

## Getting a Grip on Clamping Force

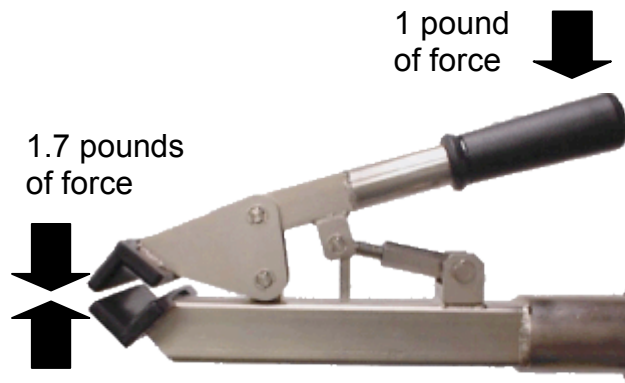
Mechanical advantage, it is the reason that man makes and uses machines. It is at the heart of the basic tools such as the lever, the pulley and the incline plane. We can adjust the level of mechanical advantage by doing things like making a lever longer, which allows us to lift a heavier object with the same amount of effort.

The same principles apply in the clamp on a repair stand. You get some level of clamping force at the jaw for a given level of force on the handle. So, how much mechanical advantage is appropriate? The answer is... it depends on how you are using the clamp. If you need a huge amount of clamping force, more mechanical advantage is needed. If you need less clamping force, such as clamping a bicycle tube, less mechanical advantage is needed or desired. In fact, mechanical advantage can be a disadvantage if it reduces the “feel” of the tool. With too much advantage, you could inadvertently crush a tube with relatively little force on the handle.

The geometry and mechanism of the clamp determines the level of mechanical advantage. Below are the comparative results of the ROCKStand and PRC-1 clamp versus a popular competitor’s clamp.

### ROCKStand Clamp

- Mechanical Advantage 1:1.7
- Force at handle to break a glass tube 54.5 pounds



### Competitor's Clamp

- Mechanical Advantage 1:8.1
- Force at handle to break a glass tube 11.5 pounds

