

# DIY Astronomy Tripod Spreader

---

By Paul Surowiec



This is a DIY project to build a tripod spreader for your Orion Atlas EQ-G, SkyWatcher EQ-6 or any other tripod with round metal legs. It doesn't have to be limited to tripods with 2-inch diameter legs. Like the Atlas or EQ-6.

I have had my Atlas mount for quite a few years and have been very happy with it. It handles my 11 inch SCT and my 8 inch Reflector without any problems and has been a great for visual use. Now that I am getting more into Astrophotography I wanted to add additional stability to the mount. I liked the look of the TPI Spreader, but it's \$240 plus shipping. What can I say other than I can be cheap at times and this was one of those times. I figured I could make something that would do the same job and for only a fraction of the cost.

#### **Parts/Supplies:**

Price	Individual Price	Quantity	Description
\$10.79	\$10.79	1	18" x 1" round piece of spruce or pine.
\$1.74	\$0.58	3	5/16-inch x 4-inch Lag Screw Eye Zinc plated
\$2.08	\$1.04 (2 pack)	4	5/8-inch OD x 5/16-inch ID Rubber Grommets (2 to a package)
\$8.50			Stain, polyurethane finish, sand paper and 1.5-inch paint brush
\$48.95	\$14.95	4	4 Pack Global Truss Mini 360-QR Quick Release Clamp BLACK
=====			
\$72.06			Total

I purchased most of the supplies at my local Lowes Lumber/Hardware big box store. Finding the 2 inch (50mm) pipe clamps at a reasonable price was somewhat of a challenge. Regular hardware pipe clamps won't work, ones for motorcycles and semi trucks were way too expensive. I finally found just what I was looking for made by a company called Global Truss. They make all kinds of equipment for Disc Jockeys, Bands, stage performers to mount their speakers, spotlights, backdrops, etc... They had the perfect clamps for my project. The 2-inch Quick Release clamps sell for \$14.95 each in power coated black or \$15.95 each in aluminum. You can get the clamps cheaper with wing nuts instead of the quick release lever. I bought mine from a place called Sound Works Systems Inc. in a 4 pack for \$48.95 with free shipping. So buying 4 was about the same price as buying 3, go figure.

<http://www.soundworkssystems.com/>

Now they do have clamps in other sizes like 1.5-inches. So you can make this same style spreader for tripods with other size round legs. Other options to reduce cost you can use some extra paint you have laying around instead of stain and varnish. Instead of using a precut round piece of wood you could cut a circle or other shapes out of a sheet of plywood, particle board or OSB that you can use. By using scrap wood you have around and old paint you can easily trim \$20 off the cost of this project.



These are the quick release clamps, eye bolts and rubber grommets that I used.



This is the 18-inch diameter piece of raw wood that I used.



This is the same piece of wood after I stained it and put a coat of urethane finish on it.





Next I took a 1/4-inch drill bit and put a wrap of electrical tape on it as a depth gauge so I wouldn't drill too far into the wood.



I used a tape measure to measure the total distance around the piece of wood. Then divided the length by 3. I made a pencil mark on the edge as the first point for a hole. Then measured a  $\frac{1}{3}$  of the distance around, made a second mark and measured another third and made another mark. Last I measured from the third mark on to the first one to make sure they were all the same distance apart.

Next I drilled a  $\frac{1}{8}$ -inch pilot hole at each mark and then use the  $\frac{1}{4}$ -inch drill bit with the tape to drill each of the 3 holes.



I used a screw driver as leverage to screw the lag screws into the piece of wood.



OK, now the 3 eye bolts installed.





So now I took the wing nut and washers off the bolts and put the rubber grommets on each of the bolts. They are fairly snug, so you will have to thread them on, all the way to the clamp.



The last assembly step is to put the clamp bolt with the rubber grommet through the eye bolt, then put the washers and wing nut on and snug them up. Don't get them too tight as you will have to change the angle of them when you install the spreader for the first time. After you install the spreader on your tripod you need to tighten down the wing nuts on the clamps.



This is what the clamp looks like installed on the eye bolt, before the eye bolt is install in the wood.





I had my wife help me hold it up as I adjusted the angles on each of the quick release brackets for the first time. Now you can chinch down on each of the wing nuts on eye bolts so the clamps won't move in the future. The finished spreader is pretty easy to install and remove by yourself.

At first I was planning to put felt on the inside of the quick release clamps. But after I got the clamps and tried them there isn't room for the felt and the clamps work perfect on the tripod legs as is. The quick release clamps are adjustable so you can make them clamp tighter if required.

The piece of wood could be other shapes than round. You can also use a larger piece of wood or longer eye bolts to move it further down the tripod legs. The one thing I do like is it gives me a nice shelf to put all kinds of things on.





So here is the finished spreader installed on my Atlas mount.



Updates:



I have found single quantities of these clamps for \$11.29 + shipping (\$40.52 total for 3).

<http://www.ebay.com/itm/Global-Truss-Mini-360-QR-Quick-Release-Clamp-in-Black-Finish-/361415711106?hash=item54260e1982:g:bgEAAOSwd0BV3ISz>

I still think the \$48.95 for 4 is a better deal. Then you could have an extra if a clamp ever breaks.

<http://www.ebay.com/itm/4-Pack-Global-Truss-Mini-360-QR-Quick-Release-Clamp-in-Black-Finish-/401016432377?hash=item5d5e7126f9:g:rUkAAOSwDNdV3IBI>



These work for both 1.5-inches and 2-inches by removing the insert. They are only \$4.95 each + shipping (\$14.85 total for 3 including using free shipping option).

[http://www.bhphotovideo.com/c/product/997983-REG/american\\_dj\\_o\\_clamp\\_1\\_5\\_for\\_1\\_5.html/prm/alsVwDtI](http://www.bhphotovideo.com/c/product/997983-REG/american_dj_o_clamp_1_5_for_1_5.html/prm/alsVwDtI)



Here is a similar clamp from a different manufacturer with 2 different size inserts. They would fit on 1-inch, 1.5-inch and 2-inch tubes. These clamps are for \$3.76 each + shipping (\$21.39 total for 3 including shipping).

[http://www.bhphotovideo.com/c/product/1174670-REG/eliminator\\_lighting\\_e128\\_1\\_o\\_clamp\\_for\\_1.html](http://www.bhphotovideo.com/c/product/1174670-REG/eliminator_lighting_e128_1_o_clamp_for_1.html)