



RETICLE MANUAL

**DEAD-HOLD<sup>®</sup> BDC**  
**MOA RETICLE**

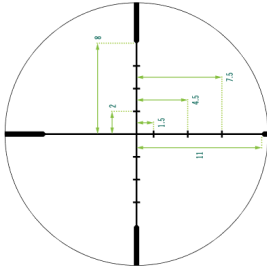
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### DEAD-HOLD® BDC MOA RETICLE

This exclusive reticle has been designed to minimize the need for guessing bullet holdover at long distances. By selecting the appropriate hashmark, the shooter will have a reliable bullet-drop reference for all reasonable distances.

The Dead-Hold® BDC reticle is designed around an average ballistic curve, allowing for use with a variety of different firearms. From high-powered rifles to rimfires, windy conditions to calm, the Dead-Hold® BDC reticle will help the shooter put rounds on target quickly and effectively.

#### Subtension Chart



**Note:** The Dead-Hold® BDC reticle is used in second focal plane riflescopes. Most commonly, the MOA subtensions are valid at the highest magnification. Please check the Product Manual to confirm the subtended magnification for your scope.

#### MOA Subtensions

The Dead-Hold® BDC 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.

#### Second Focal Plane Reticles

In second focal plane riflescopes, the listed MOA subtensions are calibrated to a specific magnification, typically the highest. The shooter can use the center crosshair on any magnification, but when using the hashmarks for longer-range shots or windage corrections, the shooter must be on the calibrated magnification. If the shooter is not on the calibrated magnification, additional calculations must be done to determine the value of the hashmark.

### Using the Reticle for Bullet-Drop Compensation

Rifle/ammo combinations are put into ballistic classes where bullet-drops will be predictable.

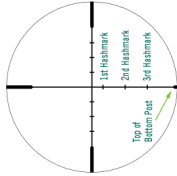
Begin by choosing one of the listed Firearm Classes.

If your firearm does not fall exactly into one of these classes, select the class which is most similar, or use the Precision Technique detailed in the next section. The Vortex® Long Range Ballistic Calculator is a handy tool to compare your bullet-drop numbers to the ones listed for each class. You can find it at [vortexoptics.com](http://vortexoptics.com).

After selecting a class, sight-in the crosshair at the recommend zero range for that class. (Consult the Product Manual for proper sight-in procedure). Once the rifle has been sighted-in, the lower hashmarks can be used as aiming points at the corresponding distances listed.

**Note:** Use the classes as a starting point, the values can be refined at the range or using a ballistic calculator. If you require greater accuracy or have a round that does not fall within one of the classes, use the Precision Technique detailed in the next section.

Remember the listed ranges will only apply with the scope set to the calibrated magnification. The center crosshair and its corresponding zero distance can always be used at any magnification.



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#### CLASS A

High Power: 30-06, .308, .270, 6.5 Creedmoor®  
(Crosshair zeroed at 100 yds.)

AIMING REFERENCE	DISTANCE	SUBTENSION
Crosshair	100 yds.	—
1st Hashmark	200 yds.	1.5 MOA
2nd Hashmark	300 yds.	4.5 MOA
3rd Hashmark	400 yds.	7.5 MOA
Top of Bottom Post	500 yds.	11 MOA

#### CLASS B

High Power/Magnum: 300 Win-Mag, 7mm Rem Mag  
(Crosshair zeroed at 200 yds.)

AIMING REFERENCE	DISTANCE	SUBTENSION
Crosshair	200 yds.	—
1st Hashmark	300 yds.	1.5 MOA
2nd Hashmark	400 yds.	4.5 MOA
3rd Hashmark	500 yds.	7.5 MOA
Top of Bottom Post	600 yds.	11 MOA

#### CLASS C

High Velocity Small Caliber: .223, 5.56, .243  
(Crosshair zeroed at 200 yds.)

AIMING REFERENCE	DISTANCE	SUBTENSION
Crosshair	200 yds.	—
1st Hashmark	300 yds.	1.5 MOA
2nd Hashmark	400 yds.	4.5 MOA
3rd Hashmark	500 yds.	7.5 MOA
Top of Bottom Post	600 yds.	11 MOA

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## CLASS D

Rimfire: .22 LR

(Crosshair zeroed at 50 yds.)

AIMING REFERENCE	DISTANCE	SUBTENSION
Crosshair	50 yds.	—
1st Hashmark	70 yds.	1.5 MOA
2nd Hashmark	90 yds.	4.5 MOA
3rd Hashmark	110 yds.	7.5 MOA
Top of Bottom Post	130 yds.	11 MOA

## CLASS E

Straight Wall: .450 Bushmaster, .350 Legend, .45-70

(Crosshair Dot zeroed at 100 yds.)

AIMING REFERENCE	DISTANCE	SUBTENSION
Crosshair	100 yds.	—
1st Hashmark	150 yds.	1.5 MOA
2nd Hashmark	200 yds.	4.5 MOA
3rd Hashmark	250 yds.	7.5 MOA
Top of Bottom Post	300 yds.	11 MOA

**Note:** Due to the tremendous differences in loads, these numbers should be viewed only as a representative sample. It is very important to validate these numbers with your setup before hunting, at the range, or using a ballistic calculator.

## PRECISION TECHNIQUE

If you wish to get the best accuracy, or have a caliber that is not listed, you can get more detailed ballistic data using the Vortex Long Range Ballistic Calculator (LRBC®) located at [vortexoptics.com](http://vortexoptics.com).



1. Input your max shooting distance and the yardage increments you would like displayed. We recommend selecting a shooting distance farther than what you plan on shooting and the smallest increments allowed (10 yds.).
2. Input your ammunition data. You can find this information on the ammo box or the manufacturer's website. For more accurate information, chronograph your rifle to obtain your true muzzle velocity.
3. Input your zero range and firearm information.
4. Input your environmental data.
5. Select "Calculate."
6. Select "MOA."
7. Cross reference the bullet drop with the hashmarks values (1.5, 4.5, 7.5, 11 MOA) and the corresponding yardage. If the drop does not match up exactly, round to the closest number.

**EXAMPLE DROP CHART**

325gr 45-70

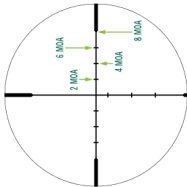
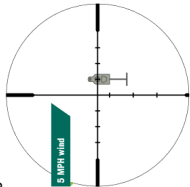
(Crosshair zeroed at 100 yds.)

YARDS	VELOCITY (FT/S)	ELEVATION (MOA)
100	1728	0
110	1698	0.3
120	1668	0.7
130	1639	1.1
140	1611	1.6
150	1582	2
160	1554	2.5
170	1527	3
180	1500	3.6
190	1474	4.1
200	1448	4.7
210	1423	5.3
220	1398	5.9
230	1374	6.6
240	1350	7.2
250	1327	7.9
260	1305	8.6
270	1283	9.3
280	1262	10.1
290	1242	10.8
300	1222	11.6

**Windage Correction Holdovers**

The Dead-Hold® BDC reticle can also be used to account for wind drift. Just like using the elevation hashmarks, the scope must be set to the subtended magnification when holding for wind.

Correct for wind drift using the line width changes on the horizontal stadia as reference points.

**Example**

2 MOA correction for a 5 mph wind at 200 yards.

### Long-Range Hunting

Vortex® believes strongly in responsible, ethical hunting and a word should be said about long-range shooting at game. Although reticles like the Dead-Hold® BDC can make long-distance shots much easier, there are still many variables affecting every shot. It is important for hunters shooting at long distances to learn their personal effective range, particularly in windy conditions, and to not shoot at game beyond those distances. Please be responsible — the keys are knowing your rifle, ammunition, and your own abilities.



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