

Model 5194



Radiant Infrared Line Heater

The Model 5194 LineIR[®] Infrared line heater is designed for use in any application that requires a clean, responsive, non-contact heat source. Typical applications for the Model 5194 include:

- Soldering
- Unsoldering
- Drying ink
- Forming plastic
- Curing epoxy
- Heat treating

Instant Response

Quartz lamps yield 90 percent output within three seconds and dissipates 90 percent energy within five seconds

Localized Heat

Energy generated by unit heats desired target area without heating surrounding areas

High Heat Flux Density

Single heater can generate energy levels up to 678 watts / linear inch (267 watts /cm)

Focused Line of Heat

Up to a 38 inches (965 mm) long by 0.18 inches (4.6 mm) wide line can be generated by a single heater

Non-Contact Electric Heat Source

Clean and efficient heat source that does not contact product being heated

Repeatable Results

Can be achieved for consistent process outputs.

Fast. Focused. Controlled.

Description

The Model 5194 generates highly concentrated radiant energy along a thin line at a focal point that is 1.95 inches (49.5 mm) from the edge of the heater's elliptical reflector. The basic heater includes the following major components:

Heater Module – The heater module uses a 'T-3 style,' quartz halogen lamp backed by an aluminum reflector to generate and focus the infrared heat. It is available in a variety of heated lengths ranging from 2.6 to 38 inches (65 to 965 mm). Each unit is supplied with a factory-installed lamp and an 8-foot (2.4 m) electrical cable. Additional lamps can be ordered separately from the heater.

Water Cooling – Adequate cooling water is required during operation of the Model 5194. Twenty feet (6 m) of tubing and plumbing fittings are supplied with each heater for easy installation. Required cooling water flow rates are listed in Specifications.

Air Cooling – Compressed air-cooling must also be supplied to the heater for proper operation. This cooling air removes excess heat from around the lamp end seals. A 10-foot (3 m) length of flexible tubing and matching plumbing hardware is included with each heater. Required airflow rates and pressures are listed in Specifications.

Optional Quartz Window – A quartz window can be ordered along with the Model 5194. When installed in the heater, the quartz window protects the aluminum reflector and lamps from contaminants released during the heating process resulting in maximum efficiency of the heater.

Optional Ceragold™ End Reflectors – Ceragold end reflectors are available for installation on the ends of the heater module. These reflectors prevent infrared energy from radiating past the ends of the heater.

Optional Power Control System – The Model 5194 can be ordered with the 'PC' option. This configuration consists of the heater, the Model 5420 ControllR® SCR Power Controller, and eight feet (2.4 m) of electrical cable connecting the heater to the controller.

Features and Benefits

The design and functionality of the Model 5194 supplies a variety of features and related benefits:

Rapid Response – The quartz halogen lamp heats up and cools down instantly in response to power control signals. They reach 90 percent of full operating temperature within three seconds of a cold start. The radiant energy dissipates to ten percent five seconds after the power supply is disconnected.

Continuous Operation – The extruded aluminum construction of the Model 5194 combined with water and air-cooling, allows the heater to withstand continuous high-temperature operation.

Modular Design – The modular design of the heater allows units to be installed in a variety of configurations suitable for many applications.

Electrically Enclosed Heater Module – All electrical connections for the Model 5194 are completely enclosed for safety.

Target Product Sizes – The Model 5194 generates and concentrates radiant energy on a line approximately 0.18 inch (4.6 mm) wide and 2.25 to 38 inches (57- to 965 mm) long.

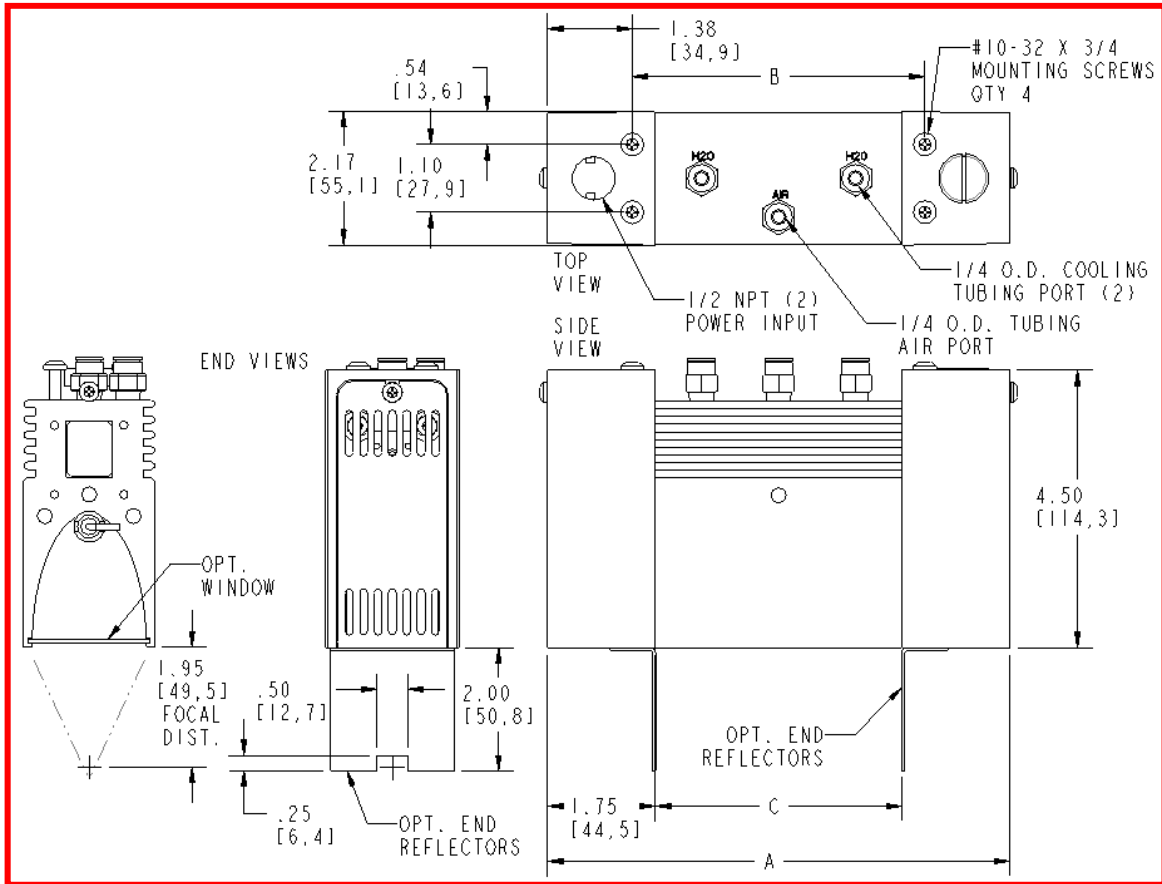
High Heat Flux Density – High-density radiant heat flux can be concentrated along a line that is 1.95 inches (49.5 mm) in front of the heater. Heat flux densities up to approximately 678 watts per inch (267 watts per cm) can be achieved with the Model 5194-04 operating at the lamp's rated voltage. Heat flux density is a product of the lamp type, applied voltage, and distance between the lamp and the target surface. Increased heat flux densities can be achieved by focusing two or more heaters on the target product.

Auxilliary Equipment

Model C100 CoolIR Cooling System – the Model C100 is designed to provide 'stand alone' water cooling for the Model 5194. The base cooling unit includes a self-contained pump, cooling coil, blower unit, and 6-gallon (23 liter) reservoir. See the Model C100 Product Data Sheet for further information and specifications.



Dimensions – Model 5194



Model Number	Dimension			Heater Weight, Pounds (kg)
	A Inches (mm)	B Inches (mm)	C Inches (mm)	
5194-02	6.1 (154.9)	3.35 (85)	2.6 (66.0)	2.7 (1.2)
5194-04	7.5 (190.5)	4.75 (120.6)	4 (101.6)	3.3 (1.4)
5194-05	9.5 (241)	6.75 (171.4)	6 (152.4)	4.2 (1.9)
5194-10	14.5 (368)	11.75 (298)	11 (279)	6.3 (2.8)
5194-16	20.1 (510)	17.35 (440)	16.6 (421)	8.7 (3.9)
5194-25	29.5 (749)	26.75 (679)	26 (660)	12.7 (5.7)
5194-38	42.5 (1079)	39.75 (1009)	39 (990)	18.3 (8.3)



Specifications – Model 5194

Specification	5194-02	5194-04	5194-05	5194-10	5194-16	5194-25	5194-38
Weight, Pounds (kg)	2.7 (1.2)	3.3 (1.4)	4.2 (1.9)	6.3 (2.8)	8.7 (3.9)	12.7 (5.7)	18.3 (8.3)
Lamp Type	QIH120-1000R12	QIH120-2000R12	QIH240-1000R12	QIH240-2000R12	QIH240-3000R12	QIH600-5000R12	QIH480-3800R12
Lamp Part Number	106587-001	106587-002	103390-002	103390-004	103390-012	103390-008	103390-010
Lighted Length, Inches (mm)	2.56 (65)	2.95 (75)	5.0 (127)	11.0 (279)	16.0 (406)	25.0 (635)	38.0 (965)
Watt Density (W/in)	390	678	200	182	187	200	100
Rated Voltage	120	120	240	240	240	600	480
Total Power Dissipated @ Rated Voltage, Watts	1000	2000	1000	2000	3000	5000	3800
Total Current @ Rated Voltage, Amps	8.3	16.7	4.2	8.2	12.5	8.3	7.9
Cooling Water Flow ² , GPM (lpm)	0.15 (0.5)	0.25 (0.9)	0.15 (0.5)	0.25 (0.9)	0.4 (1.5)	0.6 (2.2)	0.45 (1.7)
Cooling Air Flow, SCFH (M ³ /hr.)	30 (0.85) ³	30 (0.85) ³	30 (0.85) ⁴	40 (1.1) ⁴	50 (1.4) ⁴	60 (1.7) ⁴	50 (1.4) ⁴

2. Cooling water must be used on all Model 5194 heaters while in operation.

3. Cooling air must always be supplied to the Model 5194-02 & 5194-04 while the heater is operational.

4. Cooling air is required on this model if optional quartz window is installed. Cooling airflow is not required if window is not installed on the heater.

Ordering Information – Model 5194

Model	Product Description			
5194	Infrared Line Heater (Installed lamp included)			
Code	Length	Lighted Lamp Length	Reflector Length	Overall Heater Length
02	2 Inches (51 mm)	2.56 Inches (65 mm)	2.6 Inches (66 mm)	6.1 Inches (155 mm)
04	4 Inches (102 mm)	2.95 Inches (75 mm)	4 Inches (102 mm)	7.5 Inches (191 mm)
05	5 Inches (127 mm)	5 Inches (127 mm)	6 Inches (152 mm)	9.5 Inches (241 mm)
10	10 Inches (254 mm)	11 Inches (279 mm)	11 Inches (279 mm)	14.5 Inches (368 mm)
16	16 Inches (406 mm)	16 Inches (406 mm)	16.6 Inches (421 mm)	20.1 Inches (510 mm)
25	25 Inches (635 mm)	25 Inches (635 mm)	26 Inches (660 mm)	29.5 Inches (749 mm)
38	38 Inches (965 mm)	38 Inches (965 mm)	39 Inches (990 mm)	42.5 Inches (1079 mm)
Code	Optional Equipment			
PC	Model 5194 Heater Supplied with Model 5620 SCR Power Controller and interface wiring.			

Ordering Example – Model 5194

	Model	Heating Chamber Length	Optional Equipment
Typical Model Number:	5194	16	PC

Accessories, Spare & Replacement Parts – Model 5194

Model	Description
106586-001	Quartz Window Kit, Model 5194-02
106586-002	Quartz Window Kit, Model 5194-04
106586-003	Quartz Window Kit, Model 5194-05
106586-004	Quartz Window Kit, Model 5194-10
106586-005	Quartz Window Kit, Model 5194-16
106586-006	Quartz Window Kit, Model 5194-25
106586-007	Quartz Window Kit, Model 5194-38
106587-001	Quartz-Halogen Infrared Lamp, Ceramic End Seal, Model 5194-02
106587-002	Quartz-Halogen Infrared Lamp, Ceramic End Seal, Model 5194-04
103390-002	Quartz-Halogen Infrared Lamp, Ceramic End Seal, Model 5194-05
103390-004	Quartz-Halogen Infrared Lamp, Ceramic End Seal, Model 5194-10
103390-012	Quartz-Halogen Infrared Lamp, Ceramic End Seal, Model 5194-16
103390-008	Quartz-Halogen Infrared Lamp, Ceramic End Seal, Model 5194-25
103390-010	Quartz-Halogen Infrared Lamp, Ceramic End Seal, Model 5194-38
106684-001	Electrical Power Cable, 8-foot (2.4 m) length
034766-001	Ceragold End Reflectors (set of 2)
106686-001	Air-Cooling Supply Kit (Includes flexible tubing and plumbing fixtures for connection to compressed air supply)
106685-001	Water-Cooling Supply Kit (Includes flexible tubing and plumbing fixtures for connection to cooling water supply)



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