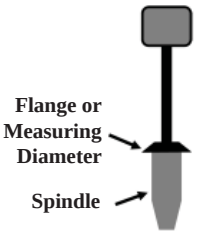
A Primer on Scoring Gauges

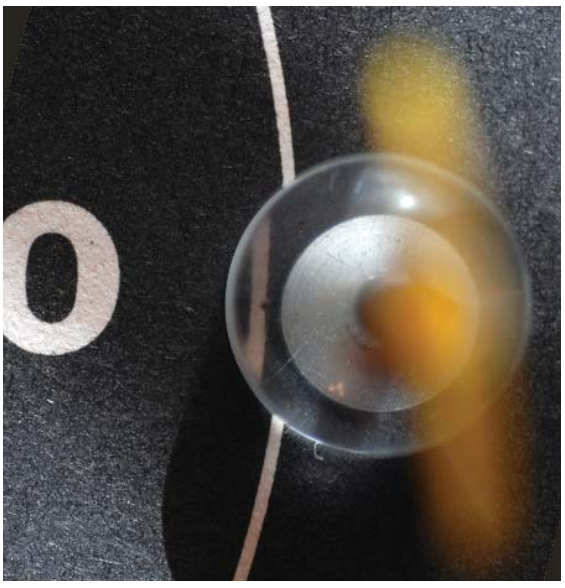
*An **On the Mark** Series by Gary Anderson, DCM*



A frequently asked question at CMP concerns what are the correct gauges to use for scoring different targets and where can they be obtained. This is not a simple question to answer. There are inward gauges and outward gauges for most 10 meter and 50 foot targets and when each must be used varies from target to target. There are actually three different smallbore or .22 cal. inward gauges. And in highpower rifle matches governed by NRA Rules, the gauge used depends upon the caliber of the rifle being fired at each target. Moreover, ISSF and USA Shooting Rules give legal gauge dimensions in millimeters and NRA Rules use inches, while National Three-Position Air Rifle Council Rules give both. With so many rulebook variations, it is not difficult to understand why questions about scoring gauges are commonplace.

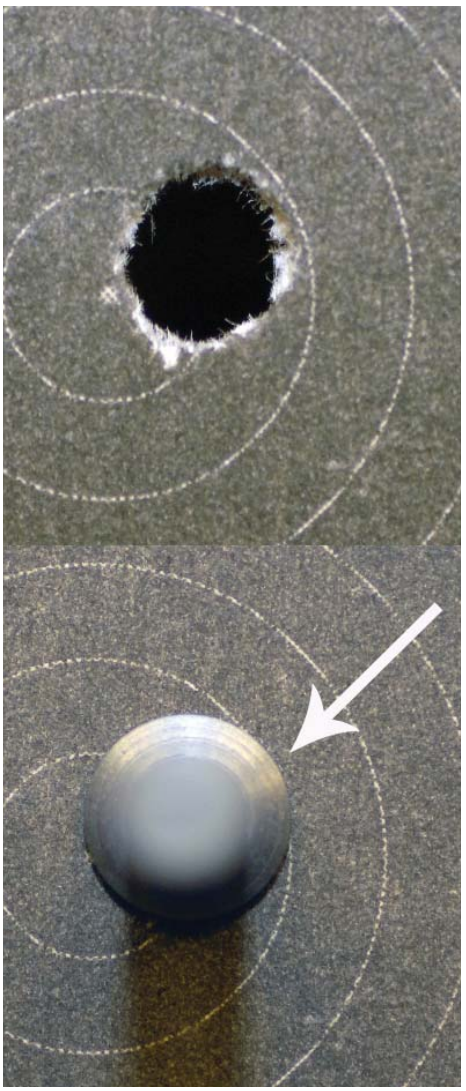
Scoring Gauge. A scoring gauge is a precision metal instrument with a spindle sized to fit into the shot hole and a flange or "measuring diameter" turned to a precise size that is specified in a competition rulebook. The gauge, which is often called a "plug," is inserted into a doubtful shot hole. The scorer then examines or "reads" the edge of the flange to determine whether the doubtful shot is "in" (receives the higher value) or "out" (receives the lower value). A magnifying glass is usually used to aid the scorer in accurately reading where the edge of the flange lies. Scoring gauges come with various types of handles that are used to gently hold the gauge while inserting it in a doubtful shot hole. Scoring gauges available in the USA vary in cost from $4.00 to $15.00.

Inward or Outward Gauges. A first step in sorting out this question requires an understanding of the difference between inward and outward gauges. An inward gauge is read on the inside or side of the gauge that is closest to the target center. An outward gauge is read on the outside or side of the gauge that is away from the target center. Inward gauges give direct readings—does the inside edge of the flange touch or break the scoring ring in question? Outward gauges give indirect readings—does the outside edge of the flange remain inside the outer edge of a scoring ring that is one or two rings outside of the scoring ring value that is being evaluated? Some short-range targets and all targets used at distances of 25 yards or longer are scored with inward gauges. Outward gauges are used to score certain shots on 5-meter BB gun, 10-meter air rifle and pistol and some 50-foot smallbore rifle targets. Outward gauges typically are used on smaller rifle targets that have miniscule dots for 10-rings and scoring rings that are very close together because reading those gauges to the outside on larger scoring rings is more accurate.



An inward gauge is read towards the inside or center of the target—does the flange of the scoring gauge break or touch (is tangent to) the scoring ring? This doubtful shot scores "out."

Scoring Templates. Scoring templates are made of a clear material and have scoring rings and/or score measuring diameters precisely printed, etched or engraved on them. A special type of scoring template is the commercial Eagle Eye scoring device that combines etched rings of various sizes engraved on one end of a 1 ½" x 3" Lucite tube with a magnifying glass installed in the tube. Scoring templates can be used to reconstruct scoring rings when scoring multiple shot groups. Templates or Eagle Eye devices are used to score torn shot holes where the spindle of a scoring gauge cannot accurately find the true center of the shot hole. Eagle Eye devices are also exceptionally effective in finding double shot holes in multiple shot groups.



An outward gauge is read to the outside, away from the center of the target—does the flange extend beyond the outer ring? Here the 8 ring is used to gauge whether a shot is a 10 or 9. This doubtful shot is out.

When Using Gauges. Since there are so many different gauges it is especially important to be sure all scorers use the same correct gauges. Check the rulebook for the competition being fired to confirm the correct size gauge(s) for that competition. If you are unsure of your gauges, it may even be a good idea to check them with a precision micrometer. For .22 cal. scoring, take special note of the fact that there are three different .22 cal. inward gauge standards, the ISSF/USAS Inward (.221-223"), the NRA

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Inward (.2225-.224" and the NRA 5.56 Highpower Inward (.2235-2245"). When scoring events that require two scoring gauges, be sure all scorers are clear as to when outward and inward gauges are used. Scorer training must assure that the obvious mistake of using an outward gauge and reading it on the inside is avoided.

5-Meter BB Gun. Two scoring gauges are required to score BB gun targets.

- AR4 BB Gun Outward Gauge (0.421-0.423") for scoring 10 to 3 rings.
- Air Rifle/Pistol Inward Gauge (4.50-4.55mm or .177-.179") for scoring 2 and 1 rings.

10-Meter air rifle and pistol scoring gauges, l. to r., Air Rifle/Pistol Inward, Air Rifle Outward and Air Pistol Outward. Note the small flange on the inward gauge and the larger flanges on the outward gauges. The gauges shown here are all Gunsmithing, Inc. gauges.

10-Meter Air Rifle. Two scoring gauges are required to score 10-meter air rifle ISSF, NC-AR10 and NRA AR5 targets. Use an Eagle Eye gauge to score torn shot holes.

- Air Rifle Outward Gauge (5.45-5.50 mm) for scoring 10 to 3 rings.
- Air Rifle/Pistol Inward Gauge (4.50-4.55mm or .177-.179") for scoring 2 and 1 rings.

10-Meter Air Pistol. Two scoring gauges are required to score 10-meter air pistol ISSF or NRA targets.

- Air Pistol Outward Gauge (11.45-11.50 mm) for scoring 10 to 2 rings.
- Air Rifle/Pistol Inward Gauge (4.50-4.55mm or .177-.179") for scoring 1 ring only.

50-Foot USAS 50 Smallbore Rifle. Two scoring gauges are required to score the USAS 50 smallbore target that is reduced from the current ISSF 50 meter target.

- .22 USAS Outward Gauge (8.98-9.03 mm) for scoring 10 to 4 rings.
- .22 ISSF/USAS Inward Gauge (5.60-5.65 mm or .2205-.2225") for scoring 3 to 1 rings.

50-Foot A-36 Smallbore Rifle. Two scoring gauges are required to score the 50-foot A-36 smallbore target that is reduced from the 1958-1988 ISSF target.

- .22 NRA Outward Gauge (.3625") for scoring 10 dot/ring only.
- .22 NRA Inward Gauge (.2225-.224") for scoring 3 to 1 rings.

RIG scoring gauges are available in virtually all calibers used for rifle and pistol competitions in the USA from .177 to .45. Most RIG gauges, including the one shown here, have a built in magnifier that is mounted over the flange.

ISSF/USAS .22 Cal. Rifle & Pistol. All smallbore rifle or pistol scoring that uses ISSF/USAS rules must be scored with a .22 ISSF/USAS Inward Gauge (5.60-5.65 mm or .2205-.2225") for all rings. Note that the .22 NRA Inward Gauge is not legal for scoring these events.

NRA Smallbore Rifle & Pistol. All other smallbore rifle or pistol scoring that uses NRA rules must be scored with a .22 NRA Inward Gauge (.2225-.224") for all rings.

CMP Rimfire Sporter. A .22 NRA Inward Gauge (.2225-.224") must be used to score all rings. Use an Eagle Eye gauge to detect and score double or multiple shot holes.

CMP Games Highpower Rifle. A .308 Inward Gauge (0.3075-0.3085") must be used to score all CMP-sanctioned As-Issued Military Rifle Matches.

CMP EIC and NRA Highpower Rifle. One of five different gauges may be used, depending upon the rifle caliber being fired at a target: .224" Inward Gauge for 5.56 mm, .243" Inward Gauge for 6 mm, .264" for 6.5 mm, .284" for 7 mm and .308" for 7.62 mm (all gauge dimensions are +/- .001").

Center Fire Pistol Scoring. A 9.65 mm Inward Gauge must be used for ISSF center-fire pistol. Appropriate sized Inward Gauges must be used for pistol events scored according to NRA rules, including CMP-sanctioned service pistol EIC matches (9mm or .45).

Where to Buy Scoring Gauges. The following organizations or shooting equipment suppliers are sources for purchasing scoring gauges and scoring aids.

.22 cal. rifle and pistol gauges, l. to r., ISSF/USAS Inward, NRA Inward, A-36 Inward, NRA Inward, A-36 Inward. The first three gauges are manufactured by Gunsmithing, Inc.; the other two by RIG.

Gunsmithing Inc., Colorado Springs CO, http://nealjguns.com/, has a full selection of precision machined scoring gauges. Gunsmithing scoring gauges are micrometer-measured and the precise measurement of each gauge is recorded on the protective carrying tube supplied for that gauge.

National Rifle Association, http://materials.nrahq.org/go/products.aspx?cat=Scoring%20Aids, offers a wide variety of scoring gauges, most made by the RIG company, as well as several scoring templates.

Champions Choice, LaVergne TN, http://www.champchoice.com, has a full line of RIG and Eagle Eye scoring gauges.

Champions Shooters Supply, New Albany OH, http://www.championshooters.com/index-ssl.html, also has a full line of RIG and Eagle Eye scoring gauges.

CMP E-Store, http://estore.odcmp.com, offers Eagle Eye .177"/.221" gauges (NLU # 057). Eagle Eye .224"/.308" gauges (NLU # 058) for Highpower rifle scoring will be available in April 2008.

An Eagle Eye scoring device with engraved 4.5 mm and 5.6 mm rings and a magnifier. These gauges are used to score torn shot holes and locate doubles. The magnifier also serves as a magnifying glass for reading inward and outward scoring gauges.