

About Pellet Numbers and Pellet Testing

The first thing you need to know is that competition airguns used in the Olympic disciplines are .177 caliber, which is equal to 177 thousandths of an inch. The metric equivalent to .177 inch is 4.50 millimeters, therefore the European caliber designation is 4.5 mm.

Next, you should know that the smallest quantity of match pellets are typically packaged as 500 pellets and are in containers called tins. When ten tins are packaged together, they are called a sleeve. A sleeve contains 5,000 pellets and weighs a little more than six pounds. Five sleeves packaged together are called a case. A case contains 25,000 pellets and weighs about 32 pounds. Case quantities are normally bought by schools, clubs, very serious competitors or those stocking up early for Y3K.

RWS does make a special 100 pellet pack with two layers of individually packed pellets in Styrofoam. While it certainly appears that these much more expensive pellets should be more accurate and look so pristine with their skirts all pointing upward, the reality is that they are made with the same dies and tumbled the same way. The proof is in the shooting and every test comparison I have done, or am aware of others performing, is that on average this specially packed pellets shoot no better or no worse than those packed 500 to a tin.

Next, you need to know that these .177 caliber or 4.50 mm match pellets are made in different sizes. As a way of refining accuracy and to most perfectly fit an individual group of pellets to the exact size and characteristics of your gun barrel, pellets are made in differ-

ent head sizes. Head sizes start at 4.48 mm and continue through 4.49, 4.50, 4.51 and 4.52 mm. These sizes are determined by the various

size molds used to create the pellets in the manufacturing process. But, you ask, isn't one .177 barrel the same size as another .177 barrel? No, not really.

In the barrel manufacturing process, the tolerances are such that the finished size of the lands and grooves of the rifling will vary enough from one barrel to another that, while one barrel coming off of the assembly line might prefer the undersized pellets of 4.48 mm, the next barrel might be happier with oversized pellets of 4.51 mm.

In a perfect world, you would discover which head size fits your gun and that would always be the perfect pellet for your gun - but, we all know we do not live in a perfect world. Nonetheless, a myth has arisen in the shooting world saying that a specific pellet head size is the only information you need to know to obtain maximum accuracy from a particular target airgun. This myth is derived from a misunderstanding of a small piece of paper that comes with every target airgun sold and that paper is called a test target.

The airgun manufacturers (Anschutz, Walther, Steyr, FWB, Morini, etc.) include a test target with each new airgun showing a very small group shot from that specific airgun. Generally, scribbled beside the group will be some initials denoting the mfg of the



Here is a sampling of lot numbers on different packaging.

pellet (H & N, RWS, JSB, or Vogel) and a head size diameter (4.48, 4.9, 4.50, etc). It is a profound misunderstanding of this test target which causes so much confusion for parents, athletes and coaches.

Unfortunately, the conclusion of proper head size pellets for this particular airgun is drawn when the new owner opens up his or her prize new airgun and looks at the owner's manual for guidance and sees the head size written on the test target. The owner immediately thinks that it was selected by the factory as the perfect sized pellet for use in this airgun, somewhat akin to Moses bringing the 10 commandments off of Mount Sinai. The reality is that the head size on a factory test target has about as much relevance to your final decision on what is the most accurate pellet for your airgun as Bugs Bunny making that proverbial left turn in Albuquerque.

The test target is nothing more than a validation from the factory that this particular airgun is capable of shooting well. The factory IS NOT trying to determine the best pellet for your gun. In fact, as I will discuss in a moment, they cannot do this. What the gun factories want to do is put a sample of various pellets through their guns to see if they are shooting to their accuracy expectations. The test targets are shot with a

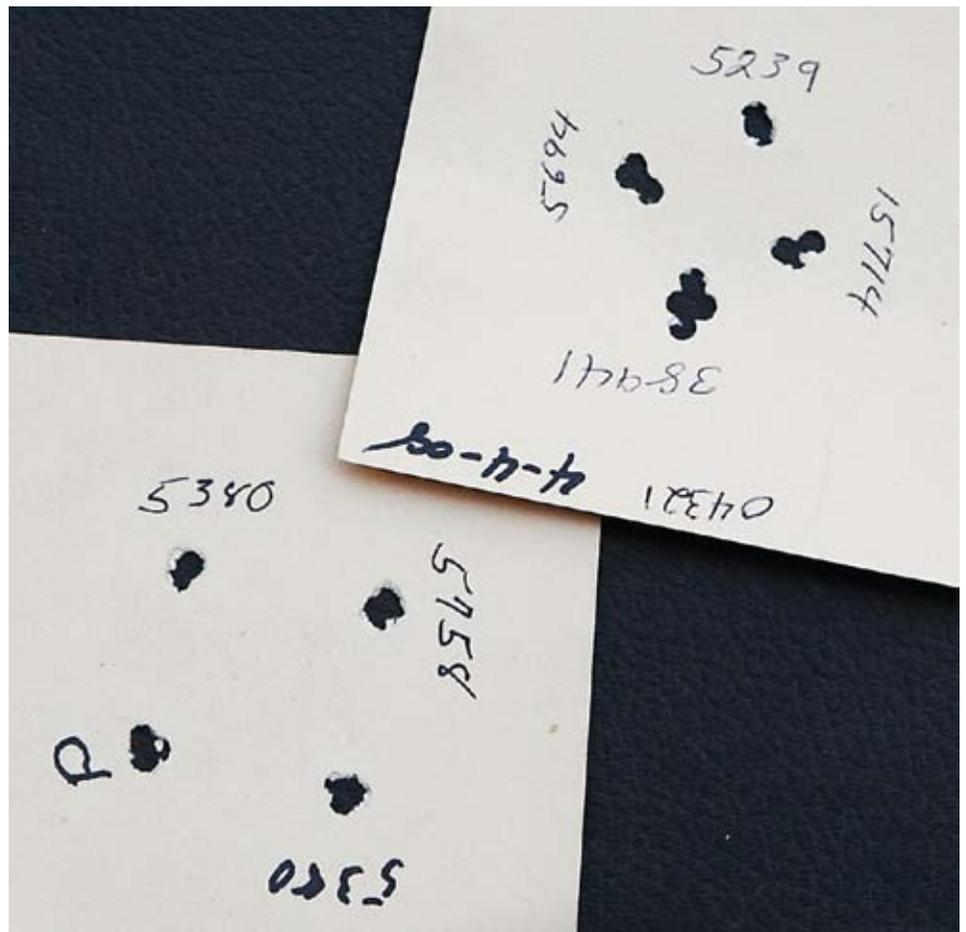
group of five pellets. If they shoot the one group of five pellets and they get a great looking group, you can bet the next thing that gun will see is the inside of a packing box, not shooting more than five shot groups of pellets.

If they shoot the first four groups and none of the groups are as tight as they should be, then they will shoot another sample of four groups possibly on the opposite extreme of the pellet size spectrum. Normally, for air rifles, one or more of these groups will be able to hold an unfired pellet up by skirt, when holding the target horizontally in the air. As soon as they find a good looking group, that target will go out with the gun. If none of these attempts show accuracy, then the gun will go back to have its barrel or regulator checked before coming back to the test range. The point is, shooting test targets are not attempts by the factory at defining what shoots well in their barrel, but only that their barrel does indeed shoot well.

Now then, if this head size number indicated on your gun's test target is not the key to the accuracy then what is? How do you know what pellets you should buy? To really get true information requires testing your airgun from a solid rest with a variety of head sizes and lot numbers. Lot numbers you say? What are those? Lot numbers are used by manufacturers to differentiate between various groups of pellets having different production characteristics.

In firearms ammunition there are a lot more variables that can prompt a lot number change. Anything that is different in the production requires a new lot number. A change from one group of primers to another, a new box of gun powder, a change in brass, a change in the roll of lead wire used to make the bullet, a change in the adjustment of the machine or even a simple tweak will necessitate a new lot number. Often this means that single machine operating in a normal eight hour work day could produce five or more different lot numbers.

For airgun pellets, there are really only two variables that create a different lot number; a change in the lead wire or a change in the machine adjustment. For us at Vogel USA, if everything goes well and an entire roll of lead wire runs through the machine without any machine tweaking taking place, then a lot will not be any larger than 12 sleeves, or approximately 60,000 pellets. If pro-



Here are eight different groups of 4.49 pellets from three different manufacturers. Which ones do you want in your gun? The reality is all, but one of these groups is holding the 10 ring.

duction is stopped in the middle of a roll of wire and a machine adjustment is made, then that creates a new lot number. If we stop again and make another machine adjustment, then that creates another new lot number. So you can see that it's possible that lot number could cover only two or three sleeves of pellets.

To determine what a given pellet's lot number is, we normally only have to look at the tins, often they are stamped on little stickers on the bottom of the tin and they will also be found on the corresponding sleeves and cases. It is important when choosing lots to be tested, that you determine if the supplier has a large enough quantity on hand of each lot number in the event you choose it as the best shooting lot in your gun. Often, a supplier will have to hold back those lots being tested until you make your final purchase, so they won't sell out of the lot you eventually choose. In fairness to the vendors, you should do your pellet testing as soon as possible upon receiving the sample lots, so as not to tie up their inventory

of pellets for weeks on end.

Next issue, I will talk separately about rifle testing versus pistol testing, since the two have vastly different requirements.

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