

HOW TO MOUNT A SCOPE IN 7 EASY STEPS

If you've got a scope that needs to be mounted on a rifle but you're not sure how to mount a scope the right way, you're in luck.

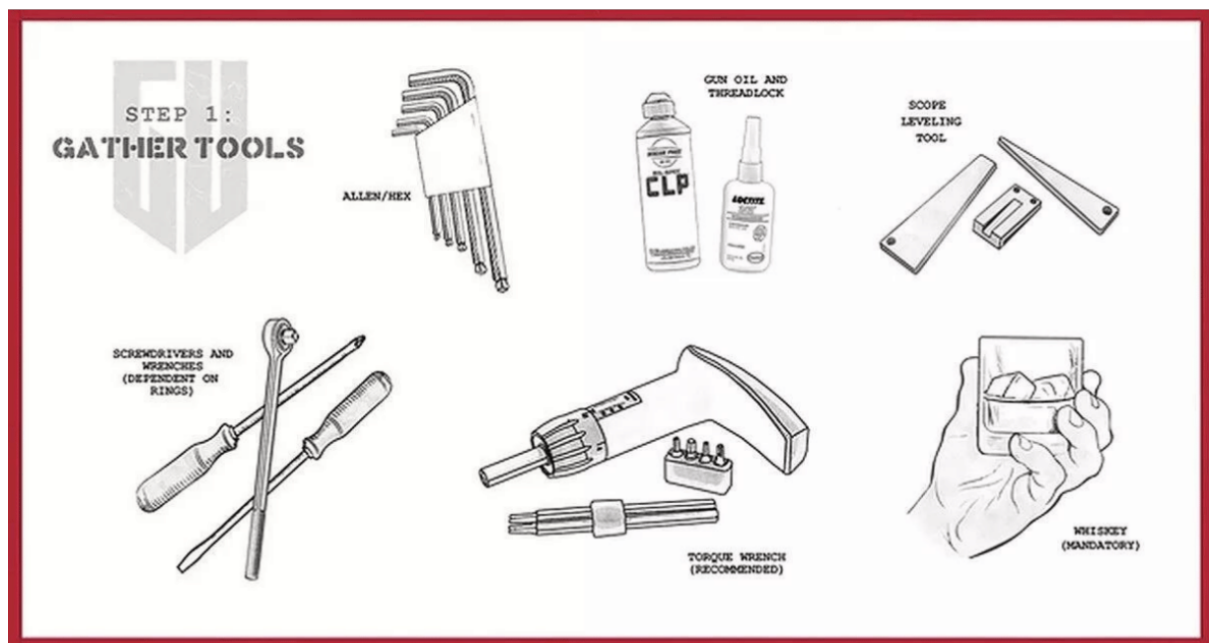
In this guide we're going to walk you through all the necessary steps to properly mount a rifle scope.

STEPS TO MOUNTING A SCOPE:

1. [Gather the Right Tools](#)
2. [Select the Correct Rings and Base](#)
3. [Mount the Base to Your Rifle](#)
4. [Attach Scope Rings to Base](#)
5. [Adjust Scope Position to Fit You](#)
6. [Level your Rifle Scope](#)
7. [Secure Scope within Rings](#)

With that, let's jump in to each step to mounting a scope on a rifle.

STEP 1: GATHER THE RIGHT TOOLS



As with just about any project, having the right tools for the job is important. In this first step to mounting a scope we're going to provide a checklist of tools you'll need.

We'll also add some tools that aren't absolutely required but are recommended because they either make scope mounting easier or ensure that the job is done better.

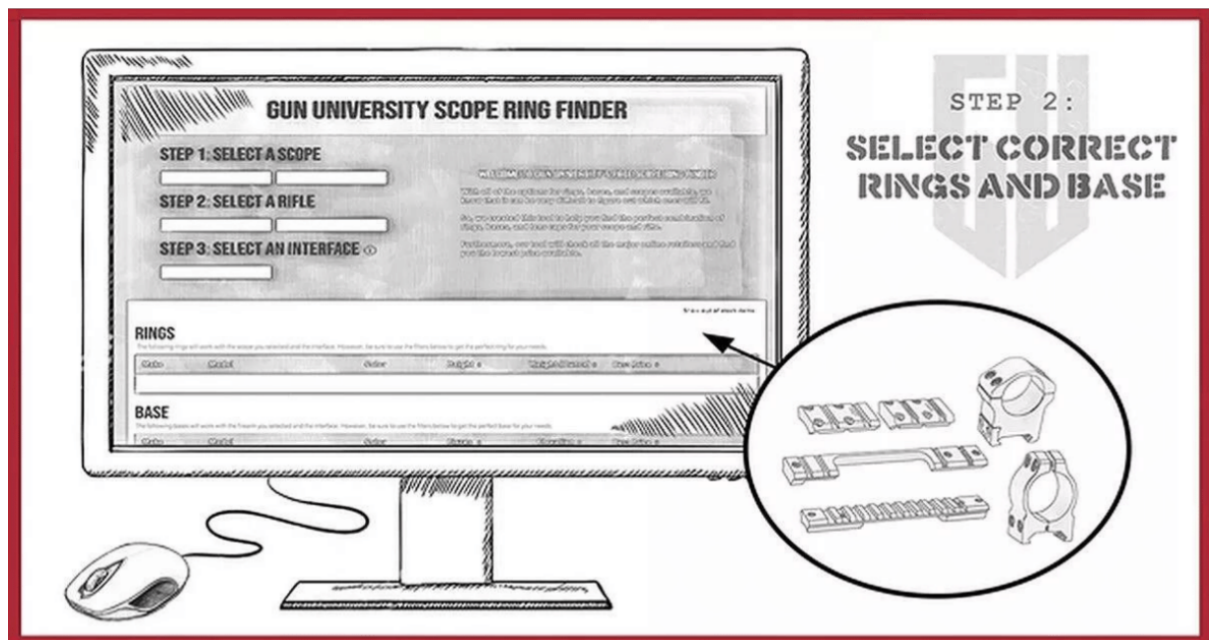
If working on firearms is something that you foresee yourself doing, go ahead and start picking up these recommended tools as your budget allows.

Required Or Recommended Scope Mounting Tools:

If you already have a good set of Allen wrenches or hex keys, and sockets/wrenches then you should be set with enough tools to mount a scope. However, to properly do it, we recommend you use the below tools and components. Besides, if you intend to put on more than one scope in your lifetime, then it is worth it.

Product	Quantity	Normal Price	Best Price
Vortex Optics Torque Wrench set	x1	\$89.00	CHECK AMAZON
Arisaka Optic Leveler Combo	x1		CHECK AMAZON
Loctite Heavy Duty Threadlocker	x1	\$8.90	CHECK AMAZON
Tipton Gun Butler	x1	\$29.79	CHECK AMAZON

STEP 2: SELECT THE CORRECT RINGS & BASE



When it comes to mounting a scope to a rifle, you'll usually need 2 things: a rifle base, and scope rings (or if you choose an integral base, it has both of them as one thing). Some rifles already have the base on it (like a picatinny rail on a AR15), however, many don't and you'll need to choose the right base for what you're doing, and ensure it fits to your rifle.

Furthermore, once you have the base, you'll now need to find the right rings that fit your exact scope, attach to your chosen base, and have the right elevation or height so as to allow the scope to fit without touching the rifle or being too high.

As you can image manually finding the right base and rings can be extremely difficult, expansive and painful. Luckily there is a new free online tool that does this for you.

STEP 1: SELECT A SCOPE

Select Scope Make

Select Scope Model

STEP 2: SELECT A RIFLE

Select Rifle Make

Select Rifle Model

STEP 3: SELECT AN INTERFACE

Select an Interface

WELCOME TO GUN UNIVERSITY'S FREE SCOPE RING FINDER

With all of the options for rings, bases, and scopes available, we know that it can be very difficult to figure out which ones will fit.

So, we created this tool to help you find the perfect combination of rings, bases, and lens caps for your scope and rifle.

Furthermore, our tool will check all the major online retailers and find you the lowest price available.

0

Show out of 1000 items

RINGS

The following rings will work with the scope you selected and the interface. However, be sure to use the filters below to get the perfect ring for your needs.

Make	Model	Color	Height	Weight (ounce)	Best price
Search above to get results.					

BASE

The following bases will work with the scope you selected and the interface. However, be sure to use the filters below to get the perfect base for your needs.

Make	Model	Color	Pieces	Elevation	Best Price
Search above to get results.					

MOUNT

The following mounting plates will work with the scope you selected.

Make	Model	Color	Best price
Search above to get results.			

LENS CAP

The following lens caps will work with the scope you selected and the interface. However, be sure to use the filters below to get the perfect lens cap for your needs.

Make	Model	Material	Type	Best price
Search above to get results.				

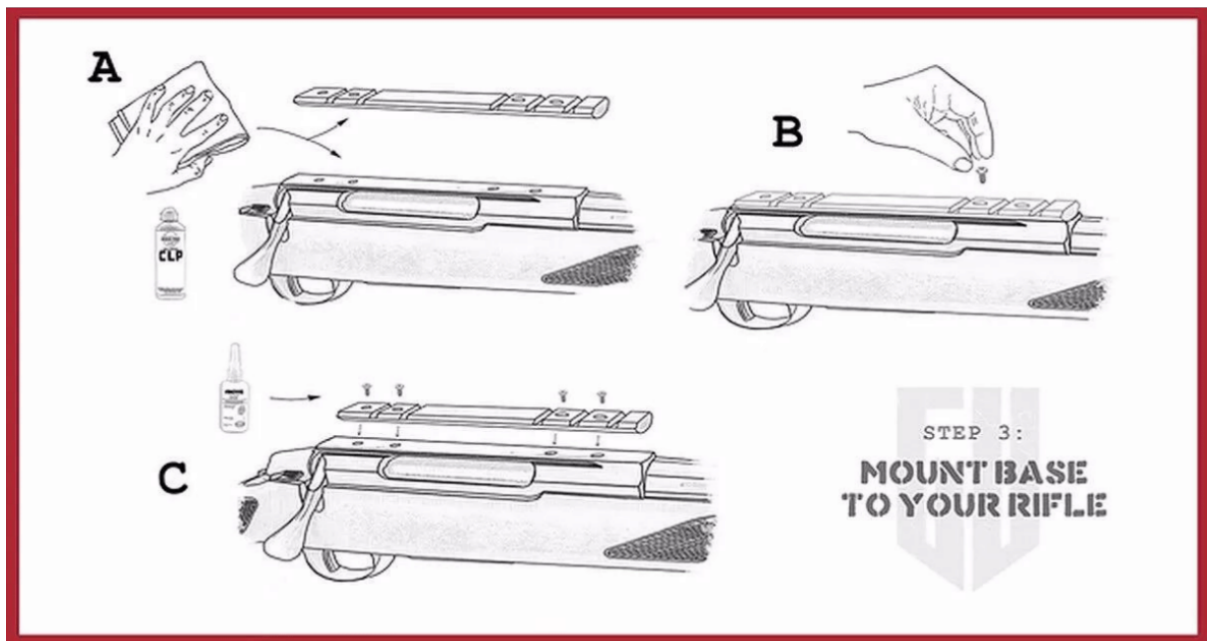
SCOPE RING FINDER

All you need to do is select your exact scope, and then the exact rifle and finally choose the type of mount/interface you want to use. If you're not sure what type of interface, you can check out the table below for some quick details on those Base interfaces.

Interface		Purpose	Pros	Cons
Picatinny	Tactical and/or Precision Shooting	Strong, Many mounting locations, Very common		Heavy, Bulky
Dovetail	Hunting, Rimfire, Small Rifles	Simple, lightweight, Many positions (front and back)		Not very strong
Cross-Slot/Universal	Hunting, Plinking	Inexpensive, Common		Not very strong, Limited mounting positions
Integral	Hunting, Lightweight rifles	Lightweight, Simple		Limited mounting positions
"Standard"	Hunting	-		Limited mounting positions, Old system
Quick Release	Hunting rifles with iron sights	Can be removed quickly to use iron sights as backup.		Limited mounting positions, not the most stable

Or if you'd like to learn more about each, you can check our guide on the [best interfaces for your rifle](#) use, or see the bottom section of the [scope ring finder](#).

STEP 3: MOUNT THE BASE TO YOUR RIFLE



If you are using a separate base (instead of an integral base that is already part of your rifle), it is time to mount the base to the rifle's receiver. If, however, you are using an integral base, you may skip this step and move along to Step 4.

Prep Surfaces: First, ensure that the bottom of the base and the top of the receiver are clean. A simple wipe with some gun solvent and a clean cloth are all that you should need.

Next, I like to apply a very thin coat of Break Free CLP or any appropriate gun oil to the bottom of the base and the top of the receiver for rust prevention – it should be many years, if ever, before the base is removed.

Once the surfaces are prepped, it is time to install the base onto your rifle.

Test-fit Base: Ensure that the base (or bases if using a two-piece base) is/are oriented properly (if using an elevated base, the thinner end is forward) and tighten the screws through the base and into the rifle finger-tight (barely snug) to ensure a proper fit.

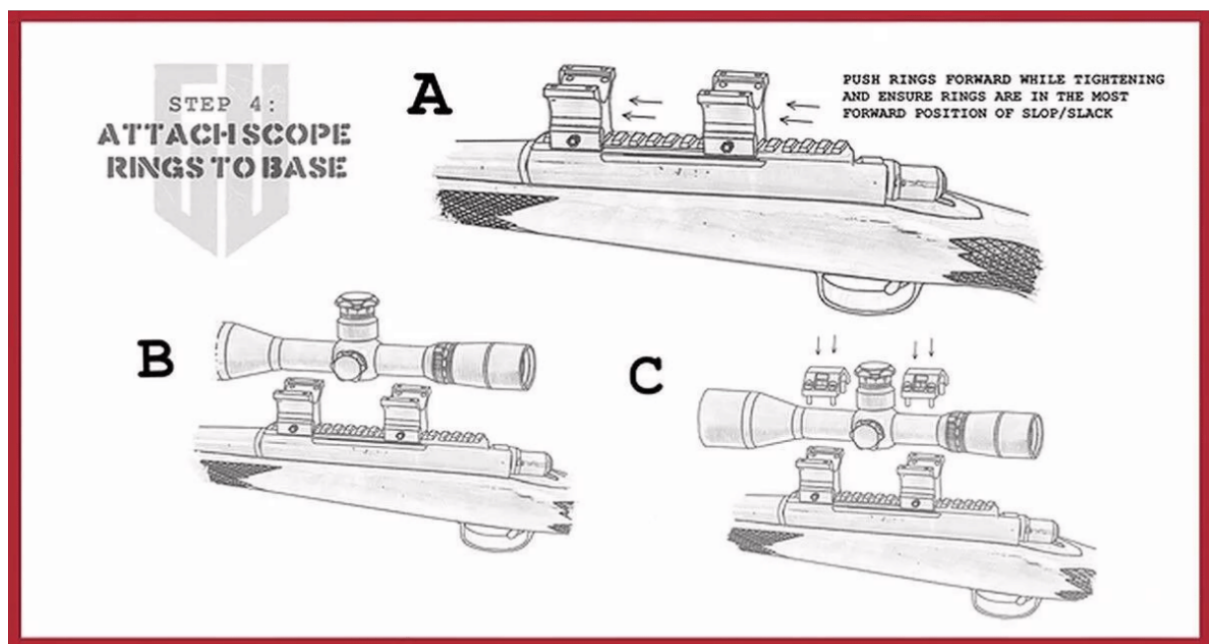
After you've confirmed the fit of the base, operate the bolt/action to ensure that the base screws are not sticking through the receiver and interfering with the bolt (it happens sometimes).

Final Installation: Remove one base screw, apply a half drop (if possible) of blue Loctite to the threads of the screw, and reinstall the screw before moving on and repeating the process with each additional screw one at a time.

If you're using an hex-key or torx key only, I like to install the screws with the long-end in the screw and the short-end in my fingers for leverage so that I don't over tighten the screws.

If you are using a torque wrench (the best way to do this), you should not exceed 25 inch pounds and, in most cases, I use 20-22 inch pounds.

STEP 4: ATTACH THE SCOPE RINGS TO YOUR BASE



Attach the rings to the base before clamping the rings onto the scope. We do this because the base, and not the scope, will determine the spacing of your rings.

If your base allows for multiple mounting positions, try attaching each ring a couple of positions in from each end as a starting point. The final position of your rings may change throughout this process (especially after the next step). If you determine that it is necessary to change the position of the rings, you should come back and complete this step before moving on.

Attaching Rings to Base: Attach the rings to the base with the adjustment mechanism on the opposite side of the ejection. For example, on a right handed rifle (right side ejection), I prefer to orient the rings so that the adjustment nut or screw-heads are on the the left side of the rifle.

For most bases and rings, you should notice a small amount of front to back movement (slop) between the rings and base before tightening the rings. You must ensure that the rings are pushed forward before (and while) tightening so that the rings are in the most forward position of the slop/slack.



During firing, inertia will cause the rings to move forward relative to the rifle and by having them at their forward limit already, you'll reduce their possibility of them moving once installed.

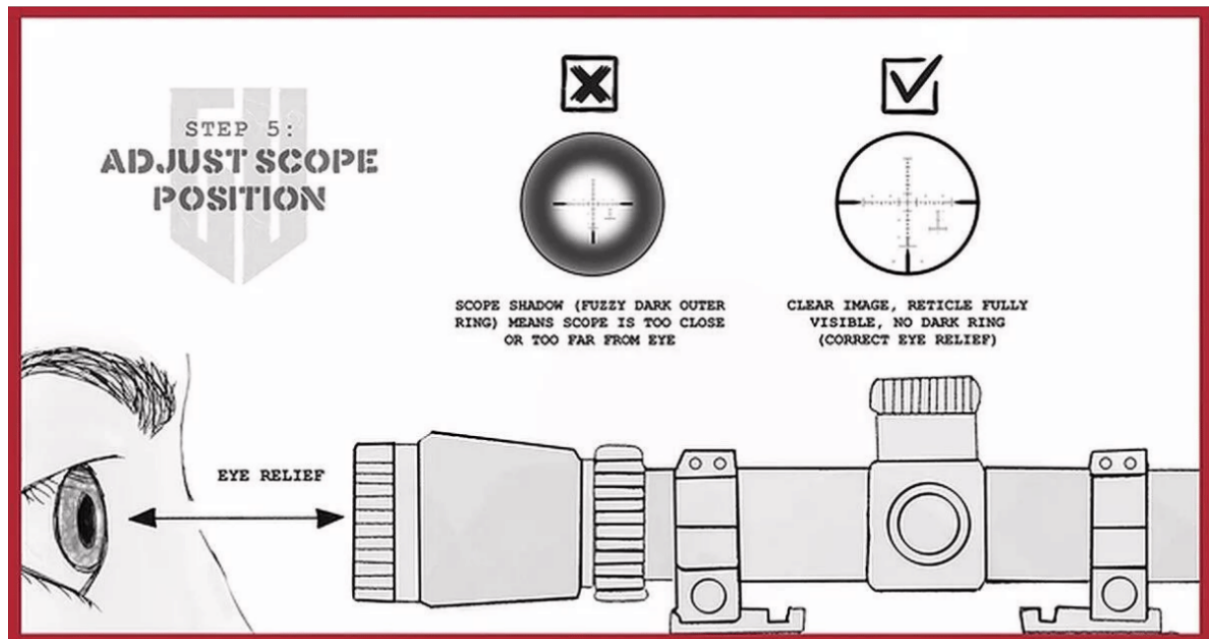
There is no need to torque the rings down at this point – finger tighten them only for now as you may need to move the rings during the next step.

Insert Scope into Rings: Next, place the scope into the bottom half of the rings (this is where the rifle caddy we mention above is really handy to hold the rifle) and then LOOSELY attach the top half the rings so that the scope can freely move within the rings.

This part is important to keep the scope from falling off your rifle and hitting the floor. Don't ask how I know this can happen.



STEP 5: ADJUST THE SCOPE'S POSITION TO FIT YOU



Take the time now to adjust the scope forward and back until you can see a perfectly clear image (no fuzzy black ring around the edge of your view) while in a comfortable firing position.

To do this properly, you should get into a typical position that you intend to fire this rifle and then place your head onto the stock of the rifle with your eyes closed to find a comfortable position. Only after you are in a comfortable position should you open your eyes to determine if your scope is in the correct position.

Too often, without realizing it, shooters will move their head to see clearly through the scope instead of the other way around. This often results in less than desirable shooting performance and a fatigued neck or shoulders.



For many of you, this will be an “Aha!” moment as you realize you’ve been scrunching your neck for years.

Move the Scope: If you see anything but full light around the entire scope lens, you either need to move the scope forward or backwards or your head up or down.

A forward or backward adjustment is easy – you simply slide the scope until all of the black fuzzy ring has disappeared. You may find that the position of the rings needs to be adjusted in order to get the scope where it fits you. Do not panic. Move the rings to where they and then follow the previous step before coming back to this step to confirm the scope’s position.

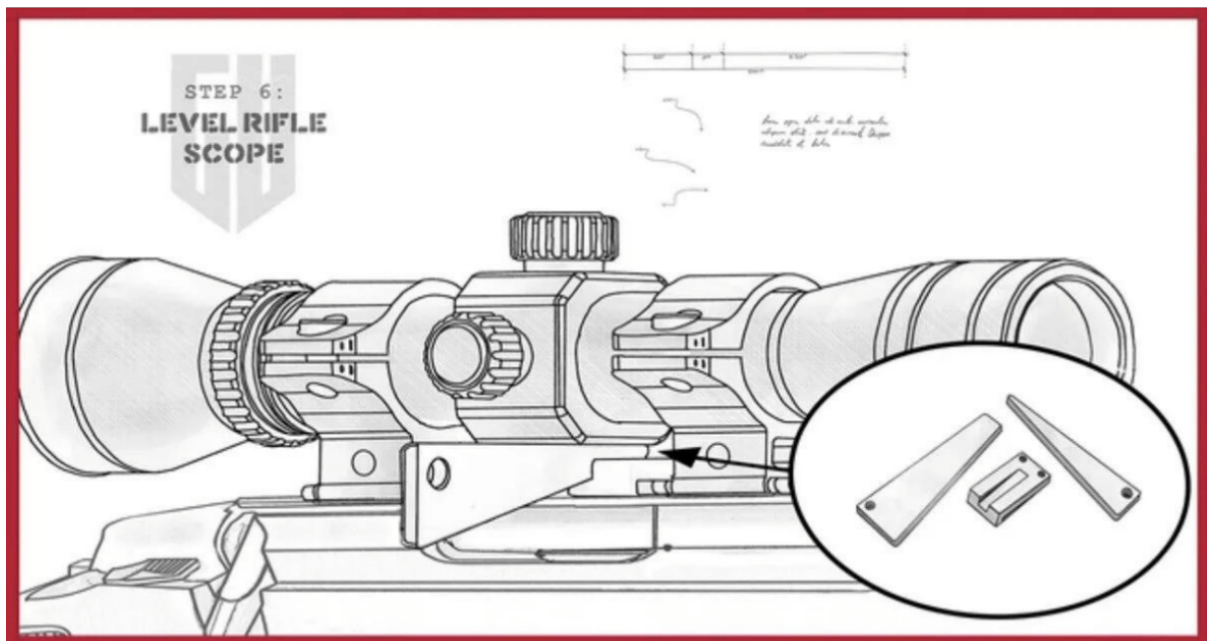
If you need to adjust the height of your head relative to the scope, you can either use different height rings or adjust the cheekpiece (comb) of your stock.

Lightly Tighten Scope Rings Onto Scope: Once the scope is in the correct position, you can LIGHTLY tighten the scope rings around the scope to help hold it in place.

After all, you just got it into the proper position and you don’t want it to move.

Keep the rings loose enough, however, to rotate the scope to level it in the next step. A small amount of friction is all that is needed now to prevent accidental movement.

STEP 6: LEVEL YOUR RIFLE SCOPE



Most rifle scopes have a flat bottom that can be used to align the scope with the rail on the rifle.

Leveling flat-bottomed Scopes: Using the [Scope Leveling tool](#) we recommend above, put the base of the tool on the rail and use one of the tool's wedges (there should be a low and a high wedge) to align the flat bottom of the scope body to the rail.

By having the rings loose enough that the scope can be rotated, you should be able to insert the tool's wedge so that the scope rotates and aligns itself. Once level, finger-tighten the scope rings. It's that easy.

That is, of course, unless you want to use all sorts of bubble levels and gadgets. In that case, be prepared for a long process here that includes repeating everything more than once as you think it's level based on your gadgets only to look through the scope and see a crooked reticle.

Here's a video that shows you how to use the tool to level your rifle scope:

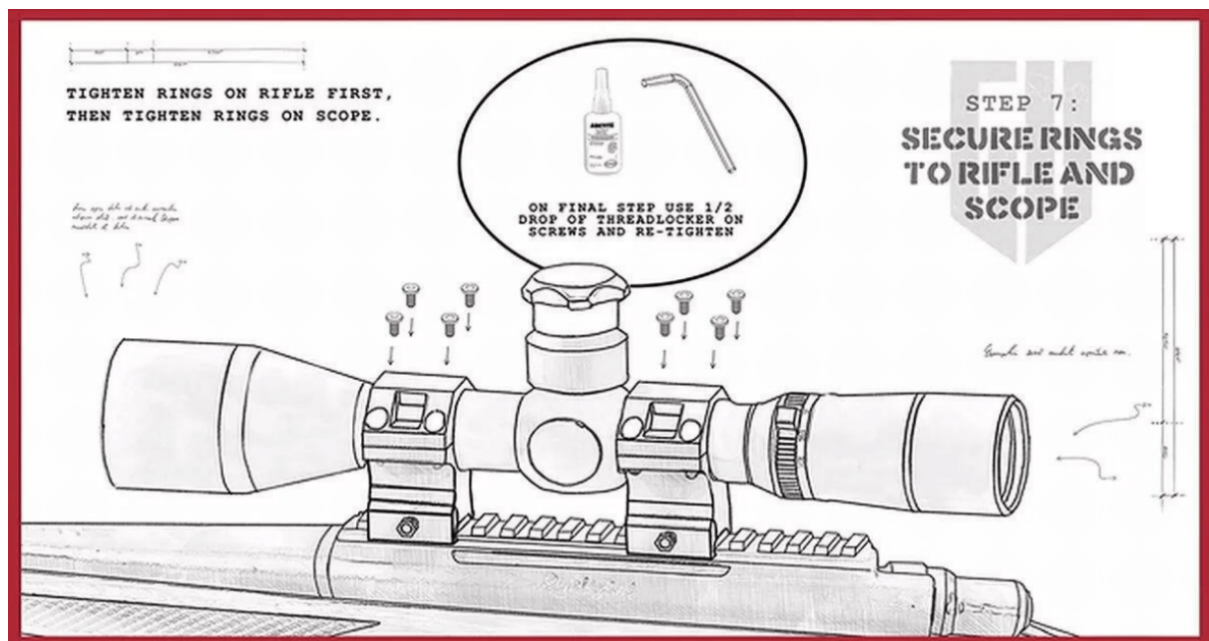
Leveling round-bottomed Scopes: These types of scope are much more difficult to level.

Thankfully, these types of scopes are fairly rare.

You can either use a series of levels to level the rifle first and then level the scope by placing a level on the top scope cap, or you can do your best to “eyeball” it.

Do not be fooled into a false sense of confidence by using something like a plumb bob hanging on a string. Yes, this can ensure that your reticle in the scope is perfectly up and down, however, this will only help you if you are 100% sure that your rifle is perfectly level before tightening the scope rings.

STEP 7: SECURE THE RINGS TO THE RIFLE AND SCOPE



Tighten Rings on Rifle: Now that you are sure the rings are in the correct position, you can fully tighten the scope rings to the base.

For tactical and heavy duty rings, I use 65 inch pounds. However, for hunting-grade rings, I don't like to exceed 25 inch pounds.

Tighten Rings on Scope: Now that the scope is in the correct position within the rings and it is level, you can fully tighten the rings around the scope.



Tighten the rings around the scope by turning the screws in an X pattern (similar to changing a wheel on a car) while ensuring that the gap on each side of the rings is similar.

BE CAREFUL HERE to not over-tighten these screws.

Scope Mounting Component	Preferred Torque	Maximum Torque
Rifle Base	20-22 in/lbs	25 in/lbs
Tactical rings to base	65 in/lbs	65 in/lbs
Hunting rings to base	20 in/lbs	25 in/lbs
Scope rings around scope	15 in/lbs	20 in/lbs

This is where a lot of folks get into trouble by putting too much torque on these screws. With some scopes, you can actually change the performance of the scope.

I like to use 15 inch pounds of torque on the scope ring screws for most scopes. If the scope is really heavy duty and it's going on a heavy recoiling rifle, you can go up to 20 inch pounds if you'd really like. Here are the torque settings I like to use:

Apply Thread Locker: Once everything looks good, you can now apply thread locker to the scope rings. One by one, just like with the base, remove each scope ring screw and apply a half drop of blue Loctite and reinstall the screw to the proper torque.

ZEROING SCOPE / SIGHTING IN RIFLE

Now that your scope is mounted to your rifle, you need to zero the scope/sight-in your rifle.

This is a great process to help ensure you've done the steps above correctly, as well as get your rifle ready for shooting.

There are a couple of steps to this process, and luckily, we've you can check out our [full guide on how to sight a rifle](#) for that process. It will ensure you do it properly and not have to waste extra ammo in the process.

FURTHER READING FOR PREPARING YOUR RIFLE

Learning how to mount a scope to your rifle is just the first step. As was discussed above, you'll need to zero it in as well. But there is some further knowledge on working with your rifle and scope that you should definitely check out:

1. [Learning About Minutes of Angle \(MOA\)](#): An important term in long range shooting is MOA. It's key to zeroing a scope as well as adjusting your scope, and even calculating out your actions for distances. So, be sure to check that out.
2. [How to Adjust Your Rifle Scope](#): When your out at the range, you're going to need to be able to adjust your rifle scope in accordance to the distance you're trying to hit. This process is very technical, but once you've got it down, it will be an extremely important skill.

SCOPE MOUNTING FAQ

What type of Loctite, if any, should be used on scope rings and bases?

Only blue Loctite should be used on scope rings and bases as it is not a permanent hold.

Is it necessary to "lap" rings when mounting a scope?

No, it is not necessary to lap scope rings. Yes, it can ensure that the rings are true, however, you should buy quality scope rings that do not need lapping and still save money over buying a ring lapping kit.

Can I over-tighten my scope rings?

Yes, it is very easy to over-tighten scope rings on to a scope. Too tight of rings can actually impede a scope's ability to function.

What torque setting should I use when tightening my scope's rings?

- Rifle base screw torque should not exceed 25 in/lbs.
- Scope rings should not be torqued to the base greater the 65 in/lbs for tactical rings and 25 in/lbs for lighter hunting rings.
- Scope rings should not be clamped around the scope with a torque greater than 20 in/lbs.

What is the best torque wrench for rifles and scopes?

The best torque wrench for rifles and scopes is either the [Magna Tip Torque Wrench](#) (for workbench use) or [Fix It Sticks](#) (for use in the field).