



Original Instructions

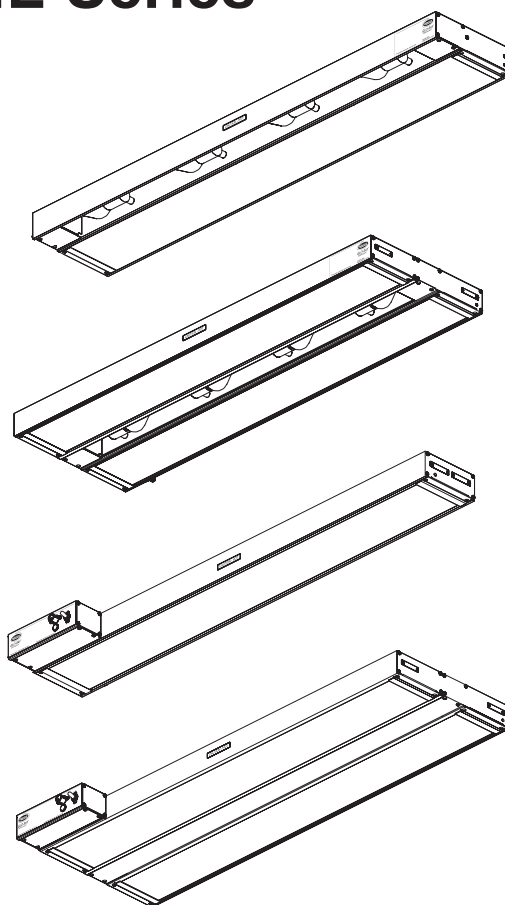
Glo-Ray®

GRAIH / GRAIHL Series

GB **Infra-Black® Strip Heaters**
GRAIH and GRAIHL Series
Installation and Operating Manual
For CE and Non-CE Models

P 2

[Register online!](#)



⚠ WARNING

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.

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IMPORTANT OWNER INFORMATION

Record the model number, serial number (specification label located on the side of the unit), voltage, and purchase date of the unit 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: 7:00 AM to 5:00 PM Monday–Friday,
Central Time (CT)
(Summer Hours: June to September—
7:00 AM to 5:00 PM Monday–Thursday
7:00 AM to 4:00 PM Friday)


Telephone: +1-414-671-6350

E-mail: support@hatcocorp.com

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

Register your unit!

• Completing online warranty registration will prevent delay in obtaining warranty coverage. Access the Hatco website at www.hatcocorp.com, select the *Support* pull-down menu, and click on “Warranty”.



Correct Disposal of this Product
This marking indicates that this product and its electronic components should not be disposed of with other commercial waste. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle responsibly to promote the sustainable reuse of material resources. To dispose of product and its electronic components, contact supplier where product was purchased for environmentally safe recycling.

INTRODUCTION

Glo-Ray® Infra-Black® Strip Heaters ensure maximum food holding time 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. Glo-Ray Infra-Black emitters provide a solid panel of uniform heat distribution that is ideal for limited space operations.

The metal sheathed heating elements housed in the Infra-Black emitters are guaranteed against burnout for two years.

Glo-Ray Infra-Black Strip Heaters are products 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 installation, safety, and operating instructions for Glo-Ray Infra-Black Strip Heaters. Hatco recommends all installation, operating, and safety instructions appearing in this manual be read prior to installation or operation of a unit.

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



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



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



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

NOTE: Refer to the Symbol Identification tables on the back cover of this manual for definitions of symbols that may appear in this manual.



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:**

- Units supplied without an electrical cord and plug require a hardwired connection to the on-site electrical system. Connection must be properly grounded and of the correct voltage, size, and configuration for the electrical specifications of the unit. Contact a qualified electrician to determine and install the proper electrical connection.
- Turn power OFF at fused disconnect switch/circuit breaker and allow unit to cool before performing any maintenance, adjustments, or cleaning.
- For hardwired 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.
- DO NOT submerge or saturate with water. Unit is not waterproof. Do not operate if unit has been submerged or saturated with water.
- Unit is not weatherproof. Locate unit indoors where ambient air temperature is a minimum of 21°C (70°F).
- Do not steam clean or use excessive water on unit.
- This unit is not “jet-proof” construction. Do not use jet-clean spray to clean this unit.
- Do not clean unit when it is energized or hot.
- This unit must be serviced by qualified personnel only. Service by unqualified personnel may lead to electric shock or burn.
- Use only Genuine Hatco Replacement Parts when service is required. Failure to use Genuine Hatco Replacement Parts 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:**

- Do not install unit above or around combustible surfaces. Discoloration or combustion could occur. Unit must be installed in non-combustible surroundings only.
- 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.

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 +1-414-671-6350.

This unit is not intended for use by children or persons with reduced physical, sensory, or mental capabilities. Ensure proper supervision of children and keep them away from the unit.

Make sure all operators have been instructed on the safe and proper use of the unit.

Make sure food product has been heated to the proper food-safe temperature before placing in unit. Failure to heat food product properly may result in serious health risks. This unit is for holding pre-heated food product only.

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

▲ 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.

Light-equipped strip heaters that require a circuit breaker 20 amps or larger must be installed with a remote control enclosure containing a fuse rated at 20 amps or less for the light circuit.

Ensure safe and proper operation. Refer to the “Minimum Clearance Requirements” listed in the Installation section of this manual.

NOTICE

Damage to countertop material such as Corian® and similar products caused by heat generated from Hatco equipment is not covered under the Hatco® warranty. Contact the manufacturer of the countertop material for application information.

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

Installation of two or more separate units with less than 76 mm (3”) between housings may result in premature failure of component parts. Failure to provide proper spacing may result in heat damage to electrical components and are not covered by warranty.

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

All Models

Glo-Ray® Infra-Black® Strip Heaters are perfect for foodwarming at a close range to food product. Heat from a metal sheathed heating element housed inside an Infra-Black emitter is distributed evenly throughout the entire surface area of the emitter. The emitter gives off a solid panel of heat downward onto the food product.

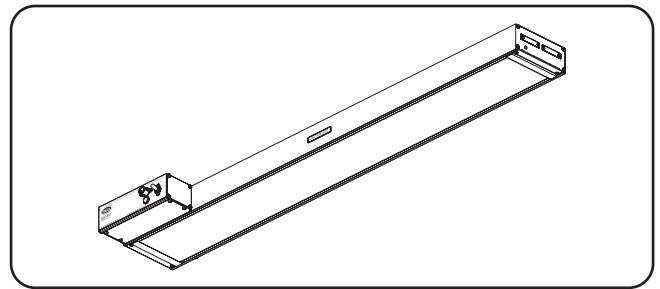
Glo-Ray Infra-Black Strip Heaters are constructed with aluminum housings in lengths of 457 mm (18") to 1829 mm (72").

NOTE: GRAIHL-xxD models are available in lengths of 457 mm to 1676 mm (18" to 66").

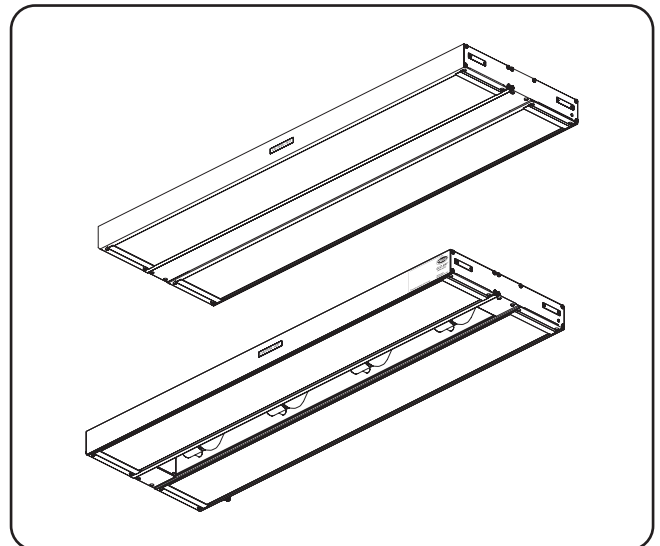
Dual models allow for side-by-side mounting of two heating elements to provide a wider holding area. Dual models are constructed with a standard 76 mm (3") or optional 152 mm (6") spacer between heating elements.

Glo-Ray Infra-Black Strip Heaters have several mounting options and switch locations. A thermostatic control box with indicator lights (TCBI) is mounted on the unit with a thermostatic control, ON/OFF (I/O) toggle switch, and an indicator light. Remote control enclosure(s) (RMBs) can be configured with infinite control(s), ON/OFF (I/O) toggle switch(es), and/or indicator light(s). Units are available in several optional *Designer* colors and gloss finishes.

- GRAIH-xx:** Aluminum housing, single element
- GRAIHL-xx:** Aluminum housing, incandescent lights, single element
- GRAIH-xxD:** Aluminum housing, dual elements
- GRAIHL-xxD:** Aluminum housing, incandescent lights, dual elements

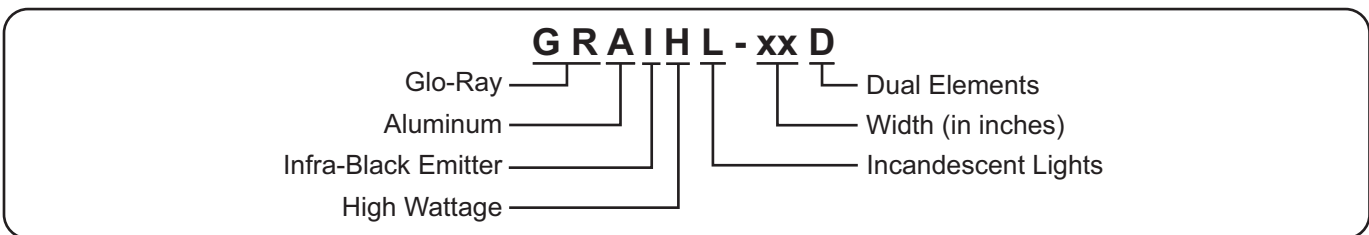


GRAIH-xx Model with TCBI



GRAIH-xxD and GRAIHL-xxD Model

MODEL DESIGNATION



SPECIFICATIONS



Electrical Rating Chart — GRAIH-xx Models

Model	Voltage	Watts	Amps	Shipping Weight
GRAIH-18	220 V	350 W	1.6 A	3 kg (6 lbs.)
	240 V	350 W	1.5 A	
	220/230 V	350/383 W	1.6/1.7 A	
	230/240 V	321/350 W	1.4/1.5 A	
GRAIH-24	220 V	500 W	2.3 A	5 kg (11 lbs.)
	240 V	500 W	2.1 A	
	220/230 V	500/546 W	2.3/2.4 A	
	230/240 V	459/500 W	2.0/2.1 A	
GRAIH-30	220 V	660 W	3.0 A	6 kg (13 lbs.)
	240 V	660 W	2.8 A	
	220/230 V	660/721 W	3.0/3.1 A	
	230/240 V	606/660 W	2.6/2.8 A	
GRAIH-36	220 V	800 W	3.6 A	7 kg (15 lbs.)
	240 V	800 W	3.3 A	
	220/230 V	800/874 W	3.6/3.8 A	
	230/240 V	734/800 W	3.2/3.3 A	
GRAIH-42	220 V	950 W	4.3 A	8 kg (17 lbs.)
	240 V	950 W	4.0 A	
	220/230 V	950/1038 W	4.3/4.5 A	
	230/240 V	872/950 W	3.8/4.0 A	

Model	Voltage	Watts	Amps	Shipping Weight
GRAIH-48	220 V	1100 W	5.0 A	10 kg (21 lbs.)
	240 V	1100 W	4.6 A	
	220/230 V	1100/1202 W	5.0/5.2 A	
	230/240 V	1010/1100 W	4.4/4.6 A	
GRAIH-54	220 V	1250 W	5.7 A	11 kg (24 lbs.)
	240 V	1250 W	5.2 A	
	220/230 V	1250/1366 W	5.7/5.9 A	
	230/240 V	1148/1250 W	5.0/5.2 A	
GRAIH-60	220 V	1400 W	6.4 A	12 kg (27 lbs.)
	240 V	1400 W	5.8 A	
	220/230 V	1400/1530 W	6.4/6.7 A	
	230/240 V	1286/1400 W	5.6/5.8 A	
GRAIH-66	220 V	1560 W	7.1 A	14 kg (30 lbs.)
	240 V	1560 W	6.5 A	
	220/230 V	1560/1705 W	7.1/7.4 A	
	230/240 V	1433/1560 W	6.2/6.5 A	
GRAIH-72	220 V	1725 W	7.8 A	15 kg (33 lbs.)
	240 V	1725 W	7.2 A	
	220/230 V	1725/1885 W	7.8/8.2 A	
	230/240 V	1584/1725 W	6.9/7.2 A	

Electrical Rating Chart — GRAIHL-xx Models

Model	Voltage	Watts	Amps	Shipping Weight
GRAIHL-18	220 V	450 W	2.0 A	5 kg (12 lbs.)
	240 V	470 W	2.0 A	
	220/230 V	450/492 W	2.0/2.1 A	
	230/240 V	432/470 W	1.9/2.0 A	
GRAIHL-24	220 V	600 W	2.7 A	7 kg (15 lbs.)
	240 V	620 W	2.6 A	
	220/230 V	600/656 W	2.7/2.9 A	
	230/240 V	569/620 W	2.5/2.6 A	
GRAIHL-30	220 V	760 W	3.5 A	8 kg (17 lbs.)
	240 V	780 W	3.3 A	
	220/230 V	760/831 W	3.5/3.6 A	
	230/240 V	716/780 W	3.1/3.3 A	
GRAIHL-36	220 V	950 W	4.3 A	9 kg (20 lbs.)
	240 V	980 W	4.1 A	
	220/230 V	950/1038 W	4.3/4.5 A	
	230/240 V	900/980 W	3.9/4.1 A	
GRAIHL-42	220 V	1100 W	5.0 A	10 kg (23 lbs.)
	240 V	1130 W	4.7 A	
	220/230 V	1100/1202 W	5.0/5.2 A	
	230/240 V	1038/1130 W	4.5/4.7 A	

Model	Voltage	Watts	Amps	Shipping Weight
GRAIHL-48	220 V	1300 W	5.9 A	12 kg (26 lbs.)
	240 V	1340 W	5.6 A	
	220/230 V	1300/1421 W	5.9/6.2 A	
	230/240 V	1231/1340 W	5.4/5.6 A	
GRAIHL-54	220 V	1450 W	6.6 A	13 kg (29 lbs.)
	240 V	1490 W	6.2 A	
	220/230 V	1450/1585 W	6.6/6.9 A	
	230/240 V	1368/1490 W	5.9/6.2 A	
GRAIHL-60	220 V	1650 W	7.5 A	15 kg (33 lbs.)
	240 V	1700 W	7.1 A	
	220/230 V	1650/1803 W	7.5/7.8 A	
	230/240 V	1561/1700 W	6.8/7.1 A	
GRAIHL-66	220 V	1810 W	8.2 A	15 kg (34 lbs.)
	240 V	1860 W	7.8 A	
	220/230 V	1810/1978 W	8.2/8.6 A	
GRAIHL-72	220 V	2025 W	9.2 A	16 kg (36 lbs.)
	240 V	2085 W	8.7 A	
	220/230 V	2025/2213 W	9.2/9.6 A	
	230/240 V	1915/2085 W	8.3/8.7 A	

NOTE: Shipping weight does not include remote control enclosure. Add 1–3 kg (2–8 lbs.) to shipping weight depending on size of remote control enclosure.



Light-equipped strip heaters that require a circuit breaker 20 amps or larger must be installed with a remote control enclosure containing a fuse rated at 20 amps or less for the light circuit.

Electrical Rating Chart — GRAIH-xxD Models

Model	Voltage	Watts	Amps	Shipping Weight
GRAIH-18D	220 V	700 W	3.2 A	6 kg (13 lbs.)
	240 V	700 W	2.9 A	6 kg (13 lbs.)
	220/230 V	700/765 W	3.2/3.3 A	6 kg (13 lbs.)
	230/240 V	643/700 W	2.8/2.9 A	6 kg (13 lbs.)
GRAIH-24D	220 V	1000 W	4.5 A	9 kg (19 lbs.)
	240 V	1000 W	4.2 A	9 kg (19 lbs.)
	220/230 V	1000/1093 W	4.5/4.7 A	9 kg (19 lbs.)
	230/240 V	918/1000 W	4.0/4.2 A	9 kg (19 lbs.)
GRAIH-30D	220 V	1320 W	6.0 A	10 kg (21 lbs.)
	240 V	1320 W	5.5 A	10 kg (21 lbs.)
	220/230 V	1320/1443 W	6.0/6.3 A	10 kg (21 lbs.)
	230/240 V	1212/1320 W	5.3/5.5 A	10 kg (21 lbs.)
GRAIH-36D	220 V	1600 W	7.3 A	11 kg (24 lbs.)
	240 V	1600 W	6.7 A	11 kg (24 lbs.)
	220/230 V	1600/1749 W	7.3/7.6 A	11 kg (24 lbs.)
	230/240 V	1469/1600 W	6.4/6.7 A	11 kg (24 lbs.)
GRAIH-42D	220 V	1900 W	8.6 A	12 kg (27 lbs.)
	240 V	1900 W	7.9 A	12 kg (27 lbs.)
	220/230 V	1900/2077 W	8.6/9.0 A	12 kg (27 lbs.)
	230/240 V	1745/1900 W	7.6/7.9 A	12 kg (27 lbs.)

Model	Voltage	Watts	Amps	Shipping Weight
GRAIH-48D	220 V	2200 W	10.0 A	15 kg (32 lbs.)
	240 V	2200 W	9.2 A	
	220/230 V	2200/2405 W	10.0/10.5 A	
	230/240 V	2020/2200 W	8.8/9.2 A	
GRAIH-54D	220 V	2500 W	11.4 A	16 kg (35 lbs.)
	240 V	2500 W	10.4 A	
	220/230 V	2500/2733 W	11.4/11.9 A	
	230/240 V	2296/2500 W	10.0/10.4 A	
GRAIH-60D	220 V	2800 W	12.7 A	18 kg (39 lbs.)
	240 V	2800 W	11.7 A	
	220/230 V	2800/3060 W	12.7/13.3 A	
	230/240 V	2571/2800 W	11.2/11.7 A	
GRAIH-66D	220 V	3120 W	14.2 A	19 kg (42 lbs.)
	240 V	3120 W	13.0 A	
	220/230 V	3120/3410 W	14.2/14.8 A	
	230/240 V	2865/3120 W	12.5/13.0 A	
GRAIH-72D	220 V	3450 W	15.7 A	21 kg (46 lbs.)
	240 V	3450 W	14.4 A	
	220/230 V	3450/3771 W	15.7/16.4 A	
	230/240 V	3168/3450 W	13.8/14.4 A	

Electrical Rating Chart — GRAIHL-xxD Models

Model	Voltage	Watts	Amps	Shipping Weight
GRAIHL-18D	220 V	800 W	3.6 A	8 kg (18 lbs.)
	240 V	820 W	3.4 A	
	220/230 V	801/875 W	3.6/3.8 A	
	230/240 V	753/820 W	3.3/3.4 A	
GRAIHL-24D	220 V	1100 W	5.0 A	10 kg (21 lbs.)
	240 V	1120 W	4.7 A	
	220/230 V	1101/1203 W	5.0/5.2 A	
	230/240 V	1029/1120 W	4.5/4.7 A	
GRAIHL-30D	220 V	1420 W	6.5 A	10 kg (23 lbs.)
	240 V	1440 W	6.0 A	
	220/230 V	1421/1553 W	6.5/6.8 A	
	230/240 V	1323/1440 W	5.8/6.0 A	
GRAIHL-36D	220 V	1750 W	8.0 A	12 kg (27 lbs.)
	240 V	1780 W	7.4 A	
	220/230 V	1751/1914 W	8.0/8.3 A	
	230/240 V	1635/1780 W	7.1/7.4 A	
GRAIHL-42D	220 V	2050 W	9.3 A	14 kg (30 lbs.)
	240 V	2080 W	8.7 A	
	220/230 V	2051/2242 W	9.3/9.7 A	
	230/240 V	1910/2080 W	8.3/8.7 A	

Model	Voltage	Watts	Amps	Shipping Weight
GRAIHL-48D	220 V	2400 W	10.9 A	16 kg (35 lbs.)
	240 V	2440 W	10.2 A	
	220/230 V	2402/2625 W	10.9/11.4 A	
	230/240 V	2241/2440 W	9.7/10.2 A	
GRAIHL-54D	220 V	2700 W	12.3 A	17 kg (38 lbs.)
	240 V	2740 W	11.4 A	
	220/230 V	2702/2953 W	12.3/12.8 A	
	230/240 V	2516/2740 W	10.9/11.4 A	
GRAIHL-60D	220 V	3050 W	13.9 A	19 kg (42 lbs.)
	240 V	3100 W	12.9 A	
	220/230 V	3052/3336 W	13.9/14.5 A	
	230/240 V	2847/3100 W	12.4/12.9 A	
GRAIHL-66D	220 V	3350 W	15.3 A	20 kg (44 lbs.)
	240 V	3420 W	14.3 A	
	220/230 V	3372/3686 W	15.3/16.0 A	
	230/240 V	3141/3420 W	13.7/14.3 A	



Light-equipped strip heaters that require a circuit breaker 20 amps or larger must be installed with a remote control enclosure containing a fuse rated at 20 amps or less for the light circuit.

NOTE: Shipping weight does not include remote control enclosure. Add 1–3 kg (2–8 lbs.) to shipping weight depending on size of remote control enclosure.

SPECIFICATIONS

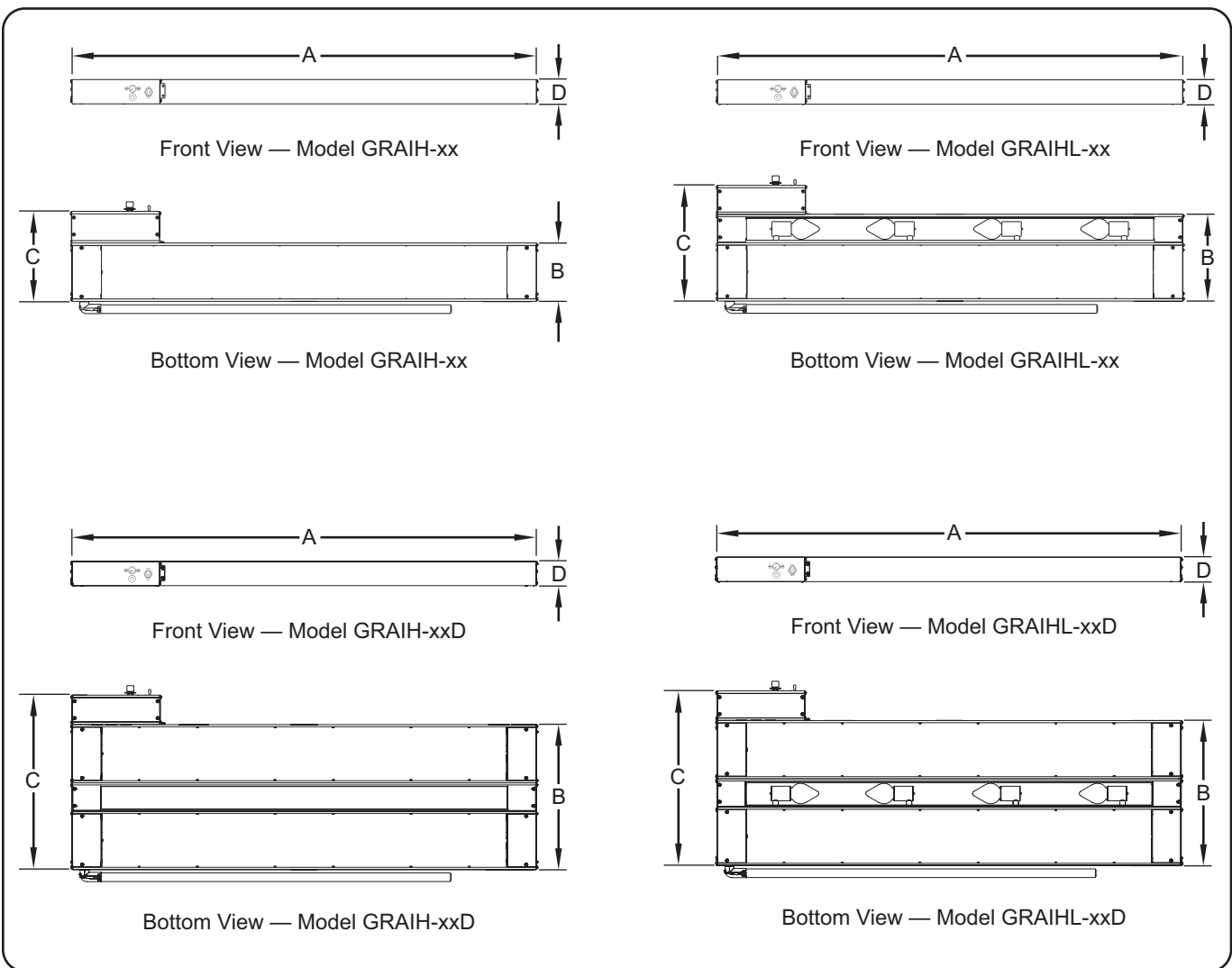


Dimensions

Model	Width (A)	Depth (B)	Depth (C)	Height (D)
GRAIH-xx	457-1829 mm (18"-72")	152 mm (6")	229 mm (9")	66 mm (2-5/8")
GRAIHL-xx	457-1829 mm (18"-72")	229 mm (9")	305 mm (12")	66 mm (2-5/8")
GRAIH-xxD ‡	457-1829 mm (18"-72")	381 mm (15")	457 mm (18")	66 mm (2-5/8")
GRAIHL-xxD ‡	457-1829 mm (18"-72")	381 mm (15")	457 mm (18")	66 mm (2-5/8")

‡ Add 76 mm (3") to Depth (B) and Depth (C) if unit is configured with an optional 152 mm (6") spacer.

NOTE: Depth (C) dimension includes TCBI box.



Dimensions

General

Use the information in this section to prepare for and install an Infra-Black® Strip Heater. Make sure to locate the specific information for the type of installation.

⚠ WARNING

ELECTRIC SHOCK HAZARD: Unit is not weatherproof. Locate the unit indoors where the ambient air temperature is a minimum of 21°C (70°F).

FIRE HAZARD: Do not install unit above or around combustible surfaces. Discoloration or combustion could occur. Unit must be installed in non-combustible surroundings only.

⚠ CAUTION

Ensure safe and proper operation. Refer to the “Minimum Clearance Requirements” listed in the Installation section of this manual.

NOTICE

Damage to countertop material such as Corian® and similar products caused by heat generated from Hatco® equipment is not covered under the Hatco warranty. Contact the manufacturer of the countertop material for application information.

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.

NOTE: To prevent delay in obtaining warranty coverage, complete online warranty registration. See the IMPORTANT OWNER INFORMATION section for details.

2. Remove tape and protective packaging from all surfaces of the unit.

NOTE: If the unit is configured with optional equipment, see the OPTIONS AND ACCESSORIES section in this manual.

3. Refer to the appropriate mounting procedure in this section for the desired mounting style.

Dual Mounting

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

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 and are not covered by warranty.

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 under 241 mm (9 1/2") deep, a single unit can be used. For a 254 to 483 mm (10" to 19") deep pass-through area, a dual unit is recommended. Installation of multiple units must have a minimum spacing of 76 mm (3") between strip heaters.

Over Steam Table

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

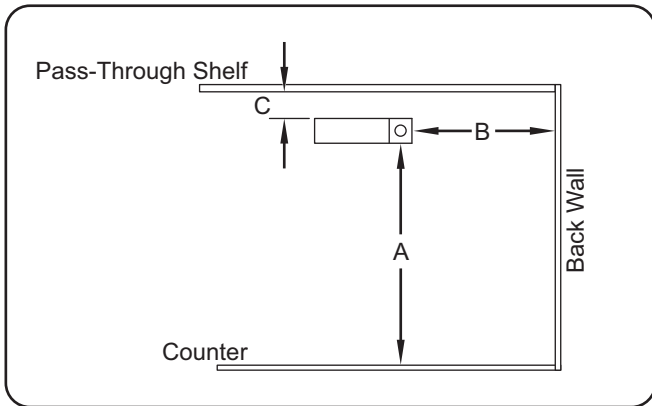
Assembly

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

Minimum Clearance Requirements

Model	A	B	C
GRAIH and GRAIHL with TCBI	102 mm (4")	◆	25 mm (1")
GRAIH and GRAIHL with RMB	102 mm (4")	76 mm (3")	0 mm (0")
GRAIH-xxD and GRAIHL-xxD with TCBI	203 mm (8")	◆	25 mm (1")
GRAIH-xxD and GRAIHL-xxD with RMB	203 mm (8")	76 mm (3")	0 mm (0")

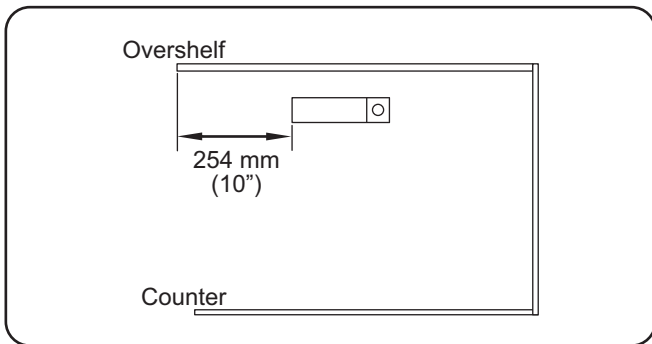
◆ Must be a pass-through application, not allowed with back wall installation.



Minimum Clearance Requirements

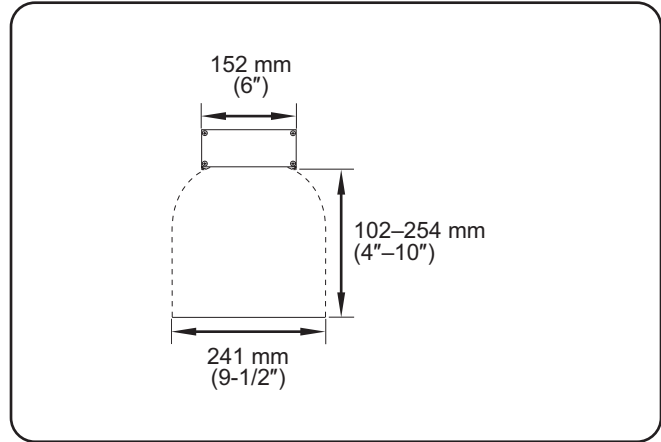
Maximum Overshelf Clearance Requirements

Units should be mounted at a maximum distance of 254 mm (10") from the front of an overshelf.

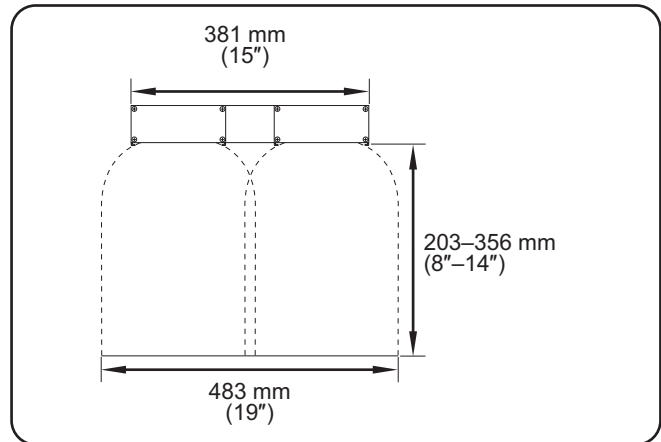


Maximum Overshelf Clearance Requirements

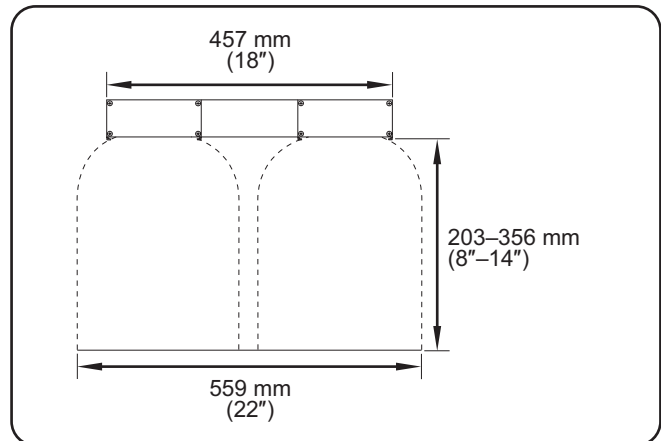
Recommended Mounting Heights



Recommended Element Height for GRAIH-XX and GRAIHL-XX models



Recommended Element Height for GRAIH-XXD and GRAIHL-XXD models with a 76 mm (3") spacer



Recommended Element Height for GRAIH-XXD and GRAIHL-XXD models with a 152 mm (6") spacer

Tubular Stand Mounting

Mounting a unit with non-adjustable tubular stands permanently attaches the unit to a countertop or serving table.



Ensure safe and proper operation. Refer to the “Minimum Clearance Requirements” listed in the Installation section of this manual.

Tubular stands are available in aluminum, *Designer* colors, or gloss finishes in heights of 102 to 356 mm (4” to 14”) in 51 mm (2”) increments

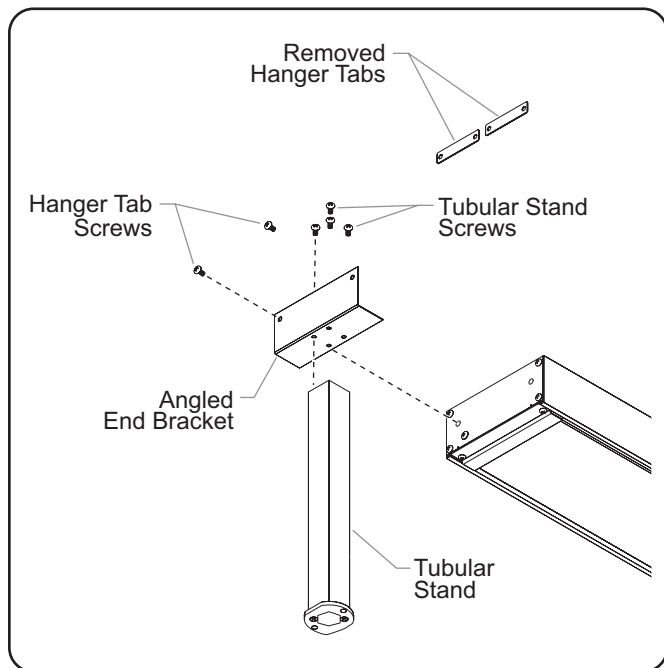
NOTE: Tubular stands cannot be retrofitted in the field.

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. Remove the two hanger tab screws and hanger tabs from each end of the unit.
3. Secure the top of the tubular stand to the bottom of the angled end bracket using the screws supplied.
4. Secure the angled end bracket to the end plate of the unit with the previously removed hanger tab screws.
5. Repeat steps 3 and 4 on the opposite end of the unit.
6. Secure the stands to the mounting surface using appropriate fasteners.

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



Tubular Stand Mounting

Angle Bracket Mounting

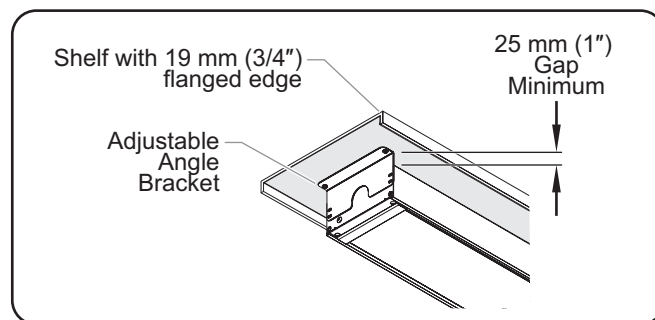
Mounting a unit with an angle bracket permanently attaches the unit to the underside of a shelf. It can be mounted to a flat shelf or a shelf with rolled/flanged edges. The adjustable angle brackets will provide the necessary gap between the unit and a combustible shelf.

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 25 mm [1”] 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).



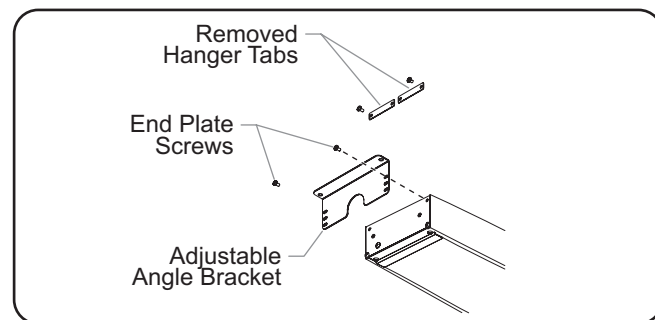
Ensure safe and proper operation. Refer to the “Minimum Clearance Requirements” listed in the Installation section of this manual.

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



Flanged Edge Shelf Installation

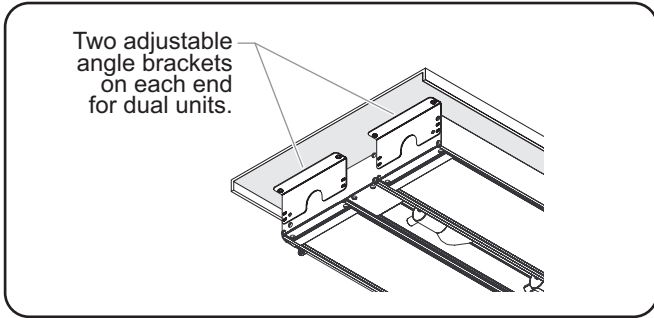
1. Position the unit on a flat surface with the heating element facing down.
2. Remove the two hanger tab screws and hanger tabs from each end of the unit.
3. Remove the two upper end plate screws.
4. Align the adjustable angle bracket to the end plate mounting holes of the unit. Secure angle bracket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



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.



Dual Unit Mounting

Chain Suspension Mounting

Mounting a unit with chain suspension attaches the unit to an overhead surface with the use of “S” hooks.

NOTE: Units ordered with the “S” hook option come with two “S” hooks and two 152 mm (6”) lengths of 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.



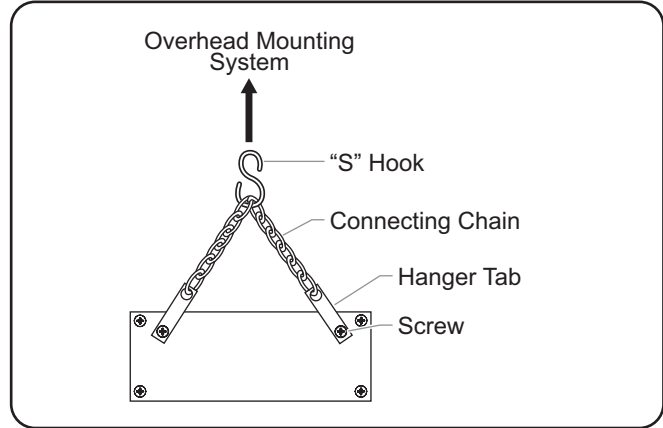
For installation with chains, make sure the chains have sufficient strength and are securely fastened to both the unit and the mounting location. Poorly installed chains may cause the unit to loosen and fall. Do not place anything on top of units installed with chains.

Ensure safe and proper operation. Refer to the “Minimum 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 152 mm (6”) 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.



“S” Hook Mounting

Electrical Wiring Information

Refer to the ELECTRICAL RATING CHARTS for unit specific information.

⚠ WARNING

ELECTRIC SHOCK HAZARD: For hardwired 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

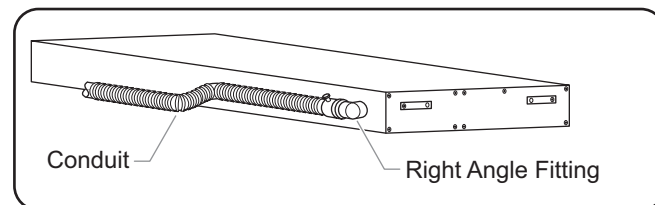
Install supply wire and connectors suitable for at least 90°C (194°F).

- 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.
- Use a minimum of No. 8 AWG copper wire for individual circuits 25 to 30 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.



Conduit Connections

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

Remote Control Enclosures

Hatco remote control enclosures include switches, wire leads, and/or indicator lights and are ready for installation.

The RMB Series require one remote control enclosure per strip heater. The RMB2 Series allows multiple strip heaters to be connected to one remote control enclosure.

NOTE: See the OPTIONS AND ACCESSORIES section in this manual for more information.

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.

NOTICE

To prevent premature failure of components due to excessive heat, Remote Control Enclosures must be installed outside the strip heater heat zone.

General

Glo-Ray® Infra-Black® Strip Heaters are designed for ease of operation. Use the following information and procedures to operate the unit.



WARNING

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



CAUTION

BURN HAZARD: Some exterior surfaces on the unit will get hot. Avoid unnecessary contact with unit.

Controls

Infra-Black Strip Heaters are equipped with either a Thermostatic Control Box with Indicator Lights (TCBI) mounted on the unit or an optional remote control enclosure (RMB) mounted remotely. The following is a list of the available controls for either control configuration.

Thermostatic Control—Controls the temperature of the heating element(s). The thermostatic control is available only on a TCBI-equipped unit.

Infinite Control—Turns on the power and controls the temperature of the heating elements. The infinite control is available only on a remote control enclosure.

I/O (on/off) Toggle Switch—Turns power on and off to the heating elements and/or the lights.

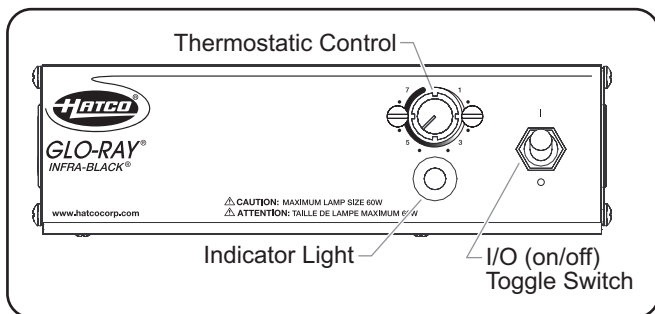
Indicator Light—Illuminates when power is on, shuts off when power is off.

Startup

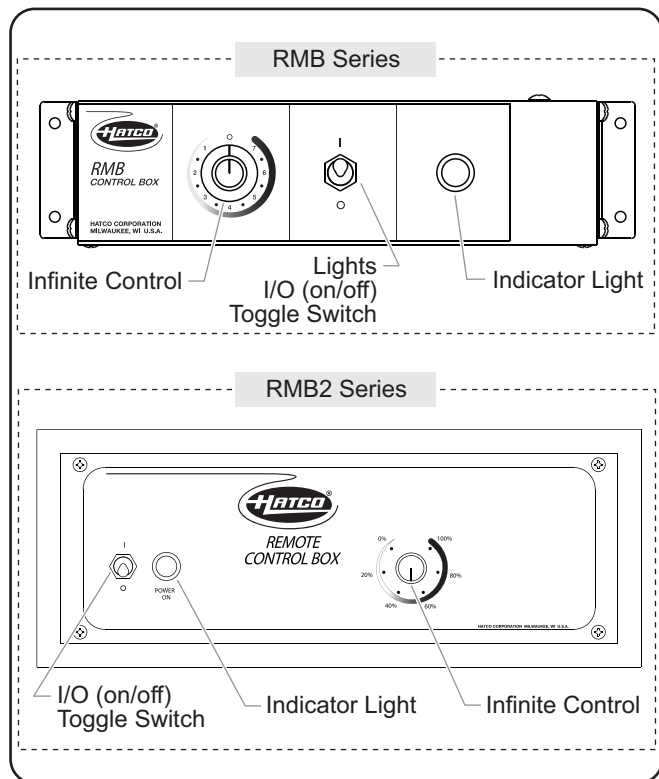
1. Move the I/O (on/off) toggle switch to the I (on) position and/or turn the infinite control(s) to the desired setting.
 - The indicator light (if equipped) will illuminate and the heating elements will energize.
2. For units with a thermostatic control, turn the control to the desired setting.

NOTE: Allow 15-20 minutes to reach operating temperature.

3. For units with display lights, move the Lights I/O (on/off) toggle switch to the I (on) position to turn on the lights.



Thermostatic Control Box with Indicator Lights (TCBI)



Remote Control Enclosures

NOTE: Refer to the OPTIONS AND ACCESSORIES section for remote control enclosure information.

Shutdown

1. Move the I/O (on/off) toggle switch to the O (off) position and/or turn the infinite control(s) to the O (off) position.
 - The indicator light (if equipped) will shut off and the heating elements will shut down.
2. For units with display lights, move the Lights I/O (on/off) toggle switch to the O (off) position.

General

The Glo-Ray Infra-Black Strip Heaters are designed for maximum durability and performance, with minimum maintenance.

WARNING

ELECTRIC SHOCK HAZARD:

- Turn power OFF at fused disconnect switch/circuit breaker and allow unit to cool before performing any maintenance, adjustments, 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.
- Do not steam clean or use excessive water on unit.
- This unit is not “jet-proof” construction. Do not use jet-clean spray to clean this unit.

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 +1-414-671-6350.

Daily Cleaning

To preserve the finish of the Glo-Ray Infra-Black Strip Heater, perform the following cleaning procedure daily.

NOTICE

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

1. Turn off the unit and allow the unit to cool.
2. Wipe down all metal surfaces with a clean, damp cloth. Stubborn stains may be removed with a good stainless steel or non-abrasive cleaner. Clean hard to reach areas using a small brush and mild soap.

Replacing A Display Light

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 light bulb:

1. Disconnect the power supply and wait until the unit has cooled.
2. Unscrew the light bulb from the unit and replace it with a new, specially-coated incandescent light bulb.

NOTE: Hatco shatter-resistant light bulbs meet NSF standards for food holding and display areas. For 220–240 V applications, use Hatco P/N 02.30.266.00.

WARNING

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.



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



ELECTRIC SHOCK HAZARD: Turn power OFF at fused disconnect switch/circuit breaker and allow unit to cool before performing any maintenance, adjustments, 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.
	Switch is defective.	Contact Authorized Service Agent or Hatco for assistance.
	Wiring is open.	
	Heating element defective.	
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.
	Temperature control set too low.	Move temperature control to higher setting.
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.
	Temperature control set too high.	Move temperature control to lower setting.
Control switches burn out rapidly.	Switches are mounted in the heat zone.	Check switch location per Hatco guidelines in this 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.

Troubleshooting Questions?

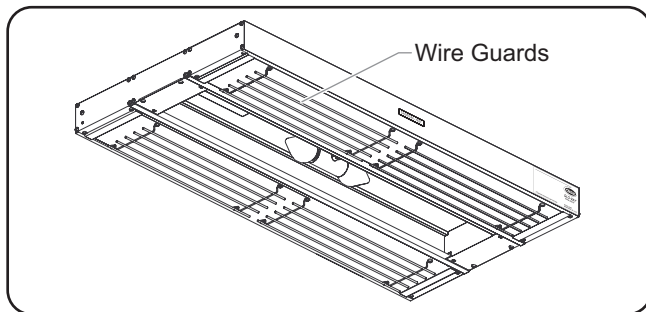
If you continue to have problems resolving an issue, please contact the nearest Authorized Hatco Service Agency or Hatco for assistance. To locate the nearest Service Agency, log onto the Hatco website at www.hatcocorp.com, select the *Support* pull-down menu, and click on "Find A Service Agent"; or contact the **Hatco Parts and Service Team** at:

Telephone: +1-414-671-6350

e-mail: support@hatcocorp.com

Element Wire Guard

Element Wire Guards are available as a factory-installed option. Element Wire Guards protect users from incidental contact with the heated surface. GRAIH-XXD and GRAIHL-XXD require two sets of wire guards.



GRAIHL-XXD with Element Wire Guards

Remote Control Enclosure — RMB Series

RMB Series remote control enclosures are available in various sizes and configurations for use with strip heaters. Remote control enclosures 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 with switches, indicator lights, and wiring. Consult the factory for type and location of RMB Series controls for enclosure.

NOTE: RMB Series remote control enclosures require one remote control enclosure per strip heater.

Model	Width (A)	Depth (B)	Height (C)	Screw Width (D)	Screw Height (E)
RMB-3 Series	150 mm (5-5/16")	76 mm (3")	67 mm (2-5/8")	161 mm (6-5/16")	41 mm (1-5/8")
RMB-7 Series	239 mm (9-3/8")	76 mm (3")	67 mm (2-5/8")	249 mm (9-13/16")	41 mm (1-5/8")
RMB-14 Series	366 mm (14-3/8")	76 mm (3")	67 mm (2-5/8")	376 mm (14-13/16")	41 mm (1-5/8")
RMB-16 Series	417 mm (16-3/8")	76 mm (3")	67 mm (2-5/8")	427 mm (16-13/16")	41 mm (1-5/8")



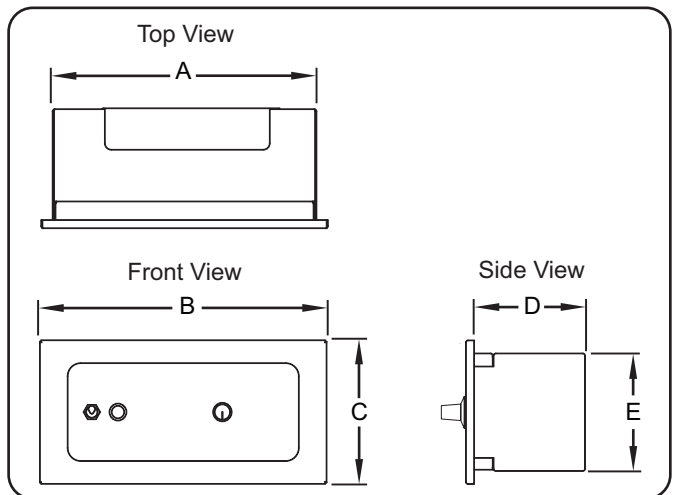
RMB Series Dimensions

Remote Control Enclosure — RMB2 Series

RMB2 Series remote control enclosures allow multiple strip heaters to be wired to and controlled by a single enclosure. The total amp draw of all connected strip heaters cannot exceed the rating of the remote control enclosure. Consult the factory for information regarding the proper RMB2 Series remote control enclosure for a specific application.

RMB2 Series Dimensions

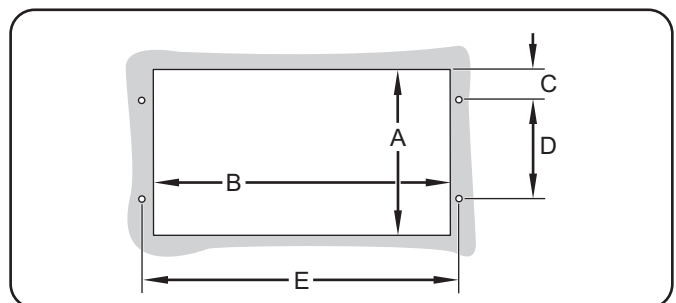
Model	Width (A)	Width (B)	Height (C)	Depth (D)	Height (E)
RMB2-1R	257 mm (10-1/8")	279 mm (11")	140 mm (5-1/2")	109 mm (4-1/4")	116 mm (4-5/8")
RMB2-2R	333 mm (13-1/8")	356 mm (14")	140 mm (5-1/2")	109 mm (4-1/4")	116 mm (4-5/8")



RMB2 Series Dimensions

RMB2 Series Cutout Dimensions

Model	Opening Cutout Dimensions		Screw Hole Dimensions		
	A	B	C	D	E
RMB2-1R	121 mm (4-3/4")	257 mm (10-1/8")	29 mm (1-1/8")	64 mm (2-1/2")	265 mm (10-7/16")
RMB2-2R	121 mm (4-3/4")	333 mm (13-1/8")	29 mm (1-1/8")	64 mm (2-1/2")	341 mm (13-7/16")



RMB2 Series Cutout Dimensions

WARRANTY, EXCLUSIVE REMEDY:

Hatco® Corporation (Seller) warrants that the products it manufactures (Products) will be free from defects in materials and workmanship under normal use and service and when stored, maintained, and installed in strict accordance with factory recommendations. Seller's sole obligation to the person or entity buying the Products directly from Seller (Customer) under this warranty is the repair or replacement by Seller or a Seller-authorized service agency, at Seller's option, of any Product or any part thereof deemed defective upon Seller's examination, for a period of: (i) the Warranty Duration from the date of shipment by Seller or (ii) the Warranty Duration from the date of Product registration in accordance with Seller's written instructions, whichever is later. The "Warranty Duration" shall mean a period of eighteen months (18) months, or the periods set forth below for specific Product components. Credit for Products or parts returned with the prior written permission of Seller will be subject to the terms shown on Seller's material return authorization form. PRODUCTS OR PARTS RETURNED WITHOUT PRIOR WRITTEN PERMISSION OF SELLER WILL NOT BE ACCEPTED FOR CREDIT. Expenses incurred by Customer in returning, replacing or removing the Products will not be reimbursed by Seller. If the defect comes under the terms of the limited warranty, the Products will be repaired or replaced and returned to the Customer and the cost of return freight will be paid by Seller. The remedy of repair or replacement provided for herein is Customer's exclusive remedy. Any improper use, alteration, repairs, tampering, misapplication, improper installation, application of improper voltage, or any other action or inaction by Customer or others (including the use of any unauthorized service agency) that in Seller's sole judgment adversely affects the Product shall void this warranty. The warranty expressly provided herein may only be asserted by Customer and may not be asserted by Customer's customers or other users of the Products; provided, however, that if Customer is an authorized equipment dealer of Seller, Customer may assign the warranty herein to Customer's customers, subject to all of the limitations of these Terms, and in such case, the warranty shall be exclusively controlled by Seller in accordance with these Terms. THIS LIMITED WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF NONINFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE EXPRESSLY DISCLAIMED.

Two (2) Year Parts Warranty:

- Conveyor 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)
- Heated Well Elements — HW, HWB, and HWBI Series (metal sheathed)
- Induction Ranges
- Induction Warmers

Five (5) Year Parts Warranty:

- 3CS and FR Tanks

Ten (10) Year Parts Warranty:

- Electric Booster Heater Tanks
- Gas Booster Heater Tanks

Ninety (90) Day Parts-Only Warranty:

- Replacement Parts

Notwithstanding anything herein to the contrary, the limited warranty herein will not cover components in Seller's sole discretion such as, but not limited to, the following: coated incandescent light bulbs, fluorescent lights, heat lamp bulbs, coated halogen light bulbs, halogen heat lamp bulbs, xenon light bulbs, LED light tubes, glass components, and fuses; Product failure in booster tank, fin tube heat exchanger, or other water heating equipment caused by liming, sediment buildup, chemical attack, or freezing.

WARRANTY REGISTRATION INSTRUCTIONS:

Product registration must be submitted within 90 days from the date of shipment from our factory to qualify for additional coverage. Registration may be submitted through the form on Seller's website, through the form accessible through the QR code on the Product (where available), or by calling Customer Service with the required information at: **+1-414-671-6350**.

LIMITATION OF LIABILITY:

SELLER WILL NOT BE LIABLE FOR ANY INDIRECT, INCIDENTAL, CONSEQUENTIAL, PUNITIVE, EXEMPLARY, OR SPECIAL DAMAGES, INCLUDING WITHOUT LIMITATION ANY LOST PROFITS, COSTS OF SUBSTITUTE PRODUCTS, OR LABOR COSTS ARISING FROM THE SALE, USE, OR INSTALLATION OF THE PRODUCTS, FROM THE PRODUCTS BEING INCORPORATED INTO OR BECOMING A COMPONENT OF ANOTHER PRODUCT, OR FROM ANY OTHER CAUSE WHATSOEVER, WHETHER BASED ON WARRANTY (EXPRESSED OR IMPLIED) OR OTHERWISE BASED ON CONTRACT, TORT, OR ANY OTHER THEORY OF LIABILITY, AND REGARDLESS OF ANY ADVICE OR REPRESENTATIONS THAT MAY HAVE BEEN RENDERED BY SELLER CONCERNING THE SALE, USE, OR INSTALLATION OF THE PRODUCTS, EVEN IF SELLER IS AWARE OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT WILL SELLER'S AGGREGATE LIABILITY ARISING OUT OF OR RELATED TO THIS AGREEMENT EXCEED THE TOTAL AMOUNTS PAID TO SELLER BY CUSTOMER FOR THE PRODUCTS WITHIN THE THREE (3) MONTH PERIOD IMMEDIATELY PRECEDING THE EVENT GIVING RISE TO CUSTOMER'S CLAIM. THE LIMITATIONS SET FORTH HEREIN REGARDING SELLER'S LIABILITY SHALL BE VALID AND ENFORCEABLE NOTWITHSTANDING A FAILURE OF ESSENTIAL PURPOSE OF THE LIMITED REMEDY SPECIFIED IN THESE TERMS.

Seller reserves the right to update these Terms at any time, at its sole discretion, which become binding upon the date of publishing. For the most current version of our full Terms of Sale, see our website at: <https://www.hatcocorp.com/terms-of-sale>

The warranty on this Hatco® unit is for one year from date of purchase or eighteen months from date of shipping from Hatco, whichever occurs first.

If you experience a problem with this unit during the warranty period, please do the following:

Contact Local Hatco Dealer

When contacting the Hatco dealer for service assistance, please supply the dealer with the following information to ensure prompt processing:

- Model of unit
- Serial number (located on the unit)
- Specific problem with the unit
- Date of purchase
- Name of business
- Shipping address
- Contact name and phone number

The Hatco dealer will do the following:

- Provide replacement part(s) as required
- Submit warranty claim to Hatco for processing

Non-Warranty Problems

If you experience a non-warranty problem that requires assistance, please contact the nearest Authorized Hatco Service Agency.

To locate the nearest Service Agency:

- access our website at www.hatcocorp.com, select the *Support* pull-down menu, and click on "Find Service Agent"
- call Hatco Service at +1-414-671-6350
- e-mail Hatco Service at: support@hatcocorp.com

GB Symbol Identification

ES Identificación de los símbolos

FR Identification de Symbole



Safety Alert
Alerta de seguridad
Alerte de sécurité



Read Operator's Manual
Lea el manual del operador
Lire le manuel de l'opérateur



Caution — Hot Surface
Precaución: superficie caliente
Attention - Surface Chaude



Power ON
Encendido
Puissance Sur



Power OFF
Apagado
Hors Tension



Standby
En espera
Veille



Protective Earth Ground
Puesta a tierra protectora
La Terre de Protection



Earth Ground
Puesta a tierra
Mise à la Terre



Equipotential Ground
Masa equipotencial
Rez de Potentiel



Alternating Current
Corriente alterna
Courant Alternatif



Phase
Fase
Phase



Water Fill, Low Water
Llenado de agua, bajo nivel de agua
Remplir d'eau, Bas Niveau d'eau



Humidity, Humidity Cycle
Humedad, ciclo de humedad
Humidité, Cycle Humidité

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