



RETICLE MANUAL

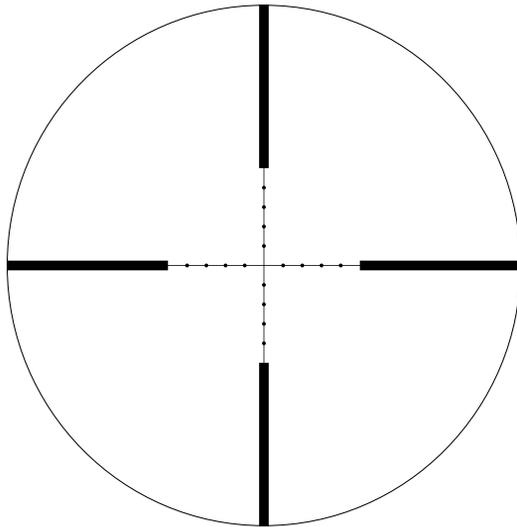
# MIL DOT MRAD RETICLE

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SECOND FOCAL PLANE

## MIL DOT RETICLE

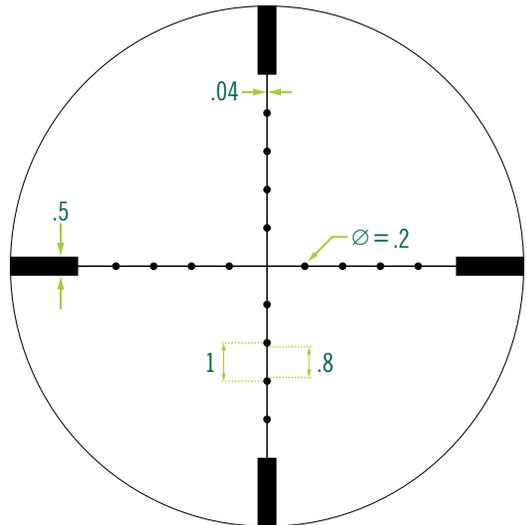
This is an extremely versatile reticle that allows high-precision shooting as well as range estimation and compensation for long-range bullet drop and wind drift.



## MRAD Subtensions

The Mil Dot reticle is based on Milliradian (MRAD) subtensions. MRAD is an angular unit of measurement used to account for bullet drop, wind corrections, and range estimation. 1 MRAD will correspond to 3.6" for each 100 yards.

**Note:** The Mil Dot reticle is available in second focal plane (SFP) riflescopes. The MRAD values are valid at the subtended magnification. Check your riflescope's product manual to validate the subtended magnification of your scope.



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

### Second Focal Plane Reticles

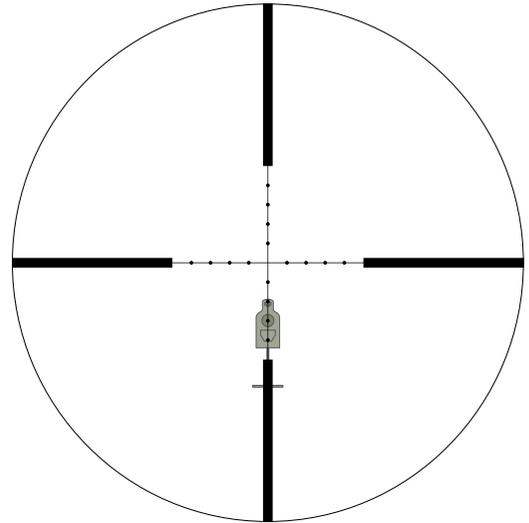
In SFP riflescopes, the listed MRAD subtensions are calibrated to a specific subtended magnification. The shooter can use the center crosshair on any magnification, but when using the holdover dots for longer-range shots or windage corrections, the shooter must be on the calibrated magnification. If the shooter is not on the calibrated magnification, you must perform additional calculations to determine the dot's value.



### Elevation Holdovers

Correcting for bullet drop is easy with the Mil Dot 1 MRAD hashmarks. The shooter uses the bullet's drop in MRAD and holds on the corresponding dot.

### Example



**3 MRAD reticle holdover correction for 450-yard shot. No wind.**

**Note:** You can also use the reticle like a ruler when sighting-in and while making on-the-fly corrections. Measure the difference between the bullet's point of impact and your point of aim, and either hold on that respective dot, or dial in the correction on the turret, using the value of the corresponding dot.

### Windage and Moving Targets

Using the Mil Dot MRAD reticle for effective windage and moving target leads will require thorough knowledge of your weapon system's ballistics performance under varying conditions, and experience in reading wind and target speed. As a bullet drops, it is important for the shooter to learn a particular weapon's windage/ moving target corrections in MRAD rather than inches. Always hold the reticle into the wind.

### Basic Windage Correction Holdovers

When dialing elevation, use the horizontal stadia for windage or moving target lead corrections.

#### Example

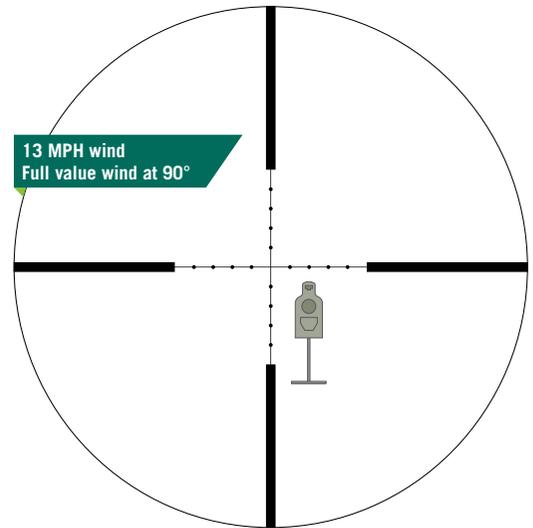


2 MRAD holdover correction for a 13 mph wind at 374 yards. Elevation is already dialed into the turret.

### Basic Windage and Elevation Correction Holdovers

When using the reticle for elevation correction rather than dialing, you can still use the MRAD holdover dots on the horizontal stadia line to help visually reference windage corrections. Remember to hold the reticle into the wind.

#### Example



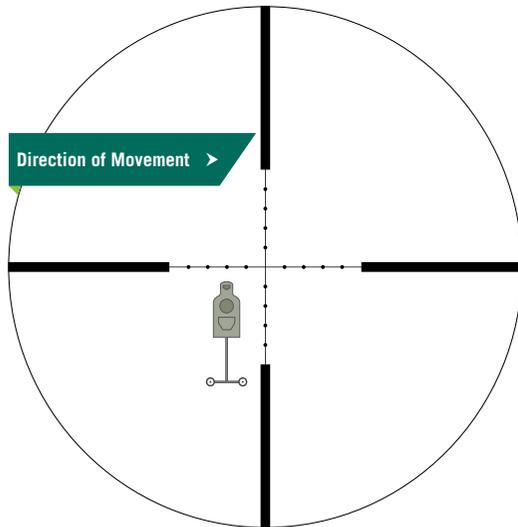
2 MRAD reticle holdover correction at 374 yds. in 13 mph crosswind, using 2 MRAD reticle drop line.

### Basic Moving Target Lead Correction

When estimating moving target leads, use the MRAD holdover dots on the horizontal stadia line. Estimating moving target leads will require knowing distance, wind speed, moving target speed, and total bullet flight time (including rifle lock time). Bullet flight times can be roughly calculated based on FPS velocities or a ballistic calculator.

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

### Example



2 MRAD reticle correction for a target moving 3 mph at a distance of 374 yds. No wind. Using 2 MRAD drop line.

## RANGING

MRAD 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 yards, inches, cm, or meters.

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

$$\frac{\text{Target Size (inches)}}{\text{Measured MRAD}} \times 27.77 = \text{Range (yds.)}$$

$$\frac{\text{Target Size (inches)}}{\text{Measured MRAD}} \times 25.4 = \text{Range (m)}$$

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

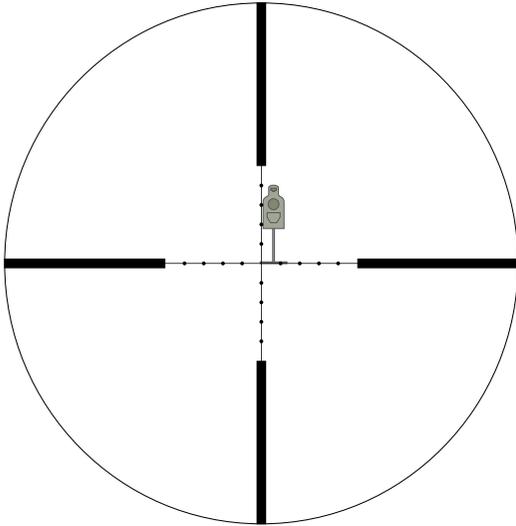
$$\frac{\text{Target Size (cm)}}{\text{Measured MRAD}} \times 10 = \text{Range (m)}$$

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

Using either the vertical or horizontal MRAD scale, place the reticle on a target of known dimensions and read the number of MRAD spanned. You will obtain the best results if measured to the nearest 1/10 MRAD.

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 MRAD reading, use the formula to calculate the distance.

**Example**



Ranging a target that is 2 yard (72") tall at 4 MRAD to get 500 yards.

$$\frac{2 \text{ yards}}{4 \text{ MRAD}} \times 1000 = 500 \text{ yds.}$$



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