



## Air Driven Toggle Clamp Reduces Manufacturing Process Time and Labor by 30%

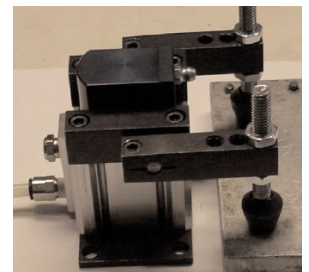
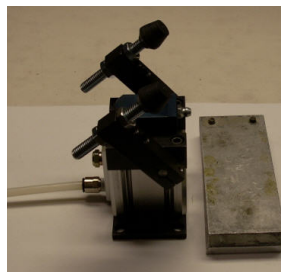
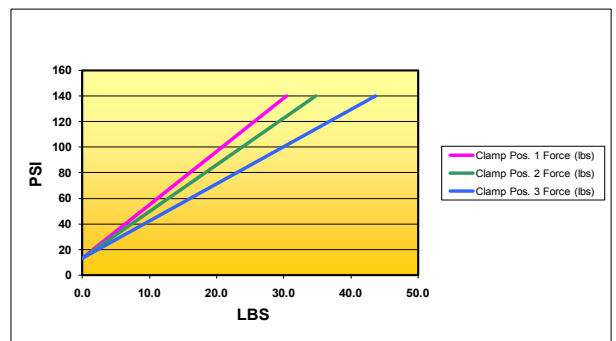
### Challenge:

A manufacturer of window frames was using anywhere from 4 to 30 manual toggle clamps to hold multiple boards in a fastening application. With an inventory of over 100 custom forms with each taking a different number of clamps, this process was labor intensive and time consuming. They were also experiencing problems with the clamps not releasing completely out of the way once the frame was built. They wanted to reduce the number of clamps they were using in order to save time and money, while increasing productivity.

### Solution:

Bimba developed a clamping cylinder that provides "1-stop locking" using pneumatics. Upon actuation, the cylinder rotates the clamping fingers into position. When pressure is released, a spring returns the fingers to the home position. This design gave the customer the ability to vary the locking force by simply adjusting the air pressure. By using a rack and pinion design from Bimba's traditional rotary actuator, the clamping fingers can rotate over 90°. This allows the clamp to fully release away from the assembled frame via a spring returning design, reducing labor and saving time throughout the entire manufacturing process.

Bimba's engineering team provided a single solution for all the various frame geometries by offering adjustable length clamping fingers and the ability to have either a single or dual clamp. By reducing the quantity of clamps needed, the customer cut their total set-up costs in half. This also reduced labor and the overall time for the manufacturing process by 30%.



### Benefits:

- Quantity of clamps used decreased, cutting total set-up costs in half.
- Reduced manufacturing process time and labor by 30%.

### Other Applications:

- Carpentry/Woodworking
- Welding
- Various Types of Molding Applications
- Workholding Fixtures