm-06. The .280 is available in auto loading, pump action, and bolt action rifles.

After it failed to dislodge the popular .270 Winchester, the .280 was renamed "7mm Express." Apparent confusion between it and the popular 7mm Remington Magnum caused the company to revert back to the original .280 Remington moniker.

When loaded to similar pressures, the .280 Remington duplicates or exceeds the performance of the .270 Winchester on both varmints and big game.

This is an excellent cartridge for the handloader, handling a wide variety of bullet weights with ease.

The SAAMI Maximum Average Pressure for the .280 Remington/7mm Express is now established as 60,000 P.S.I. and 50,000 C.U.P.

.280 REMINGTON

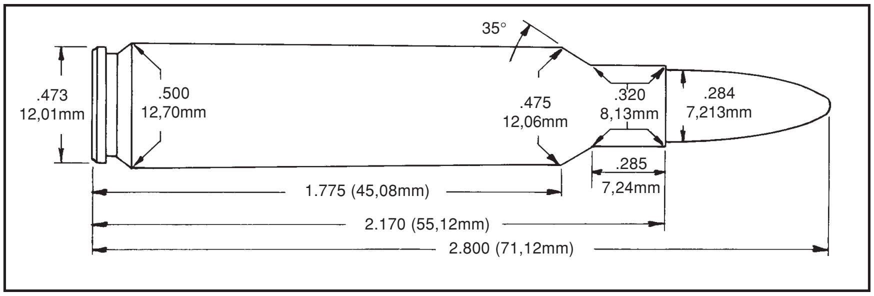
Gun	DOUGLAS	Max Length	2.540″
Barrel Length	24″	Trim Length	2.520″
Primer	REM 9˚	OAL Max	3.330″
Case	REM	OAL Min	3.150″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
145 (L) SPGC	**5744**	21.0	1814	**5744**	31.0	2380	42,700*	3.170"	Lyman
168 (L) SPGC	**5744**	20.0	1697	**5744**	30.0	2212	43,400*	3.240"	Penny's
SRA 100 HP	**2700**	53.2	3057	**2700**	56.0	3252	53,100	3.150″	
	4350	53.1	2918	**4350**	59.0	3316	55,800		Compressed
	3100	54.0	2665	**3100**	60.0	3028	44,900		Compressed
SPR 120 SP	**2700**	49.9	2821	**2700**	52.5	3001	57,000	3.200″	
	4350	51.3	2739	**4350**	57.0	3112	57,700		
	3100	57.0	2844	**3100**	60.0	3025	53,300		Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
BAR 140-X HP	**2700**	46.1	2547	**2700**	48.5	2710	55,300	3.310″	
	4350	45.9	2443	**4350**	51.0	2776	55,900		
	3100	51.3	2498	**3100**	57.0	2839	56,800		Compressed
SPR 145 HPBT	**2700**	45.6	2546	**2700**	48.0	2709	57,000	3.250″	
	4350	47.7	2519	**4350**	53.0	2862	59,800		
	3100	53.1	2580	**3100**	59.0	2932	59,000		Compressed
HDY 154 SP	**2700**	46.6	2555	**2700**	49.0	2718	60,000	3.330″	
	4350	48.6	2486	**4350**	54.0	2825	59,600		
	3100	52.2	2457	**3100**	58.0	2792	54,500		
NOS 160 (Part)	**2700**	46.1	2503	**2700**	48.5	2663	60,000	3.300″	
	4350	46.8	2413	**4350**	52.0	2742	58,200		
	3100	51.8	2442	**3100**	57.5	2775	56,100		
SRA 168 HPBT	**2700**	45.6	2422	**2700**	48.0	2577	55,100	3.300″	
	4350	46.4	2350	**4350**	51.5	2670	57,400		
	3100	51.3	2396	**3100**	57.0	2723	56,300		
HDY 175 SP	**2700**	43.7	2282	**2700**	46.0	2428	53,400	3.300″	
	4350	46.4	2273	**4350**	51.5	2583	55,300		
	3100	51.3	2359	**3100**	57.0	2681	58,900		

* Pressure data in C.U.P.

.284 WINCHESTER



Introduced by Winchester in 1963 in the Model 88 lever action and Model 100 semi-auto rifles, this is the first U.S. commercial cartridge with a rebated rim.

For a short time, Savage offered the Model 99 lever action chambered in .284 Winchester. The .284 was designed to equal the power of the longer .280 Remington cartridge and still work in a short action rifle.

The rebated rim is the same diameter as the .30-06, but the body diameter is nearly that of a belted magnum. Due to the relatively short overall length of this cartridge, heavier bullets encroach significantly into the powder space. This reduces the case capacity which lowers the performance potential of the cartridge and greatly increases the shot-to-shot variation of both pressure and velocity. This cartridge is best suited to bullet weights of 150 grains or less, unless used in a rifle which permits longer seating of the bullets.

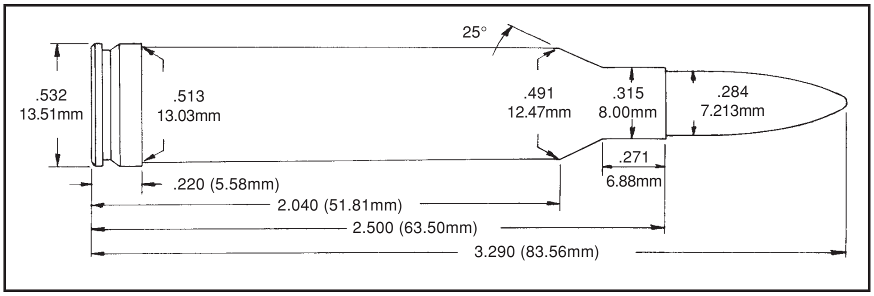
The SAAMI Maximum Average Pressure for the .284 Winchester is 56,000 P.S.I.

.284 WINCHESTER

Gun	DOUGLAS	Max Length	2.170″
Barrel Length	24″	Trim Length	2.150″
Primer	WLR	OAL Max	2.800″
Case	WW	OAL Min	2.765″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 100 HP	**2700**	48.0	2865	**2700**	50.5	3048	50,800	2.800″	
	4350	50.9	2794	**4350**	56.5	3175	53,800		
	3100	53.1	2618	**3100**	59.0	2975	45,700		Compressed
SPR 120 SP	**2700**	46.1	2640	**2700**	48.5	2808	51,200	2.800″	
	4350	49.1	2612	**4350**	54.5	2968	54,300		
	3100	53.1	2587	**3100**	59.0	2940	54,000		Compressed
HDY 139 SP	**2700**	44.7	2471	**2700**	47.0	2629	50,000	2.800″	
	4350	48.6	2504	**4350**	54.0	2845	54,200		
	3100	53.1	2495	**3100**	59.0	2835	53,000		Compressed
SRA 150 SBT	**2700**	42.8	2382	**2700**	45.0	2534	50,300	2.800″	
	4350	46.8	2432	**4350**	52.0	2764	53,400		
	3100	51.3	2424	**3100**	57.0	2754	52,400		Compressed

7mm REMINGTON MAGNUM



After refusing for years to produce a metric magnum, the pressure in the American market became so great that Remington introduced the 7mm Remington Magnum in 1962 along with the new, improved Model 700 bolt action rifle.

The 7mm Remington is essentially the .338 Winchester case necked down to 7mm. It is a fine long-range, big game cartridge that can also be used for varmint hunting. With a wide variety of bullets available, the handloader can utilize this cartridge for any game in North America and most thin-skinned varieties of African game as well. With bullet weights of 150 grains or less, **Accurate 4350** and **3100** propellants are recommended. With bullet weights of 160 grains and heavier, **Accurate 8700** is the best choice.

The SAAMI Maximum Average Pressure for the 7mm Remington Magnum is 61,000 P.S.I.

7mm REMINGTON MAGNUM

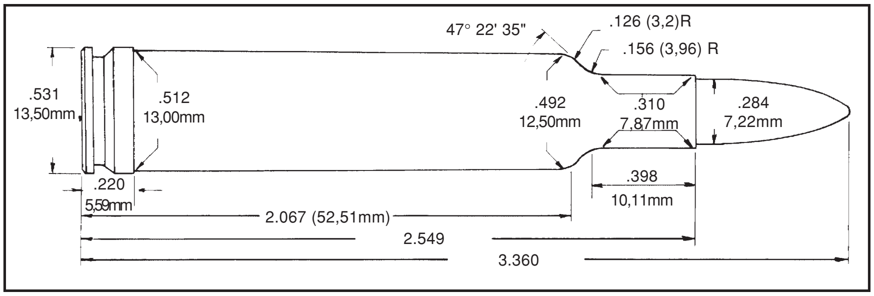
Gun	OBERMEYER	Max Length	2.500″
Barrel Length	24″	Trim Length	2.480″
Primer	CCI 200	OAL Max	3.290″
Case	REM	OAL Min	3.150″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
145 (L) GC	**5744**	20.0	1638	**5744**	33.0	2333	35,000	3.005"	Lyman
168 (L) GC	**5744**	20.0	1559	**5744**	30.0	2053	32,500	3.180"	Penny's
SPR 115 HP	**4064**	49.0	2816	**4064**	54.5	3200	58,700	3.280"	
	2700	59.4	3047	**2700**	62.5	3241	58,700		
	4350	60.3	2944	**4350**	67.0	3345	60,300		
	3100	65.3	2964	**3100**	72.5	3368	58,800		
	8700	71.1	2563	**8700**	79.0	2913	39,100		Compressed
SPR 120 SP	**4064**	48.6	2780	**4064**	54.0	3159	60,700		
	2700	58.4	2984	**2700**	61.5	3174	58,700	3.260″	
	4350	56.7	2829	**4350**	63.0	3215	57,800		
	3100	64.2	2926	**3100**	71.3	3325	59,900		
	8700	71.1	2624	**8700**	79.0	2982	46,000		Compressed

7mm REMINGTON MAGNUM (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SPR 130 SP	**4064**	46.3	2633	**4064**	51.5	2992	60,700	3.245"	
	2700	57.0	2817	**2700**	60.0	2997	57,200		
	4350	55.8	2735	**4350**	62.0	3108	58,400		
	3100	61.0	2776	**3100**	67.8	3155	59,000		
	8700	71.1	2658	**8700**	79.0	3020	45,900		Compressed
SRA 140 SBT	**4064**	47.7	2584	**4064**	53.0	2937	58,900	3.270"	
	2700	56.5	2815	**2700**	59.5	2995	55,200		
	4350	54.9	2665	**4350**	61.0	3028	54,900		
	3100	61.2	2721	**3100**	68.0	3092	58,200		
	8700	72.0	2444	**8700**	80.0	2777	41,500		Compressed
SRA 150 BT	**4064**	46.3	2471	**4064**	51.5	2808	59,600	3.280"	
	2700	54.6	2726	**2700**	57.5	2900	59,600		
	4350	54.9	2612	**4350**	61.0	2968	61,000		
	3100	59.4	2643	**3100**	66.0	3003	60,200		
	8700	71.1	2597	**8700**	79.0	2951	50,900		Compressed
NOS 160 SP	**4064**	44.5	2347	**4064**	49.5	2667	59,600	3.280"	
	2700	54.6	2614	**2700**	57.5	2781	58,500		
	4350	51.3	2436	**4350**	57.0	2768	58,300		
	3100	57.2	2512	**3100**	63.5	2855	59,000		
	8700	71.1	2581	**8700**	79.0	2933	53,800		Compressed
SRA 168 HPBT	**4064**	45.0	2322	**4064**	50.0	2631	58,500	3.280"	
	2700	53.2	2550	**2700**	56.0	2713	58,400		
	4350	52.2	2448	**4350**	58.0	2782	61,000		
	3100	55.8	2442	**3100**	62.0	2775	57,900		
	8700	70.2	2520	**8700**	78.0	2864	50,700		Compressed
NOS 175 SP	**4064**	43.2	2202	**4064**	48.0	2502	59,300	3.275"	
	2700	50.4	2426	**2700**	53.0	2581	59,800		
	4350	50.4	2335	**4350**	56.0	2653	58,700		
	3100	54.5	2376	**3100**	60.5	2700	59,700		
	8700	67.5	2424	**8700**	75.0	2754	51,800		Compressed
BAR 195 SP	**4064**	41.8	2053	**4064**	46.5	2333	60,600	3.275"	
	2700	48.5	2263	**2700**	51.0	2407	58,400		
	4350	47.3	2147	**4350**	52.6	2440	56,500		
	3100	52.7	2233	**3100**	58.5	2538	59,800		
	8700	69.3	2383	**8700**	77.0	2708	51,600		Compressed

7mm WEATHERBY MAGNUM



This is one of Roy Weatherby's better creations. The Weatherby cartridge has the typical double radius shoulder and a long neck.

Any real difference in performance between the 7mm Weatherby Magnum and the 7mm Remington Magnum is largely a product of either variations in individual rifles or the shooter's ability.

The SAAMI Maximum Average Pressure for the 7mm Weatherby Magnum is 65,000 P.S.I.

7mm WEATHERBY MAGNUM

Gun	DOUGLAS	Max Length	2.549″
Barrel Length	26″	Trim Length	2.537″
Primer	REM 9˚ M	OAL Max	3.360″
Case	REM	OAL Min	3.100″

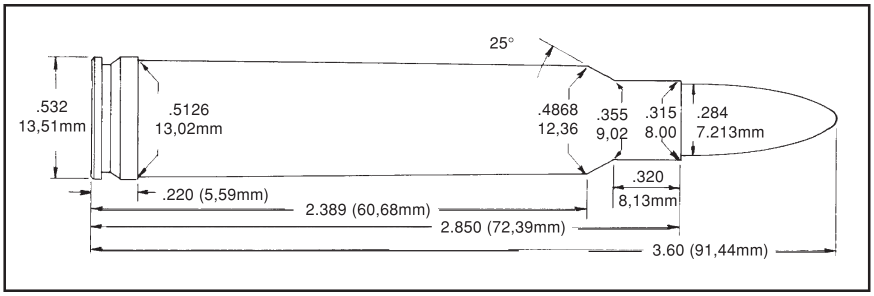
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
BAR 120-X	**4350**	62.1	3010	**4350**	69.0	3420	62,800	3.310″	
	3100	68.4	3054	**3100**	76.0	3470	62,200		Compressed
	8700	76.5	2686	**8700**	85.0	3052	43,800		Compressed
SPR 120 SP	**4350**	63.9	3066	**4350**	71.0	3484	63,300	3.285″	
	3100	68.4	3060	**3100**	76.0	3477	59,100		Compressed
	8700	77.4	2704	**8700**	86.0	3073	42,100		Compressed
HDY 139 SPBT	**4350**	62.1	2898	**4350**	69.0	3293	62,400	3.340″	
	3100	66.6	2915	**3100**	74.0	3313	62,000		
	8700	73.8	2578	**8700**	82.0	2929	41,200		Compressed
BAR 140-X	**4350**	59.4	2782	**4350**	66.0	3161	62,800	3.345″	
	3100	64.8	2828	**3100**	72.0	3214	60,900		
	8700	73.8	2571	**8700**	82.0	2922	44,300		Compressed
NOS 150 BT	**4350**	58.5	2719	**4350**	65.0	3090	62,700	3.350″	
	3100	64.8	2815	**3100**	72.0	3199	63,200		
	8700	73.8	2554	**8700**	82.0	2902	43,200		Compressed
BAR 160-X	**4350**	57.6	2602	**4350**	64.0	2957	62,300	3.340″	
	3100	63.9	2688	**3100**	71.0	3055	63,000		
	8700	72.9	2450	**8700**	81.0	2784	43,200		Compressed

7mm WEATHERBY MAGNUM (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
NOS 160 (Part)	**4350**	58.5	2674	**4350**	65.0	3039	63,100	3.355″	
	3100	63.5	2733	**3100**	70.5	3106	61,400		
	8700	72.9	2545	**8700**	81.0	2892	45,000		Compressed
NOS 175 (Part)	**4350**	56.7	2547	**4350**	63.0	2894	61,200	3.360″	
	3100	62.1	2619	**3100**	69.0	2976	63,700		
	8700	72.0	2442	**8700**	80.0	2775	42,700		Compressed

7mm SHOOTING TIMES WESTERNER

The 7mm STW is the first in the "Shooting Times" series cartridge developed by gun writer Layne Simpson. The 7mm STW is produced by simply necking the 8mm Remington Magnum case to 7mm with no other changes.



This cartridge is best suited for single shot rifles such as the Ruger #1 or Browning Model 78, which permit proper seating of the heavier projectiles. When heavy bullets are loaded in this cartridge and seated to an overall length that will permit them to function in the magazine of a Remington 700, the rear of the bullet protrudes rather deeply into the powder space producing large variations in pressures and velocities.

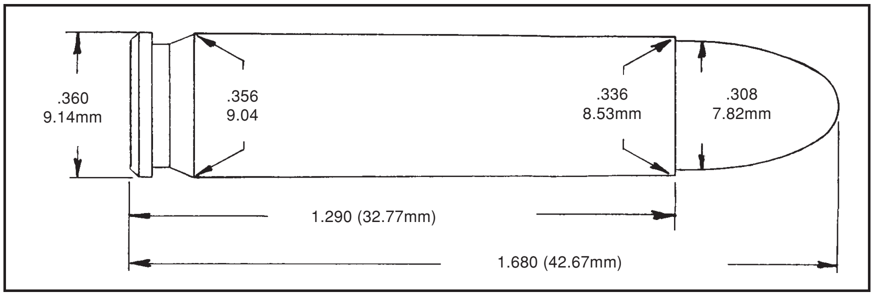
No SAAMI pressure limit exists for the 7mm STW. Accurate has selected 65,000 P.S.I. as maximum based on other cartridges in this class.

7mm SHOOTING TIMES WESTERNER

Gun	DOUGLAS	Max Length	2.850″
Barrel Length	26″	Trim Length	2.835″
Primer	CCI 250	OAL Max	
Case	REM	OAL Min	

	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	P.S.I.	Length	Comment
BAR 120-X	**3100**	67.5	2894	**3100**	75.0	3289	60,000	3.615″	
	8700	85.5	2978	**8700**	95.0	3384	61,000		Compressed
BAR 140-X	**3100**	65.7	2776	**3100**	73.0	3155	62,400	3.615″	
	8700	84.6	2876	**8700**	94.0	3268	64,700		Compressed
NOS 150 BT	**3100**	65.7	2736	**3100**	73.0	3109	64,400	3.640″	
	8700	84.6	2845	**8700**	94.0	3233	64,400		Compressed
BAR 160-X	**3100**	64.8	2607	**3100**	72.0	2963	62,500	3.655″	
	8700	83.7	2746	**8700**	93.0	3120	61,300		Compressed
NOS 160 (Part)	**3100**	65.7	2707	**3100**	73.0	3076	64,600	3.645″	
	8700	83.7	2796	**8700**	93.0	3177	62,600		Compressed
REM 175 PSPCL	**3100**	66.6	2559	**3100**	74.0	2908	57,800	3.640″	
	8700	83.7	2681	**8700**	93.0	3047	60,500		Compressed

.30 M1 CARBINE



In 1940, the U.S. Ordinance Department decided to develop a light carbine to replace the .45 caliber Model 1911A1 pistol for combat situations. A number of private manufacturers submitted samples for test.

The Winchester version was officially adopted in 1941 as the .30 M1 carbine. The cartridge itself is a modification of the .32 Winchester Self-Loading cartridge. As far as producing a more accurate and powerful lightweight sidearm is concerned, the U.S. Army's effort was successful. However, the .30 Carbine cannot be considered suitable for sporting purposes on any animals other than small game or varmints at close ranges.

Since 1963 the government has periodically released thousands of .30 carbines for sale at moderate prices. Additionally, a number of firearms manufacturers have produced civilian versions of the M1 carbine. It is probably used more for plinking and informal target shooting that any other activity.

The .30 M1 carbine is a semi-automatic weapon that is well suited to the use of cast projectiles.

The SAAMI Maximum Average Pressure for the M1 carbine is 40,000 C.U.P.

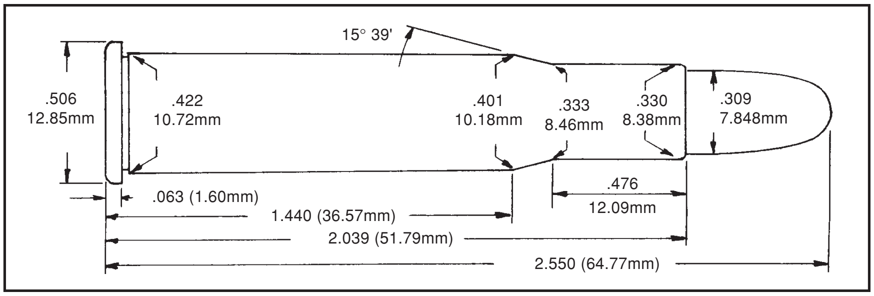
.30 M1 CARBINE

Gun	DOUGLAS	Max Length	1.290″
Barrel Length	20″	Trim Length	1.280″
Primer	CCI 400	OAL Max	1.680″
Case	REM	OAL Min	1.625″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
125 (L) RN	**No.9**	9.9	1557	**No.9**	11.0	1769	36,400	1.705″	* LY311410
	5744	12.1	1506	**5744**	13.5	1711	39,000		
	1680	13.5	1545	**1680**	15.0	1756	33,600		
SPR 100 Plinker	**No.9**	12.0	1773	**No.9**	13.3	2015	39,000	1.675″	
	5744	13.5	1624	**5744**	15.0	1846	35,300		
	1680	15.3	1621	**1680**	17.0	1842	24,200		Compressed
SPR 110 FMJ	**No.9**	11.3	1666	**No.9**	12.6	1893	39,800	1.670″	
	5744	13.0	1572	**5744**	14.5	1787	38,500		
	1680	14.4	1553	**1680**	16.0	1765	26,800		Compressed

* Over SAAMI Maximum OAL

.30-30 WINCHESTER



The .30-30 Winchester was the first American small bore, smokeless powder sporting cartridge. It was designed and marketed in early 1895 in the Model 94 lever action rifle. The original loading used a 160 grain soft point bullet and 30 grains of smokeless propellant. Muzzle velocities approached 2000 FPS. Winchester later adapted the Model 54 bolt action to handle the .30-30.

Always popular, the .30-30 has become the yardstick by which all deer cartridges are measured. It continues to thrive in spite of a good deal of press labeling it as outdated. The .30-30 is capable of excellent accuracy. The developments in smokeless propellants during the last 100 years have improved the performance of the .30-30.

Only blunt or flat nosed bullets must be used in rifles with tubular magazines.

The SAAMI Maximum Average Pressure for the .30-30 Winchester is 42,000 P.S.I. and 38,000 C.U.P.

.30-30 WINCHESTER

Gun	H.S. PRECISION	Max Length	2.039″
Barrel Length	20″	Trim Length	2.020″
Primer	CCI 200	OAL Max	2.550″
Case	FC	OAL Min	2.450″

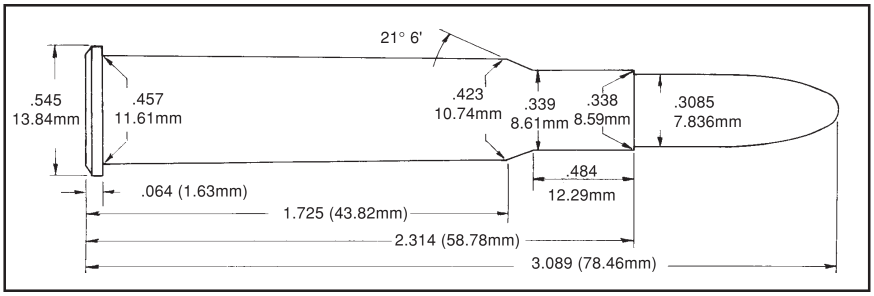
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
152 (L) RNGC	**5744**	14.0	1379	**5744**	22.5	2112	39,100	2.450″	LY311466
	2015	23.0	1749	**2015**	25.5	1987	27,700		
	2230	23.4	1736	**2230**	26.0	1973	27,800		
	2460	24.3	1755	**2460**	27.0	1994	26,400		
	2495	25.7	1803	**2495**	28.5	2049	28,400		
	2520	24.8	1764	**2520**	27.5	2004	25,700		
	2700	32.3	1933	**2700**	34.0	2056	28,100		
173 (L) FNGC	**5744**	19.8	1791	**5744**	22.0	2035	38,000	2.550″	LY31141
	2015	23.4	1749	**2015**	26.0	1988	29,000		
	2230	23.4	1720	**2230**	26.0	1954	27,400		
	2460	24.8	1775	**2460**	27.5	2017	28,300		
	2495	24.8	1771	**2495**	27.5	2013	35,100		
	2520	25.7	1807	**2520**	28.5	2053	29,300		
	4064	27.0	1777	**4064**	30.0	2020	28,600		
	2700	31.4	1879	**2700**	33.0	1999	32,800		

.30-30 WINCHESTER (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
190 (L) FNGC	**5744**	20.0	1754	**5744**	22.0	1953	35,300	2.800"	
	2015	22.5	1790	**2015**	25.0	2034	35,500		
	2230	23.4	1756	**2230**	26.0	1995	37,200		
	2460	24.3	1785	**2460**	27.0	2028	37,500		
	2495	24.7	1707	**2495**	27.5	1940	30,600		
	2520	25.6	1805	**2520**	28.5	2051	36,300		
	2700	29.7	1807	**2700**	33.0	2053	37,600		
SPR 100 Plinker	**2015**	33.8	2534	**2015**	37.5	2879	39,900	2.345″	
	2230	35.1	2514	**2230**	39.0	2857	39,500		
	2460	35.1	2478	**2460**	39.0	2816	37,200		
	2495	33.3	2359	**2495**	37.0	2681	34,800		Case Full
	2520	34.2	2358	**2520**	38.0	2680	30,600		
	4064	36.0	2318	**4064**	40.0	2635	31,600		
	2700	38.0	2417	**2700**	40.0	2571	30,700		Compressed
HDY 110 RN	**2015**	32.0	2398	**2015**	35.5	2725	40,900	2.440″	
	2230	32.4	2340	**2230**	36.0	2659	37,000		
	2460	33.3	2369	**2460**	37.0	2692	37,400		
	2495	33.3	2375	**2495**	37.0	2699	41,000		
	2520	34.2	2366	**2520**	38.0	2689	35,700		
	4064	35.1	2380	**4064**	39.0	2705	41,400		
	2700	38.0	2391	**2700**	40.0	2544	33,300		Compressed
SRA 125 FNHP	**4064**	34.2	2225	**4064**	38.0	2529	39,600	2.430"	
SPR 150 FN	**2015**	26.1	1929	**2015**	29.0	2192	38,400	2.540″	
	2230	28.5	2000	**2230**	31.7	2273	41,300		
	2460	29.3	2015	**2460**	32.5	2290	40,200		
	2495	27.5	1960	**2495**	30.5	2227	40,600		
	2520	30.2	2046	**2520**	33.5	2325	38,800		
	4064	29.7	1975	**4064**	33.0	2245	40,500		
	2700	35.2	2129	**2700**	37.0	2265	39,300		
NOS 170 FN	**2015**	24.3	1793	**2015**	27.0	2038	38,600	2.545″	
	2230	27.0	1869	**2230**	30.0	2124	42,000		
	2460	27.2	1864	**2460**	30.2	2118	39,900		
	2495	26.6	1844	**2495**	29.5	2095	40,200		
	2520	28.4	1874	**2520**	31.5	2129	38,400		
	4064	27.0	1757	**4064**	30.0	1997	39,900		
	2700	33.3	1972	**2700**	35.0	2098	39,700		
.30 Caliber Sabots*									
REM 55 SABOT	**2230**	38.7	2991	**2230**	43.0	3399	38,000	2.575"	Compressed

* Remington case & primer, pressure data in C.U.P.

.30-40 KRAG



The .30 U.S. Army, or .30-40 Krag, was adopted in 1892 as America's first small bore military cartridge. It was later offered in the Remington-Lee bolt action, Remington Rolling Block, Winchester Model 95 lever action and the Highwall single shot rifles.

The Krag military rifles and carbines are famed for their accuracy and smoothness of operation; but they are not noted for strength. Consequently, the .30-40 Krag cannot be loaded in these rifles to match the performance of even the .303 British, much less the .308 Winchester or .30-06.

The .30-40 Krag is well suited for shooting cast bullets and maintains a loyal following to this day. Loaded with either the 180- or 220-grain bullet, the .30-40 Krag is capable of taking any North American big game when in the hands of a skilled rifleman.

From 1973 until 1977 the Ruger No. 3 single shot was chambered for the .30-40 Krag thus ending a 37-year absence of this cartridge from the American market.

The SAAMI Maximum Average Pressure for the .30-40 Krag is 40,000 C.U.P.

.30-40 KRAG

Gun	DOUGLAS	Max Length	2.314″
Barrel Length	24″	Trim Length	2.294″
Primer	CCI 200	OAL Max	3.089″
Case	REM	OAL Min	2.965″

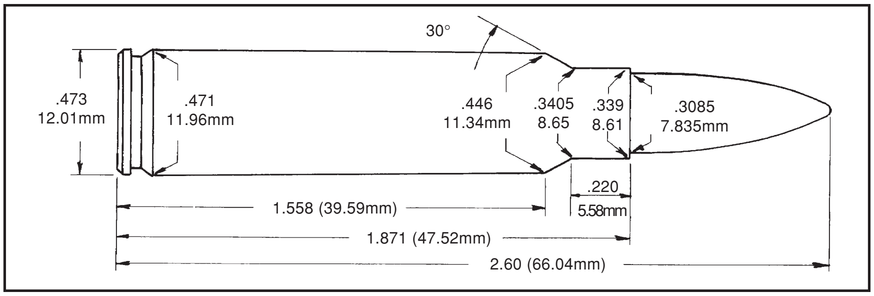
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
165 (L) FNGC	**5744**	25.2	1934	**5744**	28.0	2198	38,400	2.855"	Penny's
180 (L) RNGC	**5744**	23.8	1836	**5744**	26.5	2086	36,000	2.900″	LY311467
	4350	39.6	2014	**4350**	44.0	2289	34,500		
	3100	43.2	1971	**3100**	48.0	2240	35,700		
	8700	47.7	1610	**8700**	53.0	1830	32,000		Compressed
210 (L) RNGC	**5744**	22.5	1646	**5744**	25.0	1870	36,800	2.925"	Penny's

.30-40 KRAG (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
HDY 150 SP	**4350**	44.1	2258	**4350**	49.0	2566	36,800	3.045″	Compressed
	3100	45.0	2083	**3100**	50.0	2367	34,700		Compressed
	8700	47.7	1615	**8700**	53.0	1835	29,300		Compressed
SRA 165 SBT	**4350**	42.8	2190	**4350**	47.5	2489	36,100	3.085″	
	3100	45.0	2079	**3100**	50.0	2363	35,300		Compressed
	8700	47.7	1641	**8700**	53.0	1865	32,000		Compressed
SRA 180 SP	**4350**	41.4	2077	**4350**	46.0	2360	37,200	3.090″	
	3100	45.0	2049	**3100**	50.0	2328	36,700		Compressed
	8700	47.7	1595	**8700**	53.0	1813	32,300		Compressed
SRA 220 RN	**4350**	38.7	1852	**4350**	43.0	2104	38,200	3.005″	
	3100	43.2	1908	**3100**	48.0	2168	39,400		
	8700	47.7	1534	**8700**	53.0	1743	34,600		Compressed

.300 SAVAGE

Introduced by Savage Arms Company for the Model 99 lever action in 1920, the .300 Savage was intended to duplicate the performance of the original U.S. Ball Cartridge, caliber .30, Model of 1906.



The .300 Savage is the perfect complement to the Model 99 lever action rifle. Until the introduction of the .308 Winchester, the .300 Savage was the only .30-caliber cartridge suitable for use in short action rifles. While not recommended for large bear, the .300 Savage has proven its effectiveness on all other large game in North America under most conditions. The .300 Savage is an excellent hunting cartridge as is. Shooters shouldn't attempt to squeeze out the last bit of velocity possible.

When loading pointed projectiles in this cartridge, bullets with shorter ogives are best suited for the Savage 99.

The SAAMI Maximum Average Pressure for the .300 Savage is 46,000 C.U.P.

.300 SAVAGE

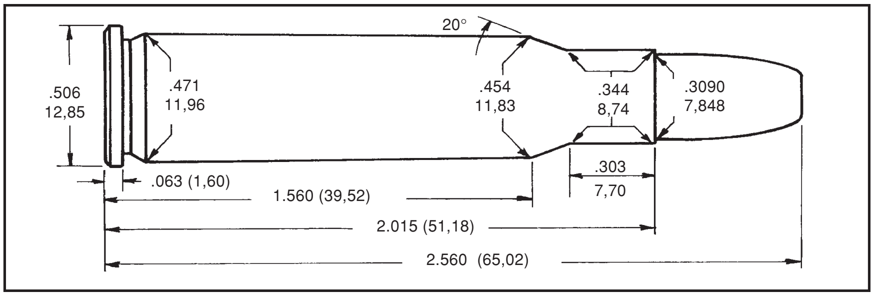
Gun	DOUGLAS	Max Length	1.871″
Barrel Length	24″	Trim Length	1.851″
Primer	REM 9½	OAL Max	2.600″
Case	FC	OAL Min	2.495″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
PMC 150 FMJ	**2015**	34.7	2413	**2015**	38.5	2742	43,600	2.600″	
	2230	35.3	2345	**2230**	39.2	2665	43,500		
	2460	36.0	2378	**2460**	40.0	2702	43,200		
	2495	37.8	2405	**2495**	42.0	2733	40,000		Compressed
	2520	38.3	2433	**2520**	42.5	2765	43,400		
	2700	41.8	2408	**2700**	44.0	2562	42,900		
	4350	39.6	2128	**4350**	44.0	2418	35,100		Compressed
REM 165 PSPCL	**2015**	33.8	2261	**2015**	37.5	2569	41,900	2.580″	
	2230	35.6	2282	**2230**	39.5	2593	45,000		
	2460	36.0	2280	**2460**	40.0	2591	44,200		
	2495	36.9	2355	**2495**	41.0	2676	44,000		
	2520	37.8	2331	**2520**	42.0	2649	43,800		
	2700	41.3	2269	**2700**	43.5	2414	43,600		
	4350	39.6	2069	**4350**	44.0	2351	36,400		

.300 SAVAGE (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SRA 180 SBT	**2015**	32.4	2172	**2015**	36.0	2468	44,400	2.590″	
	2230	33.3	2134	**2230**	37.0	2425	43,700		
	2460	33.8	2137	**2460**	37.5	2428	40,800		
	2495	35.1	2194	**2495**	39.0	2493	41,600		
	2520	35.1	2203	**2520**	39.0	2503	45,000		
	2700	39.4	2203	**2700**	41.5	2344	44,100		
	4350	38.7	2047	**4350**	43.0	2326	39,800		

.307 WINCHESTER



The .307 Winchester is a rimmed version of the .308 Winchester. Introduced in 1982 for the Model 94 XTR Angle Eject Carbine. Marlin's Model .336 ER in .307 was introduced about the same time. The ".307" designation is intended to simply avoid confusion with the .308 Winchester. The .307 uses uses standard .308″ diameter bullets.

While the .307 is a significant improvement over the .30-30 Winchester as a hunting cartridge, it still suffers from the design limitations of the Model 94 lever action rifle and its tubular magazine. Because of this, the .307 Winchester can only be loaded with blunt or flat nosed bullets.

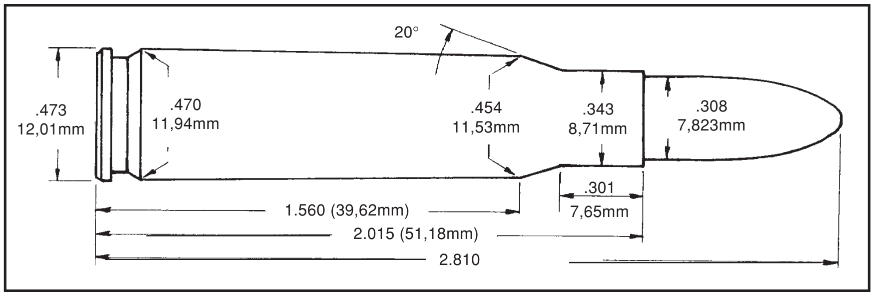
The SAAMI Maximum Average Pressure for the .307 Winchester is 52,000 C.U.P.

.307 WINCHESTER

Gun	HS PRECISION	Max Length	2.015″
Barrel Length	24″	Trim Length	1.995″
Primer	CCI 200	OAL Max	2.560″
Case	IMI	OAL Min	2.530″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SPR 150 FN	**2015**	35.1	2319	**2015**	39.0	2635	45,300	2.530″	
	2230	36.5	2281	**2230**	40.5	2592	45,400		
	2460	37.4	2285	**2460**	41.5	2597	43,600		
	2495	39.2	2335	**2495**	43.5	2653	44,400		Compressed
	2520	39.6	2370	**2520**	44.0	2693	45,500		Compressed
SPR 170 FN	**2015**	34.2	2193	**2015**	38.0	2492	48,900	2.530″	
	2230	35.1	2129	**2230**	39.0	2419	47,000		
	2460	36.5	2163	**2460**	40.5	2458	48,100		
	2495	37.4	2213	**2495**	41.5	2515	50,100		
	2520	38.3	2262	**2520**	42.5	2570	49,300		

.308 WINCHESTER



The .308 Winchester was introduced in 1952 as the sporting version of the newly adopted U.S. T-65 or NATO 7.62 x 51mm military round. It was adopted as the official U.S. military rifle cartridge in 1954 along with the M-14 rifle.

The .308 was the result of the military's experiments to retain the power of the .30-06 cartridge in a smaller package. The advent of Winchester ball powder permitted loading the 7.62x51mm to equal the velocities of .30-06 service ammunition.

Since 1954 the .308 Winchester has become the premier .30 caliber target cartridge and has gained a loyal following among hunters.

Because this is also a military cartridge, there is an almost infinite variety of components available for loading the .308. When using military cases, the handloader must exercise caution because many of these are much heavier than commercial brass. Charge weights may require up to 12% reduction to maintain pressures within safe limits.

The SAAMI Maximum Average Pressure for the .308 Winchester is 52,000 C.U.P. and 62,000 P.S.I.

.308 WINCHESTER

Gun	HS PRECISION	Max Length	2.015″
Barrel Length	24″	Trim Length	1.995″
Primer	CCI 200	OAL Max	2.810″
Case	REM	OAL Min	2.490″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
152 (L) RNGC	**5744**	23.5	2011	**5744**	27.0	2230	38,500	2.530"	Lyman
165 (L) SIL	**5744**	24.3	1905	**5744**	27.0	2165	37,200	2.700"	Penny's
SRA 110 HP	**2015**	40.5	2806	**2015**	45.0	3189	48,100	2.595″	
	2230	42.8	2790	**2230**	47.5	3171	49,300		
	2460	43.7	2810	**2460**	48.5	3193	49,300		
	2495	42.3	2659	**2495**	47.0	3022	42,700		Compressed
	2520	42.8	2658	**2520**	47.5	3020	41,500		Compressed

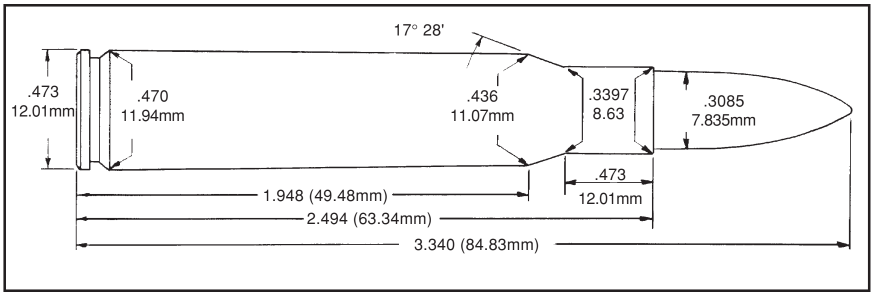
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
NOS 125 BT	**2015**	39.2	2656	**2015**	43.5	3018	49,700	2.780″	
	2230	42.3	2655	**2230**	47.0	3017	49,800		
	2460	42.3	2652	**2460**	47.0	3014	48,600		
	2495	42.3	2579	**2495**	47.0	2931	45,200		Compressed
	2520	42.8	2600	**2520**	47.5	2955	45,100		Compressed
	4064	41.4	2507	**4064**	46.0	2849	39,300		Compressed
HDY 150 SP	**2015**	37.4	2432	**2015**	41.5	2764	49,700	2.745″	
	2230	39.2	2387	**2230**	43.5	2712	48,400		
	2460	40.5	2433	**2460**	45.0	2765	48,500		
	2495	41.4	2469	**2495**	46.0	2806	47,900		Compressed
	2520	41.9	2472	**2520**	46.5	2809	48,700		Compressed
	4064	40.9	2428	**4064**	45.5	2760	46,500		Compressed
	2700	43.7	2205	**2700**	48.5	2506	45,900		Compressed
SRA 168 HPBT	**2015**	36.0	2325	**2015**	40.0	2642	50,500	2.800″	
	2230	37.8	2297	**2230**	42.0	2610	49,500		
	2460	38.3	2289	**2460**	42.5	2601	48,600		
	2495	40.1	2336	**2495**	44.5	2654	47,900		Compressed
	2520	40.5	2387	**2520**	45.0	2712	50,200		
	4064	38.7	2262	**4064**	43.0	2571	43,000		Compressed
	2700	42.3	2194	**2700**	47.0	2493	48,800		Compressed
SRA 175 HPBT	**2230**	36.0	2244	**2230**	40.0	2551	60,000**	2.800"	
	2460	36.4	2242	**2460**	40.5	2548	58,500**		Very Consistent
	2495	37.3	2272	**2495**	41.5	2582	58,800**		
	2520	37.8	2285	**2520**	42.0	2597	61,000**		
	4064	39.1	2303	**4064**	43.5	2618	59,300**		
	2700	42.3	2280	**2700**	47.0	2591	57,800**		Compressed
NOS 180 BT	**2230**	36.0	2146	**2230**	40.0	2439	48,800	2.800″	
	2460	37.4	2177	**2460**	41.5	2474	49,500		
	2495	38.7	2281	**2495**	43.0	2592	50,800		
	2520	40.1	2302	**2520**	44.5	2616	49,200		
	4064	37.8	2170	**4064**	42.0	2466	43,800		Compressed
	2700	42.3	2174	**2700**	47.0	2470	40,000		Compressed
WIN 180 FS	**2230**	34.6	2141	**2230**	38.5	2434	49,900	2.715"	
	2460	35.1	2170	**2460**	39.0	2467	50,200		
	2495	32.4	2058	**2495**	36.0	2339	51,000		
	2520	37.3	2218	**2520**	41.5	2521	48,600		
	2700	40.9	2149	**2700**	45.5	2443	49,200		
SRA 190 HPBT	**2230**	34.7	2084	**2230**	38.5	2368	47,700	2.800″	
	2460	35.1	2083	**2460**	39.0	2367	46,400		
	2495	36.0	2108	**2495**	40.0	2395	45,300		
	2520	37.4	2128	**2520**	41.5	2418	47,100		
	4064	36.9	2125	**4064**	41.0	2415	44,700		Compressed
	2700	40.5	2035	**2700**	45.0	2312	46,000		
NOS 200 (Part)	**2230**	34.2	2004	**2230**	38.0	2277	46,500	2.800″	
	2460	34.2	1990	**2460**	38.0	2261	43,900		
	2495	34.7	2012	**2495**	38.5	2286	47,100		
	2520	36.3	2041	**2520**	40.3	2319	45,500		
	4064	36.0	2009	**4064**	40.0	2284	42,800		Compressed
	2700	39.6	1962	**2700**	44.0	2229	46,600		

.308 WINCHESTER (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SRA 220 HPBT	**2230**	32.4	1883	**2230**	36.0	2140	45,300	2.800″	
	2460	33.3	1911	**2460**	37.0	2172	46,200		
	2495	34.7	1959	**2495**	38.5	2226	47,300		
	2520	34.2	1896	**2520**	38.0	2154	44,900		
	4064	35.1	1925	**4064**	39.0	2188	45,100		Compressed
	2700	37.8	1900	**2700**	42.0	2159	48,300		
.30 Caliber Sabots*									
REM 55 SABOT	**2230**	46.8	3249	**2230**	52.0	3693	47,600	2.530"	Compressed

* IMI Case
** Pressure data in P.S.I.

.30-06 SPRINGFIELD



The .30-06 Springfield is actually a modified version of the Cartridge, Caliber .30, Model of 1903. The original cartridge had a 220-grain, round-nosed FMJ bullet with a muzzle velocity of 2,300 FPS. The 1903 version was chambered by Winchester in the 1895 lever action rifle.

As a result of ballistic experiments in Europe, the U. S. Army modified the .30-03 cartridge by shortening the neck 0.070″ and loading a short pointed bullet weighing 150 grains to a muzzle velocity of 2,700 FPS. This cartridge then became known as the Caliber .30, Model of 1906 or simply the .30-06 Springfield.

Since its introduction, the .30-06 has been one of the most popular cartridges available to shooters in this country. While fans of the modern “magnum” cartridges attempt to relegate the .30-06 to obsolescence, it continues to maintain its popularity with the shooting public. Whether the game is cast bullet shooting, hunting, or high-power rifle competition, the .30-06 has repeatedly demonstrated its ability to excel.

When loaded with proper bullets, a .30-06 is adequate for any North American game. The availability of low-cost surplus military ammunition and components no doubt contributed greatly to the popularity of this cartridge.

Shooters are well advised to exercise caution if they encounter U.S. military ammunition made prior to 1956 as well as ammo of foreign manufacture due to corrosive primers. While safe to shoot, special care must be taken in cleaning the weapon to prevent irreversible damage to the bore.

Improvements in smokeless propellants since the introduction of the .30-06 Springfield have served to enhance its performance to nearly the same level as the original ballistics of the .300 Holland & Holland.

Shooters should exercise caution when loading military cases as the increased thickness of these cases may require charge weight reduction of up to 10%. Although the IMI cases used were of the same weight as the U.S. Government specifications (200 grains), other makes of foreign brass may not be.

The SAAMI Maximum Average Pressure for the .30-06 cartridge is 60,000 P.S.I. and 50,000 C.U.P.

.30-06 SPRINGFIELD

Gun	WILSON	Max Length	2.494″
Barrel Length	24″	Trim Length	2.474″
Primer	CCI 250/200	OAL Max	3.340″
Case	IMI	OAL Min	2.940″

	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	P.S.I.	Length	Comment
152 (L) RNGC *	**5744**	30.2	2157	**5744**	33.5	2451	47,100	3.035″	LY311466
	2015	36.0	2308	**2015**	40.0	2623	48,300		
	2230	36.9	2276	**2230**	41.0	2586	46,600		
	2460	36.9	2286	**2460**	41.0	2598	50,100		
	2495	37.8	2143	**2495**	42.0	2435	31,800		
	2520	37.8	2272	**2520**	42.0	2582	44,300		
	4064	41.4	2286	**4064**	46.0	2598	39,500		
	2700	41.4	2200	**2700**	46.0	2500	42,500		
	4350	45.9	2138	**4350**	51.0	2430	34,100		
	3100	47.7	1990	**3100**	53.0	2261	27,300		
	8700	54.0	1760	**8700**	60.0	2000	24,900		Compressed
180 (L) FNGC *	**5744**	28.8	2057	**5744**	32.0	2337	41,100	3.015″	LY31141
	2015	36.0	2174	**2015**	40.0	2470	49,600		
	2230	36.9	2131	**2230**	41.0	2422	45,600		
	2460	36.9	2117	**2460**	41.0	2406	42,800		
	2495	37.8	2156	**2495**	42.0	2450	42,300		
	2520	37.8	2123	**2520**	42.0	2412	43,400		
	4064	40.5	2148	**4064**	45.0	2441	36,000		
	2700	41.4	2078	**2700**	46.0	2361	38,900		
	4350	45.9	2134	**4350**	51.0	2425	37,200		
	3100	47.7	2041	**3100**	53.0	2319	31,300		
	8700	54.0	1759	**8700**	60.0	1999	26,600		Compressed
210 (L) RNGC *	**5744**	27.0	1778	**5744**	30.0	2021	40,600	3.195″	LY311284
	2015	32.4	1925	**2015**	36.0	2188	49,600		
	2230	34.2	1924	**2230**	38.0	2186	45,400		
	2460	34.7	1928	**2460**	38.5	2191	46,300		
	2495	36.0	1965	**2495**	40.0	2233	44,500		
	2520	36.0	1964	**2520**	40.0	2232	46,600		
	4064	38.7	2027	**4064**	43.0	2304	43,900		
	2700	39.6	1932	**2700**	44.0	2196	42,000		
	4350	45.9	2093	**4350**	51.0	2378	43,600		
	3100	47.7	2028	**3100**	53.0	2304	40,000		
	8700	54.0	1772	**8700**	60.0	2014	30,000		Compressed
SPR 100 Plinker	**2015**	49.5	3119	**2015**	55.0	3544	58,300	2.600″	
	2230	51.3	3058	**2230**	57.0	3475	54,900		
	2460	51.8	3045	**2460**	57.5	3460	57,800		
	2495	52.2	3135	**2495**	58.0	3563	60,000		
	2520	54.0	3024	**2520**	60.0	3436	60,000		
	4064	53.1	2945	**4064**	59.0	3347	46,000	2.800"	Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 110 RN	**2015**	48.2	2969	**2015**	53.5	3374	56,400	2.900″	
	2230	51.3	2979	**2230**	57.0	3385	55,700		
	2460	52.7	3010	**2460**	58.5	3421	57,000		
	2495	52.2	3032	**2495**	58.0	3446	59,600		
	2520	54.0	3024	**2520**	60.0	3436	60,000		
	4064	52.2	2992	**4064**	58.0	3401	55,400		Compressed
	2700	55.8	2886	**2700**	62.0	3280	53,400		
SRA 125 SP	**2015**	46.8	2806	**2015**	52.0	3189	56,200	3.150″	
	2230	48.0	2791	**2230**	53.3	3172	58,200		
	2460	48.2	2750	**2460**	53.5	3125	56,300		
	2495	48.6	2834	**2495**	54.0	3220	56,700		
	2520	48.6	2751	**2520**	54.0	3126	55,800		
	2700	55.8	2812	**2700**	62.0	3195	56,300		
	4350	54.0	2545	**4350**	60.0	2892	39,400		Compressed
NOS 125 BT	**4064**	51.3	2891	**4064**	57.0	3286	56,400	3.310"	
HDY 130 SP	**2015**	46.4	2763	**2015**	51.5	3140	55,300	3.150″	
	2230	47.4	2738	**2230**	52.7	3111	57,700		
	2460	48.0	2723	**2460**	53.3	3094	57,900		
	2495	47.7	2790	**2495**	53.0	3170	59,800		
	2520	48.6	2732	**2520**	54.0	3104	57,900		
	2700	54.9	2750	**2700**	61.0	3125	55,500		
	4350	54.0	2522	**4350**	60.0	2866	42,400		Compressed
SPR 130 HP	**4064**	48.6	2785	**4064**	54.0	3165	57,000	3.185"	
SRA 150 SP	**2015**	43.2	2535	**2015**	48.0	2881	58,400	3.250″	
	2230	44.5	2521	**2230**	49.4	2865	57,900		
	2460	44.6	2519	**2460**	49.5	2862	58,500		
	2495	46.4	2558	**2495**	51.5	2907	58,300		
	2520	46.1	2526	**2520**	51.2	2870	58,200		
	2700	53.1	2580	**2700**	59.0	2932	54,900		
	4350	53.1	2477	**4350**	59.0	2815	50,300		Compressed
	3100	53.1	2297	**3100**	59.0	2610	41,000		Compressed
NOS 150 BT	**4064**	47.2	2648	**4064**	52.5	3010	59,800	3.335"	
BAR 150-X	**2015**	40.5	2468	**2015**	45.0	2805	58,400	3.285″	
	2230	43.7	2460	**2230**	48.5	2796	56,400		
	2460	43.7	2462	**2460**	48.5	2798	57,100		
	2495	42.8	2480	**2495**	47.5	2818	59,400		
	2520	45.0	2479	**2520**	50.0	2817	57,800		
	4064	46.3	2608	**4064**	51.5	2964	59,800		
	2700	51.3	2544	**2700**	57.0	2891	57,900		
	4350	51.3	2516	**4350**	57.0	2859	54,100		Compressed
	3100	53.1	2353	**3100**	59.0	2674	46,900		Compressed

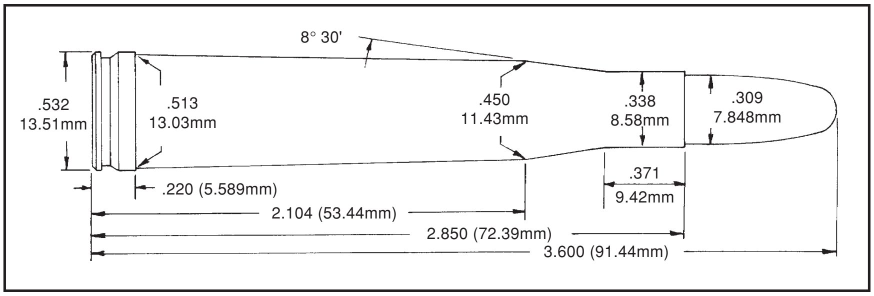
.30-06 SPRINGFIELD (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
BAR 165-X	**2015**	38.7	2304	**2015**	43.0	2618	58,600	3.245"	
	2230	39.6	2237	**2230**	44.0	2542	57,800		
	2460	40.5	2272	**2460**	45.0	2582	60,000		
	2495	41.0	2328	**2495**	45.5	2645	58,500		
	2520	42.8	2347	**2520**	47.5	2667	60,000		
	4064	46.3	2487	**4064**	51.5	2827	57,900		
	2700	48.6	2382	**2700**	54.0	2707	58,500		
	4350	51.3	2428	**4350**	57.0	2759	56,300		Compressed
	3100	53.1	2268	**3100**	59.0	2577	46,300		Compressed
SRA 168 HPBT	**5744**	28.8	2018	**5744**	32.0	2293	38,300	3.295″	
	2015	41.0	2385	**2015**	45.5	2710	59,000		
	2230	41.4	2343	**2230**	46.0	2663	58,800		
	2460	42.0	2340	**2460**	46.7	2659	58,800		
	2495	42.3	2382	**2495**	47.0	2707	57,300		
	2520	42.8	2359	**2520**	47.5	2681	58,000		
	2700	48.6	2404	**2700**	54.0	2732	57,700		
	4350	53.1	2486	**4350**	59.0	2825	56,200		
	3100	53.1	2300	**3100**	59.0	2614	48,800		Compressed
SRA 175 HPBT	**2015**	40.0	2359	**2015**	44.5	2681	58,800	3.290"	
	2230	39.6	2323	**2230**	44.0	2640	59,500		
	2460	40.9	2334	**2460**	45.5	2653	58,700		
	2495	42.7	2385	**2495**	47.5	2711	56,400		
	2520	41.8	2341	**2520**	46.5	2661	57,000		
	2700	48.6	2429	**2700**	54.0	2761	58,200		
	4350	51.3	2486	**4350**	57.0	2825	56,300		Compressed
	3100	53.1	2341	**3100**	59.0	2661	48,800		Compressed
SRA 180 HPBT	**5744**	29.7	2036	**5744**	33.0	2314	42,900	3.290″	
	2015	40.1	2277	**2015**	44.5	2588	59,300		
	2230	39.6	2260	**2230**	44.0	2568	60,000		
	2460	41.2	2255	**2460**	45.8	2563	55,800		
	2495	41.0	2284	**2495**	45.5	2595	59,500		
	2520	42.1	2275	**2520**	46.8	2585	57,000		
	4064	43.6	2379	**4064**	48.5	2704	58,300		
	2700	49.5	2328	**2700**	55.0	2646	56,000		
	4350	51.3	2389	**4350**	57.0	2715	56,400		Compressed
	3100	53.1	2298	**3100**	59.0	2611	53,300		Compressed
BAR 180-X	**2015**	36.9	2176	**2015**	41.0	2473	58,100	3.320″	
	2230	39.2	2179	**2230**	43.5	2476	57,900		
	2460	40.1	2218	**2460**	44.5	2521	59,000		
	2495	40.5	2238	**2495**	45.0	2543	59,300		
	2520	41.4	2251	**2520**	46.0	2558	58,900		
	4064	42.7	2333	**4064**	47.5	2652	59,400		
	2700	48.6	2329	**2700**	54.0	2647	58,800		
	4350	50.0	2357	**4350**	55.5	2678	60,000		
	3100	53.1	2281	**3100**	59.0	2592	52,400		Compressed
WIN 180 FS	**2015**	35.5	2112	**2015**	39.5	2400	50,000**	3.115"	
	2230	38.2	2165	**2230**	42.5	2461	49,300**		
	2460	39.1	2200	**2460**	43.5	2500	50,000**		
	2495	39.1	2156	**2495**	43.5	2451	50,000**		
	2520	41.4	2241	**2520**	46.0	2547	48,000**		
	2700	46.8	2262	**2700**	52.0	2571	49,100**		
	4350	47.7	2266	**4350**	53.0	2575	48,800**		
	3100	53.1	2267	**3100**	59.0	2577	47,600**		Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 190 HPBT	**5744**	30.6	2041	**5744**	34.0	2319	48,200	3.325″	
	2015	38.7	2193	**2015**	43.0	2492	60,000		
	2230	39.6	2180	**2230**	44.0	2477	56,600		
	2460	41.0	2233	**2460**	45.5	2537	58,400		
	2495	39.6	2193	**2495**	44.0	2492	59,100		
	2520	41.0	2212	**2520**	45.5	2514	58,400		
	4064	42.7	2310	**4064**	47.5	2626	59,700		
	2700	46.8	2217	**2700**	52.0	2519	53,700		
	4350	50.0	2343	**4350**	55.5	2663	60,000		Compressed
	3100	53.1	2265	**3100**	59.0	2574	53,200		Compressed
	8700	55.8	1912	**8700**	62.0	2173	31,400		Compressed
NOS 200 (Part)	**2015**	37.8	2062	**2015**	42.0	2343	54,800	3.295″	
	2230	39.2	2100	**2230**	43.5	2386	57,300		
	2460	40.1	2138	**2460**	44.5	2429	58,500		
	2495	38.7	2094	**2495**	43.0	2379	59,900		
	2520	40.5	2140	**2520**	45.0	2432	58,900		
	4064	41.4	2178	**4064**	46.0	2475	57,300		
	2700	46.4	2148	**2700**	51.5	2441	53,900		
	4350	49.5	2261	**4350**	55.0	2569	58,800		Compressed
	3100	53.1	2254	**3100**	59.0	2561	58,900		Compressed
	8700	55.8	1925	**8700**	62.0	2187	34,800		Compressed
SRA 220 RN	**2015**	37.8	1983	**2015**	42.0	2253	59,500	3.200″	
	2230	38.3	1978	**2230**	42.5	2248	58,400		
	2460	38.7	1996	**2460**	43.0	2268	58,600		
	2495	38.3	1955	**2495**	42.5	2222	56,900		
	2520	39.6	2013	**2520**	44.0	2288	59,000		
	4064	40.5	2037	**4064**	45.0	2315	57,900		
	2700	44.6	2048	**2700**	49.5	2327	58,200		
	4350	49.5	2171	**4350**	55.0	2467	59,400		
	3100	53.1	2174	**3100**	59.0	2470	59,900		Compressed
	8700	55.8	1908	**8700**	62.0	2168	38,700		Compressed
.30 Caliber Sabots									
REM 55 SABOT	**2230**	56.7	3598	**2230**	63.0	4089	50,300**	3.025"	Compressed

* CCI 250 Primers
** Pressure data in C.U.P.

.300 HOLLAND & HOLLAND MAGNUM



Introduced in 1925 by the British firm of Holland & Holland, the "Super .30" was first offered in the U.S. by the Western Cartridge Company. Although available as factory ammunition, no American-made commercial rifles were chambered for the .300 H&H until 12 years after its introduction.

In 1935, Ben Comfort won the 1000-yard Wimbledon Cup Match with this cartridge and it then became the new sensation.

By 1937, Winchester had chambered the new Model 70 for the .300 H&H. Remington later followed with the Models 721 and 700 rifles.

The .300 H&H is very accurate, as well as being the most efficient of the .30-caliber "magnum" cartridges. It is suitable for all North American game as well as most thin-skinned game throughout the world.

When loaded to its SAAMI Maximum Average Pressure of 54,000 C.U.P. in a rifle of suitable barrel length (26″), the .300 H&H's performance is exceeded only by the .300 Weatherby Magnum.

.300 HOLLAND & HOLLAND MAGNUM

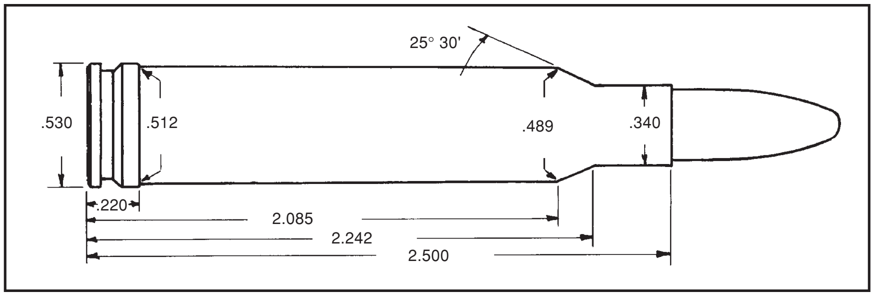
Gun	DOUGLAS	Max Length	2.850″
Barrel Length	26″	Trim Length	2.820″
Primer	CCI 250	OAL Max	3.600″
Case	WW	OAL Min	3.420″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
165 (L) GC	**5744**	27.5	1924	**5744**	35.0	2285	35,700	3.430"	Penny's
190 (L) GC	**5744**	27.0	1849	**5744**	35.0	2197	36,000	3.535"	Penny's
210 (L) GC	**5744**	26.5	1748	**5744**	35.0	2097	38,000	3.445"	Penny's
NOS 125 BT	**2700**	65.3	3084	**2700**	72.5	3504	53,700	3.585″	
	4350	70.2	3066	**4350**	78.0	3484	48,300		Compressed
	3100	70.2	2814	**3100**	78.0	3198	43,200		Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
HDY 150 SP	**2700**	62.2	2904	**2700**	69.1	3300	54,000	3.555″	
	4350	67.5	2932	**4350**	75.0	3332	53,000		Case Full
	3100	69.3	2801	**3100**	77.0	3183	54,000		Compressed
SPR 150 GRSL	**2700**	62.6	2854	**2700**	69.5	3244	52,800	3.530"	
	4350	66.6	2958	**4350**	74.0	3362	52,800		
	3100	70.2	2762	**3100**	78.0	3139	49,300		Compressed
NOS 150 BT	**2700**	62.6	2847	**2700**	69.5	3236	53,600	3.600"	
	4350	66.6	2992	**4350**	74.0	3400	54,000		
	3100	68.8	2735	**3100**	76.5	3109	48,300		Compressed
BAR 165-X	**2700**	61.2	2686	**2700**	68.0	3052	53,000	3.600″	
	4350	64.8	2762	**4350**	72.0	3139	54,000		Case Full
	3100	70.2	2743	**3100**	78.0	3117	49,600		Compressed
SWF 165 SP	**2700**	58.5	2641	**2700**	65.0	3001	52,100	3.520"	
	4350	63.9	2827	**4350**	71.0	3213	53,000		
	3100	69.3	2736	**3100**	77.0	3109	54,000		Compressed
SRA 180 SP	**2700**	57.6	2580	**2700**	64.0	2932	54,000	3.600″	
	4350	64.4	2700	**4350**	71.5	3068	54,000		Case Full
	3100	65.7	2611	**3100**	73.0	2967	53,800		Compressed
	8700	76.5	2374	**8700**	85.0	2698	46,300		Compressed
SWF 180 SP	**2700**	57.6	2545	**2700**	64.0	2892	54,000	3.520"	
	4350	62.5	2704	**4350**	69.5	3073	54,000		
	3100	67.5	2708	**3100**	75.0	3077	52,300		Case Full
	8700	76.5	2420	**8700**	85.0	2750	50,700		Compressed
SWF 200 SP	**2700**	56.3	2413	**2700**	62.5	2742	53,900	3.525"	
	4350	58.9	2502	**4350**	65.5	2843	53,200		
	3100	63.9	2541	**3100**	71.0	2887	52,500		Compressed
	8700	73.8	2318	**8700**	82.0	2634	49,900		Compressed
SRA 200 HPBT	**2700**	54.0	2426	**2700**	60.0	2757	53,700	3.665″	*
	4350	61.0	2563	**4350**	67.8	2913	53,900		
	3100	62.1	2468	**3100**	69.0	2805	53,300		
	8700	76.5	2262	**8700**	85.0	2571	44,600		Compressed
HDY 220 RN	**2700**	52.2	2255	**2700**	58.0	2563	53,300	3.590″	
	4350	60.5	2409	**4350**	67.2	2738	54,000		
	3100	63.9	2413	**3100**	71.0	2743	53,300		Compressed
	8700	76.5	2262	**8700**	85.0	2571	44,600		Compressed

* Over SAAMI Maximum OAL

.30-338/.308 NORMA MAGNUM



The .30-338 is a wildcat cartridge formed by necking the parent .338 Winchester Magnum case down to .30 caliber. The fondness of U.S. shooters for cartridges that will function in the various rifles normally used in high-power competition prompted the development of this cartridge.

The somewhat shorter case of the .30-338 wildcat permits seating bullets further out than the .300 Winchester Magnum, its closest competitor in long-range competition. The velocities obtained with these two cartridges are nearly identical.

The .30-338 is almost an identical twin to the .308 Norma Magnum and this loading data is considered suitable for that cartridge.

There is no SAAMI pressure limit for the .30-338 cartridge. 65,000 P.S.I. was accepted as the pressure limit for the cartridge based on its cartridge case and the pressure limits of other cartridges in its class. This is a wildcat cartridge with potentially a great deal of variation in the various rifles chambered for it. Care should be exercised in approaching the maximum loads listed here.

.30-338

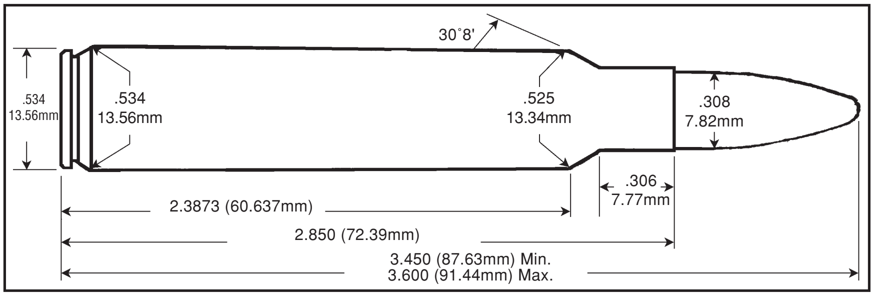
Gun	DOUGLAS	Max Length	2.500″
Barrel Length	26″	Trim Length	2.480″
Primer	CCI 250	OAL Max	3.290″
Case	WW	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
REM 150 PSPCL	**2700**	63.2	2949	**2700**	66.5	3137	61,800	3.205″	
	4350	64.4	2819	**4350**	71.5	3203	58,100		
	3100	68.4	2768	**3100**	76.0	3145	57,100		
SRA 168 “MK”	**4350**	61.7	2681	**4350**	68.5	3047	61,600	3.265″	
	3100	66.2	2707	**3100**	73.5	3076	61,300		
	8700	74.7	2402	**8700**	83.0	2729	50,100		Compressed
SRA 180 “MK”	**4350**	59.4	2578	**4350**	66.0	2929	59,900	3.250″	
	3100	65.3	2608	**3100**	72.5	2964	61,200		
	8700	73.8	2329	**8700**	82.0	2647	51,100		

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 190 “MK”	**4350**	58.5	2541	**4350**	65.0	2888	59,100	3.300″	*
	3100	65.1	2645	**3100**	72.3	3006	63,500		
	8700	73.4	2385	**8700**	81.5	2710	47,600		
SRA 200 “MK”	**4350**	57.6	2474	**4350**	64.0	2811	62,500	3.320″	*
	3100	63.9	2570	**3100**	71.0	2921	62,600		
	8700	72.0	2250	**8700**	80.0	2557	43,400		
SRA 220 “MK”	**4350**	56.7	2328	**4350**	63.0	2646	61,000	3.310″	*
	3100	63.0	2407	**3100**	70.0	2735	61,500		
	8700	72.0	2225	**8700**	80.0	2528	47,400		

* Over Recommended Maximum OAL

.300 REMINGTON ULTRA MAG



The .300 Remington Ultra Mag is another in the long line of wildcats brought to market by Remington.

To achieve ultimate performance, Remington has maximized case volume by using a necked down .404 Jeffery case which provides about 10% more volume than other .300 Magnum cartridges. This extra volume allows for a higher propellant charge weight which results in higher velocities.

Most of these loads are considered maximum by the technical staff at Accurate Arms. The only exceptions are the lead bullets and the single light load with XMP 5744 that we listed with each bullet type. The maximum loads should never be exceeded.

The SAAMI Maximum Average Pressure for the .300 Remington Ultra Mag is 65,000 PSI.

.300 REMINGTON ULTRA MAG

Gun	Test Barrel	Max Length	2.850"
Barrel Length	24″	Trim Length	2.830"
Primer	REM 9 1/2 M	OAL Max	3.600"
Case	REM	OAL Min	3.450"

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
165 (L) RNGC	**5744**	---	---	**5744**	25.0	1636	12,800	3.380"	Light Load
	5744	---	---	**5744**	35.0	2090	21,900		Lyman
168 (L) RNGC	**5744**	---	---	**5744**	25.0	1540	12,000	3.475"	Light Load
									Lyman
180 (L) RNGC	**5744**	---	---	**5744**	25.0	1604	13,800	3.400"	Light Load
	5744	---	---	**5744**	38.0	2161	26,000		Lyman
NOS 125 BT	**5744**	---	---	**5744**	45.0	2660	28,400	3.600"	Light Load
	5744	60.3	3148	**5744**	67.0	3578	62,700		
	4064	74.7	3218	**4064**	83.0	3657	61,800		
	2700	74.7	3197	**2700**	83.0	3633	61,800		
	4350	85.5	3306	**4350**	95.0	3757	61,800		
	3100	88.6	3272	**3100**	98.5	3719	61,300		Compressed
	8700	103.9	3031	**8700**	115.5	3445	52,400		Compressed

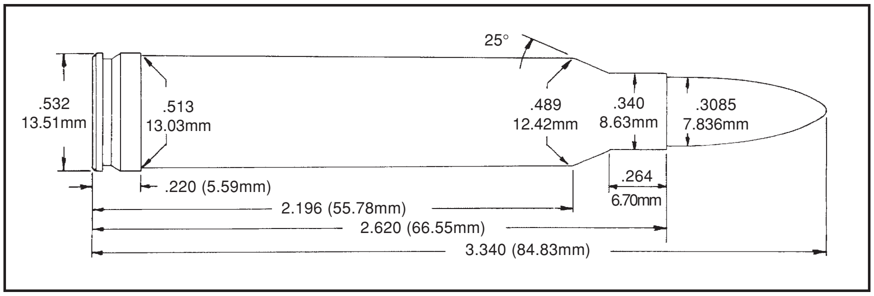
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
BAR 150 X	**5744**	---	---	**5744**	40.0	2340	29,000	3.600"	Light Load
	5744	55.8	2830	**5744**	62.0	3216	62,400		
	4064	66.6	2867	**4064**	74.0	3258	61,100		
	2700	67.5	2860	**2700**	75.0	3250	60,400		
	4350	76.5	2986	**4350**	85.0	3394	61,000		
	3100	80.1	2974	**3100**	89.0	3380	58,900		Compressed
	8700	102.6	3041	**8700**	114.0	3456	61,000		Compressed
NOS 165 BT	**5744**	---	---	**5744**	39.0	2215	28,000	3.600"	Light Load
	5744	54.9	2720	**5744**	61.0	3092	61,700		
	4064	66.6	2742	**4064**	74.0	3117	61,300		
	2700	64.8	2729	**2700**	72.0	3102	61,700		
	4350	74.7	2818	**4350**	83.0	3203	58,300		
	3100	81.0	2889	**3100**	90.0	3284	59,600		Compressed
	8700	101.7	2893	**8700**	113.0	3288	56,600		Compressed
SPR 165 GRSL	**5744**	---	---	**5744**	40.0	2277	31,000	3.550"	Light Load
	5744	54.9	2694	**5744**	61.0	3062	60,900		
	4064	63.9	2714	**4064**	71.0	3085	61,300		
	2700	65.7	2728	**2700**	73.0	3100	60,400		
	4350	72.4	2842	**4350**	80.5	3230	62,400		
	3100	79.2	2893	**3100**	88.0	3288	61,400		Compressed
	8700	101.7	2964	**8700**	113.0	3369	60,700		Compressed
SWF 165 AF	**5744**	---	---	**5744**	38.0	2184	27,100	3.550"	Light Load
	5744	54.0	2678	**5744**	60.0	3044	58,600		
	4064	63.9	2721	**4064**	71.0	3093	61,800		
	2700	67.5	2761	**2700**	75.0	3138	60,900		
	4350	76.5	2882	**4350**	85.0	3276	61,100		
	3100	82.8	2953	**3100**	92.0	3356	61,800		
	8700	101.7	2848	**8700**	113.0	3237	51,500		Compressed
HDY 168 HPBT NM	**5744**	---	---	**5744**	38.0	2185	26,900	3.600"	Light Load
	5744	54.9	2703	**5744**	61.0	3072	60,800		
	4064	68.4	2777	**4064**	76.0	3156	62,600		
	2700	66.6	2746	**2700**	74.0	3121	61,900		
	4350	75.6	2883	**4350**	84.0	3277	63,000		
	3100	81.9	2926	**3100**	91.0	3326	62,100		
	8700	100.8	2901	**8700**	112.0	3297	55,400		Compressed
HDY 180 SPBT	**5744**	---	---	**5744**	38.0	2151	28,500	3.600"	Light Load
	5744	53.1	2584	**5744**	59.0	2937	59,100		
	4064	63.9	2654	**4064**	71.0	3016	63,500		
	2700	66.6	2671	**2700**	74.0	3036	61,200		
	4350	72.9	2760	**4350**	81.0	3137	61,500		
	3100	80.1	2865	**3100**	89.0	3256	63,700		
	8700	101.7	2863	**8700**	113.0	3254	57,000		Compressed
REM 180 SPCL	**5744**	---	---	**5744**	47.0	2454	39,200	3.550"	Light Load
	5744	54.0	2588	**5744**	60.0	2942	61,900		
	4064	66.6	2645	**4064**	74.0	3006	62,100		
	2700	67.0	2662	**2700**	74.5	3026	62,200		
	4350	76.5	2792	**4350**	85.0	3173	63,400		
	3100	81.0	2833	**3100**	90.0	3220	63,500		Compressed
	8700	101.7	2833	**8700**	113.0	3220	56,400		Compressed

.300 REMINGTON ULTRA MAG (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SPR 180 GRSL	**5744**	---	---	**5744**	38.0	2134	30,200	3.550"	Light Load
	5744	52.2	2536	**5744**	58.0	2882	59,300		
	4064	64.3	2618	**4064**	71.5	2976	62,700		
	2700	64.3	2618	**2700**	71.5	2975	62,000		
	4350	72.0	2732	**4350**	80.0	3105	62,800		
	3100	78.3	2800	**3100**	87.0	3182	62,700		Compressed
	8700	101.7	2907	**8700**	113.0	3304	62,500		Compressed
SWF 180 AF	**5744**	---	---	**5744**	38.0	2111	28,300	3.550"	Light Load
	5744	53.1	2586	**5744**	59.0	2939	59,900		
	4064	61.6	2582	**4064**	68.5	2935	63,600		
	2700	66.6	2642	**2700**	74.0	3003	61,600		
	4350	73.8	2741	**4350**	82.0	3115	61,600		
	3100	80.1	2820	**3100**	89.0	3205	62,300		
	8700	100.8	2806	**8700**	112.0	3189	56,100		Compressed
NOS 180 BT	**5744**	---	---	**5744**	38.0	2152	29,500	3.600"	Light Load
	5744	52.2	2554	**5744**	58.0	2903	59,800		
	4064	64.8	2607	**4064**	72.0	2963	60,800		
	2700	66.6	2642	**2700**	74.0	3003	61,300		
	4350	72.0	2707	**4350**	80.0	3077	60,900		
	3100	79.9	2817	**3100**	88.5	3202	62,700		Compressed
	8700	101.7	2860	**8700**	113.0	3250	59,000		Compressed
NOS 180 PART	**5744**	---	---	**5744**	38.0	2118	28,500	3.600"	Light Load
	5744	52.2	2544	**5744**	58.0	2892	58,300		
	4064	65.7	2623	**4064**	73.0	2981	60,300		
	2700	67.0	2646	**2700**	74.5	3007	60,500		
	4350	73.8	2752	**4350**	82.0	3128	61,300		
	3100	80.1	2826	**3100**	89.0	3212	62,900		Compressed
	8700	101.7	2924	**8700**	113.0	3323	62,400		Compressed
BAR 180 X	**5744**	---	---	**5744**	38.0	2063	29,700	3.600"	Light Load
	5744	52.2	2530	**5744**	58.0	2876	59,100		
	4064	63.9	2569	**4064**	71.0	2920	62,200		
	2700	62.5	2537	**2700**	69.5	2883	60,300		
	4350	67.0	2585	**4350**	74.5	2938	57,900		
	3100	77.4	2750	**3100**	86.0	3126	60,600		
	8700	101.7	2891	**8700**	113.0	3286	62,000		Compressed
SPR 200 SP	**5744**	---	---	**5744**	38.0	2014	33,100	3.600"	Light Load
	5744	50.4	2366	**5744**	56.0	2689	59,400		
	4064	57.7	2341	**4064**	63.0	2661	60,700		
	2700	58.5	2387	**2700**	65.0	2713	61,000		
	4350	62.1	2453	**4350**	69.0	2788	63,300		
	3100	72.4	2584	**3100**	80.5	2937	61,200		
	8700	95.4	2744	**8700**	106.0	3119	62,600		Compressed
SPR 200 GRSL	**5744**	---	---	**5744**	38.0	2043	32,000	3.550"	Light Load
	5744	50.4	2439	**5744**	56.0	2772	62,000		
	4064	58.5	2390	**4064**	65.0	2716	60,000		
	2700	60.3	2412	**2700**	67.0	2742	59,000		
	4350	65.7	2518	**4350**	73.0	2862	60,800		
	3100	72.9	2606	**3100**	81.0	2962	60,600		
	8700	99.0	2775	**8700**	110.0	3154	62,100		Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SWF 200 AF	**5744**	---	---	**5744**	38.0	2024	29,900	3.550"	Light Load
	5744	50.4	2403	**5744**	56.0	2731	57,700		
	4064	57.6	2381	**4064**	64.0	2706	60,000		
	2700	65.7	2530	**2700**	73.0	2876	61,800		
	4350	71.1	2585	**4350**	79.0	2938	62,300		
	3100	75.4	2655	**3100**	86.0	3018	60,600		
	8700	99.9	2741	**8700**	111.0	3115	59,200		Compressed
SRA 220 RN	**5744**	---	---	**5744**	38.0	1921	31,800	3.570"	Light Load
	5744	51.3	2301	**5744**	57.0	2615	61,400		
	4064	58.5	2277	**4064**	65.0	2588	62,800		
	2700	60.3	2319	**2700**	67.0	2636	62,500		
	4350	62.1	2327	**4350**	69.0	2645	60,000		
	3100	74.7	2535	**3100**	83.0	2881	63,800		
	8700	95.4	2613	**8700**	106.0	2970	60,200		Compressed

.300 WINCHESTER MAGNUM



Introduced in 1963 for Winchester's Model 70 bolt action rifle, the .300 Winchester Magnum embodied what are now considered to be the most efficient cartridge case design features — a sharp shoulder angle and a short neck. The .300 Winchester Magnum has become the most popular .30 caliber magnum in the U.S. market. It is a favorite for NRA 1,000-yard matches. When loading the .300 Winchester Magnum for competitive long-range shooting, the various "match" bullets must be loaded to exceed the SAAMI recommended overall length.

The .300 Winchester Magnum is suitable for all North American big game as well as most thin-skinned game throughout the world.

The SAAMI Maximum Average Pressure for the .300 Winchester Magnum is 54,000 C.U.P. or 64,000 P.S.I.

.300 WINCHESTER MAGNUM

Gun	H. S. PRECISION	Max Length	2.620″
Barrel Length	24″	Trim Length	2.600″
Primer	REM 9½	OAL Max	3.340″
Case	REM	OAL Min	3.280″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
150 (L) GC	**5744**	25.0	1824	**5744**	35.0	2321	25,100**	3.150"	Lyman
168 (L) GC	**5744**	26.0	1780	**5744**	35.0	2216	25,000**	3.315"	Penny's
SRA 110 HP	**2520**	60.3	3091	**2520**	67.0	3512	58,400	3.170″	
	2700	74.6	3437	**2700**	78.5	3656	64,000		
	4350	71.6	3116	**4350**	79.5	3541	55,600		Case Full
	3100	73.8	3009	**3100**	82.0	3419	51,900		Compressed
SRA 125 SP	**2520**	58.5	2942	**2520**	65.0	3343	61,000	3.250″	
	2700	70.8	3269	**2700**	74.5	3478	63,100		
	4350	70.7	3047	**4350**	78.5	3462	58,200		Case Full
	3100	73.8	2968	**3100**	82.0	3373	57,500		Compressed
HDY 130 SP	**2520**	56.7	2849	**2520**	63.0	3237	58,800	3.300″	
	2700	69.8	3183	**2700**	73.5	3386	63,200		
	4350	69.3	2973	**4350**	77.0	3378	60,000		Case Full
	3100	73.8	2973	**3100**	82.0	3378	59,500		Compressed

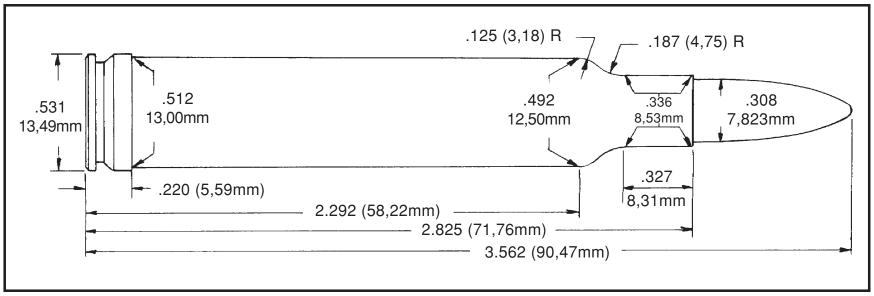
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 150 SP	**2520**	52.2	2604	**2520**	58.0	2959	58,500	3.380″	*
	2700	66.0	2986	**2700**	69.5	3177	62,300		
	4350	65.7	2767	**4350**	73.0	3144	59,400		
	3100	68.4	2735	**3100**	76.0	3108	58,900		
BAR 150 X	**4350**	67.9	2924	**4350**	75.5	3323	53,600**	3.400"	*
	3100	72.0	2903	**3100**	80.0	3299	52,700**		
SRA 168 HPBT	**2700**	63.7	2781	**2700**	67.0	2959	61,900	3.475″	*
	4350	66.6	2774	**4350**	74.0	3153	50,900**		
	3100	72.0	2816	**3100**	80.0	3200	52,600**		
SRA 180 SBT	**2700**	62.7	2706	**2700**	66.0	2879	62,800	3.450″	*
	4350	62.1	2547	**4350**	69.0	2894	62,200		
	3100	64.8	2551	**3100**	72.0	2899	58,300		
	8700	77.4	2475	**8700**	86.0	2813	45,100		Compressed
NOS 180 BT	**4350**	64.8	2680	**4350**	72.0	3046	51,600**	3.450"	*
	3100	65.7	2715	**3100**	73.0	3086	52,800**		
	8700	77.4	2314	**8700**	86.0	2630	35,000**		Compressed
SRA 180 HPBT	**4350**	63.9	2665	**4350**	71.0	3029	50,600**	3.450"	*
	3100	69.3	2708	**3100**	77.0	3078	51,400**		
SPR 180 GRSL	**4350**	63.0	2612	**4350**	70.0	2969	50,100**	3.315"	
	3100	67.9	2632	**3100**	75.5	2992	49,800**		
SWF 180 SP	**4350**	66.1	2720	**4350**	73.5	3092	52,800**	3.315"	
	3100	72.0	2783	**3100**	80.0	3163	53,800**		
WIN 180 FS	**2700**	58.5	2463	**2700**	65.0	2799	61,700	3.340"	
	4350	58.5	2536	**4350**	65.0	2882	61,900		
	3100	62.1	2499	**3100**	69.0	2840	60,300		
	8700	77.4	2299	**8700**	86.0	2613	38,500		Compressed
SRA 190 HPBT	**2700**	60.3	2611	**2700**	63.5	2778	60,600	3.450″	*
	4350	61.6	2550	**4350**	68.5	2898	50,900**		
	3100	66.6	2555	**3100**	74.0	2904	49,800**		
	8700	77.4	2475	**8700**	86.0	2813	49,300		Compressed
SRA 200 HPBT	**2700**	58.9	2535	**2700**	62.0	2697	61,800	3.340″	
	4350	59.4	2432	**4350**	66.0	2764	49,000**		
	3100	64.8	2457	**3100**	72.0	2793	48,200**		
	8700	77.4	2283	**8700**	86.0	2595	36,400**		Compressed
SPR 200 SP	**4350**	61.2	2459	**4350**	68.0	2795	52,800**	3.340"	
	3100	64.8	2471	**3100**	72.0	2808	52,800**		
	8700	77.4	2263	**8700**	86.0	2572	37,600**		Compressed
NOS 200 PART	**4350**	62.1	2497	**4350**	69.0	2838	51,100**	3.340"	
	3100	66.6	2531	**3100**	74.0	2877	50,400**		
	8700	77.4	2241	**8700**	86.0	2547	35,400**		Compressed
SWF 200 SP	**4350**	61.2	2490	**4350**	68.0	2830	51,600**	3.340"	
	3100	64.8	2503	**3100**	72.0	2845	51,900**		
	8700	77.4	2281	**8700**	86.0	2593	38,400**		Compressed

.300 WINCHESTER MAGNUM (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SPR 200 GRSL	**4350**	59.4	2463	**4350**	66.0	2799	52,700**	3.280"	
	3100	64.8	2493	**3100**	72.0	2833	51,200**		
	8700	77.4	2317	**8700**	86.0	2634	37,100**		Compressed
SRA 220 RN	**2700**	56.5	2298	**2700**	59.5	2445	56,800	3.300″	
	4350	58.5	2288	**4350**	65.0	2600	61,600		
	3100	60.3	2253	**3100**	67.0	2560	59,800		
	8700	77.4	2371	**8700**	86.0	2694	53,300		Compressed
SRA 220 HPBT	**4350**	58.5	2333	**4350**	65.0	2652	51,700**	3.300"	
	3100	63.4	2368	**3100**	70.5	2691	50,900**		
	8700	77.4	2259	**8700**	86.0	2568	38,400**		Compressed
SRA 240 HPBT	**4350**	57.6	2258	**4350**	64.0	2567	53,700**		
	3100	62.5	2302	**3100**	69.5	2617	54,100**		
	8700	75.6	2263	**8700**	84.0	2572	40,500**		Compressed
.30 Caliber Sabots* **									
REM 55 SABOT	**2230**	71.0	4064	**2230**	79.0	4619	51,800**	3.145"	

* Over SAAMI Maximum OAL
** Pressure measured in C.U.P.
*** Using CCI 250 Primer

.300 WEATHERBY MAGNUM



When most people think Weatherby, the .300 Magnum is the cartridge they think of first. Based on the .300 H&H case, the .300 Magnum has the trademark (Weatherby) double radius shoulder. Cartridge cases are made by Norma with the Weatherby headstamp. They can also be made by fire-forming .300 H&H cases.

The .300 Weatherby Magnum is the most powerful .30 caliber cartridge commercially available in the world. It is the only .30 caliber magnum capable of substantially exceeding the performance of the .300 H&H. The .300 Weatherby Magnum is suitable for every species of big game in North America and thin-skinned game throughout the world.

Accurate **3100** is an excellent choice for loading the .300 Weatherby cartridge with all but the very lightest bullets. Until recently available only in Weatherby rifles, the .300 Weatherby Magnum can now be had in both Remington and Ruger rifles.

Remington currently offers both loaded ammunition and cartridge cases for handloading.

The SAAMI Maximum Average Pressure for the .300 Weatherby Magnum is 65,000 P.S.I.

.300 WEATHERBY MAGNUM

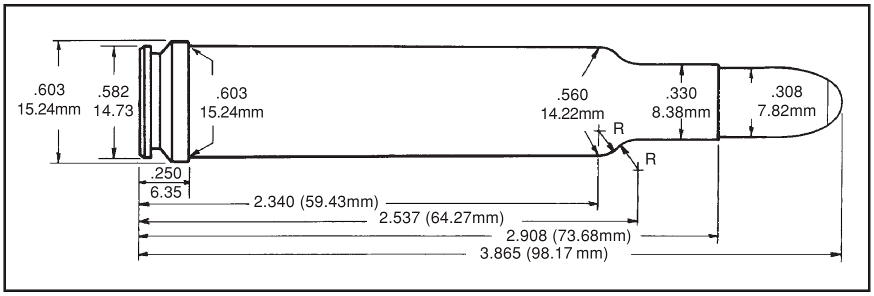
Gun	DOUGLAS	Max Length	2.825″
Barrel Length	26″	Trim Length	2.813″
Primer	FC 215	OAL Max	3.562″
Case	REM	OAL Min	3.390″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
NOS 125 BT	**4350**	74.7	3205	**4350**	83.0	3642	63,000	3.560″	
	3100	76.5	2985	**3100**	85.0	3392	45,500		Compressed
	8700	83.7	2600	**8700**	93.0	2954	33,700		Compressed
REM 150 PSPCL	**4350**	71.1	2933	**4350**	79.0	3333	63,300	3.535″	
	3100	76.5	2915	**3100**	85.0	3313	57,800		Compressed
	8700	83.7	2596	**8700**	93.0	2950	43,700		Compressed

.300 WEATHERBY MAGNUM (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
BAR 150-X	**4350**	70.2	2898	**4350**	78.0	3293	63,000	3.560″	
	3100	76.5	2911	**3100**	85.0	3308	60,400		Compressed
	8700	83.7	2575	**8700**	93.0	2926	44,900		Compressed
165 PSPCL	**4350**	69.3	2784	**4350**	77.0	3164	61,200	3.560″	
	3100	76.5	2838	**3100**	85.0	3225	60,400		Compressed
	8700	83.7	2521	**8700**	93.0	2865	43,000		Compressed
BAR 165-X	**4350**	68.9	2790	**4350**	76.5	3171	62,900	3.555″	
	3100	76.5	2845	**3100**	85.0	3233	63,700		Compressed
	8700	84.6	2517	**8700**	94.0	2860	44,500		Compressed
NOS 180 BT	**4350**	67.1	2692	**4350**	74.5	3059	63,100	3.560″	
	3100	73.8	2761	**3100**	82.0	3137	64,300		Compressed
	8700	83.7	2495	**8700**	93.0	2835	45,200		Compressed
WIN 180 FS	**4350**	67.0	2669	**4350**	74.5	3034	60,200	3.550"	
	3100	72.0	2666	**3100**	80.0	3030	60,400		
	8700	84.6	2485	**8700**	94.0	2824	45,100		Compressed
BAR 180-X	**4350**	66.2	2643	**4350**	73.5	3003	61,800	3.560″	
	3100	74.7	2765	**3100**	83.0	3142	64,800		Compressed
	8700	84.6	2520	**8700**	94.0	2864	48,900		Compressed
NOS 200 (Part)	**4350**	65.7	2589	**4350**	73.0	2942	65,000	3.555″	
	3100	72.0	2629	**3100**	80.0	2987	63,800		Compressed
	8700	83.7	2453	**8700**	93.0	2787	47,500		Compressed
SRA 220 RN	**4350**	62.1	2379	**4350**	69.0	2703	62,500	3.530″	
	3100	69.3	2473	**3100**	77.0	2810	63,900		
	8700	83.7	2430	**8700**	93.0	2761	49,700		Compressed

.30-378 WEATHERBY



This wildcat is the largest capacity .30 caliber cartridge in use today. It was originally developed for 1,000-yard benchrest competition, although a handful of shooters now use it for long-range hunting. This is the ultimate cartridge for driving a heavy .30 caliber bullet very far, very fast.

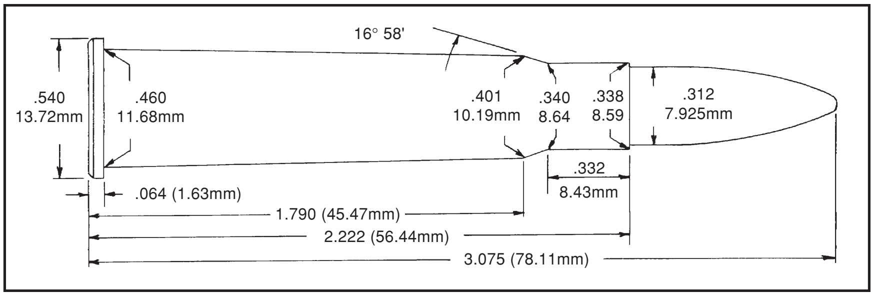
There is no SAAMI pressure criteria for the .30-378. The maximum loads shown below are based upon the pressure limits for the parent cartridge case and the other cartridges in this class. This is a wildcat cartridge and care should be exercised in approaching the maximum loads listed below.

.30-378 WEATHERBY

Gun	DOUGLAS	Max Length	2.908″
Barrel Length	26″	Trim Length	2.895″
Primer	FC 215	OAL Max	--
Case	WBY	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SPR 150 GS	**8700**	114.3	3004	**8700**	127.0	3414	64,000	3.600"	
BAR 150 X	**8700**	113.4	2930	**8700**	126.0	3330	65,000	3.745"	
SWF 165	**8700**	111.6	2952	**8700**	124.0	3355	61,800	3.615"	
SWF 180	**8700**	110.2	2881	**8700**	122.5	3274	63,400	3.615"	
BAR 180-X	**8700**	106.2	2889	**8700**	118.0	3283	59,300	3.895″	
NOS 200 (Part)	**8700**	105.3	2823	**8700**	117.0	3208	62,100	3.910″	
SRA 200 HPBT	**8700**	105.3	2783	**8700**	117.0	3163	57,700	3.865″	
SWF 200	**8700**	108.0	2775	**8700**	120.0	3154	61,900	3.615"	
SRA 220 HPBT	**8700**	103.5	2684	**8700**	115.0	3050	62,200	3.875″	
SRA 250 HPBT	**8700**	99.9	2600	**8700**	111.0	2954	59,400	3.880″	

.303 BRITISH



The .303 British was the official military cartridge of England and the British Empire from 1888 until it was replaced by the 7.62 NATO in the 1950's. Originally a black powder cartridge, the .303 British was loaded with smokeless propellant after 1892. The original load for hunting used a 215 grain bullet and developed a good reputation for effectiveness on large game in the Canadian wilderness.

Of the same general performance and design of the U.S. .30-40 Krag, the .303 British is loaded to higher pressure levels making it better suited for handloading.

The SAAMI Maximum Average Pressure for the .303 British is 45,000 C.U.P.

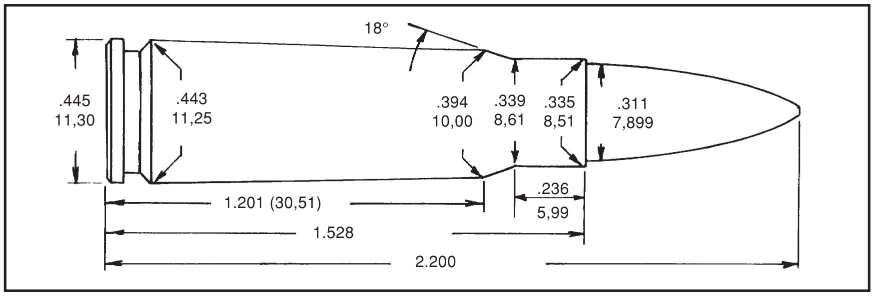
.303 BRITISH

Gun	DOUGLAS	Max Length	2.222″
Barrel Length	24″	Trim Length	2.202″
Primer	CCI 250	OAL Max	3.075″
Case	REM	OAL Min	2.915″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
180 (L) RNGC	**5744**	25.0	1983	**5744**	28.0	2159	40,700	2.930″	LY311467
	2015	34.2	2167	**2015**	38.0	2462	41,400		(.312 dia.)
	2230	35.1	2164	**2230**	39.0	2459	42,500		
	2460	36.0	2182	**2460**	40.0	2480	40,600		
	2495	39.6	2226	**2495**	44.0	2529	39,500		
	2520	36.0	2154	**2520**	40.0	2448	40,300		
	4064	39.6	2220	**4064**	44.0	2523	38,700		
	2700	37.8	2035	**2700**	42.0	2312	41,400		
	4350	41.4	2026	**4350**	46.0	2302	36,000		Compressed
	3100	41.4	1815	**3100**	46.0	2063	28,700		Compressed
	8700	43.2	1434	**8700**	48.0	1630	26,500		Compressed
SPR 125 SP	**5744**	28.8	2322	**5744**	32.0	2639	45,600	2.870″	
	2015	41.4	2706	**2015**	46.0	3075	44,200		
	2230	39.6	2561	**2230**	44.0	2910	42,600		
	2460	41.4	2622	**2460**	46.0	2979	42,500		
	2495	43.2	2541	**2495**	48.0	2887	35,900		Compressed
	2520	42.8	2657	**2520**	47.5	3019	44,800		
	4064	45.0	2599	**4064**	50.0	2954	38,100		Compressed
	2700	45.0	2419	**2700**	50.0	2749	43,400		

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
HDY 150 SP	**5744**	27.9	2123	**5744**	31.0	2413	45,000	3.010″	
	2015	36.9	2388	**2015**	41.0	2714	42,300		
	2230	38.7	2380	**2230**	43.0	2704	43,600		
	2460	39.6	2401	**2460**	44.0	2728	42,900		
	2495	41.4	2400	**2495**	46.0	2727	42,500		Compressed
	2520	41.4	2437	**2520**	46.0	2769	45,000		
	4064	42.7	2424	**4064**	47.5	2755	40,500		Compressed
	2700	43.2	2254	**2700**	48.0	2561	43,200		Compressed
	4350	41.4	1984	**4350**	46.0	2254	30,100		Compressed
SRA 174 HPBT	**2495**	37.8	2196	**2495**	42.0	2496	42,300	3.075"	
	2520	35.1	2153	**2520**	39.0	2447	42,900		
	4064	36.0	2136	**4064**	40.0	2428	43,300		
	2700	38.7	2068	**2700**	43.0	2351	44,600		
	4350	41.4	2118	**4350**	46.0	2407	42,800		Compressed
	3100	42.3	1870	**3100**	47.0	2126	34,900		Compressed
SRA 180 SP	**5744**	26.1	1926	**5744**	29.0	2189	44,900	3.000″	
	2015	34.2	2130	**2015**	38.0	2420	42,300		
	2230	36.0	2175	**2230**	40.0	2472	43,800		
	2460	36.5	2149	**2460**	40.5	2442	41,500		
	2495	39.6	2181	**2495**	44.0	2478	42,700		
	2520	39.6	2260	**2520**	44.0	2568	45,000		
	4064	40.5	2232	**4064**	45.0	2537	41,700		
	2700	41.4	2137	**2700**	46.0	2428	44,100		
	4350	41.4	2006	**4350**	46.0	2280	35,800		Compressed
	3100	41.4	1797	**3100**	46.0	2042	30,800		Compressed

7.62x39mm



Developed by the Soviets in 1943, the 7.62x39mm (M43) Russian cartridge was undoubtedly influenced by the German 7.92 Kurz. This cartridge received worldwide attention during the Vietnam War. Returning GIs brought Communist bloc weapons into the United States creating a demand for ammunition.

The 7.62x39mm cartridge is easy to reload and may be thought of basically as a rimless .30-30 Winchester in power. However, the .30-30 Winchester is capable of using heavier bullets than the 7.62x39mm.

The Ruger Mini 30, plus the current importation of the SKS and AK47 weapons into the United States, has added to the demand for data for this cartridge. Care should be exercised in that some U.S. made weapons chambered for this cartridge use .308″ diameter bullets. Most foreign made weapons use bullets that are .311″ diameter.

The SAAMI Maximum Average Pressure for the 7.62x39mm cartridge is 50,000 C.U.P.

7.62x39mm

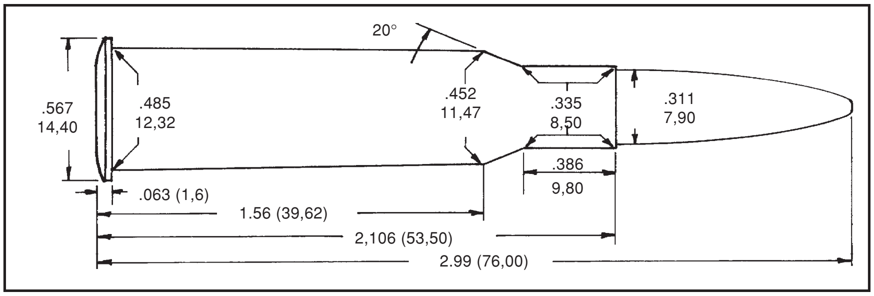
Gun	HS Precision	Max Length	1.528″
Barrel Length	20″	Trim Length	1.513″
Primer	REM 9˚	OAL Max	2.200″
Case	IMI	OAL Min	2.170″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SPR 100 RN	**5744**	20.7	2089	**5744**	23.0	2374	48,000	1.950″	0.308″dia.
	1680	25.7	2325	**1680**	28.5	2642	47,100		
	2015	25.7	1994	**2015**	28.5	2266	39,400		Compressed
	2230	26.6	1959	**2230**	29.5	2226	42,400		Compressed
	2460	26.6	1922	**2460**	29.5	2184	42,600		Compressed
SRA 110 HP	**5744**	20.3	2018	**5744**	22.5	2294	48,900	2.115″	0.308″dia.
	1680	24.8	2241	**1680**	27.5	2547	48,300		
	2015	25.7	1998	**2015**	28.5	2271	41,500		Compressed
	2230	26.6	1958	**2230**	29.5	2225	46,000		Compressed
	2460	26.6	1931	**2460**	29.5	2194	45,400		Compressed
HDY 123 SP	**5744**	19.8	1975	**5744**	22.0	2245	48,900	2.175"	

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SPR 125 SP	**5744**	19.3	1887	**5744**	21.5	2145	48,100	2.195″	0.311″dia.
	1680	23.0	2084	**1680**	25.5	2368	48,500		
	2015	25.7	2032	**2015**	28.5	2309	47,700		Compressed
	2230	26.6	1943	**2230**	29.5	2208	49,800		Compressed
	2460	26.6	1915	**2460**	29.5	2176	46,600		Compressed
HDY 130 SSP	**5744**	18.4	1804	**5744**	20.5	2051	45,500	2.180″	0.308″dia.
	1680	22.5	2020	**1680**	25.0	2296	47,900		
	2015	25.2	1947	**2015**	28.0	2213	45,300		Compressed
	2230	25.2	1843	**2230**	28.0	2094	47,000		Compressed
	2460	26.1	1866	**2460**	29.0	2120	47,000		Compressed
SRA 150 SP	**5744**	17.5	1672	**5744**	19.5	1900	46,400	2.180″	0.311″dia.
	1680	20.3	1808	**1680**	22.5	2055	49,000		
	2015	23.4	1823	**2015**	26.0	2072	46,500		Compressed
	2230	24.3	1739	**2230**	27.0	1976	49,500		Compressed
	2460	24.3	1721	**2460**	27.0	1956	47,600		
.30 Caliber Sabots*									
REM 55 SABOT	**1680**	28.8	2774	**1680**	32.0	3153	33,400	2.100"	Compressed

* Using CCI primer

7.62x54R RUSSIAN



This cartridge was developed for the Czar's troops in 1891. Its 150-grain spitzer bullet was adopted in 1909

Prior to and during WWI, the rifles were manufactured by New England Westinghouse Co., Remington and Winchester. When the Czar lost the revolution, large numbers of these rifles were declared surplus and were sold to U.S. citizens. Remington loaded a 150 grain bronze point hunting round for a time.

Bore dimensions vary in these rifles from .308″ up to .311″. Our pressure barrel has a .311″ groove diameter. If your barrel is smaller than .310, .308 diameter bullets are probably a better choice.

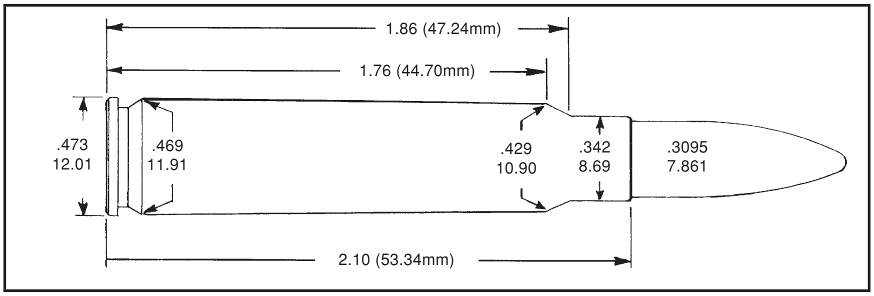
This is a relatively low pressure cartridge. Norma factory ammo averaged 45,200 PSI. Our data does not exceed that pressure.

7.62x54R RUSSIAN

Gun	DOUGLAS	Max Length	2.106″
Barrel Length	24″	Trim Length	2.090″
Primer	CCI 250	OAL Max	2.990″
Case	Norma	OAL Min	—

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
125 (L) FN	**5744**	25.0	2062	**5744**	30.0	2354	29,900	2.665"	Penny's
180 (L) RNGC	**5744**	25.2	1873	**5744**	28.0	2129	35,200	2.830″	LY311467
	4350	45.0	2146	**4350**	50.0	2439	40,400		
	3100	47.7	2062	**3100**	53.0	2343	37,100		Compressed
	8700	49.5	1601	**8700**	55.0	1819	26,100		Compressed
SRA 150 SP	**4350**	48.6	2352	**4350**	54.0	2673	44,100	2.850″	Compressed
	3100	49.5	2169	**3100**	55.0	2465	36,000		Compressed
	8700	52.2	1670	**8700**	58.0	1898	24,700		Compressed
SRA 180 SP	**4350**	45.9	2197	**4350**	51.0	2497	43,000	2.900″	
	3100	49.5	2162	**3100**	55.0	2457	42,600		Compressed
	8700	51.3	1596	**8700**	57.0	1814	25,300		Compressed

7.65x53mm MAUSER



Designed by Paul Mauser in 1889, the 7.65 x 53mm was adopted as a military cartridge by the governments of Belgium, Argentina, Bolivia, Colombia, Ecuador, Peru, and Turkey. Both Remington and Winchester loaded sporting ammunition and produced rifles chambered for this cartridge until about 1936. Similar in power to the .308 Winchester, the 7.65 Mauser is adequate for hunting most big game in North America. Both ammunition and brass are available from Norma.

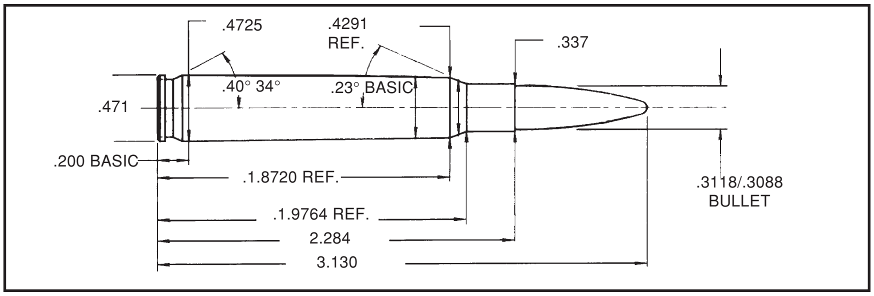
There is no current SAAMI pressure limit for the 7.65x53mm Mauser. Norma factory ammunition produced pressures of 52,000 P.S.I. These loads do not exceed that pressure.

7.65x53mm MAUSER

Gun	DOUGLAS	Max Length	2.100″
Barrel Length	24″	Trim Length	2.090″
Primer	REM 9½	OAL Max	2.970″
Case	Norma	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
152 (L) RNGC	**2495**	37.8	2030	**2495**	42.0	2307	25,700	2.730″	LY311466
	2700	39.6	2119	**2700**	44.0	2408	35,000		
	4350	42.3	1950	**4350**	47.0	2216	23,500		
	3100	43.2	1786	**3100**	48.0	2029	18,200		
	8700	47.3	1537	**8700**	52.5	1747	17,100		
HDY 150 SP	**2015**	37.4	2367	**2015**	41.5	2690	47,900	2.850″	
	2230	40.5	2411	**2230**	45.0	2740	48,200		
	2460	40.5	2377	**2460**	45.0	2701	48,600		
	2495	42.8	2436	**2495**	47.5	2768	48,800		Compressed
	2520	41.9	2431	**2520**	46.5	2763	50,300		
	2700	46.4	2373	**2700**	51.5	2697	46,400		Compressed
	4350	43.2	2047	**4350**	48.0	2326	30,600		Compressed
SRA 180 SP	**2015**	36.0	2172	**2015**	40.0	2468	48,700	2.850″	
	2230	38.3	2203	**2230**	42.5	2503	49,300		
	2460	38.7	2217	**2460**	43.0	2519	49,700		
	2495	41.4	2237	**2495**	46.0	2542	47,500		Compressed
	2520	40.5	2262	**2520**	45.0	2570	51,100		
	2700	43.2	2167	**2700**	48.0	2463	45,100		Compressed
	4350	42.3	1974	**4350**	47.0	2243	32,700		Compressed

7.7x58mm JAPANESE ARISAKA



The 7.7mm Arisaka was adopted by the Japanese Military in 1939 to replace the older 6.5mm military cartridge; however, both cartridges were in use throughout WWII. The 7.7mm Arisaka is very similar in performance to the .303 British cartridge and uses the same diameter bullets. However, the 7.7mm Arisaka is a rimless case whereas the British round is rimmed.

When loaded with proper bullets, the 7.7mm Arisaka is adequate for hunting most North American big game. With the exception of military rifles brought home as war souvenirs or recently imported, very few firearms chambered for this cartridge are found in the United States.

There is no SAAMI recommended pressure limit for the 7.7mm Arisaka. Norma factory ammunition produced pressures of 47,000 P.S.I. in our test barrel. These loads do not exceed that pressure.

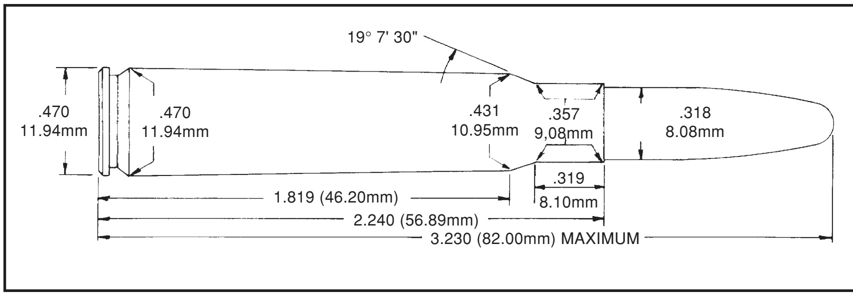
7.7x58mm JAPANESE ARISAKA

Gun	DOUGLAS	Max Length	2.284″
Barrel Length	24″	Trim Length	2.260″
Primer	CCI 200	OAL Max	3.130″
Case	NORMA	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 150 SP	**2700**	48.5	2602	**2700**	51.0	2768	46,400	3.175″	*
	4350	46.8	2346	**4350**	52.0	2666	39,500		Compressed
	3100	46.8	2132	**3100**	52.0	2423	31,000		Compressed
SRA 180 SP	**2700**	44.2	2318	**2700**	46.5	2466	45,700	3.150″	
	4350	46.8	2240	**4350**	52.0	2545	42,300		Compressed
	3100	46.8	2024	**3100**	52.0	2300	31,900		Compressed

* Over Recommended MAX OAL

8x57mm MAUSER



The 8mm Mauser was the primary German military rifle cartridge through both World Wars. As initially adopted it used bullets of .318″ diameter which is known as the "J" bore. In 1905 the bullet diameter was increased to .323″ which is known as the "JS" bore.

For several years after the change in bore dimensions by the German military, the manufacturers of sporting rifles in Europe continued to use both bore sizes. This causes no confusion to the European users of these cartridges. The American shooting public, however, tends to lump all 8mm Mauser cartridges into one category. This fact, plus the importation of older military rifles and some sporting rifles using the smaller dimension bore, has created the potential for damage or injury if the 8x57 "JS" cartridge is fired in an 8x57 "J" firearm.

SAAMI's solution to this problem was to limit the pressures of American manufactured 8mm Mauser ammunition to 35,000 P.S.I. This low pressure loading allows the safe use of American ammunition in both weapons.

8x57mm MAUSER

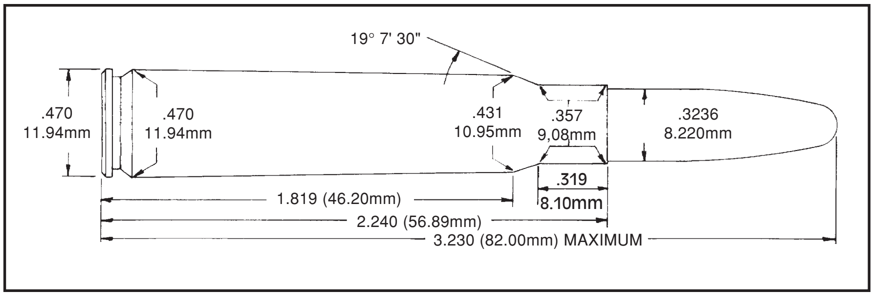
Gun	DOUGLAS	Max Length	2.240″
Barrel Length	24″	Trim Length	2.220″
Primer	CCI 250	OAL Max	3.230″
Case	REM	OAL Min	2.815″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
170 (L) FNGC	**4350**	42.3	1983	**4350**	47.0	2253	31,700	2.710″	RCBS
	3100	47.7	1940	**3100**	53.0	2205	29,700		Compressed
	8700	49.1	1581	**8700**	54.5	1797	24,100		Compressed
HDY 125 SP	**4350**	47.7	2128	**4350**	53.0	2418	25,200	2.890″	Compressed
	3100	47.7	1923	**3100**	53.0	2185	20,400		Compressed
	8700	49.1	1573	**8700**	54.5	1788	18,400		Compressed
HDY 150 SP	**4350**	45.0	2107	**4350**	50.0	2394	32,500	2.950″	Compressed
	3100	47.7	1961	**3100**	53.0	2228	27,100		Compressed
	8700	49.1	1522	**8700**	54.5	1730	21,200		Compressed

8x57mm MAUSER (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 170 RN	**4350**	43.2	1991	**4350**	48.0	2262	33,600	2.840″	
	3100	47.7	1919	**3100**	53.0	2181	30,400		Compressed
	8700	49.1	1523	**8700**	54.5	1731	25,400		Compressed
SPR 200 SP	**4350**	39.6	1794	**4350**	44.0	2039	31,200	2.970″	
	3100	44.1	1742	**3100**	49.0	1980	28,100		Compressed
	8700	49.1	1489	**8700**	54.5	1692	26,600		Compressed
HDY 220 SP	**4350**	37.8	1677	**4350**	42.0	1906	30,800	2.990″	
	3100	44.3	1712	**3100**	49.2	1946	30,900		Compressed
	8700	46.4	1331	**8700**	51.5	1512	23,200		Compressed

8x57mm JS



Because of shooter requests for 8x57mm Mauser loads that are the equivalent of ammunition currently loaded in Europe, The **Accurate** technical staff has developed the following data.

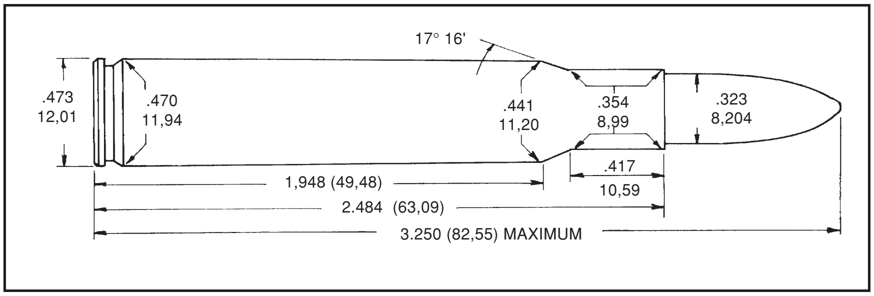
The European pressure limit for the 8x57mm is approximately 97% of the loading limit for the .30-06. This equates to a working pressure limit of about 58,200 P.S.I. The performance of the 8mm Mauser is excellent when loaded to its full potential. This data should only be used in rifles that have been determined to be safe by a competent gunsmith and that are known to have "JS" bore dimensions (.323″ groove diameter).

8x57mm JS

Gun	DOUGLAS	Max Length	2.240″
Barrel Length	24″	Trim Length	2.220″
Primer	CCI 250	OAL Max	3.230″
Case	REM	OAL Min	2.815″

	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	P.S.I.	Length	Comment
HDY 125 SP	**2015**	44.1	2681	**2015**	49.0	3047	47,200	2.880″	
	2230	49.5	2842	**2230**	55.0	3230	56,300		
	2460	50.0	2845	**2460**	55.5	3233	56,600		
	2520	50.4	2803	**2520**	56.0	3185	51,100		Light Compression
HDY 150 SP	**2015**	42.3	2507	**2015**	47.0	2849	52,000	2.940″	
	2230	45.5	2558	**2230**	50.5	2907	54,800		
	2460	45.9	2557	**2460**	51.0	2906	53,700		
	2520	47.3	2600	**2520**	52.5	2955	55,800		
HDY 170 RN	**2015**	41.0	2382	**2015**	45.5	2707	55,400	2.855″	
	2230	44.1	2414	**2230**	49.0	2743	56,600		
	2460	44.1	2401	**2460**	49.0	2728	55,600		
	2520	45.0	2439	**2520**	50.0	2752	57,500		
HDY 220 SP	**2015**	36.9	2036	**2015**	41.0	2314	56,100	2.990″	
	2230	37.8	2020	**2230**	42.0	2296	58,200		
	2460	39.2	2064	**2460**	43.5	2345	57,800		
	2520	40.5	2069	**2520**	45.0	2351	55,600		
	2700	50.4	2295	**2700**	53.0	2442	57,600		Compressed
	4350	45.9	2001	**4350**	51.0	2274	42,400		Compressed

8mm-06



The 8mm-06 wildcat cartridge came about as a matter of convenience. Following WWII, returning GIs brought back many 8mm Mauser rifles as war souvenirs, both military and commercial manufacture. The scarcity of 8mm Mauser ammo or brass prompted many owners to have their rifles rechambered to use the .30-06 cases with 8mm bullets.

The 8mm-06 is an excellent wildcat cartridge suitable for all North American big game. It is as flexible in its choice of propellants as is the .30-06 and provides excellent ballistics.

There is no SAAMI pressure limit for the 8mm-06. Based on the .30-06 cartridge case, the **Accurate** technical staff selected 60,000 P.S.I. as the maximum pressure for this cartridge. These loads do not exceed that pressure.

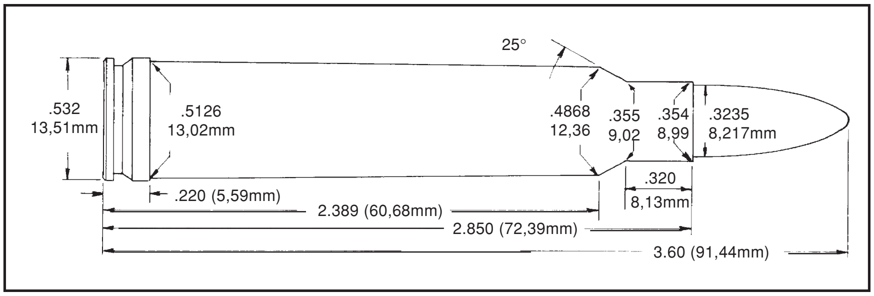
8mm-06

Gun	DOUGLAS	Max Length	2.484″
Barrel Length	24″	Trim Length	2.484″
Primer	CCI 200	OAL Max	3.250″
Case	IMI	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 125 SP	**2015**	49.5	2939	**2015**	55.0	3340	53,300	3.200″	
	2230	52.2	2952	**2230**	58.0	3354	55,600		
	2460	54.0	3008	**2460**	60.0	3418	58,100		
	2495	50.9	2913	**2495**	56.5	3310	56,100		
	2520	53.6	2966	**2520**	59.5	3370	57,600		
	2700	59.9	3019	**2700**	63.0	3212	55,400		Compressed
	4350	54.9	2572	**4350**	61.0	2923	34,600		Compressed
	3100	54.9	2284	**3100**	61.0	2595	25,400		Compressed
HDY 150 SP	**2015**	45.0	2617	**2015**	50.0	2974	52,200	3.200″	
	2230	47.7	2652	**2230**	53.0	3014	55,900		
	2460	49.5	2698	**2460**	55.0	3066	56,400		
	2495	48.6	2702	**2495**	54.0	3071	57,600		
	2520	50.4	2730	**2520**	56.0	3102	57,600		
	2700	58.0	2839	**2700**	61.0	3020	52,300		Compressed
	4350	53.1	2481	**4350**	59.0	2819	39,700		Compressed
	3100	53.1	2211	**3100**	59.0	2512	28,900		Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 170 RN	**2015**	43.2	2505	**2015**	48.0	2847	59,300	3.055″	
	2230	45.0	2475	**2230**	50.0	2812	58,700		
	2460	45.9	2484	**2460**	51.0	2823	58,900		
	2495	46.4	2500	**2495**	51.5	2841	57,500		
	2520	46.8	2487	**2520**	52.0	2826	58,400		
	2700	55.1	2698	**2700**	58.0	2870	54,900		
	4350	54.0	2482	**4350**	60.0	2820	51,400		Compressed
	3100	54.0	2244	**3100**	60.0	2550	39,000		Compressed
SPR 200 SP	**2015**	38.7	2174	**2015**	43.0	2470	54,600	3.220″	
	2230	39.6	2157	**2230**	44.0	2451	51,500		
	2460	39.6	2151	**2460**	44.0	2444	54,200		
	2495	38.3	2152	**2495**	42.5	2445	55,300		
	2520	41.0	2159	**2520**	45.5	2453	54,000		
	2700	50.4	2402	**2700**	53.0	2555	55,300		
	4350	49.5	2300	**4350**	55.0	2614	57,400		Compressed
	3100	51.3	2158	**3100**	57.0	2452	45,400		Compressed
HDY 220 SP	**2015**	37.8	2104	**2015**	42.0	2391	58,200	3.300″	
	2230	38.3	2067	**2230**	42.5	2349	57,900		
	2460	39.2	2099	**2460**	43.5	2385	58,800		
	2495	37.8	2050	**2495**	42.0	2329	57,100		
	2520	39.6	2052	**2520**	44.0	2332	57,900		
	2700	52.3	2387	**2700**	55.0	2539	56,900		
	4350	50.0	2238	**4350**	55.5	2543	58,600		
	3100	51.3	2122	**3100**	57.0	2411	47,200		Compressed

8mm REMINGTON MAGNUM



Introduced by Remington in 1978, the 8mm Magnum is based on the .375 H&H case. The length of this cartridge case prohibits its use in many modern bolt action rifles.

Similar in performance to the German 8 x 68mm "S" Magnum, the 8mm Remington Magnum was intended to compete with the .300 Weatherby and the .338 Winchester Magnum. Remington's decision to use a metric bullet may have been prompted by their past success with the 7mm bore diameter.

Suffering the same fate as many other metric cartridges in America, the 8mm Remington Magnum has not really caught on. It is, nevertheless, an excellent cartridge, giving top performance as well as consistent ballistics. **Accurate 3100** propellant is an excellent choice for reloading this cartridge.

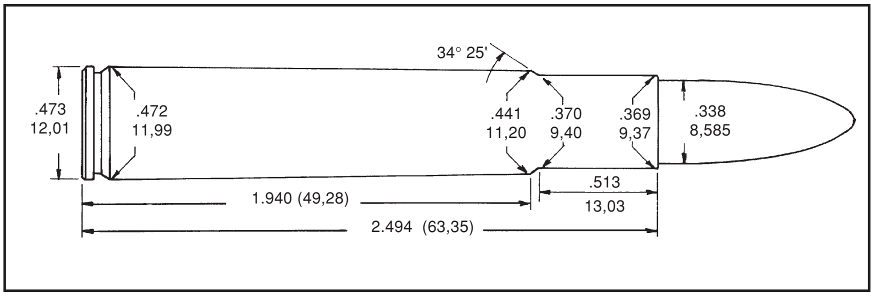
The SAAMI Maximum Average Pressure for the 8mm Remington Magnum is 65,000 P.S.I.

8mm REMINGTON MAGNUM

Gun	DOUGLAS	Max Length	2.850″
Barrel Length	24″	Trim Length	2.830″
Primer	REM 9½	OAL Max	3.600″
Case	REM	OAL Min	3.450″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 150 SP	**4350**	73.8	3013	**4350**	82.0	3424	60,100	3.565″	
	3100	80.1	3026	**3100**	89.0	3439	58,400		
	8700	88.2	2655	**8700**	98.0	3017	44,700		Compressed
SRA 175 SP	**4350**	71.1	2833	**4350**	79.0	3219	59,400	3.565″	
	3100	78.8	2865	**3100**	87.5	3256	60,900		Compressed
	8700	87.3	2475	**8700**	97.0	2813	40,000		Compressed
SPR 200 SP	**4350**	64.8	2533	**4350**	72.0	2878	59,400	3.595″	
	3100	74.7	2703	**3100**	83.0	3072	62,300		
	8700	86.4	2516	**8700**	96.0	2859	48,600		Compressed
HDY 220 SP	**4350**	63.5	2416	**4350**	70.5	2745	58,500	3.595″	
	3100	72.5	2538	**3100**	80.5	2884	61,600		
	8700	84.6	2423	**8700**	94.0	2753	48,500		Compressed

.338-06



The .338-06 is very similar to the .333 OKH developed in the mid-1940s by Charles O'Neill, Elmer Keith, and Don Hopkins. This is an excellent big game cartridge based on the .30-06 case, very similar in performance to the now standardized .35 Whelen, but using a .338″ diameter bullet.

In our testing, the .338-06 gave exceptionally uniform results with all propellants tested.

Prior to Remington's adoption of the .35 Whelen as a factory cartridge, the absence of a variety of suitable big game bullets in .35-caliber made the .338-06 a better option for the handloader. Now with good bullets in both diameters readily available, this advantage no longer exists, leaving the choice between these two fine cartridges solely up to individual preference.

There is no SAAMI pressure limit for the .338-06. Based upon the .30-06 parent cartridge case, the **Accurate** technical staff selected 60,000 P.S.I. as the pressure limit. These loads do not exceed that pressure.

.338-06

Gun	DOUGLAS	Max Length	2.494″
Barrel Length	24″	Trim Length	2.470″
Primer	CCI 200	OAL Max	--
Case	IMI	OAL Min	--

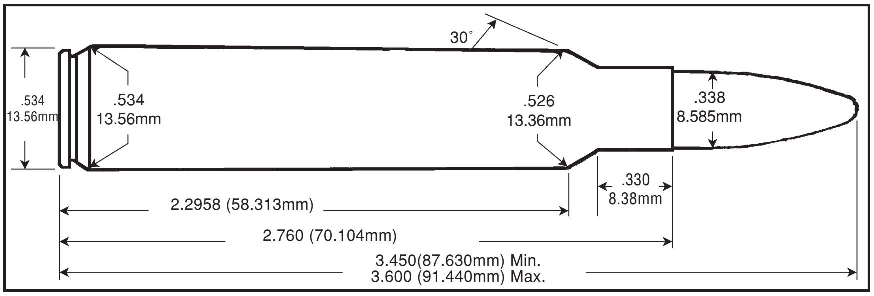
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
200 (L) FNGC	**2015**	37.8	2180	**2015**	42.0	2477	38,400	3.080″	Lyman 338320
	2230	39.6	2188	**2230**	44.0	2486	49,600		Penny's
	2460	40.5	2198	**2460**	45.0	2498	40,300		
	2495	38.7	2184	**2495**	43.0	2482	39,400		
	2520	41.4	2208	**2520**	46.0	2509	41,700		
	2700	48.5	2321	**2700**	51.0	2469	38,900		
	4350	48.6	2195	**4350**	54.0	2494	39,800		100% Density
	3100	52.2	2128	**3100**	58.0	2418	36,400		Compressed
	8700	58.5	1833	**8700**	65.0	2083	30,300		Compressed

.338-06 (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
NOS 200 BT	**2015**	41.9	2336	**2015**	46.5	2654	57,100	3.335″	Ballistic Tip
	2230	44.6	2350	**2230**	49.5	2670	57,700		
	2460	45.0	2368	**2460**	50.0	2691	56,800		
	2495	45.0	2394	**2495**	50.0	2720	58,900		
	2520	45.9	2367	**2520**	51.0	2690	58,800		
	2700	57.0	2542	**2700**	60.0	2704	55,600		Compressed
	4350	54.9	2380	**4350**	61.0	2704	51,100		Compressed
	3100	55.8	2216	**3100**	62.0	2518	42,100		Compressed
NOS 210 (Part)	**2015**	40.5	2217	**2015**	45.0	2519	56,300	3.265″	
	2230	42.8	2242	**2230**	47.5	2548	56,900		
	2460	43.2	2242	**2460**	48.0	2548	55,700		
	2495	42.3	2267	**2495**	47.0	2576	59,200		
	2520	44.6	2283	**2520**	49.5	2594	58,300		
	2700	56.1	2510	**2700**	59.0	2670	58,600		
	4350	54.0	2372	**4350**	60.0	2695	57,600		Compressed
	3100	55.8	2222	**3100**	62.0	2525	46,400		Compressed
BAR 225-X	**2015**	38.7	2113	**2015**	43.0	2401	57,100	3.315″	
	2230	40.5	2079	**2230**	45.0	2363	56,000		
	2460	41.0	2117	**2460**	45.5	2406	57,800		
	2495	39.6	1991	**2495**	44.0	2262	59,600		
	2520	42.8	2162	**2520**	47.5	2457	57,300		
	2700	54.2	2396	**2700**	57.0	2549	57,400		
	4350	52.2	2226	**4350**	58.0	2530	53,500		Compressed
	3100	52.2	2010	**3100**	58.0	2284	39,400		Compressed
HDY 225 SP	**2015**	41.0	2190	**2015**	45.5	2489	56,600	3.315″	
	2230	42.3	2166	**2230**	47.0	2461	55,600		
	2460	42.3	2189	**2460**	47.0	2488	54,800		
	2495	42.3	2203	**2495**	47.0	2503	56,700		
	2520	44.1	2211	**2520**	49.0	2512	58,000		
	2700	55.1	2404	**2700**	58.0	2557	55,800		100% Density
	4350	54.0	2306	**4350**	60.0	2620	55,900		Compressed
	3100	54.0	2103	**3100**	60.0	2390	42,000		Compressed
SRA 250 SBT	**2015**	38.3	2000	**2015**	42.5	2273	58,100	3.315″	
	2230	39.6	1996	**2230**	44.0	2268	58,700		
	2460	39.2	1969	**2460**	43.5	2238	56,200		
	2495	38.7	1999	**2495**	43.0	2272	55,500		
	2520	41.4	2030	**2520**	46.0	2307	59,000		
	2700	52.3	2269	**2700**	55.0	2414	55,700		Compressed
	4350	52.2	2214	**4350**	58.0	2516	52,400		Compressed
	3100	52.2	2028	**3100**	58.0	2304	43,700		Compressed

.338 REMINGTON ULTRA MAG

Remington has done it again. Right after the .300 Remington Ultra Mag was introduced, they followed it right up with the .338 Remington Ultra Mag. As with the .300 RUM, there is more capacity which results in higher velocities than other magnums.



SAAMI Maximum Average Pressure is set at 65,000 P.S.I. Please use starting loads for this cartridge as reference ammunition was not yet available when we developed the following data.

.338 REMINGTON ULTRA MAG

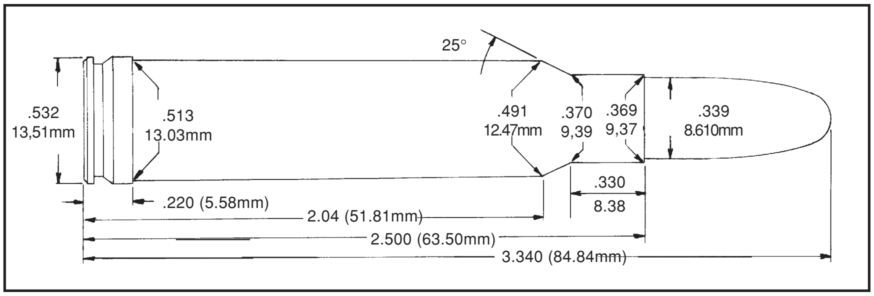
Gun	WISEMAN	Max Length	2.760″
Barrel Length	24″	Trim Length	2.740″
Primer	REM 9½ M	OAL Max	3.595"
Case	REM	OAL Min	3.320"

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
193 (L) FPGC	**5744**	---	---	**5744**	25.0	1595	13,600	3.310"	Penny's
	5744	---	---	**5744**	40.0	2185	27,600		
HDY 200 SP	**5744**	---	---	**5744**	40.0	2123	27,400	3.575"	Light Load
	2700	74.2	2741	**2700**	82.5	3115	61,800		
	4350	81.0	2813	**4350**	90.0	3197	61,500		
	3100	85.5	2838	**3100**	95.0	3226	63,100		
	8700	100.8	2566	**8700**	112.0	2916	46,500		Compressed
NOS 200 BT	**5744**	---	---	**5744**	40.0	2134	26,900	3.575"	Light Load
	2700	74.2	2747	**2700**	82.5	3122	62,100		
	4350	81.0	2838	**4350**	90.0	3226	63,300		Compressed
	3100	84.1	2814	**3100**	93.5	3198	62,300		Compressed
	8700	97.2	2495	**8700**	108.0	2836	44,600		Compressed
SRA 215 SPBT	**5744**	---	---	**5744**	40.0	2115	28,700	3.575"	Light Load
	2700	72.4	2646	**2700**	80.5	3007	63,000		
	4350	80.1	2751	**4350**	89.0	3127	63,000		Full Case
	3100	82.8	2728	**3100**	92.0	3101	63,400		Compressed
	8700	95.4	2442	**8700**	106.0	2775	43,900		Compressed

.338 REMINGTON ULTRA MAG (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 225 SP	**5744**	---	---	**5744**	40.0	2083	30,800	3.575"	Light Load
	2700	72.0	2556	**2700**	80.0	2905	60,600		
	4350	79.2	2676	**4350**	88.0	3041	63,200		
	3100	82.8	2674	**3100**	92.0	3039	63,800		Compressed
	8700	95.4	2447	**8700**	106.0	2781	46,600		Compressed
SWF 225 AFSP	**5744**	---	---	**5744**	42.0	2144	32,800	3.490"	Light Load
	2700	69.3	2545	**2700**	77.0	2893	62,600		
	4350	76.5	2650	**4350**	85.0	3012	63,600		
	3100	81.0	2640	**3100**	90.0	3001	62,600		Compressed
	8700	93.6	2398	**8700**	104.0	2726	43,900		Compressed
HDY 250 SP	**5744**	---	---	**5744**	42.0	2087	35,200	3.575"	Light Load
	2700	68.4	2433	**2700**	76.0	2765	63,600		
	4350	75.1	2514	**4350**	83.5	2857	63,100		
	3100	80.1	2530	**3100**	89.0	2875	63,200		Compressed
	8700	93.6	2384	**8700**	104.0	2710	47,800		Compressed
NOS 250 PART	**5744**	---	---	**5744**	42.0	2082	35,300	3.575"	Light Load
	2700	64.8	2381	**2700**	72.0	2706	63,800		
	4350	72.9	2478	**4350**	81.0	2816	63,100		
	3100	78.3	2504	**3100**	87.0	2846	63,000		Compressed
	8700	93.6	2370	**8700**	104.0	2694	46,300		Compressed
SRA 250 SPBT	**5744**	---	---	**5744**	42.0	2113	36,100	3.575"	Light Load
	2700	64.8	2385	**2700**	72.0	2711	62,900		
	4350	74.2	2516	**4350**	82.5	2860	63,100		
	3100	78.7	2530	**3100**	87.5	2875	63,200		Compressed
	8700	93.6	2364	**8700**	104.0	2687	45,700		Compressed
SWF 250 AF	**5744**	---	---	**5744**	42.0	2088	36,300	3.490"	Light Load
	2700	63.9	2348	**2700**	71.0	2669	61,700		
	4350	72.0	2640	**4350**	80.0	3000	62,600		
	3100	77.4	2493	**3100**	86.0	2833	62,600		Compressed
	8700	93.6	2368	**8700**	104.0	2691	46,700		Compressed
SPR 250 GS	**5744**	---	---	**5744**	42.0	2053	36,000	3.575"	Light Load
	2700	63.9	2345	**2700**	71.0	2665	63,000		
	4350	71.1	2440	**4350**	79.0	2773	61,700		
	3100	77.4	2508	**3100**	86.0	2851	63,300		Compressed
	8700	93.6	2419	**8700**	104.0	2749	48,200		Compressed
SWF 275 AF	**5744**	---	---	**5744**	44.0	2082	42,900	3.490"	Light Load
	2700	59.4	2174	**2700**	66.0	2471	62,000		
	4350	66.6	2275	**4350**	74.0	2586	61,600		
	3100	75.6	2372	**3100**	84.0	2696	63,600		Compressed
	8700	88.2	2191	**8700**	98.0	2490	42,100		Compressed

.338 WINCHESTER MAGNUM



Introduced by Winchester in 1958, the .338 Winchester Magnum is based on the .458 Winchester Magnum case necked down. This cartridge was designed to handle all large game in North America as well as most thin-skinned game in Africa.

The .338 is an easy cartridge to handload, giving both high performance and excellent consistency. Although automatically prohibited from use in some African countries for dangerous game because of minimum bore restrictions, the .338 has proven its effectiveness in all game fields. It is especially well suited for the largest of North American game.

The SAAMI Maximum Average Pressure for the .338 Winchester Magnum is 64,000 P.S.I.

.338 WINCHESTER MAGNUM

Gun	HS PRECISION	Max Length	2.500″
Barrel Length	24″	Trim Length	2.480″
Primer	CCI 250	OAL Max	3.340″
Case	FC	OAL Min	3.280″

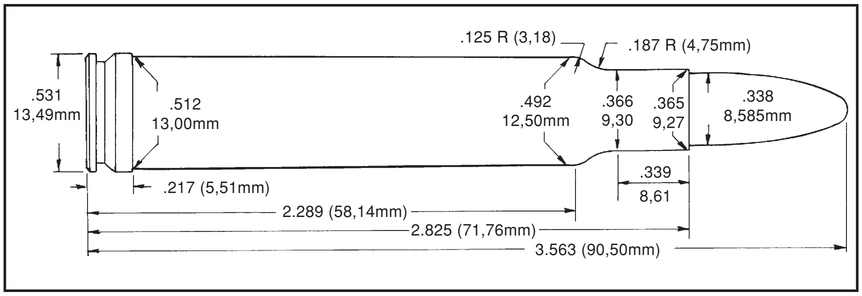
	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	P.S.I.	Length	Comment
200 (L) FNGC	**5744**	28.0	1815	**5744**	38.0	2302	31,100*	3.200″	Penny's
	4350	56.7	2264	**4350**	63.0	2573	36,400		
	3100	58.5	2195	**3100**	65.0	2494	36,900		
	8700	72.5	2219	**8700**	80.5	2522	35,800		Compressed
HDY 200 SP	**2495**	51.3	2470	**2495**	57.0	2807	62,200	3.335″	
	2520	56.3	2502	**2520**	62.5	2843	58,600		
	4064	56.7	2517	**4064**	63.0	2861	59,000		
	2700	67.0	2724	**2700**	70.5	2898	61,200		
	4350	65.7	2596	**4350**	73.0	2950	62,200		
	3100	68.4	2493	**3100**	76.0	2833	55,200		Compressed
	8700	72.0	2027	**8700**	80.0	2303	34,200		Compressed
HDY 225 SP	**2495**	48.6	2275	**2495**	54.0	2585	58,700	3.340″	
	2520	50.4	2270	**2520**	56.0	2579	60,700		
	4064	54.4	2377	**4064**	60.5	2702	62,700		
	2700	62.7	2541	**2700**	66.0	2703	61,900		
	4350	63.5	2464	**4350**	70.5	2800	63,000		
	3100	65.7	2360	**3100**	73.0	2682	55,900		Compressed
	8700	71.1	1977	**8700**	79.0	2247	35,400		Compressed

.338 WINCHESTER MAGNUM (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SWF 225 SP	**2700**	58.9	2364	**2700**	65.5	2687	61,400	3.240"	
	4350	62.1	2471	**4350**	69.0	2809	64,000		
	3100	67.5	2493	**3100**	75.0	2833	61,800		
	8700	70.2	1981	**8700**	78.0	2252	40,700		Compressed
WIN FS 230 FS	**2495**	47.7	2222	**2495**	53.0	2525	48,900*	3.310"	
	2520	52.2	2302	**2520**	58.0	2617	52,300*		
	2700	60.3	2372	**2700**	67.0	2696	47,200*		
	4350	63.0	2471	**4350**	70.0	2808	49,500*		
	3100	65.7	2357	**3100**	73.0	2679	42,100*	3.330"	Compressed
SWF 250 SP	**2700**	56.7	2218	**2700**	63.0	2521	62,800	3.240"	
	4350	58.9	2290	**4350**	65.5	2603	61,900		
	3100	65.7	2336	**3100**	73.0	2655	62,200		
	8700	69.3	1950	**8700**	77.0	2216	42,700		Compressed
SRA 250 SBT	**2495**	46.8	2152	**2495**	52.0	2445	62,500	3.340″	
	2520	50.4	2177	**2520**	56.0	2474	58,900		
	4064	52.2	2242	**4064**	58.0	2548	62,500		
	2700	59.9	2394	**2700**	63.0	2547	62,800		
	4350	58.5	2276	**4350**	65.0	2586	60,700		
	3100	63.9	2294	**3100**	71.0	2607	59,100		
	8700	72.9	2057	**8700**	81.0	2338	40,100		Compressed
SPR 275 SSP	**2495**	45.0	1973	**2495**	50.0	2242	61,500	3.330″	
	2520	47.7	2020	**2520**	53.0	2296	63,000		
	4064	49.5	2066	**4064**	55.0	2348	62,800		
	2700	60.3	2304	**2700**	63.5	2451	62,900		
	4350	57.6	2164	**4350**	64.0	2459	63,200		
	3100	61.2	2140	**3100**	68.0	2432	60,000		
	8700	70.2	2021	**8700**	78.0	2297	37,900		Compressed
SWF 275 SP	**2700**	55.3	2114	**2700**	61.5	2403	62,800	3.240"	
	4350	57.1	2190	**4350**	63.5	2489	63,800		
	3100	61.2	2184	**3100**	68.0	2482	62,100		
	8700	69.3	1903	**8700**	77.0	2163	44,300		Compressed

* Pressure measured in C.U.P.

.340 WEATHERBY MAGNUM



This is Roy Weatherby's answer to the .338 Winchester Magnum. With its increased case capacity, the .340 Weatherby is able to drive the same bullets approximately 10% faster than the .338 Winchester. The .340 Weatherby Magnum proved easy to load and gave consistent ballistics. **Accurate 3100** propellant is an excellent choice for loading this cartridge.

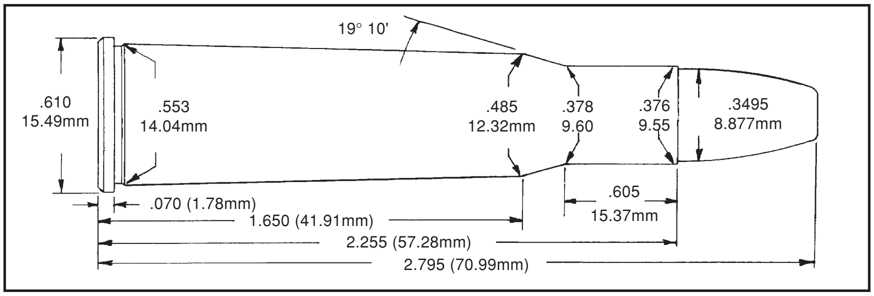
There is no SAAMI pressure limit for the .340 Weatherby Magnum. Weatherby factory ammunition produced pressures of 66,000 P.S.I. in our test barrel. These loads do not exceed that pressure.

.340 WEATHERBY MAGNUM

Gun	DOUGLAS	Max Length	2.825″
Barrel Length	26″	Trim Length	2.800″
Primer	FC 215	OAL Max	3.563″
Case	WBY	OAL Min	—

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
200 NOS BT	**2700**	73.2	2811	**2700**	77.0	2990	57,100	3.600″	
	4350	74.7	2777	**4350**	83.0	3156	64,100		
	3100	81.0	2746	**3100**	90.0	3121	54,300		Compressed
BAR 225-X	**2700**	70.3	2619	**2700**	74.0	2786	60,700	3.600″	
	4350	72.9	2564	**4350**	81.0	2914	61,900		
	3100	81.0	2607	**3100**	90.0	2963	59,800		Compressed
WIN 230 FS	**4350**	74.7	2625	**4350**	83.0	2983	63,400	3.560"	
	3100	80.1	2557	**3100**	89.0	2906	58,200		Compressed
HDY 250 SP	**2700**	71.3	2555	**2700**	75.0	2718	63,400	3.600″	
	4350	71.1	2446	**4350**	79.0	2780	61,800		
	3100	79.7	2534	**3100**	88.5	2879	63,500		
SPR 275 SSP	**2700**	66.5	2335	**2700**	70.0	2484	61,700	3.600″	
	4350	68.4	2286	**4350**	76.0	2598	59,600		
	3100	77.4	2387	**3100**	86.0	2713	63,500		

.348 WINCHESTER



Introduced in 1936 by Winchester for the Model 71 lever action rifle, the .348 is a modernized version of the .33 Winchester. The Model 71 was the only rifle ever commercially available for this cartridge from 1936 until it was discontinued in 1958.

Browning has recently produced a limited run of Model 71 rifles and carbines chambered for the .348.

While limited in range due to its bullet shape, the .348 is quite capable of taking any North American big game including large bear. Barnes and Hornady currently produce bullets for handloading the .348. Accurate **4350** is the best choice for loading the .348.

The SAAMI Maximum Average Pressure for the .348 Winchester is 40,000 C.U.P. Our testing for this cartridge was done in P.S.I. Factory ammunition produced pressures of 29,000 P.S.I. in our pressure barrel. These loads do not exceed that pressure.

.348 WINCHESTER

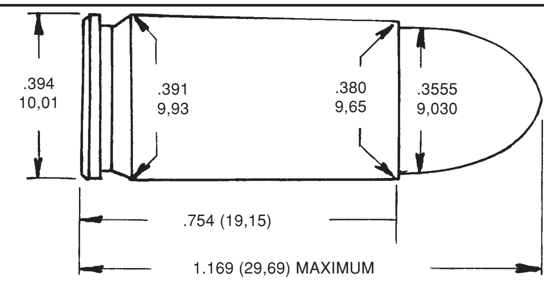
Gun	DOUGLAS	Max Length	2.255″
Barrel Length	24″	Trim Length	2.235″
Primer	CCI 200	OAL Max	2.795″
Case	WW	OAL Min	2.770″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
250 (L) FN	**4350**	49.5	1947	**4350**	55.0	2212	23,700	2.800″	* LY350457
	3100	54.0	1874	**3100**	60.0	2130	20,000		Penny's
HDY 200 FN	**5744**	30.6	1917	**5744**	34.0	2179	28,100	2.810″	
	2700	53.2	2332	**2700**	56.0	2481	26,700		* Good Load
	4350	55.8	2223	**4350**	62.0	2526	24,600		
	3100	61.2	2178	**3100**	68.0	2475	26,700		
BAR 220 FP	**5744**	28.8	1783	**5744**	32.0	2027	27,900	2.750″	
	2700	50.4	2175	**2700**	53.0	2314	25,800		
	4350	53.1	2114	**4350**	59.0	2402	24,900		
	3100	57.6	2095	**3100**	64.0	2381	25,400		

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
BAR 250 FP	**5744**	27.4	1650	**5744**	30.5	1876	28,200	2.800″	*
	2700	47.5	2018	**2700**	50.0	2147	26,300		
	4350	49.5	1974	**4350**	55.0	2243	26,300		
	3100	55.8	2021	**3100**	62.0	2297	27,100		

* Over SAAMI Maximum OAL

9mm LUGER



Semi-automatic carbines chambered for the 9mm Luger cartridge are intended only for informal target shooting or plinking. Although there are numerous models of select fire weapons produced for military and law enforcement agencies, these are not generally available to the shooting public.

All loads shown below produced a small velocity increase when fired from the carbine. The velocity increase was more pronounced with the lighter bullet weights.

The SAAMI Maximum Average Pressure for the 9mm Luger cartridge is 33,000 C.U.P.

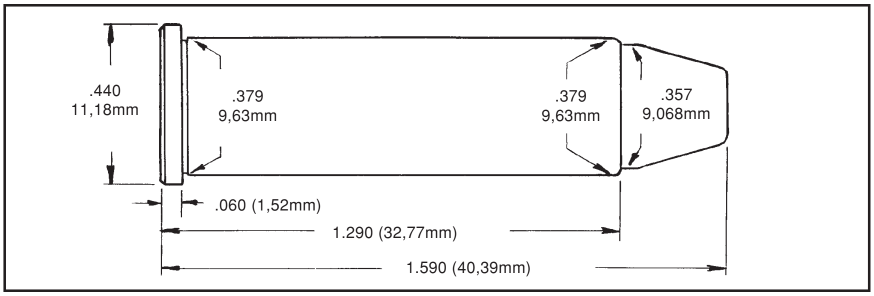
9mm LUGER

Gun	IVER JOHNSON	Max Length	0.754″
Barrel Length	18″	Trim Length	0.744″
Primer	WIN SP	OAL Max	1.169″
Case	FED	OAL Min	1.095″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
PMC 90 JHP	**No.2**	4.8	1331	**No.2**	5.3	1512	33,000	1.095″	
	No.5	6.8	1343	**No.5**	7.5	1526	33,000		
	No.7	8.6	1377	**No.7**	9.5	1565	31,200		
IMI 95 FMJ	**No.2**	4.8	1241	**No.2**	5.3	1410	33,000	1.080″	
	No.5	6.5	1294	**No.5**	7.2	1470	30,700		
	No.7	8.2	1308	**No.7**	9.1	1486	29,100		
HDY 100 FMJ	**No.2**	4.9	1245	**No.2**	5.4	1415	33,000	1.095″	
	No.5	6.3	1289	**No.5**	7.0	1465	29,800		
	No.7	8.1	1301	**No.7**	9.0	1478	29,800		
HDY 115 FMJ	**No.2**	4.0	1199	**No.2**	4.4	1362	29,900	1.095″	
	No.5	6.3	1261	**No.5**	7.0	1433	31,400		
	No.7	7.9	1263	**No.7**	8.8	1435	29,700		
HDY 124 RN	**No.2**	3.7	1103	**No.2**	4.1	1253	29,500	1.095″	
	No.5	5.9	1166	**No.5**	6.5	1325	33,000		
	No.7	7.7	1223	**No.7**	8.5	1390	29,800		

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
PMC 130 FMJ	**No.2**	4.2	1016	**No.2**	4.7	1155	30,900	1.095″	
	No.5	5.4	1078	**No.5**	6.0	1225	33,000		
	No.7	7.3	1158	**No.7**	8.1	1316	31,500		
Elite 135 FMJ	**No.2**	4.0	971	**No.2**	4.4	1103	27,500	1.095″	
	No.5	5.5	1081	**No.5**	6.1	1228	33,000		
	No.7	6.8	1099	**No.7**	7.5	1249	31,000		
SPR 147 TMJ	**No.2**	3.6	889	**No.2**	4.0	1010	29,200	1.095″	
	No.5	4.8	964	**No.5**	5.3	1095	30,900		
	No.7	6.5	1025	**No.7**	7.2	1165	31,900		

.357 MAGNUM



Continuing the American frontier tradition of having both a handgun and a short, handy rifle chambered for the same cartridge, various manufacturers are producing lever action carbines chambered for the .357 Magnum cartridge.

Even when chambered in a rifle, the .357 Magnum must be considered marginal for deer-sized game and can only be recommended for use by the experienced hunter.

As a cartridge/rifle combination for informal target shooting, the .357 Magnum is an excellent choice.

The SAAMI Maximum Average Pressure for the .357 Magnum is 45,000 C.U.P.

Note: This new data has been reshot using Copper Units of Pressure.

.357 MAGNUM

Gun	Test Barrel	Max Length	1.290″
Barrel Length	20″	Trim Length	1.270″
Primer	CCI 500	OAL Max	1.590″
Case	REM	OAL Min	1.540″

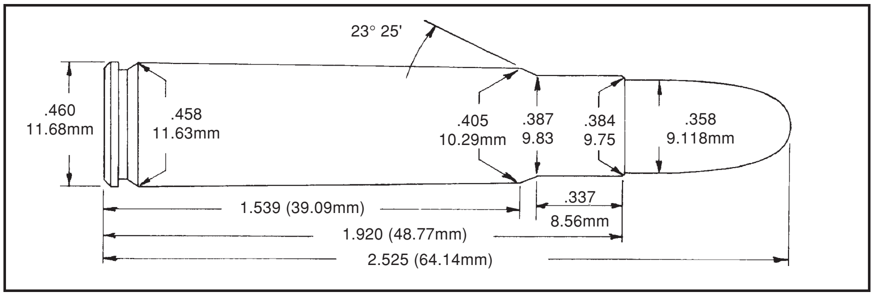
	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	C.U.P.	Length	Comment
150 (L) RN	**No.2**	5.9	1265	**No.2**	6.5	1438	43,800	1.655″*	Penny's
	No.5	8.5	1431	**No.5**	9.4	1627	41,900		
	No.7	10.3	1476	**No.7**	11.4	1677	44,000		
	No.9	12.9	1643	**No.9**	14.3	1868	42,100		
158 (L) SWC	**No.2**	5.2	1162	**No.2**	5.8	1321	40,400	1.600″	Penny's
	No.5	8.1	1349	**No.5**	9.0	1533	39,100		
	No.7	9.9	1450	**No.7**	11.0	1648	42,600		
	No.9	12.2	1544	**No.9**	13.5	1755	41,300		
SPR 110 JHP	**No.2**	7.6	1814	**No.2**	8.4	2063	44,100	1.575″	
	No.5	10.8	2007	**No.5**	12.0	2281	41,600		
	No.7	12.6	2019	**No.7**	14.0	2294	41,700		
	No.9	16.6	2171	**No.9**	18.4	2467	43,700		

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
HDY 125 XTP	**No.2**	7.2	1603	**No.2**	8.0	1822	43,800	1.575″	
	No.5	10.4	1814	**No.5**	11.5	2063	42,800		
	No.7	11.9	1878	**No.7**	13.2	2134	42,700		
	No.9	15.3	2026	**No.9**	17.0	2302	45,100		
SPR 140 JHP	**No.2**	6.7	1486	**No.2**	7.4	1689	43,900	1.575″	
	No.5	9.9	1734	**No.5**	11.0	1970	43,200		
	No.7	11.0	1709	**No.7**	12.2	1942	43,600		
	No.9	13.9	1821	**No.9**	15.4	2069	43,100		
NOS 150 SP	**No.2**	6.5	1377	**No.2**	7.2	1565	45,000	1.590″	
	No.5	9.5	1589	**No.5**	10.5	1806	42,700		
	No.7	10.8	1622	**No.7**	12.0	1846	43,400		
	No.9	13.7	1756	**No.9**	15.2	1998	43,000		
HDY 158 XTP	**No.2**	5.9	1267	**No.2**	6.6	1440	44,200	1.580″	
	No.5	8.8	1527	**No.5**	9.8	1735	43,500		
	No.7	10.3	1675	**No.7**	11.4	1903	43,900		
	No.9	13.5	1727	**No.9**	15.0	1963	44,900		
HDY 180 XTP	**No.2**	5.4	1118	**No.2**	6.0	1270	43,900	1.575″	
	No.5	8.3	1365	**No.5**	9.2	1551	44,300		
	No.7	9.3	1385	**No.7**	10.3	1574	43,600		
	No.9	11.7	1522	**No.9**	13.0	1730	43,000		

* Over SAAMI Maximum OAL

.35 REMINGTON

Introduced by Remington in 1906 for the Model 8 semi-automatic rifle, the .35 Remington is still going strong today in Marlin's Model 336 lever action rifle.



The .35 Remington has proven itself over the years to be a reliable, short-range cartridge for deer and black bear with the 200 grain bullet. Rifles chambered for the .35 Remington have moderate recoil and generally exhibit good accuracy. The rifling twist of the .35 Remington also lends itself to good cast bullet accuracy.

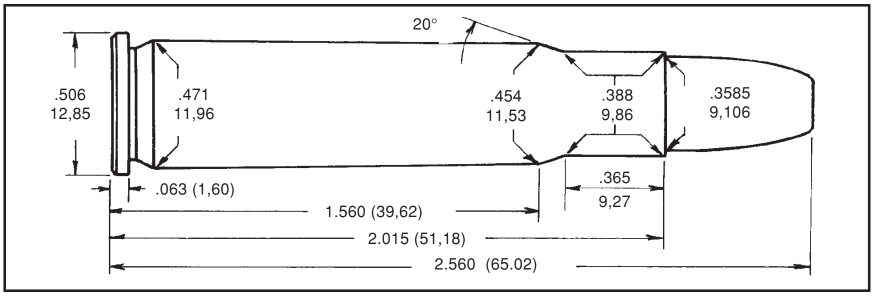
The SAAMI Maximum Average Pressure for the .35 Remington is 33,500 P.S.I.

.35 REMINGTON

Gun	DOUGLAS	Max Length	1.920″
Barrel Length	24″	Trim Length	1.900″
Primer	CCI 200	OAL Max	2.525″
Case	REM	OAL Min	2.460″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
200 (L) FNGC	**5744**	20.7	1546	**5744**	23.0	1757	27,600	2.410"	RCBS 35-200FN
	2015	29.3	1705	**2015**	32.5	1938	30,800		
	2230	29.3	1680	**2230**	32.5	1909	29,700		
	2460	30.6	1726	**2460**	34.0	1961	30,300		
	2495	36.0	1769	**2495**	40.0	2010	24,000		Compressed
	2520	34.2	1834	**2520**	38.0	2084	30,900		
SPR 180 FN	**5744**	22.5	1664	**5774**	25.0	1891	32,700	2.465″	
	2015	32.4	1847	**2015**	36.0	2099	27,800		
	2230	32.9	1814	**2230**	36.5	2061	28,900		
	2460	33.3	1838	**2460**	37.0	2089	28,300		
	2495	36.9	1866	**2495**	41.0	2121	30,000		Compressed
	2520	35.1	1867	**2520**	39.0	2122	27,100		
SRA 200 RN	**5744**	21.6	1563	**5744**	24.0	1777	29,800	2.470″	
	2015	31.5	1806	**2015**	35.0	2052	31,000		
	2230	31.5	1744	**2230**	35.0	1982	30,900		
	2460	33.3	1785	**2460**	37.0	2028	27,200		
	2495	36.0	1784	**2495**	40.0	2027	25,500		Compressed
	2520	35.1	1822	**2520**	39.0	2071	27,800		

.356 WINCHESTER



This rimmed cartridge was introduced in 1980 concurrently with the Winchester Model 94 XTR Angle Eject lever action carbine.

Although still available as a chambering from U.S. Repeating Arms, this attempt to resurrect the .358 Winchester in rimmed form has not proven to be popular.

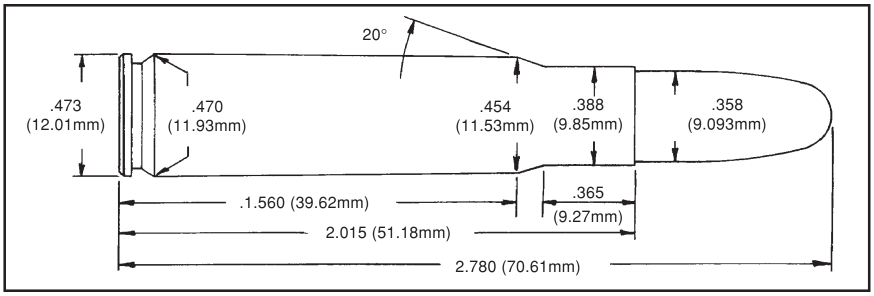
The SAAMI Maximum Average Pressure for the .356 Winchester is 52,000 C.U.P.

.356 WINCHESTER

Gun	DOUGLAS	Max Length	2.015″
Barrel Length	24″	Trim Length	1.995″
Primer	WLR	OAL Max	2.560″
Case	WW	OAL Min	2.530″

	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	C.U.P.	Length	Comment
SPR 180 FN	**2015**	40.5	2379	**2015**	45.0	2703	46,300	2.545″	
	2230	40.5	2207	**2230**	45.0	2508	45,500		
	2460	41.4	2244	**2460**	46.0	2550	44,400		
	2495	43.2	2177	**2495**	48.0	2474	37,600		Compressed
	2520	44.1	2267	**2520**	49.0	2576	41,800		Compressed
	2700	46.6	2161	**2700**	49.0	2299	40,600		Compressed
SPR 220 FN	**2015**	35.1	2037	**2015**	39.0	2315	44,200	2.555″	
	2230	36.0	1961	**2230**	40.0	2228	46,600		
	2460	36.9	1992	**2460**	41.0	2264	45,300		
	2495	40.5	2015	**2495**	45.0	2290	39,100		Compressed
	2520	41.9	2116	**2520**	46.5	2404	45,400		Compressed
	2700	45.6	2029	**2700**	48.0	2158	44,800		Compressed

.358 WINCHESTER



Introduced in 1955 by Winchester for their Model 70 bolt action and Model 88 lever action rifles, the .358 Winchester is based on the .308 Winchester case necked up to .35 caliber.

In Europe it is known as the 8.8 x 51mm and is currently chambered by several European rifle manufacturers. Both accurate and powerful, the .358 is adequate for any North American big game as long as the range is not stretched too far.

The .358 Winchester has an advantage over its predecessors, the .35 Winchester and the .348 Winchester in that it can be loaded to higher pressures, and it utilizes spitzer bullets which retain down-range velocity better. This is a cartridge that was too good to die but did anyway.

The SAAMI Maximum Average Pressure for the .358 Winchester is 52,000 C.U.P.

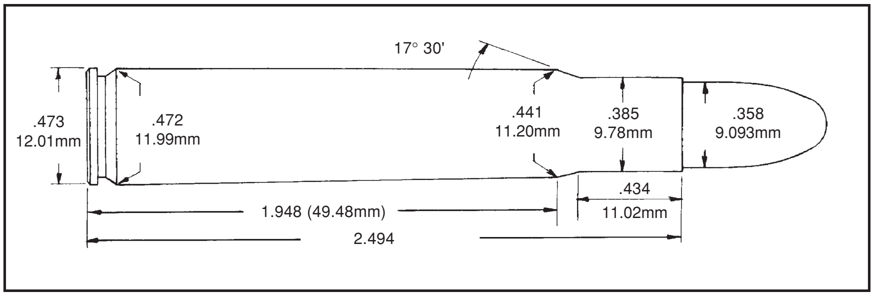
.358 WINCHESTER

Gun	DOUGLAS	Max Length	2.015″
Barrel Length	24″	Trim Length	1.995″
Primer	WLR	OAL Max	2.780″
Case	WW	OAL Min	2.730″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
205 (L) RNGC	**5744**	25.0	1820	**5744**	30.0	2091	42,600	2.595″	LY358315
	2015	36.9	2174	**2015**	41.0	2470	41,600		
	2230	36.9	2061	**2230**	41.0	2342	43,300		
	2460	38.7	2132	**2460**	43.0	2423	42,700		
	2495	38.7	2177	**2495**	43.0	2474	44,800		
	2520	40.5	2167	**2520**	45.0	2462	41,200		
	2700	44.7	2080	**2700**	47.0	2213	42,600		
HDY 200 SP	**2015**	37.8	2218	**2015**	42.0	2520	49,400	2.640″	
	2230	39.6	2160	**2230**	44.0	2454	51,400		
	2460	41.4	2206	**2460**	46.0	2507	51,400		
	2495	41.4	2124	**2495**	46.0	2414	40,700		Compressed
	2520	44.6	2260	**2520**	49.5	2568	48,900		Compressed
	2700	47.5	2164	**2700**	50.0	2302	45,500		Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SRA 225 SBT	**2015**	36.9	2109	**2015**	41.0	2397	49,300	2.740″	
	2230	38.7	2062	**2230**	43.0	2343	50,800		
	2460	39.6	2090	**2460**	44.0	2375	51,000		
	2495	41.4	2116	**2495**	46.0	2405	47,800		Compressed
	2520	43.2	2167	**2520**	48.0	2462	49,000		Compressed
	2700	47.5	2111	**2700**	50.0	2246	47,600		Compressed
HDY 250 RN	**2015**	36.0	2013	**2015**	40.0	2288	49,600	2.745″	
	2230	38.7	1998	**2230**	43.0	2271	52,000		
	2460	39.6	2033	**2460**	44.0	2310	52,000		
	2495	41.4	2027	**2495**	46.0	2303	43,400		Compressed
	2520	45.6	2247	**2520**	48.0	2390	49,700		Compressed
	2700	47.5	2081	**2700**	50.0	2214	49,800		Compressed

.35 WHELEN



The .35 Whelen was designed by the late Col. Townsend Whelen and built by Mr. James Howe while he was employed at Springfield Armory about 1922. This wildcat is the .30-06 case necked up to take .35 caliber bullets with no other change.

The .35 Whelen's popularity diminished somewhat after Winchester's introduction of their Model 70 rifle chambered for the .375 H&H Magnum; however, the ease of case forming for this cartridge and its effectiveness upon game kept this wildcat in use for many years.

In 1988 Remington produced a limited run of their Model 700 classic rifle in .35 Whelen. It has continued as a standard offering in their Model 700 BDL and Model 7600 pump.

The .35 Whelen is adequate for all North American big game as well as most thin-skinned African game. The rifling twist and throat dimensions of the .35 Whelen as produced by Remington are particularly well suited to shooting cast bullets.

There is a persistent belief among shooters that a "150-grain bullet is a 150-grain bullet." The tendency is to lump all bullets of like weight together. This is simply not so. We have purposely included data with several bullets of the same weight but of different manufacture. Please note that the data is similar but is **not** the same.

The SAAMI Maximum Average Pressure for the .35 Whelen is 52,000 C.U.P. Our loading data was developed in P.S.I., but does not exceed the SAAMI pressure allowance.

.35 WHELEN

Gun	DOUGLAS	Max Length	2.494″
Barrel Length	24″	Trim Length	2.474″
Primer	CCI 200	OAL Max	3.340″
Case	REM	OAL Min	2.970″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
205 (L) RN	**5744**	30.0	2023	**5744**	38.0	2452	48,100	3.045″	LY358315
	2015	45.0	2387	**2015**	50.0	2713	49,400		
	2230	46.8	2378	**2230**	52.0	2702	53,700		
	2460	46.8	2358	**2460**	52.0	2679	48,400		
	2495	46.8	2388	**2495**	52.0	2714	48,700		
	2520	48.6	2410	**2520**	54.0	2739	50,000		
	2700	57.0	2521	**2700**	60.0	2682	48,000		
	4350	54.0	2220	**4350**	60.0	2523	38,300		Compressed
	3100	54.0	1996	**3100**	60.0	2268	28,900		Compressed
	8700	58.5	1648	**8700**	65.0	1873	26,600		Compressed
250 (L) SPGC	**5744**	32.4	1912	**5744**	36.0	2173	47,700	3.250″	RCBS SIL
	2015	40.5	2020	**2015**	45.0	2296	48,900		
	2230	41.4	2028	**2230**	46.0	2305	50,900		
	2460	42.3	2029	**2460**	47.0	2306	48,200		
	2495	50.0	2190	**2495**	55.5	2489	50,100		
	2520	45.0	2088	**2520**	50.0	2373	53,000		
	2700	49.4	2069	**2700**	52.0	2201	43,100		
	4350	54.0	2084	**4350**	60.0	2368	44,800		Compressed
	3100	54.0	1894	**3100**	60.0	2152	31,900		Compressed
	8700	58.5	1573	**8700**	65.0	1788	28,300		Compressed
280 (L) RN	**5744**	30.6	1773	**5744**	34.0	2015	43,900	3.050″	LY358009
	2015	36.9	1857	**2015**	41.0	2110	46,100		
	2230	37.8	1846	**2230**	42.0	2098	42,700		
	2460	38.3	1863	**2460**	42.5	2117	44,400		
	2495	43.2	1925	**2495**	48.0	2188	38,500		
	2520	40.5	1909	**2520**	45.0	2169	46,000		
	2700	45.6	1966	**2700**	48.0	2091	42,400		
	4350	49.5	1939	**4350**	55.0	2203	41,600		
	3100	51.3	1824	**3100**	57.0	2073	34,300		
	8700	54.0	1463	**8700**	60.0	1663	28,700		
SPR 180 FN	**2015**	50.9	2607	**2015**	56.5	2963	51,900	3.035″	
	2230	51.3	2482	**2230**	57.0	2820	44,600		
	2460	53.1	2518	**2460**	59.0	2861	45,000		
	2495	53.6	2585	**2495**	59.5	2937	51,800		
	2520	54.5	2564	**2520**	60.5	2914	48,500		
	2700	62.7	2609	**2700**	66.0	2776	43,400		Compressed
	4350	58.5	2252	**4350**	65.0	2559	31,200		Compressed
	3100	58.5	2006	**3100**	65.0	2279	24,400		Compressed
HDY 200 SP	**201**	48.6	2462	**2015**	54.0	2798	52,400	3.140″	
	2230	49.5	2379	**2230**	55.0	2703	50,700		
	2460	51.3	2401	**2460**	57.0	2728	49,800		
	2495	51.3	2458	**2495**	57.0	2793	50,200		
	2520	52.7	2424	**2520**	58.5	2755	47,900		
	2700	61.8	2579	**2700**	65.0	2744	48,500		Compressed
	4350	53.1	2074	**4350**	59.0	2357	29,500		Compressed
	3100	54.0	1881	**3100**	60.0	2138	24,100		Compressed

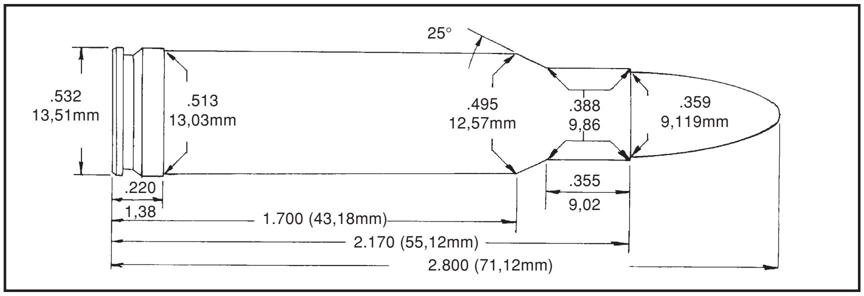
.35 WHELEN (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
BAR 200-X HP	**2015**	45.9	2359	**2015**	51.0	2681	46,900	3.225″	
	2230	49.1	2378	**2230**	54.5	2702	46,500		
	2460	50.4	2420	**2460**	56.0	2750	48,300		
	2495	49.1	2316	**2495**	54.5	2632	46,600		
	2520	50.9	2374	**2520**	56.5	2698	46,200		
	2700	57.5	2422	**2700**	60.5	2577	42,300		Compressed
	4350	54.0	2033	**4350**	60.0	2310	29,800		Compressed
	3100	54.0	1797	**3100**	60.0	2042	24,500		Compressed
BAR 225-X HP	**2015**	43.2	2198	**2015**	48.0	2498	50,600	3.220″	
	2230	46.8	2251	**2230**	52.0	2558	51,300		
	2460	46.8	2261	**2460**	52.0	2569	50,400		
	2495	47.7	2174	**2495**	53.0	2470	48,800		
	2520	48.2	2226	**2520**	53.5	2529	48,900		
	2700	56.1	2305	**2700**	59.0	2452	43,700		Compressed
	4350	53.1	2027	**4350**	59.0	2303	35,100		Compressed
	3100	53.1	1807	**3100**	59.0	2053	27,500		Compressed
NOS 225 (Part)	**2015**	44.1	2271	**2015**	49.0	2581	51,700	3.215″	
	2230	47.7	2278	**2230**	53.0	2589	52,400		
	2460	48.6	2292	**2460**	54.0	2604	52,200		
	2495	45.9	2264	**2495**	51.0	2573	52,200		
	2520	49.5	2291	**2520**	55.0	2603	52,300		
	2700	59.4	2447	**2700**	62.5	2603	49,800		Compressed
	4350	54.0	2153	**4350**	60.0	2447	39,200		Compressed
	3100	54.0	1946	**3100**	60.0	2211	31,500		Compressed
SRA 225 SBT	**2015**	44.1	2248	**2015**	49.0	2554	51,200	3.280″	
	2230	47.3	2264	**2230**	52.5	2573	49,200		
	2460	48.6	2299	**2460**	54.0	2613	51,900		
	2495	44.6	2207	**2495**	49.5	2508	51,300		
	2520	49.5	2287	**2520**	55.0	2599	51,100		
	2700	58.4	2445	**2700**	61.5	2601	51,200		
	4350	53.1	2121	**4350**	59.0	2410	38,100		Compressed
	3100	54.0	1905	**3100**	60.0	2165	28,800		Compressed
BAR 250-X HP	**2015**	42.8	2106	**2015**	47.5	2393	51,200	3.220″	
	2230	44.1	2116	**2230**	49.0	2405	52,800		
	2460	44.1	2123	**2460**	49.0	2412	52,500		
	2495	47.3	2084	**2495**	52.5	2368	53,500		
	2520	45.9	2109	**2520**	51.0	2397	51,500		
	2700	55.1	2252	**2700**	58.0	2396	49,400		Compressed
	4350	52.2	1945	**4350**	58.0	2210	34,700		Compressed
	3100	52.2	1701	**3100**	58.0	1933	26,200		Compressed
HDY 250 RN	**2015**	46.8	2200	**2015**	52.0	2500	54,000	3.250″	
	2230	45.9	2108	**2230**	51.0	2395	48,300		
	2460	46.8	2119	**2460**	52.0	2408	47,500		
	2495	47.7	2220	**2495**	53.0	2523	54,000		
	2520	48.3	2131	**2520**	53.7	2422	50,600		
	2700	56.1	2268	**2700**	59.0	2413	48,500		
	4350	52.2	1951	**4350**	58.0	2217	33,500		Compressed
	3100	53.1	1769	**3100**	59.0	2010	26,100		Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
NOS 250 (Part)	**2015**	40.5	2062	**2015**	45.0	2343	50,800	3.255″	
	2230	43.7	2092	**2230**	48.5	2377	52,100		
	2460	44.1	2111	**2460**	49.0	2399	53,000		
	2495	44.1	2126	**2495**	49.0	2416	54,500		
	2520	45.9	2146	**2520**	51.0	2439	53,300		
	2700	55.1	2284	**2700**	58.0	2430	49,100		Compressed
	4350	52.2	2079	**4350**	58.0	2363	41,100		Compressed
	3100	52.2	1858	**3100**	58.0	2111	30,100		Compressed
SPR 250 SP	**2015**	42.8	2122	**2015**	47.5	2411	52,200	3.245″	
	2230	45.9	2138	**2230**	51.0	2429	51,700		
	2460	46.4	2140	**2460**	51.5	2432	52,800		
	2495	45.5	2142	**2495**	50.5	2434	53,100		
	2520	46.8	2122	**2520**	52.0	2411	51,500		
	2700	57.0	2285	**2700**	60.0	2431	50,100		Compressed
	4350	54.0	2098	**4350**	60.0	2384	43,100		Compressed
	3100	54.0	1880	**3100**	60.0	2136	31,600		Compressed

NOTE: All data with AAC 2700 was shot using REM 9 1/2 primer.

.350 REMINGTON MAGNUM



The .350 Remington Magnum was introduced in 1965 in the Model 600 carbine. The .350 Remington Magnum, along with the 6.5mm Remington Magnum, attempted to duplicate the performance of "long-action" rifle cartridges in a small, handy, lightweight carbine.

The Remington design team succeeded admirably. The .350 Remington Magnum is more than adequate for any North American game — including large bear. The American shooting public was simply not ready for the futuristic looking Model 600 carbine or the specialized cartridges designed for it.

In an attempt to salvage the cartridges, Remington later chambered the Model 700 BDL rifle for both the .350 and 6.5mm Remington Magnums as did Ruger with their Model 77 bolt action rifle. This was a case of too little, too late, and since 1974 only one short run of the Remington Model 700 Limited Edition Classics have been made in the .350 Remington Magnum. This is unfortunate since the .350 Remington Magnum will duplicate the performance of the .35 Whelen in an 18-inch barrel and will easily exceed it when fired in barrels of equal length.

The rifling twist and throat dimensions of the .350 Remington Magnum are particularly well suited to shooting cast bullets but the short overall length reduces the selection of suitable bullets that will feed from the magazine and give adequate accuracy.

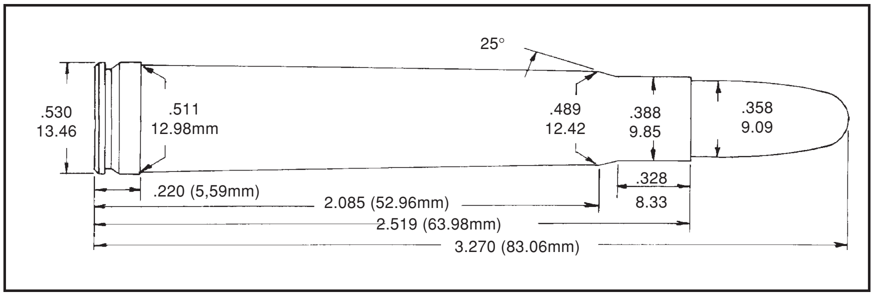
The SAAMI Maximum Average Pressure for the .350 Remington Magnum is 53,000 C.U.P.

.350 REMINGTON MAGNUM

Gun	DOUGLAS	Max Length	2.170″
Barrel Length	20″	Trim Length	2.150″
Primer	REM 9˚ M	OAL Max	2.800″
Case	REM	OAL Min	2.730″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
204 (L) RNGC	**2015**	47.7	2389	**2015**	53.0	2715	47,300	2.700″	LY358315
	2230	48.6	2353	**2230**	54.0	2674	42,200		
	2460	48.6	2312	**2460**	54.0	2627	39,000		
	2495	49.1	2311	**2495**	54.5	2626	41,400		
	2520	49.5	2348	**2520**	55.0	2668	43,600		
HDY 200 SP	**2015**	48.6	2445	**2015**	54.0	2778	50,700	2.800″	
	2230	53.1	2504	**2230**	59.0	2846	51,300		
	2460	53.6	2499	**2460**	59.5	2840	50,700		
	2495	53.1	2441	**2495**	59.0	2774	51,700		
	2520	54.0	2647	**2520**	60.0	3008	51,800		
SRA 225 SBT	**2015**	47.3	2338	**2015**	52.5	2657	52,600	2.800″	
	2230	51.3	2392	**2230**	57.0	2718	52,400		
	2460	51.8	2384	**2460**	57.5	2709	52,500		
	2495	50.0	2270	**2495**	55.5	2580	49,600		
	2520	51.8	2367	**2520**	57.5	2690	52,500		
NOS 225 SP	**2015**	47.3	2306	**2015**	52.5	2620	53,000	2.800″	
	2230	51.3	2409	**2230**	57.0	2738	52,600		
	2460	51.8	2407	**2460**	57.5	2735	53,000		
	2495	49.1	2269	**2495**	54.5	2578	52,400		
	2520	51.8	2374	**2520**	57.5	2698	52,500		
NOS 250 SP	**2015**	45.9	2200	**2015**	51.0	2500	52,600	2.800″	
	2230	48.6	2217	**2230**	54.0	2519	49,600		
	2460	50.4	2267	**2460**	56.0	2576	53,000		
	2495	48.6	2141	**2495**	54.0	2433	53,000		
	2520	50.9	2213	**2520**	56.5	2515	53,000		

.358 NORMA MAGNUM



Introduced into the U.S. in 1959, the .358 Norma Magnum is a short, belted magnum cartridge intended to work through a standard length action. It is nearly identical to the wildcat .35-338. The .358 Norma Magnum delivers approximately the same performance as the larger .375 H&H Magnum and is suitable for all North American big game.

While never chambered in an American production firearm, the .358 Norma Magnum has enjoyed limited success in custom rifles.

There is no SAAMI pressure limit for the .358 Norma Magnum. Norma factory ammunition fired in our test barrel produced a pressure of 63,900 P.S.I. These loads to not exceed that pressure.

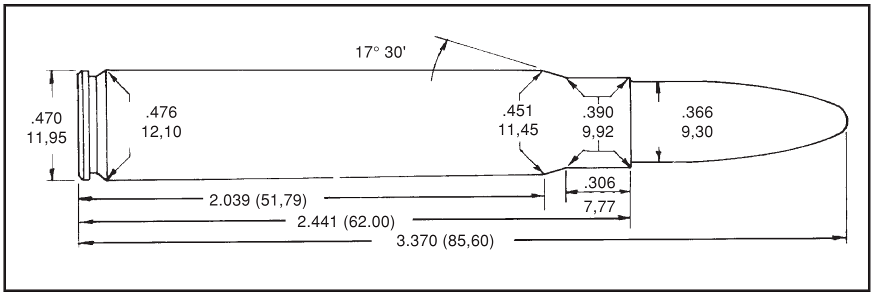
.358 NORMA MAGNUM

Gun	DOUGLAS	Max Length	2.519″
Barrel Length	24″	Trim Length	2.505″
Primer	CCI 250	OAL Max	3.270″
Case	NORMA	OAL Min	--

	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	P.S.I.	Length	Comment
HDY 200 SP	**2700**	71.1	2641	**2700**	79.0	3001	59,900	3.200″	
	4350	72.9	2617	**4350**	81.0	2974	50,500		Compressed
SRA 225 SBT	**2700**	69.3	2528	**2700**	77.0	2873	62,000	3.280″	*
	4350	72.9	2626	**4350**	81.0	2984	60,100		Compressed
NOS 250 SP	**2700**	65.7	2380	**2700**	73.0	2705	62,200	3.280″	*
	4350	70.2	2498	**4350**	78.0	2839	63,000		Compressed

* Over Recommended MAX OAL

9.3x62mm MAUSER



Developed about 1905 by Otto Bock for use in bolt action Mauser sporters, the 9.3x62mm Mauser was intended for use in the German colonies in Africa. It also proved popular in Europe on wild boar and red deer.

The 9.3x62mm is a powerful big game cartridge enjoying a good reputation in Africa and Asia. It is adequate for all North American big game including large bear.

There is no SAAMI pressure limit for the 9.3x62mm Mauser. Norma factory ammunition produced 50,000 P.S.I. in our test barrel. These loads do not exceed that pressure.

9.3x62mm MAUSER

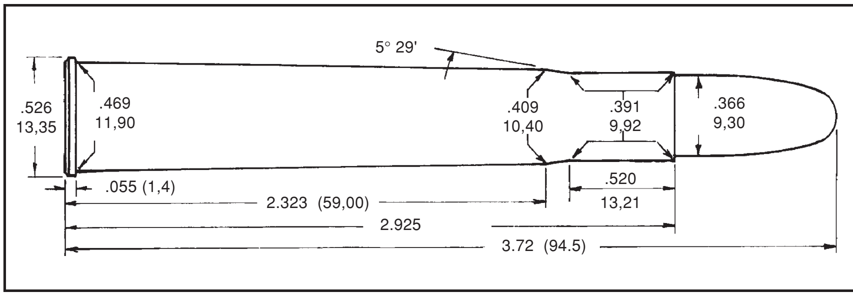
Gun	McGOWAN	Max Length	2.441″
Barrel Length	24″	Trim Length	2.400″
Primer	CCI 200	OAL Max	3.370″
Case	NORMA	OAL Min	--

	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	P.S.I.	Length	Comment
BAR 250-X	**2015**	45.9	2135	**2015**	51.0	2426	46,500	3.310″	*
	2230	46.8	2105	**2230**	52.0	2392	48,600		
	2460	47.7	2077	**2460**	53.0	2360	47,400		
	2495	45.9	2063	**2495**	51.0	2344	47,600		
	2520	48.6	2093	**2520**	54.0	2378	49,200		
	2700	57.0	2181	**2700**	60.0	2320	42,400		
SPR 270 SSP	**2015**	43.7	1969	**2015**	48.5	2238	45,400	2.825″	
	2230	45.5	1967	**2230**	50.5	2235	48,700		
	2460	46.4	1962	**2460**	51.5	2229	45,200		
	2495	47.3	2022	**2495**	52.5	2298	48,300		
	2520	47.7	2013	**2520**	53.0	2287	47,600		
	2700	58.0	2188	**2700**	61.0	2328	47,600		
BAR 286-X	**2015**	44.1	1952	**2015**	49.0	2218	48,100	3.305″	*
	2230	45.0	1880	**2230**	50.0	2136	47,400		
	2460	45.9	1888	**2460**	51.0	2146	47,900		
	2495	40.5	1840	**2495**	45.0	2091	47,100		
	2520	46.8	1903	**2520**	52.0	2163	46,900		
	2700	55.1	1976	**2700**	58.0	2102	38,100		Compressed

* Over Recommended MAX OAL

9.3x74R

The 9.3x74R is a popular cartridge in Germany for single shot, double, and combination guns. Developed early in this century, it is still available in both Austrian and German firearms.



The 9.3x74R gained a reputation for reliability on all large game in Africa including elephant. It would be more than adequate for any North American big game. Accurate **4350** is an excellent choice for handloading the 9.3x74R.

There is no SAAMI pressure limit for the 9.3x74R. Norma factory ammunition produced pressures of 47,000 P.S.I. in our test barrel. These loads do not exceed that pressure.

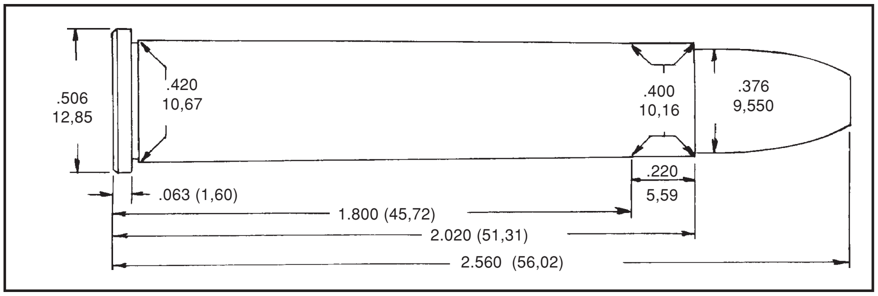
9.3x74R

Gun	McGOWAN	Max Length	2.925″
Barrel Length	24″	Trim Length	2.905″
Primer	CCI 250	OAL Max	3.720″
Case	NORMA	OAL Min	--

	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	P.S.I.	Length	Comment
BAR 250-X	**2520**	46.8	1986	**2520**	52.0	2257	42,700	3.800″*	
	2700	56.1	2119	**2700**	59.0	2254	42,000		
	4350	58.5	1949	**4350**	65.0	2215	33,500		Compressed
	3100	58.5	1748	**3100**	65.0	1986	29,000		Compressed
SPR 270 SSP	**5744**	27.5	1391	**5744**	37.0	2004	41,500	3.775″*	
	4350	61.7	2071	**4350**	68.5	2353	43,000		Compressed
	3100	61.7	1863	**3100**	68.5	2117	32,300		Compressed
BAR 286-X	**4350**	58.5	1955	**4350**	65.0	2222	45,100	3.800″*	Compressed
	3100	58.5	1773	**3100**	65.0	2015	34,000		Compressed

* Over Recommended MAX OAL

.375 WINCHESTER



Introduced in 1978 as a new cartridge for the Model 94 Big Bore lever action carbine, the .375 Winchester case is a shortened and strengthened version of the .38-55 Winchester.

Intended to fill a gap in the cartridge line-up in Winchester's lever action rifles for large game in heavily wooded areas, the .375 Winchester ballistics are more than adequate. Unfortunately, its sales were not. Marlin also chambered their Model 336 lever action rifle for this cartridge for a time as did Ruger in the No. 3 carbine. Today, however, no rifles are produced for this cartridge.

Care should be exercised by owners of rifles chambered for the .38-55 Winchester. The chambers of these rifles are probably generous enough to permit firing of the .375 Winchester cartridge, which would almost certainly damage the gun because of its much higher pressure.

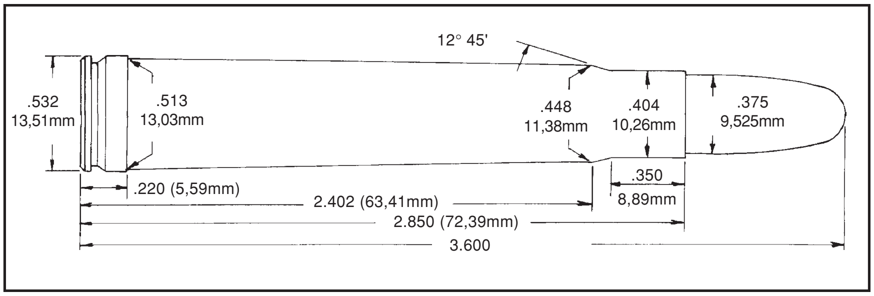
The SAAMI Maximum Average Pressure for the .375 Winchester is 52,000 C.U.P.

.375 WINCHESTER

Gun	DOUGLAS	Max Length	2.020″
Barrel Length	24″	Trim Length	2.000″
Primer	REM 9½	OAL Max	2.560″
Case	WW	OAL Min	2.530″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
250(L) FNGC	**5744**	23.4	1629	**5744**	26.0	1852	49,900	2.400″	RCBS
	1680	25.2	1624	**1680**	28.0	1845	33,600		
	2015	28.8	1674	**2015**	32.0	1902	40,700		Compressed
SRA 200 FN	**5744**	27.9	1899	**5744**	31.0	2158	50,800	2.525″	
	1680	36.0	2211	**1680**	40.0	2512	41,500		Case Full
	2015	36.0	1981	**2015**	40.0	2251	35,800		Compressed
HDY 220 FN	**5744**	26.5	1771	**5744**	29.5	2013	50,000	2.530″	
	1680	34.2	2087	**1680**	38.0	2372	44,800		Case Full
	2015	36.0	1947	**2015**	40.0	2213	39,500		Compressed

.375 HOLLAND & HOLLAND MAGNUM



Developed by the British firm of Holland & Holland in 1912, this is one of the original belted magnum cartridges. Custom rifles became available for the .375 H&H, from makers such as Griffin & Howe, about 1926.

The Western Cartridge Company loaded ammunition for the .375 H&H for 12 years prior to the introduction of the first standard rifle made to chamber the round, the Winchester Model 70 in 1937.

This cartridge has long been considered the best all-around African caliber and the smallest cartridge suitable for hunting Africa's "dangerous five."

Easy to load, the .375 H&H combines excellent accuracy, and good bullet weight with a trajectory approximating that of a 180-grain .30-06 load.

Several Accurate propellants are suitable for loading the .375 H&H but Accurate **4350** is the best choice for all-around use.

The SAAMI Maximum Average Pressure for the .375 H&H is 62,000 P.S.I.

.375 HOLLAND & HOLLAND MAGNUM

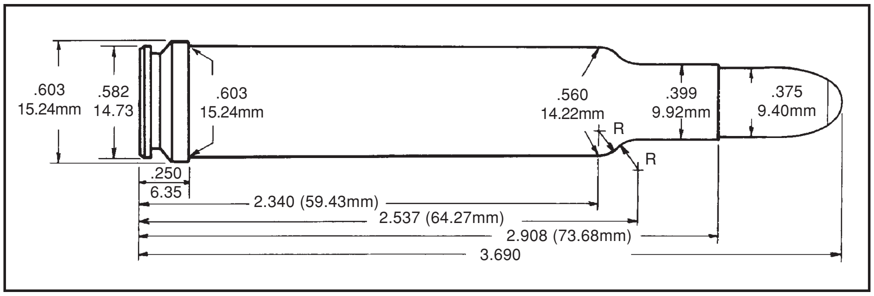
Gun	DOUGLAS	Max Length	2.850″
Barrel Length	25″	Trim Length	2.830″
Primer	REM 9˚ M	OAL Max	3.600″
Case	WW	OAL Min	3.540″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
255 (L) FNGC	**5744**	34.0	1771	**5744**	47.0	2310	41,500	3.325"	RCBS
SPR 235 SBT	**2495**	66.6	2560	**2495**	74.0	2909	57,000	3.550″	
	2520	63.9	2530	**2520**	71.0	2875	57,000		
	2700	76.0	2706	**2700**	80.0	2879	56,600		100% Density
	4350	77.4	2495	**4350**	86.0	2835	46,700		Compressed
	3100	77.4	2259	**3100**	86.0	2567	33,300		Compressed
BAR-X 250	**2495**	54.0	2193	**2495**	60.0	2492	54,200	3.550″	
	2700	75.1	2539	**2700**	79.0	2701	54,100		Compressed
	4350	74.3	2332	**4350**	82.5	2650	45,500		Compressed
	3100	75.6	2113	**3100**	84.0	2401	32,800		Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 250 SBT	**2495**	60.8	2409	**2495**	67.5	2738	60,000	3.585″	
	2700	76.0	2644	**2700**	80.0	2813	59,800		
	4350	75.6	2431	**4350**	84.0	2763	48,900		Compressed
	3100	77.4	2233	**3100**	86.0	2537	36,800		Compressed
SWF 250 SP	**4064**	68.4	2416	**4064**	76.0	2746	59,900	3.545"	
	2700	71.1	2396	**2700**	79.0	2723	60,400		
	4350	75.6	2405	**4350**	84.0	2734	51,000		Compressed
	3100	77.4	2260	**3100**	86.0	2569	44,500		Compressed
HDY 270 SP	**2495**	63.5	2346	**2495**	70.5	2666	59,000	3.570″	
	2700	76.0	2530	**2700**	80.0	2691	55,800		Compressed
	4350	75.6	2386	**4350**	84.0	2711	50,300		*
	3100	77.4	2217	**3100**	86.0	2519	38,700		**
SRA 300 SBT	**2495**	56.3	2148	**2495**	62.5	2441	58,600	3.585″	
	2700	71.3	2397	**2700**	75.0	2550	56,600		***
	4350	71.1	2241	**4350**	79.0	2547	51,500		Compressed
	3100	74.7	2159	**3100**	83.0	2453	43,200		Compressed
SWF 300 SP	**4064**	61.2	2120	**4064**	68.0	2410	61,300	3.545"	
	2700	67.5	2135	**2700**	75.0	2427	61,200		
	4350	71.1	2192	**4350**	79.0	2491	50,000		Compressed
	3100	74.7	2112	**3100**	83.0	2401	45,400		Compressed
SPR 300 AGS	**2495**	56.3	2110	**2495**	62.5	2398	61,200	3.480″	
	2700	71.3	2327	**2700**	75.0	2476	59,500		
	4350	71.1	2128	**4350**	79.0	2418	46,800		***
	3100	74.7	2028	**3100**	83.0	2305	40,000		Compressed
BAR 350 RN	**2495**	49.5	1851	**2495**	55.0	2103	56,100	3.560″	
	2700	63.7	2123	**2700**	67.0	2259	56,600		
	4350	67.5	2072	**4350**	75.0	2355	54,800		***
	3100	65.7	1853	**3100**	73.0	2106	36,600		Compressed

* - Compressed 3.605 OAL
** - Compressed 3.615 OAL
*** - Compressed, Extremely Uniform P&V

.378 WEATHERBY MAGNUM



Developed by Roy Weatherby in 1953, the .378 Weatherby was an original design and not based on any other cartridge. The Federal Cartridge Company No. 215 primer was originally developed for this cartridge because existing primers would not adequately ignite the 100+ grains of powder.

Designed for use on the more dangerous varieties of game on this planet, the .378 Weatherby Magnum has lived up to its expectations. Both Accurate **4350** and **3100** are excellent choices for loading the .378 Weatherby Magnum. All loads developed for this cartridge proved quite consistent.

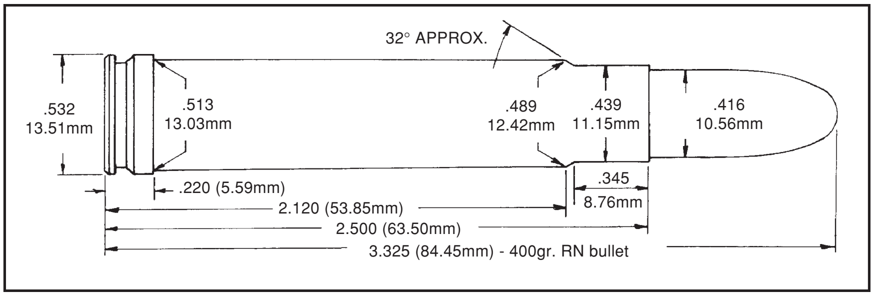
There is no SAAMI pressure limit for the .378 Weatherby Magnum. Weatherby factory ammunition produced 60,000 P.S.I. in our test barrel. This data does not exceed that pressure.

.378 WEATHERBY MAGNUM

Gun	DOUGLAS	Max Length	2.908″
Barrel Length	26″	Trim Length	2.903″
Primer	FC 215	OAL Max	3.690″
Case	WBY	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
BAR 250-X	**4350**	94.5	2762	**4350**	105.0	3139	57,200	3.665″	
	3100	101.7	2711	**3100**	113.0	3081	57,600		
	8700	123.3	2516	**8700**	137.0	2859	48,300		Compressed
SPR 270 SBT	**4350**	93.6	2700	**4350**	104.0	3068	59,200	3.685″	
	3100	100.8	2687	**3100**	112.0	3053	59,200		
	8700	121.5	2495	**8700**	135.0	2835	43,600		Compressed
SPR 300 Solid	**4350**	90.9	2508	**4350**	101.0	2850	57,300	3.530″	African Grand Slam
	3100	98.1	2492	**3100**	109.0	2832	55,500		
	8700	117.0	2385	**8700**	130.0	2710	47,900		Compressed

.411 KDF/.416 TAYLOR



This proprietary cartridge was developed by Phil Koene of Kleinguenther Distinguished Firearms. Barnes Bullets provided the necessary bullets; cases are easily formed from 458 Winchester brass. Research proved that .411″ diameter bullets feed through the magazine of the Voere rifles more reliably than .416″ bullets used in the same cartridge. Accurate **2460** and **2520** are the best all-around powders.

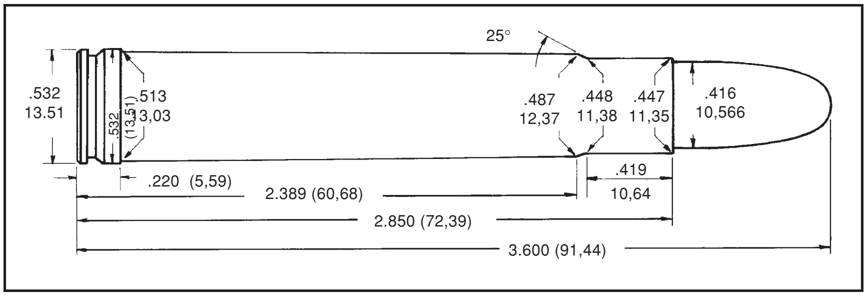
This data is also suitable for use in the 416 Taylor. The major difference between these two cartridges is 0.005″ in the bore diameter; otherwise, they are nearly identical.

.411 KDF/.416 TAYLOR

Gun	OBERMEYER	Max Length	2.500″
Barrel Length	26″	Trim Length	2.480″
Primer	CCI 250	OAL Max	3.325″
Case	WW	OAL Min	3.330″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
BAR 300 SP	**2015**	63.0	2311	**2015**	70.0	2626	58,700	3.265″	
	2230	64.8	2291	**2230**	72.0	2603	58,900		
	2460	67.5	2338	**2460**	75.0	2657	59,100		
	2520	67.5	2333	**2520**	75.0	2651	59,100		
	2700	75.1	2332	**2700**	79.0	2481	46,200		Compressed
	4350	68.4	1966	**4350**	76.0	2234	30,800		Compressed
BAR 350 RN	**2015**	56.7	2045	**2015**	63.0	2324	59,200	3.315″	
	2230	61.2	2087	**2230**	68.0	2372	60,400		
	2460	62.1	2102	**2460**	69.0	2389	58,700		
	2520	63.0	2090	**2520**	70.0	2375	58,400		Compressed
	2700	66.5	1992	**2700**	70.0	2119	40,500		Compressed
	4350	65.7	1874	**4350**	73.0	2129	39,100		Compressed
BAR 400 RN	**2015**	53.1	1867	**2015**	59.0	2122	59,200	3.295″	
	2230	54.0	1840	**2230**	60.0	2091	59,500		
	2460	54.9	1853	**2460**	61.0	2106	58,700		
	2520	55.8	1869	**2520**	62.0	2124	59,200		
	2700	67.5	2000	**2700**	71.0	2128	48,500		
	4350	65.7	1880	**4350**	73.0	2136	45,700		Compressed

.416 REMINGTON MAGNUM



The resurgence of interest in the "classic" .416 Rigby cartridge prompted Remington and Weatherby to enter the sales race with their own offerings in this bore diameter. In 1990 Remington introduced its .416 Remington Magnum which is essentially a necked up 8mm Remington Magnum case.

Although smaller than the .416 Rigby, the .416 Remington Magnum produces nearly the same ballistics because of its higher working pressure.

There is a wide range of Accurate propellants that give excellent results when handloading the .416 Remington Magnum. The 350-grain Barnes-X bullet was seated beyond the SAAMI maximum OAL but would still function through the magazine of a Remington 700 rifle. The 400-grain Hornady bullet gave exceptionally uniform results with all propellants tested.

The SAAMI Maximum Average Pressure for the .416 Remington Magnum is 54,000 C.U.P.

.416 REMINGTON MAGNUM

Gun	DOUGLAS	Max Length	2.850″
Barrel Length	24″	Trim Length	2.830″
Primer	REM 9˚ M	OAL Max	3.600″
Case	REM	OAL Min	3.350

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
350 (L) FN	**5744**	35.0	1643	**5744**	55.0	2267	51,900	3.430"	RCBS
BAR 350-X*	**2015**	67.5	2304	**2015**	75.0	2618	51,400	3.680″	
	2230	71.1	2328	**2230**	79.0	2645	53,000		**
	2460	71.1	2298	**2460**	79.0	2611	51,000		
	2495	73.8	2226	**2495**	82.0	2530	46,500		Compressed
	2520	70.2	2255	**2520**	78.0	2563	48,600		
	4064	74.7	2235	**4064**	83.0	2540	46,200		
	2700	81.7	2384	**2700**	86.0	2536	47,000		Compressed
	4350	72.0	1954	**4350**	80.0	2221	32,600		Compressed**

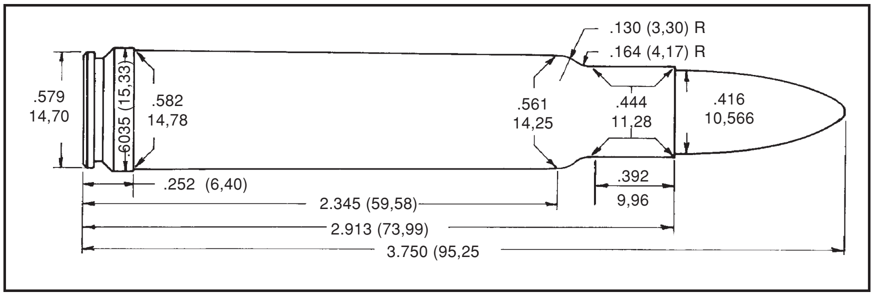
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
HDY 400 RN	**2015**	63.0	2104	**2015**	70.0	2391	52,200	3.580″	**
	2230	65.7	2094	**2230**	73.0	2380	49,900		**
	2460	66.6	2097	**2460**	74.0	2383	50,300		**
	2495	72.0	2154	**2495**	80.0	2448	50,000		**
	2520	67.5	2099	**2520**	75.0	2385	51,900		
	4064	72.0	2128	**4064**	80.0	2419	47,800		
	2700	80.8	2295	**2700**	85.0	2442	49,800		**
	4350	78.3	2155	**4350**	87.0	2449	43,900		Compressed**

** Consistent

NOTE: This OAL exceeds SAAMI but will fit the magazine of the Remington 700 rifle

.416 WEATHERBY

This is Weatherby's entry into the .416 caliber cartridge race. Following the Weatherby philosophy that "bigger is better," it shares the same case as the .378 and .460 Weatherby Magnums.



The .416 Weatherby factory ammunition produced 60,000 P.S.I. in our test barrel. These loads to not exceed that pressure.

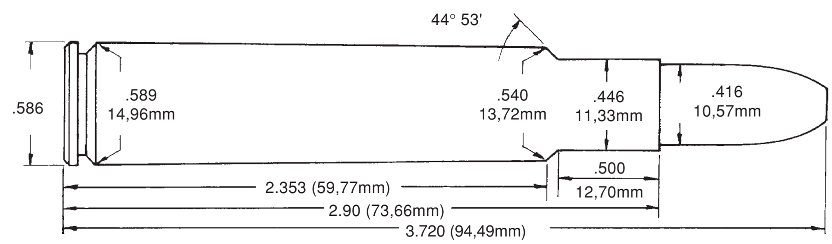
.416 WEATHERBY

Gun	DOUGLAS	Max Length	2.913″
Barrel Length	26″	Trim Length	2.903″
Primer	FC 215	OAL Max	3.750″
Case	WBY	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
BAR 350-X	**4350**	98.1	2484	**4350**	109.0	2823	59,300	3.785″	*
	3100	100.8	2316	**3100**	112.0	2632	47,900		Compressed
HDY 400 RN	**4350**	95.4	2297	**4350**	106.0	2610	58,300	3.640″	
	3100	100.8	2261	**3100**	112.0	2569	52,900		Compressed

* Over Recommended Maximum OAL

.416 RIGBY



This is a proprietary cartridge introduced in 1911 by John Rigby for his magnum action Mauser rifles. Both the rifle and cartridge were well received in Africa where they established an impressive record on dangerous game.

The .416 Rigby is a large case. The combination of a large case capacity and a low working pressure reduces the selection of suitable propellants drastically.

There is no SAAMI pressure limit for the .416 Rigby. Federal factory ammunition produced 44,000 P.S.I. in our pressure barrel. These loads do not exceed that pressure.

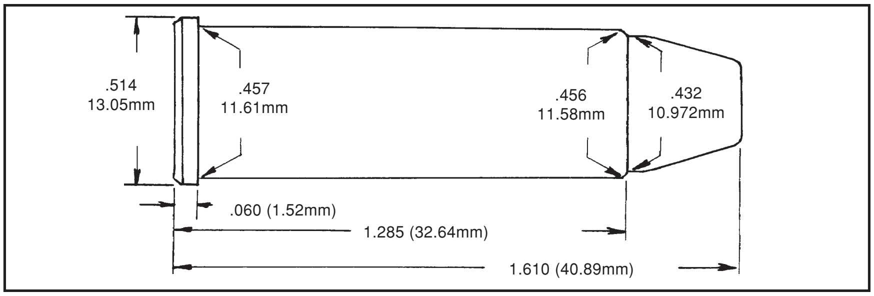
.416 RIGBY

Gun	DOUGLAS	Max Length	2.900″
Barrel Length	26″	Trim Length	2.880″
Primer	FC 215	OAL Max	3.720″
Case	FC	OAL Min	3.630″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
350 (L) RN	**5744**	49.5	1912	**5744**	55.0	2173	41,600	3.480"	RCBS
BAR 350-X	**3100**	91.8	2218	**3100**	102.0	2521	42,800	3.750″	Case Full
	8700	112.5	2013	**8700**	125.0	2287	38,800		Compressed
SPR 400 SP *	**3100**	90.0	2057	**3100**	100.0	2337	43,200	3.635″	
	8700	108.0	1882	**8700**	120.0	2139	38,900		Compressed
SPR 400 SOLID *	**3100**	88.2	2042	**3100**	98.0	2320	43,000	3.615″	
	8700	114.8	2028	**8700**	127.5	2305	40,400		Compressed
HDY 400 RN	**3100**	86.4	2052	**3100**	96.0	2332	43,700	3.610″	
	8700	114.8	2097	**8700**	127.5	2383	42,400		Compressed

* African Grand Slam

.44 REMINGTON MAGNUM



Historically Americans have found it desirable to have both handguns and lightweight carbines chambered for the same round. The .44 Remington Magnum has proven effective on deer-sized game at moderate ranges as a rifle chambering.

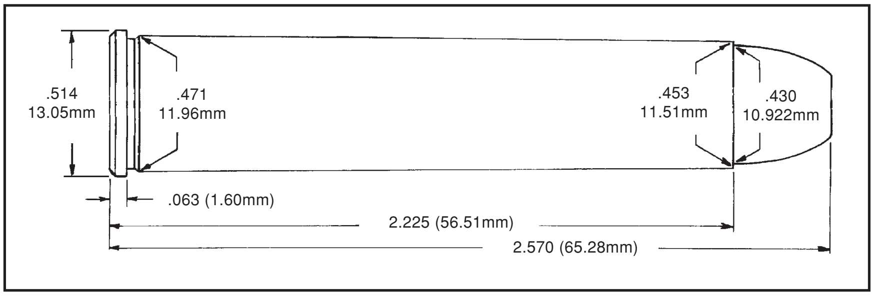
The SAAMI Maximum Average Pressure for the .44 Remington Magnum is 40,000 C.U.P.

.44 REMINGTON MAGNUM

Gun	WIN 94	Max Length	1.285″
Barrel Length	20″	Trim Length	1.265″
Primer	CCI 300	OAL Max	1.610″
Case	WIN	OAL Min	1.535″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
HDY 180 JHP	**No. 2**	10.0	1419	**No. 2**	11.1	1612	36,500	1.560″	
	No. 5	14.8	1596	**No. 5**	16.4	1814	38,100		
	No. 7	18.5	1705	**No. 7**	20.5	1938	40,000		
	No. 9		N/R	**No. 9**		N/R			
NOS 200 JHP	**No. 2**	9.9	1364	**No. 2**	11.0	1550	39,500	1.595″	
	No. 5	14.2	1504	**No. 5**	15.8	1709	40,000		
	No. 7	16.8	1755	**No. 7**	18.7	1994	37,500		
	No. 9	22.5	1667	**No. 9**	25.0	1894	37,800		
IMI 240 JHP	**No. 2**	9.0	1135	**No. 2**	10.0	1290	38,600	1.560″	
	No. 5	13.0	1307	**No. 5**	14.4	1485	39,800		
	No. 7	15.6	1366	**No. 7**	17.3	1552	40,000		
	No. 9	19.1	1420	**No. 9**	21.3	1625	40,000		
SRA 250 FPJ	**No. 2**	9.5	1091	**No. 2**	10.5	1240	38,400	1.600″	
	No. 5	13.1	1223	**No. 5**	14.5	1390	39,700		
	No. 7	15.3	1298	**No. 7**	17.0	1475	37,700		
	No. 9	18.9	1353	**No. 9**	21.0	1538	39,200		
SRA 300 JSP	**No. 2**	8.7	1056	**No. 2**	9.7	1200	38,700	1.735″	
	No. 5	12.6	1206	**No. 5**	14.0	1370	40,000		
	No. 7	14.6	1236	**No. 7**	16.2	1404	40,000		
	No. 9	17.1	1309	**No. 9**	19.0	1488	40,000		

.444 MARLIN



The popularity of the .44 Magnum revolver cartridge as a rifle round prompted Marlin, in 1964, to introduce their .444 Marlin. This cartridge is, in essence, an extra long .44 Magnum.

It fires the same 240 grain soft point but at nearly 2400 FPS as compared to about 1800 FPS for the average .44 Magnum rifle. The .444 Marlin is much more powerful than the older .30-30 Winchester or .35 Remington, and at close ranges is on par with the .348 Winchester. However, the bullet sectional density is insufficient for deep penetration on larger game and contributes to a rapid loss in velocity. Therefore, the .444 Marlin should be limited in hunting large North American game to about 150 yards. Use of Hornady's 265 grain soft point will improve its effectiveness on large game.

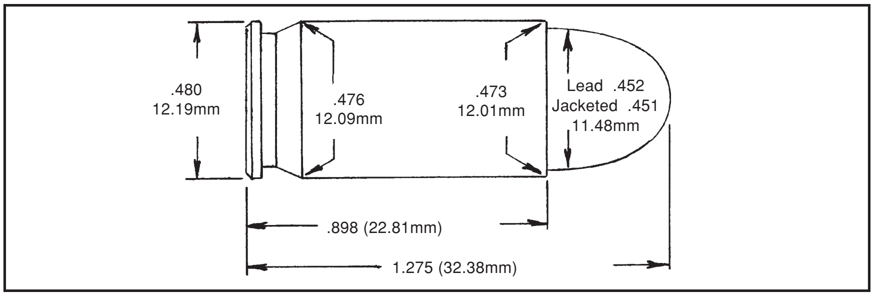
The SAAMI Maximum Average Pressure for the .444 Marlin is 44,000 C.U.P.

.444 MARLIN

Gun	DOUGLAS	Max Length	2.225″
Barrel Length	24″	Trim Length	2.205″
Primer	REM 9½	OAL Max	2.570″
Case	REM	OAL Min	2.500″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
200 (L) FNGC	**5744**	34.2	1958	**5744**	38.0	2225	41,000	2.560"	Penny's
240 (L) SWC	**5744**	32.4	1804	**5744**	36.0	2051	39,200	2.570"	Penny's
HDY 200 XTP	**5744**	36.0	2021	**5744**	40.0	2297	42,400	2.520″	
	1680	54.2	2566	**1680**	57.0	2730	41,300		Case Full
	2015	57.0	2409	**2015**	60.0	2563	42,700		Compressed
	2230	58.0	2326	**2230**	61.0	2474	42,700		Compressed
	2460	58.9	2338	**2460**	62.0	2487	42,800		Compressed
SRA 240 HP	**5744**	33.3	1820	**5744**	37.0	2069	41,900	2.520″	
	2015	52.3	2217	**2015**	55.0	2359	43,000		Compressed
	2230	54.2	2181	**2230**	57.0	2320	44,000		
	2460	54.2	2138	**2460**	57.0	2274	42,700		
HDY 265 SP	**5744**	31.5	1692	**5744**	35.0	1923	40,500	2.570″	
	2015	49.4	2088	**2015**	52.0	2221	41,500		
	2230	52.3	2074	**2230**	55.0	2206	44,000		
	2460	53.2	2084	**2460**	56.0	2217	43,700		Compressed
	2520	52.3	2036	**2520**	55.0	2166	39,300		Compressed

.45 ACP



The .45 ACP tends to evoke a "love/hate" reaction from its users. Since its fans far out-number its detractors, it continues to be produced in 1911A1 look-alikes as well as many other firearms. Auto-Ordinance has for many years produced a semi-automatic version of the M28A1 Thompson sub-machinegun.

In 1986 Marlin introduced their Model 45 carbine. This small handy carbine utilizes a 7-shot Model 1911A1 handgun magazine and is intended for informal plinking and possibly home defense.

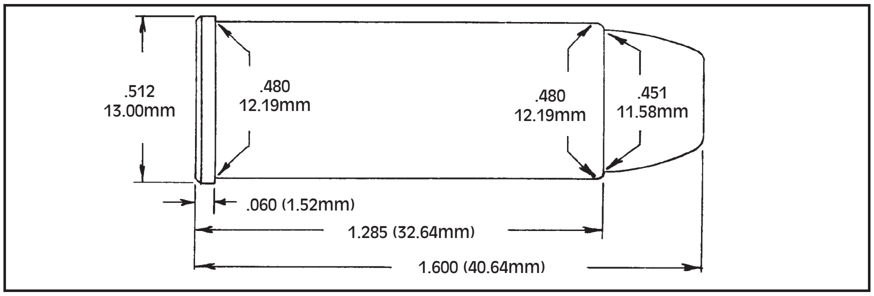
The SAAMI Maximum Average Pressure for the .45 ACP is 21,000 P.S.I.

.45 ACP

Gun	MARLIN	Max Length	0.898″
Barrel Length	16˚″	Trim Length	0.888″
Primer	REM 2˚	OAL Max	1.275″
Case	REM	OAL Min	1.190″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
HDY 185 XTP	**N100**	5.9	1025	**N100**	6.6	1165	19,800	1.210″	
	No.2	6.8	1096	**No.2**	7.5	1245	20,400		
	No.5	9.2	1125	**No.5**	10.2	1278	19,900		
	No.7	11.7	1134	**No.7**	13.0	1289	18,000		
HDY 200 XTP	**N100**	5.4	914	**N100**	6.0	1039	17,500	1.225″	
	No.2	5.9	943	**No.2**	6.5	1072	19,700		
	No.5	8.7	1052	**No.5**	9.7	1195	20,600		
	No.7	10.8	1043	**No.7**	12.0	1185	19,200		
SRA 230 FMJ	**N100**	5.0	822	**N100**	5.6	934	19,100	1.250″	
	No.2	5.5	821	**No.2**	6.1	933	19,200		
	No.5	7.8	920	**No.5**	8.7	1045	19,300		
	No.7	9.9	920	**No.7**	11.0	1045	17,800		

.45 COLT CARBINE



The .45 Colt carbines are another example of Americans' affinity for a handgun and carbine chambered for the same cartridge.

The data shown below are the same loads developed for use in the Ruger Revolver and T/C Contender single-shot handgun.

These loads were fired through a 16°″ barrel Winchester Model 94AE carbine.

Our data does not exceed the pressures of .45 ACP +P loads. These loads are intended only for use in modern carbines chambered for the .45 Colt cartridge.

.45 COLT CARBINE

Gun	WIN 94 AE	Max Length	1.285″
Barrel Length	16°″	Trim Length	1.265″
Primer	CCI 300	OAL Max	1.600″
Case	WW	OAL Min	1.550″

	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	C.U.P.	Length	Comment
215 (L) SWC/GC	**N100**	8.1	1125	**N100**	9.0	1278	20,700	1.550″	Penny's
	No.5	12.2	1189	**No.5**	13.6	1351	20,800		
	No.7	14.9	1181	**No.7**	16.6	1342	20,900		
225 (L) SWC	**N100**	7.9	1121	**N100**	8.8	1274	20,800	1.575″	Penny's
	No.5	12.2	1186	**No.5**	13.6	1348	21,400		
	No.7	14.8	1173	**No.7**	16.4	1333	21,000		
230 (L) RN	**N100**	7.7	1062	**N100**	8.6	1207	20,300	1.600″	CP
	No.5	12.2	1171	**No.5**	13.5	1331	20,900		
	No.7	14.6	1148	**No.7**	16.2	1304	20,600		
240 (L) SWC	**N100**	7.6	1084	**N100**	8.4	1232	20,300	1.570″	Clements
	No.5	11.1	1121	**No.5**	12.3	1274	20,000		
	No.7	14.1	1163	**No.7**	15.7	1322	20,600		
255 (L) SWC	**N100**	7.3	1035	**N100**	8.1	1176	20,200	1.600″	LY452424
	No.5	10.6	1037	**No.5**	11.8	1178	18,200		
	No.7	13.6	1093	**No.7**	15.1	1242	19,700		
	No.9	15.8	1101	**No.9**	17.6	1251	20,100		

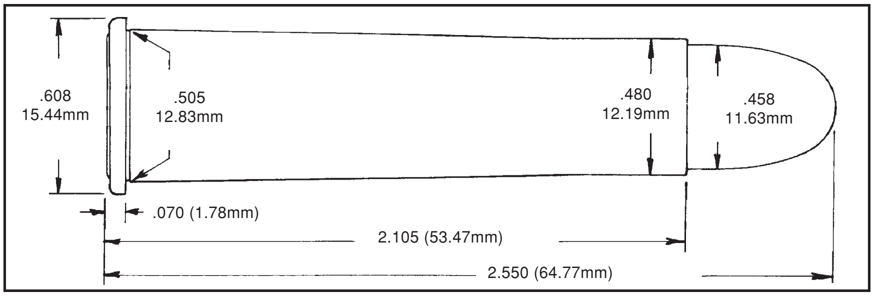
.45 COLT CARBINE (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
280 (L) TC	**N100**	6.9	951	**N100**	7.7	1081	19,100	1.650″	* LBT
	No.5	9.9	971	**No.5**	11.0	1103	18,300		
	No.7	12.6	1128	**No.7**	14.0	1282	19,000		
	No.9	15.8	1198	**No.9**	17.5	1361	19,300		
300 (L) FN	**N100**		N/R	**N100**		N/R		1.585″	D&J
	No.5		N/R	**No.5**		N/R			
	No.7	11.7	1005	**No.7**	13.0	1142	19,200		
	No.9	13.5	1001	**No.9**	15.0	1138	17,600		
SRA 200 FPJ	**N100**	8.3	1136	**N100**	9.2	1291	19,300	1.585″	
	No.5	13.1	1234	**No.5**	14.6	1402	20,000		
	No.7	14.8	1083	**No.7**	16.4	1231	15,300		
HDY 230 RN FMJ	**N100**	7.8	1067	**N100**	8.7	1213	19,600	1.600″	
	No.5	11.7	1117	**No.5**	13.0	1269	18,600		
	No.7	13.9	1076	**No.7**	15.4	1223	18,500		
SRA 240 JHC	**N100**	7.7	1030	**N100**	8.5	1170	20,100	1.590″	
	No.5	11.7	1067	**No.5**	13.0	1212	18,300		
	No.7	14.0	1081	**No.7**	15.5	1228	20,400		
NOS 250 JHP	**N100**	7.5	967	**N100**	8.3	1099	19,300	1.585″	
	No.5	10.9	983	**No.5**	12.1	1117	18,100		
	No.7	13.7	1058	**No.7**	15.2	1202	19,600		
SPR 260 JHP	**N100**	7.3	950	**N100**	8.1	1080	19,700	1.585″	
	No.5	10.7	1000	**No.5**	11.9	1136	19,300		
	No.7	13.5	1046	**No.7**	15.0	1189	19,400		
SPR 300 SP	**N100**		N/R	**N100**		N/R		1.585″	
	No.5		N/R	**No.5**		N/R			
	No.7	11.7	900	**No.7**	13.0	1023	20,300		
	No.9	13.5	906	**No.9**	15.0	1030	19,200		
HDY 300 XTP	**N100**		N/R	**N100**		N/R		1.580″	
	No.5		N/R	**No.5**		N/R			
	No.7	11.7	906	**No.7**	13.0	1030	20,200		
	No.9	13.5	956	**No.9**	15.0	1086	19,500		

* Over SAAMI Maximum OAL

.45-70 GOVERNMENT

Trapdoor Springfield & Ruger, Marlin, Sharps, Winchester



The result of a quite rigorous test program, the .45-70 Government cartridge was adopted by the U.S. Military in 1873 for use in the new single shot "trapdoor" Springfield rifle. It continued to be the official service cartridge for 19 years until it was replaced by the .30-40 Krag. It also became a popular cartridge for sporting use and many repeating and single-shot rifles were chambered for it.

Reportedly, some National Guard Units were armed with .45-70 caliber Springfields, as late as 1940. American firearms companies stopped chambering for the .45-70 in the mid 1930s. However, the .45-70 refused to die. It has, in fact, staged a comeback and is currently chambered in Marlin, Ruger, and Browning firearms.

As a short range cartridge, the .45-70 is suitable for all North American big game. Its greatest limitation is the significant amount of bullet drop beyond 150 yards, which makes sure hits very difficult.

There are a great number of firearms chambered for the .45-70, many of which vary tremendously in strength. The older firearms such as the 1873 "trapdoor" Springfield should not be loaded beyond 18,000 P.S.I. (see our data in the next section and also under "Obsolete Cartridges"). Other more modern firearms can be loaded to the SAAMI pressure limit of 28,000 P.S.I. (See section on Ruger, Marlin, Sharps, Winchester).

While there are many Accurate propellants suitable for loading to the SAAMI Maximum Average Pressure limit of 28,000 P.S.I., best results for the lower pressure loads and with cast bullets will probably be obtained with Accurate **5744**.

.45-70 GOVERNMENT (Trapdoor Springfield)

Gun	TEST BARREL	Max Length	2.105″
Barrel Length	24″	Trim Length	2.085″
Primer	CCI 200	OAL Max	2.550″
Case	REM Nickel	OAL Min	2.490″

CAUTION! This data is intended only for firearms safe for use with smokeless propellants. A firm crimp is required for all smokeless powder loads.

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
300 (L) PB	**5744**	27.9	1405	**5744**	31.0	1597	18,500	2.550"	Clements
340 (L) HP	**5744**	27.0	1314	**5744**	30.0	1494	14,600	2.520″	LY457122HP
	2495	51.3	1628	**2495**	57.0	1850	18,000		
	4350	53.1	1384	**4350**	59.0	1573	17,900		Compressed
	3100	54.0	1255	**3100**	60.0	1426	15,100		Compressed
	8700	54.0	1059	**8700**	60.0	1203	10,400		Compressed
378 (L) RNGC	**5744**	25.6	1247	**5744**	28.5	1418	15,100	2.565″ *	LY457483
	2495	45.0	1479	**2495**	50.0	1681	14,500		
	4350	48.6	1259	**4350**	54.0	1431	15,400		
	3100	50.4	1159	**3100**	56.0	1317	13,900		
	8700	54.0	1015	**8700**	60.0	1153	8,300		
405 (L) FN	**5744**	24.3	1226	**5744**	27.0	1394	16,100	2.550"	Penny's
405 (L) PB	**5744**	24.7	1192	**5744**	27.5	1355	18,800	2.560"	Clements
420 (L) FN	**5744**	25.6	1210	**5744**	28.5	1375	16,100	2.600″ *	LY457193
	2495	45.0	1457	**2495**	50.0	1656	17,700		
	4350	50.4	1297	**4350**	56.0	1474	16,200		Compressed
	3100	54.0	1251	**3100**	60.0	1422	18,200		Compressed
	8700	54.0	1025	**8700**	60.0	1165	11,700		Compressed
475 (L) RNGC	**5744**	24.3	1102	**5744**	27.0	1253	18,800	2.680″ *	LY457406
	2495	40.5	1377	**2495**	45.0	1565	16,000		
	4350	40.5	1107	**4350**	45.0	1258	16,100		
	3100	44.1	1074	**3100**	49.0	1221	16,300		
	8700	54.0	915	**8700**	60.0	1040	15,900		
500 (L) FN	**5744**	23.4	1070	**5744**	26.0	1217	16,100	2.635″ *	SAECO #22
	2495	39.6	1348	**2495**	44.0	1532	18,400		
	4350	37.8	1034	**4350**	42.0	1175	16,300		Compressed
	3100	40.5	1001	**3100**	45.0	1138	16,500		Compressed
	8700	49.5	842	**8700**	55.0	957	9,800		Compressed
500 (L) PBRN	**5744**	22.5	1063	**5744**	25.0	1209	18,700	2.850"	Lyman
500 (L) SCHMITZER	**5744**	22.7	1072	**5744**	25.3	1219	17,500	3.010"	Lyman
520 (L) FN	**5744**	21.6	1060	**5744**	24.0	1205	16,300	2.655"	Penny's
530 (L) POSTELL	**5744**	20.1	1036	**5744**	22.4	1178	18,600	2.950"	Lyman

Bullet	START LOADS Powder	Grains	Vel.	SMAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
530 (L) RN	**5744**	25.6	1024	**5744**	28.5	1280	18,400	2.830″ *	LY457124
	2495	41.4	1237	**2495**	46.0	1406	11,600		
	4350	43.2	1167	**4350**	48.0	1326	16,600		
	3100	49.5	1196	**3100**	55.0	1359	16,900		
	8700	58.5	932	**8700**	65.0	1059	15,800		
570 (L) JONES	**5744**	19.8	949	**5744**	22.0	1079	18,500	2.870"	American
SPR 400 JSP	**5744**	23.4	1031	**5744**	26.0	1172	17,200	2.560"	

* Over SAAMI Maximum OAL

.45-70 GOVERNMENT (Ruger, Marlin, Sharps, Winchester)

Gun	DOUGLAS	Max Length	2.105″
Barrel Length	24″	Trim Length	2.085″
Primer	WLR	OAL Max	2.550″
Case	WW	OAL Min	2.530″

A firm crimp is required for all smokeless powder loads.

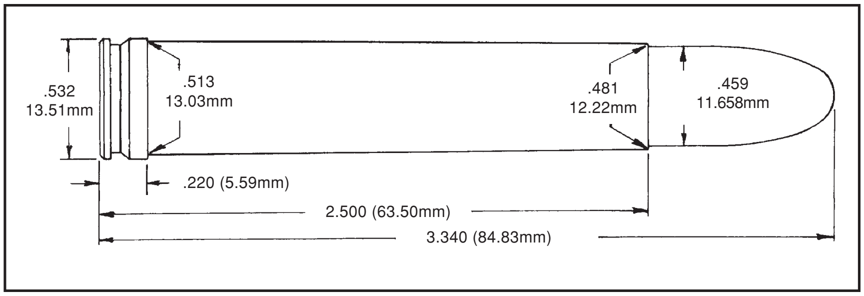
Bullet	START LOADS Powder	Grains	Vel.	Powder	MAXIMUM LOADS Grains	Vel.	P.S.I.	Length	Cartridge Comment
300 (L) PB	**5744**	34.2	1651	**5744**	38.0	1877	28,000	2.550"	Clements
330 (L) HP	**2015**	45.0	1697	**2015**	50.0	1928	23,200	2.520″	
	2495	53.1	1738	**2495**	59.0	1975	19,200		Compressed
	2700	52.2	1627	**2700**	58.0	1849	26,100		
378 (L) RNGC	**5744**	27.4	1337	**5744**	30.5	1520	28,000	2.565″	*
	2015	44.1	1602	**2015**	49.0	1821	23,400		
	2495	49.5	1703	**2495**	55.0	1935	23,800		
	2700	51.3	1525	**2700**	57.0	1733	25,600		
	4350	54.0	1427	**4350**	60.0	1622	21,500		Compressed
	3100	54.0	1307	**3100**	60.0	1485	19,800		Compressed
405 (L) FN	**5744**	27.0	1327	**5744**	30.0	1508	28,000	2.550″	
	2015	48.6	1465	**2015**	54.0	1665	26,800		
	2495	48.6	1585	**2495**	54.0	1801	22,200		Compressed
	2700	48.6	1465	**2700**	54.0	1665	26,800		
	4350	50.4	1297	**4350**	56.0	1474	16,200		Compressed
	3100	54.0	1251	**3100**	60.0	1422	18,200		Compressed
405 (L) PB	**5744**	29.7	1398	**5744**	33.0	1589	28,000	2.560"	Clements
475 (L) RNGC	**2015**	39.6	1461	**2015**	44.0	1660	26,300	2.725″	*
	2495	45.0	1538	**2495**	50.0	1748	24,300		Compressed
	2700	44.1	1309	**2700**	49.0	1488	26,900		
	4350	52.2	1425	**4350**	58.0	1619	26,300		Compressed
	3100	54.0	1331	**3100**	60.0	1513	25,700		Compressed
500 (L) FN	**2015**	37.8	1379	**2015**	42.0	1567	25,900	2.550″	
	2495	44.1	1470	**2495**	49.0	1670	24,400		Compressed
	2700	42.3	1244	**2700**	47.0	1414	25,900		
	4350	52.2	1392	**4350**	58.0	1582	24,200	2.795″	Compressed
	3100	54.0	1314	**3100**	60.0	1493	25,000	2.795″	Compressed

.45-70 GOVERNMENT–Ruger, Marlin, Sharps, Winchester (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
500 (L) PBRN	**5744**	27.9	1287	**5744**	31.0	1463	28,000	2.850"	Lyman
500 (L) SCHMITZER	**5744**	28.3	1281	**5744**	31.5	1456	27,500	3.010"	Lyman
530 (L) POSTELL	**5744**	26.5	1196	**5744**	29.5	1360	27,500	2.950"	Lyman
570 (L) JONES	**5744**	23.8	1098	**5744**	26.5	1248	26,400	2.870"	American
SRA 300 HP	**5744**	31.5	1500	**5744**	35.0	1704	27,900	2.550″	
	2015	53.1	1904	**2015**	59.0	2164	25,100		
	2495	59.4	1914	**2495**	66.0	2175	22,100		Compressed
	2700	58.5	1706	**2700**	65.0	1939	25,200		Compressed
	4350	63.0	1597	**4350**	70.0	1815	20,100		Compressed
	3100	63.0	1500	**3100**	70.0	1705	18,300		Compressed
HDY 350 RN	**5744**	28.8	1327	**5744**	32.0	1508	27,100	2.550″	
	2015	47.7	1700	**2015**	53.0	1932	25,400		
	2230	48.6	1648	**2230**	54.0	1873	26,200		
	2460	53.1	1748	**2460**	59.0	1986	26,200		
	2495	54.9	1810	**2495**	61.0	2057	27,100		Compressed
	2520	54.0	1836	**2520**	60.0	2086	28,000		
	2700	54.9	1579	**2700**	61.0	1794	26,900		
	4350	58.5	1527	**4350**	65.0	1735	22,700		Compressed
	3100	58.5	1399	**3100**	65.0	1590	21,600		Compressed
SPR 400 FN	**5744**	27.9	1261	**5744**	31.0	1434	27,500	2.560″	*
	2015	44.1	1550	**2015**	49.0	1761	24,000		
	2230	44.1	1532	**2230**	49.0	1741	23,100		
	2460	51.3	1695	**2460**	57.0	1926	28,000		
	2495	49.5	1616	**2495**	55.0	1836	23,800		Lt. Compressed
	2520	48.6	1626	**2520**	54.0	1848	23,800		
	2700	49.5	1415	**2700**	55.0	1608	25,900		
	4350	54.0	1382	**4350**	60.0	1570	21,300		Compressed
	3100	54.0	1278	**3100**	60.0	1452	20,100		Compressed
	8700	54.0	873	**8700**	60.0	992	14,300		Compressed
HDY 500 RNSP	**5744**	27.9	1309	**5744**	31.0	1488	28,000	2.580″	
	2015	36.0	1251	**2015**	40.0	1422	23,800		
	2230	37.8	1287	**2230**	42.0	1462	26,000		
	2460	39.6	1328	**2460**	44.0	1509	25,400		
	2495	41.4	1353	**2495**	46.0	1538	26,400		
	2520	39.6	1262	**2520**	44.0	1434	28,000		
	2700	41.4	1168	**2700**	46.0	1327	23,600		
	4350	52.2	1410	**4350**	58.0	1602	25,300	2.825″	Compressed
	3100	54.0	1268	**3100**	60.0	1441	26,400	2.825″	Compressed
	8700	54.0	909	**8700**	60.0	1033	10,000	2.825″	Compressed

* Over SAAMI Maximum OAL

.458 WINCHESTER MAGNUM



The .458 Winchester Magnum was introduced in 1956 in a variation of the Model 70 rifle called the "African." The .458 Winchester Magnum achieved rapid acceptance in the African game fields and is today considered the standard against which other large bore cartridges for dangerous game are measured.

The .458 Winchester is significantly overpowered for North American big game. It can, however, be loaded down to .45-70 performance levels using the various bullets available to handloaders for practice or a specific game application.

The .458 Winchester Magnum is also a very capable cast bullet cartridge.

The SAAMI Maximum Average Pressure for the .458 Winchester Magnum is 53,000 C.U.P.

.458 WINCHESTER MAGNUM

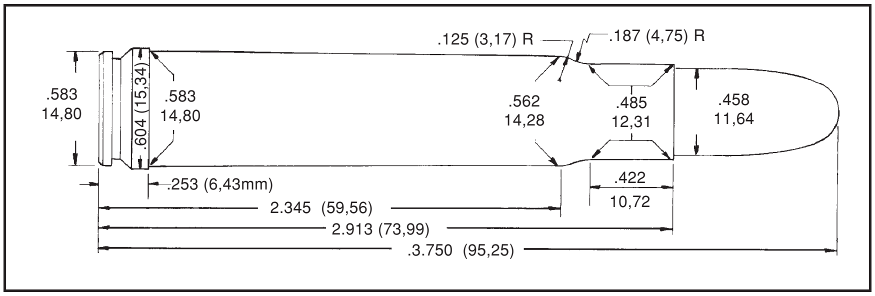
Gun	DOUGLAS	Max Length	2.500″
Barrel Length	26″	Trim Length	2.480″
Primer	REM 9 1/2 M	OAL Max	3.340″
Case	WW	OAL Min	3.300″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
375 (L) RNGC	**5744**	46.8	1971	**5744**	52.0	2240	51,500	3.000"	Penny's
400 (L) FN	**5744**	45.9	1909	**5744**	51.0	2170	50,600	3.000"	Penny's
455 (L) RNGC	**5744**	44.1	1779	**5744**	49.0	2022	52,000	3.110"	Penny's
475 (L) RN	**2015**	49.5	1660	**2015**	55.0	1886	28,200	3.085″	LY457406
	2230	54.0	1763	**2230**	60.0	2003	32,700		
	2460	54.9	1753	**2460**	61.0	1992	30,800		
500 (L) RN	**5744**	42.3	1672	**5744**	47.0	1901	49,900	3.170"	Lyman
HDY 300 HP	**2015**	68.4	2293	**2015**	76.0	2606	35,500	2.940″	Compressed
	2230	70.2	2248	**2230**	78.0	2554	33,500		Compressed
	2460	70.2	2205	**2460**	78.0	2506	30,800		Compressed

.458 WINCHESTER MAGNUM (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
HDY 350 RN	**2015**	67.5	2250	**2015**	75.0	2557	44,600	2.965″	Compressed
	2230	70.2	2211	**2230**	78.0	2512	45,100		Compressed
	2460	70.2	2189	**2460**	78.0	2487	42,300		Compressed
SPR 400 FN	**2015**	68.4	2172	**2015**	76.0	2468	48,800	3.140″	Compressed
	2230	72.0	2162	**2230**	80.0	2457	45,500		Compressed
	2460	72.0	2158	**2460**	80.0	2452	44,700		Compressed
HDY 500 RN	**2015**	61.2	1891	**2015**	68.0	2149	49,200	3.305″	
	2230	64.8	1900	**2230**	72.0	2159	45,600		
	2460	66.6	1929	**2460**	74.0	2192	44,800		Compressed

.460 WEATHERBY MAGNUM



In 1958 Roy Weatherby introduced the .460 Weatherby Magnum and advertised it as the world's most powerful rifle cartridge. The .460 Weatherby Magnum is actually .458 caliber based on the .378 Weatherby case necked up.

Other than having an overwhelming urge to have the biggest and most powerful rifle cartridge possible, there is no need for the .460 Weatherby Magnum in North America.

The .460 Weatherby appears to be a well balanced cartridge ballistically. The loads developed in our test barrel were all extremely uniform. They were, in fact, the most consistent of any .458 caliber loads developed.

There is no SAAMI pressure limit for the .460 Weatherby Magnum. Weatherby factory ammunition produced 65,000 P.S.I. in our test barrel. These loads do not exceed that pressure.

For owners of a .460 Weatherby Magnum who wish a less potent practice load, I suggest using the data developed with **Accurate 5744 or 8700**. This will permit varying the velocities between that of a .45-70 and a .458 Winchester Magnum.

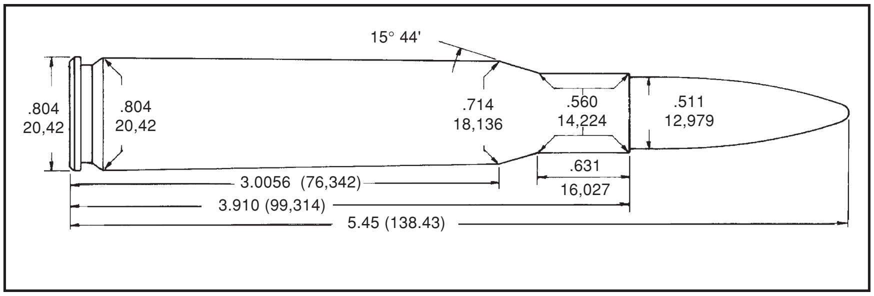
.460 WEATHERBY MAGNUM

Gun	DOUGLAS	Max Length	2.913″
Barrel Length	26″	Trim Length	2.898″
Primer	FC 215	OAL Max	3.750″
Case	WBY	OAL Min	3.335″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
455 (L) RNGC	**5744**	40.0	1520	**5744**	65.0	2192	48,800	3.605"	Penny's
HDY 350 RN	**5744**	61.2	2113	**5744**	68.0	2402	48,200	3.345″	
	2520	106.4	2779	**2520**	112.0	2956	62,300		Case Full
	2700	115.9	2673	**2700**	122.0	2844	53,000		Compressed
	4350	118.8	2657	**4350**	125.0	2827	49,100		Compressed
HDY 500 RN	**2700**	108.3	2383	**2700**	114.0	2535	64,700	3.710″	Case Full
	4350	114.0	2454	**4350**	120.0	2611	62,400		Compressed
	3100	120.7	2355	**3100**	127.0	2505	56,700		Compressed
HDY 500 RN	**8700**	128.3	1894	**8700**	135.0	2015	34,600	3.710″	*Compressed

* Reduced Velocity Load

.50 BROWNING



The .50 Browning began life in 1921 as a military cartridge for a heavy machine gun for support of ground assault. By the end of World War II, it was also a standard cartridge for aircraft for air-to-air combat. Experiments in non-standard military channels resulted in its use for long range sniping, notably by Bill Brophy during the Korean conflict.

Through the years shooters across the country built rifles for the cartridge. Gunsmiths rebarreled Boyes anti-tank rifles with surplus military barrels. Other routes were taken, such as Fred Wells' scaling up of a Mauser action to proper dimensions for the .50 Browning.

Interest in the cartridge for long range shooting grew dramatically in the 1970s and 1980s but really took off with the appearance, and subsequent growth, of the Fifty Caliber Shooters' Association. The Association established competition to further advancement of the cartridge. Several manufacturers started producing guns. Companies such as Accurate, Speer, and Hornady committed themselves to providing reloading components and equipment.

FCSA competition is based on five shot groups at 1,000 yards. The current small group is just over 4.0 inches. Depending on the load, the muzzle energy could be well over 12,000 foot-pounds. Recoil in most rifles could be considered impressive. **Accurate 8700** has been a consistent performer for match loads, and has been used to win trophies in FCSA competition.

.50 BROWNING

Gun	FRESHOUR	Max Length	3.910″
Barrel Length	44″	Trim Length	3.890″
Primer	CCI 35	OAL Max	5.545″
Case	IMI	OAL Min	5.400″

Bullet	START LOADS Powder	Grains	Vel.	Powder	MAXIMUM LOADS Grains	Vel.	P.S.I.	Length	Cartridge Comment
642	**8700**	205.0	2610	**8700**	228.0	2930			
750	**8700**	195.0	2322	**8700**	218.0	2700			

SCHUETZEN

SCHUETZEN RIFLE CARTRIDGES

The word "Schuetzen" is German and in this application refers to a breech-loading, single-shot rifle using a cartridge case to contain the primer and powder charge with cast or swaged lead bullets. The bullets are usually seated with the base of the bullet at the case mouth as this method gives superior accuracy.

The first "Schuetzen" rifles were caplock muzzle loaders that were the direct descendants of the German "Jeager" rifles so popular with the immigrants from that country.

Shooting as a sport was so popular in Germany that practically every village of any size had a shooting club or "Schuetzen Verbande." This tradition continues today although the muzzle loaders and black powder have given sway to the "Luftgewehre and Luftpistolen."

As gun-making technology in America progressed, a gunmaker named George Schalk made a muzzle-loading target rifle in 1885 that was as accurate as it was revolutionary. It was a Ballard breech-loading rifle that chambered a cartridge. Because of its superior accuracy, this type of rifle quickly became the dominant force in the "Schuetzen" competitions that had been transplanted to America along with the German people.

Bear in mind that this was the heyday of rifle competition and the shooters of the day were as well known as any modern athlete.

"Schuetzen" was to the firearms of that era what benchrest is to ours. The goals were the same: The finest accuracy attainable. Harry M. Pope of New Jersey and George Schoyen of Denver, Colorado were considered the finest riflesmiths of the "Schuetzen" era. Both built breech-loading rifles that were loaded with a "false muzzle" to guide the soft lead bullet as straight as possible into the bore.

"Schuetzen" competition was usually fired at 200 or 220 yards offhand. The accuracy of these rifles and the shooting done with them was truly remarkable. Some of the records set with them were unbeaten for nearly a century.

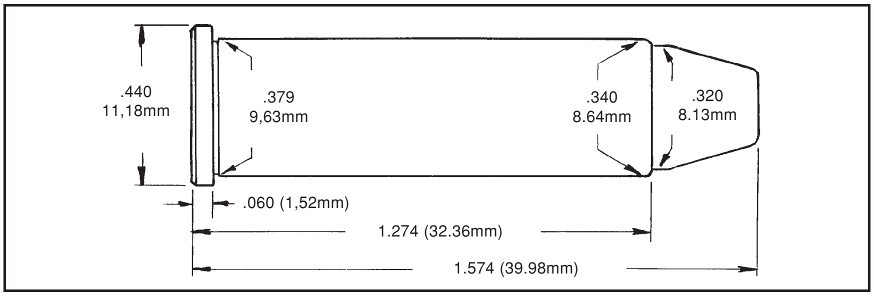
As part of the rush to dive headfirst into the First World War, the government used a "media blitz" (sound familiar?) to generate a significant anti-German sentiment. Hating "the Hun" and all things German was our patriotic duty (politically correct). One of the victims of this hate was the sport of "Schuetzen." The clubs quietly stacked arms and disbanded.

Today, thanks to the efforts of Coors, the sport of "Schuetzen" has re-emerged as a popular form of rifle competition.

The data presented in this section was developed in pressure barrels in our ballistic lab. The pressures were measured using a drilled case. This was necessary due to the very low pressures generated by most of these loads. A most pleasant discovery was how consistent these load combinations are. If these charge weights had been used with fixed ammunition, the results probably would have been awful. Breech seating the bullet served to dramatically improve the ignition characteristics of the propellants used. It is our hope that this data will be useful to the modern "Schuetzen" competitor.

— William T. Falin, Jr.

.32 MILLER SHORT



"The .32 Miller Short resulted from many years of working with the longer cases — .32/40 and 8.15x46R.

"The first problem is keeping the powder in the cases. A high side-walled action, such as the DeHaas Miller action, though stronger and safer than the other type actions, is harder to load. Some shooters pick up the rifle from the rest as each round is loaded. This allows cases with open mouths to be loaded and does locate the powder; however, moving the rifle for each shot is not the best way to shoot good scores. The short case permits the use of a disk of brittle wad material that allows for normal loading and at the same time locates the powder. We find that the mean deviation from round to round with **Accurate No. 9** and CCI primers, with the wad, will be down in the 2 to 5 FPS area. The case has the proper capacity for the bullet speed that we use in the Schuetzen game. Also, the long case tends to leak badly unless some provision is made to expand the necks for each shot. The .32 Miller Short is sized to fit and needs no further attention to seal. The .32 Miller was designed to use the 5.6x50R Mag case but also may be made from .357 Maximum case.

"The cases are selected from large lots and matched for weight before starting. The cases are placed upright in a flat-bottomed pan with water up to within 1/2" of mouth. With a torch heat each case until the mouth is red to the water and then tip it over to quench. Care must be taken to prevent melting the top edge of the mouth of the case. This is a very important step as the case will fold in the die and will not seal well in the chamber. The cases are formed in hardened press dies, using an arbor press, the excess length sawed off and filed flush. The base is filed flush and true, chamfered and pressed out. Primer pocket reaming and flash hole chamfering inside is done. This system results in Bench Rest quality ammunition. The accuracy of this system is well documented and is replacing the older cases that are hard to find and expensive."

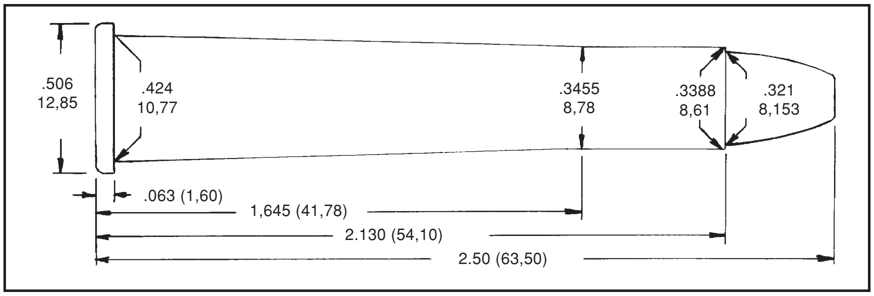
— Dean E. Miller

.32 MILLER SHORT

Gun	DOUGLAS	Case Length	1.274″
Barrel Length	24″		
Primer	FC 205M		
Case	REM (.357 Max)		

Bullet	LOADING DATA Powder	Grains	Vel.	P.S.I.	Length	Comment
200 (L) FN	**No.9**	9.0	1234	25,000		Breech Seated Only
	No.9	10.0	1317	29,000		SACO #533 Tapered
	No.9	11.0	1411	35,900		Wad used
	1680	10.5	1172	13,800		@ Case Mouth
	1680	14.0	1384	16,700		
	1680	16.5	1594	26,400		
	2015	14.0	1135	11,700		
	2015	15.5	1255	14,800		
	2015	17.5	1430	19,800		
Miller 210 (L) SP	**No.9**	9.0	1210	20,100		Breech Seated Only
	No.9	10.0	1302	28,700		Poly Wad used
	No.9	11.0	1401	34,500		@ Case Mouth
	No.9	12.0	1483	41,600		
	No.9	13.0	1539	43,400		
	1680	10.5	1185	13,500		Consistent
	1680	14.0	1388	16,400		
	1680	16.5	1604	29,100		Case Full
	2015	14.0	1220	15,600		
	2015	18.0	1535	25,700		Case Full
Miller 240 (L) SP	**No.9**	9.0	1170	21,100		Breech Seated Only
	No.9	10.0	1267	27,800		Poly Wad used
	No.9	11.0	1339	34,600		@ Case Mouth
	1680	10.5	1139	11,600		
	1680	16.0	1495	23,100		
	2015	15.0	1280	16,000		
	2015	18.0	1542	28,900		

.32-40 WINCHESTER SCHUETZEN



The .32-40 was a long time favorite of such notable riflemen such as Harry M. Pope. Its reputation for fine accuracy is well documented. It survived the transition from black powder to the early "bulk" smokeless propellants. It is equally at home with today's **Accurate** offerings, both single and double based. This data was developed using breech seated bullets.

This data should also be applicable for use in rifles chambered for the 8.15x46R.

The loads with 2015BR are especially well suited for offhand shooting as the low pressure produces a softer recoil, which is less fatiguing during long strings.

.32-40 WINCHESTER "SCHEUTZEN"

Gun	DOUGLAS	Max Length	2.130″
Barrel Length	24″	Trim Length	--
Primer	REM 2°	OAL Max	--
Case	REM	OAL Min	--

Bullet	LOADING DATA Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
200 (L) FN	**No.9**	10.6	1191	14,500	N/A	Breech Seated Data
	No.9	12.0	1290	16,100		"Scheutzen"
	No.9	12.6	1332	19,800		1/16″ Wax Wad
	5744	11.0	1043	5,300		
	5744	12.5	1138	7,400		
	5744	14.0	1243	9,700		
	5744	15.5	1345	12,100		
	1680	13.5	1249	12,200		
	1680	16.0	1395	11,300		
	2015	16.0	1151	5,000		Very consistent P&V
	2015	19.0	1348	9,500		Very consistent P&V

OBSOLETE CARTRIDGES

OBSOLETE BLACK POWDER CARTRIDGES

The following section on old cartridges is the result of requests for data from you, the Accurate reloader. If we receive additional requests from you, then future editions of the *Accurate Arms Loading Guide* will have an expanded section for these cartridges.

Shooting the old cartridges is both challenging and satisfying. I suppose, that to a large extent, many of us have become somewhat jaded by the almost bewildering array of components available today. The combinations of these components that can be assembled into an accurate, effective load are almost infinite. It is almost too easy in some respects. The desire to take on a more difficult project is the motivation for some. Others simply want to enjoy the feeling of kinship with the shooters of a century ago by shooting a “obsolete” rifle and cartridge combination. I find it gratifying that we shooters are not casting aside part of our heritage.

Most of us satisfy this urge with a newly manufactured replica and this is as it should be. I feel that firearms were made to be shot and their numbers are a direct reflection of the law of supply and demand. There aren’t enough shootable ‘oldies’ left, hence the market for high quality reproductions.

I want to briefly touch on some items of interest to shooters of these cartridges that we uncovered in developing this data.

The first is that there are only 6 cartridges that have current SAAMI reference ammo available to help set the pressure limits. In those cartridges for which we had no reference ammo we used the appropriate charge of “FF” black powder. The pressure generated by the black powder load became the pressure limit.

Next is the selection of propellants. As mentioned in other sections of this loading guide, most of these cartridges were designed for black powder. This means that we have a thin walled cartridge case that is not suitable for high pressures. Also, the rifles themselves may not be suitable for pressures greater than that generated by black powder. When using smokeless propellant in these cartridges we must try to achieve a loading density that will give consistent ballistics and not produce too much pressure. This sometimes places us in the position of choosing between a case full of slow rifle propellant or a small amount of high energy handgun propellant. Because of the danger of double charging inherent to small charge weights in large cases, the Accurate technical staff has elected to go with the slower propellants whenever possible.

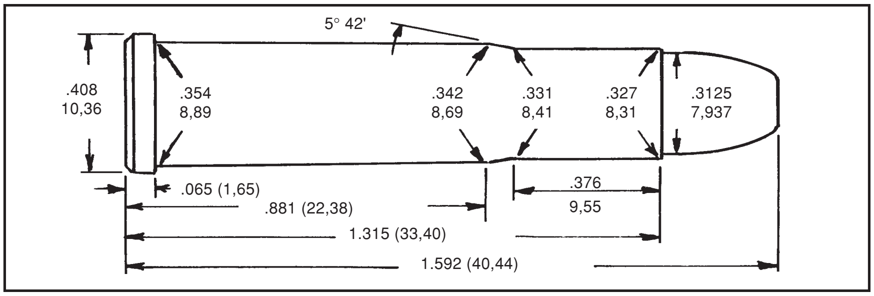
A notable exception is the data for the .44-40 Winchester. In this cartridge we finally settled on the loads shown using handgun propellants. The low SAAMI pressure limit has placed us in the position where we have loads shown as **“USE AS IS, DO NOT REDUCE.”** The SAAMI limit precludes going any higher in charge weight and the low load density (and velocity) make it pointless to go any lower. We do feel that these loads will give satisfactory performance just as they are. While I am aware that there was at one time a high pressure .44-40 Winchester loading for some rifles, no ammo was available to use for a reference point.

A pleasant discovery was the fact that our 2495BR propellant gives outstanding results in several of these cartridges. It's ratio of velocity to pressure with cast bullets is just what the doctor ordered.

We feel that we have assembled consistent, safe loads that will allow shooters to put many old guns back in service again. **As always, have your firearm checked by a gunsmith and given a clean bill of health and BE SURE it is suitable for smokeless propellant before shooting these loads.**

— William T. Falin Jr.

.32-20 WINCHESTER (HV-92)



The .32-20 Rifle was introduced by Winchester in 1882 for the Model 73 lever action rifle. It was originally a blackpowder cartridge which gained considerable popularity.

Practically every American lever rifle manufacturer has chambered for it at some time.

Although for many years popular with farmers, ranchers, and trappers, it cannot really be considered as an adequate cartridge for deer. It is, however, a very useful small game and varmint cartridge at moderate ranges and can be quite accurate when chambered in a good rifle. The .32-20 Winchester is both easy to reload and economical.

These loads were developed in a pressure barrel and then fired through a Marlin 1894 rifle with a 22″ barrel for velocity. The maximum loads listed below do not exceed the pressures produced in our test barrel by Winchester factory ammunition headstamped for use in the Model 92 lever action. If your firearm is not safe for use with these “HV-92” loads, use the data for .32-20 handgun (not the Ruger / T/C data).

This data is intended only for firearms safe for use with smokeless propellants.

.32-20 WINCHESTER

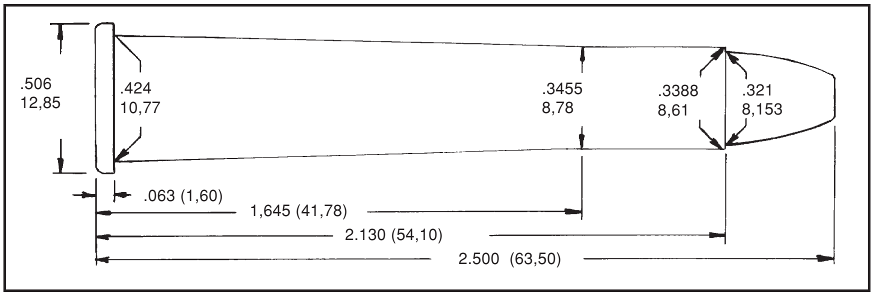
Gun	MARLIN 1894	Max Length	1.315″
Barrel Length	22″	Trim Length	1.275″
Primer	CCI 400	OAL Max	1.592″
Case	REM	OAL Min	1.540″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
100 (L) SWC/GC	**No.5**	5.7	1350	**No.5**	6.0	1436	23,300	1.585″	LY313631
	No.7	6.7	1357	**No.7**	7.0	1444	21,600		
	No.9	8.1	1454	**No.9**	8.5	1547	21,700		
	5744	8.8	1130	**5744**	9.3	1203	16,000		
	1680	13.3	1545	**1680**	14.0	1644	21,400		
	2015	16.2	1575	**2015**	17.0	1676	22,200		Compressed
SRA 90 JHC	**No.5**	5.9	1383	**No.5**	6.2	1471	21,100	1.565″	
	No.7	7.4	1497	**No.7**	7.8	1593	22,000		
	No.9	8.7	1568	**No.9**	9.2	1668	22,000		
	5744	9.2	1147	**5744**	9.7	1221	15,000		
	1680	15.7	1794	**1680**	16.5	1909	21,700		
	2015	17.1	1645	**2015**	18.0	1750	20,000		Compressed

.30-30 WINCHESTER (HV 92) (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
HDY 100 XTP	**No.5**	5.7	1332	**No.5**	6.0	1417	23,800	1.565″	
	No.7	7.0	1400	**No.7**	7.4	1489	22,700		
	No.9	8.4	1485	**No.9**	8.8	1580	22,800		
	5744	9.0	1159	**5744**	9.5	1233	15,500		
	1680	14.7	1738	**1680**	15.5	1849	23,600		
	2015	16.6	1653	**2015**	17.5	1758	22,000		Compressed

.32-40 WINCHESTER



Originally developed as a black powder cartridge for competition in single-shot rifles, the .32-40 was introduced in 1884. At that time factory ammunition was loaded with a 165-grain lead bullet and 40 grains of Fg black powder. It quickly established a reputation for fine accuracy prompting Winchester and Marlin to add it to their lines of lever action repeating rifles.

American manufacturers stopped chambering rifles for the .32-40 Winchester about 1940. The .32-40 was the late Harry Pope's favorite cartridge.

When loaded to its SAAMI pressure limit of 30,000 C.U.P, the .32-40 is the equal of the .30-30 for hunting small game and deer.

This data is intended only for firearms safe for use with smokeless propellants.

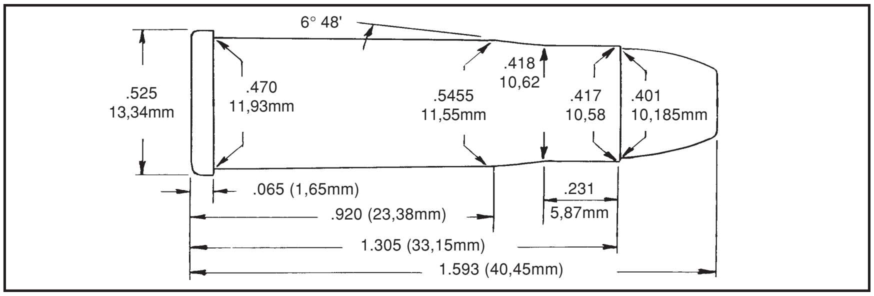
.32-40 WINCHESTER

Gun	DOUGLAS	Max Length	2.130″
Barrel Length	24″	Trim Length	2.110″
Primer	REM 9°	OAL Max	2.500″
Case	REM	OAL Min	2.460″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
170 (L) FNGC	**5744**	18.0	1585	**5744**	20.0	1802	28,800	2.410″	Penny's
	2015	23.4	1787	**2015**	26.0	2031	28,600		
	2230	24.3	1712	**2230**	27.0	1946	27,300		
	2460	24.8	1738	**2460**	27.5	1975	28,800		
	2495	27.5	1810	**2495**	30.5	2057	26,200		Compressed
	2520	26.1	1774	**2520**	29.0	2016	29,300		
HDY 170 FP	**5744**	18.0	1563	**5744**	20.0	1777	29,400	2.575″	*
	2015	24.3	1810	**2015**	27.0	2057	29,300		
	2230	24.8	1716	**2230**	27.5	1950	29,400		
	2460	25.7	1734	**2460**	28.5	1971	28,300		
	2495	28.4	1825	**2495**	31.5	2074	27,100		Compressed
	2520	27.0	1783	**2520**	30.0	2026	27,800		

* Over SAAMI Maximum OAL

.38-40 WINCHESTER



Just as the .44-40 is not truly a .44 caliber, the .38-40 is not a .38-caliber cartridge. Originally introduced by Winchester in 1874 it is based on the .44-40 case necked down to handle a .401″ diameter bullet.

It was chambered in Winchester's Model 73 lever action rifle. Shortly thereafter Colt began chambering revolvers for it. Its popularity prompted other manufacturers to chamber rifles for it as well. At one time Winchester produced a high pressure, high velocity loading for use in rifles only. This high pressure ammunition was not intended for use in revolvers. As currently loaded by Winchester, the pressure and performance is quite moderate in deference to the older guns chambered for it.

This data was developed in a pressure barrel and then fired for velocity through a 24″ barrel Winchester Model 1873 Rifle.

The SAAMI Maximum Average Pressure for the .38-40 is 14,000 C.U.P.

This data is intended only for firearms safe for use with smokeless propellants.

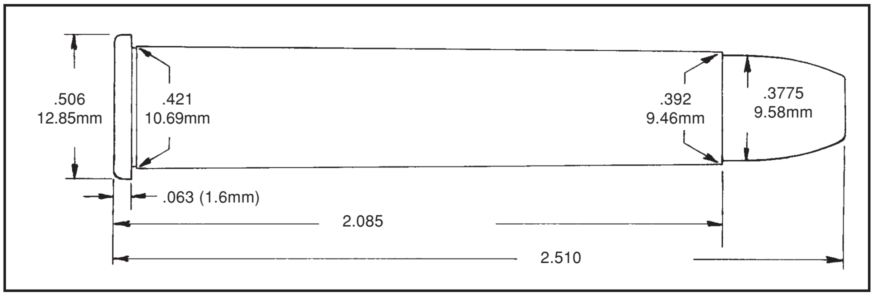
.38-40 WINCHESTER

Gun	1873 WIN	Max Length	1.305″
Barrel Length	24″	Trim Length	1.285″
Primer	WLP	OAL Max	1.593″
Case	WW	OAL Min	1.560″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
185 (L) FP-BB	**1680**	21.2	1337	**1680**	23.5	1519	14,000	1.580″	*
	2015	22.5	1133	**2015**	25.0	1287	13,800		Compressed
SRA 150 HP	**1680**	24.8	1481	**1680**	27.5	1683	13,200	1.575″	
	2015	27.0	1269	**2015**	30.0	1442	13,900		
SPR 180 HP	**1680**	23.0	1268	**1680**	25.5	1441	14,000	1.585″	
	2015	24.3	1175	**2015**	27.0	1335	14,000		

* Colorado Cast Bullet

.38-55 WINCHESTER



The .38-55 was originally a Ballard development introduced in 1884 as a target cartridge.

The .38-55 was available in a variety of rifles down through the years. Winchester dropped the chambering about 1940 although limited production by various manufacturers has occurred since.

The .38-55 has a reputation for excellent accuracy at ranges up to 300 yards and is considered more than adequate for deer and black bear hunting at moderate ranges.

The .38-55 is an excellent cartridge for cast bullet shooting.

The SAAMI pressure limit for the .38-55 is 30,000 C.U.P.

This data is intended only for firearms safe for use with smokeless propellants.

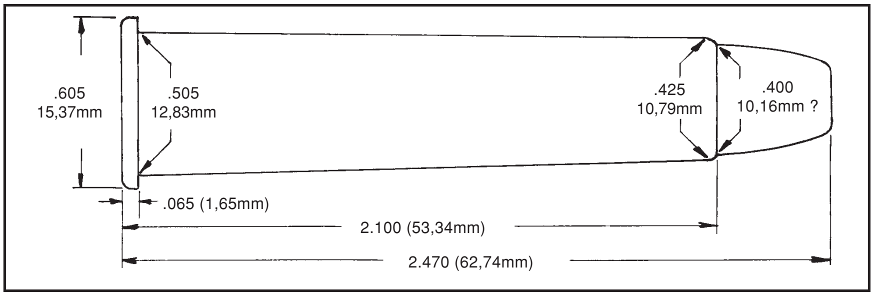
.38-55 WINCHESTER

Gun	DOUGLAS	Max Length	2.085″
Barrel Length	24″	Trim Length	2.065″
Primer	CCI 200	OAL Max	2.510″
Case	WW	OAL Min	2.470″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
240 (L) FNGC	**5744**	16.0	1231	**5744**	22.0	1601	28,200	2.510″	Penny’s
	2015	28.4	1710	**2015**	31.5	1943	28,000		
	2495	34.2	1778	**2495**	38.0	2020	25,200		Compressed
255 (L) FN	**5744**	20.2	1404	**5744**	22.5	1596	27,900	2.515"	Penny's
SRA 200 FN	**5744**	22.9	1630	**5744**	25.5	1853	28,400	2.590″	*
	2015	32.4	1876	**2015**	36.0	2132	27,900		
	2495	36.0	1793	**2495**	40.0	2037	22,800		Compressed
HDY 220 FN	**5744**	21.1	1450	**5744**	23.5	1648	26,200	2.580″	*
	2015	28.8	1660	**2015**	32.0	1886	25,200		
	2495	34.2	1800	**2495**	38.0	2045	25,700		Compressed

* Over SAAMI Maximum OAL

.40-65 WINCHESTER



The .40-65 Winchester, also known as the .40-65 Marlin, was introduced in 1887 for Winchester's Model 86 lever action rifle. The Winchester single-shot rifle was also chambered for it.

The .40-65 was loaded with both black and smokeless powder and remained listed in Winchester catalogs until about 1935. The .40-65 Winchester is essentially the .45-70 Government cartridge necked down to .40 caliber. The purpose behind this cartridge was to increase the power available in Winchester's lever action rifles thus making them more competitive with their single-shot rivals.

The pressure limit used for the maximum loads listed below were established by first firing 65 grains of "FFg" black powder and a 300 grain lead bullet. **Accurate 8700** is a good duplicate of the performance of blackpowder in this cartridge. **Accurate 5744** provides modern performance in this 106-year old cartridge at safe pressures.

This data is intended only for firearms safe for use with smokeless propellants.

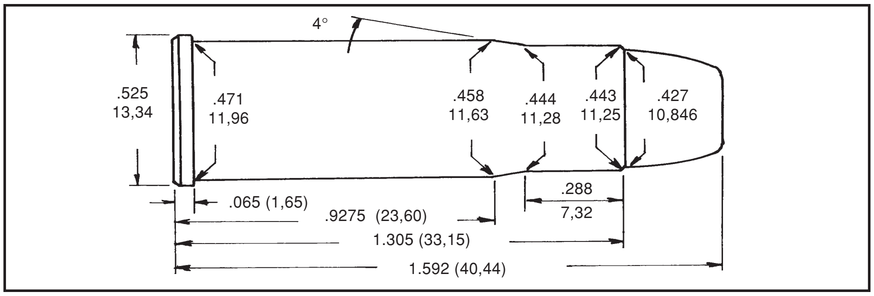
.40-65 WINCHESTER

Gun	C. SHARPS	Max Length	2.100″
Barrel Length	36″	Trim Length	2.080″
Primer	WLR	OAL Max	2.470″
Case	WW	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
260 (L) FN	**5744**	23.4	1452	**5744**	26.0	1651	20,000	2.540"	RCBS
300(L) FN	**5744**	21.6	1333	**5744**	24.0	1515	19,200	2.580"	RCBS
300 (L) CSA	**5744**	21.6	1338	**5744**	24.0	1521	21,600	2.660″	
	2495	38.7	1649	**2495**	43.0	1874	18,800		
	8700	54.0	1255	**8700**	60.0	1426	21,900		Compressed
350 (L) CSA	**5744**	20.7	1263	**5744**	23.0	1436	21,000	2.660″	
	2495	36.0	1556	**2495**	40.0	1768	20,800		
	8700	48.6	1104	**8700**	54.0	1255	19,700		Compressed
400 (L) CSA	**5744**	20.7	1200	**5744**	23.0	1364	22,000	2.830″	
	2495	33.3	1437	**2495**	37.0	1633	19,600		
	8700	46.8	1041	**8700**	52.0	1183	16,800		Compressed

NOTE: CSA Bullets are designed for single shot rifles. They are not recommended for use in lever action rifles.

.44-40 WINCHESTER



Introduced by Winchester as the original cartridge for the Model 1873 lever action repeating rifle, Colt also chambered their Peacemaker revolver for this cartridge.

This was the beginning of the American's love affair with rifle/handgun combinations chambered for the same cartridge. Logistically, the .44-40 was a God-send to the American frontiersman.

Today the .44-40 would be considered adequate only for small game at moderate ranges, however, the black powder .44-40 was considered a very effective cartridge, in either rifle or revolver for its time. In fact, it was probably the favorite cartridge of the Old West.

The SAAMI Maximum Average Pressure for the .44-40 is 13,000 C.U.P. The loads shown here were the minimum charge weights that would rupture the case wall for pressure readings.

.44-40 WINCHESTER

Gun	WIN M92 Carbine	Max Length	1.305″
Barrel Length	20″	Trim Length	1.285″
Primer	CCI 300	OAL Max	1.592″
Case	REM	OAL Min	1.540″

Bullet	LOADING DATA Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
200 (L) FN	**N100**	5.3	925	12,800	1.575″	LY42798
	No.2	6.3	884	12,800		
	No.5	9.2	980	11,900		
	No.7	11.2	1000	11,300		
215 (L) FNGC	**N100**	5.1	860	13,000	1.560″	LY429434
	No.2	5.5	778	11,300		
	No.5	8.8	950	12,800		
	No.7	10.5	917	11,600		
	No.9	13.0	1073	12,200		
HDY 180 JHP	**N100**	6.0	860	12,600	1.510″	
	No.2	6.7	819	11,800		
	No.5	10.5	990	11,700		
	No.7	12.9	1053	13,000		

.44-40 WINCHESTER (continued)

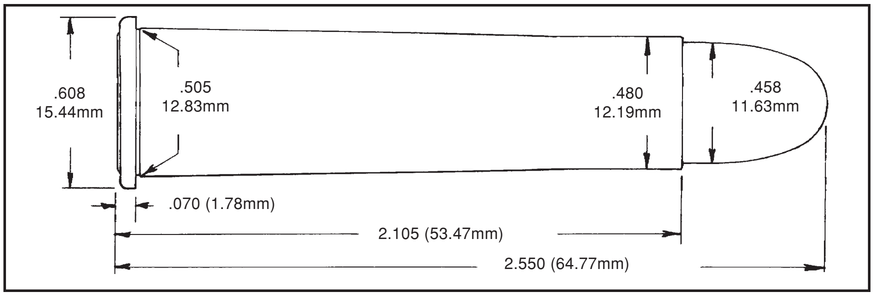
Bullet	LOADING DATA Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
NOS 200 JHP	**N100**	5.5	828	12,500	1.600″	
	No.2	6.0	761	11,600		
	No.5	9.8	1008	13,000		
	No.7	11.8	995	13,000		

* Over SAAMI Maximum OAL

NOTE: USE AS LISTED, DO NOT REDUCE

.45-70 GOVERNMENT

Trapdoor Springfield



After one of the most thorough small arms research and development programs ever launched by the U.S. Military, the .45-70 Government cartridge was adopted by the U.S. Military in 1873 for use in the new, single-shot "trapdoor" Springfield rifle.

It was, and continues to be, a popular cartridge for sporting use and many repeating and single-shot rifles were chambered for it.

Older firearms such as the 1873 "trapdoor" Springfield should generally not be loaded beyond 18,000 P.S.I. This data was developed for these type firearms.

The .45-70 was originally developed to use cast lead bullets and continues to be an excellent cartridge for this purpose. The single best Accurate powder for use in low pressure loads and cast bullets in the .45-70 Government cartridge is **5744**.

.45-70 GOVERNMENT (Trapdoor Springfield)

Gun	TEST BARREL	Max Length	2.105″
Barrel Length	24″	Trim Length	2.085″
Primer	CCI 200	OAL Max	2.550″
Case	REM Nickel	OAL Min	2.490″

CAUTION! This data is intended only for firearms safe for use with smokeless propellants.
A firm crimp is required for .45-70 for all smokeless powder loads.

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
300 (L) PB	**5744**	27.9	1405	**5744**	31.0	1597	18,000	2.550"	Clements
340 (L) HP	**5744**	27.0	1314	**5744**	30.0	1494	14,600	2.520″	LY457122HP
	2495	51.3	1628	**2495**	57.0	1850	18,000		
	4350	53.1	1384	**4350**	59.0	1573	17,900		Compressed
	3100	54.0	1255	**3100**	60.0	1426	15,100		Compressed
	8700	54.0	1059	**8700**	60.0	1203	10,400		Compressed
378 (L) RNGC	**5744**	25.6	1247	**5744**	28.5	1418	15,100	2.565″ *	LY457483
	2495	45.0	1479	**2495**	50.0	1681	14,500		
	4350	48.6	1259	**4350**	54.0	1431	15,400		
	3100	50.4	1159	**3100**	56.0	1317	13,900		
	8700	54.0	1015	**8700**	60.0	1153	8,300		

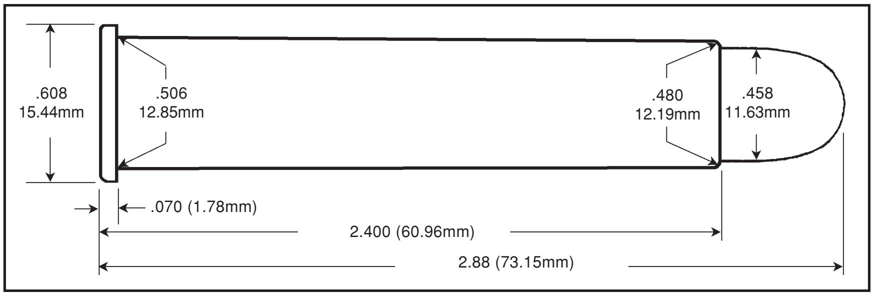
.45-70 GOVERNMENT - Trapdoor Springfield (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
405 (L) FN	**5744**	24.3	1226	**5744**	27.0	1394	16,100	2.550"	Penny's
405 (L) PB	**5744**	24.7	1192	**5744**	27.5	1355	18,000	2.560"	Clements
420 (L) FN	**5744**	25.6	1210	**5744**	28.5	1375	16,100	2.600″ *	LY457193
	2495	45.0	1457	**2495**	50.0	1656	17,700		
	4350	50.4	1297	**4350**	56.0	1474	16,200		Compressed
	3100	54.0	1251	**3100**	60.0	1422	18,200		Compressed
	8700	54.0	1025	**8700**	60.0	1165	11,700		Compressed
475 (L) RNGC	**5744**	24.3	1102	**5744**	27.0	1253	18,800	2.680″ *	LY457406
	2495	40.5	1377	**2495**	45.0	1565	16,000		
	4350	40.5	1107	**4350**	45.0	1258	16,100		
	3100	44.1	1074	**3100**	49.0	1221	16,300		
	8700	54.0	915	**8700**	60.0	1040	15,900		
500 (L) FN	**5744**	23.4	1070	**5744**	26.0	1217	16,700	2.635″ *	SAECO #22
	2495	39.6	1348	**2495**	44.0	1532	18,400		
	4350	37.8	1034	**4350**	42.0	1175	16,300		Compressed
	3100	40.5	1001	**3100**	45.0	1138	16,500		Compressed
	8700	49.5	842	**8700**	55.0	957	9,800		Compressed
500 (L) PBRN	**5744**	22.5	1063	**5744**	25.0	1209	18,000	2.850"	Lyman
500 (L) SCHMITZER	**5744**	22.7	1072	**5744**	25.3	1219	17,500	3.010"	Lyman
520 (L) RNGC	**5744**	21.6	1060	**5744**	24.0	1205	16,300	2.655"	Penny's
530 (L) POSTELL	**5744**	20.1	1036	**5744**	22.4	1178	18,000	2.950"	Lyman
530 (L) RN	**5744**	25.6	1024	**5744**	28.5	1280	18,400	2.830″ *	LY457124
	2495	41.4	1237	**2495**	46.0	1406	11,600		
	4350	43.2	1167	**4350**	48.0	1326	16,600		
	3100	49.5	1196	**3100**	55.0	1359	16,900		
	8700	58.5	932	**8700**	65.0	1059	15,800		
570 (L) JONES	**5744**	19.8	949	**5744**	22.0	1079	18,000	2.870"	American
SPR 400 JSP	**5744**	23.4	1031	**5744**	26.0	1172	17,200	2.560"	

* Over SAAMI Maximum OAL

.45-90 WINCHESTER

The .45-90 was introduced in 1886. For many decades after its introduction, it was a popular sporting cartridge and is adequate for hunting North American big game. Many gun manufacturers have realized the nostalgic value of this cartridge and have begun to chamber some of their rifles for this load.



We set the Maximum Average Pressure for our data the same as the .45-70 at 28,000 P.S.I.

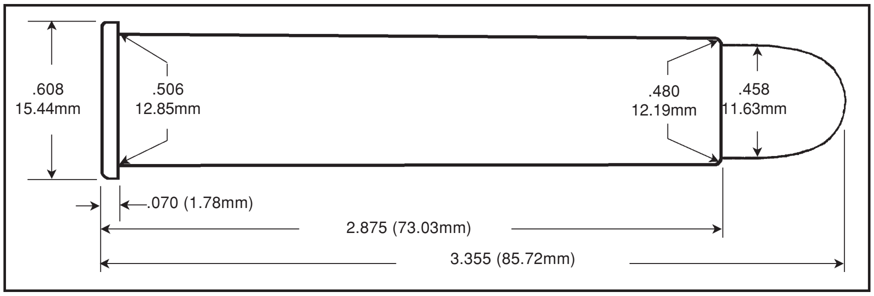
.45-90 WINCHESTER

Gun	UR WISEMAN	Max Length	2.400"
Barrel Length	30″	Trim Length	2.380"
Primer	CCI 250	OAL Max	2.880"
Case	BELL	OAL Min	2.815"

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
300 (L) PBFN	**5744**	35.1	1566	**5744**	39.0	1779	27,000	2.810"	Clements
405 (L) PBFN	**5744**	31.5	1350	**5744**	35.0	1534	28,000	2.910" *	Clements
500 (L) SCHMITZER	**5744**	29.3	1243	**5744**	32.5	1413	27,200	3.300" *	Lyman

Please note that a firm crimp is necessary for good powder ignition.
* Over maximum length for Winchester Model 86 Rifle.

.45-110 SHARPS STRAIGHT 2⅞"



The .45-110 was introduced in 1876. This was the largest of the several case sizes Sharp introduced at the time althought the .45-120 was introduced some years later. Many gun manufacturers have realized the nostalgic value of this cartridge and have begun to chamber some of their rifles for this load.

We set the Maximum Average Pressure for our data the same as the .45-70 at 28,000 P.S.I.

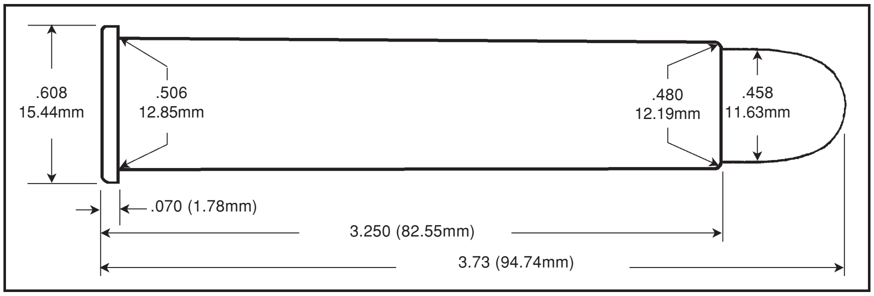
.45-110 SHARPS STRAIGHT 2⅞"

Gun	UR WISEMAN	Max Length	2.875"
Barrel Length	30″	Trim Length	2.855"
Primer	CCI 250	OAL Max	3.355"
Case	HDS	OAL Min	3.300"

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
300 (L) PBFN	**5744**	39.6	1710	**5744**	44.0	1944	27,800	3.300"	Clements
405 (L) PBFN	**5744**	34.6	1422	**5744**	38.5	1616	27,400	3.350"	Clements
500 (L) SCHMITZER	**5744**	33.3	1339	**5744**	37.0	1522	27,200	3.750"*	Lyman

Please note that a firm crimp is necessary for good powder ignition.
* Over maximum length.

.45-120 SHARPS STRAIGHT 3¼"



The .45-120 was introduced in 1879. This load is not for the squeamish and is a very powerful cartridge useful in hunting any big North American game and has been considered the big buffalo cartridge. Many gun manufacturers have realized the nostalgic value of this cartridge and have begun to chamber some of their rifles for this load.

We set the Maximum Average Pressure for our data at 31,000 P.S.I.

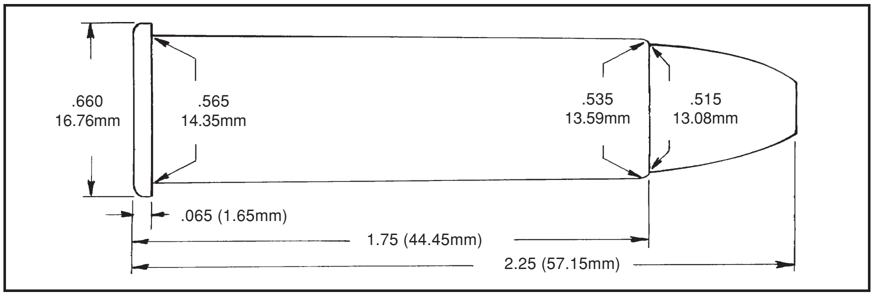
.45-110 SHARPS STRAIGHT 2⅞"

Gun	UR WISEMAN	Max Length	3.250"
Barrel Length	30″	Trim Length	3.230"
Primer	CCI 250	OAL Max	3.730"
Case	HDS	OAL Min	–

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
300 (L) PBFN	**5744**	45.9	1888	**5744**	51.0	2146	30,100	3.700"	Clements
368 (L) RNGC	**5744**	43.2	1747	**5744**	48.0	1985	30,700	3.725"	Penny's
375 (L) RNGC	**5744**	43.2	1741	**5744**	48.0	1978	31,000	3.750"*	Penny's
405 (L) PBFN	**5744**	42.3	1654	**5744**	47.0	1879	29,700	3.815"*	Clements
500 (L) RAPINE	**5744**	39.6	1489	**5744**	44.0	1692	31,000	4.000"*	American
500 (L) SCHMITZER	**5744**	39.2	1487	**5744**	43.5	1690	30,300	4.075"*	Lyman
535 (L) POSTELL	**5744**	37.4	1419	**5744**	41.5	1612	29,800	3.975"*	Lyman
550 (L) BROOKS	**5744**	37.4	1405	**5744**	41.5	1597	31,000	4.000"*	American
570 (L) JONES	**5744**	36.9	1375	**5744**	41.0	1562	31,000	4.000"*	American
SPR 350 JFP	**5744**	42.8	1691	**5744**	47.5	1922	29,700	3.850"*	
SPR 400 JFN	**5744**	41.0	1570	**5744**	45.5	1784	29,700	3.700"*	

Please note that a firm crimp is necessary for good powder ignition.
* Over maximum length.

.50-70 GOVERNMENT



The .50-70 Government was the U.S. Military rifle cartridge from 1866 to 1873. It was the first centerfire cartridge in general use by the U.S. Military.

It was used in various models and modifications of the single shot Springfield rifle and was also chambered in the Remington Rolling Block single shot rifle, as well as a large variety of sporting arms of yesteryear.

The .50-70 was a very effective cartridge on the American bison and other large game but its limitations as a military cartridge led to the development and adoption of the .45-70 Government in 1873.

Although at one time quite popular as a sporting cartridge, very few rifles chambered for this cartridge remain in use and if not for recent offerings of reloadable boxer primed cartridge cases from sources such as Dixie Gun Works, they would be relegated to the role of wall hanger. There are also currently available replicas of the 1874 Sharps chambered for the .50-70 Government.

The pressure limit set for the .50-70 Government was arrived at by firing 65 grains of FFg black powder and a 550 grain cast bullet. This produced a pressure of 22,500 P.S.I.

This data is intended only for firearms safe for use with smokeless propellants.

.50-70 GOVERNMENT

Gun	C. SHARPS	Max Length	1.750″
Barrel Length	28″	Trim Length	1.730″
Primer	FC 215	OAL Max	2.250″
Case	DIXIE	OAL Min	--

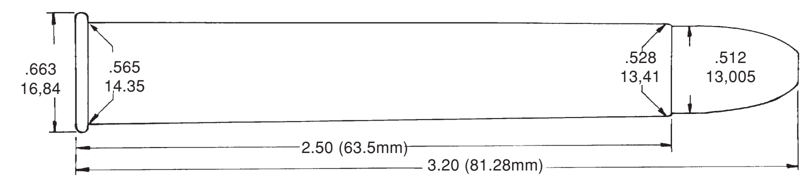
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
425 (L) SP	**5744**	27.0	1249	**5744**	30.0	1419	18,200	2.275″	* LY515141
	1680	27.0	1189	**1680**	30.0	1351	14,200		
	2015	36.0	1274	**2015**	40.0	1448	16,800		
	2495	45.9	1272	**2495**	51.0	1445	9,500		Compressed
	4350	46.8	1085	**4350**	52.0	1233	15,700		Compressed

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
550 (L) FN	**5744**	22.5	1063	**5744**	25.0	1208	18,600	2.200″	RCBS
	1680	25.2	1139	**1680**	28.0	1294	16,400		
	2015	30.6	1101	**2015**	34.0	1251	18,300		
	2495	37.8	1210	**2495**	42.0	1375	17,000		
	4350	43.2	1041	**4350**	48.0	1183	18,200		Compressed
BAR 400 SP	**2015**	49.5	1627	**2015**	55.0	1849	19,400	2.315″	*

Please note that a firm crimp is necessary for good powder ignition.

* Over Recommended Maximum OAL

.50-90 SHARPS



The .50-90 Sharps was introduced in 1875 as the premier cartridge of its day for buffalo hunting. It represented a substantial increase in power over the .50-70 Government which was used by many of the hide hunters.

The .50-90 is also called the .50-100 or .50-110 depending on the bullet weight and powder charge used. Although obviously suitable for any large North American big game, if not for the current limited production of Sharps replicas chambered for it, this cartridge would have been relegated to Old West legend.

The pressure limit set for the .50-90 Sharps was developed by firing 90 grains of FFg black powder and a 440 grain lead bullet. This produced a pressure of 20,000 P.S.I.

This data is intended only for firearms safe for use with smokeless propellants.

.50-90 SHARPS

Gun	C. SHARPS	Max Length	2.500″
Barrel Length	30″	Trim Length	2.480″
Primer	FC 215	OAL Max	3.200″
Case	Eldorado	OAL Min	--

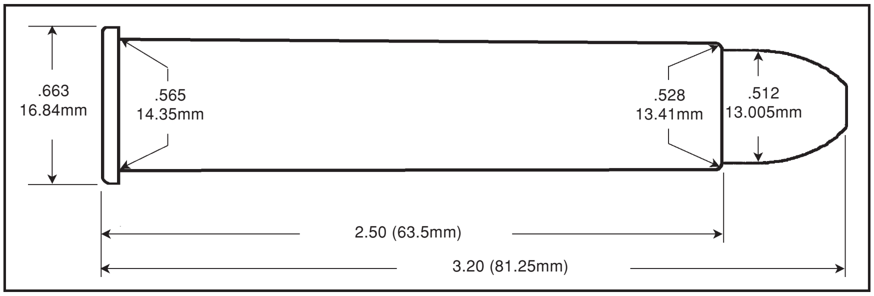
	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	P.S.I.	Length	Comment
365 (L) FN	**5744**	39.0	1655	**5744**	43.0	1795	20,300	2.870″	Penny's
	4350	73.8	1596	**4350**	82.0	1814	16,600		
	3100	76.5	1496	**3100**	85.0	1700	15,800		Compressed
	8700	81.0	1365	**8700**	90.0	1551	14,700		Compressed
440 (L) FN	**5744**	34.2	1370	**5744**	38.0	1557	18,300	3.000″	LY515141
	4350	72.0	1539	**4350**	80.0	1749	19,500		
	3100	76.5	1492	**3100**	85.0	1695	18,300		Compressed
	8700	76.5	1242	**8700**	85.0	1411	15,300		Compressed
550 (L) FN	**5744**	31.5	1241	**5744**	35.0	1411	20,400	2.925″	RCBS
	4350	58.5	1274	**4350**	65.0	1448	17,000		
	3100	62.1	1220	**3100**	69.0	1386	16,300		
	8700	64.8	1035	**8700**	72.0	1176	16,700		

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
Barnes 400 SP	**5744**	38.3	1542	**5744**	42.5	1752	17,200	3.000″	
	4350	75.6	1571	**4350**	84.0	1785	16,800		
	3100	76.5	1382	**3100**	85.0	1571	13,100		Compressed
	8700	81.0	1276	**8700**	90.0	1450	14,800		Compressed

Please note that a firm crimp is necessary for good powder ignition.

.50-110 SHARPS STRAIGHT 2½"

The .50-110 was introduced in 1872 in the heyday of buffalo hunting. Many gun manufacturers have realized the nostalgic value of this cartridge and have begun to chamber some of their rifles for this load



We set the Maximum Average Pressure for our data the same as the .50-140 at 28,000 P.S.I.

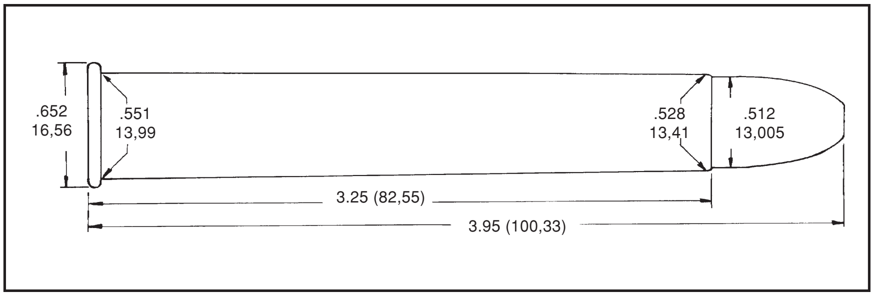
.50-110 SHARPS STRAIGHT 2½"

Gun	C. SHARPS	Max Length	2.500″
Barrel Length	30″	Trim Length	2.480″
Primer	FED 215	OAL Max	3.200"
Case	Eldorado	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
360 (L) FN	**5744**	42.3	1657	**5744**	47.0	1884	26,900	2.870″	Penny's
450 (L) FN	**5744**	40.5	1519	**5744**	45.0	1727	26,400	2.980"	Penny's
450 (L) FN	**5744**	37.8	1497	**5744**	42.0	1702	28,000	2.825"	Penny's
515 (L) FN	**5744**	36.0	1385	**5744**	40.0	1574	26,500	2.925"	Penny's
550 (L) FN	**5744**	34.6	1316	**5744**	38.5	1496	25,700	2.950"	RCBS
700 (L) BROOKS	**5744**	31.0	1134	**5744**	34.5	1289	24,300	3.150"	American

Please note that a firm crimp is necessary for good powder ignition.

.50-140 SHARPS



The .50-140 Sharps and the .50-140 Express are nearly identical cartridges. The primary differences are the weight of the bullets used. The .50-140 Sharps was produced as a special order item and was usually used with a 700 grain paper patched lead bullet which could be purchased commercially for loading the cartridge.

This was the most powerful of the Sharps (Buffalo) cartridges, but by the time it became available, the buffalo herds had already been destroyed.

Currently available as a special order from manufacturers of Sharps replicas, the .50-140 Sharps is strictly a handloader's proposition. Eldorado Cartridge Company still offers excellent quality cartridge cases for this round.

The pressure limit set for this cartridge by Accurate was developed by firing a 140 grain charge of FFg black powder and a 550 grain lead bullet. This produced a pressure of 28,000 PSI.

The .50-140 Sharps is a powerful cartridge capable, with smokeless propellant, of driving a 550 grain cast bullet the same velocity as the factory 500 grain bullet from a .458 Winchester Magnum.

This data is intended only for firearms safe for use with smokeless propellants.

.50-140 SHARPS

Gun	C. SHARPS	Max Length	3.250″
Barrel Length	30″	Trim Length	3.230″
Primer	FC 215	OAL Max	3.950″
Case	Eldorado	OAL Min	--

	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	P.S.I.	Length	Comment
440 (L) FN **	**5744**	43.0	1600	**5744**	55.0	1978	24,500	3.785″	Clean
	4350	103.5	1972	**4350**	115.0	2241	25,000		100% Density
	3100	108.0	1891	**3100**	120.0	2149	24,200		*
	8700	115.0	1745	**8700**	135.0	1983	25,400		Compressed

.50-140 SHARPS (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
550 (L) FN	**5744**	40.0	1466	**5744**	50.0	1736	24,800	3.735″	Clean
	4350	94.5	1922	**4350**	105.0	2184	27,500		RCBS
	3100	99.0	1889	**3100**	110.0	2033	26,300		
	8700	100.0	1653	**8700**	120.0	1806	25,100		*

Please note that a firm crimp is necessary for good powder ignition.

* Lt. Compression

** LY515141

NRA HIGH POWER

NRA HIGH POWER SERVICE RIFLE LOADS

The purpose of this section is to provide the NRA High Power competitor with a quick reference for the most requested loading data. Although most of the data in this section is also found in other listings throughout the loading guide, some portions of this data were developed for inclusion only in this section.

This section is broken down into three parts. The first is for the three service rifle cartridges; the 5.56mm, the 7.62x51mm and the .30-06. In developing the 5.56 data we used commercial cases. In the 7.62 and .30-06 we used military cases as these are best for the functioning of the service rifles used.

The 55 grain FMJ data for the 5.56mm is the same as the data for the 55 grain Nosler SBT in the .223 Remington data. In our testing there was no discernable difference in pressure or velocity between these two bullets. In the 5.56mm data pay particular attention to the loaded length for each bullet. The 69 grain Sierra will just fit in the AR-15 magazine as loaded and is suitable for the rapid fire portion of the National Match Course. The 80 grain Sierra is intended for single loading for the slow fire portion only. These latter bullets are intended for use in "quick twist" barrels.

The data for the military 175 grain FMJ/BT match bullet in the 7.62 allows the shooter to duplicate the performance of the M118 Match and Special Ball ammo. The data for the 168 Sierra duplicates the performance of the M852 competitive cartridge.

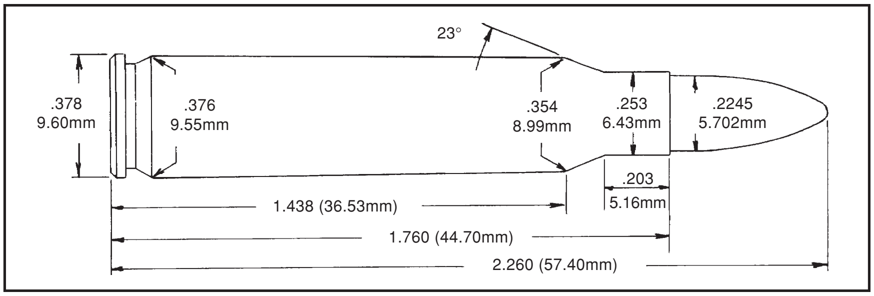
The data for the .30-06 duplicates the performance of the M2 load using the 150 grain bullet and the M72 match using the Sierra 168. The propellants listed are all compatible in burn speed with the gas system of the M1 Garand.

The second part of this section deals with loading data for Long Range competition. We have included data for the .308 Win., the .30-06 and various .30 caliber magnums.

The final part of this section covers data for Sierra's Palma Bullet. This data is provided for those competitors who fire in the Palma Match as well as for those who wish to use this bullet across the course. It should be especially popular with the Garand shooters.

— William T. Falin Jr.

.223 REMINGTON



In 1964 the .223 Remington was adopted as the 5.56mm Ball Cartridge M193, the new U.S. Military rifle cartridge. The .223 Remington is the commercial version of the 5.56mm. Documentation shows several variations in chamber dimensions, principally in the chamber throat, have occurred since the 5.56 cartridge was adopted, the latest version to accommodate the heavier SS109 projectile.

The data presented here was developed in a barrel chambered to commercial .223 Remington specifications and this data may be used in firearms with military specification chambers. SAAMI has cautioned that some 5.56 ammo will produce excessive pressures when fired in rifles chambered for the .223 Remington cartridge.

In the arena of NRA High Power Rifle competition, and particularly in the Service Rifle category, more and more AR-15 rifles are being used. We have included data for the 69 and 80 grain bullets for those shooters.

.223 REMINGTON

Gun	WILSON	Max Length	1.760″
Barrel Length	24″	Trim Length	1.740″
Primer	REM 7˚	OAL Max	2.260″
Case	REM	OAL Min	2.165″

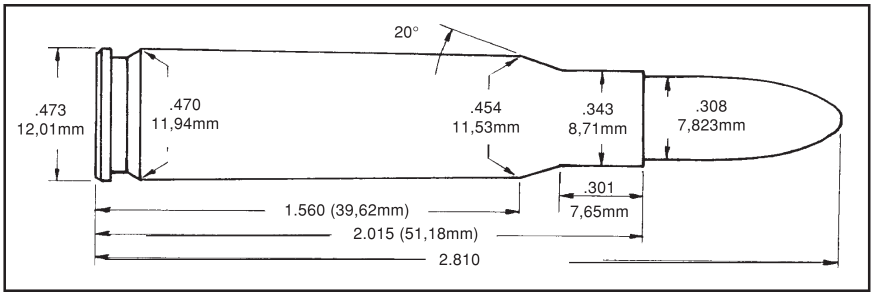
Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
IMI 55 FMJ	**1680**	18.5	2691	**1680**	20.5	3058	50,000	2.230″	
	2015	22.5	2887	**2015**	25.0	3281	49,800		
	2230	23.4	2830	**2230**	26.0	3216	50,300		
	2460	23.9	2843	**2460**	26.5	3231	49,200		
	2495	23.6	2878	**2495**	26.2	3271	51,100		Compressed
	2520	24.8	2837	**2520**	27.5	3224	43,300		Compressed
SRA 69 HPBT	**2015**	20.7	2567	**2015**	23.0	2917	48,400	2.250″	
	2230	22.1	2578	**2230**	24.5	2929	51,300		
	2460	22.2	2632	**2460**	24.7	2991	51,800		
	2495	22.5	2608	**2495**	25.0	2964	49,800		
	2520	24.3	2679	**2520**	27.0	3044	48,200		

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SRA 80 HPBT	**2015**	19.8	2382	**2015**	22.0	2707	49,000	2.450″	*
	2230	21.2	2424	**2230**	23.5	2754	49,100		
	2460	21.6	2453	**2460**	24.0	2788	49,500		
	2495	21.2	2453	**2495**	23.5	2788	51,600		
	2520	22.5	2460	**2520**	25.0	2796	49,700		

* Over SAAMI Maximum OAL

7.62x51 MATCH

After the North Atlantic Treaty Organization (NATO) was formed, it was decided that it would be advantageous to the members to have interchangeable weapons and ammunition.



There were two major contenders to be the "NATO" cartridge. These were the British .280 caliber and the American's T65 cartridge. "NATO" selected the T65 cartridge in its final form in February 1954 and in August 1954 the U.S. Army Ordinance Committee formally standardized this cartridge for U.S. Service under the official name of **Cartridge, "NATO", Caliber 7.62mm**.

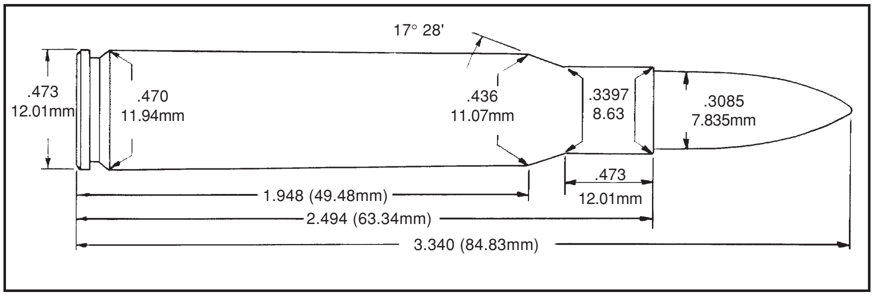
Concurrently with the development of the T65 cartridge, the U.S. Army adopted the M14 service rifle. The loads shown below were developed in military cases specifically for use by High Power competitors using the M14 or its commercial equivalent, the M-1A.

7.62x51 MATCH

Gun	HS PRECISION	Max Length	2.015″
Barrel Length	24″	Trim Length	1.995″
Primer	CCI 200	OAL Max	2.810″
Case	IMI	OAL Min	2.490″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SRA 168 HPBT	**2015**	34.7	2276	**2015**	38.5	2586	50,000	2.800″	
	2230	36.0	2250	**2230**	40.0	2557	50,600		
	2460	37.8	2305	**2460**	42.0	2619	50,900		
	2495	38.3	2292	**2495**	42.5	2605	48,200		
	2520	39.2	2328	**2520**	43.5	2646	50,500		
MIL 175 FMJ/BT	**2015**	35.1	2265	**2015**	39.0	2574	51,600	2.800″	
	2230	36.0	2198	**2230**	40.0	2498	50,700		
	2460	36.5	2212	**2460**	40.5	2514	49,700		
	2495	37.4	2235	**2495**	41.5	2540	50,400		
	2520	37.4	2224	**2520**	41.5	2527	48,900		

.30-06 SPRINGFIELD



The .30-06 Springfield is actually a modified version of the Cartridge, Caliber .30, Model of 1903. The original cartridge had a 220-grain, round-nosed FMJ bullet with a muzzle velocity of 2,300 FPS.

As a result of ballistic experiments in Europe, the U. S. Army modified the .30-03 cartridge by shortening the neck 0.070″ and loading a short pointed bullet weighing 150 grains to a muzzle velocity of 2,700 FPS. This cartridge then became known as the Caliber .30, Model of 1906 or simply the .30-06 Springfield.

On January 9, 1936, the U.S. Army accepted an experimental rifle submitted by John Garand and standardized it as the U.S. Rifle, caliber .30, M 1. As a service rifle, the M 1 was used primarily with the caliber .30 M2 cartridge. This is the cartridge that the gas system was calibrated to operate with.

High Power Rifle competitors were for years blessed with an abundance of U.S. Government Match ammunition (M72 Match) using a 173 grain FMJ/BT bullet.

The loads shown below using the 150 and 168 grain bullets were developed with powders of the correct burn rate for the Garand's gas system to approximate the performance of the M2 Ball and M72 Match ammo.

.30-06 SPRINGFIELD

Gun	WILSON	Max Length	2.494″
Barrel Length	24″	Trim Length	2.474″
Primer	CCI 200	OAL Max	3.340″
Case	IMI	OAL Min	2.940″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I..	Cartridge Length	Comment
PMC 150 FMJ	**2015**	43.2	2535	**2015**	48.0	2881	58,400	3.250″	
	2230	44.5	2521	**2230**	49.4	2865	57,900		
	2460	44.6	2519	**2460**	49.5	2862	58,500		
	2495	46.4	2558	**2495**	51.5	2907	58,300		
	2520	46.1	2526	**2520**	51.2	2870	58,200		
	4064	49.0	2682	**4064**	54.5	3048	58,700		
	2700	53.1	2580	**2700**	59.0	2932	54,900		

.30-06 SPRINGFIELD (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 168 HPBT	**2015**	41.0	2385	**2015**	45.5	2710	59,000	3.295″	
	2230	41.4	2343	**2230**	46.0	2663	58,800		
	2460	42.0	2340	**2460**	46.7	2659	58,800		
	2495	42.3	2382	**2495**	47.0	2707	57,300		
	2520	42.8	2359	**2520**	47.5	2681	58,000		
	2700	48.6	2404	**2700**	54.0	2732	57,700		

.308 WINCHESTER

Gun	HS PRECISION	Max Length	2.015″
Barrel Length	24″	Trim Length	1.995″
Primer	CCI 200	OAL Max	2.810″
Case	REM	OAL Min	2.490″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	C.U.P.	Cartridge Length	Comment
SRA 168 HPBT	**2015BR**	36.0	2325	**2015**	40.0	2642	50,500	2.800″	
	2230	37.8	2297	**2230**	42.0	2610	49,500		
	2460	38.3	2289	**2460**	42.5	2601	48,600		
	2495	40.1	2336	**2495**	44.5	2654	47,900		Compressed
	2520	40.5	2387	**2520**	45.0	2712	50,200		
	2700	42.3	2194	**2700**	47.0	2493	48,800		Compressed
SRA 175 HPBT	**2230**	36.0	2244	**2230**	40.0	2551	60,000*	2.800"	
	2460	36.4	2242	**2460**	40.5	2548	58,500*		
	2520	37.8	2285	**2520**	42.0	2597	61,000*		
	4064	39.1	2303	**4064**	43.5	2618	59,300*		
	2700	42.3	2280	**2700**	47.0	2591	57,800*		Compressed
SRA 180 HPBT	**2230**	36.0	2146	**2230**	40.0	2439	48,800	2.800″	
	2460	37.4	2177	**2460**	41.5	2474	49,500		
	2495	38.7	2281	**2495**	43.0	2592	50,800		
	2520	40.1	2302	**2520**	44.5	2616	49,200		
	2700	42.3	2174	**2700**	47.0	2470	40,000		Compressed
SRA 190 HPBT	**2230**	34.7	2084	**2230**	38.5	2368	47,700	2.800″	
	2460	35.1	2083	**2460**	39.0	2367	46,400		
	2495	36.0	2108	**2495**	40.0	2395	45,300		
	2520	37.4	2128	**2520**	41.5	2418	47,100		
	2700	40.5	2035	**2700**	45.0	2312	46,000		
SRA 220 HPBT	**2230**	32.4	1883	**2230**	36.0	2140	45,300	2.800″	
	2460	33.3	1911	**2460**	37.0	2172	46,200		
	2495	34.7	1959	**2495**	38.5	2226	47,300		
	2520	34.2	1896	**2520**	38.0	2154	44,900		
	2700	37.8	1900	**2700**	42.0	2159	48,300		

* Pressure data in P.S.I.

.30-06 SPRINGFIELD

Gun	WILSON	Max Length	2.494″
Barrel Length	24″	Trim Length	2.474″
Primer	CCI 200	OAL Max	3.340″
Case	IMI	OAL Min	2.940″

	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	P.S.I.	Length	Comment
SRA 175 HPBT	**2015**	40.0	2359	**2015**	44.5	2681	58,800	3.290"	RP cases
	2230	39.6	2323	**2230**	44.0	2640	59,500		
	2460	40.9	2334	**2460**	45.5	2653	58,700		
	2520	41.8	2341	**2520**	46.5	2661	57,000		
	4064	45.0	2456	**4064**	50.0	2792	57,900		
	2700	48.6	2429	**2700**	54.0	2761	58,200		
	4350*	51.3	2486	**4350**	57.0	2825	56,300		Compressed
	3100*	53.1	2341	**3100**	59.0	2661	48,800		Compressed
SRA 180 HPBT	**2015**	40.1	2277	**2015**	44.5	2588	59,300	3.290″	
	2230	39.6	2260	**2230**	44.0	2568	60,000		
	2460	41.2	2255	**2460**	45.8	2563	55,800		
	2495	41.0	2284	**2495**	45.5	2595	59,500		
	2520	42.1	2275	**2520**	46.8	2585	57,000		
	2700	49.5	2328	**2700**	55.0	2646	56,000		
	4350	51.3	2389	**4350**	57.0	2715	56,400		Compressed
	3100	53.1	2298	**3100**	59.0	2611	53,300		Compressed
SRA 190 HPBT	**2015**	38.7	2193	**2015**	43.0	2492	60,000	3.325″	
	2230	39.6	2180	**2230**	44.0	2477	56,600		
	2460	41.0	2233	**2460**	45.5	2537	58,400		
	2495	39.6	2193	**2495**	44.0	2492	59,100		
	2520	41.0	2212	**2520**	45.5	2514	58,400		
	2700	46.8	2217	**2700**	52.0	2519	53,700		
	4350	50.0	2343	**4350**	55.5	2663	60,000		Compressed
	3100	53.1	2265	**3100**	59.0	2574	53,200		Compressed

* Loads can produce excessive port pressure in the M-1 Garand rifle and should not be used in this rifle.

.300 HOLLAND & HOLLAND MAGNUM

Gun	DOUGLAS	Max Length	2.850″
Barrel Length	26″	Trim Length	2.820″
Primer	CCI 250	OAL Max	3.600″
Case	WW	OAL Min	3.420″

	START LOADS			MAXIMUM LOADS				Cartridge	
Bullet	Powder	Grains	Vel.	Powder	Grains	Vel.	C.U.P.	Length	Comment
SRA 180 HPBT	**2700**	61.8	2729	**2700**	65.0	2903	51,400	3.640″	
	4350	63.5	2639	**4350**	70.5	2999	51,700		
	3100	70.2	2705	**3100**	78.0	3074	53,600		Compressed
SRA 200 HPBT	**2700**	58.0	2575	**2700**	61.0	2739	54,000	3.665″	
	4350	58.5	2479	**4350**	65.0	2817	51,000		
	3100	65.7	2563	**3100**	73.0	2912	52,900		

.30-338

Gun	DOUGLAS	Max Length	2.500″
Barrel Length	26″	Trim Length	2.480″
Primer	CCI 250	OAL Max	3.290″
Case	WW	OAL Min	--

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 168 HPBT	**4350**	61.7	2681	**4350**	68.5	3047	61,600	3.265″	
	3100	66.2	2707	**3100**	73.5	3076	61,300		
	8700	74.7	2402	**8700**	83.0	2729	50,100		Compressed
SRA 180 HPBT	**4350**	59.4	2578	**4350**	66.0	2929	59,900	3.250″	
	3100	65.3	2608	**3100**	72.5	2964	61,200		
	8700	73.8	2329	**8700**	82.0	2647	51,100		
SRA 190 HPBT	**4350**	58.5	2541	**4350**	65.0	2888	59,100	3.300″	
	3100	65.1	2645	**3100**	72.3	3006	63,500		
	8700	73.4	2385	**8700**	81.5	2710	47,600		
SRA 200 HPBT	**4350**	57.6	2474	**4350**	64.0	2811	62,500	3.320″	
	3100	63.9	2570	**3100**	71.0	2921	62,600		
	8700	72.0	2250	**8700**	80.0	2557	43,400		
SRA 220 HPBT	**4350**	56.7	2328	**4350**	63.0	2646	61,000	3.310″	
	3100	63.0	2407	**3100**	70.0	2735	61,500		
	8700	72.0	2225	**8700**	80.0	2528	47,400		

.300 WINCHESTER MAGNUM

Gun	DOUGLAS	Max Length	2.620″
Barrel Length	24″	Trim Length	2.600″
Primer	CCI 200	OAL Max	3.340″
Case	REM	OAL Min	3.280″

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 168 HPBT	**2700**	63.7	2781	**2700**	67.0	2959	61,900	3.475″	
	4350	64.8	2693	**4350**	72.0	3060	63,200		
	3100	66.2	2592	**3100**	73.5	2945	57,200		
SRA 180 HPBT	**2700**	62.7	2706	**2700**	66.0	2879	62,800	3.450″	
	4350	62.1	2547	**4350**	69.0	2894	62,200		
	3100	64.8	2551	**3100**	72.0	2899	58,300		
	8700	77.4	2475	**8700**	86.0	2813	45,100		Compressed

.300 WINCHESTER MAGNUM (continued)

Bullet	START LOADS Powder	Grains	Vel.	MAXIMUM LOADS Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 190 HPBT	**2700**	60.3	2611	**2700**	63.5	2778	60,600	3.450″	
	4350	61.2	2518	**4350**	68.0	2861	63,300		
	3100	63.0	2467	**3100**	70.0	2803	59,500		
	8700	77.4	2475	**8700**	86.0	2813	49,300		Compressed
SRA 200 HPBT	**2700**	58.9	2535	**2700**	62.0	2697	61,800	3.340″	
	4350	57.6	2372	**4350**	64.0	2696	61,700		
	3100	62.1	2379	**3100**	69.0	2703	58,100		
	8700	77.4	2417	**8700**	86.0	2747	53,800		Compressed

SIERRA "PALMA" BULLET DATA

The proprietary 155 HPBT bullet developed for the U.S. Palma Authority by Sierra has been released for use by the general public. The obvious users will be Palma Competitors. It should also appeal to those who shoot the M-14/M-1A and the M1 Garand. Accordingly we developed data for the .308 Win and the .30-06 to accommodate these shooters as well as the Palma competitors. The Palma Match bullet requires a muzzle velocity of approximately 2935 fps and a rifling twist of no slower than 1/13″ to properly stabilize and remain above the speed of sound at 1,000 yards. The barrels of "Palma" type rifles are sufficiently long to maximize the muzzle velocity. However, the majority of its use will probably be the 200 and 300 yard phases of the National Match Course in order to enhance recovery from recoil in rapid fire. M1 Garand shooters in particular should be happy with a bullet that approximates the projectile weight that the gas system was designed around with the external ballistics and accuracy needed for NRA High Power Competition.

While the .30-06 data is intended for use in the M1 Garand, it should work equally well in bolt guns. Slower propellants probably will not develop sufficient velocity, even in a bolt action, and are not suitable for the Garand's gas system. They are not included for that reason. All loading data shown in this section is considered to be maximum by the technical staff at Accurate Arms Co., Inc. and should be reduced by 10% for starting charges. Do not exceed the loads listed above even if your particular rifle shows no signs of excess pressure.

— William T. Falin, Jr.

.308 WINCHESTER

Gun	WILSON	Max Length	2.015″
Barrel Length	24″	Trim Length	1.995″
Primer	FC 210 M	OAL Max	2.810″
Case	LAPUA	OAL Min	2.490″

Bullet	LOADING DATA Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 155 "PALMA"	**2015**	41.5	2761	59,500	2.775″	
	2230	43.0	2763	56,300		
	2460	44.0	2806	58,400		
	2495	44.0	2828	59,100		
	2520	46.0	2846	58,800		
	4064	45.5	2742	46,000 C.U.P.		Compressed

.30-06 GOVERNMENT

Gun	WILSON	Max Length	2.494″
Barrel Length	24″	Trim Length	2.474″
Primer	REM 9½	OAL Max	3.340″
Case	IMI	OAL Min	2.940″

Bullet	LOADING DATA Powder	Grains	Vel.	P.S.I.	Cartridge Length	Comment
SRA 155 “PALMA”	**2495**	48.5	2845	58,700	3.260″	
	2520	49.0	2822	58,200		
	4064	53.0	2967	57,500		
	2700	56.5	2903	58,900		

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APPENDIX

NOMINAL ROTOR CHARGE WEIGHTS (GRAINS)

WARNING:
The powder charge weights shown for individual rotors are to be used for general reference only. Lot variations in powder density, temperature, humidity, operating techniques and manufacturing tolerances, all introduce variations in charge weights from the values listed. Each rotor/powder combination used must be checked on an accurate scale to determine actual charge weight prior to loading ammunition. Read and follow your measure instructions.

LEE POWDER DIPPERS

	No. 2	No. 5	No. 7	No. 9	1680	2230, 2460	2495, 4064, 3100	2520, 2700, 8700	N100	2015	4350	5744
0.30	2.9	4.8	4.6	4.6	4.6	4.6	4.0	4.4	2.2	4.1	4.1	4.0
0.50	4.8	8.0	7.7	7.6	7.6	7.6	6.7	7.3	3.7	6.8	6.8	6.6
0.70	6.7	11.2	10.7	10.7	10.7	10.7	9.4	10.2	5.2	9.6	9.5	9.3
1.00	9.5	16.1	15.3	15.2	15.3	15.2	13.4	14.5	7.4	13.7	13.5	13.2
1.30	12.4	20.9	19.9	19.8	19.8	19.8	17.4	18.9	9.6	17.8	17.6	17.2
1.60	15.3	25.7	24.5	24.4	24.4	24.4	21.4	23.3	11.9	21.9	21.6	21.1
1.90	18.2	30.5	29.1	28.9	29.0	28.9	25.4	27.6	14.1	26.0	25.7	25.1
2.20	21.1	35.3	33.7	33.5	33.6	33.5	29.4	32.0	16.3	30.1	29.7	29.1
2.50	23.8	40.1	38.3	38.1	38.2	38.1	33.4	36.4	18.5	34.2	33.8	33.0
2.80	26.7	45.0	42.9	42.6	42.7	42.7	37.4	40.7	20.8	38.3	37.8	37.0
3.10	29.6	49.8	47.5	47.2	47.3	47.2	41.4	45.1	23.0	42.5	41.9	41.0
3.40	32.5	54.6	52.1	51.8	51.9	51.8	45.4	49.4	25.2	46.6	46.0	44.9
3.70	35.3	59.4	56.7	56.4	56.5	56.4	49.4	53.8	27.4	50.7	50.0	48.9
4.00	38.2	64.2	61.2	60.9	61.0	60.9	53.5	58.2	29.7	54.8	54.1	52.9
4.30	41.0	69.0	65.8	65.5	65.6	65.5	57.5	62.5	31.5	58.9	58.1	56.8

LEE AUTO DISK CAVITIES

	No. 2	No. 5	No. 7	No. 9	1680	2230, 2460	2495, 4064, 3100	2520, 2700, 8700	N100	2015	4350	5744
0.30	2.9	4.8	4.6	4.6	4.6	4.6	4.0	4.4	2.2	4.1	4.1	4.0
0.32	3.0	5.1	4.9	4.9	4.9	4.9	4.3	4.7	2.4	4.4	4.3	4.2
0.34	3.3	5.5	5.2	5.2	5.2	5.2	4.5	4.9	2.5	4.7	4.6	4.5
0.37	3.5	5.9	5.7	5.6	5.6	5.6	4.9	5.4	2.7	5.1	5.0	4.9
0.40	3.8	6.4	6.1	6.1	6.1	6.1	5.3	5.8	3.0	5.5	5.4	5.3
0.43	4.1	6.9	6.6	6.5	6.6	6.6	5.7	6.3	3.2	5.9	5.8	5.7
0.46	4.4	7.4	7.0	7.0	7.0	7.0	6.1	6.7	3.4	6.3	6.2	6.1
0.49	4.6	7.9	7.5	7.5	7.5	7.5	6.5	7.1	3.6	6.7	6.6	6.5
0.53	5.0	8.5	8.1	8.1	8.1	8.1	7.1	7.7	3.9	7.3	7.2	7.0
0.57	5.4	9.2	8.7	8.7	8.7	8.7	7.6	8.3	4.2	7.8	7.7	7.5
0.61	5.8	9.8	9.3	9.3	9.3	9.3	8.2	8.9	4.5	8.4	8.2	8.1
0.66	6.3	10.6	10.1	10.1	10.1	10.1	8.8	9.6	4.9	9.0	8.9	8.7
0.71	6.8	11.4	10.9	10.8	10.8	10.8	9.5	10.3	5.3	9.7	9.6	9.4
0.76	7.3	12.2	11.6	11.6	11.6	11.6	10.2	11.1	5.6	10.4	10.3	10.0
0.82	7.8	13.2	12.6	12.5	12.5	12.5	11.0	11.9	6.1	11.2	11.1	10.8
0.88	8.4	14.1	13.5	13.4	13.4	13.4	11.8	12.8	6.5	12.1	11.9	11.6
0.95	9.0	15.3	14.5	14.5	14.5	14.5	12.7	13.8	7.0	13.0	12.8	12.6
1.02	9.8	16.4	15.6	15.5	15.6	15.5	13.6	14.8	7.6	14.0	13.8	13.5
1.09	10.4	17.5	16.7	16.6	16.6	16.6	14.6	15.8	8.1	14.9	14.7	14.4
1.18	11.3	18.9	18.1	18.0	18.0	18.0	15.8	17.2	8.7	16.2	16.0	15.6
1.26	12.0	20.2	19.3	19.2	19.2	19.2	16.8	18.3	9.3	17.3	17.0	16.7
1.36	13.0	21.8	20.8	20.7	20.8	20.7	18.2	19.8	10.1	18.6	18.4	18.0
1.46	13.9	23.4	22.4	22.2	22.3	22.2	19.5	21.2	10.8	20.0	19.7	19.3
1.57	15.0	25.2	24.0	23.9	24.0	23.9	21.0	22.8	11.6	21.5	21.2	20.7

LEE AUTO DISK CAVITIES

	No. 100	No. 5	No. 7		No.100	No. 5	No. 7
.095	11.5	25.0	23.8	.148	18.0	38.9	37.1
.100	12.1	26.3	25.1	.151	18.3	39.7	37.9
.105	12.8	27.6	26.3	.155	18.8	40.8	38.9
.110	13.4	28.9	27.6	.163	19.8	42.9	40.9
.116	14.1	30.5	29.1	.171	20.8	45.0	42.9
.122	14.8	32.1	30.6	.180	21.9	47.4	45.2
.128	15.6	33.7	32.1	.189	23.0	49.7	47.4
.134	16.3	35.3	33.6	.198	24.1	52.1	49.7
.141	17.1	37.1	38.9				

MEC BUSHING CHART

	N100	No. 2	No. 5		N100	No. 2	No.5
16	10.8	–	21.0	26	16.3	21.6	32.1
17	11.3	–	22.0	27	17.0	22.6	33.4
18	11.9	–	23.0	28	17.5	23.5	34.6
19	12.4	–	24.1	29	18.3	–	35.9
20	13.0	17.0	25.1	30	19.1	–	37.3
21	13.5	18.0	26.2	31	19.7	–	38.6
22	14.1	18.7	27.4	32	20.3	–	40.0
23	14.5	19.4	28.5	33	20.8	–	41.4
24	15.6	20.2	29.7	34	21.5	–	42.8
25	15.5	20.5	30.9				

Data supplied by MEC.

HORNADY BUSHING CHART

Weight (gr.) N100	Hornady 155	Hornady 366
16.5	384	414
17.0	390	420
17.5	396	426
18.0	408	432
18.5	414	438
19.0	426	444
19.5	429	450
20.0	432	456
20.5	438	462
21.0	444	468
21.5	450	474

LYMAN PISTOL ACCUMEASURE POWDER ROTORS

1.R. No.	2.C Size	No. 5	No. 7	No. 9
1	S	4.1	4.4	4.2
	L	4.6	4.9	4.8
2	S	5.1	5.4	5.3
	L	5.3	5.6	5.6
3	S	5.7	5.9	5.9
	L	5.9	6.4	5.3
4	S	6.6	6.8	6.8
	L	7.2	7.5	7.5
5	S	8.1	8.5	8.5
	L	8.4	8.7	8.7
6	S	9.0	9.3	9.2
	L	9.7	10.1	10.1
7	S	9.8	10.3	10.2
	L	11.0	11.5	11.4
8	S	12.1	12.7	12.7
	L	13.1	13.8	13.8
9	S	14.1	14.8	14.7
	L	15.1	16.0	15.9
10	S	15.8	16.7	16.5
	L	17.5	18.3	18.2
11		18.6	19.5	19.4
12		20.7	21.6	21.5
13		22.0	23.1	22.9
14		23.4	24.7	24.4
15		25.0	26.5	26.2

Data for Accumeasure cavities supplied by Lyman.

RCBS LITTLE DANDY PISTOL POWDER MEASURE

	No. 5	No. 7	No. 9
1	4.0	4.2	4.2
2	4.3	4.6	4.5
3	4.8	5.1	5.0
4	5.1	5.4	5.3
5	5.6	6.0	5.9
6	5.9	6.3	6.2
7	6.3	6.6	6.6
8	7.1	7.5	7.4
9	7.8	8.3	8.1
10	8.6	9.1	9.1
11	9.3	9.9	9.8
12	10.3	11.0	10.8
13	11.3	12.0	11.9
14	12.2	13.0	12.8
15	13.2	14.0	13.8
16	14.2	15.0	14.9
17	15.2	16.0	15.8
18	16.1	17.0	16.8
19	17.1	18.0	17.8
20	18.0	19.0	18.8
21	18.9	20.2	19.8
22	19.8	20.8	20.7
23	20.8	22.0	21.8
24	21.9	23.1	22.9
25	23.0	24.3	24.1
26	24.3	25.7	25.4

Data for Little Dandy cavities supplied by RCBS.

HORNADY PISTOL POWDER MEASURE

	No. 5	No. 7	No. 9
1	4.2	4.3	4.3
2	4.6	4.7	4.6
3	5.1	5.1	5.1
4	5.6	5.8	5.6
5	6.0	6.3	6.1
6	6.3	6.4	6.4
7	6.8	6.9	6.9
8	7.4	7.5	7.5
9	7.6	7.7	7.6
10	8.6	8.7	8.5
11	8.9	9.1	8.9
12	9.4	9.7	9.6
13	10.4	10.7	10.6
14	11.0	11.3	11.2
15	11.6	12.0	11.9
16	12.3	12.7	12.5
17	13.6	14.0	13.9
18	14.1	14.3	14.2
19	14.5	15.1	14.7
20	15.5	15.7	15.8
21	17.0	17.5	17.2
22	17.6	18.3	18.0

Data for Hornady powder measure cavities suppliedby Hornady Manufacturing.

GLOCK FUNCTION TEST RESULTS

Bullet Weight	No. 2 (start)	No. 2 (max)	No. 5 (start)	No. 5 (max)	No. 7 (start)	No. 7 (max)
90	NO	NO	DNT	YES	DNT	YES
95	NO	NO	DNT	YES	DNT	YES
100	NO	YES	DNT	YES	DNT	YES
115	NO	YES	DNT	YES	DNT	YES
115 (L)	NO	YES	YES	YES	YES	YES
124	NO	YES	YES	YES	YES	

Bullet weight	No. 2 (start)	No. 2 (max)	No. 5 (start)	No. 5 (max)	No. 7 (start)	No. 7 (max)
125 (L)	NO	NO	YES	YES	YES	YES
130	NO	YES	YES	YES	YES	YES
130 (L)	NO	NO	YES	YES	YES	YES
145 (L)	NO	YES	YES	YES	YES	YES
147	NO	YES	YES	YES	YES	YES

Note: DNT = Did not test

The above chart illustrates results in our lab with a Glock 9mm semi-auto. The indications are that best functioning for this, and similar high performance pistols, will be obtained using heavier bullets and slower powders.

RECOMMENDED READING LIST

TITLE	AUTHOR	PUBLISHER
ABC's of Reloading	Dean Grennell	Digest Books
Cartridge Conversions	George Nonte	
Cartridges of the World	Frank Barnes	Digest Books
Chemistry of Explosives	Tenney L. Davis	
Complete Guide to Handloading	Phil Sharpe	
Encyclopedia of Explosives	Picatinny Arsenal	U.S. Army
Firearms Pressure Factors	Handloader	Wolfe Publishing
Game Loads & Practical Ballistics	Bob Hagel	Alfred Knopf
Gun Propulsion Technology	Ludwig Steifel	AIAA
Handbook for Shooters & Reloaders	Parker O. Ackley	
Handbook of Shotshell Reloading	Couger/Henderson	
Handloader's Digest	Ken Warner	Digest Books
Handloading	NRA	NRA
Handloading for Hunters	Don Zutz	Winchester
Hatcher's Notebook	Julian S. Hatcher	Stackpole
Hodgdon Reloading Manual	Hodgdon	Hodgdon
Hornady Reloading Manual	Hornady	Hornady
Interior Ballistics of Guns	Krier/Summerfield	AIAA
Lyman Cast Bullet Handbook	Lyman	Lyman
Lyman Reloading Handbook	Lyman	Lyman
Lyman Shotshell Handbook	Lyman	Lyman
Metallic Cartridge Reloading	Bob Anderson	Digest Books
Modern Handloading	George C. Nonte, Jr.	Winchester
Nosler Reloading Manual	Nosler	Nosler
Powley's Notes	Homer Powley	
Practical Handloading	John Wooters	Winchester
Princ. & Prac. of Loading Ammunition	Earl Narramore	Stackpole
Propellant Profiles	Handloader	Wolfe Publishing
RCBS Cast Bullet Manual	RCBS	Blount
Sierra Reloading Manual	Sierra	Sierra
Speer Reloading Manual	Speer	Blount
The Winchester Lever Legacy	Clyde Williamson	
The Bullet's Flight	F.W. Mann	Wolfe Publishing
SPG Lubricant's BP Cartridge Reloading Primer	Steve Venturino & Steve Garbe	
Yours Truly	Harvey Donaldson	Wolfe Publishing

Loading manuals change through the years. Only the latest edition should be used for determining charge weights. Older editions are primarily for historical and educational purposes.

NOMINAL BULLET DIAMETERS

.22 HORNET	.224
.218 BEE	.224
.221 FIREBALL	.224
.222 REMINGTON	.224
.223 REMINGTON	.224
6mm T/CU	.243
6mm BR REMINGTON	.243
.25 ACP (6.35 BROWNING)	.251
6.5mm T/CU	.264
6.5 JDJ	.264
.270 R.E.N.	.277
7mm T/CU	.284
7mm BR REMINGTON	.284
7mm IHMSA	.284
7mm MERRILL	.284
7-30 WATERS	.284
7mm-08 REMINGTON	.284
.30 M1 CARBINE	.308
.30 HERRETT	.308
.300 WHISPER	.308
.30-30 WINCHESTER	.308
.309 JDJ	.308
7.62x25mm TOKAREV	.308
.30 LUGER	.308
.30 (7.63mm) MAUSER	.308
.32 ACP	.312
.32 SMITH & WESSON LONG	.315
.32 H&R MAGNUM	.315
.32-20 WINCHESTER	.312
.32-20 T/C	.312
.380 ACP (9mm KURZ)	.355
9x18mm MAKAROV	.364
9mm LUGER	.355
.38 AUTOMATIC (.38 ACP)	.355
.38 SUPER AUTOMATIC (+P)	.355
.38 SMITH & WESSON SPECIAL	
	Jacketed .357
	Lead .358
.38 SMITH & WESSON SPECIAL (+P)	
	Jacketed .357
	Lead .358
.357 MAGNUM	Jacketed .357
	Lead .358
357 SIG	.356
.357 REMINGTON MAXIMUM	.357
.357 HERRETT	.357
.35 REMINGTON	.358
.357/44 BAIN & DAVIS	.357
.38 SMITH & WESSON	.361
.375 SUPER MAG	.375
.375 JDJ	.375
.38-40 WINCHESTER	Jacketed .400
	Lead .401
.40 SMITH & WESSON/.41 AE	.400
.400 CORBON	.400
10mm AUTO	.400
10mm MAGNUM	.400
.41 REMINGTON MAGNUM	.410
.44-40 WINCHESTER	.427
.44 SMITH & WESSON SPCL	.429
.44 REMINGTON MAGNUM	.429
.445 SUPER MAG	.430
.45 ACP	Jacketed .451
	Lead .452
.45 AUTO-RIM	Jacketed .451
	Lead .452
.45 COLT	Jacketed .451
	Lead .454
.45 COLT (RUGER & T/C ONLY)	
	Jacketed .451
	Lead .452
.45 WINCHESTER MAGNUM	.451
.454 CASULL	.452
.50 ACTION EXPRESS	.500
.460 ROWLAND	.451/.452
.17 CCM	.172
.17 MACH IV	.172
.17 REMINGTON	.172
.22 CCM	.224
.22 HORNET	.223/.224
.218 BEE	.224
.221 FIREBALL	.224
.222 REMINGTON	.224
.222 REMINGTON MAGNUM	.224
.223 REMINGTON	.224
.22 PPC	.224
.22 BR REMINGTON	.224
.219 ZIPPER	.224
.225 WINCHESTER	.224
.224 WEATHERBY MAGNUM	.224
.22-250 REMINGTON	.224
.220 SWIFT	.224
6mm PPC	.243
6mm BR REMINGTON	.243
.243 WINCHESTER	.243
6mm REMINGTON	.243
.240 WEATHERBY MAGNUM	.243
.25-20 WINCHESTER	.257
.256 WINCHESTER MAGNUM	.257
.25-35 WINCHESTER	.257
.250-3000 SAVAGE	.257
.257 ROBERTS	.257
.257 ROBERTS (+P)	.257
.257 ROBERTS ACKLEY IMPROVED (40°)	.257
.25-06 REMINGTON	.257
.257 WEATHERBY MAGNUM	.257
.260 REMINGTON	.264
6.5mm ARISAKA	.264
6.5x55mm SWEDISH MAUSER	.264
6.5mm REMINGTON MAGNUM	.264
6.5-06	.264
.264 WINCHESTER MAGNUM	.264
.270 WINCHESTER	.277
.270 WEATHERBY MAGNUM	.277
7-30 WATERS	.284
7x57mm MAUSER	.284
7mm-08 REMINGTON	.284
.280 REMINGTON (7mm EXPRESS REMINGTON)	.284
.284 WINCHESTER	.284
7mm REMINGTON MAGNUM	.284
7mm WEATHERBY MAGNUM	.284
7mm SHOOTING TIMES WESTERNER	.284
.30 M1 CARBINE	.308
.30-30 WINCHESTER	.308
.30-40 KRAG	.308
.300 SAVAGE	.308
.307 WINCHESTER	.308
.308 WINCHESTER	.308
.30-06 SPRINGFIELD	.308
.300 HOLLAND & HOLLAND MAGNUM	.308
.30-338/.308 NORMA MAGNUM	.308
.300 REMINGTON ULTRA MAG	.308
.300 WINCHESTER MAGNUM	.308
.300 WEATHERBY MAGNUM	.308
.30-378 WEATHERBY	.308
.303 BRITISH	.311
7.62x39mm	.311
7.62x54R RUSSIAN	.311
7.65x53mm MAUSER	.313
7.7x58mm JAPANESE ARISAKA	.312
8x57mm MAUSER	.318/.323
8x57mm JS	.323
8mm-06	.323
8mm REMINGTON MAGNUM	.323
.338-06	.338
.338 REMINGTON ULTRA MAG	.338
.338 WINCHESTER MAGNUM	.338
.340 WEATHERBY MAGNUM	.338
.348 WINCHESTER	.348
9mm LUGER	.355
.357 MAGNUM	.357
.35 REMINGTON	.358
.356 WINCHESTER	.358
.358 WINCHESTER	.358
.35 WHELEN	.358
.350 REMINGTON MAGNUM	.358
.358 NORMA MAGNUM	.358
9.3x62mm MAUSER	.366
9.3x74R	.366
.375 WINCHESTER	.375
.375 HOLLAND & HOLLAND MAGNUM	.375
.378 WEATHERBY MAGNUM	.375
.411 KDF/.416 TAYLOR	.411/.416
.416 REMINGTON MAGNUM	.416
.416 WEATHERBY MAGNUM	.416
.416 RIGBY	.416
.44 REMINGTON MAGNUM	.429
.444 MARLIN	.430
.45 ACP	.451
.45 COLT CARBINE	.451
.45-70 GOVERNMENT	.458
.458 WINCHESTER MAGNUM	.458
.460 WEATHERBY MAGNUM	.458
.50 BROWNING	.510
.32-40 WINCHESTER SCHEUTZEN	.320
.32-20 WINCHESTER (HV-92)	.312
.32-40 WINCHESTER	.320
.38-40 WINCHESTER	.401
.38-55 WINCHESTER	.379
.40-65 WINCHESTER	.403
.44-40 WINCHESTER	.427
.45-70 GOVERNMENT	.458
.45-90	.458
.45-110	.458
.45-120	.458
.50-70 GOVERNMENT	.515
.50-90 SHARPS	.512
.50-110	.512
.50-140 SHARPS	.512

pellant Storage and Safety • Powder Descriptions • The History of Reloading • Pres
ting • The Folly of More Powder • What is Recoil? • Effects of Atmospheric Condit
Interior Ballistics of Ammunition • Chronographing Metallic Ammunition • A
tory of Computers in Ballistics • Shooting Cast Bullets • Reloading for Old Gun
ibers • How Important is Accurate Recordkeeping? • Loading for Handgun Cartridg
Hornet • .218 Bee • .221 Fireball • .222 Remington • .223 Remington • 6mm T/C
n BR Remington • .25 ACP (6.35 Browning) • 6.5 mm T/CU • 6.5 JDJ • .270 R.E.
n T/CU • 7mm BR Remington • 7mm IHMSA • 7mm Merrill • 7-30 Waters • 7m
nington • .30 M1 Carbine • .30 Herrett • .30-30 Winchester • .309 JDJ • .30 Luger •
3mm) Mauser • .32 ACP • .32 Smith & Wesson Long • .32 H&R Magnum • .3
nchester • .32-30 T/C • .380 ACP (9mm Kurz) • 9x18mm Makarov • 9mm Luger •
tomatic (.38 ACP) • .38 Super Automatic (+P) • .38 Smith & Wesson Special • .38 S
Wesson Special (+P) • .357 Magnum • .357 Magnum Target Loads • Desert Eagle •
nington Maximum • .357 Herrett • .35 Remington • .357/44 Bain & Davis • .38 S
Wesson • .375 Super Mag • .375 JDJ • .38-40 Winchester • .40 Smith & Wesson/.41
0mm Auto • 10mm Magnum • Load for IAI Guns Only • .41 Remington Magnum •
Winchester • .44 Smith & Wesson Special • .44 Remington Magnum • Desert Eag
5 Super Mag • .45 ACP • .45 ACP (+P) • .45 ACP Wadcutter • .45 Auto-Rim • .45
45 Colt (Ruger & T/C Only) • .45 Winchester Magnum • .454 Casull • .50 Action Exp
Loading Rifle Ammunition • .17 CCM • .17 Mach IV • .17 Remington • .22 CCM •
rnet • .218 Bee • .221 Fireball • .222 Remington • .222 Re •
nington • .22 PC • .22 BR Remington • .219 Zipper • .225 Wi ath
gnum • .22-250 Remington • .220 Swift • 6mm PPC • 6m •

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