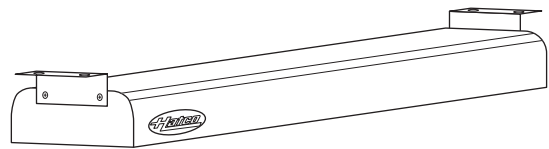
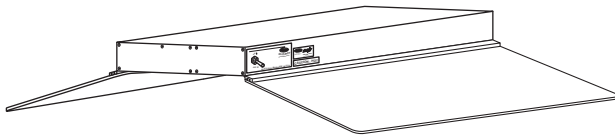
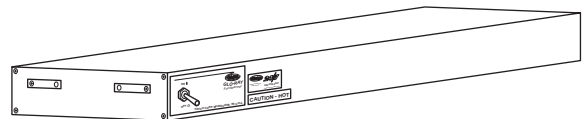
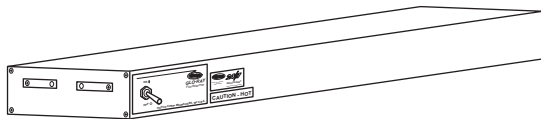




GLO-RAY®
Infrared Strip Heaters
GR, GRH, GRA, GRAH, GRAL,
GRAHL, GRN, and GRNH Series

Installation and Operating Manual

I&W #07.05.183.00



Do not operate this equipment unless you have read and understood the contents of this manual! Failure to follow the instructions contained in this manual may result in serious injury or death. This manual contains important safety information concerning the maintenance, use, and operation of this product. If you're unable to understand the contents of this manual, please bring it to the attention of your supervisor. Keep this manual in a safe location for future reference.



No opere este equipo al menos que haya leído y comprendido el contenido de este manual! Cualquier falla en el seguimiento de las instrucciones contenidas en este manual puede resultar en un serio lesión o muerte. Este manual contiene importante información sobre seguridad concerniente al mantenimiento, uso y operación de este producto. Si usted no puede entender el contenido de este manual por favor pregunte a su supervisor. Almacenar este manual en una localización segura para la referencia futura.

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IMPORTANT OWNER INFORMATION

Record the model number, serial number (identification decal located on the underside of the unit), voltage, and purchase date of your strip heater in the spaces below. Please have this information available when calling Hatco for service assistance.

Model No. _____

Serial No. _____

Voltage _____

Date of Purchase _____

Business Hours: 8:00 a.m. to 5:00 p.m.
Central Standard Time
(Summer Hours: June to September –
8:00 a.m. to 5:00 p.m. C.S.T.
Monday through Thursday
8:00 a.m. to 2:30 p.m. C.S.T. Friday)

Telephone: (800) 558-0607; (414) 671-6350

Fax: (800) 690-2966 (Parts and Service)
(414) 671-3976 (International)



24 Hour 7 Day Parts and Service Assistance available in the United States and Canada by calling (800) 558-0607.

Additional information can be found by visiting our web site at www.hatcocorp.com.

INTRODUCTION

Hatco Glo-Ray® Strip Heaters ensure maximum food holding and minimize the risk of food-borne illness. Optimum safety and quality is the result of food held at the proper serving temperatures, using Glo-Ray's pre-focused heat patterns. The pre-focused heat pattern prevents foods from being over-cooked in the middle and cooling off around the edges by concentrating higher temperatures to the outer edges of holding surfaces where heat loss is the greatest. Utilizing specially designed reflectors to direct the heat from the element, Glo-Ray Strip Heaters safely maintain peak serving temperatures longer without cooking the food beyond the point of excellence.

Glo-Ray Strip Heaters are available from the factory with or without shatter-resistant incandescent lights to illuminate the warming area. These bulbs have a special coating that guards against injury and food contamination in the event of breakage.

Glo-Ray Strip Heaters are a product of extensive research and field testing. The materials used were selected for maximum durability, attractive appearance, and optimum performance. Every unit is inspected and tested thoroughly prior to shipment.

This manual provides the installation, safety, and operating instructions for Glo-Ray Strip Heaters. Hatco recommends all installation, operating, and safety instructions appearing in this manual be read prior to installation or operation of the Strip Heaters.

Safety information that appears in this manual is identified by the following signal word panels:

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

IMPORTANT SAFETY INFORMATION

 Read the following important safety information before using this equipment to avoid serious injury or death and to avoid damage to equipment or property.

WARNING

ELECTRIC SHOCK HAZARD:

- For hard-wired units, all electrical connections must be in accordance with local electrical codes and any other applicable codes. Connections should be made by a qualified, licensed electrician.
- Units equipped with a cord and plug supplied by Hatco must be plugged into a properly grounded electrical outlet of the correct voltage, size, and plug configuration. If the plug and receptacle do not match, contact a qualified electrician to determine and install the proper voltage and size electrical outlet.
- Unplug the power cord or turn the power OFF at the fused disconnect switch/circuit breaker and allow the unit to cool before performing any maintenance or cleaning.
- Discontinue use if power cord is frayed or worn.
- Do not attempt to repair or replace a damaged power cord. The cord must be replaced by Hatco, an Authorized Hatco Service Agent, or a person with similar qualifications.
- DO NOT submerge or saturate with water. Unit is not waterproof. Do not operate if unit has been submerged or saturated with water.
- This unit is not “jet-proof” construction. Do not use jet-clean spray to clean this unit.
- Use only Genuine Hatco Replacement Parts when service is required. Failure to use Genuine Hatco Replacement Parts will void all warranties and may subject operators of the equipment to hazardous electrical voltage, resulting in electrical shock or burn. Genuine Hatco Replacement Parts are specified to operate safely in the environments in which they are used. Some aftermarket or generic replacement parts do not have the characteristics that will allow them to operate safely in Hatco equipment.

WARNING

FIRE HAZARD:

- Locate the unit the correct distance from combustible walls and materials. If safe distances are not maintained, discoloration or combustion could occur. Refer to specific installation and mounting information in this manual for proper clearances.
- Make sure to follow the installation information listed below for specific strip heaters. If safe distances are not maintained, discoloration or combustion could occur.
 - a. Do not install standard wattage strip heaters (GR, GRA, GRN, GRAL Series) less than 10 (254 mm) above combustible surfaces.
 - b. Do not install high wattage strip heaters (GRH, GRAH, GRNH, GRAHL Series) less than 13-1/2 (343 mm) above combustible surfaces.
 - c. Do not install dual strip heaters (GRA-XXD, GRAH-XXD, GRAL-XXD, and GRAHL-XXD Series) above combustible surfaces.
 - e. Install all single strip heaters with a minimum distance of 3 (76 mm) from a combustible wall or adjacent surface.
- Do not store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.

Use only light bulbs that meet or exceed (National Sanitation Foundation (NSF) standards and are specifically designed for food holding areas. Breakage of light bulbs not specially coated could result in personal injury and/or food contamination.

For installation with chains, make sure the chains have sufficient strength and are securely fastened to both the unit and the mounting location. Poorly installed chains may cause the unit to loosen and fall. Do not place anything on top of units installed with chains.

This unit has no “user-serviceable” parts. If service is required on this unit, contact an Authorized Hatco Service Agent or contact the Hatco Service Department at 800-558-0607 or 414-671-6350; fax 800-690-2966; or International fax 414-671-3976.

IMPORTANT SAFETY INFORMATION

CAUTION

BURN HAZARD: Some exterior surfaces on the unit will get hot. Use caution when touching these areas.

Standard and approved manufacturing oils may smoke up to 30 minutes during initial startup. This is a temporary condition. Operate unit without food product until smoke dissipates.

Strip heaters equipped with incandescent lights that require a circuit breaker larger than 20 amps for the heat element must have a separate circuit breaker for the incandescent lights that is 20 amps or less.

To ensure safe and proper operation, refer to the Clearance Requirements listed in the Installation section of this manual.

NOTICE

Installation of two or more separate units with less than 3 (76 mm) between housings may result in premature failure of component parts. Failure to provide proper spacing may result in heat damage to electrical components.

To prevent unit failure, do not add a decorative soffit to hide a pass-through mounted strip heater.

To prevent premature failure of components due to excessive heat, remote mounted control boxes must be installed outside the strip heater heat zone.

Heat damage to countertop material such as Corian® and similar products (other than stainless steel) is not covered under the Hatco warranty. Contact the manufacturer of the base material for temperature limits and application information before installing the unit.

Use non-abrasive cleaners only. Abrasive cleaners could scratch the finish of the unit, marring its appearance and making it susceptible to dirt accumulation.

MODEL DESIGNATION

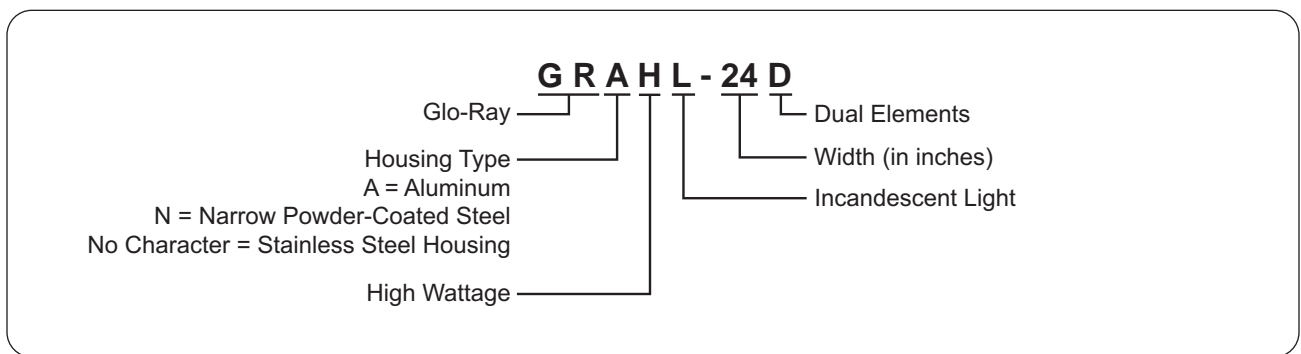


Figure 1. Model Designation

MODEL DESCRIPTIONS

Hatco Glo-Ray® Infrared Strip Heaters keep hot foods at optimum serving temperatures longer. Foods do not dry out or become discolored; even the most delicate dishes hold that “just-prepared” look. The Glo-Ray pre-focused heat pattern directs heat from a tubular element to bathe the entire holding surface.

Glo-Ray strip heaters can be ordered in standard or high wattage configurations, aluminum housings in lengths of 18 (457 mm) to 144 (3658 mm), stainless steel housings in lengths of 24 (610 mm) to 96 (2438 mm), or narrow design housings in lengths of 18 (457 mm) to 72 (1829 mm).

Glo-Ray dual models allow for side-by-side mounting of two or more strip heaters to provide a wider holding area (dual models are constructed with a required 3 [76 mm] or 6 [152 mm] spacer between heating elements).

All strip heaters have several mounting options and switch locations. Optional infinite control switches, remote control enclosures, incandescent lighting, and sneeze guards are available.

- GR-XX:** Stainless steel housing, standard wattage
- GRH-XX:** Stainless steel housing, high wattage
- GRN-XX:** Narrow design, powder-coated steel housing, standard wattage
- GRNH-XX:** Narrow design, powder-coated steel housing, high wattage

NOTE: Stainless steel and narrow design strip heaters are not available with lights, sneeze guards, or as dual units.

- GRA-XX:** Aluminum housing, standard wattage
- GRAH-XX:** Aluminum housing, high wattage
- GRAL-XX:** Aluminum housing, standard wattage, incandescent light
- GRAHL-XX:** Aluminum housing, high wattage, incandescent light
- GRA-XXD:** Aluminum housing, standard wattage, dual
- GRAH-XXD:** Aluminum housing, high wattage, dual
- GRAL-XXD:** Aluminum housing, standard wattage, incandescent light, dual
- GRAHL-XXD:** Aluminum housing, high wattage, incandescent light, dual

NOTE: Incandescent lights and sneeze guards are not available for retrofit.

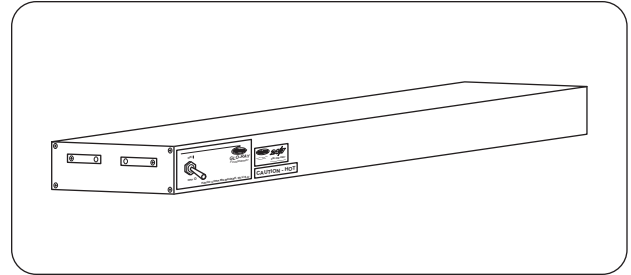


Figure 2. GRA-24 Model

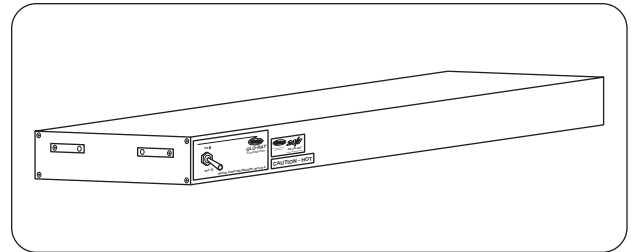


Figure 3. GRAHL-24 Model

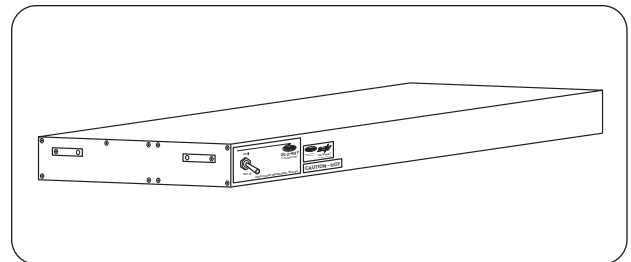


Figure 4. GRA-24D Model

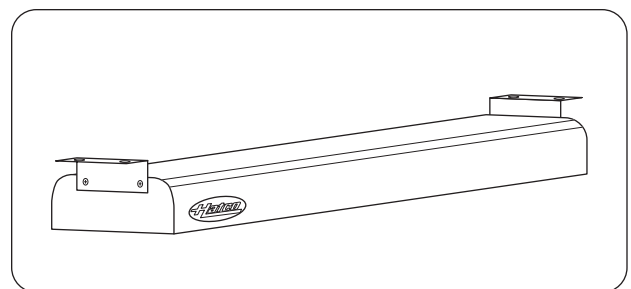


Figure 5. GRN-24 Model

SPECIFICATIONS

Electrical Rating Chart — GR Models

Model GR-18		Watts: 250		Shipping Weight: 7 lbs. (3 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	2.1	1.2	1.0	2.5	1.3	1.1	1.0
Model GR-24		Watts: 350		Shipping Weight: 7 lbs. (3 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	2.9	1.7	1.5	3.5	1.8	1.6	1.5
Model GR-36		Watts: 575		Shipping Weight: 10 lbs. (4.5 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	4.8	2.8	2.4	5.8	2.9	2.6	2.4
Model GR-48		Watts: 800		Shipping Weight: 12 lbs. (5 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	6.7	3.8	3.3	8.0	4.0	3.6	3.3
Model GR-60		Watts: 1050		Shipping Weight: 15 lbs. (7 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	8.8	5.0	4.4	10.5	5.3	4.8	4.4
Model GR-72		Watts: 1275		Shipping Weight: 19 lbs. (9 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	10.6	6.1	5.3	12.8	6.4	5.8	5.3
Model GR-96		Watts: 1725		Shipping Weight: 24 lbs. (11 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	14.4	8.3	7.2	17.3	8.6	7.8	7.2

Electrical Rating Chart — GRH Models

Model GRH-18		Watts: 350		Shipping Weight: 7 lbs. (3 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	2.9	1.7	1.5	3.5	1.8	1.6	1.5
Model GRH-24		Watts: 500		Shipping Weight: 7 lbs. (3 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	4.2	2.4	2.1	5.0	2.5	2.3	2.1
Model GRH-36		Watts: 800		Shipping Weight: 10 lbs. (4.5 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	6.7	3.8	3.3	8.0	4.0	3.6	3.3
Model GRH-48		Watts: 1100		Shipping Weight: 12 lbs. (5 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	9.2	5.3	4.6	11.0	5.5	5.0	4.6
Model GRH-60		Watts: 1400		Shipping Weight: 15 lbs. (7 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	11.7	6.7	5.8	14.0	7.0	6.4	5.8
Model GRH-72		Watts: 1725		Shipping Weight: 19 lbs. (9 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	14.4	8.3	7.2	17.3	8.6	7.8	7.2
Model GRH-96*		Watts: 2400		Shipping Weight: 24 lbs. (11 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	---	11.5	10.0	---	12.0	10.9	10.0

The shaded areas contain electrical information for **Export models only**.

* Not available in 100 or 120 volts.

◆ CE approved units for 220-230 volt utilize a 220 volt heating system; 230-240 CE units utilize a 240 volt heating system.

SPECIFICATIONS

Electrical Rating Chart — GRA Models

Model GRA-18		Watts: 250	Shipping Weight: 6 lbs. (3 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	2.1	1.2	1.0	2.5	1.3	1.1	1.0
Model GRA-24		Watts: 350	Shipping Weight: 7 lbs. (3 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	2.9	1.7	1.5	3.5	1.8	1.6	1.5
Model GRA-30		Watts: 450	Shipping Weight: 8 lbs. (4 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	3.8	2.2	1.9	4.5	2.3	2.1	1.9
Model GRA-36		Watts: 575	Shipping Weight: 9 lbs. (4 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	4.8	2.8	2.4	5.8	2.9	2.6	2.4
Model GRA-42		Watts: 675	Shipping Weight: 10 lbs. (5 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	5.6	3.2	2.8	6.8	3.4	3.1	2.8
Model GRA-48		Watts: 800	Shipping Weight: 11 lbs. (5 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	6.7	3.8	3.3	8.0	4.0	3.6	3.3
Model GRA-54		Watts: 925	Shipping Weight: 13 lbs. (6 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	7.7	4.4	3.9	9.3	4.6	4.2	3.9
Model GRA-60		Watts: 1050	Shipping Weight: 14 lbs. (6 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	8.8	5.0	4.4	10.5	5.3	4.8	4.4
Model GRA-66		Watts: 1160	Shipping Weight: 16 lbs. (7 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	9.7	5.6	4.8	11.6	5.8	5.3	4.8
Model GRA-72■		Watts: 1275	Shipping Weight: 17 lbs. (8 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	10.6	6.1	5.3	12.8	6.4	5.8	5.3
Model GRA-84■■		Watts: 1500	Shipping Weight: 19 lbs. (9 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	12.5	7.2	6.3	15.0	7.5	6.8	6.3
Model GRA-96■■		Watts: 1725	Shipping Weight: 21 lbs. (10 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	14.4	8.3	7.2	17.3	8.6	7.8	7.2
Model GRA-108†		Watts: 1850	Shipping Weight: 23 lbs. (10 kg)				
Voltage	120	208	240	100	200	220	240
Amps	15.4	8.9	7.7	18.5	9.3	8.4	7.7
Model GRA-120†*		Watts: 2100	Shipping Weight: 26 lbs. (12 kg)				
Voltage	120	208	240	100	200	220	240
Amps	---	10.1	8.8	---	10.5	9.5	8.8
Model GRA-132†*		Watts: 2320	Shipping Weight: 30 lbs. (14 kg)				
Voltage	120	208	240	100	200	220	240
Amps	---	11.2	9.7	---	11.6	10.5	9.7
Model GRA-144†*		Watts: 2550	Shipping Weight: 33 lbs. (15 kg)				
Voltage	120	208	240	100	200	220	240
Amps	---	12.3	10.6	---	12.8	11.6	10.6

Electrical Rating Chart — GRAH Models

Model GRAH-18		Watts: 350	Shipping Weight: 6 lbs. (3 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	2.9	1.7	1.5	3.5	1.8	1.6	1.5
Model GRAH-24		Watts: 500	Shipping Weight: 7 lbs. (3 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	4.2	2.4	2.1	5.0	2.5	2.3	2.1
Model GRAH-30		Watts: 660	Shipping Weight: 8 lbs. (4 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	5.5	3.2	2.8	6.6	3.3	3.0	2.8
Model GRAH-36		Watts: 800	Shipping Weight: 9 lbs. (4 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	6.7	3.8	3.3	8.0	4.0	3.6	3.3
Model GRAH-42		Watts: 950	Shipping Weight: 10 lbs. (5 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	7.9	4.6	4.0	9.5	4.8	4.3	4.0
Model GRAH-48		Watts: 1100	Shipping Weight: 11 lbs. (5 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	9.2	5.3	4.6	11.0	5.5	5.0	4.6
Model GRAH-54		Watts: 1250	Shipping Weight: 13 lbs. (6 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	10.4	6.0	5.2	12.5	6.3	5.7	5.2
Model GRAH-60		Watts: 1400	Shipping Weight: 14 lbs. (6 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	11.7	6.7	5.8	14.0	7.0	6.4	5.8
Model GRAH-66		Watts: 1560	Shipping Weight: 16 lbs. (7 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	13.0	7.5	6.5	15.6	7.8	7.1	6.5
Model GRAH-72		Watts: 1725	Shipping Weight: 17 lbs. (8 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	14.4	8.3	7.2	17.3	8.6	7.8	7.2
Model GRAH-84■■■		Watts: 2050	Shipping Weight: 19 lbs. (9 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	17.1	9.9	8.5	20.5	10.3	9.3	8.5
Model GRAH-96■■■		Watts: 2400	Shipping Weight: 21 lbs. (10 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	20.0	11.5	10.0	24.0	12.0	10.9	10.0
Model GRAH-108††		Watts: 2500	Shipping Weight: 23 lbs. (10 kg)				
Voltage	120	208	240	100	200	220	240
Amps	20.8	12.0	10.4	25.0	12.5	11.4	10.4
Model GRAH-120††*		Watts: 2800	Shipping Weight: 26 lbs. (12 kg)				
Voltage	120	208	240	100	200	220	240
Amps	---	13.5	11.7	---	14.0	12.7	11.7
Model GRAH-132††*		Watts: 3120	Shipping Weight: 30 lbs. (14 kg)				
Voltage	120	208	240	100	200	220	240
Amps	---	15.0	13.0	---	15.6	14.2	13.0
Model GRAH-144††*		Watts: 3450	Shipping Weight: 33 lbs. (15 kg)				
Voltage	120	208	240	100	200	220	240
Amps	---	16.6	14.4	---	17.3	15.7	14.4

The shaded areas contain electrical information for **Export models only**.

- 100 and 120 volt models with infinite switch require tandem (end-to-end) elements, consult factory for applications.
- 100 and 120 volt models may require additional switches, consult factory for applications.
- † Glo-Ray models 108 through 144 and 120 volt models of GRA-84 and GRA-96 contain tandem (end-to-end) elements that may be individually controlled.
- * Not available in 100 or 120 volts.
- ◆ CE approved units for 220-230 volt utilize a 220 volt heating system; 230-240 CE units utilize a 240 volt heating system.

SPECIFICATIONS

Electrical Rating Chart — GRAL Models

Model GRAL-18 Watts: 370 Shipping Weight: 9 lbs. (4 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	3.1	2.2	2.0	3.7	2.5	1.7	1.5
Model GRAL-24 Watts: 470 Shipping Weight: 10 lbs. (5 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	3.9	2.7	2.5	4.7	3.0	2.1	2.0
Model GRAL-30 Watts: 570 Shipping Weight: 11 lbs. (5 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	4.8	3.2	2.9	5.7	3.5	2.6	2.4
Model GRAL-36 Watts: 755 Shipping Weight: 13 lbs. (6 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	6.3	4.3	3.9	7.6	4.7	3.4	3.1
Model GRAL-42 Watts: 855 Shipping Weight: 15 lbs. (7 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	7.1	4.7	4.3	8.6	5.2	3.9	3.6
Model GRAL-48 Watts: 1040 Shipping Weight: 17 lbs. (8 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	8.7	5.8	5.3	10.4	6.4	4.7	4.3
Model GRAL-54 Watts: 1165 Shipping Weight: 19 lbs. (9 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	9.7	6.4	5.9	11.7	7.0	5.3	4.9
Model GRAL-60 Watts: 1350 Shipping Weight: 21 lbs. (10 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	11.3	7.5	6.9	13.5	8.3	6.1	5.6
Model GRAL-66 Watts: 1460 Shipping Weight: 22 lbs. (10 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	12.2	8.1	7.3	14.6	8.8	6.6	6.1
Model GRAL-72 Watts: 1635 Shipping Weight: 24 lbs. (11 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	13.6	9.1	8.3	16.4	10.0	7.4	6.8
Model GRAL-84 ■ Watts: 1920 Shipping Weight: 28 lbs. (13 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	16.0	10.7	9.8	19.2	11.7	8.7	8.0
Model GRAL-96 ■ Watts: 2205 Shipping Weight: 32 lbs. (15 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	18.4	12.3	11.2	22.1	13.4	10.0	9.2
Model GRAL-108 † Watts: 2390 Shipping Weight: 36 lbs. (16 kg)							
Voltage	120	120/208	120/240	100	100/200	220	240
Amps	19.9	13.4	12.2	23.9	14.7	10.9	10.0
Model GRAL-120 †* Watts: 2700 Shipping Weight: 40 lbs. (18 kg)							
Voltage	120	120/208	120/240	100	100/200	220	240
Amps	---	15.1	13.8	---	16.5	12.3	11.3
Model GRAL-132 †* Watts: 2980 Shipping Weight: 44 lbs. (20 kg)							
Voltage	120	120/208	120/240	100	100/200	220	240
Amps	---	16.7	15.2	---	18.2	13.5	12.4
Model GRAL-144 †* Watts: 3270 Shipping Weight: 48 lbs. (22 kg)							
Voltage	120	120/208	120/240	100	100/200	220	240
Amps	---	18.3	16.6	---	20.0	14.9	13.6

The shaded areas contain electrical information for **Export models only**.

- 100 and 120 volt models with infinite switch may require tandem (end-to-end) elements, consult factory for applications.
- 100 and 120 volt models may require additional switches, consult factory for applications.
- † Glo-Ray models 108 through 144 and 120 volt models of GRAL-84 and GRAL-96 contain tandem (end-to-end) elements that may be individually controlled.
- * Not available in 100 or 120 volts.
- ♦ CE approved units for 220-230 volt utilize a 220 volt heating system; 230-240 CE units utilize a 240 volt heating system.

NOTE: GRAL & GRAHL Models that have multiple voltages listed, such as 120/208, 120/240 or 100/200, have multiple circuits. For example a 120/208 volt unit utilizes 120 volts for light circuit and 208 volts for the heat circuit(s). Consult Electrical Diagram supplied with the unit for specific information.

Electrical Rating Chart — GRAHL Models

Model GRAHL-18 Watts: 470 Shipping Weight: 9 lbs. (4 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	3.9	2.7	2.5	4.7	3.0	2.1	2.0
Model GRAHL-24 Watts: 620 Shipping Weight: 10 lbs. (5 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	5.2	3.4	3.1	6.2	3.7	2.8	2.6
Model GRAHL-30 Watts: 780 Shipping Weight: 11 lbs. (5 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	6.5	4.2	3.8	7.8	4.5	3.5	3.3
Model GRAHL-36 Watts: 980 Shipping Weight: 13 lbs. (6 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	8.2	5.3	4.8	9.8	5.8	4.5	4.1
Model GRAHL-42 Watts: 1130 Shipping Weight: 15 lbs. (7 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	9.4	6.1	5.5	11.3	6.6	5.1	4.7
Model GRAHL-48 Watts: 1340 Shipping Weight: 17 lbs. (8 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	11.2	7.3	6.6	13.4	7.9	6.1	5.6
Model GRAHL-54 Watts: 1490 Shipping Weight: 19 lbs. (9 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	12.4	8.0	7.2	14.9	8.7	6.8	6.2
Model GRAHL-60 Watts: 1700 Shipping Weight: 21 lbs. (10 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	14.2	9.2	8.3	17.0	10.0	7.7	7.1
Model GRAHL-66 ■ Watts: 1860 Shipping Weight: 22 lbs. (10 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	15.5	10.0	9.0	18.6	10.8	8.5	7.8
Model GRAHL-72 ■ Watts: 2085 Shipping Weight: 24 lbs. (11 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	17.4	11.3	10.2	20.9	12.2	9.5	8.7
Model GRAHL-84 ■ Watts: 2470 Shipping Weight: 28 lbs. (13 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	20.6	13.4	12.0	24.7	14.5	11.2	10.3
Model GRAHL-96 ■ Watts: 2880 Shipping Weight: 32 lbs. (15 kg)							
Voltage	120	120/208	120/240	100	100/200	220 ♦	240 ♦
Amps	24.0	15.5	14.0	28.8	16.8	13.1	12.0
Model GRAHL-108 † Watts: 3040 Shipping Weight: 36 lbs. (16 kg)							
Voltage	120	120/208	120/240	100	100/200	220	240
Amps	25.3	16.5	14.9	30.4	17.9	13.8	12.7
Model GRAHL-120 †* Watts: 3400 Shipping Weight: 40 lbs. (18 kg)							
Voltage	120	120/208	120/240	100	100/200	220	240
Amps	---	18.5	16.7	---	20.0	15.5	14.2
Model GRAHL-132 †* Watts: 3780 Shipping Weight: 44 lbs. (20 kg)							
Voltage	120	120/208	120/240	100	100/200	220	240
Amps	---	20.5	18.5	---	22.2	17.2	15.8
Model GRAHL-144 †* Watts: 4170 Shipping Weight: 48 lbs. (22 kg)							
Voltage	120	120/208	120/240	100	100/200	220	240
Amps	---	22.6	20.4	---	24.5	19.0	17.4

CAUTION! Strip heaters equipped with incandescent lights that require a circuit breaker larger than 20 amps for the heat element must have a separate circuit breaker for the incandescent lights that is 20 amps or less.

SPECIFICATIONS

Electrical Rating Chart — GRA-XXD Models

Model GRA-18D		Watts: 500	Shipping Weight: 14 lbs. (6 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	4.2	2.4	2.1	5.0	2.5	2.3	2.1
Model GRA-24D		Watts: 700	Shipping Weight: 16 lbs. (7 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	5.8	3.4	2.9	7.0	3.5	3.2	2.9
Model GRA-30D		Watts: 900	Shipping Weight: 18 lbs. (8 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	7.5	4.3	3.8	9.0	4.5	4.1	3.8
Model GRA-36D■		Watts: 1150	Shipping Weight: 21 lbs. (10 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	9.6	5.5	4.8	11.5	5.8	5.2	4.8
Model GRA-42D■		Watts: 1350	Shipping Weight: 24 lbs. (11 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	11.3	6.5	5.6	13.5	6.8	6.1	5.6
Model GRA-48D■		Watts: 1600	Shipping Weight: 27 lbs. (12 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	13.3	7.7	6.7	16.0	8.0	7.3	6.7
Model GRA-54D■		Watts: 1850	Shipping Weight: 30 lbs. (14 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	15.4	8.9	7.7	18.5	9.3	8.4	7.7
Model GRA-60D■		Watts: 2100	Shipping Weight: 34 lbs. (15 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	17.5	10.1	8.8	21.0	10.5	9.5	8.8
Model GRA-66D◆■		Watts: 2320	Shipping Weight: 37 lbs. (17 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	19.3	11.2	9.7	23.2	11.6	10.5	9.7
Model GRA-72D◆■		Watts: 2550	Shipping Weight: 41 lbs. (19 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	21.3	12.3	10.6	25.5	12.8	11.6	10.6
Model GRA-84D†■		Watts: 3000	Shipping Weight: 44 lbs. (20 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	25.0	14.4	12.5	30.0	15.0	13.6	12.5
Model GRA-96D†■		Watts: 3450	Shipping Weight: 52 lbs. (24 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	28.8	16.6	14.4	34.5	17.3	15.7	14.4
Model GRA-108D†■		Watts: 3700	Shipping Weight: 59 lbs. (27 kg)				
Voltage	120	208	240	100	200	220	240
Amps	30.8	17.8	15.4	37.0	18.5	16.8	15.4
Model GRA-120D†*		Watts: 4200	Shipping Weight: 66 lbs. (30 kg)				
Voltage	120	208	240	100	200	220	240
Amps	---	20.2	17.5	---	21.0	19.1	17.5
Model GRA-132D†*		Watts: 4640	Shipping Weight: 73 lbs. (33 kg)				
Voltage	120	208	240	100	200	220	240
Amps	---	22.3	19.3	---	23.2	21.1	19.3
Model GRA-144D†*		Watts: 5100	Shipping Weight: 80 lbs. (36 kg)				
Voltage	120	208	240	100	200	220	240
Amps	---	24.5	21.3	---	25.5	23.2	21.3

Electrical Rating Chart — GRAH-XXD Models

Model GRAH-18D		Watts: 700	Shipping Weight: 14 lbs. (6 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	5.8	3.4	2.9	7.0	3.5	3.2	2.9
Model GRAH-24D		Watts: 1000	Shipping Weight: 16 lbs. (7 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	8.3	4.8	4.2	10.0	5.0	4.5	4.2
Model GRAH-30D		Watts: 1320	Shipping Weight: 18 lbs. (8 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	11.0	6.3	5.5	13.2	6.6	6.0	5.5
Model GRAH-36D■		Watts: 1600	Shipping Weight: 21 lbs. (10 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	13.3	7.7	6.7	16.0	8.0	7.3	6.7
Model GRAH-42D■		Watts: 1900	Shipping Weight: 24 lbs. (11 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	15.8	9.1	7.9	19.0	9.5	8.6	7.9
Model GRAH-48D■		Watts: 2200	Shipping Weight: 27 lbs. (12 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	18.3	10.6	9.2	22.0	11.0	10.0	9.2
Model GRAH-54D■		Watts: 2500	Shipping Weight: 30 lbs. (14 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	20.8	12.0	10.4	25.0	12.5	11.4	10.4
Model GRAH-60D■		Watts: 2800	Shipping Weight: 34 lbs. (15 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	23.3	13.5	11.7	28.0	14.0	12.7	11.7
Model GRAH-66D◆■		Watts: 3120	Shipping Weight: 37 lbs. (17 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	26.0	15.0	13.0	31.2	15.6	14.2	13.0
Model GRAH-72D◆■		Watts: 3450	Shipping Weight: 41 lbs. (19 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	28.8	16.6	14.4	34.5	17.3	15.7	14.4
Model GRAH-84D†■		Watts: 4100	Shipping Weight: 44 lbs. (20 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	34.2	19.7	17.1	41.0	20.5	18.6	17.1
Model GRAH-96D†■		Watts: 4800	Shipping Weight: 52 lbs. (24 kg)				
Voltage	120	208	240	100	200	220◆	240◆
Amps	40.0	23.1	20.0	48.0	24.0	21.8	20.0
Model GRAH-108D†■		Watts: 5000	Shipping Weight: 59 lbs. (27 kg)				
Voltage	120	208	240	100	200	220	240
Amps	41.7	24.0	20.8	50.0	25.0	22.7	20.8
Model GRAH-120D†*		Watts: 5600	Shipping Weight: 66 lbs. (30 kg)				
Voltage	120	208	240	100	200	220	240
Amps	---	26.9	23.3	---	28.0	25.5	23.3
Model GRAH-132D†*		Watts: 6240	Shipping Weight: 73 lbs. (33 kg)				
Voltage	120	208	240	100	200	220	240
Amps	---	30.0	26.0	---	31.2	28.4	26.0
Model GRAH-144D†*		Watts: 6900	Shipping Weight: 80 lbs. (36 kg)				
Voltage	120	208	240	100	200	220	240
Amps	---	33.2	28.8	---	34.5	31.4	28.8

The shaded areas contain electrical information for **Export models only**.

- 100 and 120 volt models with infinite switch may require tandem (end-to-end) elements, consult factory for applications.
- 100 and 120 volt models may require additional switches, consult factory for applications.

† Glo-Ray models 108 through 144 and 120 volt models of GRA-84D and GRA-96D contain tandem (end-to-end) elements that may be individually controlled.

* Not available in 100 or 120 volts.

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Electrical Rating Chart — GRAL-XXD Models

Model GRAL-18D		Watts: 620	Shipping Weight: 14 lbs. (6 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	5.2	3.4	3.1	6.2	3.7	2.8	2.6
Model GRAL-24D		Watts: 820	Shipping Weight: 16 lbs. (7 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	6.8	4.4	3.9	8.2	4.7	3.7	3.4
Model GRAL-30D		Watts: 1020	Shipping Weight: 19 lbs. (9 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	8.5	5.3	4.8	10.2	5.7	4.6	4.3
Model GRAL-36D		Watts: 1330	Shipping Weight: 22 lbs. (10 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	11.1	7.0	6.3	13.3	7.6	6.0	5.5
Model GRAL-42D		Watts: 1530	Shipping Weight: 25 lbs. (11 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	12.8	8.0	7.1	15.3	8.6	7.0	6.4
Model GRAL-48D■		Watts: 1840	Shipping Weight: 29 lbs. (13 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	15.3	9.7	8.7	18.4	10.4	8.4	7.7
Model GRAL-54D■		Watts: 2090	Shipping Weight: 33 lbs. (15 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	17.4	10.9	9.7	20.9	11.7	9.5	8.7
Model GRAL-60D■		Watts: 2400	Shipping Weight: 37 lbs. (17 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	20.0	12.6	11.3	24.0	13.5	10.9	10.0
Model GRAL-66D■		Watts: 2620	Shipping Weight: 40 lbs. (18 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	21.8	13.7	12.2	26.2	14.6	11.9	10.9
Model GRAL-72D■		Watts: 2910	Shipping Weight: 42 lbs. (19 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	24.3	15.3	13.6	29.1	16.4	13.2	12.1
Model GRAL-84D■		Watts: 3420	Shipping Weight: 47 lbs. (21 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	28.5	17.9	16.0	34.2	19.2	15.5	14.3
Model GRAL-96D■		Watts: 3930	Shipping Weight: 56 lbs. (25 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	32.8	20.6	18.4	39.3	22.1	17.9	16.4
Model GRAL-108D†■		Watts: 4240	Shipping Weight: 64 lbs. (29 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	35.3	22.3	19.9	42.4	23.9	19.3	17.7
Model GRAL-120D†*		Watts: 4800	Shipping Weight: 72 lbs. (33 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	--	25.2	22.5	---	27.0	21.8	20.0
Model GRAL-132D†*		Watts: 5300	Shipping Weight: 79 lbs. (36 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	---	27.8	24.8	---	29.8	24.1	22.1
Model GRAL-144D†*		Watts: 5820	Shipping Weight: 86 lbs. (39 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	---	30.5	27.3	---	32.7	26.5	24.3

The shaded areas contain electrical information for **Export models only**.

- 100 and 120 volt models with infinite switch may require tandem (end-to-end) elements, consult factory for applications.
- 100 and 120 volt models may require additional switches, consult factory for applications.
- † Glo-Ray models 108 through 144 and 120 volt models of GRAL-84D and GRAL-96D contain tandem (end-to-end) elements that may be individually controlled.
- * Not available in 100 or 120 volts.
- ◆ CE approved units for 220-230 volt utilize a 220 volt heating system; 230-240 CE units utilize a 240 volt heating system.

Electrical Rating Chart — GRAHL-XXD Models

Model GRAHL-18D		Watts: 820	Shipping Weight: 14 lbs. (6 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	6.8	4.4	3.9	8.2	4.7	3.7	3.4
Model GRAHL-24D		Watts: 1120	Shipping Weight: 16 lbs. (7 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	9.3	5.8	5.2	11.2	6.2	5.1	4.7
Model GRAHL-30D		Watts: 1440	Shipping Weight: 19 lbs. (9 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	12.0	7.3	6.5	14.4	7.8	6.5	6.0
Model GRAHL-36D■		Watts: 1780	Shipping Weight: 22 lbs. (10 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	14.8	9.2	8.2	17.8	9.8	8.1	7.4
Model GRAHL-42D■		Watts: 2080	Shipping Weight: 25 lbs. (11 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	17.3	10.6	9.4	20.8	11.3	9.5	8.7
Model GRAHL-48D■		Watts: 2440	Shipping Weight: 29 lbs. (13 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	20.3	12.6	11.2	24.4	13.4	11.1	10.2
Model GRAHL-54D■		Watts: 2740	Shipping Weight: 33 lbs. (15 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	22.8	14.0	12.4	27.4	14.9	12.5	11.4
Model GRAHL-60D■		Watts: 3100	Shipping Weight: 37 lbs. (17 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	25.8	16.0	14.2	31.0	17.0	14.1	12.9
Model GRAHL-66D■		Watts: 3420	Shipping Weight: 39 lbs. (18 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	28.5	17.5	15.5	34.2	18.6	15.5	14.3
Model GRAHL-72D■		Watts: 3810	Shipping Weight: 42 lbs. (19 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	31.8	19.6	17.4	38.1	20.9	17.3	15.9
Model GRAHL-84D†■		Watts: 4520	Shipping Weight: 47 lbs. (21 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	37.7	23.2	20.6	45.2	24.7	20.5	18.8
Model GRAHL-96D†■		Watts: 5280	Shipping Weight: 56 lbs. (25 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	44.0	27.1	24.0	52.8	28.8	24.0	22.0
Model GRAHL-108D†■		Watts: 5540	Shipping Weight: 64 lbs. (29 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	46.2	28.5	25.3	55.4	30.4	25.2	23.1
Model GRAHL-120D†*		Watts: 6200	Shipping Weight: 72 lbs. (33 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	---	31.9	28.3	---	34.0	28.2	25.8
Model GRAHL-132D†*		Watts: 6900	Shipping Weight: 79 lbs. (36 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	---	35.5	31.5	---	37.8	31.4	28.8
Model GRAHL-144D†*		Watts: 7620	Shipping Weight: 86 lbs. (39 kg)				
Voltage	120	120/208	120/240	100	100/200	220◆	240◆
Amps	---	39.2	34.8	---	41.7	34.6	31.8

SPECIFICATIONS

Electrical Rating Chart — GRN Models

Model GRN-18		Watts: 250		Shipping Weight: 6 lbs. (3 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	2.1	1.2	1.0	2.5	1.3	1.1	1.0
Model GRN-24		Watts: 350		Shipping Weight: 7 lbs. (3 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	2.9	1.7	1.5	3.5	1.8	1.6	1.5
Model GRN-30		Watts: 450		Shipping Weight: 8 lbs. (4 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	3.8	2.2	1.9	4.5	2.3	2.1	1.9
Model GRN-36		Watts: 575		Shipping Weight: 9 lbs. (4 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	4.8	2.8	2.4	5.8	2.9	2.6	2.4
Model GRN-42		Watts: 675		Shipping Weight: 10 lbs. (5 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	5.6	3.2	2.8	6.8	3.4	3.1	2.8
Model GRN-48		Watts: 800		Shipping Weight: 11 lbs. (5 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	6.7	3.8	3.3	8.0	4.0	3.6	3.3
Model GRN-54		Watts: 925		Shipping Weight: 13 lbs. (6 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	7.7	4.4	3.9	9.3	4.6	4.2	3.9
Model GRN-60		Watts: 1050		Shipping Weight: 14 lbs. (6 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	8.8	5.0	4.4	10.5	5.3	4.8	4.4
Model GRN-66		Watts: 1160		Shipping Weight: 16 lbs. (7 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	9.7	5.6	4.8	11.6	5.8	5.3	4.8
Model GRN-72		Watts: 1275		Shipping Weight: 17 lbs. (8 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	10.6	6.1	5.3	12.8	6.4	5.8	5.3

Electrical Rating Chart — GRNH Models

Model GRNH-18		Watts: 350		Shipping Weight: 6 lbs. (3 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	2.9	1.7	1.5	3.5	1.8	1.6	1.5
Model GRNH-24		Watts: 500		Shipping Weight: 7 lbs. (3 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	4.2	2.4	2.1	5.0	2.5	2.3	2.1
Model GRNH-30		Watts: 660		Shipping Weight: 8 lbs. (4 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	5.5	3.2	2.8	6.6	3.3	3.0	2.8
Model GRNH-36		Watts: 800		Shipping Weight: 9 lbs. (4 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	6.7	3.8	3.3	8.0	4.0	3.6	3.3
Model GRNH-42		Watts: 950		Shipping Weight: 10 lbs. (5 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	7.9	4.6	4.0	9.5	4.8	4.3	4.0
Model GRNH-48		Watts: 1100		Shipping Weight: 11 lbs. (5 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	9.2	5.3	4.6	11.0	5.5	5.0	4.6
Model GRNH-54		Watts: 1250		Shipping Weight: 13 lbs. (6 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	10.4	6.0	5.2	12.5	6.3	5.7	5.2
Model GRNH-60		Watts: 1400		Shipping Weight: 14 lbs. (6 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	11.7	6.7	5.8	14.0	7.0	6.4	5.8
Model GRNH-66*		Watts: 1560		Shipping Weight: 16 lbs. (7 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	13.0	7.5	6.5	15.6	7.8	7.1	6.5
Model GRNH-72*		Watts: 1725		Shipping Weight: 17 lbs. (8 kg)			
Voltage	120	208	240	100	200	220◆	240◆
Amps	14.4	8.3	7.2	17.3	8.6	7.8	7.2

The shaded areas contain electrical information for **Export models only**.

* 120 volt models not available for use with remote infinite switches.

◆ CE approved units for 220-230 volt utilize a 220 volt heating system; 230-240 CE units utilize a 240 volt heating system.

NOTE: GRAL & GRAHL Models that have multiple voltages listed, such as 120/208, 120/240 or 100/200, have multiple circuits. For example a 120/208 volt unit utilizes 120 volts for light circuit and 208 volts for the heat circuit(s). Consult Electrical Diagram supplied with the unit for specific information.

CAUTION

Strip heaters equipped with incandescent lights that require a circuit breaker larger than 20 amps for the heat element must have a separate circuit breaker for the incandescent lights that is 20 amps or less.

SPECIFICATIONS

Dimensions

Models	Width (A)	Depth (B)	Depth (C)	Height (D)
GR and GRH	18 – 96 (457 – 2438 mm)	6 (152 mm)	23 (584 mm)	2-1/2 (64 mm)
GRA and GRAH	18 – 144 (457 – 3658 mm)	6 (152 mm)	23 (584 mm)	2-1/2 (64 mm)

NOTE: Unit shown with optional 9-3/8 (238 mm) sneeze guards and mounting flanges. Not available for retrofit or on GR and GRH models.

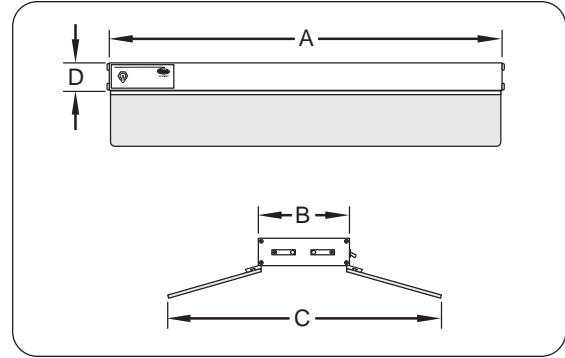


Figure 6. Dimensions — GR, GRH, GRA, and GRAH Models

Models	Width (A)	Depth (B)	Depth (C)	Height (D)
GRAL and GRAHL	18 – 144 (457 – 3658 mm)	9 (229 mm)	26 (660 mm)	2-1/2 (64 mm)

NOTE: Unit shown with optional 9-3/8 (238 mm) sneeze guards and mounting flanges. Not available for retrofit.

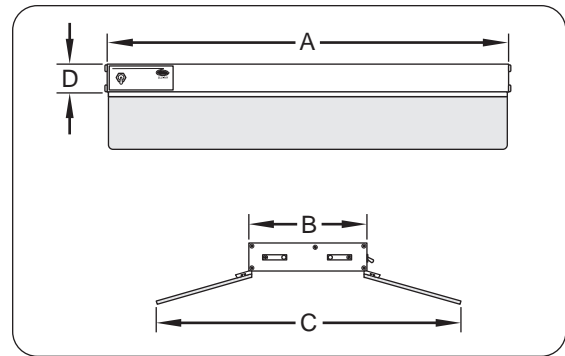


Figure 7. Dimensions — GRAL and GRAHL Models

Models	Width (A)	Depth* (B)	Depth* (C)	Height (D)
GRA-XXD and GRAH-XXD	18 – 144 (457 – 3658 mm)	15 (381 mm)	32 (813 mm)	2-1/2 (64 mm)
GRAL-XXD and GRAHL-XXD	18 – 144 (457 – 3658 mm)	15 (381 mm)	32 (813 mm)	2-1/2 (64 mm)

* Dimension shown is standard with 3 (76 mm) spacer; when used with 6 (152 mm) spacer, add 3 (76 mm).

NOTE: Unit shown with optional 9-3/8 (238 mm) sneeze guards and mounting flanges. Not available for retrofit.

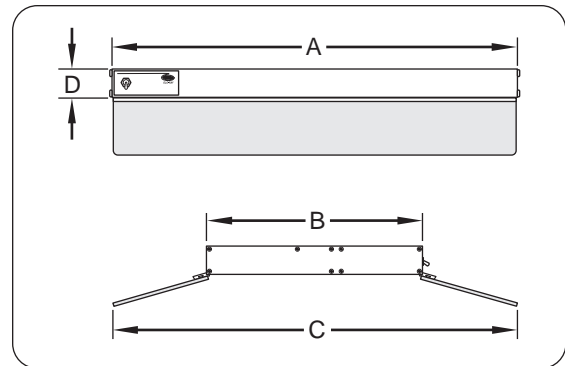


Figure 8. Dimensions — GRA-D, GRAH-D, GRAL-D, and GRAHL-D Models

Models	Width (A)	Depth (B)	Height (C)
GRN and GRNH	18 – 72 (457 – 1829 mm)	4 (102 mm)	2 (51 mm)

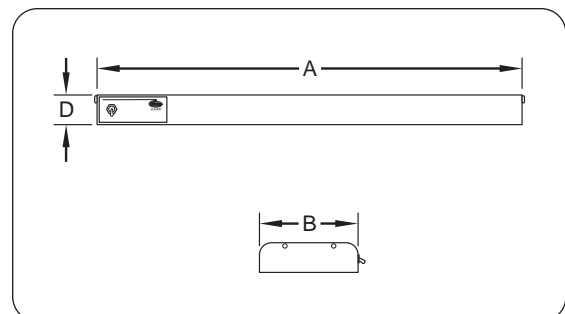


Figure 9. Dimensions — GRN and GRNH Models

INSTALLATION

General

Use the information in this section to prepare for installation of the strip heater. Make sure to locate the specific information for the model of strip heater and type of installation.

WARNING

FIRE HAZARD:

- **Locate the unit the correct distance from combustible walls and materials. If safe distances are not maintained, discoloration or combustion could occur. Refer to specific installation and mounting information in this manual for proper clearances.**
- **Make sure to follow the installation information listed below for specific strip heaters. If safe distances are not maintained, discoloration or combustion could occur.**
 - a. **Do not install standard wattage strip heaters (GR, GRA, GRN, GRAL Series) less than 10 (254 mm) above combustible surfaces.**
 - b. **Do not install high wattage strip heaters (GRH, GRAH, GRNH, GRAHL Series) less than 13-1/2 (343 mm) above combustible surfaces.**
 - c. **Do not install dual strip heaters (GRA-XXD, GRAH-XXD, GRAL-XXD, and GRAHL-XXD Series) above combustible surfaces.**
 - e. **Install all single strip heaters with a minimum distance of 3 (76 mm) from a combustible wall or adjacent surface.**

CAUTION

To ensure safe and proper operation, refer to the Clearance Requirements listed in the Installation section of this manual.

NOTICE

Heat damage to countertop material such as Corian® and similar products (other than stainless steel) is not covered under the Hatco warranty. Contact the manufacturer of the base material for temperature limits and application information before installing the unit.

To prevent unit failure from excessive heat, do not add a decorative soffit to hide a pass-through mounted strip heater.

NOTE: Contact the countertop manufacturer of the base material for application information and surface temperature limits before installing the unit.

1. Remove the unit from the shipping carton and remove all packing materials.
2. Remove the information packet.

NOTE: To prevent delay in obtaining warranty coverage, fill out and mail in the warranty card to Hatco.

NOTE: If unit is equipped with optional equipment, see the ACCESSORIES section near the back of this manual.

Dual Mounting

When mounting units side-by-side, a space not less than 3 (76 mm) must be maintained between units. Dual units ordered from the factory are shipped with a pre-assembled 3 (76 mm) or 6 (152 mm) spacer.

NOTE: Dual units are available with aluminum housings only.

NOTICE

Installation of two or more separate units with less than 3 (76 mm) between housings may result in premature failure of component parts. Failure to provide proper spacing may result in heat damage to electrical components.

Under Shelf Mounting

When mounting a unit under a shelf, use adjustable angle brackets to assure proper spacing. Remote control enclosures are recommended to keep switches out of the heat zone and prevent premature failure.

Pass-Through

If pass-through area is 12 to 16 (305 to 406 mm) deep, the standard wattage or high wattage single unit can be used. For a 20 to 24 (508 to 610 mm) deep pass-through area, a dual unit in either standard or high wattage is recommended. Installation of multiple units must have a minimum spacing of 3 (76 mm) between heaters.

T-Legs or C-Legs

Do not mount units longer than 60 (1524 mm) on T-legs or C-legs.

Over Steam Table

When mounting over a steam table, a remote control switch enclosure must be installed.

INSTALLATION

Mounting Height Requirements

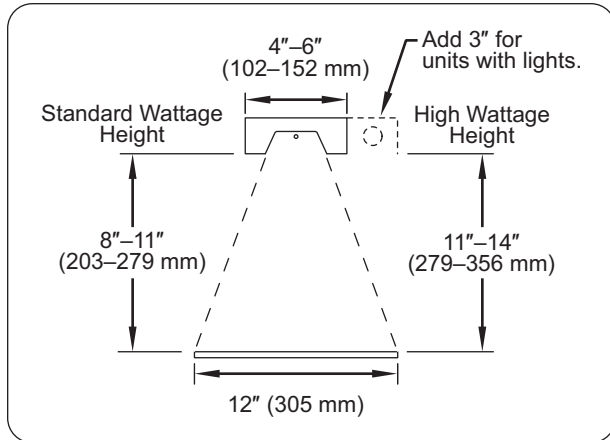


Figure 10. Recommended Element Height for the GR, GRA, GRH, GRN, GRAH, GRAL, GRNH, and GRAHL models in all lengths (excluding dual models).

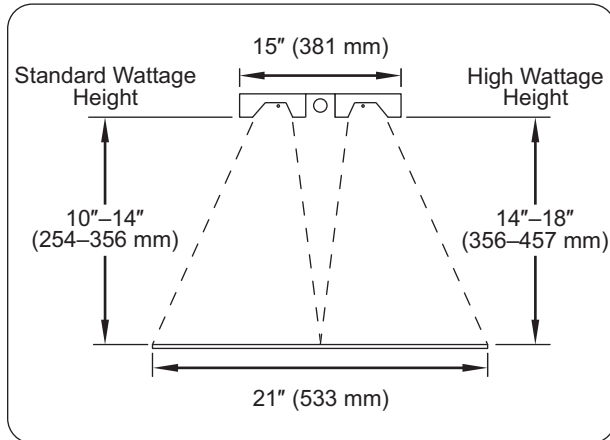


Figure 11. Recommended Element Height for the GRA-D, GRAH-D, GRAL-D & GRAHL-D dual models with a 3 (76 mm) spacer in all lengths.

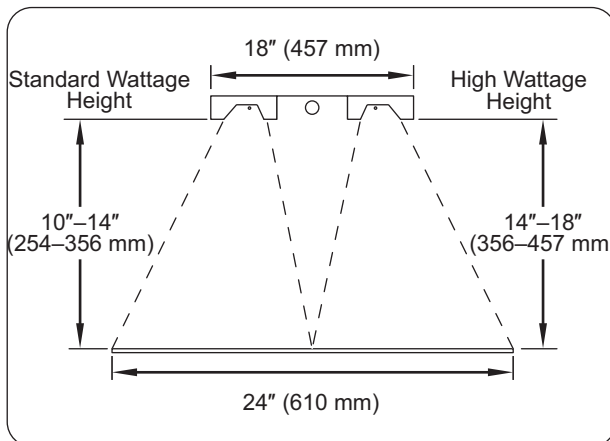


Figure 12. Recommended Element Height for the GRA-D, GRAH-D, GRAL-D & GRAHL-D dual models with a 6 (152 mm) spacer in all lengths.

Assembly

Glo-Ray Strip Heaters are shipped with most components pre-assembled. Dual units are available with a required 3 (76 mm) or 6 (152 mm) spacer pre-assembled at the factory.

Optional sneeze guards, mounting equipment, and remote control enclosures must be installed on location.

Portable Surface Mounting

Single strip heater units can be mounted on C-Leg or T-Leg stands for portable use. Portable units are available in 120V only and are required to have a power cord and plug connection.

NOTE: C-Legs and T-Legs are not to be used with dual strip heater units.

C-Leg Stand Mounting

Two types of C-Legs are available.

- CL-Low = 10 (254 mm) height, for standard wattage strip heaters up to 5 (1524 mm) in width only.
- CL-High = 13-1/2 (343 mm) height, for high wattage strip heaters up to 5 (1524 mm) in width only.

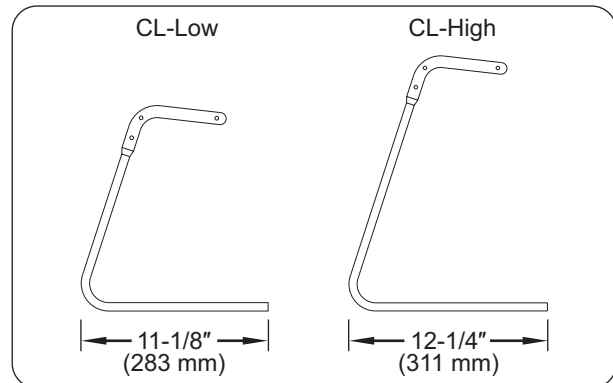


Figure 13. C-Leg Footprint Dimensions

Perform the following procedure to install a C-Leg stand on each end of the unit.

1. Position the unit upside-down on a flat surface.
2. Install sneeze guard(s), if required (refer to the "Sneeze Guard Installation" procedure in this section).
3. Remove the two screws and hanger tabs from the end of the unit.
4. Remove the one end plate screw that aligns with the lowest mounting hole on the C-Leg (see Figure 14).
5. Align the three mounting holes on the C-Leg with the three holes on the unit. Secure the leg to the unit with the three screws removed in the previous steps.

INSTALLATION

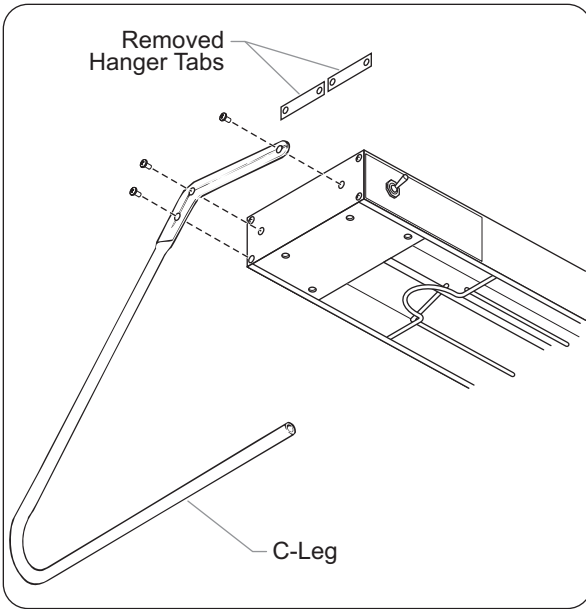


Figure 14. C-Leg Stand

T-Leg Stand Mounting

T-Leg stands are available in the following heights:

- Standard wattage units = 10 (254 mm)
- High wattage units = 13-1/2 (343 mm)
16 (406 mm)
18 (457 mm).

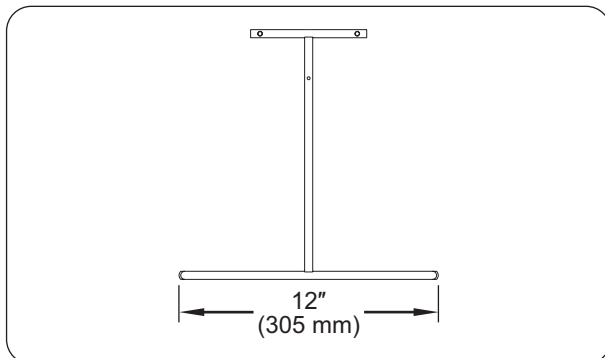


Figure 15. T-Leg Footprint Dimension

Perform the following procedure to install a T-Leg stand on each end of the unit.

1. Position the unit upside-down on a flat surface.
2. Position the mounting bracket on the underside of the unit and remove the two screws on the unit that match up with the holes on the mounting bracket.
3. Secure the mounting bracket to the unit with the two screws removed in the previous step.
4. Remove the two screws and hanger tabs from the end of the unit.

5. Align the two mounting holes on the small "T" of the T-Leg with the two holes on the end of the unit. Secure the leg to the unit with the two screws removed in the previous step.
6. Align the single mounting hole on the vertical post of the T-Leg with the hole on the mounting bracket. Secure with the supplied screw.

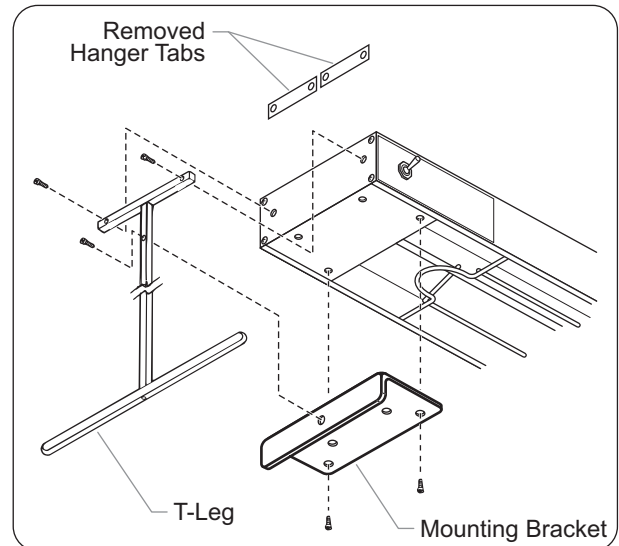


Figure 16. T-Leg Stand End Mounting

INSTALLATION

Minimum Clearance Requirements for Combustible Surroundings

Models	(A)	(B)	(C)
GRA and GRAL	10 (254 mm)	3 (76 mm)	1 (25 mm)
GRAH and GRAHL	13-1/2 (343 mm)	3 (76 mm)	1 (25 mm)

NOTE: Dual strip heaters cannot be installed in combustible surroundings.

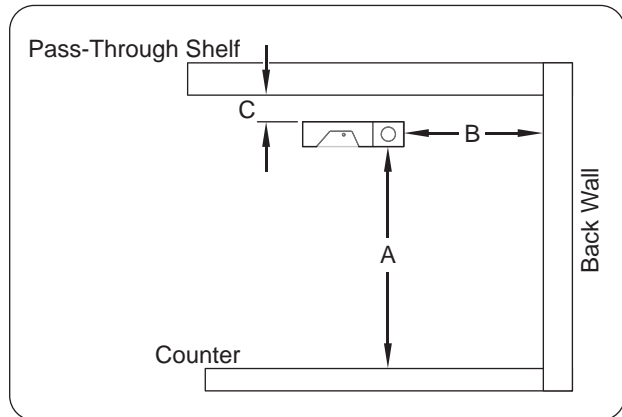


Figure 17. Combustible Clearance Requirements

Minimum Clearance Requirements for Non-Combustible Surroundings

Corded Units with Built-In Switches

Models	(A)	(B)†	(C)
GRA and GRAL	10 (254 mm)	N/A	3 (76 mm)
GRAH and GRAHL	11 (279 mm)	N/A	3 (76 mm)

Hardwired Units with Built-In Switches

Models	(A)	(B)†	(C)
GRA and GRAL	8 (203 mm)	N/A	1 (25 mm)
GRAH and GRAHL with Infinite Heat Control Switch or Indicator Light	10 (254 mm)	N/A	1 (25 mm)
GRAH and GRAHL with On/Off Toggle Switch	8 (203 mm)	N/A	1 (25 mm)

Hardwired Units with Remote Switches

Models	(A)	(B)	(C)
GRA and GRAL	8 (203 mm)	0 (0 mm)	0 (0 mm)
GRAH and GRAHL	8 (203 mm)	0 (0 mm)	0 (0 mm)

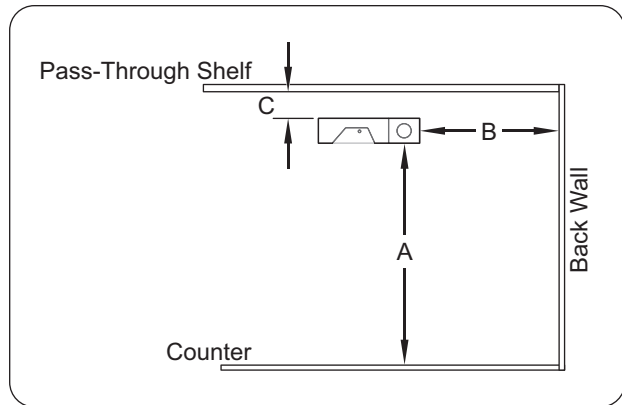


Figure 18. Non-Combustible Clearance Requirements

Dual Units with Built-In Switches

Models	(A)	(B)†	(C)
GRA-XXD GRAH-XXD GRAL-XXD GRAHL-XXD	10 (254 mm)	N/A	1 (25 mm)

Dual Units with Remote Switches

Models	(A)	(B)	(C)
GRA-XXD GRAH-XXD GRAL-XXD GRAHL-XXD	8 (203 mm)	3 (76 mm)	0 (0 mm)

† Must be a pass-through application, not allowed with back wall installation.

INSTALLATION

Permanent Surface Mount

Tubular stand mounting permanently attaches the unit to a countertop or serving table. All wiring may be concealed within one of the tubular stands.

CAUTION

To ensure safe and proper operation, refer to the Clearance Requirements listed in the Installation section of this manual.

Tubular stands are available in aluminum non-adjustable heights from 10 -16 (254-406 mm) or in stainless steel adjustable heights from 10 -14 (254-356 mm).

NOTE: Tubular stands are not field retrofittable.

NOTE: If wiring is to be concealed, a 1 (25 mm) diameter hole must be provided in the mounting surface centered under the stand containing the wiring conduit.

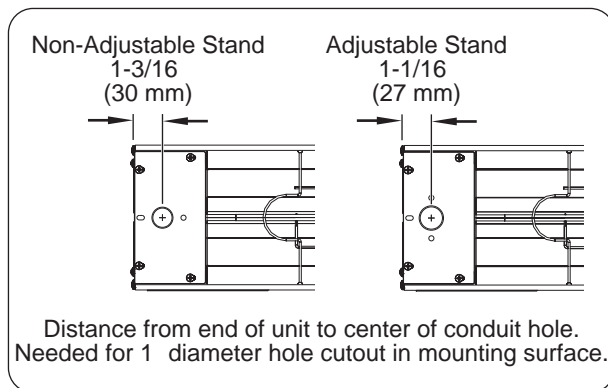


Figure 19. Countertop Conduit Hole Dimension

1. Position the unit upside-down on a flat surface.

NOTE: Units for this application are supplied with the conduit attached to one side of the unit. Conduit should not be removed.

2. If applicable, route the flexible conduit through the center of one of the stands (see Figure 20.)
3. Pull the conduit-side stand up against the unit and secure the stand to the unit using the screws supplied. Align the the other stand with the mounting holes at the other end of the unit and secure the stand to the unit using the screws supplied.
4. If applicable, route the flexible conduit through the 1 diameter hole cut into the mounting surface.
5. Secure the stands to the mounting surface.

NOTE: The adjustable stands can be raised or lowered by turning the locking set screw counterclockwise one turn with an Allen wrench, and then raising or lowering the unit to the desired height and retightening the screw. Do not loosen the screw more than necessary.

NOTE: Two pairs of stands will be needed for mounting dual units.

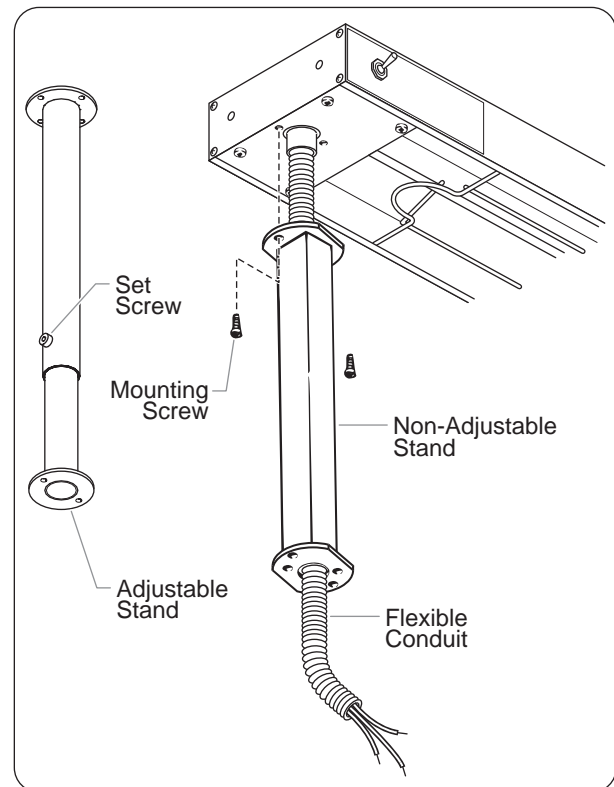


Figure 20. Tubular Stand Mounting

INSTALLATION

Undershelf Mounting

Undershelf mounting permanently attaches the unit to the underside of a shelf. It can be mounted to a flat shelf or a shelf with rolled/flanged edges.

CAUTION

To ensure safe and proper operation, refer to the Clearance Requirements listed in the Installation section of this manual.

NOTE: When mounting the unit under a shelf, it is recommended to use a remote switch enclosure.

If the shelf is flat, use either the optional adjustable angle brackets or the included hanger tabs, depending on the material of the shelf. The adjustable angle brackets will provide the necessary gap between the unit and a combustible shelf (refer to "Clearance Requirements for Combustible Surroundings" in this section for gap requirements). The hanger tabs can be used only with a non-combustible shelf and a unit equipped with a remote switch enclosure.

If the shelf has a rolled or flanged edge, use the optional adjustable angle brackets to mount the unit below the lowest part of the rolled or flanged edge of the shelf (a minimum gap of 1 [25 mm] is required between the unit and the underside of a rolled or flanged shelf to prevent heat damage to the electrical system of the unit).

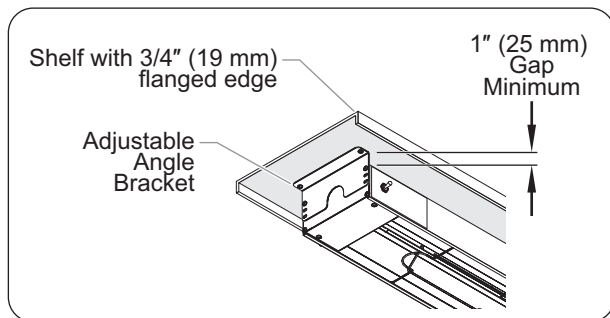


Figure 21. Flanged Edge Shelf Installation

NOTE: GRN Series units are supplied with matching designer-colored angle brackets providing 1-1/2 (38 mm) clearance between foodwarmer and overshef.

Adjustable Angle Bracket Mounting

1. Position the unit on a flat surface with the heating element facing down.
2. Remove the two screws and hanger tabs from each end of the unit.
3. Remove the two upper end plate screws.
4. Align the adjustable angle bracket to the end plate mounting holes of the unit. Secure angle bracket with previously removed screws.

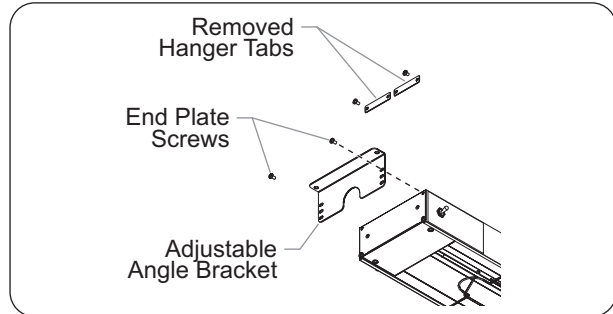


Figure 22. Adjustable Angle Bracket Installation

5. Fasten the angle bracket to the underside of the shelf using appropriate fasteners (not supplied by Hatco).

NOTE: Two pairs of brackets will be needed for dual units.

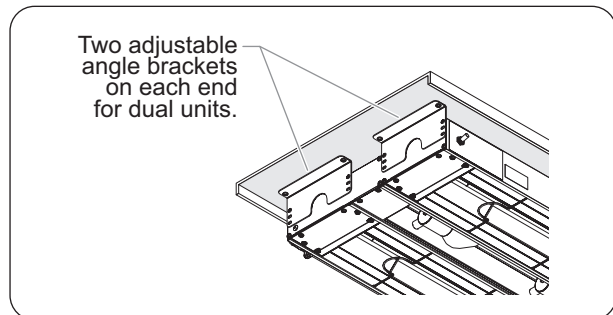


Figure 23. Dual Unit Mounting

Hanger Tab Mounting

The standard hanger tabs supplied with the unit can be bent 90° for mounting a unit equipped with a remote switch enclosure underneath a flat, non-combustible shelf.

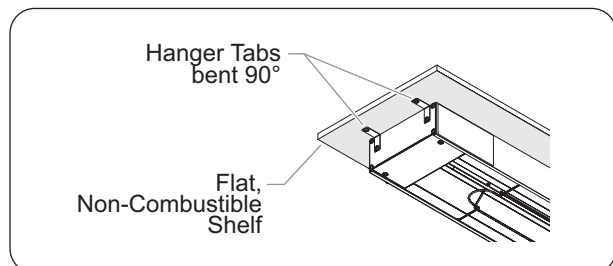


Figure 24. Hanger Tab Mounting

INSTALLATION

Overhead Mounting

Overhead mounting attaches the unit to an overhead surface with the use of “S” hooks. “S” hook mounted units are available in 120V only and are required to have a power cord and plug connection.

NOTE: Units ordered with the “S” hook option come with two “S” hooks and two 6 (152 mm) pieces of connecting chain. Additional chain (P/N 05.03.020.00) can be ordered from Hatco for the overhead mounting system or another option can be determined by a qualified installer.



WARNING

For installation with chains, make sure the chains have sufficient strength and are securely fastened to both the unit and the mounting location. Poorly installed chains may cause the unit to loosen and fall. Do not place anything on top of units installed with chains.

To ensure safe and proper operation, refer to the Clearance Requirements listed in the Installation section of this manual.

NOTE: The strength of the chain supplied by Hatco is sufficient to hold the weight of the unit securely only when mounted properly.

1. Prepare the overhead mounting system for the “S” hooks. Make sure the system is secure and is set up so the unit will be suspended at a level, safe, and proper distance from walls, counter, and food.
2. Loosen, but do not remove the screws securing the hanger tabs on each end of the unit. Rotate the tabs up, then tighten the screws securely.
3. Securely attach one of the 6 (152 mm) connecting chains between each pair of hanger tabs.
4. Attach an “S” hook to the center of each connecting chain.
5. Carefully lift the unit and attach the “S” hooks on each end of the unit to the overhead mounting system. Make sure the unit is level.

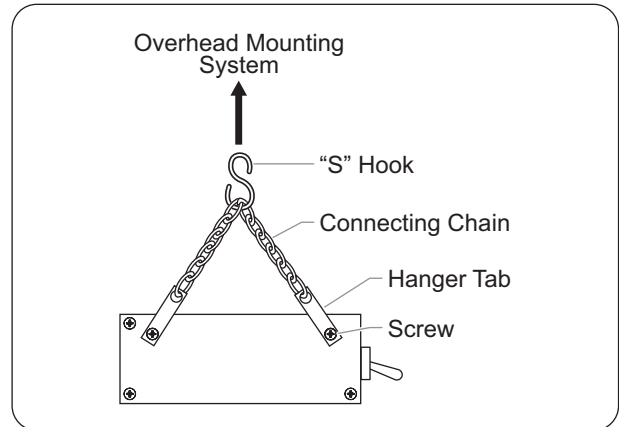


Figure 25. “S” Hook Mounting

Sneeze Guard Installation (optional)

1. Remove the protective paper from the acrylic surfaces.
2. Assemble each weld screw through the top of the sneeze guard and through the support bar. Loosely thread an acorn nut onto each of the weld screws below the support bar.
3. Lift the sneeze guard assembly and carefully slide each of the weld screws that are loosely attached to the sneeze guard into the channel on the unit (see Figure 27).
4. Align each end of the sneeze guard with the ends of the unit and then tighten the acorn nuts to secure the sneeze guard in position. Do not over-tighten the acorn nuts.

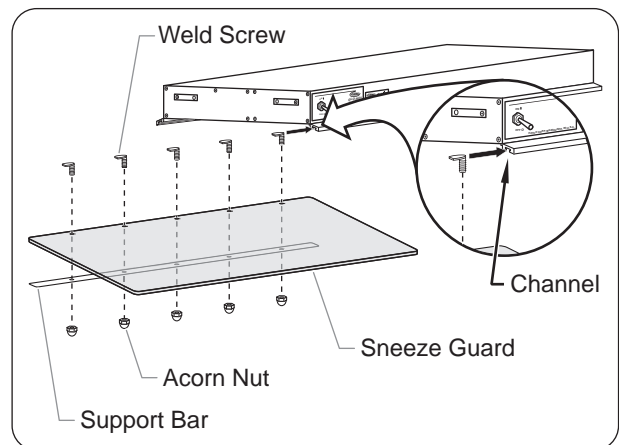


Figure 26. Installing Sneeze Guards

INSTALLATION

Electrical Wiring Hook-Up

Refer to the ELECTRICAL RATING CHARTS for unit specific information.

WARNING

ELECTRIC SHOCK HAZARD: For hard-wired units, all electrical connections must be in accordance with local electrical codes and any other applicable codes. Connections should be made by a qualified, licensed electrician.

CAUTION

Strip heaters equipped with incandescent lights that require a circuit breaker larger than 20 amps for the heat element must have a separate circuit breaker for the incandescent lights that is 20 amps or less.

NOTE: If the unit being installed is not shown or listed in this manual, refer to the wiring diagram supplied with the unit and the installation information on the unit for further instructions.

Power Supply

Install supply wire and connectors suitable for at least 194°F (90°C).

- Use a minimum of No. 14 AWG copper wire for individual circuits up to 15 amps.
- Use a minimum of No. 12 AWG copper wire for individual circuits 15 to 20 amps.
- Use a minimum of No. 10 AWG copper wire for individual circuits 20 to 25 amps.

NOTE: Refer to the wiring diagram supplied with the unit and specifications label attached to the unit for specific electrical information.

Conduit Connection

Units supplied with a right angle fitting and flexible conduit attached have had all internal connections completed at the factory. Attach the proper power supply leads to the high temperature lead wires in the conduit.

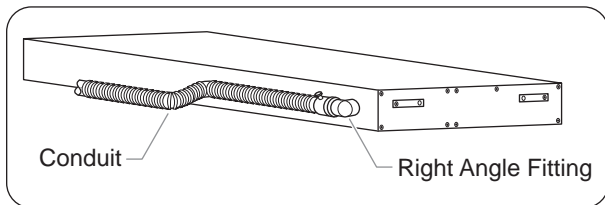


Figure 28. Conduit Connections

NOTE: Refer to the wiring diagram supplied with the unit and specifications label attached to the unit for specific electrical information.

Power Cord and Plug Models

Units can be supplied with a 5 (1524 mm) power cord and plug attached at the factory if the unit meets the following guidelines:

- Single unit only, no dual units
- 60 (1524 mm) or less in length
- Built-in switches
- Portable mounting using C-Legs or T-Legs supplied by Hatco or stationary mounting using "S" hooks and mounting chain supplied by Hatco.

WARNING

ELECTRIC SHOCK HAZARD: Units equipped with a cord and plug supplied by Hatco must be plugged into a properly grounded electrical outlet of the correct voltage, size, and plug configuration. If the plug and receptacle do not match, contact a qualified electrician to determine and install the proper voltage and size electrical outlet.

NOTE: Units intended for fixed or permanent mounting cannot have a power cord attached and must be hard wired according to local and national electrical codes.

Remote Mounted Control Boxes

Hatco Remote Mounted Control Boxes (RMBs) include switches, wire leads, and/or indicator lights and are ready for installation. Proper use of RMB's require one RMB per strip heater.

NOTICE

To prevent premature failure of components due to excessive heat, remote mounted control boxes must be installed outside the strip heater heat zone.

Control Switches

When two or more units are mounted where the heat from one housing tends to raise the temperature of another, the control switches should be installed in a remote control enclosure. Units in a multiple installation should use remote control enclosures.

NOTE: Remote mounted control boxes are available in five sizes. All models are built in accordance with U.L. standards to accommodate switches, indicator lights, and wiring, ready for installation. See the ACCESSORIES section near the back of this manual.

General

Use the following information to operate the Glo-Ray strip heaters.

⚠ WARNING

Read all safety messages in the **IMPORTANT SAFETY INFORMATION** section before operating this equipment.

⚠ CAUTION

Standard and approved manufacturing oils may smoke up to 30 minutes during initial startup. This is a temporary condition. Operate unit without food product until smoke dissipates.

Heating Element(s)

Heating element(s) are controlled either by an ON/OFF toggle switch(es) or an optional infinite control(s). To turn each element on, move the ON/OFF toggle switch to the ON position or turn the infinite control to the desired setting. If the unit is equipped with an indicator light(s), the light(s) will illuminate when the element is turned on.

Allow 15-20 minutes to reach operating temperature.

⚠ CAUTION

BURN HAZARD: Some exterior surfaces on the unit will get hot. Use caution when touching these areas.

NOTE: Dual units cannot be equipped with built-in infinite switches.

Lights

On models equipped with display lights, move the light ON/OFF toggle switch to the ON position to turn on the lights.

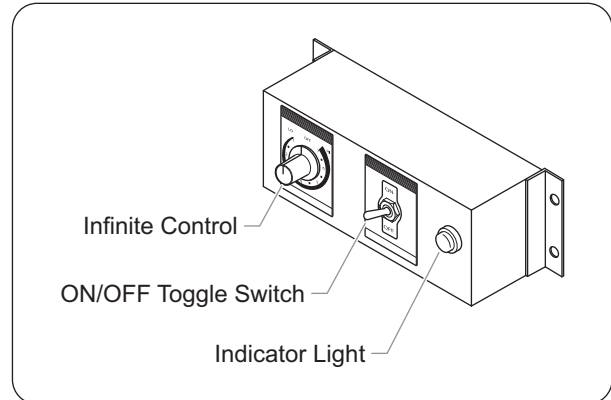


Figure 29. Remote Mounted Control Box (RMB)
(RMB-7 Series Shown)

MAINTENANCE

General

Hatco Glo-Ray Strip Heaters are designed for maximum durability and performance with minimum maintenance.

WARNING

ELECTRIC SHOCK HAZARD:

- Unplug the power cord or turn the power OFF at the fused disconnect switch/circuit breaker and allow the unit to cool before performing any maintenance or cleaning.
- DO NOT submerge or saturate with water. Unit is not waterproof. Do not operate if unit has been submerged or saturated with water.

This unit has no “user-serviceable” parts. If service is required on this unit, contact an Authorized Hatco Service Agent or contact the Hatco Service Department at 800-558-0607 or 414-671-6350; fax 800-690-2966; or International fax 414-671-3976.

NOTICE

Use non-abrasive cleaners only. Abrasive cleaners could scratch the finish of the unit, marring its appearance and making it susceptible to dirt accumulation.

Cleaning

To preserve the finish of the Glo-Ray Strip Heater, it is recommended that the surfaces be wiped daily with a clean, soft, damp cloth. Stubborn stains may be removed with a good stainless steel cleaner or a non-abrasive cleaner. Hard to reach areas should be cleaned with a small brush and mild soap.

Replacing Display Light Bulbs

WARNING

Use only light bulbs that meet or exceed National Sanitation Foundation (NSF) standards and are specifically designed for food holding areas. Breakage of light bulbs not specially coated could result in personal injury and/or food contamination.

The display light is an incandescent bulb that illuminates the warming area. This bulb has a special coating to guard against injury and food contamination in the event of breakage.

To replace a bulb, disconnect the power supply and wait until the unit has cooled. Display lamps have a threaded base. Unscrew the bulb from the unit and replace it with a new specially coated incandescent bulb. Hatco shatter-resistant bulbs meet NSF standards for food holding and display areas.

NOTE: Hatco shatter-resistant light bulbs meet NSF standards for food holding and display areas. For 120, 120/208, 120/240 and 100/200 Volt applications, use Hatco part number 02.30.043.00. For 200, 220, 230 and 240 Volt units use Hatco part number 02.30.058.00.

WARNING

ELECTRIC SHOCK HAZARD: Use only Genuine Hatco Replacement Parts when service is required. Failure to use Genuine Hatco Replacement Parts will void all warranties and may subject operators of the equipment to hazardous electrical voltage, resulting in electrical shock or burn. Genuine Hatco Replacement Parts are specified to operate safely in the environments in which they are used. Some aftermarket or generic replacement parts do not have the characteristics that will allow them to operate safely in Hatco equipment.

Remote Mounted Control Boxes

Hatco Remote Mounted Control Boxes (RMBs) are available in various sizes and configurations for use with the strip heaters. RMBs locate controls away from the constant heat of the unit, increasing the life span of the controls. All models are built in accordance with UL standards to accommodate controls, indicator lights, and wiring. Consult the factory for type and location of controls for enclosure.

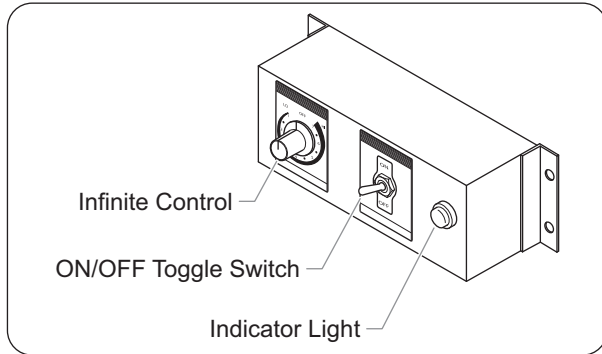
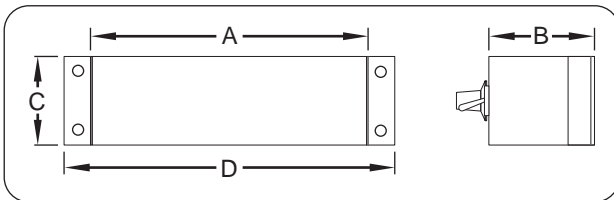


Figure 30. RMB (RMB-7 Series Shown)

NOTICE

To prevent premature failure of components due to excessive heat, remote mounted control boxes must be installed outside the strip heater heat zone.

NOTE: Proper use of remote mounted control boxes requires one RMB per strip heater.



Models	Width (A)	Depth (B)	Height (C)	Width (D)
RMB-3 Series	5-1/2 (140 mm)	3 (76 mm)	2-1/2 (64 mm)	7 (178 mm)
RMB-7 Series	9 (229 mm)	3 (76 mm)	2-1/2 (64 mm)	10-1/2 (267 mm)
RMB-14 Series	14 (356 mm)	3 (76 mm)	2-1/2 (64 mm)	15-1/2 (394 mm)
RMB-16 Series	16 (406 mm)	3 (76 mm)	2-1/2 (64 mm)	17-1/2 (445 mm)
RMB-20 Series	20 (508 mm)	3 (76 mm)	2-1/2 (64 mm)	21-1/2 (546 mm)

Figure 31. Dimensions — RMBs

Indicator Light

An optional indicator light is available installed on either side of the unit. The indicator light provides an instant visual check of the unit operation.

NOTE: The indicator light is not available for mounting on dual high wattage units.

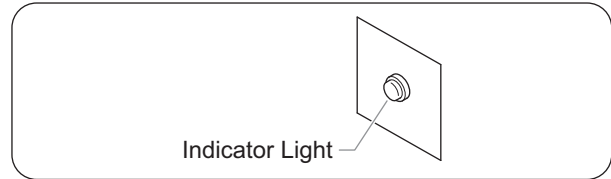


Figure 32. Indicator Light

Display Lights

Strip heaters with aluminum housings may be equipped from the factory with incandescent display lights to illuminate the warming area.

Hatco shatter-resistant bulbs guard against injury and food contamination in the event of breakage. The display lighting meets National Sanitation Foundation (NSF) standards for food holding and display areas.

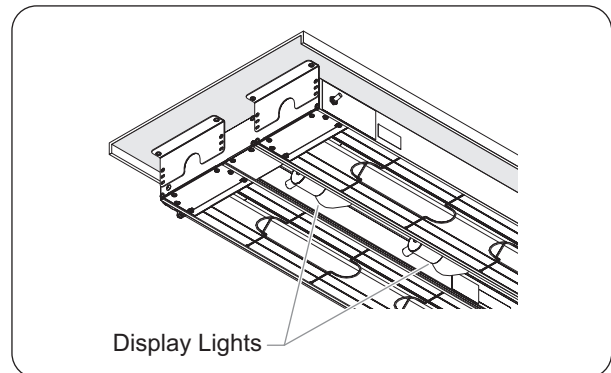


Figure 33. Display Lights

NOTE: Display lights cannot be retrofitted to units.

TROUBLESHOOTING GUIDE



WARNING

This unit must be serviced by qualified personnel only. Service by unqualified personnel may lead to electric shock or burn.



WARNING

ELECTRIC SHOCK HAZARD: Turn the power switch OFF, unplug the power cord, and allow the unit to cool before performing any maintenance or cleaning.

Symptom	Probable Cause	Corrective Action
Unit is turned "ON" but there is no heat.	No power to unit.	Check circuit breaker and reset as necessary. If power cord connected, check for damage to cord. If power cord connected, check power outlet.
	Switch is defective.	Contact Authorized Service Agent or Hatco for assistance.
	Wiring is open.	Contact Authorized Service Agent or Hatco for assistance.
	Heating element defective.	Contact Authorized Service Agent or Hatco for assistance.
Heat is inadequate.	Unit mounted too high above target area.	Lower unit, putting effective heat closer to target.
	Excessive air movement around strip heater target area.	Restrict or redirect air movement (air conditioning duct or exhaust fan) away from unit.
	Incorrect power supply (low).	Check power supply to unit, making sure it matches rating on the unit. If power supply is incorrect, change to match rating on unit.

TROUBLESHOOTING GUIDE

Symptom	Probable Cause	Corrective Action
Heat is excessive.	Unit mounted too close to target area.	Check to see that installation is within specifications for type/model. Increase mounting height if too close.
	Voltage supply too high.	Check power supply to unit, making sure it matches rating on unit. If power supply is incorrect, change to match rating.
Control switches burn-out rapidly.	Switches are mounted in the heat zone.	Check switch location per Hatco guidelines in the Glo-Ray Installation and Operations Manual. Relocate switches to a cooler zone if installation is incorrect.
	Switches used are not Hatco supplied.	Genuine Hatco Parts are specified to operate safely and properly in the environment in which they are used. Contact Authorized Service Agent or Hatco to replace switches with Genuine Hatco Replacement Parts.

HATCO LIMITED WARRANTY

1. PRODUCT WARRANTY

Hatco warrants the products that it manufactures (the "Products") to be free from defects in materials and workmanship, under normal use and service, for a period of one (1) year from the date of purchase when installed and maintained in accordance with Hatco's written instructions or 18 months from the date of shipment from Hatco. Buyer must establish the product's purchase date by returning Hatco's Warranty Registration Card or by other means satisfactory to Hatco in its sole discretion.

Hatco warrants the following Product components to be free from defects in materials and workmanship from the date of purchase (subject to the foregoing conditions) for the period(s) of time and on the conditions listed below:

a) One (1) Year Parts and Labor PLUS One (1) Additional Year Parts-Only Warranty:

Toaster Elements (metal sheathed)
Drawer Warmer Elements (metal sheathed)
Drawer Warmer Drawer Rollers and Slides
Food Warmer Elements (metal sheathed)
Display Warmer Elements (metal sheathed air heating)
Holding Cabinet Elements (metal sheathed air heating)
Built-In Heated Well Elements
(metal sheathed)

b) One (1) Year Parts and Labor PLUS Four (4) Years Parts-Only Warranty on pro-rated terms that Hatco will explain at Buyer's request:

3CS and FR Tanks

c) One (1) Year Parts and Labor PLUS Nine (9) Years Parts-Only Warranty on:

Electric Booster Heater Tanks
Gas Booster Heater Tanks

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR PATENT OR OTHER INTELLECTUAL PROPERTY RIGHT INFRINGEMENT. Without limiting the generality of the foregoing, SUCH WARRANTIES DO NOT COVER: Coated incandescent light bulbs, fluorescent lights, lamp warmer heat bulbs, glass components, Product failure in booster tank, fin tube heat exchanger, or other water heating equipment, caused by liming, sediment buildup, chemical attack or freezing, Product misuse, tampering or misapplication, improper installation or application of improper voltage.

2. LIMITATION OF REMEDIES AND DAMAGES

Hatco's liability and Buyer's exclusive remedy hereunder will be limited solely, at Hatco's option, to repair or replacement by a Hatco-authorized service agency (other than where Buyer is located outside of the United States, Canada, United Kingdom or Australia in which case Hatco's liability and Buyer's exclusive remedy hereunder will be limited solely to replacement of part under warranty) with respect to any claim made within the applicable warranty period referred to above. Hatco reserves the right to accept or reject any such claim in whole or in part. Hatco will not accept the return of any Product without prior written approval from Hatco, and all such approved returns shall be made at Buyer's sole expense. HATCO WILL NOT BE LIABLE, UNDER ANY CIRCUMSTANCES, FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, INCLUDING BUT NOT LIMITED TO LABOR COSTS OR LOST PROFITS RESULTING FROM THE USE OF OR INABILITY TO USE THE PRODUCTS OR FROM THE PRODUCTS BEING INCORPORATED IN OR BECOMING A COMPONENT OF ANY OTHER PRODUCT OR GOODS.

NOTES

HATCO AUTHORIZED PARTS DISTRIBUTORS

ALABAMA

Jones McLeod Appl. Svc.
Birmingham 205-251-0159

ARIZONA

Auth. Comm. Food Equip.
Phoenix 602-234-2443

Byassee Equipment Co.
Phoenix 602-252-0402

CALIFORNIA

Industrial Electric
Commercial Parts & Service, Inc.
Huntington Beach 714-379-7100

Chapman Appl. Service
San Diego 619-298-7106

P & D Appliance
Commercial Parts & Service, Inc.
S. San Francisco 650-635-1900

COLORADO

Hawkins Commercial Appliance
Englewood 303-781-5548

FLORIDA

Whaley Foodservice Repair
Jacksonville 904-725-7800

Nass Service Co., Inc.
Orlando 407-425-2681

B.G.S.I.
Pompano Beach 954-971-0456

Comm. Appliance Service
Tampa 813-663-0313

GEORGIA

TWC Services
Smyrna 770-438-9797

Heritage Service Group
Norcross 866-388-9837

Southeastern Rest. Svc.
Norcross 770-446-6177

HAWAII

Burney's Comm. Service, Inc.
Honolulu 808-848-1466

Food Equip Parts & Service
Honolulu 808-847-4871

ILLINOIS

Parts Town
Lombard 708-865-7278

Eichenauer Elec. Service
Decatur 217-429-4229

Midwest Elec. Appl. Service
Elmhurst 630-279-8000

Cone's Repair Service
Moline 309-797-5323

INDIANA

GCS Service
Indianapolis 317-545-9655

IOWA

Electric Motor Service Co.
Davenport 319-323-1823

Goodwin Tucker Group
Des Moines 515-262-9308

KENTUCKY

Certified Service Center
Lexington 859-254-8854

Certified Service Center
Louisville 502-964-7007

LOUISIANA

Chandlers Parts & Service
Baton Rouge 225-272-6620

MARYLAND

Electric Motor Service
Baltimore 410-467-8080

GCS Service
Silver Spring 301-585-7550

MASSACHUSETTS

Ace Service Co., Inc.
Needham 781-449-4220

MICHIGAN

Commercial Kitchen Service
Bay City 517-893-4561

Bildons Appliance Service
Detroit 248-478-3320

Midwest Food Equip. Service
Grandville 616-261-2000

MINNESOTA

GCS Service
Minneapolis 800-822-2303

MISSOURI

General Parts
Kansas City 816-421-5400

Commercial Kitchen Services
St. Louis 314-890-0700

Kaemmerlen Parts & Service
St. Louis 314-535-2222

NEBRASKA

Anderson Electric
Omaha 402-341-1414

NEVADA

Burney's Commercial
Las Vegas 702-736-0006

Hi. Tech Commercial Service
N. Las Vegas 702-649-4616

NEW JERSEY

Jay Hill Repair
Fairfield 973-575-9145

Service Plus
Flanders 973-691-6300

NEW YORK

Acme American Repairs, Inc.
Brooklyn 718-456-6544

Alpro Service Co.
Brooklyn 718-386-2515

Appliance Installation
Buffalo 716-884-7425

Northern Parts Dist.
Plattsburgh 518-563-3200

J.B. Brady, Inc.
Syracuse 315-422-9271

NORTH CAROLINA

Authorized Appliance
Charlotte 704-377-4501

OHIO

Akron/Canton Comm. Svc. Inc.
Akron 330-753-6635

Certified Service Center
Cincinnati 513-772-6600

Commercial Parts and Service
Columbus 614-221-0057

Electrical Appl. Repair Service
Independence 216-459-8700

E. A. Wichman Co.
Toledo 419-385-9121

OKLAHOMA

Hagar Rest. Service, Inc.
Oklahoma City 405-235-2184

Krueger, Inc.
Oklahoma City 405-528-8883

OREGON

Ron's Service, Inc.
Portland 503-624-0890

PENNSYLVANIA

Elmer Schultz Services
Philadelphia 215-627-5401

FAST Comm. Appl. Service
Philadelphia 215-288-4800

Appliance Installation & Service
Pittsburgh 412-809-0244

K & D Service Co.
Harrisburg 717-236-9039

Electric Repair Co.
Reading 610-376-5444

RHODE ISLAND

Marshall Electric Co.
Providence 401-331-1163

SOUTH CAROLINA

Whaley Foodservice Repair
W. Columbia 803-791-4420

TENNESSEE

Camp Electric
Memphis 901-527-7543

TEXAS

GCS Service
Fort Worth 800-433-1804

Armstrong Repair Service
Houston 713-666-7100

Commercial Kitchen Repair Co.
San Antonio 210-735-2811

UTAH

La Monica's Rest. Equip. Service
Murray 801-263-3221

VIRGINIA

Daubers
Norfolk 757-855-4097

Daubers
Springfield 703-866-3600

WASHINGTON

3 Wire/Restaurant Appliance
Seattle 866-770-2022

WISCONSIN

A.S.C., Inc.
Madison 608-246-3160

A.S.C., Inc.
Milwaukee 414-543-6460

CANADA

ALBERTA

Key Food Equipment Service
Edmonton 780-438-1690

BRITISH COLUMBIA

Key Food Equipment Service
Vancouver 604-433-4484

MANITOBA

Air Rite, Inc.
Winnipeg 204-895-2300

NEW BRUNSWICK

EMR Services, Ltd.
Moncton 506-855-4228

ONTARIO

R.G. Henderson Ltd.
Toronto 416-422-5580

Choquette CKS
Ottawa 613-739-8458

QUÉBEC

Choquette CKS
Montreal 514-722-2000

Choquette CKS
Québec City 418-681-3944

UNITED KINGDOM

Marren Group
Northants +44(0)1933 666233

HATCO CORPORATION
P.O. Box 340500
Milwaukee, WI 53234-0500 U.S.A.
(800) 558-0607 (414) 671-6350
Parts and Service Fax (800) 690-2966
International Fax (414) 671-3976
www.hatcocorp.com