SPIN WELDERS

Experience. Expertise. Equipment.

Forward Technology provides a complete line of plastic bonding and leak testing equipment for a wide range of industries. For over 30 years, our design and manufacturing expertise has allowed us to effectively provide an innovative solution that is best for your application.

Model MCR

Model OSW

FEATURES:

- Microprocessor control
- Full range of speeds up to 16,000 rpm
- Tachometer
- Adjustable stroke velocity
- Modular design
- Three-step cycle
- Auto-learning
- Dual start buttons
- Inertia or electric

PROCESS:

Spin welding offers a high performance approach to assembling cylindrical components quickly and cost-effectively. During spin welding, one part half is held stationary in a holding fixture while a second part half is rotated against it, under pressure, at speeds from 1,000 to 16,000 rpm. Friction causes the joining edges to melt and fuse together, producing a strong hermetic seal.

Spin-up: Allows spin driver to reach pre-set rotation speed for proper welding.

Head-down: Upper tooling moves downward until the part halves make contact and the part is welded.

Cooling: Pressure is maintained on the part after circular welding motion has ceased. Allows thermoplastic material to solidify, ensuring the optimum seal.

Cycle times are short, typically in the range of 3-6 seconds.

ADVANTAGES:

- Excellent for hard to weld materials
- Welds materials that do not ultrasonically bond well
- Accommodates large diameter parts

Forward Technology
a Crest Group Company

Several Solutions. One Company.

CONDITIONS FOR SPIN WELDING SUCCESS:

- Joint design of part
- Rotational speed
- Joint pressure
- Spin time
- Parts have a circular axis

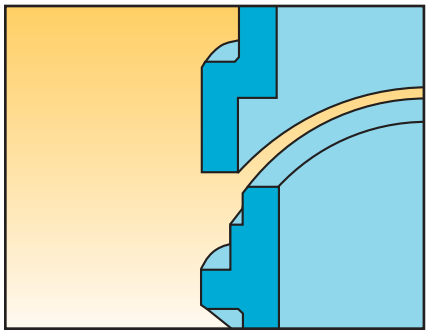
SPIN WELDING TOOLS:

DRIVERS: Custom-made tools to "spin" the part and generate the weld. Drivers commonly use toothed surfaces to grip the part. Silicon pads can also be used on fragile or small parts. Often plastic parts will have raised bosses that can engage a driver directly.

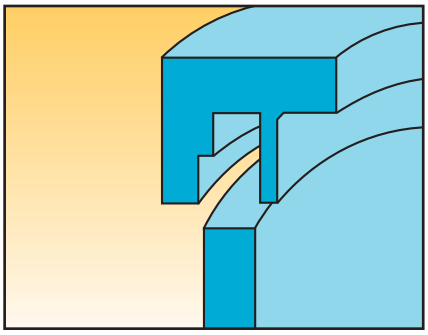
FIXTURES: The non-rotating part half must be "fixtured" so that part halves are both aligned along their common axis and do not rotate. Part details such as bosses and ribs aid greatly in preventing rotation.

COMMON JOINT DESIGNS:

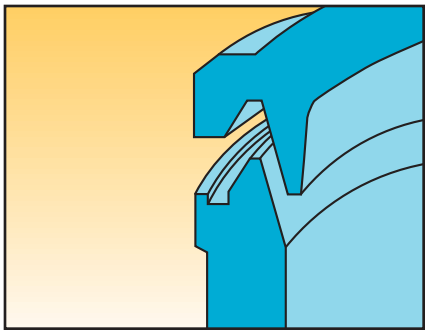
A good spin welding joint should have a weld area equal to or greater than a typical wall section of the part. Joints should also provide sufficient part-to-part alignment.



Shear Joint



Flanged Shear Joint



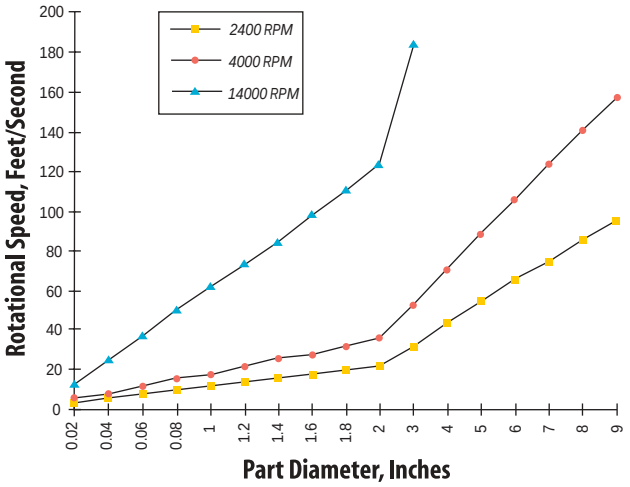
Tongue & Groove Joint

SPIN WELDING ROTATIONAL SPEED:

The key requirement for spin weld applications is part symmetry around a common axis. This allows the parts to rotate around the spin weld joint. For proper welding, it is necessary for the weld to be rotated at a predetermined speed. The range of the weld speed is expressed in the circumference speed, which is usually in feet/second. The rotation can be derived from the following formula, linking the rotational speed with the part diameter:

$$\textit{Feet / Second} = \frac{\textit{(Part Diameter x 3.1416 x RPM / Second)}}{12}$$

An air motor can then be selected to fit part requirement: 2400RPM, 4000RPM, 16000RPM, or 20000RPM. Flywheels are available in various diameters to accommodate a wide range of materials and part diameters.



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