



Hazloc Heaters™



Safe heat when you need it!

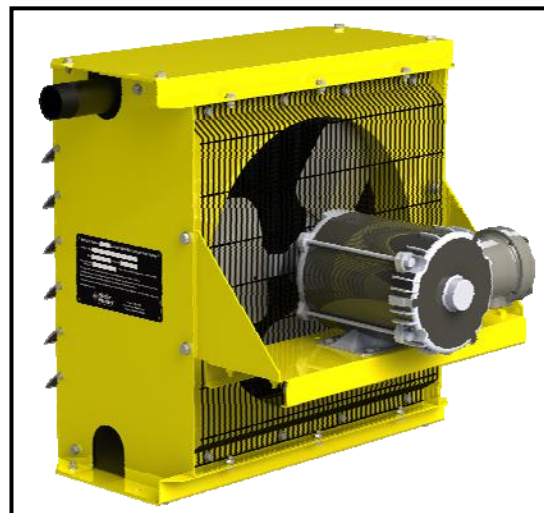
HHP2

Hydronic High Performance Heater

CRN: 0H14856.2C

Owner's Manual, Part No. HHP2-OM-D

This manual covers installation, maintenance,
repair, and replacement parts.



Industrial Grade Heat-Exchanger Unit Heaters

WARNING!

Please adhere to all instructions published in this manual.
Failure to do so may be dangerous and may void your warranty.

*The HHP heat-exchanger core is covered by the Safety Codes Act and therefore is not field repairable.
Contact factory for a replacement core if fluid leakage occurs.*

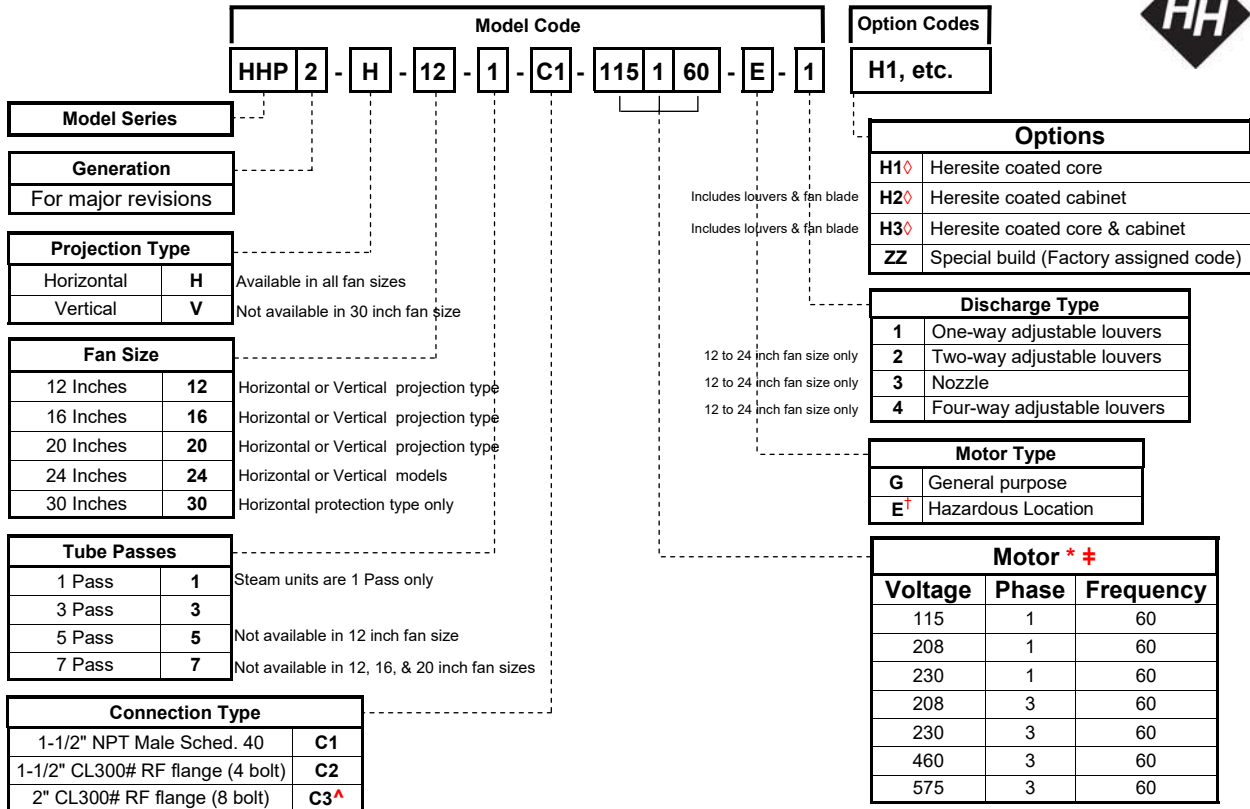


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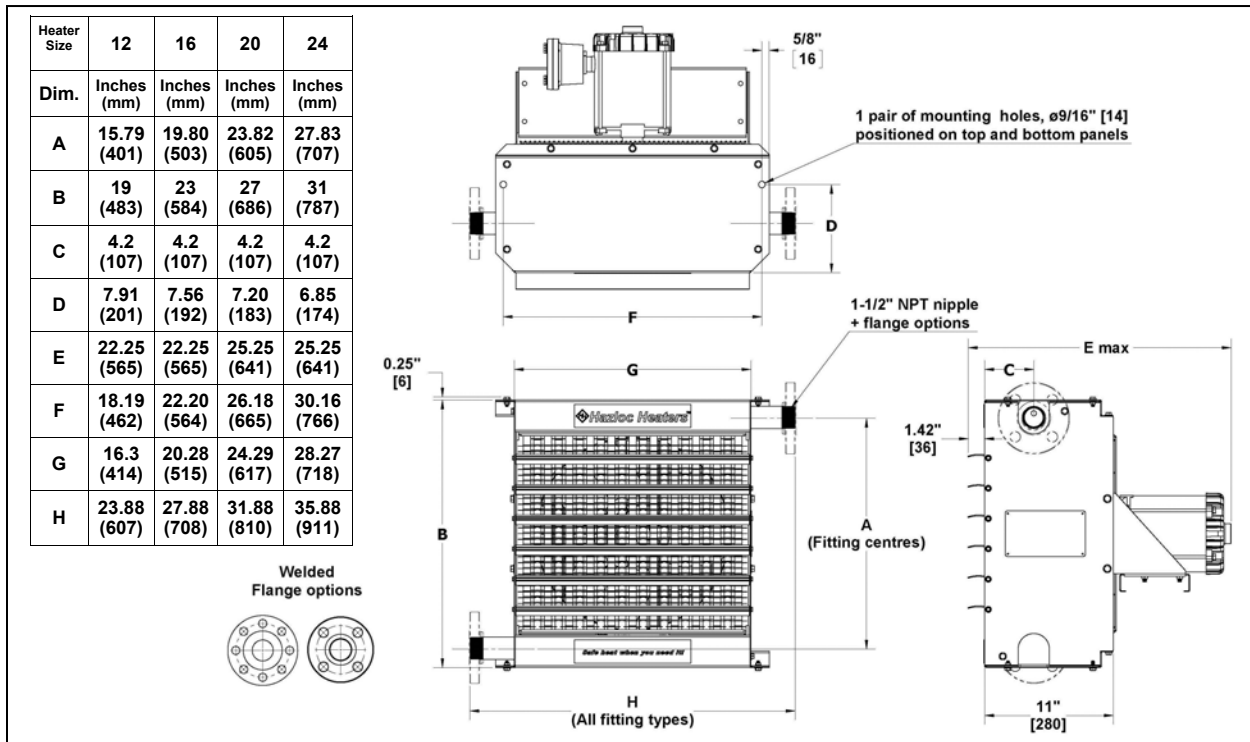
Model Coding

Heater Model Code and Option Codes



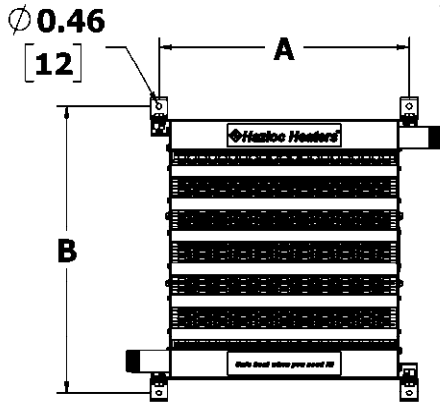
- ^A 2" 300# ANSI blind RF flange with 1-1/2" diameter hole machined in center (eight 3/4" bolt holes).
- ♦ Contact factory for extended shipping lead times on Heresite coated cores.
- † Standard Marathon NEMA ex-proof motor is suitable for Class I & II, Div. 1 & 2, Groups C, D, F & G; T3B. Ensure equipment meets the requirements of your hazardous location.
- * Other voltages/frequencies available upon request. Longer lead times may apply. Contact factory.
- ‡ NEMA motors are designed to be operated at rated voltage with tolerances of ± 10%. If the motor is marked 208-230V the tolerance must be calculated from 230V. If motor is marked 230V it is still suitable for 208V operation but the tolerance must be calculated from 230V. For 3-phase motors the line to line full load voltage must be balanced within 1%.

HHP2 Physical Dimensions (12 inch to 24 inch models)



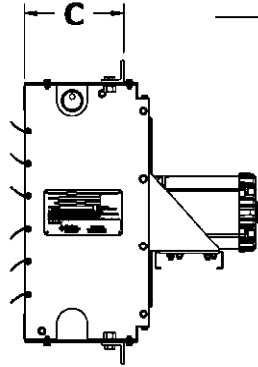
HHP2 Physical Dimensions (Discharge Type)

Discharge Type



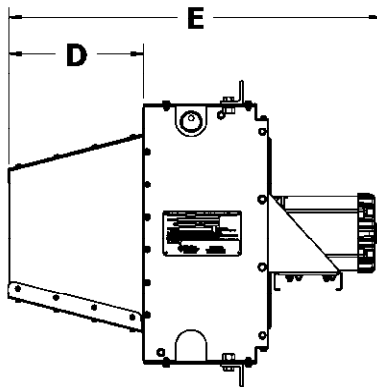
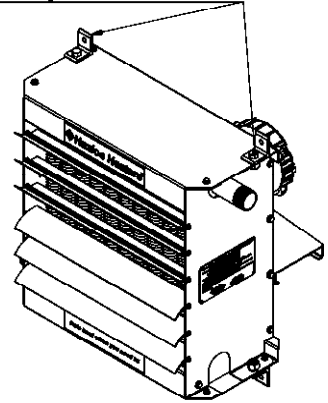
One-Way Adjustable Louvers

Recommended for Horizontal Projection Type models only

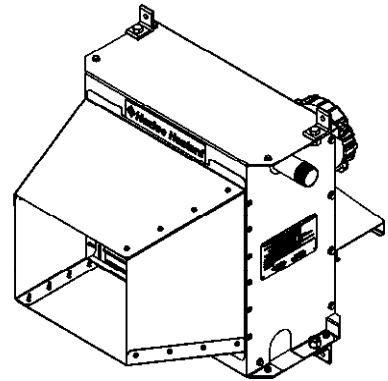


Two-Way Adjustable Louvers

Vertical Hanging Mounting Bracket (VHMB) Kit Optional



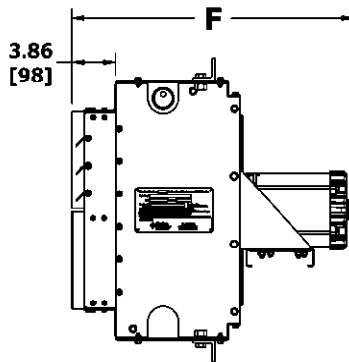
Nozzle



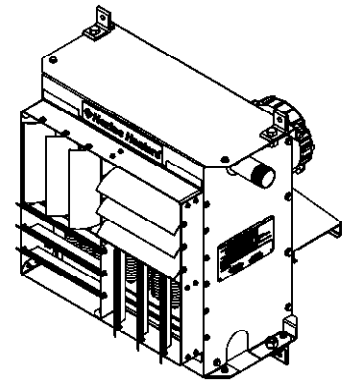
Fan Size	12	16	20	24
Dim.	Inches (mm)	Inches (mm)	Inches (mm)	Inches (mm)
A	18.19 (462)	22.2 (564)	26.18 (665)	30.16 (766)
B	21.50 (546)	25.50 (648)	29.50 (749)	33.50 (851)
C	8.80 (224)	8.80 (224)	8.80 (224)	8.80 (224)
D	12.36 (314)	12.36 (314)	16.46 (418)	16.46 (418)
E	33.19 (843)	33.19 (843)	39.26 (997)	39.26 (997)
F	24.69 (627)	24.69 (627)	26.66 (677)	26.66 (677)

Notes:

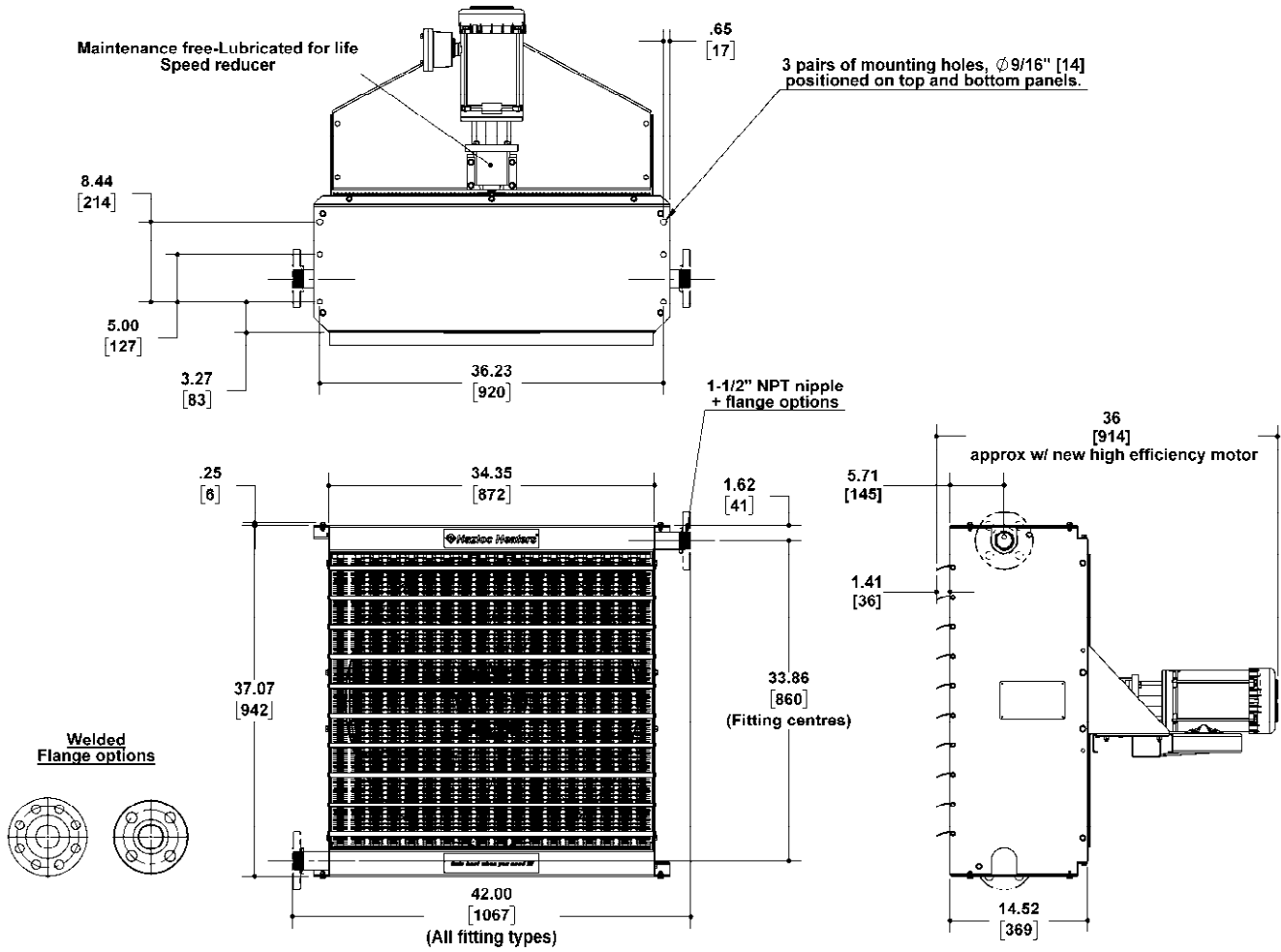
- Two-way adjustable louvers, four-way adjustable louvers and nozzle are not available on the 30 inch fan size models.
- All views are showing optional VHMB mounting bracket kit.



Four-Way Adjustable Louvers



HHP2 Physical Dimensions (30 inch model)



HHP2-30 Front & Rear Views

HHP2 Specifications By Model Size

Model		HHP2-12	HHP2-16	HHP2-20	HHP2-24	HHP2-30
Fan diameter	in. (mm)	12 (304.8)	16 (406.4)	20 (508.0)	24 (609.6)	30 (762.0)
Air delivery *	cfm (m ³ /hr)	1024 (1740)	1665 (2829)	3225 (5479)	4590 (7798)	7300 (12403)
Motor power	hp (watts)	1/4 (186) or 1/3 (248)	1/4 (186) or 1/3 (248)	1/2 (373)	1/2 (373)	1 (746)
Horizontal Projection Type with One-Way Louvers						
Horizontal air velocity *	fpm (m/s)	1227 (6.2)	1139 (5.8)	1425 (7.2)	1417 (7.2)	1715 (8.7)
Horizontal air throw *†	ft (m)	41 (12.5)	49 (14.9)	68 (20.7)	74 (22.6)	78 (23.8)
Max. mounting height *†	ft (m)	12 (3.7)	14 (4.3)	18 (5.5)	22 (6.7)	24 (7.3)
Vertical Projection Type with Two-Way Louvers (maximum mounting height is also maximum vertical air throw)						
Max. mounting height *†	ft (m)	17 (5.2)	20 (6.1)	27 (8.2)	29 (8.8)	N/A
Spread *†	ft (m)	17 (5.2)	20 (6.1)	27 (8.2)	29 (8.8)	N/A
Vertical Projection Type with Nozzle (maximum mounting height is also maximum vertical air throw)						
Max. mounting height *†	ft (m)	34 (10.4)	42 (12.8)	49 (14.9)	57 (17.4)	N/A
Spread *†	ft (m)	13 (4.0)	16 (4.9)	19 (5.8)	23 (7.0)	N/A
Vertical Projection Type with Four-Way Louvers (maximum mounting height is also maximum vertical air throw)						
Max. mounting height *†	ft (m)	12 (3.7)	15 (4.8)	17 (5.2)	20 (6.1)	N/A
Spread *†	ft (m)	12 (3.7)	15 (4.8)	17 (5.2)	20 (6.1)	N/A
Weights and Shipping Crate Dimensions (wood packaging material is in compliance with ISPM No. 15)						
Net before adders	lbs (kg)	102 (46.3)	131 (59.4)	168 (76.2)	219 (99.3)	354 (160.6)
Shipping before adders	lbs (kg)	152 (68.9)	183 (83.0)	227 (103.0)	280 (127.0)	465 (210.9)
Add for flanges	lbs (kg)	16 (7.3)	16 (7.3)	16 (7.3)	16 (7.3)	16 (7.3)
Add for nozzle	lbs (kg)	10 (4.5)	12 (5.4)	19 (8.6)	20 (9.1)	N/A
Add for four-way louver	lbs (kg)	6 (2.7)	8 (3.6)	10 (4.5)	10 (4.5)	N/A
Crate W x D x H	In mm	28.0 x 29.5 x 27.75 711 x 749 x 705	31.5 x 29.5 x 31.75 800 x 749 x 806	35.5 x 29.5 x 35.75 902 x 749 x 908	39.5 x 29.5 x 39.75 1003 x 749 x 1010	48.25 x 43.0 x 45.9 1225 x 1092 x 1166

- At 70°F (21°C), 60 Hz and sea level.

† The Air throws, Spreads and Max. Mounting heights listed above are based on an air temperature rise (ΔT) of 40°F. To determine these figures for temperature rises other than 40°F, first determine the actual air temperature rise from the performance tables located in the product brochure, our web based Heater Selection Tool, or factory supplied printouts, and then multiply the respective values by the Correction factor in the table below.

Air Discharge Temperature Correction Factors @ Various Temperature Differences ΔT (°F)

Actual ΔT	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
Correction	1.24	1.18	1.12	1.06	1.00	0.94	0.88	0.82	0.76	0.70	0.64	0.58	0.51	0.45	0.39	0.33

HHP2 General Specifications

Approval	CRN: 0H14856.2C - steam or fluids (not for use with lethal fluids as defined by ASME, Section VIII, Div. 1, UW-2).
Max. pressure rating	450 psig (3103 kPa).
Max. design temperature	550 °F (288°C).
Minimum design metal temperature	-20° F (-29° C).
Cabinet material	14-gauge (0.075 in.) (1.9 mm) steel. HHP2-30 is 12-gauge (0.105 in. (2.7 mm) steel on top and bottom panels and motor mount. Yellow epoxy/polyester powder coated with five-stage pretreatment, including iron phosphate. Optional Heresite phenolic coating available. Option Codes H2 or H3.
Louver blades	Anodized extruded aluminum.
Fan	Spark resistant three-blade aluminum (except HHP2-30 which is six-blade).
Fan guard	Split design with close wire spacing. A 3/8 in. (9.5 mm) diameter probe will not enter.
Motor drive	Thermally protected CSA or UL Listed 1725 RPM permanently lubricated ball bearing type with 56 frame and "easy-off" fan blade replacement feature. HHP2 -30 is a 56C frame motor and a maintenance-free speed reducer.
Mounting holes	9/16 in. diameter holes - Two at top and two at bottom of heater.
Fluid connections	1-1/2 in. NPT male Schedule 40 inlet and outlet. Optional 1-1/2" (4 bolt) & 2" (8 bolt) CL300# RF flanges available. [see ^ symbol on Page two for 8 bolt description]
Header material	3/16 in. (4.8 mm) carbon steel conforming to ASME requirements.
Finned tubes	5/8 in. (15.9 mm) outside diameter [16-gauge, 0.065 in. (1.6 mm) wall thickness] carbon steel tubes with 1-1/2 in. (38.1 mm) outside diameter copper-free, L-foot, tension-wound aluminum fins @ 10 fins per in.
Exchanger coatings	Standard coating is a black, high-heat enamel paint. Optional Heresite phenolic coating available. Option Codes H1 or H3.

— WARNING! —

Read and follow the instructions in this manual. Failure to do so may result in severe or fatal injury.

1. Heater is to be transported in the factory supplied crate.
2. Heater is to be stored indoors in a clean dry environment.
3. Heater is to be installed and serviced only by qualified personnel and must adhere to all applicable codes.
4. Heater is suitable for maximum operating pressure of 450 psi (3103 kPa) and maximum operating temperature of 550°F (288°C). Refer to heater and heat-exchanger data plate
5. Heater is suitable for use in hazardous locations only if fitted with an approved electric motor and the heat exchanger fluid temperature is below the ignition temperature of the atmosphere
6. Ensure the product certifications and ratings meet all the requirements for the installation.
7. As per the North American CRN, this product is for use with non-lethal fluids only (see ASME Section VIII, Div 1, UW-2) .
8. Ensure that the proper warning and safety systems are installed to protect the heater from overpressure.
9. Do not use if the heater core is damaged or leaking. Contact factory for a replacement core, the core is not field repairable.
10. Do not operate heater in atmospheres which are corrosive to aluminum or steel, unless it has been coated with a factory approved protective coating.
11. Heater must be kept clean. When operating in a dirty environment, regularly clean the fin tubes, fan, fan guard, motor, louvers, and cabinet. Refer to recommended maintenance procedures.
12. The minimum gap between the fan and fan shroud is to be maintained at all times. See installation and repair instructions for the minimum gap requirements.
13. Use factory supplied or approved replacement parts only.
14. Follow all local codes and regulations for the disposal of used or damaged parts or products.
15. A boiler water chemical treatment program is recommended to reduce / prevent corrosion in piping systems.

— INSTALLATION —

These instructions are to be used as a general guideline only.

Location

Please follow guidelines below for optimum heating results:

1. Do not install heaters such that airflow is blocked or impeded by equipment or walls.
2. For occupant comfort, position heaters so that air discharge is directed across areas of highest heat loss, such as doors, windows, and outside walls.
3. For large areas, arrange heaters such that the air discharge of one heater is directed towards the inlet of the next heater. This sets up a rotational airflow with air circulation in the central area of the building.
4. For equipment freeze protection, direct air discharge at required equipment.
5. For large workshops or warehouses it may be acceptable to use fewer, but larger heaters.
6. Do not direct air discharge towards a room thermostat.

Mounting

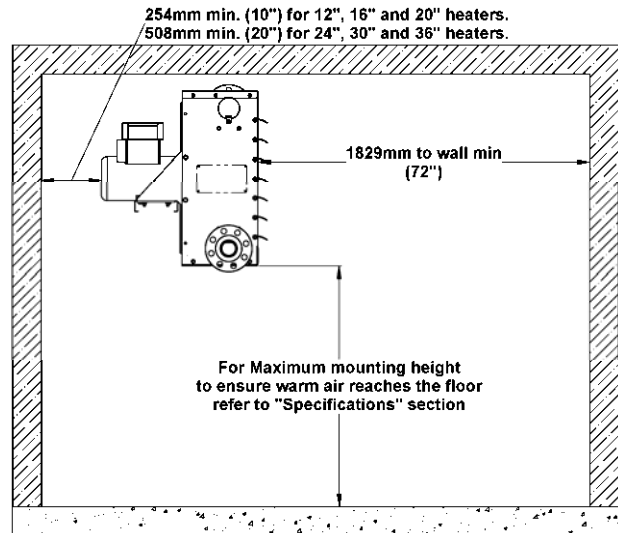
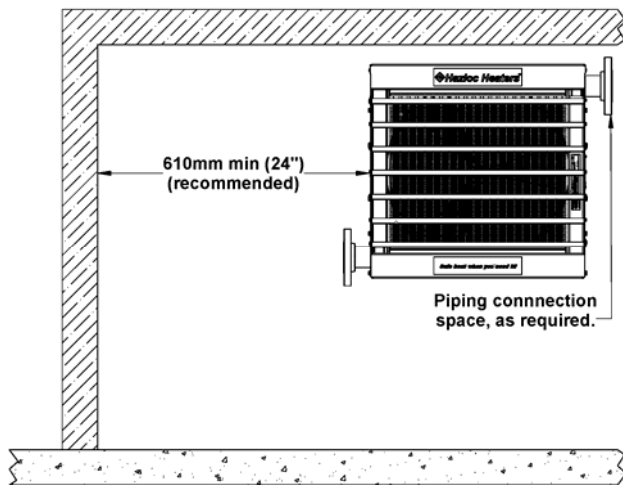
1. A variety of mounting brackets are available from the factory to aid in installation.
2. The standard installation position for the heater is horizontal (upright and level).
3. The heater may also be mounted in the vertical (face down) position (available on 12" to 24" models only).
4. For steam service, the inlet must be above the outlet and the bottom of the heat exchanger must drain towards the outlet for all installation positions.
5. Horizontal position heaters are designed to be mounted from the top or bottom of cabinet using two 1/2 in. (12 mm) bolts or threaded rod/pipe (rod or pipe can be extended through both top and bottom panels for extra support).
6. It is essential that adequate structural support be provided for installation. The mounting structure must be strong enough to support the heaters weight, provide sufficient stiffness to prevent excessive vibration, and withstand all probable abusive situations such as transportable installations where truck off-loading impacts, etc. may occur.

Mounting Heights and Clearances

1. For recommended mounting heights for the different mounting positions and discharge types please see the "specifications" table on page 5. Note: The maximum mounting height for the heater may vary from the values listed in the table depending on the specific conditions at the installation site.

(con't)

- Louvers may be adjusted to provide greater downward deflection of the discharge air. However, it is recommended that louvers not be set less than 15 degrees from the closed position.



Fan Clearance

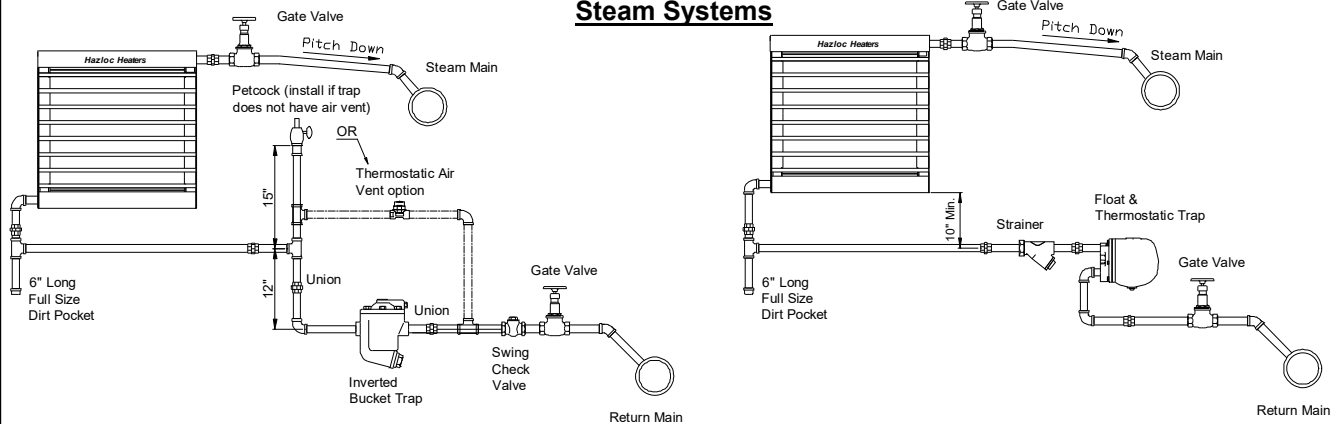
- Verify the minimum required clearance between fan blades / fan shroud and the fan blades / fan guard prior to heater power up.

Heater Size	12"	16"	20"	24"	30"
Min Clearance	2.0 mm	2.0 mm	2.5 mm	3.0 mm	3.8 mm

— PIPING SUGGESTIONS —

Suggested piping arrangements only, refer to ASHRAE HVAC Systems & Equipment for more detail

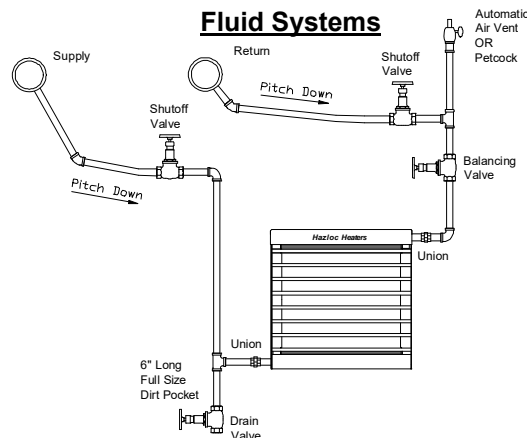
Steam Systems



Unit Heater Connection for High Pressure Steam

Unit Heater Connection for Low Pressure Steam - Open Gravity or Vacuum Return System

Fluid Systems



Unit Heater Connections to Overhead Fluid Mains

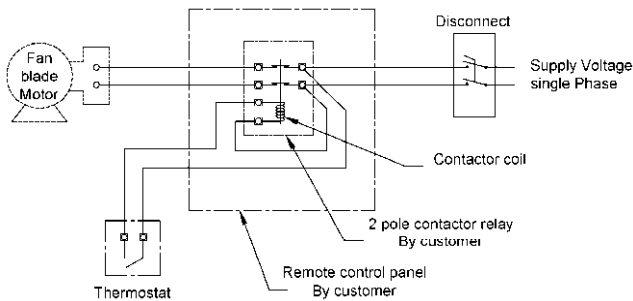
— Piping Practices —

1. Steam unit heaters condense steam rapidly, especially during warm-up periods. The return piping must be planned to keep the heat-exchanger's core free of condensate during periods of maximum heat output, and steam piping must be able to carry a full supply of steam to the unit heater to take the place of condensed steam. Adequate pipe size is especially important when a unit heater fan is operated under on-off control because the condensate rate fluctuates rapidly.
2. Heater is to be connected and serviced only by qualified personnel. For additional piping information refer to local codes.
3. Eliminate pipe stress by adequately supporting all piping. Do not rely on heater to support piping.
4. Take off all branch lines from the top of steam mains, preferably at a 45° angle, although vertical 90° connections are acceptable.
5. Pipe the branch supply line into the steam unit heater's inlet at the top and the return branch line from the outlet at the bottom.
6. In steam systems, the branch from the supply main to the heater must pitch down towards the main and be connected to its top in order to prevent condensate in the main from draining through the heater. In long branch lines, a drip trap may be needed.
7. Allow for pipe expansion to prevent excessive strain on the unit heater's heat-exchanger core.
8. The return piping from steam unit heaters should provide a minimum drop of 10" (254 mm) below the heater so that the pressure of water required to overcome resistances of check valves, traps, and strainers will not cause condensate to remain in the heater.
9. In steam systems, where horizontal piping must be reduced in size, use eccentric reducers that permit the continuance of uniform pitch along the bottom of piping (in downward pitched systems). Avoid using concentric reducers on horizontal piping, because they can cause water hammer.
10. Installing dirt pockets at the outlet of unit heaters and strainers with 0.063 in. (2 mm) perforations to prevent rapid plugging are essential to trap dirt and scale that might affect the operation of check valves and traps. Strainers should always be installed in the steam supply line if the heater is valve controlled.
11. In steam or hot water systems, rapid air removal is required because entrained air is a cause of corrosion. Hot water systems should be equipped with suitable air vent valves for rapid and complete air removal at high points, at the top of each unit heater, and ends of both supply and return mains. Proper air venting for steam systems can be achieved by use of a steam trap with an internal air vent.
12. Steam traps must be located below the outlet of the unit heater. Consult the trap manufacturer for specific recommendations. Each steam unit heater should be provided with a trap of sufficient size and capacity to pass a minimum of twice the normal amount of condensation released by the unit at the minimum differential pressure in the system. Trap capacity is based on the pressure differential between supply and return mains. Steam systems should be equipped with a float and thermostatic trap or inverted bucket trap with an air bypass.
13. If the condensate return line is above the heater outlet or is pressurized, install a check valve after the steam trap and a drain valve at the strainer to drain the system during the off season.
14. Install pipe unions and shut-off valves at connection points of each unit heater to allow maintenance or replacement of unit without shutting down and draining the entire system. For hot water systems include a balancing valve in return line for flow regulation. A drain valve should be provided below each unit heater to allow removal of water from the heat-exchanger core if located in an area subject to freezing.
15. Adequate air venting is required for low-pressure closed gravity systems. The vertical pipe connection to the air vent should be at least 3/4" NPT to allow water to separate from the air passing to the vent. If thermostatic instead of float-and-thermostatic traps are used in vacuum systems, a cooling leg must be installed ahead of the trap.
16. In high-pressure systems, it is customary to continuously vent the air through a petcock unless the steam trap has a provision for venting air. Most high-pressure return mains terminate in flash tanks that are vented to the atmosphere. When possible, pressure reducing valves should be installed to permit operation of the heaters at low pressure. Steam traps must be suitable for the operating pressure encountered.
17. On steam systems where the steam supply to the unit heater is modulated or controlled by a motorized valve, a vacuum breaker should be installed between the unit outlet and a float and thermostatic trap.

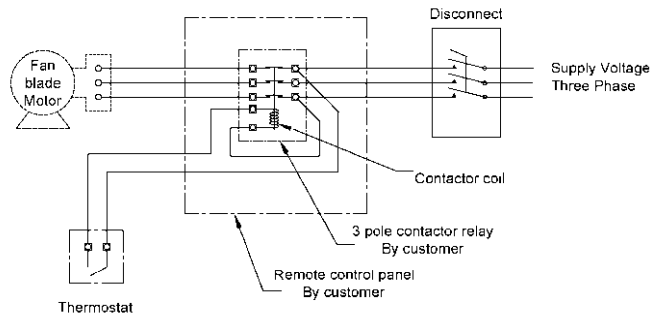
— Warning —
Wiring should only be connected by qualified personnel.

— Electrical Wiring of heater and Remote Mount Thermostats —

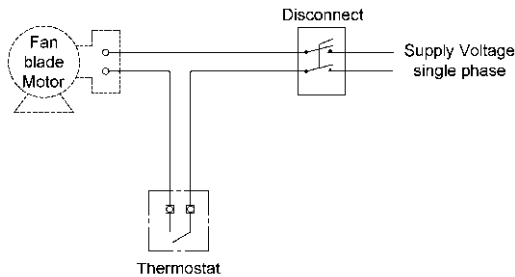
Wiring diagram is located on the motor. On all three-phase heater motors, it is necessary to verify that the fan rotation is correct (counter clockwise when facing the rear of the heater). If air delivery is not from the front of the heater, reverse any two power supply leads.



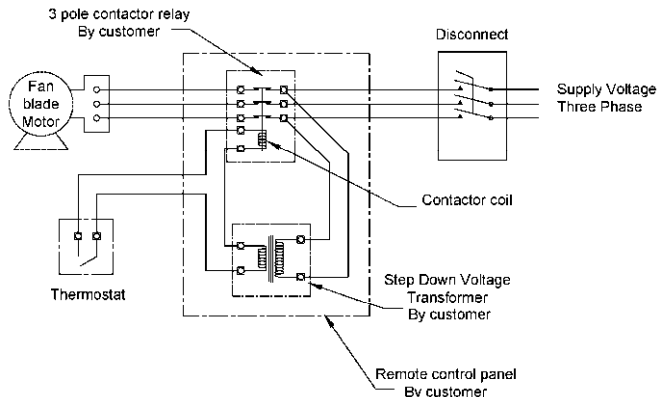
**Thermostatic Control for High motor current
 Single phase motors**



**Thermostatic Control for Low voltage
 Three phase motors**



**Thermostatic Control for Low motor current
 Single phase motors**



**Thermostatic Control for High voltage
 Three phase motors**

BTX - Bi-metal Explosion Proof Thermostat

Electrical Ratings

- Voltage free contacts, 50/60Hz
- 22 Amp up to 480VAC (resistive)
- 125VAC @ 0.17kW (1/4HP)
- 125VAC @ 0.35kW (1/2HP)
- 250VAC @ 0.55kW (3/4HP)
- 250VAC @ 0.75kW (1HP)

PILOT DUTY Ratings

- 490 VA @ 125VAC
- 800 VA @ 250VAC

— WARNING! —

Heater should only be service by qualified personnel.

Disconnect unit heater from power supply before starting any service or repair work.

Follow all lockout / tag out procedures.

Failure to follow these procedures may result in injury.

— Repair and Replacement —

Heat-Exchanger Core Assembly Replacement

1. Remove heater from its mounting location and lower to floor or stable working surface. Assistance is usually required to remove heater safely.
2. Remove louver blades from front of cabinet using a 5/16 in. wrench or socket.
3. Remove four 1/4 in. bolts holding left-side cabinet panel (when facing heater front) to top & bottom panels.
4. While supporting the weight of the heat-exchanger core, by the left piping connection, remove the two 1/4 in. core bolts from left and right-side cabinet panels. Allow heat-exchanger core to rest on bottom of cabinet.
5. Remove the left-side fan guard and left-side cabinet panel as follows (if heater has optional flanged connections, also remove top cabinet panel): (a) While supporting the motor mount, remove the two 5/16 in. bolts holding the motor mount to the left side of the cabinet and fan panel assembly. (b) Remove left-side cabinet panel and then reinsert the 5/16 in. bolts into the fan panel assembly. Place a support under the motor mount to prevent cabinet from tipping backwards towards motor during removal of heat-exchanger core.
6. With the left-side cabinet panel removed and motor mount supported, slide heat-exchanger core out of cabinet.
7. To install heat-exchanger core into cabinet, reverse order of above procedure and tighten fasteners to proper torque setting.

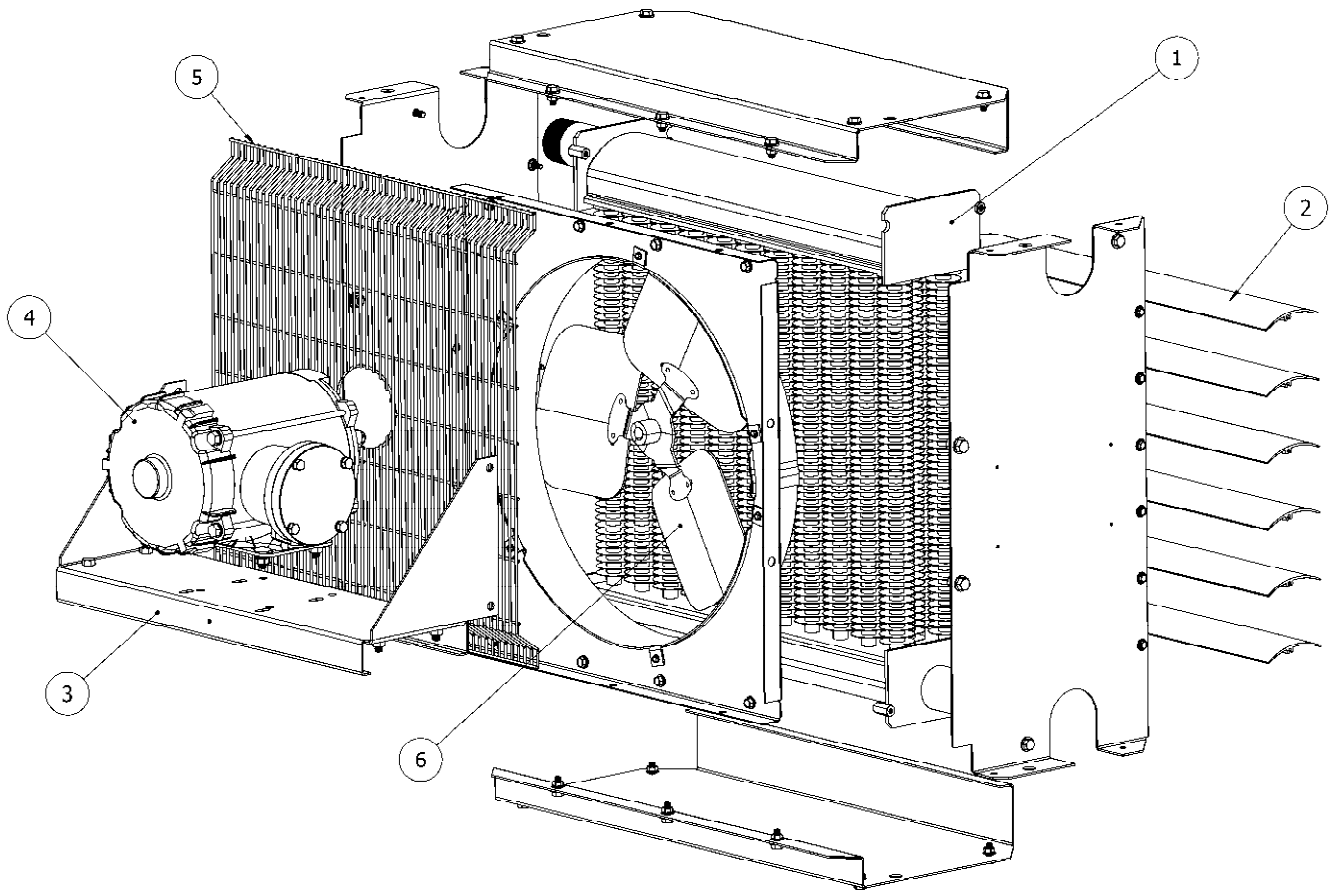
Torque Settings	
Item	Torque (in-lbs)
Fan blade set screw	150
5/16 - 18 UNC motor nuts	250
5/16 - 18 UNC motor mount bolts	250
1/4 - 20 UNC fan panel bolts	100
1/4 - 20 UNC fan guard self tapping screws	100
1/4 - 20 UNC core bolts	90
#10 - 24 UNC louver blade screws	28

Fan, Fan Guard or Motor Replacement

1. For replacement of fan or fan guard remove four bolts holding motor to the motor mount. For HHP2-30 also remove speed reducer bolts. If replacing motor only on HHP2-30, only remove motor mounting bolts and C-face flange bolts.
2. Detach two-piece fan guard assembly by removing top and bottom screws that attach the fan guard to the cabinet.
3. Remove fan guard pieces through top or bottom. Due to stiffness of fan guards, you may need to remove two outer top or bottom bolts that attach the fan panel to the top or bottom cabinet panels to provide sufficient clearance.
4. Lift the motor, speed reducer (for HHP2-30 only) and fan assembly off the motor mount.
5. Loosen fan hub screws and remove fan blade from motor shaft.
6. To reassemble, position fan on motor shaft with end of shaft even with face of hub. Ensure the set screw is faced towards motor and lined up perpendicular to factory-ground flat on motor shaft. This flat is our "Easy-Off" fan blade replacement feature and only comes on motors purchased from Hazloc Heaters. Tighten set screw to 150 in-lbs torque.
7. Place motor, speed reducer (for HHP2-30 only) and fan assembly onto motor mount and fasten the two-piece fan guards to the cabinet.
8. Center fan in fan-shroud opening and leave approximately 1/16" to 3/16" (1.6 to 4.8 mm) gap between motor face and fan guard.
9. Bolt motor to motor mount, tighten nuts to 250 in-lbs torque. Manually spin the fan blade to ensure it rotates freely before reconnecting heater to power supply. Fan must rotate counterclockwise when viewed from rear of heater.

— Parts List —

HHP2 (12 inch to 24 inch models)

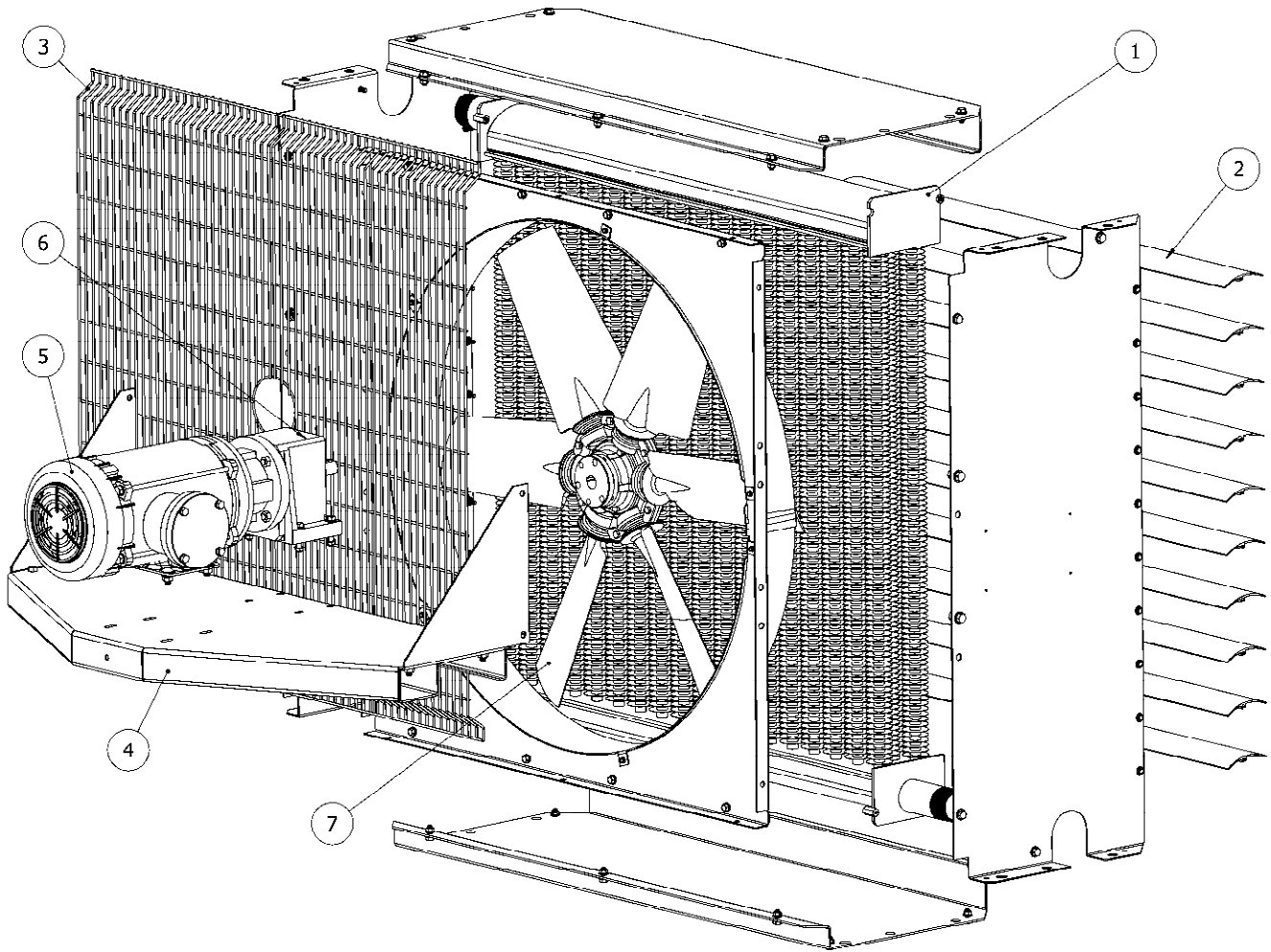


HHP2 (12 inch to 24 inch models)

Item No.	Description	HHP2-12	HHP2-16	HHP2-20	HHP2-24
		Part Number	Part Number	Part Number	Part Number
*** Please have heater model & serial number available before calling ***					
1	Core Assembly	Contact factory with heater model, size, number of passes and connection type Part #'s 1200 thru 1247			
2	Louver Blade Kit	1145	1146	1147	1148
3	Motor Mount Kit	1151	1152	1153	1154
4	Motor Kit - 5/8" Shaft	Specify motor voltage, phase, frequency, horsepower and type of enclosure (general purpose or explosion-proof)			
5	Fan Guard Kit	1157	1158	1159	1160
6	Fan - 5/8" Hub	1163	1165	1167	1169

— Parts List —

HHP2 (30 inch model)



HHP2 (30 inch model)

Item No.	Description	HHP2-30	
		Part Number	
*** Please have heater model & serial number available before calling ***			
1	Core Assembly	Contact factory with heater model, size, number of passes and connection type Part #'s 1200 thru 1247	
2	Louver Blade Kit	1279	
3	Fan Guard Kit	1161	
4	Motor Mount Kit	1199	
5	Motor Kit - 5/8" Shaft	Specify motor voltage, phase, frequency, horsepower and type of enclosure (general purpose or explosion-proof)	
6	Speed Reducer Kit	1178	
7	Fan - 5/8" Hub	1280	

— WARNING! —

Heater should only be service by qualified personnel.

Disconnect unit heater from power supply before starting any service or repair work.
Follow all lockout / tag out procedures.
Failure to follow these procedures may result in injury.

— Maintenance Program —

Regular inspection, based on a schedule determined by the amount of dirt in the atmosphere, assures maximum operating economy and heating capacity.

Annual Inspection (before each heating season)

1. Check all terminal connections, electrical conductors, glands and cables for damage, looseness, defects, fraying, etc. and replace or tighten where applicable.
2. Check for fluid leakage from heat-exchanger core. If fluid leakage occurs, remove heater from service and have the heat-exchanger core replaced by a factory replacement unit. Refer to "Repair and Replacement" section for complete details. **Note: This heat-exchanger core is not field repairable.**
3. Check electrical junction box. Inside of enclosure must be clean, dry, and free from any foreign materials. The cover must also be completely on and tight.
4. Check motor shaft bearing play. Replace motor if play is excessive or if motor does not run quietly and smoothly. Motor bearings are permanently lubricated.
5. On HHP2-30 models, speed reducer is maintenance free . Check for excessive noise and vibration.
6. Check fan. Replace immediately if cracked or damaged. Check the gap between the fan and fan shroud meets the minimum spacing requirement.
7. Check louvers. Louver screws should be tight. Louvers are not to be set <math><15^\circ</math> of the closed position.
8. Check the tightness of all hardware. All nuts and bolts, including mounting hardware, must be tightened to torque settings on Page 10.
9. Turn heater motor on for a minimum of 10 minutes. Check for air exiting heater through louvers and smooth running of the motor and fan assembly.

Periodic Maintenance (before and as required during heating season)

1. Clean the following (remove dust using compressed air):

- Finned tubes
- Fan
- Fan Shroud
- Fan Guard
- Motor
- Louvers
- Cabinet



2. Check the following:

- Motor / fan assembly for smooth and quiet operation.
- Speed reducer (on HHP2-30 models) for smooth quiet operation.
- Louvers for proper angle and tightness.
- Electrical covers are secure.
- Gap between the fan blade / fan shroud and the fan blade / fan guard meet the minimum spacing requirement (see page 7 for minimum values).

NOTES



Limited 18-Month Warranty

Hazloc Heaters™ warrants all **HHP2** series of heat-exchanger unit heaters against defects in materials and workmanship under normal conditions of use for a period of eighteen (18) months from date of purchase based on the following terms:

1. The heater must not be modified in any way.
2. The heater must be stored, installed and used only in accordance with the owner's manual and attached data plate information.
3. Replacement parts will be provided free of charge as necessary to restore any unit to normal operating condition, provided that the defective parts be returned to us freight prepaid and that the replacement parts be accepted freight collect.
4. The complete heater may be returned to our manufacturing plant for repair or replacement (at our discretion), freight charges prepaid.
5. Components damaged by contamination from dirt, dust, etc. or corrosion will not be considered as defects.
6. This warranty shall be limited to the actual equipment involved and, under no circumstances, shall include or extend to installation or removal costs, or to consequential damages or losses.



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