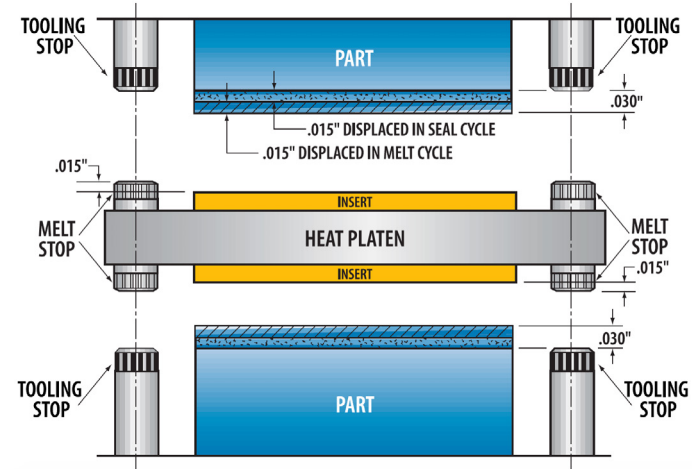


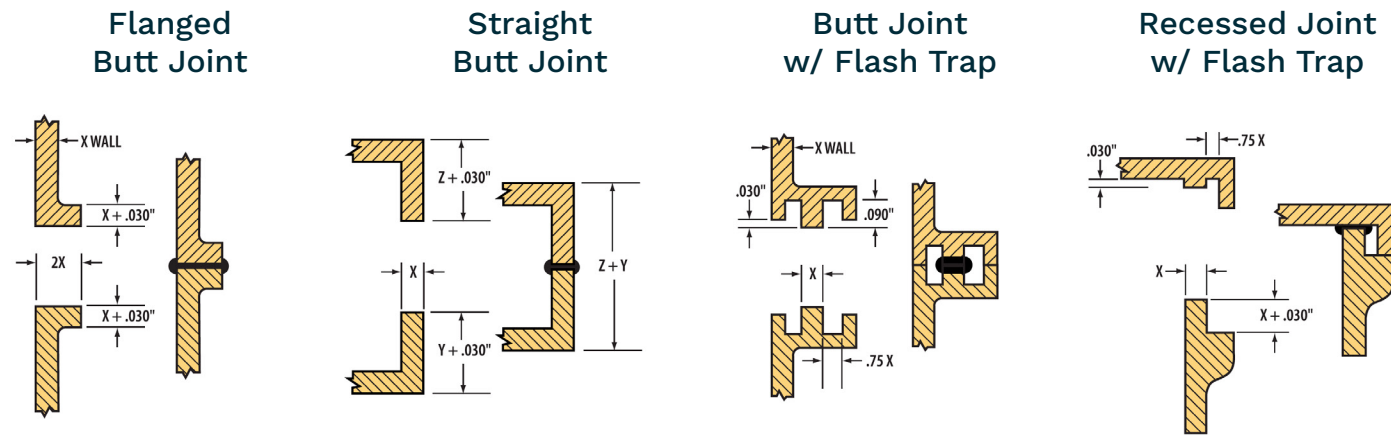
TOOLING

- Specially designed in-house for your unique application
- Designed for ease of maintenance, adjustment, and maximum life
- Provides accurate mating and alignment
- Unique positive stop design controls exact melt and seal dimensions
- Quick change tool options
- Tool storage option
- Automatic tool ID option



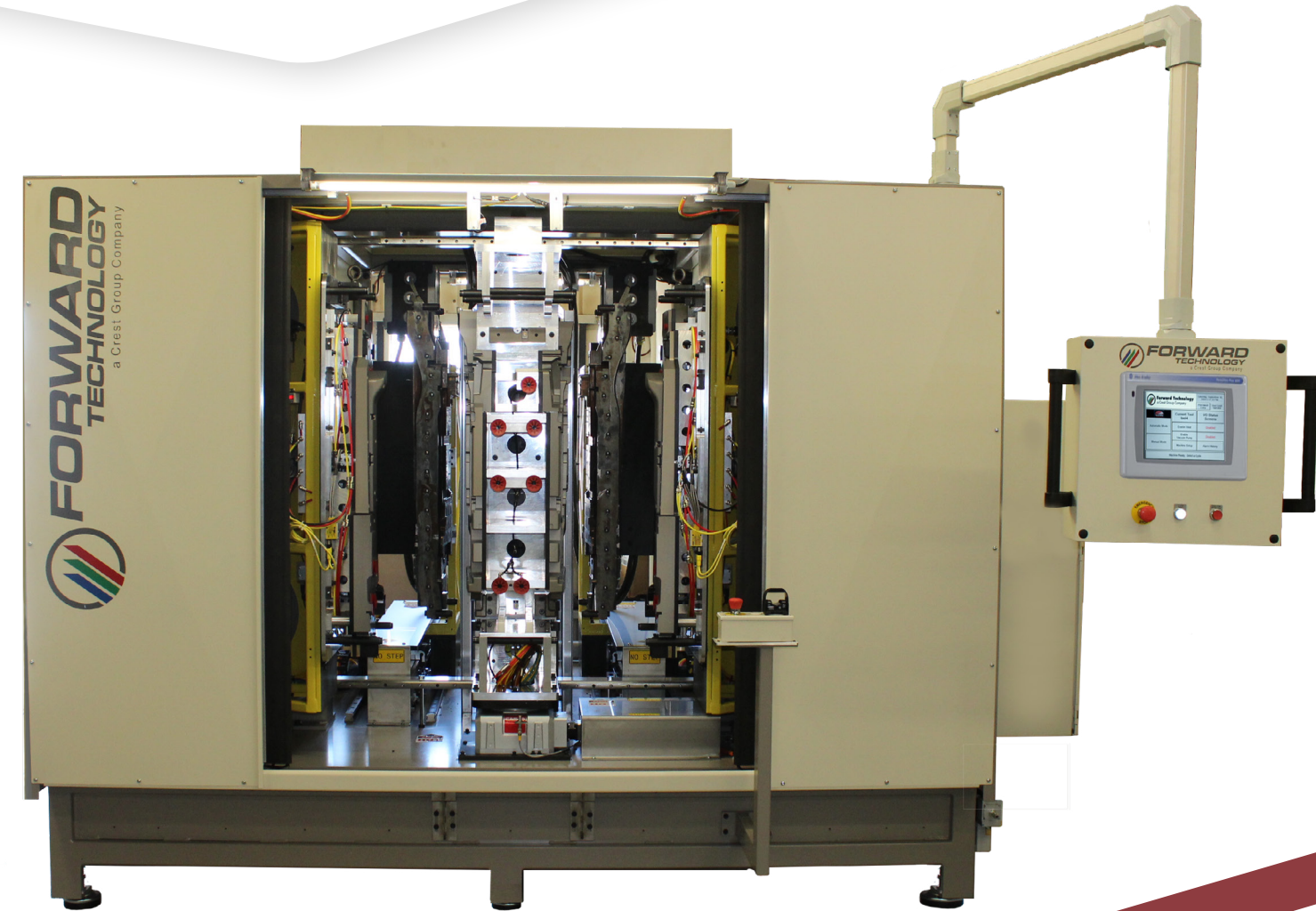
COMMON JOINT DESIGNS

Typical total material displacement is 0.060". The 0.030" material displacement per side includes 0.015" for material melt and 0.015" for seal. This may vary depending on part material and geometry. We recommend discussing joint designs with one of our application engineers before arriving at your final part design.



HOT PLATE & INFRARED WELDERS

Plastic Welding Systems



260 Jenks Ave SW • Cokato, Minnesota 55321

(320) 286-2578 • www.forwardtech.com • info@forwardtech.com

Forward Technology provides a complete line of plastic bonding, leak testing, and automation equipment for a wide range of industries. For over 40 years, our design and manufacturing expertise has allowed us to effectively provide an innovative solution that is best for your application.

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HOT PLATE & INFRARED WELDERS

Forward Technology has manufactured hot plate welding systems since the 1960s and infrared welding systems since the early 2000s. Our experience has resulted in the design of equipment based on ultra-rigid construction and detailed melt control to ensure precise repeatability and exceptional part quality, year after year of production.

Vertical or horizontal platen hot plate and infrared welder configurations are available. From manually loaded and unloaded machines to semi and fully automated systems, Forward offers the widest array of standard products designed to accommodate a wide range of product sizes.



HA-1224
Adjustable Height Hot Plate Welder



VAFIR-1015
Vertical Air/Pneumatic Filter Infrared Welder



VH-1445/VH-2445
Vertical Hydraulic Hot Plate or Infrared Welder

STANDARD FEATURES

- Horizontal or vertical plane welding
- Hydraulic, pneumatic, or servo drive systems
- Low-temperature, high-temperature, or non-contact capabilities
- Standard sizes accommodating parts up to 70"
- Single cavity, multi-cavity, or progressive tooling
- Programmable controller with user-friendly touch-screen operator interface
- Customized automation
- Easy integration of other value add operations

SPECIAL CAPABILITIES

- Complete R&D facility
- In-house tooling expertise
- Application review
- Joint design analysis
- Weld capability and tensile testing
- Prototype sampling
- Inspection
- In-house leak and burst testing

APPLICATIONS ACROSS INDUSTRIES

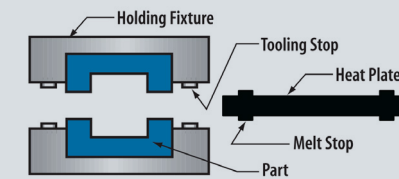
There are endless applications for our Hot Plate & Infrared Welders. Industries that benefit from using our welders include: Automotive, Appliance, Office Equipment, Medical, Recreational, Military, Transportation, and more.



HOT PLATE WELDING PROCESS

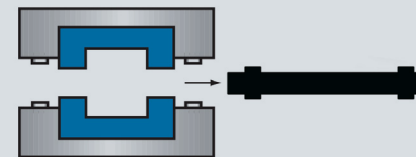
Hot Plate welding is widely used for the most challenging materials and large part assembly with high strength and hermetic requirements. During hot plate welding, both part halves are held rigidly in position against/near a thermally heated platen to melt the joining surfaces. The materials are then quickly separated from the heated source, driven together, and allowed to re-solidify under pressure.

This process produces a welded joint which, in many cases, yields a weld strength equal to or stronger than the part. As a result, the weld can be exposed to the same strains and stresses as other part areas.



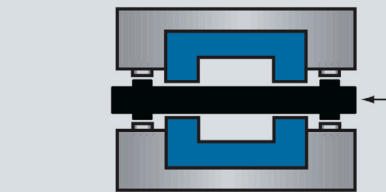
Step 1

For accurate mating and alignment, the hot plate welding process relies on holding fixtures to support the parts to be joined.



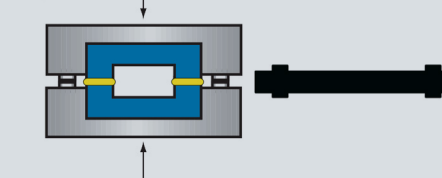
Step 4

After the part edges are plasticized, the holding fixtures open and the heat platen is withdrawn.



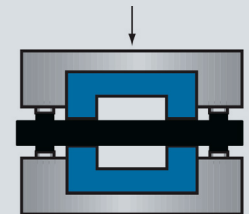
Step 2

To plasticize the part edges, the fixtures press the parts against a heat platen. As the platen melts the part's mating surface, plastic material is displaced.



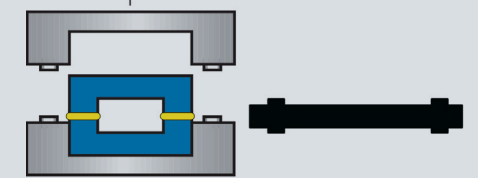
Step 5

The fixtures then close, forcing the two parts together until the tooling stops on the fixtures come into contact. The parts are held together, under pressure, allowing the melted plastic material to cool and molecularly weld together.



Step 3

The parts are held against the platen until each part's edge is plasticized to a predetermined depth. Once the melt stops and tooling stops are in contact, material ceases to be displaced.



Step 6

When cooling is complete, the gripping mechanism in one of the holding fixtures releases the part, the fixtures open and the finished part is manually or automatically removed.

TYPES OF HOT PLATE WELDING

Low Temperature

- Heat platen is operated at 500° F or lower
- Typically suited for amorphous materials
- Works with some common materials such as PE and PC
- Requires release coating (i.e. Teflon®), coated inserts, or cloth

High Temperature

- Temperatures above 500° F
- Suited to most thermoplastics
- PP, ABS, and acrylic are easily welded
- Wide variety of part geometry accepted
- No release coating necessary

Non-Contact

- Temperatures above 900° F
- No residue on platen
- No material discoloration
- Precise molding tolerances required
- Not limited to flat mating surfaces
- Longer weld time

Infrared

- No hot plate residue
- Not limited to flat mating surfaces
- Suitable for most thermoplastic materials
- May require longer weld cycle