MARCOOL®

EVOLVER SERIES
4-16x44 SFIR

RETICLES:
FIRST FOCAL PLANE

RIFLESCOPE
USER MANUAL&
CARE INSTRUCTIONS

TABLE OF CONTENTS

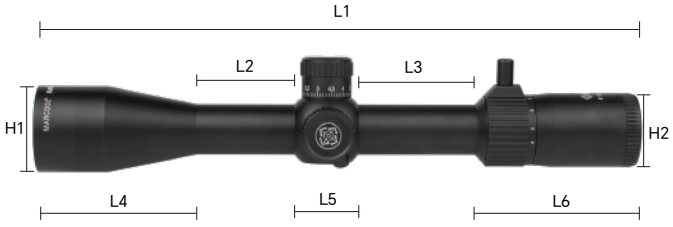
INTRODUCTION

SPECIFICATIONS

MODEL: 4-16x44 SFIR

Magnification	4-16x	Tube Size	30mm
Reticle Plane	FFP	Objective Lens Dia.	44mm
Eye Relief	4-3.7in	Click Value	1/10 MIL
Exit Pupil	11.5-2.9mm	Parallax Correction	20-500yds
FOV ft@100yards	6.7-26.9ft	Lenght	353mm
E/W Travel Range	80/80 MRAD	Weight	683g

DIMENSIONS

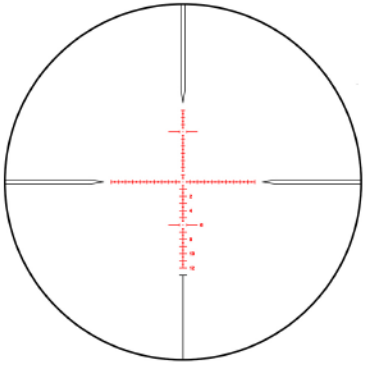


MODEL	L1	L2	L3	L4	L5	L6	H1	H2
4-16x44 SFIR	13.90”	2.28”	2.72”	3.66”	1.50”	3.74”	2.01”	1.73”

RETICLE

The reticles in your Marcool 4-16x44 SFIR riflescope are first focal plane reticles. This is according to where the reticle is located within the riflescope.

First focal plane (FFP) reticles are located in front of the image erecting and magnifying lenses. With the reticle in this position, the reticle is magnified along with the target image. The advantage of this type of reticle is the size of the reticle stays the same size in relationship to the size of the target. This allows for any subtention values on the reticle to be the same at any power.



SCOPES WITH FIBER ILLUMINATED RETICLES

Marcool offers variable brightness settings on 4-16x44 SFIR riflescopes. The numbers on the knob indicate different brightness settings and the dots between numbers indicate “Off” position of the illumination. The illumination is powered by a lithium CR2032 3V battery. Remove the battery chamber cap by turning it counter-clockwise and then set the battery with the positive (+) side facing up. Reinstall the cap by turning it clockwise, DO NOT OVER-TIGHTEN.

MOUNTING THE SCOPE

CAUTION *BEFORE MOUNTING A RIFLESCOPE BE SURE THAT THE FIREARM IS NOT LOADED, HAS ACTION OPEN AND THE MUZZLE POINTING IN A SAFE DIRECTION. SAFE FIREARM HAN DLING PROCEDURES NEED TO BE PRACTICED AT ALL TIMES.*

To achieve the best performance from your rifle and your Marcool Scope, your scope must be mounted properly. If you are unfamiliar with proper procedures to mount a scope, we highly recommend to have the scope mounted by a qualified gunsmith.

Marcool recommends you use high quality, appropriately sized rings and bases matched to your rifle when mounting your scope on the rifle. Please note that most ballistic charts use 1.5" as the standard mounting height for scopes when publishing ammunition information. Higher mounting height will have an effect on the impact point of the bullet. Mount your scope as low as you can without it touching the rifle or impeding the operation of the action of the gun. Attach bases and the bottom of the rings to your rifle. Be sure to follow the manufacturer instructions supplied with the rings and mounting base.

1) Focusing the Scope

The purpose of the Fast Focus eyepiece is to focus the reticle in the scope to your eyes. For a fast focus eyepiece, just simply rotate the fast focus ring at the end of the eyepiece in either direction to get a perfect clear reticle while looking through the scope pointing at a flat plane surface. This is important to do prior to mounting.

2) ADJUST FOR MAXIMUM EYE RELIEF

i. You need to adjust the scope for maximum eye relief before tightening of the scope rings, to avoid injury from recoil.

ii. With the scope on lowest magnification, move the scope forward as far as possible in the rings.

iii. With the rifle in normal shooting position, look through the scope and slowly slide the scope back towards you. When you finally see the full field of view with sharp and clear edges, stop. Make sure the scope has not rotated so the reticle is tilted.

iv. Rotate the scope until the elevation dial is at the top of the scope and the vertical cross-hair of the reticle matches the vertical axis of the rifle. This will be easier if you find a vertical reference such as the straight edge of a building or a telephone pole. Make sure the scope has not moved forward or backward while doing this.

v. Tighten the rings per the manufacturer's instructions.

3) BORE SIGHTING

Bore sighting is a preliminary procedure to achieve proper alignment of the scope with the rifle's bore.

i. The initial bore sighting of the scope can be at short range of 50 yards. This is easier than trying to bore sight at 100 yards and will get you on the paper at that distance, so to save time and money at the shooting range. We highly recommend using a bore sighter, but make sure to follow the manufacturer's instructions.

ii. This can also be done by removing the bolt and sighting through the rear of the action. Make sure the rifle is placed solidly on a bench and the bolt is removed. You can then sight through the action and center the bore and target inside the barrel. (Note: Many ring and base sets have some kind of windage adjustments. Use these external adjustments first before using the scopes internal windage adjustments). With target centered in the bore, make windage and elevation adjustments until the reticle crosshair is also centered over the bulls eye.

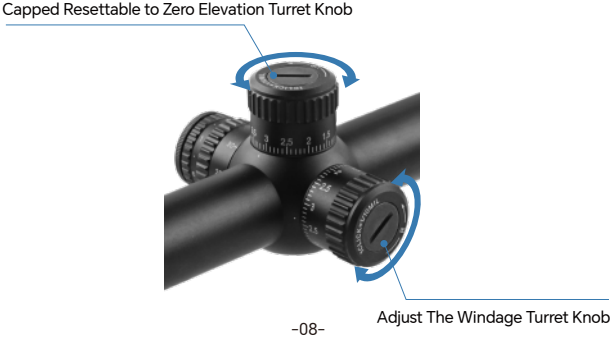
4) ZEROING THE SCOPE

CAUTION *IF A LASER BORE SIGHTING OR ANY OTHER SIMILAR DEVICE INSIDE THE BORE WAS USED, IT MUST BE REMOVED BEFORE FIRING. AN OBSTRUCTED BORE CAN CAUSE SERIOUS DAMAGE TO THE GUN AND POSSIBLE INJURY TO THE SHOOTER.*

i. Ideally set the rifle on a two or three holding point gun rest, and then fire three rounds at a target 100 yards away. Observe the bullet holes on the target and calculate how far those bullet holes are off the center of the target, and then adjust windage and elevation knobs to move the center of the reticle up, down, left or right. Fire another three rounds, then observe and adjust. Repeat this step as necessary until the three round bullet holes are perfectly aligned with the center of the target.

ii. **Setting Windage and Elevation and locking your zero stop**

Marcool 4-16x44 SFIR scopes have both caped windage and elevation turrets. Once a rifle has been sighted in, take off the cap and loosen up the top screw and pull out the elevation turret knob. Put the turret knob back on with zero line aligned with the vertical mark below the turning knob, then tighten the screw to lock it in. By zeroing the rifle at 100 yards, the shooter can calculate how many clicks of adjustment are needed for different distances or wind conditions.



Marcool 4-16x44 SFIR scopes have several options available, 1/10 MIL for the click values of elevation and windage adjustment depending on different configurations of scopes and reticle selections. MOA, a unit of angular measurement, is defined as a minute of angle, a minute is 1/60th of one degree and 1/21600th of a circle. One MOA equals 1.047-inch (rounded down to one inch) at 100 yards, two inches at 200 yards and to ten inches at 1000 yards. 1/4 MOA per click takes four clicks to move point of impact one inch at 100 yards. MIL, which is short for Milliradian and another unit of angular measurement, is defined as 1/1000th of a radian (6.2832 radians in a circle) and 1 MIL equals to 3.438moas and 3.6 inches at 100 yards, 7.2 inches at 200 yards, and to 36 inches at 1000 yards. 1/10 MIL per click takes 10 clicks to move point of impact 3.6 inches at 100 yards. Knowing the click value and the number of clicks needed for different distance is critical to dial in elevation and windage adjustments based on the rifle ballistics and wind velocity.

5) BASE ADJUSTMENT

Marcool riflescope reticle comes centered from the factory. If you need to make additional adjustments when initially sighting in your scope, many ring and base setups allow you to adjust windage at the base mount. If possible, use these adjustments for initial windage change. Though not usually necessary, you can correct the elevation adjustment by replacing the mounting base with an offset 20+ MOA scope rail.

MAINTENANCE

Disassembling or cleaning the scope internally will void the warranty. If the scope requires repairs, please refer to the warranty section for complete instructions.

The external optical surfaces should occasionally be wiped clean. Use the lens cloth provided or an optical quality lens paper to wipe out dust or dirt on the external lens surface. If large sand particles or heavy dirt contamination is observed, remove using soft brush or by blowing them away. Apply lens cleaning liquid before wiping off. Always keep the protective lens covers in place when the scope is not in use to avoid dust collecting on the surface of the lenses. Store the unit in a low-humidity environment.

TROUBLESHOOTING

i. Check scope mounting and make sure there is no movement when pulling the scope by hands. Tighten the mounts if there is any movement observed.

ii. Use a benchrest or bags to support the rifle stock. Take care not to use supports on the barrel when making windage and elevation adjustments. This will help eliminate movement.

iii. It is recommended using the same type of ammunition with same weight.

iv. Check your rifle stock, as a loose stock changes the point of impact.

v. Make sure your rifle chamber and barrel are clean.

vi. Make sure rifling of the barrel is not damaged and no excessive grease inside the barrel.

vii. For any technical related questions, please contact Marcool Optics at 【info@marcool-cn.com】or call toll free 020-83329632.

https://marcooloptics.com