

Vise Ideas for Air Rifle Testing

The top rifle and pistol shooters have known for years that certain lots or types of ammo shoot better than others in a given firearm. Air rifle shooters understand how critical it is to select the pellets best suited for the magic one-hole group (see my article in the Nov/Dec 2008 issue).

Selecting the right pellet requires the proper testing equipment and procedures. If you don't have an adequate setup that ensures your barrel is pointing in the exact same place during testing, your results will be flawed, your groups will be ragged, and your frustration will mount!

Air rifle recoil may seem insignificant, but there is enough gun movement to force you to take measures to ensure consistency from shot to shot during testing. There are two methods you can use to achieve this consistency. The first method holds the gun so tightly with such a great mass that the recoil movement of the gun is null. The second method allows the recoil to move the gun rearward along a rail or track; after each shot, the rifle can be pushed forward to a stop in the same position.

First, let's talk about solid vises, since they may be more readily available. While any large bench vise might suffice, you may need to construct special jaws to grip the rifle stock or action solidly, yet does not harm the rifle. To this end, coaches around the country use a variety of methods. Three-quarter inch plywood with a thick leather or rubber face is effective. I know some coaches have used the tread from a car tire to act as grabbing material; this set-up grips quite well. Depending on the shape of the stock, or the shape of the action with the stock removed, you must decide which surface will provide the most stable rig. If you clamp to the stock alone choose solid points along the for-end, such as the point at the barrel band since this is where a solid block sits just underneath the wood or aluminum surface of the stock.

Use moderation as you clamp; tighten the vice enough to hold the gun still, and then try to wiggle it with your hands. If it wiggles, then add another 1/8 of a turn or so until it is solid—overtightening

can damage your rifle. Frequently the buttstock and pistol grip offer several possible locations for a solid surface. Study your gun's characteristics to decide the best set-up. All of these considerations require the vise to be attached solidly. A large heavy desk might work, or a framework bolted to a wall or ceiling.



This is the air rifle vise used at the Anschütz factory in Ulm. It is a rather large standard bench vise that is solidly attached to the floor. It has specially shaped jaws that grip the air cylinder and barrel shroud with the stock removed. Note the many strips of tape from thousands of tins of pellets!

Next are the vises designed specifically to hold a rifle, with some optional holes to place the gripping pads at the best points on the rifle.



This is the vise used by RWS at their test stand at Hochbruch, the 1972 Olympic range in Munich. It grips the individual parts of the rifle. The legs are screwed into concrete. Note that there is a standard bench vise at the rear that can be swung up and locked into position for air pistol testing.



This a custom made vise used at Vogel USA for their pellet testing. It uses round rubber pads to grip the gun at the critical points. It is attached very solidly to the adjacent wall made of 6x6's.

In addition to the clamping vises, there are also machine rests that use a rail system to relocate the gun to the exact position after each shot. I have seen several variations made in Europe, and one of the best is manufactured here in the USA, called Angie's Rest. It uses the sling rail on the gun to mount angled blocks so the barrel is level with the target. When the shot is fired, the ball-bearing slide backward in the V-track, and then can be nudged forward again to a positive stop. Of course, this rest must be screwed into a solid block, concrete floor or a heavy bench or desk.



This shows the Angie's Rest with a rifle installed.



This shows the gun lifted away to illustrate the ingenious rail system.

In conclusion, I should point out that while it is critical for the gun to be resting in the same place for each shot, don't forget that target needs to be stationary as well. If you're using hanging targets, be sure they're weighted or backed properly to eliminate all movement, or this can cause your group to "grow." Good luck with your pellet testing and selection—I hope you can quickly get a "grip" on the process and setup to produce one-hole groups.