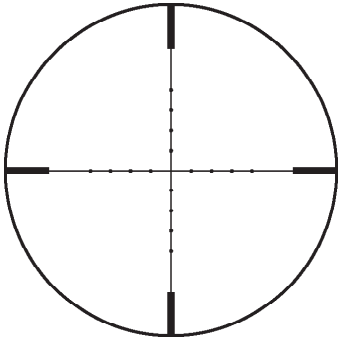


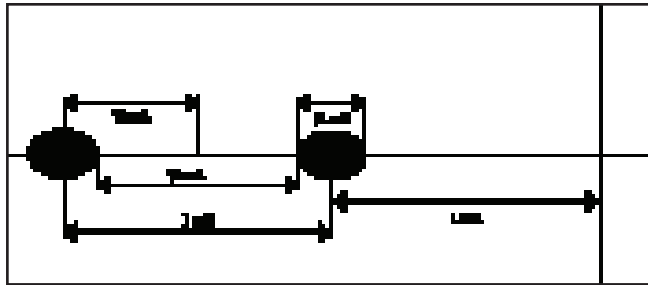
# VORTEX®

## Crossfire® Mil Dot Reticle



Welcome to the Crossfire Mil Dot reticle user's guide. This reticle allows the user to do range estimations as well as estimating hold-over, wind drift and lead moving targets. It is very important to understand that in order to use these

features, the scope must be set at 14x magnification. Of course, the standard center crosshair can always be used at any magnification.



### Mil Width at Distances:

100 yards	-----	3.6"
200 yards	-----	7.2"
300 yards	-----	10.8"
400 yards	-----	14.4"
500 yards	-----	18"
600 yards	-----	21.6"
700 yards	-----	25.2"
800 yards	-----	28.8"

### Mil Dot:

The term 'mil' in a mil dot reticle refers to a milliradian. A milliradian is a fraction of a circle, similar in concept to a degree. The dot spacing used in the Mil Dot reticle will correspond to 3.41 minutes of angle.

Remembering that 1 minute of angle always equals 1.047 inches at 100 yards, we then know the dot spacing will be 3.6 inches at 100 yards.

The following diagram illustrates the dot spacing on the reticle. Vertical dimensions are the same as horizontal .

### Ranging Distance:

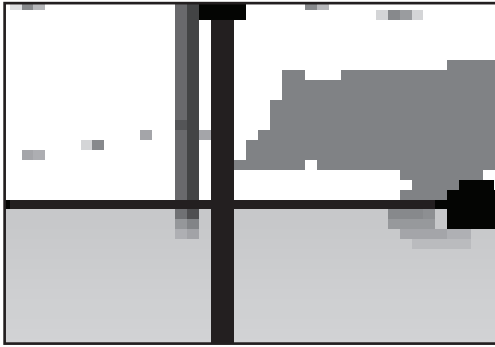
To use a Mil Dot for ranging purposes, you must have an object of known dimension at the same distance as your target to compare the mil spacing to.

### Examples of known dimensions:

- A fence known to be 36" tall next to the coyote you're shooting at.
- The brisket-to-back distance on a whitetail buck of 18".
- The height of a standing ground hog of 10".
- A target 20" in diameter.

Using our first example, we place our reticle on the fence with the horizontal crosshair even with the ground ( Remember that the scope must be turned to 14X). Reading our mils, we see that the fence equals 2 mils in height.

Using a simple formula, we now can calculate the distance to the fence (and the coyote) at 500 yards. This formula will be used for all ranging situations.



$$\frac{\text{Known Dimension (in yards)} \times 1000}{\text{Mils Read}} = \text{Yards to Target}$$

$$\frac{1 \text{ yard (36")} \times 1000}{2} = \frac{500 \text{ yards}}{\text{to fence \& coyote}}$$

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### Windage compensation:

Using your Mil Dot reticle for windage and moving target leads will require thorough knowledge of your cartridges ballistic performance and experience in properly reading wind strengths. Again, the scope must be at 14X for this to work.

Remembering that 1 mil equals 3.6" at 100 yards, 7.2" at 200 yards, 10.8" at 300 yards etc., use the mil dots on the horizontal crosshair to hold-off the required distance. Remember to hold into the wind direction when doing this.

For example, lets say you're shooting at a target 400 yards away, and through experience and ballistics charts you believe the bullet will wind-drift about 7". At 400 yards, the mil spacing equals 14.4", so you know that you'll need to hold about ½ mil into the wind to make your shot.

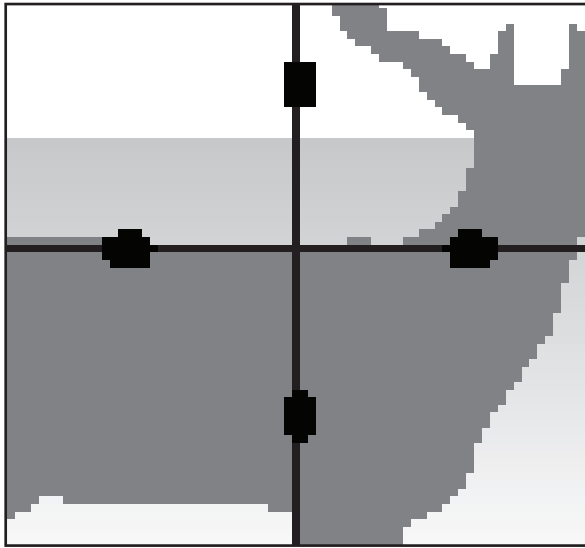
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### Holdover:

Once a target has been ranged, you may also use the mil dot reticle to quickly estimate proper hold-over on longer shots. In order to do this, you will have to be very familiar with the ballistics of your particular weapon and ammunition at all distances. It can be very helpful to keep a printed ballistic chart handy. As always, your scope must be set to 14X magnification.

For example, lets say you've ranged a deer with your mil dot and determined that he is 300 yards away. You've zeroed in your rifle at 100 yards, and know through practice and ballistics info that your bullet will drop 11" at 300 yards. You know that the mil spacing on the reticle is equal to 3.6" at 100 yards. This means the mil spacing will be 10.8" at 300 yards. Therefore, to make your shot you'll need to hold the center crosshair about 1 mil high from the deers vital zone.

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Vortex Optics® believes strongly in responsible, ethical hunting and a word should be said about the difficulty of long range shooting at game. Although reticles like the Vortex “Mil Dot” can make long distance shots much easier, there are still many variables at play affecting every shot. This type of shooting is not easy – plenty of practice is essential. Everyone doing this kind of shooting should also learn their personal effective range, and NOT shoot beyond it at game. Your effective range will depend on what you’re shooting at: for big game, it might be the range at which you can keep all your shots inside of ten inches, for smaller game it might be the range that all your shots can be kept inside of three inches.

Be responsible. The keys are knowing your rifle, ammunition and your own abilities!

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We at Vortex Optics want you to use and enjoy your optics with complete confidence . . . that’s why our V.I.P. warranty is so straightforward. Should your Vortex Optics product ever require service, we will repair or replace it absolutely free - no matter what the cause!

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