

TIROPRACTICO

ALLIANT RELOADER MANUAL

In collaborazione con TIROPRACTICO®^{WEB}

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Caution

Millions of men and women reload ammunition as a hobby or because the cost savings allow them to do more shooting. In order to become or to continue as a safe reloader, **you must be cautious and careful.** You are the production department and the quality control department. Later, when you shoot the ammunition that only you produced and checked, you are the person closest to the gun if it malfunctions because of faulty ammunition — yours.

Remember—you are dealing with an explosive material. You become a “miniature” manufacturer working with powders and primers that can, if misused, explode or burn, causing serious personal injury (including death) and property damage.

Read and study one or more good books that describe reloading techniques in detail. When using smokeless powders, use only the exact type and quantity recommended herein. Store and use smokeless powders—your powders—according to the safety rules listed in this booklet. Reload for quality, so that the safest and most accurate loads on the shooting line will be yours.

Ballistics

The ballistic data shown in this booklet were obtained in the laboratory under strictly controlled conditions. **You must load only those exact combinations that are listed.** Even then, different reloading techniques, plus industrial tolerances of each component, likely will cause your ammunition, or ammunition loaded by other competent laboratories, to yield slightly different ballistic data. Therefore, **charge recommendations in this booklet must never be exceeded.** Smart shooters and hunters know that accuracy, not maximum power, is their key to success.

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Powder Warnings

- **NEVER** substitute smokeless powder for black powder, or for Pyrodex, or for any other smokeless powder.
- **NEVER** mix together any two powders, regardless of type, brand, style, or source.
- **NEVER** use the data in this *Reloaders’ Guide* for any other powders, even if advertised “similar to Bullseye” or “burns the same as Red Dot,” etc.

Violation of any of the above could result in severe personal injury (including death) or gun damage.

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(800) 276-9337

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WARNING: The shotgun shell loading data in this booklet are for lead shot only. Steel shot cannot be substituted. Also, do not use buffers or fillers of any kind.



Smokeless Powders for Reloading

We currently offer 14 powders for use in reloading. These are listed in the order of decreasing burning rates. Each powder listed is “slower” than those preceding it and “faster” than those following it. Among these Alliant smokeless powders, for example, Red Dot® burns more slowly than Bullseye®, but faster than Green Dot®.

Powder	Principal Use ¹	Can Also be Used In ¹
Bullseye®	Handgun Loads	12-Gauge Light Target Loads
Red Dot®	Light and Standard Shotgun Loads, 12-, 16-, and 20-Gauge	Handgun Loads
American Select™	12-Gauge Target Loads	Handgun Loads
Green Dot®	Standard and Medium Shotgun Loads, 12-, 16-, and 20-Gauge	Handgun Loads
Unique®	All-Around Shotgun Powder, 12-, 16-, 20-, and 28-Gauge	Handgun Loads
POWER PISTOL™	High performance pistol loads such as the 9mm, .40 S&W, and 10mm	Moderate pressure pistol cartridges like the .38 Special, .380 Auto, and .45 ACP
Herco®	Heavy Shotgun Loads, 10-, 12-, 16-, 20-, and 28-Gauge	Heavy Handgun Loads
Blue Dot®	Magnum Shotgun Loads, 10-, 12-, 16-, 20-, and 28-Gauge	Magnum Handgun Loads
2400®	Magnum Handgun Loads	Some Rifle and Shotgun Loads
Reloder® 7	Light Rifle Loads	Silhouette Loads
Reloder® 12	Medium Rifle Loads	Silhouette Loads
Reloder® 15	Medium Rifle Loads	Silhouette Loads
Reloder® 19	Magnum Rifle Loads	Target and hunting rifle loads
Reloder® 22	Magnum Rifle Loads	Maximum hunting loads

¹Use only in the loads printed in this Guide.

Packaging

Powder	1-lb Canister	4-lb Canister	5-lb Canister	8-lb Keg
Bullseye, Red Dot, American Select, Green Dot, Unique, Herco, 2400	x	x		x
Power Pistol™	x	x		
Blue Dot	x		x	
Reloder Series	x		x	

All 14 powders are always in stock at distributors' magazines throughout the U.S.A., and in most countries where reloading is legally permitted and popular. Any reloader unable to purchase any of the 14 powders at retail stores that handle powders should write to the address on the back cover. We cannot ship directly, but we will endeavor to correct supply shortages in your area.

Powder Information

Smokeless sporting propellants are of two basic types – single-base and double-base. Single-base propellants derive their energy from nitrocellulose and double-base from a combination of nitrocellulose and nitroglycerin. Alliant propellants range from the “near” single-base American Select (2% nitroglycerin) to the high nitroglycerin (40%) double-base Bullseye. In addition, our propellants contain stabilizers for long storage life and various other ballistic modifiers which reduce flash, improve combustion efficiency, and promote clean burning.

Some of our propellants also have a chemical coating on the surface to control the burning rate. This creates a progressive burn for achieving higher velocities at lower pressures. All of our propellants have a graphite glaze, which ensures smooth, consistent metering of charges through volumetric reloaders.

Alliant propellants are extruded and cut into circular flakes or cylinders by precision dies and cutting equipment. Granule size tolerances are very tight and uniform to prevent separation of different size granules and to ensure consistent ballistic performance, load after load.

By utilizing a precise combination of chemical formulation, granule size, and chemical coatings, we are able to tailor the burning characteristics of our propellants to achieve the best overall performance in a wide range of loads.

Because each of our propellants is specifically engineered to have different burn rates and performance characteristics, **NEVER BLEND OR MIX DIFFERENT POWDERS, AND USE ONLY THE GRADE AND QUANTITY RECOMMENDED IN THIS RELOADER'S GUIDE.**

All powders burn with great precision and rapidly inside the gun chamber, generating the hot, high-pressure gas that accelerates the bullet (or shot) and drives it toward the target. **It is critically important for safety that the powder used is matched to the bullet (or shot) weight and other factors; otherwise, the gun parts may be deformed or may even burst and cause serious personal injury (including death).** Shot-to-shot accuracy can also be degraded by deviations from recommended loads. Even after 80 years of producing and testing powders, ballisticians are unable to calculate and predict exact ballistic results; we must test-fire our powders with each set of components and record the results. Therefore, **the ballistic values and recommended combinations listed in this booklet must be followed without deviation.**

Working up charges. For shotgun loads, use the charge weight shown. However, for all rifle and pistol loads, first load and fire a few cartridges at 10% less charge than is shown, watching for any sign of excessive pressure (difficult extraction, flattened or blown primers, unusual recoil).

Handgun loads. Many pistol and revolver loads require only small amounts of fast-burning powders; therefore: (1) guard against accidental double charges, and even multiple charges, whether loading with handtools or with progressive loading devices; (2) be sure that each bullet is positioned in the case so that the minimum overall length is not violated.

Dram Equivalent

Prior to the commercialization of smokeless powder, shotgun shells were loaded with black powder. The weight measurement system used for black powder was “drams.” Compared with black powder, **smokeless powder is more dense and MUCH more energetic, so it cannot safely be measured and used like black powder.** Indeed, a different weight system was selected for smokeless powder: “grains,” wherein 7,000 grains equal one pound.

Since many shooters still wanted to be able to compare their smokeless powder loads with the original black powder loads, the term “dram equivalent” evolved. Simply stated, the dram equivalent is an indicator of the velocity of a particular shot load. **But note that the charge and weight of smokeless powder must not be calculated from the dram equivalent.**

Notice

We have inserted information on the properties and storage of smokeless powder for your understanding, so that you can avoid unnecessary risks when using it. This information, on pages 8 and 9, was published initially by the Sporting Arms and Ammunition Manufacturers' Institute, Inc., several years ago in the interest of safety. You must read these pages carefully and comply with the precautions listed. If you have questions, please call or write to us at the address on the back cover.

Important Safety and Health Precautions

To perform in a gun, powders must ignite easily and burn rapidly. These characteristics require use of common sense to avoid accidents. **YOU MUST OBSERVE THESE PRECAUTIONS:**

1. **DO NOT** smoke when reloading.
2. **DO NOT** use spark-producing tools.
3. **DO NOT** mix powders of different kinds.
4. **DO NOT** leave powder where children can get it.
5. **DO NOT** try to load when distracted.
6. Avoid an open fire or working near spark-producing machinery.
7. Pour out only the amount of powder needed for immediate work.
8. Check the powder measure each time it is used. Make sure the settings have not been accidentally changed. Check-weigh “thrown charges” frequently.
9. Clean up any spilled powders. Use a brush and dustpan; do not use a vacuum cleaner. Dispose of spilled powder as described in the SAAMI pages of this Guide.
10. Store powder only in its original container, which was carefully designed for this usage. **DO NOT REPACKAGE.** Do not purchase or accept any Alliant powder not in its original, **FACTORY-SEALED** container.
11. Be sure the powder container is completely empty before discarding. Do not use the container to store other powders or materials, or for any other purpose.
12. Always keep in mind that smokeless powder is an explosive material and highly flammable. It should always be stored and handled in such a way as to avoid impact, friction, heat, sparks, or flame.
13. Wear safety glasses when reloading.
14. This material contains nitroglycerin. Inhalation, skin contact, or ingestion may cause severe headache, nausea, and lowering of blood pressure. **THEREFORE, THE FOLLOWING PRECAUTIONS MUST BE OBSERVED WHEN HANDLING POWDERS:**
 - A. Do not take internally. In case of ingestion, cause vomiting. Call a physician.
 - B. Avoid contamination of food, beverages, or smoking materials.
 - C. Avoid breathing dust. Ensure adequate ventilation during handling.
 - D. Wash thoroughly after handling and before eating, drinking, or smoking.
 - E. Do not carry powder in clothing.

You must also always remember:

1. Establish a routine for reloading. It will result in more uniform loads and less chance of error.
2. Some primers are more powerful than others (they produce more gas at a higher temperature). Use only the primers specified herein.
3. Shotshell wads differ in their sealing ability. Use only the load combinations specified herein.
4. If you use cast bullets, their diameter, hardness, lubrication, and crimp will affect the ballistics.
5. **The shotshell loads in this booklet are for use with LEAD SHOT ONLY!**
6. Use only the brands of powder and components shown in our tables. Do not substitute other types.
7. Discharging firearms in poorly ventilated areas, cleaning firearms, or handling ammunition may result in exposure to lead, a substance known to cause birth defects, reproductive harm, and other serious physical injury. Have adequate ventilation at all times. Wash hands and face thoroughly after handling and before coming in contact with food, chewing materials, and smoking material.

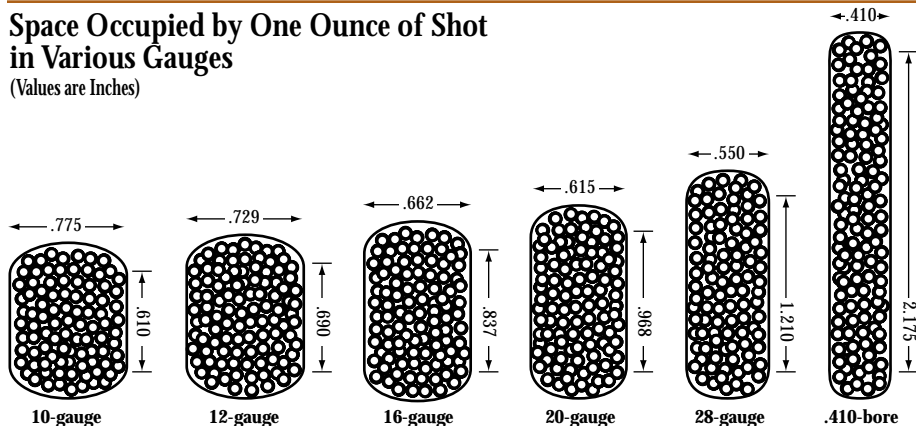
Reference Tables

Approximate Number of Pellets in Specific Weights of Lead Shot (Sizes 2 Through 9)

Weight, oz	No. 2	No. 4	No. 5	No. 6	No. 7½	No. 8	No. 8½	No. 9
½	45	67	85	112	175	205	242	292
¾	67	101	127	168	262	308	363	439
7/8	79	118	149	197	306	359	425	512
1	90	135	170	225	350	410	485	585
1¼	101	152	191	253	393	461	545	658
1½	112	169	213	281	437	513	605	731
1¾	124	186	234	309	481	564	665	804
1½	135	202	255	337	525	615	730	877

Space Occupied by One Ounce of Shot in Various Gauges

(Values are Inches)



Internal Diameter of the Barrel in Several Shotgun Gauges

- 10-Gauge—0.775-Inch
- 12-Gauge—0.729-Inch
- 16-Gauge—0.662-Inch
- 20-Gauge—0.615-Inch
- 28-Gauge—0.550-Inch
- .410-Bore—0.410-Inch

Reference Tables (continued)

Number of Shells That Can Be Loaded with One Pound of Powder at Various Grains Per Load

(The term grain is a measure of weight: 7,000 grains equal one pound)

Grains/ Load	Loads/ Pound	Grains/ Load	Loads/ Pound	Grains/ Load	Loads/ Pound	Grains/ Load	Loads/ Pound	Grains/ Load	Loads/ Pound	Grains/ Load	Loads/ Pound
12	583	23	304	34	205	45	156	56	125	67	104
13	538	24	291	35	200	46	152	57	123	68	103
14	500	25	280	36	194	47	149	58	121	69	101
15	466	26	269	37	189	48	146	59	119	70	100
16	437	27	259	38	184	49	143	60	117	71	99
17	411	28	250	39	179	50	140	61	115	72	97
18	388	29	241	40	175	51	137	62	113	73	96
19	368	30	233	41	170	52	135	63	111	74	95
20	350	31	225	42	166	53	132	64	109	75	93
21	333	32	218	43	162	54	130	65	108	76	92
22	318	33	212	44	159	55	127	66	106	77	91

Typical Percentage of Pellets in a 30-Inch Circle at 40 Yards (Pattern) for Various Choke Sizes

(Choke is a Constriction at the Muzzle of a Shotgun Barrel)

Full Choke—70%

Improved Modified Choke—65 to 70%

Modified Choke—55%

Improved Cylinder—50%

True Cylinder—40%

Ballistic Data

The velocity and pressure obtained with the specific combinations of shell, wad, primer, bullet or shot weight, powder, and powder weight provided in this booklet were obtained in a laboratory, where considerable effort is made to control the load and test conditions. Velocity was measured with a chronograph (electric stopwatch). Pressure was measured either by compressing copper cylinders, or electronically, by use of a piezoelectric transducer.

Guns are designed to take a considerable amount of internal pressure, but if this is exceeded, they burst violently. Be alert to signs of excess pressure, such as heavy recoil, flattened primers, or blown primers. Don't make changes in the suggested loads.

Tone variations (shaded areas) used in the reloading tables are for ease of reading and do not represent preferred loads.

Each shotshell table lists DRAM EQUIVALENT in the first column. This number is not used in any way during reloading. The quantity of powder to use is listed in GRAINS, which are a measure of weight, under each powder column.

Every reloader needs a good-quality scale for weighing each powder charge, or for checking the weight of powder thrown by volumetric loaders.

Special Notes Regarding Components Other Than Powder

A. **Shotgun Shells.** Manufacturers may sell ammunition under different brand names that are identical for reloading purposes. Following are popular variations. When in doubt, consult the ammunition producer.

- Federal Hi Power Plastic same as Duck and Pheasant, Field, Game, and Dove and Squirrel or Top Gun.
- Federal Premium (Integral Base Wad)
- Remington-Peters. Same as Mohawk brand shells.
- Winchester AA-Type (Compression-Formed) same as AA Target, Upland and Super Double X.
- Winchester Polyformed Type (Reifenhauser Tube) same as Duck and Pheasant, Dove and Squirrel, and Sears Brand.

B. **Primers**

- CCI 109 and CCI 209 are ballistically identical and can be interchanged.
- CCI 209M (Magnum) is "hotter" and cannot be substituted for CCI 109 or 209. Use 209M only as listed.
- Rem. 209 is "hotter" and cannot be substituted for Rem. 97★ or Rem. 209P primer.
- Rem. 209P is interchangeable with Rem. 97★ primer.
- Federal 209A is "hotter" and cannot be substituted for Federal 209.

C. **Wads.** Card wads and fiber wads are used for certain slug and buckshot loads and a few light shotshell loads. Do not interchange wads.

D. **Shot.** Use only clean lead shot. **DO NOT USE STEEL SHOT IN SHOTSHELL LOADS LISTED IN THIS GUIDE.**

E. **Shot Buffers.** Do not add any buffers or fillers of any kind to shotshell loads listed in this Guide.

F. **Cards and Fillers.** For revolver, pistol, and rifle cartridge reloading, do not add any cards, kapok, or fillers of any kind to loads listed in this Guide.

Black Powder

Black powder is entirely different from smokeless powder. NEVER substitute one for the other. Smokeless powders have much more energy than black powder. NEVER attempt to use smokeless powder in black powder guns or saluting cannon; they may blow up and cause serious personal injury (including death).

1996 Powder Bushing Charts

A reloading scale is *required* to check the nominal weight of a powder charge.

Powder bushings can vary in the charge weight they drop and could vary as much as several grains under certain conditions.

Powder density, moisture content, and loading technique can cause a variation from the bushing weights listed on the charts. Also, the loading machine vibration affects charge weights. A complete loading cycle should be completed to *assure* an average powder charge weight.

The information in these tables has been supplied by the reloading machine manufacturers and is *not a reloading recommendation* or a result of Alliant's testing.

Lee Powder Bushing Chart (Units shown in grains)

Bushing #	.095	.100	.105	.110	.116	.122	.128	.134	.141	.148	.151*	.155	.163	.171	.180	.189	.198
Red Dot	11.0	11.6	12.2	12.8	13.5	14.2	14.8	15.5	16.4	17.2	17.5	18.0	18.9	19.8	20.9	21.9	23.0
Green Dot	12.3	13.0	13.6	14.3	15.1	15.8	16.6	17.4	18.3	19.2	19.6	20.1	21.2	22.2	23.4	24.5	25.7
Unique	14.3	15.0	15.8	16.5	17.4	18.3	19.2	20.1	21.2	22.2	22.7	23.3	24.5	25.7	27.0	28.4	29.7
Herco	13.9	14.6	15.3	16.1	16.9	17.8	18.7	19.6	20.6	21.6	22.0	22.6	23.8	25.0	26.3	27.6	28.9
Blue Dot	18.0	19.0	19.9	20.8	22.0	23.1	24.3	25.4	26.7	28.0	28.6	29.4	30.9	32.4	34.1	35.8	37.5
2400	21.0	22.1	23.2	24.3	25.6	27.0	28.3	29.6	31.2	32.7	33.4	34.3	36.0	37.8	39.8	41.8	43.8

*NOTE: Only available with Lee Load-Fast.

Hornady Powder Bushing Chart for 366 Auto and Apex 91 (Units shown in grains)

Grains	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44		
Red Dot			384	393	405	423	438	453	468	480	489	498	510	519																							
American Select						417	423	432	447	456	468	477	483																								
Green Dot			363	378	390	405	420	435	447	456	468	480	492	501	513	522	534	—	549	558																	
Unique			342	354	369	381	393	405	414	423	435	444	453	465	474	483	492	501	—	510																	
Herco			357	369	381	393	405	414	426	438	450	462	471	477	489	498	—	513	522	531	—	549	558	564	573	—	588	594									
Blue Dot								366	372	381	390	396	408	414	423	435	441	447	459	468	474	483	489	495	501	510	516	522	531	534	543	549	555	561			
2400			256	266	—	291	300	312	324	330	339																										

Ponsness/Warren Powder Bushing Chart (Units shown in grains)

Bushing #	1A	2A	3A	A	B	C	C1	D	D1	E	E1	E2	F	F1	F2	G	G1	H	I	J	J1	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA		
Bullseye										16.2	16.8	17.7	18.7	19.4																										
Red Dot										11.6	12.2	12.9	13.4	13.7	14.5	14.7	15.7	16.5	16.8	17.3	17.6	18.5	19.4	20.7	20.9	21.3	21.9	22.9												
American Select																16.4	17.5	18.2	18.8	19.4	19.9	20.6	22.0																	
Green Dot										11.7	12.3	13.1	13.6	13.8	14.7	14.9	15.9	16.7	17.0	17.5	17.9	18.8	19.6	21.1	21.3	21.8	22.3	23.2	23.6	25.3	26.5									
Unique										12.6	14.2	14.8	15.6	16.5	17.2	17.5	18.7	19.0	20.2	21.2	21.7	22.3	22.7	24.0	25.0	26.8	27.1	27.6												
Herco										12.3	13.8	14.4	15.1	16.0	16.6	16.9	18.0	18.3	19.5	20.5	20.9	21.5	21.9	23.0	24.0	25.7	26.0	26.5	27.1	28.1	28.8	30.7	32.1	33.1	34.9	35.4	37.2			
Blue Dot										16.4	18.4	19.2	20.1	21.3	22.2	22.6	23.9	24.3	25.9	27.2	27.7	28.5	29.1	30.6	31.9	34.2	34.5	35.2	36.0	37.5	38.1	40.7	42.5	43.8	46.5	47.2	49.5	55.7		
2400			12.3	13.2	15.2	16.1	16.8	17.6	18.3	19.0	21.3	22.2	23.3	24.7	25.7	26.1	27.7	28.2	30.0	31.5	32.2	33.1	33.7	35.5	37.1	39.8	40.2	41.1	42.0	43.8	44.5	47.5	49.8							

MEC Powder Bushing Chart (Units shown in grains)

Bushing #	10	11	12	12A	13	13A	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Bullseye	8.6	9.1	9.6	10.1	10.6	11.2	11.7	12.3	12.9	13.5	14.1	14.8	15.4	16.1	16.8	17.5	18.2	18.9	19.6	20.4	21.2	21.9	22.8	23.7
Red Dot	6.3	6.7	7.1	7.5	7.9	8.3	8.7	9.2	9.6	10.1	10.6	11.1	11.6	12.1	12.6	13.1	13.7	14.2	14.9	15.7	16.4	17.1	17.8	18.5
American Select	6.9	7.3	7.7	8.2	8.6	9.1	9.6	10.1	10.6	11.1	11.7	12.2	12.8	13.3	13.9	14.5	15.1	15.7	16.4	17.0	17.7	18.3	19.0	19.7
Green Dot	6.7	7.2	7.6	8.0	8.4	8.9	9.3	9.8	10.3	10.8	11.3	11.8	12.4	12.9	13.5	14.0	14.6	15.2	15.8	16.4	17.0	17.7	18.3	19.0
Unique	7.5	7.9	8.4	8.9	9.4	9.9	10.4	10.9	11.4	12.0	12.6	13.1	13.7	14.5	15.1	15.8	16.4	17.1	17.7	18.4	19.1	19.8	20.5	21.1
Herco	7.9	8.3	8.8	9.3	9.8	10.4	10.9	11.4	12.0	12.6	13.2	13.8	14.4	15.0	15.7	16.3	17.0	17.7	18.4	19.1	19.8	20.6	21.3	22.1
Blue Dot	10.8	11.3	11.9	12.5	13.1	13.7	14.4	15.0	15.7	16.3	17.0	17.7	18.4	19.2	20.1	21.0	21.9	22.8	23.7	24.6	25.5	26.4	27.3	28.2
2400	11.8	12.5	13.3	14.0	14.8	15.6	16.4	17.2	18.1	18.9	19.8	20.7	21.7	22.6	23.6	24.6	25.6	26.6	27.7	28.8	29.9	31.0	32.1	33.3

MEC Powder Bushing Chart continued (Units shown in grains)

Bushing #	32	33	34	35	36	37	38	38A	39	39A	40	40A	41	41A	42	42A	43	43A	44	44A	45	45A	46
Bullseye	24.6	25.5	26.4	27.3	28.2	29.1	30.1	31.0	31.9	32.8	33.7	34.7	35.7	36.9	38.1	39.4	40.7	42.0	43.3	44.6	46.0	47.4	48.8
Red Dot	19.2	19.9	20.6	21.3	21.9	22.7	23.3	24.1	24.7	25.2	25.9	26.6	27.3	27.9	28.4	29.3	29.9	30.8	31.5	32.1	32.7	33.4	34.1
American Select	20.4	21.1	21.8	22.6	23.3	24.1	24.9	25.7	26.5	27.3	28.1	28.9	29.8	30.7	31.5	32.4	33.3	34.2	35.2	36.4	37.0	38.0	39.0
Green Dot	19.6	20.3	21.0	21.7	22.4	23.2	23.9	24.7	25.4	26.2	27.0	27.8	28.6	29.4	30.3	31.1	32.0	32.8	33.7	34.6	35.5	36.4	37.4
Unique	21.7	22.5	23.2	24.0	24.8	25.6	26.5	27.3	28.2	29.0	29.9	30.8	31.7	32.6	33.5	34.5	35.4	36.4	37.4	38.4	39.4	40.4	41.4
Herco	22.9	23.7	24.5	25.3	26.2	27.0	27.9	28.8	29.7	30.6	31.5	32.4	33.4	34.3	35.3	36.3	37.3	38.3	39.3	40.4	41.4	42.5	43.6
Blue Dot	29.1	30.5	31.6	32.7	33.8	35.0	36.1	37.3	38.5	39.7	40.9	42.2	43.4	44.7	46.0	47.4	48.7	50.1	51.5	52.9	54.3	55.7	57.2
2400	34.5	35.7	36.9	38.1	39.4	40.7	42.0	43.3	44.6	46.0	47.4	48.8	50.2	51.6	53.1	54.6	56.1	57.6	59.2	60.7	62.3	63.9	65.6



Properties and Storage of Smokeless Powder

Ammunition handloading has become increasingly popular in recent years. This information discusses properties of smokeless powder and offers recommendations for its storage.

This information is intended to increase the knowledge of all concerned individuals and groups regarding smokeless powder. The statements and recommendations made are not intended to supersede local, state, or Federal regulations. Proper authorities should be consulted on regulations for storage and use of smokeless powder in each specific community. A leaflet entitled "*Sporting Ammunition Primers: Properties, Handling, & Storage for Hand Loading*" supplements this information on smokeless powder.

Properties of Smokeless Powder

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

How to Check Smokeless Powder for Deterioration

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

Powder deterioration can be checked by opening the cap on the container and smelling the contents. Powder undergoing deterioration has an irritating acidic odor. (Don't confuse this with common solvent odors such as alcohol, ether and acetone.)

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

Never salvage powder from old cartridges and do not attempt to blend salvaged powder with new powder. Don't accumulate old powder stocks.

The best way to dispose of deteriorated smokeless powder is to burn it out in the open at an isolated location in small shallow piles (not over 1" deep). The quantity burned in any one pile should never exceed one pound. Use an ignition train of slow burning combustible material so that the person may retreat to a safe distance before powder is ignited.

Considerations for Storage of Smokeless Powder

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

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

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

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

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

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

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

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

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

Recommendations for Storage of Smokeless Powder

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

DO NOT STORE SMOKELESS POWDER IN THE SAME AREA WITH SOLVENTS, FLAMMABLE GASES, OR HIGHLY COMBUSTIBLE MATERIALS.

STORE ONLY IN DEPARTMENT OF TRANSPORTATION APPROVED CONTAINERS.

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

DO NOT SMOKE IN AREAS WHERE POWDER IS STORED OR USED. PLACE APPROPRIATE "NO SMOKING" SIGNS IN THESE AREAS.

DO NOT SUBJECT THE STORAGE CABINETS TO CLOSE CONFINEMENT.

STORAGE CABINETS SHOULD BE CONSTRUCTED OF INSULATING MATERIALS AND WITH A WEAK WALL, SEAMS OR JOINTS TO PROVIDE AN EASY MEANS OF SELF-VENTING.

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

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

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

10-3 Smokeless Propellants.

10-3.1 Quantities of smokeless propellants not exceeding 25 lb (11.3 kg) in shipping containers approved by the U.S. Department of Transportation, may be transported in a private vehicle.

10-3.2 Quantities of smokeless propellants exceeding 25 lb (11.3 kg) but not exceeding 50 lb (22.7 kg), transported in a private vehicle, shall be transported in a portable magazine having wood walls of at least 1-in. (25.4-mm) nominal thickness.

10-3.3 Transportation of more than 50 lb (22.7 kg) of smokeless propellants in a private vehicle is prohibited.

10-3.4 Commercial shipments of smokeless propellants in quantities not exceeding 100 lb (45.4 kg) are classified for transportation purposes as flammable solids when packaged according to U.S. Department of Transportation Hazardous Materials Regulations (Title 49, Code of Federal Regulations, Part 173.197a), and shall be transported accordingly.

10-3.5 Commercial shipments of smokeless propellants exceeding 100 lb (45.4 kg) or not packaged in accordance with the regulations cited in 10-3.4 shall be transported according to U.S. Department of Transportation regulations for Class B propellant explosives.

10-3.6 Smokeless propellants shall be stored in shipping containers specified by U.S. Department of Transportation Hazardous Materials Regulations.

10-3.7 Smokeless propellants intended for personal use in quantities not exceeding 20 lb (9.1 kg) may be stored in original containers in residences. Quantities exceeding 20 lb (9.1 kg), but not exceeding 50 lb (22.7 kg), may be stored in residences if kept in a wooden box or cabinet having walls of at least 1-in. (25.4-mm) nominal thickness.

10-3.8 Not more than 20 lb (9.1 kg) of smokeless propellants, in containers of 1-lb (0.45-kg) maximum capacity, shall be displayed in commercial establishments.

10-3.9 Commercial stocks of smokeless propellants shall be stored as follows:

- (a) Quantities exceeding 20 lb (9.1 kg), but not exceeding 100 lb (45.4 kg), shall be stored in portable wooden boxes having walls of at least 1-in. (25.4 mm) thickness.
- (b) Quantities exceeding 100 lb (45.4 kg), but not exceeding 800 lb (363 kg), shall be stored in nonportable storage cabinets having walls of at least 1-in. (25.4-mm) thickness. Not more than 400 lb (181 kg) may be stored in any one cabinet and cabinets shall be separated by a distance of at least 25 ft. (7.63 m) or by a fire partition having a fire resistance of at least 1 hour.
- (c) Quantities exceeding 800 lb (363 kg), but not exceeding 5,000 lb (2268 kg), may be stored in a building if the following requirements are met:
 1. The warehouse or storage room shall not be accessible to unauthorized personnel.
 2. Smokeless propellant shall be stored in nonportable storage cabinets having wood walls at least 1 in. (25.4-mm) thick and having shelves with no more than 3 ft (0.92 m) separation between shelves.
 3. No more than 400 lb (181 kg) shall be stored in any one cabinet.
 4. Cabinets shall be located against walls of the storage room or warehouse with at least 40 ft (12.2 m) between cabinets.
 5. Separation between cabinets may be reduced to 20 ft. (6.1 m) if barricades twice the height of the cabinets are attached to the wall, midway between each cabinet. The barricades shall extend at least 10 ft (3 m) outward, shall be firmly attached to the wall, and shall be constructed of ¼-in. (6.4-mm) boiler plate, 2-in. (51-mm) thick wood, brick, or concrete block.
 6. Smokeless propellant shall be separated from materials classified by the U.S. Department of Transportation as flammable liquids, flammable solids, and oxidizing materials by a distance of 25 ft (7.63 m) or by a fire partition having a fire resistance of at least 1 hour.
 7. The building shall be protected by an automatic sprinkler system installed according to NFPA 13, Standard for the Installation of Sprinkler Systems.
- (d) Smokeless propellants not stored according to (a), (b) and (c) above shall be stored in a Type 4 magazine constructed and located according to Chapter 6.

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10-Gauge, 3½-in. Federal Plastic with Paper Wad Base



Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot	
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
4	1¼	1,265	CCI 209M	Rem. SP10 (see Note 6)			29.5	8,300						
			Win. 209	Rem. SP10 (see Note 6)			29.0	8,800						
4¼	1⅝	1,285	CCI 209M	Rem. SP10 (see Note 4)							36.0	10,300	45.0	8,000
			Win. 209	Rem. SP10 (see Note 4)										45.5
4½	1⅞	1,270	CCI 209M	Rem. SP10 (see Note 3)									45.5	9,900
			Win. 209	Rem. SP10 (see Note 3)										45.5
4¼	2	1,210	CCI 209M	Rem. SP10 (see Note 2)									43.5	9,200
			Win. 209	Rem. SP10 (see Note 2)										44.0
4¼	2¼	1,165	CCI 209M	Rem. SP10 (see Note 1)									42.0	9,800
			Win. 209	Rem. SP10 (see Note 1)										42.5

10-Gauge, 3½-in. Remington SP Shell

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot	
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
4	1¼	1,265	CCI 209M	Rem. SP10 (see Note 6)			28.5	8,800	31.0	7,500				
			Win. 209	Rem. SP10 (see Note 6)			29.0	8,800	31.0	7,600				
4¼	1⅝	1,285	CCI 209M	Rem. SP10 (see Note 4)									43.5	8,500
			Win. 209	Rem. SP10 (see Note 4)										44.0
4½	1⅞	1,270	CCI 209M	Rem. SP10 (see Note 3)									44.0	9,800
			Win. 209	Rem. SP10 (see Note 3)										44.5
4¼	2	1,210	CCI 209M	Rem. SP10 (see Note 2)									42.0	10,400
			Win. 209	Rem. SP10 (see Note 2)										42.5
4¼	2¼	1,165	CCI 209M	Rem. SP10									40.5	10,400
			Win. 209	Rem. SP10										41.0

10-Gauge, 3½-in. Winchester Polyformed with Plastic Base Wad

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot	
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
4	1¼	1,265	Win. 209	Rem. SP10 (see Note 5)			28.5	8,600						
			CCI 209M	Rem. SP10 (see Note 5)			28.0	8,500						
4¼	1⅝	1,285	Win. 209	Rem. SP10 (see Note 3)									45.0	8,800
			CCI 209M	Rem. SP10 (see Note 3)							35.5	10,400	44.5	8,700
4½	1⅞	1,270	Win. 209	Rem. SP10 (see Note 2)									45.5	10,200
			CCI 209M	Rem. SP10 (see Note 2)										45.0
4¼	2	1,210	Win. 209	Rem. SP10 (see Note 1)									43.5	9,500
			CCI 209M	Rem. SP10 (see Note 1)										43.0
4¼	2¼	1,165	Win. 209	Rem. SP10									42.0	10,500
			CCI 209M	Rem. SP10										41.5

- NOTES: 1. Add one 20-gauge, 0.135-in. thick card wad to the inside bottom of the shot cup.
 2. Add two 20-gauge, 0.135-in. thick card wads to the inside bottom of the shot cup.
 3. Add three 20-gauge, 0.135-in. thick card wads to the inside bottom of the shot cup.
 4. Add four 20-gauge, 0.135-in. thick card wads to the inside bottom of the shot cup.
 5. Add five 20-gauge, 0.135-in. thick card wads to the inside bottom of the shot cup.
 6. Add six 20-gauge, 0.135-in. thick card wads to the inside bottom of the shot cup.

12-Gauge, 3½-in. Federal Unibody Plastic Shells



Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot	
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
4	1⅞	1,200	CCI 209M	Fed. 12SO (see Note 1)									41.0	9,100
				Win. WAA12SL (see Note 1)									41.0	8,900
4¼	1⅞	1,255	CCI 209M	Rem. R12L (see Note 2)									40.5	9,600
				Win. 209 Fed. 12SO (see Note 1)									40.0	9,000
4¼	2	1,220	CCI 209M	Fed. 12SO									43.0	9,800
				Win. WAA12SL									43.0	9,500
4¼	2¼	1,150	CCI 209M	Rem. R12L (see Note 1)									42.5	10,100
				Win. 209 Fed. 12SO									42.5	10,100
4¼	2	1,220	CCI 209M	Fed. 12SO									42.5	10,000
				Win. WAA12SL									42.5	9,800
4¼	2¼	1,150	CCI 209M	Rem. R12L									42.0	10,000
				Win. 209 Fed. 12SO									41.0	9,900
4¼	2¼	1,150	CCI 209M	Fed. 12S4									38.5	11,100
				Win. WAA12F114									38.5	11,100
4¼	2¼	1,150	CCI 209M	Rem. SP12									39.5	11,200
				Win. 209 Fed. 12S4									38.0	10,900

12-Gauge, 3½-in. Remington Plastic SP

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot	
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
4	1⅞	1,200	CCI 209M	Rem. R12L (see Note 1)									38.0	10,300
				Fed. 12SO (see Note 1)									38.0	10,100
4¼	1⅞	1,255	CCI 209M	Win. WAA12SL (see Note 1)									38.0	10,000
				Win. 209 Rem. R12L (see Note 1)									37.5	10,500
4¼	1⅞	1,255	CCI 209M	Rem. R12L (see Note 1)									39.0	10,900
				Fed. 12SO (see Note 1)									39.0	10,600
4¼	2	1,220	CCI 209M	Win. WAA12SL (see Note 1)									39.0	10,400
				Win. 209 Rem. R12L (see Note 1)									38.5	11,000
4¼	2	1,220	CCI 209M	Rem. R12L									39.5	11,100
				Fed. 12SO									39.5	10,800
4¼	2¼	1,150	CCI 209M	Win. WAA12SL									39.0	10,700
				Win. 209 Rem. R12L									39.0	11,200
4¼	2¼	1,150	CCI 209M	Rem. SP12									38.0	11,100
				Win. 209 Fed. 12S4									37.0	11,100
4¼	2¼	1,150	CCI 209M	Rem. SP12									38.0	11,500

12-Gauge, 3½-in. Winchester Plastic Shells

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot	
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
4	1⅞	1,200	Win 209	Win. WAA12SL									38.5	10,000
				Fed. 12SO									38.5	10,600
4¼	1⅞	1,255	CCI 209M	Rem. R12L (see Note 1)									38.5	10,300
				Win. WAA12SL									38.0	10,100
4¼	1⅞	1,255	Win. 209	Win. WAA12SL									40.0	10,800
				Fed. 12SO									40.5	10,700
4¼	2	1,220	CCI 209M	Rem. R12L (see Note 1)									40.0	10,700
				Win. WAA12SL									39.5	10,500
4¼	2	1,220	Win. 209	Win. WAA12SL									40.0	11,200
				Fed. 12SO									40.5	11,000
4¼	2¼	1,150	CCI 209M	Rem. R12L									39.0	10,600
				Win. WAA12SL									39.0	11,200
4¼	2¼	1,150	Win. 209	Rem. SP12									37.0	11,200

NOTES: 1. Add one 20-gauge, 0.135-in. thick card wad to the inside bottom of the shot cup.
2. Add two 20-gauge, 0.135-in. thick card wads to the inside bottom of the shot cup.

12-Gauge, 2¾-in. Federal Paper Target Shells



Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		American Select		Green Dot		Unique		Herco		Blue Dot					
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi				
3¼	1	1,290	Fed. 209A	Rem. R12L	20.0	9,300			21.5	8,800										
				Fed. 12S3	20.5	9,000			23.5	9,400										
			CCI 209M	Fed. 12SO	20.5	10,400			22.5	9,200										
				Fed. 12S3	21.0	8,700			23.0	7,800										
2¾	1½	1,145	Fed 209A	Fed. 12C1	18.0	8,500			19.0	8,200										
				Fed. 12S3	18.0	8,700	19.0	8,200	19.5	7,400										
				Rem. R12L	18.5	9,300			19.0	8,000										
				Rem. RXP12	18.0	8,900			18.5	8,100										
				Win. WAA12 (White)	18.0	8,600	19.0	8,400	18.5	8,000										
				Fiocchi FTW1	18.5	9,000			20.0	7,900										
				Red PC	18.0	8,300			20.0	7,600										
				Lage Uniwad	18.0	8,500			19.0	8,400										
				Hornady Versalite	18.0	8,800	19.0	7,900	19.5	6,900										
				Windjammer	18.5	8,200	19.5	7,100	20.5	6,600										
				Rem. Fig. 8			19.0	7,600												
				Win. WT12 (Orange)			19.0	8,100												
				Claybuster			19.0	7,600												
				Rem. 209P	Fed. 12C1	18.5	8,300			20.0	7,000									
					Fed. 12S3			19.0	8,500											
				Win. 209	Fed. 12C1	18.5	8,600			19.5	7,500									
Fed. 12S3			19.0		8,900															
CCI 109	Fed. 12C1	18.5	8,500			19.0	7,800													
CCI 209M	Fed. 12C1	18.5	7,900			20.0	7,400													
CCI 209SC	Fed. 12S3			19.0	8,600															
3	1½	1,200	Fed. 209A	Fed. 12C1	19.0	9,300			20.0	8,600	22.0	8,200								
				Fed. 12S3	19.0	9,800	20.5	10,400	21.0	7,800	22.0	7,200								
				Rem. R12L	19.5	9,500			20.0	8,600	22.0	7,800								
				Rem. R12H	19.0	9,200			19.5	8,800										
				Rem. RXP12	19.0	9,900			20.0	8,600	21.0	8,000								
				Win. WAA12 (White)	19.0	10,500	20.5	10,400	19.5	9,000	21.0	8,600								
				Fiocchi FTW1	19.5	9,500			21.0	8,200										
				Red PC	19.0	10,300			21.0	8,800	22.5	8,400								
				Lage Uniwad	18.5	9,400			20.0	8,800	22.0	8,000								
				Hornady Versalite	19.0	8,900	20.0	10,100	21.0	8,300	22.0	7,900								
				Windjammer	19.0	8,700	20.0	9,100	22.0	7,700	23.5	7,600								
				Rem. Fig. 8			20.0	9,800												
				Win. WT12 (Orange)			20.5	10,200												
				Claybuster			20.5	9,300												
				Rem. 209P	Fed. 12C1	20.0	9,200			22.0	7,800	24.0	7,000							
					Fed. 12S3			21.0	9,700											
Win. 209	Fed. 12C1	19.5	9,800			21.0	8,100	23.0	7,600											
	Fed. 12S3			20.5	9,700															
CCI 109	Fed. 12C1	19.0	9,200			20.5	8,200	22.0	7,500											
CCI 209M	Fed. 12C1	20.0	8,700			21.5	7,700	24.0	7,200											
CCI 209SC	Fed. 12S3			20.5	9,800															
3¼	1½	1,255	Fed. 209A	Fed. 12C1	21.0	10,200			21.5	7,900	22.5	8,900								
				Fed. 12S3	21.0	9,400			23.0	9,100	23.0	8,300								
				Rem. R12H					21.5	9,900	22.5	9,000								
				Rem. RXP12	21.0	10,000			21.5	9,300	22.0	8,500								
				Win. WAA12 (White)					21.5	10,500	22.0	9,500								
				Red PC	20.5	10,700			22.5	9,600	24.5	8,500								
				Hornady Versalite	20.5	9,900			22.5	8,500	23.0	8,700								
				Rem. 209P	Fed. 12C1	21.5	10,700			23.5	7,500	26.0	7,500							
Win. 209	Fed. 12C1	21.0	10,300			22.5	9,000	24.5	8,300											
	Fed. 12C1	21.0	10,500			22.5	8,500	24.5	8,400											
CCI 209M	Fed. 12C1	21.0	10,500			22.5	8,500	24.5	8,400											
3½	1½	1,310	Fed 209A	Fed. 12C1					24.5	9,900	26.5	9,000								
				Fed. 12S3							26.5	9,700								
				Rem. RXP12					24.5	9,800	26.5	8,600								
				Win. WAA12 (White)					24.5	9,700	26.5	9,100								
				Rem. 209P	Fed. 12C1					25.5	9,300	27.5	8,300							
				Win. 209	Fed. 12C1							26.5	9,200							
CCI 209M	Fed. 12C1							26.5	9,400											

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12-Gauge, 2¾-in. Federal Paper Target Shells (continued)

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		American Select		Green Dot		Unique		Herco		Blue Dot			
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi		
3¼	1¼	1,220	Fed. 209A	Fed. 12C1					21.0	10,600	22.5	9,500						
				Fed. 12S4					23.0	10,500	24.0	9,800						
				Rem. SP12					21.0	9,600	22.0	9,600						
				Win. WAA12 (White)					21.0	10,500	22.0	10,000						
				Win. WAA12F114					23.0	9,900	23.5	9,500						
				Hornady Versalite					23.0	9,600	23.0	8,800						
				Rem. 209P	Fed. 12S4				23.0	9,900	25.5	9,100						
Win. 209	Fed. 12S4							24.5	10,600									
CCI 209M	Fed. 12S4							23.0	10,500	25.5	9,700							
3¾	1¼	1,330	Fed. 209A	Fed. 12S4											37.0	10,300		
				Rem. RP12									29.0	9,400				
				Rem. SP12									29.5	9,300				
				Win. WAA12F114									29.5	9,200				
Win. 209	Fed. 12S4												37.5	10,300				
CCI 209M	Fed. 12S4									28.0	10,700	29.5	9,900	37.0	9,000			
3½	1⅜	1,240	Fed. 209A	Rem. SP12												34.0	9,900	
				Win. WAA12F114													33.0	10,200
				Rem. 209P	Rem. SP12												36.0	8,300
				Win. 209	Rem. SP12												34.5	9,500
CCI 209M	Rem. SP12												34.5	9,500				
3¾	1⅜	1,295	Fed. 209A	Rem. SP12												35.5	10,300	
				Win. WAA12F114													36.5	10,600
				Rem. 209P	Rem. SP12												38.0	8,600
				Win. 209	Rem. SP12												36.5	10,200
CCI 209M	Rem. SP12												37.0	10,600				
4	1⅜	1,350	Fed. 209A	Rem. RP12											37.5	10,700		
3¼	1½	1,150	Fed. 209A	Rem. SP12									25.0	10,200				
				Activ T42												31.5	9,100	
				Rem. RP12												32.5	8,800	
				Win. 209	Activ T42												31.5	9,400
				Rem. 209P	Activ T42												32.5	9,100
				CCI 209M	Activ T42												33.0	9,400
Fio. 616	Activ T42												32.0	9,500				
3½	1½	1,205	Fed. 209A	Rem. RP12												34.0	9,300	
				Rem. 209P	Rem. RP12												34.5	10,300
				Win. 209	Rem. RP12												35.0	9,600
				CCI 209M	Rem. RP12												35.0	9,400

PC: Pattern Control

12-Gauge, 2¾-in. Federal Gold Medal Plastic Target Shells



Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		American Select		Green Dot		Unique		Herco		Blue Dot		
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	
—	7/8	1,200	Fed. 209A	Fed. 12SO	17.5	7,600											
				Rem. TGT 12	17.5*	7,100											
				Win. WAA12SL	17.0*	7,300											
				Purple PC	17.0*	6,400											
—	7/8	1,250	Fed. 209A	Fed. 12SO	19.0	7,900											
				Rem. TGT 12	18.5*	7,800											
				Win. WAA12SL	18.0*	8,000											
				Purple PC	18.5*	7,300											
—	7/8	1,300	Fed. 209A	Fed. 12SO	19.5	8,400	21.0	7,300	22.0	7,500							
				Rem. TGT 12	19.5*	8,500	21.0	7,400	22.0*	7,200							
				Win. WAA12SL	19.0*	8,400			21.5*	7,600							
				Purple PC	19.5*	7,900	21.5	6,900	22.5*	7,000							
				Claybuster			21.5	6,900									
2¾	1	1,200	Fed. 209A	Fed. 12SO	18.0	8,300	19.5	7,100	20.5	7,600							
				Rem. TGT 12	18.0	7,900	19.5	7,500	20.0	7,000							
				Win. WAA12SL	18.0	8,700	19.5	7,200	20.0	7,800							
				Purple PC	18.0*	7,400			20.5*	7,300							
				Claybuster			20.0	7,300									
3	1	1,255	Fed. 209A	Fed. 12SO	19.5	9,300	21.0	7,700									
				Rem. TGT 12	19.0	8,700	20.5	8,100	21.5	7,900							
				Win. WAA12SL	18.5	9,100	21.0	8,400	21.5	8,500							
				Purple PC	19.5*	8,700			21.5*	8,000							
				Claybuster			21.0	7,600									
3¼	1	1,290	Fed. 209A	Fed. 12SO	20.5	10,300	22.0	8,500									
				Rem. TGT 12	20.0	9,100	21.5	8,800	22.5	8,500							
				Win. WAA12SL	20.0	10,300	21.5	8,800	22.5	9,000							
				Purple PC	20.5	9,300			22.5	8,300							
				Claybuster			21.5	8,000									
2½ Extra Lite	1½	1,090	Fed. 209A	Fed. 12S3	17.0	8,400	17.5	7,100	18.5	7,800							
				Rem. Fig. 8	17.0	7,700	17.5*	8,000	18.0	7,000							
				Win. WAA12SL	17.0	8,100			18.0	7,600							
				Win. WAA12 (White)	16.5*	8,500	17.5*	7,400	18.0*	7,700							
				Win. WT12 (Orange)			18.0*	7,700									
				Fiocchi FTW1	16.5*	8,500			18.0*	7,800							
				Hornady Versalite	17.0*	8,600	17.0*	8,100	18.0	7,200							
				Windjammer	17.5	7,600			18.5	6,600							
				Claybuster			17.5	7,100									
				Win. 209	Fed. 12S3	17.0	8,400										
CCI 209M	Fed. 12S3	17.0	8,300														
Fio. 616	Fed. 12S3	17.5	8,200														
2¾	1½	1,145	Fed. 209A	Fed. 12S3	18.0	8,800	19.0	7,600	19.5	8,100							
				Rem. Fig. 8	18.0	8,800	19.0	9,000	19.0	7,700							
				Rem. RXP12	18.0	9,400			19.0	8,000							
				Win. WAA12SL	18.0	9,200			19.0	8,200							
				Win. WAA12 (White)	17.5*	9,400	19.0*	9,600	19.0*	8,200							
				Win. WT12 (Orange)	18.5*	9,300	19.0*	9,300	20.0*	8,400							
				Fiocchi FTW1	18.0*	9,600			19.5	8,600							
				Hornady Versalite	18.0*	9,400	18.5*	9,600	19.0	8,000							
				Windjammer	18.5	8,200	19.0	8,700	19.5	7,700							
				Claybuster			19.0	8,200									
				Rem. 209P	Fed. 12S3	18.5	8,200	19.5	7,800	20.5	6,800						
				Win. 209	Fed. 12S3	17.5	9,600	19.5	8,100	19.5	8,000						
				CCI 209	Fed. 12S3	18.0	8,200			19.0	7,800						
				CCI 209M	Fed. 12S3	18.0	8,600			19.5	7,500						
CCI 209SC	Fed. 12S3	19.0	9,800	18.5	8,500	20.5	8,600										
	Win. WAA12 (White)	18.5	10,200			20.5	9,000										
	Rem. Fig. 8	19.5	9,500			21.0	8,300										

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PC: Pattern Control

NOTES: *For each asterisk (*), add one 20-gauge, 0.135-in. thick card wad to the inside bottom of the shot cup.

Auto-loading shotguns may not function with loads having pressures less than 7,000 psi. It is important to have tight crimps to prevent load efficiencies (pressures) from dropping. The efficiency may also drop when these loads are fired at low temperatures.

Nitro cards may be obtained from: Ballistic Products, Inc., 20015 75th Avenue North, Corcoran, MN 55340. Phone: (612) 494-9237.

12-Gauge, 2¾-in. Federal Gold Medal Plastic Target Shells (continued)

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		American Select		Green Dot		Unique		Herco		Blue Dot		
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	
3	1⅛	1,200	Fed. 209A	Fed. 12S3	19.5	10,000	20.5	9,200	20.0	9,000	22.5	7,300					
				Rem. Fig. 8	19.0	9,500	20.0*	10,300	20.0	8,600	22.5	7,300					
				Rem. RXP12	19.0	9,900			20.0	8,800	22.5	7,800					
				Win. WAA12SL	19.0	10,000			20.0	8,800							
				Win. WAA12 (White)	19.0*	10,400	20.5*	9,400	20.0	9,200	22.5	8,100					
				Fiocchi FTW1	19.0	10,500			20.5	9,300	22.5	8,100					
				Hornady Versalite	19.0	10,100	20.0*	10,900	20.5	9,400	22.0	8,000					
				Windjammer	19.5	9,600	20.5*	9,800	21.0	8,200	22.5	6,900					
				Win. WT12 (Orange)	20.0*	10,400	20.5*	10,400	21.5*	8,800	23.5*	8,300					
				Claybuster			20.5	9,600									
				Rem. 209P	Fed. 12S3	19.5	9,300	21.5	9,000	21.5	7,900	24.0	6,900				
				Win. 209	Fed. 12S3	19.0	10,500	20.5	9,900	20.5	9,000	23.0	8,600				
				CCI 209	Fed. 12S3	20.0	9,800			22.0	9,200	24.0	8,300				
				CCI 209M	Fed. 12S3	19.0	8,900			21.0	8,600	23.5	8,000				
CCI 209SC	Fed. 12S3	20.5	10,700	20.5	10,000	22.5	8,900										
	Win. WAA12 (White)	20.0	10,500			22.0	10,200										
	Rem. Fig. 8	21.0	9,800			23.0	9,200										
Heavy 1⅛	1,250	Fed. 209A	Fed. 12S3				22.0	10,100	21.5	9,500	23.5	8,100	26.0	8,000			
			Rem. Fig. 8	20.0	9,500			22.0	9,200	23.5	7,800	26.0	7,700				
			Rem. RXP12	20.0	10,100			21.5	9,700	23.5	8,400	26.0	8,000				
			Win. WAA12 (White)					21.5	9,400	23.0	8,400	26.0	8,300				
			Hornady Versalite	20.0	10,700	21.0	10,900	21.5	9,000	24.0	8,300	26.0	8,200				
			Windjammer	20.5	9,500	21.5*	10,700	22.5	8,400	24.0	7,700	26.0	7,400				
			Claybuster			22.0	10,600										
			Rem. 209P	Fed. 12S3					23.0	8,800	25.0	7,600					
Win. 209	Fed. 12S3					22.5	10,500	24.0	9,800								
CCI 209M	Fed. 12S3					22.5	9,800	24.0	9,100								
3½	1⅛	1,310	Fed. 209A	Rem. RXP12					24.0	10,400	26.0	10,300					
				Win. WAA12 (White)					23.0	10,400	25.0	9,200					
				Hornady Versalite							25.0	10,000					
				Windjammer					24.0	8,800	25.0	9,700					
3¼	1¼	1,220	Fed. 209A	Fed. 12S4							24.0	10,500	25.0	10,200			
				Rem. SP12							24.0	10,400	26.0	9,700			
				Win. WAA12F114							24.0	10,600	25.0	10,100			
				Rem. 209P	Fed. 12S4						25.0	9,800	25.5	8,100			
				Win. 209	Fed. 12S4						24.0	9,500	25.5	9,400			
CCI 209M	Fed. 12S4						24.5	9,500	25.5	8,700							
3½	1¼	1,275	Fed. 209A	Fed. 12S4										34.0	8,900		
				Rem. SP12									27.0	10,100			
				Win. WAA12F114									27.0	10,500			
				Rem. 209P	Fed. 12S4								27.5	9,200			
Win. 209	Fed. 12S4											35.0	8,700				
CCI 209M	Fed. 12S4											35.0	9,100				
3¾	1¼	1,330	Fed. 209A	Rem. SP12											35.0	10,500	
				Win. 209	Rem. SP12											37.0	9,000
				CCI 209M	Rem. SP12											37.5	8,300
3½	1⅜	1,240	Fed. 209A	Rem. RP12											34.0	9,900	
				Win. WAA12F114												33.0	10,100
				Win. 209	Rem. RP12											34.5	8,600
				CCI 209M	Rem. RP12											35.0	8,600
Rem. 209P	Rem. RP12												36.0	7,800			
3¾	1⅜	1,295	Fed. 209A	Rem. RP12											35.5	10,700	
				Rem. 209P	Rem. RP12											39.0	8,600
				Win. 209	Rem. RP12											36.0	9,200
				CCI 209M	Rem. RP12											36.5	9,000
3¼	1½	1,150	Fed. 209A	Rem. RP12									25.5	10,100	33.5	8,300	
				Win. 209	Activ T42											32.5	9,200
				Rem. 209P	Activ T42											32.5	9,300
				CCI 209M	Activ T42											32.5	9,400
				Fio. 616	Activ T42											32.0	9,700
3½	1½	1,205	Fed. 209A	Rem. RP12											34.0	9,700	
				Rem. 209P	Rem. RP12											35.5	8,100
				CCI 209M	Rem. RP12											34.0	9,400
				Win. 209	Rem. RP12											34.5	9,900

12-Gauge, 2¾-in. Federal Hi Power Plastic Shells with Rolled Paper Base Wad



Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot	
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
3¼	1	1,290	Fed. 209A	Fed. 12S3	21.0	9,400	23.0	7,500						
				Rem. R12L	20.5	8,500	22.5	7,400						
2¾	1½	1,145	Fed. 209A	Fed. 12S3	18.5	7,300	20.0	7,200						
				Rem. RXP12	18.5	8,700	19.0	8,700						
				Win. WAA12 (White)	18.5	9,600	18.5	9,100						
				Hornady Versalite	18.5	8,300	19.5	7,100						
				Rem. 209P	18.5	8,400	21.0	6,700						
				Win. 209	18.5	9,100	20.0	8,200						
3	1½	1,200	Fed. 209A	Fed. 12S3	18.5	8,600	20.0	7,600						
				Fed. 12C1			20.5	9,400						
				Fed. 12S3	19.0	9,300	21.0	8,000	23.0	7,700				
				Rem. RXP12	19.5	9,300	20.5	9,100	22.0	8,100				
				Win. WAA12 (White)	19.0	9,800	20.0	9,300	21.0	7,700				
				Hornady Versalite	19.5	9,000	20.0	8,800	22.5	8,000				
3¼	1½	1,255	Fed. 209A	Fed. 12S3	20.0	9,200	22.0	7,600						
				Fed. 12C1			20.5	9,400						
				Fed. 12S3	19.0	9,300	21.0	8,000	23.0	7,700				
				Rem. RXP12	19.5	9,300	20.5	9,100	22.0	8,100				
				Win. WAA12 (White)	19.0	9,800	20.0	9,300	21.0	7,700				
				Hornady Versalite	19.5	9,000	20.0	8,800	22.5	8,000				
3¼	1¼	1,220	Fed. 209A	Fed. 12S3	20.0	9,300	21.5	8,600	23.5	8,200				
				Fed. 12C1			20.5	9,700						
				Fed. 12S3	21.0	10,200	22.0	10,100	24.0	8,100				
				Fed. 12S3	21.5	10,100	22.0	9,000	24.0	8,100				
				Rem. RXP12	21.0	9,800	22.5	10,000	23.0	8,100				
				Win. WAA12 (White)			22.0	10,300	23.0	8,600				
3¼	1¼	1,330	Fed. 209A	Hornady Versalite	20.5	9,700	23.5	8,600	23.5	8,200				
				Fed. 12S3	22.0	10,300	23.0	8,500						
				Fed. 12S3	21.5	10,700	23.0	9,400	25.0	9,100				
				Fed. 12S3	21.5	10,100	22.0	9,600	25.5	8,400				
				Fed. 12C1			23.0	9,800	23.0	9,000				
				Fed. 12S4			22.0	10,500	23.0	9,500				
3¼	1¼	1,330	Fed. 209A	Rem. R12H			22.0	9,600	23.0	8,300				
				Rem. RXP12			22.0	9,600	23.0	8,300				
				Win. WAA12 (White)			21.5	9,500	23.0	9,600				
				Win. WAA12F114			23.0	9,900	23.0	9,400				
				Hornady Versalite			23.0	9,700	23.5	8,800				
				Fed. 12S4			25.5	9,000						
3¼	1¼	1,330	Fed. 209A	Fed. 12S4			25.0	9,500						
				Fed. 12S4			25.0	10,000						
				Fed. 12C1			25.5	10,200	28.5	9,800				
				Fed. 12S4			29.0	10,200	29.0	10,200				
				Rem. SP12			25.5	10,200	28.5	9,900				
				Win. WAA12 (White)			29.0	10,500	29.0	10,500				
3¼	1¾	1,295	Fed. 209A	Win. WAA12F114			29.5	9,400	29.5	9,400				
				Hornady Versalite			23.0	9,700	23.5	8,800				
				Fed. 12S4			25.5	9,000						
				Fed. 12S4			25.0	9,500						
				Fed. 12S4			25.0	10,000						
				Fed. 12S4			25.0	10,000						
3¼	1¾	1,295	Fed. 209A	Rem. SP12										
				Rem. RP12										
				Win. WAA12 (White)										
				Win. WAA12F114										
				Rem. 209P										
				Rem. RP12										
4	1¾	1,350	Fed. 209A	Rem. RP12										
				Rem. SP12										
				Win. WAA12 (White)										
				Win. WAA12F114										
				Rem. 209P										
				Rem. RP12										
3¼	1½	1,150	Fed. 209A	Rem. RP12										
				Rem. SP12										
				Activ T42										
				Win. 209										
				Rem. 209P										
				Activ T42										
3½	1½	1,205	Fed. 209A	Rem. RP12										
				Rem. SP12										
				Win. WAA12 (White)										
				Win. WAA12F114										
				Rem. 209P										
				Rem. RP12										
3¼	1½	1,260	Fed. 209A	Rem. RP12										
				Rem. SP12										
				Win. 209										
				Rem. RP12										
				Rem. SP12										
				Rem. RP12										

12-Gauge, 2¾-in. Federal One-Piece Plastic Shells



Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Green Dot		Unique		Herco		Blue Dot	
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
3¼	1¼	1,220	Fed. 209A	Fed. 12S4								
				Rem. SP12								
				Win. WAA12F114								
				Rem. 209 Fed. 12S4								
				Win. 209 Fed. 12S4								
CCI 209M Fed. 12S4												
3½	1¼	1,275	Fed. 209A	Fed. 12S4								
				Rem. SP12								
				Win. WAA12F114								
				Rem. 209 Fed. 12S4								
				Win. 209 Fed. 12S4								
CCI 209M Fed. 12S4												
3¾	1¼	1,330	Fed. 209A	Fed. 12S4								
				Win. WAA12F114								
				Win. 209 Fed. 12S4								
				CCI 209M Fed. 12S4								
3½	1⅜	1,240	Fed. 209A	Rem. SP12								
				Win. WAA12F114								
				Win. 209 Rem. SP12								
				CCI 209M Rem. SP12								
3¾	1⅜	1,295	Fed. 209A	Rem. RP12								
				Rem. 209 Rem. RP12								
				Win. 209 Rem. RP12								
				CCI 209M Rem. RP12								
3¼	1½	1,150	Fed. 209A	Fed. 12S4								
				Rem. SP12								
				Win. WAA12F114								
				Activ T35								
				Win. 209 Fed. 12S4								
				Rem. 209P Fed. 12S4								
				CCI 209M Fed. 12S4								
				Fio. 616 Fed. 12S4								
3½	1½	1,205	Fed. 209A	Rem. RP12								
				Rem. 209 Rem. RP12								
				Win. 209 Rem. RP12								
				CCI 209M Rem. RP12								
				Fed. 209A Rem. RP12								
3¾	1½	1,260	Rem. 209	Rem. RP12								
				Win. 209 Rem. RP12								
				CCI 209M Rem. RP12								
3¼	1⅝	1,115	Fed. 209A	Rem. SP12								
				Win. 209 Rem. SP12								
				Rem. 209P Rem. SP12								
				CCI 209M Rem. SP12								
				Fio. 616 Rem. SP12								

12-Gauge, 3-in. Federal Hi Power Plastic Shells with Rolled Paper Base Wad



Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Herco		Blue Dot	
					Grains	Approx. psi	Grains	Approx. psi
3¾	1⅜	1,295	Fed. 209A	Fed. 12S3	30.5	10,000		
				Rem. RXP12	30.5	9,300	38.0	9,000
				Win. WAA12 (White)	30.5	9,700	38.0	8,800
4	1⅜	1,350	Fed. 209A	Fed. 12S4			40.0	9,400
				Rem. SP12			40.0	8,900
				Win. WAA12F114			40.0	9,800
4	1½	1,315	Fed. 209A	Fed. 12S3			38.0	9,700
				Rem. RXP12			38.5	9,600
				Win. WAA12 (White)			37.5	9,800
				Activ TG30			38.0	9,400
4	1⅝	1,280	Fed. 209A	Rem. SP12			39.0	10,400
4	1¾	1,245	Fed. 209A	Rem. RP12			39.0	10,500
3¾	1⅞	1,155	Fed. 209A	Rem. SP12			36.0	10,300
				Rem. RP12			34.0	10,500
				Activ T35			34.5	10,100

12-Gauge, 3-in. Federal One-Piece Plastic Shells

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Green Dot		Unique		Herco		Blue Dot	
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
3¾	1⅜	1,295	Fed. 209A	Fed. 12S3					31.0	10,500	40.5	7,900
				Rem. RXP12					32.0	10,100		
				Win. WAA12 (White)							38.0	9,800
4	1⅜	1,350	Fed. 209A	Rem. RXP12							42.0	8,000
				Win. WAA12 (White)							44.0	9,900
4	1½	1,315	Fed. 209A	Fed. 12S4							40.0	9,700
				Rem. SP12							40.0	9,000
				Win. WAA12F114							42.0	9,800
4	1⅝	1,280	Fed. 209A	Fed. 12S4							40.0	10,100
				Rem. SP12							40.0	9,400
				Win. WAA12F114							40.0	10,000
4	1¾	1,245	Fed. 209A	Rem. RP12							39.0	10,500
3¾	1⅞	1,155	Fed. 209A	Rem. SP12							36.5	9,900
				Activ T35							35.5	9,300

12-Gauge, 2¾-in. Remington Premier Plastic Target Shells



Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		American Select		Green Dot		Unique		Herco		Blue Dot				
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi			
—	⅞	1,200	Rem. 209P	Rem. TGT 12	17.0*	6,800													
				Fed. 12SO	17.0	7,200													
				Win. WAA12SL	17.0*	7,000													
				Purple PC	17.5*	6,800													
—	⅞	1,250	Rem. 209P	Rem. TGT 12	18.5*	7,100													
				Fed. 12SO	18.0	7,800													
				Win. WAA12SL	18.5*	7,800													
				Purple PC	18.5*	6,900													
—	⅞	1,300	Rem. 209P	Rem. TGT 12	20.5	8,200	20.5	7,000	22.0	7,100									
				Fed. 12SO	20.0	8,100	20.5	7,700	22.0	8,000									
				Win. WAA12SL	20.5	8,000	20.5	7,900	21.5	7,900									
				Purple PC	20.0	7,500													
2¾	1	1,200	Rem. 209P	Rem. TGT 12	18.0	8,700	19.0	7,000	20.0	8,200									
				Fed. 12SO	18.0	9,000	19.5	7,900	19.5	8,600									
				Win. WAA12SL	18.0	9,600	19.0	7,600	19.5	8,600									
				Purple PC	18.5	8,300			20.5	7,000									
3	1	1,255	Rem. 209P	Rem. TGT 12	19.0	9,500	20.5	8,000	21.0	8,500									
				Fed. 12SO	19.5	10,600	20.5	8,600	21.5	9,300									
				Win. WAA12SL	19.5	10,100	20.5	8,700	21.5	8,900									
				Purple PC	19.5	8,900			21.5	8,500									
3¼	1	1,290	Rem. 209P	Rem. Fig. 8	21.5	9,100			22.0	8,100									
				Rem. TGT 12	21.0	10,700	22.5	8,700	22.5	8,400									
				Rem. R12L	20.5	9,900													
				Win. WAA12F1	20.5	9,100			23.0	7,200									
				Win. WAA12SL	20.5	10,400	21.5	9,200	22.5	9,000									
				Fed. 12SO	20.0	10,500	21.5	9,900	22.0	8,700									
				Purple PC	20.5	9,100			22.5	8,200									
				Claybuster			22.5	8,500											
				Fed. 209	Rem. R12L	20.5	10,500			22.5	9,200								
				Win. 209	Rem. R12L	20.0	10,100			22.0	8,700								
				CCI 209M	Rem. R12L	20.0	10,300			22.0	9,100								
2½ Extra Lite	1⅛	1,090	Rem. 209P	Rem. Fig. 8	16.5	8,300	17.5	7,100											
				Rem. RXP12	16.0	8,700	17.0	7,500											
				Fed. 12S3	16.0	10,300	17.5	8,200											
				Win. WAA12 (White)	16.0	9,400													
				Win. WT12 (Orange)			17.0	7,300											
				Fiocchi FTW1	16.5	8,500													
				Windjammer	16.5	7,900	18.0	6,900											
				Red PC	16.5	8,700	17.5	7,000											
				Claybuster			17.5	6,900											
				Fed. 209	Rem. Fig. 8	16.0	9,800												
				Win. 209	Rem. Fig. 8	16.5	8,900												
				CCI 209M	Rem. Fig. 8	16.5	9,100			18.0	8,400								
					Rem. RXP12	16.0	9,300			17.5	8,600								
					Fed. 12S3	16.0	10,100			17.5	8,500								
	Win. WAA12 (White)	16.0	9,800			17.0	8,700												
	Fiocchi FTW1	16.5	9,700			17.5	8,500												
	Windjammer	16.5	8,300			18.0	7,600												
	Red PC	16.5	9,200			18.0	7,400												
	Fio. 616	Rem. Fig. 8	16.5	9,000															
2¾	1⅛	1,145	Rem. 209P	Rem. Fig. 8	18.0	9,200	19.0	7,600	19.0	7,300									
				Fed. 12S3	18.0	10,100	18.5	9,100	19.0	8,800									
				Rem. RXP12	17.5	8,900	18.5	8,300	19.0	7,700									
				Win. WAA12 (White)	17.0	10,100			19.0	6,700									
				Win. WT12 (Orange)	18.5*	8,800	18.5*	8,900	19.5*	7,900									
				Fiocchi FTW1	17.5	9,700			19.5	8,800									
				Windjammer	17.5	8,900	19.0	7,900	19.5	7,800									
				Red PC	17.5	9,000	19.0	8,200	19.0	7,600									
				Lage Uniwad	17.5	9,900			19.0	8,000									
				Hornady Versalite	17.5	9,000			19.0	8,000									
				Claybuster			19.0	8,400											

NOTE: *For each asterisk(*), add one 20-gauge, 0.135 in. thick card wad to the inside bottom of the shot cup.

continued on next page

12-Gauge, 2¾-in. Remington Premier Plastic Target Shells (continued)

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		American Select		Green Dot		Unique		Herco		Blue Dot									
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi								
2¾	1½	1,145	Fed. 209A	Rem. Fig. 8	16.5	10,300	18.5	9,200	19.5	10,100														
				Rem. RXP12	16.0	10,600			19.5	10,500														
				Fed. S3	16.5	10,100			19.0	9,900														
				Red PC	17.0	10,700			19.5	10,000														
				Windjammer	17.5	10,500			20.0	9,600														
			Win. 209	Rem. Fig. 8	18.0	9,500	18.5	9,000	19.0	8,100														
				CCI 209M	Rem. Fig. 8	17.5			9,300	19.0										8,800				
							Rem. RXP12	17.0	9,600			19.0	9,100											
							Fed. 12S3	17.5	10,600			19.0	8,900											
							Win. WAA12 (White)	16.5	10,200			19.0	9,400											
							Fiocchi FTW1	17.0	9,900			19.5	9,300											
							Windjammer	17.0	9,000			19.5	7,900											
			CCI 209	Rem. Fig. 8	17.0	9,400			19.0	7,700														
				Hornady Versalite	17.0	9,100			19.0	8,000														
			CCI 209SC	Rem. Fig. 8	17.5	8,600			19.5	7,100														
				Fed. 12S3	18.0	10,400			20.5	9,900														
			CCI 209SC				Fed. 12S3	18.5	10,400			19.5	9,500											
							Win. WAA12 (White)	18.5	9,800			20.0	10,600											
							Windjammer	18.5	9,800			20.0	10,600											
			Fig. 616	Rem. Fig. 8	17.5	8,900					19.0	7,800												
3	1½	1,200	Rem. 209P	Rem. Fig. 8	19.0	10,100	20.5	9,100	21.0	8,800	22.5	8,200												
				Rem. RXP12	19.0	10,000			20.5	8,700								22.5	8,300					
				Fed. 12S3					20.0	10,600								22.0	9,100					
				Win. WAA12 (White)														21.0	8,900	22.0	8,900			
				Win. WT12 (Orange)	19.5*	10,700			20.0*	10,600								21.5*	8,700	23.5*	8,300			
							Fiocchi FTW1	18.5	10,700			20.5	9,900											
							Windjammer	18.5	9,400			20.5	8,200								23.5	7,000		
							Red PC	19.5	10,100			20.5	9,700								21.0	8,500	22.5	7,800
							Hornady Versalite														20.0	8,700	22.0	7,900
							Claybuster					20.0	9,500											
			Fed. 209A	Rem. Fig. 8	17.0	10,400			20.0	10,700	20.5	10,500	23.0	9,200										
				Rem. RXP12	17.0	10,100			21.0	10,400	22.0	9,100												
			Win. 209	Rem. Fig. 8	19.0	10,400	20.0	10,200	20.0	8,600	22.5	8,400												
			CCI 209M				Rem. Fig. 8	18.5	10,400			20.0	9,300	22.5	9,500									
							Rem. RXP12	18.5	10,500			20.5	9,200	22.5	9,500									
							Fed. 12S3					20.5	10,200	22.0	9,700									
							Win. WAA12 (White)					21.0	9,600	22.0	9,300									
							Fiocchi FTW1	18.5	10,600			20.5	9,700	20.5	9,700									
							Windjammer	18.5	9,700			20.5	8,700	23.5	8,200									
							Red PC	19.0	10,400			20.5	9,000	22.5	8,700									
Hornady Versalite	19.0	10,400					20.0	9,200	22.0			8,800												
CCI 209	Rem. Fig. 8	19.5					9,900	21.0	8,700			22.5	8,500											
CCI 209SC	Rem. Fig. 8							20.0	10,300			21.0	10,600											
CCI 209SC				Fed. 12S3					20.0	10,600														
				Windjammer					22.0	10,400								22.0	10,400					
Fig. 616	Rem. Fig. 8	19.5	10,600					20.0	8,700	23.0	8,500													
Heavy	1½	1,250	Fed. 209	Rem. RXP12					22.0	10,500	24.0	10,100												
				Win. 209	Rem. RXP12					22.0	9,400	24.5						8,800						
			CCI 209M				Rem. RXP12					22.0	9,600	24.0	10,400	24.5	9,800							
							Fed. 12S3					21.5	10,600	23.5	10,200	24.5	9,900							
							Win. WAA12 (White)					22.5	10,700	24.0	10,300	24.5	10,400							
							Windjammer					22.0	9,400	25.0	9,300	25.0	9,400							
							Red PC					22.0	9,600	24.0	9,400	25.0	9,500							
			Hornady Versalite									21.5	10,200	23.5	9,900	24.5	9,900							
							CCI 209	Rem. RXP12					22.0	9,100	23.5	9,100								
							CCI 209SC	Rem. RXP12																
Fig. 616				Rem. RXP12																				
				Rem. 209P	Rem. RXP12					21.0	10,500													
				Rem. Fig. 8					21.5	9,900														
				Claybuster					21.5	10,600														
3½	1½	1,310	Rem. 209P	Rem. RXP12							24.5	9,700	27.5	8,400										
				Win. WAA12 (White)					25.0	10,500	27.0	8,800												
				Windjammer					26.5	8,600	28.5	8,600												
				Hornady Versalite					25.5	9,900	27.0	8,800												
				Activ T32					25.0	9,900	27.0	9,600												
			Fed. 209	Rem. RXP12					27.0	9,200														
			Win. 209	Rem. RXP12					26.0	9,800	27.0	9,500												
			CCI 209M	Rem. RXP12					25.0	10,000	26.5	9,700												
Fig. 616	Rem. RXP12					26.0	9,900	27.5	9,300															

NOTE: *For each asterisk(*), add one 20-gauge, 0.135 in. thick card wad to the inside bottom of the shot cup.

continued on next page

12-Gauge, 2¾-in. Remington Premier Plastic Target Shells (continued)

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		American Select		Green Dot		Unique		Herco		Blue Dot				
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi			
3¼	1¼	1,220	Rem. 209P	Rem. SP12							23.5	9,300	25.0	9,600					
				Fed. 12S4								23.0	10,700	25.0	10,400				
				Win. WAA12F114									24.0	10,100	24.5	9,300			
				Hornady Versalite									23.5	9,400	25.0	8,400			
				Activ T32									23.5	9,400	25.0	8,800			
				Fed. 209	Rem. SP12									23.0	9,900	25.0	9,800		
				Win. 209	Rem. SP12									23.5	10,000	24.5	9,600		
3½	1¼	1,275	Rem. 209P	CCI 209M	Rem. SP12						23.5	10,300	24.5	10,000					
				Fio. 616	Rem. SP12							23.0	9,600	24.5	9,300				
				Rem. SP12												34.5	8,600		
				Fed. 12S4												34.0	10,100		
				Win. WAA12F114												26.5	10,500		
				Activ T35												27.0	9,900	35.0	8,500
				Fed. 209	Rem. SP12												35.0	9,100	
3¾	1¼	1,330	Rem. 209P	Win. 209	Rem. SP12									26.0	10,600	35.5	9,100		
				CCI 209M	Rem. SP12												34.5	9,800	
				Fio. 616	Rem. SP12												34.5	9,800	
				Rem. SP12													35.5	9,300	
				Fed. 209	Rem. SP12												37.5	9,700	
				Win. 209	Rem. SP12												36.5	9,700	
				CCI 209M	Rem. SP12												36.5	9,900	
3½	1⅜	1,240	Rem. 209P	Win. 209	Rem. SP12											35.5	10,300		
				CCI 209M	Rem. SP12												35.5	9,900	
				Fio. 616	Rem. SP12												35.5	9,900	
				Rem. SP12													35.0	9,300	
				Fed. 209	Rem. SP12												34.0	9,300	
				Win. 209	Rem. SP12												35.0	9,100	
				CCI 209M	Rem. SP12												35.0	9,100	
3¾	1⅜	1,295	Rem. 209P	Win. 209	Rem. RP12											34.0	9,400		
				CCI 209M	Rem. RP12												34.0	9,400	
				Fio. 616	Rem. RP12												34.0	9,100	
				Rem. RP12													37.5	10,300	
				Fed. 209	Rem. RP12												36.5	9,900	
				Win. 209	Rem. RP12												35.5	10,500	
				CCI 209M	Rem. RP12												35.5	10,500	
3¼	1½	1,150	Rem. 209P	Win. 209	Rem. RP12											35.5	10,400		
				CCI 209M	Rem. RP12												35.5	10,400	
				Fio. 616	Rem. RP12												35.5	10,000	
				Rem. RP12													31.0	9,900	
				Fed. 209	Rem. RP12												30.5	10,400	
				Win. 209	Rem. RP12												31.0	9,900	
				CCI 209M	Rem. RP12												31.0	9,900	
3½	1½	1,205	Rem. 209P	Win. 209	Rem. RP12											31.0	9,800		
				CCI 209M	Rem. RP12												31.0	9,800	
				Fio. 616	Rem. RP12												31.0	9,800	
				Rem. RP12													33.0	10,200	
				Fed. 209	Rem. RP12												31.5	10,600	
				Win. 209	Rem. RP12												33.0	10,300	
				CCI 209M	Rem. RP12												33.0	10,300	

PC: Pattern Control

12-Gauge, 2¾-in. Remington-Peters Unibody SP Plastic Shells



Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot		
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	
3¼	1	1,290	Rem. 209	Rem. R12L			22.0	9,200							
				Rem. RXP12			21.5	9,900							
				Win. WAA12F1			21.0	9,900							
				CCI 209	Rem. R12L	21.0	9,700	23.5	8,100						
				CCI 209M	Rem. R12L	20.0	10,600	22.5	8,100						
2¾	1½	1,145	Rem. 209	Rem. R12L			19.0	8,800							
				Rem. RXP12			19.0	8,500							
				Fed. 12S3		17.5	9,300	19.0	9,200						
				Win. WAA12 (White)		17.0	10,100	17.5	10,000						
				Hornady Versalite		17.0	10,200	17.5	10,000						
3	1½	1,200	Rem. 209	Rem. RXP12			18.0	8,800							
				Rem. R12H			18.0	10,000	19.5	9,400	22.0	9,100			
				Fed. 12S3						21.5	8,800				
				Win. WAA12 (White)					19.5	10,000	21.5	8,400			
				Hornady Versalite		18.0	10,000	19.0	9,900	21.0	8,200				
3¼	1½	1,255	Rem. 209	Rem. RXP12			20.5	10,300	22.5	9,200					
				Rem. R12H			21.0	10,400	22.5	8,300					
				Fed. 12S3					22.5	9,800					
				Win. WAA12 (White)					22.5	9,200					
				Rem. 97★	Rem. RXP12			21.0	10,600						
3½	1½	1,310	Rem. 209	Rem. RXP12			21.0	10,100							
				Rem. R12H			20.5	10,200	23.0	10,000					
				Fed. 12S3					22.5	10,500	23.0	8,800			
				Win. WAA12 (White)					21.0	10,100	23.0	9,700			
				Rem. RXP12			21.5	10,700	23.5	9,800					
3¼	1¼	1,220	Rem. 209	Rem. RXP12					22.5	9,700	23.5	9,400			
				Win. WAA12F114					23.0	10,100	23.0	10,100	30.0	10,300	
				Fed. 209	Rem. SP12			22.5	10,700	23.5	10,400	31.5	10,000		
				CCI 209	Rem. SP12			24.5	9,600	25.5	9,100				
				CCI 209M	Rem. SP12			23.0	10,100			32.0	8,500		
3½	1¼	1,275	Rem. 209	Rem. SP12					23.0	10,600	24.5	10,500	33.0	9,000	
				Win. WAA12F114											
				Fed. 209	Rem. SP12							32.0	10,200		
				CCI 209	Rem. SP12							32.0	10,000		
				CCI 209M	Rem. SP12							32.5	10,600		
3¾	1¼	1,330	Rem. 209	Rem. SP12									35.5	8,900	
				Win. WAA12 (White)										33.5	9,800
				Fed. 209	Rem. SP12									35.0	10,300
				CCI 209	Rem. SP12										
				CCI 209M	Rem. SP12										
3½	1¾	1,240	CCI 209	Rem. RP12									37.5	9,700	
				CCI 209M	Rem. RP12									35.5	10,400
3¼	1½	1,150	Rem. 209P	Rem. RP12									32.5	8,000	
				Activ T42										31.5	9,600
3¼	1½	1,115	Rem. 209P	Rem. RP12									31.5	9,100	
				Activ T42										32.0	8,300
				Fed. 209	Rem. RP12									32.0	8,400
				Win. 209	Rem. RP12									31.5	9,200
				CCI 209M	Rem. RP12										
3¼	1½	1,115	Rem. 209P	Rem. RP12									29.5	10,500	
				Activ T42										29.0	10,400
				Fed. 209A	Rem. RP12									29.5	10,400
				Win. 209	Rem. RP12									29.5	10,300
				CCI 209M	Rem. RP12									29.5	10,400
3¼	1½	1,115	Rem. 209P	Rem. RP12									29.5	10,300	
				Activ T42										29.5	10,400
				Fed. 209A	Rem. RP12									29.5	10,400
				Win. 209	Rem. RP12									29.5	10,300
				CCI 209M	Rem. RP12									29.5	10,400

12-Gauge, 3-in. Remington-Peters SP Plastic Shells with Separate Plastic Base Wad



Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot	
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
3¾	1⅜	1,295	CCI 209M	Rem. RXP12* Fed. 12S3 Win. WAA12 (White)*							30.0 29.5 30.0	9,200 10,000 10,000		
4	1⅜	1,350	CCI 209M	Rem. RXP12 Fed. 12S3 Win. WAA12 (White)									42.5 42.0 42.0	8,000 8,400 8,500
4	1½	1,315	CCI 209M	Rem. SP12* Fed. 12S4* Win. WAA12F114*									40.0 39.5 39.5	9,400 9,800 9,800
4	1⅝	1,280	CCI 209M	Rem. SP12 Fed. 12S4 Win. WAA12F114									39.0 38.5 38.5	9,800 10,200 10,500
4	1¾	1,245	CCI 209M	Rem. RP12 Activ T35									38.5 37.5	10,700 10,400
3¾	1⅞	1,155	CCI 209M	Rem. RP12 Activ T35									34.0 34.0	10,300 10,100

NOTE: *For each asterisk (*), add one 20-gauge, 0.135-in. thick card wad to the inside bottom of the shot cup.

12-Gauge, 3-in. Remington-Peters Unibody SP Plastic Shells

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Herco		Blue Dot		2400	
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
3¾	1⅜	1,295	Win. 209	Rem. RXP12 Fed. 12S3 Win. WAA12SL Win. WAA12 (White) Activ TG30					37.5 37.0 35.5 36.5 36.5	9,200 9,300 10,100 9,400 9,200
4	1⅜	1,350	Win. 209	Rem. RXP12 Fed. 12S4 Win. WAA12F114 Activ T32					38.5 38.0 38.0 38.5	9,900 10,200 10,500 9,800
4	1½	1,315	CCI 209M	Rem. SP12					37.5	10,700

Additional 12-Gauge, 2¾-in., ⅞-oz. Target Loads‡

Shell	Velocity (fps)	Primer	Wad	Bullseye		Red Dot		American Select		Green Dot	
				Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
Federal Paper Target	1,200	Fed. 209	Fed. 12SO	17.5	4,500	17.5	5,700				
			Win. WAA12F1	17.5*	4,600	17.5	4,800				
			Rem. PT12	17.5*	5,100	17.5	5,000				
Federal Gold Medal	1,200	Fed. 209	Fed. 12SO	17.0**	6,300	18.0	6,200				
			Win. WAA12F1	17.0**	5,800	18.0*	5,700				
			Rem. PT12	17.5**	5,500	18.0*	6,400				
Win. Western AA-Type	1,200	Win. 209	Win. WAA12F1	16.5*	6,700	16.5	7,300				
			Fed. 12SO	16.5	7,400	16.0*	8,000				
			Rem. PT12	16.5*	7,100	16.5*	7,300				

NOTES: *For each asterisk (*), add one 20-gauge, 0.135-in. thick card wad to the inside bottom of the shot cup.

‡Auto-loading shotguns may not function with loads having pressures less than 7,000 psi.

It is important to have tight crimps to prevent load efficiencies (pressures) from dropping. The efficiency may also drop when these loads are fired at low temperatures.

12-Gauge, 2³/₄-in. Winchester Plastic AA Shells



Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		American Select		Green Dot		Unique		Herco		Blue Dot	
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
—	7/8	1,200	Win. 209	Win. WAA12SL Win. WAAL (Gray) Fed. 12SO Rem. TGT 12 Purple PC	16.5* 7,300 16.5 7,900 16.0* 8,000 16.5* 7,300 17.0* 7,500											
—	7/8	1,250	Win. 209	Win. WAA12SL Win. WAAL (Gray) Fed. 12SO Rem. TGT 12 Purple PC	18.0* 9,300 17.5 8,600 17.5 9,000 18.0* 8,400 18.0* 8,400	18.5	7,200									
—	7/8	1,300	Win. 209	Win. WAA12SL Win. WAAL (Gray) Fed. 12SO Rem. TGT 12 Purple PC Claybuster	19.0 10,300 18.5 9,300 19.0 9,400 19.0* 9,300 19.5* 9,000	20.5	8,400	20.5	8,800	20.0	8,300					
—	7/8	1,400	Win. 209	Win. WAAL (Gray)		22.0	10,200									
2 ³ / ₄	1	1,200	Win. 209	Win. WAA12SL Win. WT12 (Orange) Fed. 12SO Rem. TGT 12 Purple PC Claybuster	18.0 10,200 17.5 10,600 18.0 9,600 18.0 9,200 18.0 8,900	19.0	8,200	19.5	8,500							
3	1	1,255	Win. 209	Win. WAA12SL Rem. TGT 12 Purple PC Fed. 12SO Claybuster	19.0 10,500 19.5 9,800 19.0 9,700	20.0	9,500	21.0	9,200							
3 ¹ / ₄	1	1,290	Win. 209	Win. WAA12SL Win. WAA12 (White) Fed. 12C1 Fed. 12S3 Fed. 12SO Rem. RXP12 Rem. TGT 12 Purple PC Claybuster	19.0 10,500 20.0 10,200 20.0 9,900	20.5	10,200	21.5	9,500	21.5	9,500					
			CCI 209M	Win. WAA12 (White)	18.5 10,400					21.0	8,800					
Extra Lite	1 ¹ / ₈	1,090	Win. 209	Win. WAA12SL Win. WAA12 (White) Win. WT12 (Orange) Rem. Fig. 8 Rem. RXP12 Fed. 12S3 Hornady Versalite Red PC Claybuster	16.0 9,300 16.0 9,500 16.0 8,300 16.5 9,000 17.0 10,400 16.5 9,000 16.0 9,100	17.0	9,000	17.5	8,100	18.0	8,000					
			Fed. 209	Win. WAA12 (White)	16.0 9,900					17.5	8,100					
			Fed. 209A	Win. WAA12 (White)				17.0	8,700							
			Rem. 209P	Win. WAA12 (White)	17.0 8,100			17.0	8,000							
			CCI 209M	Win. WAA12 (White)	17.0 9,800											
			CCI 209SC	Win. WAA12 (White)				17.0	7,900							
			Fio. 616	Win. WAA12 (White)	16.0 8,900											
2 ³ / ₄	1 ¹ / ₈	1,145	Win. 209	Win. WAA12SL Win. WAA12 (White) Win. WT12 (Orange) Rem. Fig. 8 Rem. RXP12 Fed. 12C1 Fiocchi FTW1 Hornady Versalite Windjammer Red PC Claybuster	17.0 10,000 16.5 10,700 17.5 9,900 17.0 8,400 17.5 9,400 17.5 10,100 18.0 9,500 17.5 9,300 17.5 9,500	18.0	9,400	18.5	9,600	19.0	9,400					
								19.0	8,600	18.0	8,500					
								18.5	9,600	18.0	9,400					
								19.0	9,400	19.0	8,600					
								18.0	8,100	18.5	8,100					
								17.5	9,400	19.5	9,600					
								18.0	9,500	19.5	8,000					
								17.5	9,300	18.0	8,400					
								18.5	8,600	19.0	8,300					
								18.5	9,000							

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12-Gauge, 2¾-in. Winchester Plastic AA Shells (continued)

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		American Select		Green Dot		Unique		Herco		Blue Dot			
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi		
2¾	1⅛	1,145	Fed. 209A	Win. WAA12 (White)	17.0	10,600	18.5	9,800	18.0	9,300								
				Rem. Fig. 8	17.0	9,800											18.5	8,600
				Hornady Versalite	17.0	10,300											18.5	9,300
				Windjammer	17.0	9,000											18.5	8,200
				Red PC	17.0	10,100											18.5	8,700
				Claybuster	17.0	9,600											18.5	8,400
			Rem. 209P	Win. WAA12 (White)	17.5	8,700	19.0	8,700										
			CCI 109	Win. WAA12 (White)	17.0	9,200			18.0	8,200								
			CCI 209M	Win. WAA12 (White)	17.5	10,400			18.5	10,100								
			CCI 209SC	Win. WAA12 (White)	17.5	10,600	18.5	9,600	19.5	10,300								
			Rem. Fig. 8		18.0	10,500			20.5	9,700								
			Windjammer		18.0	9,900			20.5	9,500								
3	1⅛	1,200	Fio. 616	Win. WAA12 (White)	17.0	10,200			18.5	9,400								
Win. 209				Win. WAA12SL					20.5	10,700	22.5	9,100						
				Win. WAA12 (White)	18.0	10,400	19.5	10,300	19.5	9,300	21.0	9,100						
				Win. WT12 (Orange)	17.0	10,700	19.5	10,700	19.0	10,100	21.5	9,000						
				Rem. Fig. 8	18.5	10,700	20.0	9,800	20.5	9,500	22.5	8,300						
				Rem. RXP12	18.5	9,800	20.5	10,700	19.5	8,900	22.0	8,700						
			Fed. 12C1	18.5	9,700			19.5	9,000	22.0	8,900							
Fed. 209A			Fiocchi FTW1	18.5	10,700			20.0	9,900	22.5	8,800							
			Hornady Versalite	19.0	9,700			21.0	9,000	21.0	8,200							
			Windjammer	18.5	9,900			21.0	9,000	22.5	8,200							
			Red PC	18.5	10,500	20.0	10,100	20.5	9,800	23.5	9,500							
			Claybuster			19.5	10,200											
			Win. WAA12 (White)			19.5	10,800											
Rem. 209P			Rem. Fig. 8	18.5	10,200			19.0	10,200									
			Hornady Versalite	18.0	10,700			19.5	9,400									
			Windjammer	18.0	10,000			19.5	10,400									
			Red PC	18.0	10,000			20.0	9,200									
			Claybuster	18.0	10,000			19.5	10,500									
			Claybuster	18.5	10,500			19.5	9,300									
CCI 109			Win. WAA12 (White)	19.0	9,500	21.0	9,600	20.0	9,800	23.0	7,500							
			Win. WAA12 (White)	18.0	10,400			19.0	9,300									
			Win. WAA12 (White)	18.5	10,500			20.0	10,400	21.5	10,300							
			Win. WAA12 (White)			19.5	10,100	20.5	10,700									
			Rem. Fig. 8	18.5	10,400			22.0	10,400									
	Windjammer					22.0	10,200											
Fio. 616	Win. WAA12 (White)	18.0	10,500			20.0	9,500	21.5	9,100									
	Win. 209	Win. WAA12SL					24.0	9,900										
		Win. WAA12 (White)					21.5	10,500	23.5	9,400	25.0	9,500						
		Win. WT12 (Orange)					19.0	9,900	22.5	9,500	23.5	9,400						
		Rem. Fig. 8			21.0	10,800	22.0	10,300	24.0	9,000	25.0	9,100						
		Rem. RXP12					21.0	9,500	23.0	9,200	25.0	9,200						
Fed. 12C1						21.0	10,200	23.0	9,500	25.0	9,400							
Win. 209	Hornady Versalite					22.0	9,900	24.0	9,400	24.5	9,200							
	Red PC			21.5	10,800	22.0	10,300	24.5	10,000	25.0	9,100							
	Claybuster			20.5	10,700													
	Activ T32	21.5	9,600			23.0	8,800											
	Win. 209																	
	Fed. 209	Win. WAA12 (White)						24.0	10,100									
Rem. 209P	Win. WAA12 (White)							24.0	9,300									
	Rem. Fig. 8			22.5	9,400													
	Fio. 616	Win. WAA12 (White)	22.0	10,500			23.5	10,100										
	3½	1⅛	1,310	Win. 209	Rem. RXP12						24.0	9,800	26.5	9,100				
					Win. WAA12 (White)						25.5	10,000	26.5	9,300				
					Red PC					23.0	10,200	25.0	9,100					
Hornady Versalite										25.0	10,300	26.5	9,900					
Fed. 209					Win. WAA12 (White)						24.5	10,600						
Rem. 209P					Win. WAA12 (White)						26.0	9,700	27.0	8,100				
CCI 209M	Win. WAA12 (White)						25.5	9,700										

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12-Gauge, 2³/₄-in. Winchester Plastic AA Shells (continued)

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		AmericanSelect		Green Dot		Unique		Herco		Blue Dot			
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi		
3 ¹ / ₄	1 ¹ / ₄	1,220	Win. 209	Fed. 12S4							23.5	10,400	25.0	9,300				
				Rem. RP12							22.5	9,500						
				Win. WAA12F114								23.5	9,900	25.0	8,400			
				Hornady Versalite								24.0	9,800	25.5	8,500			
			Win. 209	Activ T35								22.5	10,700	24.5	10,400			
			Fed. 209	Win. WAA12F114								23.0	10,000	24.0	10,100			
			Rem. 209P	Win. WAA12F114								24.0	10,000	25.5	8,300			
			CCI 209M	Win. WAA12F114								23.5	9,900	24.0	9,100			
	Fio. 616	Win. WAA12F114								23.0	10,300	25.0	9,800					
3 ¹ / ₂	1 ¹ / ₄	1,275	Win. 209	Win. WAA12F114									26.5	10,700	34.5	9,900		
				Rem. SP12											35.0	8,200		
				Fed. 12S4											26.0	10,700	34.0	10,500
				Activ T35											26.0	10,700	34.5	9,000
			Fed. 209	Win. WAA12F114										26.0	10,700	32.0	9,500	
			Rem. 209P	Win. WAA12F114										27.0	9,400			
CCI 209M	Win. WAA12F114										27.0	10,700	35.0	8,600				
	Fio. 616	Win. WAA12F114										26.0	10,100	34.0	8,600			
3 ³ / ₄	1 ¹ / ₄	1,330	Win. 209	Rem. RP12											38.0	10,200		
				Rem. SP12											37.0	10,300		
				Win. WAA12F114											37.0	10,600		
				Activ T35											36.5	9,700		
			Fed. 209	Win. WAA12F114										33.5	10,500			
CCI 209M	Win. WAA12F114										36.5	9,500						
3 ¹ / ₂	1 ³ / ₈	1,240	Win. 209	Win. WAA12F114											34.0	10,500		
				Rem. SP12											33.0	10,600		
				Fed. 12S4											33.0	10,400		
			Fed. 209	Win. WAA12F114										32.0	10,100			
CCI 209M	Win. WAA12F114										33.5	8,300						
3 ¹ / ₄	1 ¹ / ₂	1,150	Win. 209	Rem. RP12											31.0	9,400		
				Activ T42											30.0	10,000		
			Rem. 209P	Activ T42											30.0	10,400		
	CCI 209M	Activ T42											30.0	10,400				

PC: Pattern Control

NOTES: *For each asterisk(*), add one 20-gauge, 0.135-in. thick card wad to the inside bottom of the shot cup.

Auto-loading shotguns may not function with loads having pressures less than 7,000 psi. It is important to have tight crimps to prevent load efficiencies (pressures) from dropping. The efficiency may also drop when these loads are fired at low temperatures.

12-Gauge, 2¾-in. Winchester Polyformed with Plastic Wad



Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot				
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi			
3¼	1	1,290	Win. 209	Win. WAA12F1	22.0	7,600	23.5	7,000									
				Fed. 12SO	21.0	9,600											
				Rem. Fig. 8	21.5	8,500											
				Purple PC	21.5	7,900											
				21.5	7,900												
				21.5	7,800												
				21.0	8,200												
Rem. 209P	Win. WAA12F1	21.0	8,400	23.0	7,500												
Fed. 209	Win. WAA12F1	21.5	7,900														
2½ Extra Lite	1⅛	1,090	Win. 209	Win. WAA12 (White)	16.5	7,800											
				Fed. 12S3	17.5	7,800											
				Rem. Fig. 8	17.0	6,900											
				Hornady Versalite	16.5	7,900											
				Red PC	17.0	7,500											
				Rem. 209P	Win. WAA12 (White)	16.5									6,700		
				Fed. 209	Win. WAA12 (White)	16.5									7,900	18.5	7,000
CCI 209M	Win. WAA12 (White)	17.0	8,000														
Fed. 209	Win. WAA12 (White)	17.0	7,600	18.5	7,100												
Fed. 209	Win. WAA12 (White)	17.0	7,600														
2¾	1⅛	1,145	Win. 209	Win. WAA12 (White)	18.0	8,500	20.5	7,300									
				Fed. 12S3	18.0	8,900											
				Rem. Fig. 8	18.0	8,000											
				Hornady Versalite	18.0	8,600											
				Red PC	18.5	7,800											
				Fed. 209	Win. WAA12 (White)	18.0									8,700	20.0	7,000
				CCI 209M	Win. WAA12 (White)	18.0									9,000		
Fed. 209	Win. WAA12 (White)	18.5	8,300	20.0	6,800												
Rem. 209P	Win. WAA12 (White)	18.5	8,100														
3	1⅛	1,200	Win. 209	Win. WAA12 (White)	19.5	8,900	22.0	8,700	23.0	7,600							
				Fed. 12S3	19.0	9,600											
				Rem. Fig. 8	19.0	8,700											
				Hornady Versalite	19.0	9,400											
				Red PC	19.5	8,400											
				Rem. 209P	Win. WAA12 (White)	19.5									9,000	23.5	7,900
				Fed. 209	Win. WAA12 (White)	19.0									9,900		
Fed. 209	Win. WAA12 (White)	19.5	9,300	21.5	7,600												
Fed. 209	Win. WAA12 (White)	19.5	9,300														
3¼	1⅛	1,255	Win. 209	Win. WAA12 (White)	21.0	9,400	23.5	8,800	25.0	8,500							
				Fed. 12S3	21.5	9,700											
				Hornady Versalite	21.0	9,900											
				Red PC	21.0	10,100											
				Activ T32	21.0	10,100											
				Rem. 209P	Win. WAA12 (White)	21.5									9,500	25.5	7,700
				Fed. 209	Win. WAA12 (White)	20.5									10,200		
CCI 209M	Win. WAA12 (White)	21.5	10,000	23.0	8,800												
Fed. 209	Win. WAA12 (White)	21.5	10,100														
3½	1⅛	1,310	Win. 209	Win. WAA12 (White)	22.5	10,300	25.5	8,900	26.5	8,600							
				Fed. 12S3	22.5	10,200											
				Hornady Versalite	22.5	10,200											
				Red PC	22.5	10,200											
				Activ T32	22.5	10,200											
				Rem. 209P	Win. WAA12 (White)	22.5									10,200	25.0	8,800
				Fed. 209	Win. WAA12 (White)	22.5									10,200		
CCI 209M	Win. WAA12 (White)	22.0	9,400	25.0	9,000												
Fed. 209	Win. WAA12 (White)	22.5	10,600														

PC: Pattern Control

12-Gauge, 3-in. Winchester-Western Plastic AA-Type Shells

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Herco		Blue Dot		2400			
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi		
3¾	1⅝	1,295	Win. 209	Fed. 12S3			37.5	10,300				
				Rem. RXP12							38.0	9,400
				Win. WAA12 (White)							37.5	10,000
4	1⅝	1,350		Fed. 12S4			40.0	10,500				
				Rem. SP12							40.5	9,300
				Win. WAA12F114							39.0	9,900
4	1½	1,315		Rem. SP12			38.5	10,300				
4¼	1⅝	1,335		Rem. RP12					50.0	10,000		
4	1¾	1,245		Rem. RP12					45.0	9,900		

12-Gauge, 2¾-in. Activ Plastic Shells



Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		American Select		Green Dot		Unique		Herco		Blue Dot			
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi		
2¾	1½	1,145	CCI 209	Fed. 12S3	18.5	7,800												
			CCI 209M	Fed. 12S3	17.5	8,100												
			Fed. 209	Fed. 12S3	18.0	8,700												
			CCI 209SC	Claybuster					19.0	7,000								
				Activ TG30					19.5	8,100								
			Rem. 209P	Claybuster					20.0	6,900								
				Activ TG30					20.0	7,200								
			Win. 209	Fed. 12S3	18.0	8,500												
				Rem. PT12	17.5	8,300												
				Win. WAA12F1	18.5	7,700												
				Purple PC	18.5	7,400												
				Claybuster					19.0	7,300								
	Activ TG30					19.5	8,100											
	Fed. 209A	Claybuster				19.0	8,700											
		Activ TG30				19.5	8,500											
3	1½	1,200	CCI 209	Fed. 12S3	20.0	8,200												
			CCI 209M	Fed. 12S3	19.5	10,000			21.5	8,700								
			CCI 209SC	Claybuster					20.5	9,100								
				Activ TG30					21.0	9,200								
			Fed. 209	Fed. 12S3	19.5	9,600					21.5	7,500						
			Fed. 209A	Claybuster					20.5	10,100								
				Activ TG30					20.5	9,600								
			Rem. 209P	Claybuster (Red)					21.0	9,600								
				Activ TG30					21.0	8,600								
			Win. 209	Fed. 12S3	19.5	10,300					21.5	7,400						
				Rem. PT12	19.5	9,400					22.0	8,000						
				Win. WAA12F1	19.5	8,700					22.5	6,500						
	Purple PC	20.0	8,400					23.0	7,000									
	Claybuster					20.5	8,600											
	Activ TG30					21.0	9,200											
Heavy	1½	1,250	Rem. 209P	Activ TG30					22.5	8,900								
				Claybuster (Red)					22.5	10,000								
			Win. 209	Activ TG30					22.0	10,100								
				Claybuster					22.0	9,700								
			CCI 209SC	Activ TG30					22.5	10,600								
				Claybuster					22.0	10,500								
	Fed. 209A	Activ TG30					21.0	9,000										
		Claybuster					21.5	10,800										
3¼	1½	1,255	CCI 209M	Fed. 12S3					22.0	9,400								
				Win. WAA12 (White)					23.0	8,800								
3¼	1¼	1,220	CCI 209	Activ T32					23.0	9,300	25.5	8,100						
				Win. WAA12 (White)					23.5	9,000	25.5	8,400						
			CCI 209M	Activ T32					22.0	9,600	24.5	9,000						
				Win. WAA12 (White)					22.5	10,000	24.5	9,000						
			Fed. 209	Activ T32					22.5	10,000	24.5	9,200						
				Win. WAA12 (White)					22.5	9,800	24.5	9,500						
			Win. 209	Activ T32					23.0	9,700	24.5	9,000						
				Fed. 12C1							24.5	8,900						
				Rem. RXP12					22.0	9,900	24.5	9,200						
				Win. WAA12 (White)					22.0	10,200	24.0	9,200						
3¾	1¼	1,330	CCI 209	Fed. 12S4									30.5	9,800	39.5	9,300		
			CCI 209M	Activ T32										29.0	10,200			
			Fed. 209	Activ T32									27.5	10,500	29.5	10,300		
				Fed. 12S4													37.0	10,100
			Win. 209	Activ T32									27.5	10,200	29.0	9,700		
				Fed. 12S4												28.5	9,800	39.5
	Rem. SP12												28.5	9,800	39.0	8,700		
				Win. WAA12F114									28.5	10,300	40.0	8,800		

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12-Gauge, 2¾-in. Activ Plastic Shells (continued)

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		American Select		Green Dot		Unique		Herco		Blue Dot				
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi			
3¾	1⅜	1,295	CCI 209	Activ T35 Rem. RP12								30.5	10,300						
			CCI 209M	Activ T35 Rem. RP12									29.5	10,500	40.0	8,500			
			Fed. 209	Activ T35 Rem. RP12												38.5	8,700		
			Win. 209	Activ T35 Rem. RP12												38.0	9,400		
														38.0	9,700				
														37.0	10,200				
														39.0	9,100				
														38.0	9,500				
4	1⅜	1,350	Fed. 209	Activ T35												40.0	10,100		
			Win. 209	Activ T35													39.5	10,100	
3¾	1½	1,150	CCI 209M	Activ T42 Rem. RP12												34.0	9,100		
			Fed. 209	Activ T42													34.5	7,700	
			Rem. 209P	Activ T42														32.5	8,600
			Win. 209	Activ T42														34.0	8,200
			Fio. 616	Activ T42														33.0	9,200
																33.5	9,100		
3¾	1½	1,260	CCI 209	Activ T42													38.5	9,600	
			CCI 209M	Activ T42 Rem. RP12														36.5	10,200
			Win. 209	Activ T42 Rem. RP12														35.5	10,000
																		36.0	10,400
																35.5	9,900		
3¾	1⅝	1,115	CCI 209M	Activ T42													31.5	9,600	
			Fed. 209	Activ T42														31.0	9,100
			Win. 209	Activ T42														31.5	9,500
			Rem. 209P	Activ T42														31.5	9,400
			Fio. 616	Activ T42														31.0	9,200

12-Gauge, 3-in. Activ Plastic Shells

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot				
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi			
3¾	1⅜	1,295	CCI 209M	Fed. 12S3 Rem. RXP12 Win. WAA12 (White)							31.5	10,400					
												31.5	10,000				
													31.5	10,100			
4	1⅜	1,350	CCI 209M	Activ T32 Rem. RXP12 Win. WAA12 (White) Fed. 12S3							33.5	10,700	43.0	8,300			
												33.0	10,400	42.5	7,900		
															40.5	8,700	
															41.5	8,600	
4	1½	1,315	CCI 209M	Activ T35 Fed. 12S4 Rem. R12H Win. WAA12F114											41.0	9,600	
															40.5	9,200	
																41.5	8,500
																40.0	9,800
4	1⅝	1,280	CCI 209M	Activ T35 Fed. 12S4 Rem. SP12 Win. WAA12F114											39.0	10,000	
															39.5	10,600	
																41.5	10,100
																40.0	9,900
4	1¾	1,245	CCI 209M	Activ T35 Rem. SP12											40.0	10,400	
																40.0	10,700
3¾	1⅞	1,155	CCI 209M	Activ T35 Rem. SP12											36.5	10,000	
																37.0	10,200
3¾	2	1,120	CCI 209M	Rem. RP12											35.0	10,600	

12-Gauge, 2¾-in. Fiocchi Plastic Target Shells



Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		American Select		Green Dot		Unique		Herco		Blue Dot					
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi				
—	7/8	1,200	Fio. 616	Rem. TGT 12	17.0*	6,900														
				Fed. 12SO	17.5	6,700														
				Win. WAA12SL	17.0*	6,700														
				Purple PC	17.5*	6,400														
—	7/8	1,250	Fio. 616	Rem. TGT 12	18.5	7,000														
				Fed. 12SO	19.0	6,900														
				Win. WAA12SL	18.5	6,800														
				Purple PC	19.0*	6,700														
—	7/8	1,300	Fio. 616	Fed. 12SO	19.5	8,800			22.0	7,600										
				Rem. TGT 12	20.0	7,900			22.0	7,900										
				Win. WAA12SL	20.0	8,100			22.5	7,700										
				Purple PC	20.0*	8,600														
2¾	1	1,200	Fio. 616	Fed. 12SO	18.0	9,100			20.0	8,100										
				Rem. TGT 12	18.0	8,500			20.0	7,400										
				Win. WAA12SL	18.0	8,500			20.0	7,900										
				Purple PC	18.0	8,100			20.0	7,200										
3	1	1,255	Fio. 616	Rem. TGT 12	19.0	9,300			21.0	8,400										
				Win. WAA12SL	19.0	9,500			21.0	8,100										
				Purple PC	19.0	9,500			21.0	8,200										
3¼	1	1,290	Fio. 616	Rem. TGT 12	20.5	10,100			22.5	8,600										
				Win. WAA12SL	20.5	10,300			22.5	9,400										
				Purple PC	21.0	9,800			23.0	8,400										
Extra Lite	1½	1,090	Fio. 616	Fiocchi FTW1	16.5	8,100			18.5	6,800										
				Fiocchi TL1			18.0	7,400												
				Fed. 12S3	16.0	8,400	17.5	7,400	18.5	7,200										
				Fed. 12C1					18.5	6,800										
				Win. WAA12 (White)	17.0	7,600			18.5	7,000										
				Win. WAA12SL	17.0	7,300														
				Rem. Fig. 8	16.0	8,000			18.5	6,500										
				Rem. RXP12	16.5	8,700			18.5	6,700										
Hornady Versalite Claybuster (Red)	16.5	8,100			18.5	7,100														
2¾	1½	1,145	Fio. 616	Fiocchi FTW1	17.5	8,800			20.0	7,300										
				Fiocchi TL1			19.5	8,500												
				Fed. 12S3	18.0	9,200	19.0	8,700	20.0	7,500										
				Fed. 12C1	18.0	8,800			19.5	7,500										
				Rem. Fig. 8	18.0	8,400			20.0	7,100										
				Rem. RXP12	18.0	8,700			20.0	7,200										
				Win. WAA12 (White)	18.0	9,000			20.0	7,600										
				Win. WAA12SL	18.0	8,300														
				Hornady Versalite	17.5	9,000			19.5	7,500										
				Windjammer	18.5	7,400			19.5	7,200										
				Claybuster (Red)			19.5	8,000												
				3	1½	1,200	Fio. 616	Fiocchi FTW1	19.0	9,300			21.0	7,800	23.5	7,400				
Fiocchi TL1			20.5					9,200												
Fed. 12S3	19.0	9,700	20.5					9,400												
Fed. 12C1	19.0	9,500							21.0	8,400	23.5	6,900								
Rem. Fig. 8	19.5	9,600							21.5	8,500	23.5	7,000								
Rem. RXP12	19.5	9,700							21.5	7,900	22.5	7,200								
Win. WAA12 (White)	19.5	9,400							21.5	8,100	23.5	6,800								
Hornady Versalite	18.5	9,500							21.0	8,200	24.0	7,100								
Windjammer	20.0	8,600							21.0	7,700	24.0	6,400								
Claybuster (Red)			21.0					9,000												
Heavy	1½	1,250	Fio. 616					Fiocchi FTW1	21.0	10,500			23.0	9,200	24.5	8,200	26.0	8,300		
								Fiocchi TL1			22.0	10,200								
				Fed. 12S3			22.0	10,300												
				Fed. 12C1	20.5	10,700			22.5	9,300	24.5	8,000	26.0	7,500						
				Rem. Fig. 8	20.5	10,200			23.0	8,800	24.5	7,600	26.0	7,300						
				Rem. RXP12					23.0	9,200	23.5	8,200	26.0	7,500						
				Win. WAA12 (White)					23.0	8,900	25.0	7,800	26.0	7,900						
				Hornady Versalite					22.5	9,300	25.0	7,800	25.5	7,700						
				Windjammer	21.0	9,400			22.5	9,000	25.5	6,900	26.5	7,700						
				Claybuster (Red)			22.5	10,700												
				3½	1½	1,310	Fio. 616	Fed. 12S3					25.0	9,600	27.0	8,600				
								Fed. 209					24.5	10,300	27.0	9,200				
CCI 209M									24.0	10,000	26.5	8,400								
Win. 209									25.0	8,700	26.5	8,300								
3¼	1¼	1,220	Fio. 616	Fed. 12S4					23.0	9,700	25.0	8,800								
				Fed. 209					23.0	10,000	24.5	9,500								
				CCI 209M					24.5	8,000										
				Win. 209					23.0	10,000	25.0	8,700								

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12-Gauge, 2¾-in. Fiocchi Plastic Target Shells (continued)

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		American Select		Green Dot		Unique		Herco		Blue Dot						
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi					
3½	1¼	1,275	Fio. 616	Fed. 12S4							27.0	10,300	28.0	9,500							
			Fed. 209	Fed. 12S4								26.0	10,100	27.5	8,800						
			CCI 209M	Rem. SP12										28.0	8,300						
			Win. 209	Win. WAA12F114							27.0	10,000	28.0	8,400							
3¾	1¼	1,300	Fio. 616	Fed. 12S4										30.0	9,500	40.0	8,300				
				Rem. SP12											30.5	8,600	41.0	7,700			
				Win. WAA12F114												30.0	9,200	39.5	7,500		
			Fed. 209	Fed. 12S4												30.0	10,300	37.0	8,800		
			CCI 209M	Rem. SP12												30.0	9,200	41.0	7,600		
			Win. 209	Win. WAA12F114									30.0	10,100	38.5	8,300					
3¾	1⅜	1,295	Fio. 616	Rem. RP12												38.0	9,100				
			Fed. 209	Rem. RP12													36.0	10,100			
			CCI 209M	Rem. RP12														37.0	9,600		
			Win. 209	Rem. RP12														38.0	9,500		
4	1⅜	1,350	Fio. 616	Rem. RP12													41.5	9,400			
			Fed. 209	Rem. RP12														39.0	10,200		
			CCI 209M	Rem. RP12															40.0	10,100	
			Win. 209	Rem. RP12															40.0	9,900	
3¼	1½	1,150	Fio. 616	Activ T42													32.5	9,000			
				Rem. RP12															32.5	8,700	
			Fed. 209	Activ T42															32.5	8,100	
			Rem. 209P	Activ T42																33.5	8,300
			Win. 209	Activ T42																33.5	8,700
			CCI 209M	Activ T42														34.0	8,500		
3½	1½	1,205	Fio. 616	Rem. RP12														36.5	9,000		
			Fed. 209	Rem. RP12																34.5	8,500
			CCI 209M	Rem. RP12																33.0	9,500
			Win. 209	Rem. RP12																35.5	8,600
3¾	1½	1,260	Fio. 616	Rem. RP12															37.5	9,600	
			CCI 209M	Rem. RP12																36.5	10,600
			Win. 209	Rem. RP12																36.5	10,300
3¼	1⅝	1,115	Fio. 616	Activ T42															31.0	9,600	
			Fed. 209	Activ T42																31.0	9,300
			Win. 209	Activ T42																31.0	9,000
			Rem. 209P	Activ T42																31.5	8,600
			CCI 209M	Activ T42															31.5	8,900	

PC: Pattern Control

NOTES: *For each asterisk (*), add one 20-gauge, 0.135-in. thick card wad to the inside bottom of the shot cup.

Auto-loading shotguns may not function with loads having pressures less than 7,000 psi. It is important to have tight crimps to prevent load efficiencies (pressures) from dropping. The efficiency may also drop when these loads are fired at low temperatures.

12-Gauge, 3-in. Fiocchi Plastic Shells

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Green Dot		Unique		Herco		Blue Dot								
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi							
3¾	1⅝	1,295	Fio. 616	Fed. 12S3					31.5	9,100									
				Rem. RXP12							32.5	8,600							
				Win. WAA12 (White)								31.5	8,900						
				Fiocchi FTW1								31.0	9,200						
			Win. 209	Fed. 12S3								29.5	10,600	37.5	8,800				
			CCI 209M	Fed. 12S3						30.0	10,000	37.0	9,000						
4	1⅝	1,350	Fio. 616	Fed. 12S4															
				Rem. SP12															
				Win. WAA12F114															
				Activ T32															
			Win. 209	Fed. 12S4								38.5	10,100						
			CCI 209M	Fed. 12S4									38.0	10,400					
4	1½	1,315	Fio. 616	Fed. 12S4															
				Rem. SP12															
				Win. WAA12F114															
				Activ T35															
			Win. 209	Fed. 12S4									39.0	10,300					
			CCI 209M	Fed. 12S4										39.0	9,700				
														39.0	9,400				
														39.0	9,000				
														39.0	10,600				
														38.0	10,400				
4	1⅝	1,280	Fio. 616	Fed. 12S4															
				Rem. SP12															
				Win. WAA12F114															
				Activ T35															
														39.0	10,700				
														39.5	9,700				
														38.5	10,500				
														39.0	10,500				
4	1¾	1,245	Fio. 616	Activ T35													37.5	10,300	
3¾	1⅝	1,155	Fio. 616	Rem. RP12														34.5	10,700
				Activ T35															34.5

Additional 12-Gauge 2¾-in., 1-oz. Target Loads



Shell	Dram Equiv.	Velocity (fps)	Primer	Wad	Bullseye		Red Dot		Green Dot		
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	
Federal Paper Target	2¾	1,200	Fed. 209A	Fed. 12SO	18.5	7,800	19.0	8,000			
				Fed. 12S3	18.5*	8,500	18.5	7,400			
				Rem. PT12	18.0	6,200	18.0	7,500			
				Rem. R12L	18.5*	7,800	18.5	7,100			
				Rem. RXP12	18.5*	7,600	19.0	7,200			
				Win. WAA12F1	18.0*	7,500	18.5*	8,100			
				Win. WAA12 (White)	18.5*	8,700	18.5	7,800			
				Pacific Versalite	18.5*	8,500	18.0	7,300			
				Lage Uniwad	19.0*	8,600	19.0	7,100			
				Windjammer	19.0*	7,300	19.0*	7,400			
				Purple PC	19.0	6,400	19.0	7,100			
				CCI 209	Fed. 12SO	18.5	7,600	19.0	7,600		
				CCI 209M	Purple PC	18.0	6,900	18.5	6,600		
Rem. 209	Purple PC	18.5	6,200	18.0	7,800						
Win. 209	Purple PC	19.0	7,100	19.0	7,200						
Federal Gold Medal	2¾	1,200	Fed. 209A	Fed. 12SO	18.0	7,600	18.0	7,900	21.0	7,100	
				Rem. PT12			18.5	7,500	21.0	6,100	
				Rem. RXP12	17.5*	9,000	18.0*	8,700	20.0	7,600	
				Win. WAA12 (White)	17.5**	9,500	18.0*	8,500	20.0*	8,200	
				Win. WAA12F1	18.5*	7,600	18.0*	8,400	21.0	7,200	
				Purple PC	19.0	5,700	18.5	6,900			
				CCI 209	Fed. 12SO	19.0	8,400	19.0	7,600		
				CCI 209M	Purple PC			18.0	6,900		
				Rem. 209	Purple PC	18.5	5,600	18.5	7,200	20.5	6,100
				Win. 209	Purple PC			18.5	6,700		
				Rem. Premier Plastic Target	2¾	1,200	Rem. 209P	Rem. Fig. 8	17.0	7,100	18.0
Fed. 12SO	17.5	7,800	18.0					8,800	19.5	7,200	
Win. WAA12F1	17.5	6,900	18.0					7,800	19.0	6,200	
Purple PC	18.0	6,900	18.5					7,700	20.5	6,200	
Pacific Versalite	17.0	7,500	17.5					8,600	20.0	6,600	
CCI 209M	Rem. Fig. 8	17.0	8,300					17.5	8,900	18.5	7,700
Fed. 209	Rem. Fig. 8	17.5	7,500					18.0	8,400	20.0	7,200
Win. 209	Rem. Fig. 8	17.5	7,900					18.0	7,100	20.0	7,100
Peters Target (Blue Magic)	2¾	1,200	Rem. 209 Rem. 97★	Purple PC	17.5	7,200	17.5	8,300	19.0	7,300	
				Fed. 12SO	18.0	10,300	18.0	9,400			
				Fed. 12S3	18.5*	8,500	18.0*	8,600	19.5	7,300	
				Rem. R12L	17.5*	8,300	18.0*	8,000	20.0	7,100	
				Rem. RXP12	17.5*	8,800	18.0*	8,400	20.0	7,500	
				Win. WAA12 (White)	17.5*	9,900	18.0*	9,100	19.5	7,500	
				Win. WAA12F1	18.0	8,700	18.0	8,500	21.0	7,500	
				Lage Uniwad	18.0*	9,600	18.0*	8,600	20.5	6,700	
				Windjammer	18.0*	8,700	19.0*	8,300			
				CCI 209M	Rem. R12L	17.5	9,000	18.0	8,800		
					Purple PC	17.0	7,400	17.5	8,000	19.5	7,000
				Fed. 209	Purple PC	18.0	6,300	18.5	8,400	20.0	6,400
Win. 209	Purple PC	18.0	6,800	18.0	7,700						
Winchester.- Western AA	2¾	1,200	Win. 209	Fed. 12SO	18.0	9,600	18.0	9,600	19.5	8,400	
				Fed. 12S3	17.5*	8,700	18.0	8,400			
				Rem. R12L	18.0*	8,800	18.0	7,600	20.0	7,100	
				Rem. RXP12	17.5	8,800	18.0	8,300	20.0	7,100	
				Win. WAA12 (White)	17.5*	9,900	18.0	8,800	19.5	7,500	
				Win. WAA12F1	18.0**	9,500	18.0	9,000	20.0	7,600	
				Lage Uniwad	17.5*	8,900	18.0	8,000	20.5	7,400	
				Windjammer	18.0**	9,500	18.0*	9,100	20.0	7,600	
				Purple PC	17.5	7,300	17.5	8,800	19.5	6,900	
				CCI 209	Purple PC	18.0	7,300	18.5	7,800	21.0	6,300
				CCI 209M	Win. WAA12 (White)			17.5	9,900		
					Purple PC	17.5	7,900	17.5	8,500	19.0	6,600
				Fed. 209	Purple PC	17.5	7,600	17.5	8,900	19.0	7,200
				Rem. 209	Purple PC	17.5	7,400	17.5	8,600	19.0	7,700

PC: Pattern Control

NOTE: *For each asterisk (*), add one 20-gauge, 0.135-in. thick card wad to the inside bottom of the shot cup.



28-Gram International Target Loads with 12-Gauge, 2¾-in. Federal Gold Medal Plastic Target Shells

Dram Equiv.	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot	
				Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
3½	1,345	Fed. 209A	Fed. 12SO	23.0	9,900	24.5	9,100	27.5	7,400				
			Rem. Fig. 8	22.5	9,500	25.0	8,400						
			Win. WAA12SL	22.5	9,600	24.5	8,400						
			Purple PC	23.0	8,800	25.0	8,200						

PC: Pattern Control

28-Gram International Target Loads with 12-Gauge, 2¾-in. Remington Premier Plastic Target Shells

Dram Equiv.	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot			
				Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi		
3½	1,345	Rem. 209P	Rem. Fig. 8	21.5	10,600	23.0	9,700	26.0	8,300						
			Fed. 12S3			23.0	10,300								
			Win. WAA12SL			23.0	10,100							27.0	8,500
			Purple PC			24.0	9,900							27.0	7,800

PC: Pattern Control

28-Gram International Target Loads with 12-Gauge, 2¾ Winchester-Western Plastic AA-Type Shells

Dram Equiv.	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot					
				Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi				
3½	1,345	Win. 209	Win. WAA12SL														
			Rem. Fig. 8											22.5	10,600	25.5	10,200
			Fed. 12S3											23.0	9,500	25.0	9,600
			Purple PC													26.5	8,700

PC: Pattern Control

28-Gram International Target Loads with 12-Gauge, 2¾ Fiochi Plastic Target Shells

Dram Equiv.	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot			
				Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi		
3½	1,345	Fio. 616	Fed. 12S3	22.0	9,600	24.0	8,800	26.5	7,500						
			Rem. Fig. 8			24.0	8,800								
			Win. WAA12SL			21.5	10,400							24.0	8,800
			Purple PC			22.5	9,500							24.0	8,800

PC: Pattern Control

16-Gauge, 2¾-in. Federal Plastic Hi Power Shells with Paper Base Wad



Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot		
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	
2¾	1	1,220	Fed. 209A	Win. WAA16 Activ G28				19.0	9,800	21.0	8,400	21.5	8,100		
								18.5	9,300	21.5	8,200	21.5	8,000		
3	1	1,275	Fed. 209A	Win. WAA16 Activ G28						23.0	8,800	23.5	8,700		
										23.0	9,000	23.5	8,500		
2¾	1½	1,185	Fed. 209A	Rem. SP16 Win. WAA16				19.0	10,600	21.5	8,900	22.0	9,100		
								18.5	10,200	21.0	8,700	22.0	9,100		
3	1½	1,240	Fed. 209A	Rem. SP16 Win. WAA16						22.5	9,600	23.5	10,100		
										22.0	10,200	24.0	10,200		
3¼	1½	1,295	Fed. 209A	Rem. SP16								24.5	10,300	32.0	8,600
3¼	1¼	1,260	Fed. 209A	Rem. SP16										30.5	10,200

16-Gauge, 2¾-in. Remington-Peters SP Plastic Shells with Plastic Base Wad

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot		
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	
2½	1	1,165	Rem. 209P	Win. WAA16 Activ G28				16.5	10,200	19.0	8,600				
								17.5	9,700	19.5	8,400				
2¾	1	1,220	Rem. 209P	Win. WAA16 Activ G28						20.0	9,400	21.0	9,700		
										20.5	8,600	21.0	8,900		
3	1	1,275	Rem. 209P	Win. WAA16 Activ G28						21.0	10,200	22.0	9,600		
										21.0	10,200	22.0	9,800		
2¾	1½	1,185	Rem. 209P	Win. WAA16 Activ G28						20.0	10,300	21.0	10,600		
										20.5	10,700	21.0	10,500		
3	1½	1,240	Rem. 209P	Rem. SP16										27.0	9,900

16-Gauge, 2¾-in. Winchester AA-Type Shells

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot		
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	
2½	1	1,165	Win. 209	Win. WAA16 Activ G28						19.0	9,200				
										17.5	10,300				19.0
2¾	1	1,220	Win. 209	Win. WAA16 Activ G28						19.5	10,500	20.0	10,200		
												20.0	10,100		
3	1	1,275	Win. 209	Rem. SP16										29.0	9,300
2¾	1½	1,185	Win. 209	Rem. SP16										27.0	10,000

16-Gauge 2¾-in. Fiochi Plastic Shells

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot		
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	
2½	1	1,165	Fio. 616	Win. WAA16 Activ G28				15.5	10,400	19.0	8,100				
								17.0	10,000	17.5	9,400				19.5
2¾	1	1,220	Fio. 616	Activ G28 Win. WAA16						20.0	9,000	21.0	8,500		
										18.0	10,500	20.5	8,800		21.0
3	1	1,275	Fio. 616	Activ G28 Win. WAA16						21.5	9,600	22.0	9,000		
										21.0	9,900	22.0	9,600		
2¾	1½	1,185	Fio. 616	Win. WAA16 Rem. SP16						19.5	10,600	21.0	10,200		
3	1½	1,240	Fio. 616	Rem. SP16						20.5	9,900	21.0	10,200		
3¼	1½	1,295	Fio. 616	Rem. SP16								23.5	10,700	31.0	8,900
														32.5	9,200



16-Gauge 2¾-in. Activ All-Plastic Shells

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot	
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
2½	1	1,165	CCI 209	Activ G28	16.5	10,100	18.0	9,200	20.0	7,900				
2¾	1	1,220	CCI 209	Activ G28 Win. WAA16			19.5	9,800 9,700	21.5	8,700 8,300	23.0	8,500 8,000		
3	1	1,275	CCI 209	Activ G28 Win. WAA16					23.0	9,100 8,700	24.5	8,700 9,000		
2¾	1½	1,185	CCI 209	Win. WAA16 Rem. SP16			19.0	10,600	20.5	9,200 9,200	22.0	9,400 8,800		
3	1½	1,240	CCI 209	Win. WAA16 Rem. SP16					22.0	10,000 10,200	23.0	10,200 9,400		
3¼	1½	1,295	CCI 209M	Rem. SP16									31.0	9,100
3¼	1¼	1,260	CCI 209M	Rem. SP16									30.0	10,000

20-Gauge, 2¾-in. Federal Paper Target Shells

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot		
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	
2¼	¾	1,200	Fed. 209	Fed. 20S1	12.5**	11,400	14.0	9,700	15.5	9,200					
				Rem. RXP20 Win. WAA20	13.5**	10,500 10,500	14.0	10,200 8,800	16.0	8,100 9,200					
			CCI 109	Fed. 20S1	13.0**	10,500	14.0	8,800	15.5	9,200					
				Rem. RXP20 Win. WAA20	15.0	10,900	17.0	8,900	17.0	6,800					
2¼	⅞	1,155	Fed. 209	Fed. 20S1	14.0	11,400	15.0	9,900	15.5	9,000					
				Rem. RXP20 Win. WAA20	14.0	10,000	14.5	10,100 9,500	15.5	9,200 8,800					
			CCI 109	Fed. 20S1	14.0	10,000	14.5	8,900	15.0	8,000					
				Rem. RXP20 Win. WAA20	14.5	8,400	15.0	8,700	15.0	8,000					
CCI 209M	Fed. 20S1	14.5	9,800	14.5	8,400	16.0	8,600								
Skeet	⅞	1,200	Fed. 209	Fed. 20S1			15.0	9,600	15.5	9,400					
				Rem. RXP20 Win. WAA20			15.5	10,900 9,700	16.5	9,800 9,200					
			CCI 109	Fed. 20S1			15.0	9,000	17.0	8,400					
				Rem. RXP20 Win. WAA20			16.0	9,900 8,800	17.0	8,500 8,500					
CCI 209M	Fed. 20S1			15.5	8,800	17.0	8,500	17.0	9,900	17.0	9,600				
2½	1	1,165	Fed. 209	Rem. RXP20							17.0	11,500			
				Rem. SP20								16.5	11,500		
				Win. WAA20								16.0	11,200		
				Win. WAA20F1								16.5	11,300		

NOTE: For each asterisk (*), add one 20-gauge, 0.135-in. thick card wad to the inside bottom of the shot cup.

20-Gauge, 2¾-in. Federal Plastic Target Shells



Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot		
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	
2¼	¾	1,200	Fed. 209	Fed. 20S1	13.0***	10,100	15.0*	9,000	15.0**	9,000					
				Rem. RXP20	13.0***	9,400	15.0*	8,600	16.0**	8,600					
				Win. WAA20	13.0***	10,300	15.0*	8,900	16.0**	8,200					
				Windjammer*	14.0	9,300	15.5	8,700	17.0	7,500					
2¼	⅞	1,155	Fed. 209	Hornady Versalite			15.5	10,000							
				Windjammer			15.0	10,000	16.5	8,600					
				Lage Uniwad			16.0	10,100							
				Win. WAA20			14.5	9,700							
				CCI 109	Fed. 20S1			14.5	8,400						
				Rem. RXP20					16.0	8,600					
Skeet	⅞	1,200	Fed. 209	Fed. 20S1			14.5	8,000							
				Rem. RXP20			14.5	8,000	17.0	8,300					
				Win. WAA20			15.5	8,700	17.0	8,300					
				Lage Uniwad			14.5	9,100	16.0	8,700					
				CCI 209M	Fed. 20S1			16.0	10,900	17.0	10,600	18.5	10,200		
				Windjammer			16.5	11,000							
2½	1	1,165	Fed. 209	Fed. 20S1			16.5	10,600							
				Hornady Versalite			16.0	10,500							
				PC 20			16.0	11,200	18.0	9,800	18.0	9,200			
				Fed. 209A	Fed. 20S1			15.5	9,400	17.0	8,500	17.0	9,300		
				CCI 109	Rem. RXP20			16.0	9,600	17.0	9,200	18.0	8,800		
				Win. WAA20			15.5	9,100	17.0	8,500	17.0	9,100			
2¾	1	1,220	Fed. 209	Lage Uniwad			16.0	10,000	18.0	8,800					
				CCI 209M	Fed. 20S1			16.5	9,300	17.0	9,100	17.5	7,600		
				Rem. SP20					16.0	10,800	17.0	9,600			
2¾	1	1,175	Fed. 209	Rem. RXP20					17.0	11,300					
				Win. WAA20F1					15.5	11,300	16.5	11,100			
				Win. WAA20F1									24.0	10,200	
2¾	1	1,220	CCI 209M	Fed. 20S1							18.5	9,800	24.0	10,100	
				Fed. 20S1											
2¾	1½	1,175	Fed. 209	Rem. SP20									23.0	10,900	

NOTE: For each asterisk (*), add one 28-gauge, 0.135-in. thick card wad or one 0.135-in. thick .410 bore card wad to the inside bottom of the shot cup.

20-Gauge 3-in. Federal Plastic Shells

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot	
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
3	1½	1,255	Fed. 209	Win. WAA20									26.5	9,400
				Rem. RXP20										27.0
3¼	1½	1,310	Fed. 209	Rem. RXP20									28.0	10,200
				Win. WAA20									28.5	10,600
				Fed. 20S1									28.0	10,300
3	1½	1,230	Fed. 209	Rem. SP20*									26.5	10,300
				Win. WAA20F1									26.0	10,100
3	1¼	1,185	Fed. 209	Rem. SP20*									25.5	10,600
				Win. WAA20F1									25.5	10,400

NOTE: For each asterisk (*), add one 28-gauge, 0.135-in. thick wad to the inside bottom of the shot cup.

20-Gauge, 2¾-in. Remington Premier Plastic Target Shells



Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot		
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	
2¼	¾	1,200	Rem. 209P	Rem. RXP20**	13.0	10,700	14.0	10,000	15.5	8,700					
				Win. WAA20**	13.0	11,500	14.0	10,500	15.5	8,900					
				Fed. 20S1**	13.0	10,600	14.0	10,000	15.5	8,400					
				Hornady Versalite**	13.5	11,500	14.5	10,000	16.0	8,900					
				Windjammer**	13.0	11,200	14.0	10,300	15.5	8,900					
				Lage Uniwad**	13.5	11,100	14.0	9,800	15.5	8,600					
2¼	⅞	1,155	Rem. 209P	Rem. RXP20			14.5	11,500	15.5	10,000	16.5	10,000			
				Fed. 20S1					15.5	10,000	16.0	10,000			
				Win. WAA20			14.0	11,100	15.5	10,200	16.0	9,500			
				Hornady Versalite			14.0	11,500	15.5	9,700	16.0	9,600			
				Windjammer			14.0	11,200	15.5	9,900	16.0	9,500			
				Lage Uniwad			14.0	11,400	15.5	10,000	16.0	9,600			
				Fed. 209	Rem. RXP20					15.5	10,700	16.5	10,500		
				Win. 209	Rem. RXP20					15.5	10,300	16.5	10,200		
				Fio. 616	Rem. RXP20					16.0	10,700	16.5	10,100		
				CCI 209M	Rem. RXP20					15.5	11,000	16.5	10,500		
CCI 209	Rem. RXP20				14.5	10,900	16.0	9,500	16.5	8,900					
Skeet	⅞	1,200	Rem. 209P	Rem. RXP20					16.5	10,700	17.0	10,600			
				Fed. 20S1					16.5	10,800	17.0	10,500			
				Win. WAA20					16.5	10,900	17.0	10,700			
				Hornady Versalite					16.5	10,200	17.5	10,400			
				Windjammer					16.0	10,400	17.0	10,100			
				Lage Uniwad					16.5	10,400	17.5	10,300			
				PC 20			14.5	11,200	17.0	10,500	17.5	10,200			
				Fed. 209	Rem. RXP20					16.5	11,300	17.0	11,000		
				Win. 209	Rem. RXP20					16.5	11,300	17.0	10,600		
				Fio. 616	Rem. RXP20					16.5	11,200	17.0	10,700		
CCI 209M	Rem. RXP20					16.0	11,300	17.0	10,800						
CCI 209	Rem. RXP20					16.5	9,900	17.5	9,400						
2½	1	1,155	Rem. 209F	Rem. SP20									21.5	9,000	
				Win. WAA20F1								17.5	11,500	21.5	9,000
				Fed. 209	Rem. SP20									20.5	11,300
				Win. 209	Rem. SP20									21.5	10,600
				Fio. 616	Rem. SP20									22.5	9,800
				CCI 209M	Rem. SP20									21.5	10,500
CCI 209	Rem. SP20									22.0	9,500				
2¾	1	1,220	Rem. 209P	Rem. SP20									24.0	11,100	
				Win. WAA20F1									23.5	10,900	
				Win. 209	Rem. SP20									22.0	11,100
				Fio. 616	Rem. SP20									23.5	11,000
				CCI 209M	Rem. SP20									22.5	10,900
				CCI 209	Rem. SP20									23.0	10,300
2¾	1⅛	1,175	Rem. 209P	Rem. SP20									22.0	11,300	
				Win. WAA20F1									22.0	11,500	

NOTE: For each asterisk (*), add one 0.135-in. .410-bore card to the inside bottom of the shot cup.

20-Gauge, 2¾-in. Remington-Peters RXP Plastic Target Shells



Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot	
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
2¼	¾	1,200	Rem. 97★	Rem. RXP20	12.5**	11,300	13.5*	10,400	15.5	9,900				
				Fed. 20S1	12.5*	11,400	13.5	11,100	15.5	9,900				
				Win. WAA20	12.5*	11,400	13.5	10,400	15.0	9,400				
2¼	⅞	1,155	Rem. 97★	Fed. 20S1			13.0	11,500						
				Rem. RXP20			14.0	11,300						
				Win. WAA20			13.5	11,400						
				Lage Uniwad					15.5	10,800				
			CCI 109	Fed. 20S1			13.5	11,100						
				Rem. RXP20			14.0	10,500						
				Win. WAA20			14.0	10,700						
				Lage Uniwad			14.5	11,300	15.5	9,300				
Skeet	⅞	1,200	Rem. 97★	Fed. 20S1					16.0	10,500				
				Rem. RXP20					16.0	9,700	17.0	10,600		
				Win. WAA20					16.0	10,700	17.0	10,600		
				Lage Uniwad					16.0	10,900				
				CCI 109	Fed. 20S1				16.0	10,500	17.0	11,300		
				Rem. RXP20			14.5	10,900	17.0	9,900				
			CCI 209M	Win. WAA20			16.0	10,800	16.5	10,400	16.5	10,400		
				Lage Uniwad			15.5	11,400	16.5	10,400				
				Rem. RXP20			16.0	10,500	16.5	10,700				
2½	1	1,165	Rem. 97★	Fed. 20S1					15.5	10,800				
				Rem. RXP20					16.0	10,600				
				Win. WAA20					15.5	11,200				
2¾	1	1,220	Rem. 97★	Rem. RXP20						18.0	11,000			

NOTE: For each asterisk (), add one 28-gauge, 0.135-in. thick card wad to the inside bottom of the shot cup.

20-Gauge, 2¾-in. Remington-Peters Unibody Shells

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Green Dot		Unique		Herco		Blue Dot		2400	
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
Skeet	⅞	1,200	Rem. 209	Rem. RXP20			16.5	10,800	16.5	10,200				
				Win. WAA20			16.5	11,200						
				Hornady Versalite					16.5	10,900				
				Rem. RXP20			16.0	11,500	16.5	10,700				
			CCI 209M	Rem. RXP20			16.5	10,900	17.5	11,300				
				Win. 209					17.5	10,900				
				Rem. RXP20										
				Rem. SP20										
2½	1	1,165	Rem. 209	Rem. SP20						21.0	11,500			
				Win. WAA20F1						21.5	11,100			
				Rem. SP20						21.5	10,500			
				CCI 209M	Rem. SP20					22.0	10,500			
			Win. 209	Rem. SP20						22.0	11,300			
				Rem. SP20										
2¾	1	1,220	Fed. 209	Activ W32								29.5	10,500	

20-Gauge, 2¾-in. Remington SP with Plastic Base Wad

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot	
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
Skeet	⅞	1,200	Rem. 209	Rem. RXP20					16.5	9,100				
				Win. WAA20					16.5	9,800				
2½	1	1,165	Rem. 209	Rem. SP20							17.5	11,300		
				Win. WAA20F1							17.5	10,700		
2¾	1	1,220	Rem. 209	Rem. SP20									23.0	10,300
				Win. WAA20F1										24.0

20-Gauge, 2¾-in. Winchester-Western Plastic XPert Ranger Shells (Polyformed Shell)



Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot	
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
2¼	⅞	1,155	Win. 209	Fed. 20S1					14.5	9,700				
				Win. WAA20					14.5	9,800				
Skeet	⅞	1,200	Win. 209	Fed. 20S1					15.5	10,800				
				Rem. RXP20					15.5	9,700				
				Win. WAA20					15.5	10,700				
2½	1	1,165	Win. 209	Rem. RXP20					16.0	11,100				

20-Gauge, 2¾-in. Winchester-Western Plastic AA-Type Shells

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot					
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi				
2¼	¾	1,200	Win. 209	Win. WAA20					15.5*	9,100								
				Fed. 20S1					12.0**	10,900					14.0*	10,800	15.5*	9,700
				Rem. RXP20					12.0**	11,100					14.0*	9,900	15.5*	9,900
2¼	⅞	1,155	Win. 209	Fed. 20S1					14.0	10,300								
				Rem. RXP20					14.5	9,900					15.0	10,100		
				Win. WAA20					14.0	10,300					15.0	8,700		
				Lage Uniwad					14.0	11,400					15.0	9,800		
				PC20					13.5	11,200					15.5	10,500		
				CCI 109					Fed. 20S1	14.0					9,500	15.5	9,600	
				Rem. RXP20					14.5	9,300					15.5	7,800		
Win. WAA20	14.0	10,000	15.5	9,200														
Lage Uniwad	14.0	10,900	16.0	10,100														
CCI 209M	Win. WAA20			15.0	10,200													
Skeet	⅞	1,200	Win. 209	Fed. 20S1					14.5	10,300								
				Rem. RXP20					15.0	10,000					16.5	10,700		
				Win. WAA20					14.5	10,600					16.0	9,000		
				PC20					16.0	10,500					16.5	9,000		
				CCI 109					Fed. 20S1	14.5					10,500	16.0	10,000	16.5
Rem. RXP20	15.0	10,000	16.0	11,200	16.5	11,300												
Win. WAA20	14.5	10,300	16.0	10,000	16.5	10,200												
Lage Uniwad	15.0	10,000	16.0	9,900	16.5	8,800												
CCI 209M	Win. WAA20			16.0	10,700	16.5	10,200											
Win. WAA20				16.5	10,800	17.5	10,000											
2½	1	1,165	Win. 209	Rem. RXP20														
				Rem. SP20					16.5	9,600								
				Win. WAA20					16.5	10,000								
2¾	1	1,220	Win. 209	Rem. RXP20														
				Rem. SP20					23.0	11,300								
				Win. WAA20F1					23.5	11,400								

20-Gauge, 3-in. Winchester-Western Plastic AA-Type Shells

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Herco		Blue Dot		2400	
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
3	1⅓	1,255	Win. 209	Rem. SP20			26.0	10,600		
3	1⅓	1,230	Win. 209	Win. WAA20F1			25.5	11,100		
				Rem. SP20			25.5	11,000		
2¾	1¼	1,135	Win. 209	Win. WAA20F1			23.0	10,200		
				Rem. SP20			24.0	10,900		
3	1¼	1,190	Win. 209	Rem. SP20			25.0	11,500		
3¼	1¼	1,240	Win. 209	Rem. SP20					34.5	9,600

20-Gauge, 2¾-in. Activ Shells



Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot				
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi			
Skeet	⅞	1,200	CCI 209M	Fed. 20S1							18.0	9,500					
				Hornady Versalite								18.0	9,800				
				Win. WAA20									18.0	9,500			
				Rem. RXP20									18.5	9,500			
				Win. 209	Hornady Versalite									18.5	9,300		
				Fed. 209	Hornady Versalite									18.0	9,300		
2½	1	1,165	CCI 209M	Rem. 209	Hornady Versalite							18.0	9,500				
				Activ W28									16.5	10,000			
				Fed. 20S1									17.5	10,300			
				Win. WAA20									18.0	11,300			
				Hornady Versalite									16.5	10,800			
				Rem. RXP20									18.5	10,900			
Rem. 209	Activ W28									17.0	10,900						
	Win. 209	Activ W28								18.0	10,700						

20-Gauge, 2¾-in. Fiocchi Shells

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot		
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	
2¼	⅞	1,155	Fio. 616	Fed. 20S1			15.0	9,100	17.0	9,100					
				Hornady Versalite				15.5	9,700	18.0	8,300				
				Lage Uniwad				15.5	9,500	17.5	8,600				
				Fed. 209	Fed. 20S1			14.5	11,100	15.5	10,000				
				Rem. 209	Fed. 20S1			14.5	10,000	16.0	9,400				
				Win. 209	Fed. 20S1			14.5	10,600	16.5	9,000				
				CCI 209M	Fed. 20S1			14.5	10,500	16.0	9,200				
				Fio. 616	Fed. 20S1			14.5	10,400	16.0	9,500				
Skeet	⅞	1,200	Fio. 615	Fed. 20S1			16.0	10,900	18.0	9,700	18.0	9,200			
				Rem. RXP20				16.5	10,300			19.0	8,500		
				Win. WAA20				16.0	10,800	17.5	9,600	18.5	8,700		
				Hornady Versalite				16.0	10,000			19.0	8,300		
				Lage Uniwad				17.5	8,200	19.0	8,000				
				Fio. 616	Fed. 20S1			15.5	10,600	17.5	10,000	18.0	9,200		
				Fed. 209	Fed. 20S1			15.5	11,100	17.0	10,800	17.5	10,200		
				Win. 209	Fed. 20S1			16.0	10,400	16.0	10,100	18.0	9,900		
				Rem. 209	Fed. 20S1			15.5	10,800			16.5	9,900		
				CCI 209M	Fed. 20S1			15.5	10,700	17.0	10,000	17.0	9,900		
2¾	1	1,220	Fio. 616	Rem. SP20									24.5	10,300	
			Fio. 615	Rem. SP20										27.5	9,200
			Fed. 209	Rem. SP20										23.0	10,300
			Rem. 209	Rem. SP20										22.5	10,600
			CCI 209M	Rem. SP20										24.0	10,700
3	1	1,275	Fio. 616	Rem. SP20									26.0	10,800	
			Fed. 209	Rem. SP20										25.0	10,300
			Win. 209	Rem. SP20										26.0	10,600
2¾	1½	1,175	Fio. 616	Rem. SP20									23.5	10,000	
			Fed. 209	Rem. SP20										23.5	10,700
			Win. 209	Rem. SP20										23.5	11,400

28-Gauge, 2¾-in. Federal Plastic Target Shells

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot			
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi		
Skeet	¾	1,200	Fed. 209	Fed. 28S1A					13.5	11,600	14.0	11,700	17.5	9,600		
				Rem. SP28						13.0	11,200	13.0	10,100	18.0	9,900	
				Win. WAA28							13.5	10,500	14.0	10,900	17.5	8,700
				CCI 109	Rem. SP28						13.0	10,000	13.5	9,400	14.5	10,000
2¼	¾	1,295	Fed. 209	Win. WAA28					14.0	10,400	15.0	10,500				
				Rem. SP28											20.0	10,900

28-Gauge, 2¾-in. Remington-Peters Plastic Target Shells



Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot	
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
Skeet	¾	1,200	Rem. 209P	Fed. 28S1A										
				Rem. SP28										
				Win. WAA28										
				CCI 109										
				Fed. 28S1A										
Rem. SP28														
				Win. WAA28										
2¼	¾	1,295	Rem. 209P	Rem. SP28					15.0	10,600	16.5	10,300	21.0	9,700

28-Gauge, 2¾-in. Winchester-Western Plastic AA-Type Shells

Dram Equiv.	Shot Wt. (ounces)	Velocity (fps)	Primer	Wad	Red Dot		Green Dot		Unique		Herco		Blue Dot	
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
Skeet	¾	1,200	Win. 209	Win. WAA28										
			CCI 109	Win. WAA28										

.410 Bore 2½-in. Plastic Shells

Shell	Shot Weight (ounces)	Velocity (fps)	Primer	Wad	2400				
					Grains	Approx. psi			
Federal	½	1,200	Fed. 209	Fed. 410SC			13.5	11,900	
				Rem. SP410			13.0	11,500	
				Win. WAA41			13.0	11,300	
			Fed. 410	Fed. 410SC			13.5	12,000	
Rem.-Peters	½	1,200	Rem. 97★	Rem. SP410			13.0	11,500	
				Fed. 410SC			13.5	11,400	
				Win. WAA41			14.0	11,500	
				CCI 209			Rem. SP410	14.5	10,500
				Fed. 410SC			14.0	10,600	
			Win. WAA41	14.5	10,300				
			CCI 209M	Rem. SP410	13.5	11,000			
Winchester-Western AA-Type	½	1,200	Win. 209	Win. WAA41			13.0	11,700	
				CCI 209			Fed. 410SC	13.0	12,100
				Rem. SP410			13.5	12,000	

.410 Bore 3-in. Plastic Shells

Shell	Shot Weight (ounces)	Velocity (fps)	Primer	Wad	2400				
					Grains	Approx. psi			
Rem.-Peters	11/16	1,135	Rem. 97★	Rem. SP410			14.5	13,000	
				Fed. 410SC			14.5	12,600	
				Win. WAA41			14.5	12,300	
				Fed. 410			Rem. SP410	14.0	12,700
				CCI 209M			Rem. SP410	14.5	12,200

10-Gauge 3½-in. Buckshot Loads



Primer	Shell	No. and Size Buckshot	Velocity (fps)	Wad	Herco		Blue Dot	
					Grains	Approx. psi	Grains	Approx. psi
Fed. 209	Federal Plastic	40-4's	1,275	SP10+.270 in. 20 ga. Card			45.0	10,100
		17-0's	1,300	SP10+.135 in. 20 ga. Card			46.0	10,000
Rem. 57★	Remington Plastic	40-4's	1,275	SP10+.270 in. 20 ga. Card			46.0	10,100
		17-0's	1,300	SP10+.135 in. 20 ga. Card			48.5	9,800
Win. 209	Winchester-Western Plastic	40-4's	1,275	SP10+.270 in. 20 ga. Card			47.5	10,000
		17-0's	1,300	SP10			51.0	9,500

12-Gauge 2¾-in. Buckshot Loads

Primer	Shell	No. and Size Buckshot	Velocity (fps)	Wad	Herco		Blue Dot	
					Grains	Approx. psi	Grains	Approx. psi
Fed. 209	Federal Hi Power Plastic	34-4's	1,250	Card .135+¾ Fiber+Card .135	30.0	9,400	37.0	10,700
		9-00's	1,325	Card .135+¼+¾+½ Fiber				
Win. 209	Winchester-Western AA-Type	34-4's	1,250	Card .135+¾+Card .135	30.0	10,000	39.0	10,900
		9-00's	1,325	Card .135+¼+¼ Fiber				
Rem. 97★	Rem. RXP Plastic	9-00's	1,325	Card .135+¼+¾ Fiber	29.0	10,100		

12-Gauge 3-in. Buckshot Loads

Primer	Shell	No. and Size Buckshot	Velocity (fps)	Wad	Herco		Blue Dot		2400	
					Grains	Approx. psi	Grains	Approx. psi	Grains	Approx. psi
Fed. 209	Fed. Hi Power	33-4's	1,250	Bal. Prod. GS&SC	31.5	9,800	37.0	10,500	50.0	8,100
		18-1's	1,225	Bal. Prod. GS&SC			36.0	9,700		
		12-0's	1,275	RP12+.200 in. 20 ga. Card						
Rem. 97★	Rem. Unibody	33-4's	1,250	Bal. Prod. GS&SC	29.5	10,000	35.5	9,800	46.0	9,400
		18-1's	1,225	Bal. Prod. GS&SC						
		12-0's	1,275	RP12+.200 in. 20 ga. Card						
Win. 209	Winchester-Western AA-Type	33-4's	1,250	Bal. Prod. GS&SC			34.5	9,900	46.5	9,000
		33-4's	1,300						49.0	9,800
		18-1's	1,225	Bal. Prod. GS&SC					50.5	9,200
		18-1's	1,300							
		12-0's	1,275	RP12+.200 in. 20 ga. Card						

NOTE: Bal. Prod. = Ballistic Products



12-Gauge, 2¾-in. Rifled Slug Loads—Rolled Crimp

Slug Weight, Type	Primer	Shell	Velocity (fps)	Wad	Unique		Herco	
					Grains	Approx. psi.	Grains	Approx. psi.
⅞ oz., Cast	Fed. 209	Federal Hi Power Plastic	1,570	Card .135+⅜+¼+2 Card .135	33.0	10,000	35.5	8,000
	Rem. 97★	Rem. RXP Plastic	1,570	Card .135+⅜+¼+2 Card .135	34.0	10,800	35.0	9,700
	Win. 209	Winchester-Western AA-Type	1,570	Card .135+⅜+¼ Fiber+2 Card .135 Card .135+⅜ Fiber+2 Card .135	34.5	9,800	29.0	8,600
1 oz., Brenneke	Fed. 209	Federal Hi Power Plastic	1,570	Card .135+¼+¼ Fiber			37.0	10,700
	Win. 209	Winchester-Western AA-Type	1,570	Card .135+⅜ Fiber +⅜			37.0	9,700

12-Gauge, 3-in. Rifled Slug Loads—Rolled Crimp

Slug Weight, Type	Primer	Shell	Velocity (fps)	Wad	Herco		Blue Dot		2400	
					Grains	Approx. psi.	Grains	Approx. psi.	Grains	Approx. psi.
⅞ oz., Cast	Fed. 209	Fed. Hi Power	1,570	.135 Card+½+⅜+.135 Card	40.0	10,500				
	Rem. 97★	Rem. Unibody	1,570	.135 Card+½+⅜+.135 Card	37.5	10,600				
	Win. 209	Winchester-Western AA-Type	1,570	.135 Card+½+.135 Card	37.5	9,700				
1 oz., Brenneke	Fed. 209	Fed. Hi Power	1,525	.135 Cards(2)+⅜ Filler			45.0	10,400		
	Rem. 97★	Rem. Unibody	1,525	.135 Cards(2)+⅜ Filler					56.5	10,000
	Win. 209	Winchester-Western AA-Type	1,525	.135 Cards(2)+⅜ Filler					57.5	9,400

20-Gauge, 2¾-in. Buckshot Loads

Primer	Shell	No. and Size Buckshot	Velocity (fps)	Wad	Herco		Blue Dot	
					Grains	Approx. psi.	Grains	Approx. psi.
Fed. 209	Federal Hi Power Plastic	18-4's	1,275	Rem. SP20	19.0	11,000	25.0	9,300
		24-3's	1,200	Rem. SP20 Petals Removed			24.0	11,200
		12-1's	1,275	Rem. SP20 Petals Removed			25.5	10,100
Win. 209	Winchester-Western AA-Type	18-4's	1,275	Rem. SP20			24.0	9,600
		12-1's	1,275	Rem. SP20 Petals Removed			25.5	10,400

20-Gauge, 3-in. Buckshot Loads

Primer	Shell	No. and Size Buckshot	Velocity (fps)	Wad	Herco		Blue Dot	
					Grains	Approx. psi.	Grains	Approx. psi.
Fed. 209	Federal Hi Power Plastic	18-3's	1,220	Rem. RXP20	19.5	8,400		
		21-3's	1,220	Rem. SP20			26.0	7,800
Rem. 97★	Rem.-Peters Plastic (Old Style)	18-3's	1,220	Win. WAA20F1	19.5	8,300		
		21-3's	1,220	Win. WAA20F1			26.0	8,500
			1,220	Rem. SP20			26.0	8,700
Win. 209	Winchester-Western AA-Type	18-3's	1,220	Win. WAA20F1	19.0	9,500		
		21-3's	1,200	Rem. RP20			25.0	9,400

20-Gauge, 2¾-in. Rifled Slug Loads—Rolled Crimp

Slug Weight, Type	Primer	Shell	Velocity (fps)	Wad	Herco	
					Grains	Approx. psi.
⅝ oz., Cast	Fed. 209	Fed. Hi Power	1,570	.125 Card+½ in. Fiber+2 Card .125 each	25.5	9,800
	Win. 209	Win. WAA-Type	1,570	.125 Card+½ in. Fiber+2 Card .125 each	25.5	10,200

Handloading Precautions

1. **Understand what you are doing and why.** Read handbooks and manuals on reloading. Talk to experienced reloaders. Write or call suppliers of components if you have questions or are in doubt.
2. Stay *alert* when reloading. **Do not reload when distracted.**
3. Establish a loading procedure and follow it. **Do not vary your sequence of operations.**
4. **Examine empty cases** (shotshell or metallic) to be sure they are in good condition before reloading. Never force live cartridges into or out of the chamber of a gun.
5. **Do not use cases that are designed for primer-propelled practice cartridges;** such cases may not be designed for full power loads.
6. **Do not *ream out* or *enlarge flash holes* of metallic cartridge cases.** This may change the ignition rate and result in dangerous pressures.
7. **Do not punch out live primers.** Fire the empty primed shells in a gun.
8. **Do not mix primers.** Primers differ in brisance of ignition, which affects pressure and velocity. Use only the primer listed.
9. **The shotshell loading data in the *Reloaders' Guide* are for LEAD SHOT only. DO NOT USE STEEL SHOT.**
10. One-piece plastic wads for shotshells vary in compressibility and gas-sealing effectiveness. Use only the wad listed.
11. If you “throw,” or measure powder charges by volume, check-weigh the charge frequently. **Do not mix powders.**
12. **Do not use powders near a flame, spark-producing machinery, or heating device.** Do not expose powders to temperatures above 100°F.
13. Keep out of reach of children.
14. **Do not smoke while reloading.**

Crusher/Piezo Pressure Tabulation

The following table lists the maximum average pressures, measured by the crusher system (c.u.p.) or piezo system (psi), utilized for the centerfire rifle recommendations in this brochure.

The values listed in the “c.u.p.” and “psi” columns are approximately the same pressure. The difference is due to the measuring system used and does not indicate that a pressure change has occurred.

Cartridge	C.U.P.	PSI	Cartridge	C.U.P.	PSI
.22-250 Remington	53,000	62,000	7mm Remington Magnum	52,000	61,000
.222 Remington	46,000	50,000	.280 Remington	50,000	60,000
.223 Remington	52,000	55,000	.30 Carbine	40,000	
6mm Remington	52,000	65,000	.30-06 Springfield	50,000	60,000
.243 Winchester	52,000	60,000	.30-30 Winchester	38,000	42,000
.25-06 Remington	53,000	63,000	.300 Savage	46,000	
.257 Roberts	45,000	54,000	.300 Winchester Magnum	54,000	64,000
.257 Roberts +P	50,000	58,000	.303 British	45,000	49,000
.270 Winchester	52,000	65,000	.308 Winchester	52,000	60,000
7mm-08 Remington	52,000	57,500	8mm Mauser	37,000	
7-30 Waters	40,000	45,000	8mm Remington Magnum	54,000	65,000
7 x 57 Mauser	46,000	51,000	.338 Winchester Magnum	54,000	64,000
			.35 Remington	35,000	
			.45-70 Government	28,000	

Notes

Some Publications on Reloading

These and other good literature pertinent to reloading usually are stocked at local gun and ammunition retail stores.

<u>Title</u>	<u>Publisher</u>
<i>Basic Rules for Reloading Safety</i>	National Reloading Manufacturers Association 4905 S. W. Griffith Drive Beaverton, OR 97005
<i>Handloading</i>	NRA Bookservice 11250 Waples Mill Road Fairfax, VA 22030
<i>Speer Reloading Manual</i>	Blount Industries Box 856 Lewiston, ID 83501
<i>RCBS Reloading Guide</i>	RCBS Box 1919 Oroville CA 95965
<i>Tips on Better Reloading</i>	Remington Arms Bridgeport, CT 06602
<i>Hornady Handbook of Cartridge Reloading</i> <i>Hornady Reloading Tools and Accessories</i>	Hornady Mfg. Co. Box 1848 Grand Island, NB 68801
<i>Sierra Bullets Reloading Manual</i>	Sierra 10532 Painter Avenue Santa Fe Springs, CA 90670
<i>Lyman Cast Bullet Handbook</i> <i>Lyman Shotgun Handbook</i> <i>Lyman Pistol and Revolver Handbook</i>	Lyman Products Middlefield, CT 06455
<i>Nosler Reloading Manual</i>	Nosler Bullets, Inc. P.O. Box 671 Bend, OR 97709
<i>How to Reload Shotshells and Why</i>	MEC 715 South Street Mayville, WI 53050
<i>Ponsness-Warren Catalog</i>	Ponsness-Warren Box 8 Rathdrum, ID 83858
<i>Handloaders' Digest</i> <i>ABC's of Reloading</i>	DBI Books 540 Frontage Road Northfield, IL 60093
<i>The Handbook of Shotgun Reloading</i>	SKR Industries, Inc. P.O. Box 1382 San Angelo, TX 76092



Alliant Techsystems
New River Energetics
Route 114 P.O. Box 6
Radford, VA 24141-0096

Visit our web site at
<http://reloading.ATK.com>