DIAMONDBACK® TACTICAL

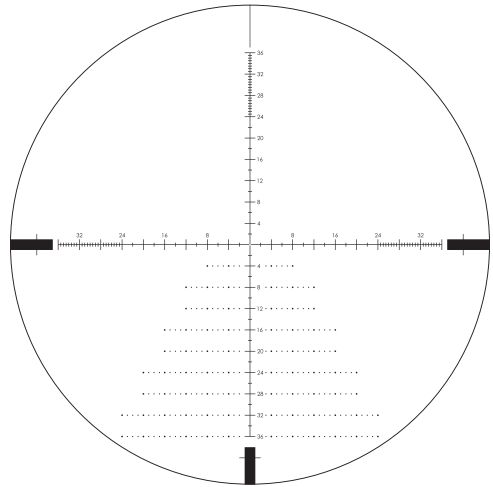
RIFLESCOPE

EBR-2C RETICLE | MOA | FIRST FOCAL PLANE

RETICLE MANUAL

VORTEX® FIRST FOCAL PLANE EBR-2C MOA RETICLE

Designed to maximize long-distance shooting and ranging abilities, the EBR-2C MOA reticle can be used to effectively determine ranges, holdovers, windage corrections, and moving target leads. The ultra-precise, laser-etched glass reticle ensures the MOA specifications are kept to the tightest tolerances possible. The fine center crosshair subtensions on the EBR-2C MOA reticle were carefully chosen to provide the optimum balance of precision aiming and low-light visibility. Includes windage reference dots on drop lines.



Images are for representation only. Product may vary slightly from what is shown.

MOA SUBTENSIONS

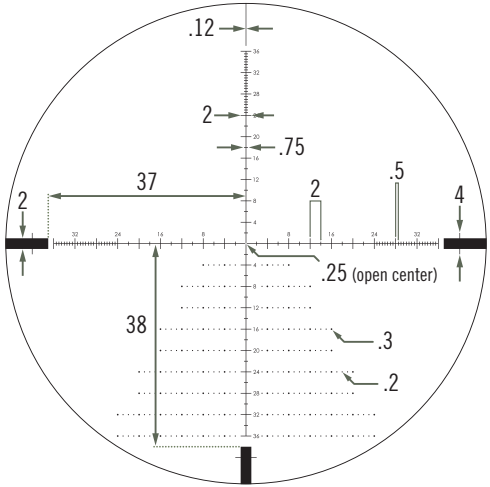
The EBR-2C MOA reticle is based on minute-of-angle (MOA) subtensions. MOA measurements are based on degrees and minutes: 360 degrees in a circle, 60 minutes in a degree, for a total of 21,600 minutes. These angular measurements are used to estimate range and correct for bullet trajectory drop in riflescopes.

A minute of angle will subtend 1.05 inches at a distance of 100 yards (29.1 mm at 100 meters). Diamondback® Tactical riflescopes with MOA turrets use .25 minute adjustments, which subtend .26 inches at 100 yards (7.3 mm at a 100 meters), .52 inches at 200 yards (14.6 mm at 200 meters), .78 inches at 300 yards (21.9 mm at 300 meters), etc.

In the Diamondback® Tactical first focal plane riflescopes, the listed MOA subtensions of the EBR-2C reticle are valid at all magnification levels. This means the shooter can use the magnification level most appropriate for the situation and still have effective holdover and windage reference marks. This is also extremely valuable in a high-stress situation, as the shooter does not have to remember to set the scope to one particular magnification to get valid holdovers—an action necessary with second focal plane reticles.

Estimating MOA

Although 1 MOA is commonly referred to as 1 inch at 100 yards, this is not quite correct: 1 MOA at 100 yards equals 1.05 inches. Calling 1 MOA an inch per 100 yards may be acceptable at shorter distances, but it will cause a five percent error in ranging and holdover adjustments. This will result in missed shots at longer distances.



RANGING

MOA reticles are effective for ranging using simple formulas:

MOA RANGING FORMULAS

$$\frac{\text{Target Size (Inches) x 95.5}}{\text{Measured MOA}} = \text{Range (Yards)}$$

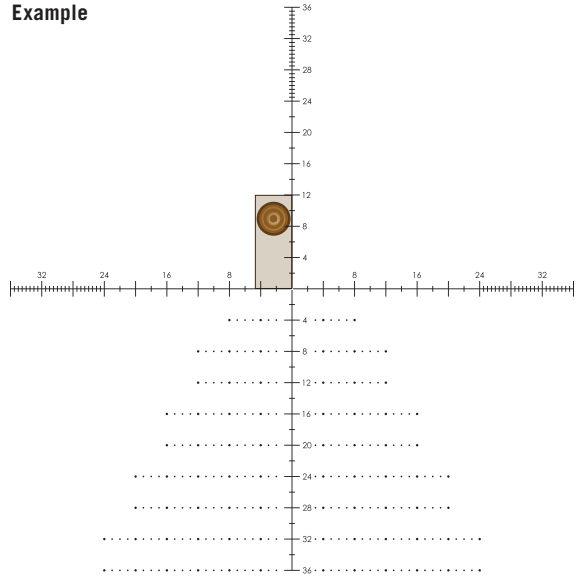
$$\frac{\text{Target Size (CM) x 34.37}}{\text{Measured MOA}} = \text{Range (Meters)}$$

Using the vertical or horizontal MOA scale, place the reticle on a target of known dimensions and read the number of MOA spanned. You will obtain maximum ranging accuracy by calculating exact MOA measurements. MOA should be estimated in 1/4s if possible.

Accurate measuring will depend on a very steady hold. The rifle should be solidly braced using a rest, bipod, or sling when measuring. Once you have an accurate MOA reading, use the formula to calculate the distance.

Note: In the MOA ranging formula for yards, a shooter may substitute 100 for 95.5 in the interest of speedier calculations. Be aware this will produce a five percent over-estimation error of the obtained range.

Example



Ranging a 6-foot target (72 inches) at 12 MOA yields 573 yards.

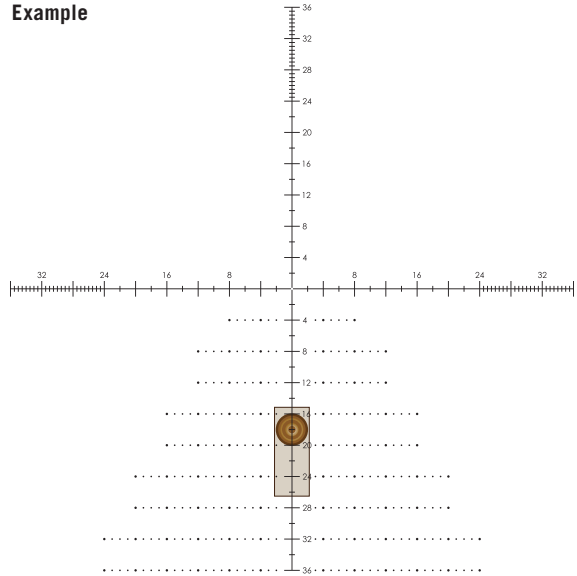
$$\frac{72 \times 95.5}{12 \text{ MOA}} = 573 \text{ Yards}$$

ELEVATION HOLDOVERS

Once you have calculated distance using the reticle or a laser rangefinder, use the reticle for rapid holdover correction for bullet drop. To get the most benefit out of the EBR-2C-equipped riflescope, Vortex Optics highly recommends shooters learn their bullet drop numbers in MOA rather than inches.

Since these reticles are scaled in MOA, it is easy to quickly select the correct drop reference line once the shooter knows the bullet drop and windage/lead corrections in MOA. If the shooter prefers to dial the elevation correction for bullet drop using the elevation turret, knowing bullet drop in MOA will allow for much faster adjustments as the MOA can be quickly read on the elevation turret.

Example



18 MOA reticle holdover at 625 yards. No wind.

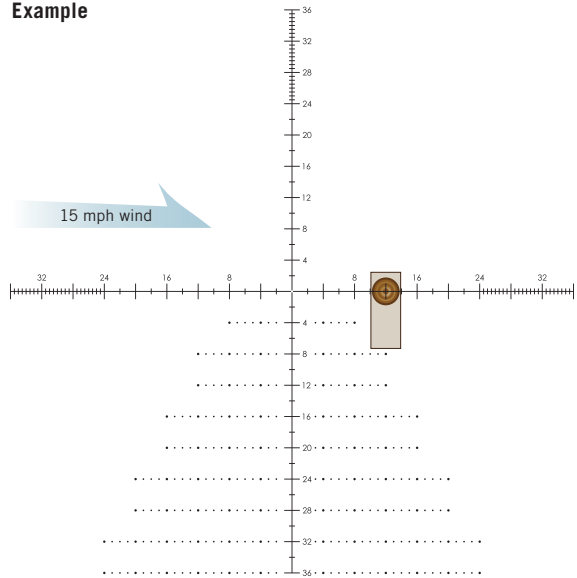
WINDAGE AND MOVING TARGETS

The EBR-2C MOA reticle is highly effective when used for wind and moving target leads. This will require thorough knowledge of your weapons system's ballistic performance under varying conditions, and experience in reading wind strengths and target speeds. As with bullet drop, it is important for the shooter to learn a particular weapon's windage/moving target corrections in MOA rather than inches. Always hold the reticle into the wind.

Basic windage correction on center crosshair

When dialing elevation corrections, use the center horizontal crosshair for windage or moving lead corrections.

Example

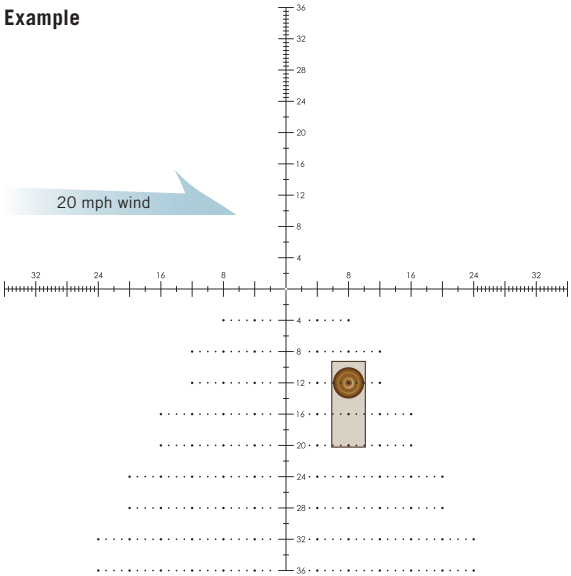


12 MOA correction for 15 mph wind at 700 yards.
Elevation already dialed into turret.

Basic windage correction using drop line on reticle

When using the reticle for elevation correction rather than dialing, you can still use the MOA numbers on the center horizontal crosshair to help visually reference windage corrections.

Example



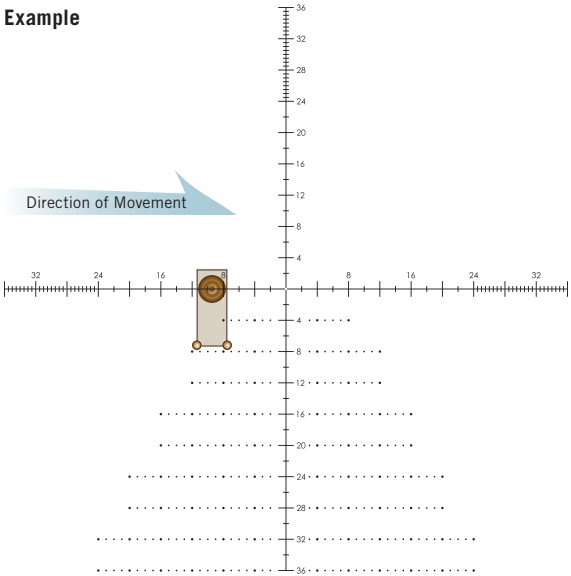
8 MOA reticle windage correction at 500 yards in 20 mph crosswind using 12 MOA reticle drop line.

Basic moving lead correction

When estimating moving target leads, use the MOA marks on the center horizontal crosshair. Estimating moving leads will require knowing target distance, wind speed, moving target speed, and total bullet flight times including rifle lock time. Bullet flight times can be roughly calculated based on fps velocities or a ballistic calculator.

Note: Correctly estimating moving leads is very difficult and requires considerable practice and knowledge beyond the scope of this manual.

Example



9.4 MOA reticle correction for a target moving at 10 mph at 800 yards. No wind.

VIP WARRANTY

OUR UNCONDITIONAL PROMISE TO YOU.

We promise to repair or replace
the product. Absolutely free.

- **Unlimited**
- **Unconditional**
- **Lifetime Warranty**

Learn more at VortexOptics.com

service@VortexOptics.com • 800-426-0048

Note: The VIP Warranty does not cover loss, theft, deliberate damage, or cosmetic damage not affecting product performance.

VORTEXOPTICS.COM