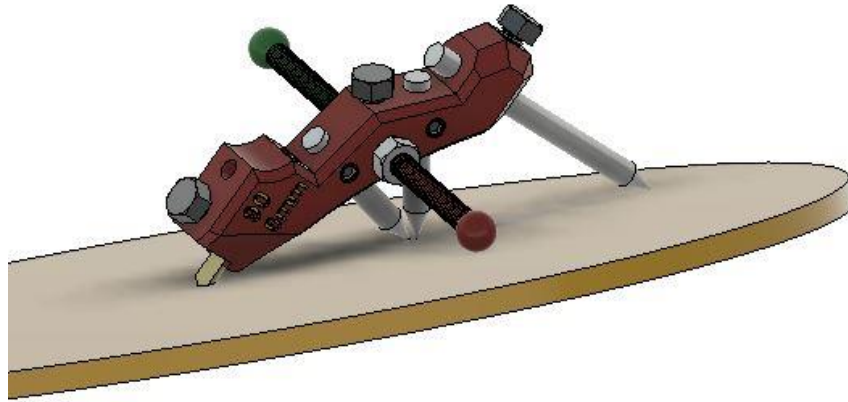


3D Printed Goniostat

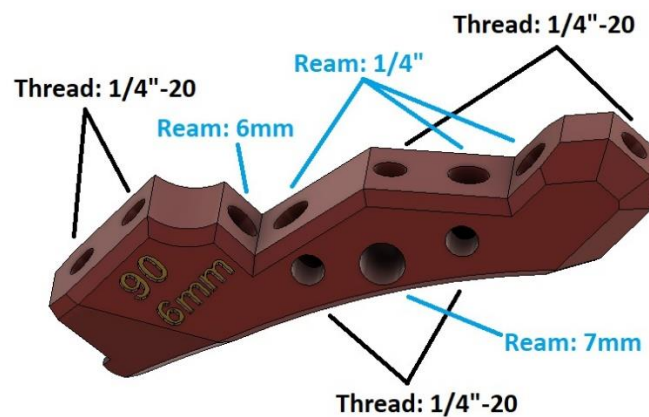


There are three models, one for each cutter size: 6mm, 3/16", and 1/8".

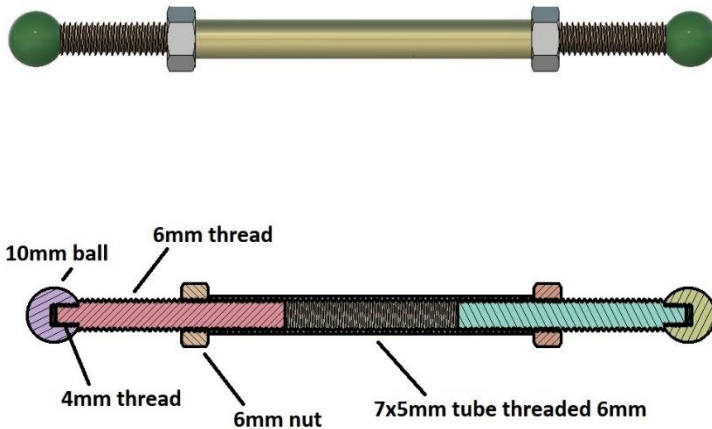
Print the models with four to five perimeters to allow solid material for the threads. 30% infill will make a very strong body, but anything from 10% to 100% should work fine. Print with side down, supports may be needed.

All of the locking screws are 1/4"-20. Nylon set screws work best on the sides, on the top, any style is fine.

Reaming the arm and cutter holes will give the most accurate results.



Horizontal arm construction:



Horizontal arm length and cutter stick out table:

Tip Angle	CutterStickOut	ArmMeasureLength
60	0.5	1.125
75	0.5	1.315
90	0.5	1.705
105	0.375	2.035
120	0.375	2.645
135	0.375	3.575
150	0.375	5.335

Cutter stick out is measured from the front upper vertical surface in inches. Horizontal arms are measured from the opposite side of the body to the tip of the arm. The goniostat body is .75" wide. The horizontal arms can also be made full length from bar stock.

Vertical arms:

The rear arm determines the side relief angle. The center arms determine the maximum finished length of the cutter. Only one center arm is used depending on whether or not an arm hole is blocked by another arm or the cutter. The rearmost center arm is preferable.

Arms are $\frac{1}{4}$ " diameter. Tip can be pointed or a ball. The radius of the tip determines the radius of the cutter tip.

Locking knob:

3d print [knob](#), then press ¼" nylon hex bolt into it. Use to lock the cutter in place.

Resources:

Models: <https://github.com/elfren/SharpeningJigs/tree/main/Goniostats>

Balls: https://www.amazon.com/dp/B09P9SPRF6?psc=1&ref=ppx_yo2ov_dt_b_product_details

6mm threaded rod:

https://www.amazon.com/dp/B08FR4G12H?psc=1&ref=ppx_yo2ov_dt_b_product_details

7x5mm tube:

https://www.amazon.com/dp/B07Z98KQWR?psc=1&ref=ppx_yo2ov_dt_b_product_details

¼" rod: https://www.amazon.com/dp/B0B8NTBDP8?psc=1&ref=ppx_yo2ov_dt_b_product_details

Nylon set screw:

https://www.amazon.com/dp/B07HJGQ1TR?psc=1&ref=ppx_yo2ov_dt_b_product_details

Nylon hex bolt: <https://www.mcmaster.com/99091A539/>