

## Laser IRAM Assembly System Model 200

### General Description

Branson Laser IRAM Assembly Systems are based on passing light/laser radiation through one plastic component (transmissive component) and absorbing the energy at the weld interface, either by designing the second component to be absorptive, or by adding an absorptive material at the interface. This absorption results in the heating and melting of the interface, and with the application of a controlled clamp force the parts are joined. The major breakthrough in Laser IRAM technology is the ability to illuminate the entire welding surface simultaneously as compared to other techniques that rely on scanning of the weld joint.

Some applications where Laser IRAM has been used successfully are automotive sensors and control modules, filter assemblies, electronic enclosures, irrigation systems, and medical products.

### Process Advantages and Benefits

Laser IRAM has certain clear-cut advantages over other methods for welding plastics:

- **Weld quality** – Since there is no relative motion between the parts, no excitation or vibration, only the weld area is heated and melted, producing parts with excellent cosmetic properties.
- **Less flash and no particulate** – Because the process can be easily controlled by varying the power of the laser source, it is possible to accurately control the power dissipation within the weld, resulting in less flash and no particulate.
- **Welds materials that are not easily welded with other welding technologies.** Materials that have been successfully welded to date include PC, acrylics, PS, ABS, elastomers, polypropylene, high and low density polyethylene, PETG, and Nylon.



The method also is effective with some dissimilar material combinations.

- **Pre-assembled parts can be welded.** For some applications it is critical to allow internal components to be held in place during the welding process without becoming dislodged. This method allows for parts to be placed into the machine in the same position and orientation as the final, assembled position.
- **Fast and flexible** – A typical weld cycle time ranges between 1 and 5 seconds.

### System Features

The IRAM 200 is a modular system that can be configured in multiple ways. The base machine includes a laser safe enclosure, PLC controls and operator interface, an integrated chiller for laser cooling, and one laser bank which generates 125 Watts of power at 808 nm or 100 Watts at 980 nm. Options include a smart actuator with force transducer and linear encoder for weld-by-distance functionality, wide beam scanning system with servo

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slide for welding large surface areas, and up to two additional laser banks providing for a total power of 375 Watts at 808 nm or 300 Watts at 980 nm.

## Electrical Specifications

**Power requirement:** 208-240V AC,  
50 amps, 1-phase,  
60 Hz

## Mechanical Specifications

**Weight:** 1500 lbs. (680 kg)

**Height adjustment:** 18" (457 mm)

**Throat (tooling center-  
line to column):** 10.625" (270 mm)

### Dimensions:

**Overall machine:** 58" wide x 37" deep  
x 87" high (1473 x  
940 x 2206 mm)

**Operator door  
opening:** 24" wide x 20" high  
(610 x 508 mm)

**Maximum force  
applied to part:** 300 lbs. ( 1.33 kN)

**Pneumatic  
requirement:** Clean (5 micron),  
dry air, 100 psi  
max.; 2 CFM

*Note: All specifications subject to change without notice.*

For further information, please contact Customer Service at Branson, Honeoye Falls, NY, 585-624-8000, ext. 224.

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

## Warranty

The Branson Laser IRAM Model 200 welder is warranted to be free from defects in materials and workmanship for one year.

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