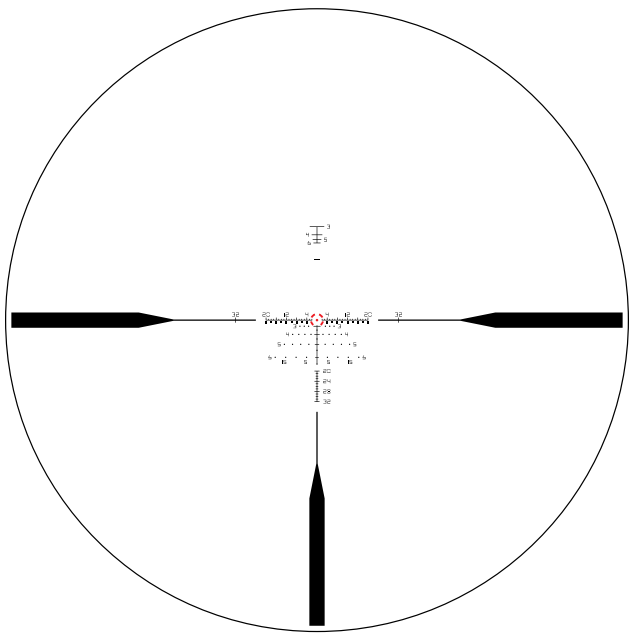
RETICLE MANUAL

EBR-9 BDC
MOA RETICLE

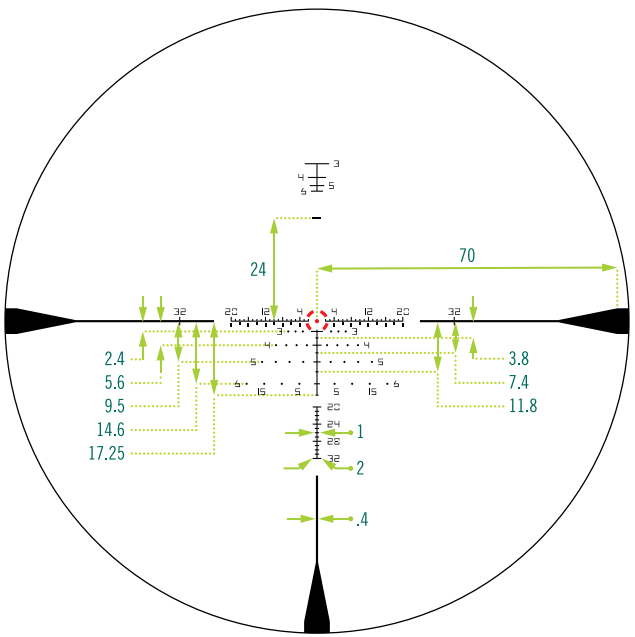
VORTEX® EBR-9 BDC MOA FFP RETICLE

You have purchased a Vortex® riflescope equipped with the EBR-9 BDC MOA reticle. Designed to maximize long-distance shooting and ranging abilities, the EBR-9 BDC MOA reticle can be used to effectively determine ranges, holdovers, and windage corrections.



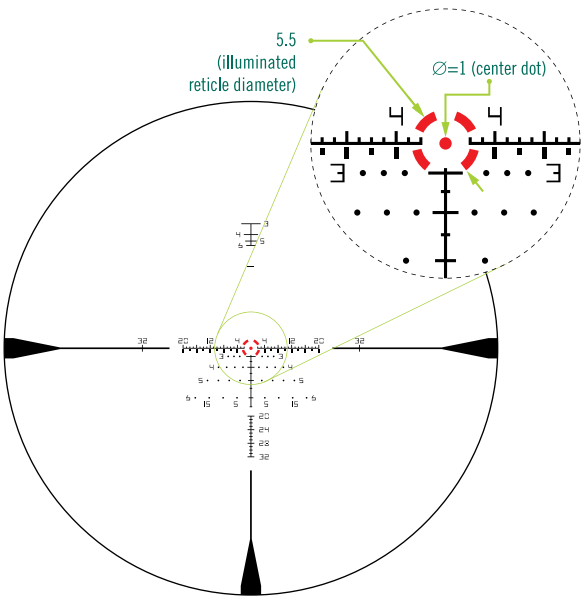
Images are for representation only. Product may vary slightly from what is shown.

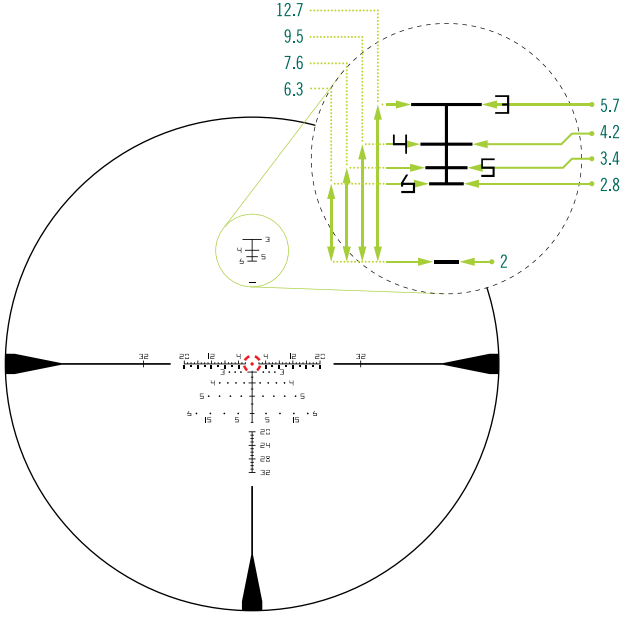
Reticle Subtensions



Subtensions measured in MOA.
Reticle image shown for representation only.

Reticle Subtensions (Continued)





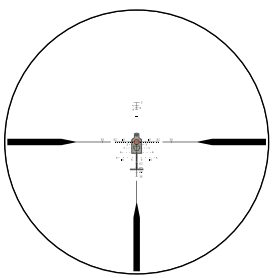
MOA Subtensions

The EBR-9 BDC MOA reticle is based on Minute of Angle (MOA) subtensions. MOA is an angular unit of measurement used to account for bullet drop, wind corrections, and range estimation. 1 MOA will correspond to 1.047" for each 100 yards.

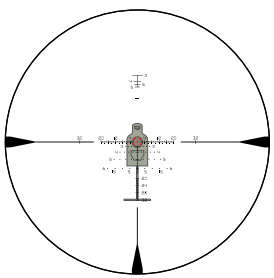
Note: Although 1 MOA is very commonly corresponded to 1" at 100 yards, this is not correct. 1 MOA at 100 yards equals 1.047". Calling 1 MOA, 1" per hundred yards may be acceptable for short distances, but will result in a five percent error in ranging and holdovers. This could result in missed shots.

First Focal Plane Reticles

This riflescope features a first focal plane (FFP) reticle. FFP reticles are located within the riflescope near the windage and elevation turrets, in front of the erector tube. This style of reticle will appear to grow and shrink as you change the magnification.



Low Magnification



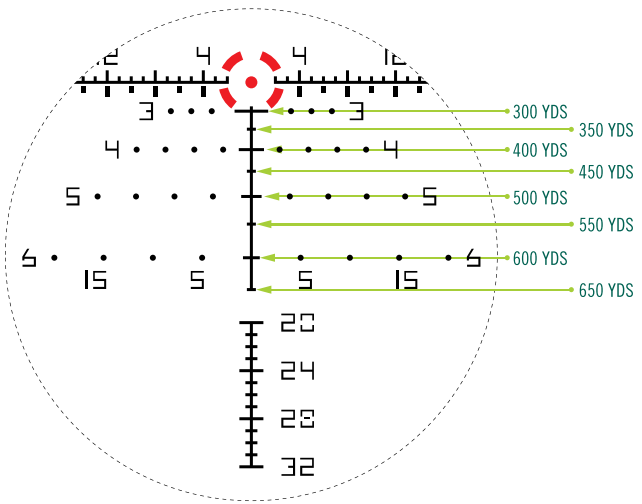
High Magnification

Using the Reticle for Bullet Drop Compensation

Most rifles will work well zeroed at 50/200 yards using the center dot. Consult the riflescope product manual for the sight-in procedure. For most popular 5.56/.223 loads and .308/7.62mm loads, the center dot will then provide good accuracy from 20 to 220 yards.

Use the lower hashmarks when aiming at targets farther than your zero distance. See the corresponding target ranges for the hashmarks.

EBR-9 BDC MOA Subtension (Yardage)



STANDARD BULLET DROP FOR .223/5.56MM LOADS

.223/5.56mm, 60 gr., 3050 FPS Muzzle Velocity
(Main crosshair zeroed at 50/200 yds.)

HASHMARK	SUBTENSION	DISTANCE	BULLET DROP
Zeroed	–	**200 yds.**	0"
1st	2.4 MOA	**300 yds.**	7.5"
2nd	5.6 MOA	**400 yds.**	23.5"
3rd	9.5 MOA	**500 yds.**	49.7"
4th	14.6 MOA	**600 yds.**	92.7"

STANDARD BULLET DROP FOR .308/7.62MM LOADS

.308/7.62mm, 168 gr., 2650 FPS Muzzle Velocity
(Main crosshair zeroed at 50/200 yds.)

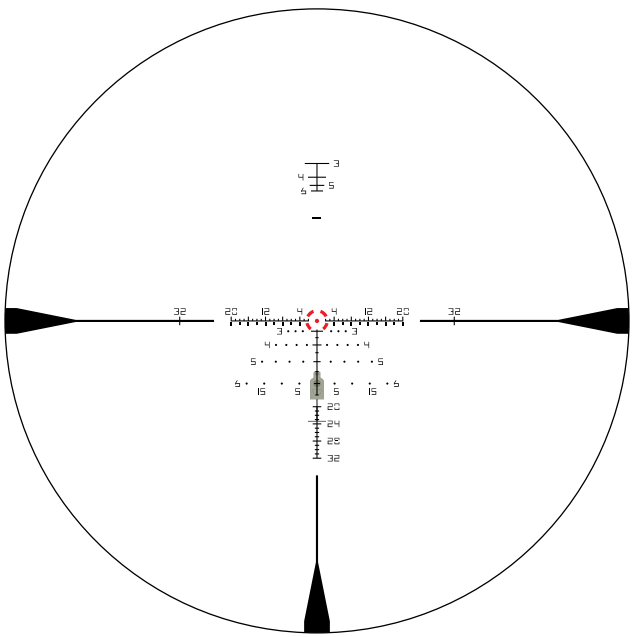
HASHMARK	SUBTENSION	DISTANCE	BULLET DROP
Zeroed	–	**200 yds.**	0"
1st	2.4 MOA	**285 yds.**	7.2"
2nd	5.6 MOA	**385 yds.**	22"
3rd	9.5 MOA	**485 yds.**	47.4"
4th	14.6 MOA	**600 yds.**	92"

Note: Bullet Drop Compensating (BDC) reticles are designed to get rounds on target quickly. Distances will be approximates, and will change depending on the gun, load, and environmental conditions. Using the MOA values for each hashmark, you can figure out exactly where your specific load will line up with each hashmark. You are not limited to using a .223/5.56mm or .308/7.62mm. The EBR-9 BDC MOA reticle is a first focal plane reticle; therefore, all the hashmarks will be true throughout the entire magnification range.

The EBR-9 BDC MOA reticle makes it easy to quickly select the correct bullet-drop reference. If the shooter prefers to dial for bullet drop using the Elevation Turret, knowing the bullet drop in MOA will allow for much easier adjustments.

If shooting a known range, simply use the hashmarks that correspond to the ballistics of your ammo. Each hashmark down from the center dot represents 50 yards, with common .223/5.56mm loads.

Example

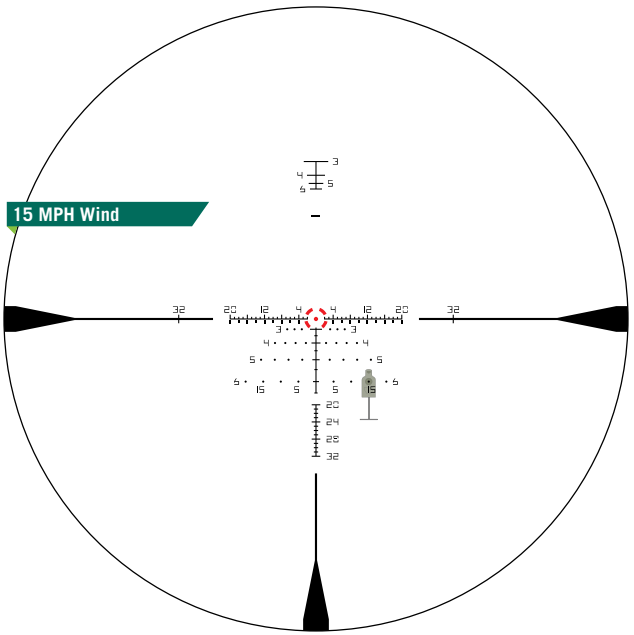


Wind Correction

Using the reticle for effective windage holds requires thorough knowledge of your weapon system's ballistic performance under varying conditions and experience in reading wind. As a bullet drops, it is important to learn a particular weapon's windage corrections in MOA. Always hold the reticle into the wind when correcting for wind drift.

Each wind dot represents a 5, 10, 15, or 20 MPH crosswind hold for their respective distance.

Example



Windage correction at 600 yds. and 15 MPH wind.

RANGING

MOA measurements are 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, cm, or meters.

MOA Ranging Formulas

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

$$\frac{\text{Target Size (inches)}}{\text{Measured MOA}} \times 87.3 = \text{Range (m)}$$

$$\frac{\text{Target Size (m)}}{\text{Measured MOA}} \times 3438 = \text{Range (m)}$$

$$\frac{\text{Target Size (cm)}}{\text{Measured MOA}} \times 34.38 = \text{Range (m)}$$

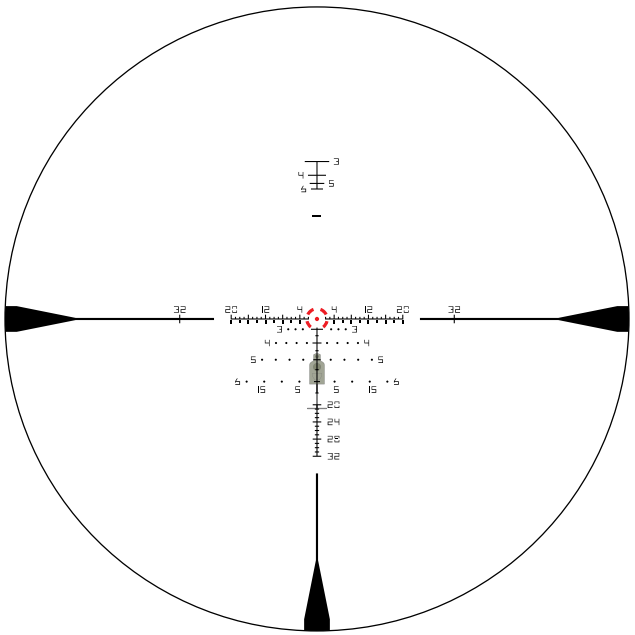
For the most accurate solution, use the longest dimension. If the object is taller than it is wide, it is best to use the object's height in the formula.

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 the best results if measured to the nearest 1/4 MOA.

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

Note: In the MOA ranging formula, you can substitute 100 for 95.5 for easier math. Be aware this will produce a five percent over-estimate error of the yardage distance obtained.

Ranging Example

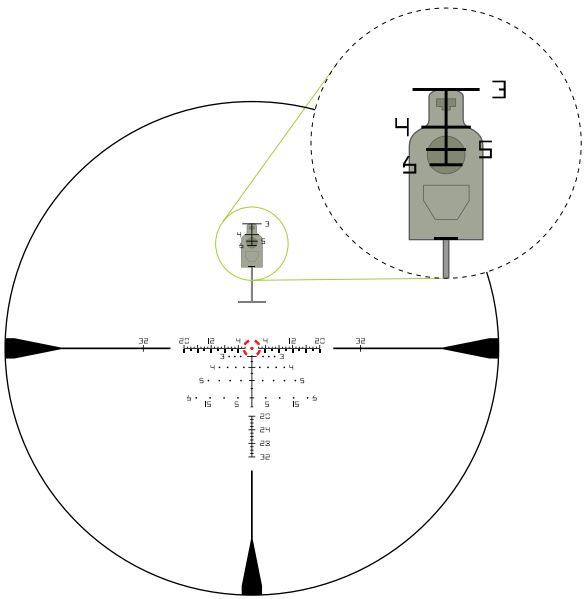


Ranging a target stand that is one yard tall at 11.3 MOA to get 306 yards.

$$\frac{36"}{11.25\ \text{MOA}} \times 95.5 = 306\ \text{yds.}$$

Ranging Feature

The ranging feature at the top of the reticle can be used to range a silhouette target. The horizontal lines correlate to the width of the shoulders of a silhouette target (18" across and 40" tall) at each distance. Place the horizontal hashmark at the base of the target. With the firearm supported, look at the top of the target to see which reference line the target aligns with. The 3, 4, 5, and 6 indicate the range in hundreds of yards.



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 • 1-800-4VORTEX

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

For additional and latest manuals, visit
VortexOptics.com