



# PURDEY

*Gun & Rifle Makers*

**LONDON 1814**

THE USE OF LEAD AND NON-TOXIC /  
STEEL SHOT IN THE UK.

A GUIDE FOR PURDEY CUSTOMERS

# GUIDE TO THE USE OF LEAD AND NON-TOXIC SHOT IN THE UK

In 2020, a collection of the leading shooting organisations declared an ambition to see an end to both lead and single-use plastics used in shotgun ammunition within five years.

However, this does not alter current rules. Lead shot may still currently be used for the majority of shotgun shooting within the UK. In certain locations and for certain species it remains illegal to shoot with lead shot (see chart on page 3).

The purpose of this leaflet is to help you understand what the non-toxic options are and what you can use in your gun as well as to help prepare you for the transition to non-toxic in 2025.

# GUIDE TO THE USE OF LEAD AND NON-TOXIC SHOT IN THE UK

## England and Wales

- It is illegal to use lead shot when shooting ducks, geese, coot or moorhen anywhere.
- It is illegal to use lead shot over the foreshore.
- It is illegal to use lead shot over any of Site of Specific Scientific Interest (SSSI), even if they are inland.

## Scotland and Northern Ireland

- It is illegal to use lead shot when shooting over the foreshore, ponds, marshes, wet fields and moorlands with visible standing water.

## DEFINITIONS AND TERMINOLOGY

As you will see from the following information, steel shot is the most likely replacement for lead in the future.

However, some guns, especially older ones, may not be capable of firing most steel loads due to:

- wall thicknesses
- chamber length
- strength of the action
- tightness of the chokes

The technology currently used in steel cartridges is developing rapidly so solutions will appear, but if you are in any doubt about the future viability or safety of your guns, please do contact us as soon as possible.

## DEFINITIONS AND TERMINOLOGY

### *Proof / Proofed*

Proof is the compulsory and statutory test that every new shotgun must pass before it can be sold in the United Kingdom.

The proof test is carried out by the British Proof Authorities at the Proof House in either London or Birmingham. The test involves firing a considerably heavier load through the barrel than would normally be used. This creates far greater pressure and stress on the barrels and action than is generated by standard load cartridges. Such pressure is designed to disclose any weakness in the gun.

Once a gun has passed proof it is marked accordingly (to reproof a gun means to have it similarly re-tested as a gun which has previously been “proved”).

### *Proof Marks*

Once a gun passes proof it is stamped accordingly, normally on the barrels and action (Mechanism). Please see chart of proof marks (see page 12-13).

### *Chambers/Chamber Length*

The chamber is the part of your shotgun where the cartridge will sit when the gun is loaded.

The chamber length refers to the length of cartridge a shotgun can accommodate when fired. Using a cartridge that is too long for the chamber can be very dangerous.

The length of the chamber will be marked on the barrels as part of the proof test. The most common chamber lengths are 2 ½" (65 mm), 2 ¾" (70 mm) and occasionally 3" (76 mm).

### *Cartridge Length*

Shotgun cartridges are designed to fit specified chamber lengths, for example a 2 ½" (65mm) cartridge for a 2 ½" (65 mm) chamber. You can use shorter cartridges in a longer chamber, for example a 2 ½" (65 mm) cartridge in a 2 ¾" (70mm) chamber, but you must not use a longer cartridge, such as a 2 ¾" (70 mm) cartridge, in a shorter, 2 ½" (65 mm) chamber.

The length of the cartridge and type of chamber it is suitable for will be marked on the box and generally on the cartridge.

\*Please note, some cartridges designed for 2 ½" (65 mm) chambers have a fired length of 67.5 mm, this will generally be marked on the cartridge and on the box.

### *Shot Size*

The pellets in a shotgun cartridge vary in size and are measured on a scale using both numeric and letter designations.

The higher the number the smaller the pellet. Pellets used for game bird shooting typically range from size 3 through to 7. The general rule being the larger the game bird the bigger the pellet required. The largest pellets are classified with a system of letters, with BB only used for larger quarry such as Geese.

Note: Pellet size differs slightly depending on the shot material; i.e lead vs. steel. Steel pellets are more prominently measured using the metric system (see page 10).

### *Pattern*

The pattern is the term used to describe the distribution of the pellets as they leave the barrel.

An open pattern means the pellets have dispersed over a wider diameter. A tighter pattern means the pellets are concentrated into a narrower diameter. An open pattern (wider spread) is advised for shooting at shorter distances whereas a tighter pattern is advised at longer distances.

The pattern is dictated by the constriction of your chokes (see 'Chokes').

### *Load*

The load is the total weight of the shot within the cartridge, and is measured in ounces or grams.

The weight of the load determines how many pellets are in the cartridge, for example there will be more No. 7 size (small) pellets in a load weighing 1 oz or 28 Grams than No. 3 (larger) size pellets.

It is common to use a slightly heavier load with larger pellets in order to achieve tighter pattern density.

### *Choke*

Choke is the term given to the internal constriction at the end of the shotgun barrel (muzzle) where the pellets exit upon firing. It is choke that affects pattern.

A narrow constriction holds the pellets together, giving tighter density at distance. A barrel with less constriction will allow the pellets to spread more quickly at closer range.

Choke constriction is commonly measured in the UK on a scale as follows; Cylinder, Improved Cylinder,  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$  and Full .

Cylinder equates to no constriction (wide pattern); full choke is the tightest constriction (narrowest pattern).

### *Multi choke*

Multi chokes are removable tubes that screw into the end of the barrel (muzzle). They allow the user of the gun to alter the constriction or choke.

Multi chokes are measured on the same scale as fixed chokes from Cylinder to Full.

## LEAD SHOT ALTERNATIVES

The current alternatives to lead shot vary in price and performance. The following are commercially available:

### *Tungsten Matrix*

Similar to lead in performance it can be used as long as the cartridges match the proof and chamber of your gun.

### *Bismuth*

Similar to lead in performance it can be used as long as the cartridges match the proof and chamber of your gun. Use pellets at least 1 size larger; No. 4 shot bismuth where before you would have used No. 5 lead shot.

## Steel

Steel shot is harder and lighter than lead and so there are some special requirements when using steel shot cartridges.

Use pellets two sizes larger e.g No. 6 shot in lead equates to No. 4 shot steel.

Common steel pellet sizes metric equivalent:

BB = 4.5 mm	4 = 3.25 mm
1 = 4 mm	5 = 3 mm
3 = 3.5 mm	6 = 2.75 mm

As steel shot is lighter than lead and cartridge loads are measured by weight, there are more steel pellets in the load than the equivalent with lead; for example a 28 gram No 6 shot steel load contains 315 pellets, compared with lead at 225 pellets .


Steel can cause damage if the barrel has a tight choke constriction. Steel shot cartridges should not be used in barrels designed for lead with a constriction tighter than ½ choke.

However, steel pellets produce a tighter shot pattern so less constriction is required in the barrel to produce patterns equivalent to lead. A choke constriction that would produce a ½ choke pattern with lead will produce a full choke pattern with steel.



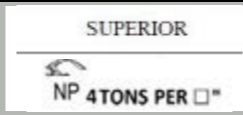

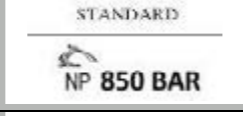
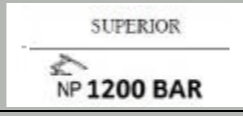
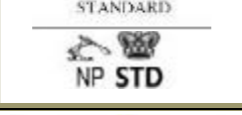

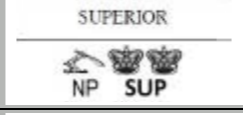


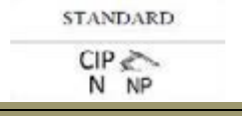
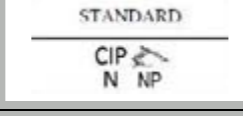
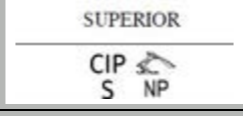

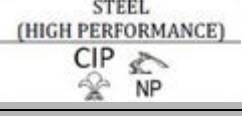
There are two categories of steel shot cartridges available:  
**Standard Performance and High Performance.**

**Standard Performance** steel shot cartridges are designed for use in correctly chambered guns that are nitro proofed with lead shot. The same criteria regarding the case length and load would apply.

**High Performance** steel shot cartridges can **only be used in guns specifically proofed for steel shot and marked as follows:**

The fleur-de-lis proof mark  and in some instances the words 'steel shot'.

# A GUIDE TO NON-TOXIC CARTRIDGE LENGTH & USE

CHAMBER SIZE	2 1/2" / 65 mm Chambers. Standard Proof	2 3/4" / 70 mm Chambers. Standard and Superior proof		2 3/4" / 70 mm Chambers. Steel shot proof with fleur-de-lis	3" / 76 mm Chambers. Steel shot proof with fleur-de-lis
LONDON PROOF MARKS 1954					
LONDON PROOF MARKS 1989					
LONDON PROOF MARKS 2006					
LONDON PROOF MARKS 2020					
BISMUTH	Use 2 1/2" / 65 mm  <i>With any choke</i>	Use 2 3/4" / 70 mm 2 1/2" / 65mm  <i>With any choke</i>		Use 2 3/4" / 70 mm 2 1/2" / 65mm  <i>With any choke</i>	Use 3" / 76 mm 2 3/4" / 70mm 2 1/2" / 65 mm  <i>With any choke</i>
TUNGSTEN MATRIX	Use 2 1/2" / 65 mm  <i>With any choke</i>	Use 2 3/4" / 70 mm 2 1/2" / 65mm  <i>With any choke</i>		Use 2 3/4" / 70 mm 2 1/2" / 65mm  <i>With any choke</i>	Use 3" / 76 mm 2 3/4" / 70mm  <i>With any choke</i>
STANDARD STEEL SHOT	Use 2 1/2" / 65 mm Standard Performance  <i>Use no more than 1/2 choke</i>	Use 2 3/4" / 70 mm Standard Performance 2 1/2" / 65 mm Standard Performance  <i>Use no more than 1/2 choke</i>		Use 2 3/4" / 70 mm Standard Performance 2 1/2" / 65mm Standard Performance  <i>Use no more than 1/2 choke</i>	Use 2 3/4" / 70 mm Standard Performance 2 1/2" / 65 mm Standard Performance  <i>Use no more than 1/2 choke</i>
HIGH PERFORMANCE STEEL SHOT	<b>DO NOT USE</b>	<b>DO NOT USE</b>		Use 2 3/4" / 70 mm High Performance  <i>Use no more than 1/2 choke</i>	Use 3" / 76 mm High Performance 2 3/4" / 70 mm High Performance  <i>Use no more than 1/2 choke</i>

THE INFORMATION IN THESE NOTES IS INTENDED TO HELP GUIDE OWNERS OF PURDEY SHOTGUNS TO UNDERSTAND THE OPTIONS AVAILABLE WITH STEEL AND OTHER NON-TOXIC SHOT CARTRIDGES.

WE WOULD ENCOURAGE YOU TO SEEK OUR DIRECT ADVICE IF UNSURE THAT A GUN IS 'IN PROOF' AND SUITABLE FOR USE WITH STEEL SHOT, OR REGARDING CHAMBER SIZE AND CHOKE MEASUREMENTS.

WE CANNOT ACCEPT ANY LIABILITY ARISING FROM THE ADVICE PROVIDED.



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