PRODUCT MANUAL

VENOM®

1-6x24 SFP RIFLESCOPE

SPECIFICATIONS

CONFIGURATION	1-6x24
SKU	VEN-1601
FOCAL PLANE	SFP
RETICLE	AR-BDC3 MOA
ILLUMINATION	Yes
ILLUMINATION SETTINGS	6
BATTERY TYPE	CR2032
EYE RELIEF	3.6"
LINEAR FIELD OF VIEW (@ 100 YDS.)	126' - 20'
TURRET STYLE	Capped
TUBE SIZE	30mm
ADJUSTMENT GRADUATION	1/4 MOA
TRAVEL PER ROTATION	25 MOA
MAX ELEVATION ADJUSTMENT	140 MOA
MAX WINDAGE ADJUSTMENT	140 MOA
PARALLAX SETTING	100 yds.
LENGTH	10.3"
WEIGHT	19.5 oz.

	L1	L2	L3	L4
LENGTHS	10.3" (261.6mm)	2.8" (71.1mm)	2.3" (58.4mm)	6.7" (170.2mm)

	H1	H2	H3
DIAMETERS & HEIGHTS	1.2" (30mm)	1.8" (46mm)	1.8" (46mm)

VENOM® 1-6x24

Clear, XD™ glass, rugged construction, true 1x-6x magnification, and an illuminated AR-BDC3 reticle for fast, accurate short- to mid-range target engagements, even in dim light. The Venom® 1-6x24 SFP combines speed, performance, and value to meet the demands of entry-level carbine competition, hunting, or even self-defense. The single piece, 30mm aircraft-aluminum tube is built tough. Textured tactile turrets and standard throw-lever delivers lightning-fast magnification and fine-tune adjustments, even with gloves. Water, fog, and shockproof, it's speed-class LPVO priced to get you in the game.

Note: Images are for representation only. Product may vary slightly from what is shown.

INITIAL SET UP

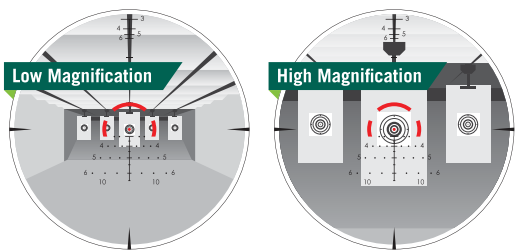
Reticle Focal Plane (Second Focal Plane vs First Focal Plane)

All riflescope reticles can be termed either first focal plane (FFP) or second focal plane (SFP), with respect to the reticle's internal location within the erector system. An SFP reticle is visually consistent in size and weight across the magnification range; however the subtension values are only accurate on one magnification, typically the highest. In contrast, an FFP reticle will scale with magnification, and their subtensions used for ranging, holdovers, and wind corrections will remain constant. The reticle size will appear larger at higher magnifications, and smaller at low magnification.

Second Focal Plane Reticle

These Venom® 1-6x24 SFP riflescope features a second focal plane (SFP) reticle. SFP reticles are located within the riflescope near the magnification ring. This style of reticle will appear consistent throughout the entire magnification range.

Note: The Venom® 1-6x24 SFP riflescope's reticle is calibrated at the highest magnification. For the hashmark's value to be true, you need to be on the highest magnification.



Ocular Focus – Fast-Focus Eyepiece

The ocular focus is typically a one-time adjustment used to focus the reticle for maximum sharpness. This adjustment is slightly different for every shooter. A clearly focused reticle is a critical component for accurate shooting. When setting up a scope, this should be the first adjustment you make and should only need to be changed from user to user, or if your eyesight changes over time.

Ocular Focus - Fast-Focus Eyepiece Adjustment

The Venom® 1-6x24 SFP riflescope uses a Fast-Focus Eyepiece designed to easily adjust the focus on the riflescope's reticle.

WARNING: Looking directly at the sun through a riflescope, or any optical instrument, can cause severe and permanent damage to your eyesight.

Adjusting the reticle focus to your eye:

1. Turn the Magnification Adjustment Ring to the highest power. Looking through the optic, turn the Fast-Focus Eyepiece counterclockwise until the reticle is slightly blurry.
2. While looking at a white wall or a clear blue sky, taking short glances through the optic, turn the Fast-Focus Eyepiece clockwise until the reticle is clear and crisp as soon as you look through the optic. This may take several attempts.

Note: You do not want your eye to focus to the reticle, rather you want the reticle in focus to your eye instantly when looking through the optic. Looking away and letting your eyes refocus is important in getting the eyepiece set correctly.

Once this adjustment is complete, it will not be necessary to refocus every time you use the riflescope. However, because your eyesight may change over time, you should recheck this adjustment periodically.

Parallax

Parallax results when the target image is not on the same optical plane as the reticle within the scope. This can cause an apparent movement of the reticle in relation to the target if the shooter's eye is off-axis behind the optic.

Fixed Parallax

The Venom® 1-6x24 SFP riflescope comes equipped with a fixed parallax setting at 100 yards. There is no adjustment on this model.

With a fixed 100 yard parallax, the shooter may experience small amounts of parallax error inside and outside of 100 yards, or if the shooter is off-axis behind the optic. If the shooter is perfectly aligned behind the optic, or at 100 yards, there should be no parallax error.

Magnification Adjustment

The Magnification Adjustment Ring is used to change the riflescope's "power." The Venom® 1-6x24 SFP riflescope is a variable powered optic with a 6x optical design. (E.g. 1-6x)

To adjust your optic's magnification, rotate the Magnification Adjustment Ring clockwise, or counterclockwise, to increase or decrease the magnification to your desired level.

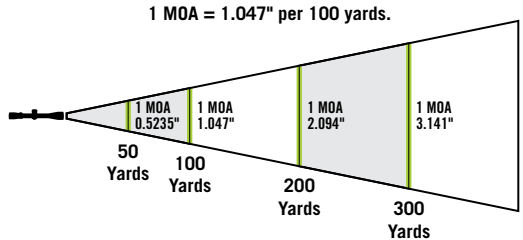
TURRETS

The Venom® 1-6x24 SFP riflescope is offered in Minute of Angle (MOA).

Note: The top of both the windage and elevation turret will state what unit the scope is laid out in

Minute of Angle (MOA) Adjustment

Minute of Angle is an angular unit of measurement commonly found in riflescopes. It is used to measure bullet drop, wind holdovers, and for measuring targets. Both the reticle and turrets will be laid out in specific MOA values. 1 MOA equates to 1.047" at 100 yards, 2.09" at 200 yards, 3.14" at 300 yards, etc. Being an angular unit of measurement, the value of 1 MOA will increase/decrease proportionally as you increase/decrease the distance you are shooting. For this reason, think about all of your adjustments in MOA, rather than a linear unit such as inches. If your turret, reticle, and drop chart are all laid out in MOA, adjusting your scope for bullet drop or windage corrections is extremely easy.



Elevation and Windage Turrets

Use turrets to adjust the bullet's point of impact. The Venom® 1-6x24 SFP riflescope uses a 1/4 MOA adjustment on both the Windage and Elevation Turrets. Each click will move the bullet's point of impact roughly 0.25" at 100 yards for MOA. The turret on the top of the riflescope is the Elevation Turret, which is used to adjust the bullet's point of impact up and down. The turret on the right-hand side of the riflescope is the Windage Turret and is used to adjust the bullet's point of impact left and right.

Capped Turrets

The Venom® 1-6x24 SFP riflescope comes equipped with capped Elevation and Windage Turrets. This protects the turrets from accidental adjustment while out in the field, in transit, or in storage. You will need to remove the caps prior to making any adjustments on the turrets.

Note: The scope is still waterproof with the caps removed.

Adjusting Capped Turrets:

1. Remove the turret caps by spinning them counterclockwise.
2. Following the directional arrows, turn the dials in the direction you wish the bullet's point of impact to change. (If you hit high, dial down. If you hit low, dial up. If you hit right, dial left. If you hit left, dial right.)
3. When finished adjusting, replace the turret caps.

   Note: The reticle will move in the opposite direction of the turret dials. When you dial up, the reticle will move down, forcing you to aim higher, changing your point of impact upward.

Illumination

The Venom® 1-6x24 SFP riflescope use a variable intensity illuminated reticle to aid in low-light performance.

To Turn Illumination On

To activate the illumination, rotate the Illumination Control Knob in a clockwise or counterclockwise direction.

To Adjust Illumination Brightness

Once the illumination is on, continue to rotate the Illumination Control Knob clockwise or counterclockwise to cycle through 6 levels of brightness. To decrease the brightness, rotate the Illumination Control Knob counterclockwise.

To Turn Illumination Off

To turn off the illumination, rotate the Illumination Control Knob so the hashmarks on the knob align with the hashmarks on the scope body. The Venom® 1-6x24 SFP features off positions in between illumination level settings.

Note: When the illumination is off, the reticle will appear black.

Battery Installation/Replacement

To install/change the battery, unscrew the Illumination Control Knob's cap using provided turret tool and install a new CR2032 battery with the positive side (+) facing out.

Illumination Control Knob

Replacing the Battery

1. Unscrew the Illumination Control Knob cap using the provided turret tool by spinning counterclockwise.
2. Remove the CR2032 battery.
3. Replace with a new CR2032 battery with the positive side (+) facing out.
4. Reinstall the battery cap by spinning clockwise until tight.

RIFLESCOPE MOUNTING

To get the best performance from your riflescope, proper mounting is essential. Although not difficult, the correct steps must be followed. If you are unsure of your abilities, use the services of a qualified gunsmith.

Please take note of the instructions on the following pages. For the proper scope mounting procedure go to VortexOptics.com/vortex-nation-videos for a video tutorial.

Riflescope Mounting Checklist

- Gun vise or a solid platform for your rifle
- Scope rings
- Torque wrench
- Reticle leveling tool(s) (such as feeler gauges or bubble levels and a plumb bob)

Recommendation: Pick up the Vortex® Torque Wrench Mounting Kit, which comes with the complete set of bits needed to install Vortex® scopes and rings.

Rings and Bases

The Venom® 1-6x24 SFP riflescope feature a 30mm main tube. Be sure to select a base and matching rings appropriate for your riflescope's mount according to manufacturer's instructions.

Tip: Selecting the proper ring height to provide appropriate clearance between the riflescope and any part of the rifle is paramount. The proper height will also allow for a comfortable head position and aid in establishing a solid and consistent shooting position. A ring's height will not have an adverse effect on accuracy and overall range or performance.

Eye Relief and Reticle Adjustment

After installing the bottom ring halves on the mounting base, place the riflescope on the bottom ring halves and loosely install the upper ring halves. Before tightening the scope ring screws, adjust for maximum eye relief to avoid injury.

1. Set the riflescope to its highest magnification.
2. Move the riflescope fore and aft in the rings until you achieve a full, unobstructed sight picture.
3. Without disturbing the fore-aft placement, rotate the riflescope until the reticle is level. Use a leveling tool(s) such as feeler gauges or bubble levels and a plumb bob to aid in this process.
4. After leveling the reticle, tighten and torque the ring screws down per manufacturer's instructions. Use caution and do not over-tighten ring screws.

   Note: We typically suggest 15-18 in-lbs of torque on the ring screws. If the mount/ring manufacturer suggests more or less, contact the Vortex® Technical Department for best instructions. For base clamp screws on the rings/mounts, reference the ring manufacturer's specifications. We do not recommend liquid thread-locking compound on the ring screws.

If you have questions about a specific setup, please call our Technical Department at:

1-800-4VORTEX (1-800-486-7839) Ext. 5

SIGHTING IN YOUR RIFLESCOPE

Bore Sighting

Initial bore sighting of the riflescope will save time and money at the range by roughly aligning the scope to the rifle. This can be done several ways, either by using a mechanical or laser bore sighter according to the manufacturer's instructions, or by removing the bolt and sighting through the barrel.

To Visually Bore Sight a Rifle

1. Place the rifle on a solid rest and remove the bolt.
2. Sight through the bore at a target approximately 100 yards away.

   Note: It will help to have larger, high-contrast target to focus on as it can be difficult to pick up smaller targets through the rifle's bore.
3. Move the rifle and rest until the target is visually centered inside the barrel.
4. With the target centered in the bore, make the necessary windage and elevation adjustments until the reticle is also centered on the target. You may notice the reticle travel in the opposite direction as listed on the turrets. This is completely normal.

Final Range Sight-In

After the riflescope has been bore sighted, final sight-in should be done at the range using the exact ammunition you expect to use while hunting or shooting competitively. Sight-in and zero the riflescope at the preferred distance. 50 to 200 yards are the most common zero distances.

1. Following all safe shooting practices, fire a three-shot group as precisely as possible to determine an average point of impact to correct from. This will also help you establish the accuracy potential of the weapon system.
2. Adjust the turrets to correct for any offset in your point of impact. Be sure to read page 8 prior to adjusting.
3. Fire another three-shot group to establish another average point of impact. This procedure may be repeated as many times as necessary until your point of impact and your point of aim are in the same place, and you have achieved a perfect zero.

Note: Vortex® does not recommend the use of a weighted gun vise, as it can put extreme stress on the gun, stock, scope, and mounts. It is best practice to use a combination of sandbags or a bipod and sandbags. Letting your weapon recoil naturally also provides consistency from shot to shot.

Reindexing the Elevation and Windage Turrets

After the rifle and scope have been zeroed in, the elevation and windage turrets should be reindexed to their zero indicators. This will allow you to accurately keep track of elevation or windage corrections dialed on the turrets in the field, and quickly return to an original zero-point setting.

To Reindex Capped Turrets

1. While holding the windage turret cap firmly between thumb and forefinger to prevent any rotation, use the 2mm hex wrench to loosen and remove the central screw on the of the dial.
2. Gently pull the turret dial straight up and off the turret post, being careful not to rotate the post.
3. Reinstall the turret dial, lining up the “0” mark with indexing mark on the scope body and replace the central screw on the top of the dial.
4. Replace the turret cap.

MAINTENANCE

Cleaning

Your Vortex® riflescope requires very little routine maintenance other than periodically cleaning the exterior lenses. The scope's exterior may be cleaned by wiping with a soft cloth. When cleaning the lenses, be sure to use products that are specifically designed for use on coated optical lenses.

- Be sure to blow away any dust or grit on the lenses prior to wiping the surfaces.
- Using your breath, or a very small amount of water or pure alcohol, can help remove stubborn dried water spots.

Lubrication

All components of the riflescope are permanently lubricated, so no additional lubricant should be applied.

Note: Other than removing the turret caps, turret indicators, and battery cap, do not attempt to disassemble any components of the riflescope. Disassembling of riflescope may void warranty.

Storage

If possible, avoid storing your scope in direct sunlight or any very hot location for long periods of time.

TROUBLESHOOTING

Please consult the following list prior to returning a riflescope for service. Many times, a problem thought to be with the scope is a mounting issue. Be sure the correct rings and bases are being used and that they are properly torqued to the rifle. Be sure there is no free play in the scope, base, or rings.

Common Issues

Point of Impact is Inconsistent or Changes Drastically After Turret Adjustment.

- Verify that the ring screws are not over-torqued. Ring screws should only be torqued to Vortex® recommendations, and no thread-locking compound or lubricants should be applied. Over-torqueing ring screws will cause excess pressure on the tube, which may cause problems when making turret adjustments.
- Remove the scope from the rings and visually check the scope tube for slide marks, and/or indentations from over-torqued, or out-of-spec rings.
- Ensure the rifle's action screws are tightened to the rifle manufacturer's specification.
- Be sure that the base is tightened using thread-locking compound to the top of the rifle's receiver to manufacturer's specs.
- If using the scope on an AR-style rifle, ensure that the cantilever mount/rings are mounted only to the top of the receiver. The cantilever mount/rings need to be mounted to a single, solid surface. Make sure the forward connection of the cantilever mount, or ring, is not mounted to the fore-end of the rifle.

- Be sure the rifle barrel and action are clean and free of excessive oil, or copper and powder fouling.
- Some rifles and particular ammunition do not work well together. Try different ammunition and see if accuracy improves.

Insufficient Windage and Elevation Adjustment Range

- Be sure you have the proper base and rings for your rifle. If you need assistance, contact a local gunsmith or the Vortex® Technical Department.
- Once you have verified you have the correct base and mounts, and that you have been properly fitted for your gun, make sure you have followed the correct mounting procedure. See Riflescope Mounting Section on page 11 for this procedure.
- Insufficient windage or elevation adjustment range usually indicates problems with the mounting, base mount holes drilled in the rifle's receiver, or barrel/receiver misalignment.

Cannot Focus on the Reticle and Target

- Check and reset the ocular focus for the shooter's eye. See Riflescope Adjustment Section, Ocular Focus – Fast-Focus Eyepiece Adjustment on page 5.

Reticle is moving the wrong direction

- The reticle will always move opposite of the turrets. Markings on the turrets indicate point of impact change. If you dial down on the turret, the reticle will move upward, forcing you to move the gun down, to change your point of impact downward.

NOTICE

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