Imagine the possibilities...

Industry: Medical
Description: Filters

AUTOMOTIVE
APPLIANCE
OFFICE EQUIPMENT
MEDICAL
RECREATIONAL
MILITARY

Industry: Home/Appliance
Description: Washing Machine Agitator
Water Pitcher
Balance Ring

The applications are endless...

Industry: Recreation
Description: Sporting Equipment

Industry: Automotive
Description: Tail Light Assemblies
Batteries
Reservoirs

Forward Technology, Inc. offers a complete line of plastic assembly equipment:

HOT PLATE WELDERS
ULTRASONIC WELDERS
SPIN WELDERS
VIBRATION WELDERS
LEAK TESTERS
THERMOSTAKERS
SPECIAL SYSTEMS

Forward Technology
a Crest Group Company

HOT PLATE, VIBRATION, SPIN WELDING AND LEAK TESTING DIVISION
260 Jenks Avenue ■ Cokato, MN 55321 ■ **Phone: 320.286.2578** ■ Fax: 320.286.2467
E-mail: info@forwardtech.com ■ www.forwardtech.com

HOT PLATE 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.

To accommodate larger assemblies, we offer three standard machines featuring a vertical heat platen for applications up to 70" (Model VH1445 shown).

Pallet Welder

For smaller assemblies, or assemblies with internal components, we offer three standard horizontal heat platen machines.

Model HA0816

STANDARD FEATURES:

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

SPECIAL CAPABILITIES:

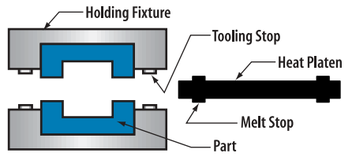
- Complete R&D facility
- In-house tooling expertise
- Application review
- Joint design analysis
- Weld capability and tensile testing
- Prototype sampling
- Inspection

Several Solutions. One Company.

Forward Technology
a Crest Group Company

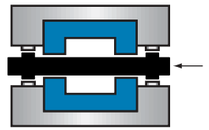
HOT PLATE WELDING PROCESS:

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.



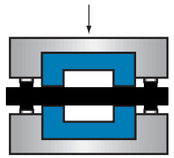
STEP 1

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



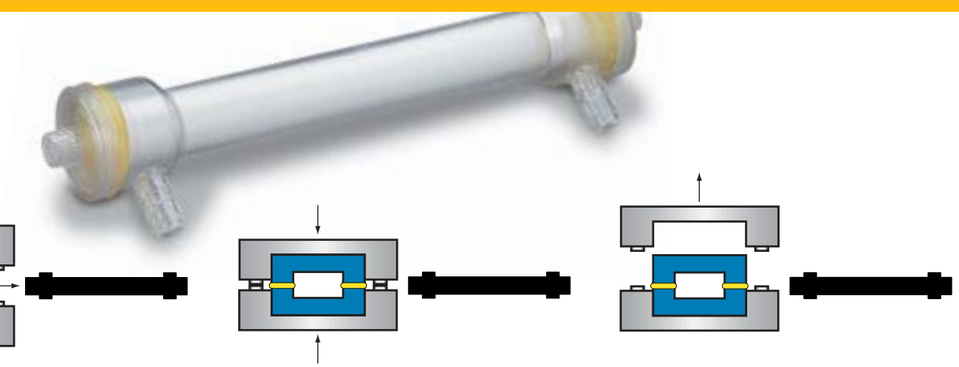
STEP 2

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 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 4

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

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.

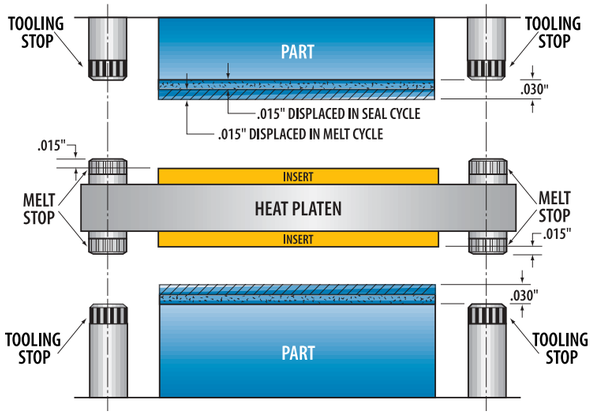
STEP 6

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.

TOOLING:

- Specially designed in-house for your 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

Sponge Application

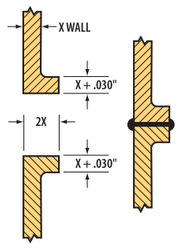


Unique positive stop design controls depth of melt using melt stops, and depth of seal using tooling stops.

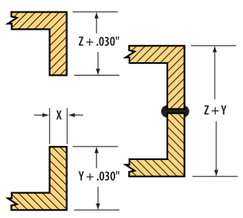
COMMON JOINT DESIGNS:

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.

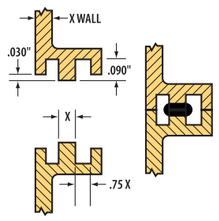
FLANGED BUTT JOINT



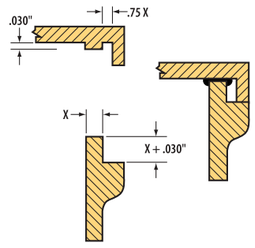
STRAIGHT BUTT JOINT



BUTT JOINT W/ FLASH TRAP

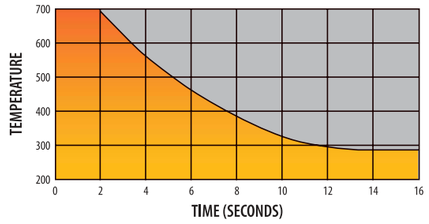


RECESSED JOINT W/ FLASH TRAP



TIME AND TEMPERATURE:

The platen temperature to melt the part interface depends on the type of plastic being joined. Each thermoplastic has a characteristic melt time/temperature curve, and a weld can be produced at any temperature on the curve. Typically the highest possible temperature at the shortest time is selected to minimize cycle times. The hot plate temperature range is 300° to 850° F.



FACTORS AFFECTING PROPER WELDS:

- Mold release agents
- Dissimilar materials
- Platen temperature
- Fillers
- Moisture
- Open time

Filter Application

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®)

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