



RETICLE MANUAL

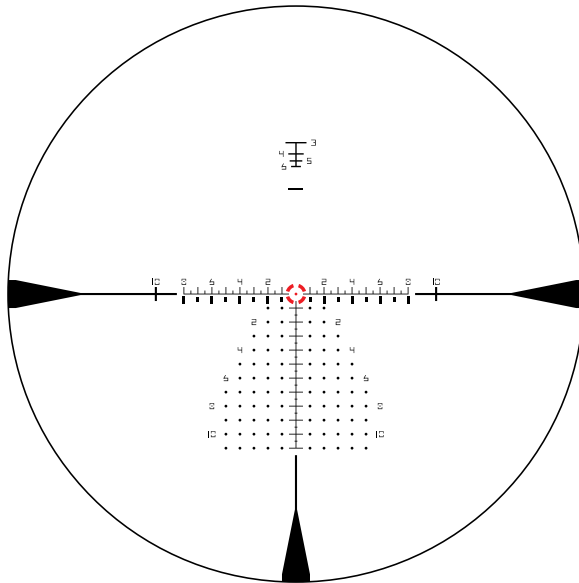
RAZOR[®] HD GEN III

RIFLESCOPE

1-10x24 | EBR-9 MRAD RETICLE | FIRST FOCAL PLANE

THE VORTEX® EBR-9 MRAD RETICLE

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



EBR-9 MRAD Reticle

MRAD Subtensions

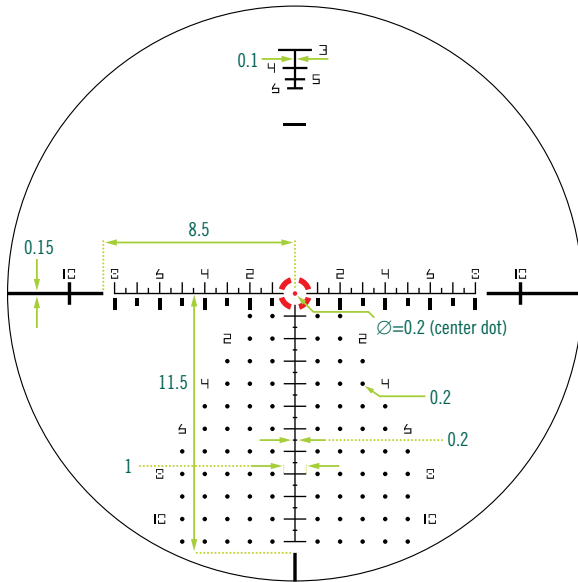
The EBR-9 MRAD reticle is based on the milliradian, or MRAD for short. MRAD unit of arc measurements are based on the radian. A radian is the angle subtended at the center of a circle by an arc that is equal in length to the radius of the circle. There are 6.283 radians in a circle and 1000 milliradians in a radian for a total of 6,283 milliradians in a circle. A milliradian is always 1/1000 of any unit. So, 1 MRAD is 1m at 1000m, 1 yd. at 1000 yds., or 1" at 1000". One MRAD will subtend 3.6" for each 100 yds. or 10cm for each 100m of distance.

First Focal Plane Reticles

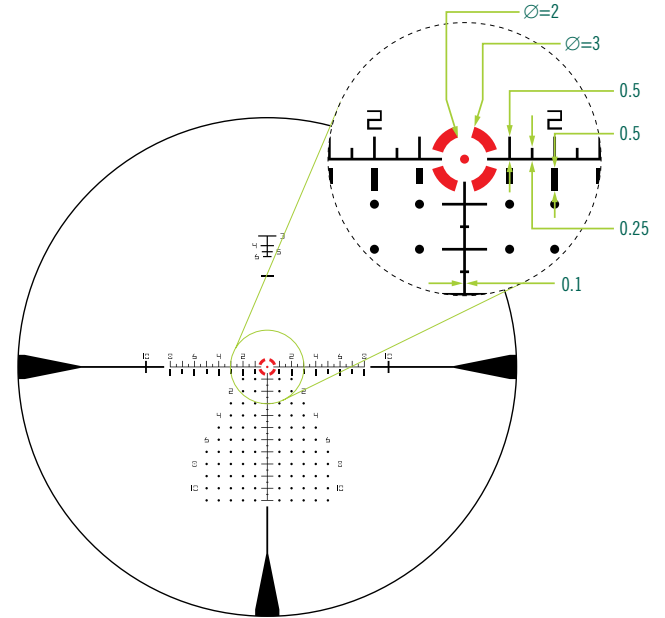
In the Razor® HD Gen III first focal plane riflescopes, the listed MRAD subtensions of the EBR-9 MRAD reticle are valid at all magnification levels. This means the shooter can use the magnification level most appropriate for the situation and still have effective holdover and windage reference marks. 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.

EBR-9 MRAD Subtensions

EBR-9 MRAD Subtensions (Continued)



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



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

RANGING

The EBR-9 MRAD reticle is very effective for ranging using simple formulas.

MRAD Ranging Formula

$$\frac{\text{Target Size (yds.)} \times 1000}{\text{MRAD Read}} = \text{Range (yds.)}$$

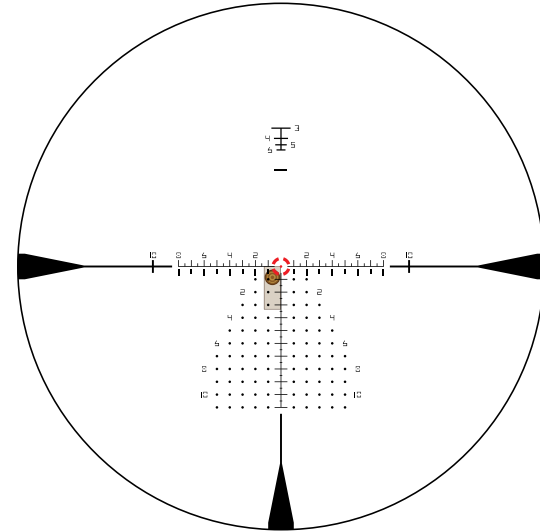
$$\frac{\text{Target Size (in.)} \times 27.8}{\text{MRAD Read}} = \text{Range (yds.)}$$

$$\frac{\text{Target Size (m)} \times 1000}{\text{MRAD Read}} = \text{Range (m)}$$

$$\frac{\text{Target Size (cm)} \times 10}{\text{MRAD Read}} = \text{Range (m)}$$

To use these formulas, it will be necessary to know the measured size of the target or a nearby object. Using either the vertical or horizontal MRAD scale, place the reticle on the target of known measurement and read the number of MRAD spanned. Maximum accuracy in ranging will be obtained by calculating exact MRAD measurements—MRAD should be estimated in 1/10s if possible.

Example

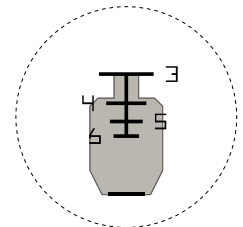


Ranging a target stand that is one yard tall at 3.3 MRAD to get 303 yds.

$$\frac{1 \times 1000}{3.3 \text{ MRAD}} = 303 \text{ yds.}$$

Ranging

The ranging feature at the top of the reticle can be used to range a silhouette target. Place the horizontal hashmark at the base of the target. With the firearm firmly supported, look to 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. The horizontal lines correlate to the width of the shoulders of a silhouette target at each distance.

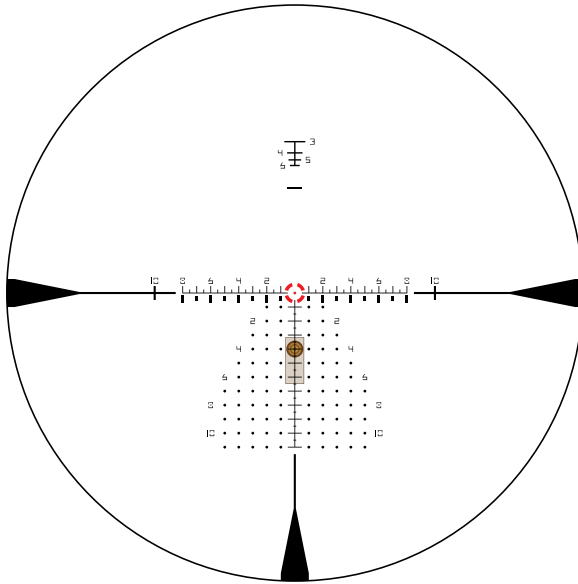


Elevation Holdovers

Once the distance has been calculated using the EBR-9 MRAD or a laser rangefinder, the EBR-9 MRAD can be used for rapid holdover correction for the bullet drop of the weapon system being used. To get the most benefit out of a riflescope equipped with the EBR-9 MRAD reticle, Vortex Optics highly recommends shooters learn their bullet-drop numbers and windage/lead corrections in MRAD rather than linear units. Remember that 1 MRAD equals 3.6" at 100 yds. or 10cm at 100m.

If the shooter prefers to dial the elevation adjustment for bullet drop using the Elevation Turret, knowing bullet drops in MRAD will allow for much faster adjustments because the MRAD can be quickly read on the Elevation Turret.

Example



4 MRAD reticle holdover correction for 600 yd. shot. No wind.



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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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