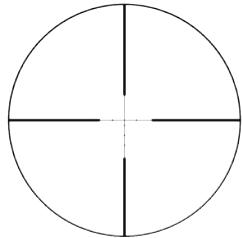


VORTEX®

DEADHOLD BDC RETICLE



Welcome to the BDC reticle user's guide. This exclusive reticle was designed to eliminate the need for guessing hold-over at various distances. By selecting the appropriate sub-crosshair dot, a shooter will be able to hold "dead-on" his target at all reasonable distances. The BDC reticle is very versatile; use it effectively with a variety of firearms, including high powered rifles, rimfire rifles, black powder rifles and slug shotguns.

Note: To effectively use the BDC reticle for long distance shooting, an accurate laser rangefinder becomes a "must have" piece of equipment.

Proper Mounting

Be sure to consult the standard owners manual for proper scope mounting techniques. To get the most out of your BDC riflescope, it's very important that your scope be mounted correctly. In particular, pay attention to getting the crosshairs exactly vertical.

Firearm Ballistics Classification

To effectively use the BDC reticle, you must first classify the type of firearm you are using. Most popular firearm choices fall ballistically into one of the following classes.

If your firearm doesn't fall exactly into one of the following classes, select the class which is ballistically closest, or contact Vortex if you need guidance.

1. High Power Rifle Used at Moderate Range

Most modern centerfire hunting rifle cartridges used at moderate ranges (100 to 300 yards) with **100** yard zero on main crosshair.

Common examples: .223, .243, .25-06, .260 Rem, .270 Win, 7mm-08, 7mm Rem Mag, .308 Win, .30-06.

Chart 1

Crosshair	Distance	Drop
Main	100 yards	0"
First Vertical Dot	200 yards	3"
Second Vertical Dot	300 yards	13.5"
Third Vertical Dot	400 yards	30"
Top of bottom Post	500 yards	55"

Chart 2

Crosshair	Distance	Drop
Main	200 yards	0"
First Vertical Dot	300 yards	4.5"
Second Vertical Dot	400 yards	18"
Third Vertical Dot	500 yards	37.5"
Top of Bottom Post	600 yards	66"

2. High Power Rifle Used at Long Range

Most modern centerfire hunting rifle cartridges used at long ranges (100-600 yards) with **200** yard zero on main crosshair.

Common examples: .25-06, .270, 7mm Rem Mag, .300 Win Mag, .300 Remington Ultra Mag, .338 Win Mag, and other centerfire magnum rifles.

4. .22 LR Rimfire Rifle

Used between 25 and 150 yards with **50** yard zero on main crosshair.

Chart 3

Crosshair	Distance	Drop
Main	100 yards	0"
First Vertical Dot	125 yards	2"
Second Vertical Dot	200 yards	9"
Third Vertical Dot	225 yards	17"

Chart 4

Crosshair	Distance	Drop
Main	50 yards	0"
First Vertical Dot	60 yards	1"
Second Vertical Dot	90 yards	4"
Third Vertical Dot	120 yards	9"
Top of Bottom Post	140 yards	16"

5. .17 HMR Rimfire Rifle (17 gr. bullet)

Used between 50 and 300 yards with **100** yard zero on main crosshair.

Chart 5

Crosshair	Distance	Drop
Main	100 yards	0"
First Vertical Dot	150 yards	2.5"
Second Vertical Dot	200 yards	8.5"
Third Vertical Dot	250 yards	19.1"
Top of Bottom Post	300 yards	36.1"

**Note: Due to the differences in available black powder equipment, these numbers should be viewed only as a representative sample. It's important to learn the ballistics of the particular black powder equipment you're using.*

Set-up and Use

It is necessary to first sight-in the main crosshair to the zero range in the ballistic class you've selected—consult the riflescope manual if you need assistance. Each firearm class uses a different corresponding range to each sub-crosshair dot depending on ballistic performance.

It's very important to understand that the Vortex Dead-Hold BDC reticle will only work for different ranges at the highest magnification setting of your riflescope. The main crosshair and its corresponding range can be used at any magnification.

The real key to understanding and using the Dead-Hold BDC reticle effectively and responsibly is to recognize that you must spend time at the rifle range to fine-tune the match between your particular rifle/ammo combo and the BDC reticle. While most rifle/ammo combinations will fall into the ballistic classes we have supplied, there will still be some variation (most differences being less than four inches).

Once you have the main crosshair sighted in, it is vitally important to shoot at the various distances to learn where your particular combination of weapon and ammo will vary

from the charts we have supplied. Ammunition manufacturers will also supply you with ballistics charts for their products, and many can be looked up on the Internet. After you have learned these differences, keep track of them! We have supplied small, sticky-backed decals to assist in this. Using the spaces provided, label the correct yardages and your differences.

Keep in mind that everyone's application will be different. If you are a big game hunter, a ballistic difference of an inch or two at moderate ranges may be acceptable; if you are a long distance target or varmint shooter, an inch or two difference might result in a miss. However, once you have learned these differences it's very easy to compensate.

6. Slug Shotgun and Traditional Black Powder Rifle*

Used between 25 and 150 yards with **50** yard zero on main crosshair.

Chart 6

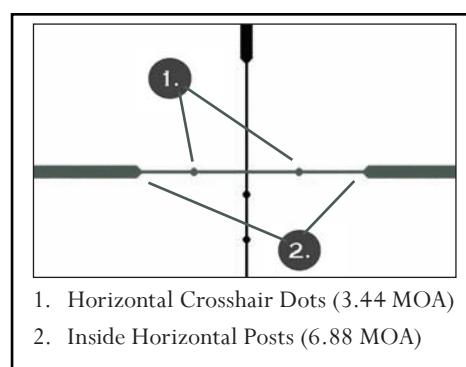
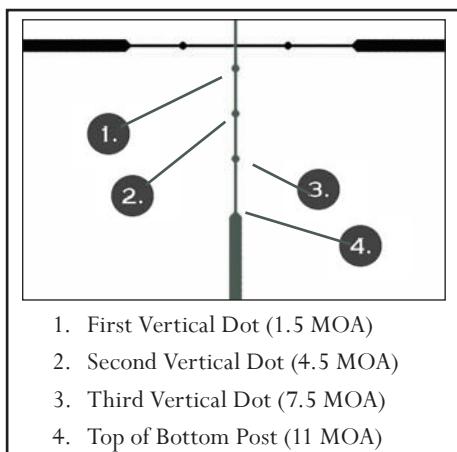
Crosshair	Distance	Drop
Main	50 yards	0"
First Vertical Dot	75 yards	1"
Second Vertical Dot	100 yards	4.5"
Third Vertical Dot	125 yards	9.4"

Because Vortex riflescopes allow re-indexing of the elevation knob (see owner's manual) after sight-in, it is quite easy to quickly dial in a needed adjustment, and then return right back to the original zero.

Example

Let's say you're going to shoot your .30-06 with 180 grain bullets (Chart 1, using 100 yard zero) at 400 yards. You know through practice that with your particular rifle and ammo, the bullet drops 34 inches rather than the 30 inches stated in the chart. To be exactly on the money, you've got to dial in for another four inches of drop. Four inches at 400 yards is equal to 1 MOA (see main manual for minute of angle information). All you have to do to make your shot is dial the elevation turret to #1 MOA Up (four 1/4 minute clicks "up"). After the shot, simply return the elevation turret to "0" to be right back to your original zero and ready for the next shot...you did have your turret re-indexed to zero after sight-in, right?!

The Dead-Hold BDC reticle also incorporates a method of range and wind drift estimation using the dots on the crosshairs. Again, this method works only with your riflescope at the highest magnification setting. Dots on the vertical crosshair are spaced at 1.5 MOA, 4.5 MOA and 7.5 MOA. The top of the bottom vertical heavy crosshair is 11 MOA from center. *1 MOA closely equals 1 inch at 100 yards, 2 inches at 200 yards, 3 inches at 300 yards, and so on.*



Similar to a Mil Dot system, the two dots on the horizontal crosshair are spaced at 3.44 MOA (1 mil) and the inside ends of the heavy horizontal crosshairs at 6.88 MOA (2 mils) from center (3.6 or 7.2 inches at 100 yards, 7.2 or 14.4 inches at 200 yards, 14.4 or 21.6 inches at 300 yards, and so on.

Knowing these numbers, a shooter can compare an object of known dimensions (at the shooting distance) to the dot spacing, and roughly estimate the range. Also, a shooter familiar with the wind drift numbers of his particular ammunition can use the dot spacing to help estimate proper windage hold-off once the correct range and wind are known (there are many good sources for wind drift available).

Example

Spotting a distant buck while deer hunting, you turn your scope to its highest power and range him. You see that the area from the top of his back to the bottom of his chest (usually a depth of about 18 inches on a mature buck) spans the distance from the center crosshair to the second dot down (4.5 MOA). You know that 4.5 MOA equals 4.5 inches at 100 yards, 9 inches at 200 yards, 13.5 inches at 300 yards, and 18 inches at 400 yards. Since you know the span you're measuring is 18 inches, you now know the buck is 400 yards away.

A useful formula when using the Mil Dot spacing (3.6 MOA) on the horizontal crosshair is below. The horizontal dots can estimate from one to four mils.

$$\frac{\text{Known Object's Width (or Height) in Yards} \times 1000}{\text{Object's Width (or Height) in Mils}} = \text{Range in Yards}$$

Example

Hunting in your home area, you know that a coyote runs about three feet in body and head length. With your scope set at highest power, you notice a coyote's body covers about the distance from the center crosshair to the edge of the heavy part of the horizontal crosshair (2 mils).

$$\frac{1 \text{ Yard (3 Feet)} \times 1000}{2 \text{ Mils}} = 500 \text{ Yards}$$

You can see from this formula that the coyote would be at a distance of 500 yards.



Unlimited • Unconditional • Transferable

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!

The VIP warranty is a Very Important Promise to you . . . because you are a very important person to us. Each Vortex binocular, spotting scope and riflescope is built to last, and unconditionally guaranteed with our commitment to your absolute satisfaction.

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!



Vortex Optics
2120 West Greenview Drive
Middleton, WI 53562
(800) 426-0048
info@vortexoptics.com

© Vortex Optics USA