



Spin Welder Model SW300

General Description

The Branson Model SW300 is a precision servo-driven spin welding system capable of welding circular joint interface parts with accurate control and highly consistent results. The SW300 incorporates new mechanical, electrical, and pneumatic designs.

The SW300 can be configured to manual, semi-automated, or fully-automated manufacturing environments.

Key Features and Benefits

- Updated motor (5.1 kW/6.8 hp) and drive combination capable of 30 Nm of peak torque at 240 V AC, 3 Ø input power.
- Settable servo motor speed (250–3500 rpm).
- Servo motor accuracy of ± 0.1 degree.
- Square column containing the lift mechanism for the actuator.
- Mechanical stop indicator on the outside of the actuator.
- 6" color touchscreen operator interface.
- Intuitive operator interface allows easy movement between screens.
- Storage of up to 20 recipes (presets).
- Weld data information for up to 15 previous cycles available on operator interface.
- Counterclockwise or clockwise spin direction.
- User selectable units (SAE or metric).
- User configurable I/O (four of each).
- Two levels of password protection – Operator: run parts and view data; Supervisor: access to all screens.
- Linear encoder for ease of setup. Allows for collapse and absolute height modes.
- High-low limits on the following process parameters are available and user selectable:
 - Absolute height
 - Part clamp position
 - Collapse (meltdown)
 - Final orientation
 - Peak torque
 - Revolutions
 - Weld speed (rpm)



Operator Interface Screens

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Key Features and Benefits, continued

- RS232 comma separated data output to PC
 - Cycle count, recipe name, mode, spin direction, pre-weld speed, peak weld speed, number of revolutions, final orientation position, peak torque, collapse distance, absolute position, trigger mode, trigger setpoint, dwell time, hold time, cycle time, weld time.
- Automation alarm cable connection (15 pin)
 - Allows for spin welder to be connected to automation
 - Allows for automation to select up to 15 recipes
 - Provides reset of alarms remotely input to the SW300
 - Provides a 24V DC and 0V DC pin from the SW300
 - Provides ready to home, ready to index, ready to weld, weld active, and alarm active signals from the SW300
- Three modes of operation:
 - Revolutions (orienting)
 - Collapse
 - Absolute position

Options

- 6-foot column.
- Pneumatic package for vacuum in tooling (for part sensing in the fixture or to load parts in spin tool with optional vacuum spindle).
- Pneumatic package for slide/clamp in tooling (some tools require pneumatic clamps).
- Vacuum spindle for holding part in spinning tool prior to weld.
- 3:1 gear box (reduces speed to 50-1000 rpm).
- 5:1 gearbox (reduces speed to 50-750 rpm).
- Metric or SAE leveling plate.
- 7.87" (200 mm) stroke option.
- 3.15" (80 mm) bore cylinder, 779 lbs. (3.47 kN) max. force.
- Remote mounted operator interface.
- Actuator is available without palmbutton base for vertical mounting in automation, or without column and base for horizontal mounting in automation.
- Input power up to 480V AC, 3 Ø.
- Higher speed motor setup, up to 4800 rpm at 480V AC, 3 Ø.
- Can be incorporated into dial table systems (Branson Series 30 or 40, custom semi-automated or fully automated systems).

Warranty

The SW300 Spin Welder is warranted to be free from defects two years for parts and one year for labor starting from date of shipment.

Mechanical Specifications

Weight:

Actuator and stand: 310 lbs. (141 kg)
Control box: 83 lbs. (38 kg)

Stroke length: 3.94" (100 mm)

Height adjustment: 24" (610 mm)

Throat (tooling center-line to column): 9.9" (251 mm)

Drive tool to base distance: 4.8" to 28.8" (120 to 731 mm)

Maximum force applied to part: 314 lbs. (1.4 kN)

Pneumatic requirement: Clean (5 micron), dry air, 100 psi max.; 1 CFM

Electrical Specifications

Power requirement: 240 V AC (standard), 3 Ø, 20 amps, 50/60 Hz

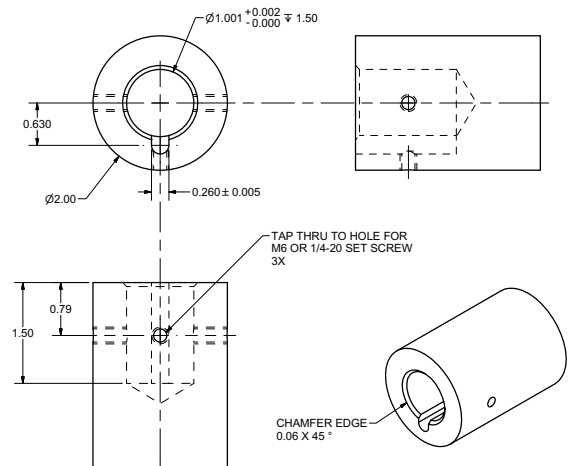
Note: All specifications subject to change without notice.

Ordering Information

Note: All sales shall be subject to the Supplier's terms and conditions of sale as described in Branson's quotations and sales contracts.

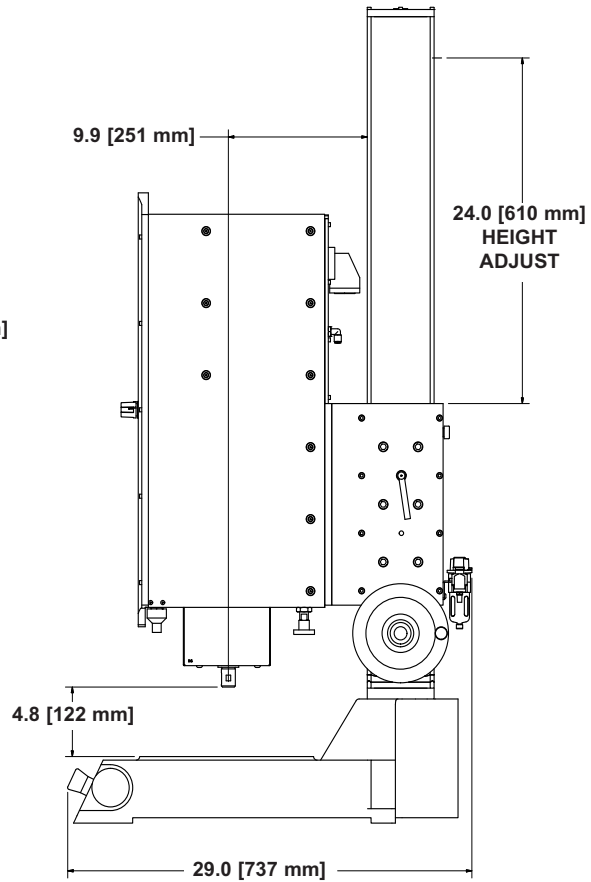
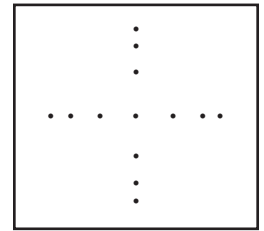
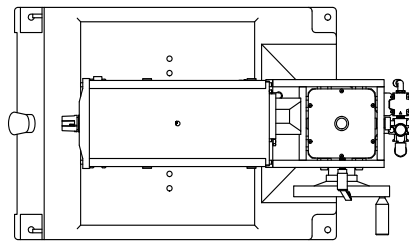
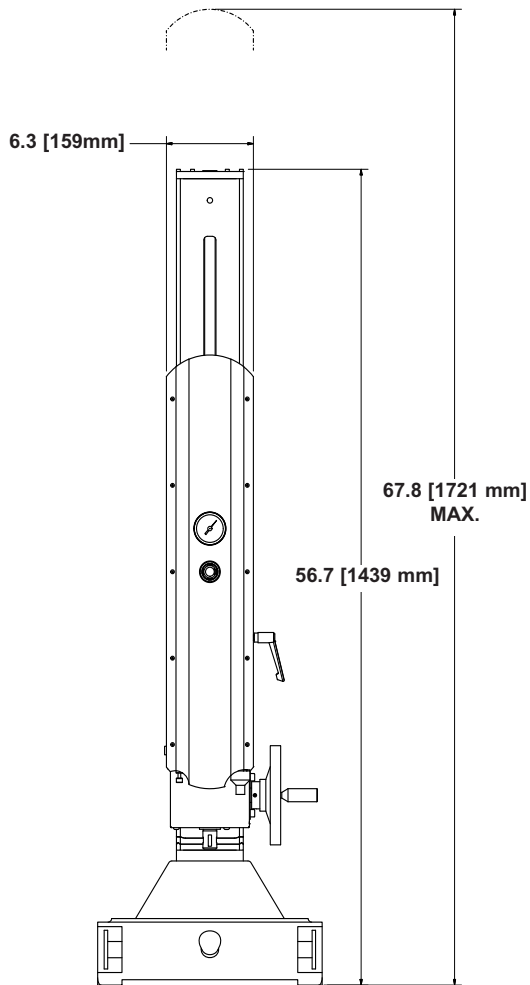
	Branson EDP No.
Model SW300	300-101-127

Recommended Spin Weld Tool Mounting Dimensions



Dimensions

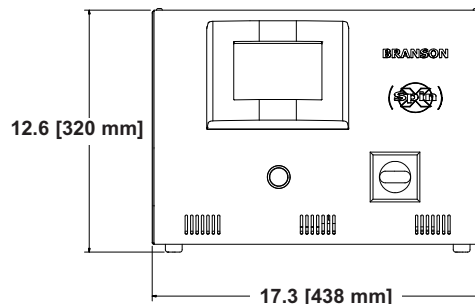
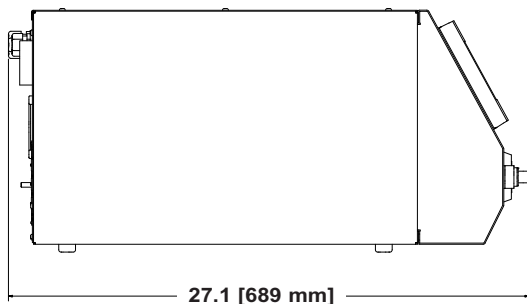
Actuator and stand with standard 4-foot column



Mounting hole pattern:

M10 x 1.5 tapped holes on center, and on 113, 178, and 229 mm bolt circles

Control Box



Note: All dimensions are nominal.

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General Description of the Spin Welding Process

Spin welding is a technique for welding thermoplastic parts that utilizes a circular spinning motion, in conjunction with applied pressure, to weld two parts together. The part-to-part interface must be circular. One part is held stationary in a holding fixture as another part is rotated against it using applied pressure. Heat generated by the friction between the two parts causes the plastic interfaces to melt and fuse together producing a strong hermetic seal.

Design Considerations

The parts to be welded must have the proper drive details on the parts to engage the spin welding tooling (Figures 1 and 2), and have the proper joint interface between the two sections (Figures 3 - 8). Other factors will influence the design of a part for spin welding, including:

- Material to be welded
- Structural bond vs. hermetic seal
- Welded part appearance
- Flash or particulate considerations

Refer to technical information sheet SW-1, Joint Design and Material Compatibility for Spin Welding, for further design information.

Typical Spin Welding Joint Designs

Note: Dimensions given in the designs should be used as *guidelines only*, since the specifics of your application may require a variation to the basic design.

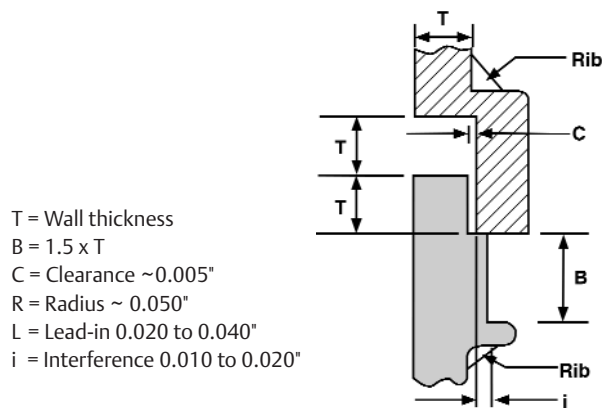


Figure 3. Shear Joint Design

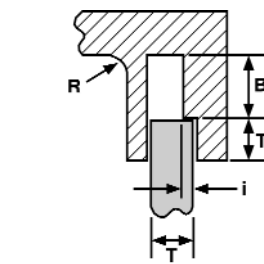


Figure 4. Flanged Shear Joint Design

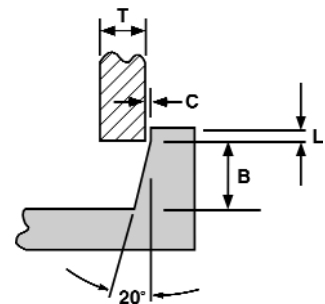


Figure 5. Shear Joint Design for Nylon

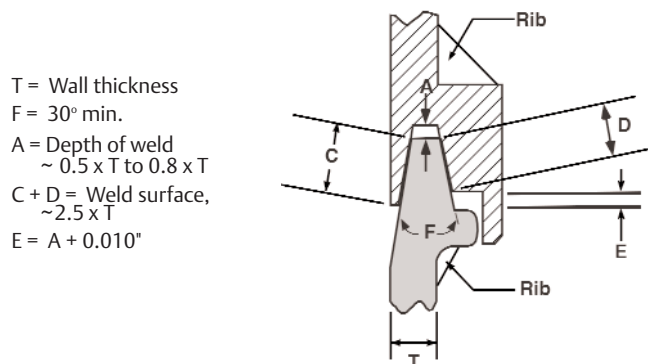


Figure 6. Tongue and Groove Joint with External Skirt

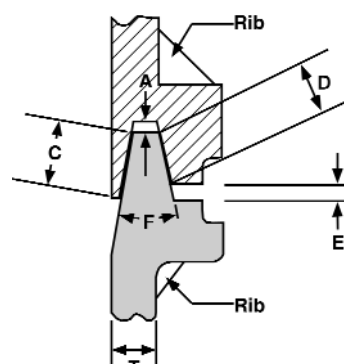


Figure 7. Tongue and Groove Joint

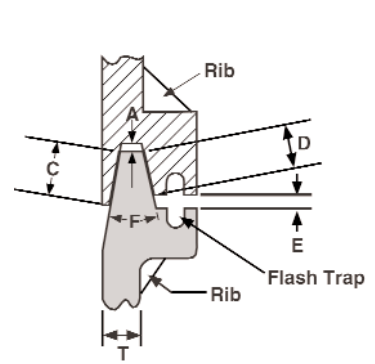


Figure 8. Tongue and Groove Joint with External Flash Trap