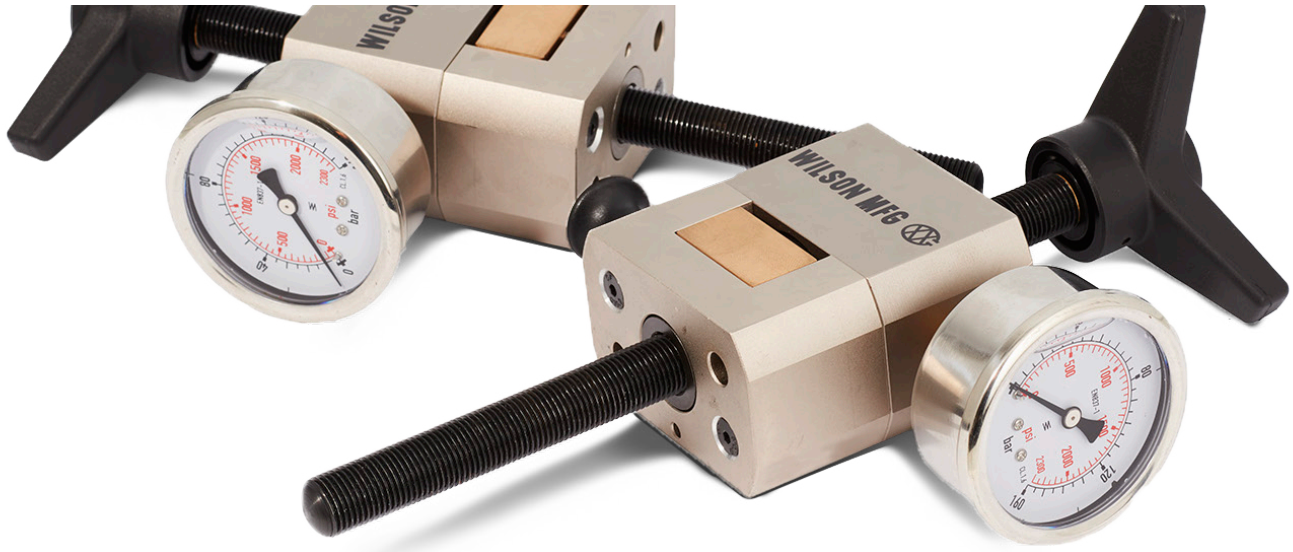


FORCE



At Wilson, we're always focused on the technical aspects of flexography. TechTalk is your quick snapshot of key topics in our industry. Let us know what you think.

Force: Tooling's Critical Balancing Act

In rotary die cutting, we apply enough force within a small area to cause the material to actually fail, or break. So understanding the principles behind force is essential for productivity and longer tool life.

Measuring force

Different materials require varying amounts of force. At Wilson, we try to successfully cut at 75 to 100 lbs per one inch cross blade. The reason we use the cross-blade dimension is that this is the largest blade area in contact with the material.

Measuring force is important because too much or too little force both have key implications.

Too much force can cause the tool to bend

You can tell the tool is bending when the die cuts properly on the edges, but not in the center. This can happen when a tool becomes worn and requires more force to cut. In general, you should have more cutting blade around than you have across.

The bigger the diameter of the tool, the less amount of bend you'll get.

Too much force can cause a deformity of the bearers

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Just like how your automobile's tires flatten when you put more weight in the car, your bearers can become flat where they come into contact with the anvil roll. But unlike your tires that spring back to round when the weight is removed, the steel will remain flat. This is seen in two ways:

1. On a pressure sensitive tool, you notice that the lineal blades cut much deeper than the cross blades.
2. On a metal-to-metal tool, you'll notice that the lineal blades become dull much faster than the cross blades.

In addition, the more force you apply to a tool, the more friction is generated. This shortens the die life. This can sometimes be remedied by increasing the width of the bearers, similar to how increasing the width of tires will help support additional weight in the car.

Too little force will cause the die to lift when trying to cut the cross blades

This will manifest itself in inconsistent cross-blade cuts and a "clicking" sound when running the tool. Fortunately, there's a simple solution: Just apply force slowly until the bad cuts and clicking sound are eliminated.

Applying the correct amount of force on your tool will make the difference between a die that works and one that doesn't. And it will increase your overall die life, too.