



VENOM[®]

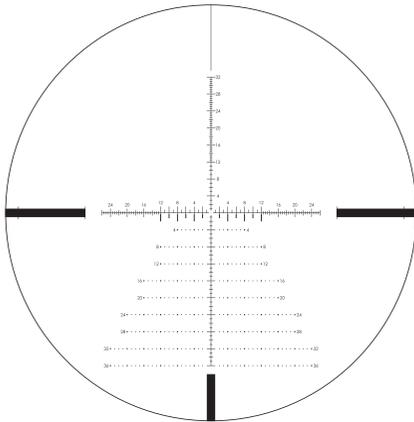
RIFLESCOPE

**EBR-7C RETICLE | MOA
FIRST FOCAL PLANE**

RETICLE MANUAL

VORTEX® EBR-7C MOA RETICLE

Designed to maximize long-distance shooting and ranging abilities, the EBR-7C MOA reticle can be used to effectively determine ranges, holdovers, windage corrections, and moving target leads. Ultra-precision laser etching on the glass reticle ensures that MOA specifications are kept to the tightest tolerances possible. The fine center crosshair subtensions on the EBR-7C MOA reticle were carefully chosen to provide the optimum balance between 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-7C MOA reticle is based on the concept of a degree. Minute refers to 1/60th, and angle refers to 360 degrees of a circle. So, a Minute of Angle is 1/60th of one degree. One MOA will always subtend 1.05" for each 100 yds. of distance, or about 3 cm for each 100m of distance.

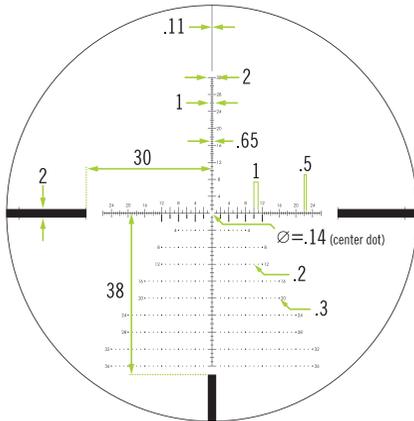
Estimating MOA

Although 1 MOA is very commonly corresponded to 1" at 100 yds., this is not quite correct: 1 MOA at 100 yds. equals 1.05". Calling 1 MOA an inch per 100 yds. 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.

FIRST FOCAL PLANE RETICLES

In First Focal Plane riflescopes, the listed MOA subtensions of the EBR-7C MOA 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 the more common Second Focal Plane reticles.

Reticle Subtensions



Ranging

MOA measurements are very effective for ranging using a simple formula. To use this formula, the shooter needs to know the size of the target or nearby object in inches.

MOA Ranging Formulas

$$\frac{\text{Target Size (in.)} \times 95.5}{\text{Measured MOA}} = \text{Range (yds.)}$$

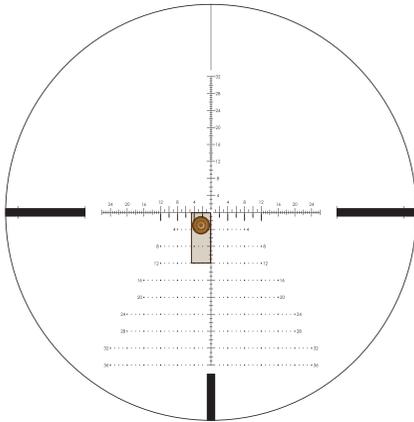
$$\frac{\text{Target Size (cm)} \times 34.4}{\text{Measured MOA}} = \text{Range (m)}$$

Using either 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 accuracy in ranging by calculating exact MOA measurements. MOA should be estimated in quarters if possible.

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

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

Example



Ranging a 6' target (72") at 12 MOA yields 573 yds.

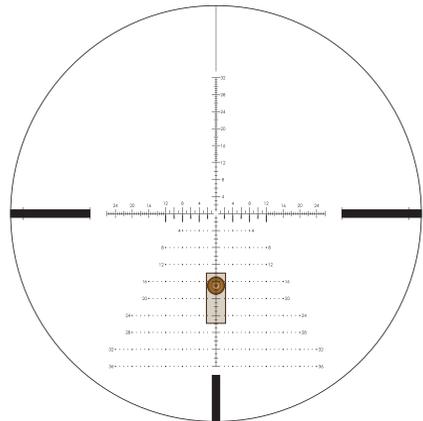
$$\frac{72" \times 95.5}{12 \text{ MOA}} = 573 \text{ yds.}$$

Elevation Holdovers

Once the distance has been calculated using the reticle or a laser rangefinder, use the reticle for rapid holdover correction for bullet-drop of the cartridge being used. To get the most benefit out of the EBR-7C, Vortex Optics highly recommends shooters learn their bullet-drop numbers in MOA rather than inches or centimeters.

Since these reticles are scaled in MOA, it is an easy job 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 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



17 MOA reticle holdover at 625 yds. No wind.

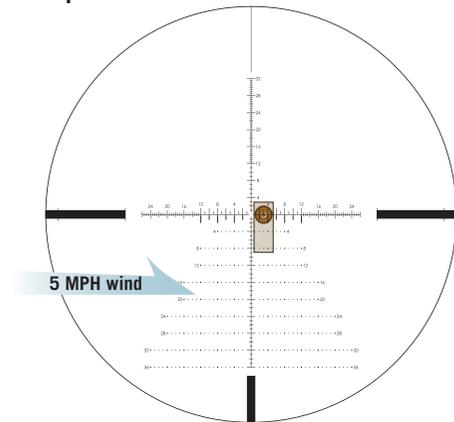
WINDAGE AND MOVING TARGETS

The EBR-7C MOA reticle is highly effective when used for wind and moving target leads. Using the reticle for effective windage and moving target leads 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 to learn a particular weapon's windage/moving target corrections in MOA rather than inches or centimeters. Always hold the reticle into the wind.

Basic Windage Correction on Center Crosshair

When dialing elevation, the center horizontal crosshair will be used for windage or moving lead corrections.

Example

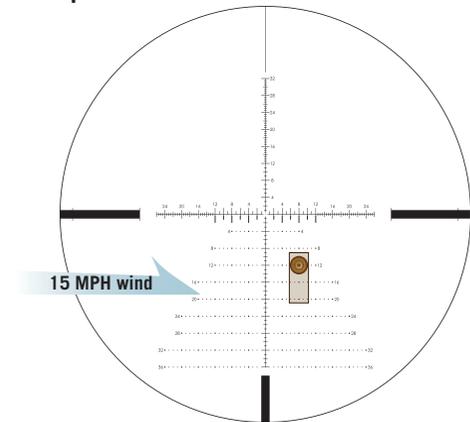


3 MOA reticle windage correction at 700 yds. in 5 MPH crosswind using center crosshair. Elevation adjustment already dialed into the riflescope.

Basic Windage Correction Using Drop Line on Reticle

When using the reticle for elevation correction rather than dialing, the MOA marks on the center horizontal crosshair can still be used to help visually reference windage corrections. Remember to hold the reticle into the wind.

Example



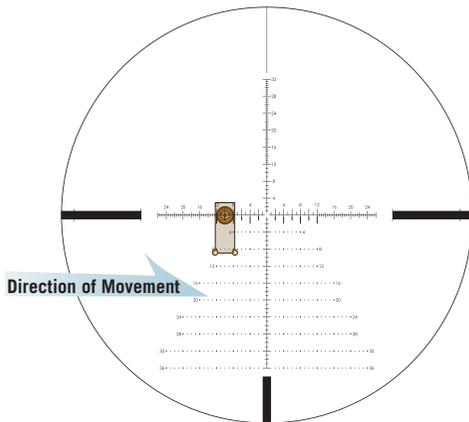
8 MOA reticle windage correction at 500 yds. in 15 MPH crosswind using 12 MOA reticle drop line.

Basic Moving Lead Correction

When estimating moving target leads, use the MOA marks on the center horizontal crosshair. Estimating moving leads will require knowing yardage 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



10 MOA reticle correction for a target moving at 3 mph at 800 yds. No wind. Total bullet time of flight from trigger pull is 1.5 seconds during which the target travels 6.6'. Elevation already dialed into turret.



VIP WARRANTY

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

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