The Importance of Pellet Testing and Pellet Selection

*Optimizing air rifle accuracy through proper pellets and selection.*

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Factory Certified Gunsmiths for: Feinwerkbau, Anschutz, Walther
The Need for Highly Accurate Pellets

1. New ISSF Finals procedures and decimal scoring require high performance from air guns and consequently, the pellets.

2. Electronic targets are ever present at large matches and alongside SCATT, requires premium pellets are used and selected properly.

3. Air guns are highly precise and require the correct pellet for the barrel and the air rifle system to perform properly.

4. The projectile is critical to achieving an air gun that shoots accurately and consistently.
The Journey of a Pellet

- Pellets begin as a lead brick
- The lead is melted, swaged, weighed and selected
- There are many steps in between, but the process is very precise
- Every pellet manufacturing run varies based on the raw materials, tooling, and many other factors
- Lot numbers are assigned to each manufacturing run
Pellets in Production
Pellet Types

Standard 500 count tins
• Match grade pellets
• Available in many weights
• Varied quality grades and price points
• Ensure you pack them tightly prior to traveling to reduce damage

Hand Packaged Pellets
• Manufacturers often hand weigh these
• Many are packed well to ensure there is no damage to the pellets
• Available in many weights
• Generally the highest priced pellets
The Importance of Lot Numbers

• Lot Numbers are designated numbers placed on the bottom of the pellet tins to determine the production factors going into each lot.

• 36-The die number made up of a multitude of factors. Any changes requires a new number

• 56-Machine Operator and Inspector Team

• 08-The Month of Production

• 14-The Year of Production

• *Each manufacture uses a different lot number breakdown
Using the Same Lot Number

- Precision air guns are designed to be used with the same lot number.
- Variances in lead quality and metal mixture causes the gun to shoot at higher or lower velocities (high and low shots) when mixed. Lighter and heavier pellets will also greatly impact velocity.
- Pellets have different weights and diameters. Any changes in these cause a different velocity and performance from the gun.

*The Bottom Line: Use the same lot number once the pellet lot is matched to the gun.*
How to Select the Best Lot Number

• Pellet testing the gun is the best way to find the best lot number for your gun
• You can do this with paper targets or electronic targets
• We will walk through a guide on how to best do this
• You will need the following:
  • A steady vise and table
  • A sturdy target stand; either paper or electronic
  • An indoor environment
  • Pellet varieties to test
  • Chronograph

• See articles written by Podium in the USA Shooting Magazine
Set-up of a Pellet Test Range

The Vise
• Ensure the vise is a metal, solid vise
• Vise needs to be securely anchored to a bench or structure attached to the ground
• Avoid carpet and floors with poor foundation
• Ensure vise is level to the target
• The lower the vise and target, the better

The Chronograph
• A chronograph ensures proper velocity is met. It is an important factor in pellet testing.
• A traditional chronograph can be used.
• Chronograph should be set within 12-18 inches from the end of the barrel. If using a non-light chronograph, the barrel can be set within 6 inches from the barrel.
• Velocities should generally be between 575 fps-585 fps.
Vise and Chronograph Set-up
Velocity and Group Size

- Velocity of the air gun directly impacts the group size the gun will shoot.
- A properly tuned velocity of the gun ensures the air gun performs to factory specifications.
- Too fast of a pellet results in an unstable pellet.
- Too slow results in awkward pellets that tear paper improperly. Pellets can potentially tumble and "roll" if they are too slow.
- If the velocity is too high or too low, have the gun serviced.
- If the gun is inconsistent in velocity varying more than 15 fps per shot, have the air gun serviced.
- Podium is fully factory certified for Feinwerkbau, Anschutz, Walther
**Target set-up**

**The Target**

- An electronic target is best as you can watch the groups form.
- A paper target will also work, use heavy target paper.
- Ensure the target will not move and is anchored level with the vise.
- Ensure electronic target is set to measure outside diameter to outside diameter, not from center to outside diameter.
Rifle Set-up

- Block the rifle with a wooden block or alike
- Place block closest to the rear of the gun as possible
- Secure into vise tightly
- Ensure air cylinder has been filled prior to testing
- Do not clamp gun directly into vise unless advised
- Install sights and butt plate/cheek piece
Testing Protocol

• Separate Pellets by manufacture, then weight type prior to testing
• The objective is test with one manufacture’s lead batch and weight and then progress through the test
• Shoot ten shot groups
• Repeat as needed
• Some variance is expected
  • $\pm 3/10\text{ths}$ of a mm is common
Reviewing the Results

6.0-6.2 mm group sizes or smaller are ideal. 5.8mm-6.0mm are highly acceptable. Under 5.8mm is fantastic.
Testing and Service Alternatives

- Have your gun tested at an event with Podium LLC
- Call us for assistance and guidance
- Look for our lot selected pellets and test packs to help you find the best pellets and ammunition.

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Thank You!