Technical Newsletter From
Your Ballistic Technicians
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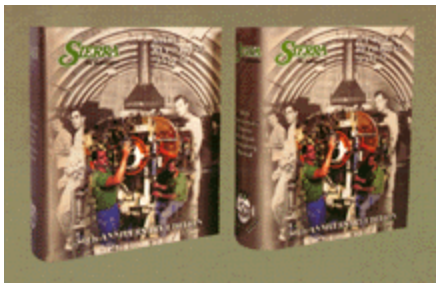
Ballistic Coefficient

by Kevin Thomas

In recent years, shooters have become much more aware of ballistic coefficient, but there is still a great deal of confusion as to exactly what it is. Simply put, ballistic coefficient, or BC, is a numerical definition of how well a bullet retains its velocity, as compared to a standard bullet. The number is actually a ratio, compared to the bullet designated as the standard for that particular drag function. In practice, the standard bullet is arbitrarily assigned a ballistic coefficient of 1.000. If we compare the velocity lost by the standard bullet (drag deceleration) against that of a sporting bullet that retains its velocity only half as well, we find that the bullet in question has a BC of approximately .500. If the bullet retained its velocity only one quarter as well as the standard bullet, it will have a BC of .250.

Naturally, bullets having higher BCs will retain their velocity better and have flatter trajectories. This results in greater energy at the target, and better resistance to wind deflection. The BCs of most commercial bullets today (and all Sierra bullet BCs) are based on what is known as the G1 drag model. This allows for an accurate comparison between bullets of different manufacturers, since they are all being referenced against the same standard bullet. Take the time to review the Exterior Ballistics section of your Sierra Reloading Manuals for a more in depth explanation of this useful bit of information.



Sierra's 50th Anniversary/4th Edition
Rifle and Handgun Reloading Manuals

By Carroll Pilant

1996 will see a new set of Sierra Reloading Manuals. The 4th Edition is now a reality. Both the rifle (1,040 pages) and handgun (848 pages) are in a three ring binder format allowing you to add your

own pages if you desire. The new manuals have a wealth of information including articles on competitive shooting, hunting, reloading, bullet selection, firearm care and cleaning.

The reloading section contains new powders, bullets, and cartridges. A new foreword for each cartridge gives information on how the cartridge originated and other interesting facts.

A completely new exterior ballistic section will help get you right on target with updated ballistic coefficients. This is a section many people overlook, thinking it too complicated. It is really very simple and will be to your advantage to use, letting you know exactly what your bullet trajectory is.

The final section contains a glossary, useful conversion factors, and a twist rate and shell holder chart. The rifle manual retails for $26.95 and the handgun manual for $21.95. Call Sierra at 800-223-8799 to order or visit your local Sierra retail location.

MOA, or Getting There From Here

By Dave Brown

Minute of angle, or MOA is seldom understood by the average shooter well enough to enable him to get all the good out of his scope. Sight systems, both metallic and optical, work upon the concept of minute of angle. Though 1.0472" at 100 yards, it is more than adequate to refer to a minute as 1" at 100 yards, 2" at 200 yards, 3.5" at 350 yards, etc.

If the flight path of a bullet is 17" low of aim at 275 yards, and we want to change the scope to be zeroed there, we must do the following. First, divide the number of inches low by the hundreds of yards to the zero (17/2.75=6.2). So, a sight correction of nearly 6.2 minutes of angle is needed. Scopes and calibrated sights are commonly scaled from 1/8 to 1 full minute of angle value per increment or "click". With one fourth MOA per click value scope, the shooter would multiply 4 times 6.2 to come up with 25 clicks and be zeroed. One half MOA scopes would multiply 2 times 6.2.

When a miss is spotted in the field, only an estimation of the distance and bullet path can be judged. However, the more the shooter knows, the more accurate he can be in his correction. The velocity of the projectile should be derived with a good chronograph. The B.C. of the bullet should be known. If the range is also known the

shooter can then consult a trajectory chart to determine exactly what sight correction is needed. Once a gun is zeroed and the trajectory is known a shooter can easily zero to any other point on that trajectory.

Wind is the next problem and is far more difficult to measure and deal with; still, the method of correction is the same.

It's Your Neck

By Rich Machholz and Tommy Todd

On a daily basis the technicians at Sierra are asked if neck turning is recommended. The standard answer is "tight necked chamber, neck turn, standard chamber, dont neck turn". The reason we neck turn is for clearance and to facilitate the case releasing the bullet when fired. In a tight-necked chamber factory brass is usually too thick and won't release the bullet properly resulting in high pressures.

Neck turning helps provide better concentricity of the neck due to removing any thick areas of the neck. Make sure you turn sized cases.

You inside neck ream your cases in order to gain clearance for bullet release. The difference between neck turning and neck reaming needs to be discussed. When you turn necks you do improve concentricity because the mandrel postitions the inside surface of the neck consistently, therefore, any thicks spots will be removed by the cutter. When an inside neck reamer is used concentricity will not be enhanced because the reamer will simply follow the existing path of the neck opening removing an equal amount of material from thick and thin areas alike. Inside reaming is simply running a reamer of the proper dimension into the case mouth before sizing, removing any excess material.

Some sources of neck turning tools are Lyman, K and M, Marquart, RCBS, and Sinclair, while reamers are offered by Forester and Wilson.

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