

# Profile IR

## INFRARED HEATERS

## Infrared Heaters For Controlled Concentrated Heating

### Model 4069P

Independently Set Zones of Heat to Cure all Surfaces of Nonsymmetrical Profiles



With Nonsymmetrical Extrusion

### Infrared Heat. Instantaneous Results.

The Model 4069 ProfileIR® curing system uses high intensity infrared lamps and polished aluminum reflectors to deliver heat precisely where it is needed to cure irregularly shaped profiles. It can instantaneously give a surface cure that eliminates marks that occur when uncured rubber rubs on a conveyor. Depending on the model selected, diameters as small as ¼ inch or as large as 4 inches can be cured. The lamps in the heater are controlled in six zones so more heat can be directed at the sections of the profile with the most mass and less heat toward the rest.

The system includes: the Model 4069 ChamberIR heater, the operator interface is an Allen Bradley Panel View Plus 400 Keypad terminal, a split quartz liner, height adjustment with plus/minus 15 degrees of tilt off horizontal, product motion sensing to shut the heater down if the line breaks, and convenient connection points for power, cooling air and cooling water.

Controlled Heating Zones

### Applications

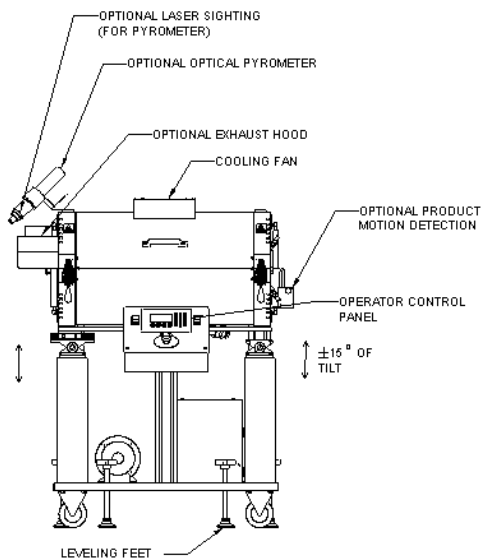
- Surface cure of rubber profiles
- Cure silicone rubber hose
- Re-glossing plastic tubing
- Curing coatings or adhesives on wire or cable
- Flocking

**FAST. FOCUSED. CONTROLLED**

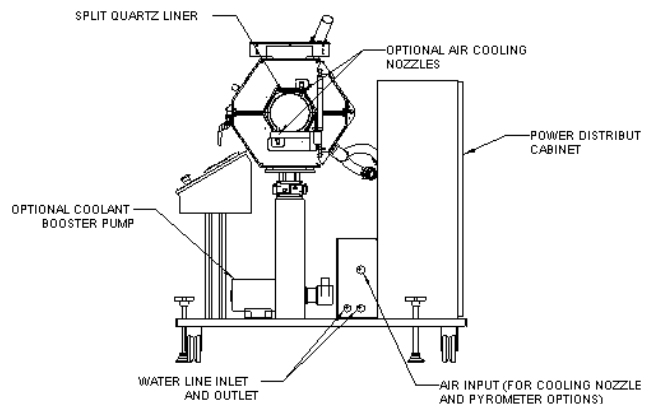
**Features and Benefits-ProfileIR 4069**

- Short wavelength infrared energy penetrates rubber to initiate a rapid cure.
- Polished aluminum reflectors focus the energy on precise areas.
- The lamps in the heater are controlled in 6 zones to deliver the right amount of heat to each area of a profile.
- Twelve or 18 lamp heaters accommodate product diameters from ¼ to 4 inches.
- 10 to 38 inch long lamps match different curing requirements.
- Recipes for 20 different profile cures can be stored and recalled
- Allen-Bradley Panel View Plus 400 keypad terminal provides user friendly operator interface.
- Product motion detect shuts the power down to the heater when the extrusion breaks or the line unexpectedly stops.
- Forced air directed over the extrusion may improve cure times and will remove contaminants from the heater during the heating process.
- Optical pyrometer senses and displays product temperature as a reference
- Electric lift provide plus/minus fifteen degree tilt from horizontal allows in the heater to accommodate droop in the extrusion line.
- Convenient connections for power, water, and air.
- A center support is available to eliminate droop on fragile extrusions

**Product Drawing-ProfileIR 4069**



FRONT VIEW



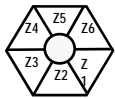
SIDE VIEW

## Product Description-Model 4069 ChamberIR Heater

**Reflector:** A circular array of individual parabolic polished aluminum reflectors direct the infrared energy generated by the quartz lamps towards the center axis of the heater. Each chamber heater houses either 12 or 18 reflectors, depending on the model. The 12 reflector model accepts product sizes up to 2 inches in diameter while the 18 reflector model accepts products up to 4 inches in diameter.

**Lamps:** These lamps generate Infrared energy at a wavelength of 1.2 microns at rated voltage. This wavelength is commonly known as short wavelength or NIR (Near Infrared). The factory installed ceramic end seal T3 style lamps provide precise levels of power to the product in the chamber. The lamps are wired in 6 individual zones so the power in any zone can be maximized or minimized to correspond to the requirement of the profile being cured. In the 12 lamp models there are 2 lamps per zone and in the 18 lamp models there are 3 lamps per zone.

### Zoned Lamp Control:



Controlled Heating Zones

The lamps are configured into 6 controllable zones. Each zone can be adjusted independently so more heat can be applied to the portion of the profile with the most mass and less heat to thin sections. These settings can be saved in as recipes in the Allen Bradley Panel View Plus 400 keypad terminal and recalled as jobs are run.

**Water Cooling:** Adequate water cooling is required during operation. Each reflector is designed with an internal coolant passageway to allow coolant to flow through its entire length during operation. Water connections are conveniently located on the base of the Profile IR system. Refer to the drawing on the previous page for their locations.

**Air Cooling:** A cooling fan is designed into the Model 4069 housing and provides ambient airflow through the heater body. The airflow helps prevent air-borne contamination from depositing on the reflector surfaces. It also provides cooling for the quartz lamp end seals to extend lamp life.

**Quartz Liner:** A split quartz liner is included with the Model 4069 and provides contamination protection for the aluminum reflectors and lamps. The liner can be easily cleaned by wiping it down with alcohol.

**Product Movement Detection:** If the extrusion breaks, leaving material inside the heating chamber, it is important to be able to shut down the heating elements rapidly before the product starts to smoke or burn. The Model 4069 ProfileIR provides two convenient ways to accomplish this shutdown. (1) A contact is provided in the power distribution cabinet that can be wired into any product break signal that exists on the line. If this contact is closed the power is shut down. (2) A low torque wheel is positioned on the end of the chamber and contacts the extrusion as it moves. If the product breaks or stops moving unexpectedly, the lack of motion immediately shuts down the power so any non-moving product left in the chamber will not burn.

**Air curing nozzles:** Optional air curing nozzles can be attached to the upstream end of the heater. These nozzles force air down the length of the quartz liner and provide a convective component to the curing process. This option includes a quick disconnect fitting for house air, a filter and regulator as well as the nozzles.

**Exhaust hood:** An optional exhaust hood attaches to the downstream end of the single chamber or in the center between chambers on the dual system and provides a convenient accessory to collect smoke and gasses that are driven off the extrusion during the curing process.

**Clam Shell:** Access to the chamber comes by unhooking the latches and lifting the handles. Gas springs are provided to assist in opening the chambers. **A spring latch (left side) will lock the hood in the open position for safety.**

**Product Description-Model 4069 ProfileIR**

**Operator Interface**

Allen Bradley Panel View Plus 400 keypad terminal – Provides the operator with a convenient interface to turn the unit off/on and to create and store up to 20 recipes setting zone power for various profile geometries. It comes equipped with a keypad and a monochrome display.

Chamber Tilt Keys- Allow the operator to tilt the chamber as much as plus/minus 15 degrees from horizontal with the touch of a button.

E-Stop-A conveniently placed E-Stop button allows the operator to immediately shut the system down in an emergency.

**Power Distribution Cabinet**

The power distribution cabinet is a NEMA 12 cabinet that contains all of the power controls for each of the zones of heat in the chamber heater.

**Water and Air Interface Panel**

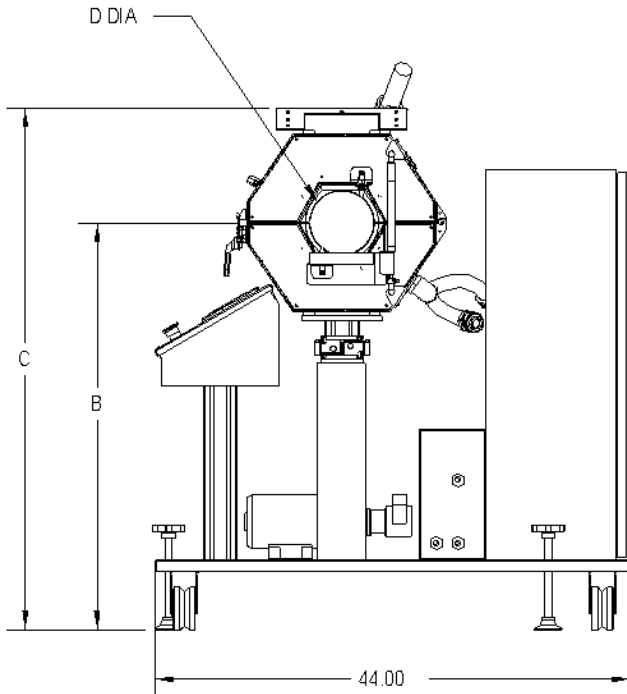
An interface panel provides a convenient connection point for bringing cooling water to the unit. The panel is equipped with two 3/8 inch diameter female NPT connectors for water input and removal lines. The panel also has the 3/8 inch diameter connector to bring air to the unit if the air curing nozzles are included as a part of the system.

**Water Pressure Boost Pump**

The optional water pressure boost pump is available to insure adequate water flow through the reflectors if plant water pressure is low.

**Mobile Base**

The system is mounted on a mobile base with wheels. When the system is moved to the correct position in the line, screw down leveling feet can be adjusted to level the heater on an uneven floor and provide permanent positioning.

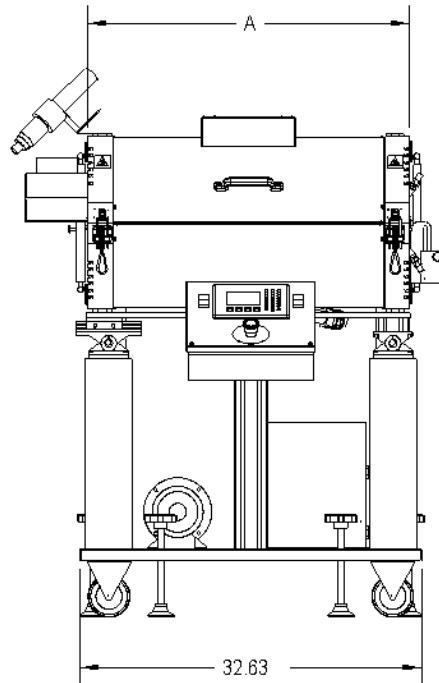


| MODEL NUMBER       | A               | B              |                 | C               |                 | D DIA         |
|--------------------|-----------------|----------------|-----------------|-----------------|-----------------|---------------|
|                    |                 | MIN            | MAX             | MIN             | MAX             |               |
| 4069P-12R-10L      | 16.13<br>(410)  | 36.75<br>(933) | 44.75<br>(1137) | 45.13<br>(1146) | 53.13<br>(1350) | 3.22<br>(82)  |
| 4069P-12R-16L      | 21.75<br>(552)  | 36.75<br>(933) | 44.75<br>(1137) | 45.13<br>(1146) | 53.13<br>(1350) | 3.22<br>(82)  |
| 4069P-12R-25L      | 30.75<br>(781)  | 36.75<br>(933) | 44.75<br>(1137) | 45.13<br>(1146) | 53.13<br>(1350) | 3.22<br>(82)  |
| 4069P-12R-38L      | 43.75<br>(1111) | 36.75<br>(933) | 44.75<br>(1137) | 45.13<br>(1146) | 53.13<br>(1350) | 3.22<br>(82)  |
| 4069P-18R-10L      | 16.13<br>(410)  | 38.00<br>(965) | 46.00<br>(1168) | 48.05<br>(1220) | 56.05<br>(1424) | 5.90<br>(150) |
| 4069P-18R-16L      | 21.75<br>(552)  | 38.00<br>(965) | 46.00<br>(1168) | 48.05<br>(1220) | 56.05<br>(1424) | 5.90<br>(150) |
| 4069P-18R-25L      | 30.75<br>(781)  | 38.00<br>(965) | 46.00<br>(1168) | 48.05<br>(1220) | 56.05<br>(1424) | 5.90<br>(150) |
| 4069P-18R-38L      | 43.75<br>(1111) | 38.00<br>(965) | 46.00<br>(1168) | 48.05<br>(1220) | 56.05<br>(1424) | 5.90<br>(150) |
| 4069P-12R-10L-DUAL | 38.39<br>(975)  | 36.75<br>(933) | 44.75<br>(1137) | 45.13<br>(1146) | 53.13<br>(1350) | 3.22<br>(82)  |
| 4069P-18R-10L-DUAL | 38.39<br>(975)  | 38.00<br>(965) | 46.00<br>(1168) | 48.05<br>(1220) | 56.05<br>(1424) | 5.90<br>(150) |

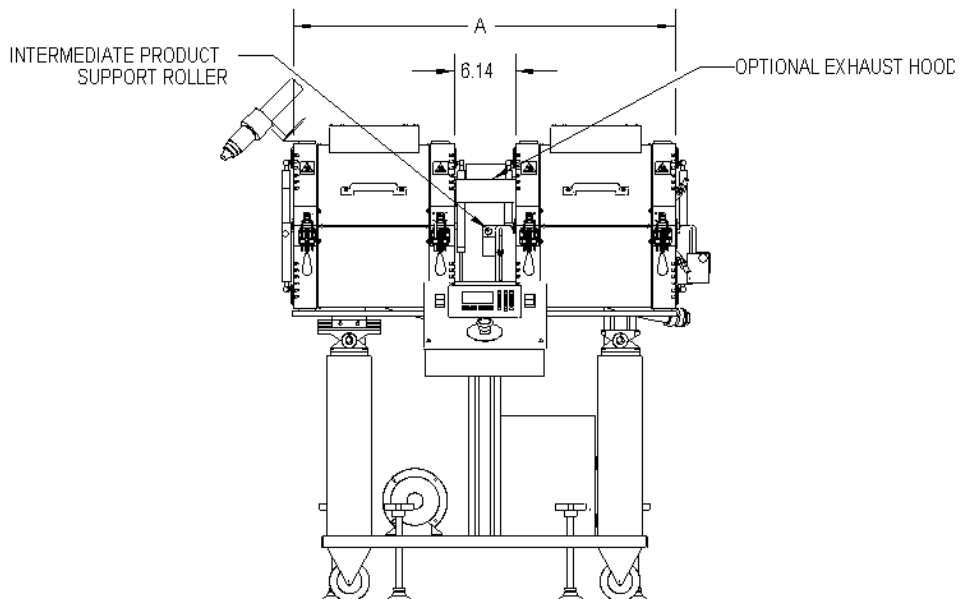
IN  
(MM)

For (A) dimensions refer to the drawings on the next page

**Single Chamber ProfileIR Model 4069P**



**Dual Chamber ProfileIR Model 4069P**





Infrared Heaters For Controlled Concentrated Heating.

## Model 4069 ProfileIR Technical Information

### 2 Inch Diameter ProfileIR Model 4069P

| Single Chamber 2 Inch Diameter Profile |                    |                   |                    |                    |
|--|--------------------|-------------------|--------------------|--------------------|
| Model                                  | 4069P-12R-10L      | 4069-12R-16L      | 4069P-12R-25L      | 4069P-12R-38L      |
| Power Generated                        | 12 KW              | 19.2 KW           | 30 KW              | 45.6 KW            |
| Voltage                                | 240 V AC 3 Phase   | 240 V AC 3 Phase  | 480 V AC 3 Phase   | 480 V AC 3 Phase   |
| Max Current                            | 29 Amp             | 46 Amp            | 36 Amp             | 55 Amp             |
| *Weight                                | 501 lb (227 kg)    | 515 lb (234 kg)   | 535 lb (243 kg)    | 564 lb (256 kg)    |
| Lamp Type                              | 103390-003         | 103390-005        | 103390-007         | 103390-010         |
| ** Water Flow Requirement              | 1.2 gpm (4.5 lpm)  | 1.8 gpm (6.8 lpm) | 2.8 gpm (10.6 lpm) | 4.2 gpm (15.9 lpm) |
| Dual Chamber 2 Inch Diameter Profile   |                    |                   |                    |                    |
| Model                                  | 4069P-12R-10L-Dual |                   |                    |                    |
| Power Generated                        | 25 KW              |                   |                    |                    |
| Voltage                                | 480 V AC 3 Phase   |                   |                    |                    |
| Max Current                            | 30 Amp             |                   |                    |                    |
| *Weight                                | 575 lb (26 kg)     |                   |                    |                    |
| Lamp Type                              | 103390-003         |                   |                    |                    |
| ** Water Type Flow Requirement         | 2.4 gpm ( 9 lpm)   |                   |                    |                    |

### 4 Inch Diameter ProfileIR Model 4069P

| Single Chamber 4 Inch Diameter Profile |                    |                    |                    |                    |
|--|--------------------|--------------------|--------------------|--------------------|
| Model                                  | 4069P-18R-10L      | 4069-18R-16L       | 4069P-18R-25L      | 4069P-18R-38L      |
| Power Generated                        | 18 KW              | 28.8 KW            | 45 KW              | 68.4 KW            |
| Voltage                                | 240 V AC 3 Phase   | 240 V AC 3 Phase   | 480 V AC 3 Phase   | 480 V AC 3 Phase   |
| Max Current                            | 43 Amp             | 69 Amp             | 55 Amp             | 82 Amp             |
| *Weight                                | 523 lb (237 kg)    | 550 lb (267 kg)    | 588 lb (267 kg)    | 639 lb (290 kg)    |
| Lamp Type                              | 103390-003         | 103390-005         | 103390-007         | 103390-010         |
| **Water Flow Requirement               | 1.7 gpm (6.4 lpm)  | 2.7 gpm (10.2 lpm) | 4.2 gpm (15.9 lpm) | 6.2 gpm (23.4 lpm) |
| Dual Chamber 4 Inch Diameter Profile   |                    |                    |                    |                    |
| Model                                  | 4069P-18R-10L-Dual |                    |                    |                    |
| Power Generated                        | 36 KW              |                    |                    |                    |
| Voltage                                | 480 V AC 3 Phase   |                    |                    |                    |
| Max Current                            | 43 Amp             |                    |                    |                    |
| *Weight                                | 619 Lb (28 kg)     |                    |                    |                    |
| Lamp Type                              | 103390-003         |                    |                    |                    |
| **Water Type Flow Requirement          | 3.4 gpm (12.8 lpm) |                    |                    |                    |

\* A 150 lb for shipping weight \*\* Minimum water flow rates

## ProfileIR

With Nonsymmetrical Extrusion



Allen Bradley Panel View Plus



- Recipes for 20 different profile cures can be stored and recalled
- Allen-Bradley PanelView Plus 400 keypad terminal provides user friendly operator interface.



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