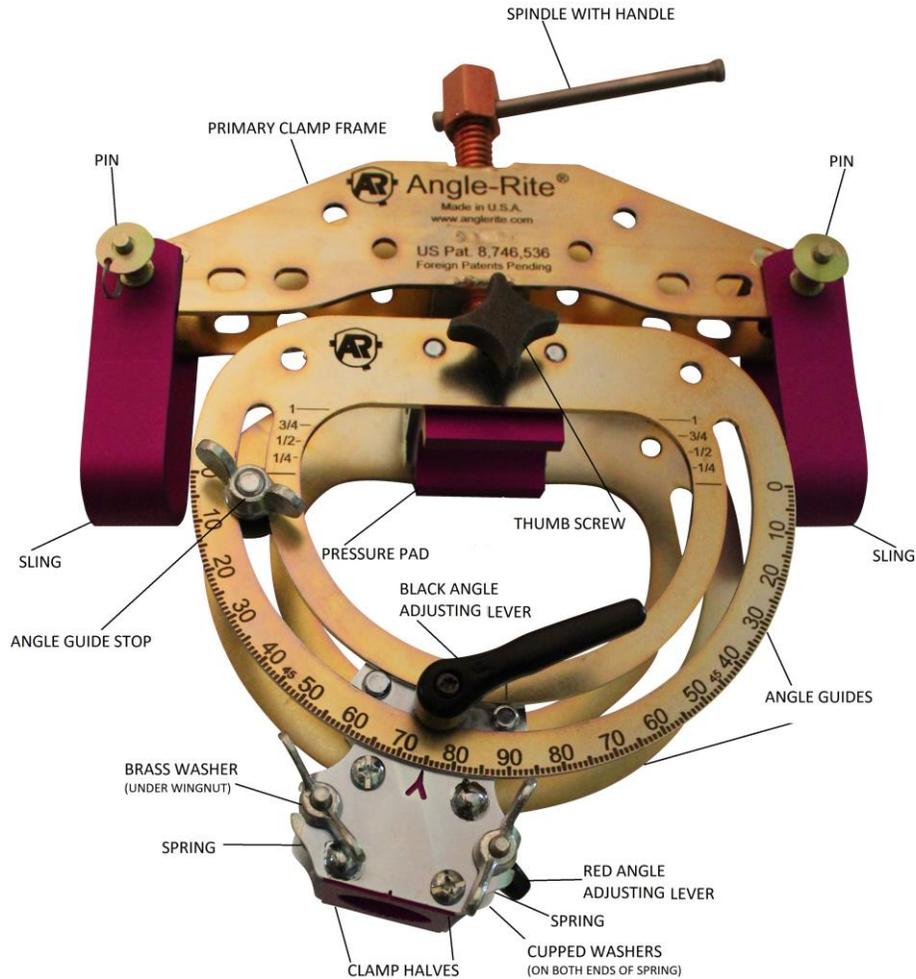


# The Angle-Rite® Clamp



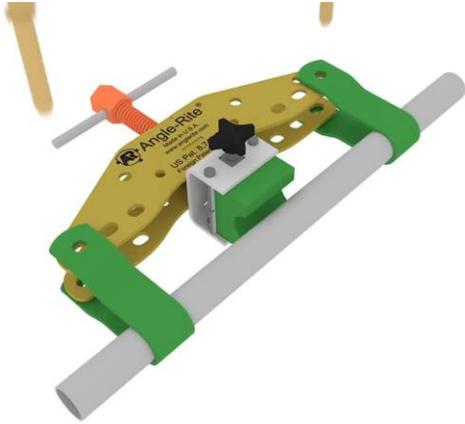
Note: Prior to starting your project, we recommend that you determine the amount of pre-stress needed for distortion compensation by performing a test joint on scrap material. Make note of the amount of pre-stress you applied.

For the initial test weld start with a  $\frac{1}{4}$  turn of the spindle after lightly seating the slings & pressure pad against the tube wall. This should give you an indication whether more, or less tension is required. The amount of pre-stress will vary with the tube diameter, wall thickness, amount of weld metal, and applied heat. If the variables have not changed, the pre-stress required will be repeatable.

To set-up the clamps, follow these steps:

### Primary Clamp

The Angle-Rite® Clamp can be used on a variety of materials. This instruction manual refers to tubes, but the same process is used for the other materials as well.

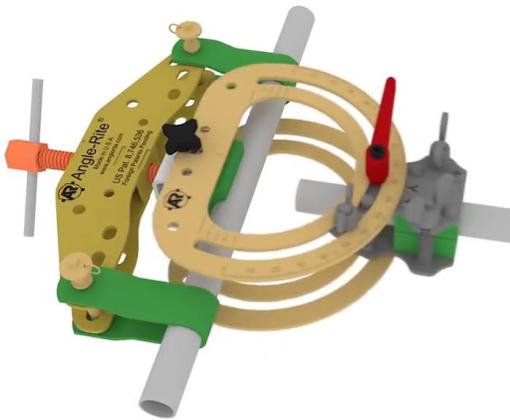


Attach the primary clamp (A) on the intersected tube by placing the two slings (C) around the tube and pinning them through the outer slotted holes on the primary clamp frame using the quick release pins (D). Tighten the spindle (B) just enough to keep the clamp from rotating on the tube.

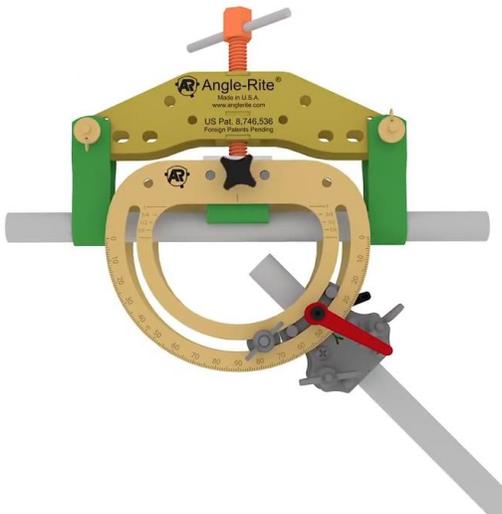
The inner slots can be used when something obstructs the use of the outer slots or when needed to keep the clamp from rotating and no pre-stress is required yet. For example, when setting up a structure before welding where more clamping force is required to keep the joint from moving. The joint can be tack welded and the slings moved to the outer positions & the tube pre-stressed (distortion compensation applied) before the joint is welded.

### Secondary Clamp

The secondary clamp holds the intersecting tube (i.e. the tube being notched, or miter cut.)



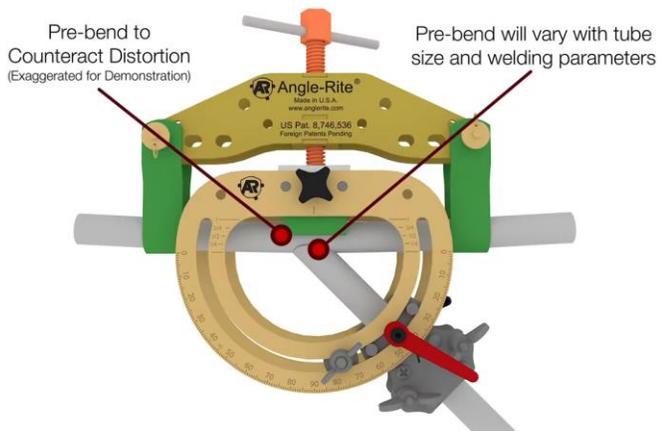
Attach both clamp halves mounted in the guide plates (J) over the tube and pivot the bolts into the slots on the other clamp half guide plate. Make sure the brass washer (M) is between the wingnut and the steel plate. The cupped washer (N) should be between the plate and the end of the spring. Tighten the two wingnuts evenly so that the guide plates holding the clamp halves are parallel to each other.



The intersecting tube is normally notched or cut at the 0° line, which is also the 0" mark on the length scale. This corresponds to the outer most part of the intersected tube held in the primary Clamp. The 0° mark will be the bottom of the notch when notching, or the cut line when miter cutting. This is important when setting up your cutting attachment.

After cutting or notching, attach the secondary clamp to the primary clamp, by loosening the lobed knobs (G) on the pressure pad carrier and slide the secondary clamps angle guides onto the alignment pins. (F) Tighten the lobed knobs.

Adjust the spindle to apply the amount of pre-stress you have determined to achieve the distortion control.



The joint can be welded with the secondary clamp in place or you can apply enough tack welds to hold the position and remove the secondary clamp to gain better access. Once cooled, the primary clamp can be removed by loosening the spindle and removing the slings.

#### Parts List

- A. Primary Clamp Frame
- B. Spindle
- C. Slings
- D. Quick Release Pins
- E. Pressure Pad
- F. Alignment Pins
- G. Lobed Knob
- H. Angle Guide
- I. Angle Guide Stop
- J. Clamp Half Guide Plate
- K. Clamp Halves
- L. Wing Nuts
- M. Brass Washer
- N. Cupped Washer
- O. Spring
- P. Angle Adjusting Lever

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