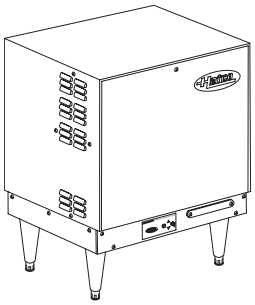
Electric Booster Water Heaters

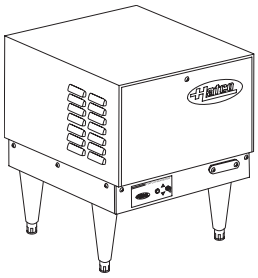
Imperial “S”
Compact “C”
Mini-Compact “MC”
Series

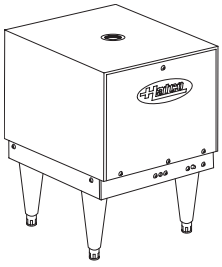
Installation &

Operating Manual

I&W #07.05.001.00







This manual contains important safety information concerning the maintenance, use and operation of this product. Failure to follow the instructions contained in this manual may result in serious injury. If you’re unable to understand the contents of this manual, please bring it to the attention of your supervisor. Do not operate this equipment unless you have read and understood the contents of this manual.

Este manual contiene importante información sobre seguridad concerniente al mantenimiento, uso y operación de este producto. Cualquier falla en el seguimiento de las instrucciones contenidas en este manual puede resultar en un serio daño. Si usted no puede entender el contenido de este manual por favor pregunte a su supervisor. No opere este equipo al menos que haya leído y comprendido el contenido de este manual.

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IMPORTANT OWNER INFORMATION

Record the model number, serial number (identification decal located on the unit), voltage and purchase date of your Electric Booster Water 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.D.T. Monday through Thursday 8:00 a.m. to 2:30 p.m. C.D.T. Friday)

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

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

24/7 24-Hour 7-Day Parts & 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 Electric Booster Water Heaters are designed for use with commercial dishwashers to boost the temperature of the regularly available hot water, usually 110°-150°F (43°-66°C) up to 180°F (82°C). Water at 180°F (82°C) can be used as sanitizing rinse water in commercial dishwashers in accordance with Health Codes, NSF Standard #5 and plumbing codes.

All Hatco Booster Heaters are ready for electrical and plumbing service connections, with a pre-set ambient compensated immersion thermostat(s) and a high temperature limit switch. The service area is accessible from the front of the unit, permitting easy installation.

This manual provides the installation, safety and operating instructions for the Booster Heaters. We recommend all installation, operating and safety instructions appearing in this manual be read prior to installation or operation of your Booster Heaters. Safety instructions that appear in this manual after a warning symbol ⚠ and the words **WARNING** or **CAUTION** printed in bold face are very important. ⚠ **WARNING** means there is the possibility of serious personal injury or death to yourself or others. ⚠ **CAUTION** means there is the possibility of minor or moderate injury. **CAUTION** *without the symbol* signifies the possibility of equipment or property damage only.

Hatco Electric Booster Water 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 thoroughly inspected and tested prior to shipment.

IMPORTANT SAFETY INFORMATION

IMPORTANT! Read the following important safety instructions to avoid personal injury or death, and to avoid damage to the equipment or property.

⚠ WARNINGS

⚠ **To avoid personal injury or damage to equipment, the booster heater must be installed by qualified, trained installers. Installation must conform to all local electrical and plumbing codes. Check with your local plumbing and electrical inspectors for proper procedures and codes.**

⚠ **To avoid any injury or damage to the booster heater turn the power OFF at the disconnect switch/circuit breaker and allow to cool before performing any maintenance or adjustments.**

⚠ **For proper electrical installation conforming to local electrical codes and the National Electrical Code (N.E.C.), consult a licensed electrical contractor.**

⚠ **To avoid injury or damage to dishwashing equipment do not connect Hatco Electric Booster Water Heaters to domestic (consumer) dishmachines or other domestic utilized equipment.**

⚠ **To avoid any injury or damage to equipment and to assure proper operation do not connect an expansion tank of any type to booster heater water lines.**

⚠ **To avoid personal injury or damage to the Hatco Electric Booster Water Heater, only use plumbing material suitable for a minimum water temperature of 200°F (93°C). Materials used must meet National Sanitation Foundation (NSF) specifications and all local plumbing codes and regulations.**

⚠ **To avoid personal injury or damage to the unit aftermarket covers must not be placed on or over the booster heater. Doing so can cause temperature and moisture build-up resulting in premature failure and electrical shock.**

⚠ **It is essential to recognize that even though a water heater may be properly installed initially and approved, there always exists the possibility that unknowing individuals might alter or change the installation in a manner that would render it unsafe. Therefore, it is important that all safety programs provide some mechanism to assure that these installations are inspected periodically.**

⚠ WARNINGS

⚠ **Hatco has always endorsed the use of safety equipment when using a booster water heater or storage-type water heater. Hatco booster heaters are shipped with a temperature/pressure relief valve at no extra charge. This valve must be installed into the marked opening provided in the tank. Valves supplied by Hatco are designed for high temperature commercial operation. Do not substitute Hatco supplied valves with valves designed for domestic operation.**

⚠ **Temperature/pressure protective equipment should not be less than a combination temperature/pressure relief valve certified by a nationally recognized testing laboratory that maintains periodic inspection of the production of this equipment and meets the requirements for Relief Valves and Automatic Shutoff Devices for Hot Water Supply Systems, ANSI Z21.22-1979. The temperature/pressure relief valve must be marked with a minimum set pressure not to exceed the marked hydrostatic test pressure of the booster heater as noted on the unit specifications.**

⚠ **To avoid personal injury or damage to the equipment make sure the dishtable is strong enough to support the weight of the booster heater and water when installing with slide mounting brackets.**

⚠ **To avoid personal injury or damage to the equipment, follow standard welding procedures when attaching sliderails to bottom of dishtable.**

⚠ **Water in the unit is very hot. Wear protective gloves and proper attire when operating to avoid injury.**

⚠ **To assure proper operation and avoid a possible unsafe condition, the booster heater must be installed in a horizontal position with the base parallel to the floor and the inlet connection at the lowest point.**

⚠ **This product contains fiberglass, a product known to the state of California to cause cancer, birth defects or other reproductive harm.**

⚠ **To avoid any injury or damage do not install the unit in an area where flammable liquids or combustible vapors are present.**

IMPORTANT SAFETY INFORMATION

IMPORTANT! Read the following important safety instructions to avoid personal injury or death, and to avoid damage to the equipment or property.

⚠ WARNINGS (CONTINUED)

⚠ **FOR INSTALLING PRESSURE AND TEMPERATURE RELIEF VALVES IN ACCORDANCE WITH AMERICAN NATIONAL STD. Z21.22-1979. Combination pressure and temperature relief valves with extension thermostats must be installed so that the temperature-sensing element is immersed in the water within the top 6" (152 mm) of the tank. They must be installed either in the hot outlet service line or directly in a tank tapping. Combination pressure and temperature relief valves that do not have extension elements must be mounted directly in a tank tapping located within the top 6" (152 mm) of the tank, and shall be adequately insulated and located so as to assure isolation from the flue gas heat or other ambient conditions that are not indicative of stored water temperature. TO AVOID WATER DAMAGE OR SCALDING DUE TO VALVE OPERATION, DRAIN PIPE MUST BE CONNECTED TO VALVE OUTLET AND RUN TO A SAFE PLACE OF DISPOSAL. Discharge line must be as short as possible and be the same size as the valve discharge connection throughout its entire length. Drain line must pitch downward from the valve and must terminate between 1-1/2" (38 mm) and 6" (152 mm) above the floor drain where any discharge will be clearly visible. The drain line shall terminate plain, not threaded, with material serviceable for temperatures up to 250°F (121°C) or greater. Excessive length, over 30' (9144 mm), or use of more than four elbows can cause a restriction and reduce the discharge capacity of the valve. No shut-off valve shall be installed between the relief valve and tank, or in the drain line. Valve lever must be tripped periodically to assure that waterways are clear. This device is designated for emergency safety relief and shall not be used as an operating control. The valves are set to relieve at 150 psi (1034 kPa) or when water temperature reaches 210°F (99°C). Read tag on valve for additional information.**

⚠ **To avoid any injury or damage, the booster heater must only be serviced by qualified personnel.**

⚠ WARNINGS

⚠ **Valves supplied by Hatco are designed for high temperature commercial operation. Do not substitute Hatco valves with valves designed for domestic water heaters.**

⚠ **Units are equipped with a High Temperature Limit Safety Switch that will shut the power off if the unit overheats. To avoid any injury to personnel or damage to the unit, contact an Authorized Hatco Service Agent if the High Temperature Limit Safety Switch cannot be reset or continues to trip.**

⚠ **To avoid personal injury and to assure safe operation install the booster heater as close as possible to the commercial dishwasher. Employ recirculation if distance between booster and commercial dishwasher exceeds National Sanitation Foundation (NSF) specifications of five (5) linear feet (1524 mm).**

⚠ **To avoid personal injury and avoid damage to the booster heater refer to *BOOSTER HEATER SIZING CHART* in this manual.**

⚠ **If service is required on this unit, contact your 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.**

⚠ **This product has no "user" serviceable parts. To avoid damage to the unit or injury to personnel, use only Authorized Hatco Service Agents and Genuine Hatco Replacement Parts when service is required.**

⚠ **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. It is essential to use Hatco Replacement Parts when repairing Hatco equipment. Failure to use Hatco Replacement Parts may subject operators of the equipment to hazardous electrical voltage, resulting in electrical shock or burn.**

IMPORTANT SAFETY INFORMATION

IMPORTANT! Read the following important safety instructions to avoid personal injury or death, and to avoid damage to the equipment or property.

⚠ CAUTIONS

⚠ To assure proper operation do not use anti-siphon or check valve on the incoming water line.

⚠ Do not connect the heater directly to a boiler or furnace coil or any other uncontrolled temperature source, or the thermostat could be damaged causing the unit to overheat.

⚠ Unit is not weatherproof. For safe and proper operation the unit must be located indoors where the ambient air temperature is constant and is a minimum of 70°F (21°C).

CAUTIONS

Hatco requires that two temperature/pressure gauges, Hatco part number 03.01.003.00, be installed to assure proper operation. Install one in the supply line before the pressure reducing valve and one in the outlet line as close to the booster heater as possible. This provides a visual check of the water temperature and pressure before and after the water heater.

If water supply pressure to the booster inlet is over 20 psi (138 kPa) during flow, install Hatco pressure reducing valve with built-in bypass, Hatco part number 03.02.004.00, for proper operation of dishwater rinse nozzles.

NOTE: The pressure reducing valve must be the type equipped with a high pressure bypass as supplied by Hatco.

Do not turn on power to the booster heater until the tank has been filled with water and all air has been vented through the dishwasher rinse nozzle. The heating elements will burn out in seconds if operated when they are not immersed in water.

To assure proper operation on all Large Compact Series units, (C-24 to C-57), do not turn or adjust outlet water connection.

CAUTIONS

To prevent electrolysis or plumbing damage dielectric couplings should be used in connecting dissimilar metals, such as galvanized to copper.

To avoid possible leaks, do not back out or loosen any pipe fitting.

Do not lay unit on the side with the control panel or damage to unit could occur.

To avoid damage to the unit always drain the booster heater with power to the unit off, or element burnout could occur.

Incoming water in excess of 3 grains of hardness per gallon ([GPG] .75 grains of hardness per liter [GPL]) must be treated and softened before being supplied to booster heater(s). Water containing over 3 GPG or .75 GPL will decrease efficiency, increase energy use, and reduce the operating life of the unit through increased lime build-up. Product failure caused by liming or sediment buildup is not covered under warranty.

To assure proper performance Hatco Electric Booster Water Heaters are only to be connected to the same power supply as indicated on the specification decal. Units connected to an incorrect power supply voids the product warranty and may damage the equipment.

To assure proper operation on all Compact Series Booster Heaters, do not turn or adjust inlet water connection on unit. Doing so will change the internal water flow.

MODEL DESCRIPTIONS

ALL MODELS

Hatco Electric Water Booster Heaters are available in three models: Imperial, Compact and Mini-Compact. All standard models include a booster heater with low-water cut-off system, temperature/pressure relief valve, pressure reducing valve with built-in high pressure bypass, two temperature/pressure gauges and a high temperature limit safety switch.

IMPERIAL MODELS “S” SERIES

Hatco Imperial models feature a Castone® tank with a 10 year limited warranty, an ON/OFF switch, an indicator light and 6" (152 mm) legs. Imperial units have a capacity of 16 gallons (61 liters) and provide up to 573 gph (2169 lph) of sanitizing rinse water based on a 40°F (22°C) temperature rise.

COMPACT MODELS “C” SERIES

Hatco Compact models feature a Castone® tank with a 10 year limited warranty, an ON/OFF switch, an indicator light and either 6" (152 mm) legs or slide mounting brackets for mounting under a dish table. Compact units have a capacity of 6 gallons (23 liters) and provide up to 573 gph (2169 lph) of sanitizing rinse water based on a 40°F (22°C) temperature rise.

MINI-COMPACT MODELS “MC” SERIES

Hatco Mini-Compact models feature a stainless steel tank and 6" (152 mm) legs. Mini-Compact units have a capacity of 3.2 gallons (12 liters) and provide up to 114 gph (432 lph) of sanitizing rinse water based on a 40°F (22°C) temperature rise. Ideal for either hot water sanitizing or point-of-use hot water dispensing.

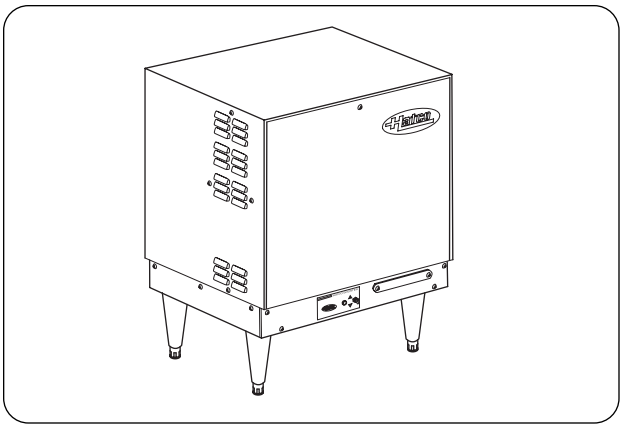


Figure 1. Imperial Model

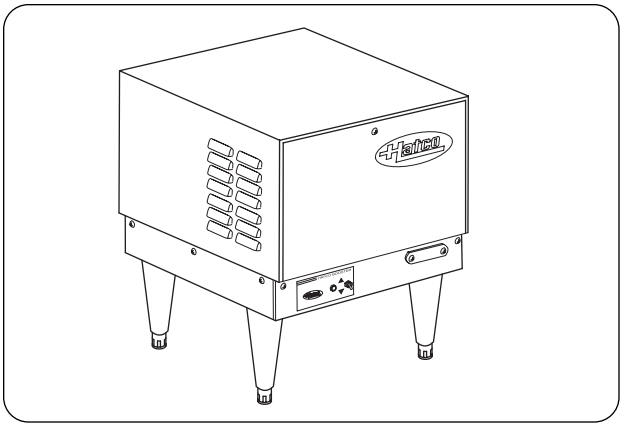


Figure 2. Compact Model

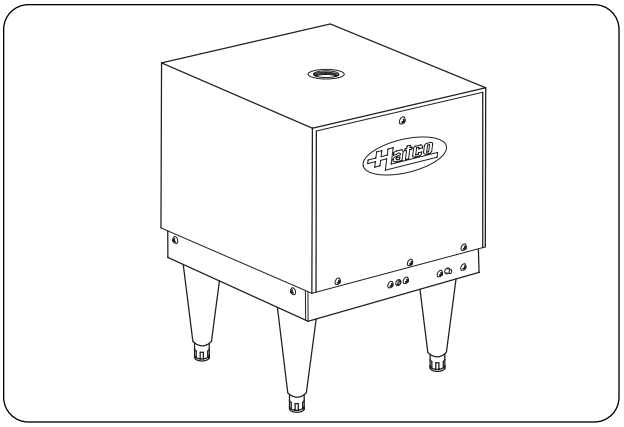


Figure 3. Mini-Compact Model

CIRCUIT BREAKER & FUSED DISCONNECT SWITCH SIZES - 4 TO 12 kW

kW	Volts*	Phase	Amp Draw			Breaker or Fuse Size	Copper Wire Size	Conduit Size
			L1	L2	L3			
4	208	1	19	19	-	30	10	1/2" (13 mm)
	240	1	17	17	-	30	10	1/2" (13 mm)
	480	1	8	8	-	15	14	1/2" (13 mm)
5	208	1	24	24	-	30	10	1/2" (13 mm)
	240	1	21	21	-	30	10	1/2" (13 mm)
	480	1	10	10	-	15	14	1/2" (13 mm)
6	208	1	29	29	-	40	8	1/2" (13 mm)
	208	3	14	25	14	40	8	1/2" (13 mm)
	240	1	25	25	-	40	8	1/2" (13 mm)
	240	3	13	22	13	30	10	1/2" (13 mm)
	380	3	9.2	9.2	9.2	15	14	1/2" (13 mm)
	480	3	6	11	6	15	14	1/2" (13 mm)
	600	3	5.7	5.7	5.7	15	14	1/2" (13 mm)
7	208	1	34	34	-	50	8	1/2" (13 mm)
	208	3	17	29	17	40	8	3/4" (19 mm)
	240	1	29	29	-	40	8	1/2" (13 mm)
	240	3	15	25	15	40	8	1/2" (13 mm)
	380	3	11.4	11.4	11.4	15	14	1/2" (13 mm)
	480	3	7	13	7	20	12	1/2" (13 mm)
	600	3	6.7	6.7	6.7	15	14	1/2" (13 mm)
9	208	1	43	43	-	60	6	1/2" (13 mm)
	208	3	22	38	22	50	8	1/2" (13 mm)
	240	1	38	38	-	50	8	1/2" (13 mm)
	240	3	19	33	19	50	8	1/2" (13 mm)
	380	3	13.3	13.3	13.3	20	12	1/2" (13 mm)
	480	3	9	16	9	20	12	1/2" (13 mm)
	600	3	8.7	8.7	8.7	15	14	1/2" (13 mm)
9.9	208	1	47.5	47.5	-	60	6	1/2" (13 mm)
	208	3	27.5	27.5	27.5	40	8	1/2" (13 mm)
10.4	208	3	28.8	28.8	28.8	40	8	1/2" (13 mm)
10.5	208	1	51	51	-	70	4	3/4" (19 mm)
	208	3	29	29	29	40	8	1/2" (13 mm)
	240	1	44	44	-	60	6	1/2" (13 mm)
	240	3	25.3	25.3	25.3	40	8	1/2" (13 mm)
	480	3	12.6	12.6	12.6	20	12	1/2" (13 mm)
	600	3	10	10	10	15	14	1/2" (13 mm)
11.4	240	1	47.5	47.5	-	60	6	1/2" (13 mm)
	240	3	27.5	27.5	27.5	40	8	1/2" (13 mm)
	480	3	13.7	13.7	13.7	20	12	1/2" (13 mm)
12	208	1	58	58	-	90	3	1" (25 mm)
	208	3	33	33	33	50	8	1/2" (13 mm)
	240	1	50	50	-	70	6	1/2" (13 mm)
	240	3	29	29	29	40	8	1/2" (13 mm)
	380	3	19.1	19.1	19.1	30	10	1/2" (13 mm)
	480	3	14.5	14.5	14.5	20	12	1/2" (13 mm)
	600	3	11.6	11.6	11.6	15	14	1/2" (13 mm)

Wire size is based on THHN wire for branch circuit protection at .91 derate factor. Circuit breakers and fused disconnects are to be mounted remote and wired by contractor. Sizes are based on the 2002 NEC table 310-16. Conduit size based on conductors plus ground wire sizing per Table C1 from Appendix C.

Only 6, 7 & 9 kW models can be field converted to single or three phase (open delta on 3 phase). Larger branch circuit required than for balanced 3 phase of equal kW. Balanced 3 phase available, consult factory.

NOTE: 250 kcmil maximum wire size for terminal block.

SPECIFICATIONS

CIRCUIT BREAKER & FUSED DISCONNECT SWITCH SIZES - 13.5 TO 30 kW (continued)

kW	Volts*	Phase	Amp Draw			Breaker or Fuse Size	Copper Wire Size	Conduit Size
			L1	L2	L3			
13.5	208	1	65	65	-	90	3	1" (25 mm)
	208	3	38	38	38	50	8	1/2" (13 mm)
	240	1	56.3	56.3	-	90	3	1" (25 mm)
	240	3	33	33	33	50	8	1/2" (13 mm)
	480	3	16.3	16.3	16.3	30	10	1/2" (13 mm)
	600	3	13	13	13	20	12	1/2" (13 mm)
15	208	1	72	72	-	90	3	1" (25 mm)
	208	3	41.7	41.7	41.7	60	6	3/4" (19 mm)
	240	1	62.5	62.5	-	90	3	1" (25 mm)
	240	3	36.1	36.1	36.1	50	8	1/2" (13 mm)
	380	3	23.0	23.0	23.0	30	10	1/2" (13 mm)
	480	3	18.1	18.1	18.1	30	10	1/2" (13 mm)
	600	3	14.5	14.5	14.5	20	12	1/2" (13 mm)
17.25	208	3	47.9	47.9	47.9	60	6	3/4" (19 mm)
18	208	1	86.5	86.5	-	125	1	1-1/4" (32 mm)
	240	1	75	75	-	100	3	1" (25 mm)
	240	3	43.4	43.4	43.4	60	6	3/4" (19 mm)
	380	3	27.3	27.3	27.3	40	8	1/2" (13 mm)
	480	3	21.7	21.7	21.7	30	10	1/2" (13 mm)
	600	3	17	17	17	30	10	1/2" (13 mm)
24	208	1	115.4	115.4	-	150	1/0	1-1/4" (32 mm)
	208	3	66.7	66.7	66.7	90	3	1" (25 mm)
	240	1	100	100	-	125	1	1-1/4" (32 mm)
	240	3	57.8	57.8	57.8	90	3	1-1/4" (32 mm)
	380	3	38.0	38.0	38.0	50	8	1/2" (13 mm)
	480	3	29.9	29.9	29.9	40	8	1/2" (13 mm)
	600	3	23	23	23	30	10	1/2" (13 mm)
27	208	1	129.8	129.8	-	175	2/0	1-1/4" (32 mm)
	208	3	75	75	75	100	3	1" (25 mm)
	240	1	112.5	112.5	-	150	1/0	1-1/4" (32 mm)
	240	3	65	65	65	90	3	1" (25 mm)
	380	3	38.1	38.1	38.1	50	8	1/2" (13 mm)
	480	3	32.5	32.5	32.5	50	8	1/2" (13 mm)
	600	3	26	26	26	40	8	1/2" (13 mm)
30	208	1	144	144	-	200	3/0	1-1/2" (38 mm)
	208	3	83.3	83.3	83.3	125	1	1-1/4" (32 mm)
	240	1	125	125	-	175	2/0	1-1/2" (38 mm)
	240	3	72.3	72.3	72.3	100	3	1" (25 mm)
	380	3	45.7	45.7	45.7	60	6	3/4" (19 mm)
	480	3	36	36	36	50	8	1/2" (13 mm)
	600	3	28.9	28.9	28.9	40	8	1/2" (13 mm)

Wire size is based on THHN wire for branch circuit protection at .91 derate factor. Circuit breakers and fused disconnects are to be mounted remote and wired by contractor. Sizes are based on the 2002 NEC table 310-16. Conduit size based on conductors plus ground wire sizing per Table C1 from Appendix C.

Only 6, 7 & 9 kW models can be field converted to single or three phase (open delta on 3 phase). Larger branch circuit required than for balanced 3 phase of equal kW. Balanced 3 phase available, consult factory.

NOTE: 250 kcmil maximum wire size for terminal block.

CIRCUIT BREAKER & FUSED DISCONNECT SWITCH SIZES - 36 to 57 kW

kW	Volts*	Phase	Amp Draw			Breaker or Fuse Size	Copper Wire Size	Conduit Size
			L1	L2	L3			
36	208	1	173	173	-	225	4/0	1-1/2" (38 mm)
	208	3	100	100	100	125	1	1-1/4" (32 mm)
	240	1	150	150	-	200	3/0	1-1/2" (38 mm)
	240	3	86.7	86.7	86.7	125	1	1-1/4" (32 mm)
	380	3	54.7	54.7	54.7	70	4	1" (25 mm)
	480	3	43.3	43.3	43.3	60	6	3/4" (19 mm)
	600	3	34.7	34.7	34.7	50	8	1/2" (13 mm)
39	208	1	187.5	187.5	-	250	250 kcmil	2" (51 mm)
	208	3	108	108	108	150	1/0	1-1/4" (32 mm)
	240	1	163.5	163.5	-	225	4/0	2" (51 mm)
	240	3	94	94	94	125	1	1-1/4" (32 mm)
	380	3	59.3	59.3	59.3	90	3	1" (25 mm)
	480	3	47	47	47	60	6	3/4" (19 mm)
	600	3	37.6	37.6	37.6	50	8	1/2" (13 mm)
40	380	3	61.6	61.6	61.6	90	3	1" (25 mm)
40.5	208	3	112.5	112.5	112.5	150	1/0	1-1/4" (32 mm)
	240	3	97.5	97.5	97.5	125	1	1-1/4" (32 mm)
	480	3	48.8	48.8	48.8	70	4	1" (25 mm)
	600	3	39	39	39	50	8	3/4" (19 mm)
45	208	3	125	125	125	175	2/0	1-1/2" (38 mm)
	240	1	188	188	-	250	250 kcmil	2" (51 mm)
	240	3	108	108	108	150	1/0	1-1/4" (32 mm)
	380	3	68.6	68.6	68.6	90	3	1" (25 mm)
	480	3	54	54	54	70	4	1" (25 mm)
	600	3	43.4	43.4	43.4	60	6	3/4" (19 mm)
54	208	3	150	150	150	200	3/0	2" (51 mm)
	240	3	130	130	130	175	2/0	1-1/2" (38 mm)
	380	3	82.0	82.0	82.0	125	1	1-1/4" (32 mm)
	480	3	65	65	65	90	3	1" (25 mm)
	600	3	52	52	52	70	4	1" (25 mm)
57	208	3	158.4	158.4	158.4	225	4/0	2" (51 mm)
	240	3	137.3	137.3	137.3	200	3/0	2" (51 mm)
	380	3	86.7	86.7	86.7	125	1	1-1/4" (32 mm)
	480	3	68.6	68.6	68.6	90	3	1" (25 mm)
	600	3	54.9	54.9	54.9	70	4	1" (25 mm)

Wire size is based on THHN wire for branch circuit protection at .91 derate factor. Circuit breakers and fused disconnects are to be mounted remote and wired by contractor. Sizes are based on the 2002 NEC table 310-16. Conduit size based on conductors plus ground wire sizing per Table C1 from Appendix C.

Only 6, 7 & 9 kW models can be field converted to single or three phase (open delta on 3 phase). Larger branch circuit required than for balanced 3 phase of equal kW. Balanced 3 phase available, consult factory.

NOTE: 250 kcmil maximum wire size for terminal block.

SPECIFICATIONS

SIZING CHART FOR LOW-TEMP DISHMACHINES

BOOSTERS RATED AT 30°F (16°C) RISE Dishwasher	Model Number	Electric	
		Compact Booster	Imperial Booster
American Dish Service	AH, AH-3D, AH-3D-S, AHC, AHC-3D, AHC-3D-S, ET-A, ET-AF, ET-AH, ET-A-M, ET-AH-M, ET-A-3, ET-AH-3, L-90-3D, L-90-3D-K, L-90-3D-K-S, L-90-3D-S, L-90-3DC, L-90-3DC-K, L-90-3DC-K-S, L-90-3DC-S, L-90-3DW, L-90-3DW-K, L-90-3DW-K-S, L-90-3DW-S, L-90-3DWC, L-90-3DWC-K, L-90-3DWC-K-S, L-90-3DWC-S, WH, WHC	C-4	S-6
	A-3D, A-3D-S, A, AC, AC-3D, AC-3D-S, AH-B, ET-AF-3, ET-AF-M, HT-25, L-60-3D, L-60-3D-K, L-60-3D-K-S, L-60-3D-S, L-60-3DC, L-60-3DC-K, L-60-3DC-K-S, L-60-3DC-S, L-60-3DW, L-60-3DW-K, L-60-3DW-K-S, L-60-3DW-S, L-60-3DWC, L-60-3DWC-K, L-60-3DWC-K-S, L-60-3DWC-S, L-72-3D, L-72-3D-K, L-72-3D-K-S, L-72-3D-S, L-72-3DC, L-72-3DC-K, L-72-3DC-K-S, L-72-3DC-S, L-72-3DW, L-72-3DW-K, L-72-3DW-K-S, L-72-3DWC-S, L-72-3DWC, L-72-3DWC-K, L-72-3DWC-K-S, L-72-3DWC-S, W, WC	C-5	S-6
	A-B, AD-25, SS-25, 5-AH, 5-AHS	C-6	S-6
	AF, AF-3D, AF-3D-S, AF-B, AFC, AFC-3D, AFC-3D-S, AFW, AFWC, 5, 5-S	C-7	S-7
	ADC-44, ADC-66, 5-AG, 5-AGS, 5-CD-LF, 5-CD-RF	C-9	S-9
Blakeslee	U21-C	C-4	S-6
	D-8-LT	C-6	S-6
	DD-8-LT, R-CC64-LT, R-EE-LT	C-12	S-12
	Series XF-EE-LT, XF-PEE-LT, XF-LL-LT, XF-PLL-LT, XF-MM-LT, XF-PMM-LT, XF-EEE-LT, XF-LLL-LT, XF-MMM-LT	C-13	S-13
	Series R-L-LT, R-PL-LT, R-M-LT, R-PM-LT, F-L-LT, F-PL-LT, F-M-LT, F-PM-LT (single tank)	C-36	S-36
	Series “R” & “F”-CC-LT, -EE-LT, -LL-LT, -MM-LT, -LLL-LT, -MMM-LT, -PCC-LT, -PEE-LT, -PLL-LT, -PMM-LT (multi-tank)	C-24	S-24
	Series XF-L-LT, XF-PL-LT, XF-M-LT, XF-PM-LT (single tank)	C-54	S-54
	Series XF-PEE-LT, XF-PLL-LT, XF-PMM-LT, XF-EEE-LT, XF-LLL-LT, XF-MMM-LT (multi-tank)	C-36	S-36
	FA (Flight-A-Round) and RA (Rack-A-Round) use comparable “F” listing.		
Champion	ULD, ULF	C-6	S-6
	DLF	C-13	S-13
	KL44, KL66	C-36	S-36
CMA Dishmachines	A-1, AH-1, C-1, VAC-1, A-3, AH-3, C-3, L-1C, VAC-3, VAC-4, VAC-5, L-1X	C-4	S-6
	A-2, AH-1, AH-2, AH-3, B-3, C-1, C-2, C-3, EVA-1, EVA-2, EVA-3, EVA-4, EVA-5, VAC-2	C-6	S-6
	B-1	C-7	S-7
	B-2	C-9	S-9
	CMA-44L with tank heater, CMA-66L	C-24	S-24
Hobart	LX-18C, LX-30C, LX-40C, WM-5C, SR24C	C-4	S-6
	LT-1	C-6	S-6
	AM-14, AM-14C	C-7	S-7
	C44A, CRS66A, CPW80A	C-27	S-27
	FT-800	C-30	S-30

SIZING CHART FOR LOW-TEMP DISHMACHINES (CONTINUED)

BOOSTERS RATED AT 30°F (16°C) RISE

Dishwasher	Model Number	Electric	
		Compact Booster	Imperial Booster
Jackson	Conserver 24LT, 200LT, ES1000, (Ecolab/Jackson)	C-4	S-6
	Conserver 1, Conserver XL, ES2000 (Ecolab/Jackson)	C-9	S-9
	Conserver 2, Conserver XL2, ES4000 (Ecolab/Jackson)	C-15	S-15
	AJ-44, AJ-66, AJ-80	C-18	S-18
Knight Equipment LTD.	KLE-112-HL	C-5	S-6

SPECIFICATIONS

BOOSTER HEATER SIZING CHART

Dishwasher	Model Number	ELECTRIC COMPACT BOOSTER Temperature Rise		ELECTRIC IMPERIAL BOOSTER Temperature Rise	
		40°F (22°C)	70°F (39°C)	40°F (22°C)	70°F (39°C)
Adamation	CSL-1390, CA-2, CA-3, CA-4, SLAP 44	C-39	(2)C-36	S-39	(2)S-36
	CA, CA-1	C-54	(2)C-45	S-54	(2)S-45
Alvey	FLC-10, SL-2S	---	---	S-6	S-9
	FLC-12, CL-1, CL-1 Turntable, SA-5A	---	---	S-7	S-12
	FL-2S	---	---	S-9	S-13
	KS-70, KS70M SB	---	---	S-9	S-15
	SL-2D	---	---	S-13	S-18
	FLC-36	---	---	S-15	S-27
	KS-88	---	---	S-18	S-30
	KS-70-N, KS-88-N	---	---	S-39	---
American Dish Service	HT-25	C-7	C-12	S-7	S-12
	ACD-44, ADC-66	C-12	C-24	S-12	S-24
Blakeslee	UC-21A, UC-21B	C-4	C-4	S-6	S-6
	UC-21	C-6	C-12	S-6	S-12
	D-8	C-9	C-13	S-9	S-13
	D-9	C-12	C-17	S-12	S-17
	Series “R” & “F” -CC, -EE, -LL, -MM, -LLL, -MMM, -PCC, -PEE, -PLL, -PMM (multi-tank) with suffix “LC”	C-13	C-24	S-13	S-24
	Series XF-EE, XF-LL	C-17	C-30	S-17	S-30
	Series XF-LL, XF-PLL, XF-MM, XF-PMM, XF-EEE, XF-LLL, XF-MMM (multi-tank) with suffix “LC”	C-17	C-30	S-17	S-30
	DD-8	C-18	C-30	S-18	S-30
	Series F-E, FA-EE, FA-PEE, FA-LL, FA-PLL, FA-MM, FA-PMM, F-EEE, FA-EEE, FA-LLL, FA-MMM, F-PE	C-30	C-54	S-30	S-54
	Series R-L, R-PL, R-M, R-PM, F-L, F-PL, F-M, F-PM (single tank)	C-36	C-54	S-36	S-54
	Series XF-L, XF-PL, XF-M, XF-PM, (single tank)	(2)C-36	---	(2)S-36	---
	Series R-E, R-PE, XF-PEE, XF-PLL, XF-PMM, XF-EEE, XF-LLL, XF-MMM (multi-tank)	C-45	(2)C-30	S-45	(2)S-30
	FA (Flight-A-Round) and RA (Rack-A-Round) use comparable “F” listing.				
Champion	U-H1, UH-200, UH-200B, U-HB	C-4	C-6	S-6	S-6
	UL-150	C-4	C-7	S-6	S-7
	UH-150, UH-150B, UH-100, UH-100B, DHB-VS	C-5	C-9	S-6	S-9
	D-H1, D-HB	C-6	C-12	S-6	S-12
	D-H1T, D-HBT	C-7	C-12	S-7	S-12
	44 DRWS, 66 DRPWWS, 80 DRHDPWWS, 70 DRFFPWWS	C-9	C-13	S-9	S-13
	PP-28	C-9	C-15	S-9	S-15
	D-H1C, D-H1TC	C-9	C-18	S-9	S-18
	44 DR, 66 DRPW, 80 DRHDFW, 70 DRFFPW	C-12	C-24	S-12	S-24
	66 WSPW, 44-WS, 66-WS, 64, 90FFPW, 100HDPW, 86 PW, 84, 106 PW,120 HDPW, 110 FFPW	C-13	C-24	S-13	S-24
	UC-CW6-WS	C-24	C-36	S-24	S-36
	US-CW8-WS	C-24	C-39	S-24	S-39
	44, 66 PW, 70FFPW, 80HDPW, 54, 76PW, 80FFPW, 90HDPW	C-24	C-45	S-24	S-45
	40-KB, 40-KB-2-2, 40-KFWB, 40-KPRB, 40KPRB-2-2, 40KPRB-2-3, 60-KB, 60-KB-2-2, 60-KFWB, 60-KFWB-2-2, 60-KPRB, 60-KPRB-2-3, 64KB, 64-KB Corner, 64-KPRB, 64-KPRB Corner, 64 Modular, 86 Modular	C-30	C-54	S-30	S-54
	44-KB, 44-KB Corner, 44-KPRB, 44-KPRB Corner, 54-KB, 54-KB Corner, 54-KPRB, 54-KPRB Corner, 44 Modular, 66 PW Modular, UC** Series 6' Center, UC-C4	C-36	C-57	S-36	S-57
	UC-CW4	C-36	(2)C-36	S-36	(2)S-36
	UC-C	C-45	(2)C-36	S-45	(2)S-36
	UC**CW Series 6' Center	C-45	(2)C-39	S-45	(2)S-40
	W-6-WS	C-45	(2)C-45	S-45	(2)S-40

BOOSTER HEATER SIZING CHART (CONTINUED)

Dishwasher	Model Number	ELECTRIC COMPACT BOOSTER Temperature Rise		ELECTRIC IMPERIAL BOOSTER Temperature Rise	
		40°F (22°C)	70°F (39°C)	40°F (22°C)	70°F (39°C)
CMA Dishmachines	CMA-180	C-7	C-12	S-7	S-12
	CMA-44H with tank heater, CMA-66H	C-36	C-45	S-36	S-45
Hobart	AM-15F	C-4	C-6	S-6	S-6
	LXiC, LXiGC, LX-18C, LX-30C, LX-40C	C-4	C-7	S-6	S-6
	LX-30, SR24, SR24H	C-4	C-7	S-6	S-7
	LX-18, AM-14F, AM-15, AM-15T	C-5	C-9	S-6	S-9
	WM-5C	C-6	C-9	S-6	S-9
	WM-5 (without sump heater)	C-7	C-12	S-7	S-12
	AM-14T, AM-14TC	C-7	C-12	S-7	S-12
	AM-14, AM-14C	C-9	C-12	S-9	S-12
	AM-12, AM-12C*	C-9	C-12	S-9	S-12
	UW-50	---	---	S-15	S-24
	or Opti-RinSe C44A, CRS-66A, CCS-66A, CPW-80A, C54A, CRS-76A, CCS-76A, CPW-90A, C64A, CRS-86A, CCS-86A, CPW-100A, C-88A, CRS-110A, CCS-110A, CPW-124A	C-15	C-27	S-15	S-27
	C-54A, CRS-76A, CPW-90A, CCS-76A	C-39	(2)C-36	S-30	(2)S-36
	C-44A, CRS-66A, CCS-66A, CPW-80A, C-64A, CRS-86A, CCS-86A, CPW-100A	C-30	C-54	S-30	S-54
	C-88A, CRS-110A, CPW-124A, CCS-110A	C-36	C-54	S-36	S-54
	or Opti-RinSe C44AW, CRS-66AW, CCS-66AW, CPW-80AW	C-9	C-15	S-9	S-15
	C-44AW, CRS-66AW, CPW-80AW, CCS-66AW	C-12	C-24	S-12	S-24
	C-44, CRS-66, CPW-80	C-36	C-54	S-36	S-54
	C-54, CRS-76, CPW-90	C-54	(2)C-39	S-54	(2)S-39
	C-64W, CRS-86W, CPW-100W, C-88W, CRS-110W, CPW-124W, CCS-86W	C-24	C-36	S-24	S-36
	C-64, CRS-86, CPW-100	C-45	(2)C-36	S-45	(2)S-36
	FT800W, FT-900W	C-24	C-39	S-24	S-39
	FT-600, FT-700	C-54	(2)C-39	S-54	(2)S-39
	FT800	C-39	(2)C-39	S-39	(2)S-39
	Opti-RinSe	C-36	C-57	S-36	S-57
	FT800S, FT-900S	C-39	(2)C-36	S-39	(2)S-36
	UTW-28, UTW-28C	---	---	S-18	S-36
	FRC and FR (Fast Rack Series) use comparable “C” line listing.				
Insinger	GS 302, GS-14	C-4	C-4	S-6	S-6
	45SA-5	C-4	C-7	S-6	S-7
	Commander 18-5C, 18-5CH, CS-5, CS-5C, CS-5CH, CS-5H	C-6	C-12	S-6	S-12
	Commander 18-5, 18-5H, Ensign 40-2	C-6	C-12	S-6	S-12
	Admiral 44-4, 66-4	C-24	C-36	S-24	S-39
	135-20, 185-20, 250-20, 60-20, 85-20, R-106-2	C-24	C-25	S-24	S-45
	Speeder 64, 86-3, Century (all), Super 106-2	C-24	C-45	S-24	S-45
	Trac 878	C-24	C-36	S-24	S-36
	Century 14, Clipper RC-##-RPW-W	C-24	C-39	S-24	S-39
	Clipper (all), R106-2, Super 106-2, Trac 321, Trac 321-2/RPW	C-27	C-45	S-27	S-45
	Defender-(1)	C-30	C-54	S-30	S-54
	Defender	C-36	C-54	S-36	S-54
	Master (all)	C-36	C-57	S-36	S-57
	CA-3	---	---	S-9	S-24
	DA-3	---	---	(2)S-9	(2)S-24
	For outdated models, consult factory for correct booster.				

SPECIFICATIONS

BOOSTER HEATER SIZING CHART (CONTINUED)

Dishwasher	Model Number	ELECTRIC COMPACT BOOSTER Temperature Rise		ELECTRIC IMPERIAL BOOSTER Temperature Rise	
		40°F (22°C)	70°F (39°C)	40°F (22°C)	70°F (39°C)
Jackson	JP-24, JP-24B, JP-24F, JP-24BF	C-4	C-6	S-6	S-6
	24B Series	---	C-4	---	S-6
	10AB, 10APRB	---	C-5	---	S-6
	44CE*, 66 CERPW	C-30	C-54	S-30	S-54
	54CE, 76 CERPW	C-36	(2)C-30	S-36	(2)S-30
	64CE, 86 CERPW	C-27	C-39	S-27	S-39
	100	C-12	C-24	S-12	S-24
	100B, 100PRB, 150B, 150PRB	---	C-9	---	S-9
	150	C-12	C-18	S-12	S-18
	200	C-7	C-12	S-7	S-12
	200B	---	C-6	---	S-6
	Tempstar, Tempstar SDS, Tempstar HH	C-6	C-12	S-6	S-12
	TS-44, TS-66	C-24	C-36	S-24	S-36
	AJ-44, AJ-66, AJ-80, WH-44, ES-4400, ES-6600 (Ecolab/Jackson)	C-24	C-45	S-24	S-45
	AJ-54, AJ-76, AJ-90	C-36	(2)C-36	S-36	(2)S-36
	AJ-64, AJ-86, AJ-100	C-24	C-39	S-24	S-39
	*Model #44CE w/SN1999 or below requires larger booster than listed.				
Knight Equipment LTD.	KLE-112-HL	C-7	C-12	S-7	S-12
Meiko	K-44, K-66, K-80	C-24	C-36	S-24	S-36
	K-54, K-76, K-90, K-64, K-86, K-100	C-24	C-45	S-24	S-45
Metalwash/Intedge	FW4	C-12	C-18	S-12	S-18
	RS-30A, RS-28L	---	---	S-15	S-24
	RT-74, RT-60, RT-42B, RT-42BC	---	---	S-27	S-40
	RS-2R	---	---	S-30	S-45

BOOSTER HEATER SIZING CHART (CONTINUED)

Dishwasher	Model Number	ELECTRIC COMPACT BOOSTER Temperature Rise		ELECTRIC IMPERIAL BOOSTER Temperature Rise	
		40°F (22°C)	70°F (39°C)	40°F (22°C)	70°F (39°C)
Stero	SCT-44-10-LW, SCT-44-LW, SCT-66S-LW, SCT-76S-LW, SCT-76SC-LW, SCT-90S-LW	C-12	C-24	S-12	S-24
	SC-1-2-4-LW, SC-1-6-4-LW, SC-2-4-LW, SC-5-2-4-LW, SC-5-6-4-LW, SC-6-4-LW	C-24	C-45	S-24	S-45
	SCT-64, SCT-86S, SCT-94S, SCT-94SC	C-24	C-39	S-24	S-39
	SCT-108S, SCT-108SC, SCT-76, SCT-94SM	C-27	C-54	S-27	S-54
	SC-6-4, SCT-44, SCT-44-10, SCT-66S, SCT-76S, SCT-76SC, SCT-90S	C-30	C-54	S-30	S-54
	SCT-120S, SCT-120SC, SCT-120SM, SCT-150SM	C-36	C-57	S-36	S-57
	STW-110, SC-1-2-7-4, SC-1-6-3-4, SC-1-6-7-4, SC-2-7-4, SC-5-2-7-4, SC-5-6-3-4, SC-5-6-7-4, SC-6-3-4, SC-6-7-4	C-39	(2)C-36	S-39	(2)S-39
	SC-1-2-4, SC-1-6-4, SC-2-4, SC-5-2-4, SC-5-6-4	C-45	(2)C-36	S-45	(2)S-45
	SCT-44-10-SC-1-3-4, SCT-44-10-3-4, SCT-44-SC-1-3-4, SCT-44-SC-3-4, SCT-54-SC-1-3-4, SCT-54-SC-3-4, SCT-76S-SC-3-4	C-45	(2)C-36	S-40	(2)S-36
	STPC (Four tank)	C-24	C-39	S-24	S-39
	STPCW (Four tank)	C-24	C-45	S-24	S-40
	STPC	C-27	C-54	S-27	S-54
	STPCW	C-36	(2)C-30	S-36	(2)S-30
	SCBT	C-45	(2)C-36	S-40	(2)S-36
	SF-1RA, SC20-1	C-7	C-12	S-7	S-12
	SF-2RA, SF-2DRA, SD-2RA, SDRA, SDRA-PACK	C-12	C-18	S-12	S-18
	SCT-54, SCT-76SM	C-36	C-57	S-36	S-57
	SCT-76, SCT-80, SCT-94, SCT-108, SCT-120	C-45	C-57	S-45	S-57
	U-31-A, U-31-AC	---	---	S-18	S-36
	U-31-A2	C-45	(2)C-36	S-45	(2)S-36
	STBUW-14	C-57	(2)C-54	S-57	(2)S-54
	SC-2-3-4, SC-5-2-3-4	C-30	(2)C-27	S-30	(2)S-27
	SC20-2	C-12	C-24	S-12	S-24
	SC-2-8, SC-2-9, SC-1-2-8, SC-5-6-8, SC-6-8, SC-6-9, SC-1-6-8, SC-5-6-9, SC-5-2-9, SC-1-6-9, SC-5-2-8	C-18	C-36	S-18	S-36

*Hobart Model AM-12 with serial no. 12-067-357 or below and model AM-12C with serial no. 12-067-537 or below require slightly larger booster than listed.
Or C Models with serial no. 85-1041605 or greater use Opti-RinSe.
Shaded area indicates older models prior to Opti-RinSe.

This selector chart is based on 40°F (22°C) and 70°F (39°C) temperature rises, 20 psi flow pressure, and minimum rinse cycle timer setting in NSF listing.

All booster heaters are rated at 100% of the capacity of the dishwashers as recommended by the National Sanitation Foundation. Where make-up water for wash tank is provided from final rinse supply, chart recommendations are based upon this additional demand (not over 2 GPM) as required by NSF.

All sizings shown are that of the dishwasher manufacturers. Hatco Corporation is not responsible for incorrect sizing applications.

SPECIFICATIONS

CAPACITY - IMPERIAL “S” SERIES

Model	kW	40°F (22°C) Rise	70°F (39°C) Rise	Shipping Weight
S-6	6	60 gph (227 lph)	34 gph (129 lph)	200 lbs. (91 kg)
S-7	7	70 gph (265 lph)	40 gph (151 lph)	200 lbs. (91 kg)
S-9	9	90 gph (341 lph)	52 gph (197 lph)	200 lbs. (91 kg)
S-12	12	120 gph (454 lph)	69 gph (261 lph)	200 lbs. (91 kg)
S-13	13.5	135 gph (511 lph)	77 gph (292 lph)	200 lbs. (91 kg)
S-15	15	151 gph (572 lph)	86 gph (326 lph)	200 lbs. (91 kg)
S-17	17.2	173 gph (655 lph)	99 gph (375 lph)	200 lbs. (91 kg)
S-18	18	181 gph (685 lph)	103 gph (390 lph)	200 lbs. (91 kg)
S-24	24	241 gph (912 lph)	138 gph (522 lph)	214 lbs. (97 kg)
S-27	27	271 gph (1026 lph)	155 gph (587 lph)	214 lbs. (97 kg)
S-30	30	301 gph (1139 lph)	172 gph (651 lph)	214 lbs. (97 kg)
S-36	36	361 gph (1367 lph)	206 gph (780 lph)	214 lbs. (97 kg)
S-39	39	391 gph (1480 lph)	224 gph (848 lph)	214 lbs. (97 kg)
S-40	40.5	407 gph (1541 lph)	232 gph (878 lph)	224 lbs. (102 kg)
S-45	45	452 gph (1711 lph)	258 gph (977 lph)	224 lbs. (102 kg)
S-54	54	542 gph (2052 lph)	310 gph (1174 lph)	224 lbs. (102 kg)
S-57	57	573 gph (2169 lph)	326 gph (1234 lph)	224 lbs. (102 kg)

Storage capacity is 16 gallons (61 liters).

CAPACITY - COMPACT “C” SERIES

Model	kW	40°F (22°C) Rise	70°F (39°C) Rise	Shipping Weight
C-4	4	40 gph (151 lph)	23 gph (87 lph)	105 lbs. (48 kg)
C-5	5	50 gph (189 lph)	29 gph (110 lph)	105 lbs. (48 kg)
C-6	6	60 gph (227 lph)	34 gph (129 lph)	118 lbs. (54 kg)
C-7	7	70 gph (265 lph)	40 gph (151 lph)	118 lbs. (54 kg)
C-9	9	90 gph (341 lph)	52 gph (197 lph)	118 lbs. (54 kg)
C-12	12	120 gph (454 lph)	69 gph (261 lph)	120 lbs. (54 kg)
C-13	13.5	135 gph (511 lph)	77 gph (292 lph)	120 lbs. (54 kg)
C-15	15	151 gph (572 lph)	86 gph (326 lph)	120 lbs. (54 kg)
C-17	17.2	173 gph (655 lph)	99 gph (375 lph)	120 lbs. (54 kg)
C-18	18	181 gph (685 lph)	103 gph (390 lph)	120 lbs. (54 kg)
C-24	24	241 gph (912 lph)	138 gph (522 lph)	142 lbs. (64 kg)
C-27	27	271 gph (1026 lph)	155 gph (587 lph)	142 lbs. (64 kg)
C-30	30	301 gph (1139 lph)	172 gph (651 lph)	142 lbs. (64 kg)
C-36	36	361 gph (1367 lph)	206 gph (780 lph)	142 lbs. (64 kg)
C-39	39	391 gph (1480 lph)	224 gph (848 lph)	142 lbs. (64 kg)
C-45	45	452 gph (1711 lph)	258 gph (977 lph)	142 lbs. (64 kg)
C-54	54	542 gph (2052 lph)	310 gph (1174 lph)	142 lbs. (64 kg)
C-57	57	573 gph (2169 lph)	326 gph (1234 lph)	142 lbs. (64 kg)

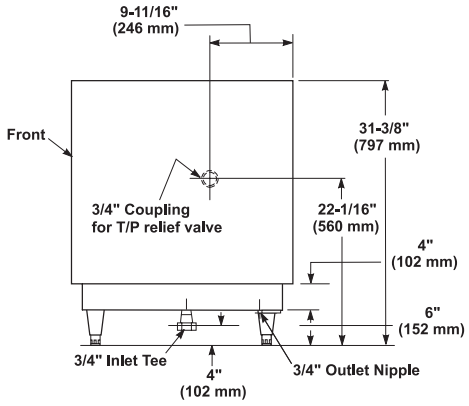
Storage capacity is 6 gallons (23 liters).

CAPACITY - MINI-COMPACT “MC” SERIES

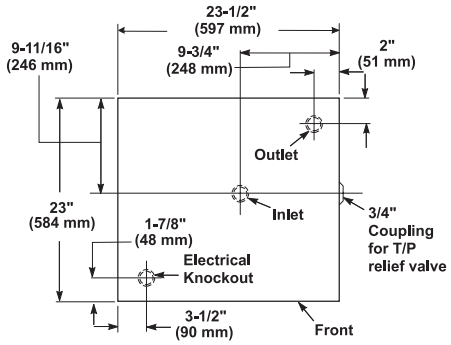
Model	kW	40°F (22°C) Rise	70°F (39°C) Rise	Shipping Weight
MC-10	9.9	99 gph (375 lph)	57 gph (216 lph)	48 lbs. (22 kg)
MC-10.5	10.4	104 gph (393 lph)	60 gph (227 lph)	48 lbs. (22 kg)
MC-11	11.4	114 gph (432 lph)	65 gph (248 lph)	48 lbs. (22 kg)

Storage capacity is 3.2 gallons (12 liters).

DIMENSIONS - IMPERIAL “S” SERIES

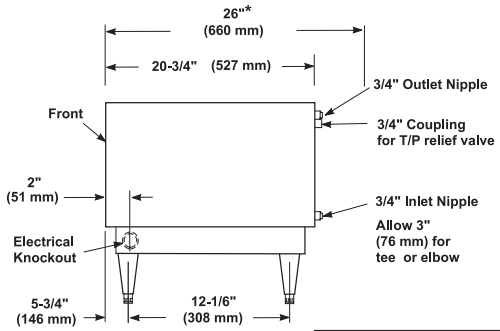


Side View



Top View

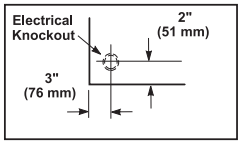
DIMENSIONS - COMPACT “C” SERIES 4 to 18 kW



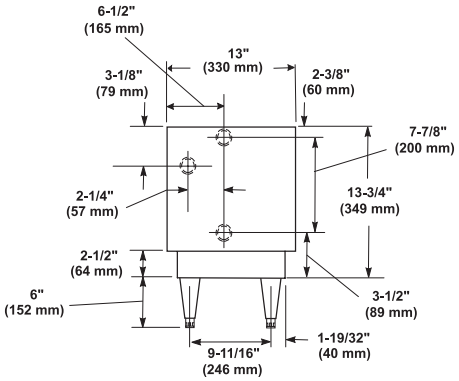
Side View

Electrical Knockouts left side and bottom, 3/4" (19 mm) 1" (25 mm), 1-1/4" (32 mm).

*Includes Temperature/ Pressure Relief Valve

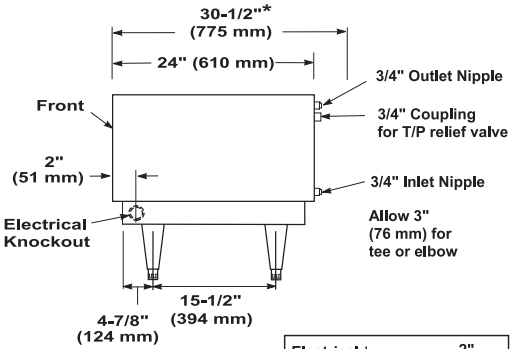


Top View



Rear View

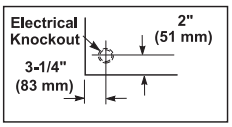
DIMENSIONS - COMPACT “C” SERIES 24 to 57 kW



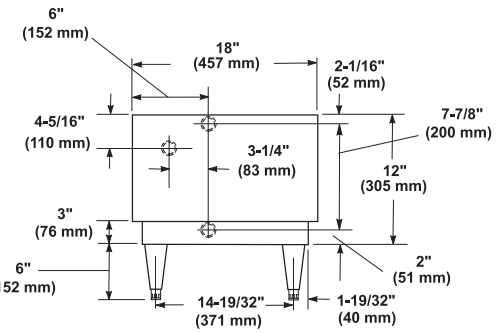
Side View

Electrical Knockouts left side and bottom, 1-1/2" (38 mm), 2" (51 mm)

*Includes Temperature/ Pressure Relief Valve



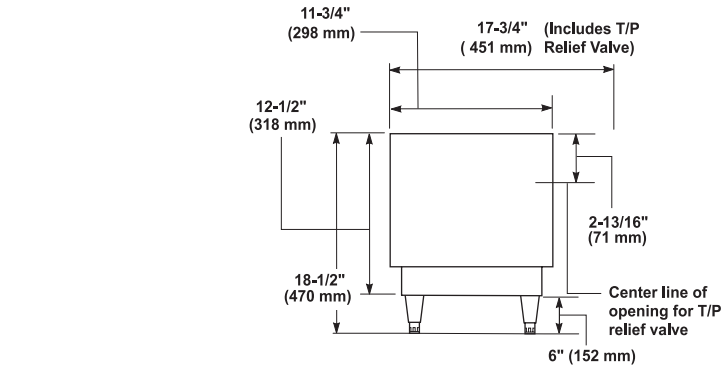
Top View



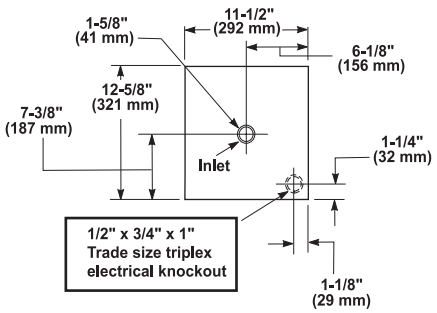
Rear View

SPECIFICATIONS

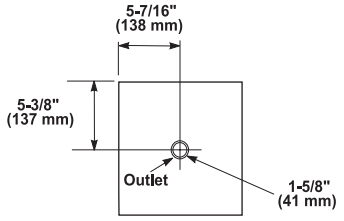
DIMENSIONS - MINI-COMPACT “MC” SERIES



Front View



Bottom View



Top View

INSTALLATION

LOCATION

For the most effective operation, install the booster heater as close as possible to the commercial dishwasher. The location must have a solid foundation along with being clean and dry. Adequate front clearance is required to allow for accessibility to the control compartment. Location must have adequate clearance to allow for inspection, testing or replacement of pressure/temperature relief valve.

⚠ WARNING

To avoid any injury or damage do not install the unit in an area where flammable liquids or combustible vapors are present.

⚠ WARNING

To avoid personal injury and to assure safe operation install the booster heater as close as possible to the commercial dishwasher. Employ recirculation if distance between booster and commercial dishwasher exceeds National Sanitation Foundation (NSF) specifications of five (5) linear feet (1524 mm).

⚠ WARNING

To avoid personal injury or damage to equipment, the booster heater must be installed by qualified, trained installers. Installation must conform to all local electrical and plumbing codes. Check with your local plumbing and electrical inspectors for proper procedures and codes.

⚠ CAUTION

Unit is not weatherproof. For safe and proper operation the unit must be located <u>indoors</u> where the ambient air temperature is constant and is a minimum of 70°F (21°C).

ALL MODELS

Booster Heaters are shipped with most components pre-assembled. Care should be taken when unpacking shipping carton to avoid damage to unit and components enclosed. Components are shipped with the heater unit. (See Figure 7.)

1. Remove unit from box.
2. Remove information packet. **To prevent delay in obtaining warranty coverage, fill out and mail in the warranty card to Hatco.**
3. Remove tape and protective packaging from all surfaces of unit.
4. If your unit is equipped with legs, carefully lay unit on its side and install the four legs as shown in Figure 4.

CAUTION

Do not lay unit on the side with the control panel or damage to unit could occur.

NOTE: If unit is not level, use an adjustable open-end wrench to adjust the foot of each leg until unit is level. Each leg is adjustable from 6" (152 mm) to 7" (178 mm).

5. On Compact Series, when installing unit with mounting brackets, space slide rails as shown in Figure 5 and weld rails to bottom of dishtable.

⚠ WARNING

To avoid personal injury or damage to the equipment make sure the dishtable is strong enough to support the weight of the booster heater and water when installing with slide mounting brackets.

⚠ WARNING

To avoid personal injury or damage to the equipment, follow standard welding procedures when attaching sliderails to bottom of dishtable.

6. Using Hatco slide brackets as a template, drill 1/8" (3 mm) holes into the sides of the heater jacket.
7. Attach slide brackets to sides of heater with 3/4 x 8 sheet metal screws supplied. (See Figure 5.)
8. Slide heater onto slide rails under dishtable. (See Figure 6.)

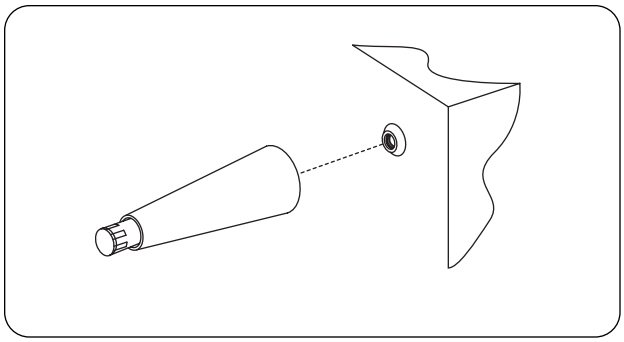


Figure 4. Installing Legs

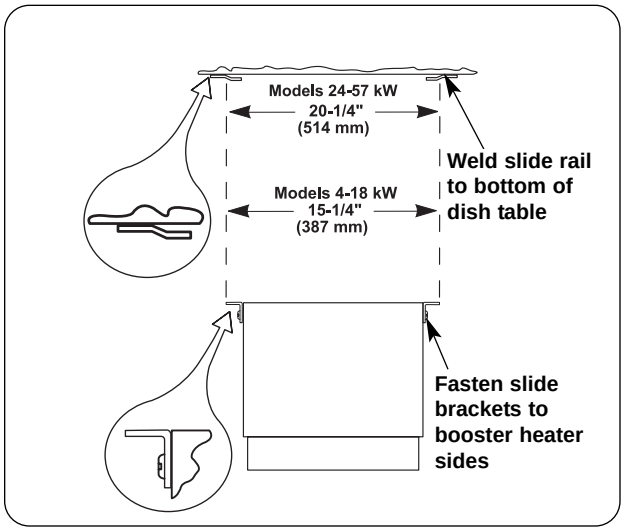


Figure 5. Hanging Support

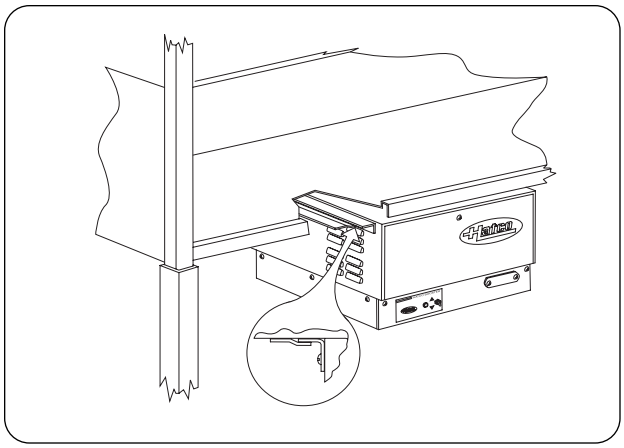
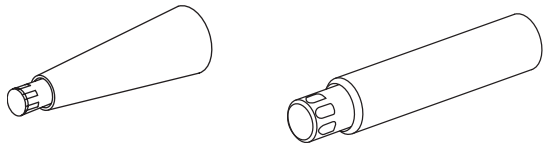


Figure 6. Compact Series Heater Mounted to Dishtable

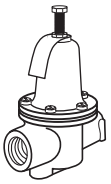
INSTALLATION

Leg



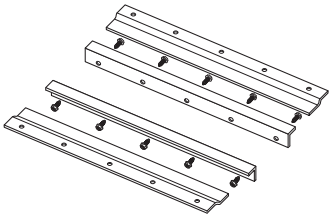
One set of four legs supplied with all Imperial and Mini-Compact Booster Heaters. (All Compact 4-57 kW units supplied with either a set of legs or mounting brackets.)
Plastic leg, Part No. 05.30.069.00
Stainless Steel, Part No. 05.30.070.00

Pressure Reducing Valve



One pressure reducing valve with built-in bypass supplied with all boosters.
Pressure Reducing Valve, Iron, Part No. 03.02.004.00
Pressure Reducing Valve, Brass (optional),
Part No. 03.02.015.00

Mounting Brackets with Hardware

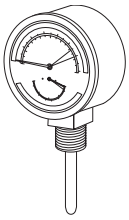


A set of mounting brackets or a set of legs supplied with each Compact 4-57 kW booster heater.
Part No. R04.20.030.00

Shock Absorber

An optional shock absorber is available for all electric boosters.
Part No. 03.40.057.00

Temperature/Pressure Gauge

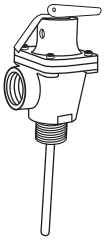


Two temperature/pressure gauges supplied with all booster heaters.
Part No. 03.01.003.00

Blended Phosphate Water Treatment System

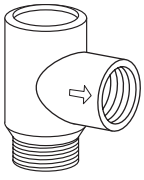
An optional blended phosphate water treatment system is available for all electric booster heaters.
Part No. 03.05.061.00
(Replacement Cartridge Only, Part No. 03.05.061A.00)

Temperature Pressure Relief Valve



One temperature/pressure relief valve supplied with all booster heaters.
Mini-Compact Series, Part No. 03.02.020.00
Compact & Imperial Series, Part No. 03.02.022.00

Back Pressure Relief Valve



An optional back pressure relief valve is available for all electric booster heaters.
Part No. 03.02.039.00

Figure 7. Components Shipped with the Heater Unit

⚠ WARNING

To assure proper operation and avoid a possible unsafe condition, the booster heater must be installed in a horizontal position with the base parallel to the floor and the inlet connection at the lowest point.

⚠ WARNING

This product contains fiberglass, a product known to the state of California to cause cancer, birth defects or other reproductive harm.

PRESSURE AND TEMPERATURE RELIEF VALVES

For protection against excessive pressures and temperatures in the booster heater, install temperature and pressure protective equipment required by local codes. Hatco supplies temperature and pressure relief valves constructed with brass working parts and heat resistant silicone seat discs for all booster heater models.

⚠ WARNING

Valves supplied by Hatco are designed for high temperature commercial operation. Do not substitute Hatco valves with valves designed for domestic water heaters.

⚠ WARNING

Temperature/pressure protective equipment should not be less than a combination temperature/pressure relief valve certified by a nationally recognized testing laboratory that maintains periodic inspection of the production of this equipment and meets the requirements for Relief Valves and Automatic Shutoff Devices for Hot Water Supply Systems, ANSI Z21.22-1979. The temperature/pressure relief valve must be marked with a minimum set pressure not to exceed the marked hydrostatic test pressure of the booster heater as noted on the unit specifications.

⚠ WARNING

FOR INSTALLING PRESSURE AND TEMPERATURE RELIEF VALVES IN ACCORDANCE WITH AMERICAN NATIONAL STD. Z21.22-1979. Combination pressure and temperature relief valves with extension thermostats must be installed so that the temperature-sensing element is immersed in the water within the top 6" (152 mm) of the tank. They must be installed either in the hot outlet service line or directly in a tank tapping. Combination pressure and temperature relief valves that do not have extension elements must be mounted directly in a tank tapping located within the top 6" (152 mm) of the tank, and shall be adequately insulated and located so as to assure isolation from the flue gas heat or other ambient conditions that are not indicative of stored water temperature. TO AVOID WATER DAMAGE OR SCALDING DUE TO VALVE OPERATION, DRAIN PIPE MUST BE CONNECTED TO VALVE OUTLET AND RUN TO A SAFE PLACE OF DISPOSAL. Discharge line must be as short as possible and be the same size as the valve discharge connection throughout its entire length. Drain line must pitch downward from the valve and must terminate between 1-1/2" (38 mm) and 6" (152 mm) above the floor drain where any discharge will be clearly visible. The drain line shall terminate plain, not threaded, with material serviceable for temperatures up to 250°F (121°C) or greater. Excessive length, over 30' (9144 mm), or use of more than four elbows can cause a restriction and reduce the discharge capacity of the valve. No shut-off valve shall be installed between the relief valve and tank, or in the drain line. Valve lever must be tripped periodically to assure that waterways are clear. This device is designated for emergency safety relief and shall not be used as an operating control. The valves are set to relieve at 150 psi (1034 kPa) or when water temperature reaches 210°F (99°C). Read tag on valve for additional information.

INSTALLATION

⚠ CAUTION

To assure proper operation do not use an anti-siphon or check valve on the incoming water line.

PRESSURE REDUCING VALVE

CAUTION

If water supply pressure to the booster inlet is over 20 psi (138 kPa) during flow, install Hatco pressure reducing valve with built-in bypass, Hatco part number 03.02.004.00, for proper operation of dishwater rinse nozzles.

NOTE: The pressure reducing valve must be the type equipped with a high pressure bypass as supplied by Hatco.

Proper operation of the commercial dishwasher rinse nozzles requires available water pressure at the rinse nozzle be between 15 and 25 psi (103 and 172 kPa) when nozzle is operated. 20 psi (138 kPa) is recommended. If water pressure available to the booster heater inlet is over 20 psi (138 kPa), a pressure reducing valve must be installed in the hot water supply line to the booster heater and adjusted to deliver 20 psi (138 kPa) flow pressure.

The valve supplied by Hatco with the unit, Hatco part number 03.02.004.00, has a built-in high pressure bypass which prevents excessive pressure build-up as the booster heats up. Final adjustment required at time of installation.

TEMPERATURE/PRESSURE GAUGES

CAUTION

Hatco requires that two temperature/pressure gauges, Hatco part number 03.01.003.00, be installed to assure proper operation. Install one in the supply line before the pressure reducing valve and one in the outlet line as close to the booster heater as possible. This provides a visual check of the water temperature and pressure before and after the water heater.

NOTE: If a check valve is installed and cannot be removed install a back pressure relief valve, Hatco part number 03.02.039.00, set at 125 psi (862 kPa) on the incoming line between the pressure reducing valve and the inlet to the booster heater. Discharge must be to open site drain. (See Figure 13.)

BLENDED PHOSPHATE WATER TREATMENT SYSTEM (OPTIONAL)

Hatco recommends that the Blended Phosphate Water Treatment System be installed with unions on the incoming 3/4" water supply line after the pressure reducing valve and before the booster heater.

Cartridges supplied have a usage rating of 100,000 gallons (378,541 liters) of water. To assure proper operation the cartridges must be replaced when expired.

NOTE: Product failure caused by liming or sediment buildup is not covered under warranty.

PLUMBING CONNECTIONS

CAUTION

To avoid possible leaks, do not back out or loosen any pipe fittings.

⚠ CAUTION

Do not connect the heater directly to a boiler or furnace coil or any other uncontrolled temperature source, or the thermostat could be damaged causing the unit to overheat.

⚠ WARNING

To avoid injury or damage to dishwashing equipment do not connect Hatco Electric Booster Water Heaters to domestic (consumer) dishmachines or other domestic utilized equipment.

⚠ WARNING

To avoid any injury or damage to equipment and to assure proper operation do not connect an expansion tank of any type to booster heater water lines.

⚠ WARNING

To avoid personal injury or damage to the unit aftermarket covers must not be placed on or over the booster heater. Doing so can cause temperature and moisture build-up resulting in premature failure and electrical shock.

⚠ WARNING

To avoid personal injury or damage to the Hatco Electric Booster Water Heater, only use plumbing material suitable for a minimum water temperature of 200°F (93°C). Materials used must meet National Sanitation Foundation (NSF) specifications and all local plumbing codes and regulations.

Inlet

Refer to Figure 8, 9, 10, 11 or 12.

1. Connect the booster water inlet to a hot water supply line from the regular water heater. Water temperature from the regular water heater should be 110° or 140°F (43° or 60°C) and **should not exceed 160°F (71°C).** Minimum temperature differential between inlet and outlet should never be less than 20°F (11°C).

NOTE: Refer to BOOSTER HEATER SIZING CHART *for application information.*

⚠ WARNING

To avoid personal injury and avoid damage to the booster heater refer to *BOOSTER HEATER SIZING CHART* in this manual.

CAUTION

To assure proper operation on all Compact Series Booster Heaters, do not turn or adjust inlet water connection on unit. Doing so will change the internal water flow.

NOTE: Red mark on inlet water pipe of Compact series units must remain in the top most position.

CAUTION

To prevent electrolysis or plumbing damage dielectric couplings should be used in connecting dissimilar metals, such as galvanized to copper.

CAUTION

To avoid possible leaks, do not back out or loosen any pipe fitting.

CAUTION

Incoming water in excess of 3 grains of hardness per gallon ([GPG] .75 grains of hardness per liter [GPL]) must be treated and softened before being supplied to booster heater(s). Water containing over 3 GPG or .75 GPL will decrease efficiency, increase energy use, and reduce the operating life of the unit through increased lime build-up. Product failure caused by liming or sediment buildup is not covered under warranty.

NOTE: Product failure caused by liming or sediment buildup is not covered under warranty.

2. Provide the inlet line with a shut-off valve, (a full opening gate or ball type), one temperature/pressure gauge, and the pressure reducing valve. Set pressure reducing valve at 20 psi (138 kPa) flow pressure.

NOTE: A 3/4" union and a drain valve are required for easy servicing.

NOTE: Be sure water flows through the pressure reducing valve in the proper direction. Check directional arrow. Valve will reduce pressure only during flow conditions.

3. Install a temperature/pressure gauge in both the inlet and outlet lines. Install the temperature sensing bulb in the water stream. The gauge must be mounted upright. (See Figures 14 and 15.)

NOTE: Tighten gauge during installation by only turning the 1/2" brass nut. DO NOT turn the face of the gauge. Turning the face will cause inaccurate measurements.

NOTE: Some dishmachines require two booster heaters be plumbed in series (not parallel) to meet the demand. (See Figure 9.) To assure proper operation a 20°F (11°C) temperature differential must be maintained between the outlet of the first booster heater and the inlet of the second booster heater.

INSTALLATION

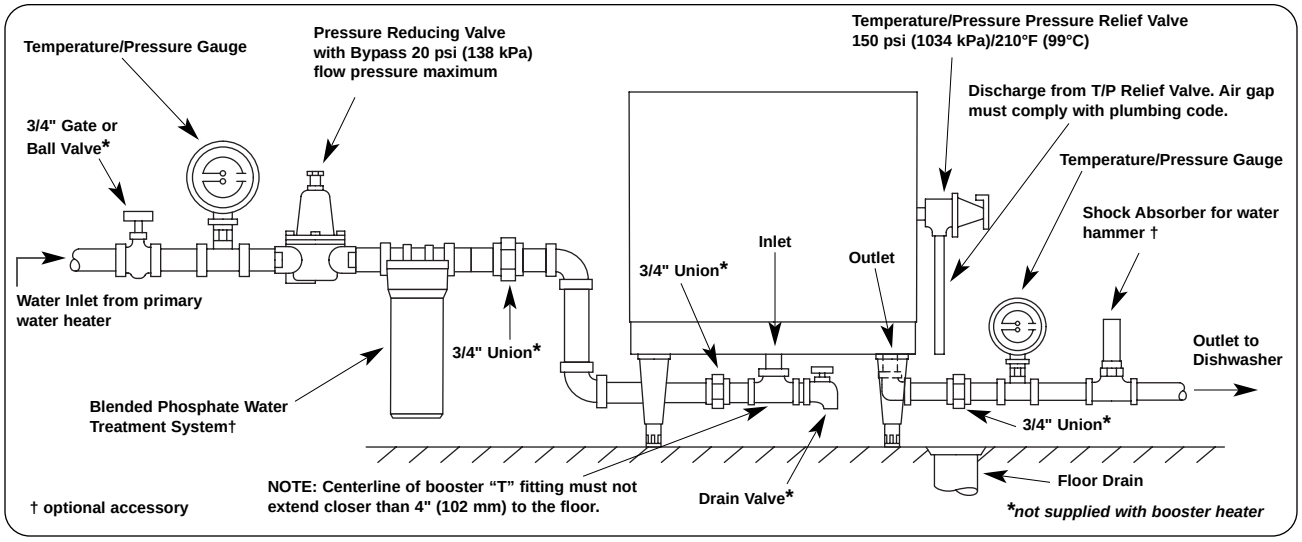


Figure 8. Plumbing Connections - Imperial "S" Series

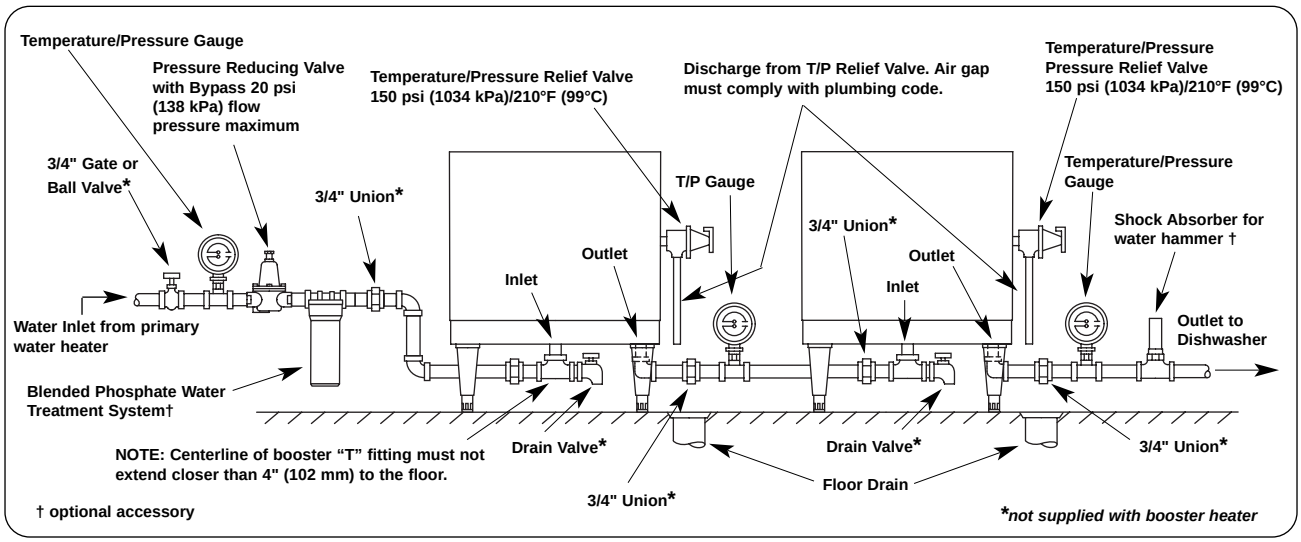


Figure 9. Plumbing Connections - Two Imperial Models Connected in Series

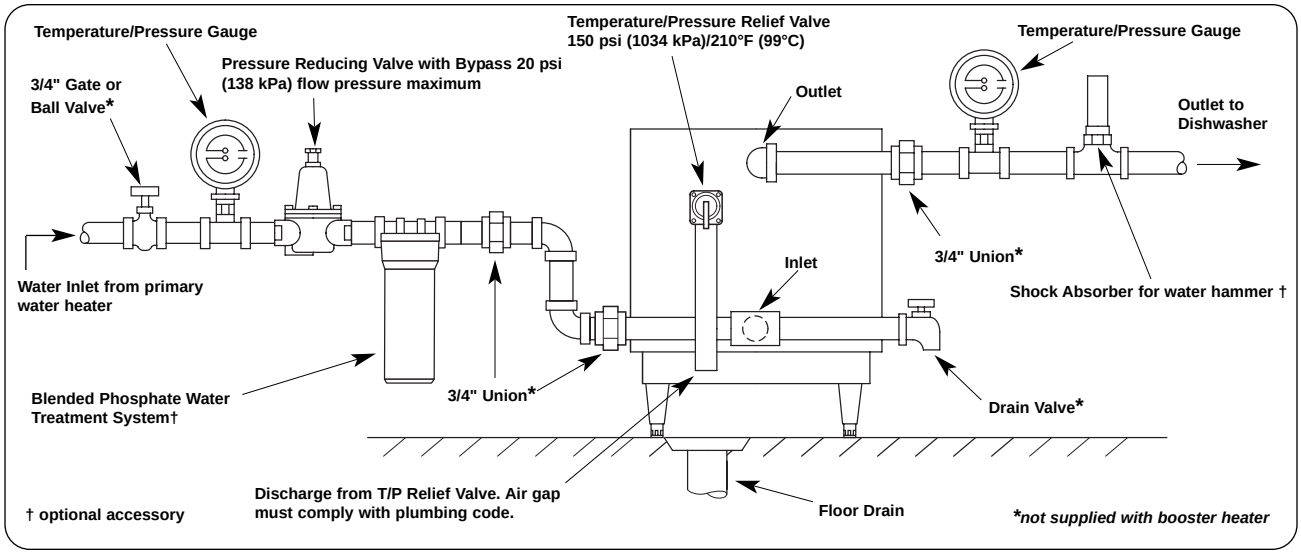


Figure 10. Plumbing Connections - Compact Series 4-18 kW

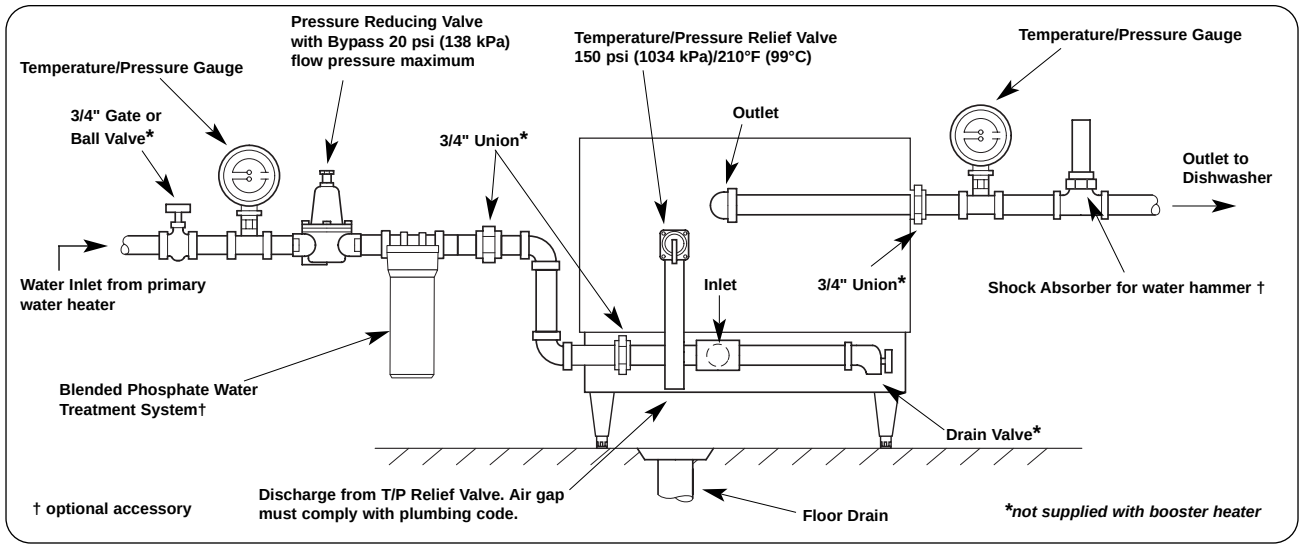


Figure 11. Plumbing Connections - Compact Series 24-57 kW

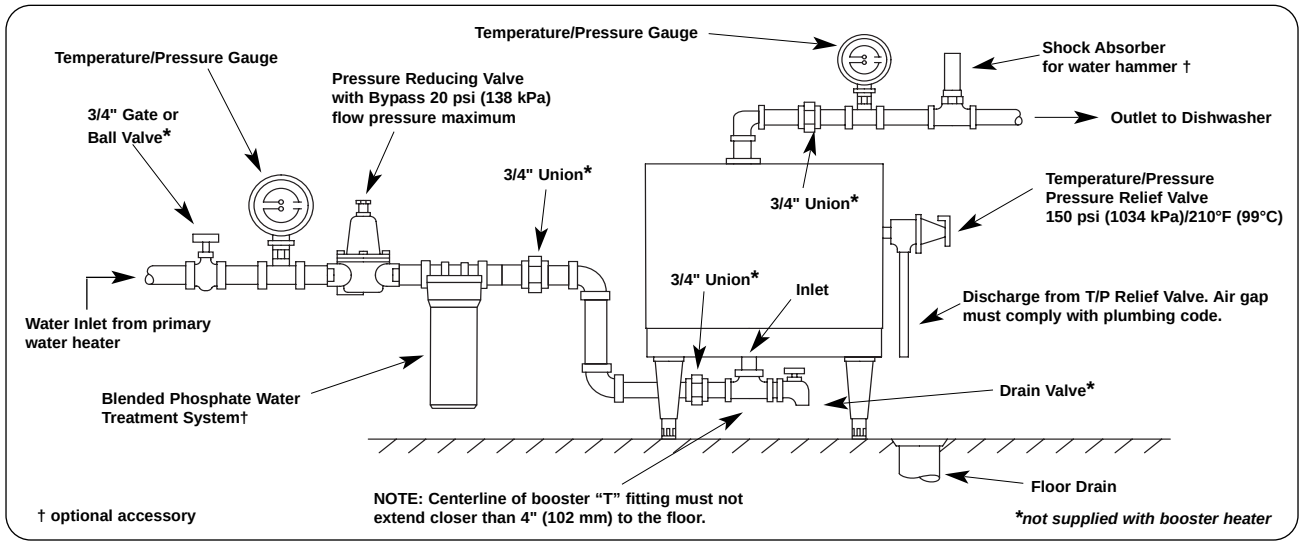


Figure 12. Plumbing Connections - Mini-Compact Models

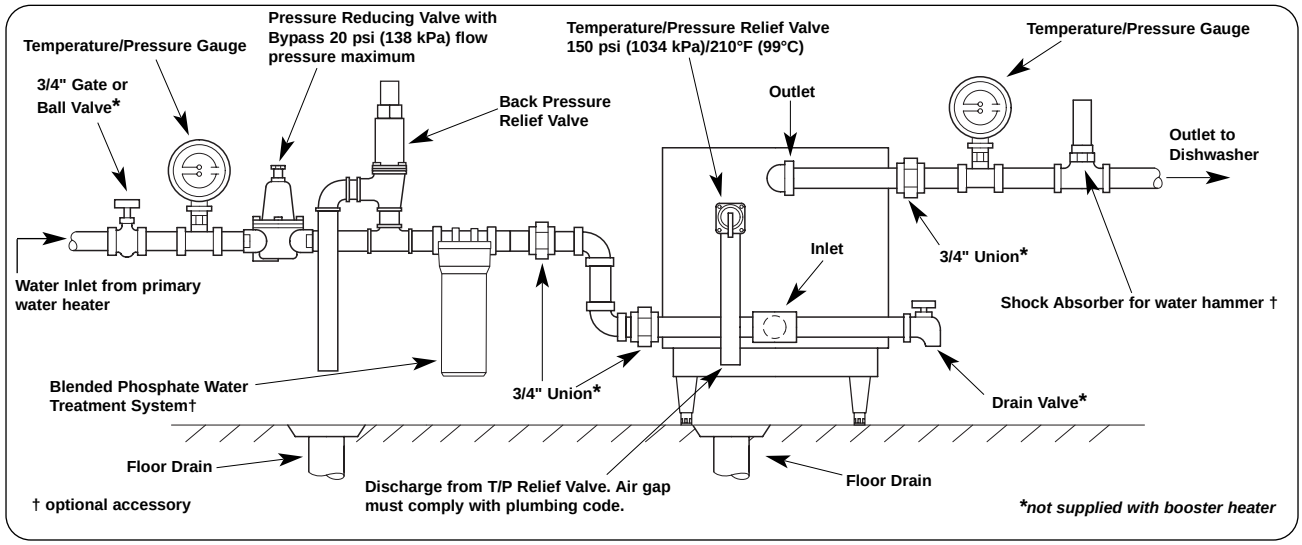


Figure 13. Booster Heaters with optional Back Pressure Valve

INSTALLATION

Outlet

1. Using a 3/4" union and piping, connect the booster heater water outlet to the commercial dishwasher sanitizing rinse pipe connection.

CAUTION

To assure proper operation on all Large Compact Series units, (C-24 to C-57), do not turn or adjust outlet water connection.

NOTE: Red mark on outlet water pipe for C-24 to C-57 series units must remain in the top most position.

NOTE: Be certain the connection is made to the final rinse and not to the wash tank.

2. Install a temperature/pressure gauge in the outlet line. The temperature sensing element must be in the water stream and the gauge must be mounted upright. Water temperature at the outlet should be 185°-190°F (85°-88°C). (See Figure 14 or 15.)

NOTE: Some dishmachines require two booster heaters be plumbed in series (not parallel) to meet the demand. (See Figure 9.) To assure proper operation a 20°F (11°C) temperature differential must be maintained between the outlet of the first booster heater and the inlet of the second booster heater.

NOTE: Hatco recommends installing an optional shock absorber, Hatco part number 03.04.057.00, in the outlet line as close as possible to the commercial dishwasher solenoid rinse valve. The shock absorber softens the water hammer caused by automatic dishwasher valves.

Plumbing Installation Inspection

1. Close drain pipe valve and fill booster heater with water.
2. Check all pipe connections for leaks.
3. Make sure relief valve discharge is not blocked.
4. Vent air from tank before operating by opening temperature/pressure relief valve.

CAUTION

Do not turn on power to the booster heater until the tank has been filled with water and all air has been vented through the dishwasher rinse nozzle. The heating elements will burn out in seconds if operated when they are not immersed in water.

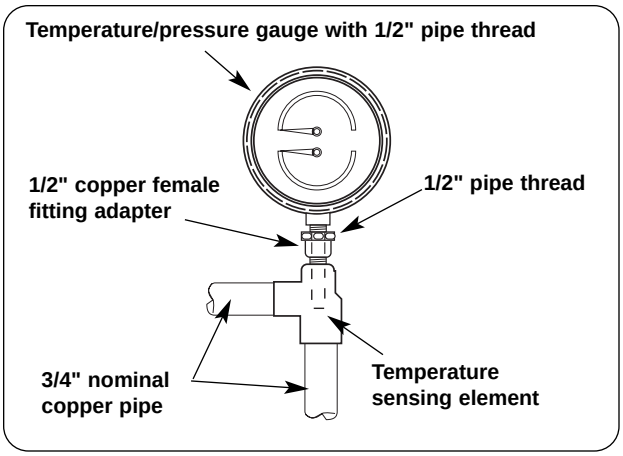


Figure 14. Recommended Temperature/Pressure Gauge Installation

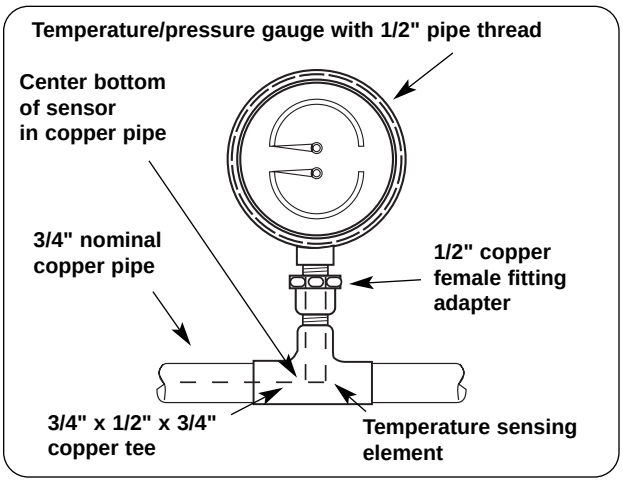


Figure 15. Alternate Temperature/Pressure Gauge Installation

⚠ WARNING

Hatco has always endorsed the use of safety equipment when using a booster water heater or storage-type water heater. Hatco booster heaters are shipped with a temperature/pressure relief valve at no extra charge. This valve must be installed into the marked opening provided in the tank. Valves supplied by Hatco are designed for high temperature commercial operation. Do not substitute Hatco supplied valves with valves designed for domestic operation.

⚠ WARNING

It is essential to recognize that even though a water heater may be properly installed initially and approved, there always exists the possibility that unknowing individuals might alter or change the installation in a manner that would render it unsafe. Therefore, it is important that all safety programs provide some mechanism to assure that these installations are inspected periodically.

ELECTRICAL-ALL SIZES AND VOLTAGES

General

Hatco Electric Booster Water Heaters are available for operation on standard power systems. Check the identification decal for the proper power supply.

CAUTION

To assure proper performance Hatco Electric Booster Water Heaters are only to be connected to the same power supply as indicated on the specification decal. Units connected to an incorrect power supply voids the product warranty and may damage the equipment.

All internal electrical connections have been made at the factory. See *CIRCUIT BREAKER AND FUSE SIZING CHART* for supply wire size, fuse, breaker and conduit recommendations.

⚠ WARNING

To avoid personal injury or damage to equipment, the booster heater must be installed by qualified, trained installers. Installation must conform to all local electrical and plumbing codes. Check with your local plumbing and electrical inspectors for proper procedures and codes

⚠ WARNING

For proper electrical installation conforming to local electrical codes and the National Electrical Code (N.E.C.), consult a licensed electrical contractor.

⚠ WARNING

This product contains fiberglass, a product known to the state of California to cause cancer, birth defects or other reproductive harm.

⚠ WARNING

To avoid any injury or damage to the booster heater turn the power OFF at the disconnect switch/circuit breaker and allow to cool before performing any maintenance or adjustments.

Electrical Connections

1. Remove the front jacket cover screws, pull the cover forward and remove the cover.

NOTE: On Imperial models, there is a hinged access panel under the front jacket cover. Remove the bottom screw and lift the panel up to expose the fuse blocks.

On Mini-Compact models, remove front cover screws. Ease cover forward and upward.

On Compact models, the control box is under the front hinged jacket cover.

2. Locate the heater terminal or fuse block(s) inside the unit.

NOTE: See CIRCUIT BREAKER AND DISCONNECT SIZING CHART *for proper connections and wire size.*

3. Bring power leads from a properly sized disconnect switch or circuit breaker through the knockout provided on the unit (Figure 16), and connect to the terminal or fuse block(s). **USE COPPER WIRE ONLY. TIGHTEN CONNECTIONS PROPERLY TO A MINIMUM OF 40 INCH POUNDS.**

NOTE: Due to the rigors of transportation all connections should be checked for tightness before heater is put into operation.

4. A grounding lug is provided near the supply terminals. An equipment grounding conductor must be properly connected to it.

CAUTION

Do not turn on power to booster heater until the tank has been filled with water and all air has been vented through the dishwasher rinse nozzle. The heating elements will burn out in seconds if operated when they are not immersed in water.

5. Replace and secure cover(s).

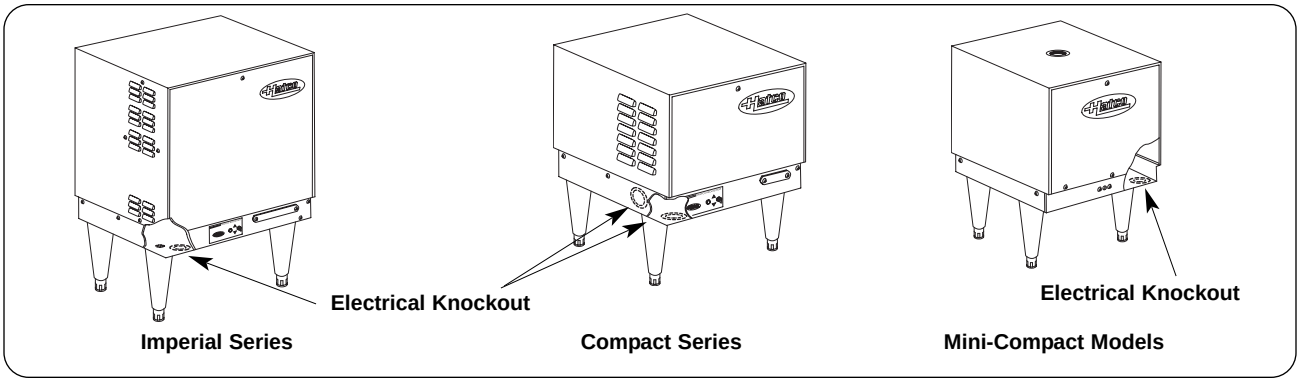


Figure 16. Electrical Knockout Locations

OPERATION

SYSTEM START-UP

⚠ WARNING

Water in the unit is very hot. Wear protective gloves and proper attire when operating to avoid injury.

1. Close drain pipe valve.
2. Open shutoff valve to primary water supply. Water temperature at inlet should be 110° to 140°F (43° to 60°C) and should not exceed 160°F (71°C).

NOTE: Minimum temperature differential between inlet and outlet should never be less than 20°F (11°C).

3. When tank is filled with water, vent all the air from the tank through the dishwasher rinse nozzle and the temperature/pressure relief valve.

CAUTION

Do not turn on power to booster heater until the tank has been filled with water and all air has been vented through the dishwasher rinse nozzle. The heating elements will burn out in seconds if operated when they are not immersed in water.

4. Check all plumbing connections for leaks.
5. Check the temperature/pressure relief valve discharge opening to be sure it is not blocked and no scale or other foreign matter has reduced the size of the opening.
6. Turn on the electrical supply to the booster heater. On Imperial and Compact models, position the on/off switch to the ON position and the indicator light will come on. (See Figure 17.)
7. When the booster heater has had sufficient heating time, operate the rinse cycle and check the water temperature and pressure readings on the gauges.

   Water temperature at the booster outlet should be 185°-190°F (85°-88°C) and flow pressure should be 20 psi (138 kPa) maximum.

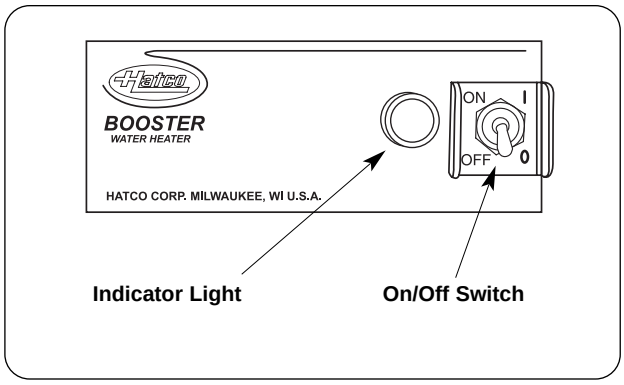


Figure 17. Controls-Imperial and Compact Models

NOTE: Outlet water temperatures can be adjusted for Low-Temperature Dishmachine applications. See Maintenance Section *for thermostat adjustment procedure.*

⚠ WARNING

Units are equipped with a High Temperature Limit Safety Switch that will shut the power off if the unit overheats. To avoid any injury to personnel or damage to the unit, contact an Authorized Hatco Service Agent if the High Temperature Limit Safety Switch cannot be reset or continues to trip.

SHUT DOWN

Under normal and regular operation Hatco recommends that the unit be turned on at all times.

If the booster heater will not be used for an extended period of time or will be exposed to freezing conditions it should be drained to prevent damage to the unit.

1. Disconnect power supply to the booster heater.
2. Close shut-off valve to booster heater inlet supply.
3. Open drain valve and drain water from booster heater tank.

CAUTION

To avoid damage to the unit always drain the booster heater with power to the unit off, or element burnout could occur.

GENERAL

⚠ WARNING

To avoid any injury or damage to the booster heater turn the power OFF at the disconnect switch/circuit breaker and allow to cool before performing any maintenance or adjustments.

THERMOSTAT

Thermostat Adjustment

The thermostat is factory calibrated to produce temperatures of 185°-190°F (85°-88°C). If adjustment or recalibration is required use the following procedure. (See Figures 18 and 19.)

NOTE: Low Temperature Dishmachines require the thermostat(s) to be adjusted to 140°-150°F (60°-66°C).

1. Remove the access cover.

   To **lower** the temperature setpoint, turn the outer adjustment screw counterclockwise.

   To **raise** the temperature setpoint, turn the outer adjustment screw clockwise.

NOTE: 1/6 turn of the outer screw equals 12°F (6.7°C).

If recalibration is necessary, with the outer screw at high stop turn inner adjustment screw clockwise to raise the set point.

NOTE: 1/6 turn of the inner screw equals 8°F (4.4°C).

HIGH TEMPERATURE LIMIT SAFETY SWITCH

All Hatco Electric Booster Water Heaters are equipped with a manually reset high temperature limit safety switch. If the temperature of the water in the heater exceeds 210°F (99°C) the safety switch will shut off the power. The switch must be manually reset by pushing the red button.

If the high temperature limit safety switch needs to be reset use the following procedure (See Figures 18 and 20.):

1. Remove access cover.
2. Push red reset button.
3. If tripping repeats, call an Authorized Service Agent.

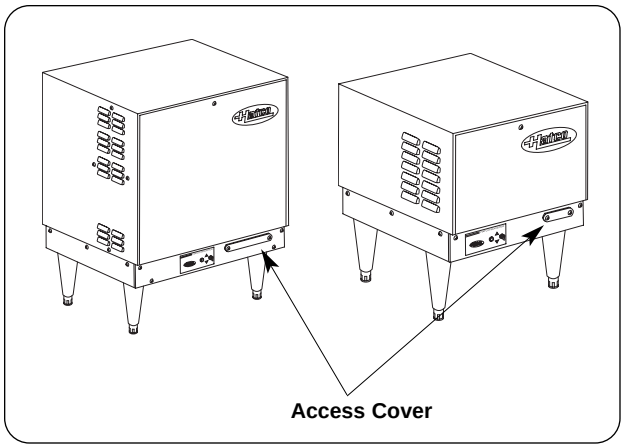


Figure 18. Access Cover for Thermostat(s) and High Temperature Limit Safety Switch

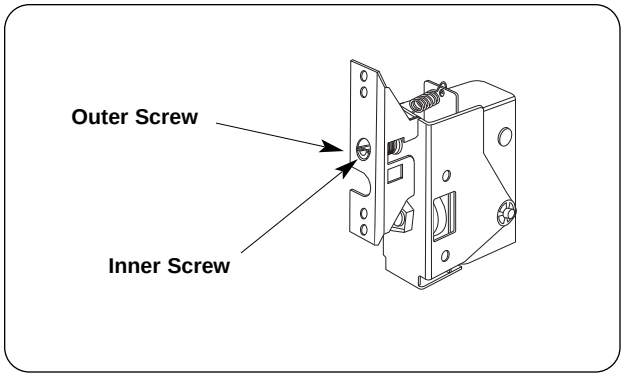


Figure 19. Thermostat Adjustment

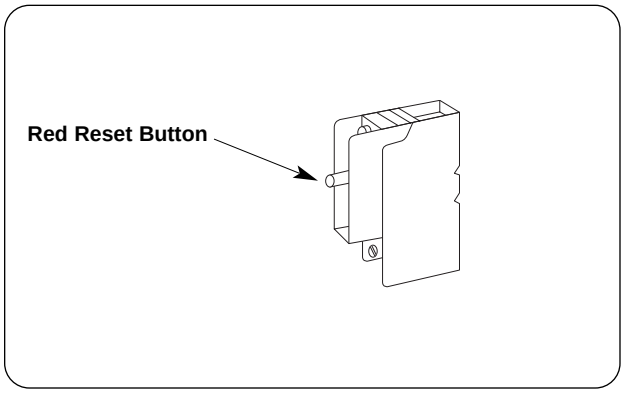


Figure 20. High Temperature Limit Safety Switch

MAINTENANCE

BLENDED PHOSPHATE TREATMENT SYSTEM (OPTIONAL)

The Blended Phosphate Water Treatment System reduces mineral scale by introducing a measured amount of polyphosphate into the water. Cartridges supplied have a usage rating of 100,000 gallons (378,541 liters) of water. When the cartridge is depleted use the following procedure for replacement:

1. Shut off electrical power to the heater.
2. Shut off water supply and open drain valve to remove water in piping.
3. Loosen canister using wrench attached.
4. Remove canister and discard depleted cartridge.
5. Using a clean damp cloth, wipe interior of canister clean.

NOTE: Make sure O-ring seal is properly placed in canister.

6. Reverse procedure to reinstall.

⚠ WARNING

If service is required on this unit, contact your 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.

⚠ WARNING

This product has no "user" serviceable parts. To avoid damage to the unit or injury to personnel, use only Authorized Hatco Service Agents and Genuine Hatco Replacement Parts when service is required.

⚠ WARNING

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. It is essential to use Hatco Replacement Parts when repairing Hatco equipment. Failure to use Hatco Replacement Parts may subject operators of the equipment to hazardous electrical voltage, resulting in electrical shock or burn.

STAINLESS STEEL ADJUSTABLE LEGS

1. Carefully place unit on its side.

CAUTION

Do not lay unit on the side with the control panel or damage to unit could occur.

2. Thread the adjustable legs into the existing leg holes on the bottom of the unit. (See Figure 21.)

3. After all legs are secure, return the unit to the upright position.

NOTE: If unit is not level, use an adjustable open-end wrench to adjust the foot of each leg until unit is level. Each leg is adjustable from 6" (152 mm) to 7" (178 mm).

FLOOR MOUNTING HARDWARE

Stainless steel adjustable legs with deck mounting flange are available for securing the booster heater to the floor.

SHOCK ABSORBER

The shock absorber installed between the booster and the commercial dishwasher prevents hydraulic shock induced by rapidly operating valves. The shock can cause damage to the equipment.

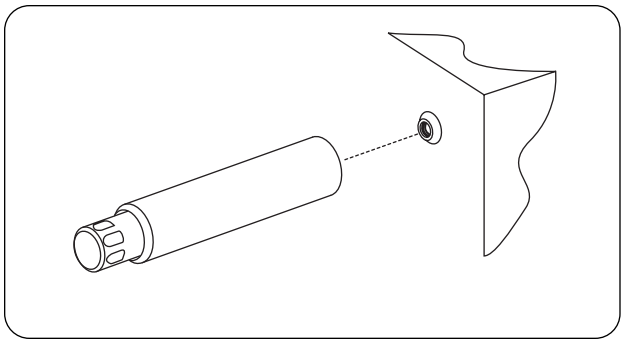


Figure 21. Optional Stainless Steel Adjustable Legs

BLENDED PHOSPHATE WATER TREATMENT SYSTEM

The Blended Phosphate Water Treatment System is installed before the booster heater and reduces mineral scale build-up by introducing a measured amount of polyphosphate into the water.

TROUBLESHOOTING

⚠ WARNING

To avoid any injury or damage, the booster heater must only be serviced by qualified personnel.

⚠ WARNING

To avoid any injury or damage to the booster heater turn the power OFF at the disconnect switch/circuit breaker and allow to cool before performing any maintenance.

GENERAL

IMPORTANT! Many times when a booster heater does not appear to be functioning properly, the fault is not with the booster heater itself but with factors outside the heater. Before proceeding with the troubleshooting chart on pages 31-33, perform the following steps first, then review the information on the next page.

1. Check the temperature of the water feeding into the booster tank. It must be 110° to 140°F (43° to 60°C) depending on the heating capability of the unit. The inlet water supply must be in sufficient quantity to hold its temperature throughout the dishwashing operation.

2. If incoming water exceeds 20 psi (138 kPa), a pressure reducing valve must be installed.

3. If the wash tank of the dishwasher is filled through the booster heater, this will use up all of the 180°F (82°C) water in storage. Sufficient time must be allowed to reheat the water in storage before starting the dishwasher.

4. Booster heater voltage must be correct for voltage available. Check nameplate on the booster heater for full information.

5. Water pressure at the inlet to the booster heater must be adequate for proper operation of the rinse cycle of the dishwasher, not to exceed 20 psi (138 kPa). Check with dishwasher manufacture for specific details.

6. The breakers or fuses MUST be properly sized.

7. Be sure that the temperature/pressure relief valve is one supplied by Hatco and properly installed.

8. A check valve should not be installed ahead of the booster.

NOTE: If a check valve is installed and cannot be removed install a back pressure relief valve, Hatco part number 03.02.039.00, set at 125 psi (862 kPa) on the incoming line between the pressure reducing valve and the inlet to the booster heater. Discharge must be to open site drain. (See Figure 13.)

9. Primary water heater temperature should not exceed 160°F (71°C).

⚠ WARNING

To avoid any injury or damage, the booster heater must only be serviced by qualified personnel.

⚠ WARNING

To avoid any injury or damage to the booster heater turn the power OFF at the disconnect switch/circuit breaker and allow to cool before performing any maintenance.

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
Water reaches 180°F (82°C) but does not last through the entire dishwasher operation.	Low incoming water temperature.	Incoming water temperature must be adequate for booster size. Increase incoming water temperature.
	Incoming water temperature drops.	Primary water supply is not adequate to provide correct temperature in sufficient quantities. Increase supply of primary hot water.
	Flow pressure is too high.	Higher pressure uses an excessive quantity of hot water. Adjust flow pressure to 20 psi (138 kPa).
	Booster heater may be undersized.	Booster heater must be properly sized for incoming water temperature and rinse requirements of the dishwasher.
	Incorrect voltage.	Check voltage on heater serial plate and make sure supplied voltage matches. A 240v booster heater operating on 208v reduces wattage to 76% efficiency.
The booster heater does not heat at all or only delivers water at 120°-150°F (49°-66°C).	Unit may have been energized without water (dry fired).	This will cause the elements to burn out quickly. Replace the element(s).
	Fuses may be blown or circuit breaker tripped.	Check for proper fuse sizing. Replace fuses. Check/reset circuit breaker.
	Over-current fuses may be blown.	Check for shorted elements, bad fuse block or short in wiring.
	Temperature setting out of calibration or inoperable.	Temperature setting should be maximum of 190°F (88°C).
	Contactors do not pull in.	Test for voltage at coils. If coils are open or shorted, replace contactors.
	High limit switch may be tripped or defective.	Reset switch. If switch continues to trip or cannot be reset contact an Authorized Service Agent.
	Transformer not working properly.	Check secondary voltage, it should be the same as the control circuit voltage. If not, replace the transformer.
	Low water cutoff inoperable, contacts do not close.	Remove probe wire and touch it to the tank. If contacts close, probe is fouled and must be cleaned or replaced. Relay on circuit board maybe defective. Jumper terminals 6 & 7. If unit energizes, circuit board is defective and should be replaced.

TROUBLESHOOTING

⚠ WARNING

To avoid any injury or damage, the booster heater must only be serviced by qualified personnel.

⚠ WARNING

To avoid any injury or damage to the booster heater turn the power OFF at the disconnect switch/circuit breaker and allow to cool before performing any maintenance.

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
Water at dishmachine is not at the proper temperature.	Gauge(s) not working properly.	Check temperature of water with a thermometer to be certain gauges are working correctly. If not, replace gauge(s).
	Thermostat set too low.	Adjust or recalibrate (page 27). If thermostat will not recalibrate properly, replace it.
	Booster heater has more than (5) linear feet (1524 mm) of water pipe to the dishwasher, causing the water to cool off inside the pipe.	If located farther than (5) linear feet (1524 mm), pipes should be wrapped in insulation, and/or a recirculating system installed.
Heating elements burn out.	Tank inadvertently drained leaving elements in a dry condition.	Make sure tank is full of water at all times. Check low water cut-off system for proper operation.
	Lime buildup in tank causing elements to split and burn out.	Clean or delime tanks periodically. A water softener or blended phosphate treatment system may be required.
Relief valve dribbles.	No pressure reducing valve installed or incorrect valve installed causing pressure build-up inside booster tank.	A pressure reducing valve with high pressure bypass must be installed in the incoming water line to allow water to expand back into the feed line.
	Bypass in pressure reducing valve may be blocked.	Clean bypass or replace with new valve with built in bypass.
	Check valve or anti-siphon valve installed in the feed line.	Remove check valve or anti-siphon valve to allow for water expansion or install a back pressure relief valve on the incoming water line, Hatco part number 03.02.039.00.
Relief valve opens.	Unit is overheating.	Thermostat may be set too high or is sticking. Recalibrate (page 27) or replace the thermostat.
	Contactor may be sticking in closed position not allowing unit to cycle off.	Replace contactor(s).

⚠ WARNING

To avoid any injury or damage, the booster heater must only be serviced by qualified personnel.

⚠ WARNING

To avoid any injury or damage to the booster heater turn the power OFF at the disconnect switch/circuit breaker and allow to cool before performing any maintenance.

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
High temperature limit trips.	Temperature limit set too low.	If booster heater is not overheating, replace High Limit Safety Switch.
	Thermostat set too high.	Adjust or recalibrate (page 27) to proper temperature.
	Incoming water temperature too high causing nuisance tripping of high temperature limit switch.	Incoming water temperature should not be higher than 160°F (71°C).
Chattering contactor or low water cutoff circuit board.	Loose connections or wire connection has insulation under crimp.	Tighten all connections and check crimps.
	Low voltage.	Check control circuit voltage or secondary voltage with transformer.
	Probe may be fouled.	Bypass probe by removing wire from low water cutoff probe and grounding to tank. Clean or replace probe if chattering stops.
	Contactor(s) may be bad.	Test contactor coils. Replace contactor(s) if bad.

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.