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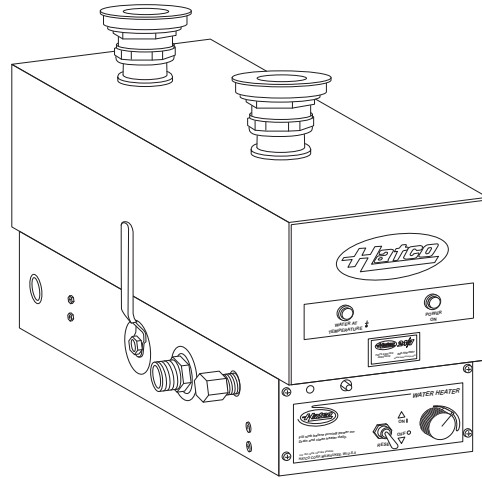
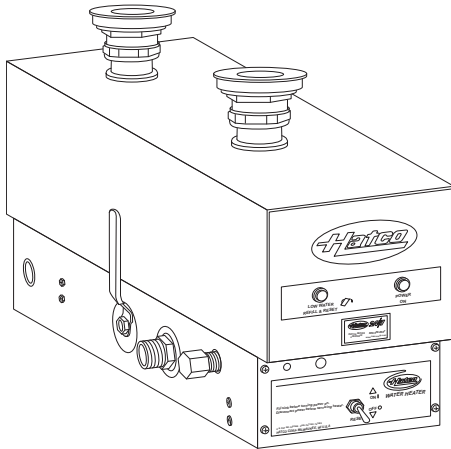
Register Online!
(see page 2)



Sanitizing Sink Heaters and Food Rethermalizers/Bain-Marie Heaters 3CS and FR Series

Installation and Operating Manual

P/N 07.04.114.00



⚠ WARNING

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

⚠ ADVERTENCIA

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

⚠ AVERTISSEMENT

Ne pas utiliser cet équipement sans avoir lu et compris le contenu de ce manuel ! Le non-respect des instructions contenues dans ce manuel peut entraîner de graves blessures ou la mort. Ce manuel contient des informations importantes concernant l'entretien, l'utilisation et le fonctionnement de ce produit. Si vous ne comprenez pas le contenu de ce manuel, veuillez le signaler à votre supérieur. Conservez ce manuel dans un endroit sûr pour pouvoir vous y référer plus tard.

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IMPORTANT OWNER INFORMATION

Record the model number, serial number (located on the lower right side on the front of the unit), voltage and purchase date of your 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 _____

Register your unit!

Completing online warranty registration will prevent delay in obtaining warranty coverage. Access the Hatco website at www.hatcocorp.com, select the *Parts & Service* pull-down menu, and click on "Warranty Registration".

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

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

E-mail: partsandservice@hatcocorp.com

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



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

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

INTRODUCTION

Hatco FR and 3CS heaters are designed to supply temperature-controlled water to a sink or holding vessel located above the heater. Water flows by natural convection from the sink or holding vessel into the heater directly downward into the rear reservoir. The rear reservoir acts as a soil collection sump.

Debris that could affect the heating element operation settles out in the sump to be drained away later. The debris free water flows into the second reservoir in which the heating elements are mounted. The water is heated and returns upward to the sink or holding vessel.

All electrical and plumbing connections are factory-assembled and ready for installation.

Hatco FR and 3CS Water Heaters are products of extensive research and field testing. The materials used were selected for maximum durability, attractive appearance and optimum performance. Every unit is thoroughly inspected and tested prior to shipment.

This manual provides the installation, safety, and operating instructions for Hatco Water Heaters. Hatco recommends that all installation, operating, and safety instructions appearing in this manual be read prior to installation or operation of a unit.

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



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



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



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

IMPORTANT SAFETY INFORMATION



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

WARNING

ELECTRIC SHOCK HAZARD:

- Units supplied without an electrical cord and plug require a hardwired connection to on-site electrical system. Connection must be properly grounded and of correct voltage, size, and configuration for electrical specifications of unit. Contact a qualified electrician to determine and install proper electrical connection.
- Units supplied with an electrical cord, plug, and receptacle require installation of receptacle to on-site electrical system. Connection must be properly grounded and of correct voltage, size, and configuration for electrical specifications of unit. Contact a qualified electrician to determine and install proper electrical connection.
- Unit must be installed by qualified, trained installers. Installation must conform to all local electrical and plumbing codes. Installation by unqualified personnel will void the unit warranty and may lead to electric shock or burn, as well as damage to unit and/or its surroundings. Check with local plumbing and electrical inspectors for proper procedures and codes.
- Unit is not weatherproof. Locate the unit indoors where the ambient air temperature is a minimum of 70°F (21°C).
- Turn OFF power switch, unplug power cord/turn off power at circuit breaker, and allow unit to cool before performing any cleaning, adjustments, or maintenance.
- DO NOT submerge or saturate with water. Unit is not waterproof. Do not operate if unit has been submerged or saturated with water.
- Do not clean unit when it is energized or hot.
- This unit is not “jet-proof” construction. Do not use jet-clean spray to clean this unit.
- Discontinue use if power cord is frayed or worn.
- Do not attempt to repair or replace a damaged power cord. Cord must be replaced by Hatco, an Authorized Hatco Service Agent, or a person with similar qualifications.
- This unit must be serviced by qualified personnel only. Service by unqualified personnel may lead to electric shock or burn.
- Use only Genuine Hatco Replacement Parts when service is required. Failure to use Genuine Hatco Replacement Parts will void all warranties and may subject operators of the equipment to hazardous electrical voltage, resulting in electrical shock or burn. Genuine Hatco Replacement Parts are specified to operate safely in the environments in which they are used. Some aftermarket or generic replacement parts do not have the characteristics that will allow them to operate safely in Hatco equipment.

WARNING

FIRE HAZARD:

- Install unit with a minimum of 3-1/2” (89 mm) of space from bottom of unit to all combustible surfaces to prevent combustion.
- Do not use harsh chemicals such as bleach (or cleaners containing bleach), oven cleaners, or flammable cleaning solutions to clean this unit.

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

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

Hatco Corporation is not responsible for actual food product serving temperature. It is the responsibility of the user to ensure that food product is held and served at a safe temperature.

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

CAUTION

BURN HAZARD:

- Some exterior surfaces on unit will get hot. Avoid unnecessary contact with unit.
- Drain water may reach temperatures in excess of 200°F (93°C). Use appropriate plumbing materials when installing drain.
- Water in holding vessel may reach temperatures in excess of 190°F (88°C). Use appropriate protection when operating unit.
- Hot water in unit may cause scalding injury. Allow unit to cool before draining or cleaning.
- Do NOT set temperature control higher than 190°F (88°C). Units are designed to heat water up to 190°F (88°C). Water over 190°F (88°C) is very active and could splash onto operator causing serious burns or injury.

Do not use extension pipes on the inlet and outlet connections on water heater units. Poor performance or unsafe conditions may occur.

IMPORTANT SAFETY INFORMATION

NOTICE

Units are voltage-specific. Refer to specification label for electrical requirements before beginning installation. Connecting unit to incorrect power supply will void product warranty and may damage unit.

This unit is intended for commercial use only — NOT for household use.

Do not turn on power to unit until holding vessel has been filled with water. Dry operation may cause element burnout.

ALWAYS drain holding vessel with power to unit off or element burnout could occur.

Do not use excessive force when tightening unions or nuts. Over-tightening and excessive force may cause leaks.

Incoming water in excess of 3 grains of hardness per gallon (GPG) (0.75 grains of hardness per liter [GPL]) must be treated and softened before being supplied to water heater(s). Water containing over 3 GPG (0.75 GPL) will decrease efficiency, increase energy use, and reduce operating life of unit through increased lime build-up. Product failure caused by liming or sediment buildup is not covered under warranty.

Use only delimers that are non-corrosive to aluminum, brass, and stainless steel. Damage to unit caused by corrosive materials is not covered under warranty.

Inspect unit regularly for lime and sediment buildup. Excessive buildup may affect performance and reduce operating life of unit.

NSF Criteria

NSF Standard 4 has recently added performance requirements for food rethermalizing. The requirements mirror the requirements for food rethermalizing in the FDA Food Code. The basic requirement is that food reach a temperature of 165°F (74°C) in a time period of two hours or less.

Appliances that are manufactured for the purpose of rethermalizing food will need to meet these performance requirements in order to be listed to NSF Standard 4.

The Hatco FR Series heating unit is specifically made for food rethermalizing, however, the heating unit is designed to be incorporated into a hot water bath rethermalizer. Hatco does not supply the vessel that contains the water, nor the system which determines how food is placed and held in the vessel. The Hatco FR unit attaches to the bottom of the vessel and supplies hot water to the vessel.

Hatco does supply sizing recommendations to enable the appliance manufacturer to correctly size the FR unit to the vessel. However, there are variables in the way that the vessel is manufactured that affect its ability to pass the NSF performance requirements. The Hatco FR unit is listed with NSF for construction only. Due to the fact that the FR is only a portion of a larger system, it is impossible to do performance testing until the FR unit is incorporated onto the water vessel.

It is the responsibility of the vessel manufacturer to have the entire rethermalizing appliance tested and listed in accordance with NSF Standard 4. Simply hanging an NSF listed FR unit on the appliance does not transfer NSF listing to the entire appliance.

MODEL DESCRIPTION

All Models

The 3CS and FR Model water heaters mount under a sink or holding vessel, leaving the interior of the holding vessel free of obstructions. They include a stainless steel front, powdercoated body, and two drain outlets. These water heaters feature a unique dual reservoir system designed for cleaning convenience. One reservoir contains the heating element and always should be filled with water. The other reservoir traps and collects soil carried from other sink compartments.

Each unit comes with a one year parts and labor warranty and a five year limited tank warranty. Units are shipped completely assembled and ready to install with all gaskets and fittings.

Optional features include a security package and a stainless steel body and base. A temperature monitor and a temperature light are available for 3CS Models. A flush hose kit is available as an accessory. Refer to the OPTIONS AND ACCESSORIES section for details.

3CS Models

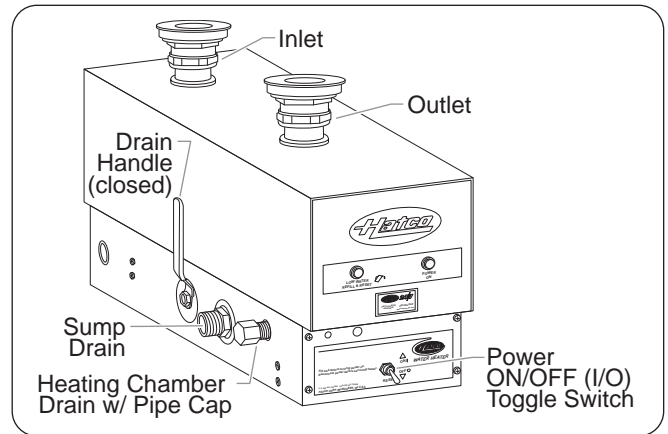
Hatco 3CS Model heaters are designed for use with any manual dishwashing operation. These units maintain sanitizing rinse water above 180°F (82°C).

FR Models

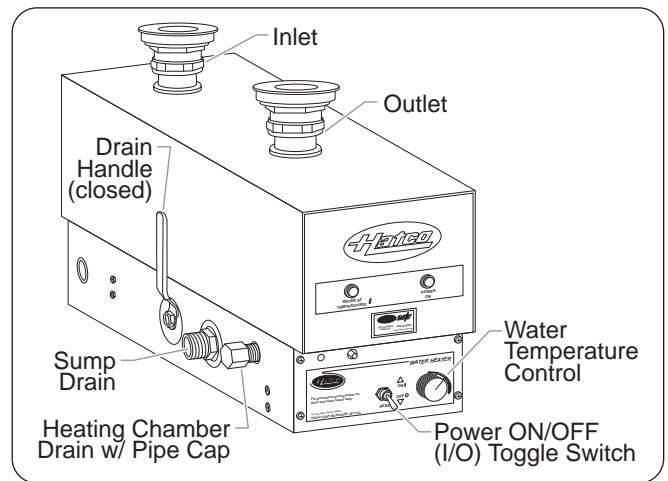
Hatco FR Model heaters are designed to be used with a Bain-Marie or Food Rethernalizer to heat or hold foods at temperatures between 140°F and 190°F (60° and 88°C). The desired holding temperature is maintained by an adjustable water temperature control.

FRC-I and FRC-II Models

Hatco Corn Cooker models FRC-I and FRC-II utilize a Hatco FR-3 heater. The Corn-Cooker is completely assembled and comes equipped with an electrical power cord and plug. The unit may be mounted in a stand or inserted into a countertop.

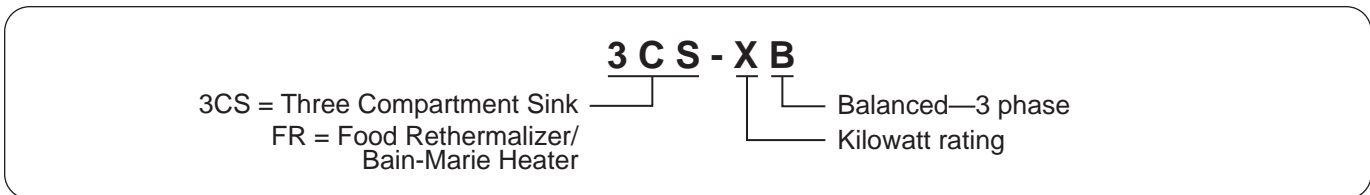


3CS Model

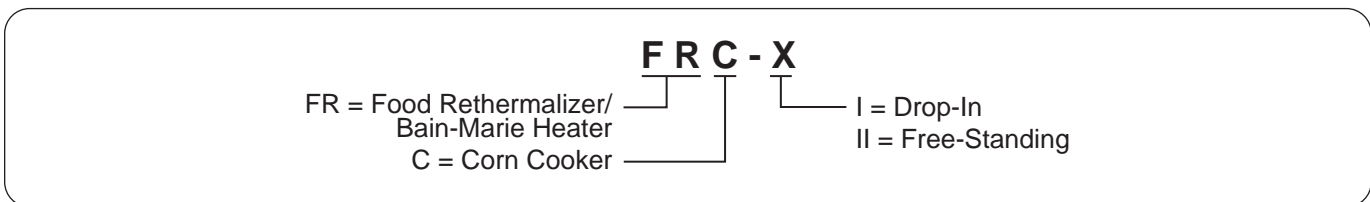


FR Model

MODEL DESIGNATIONS



3CS and FR Model Designation



FRC Model Designation

SPECIFICATIONS

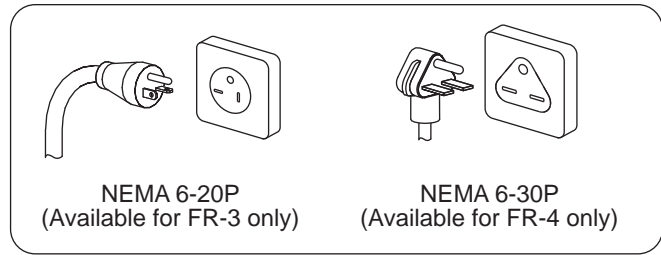
Plug Configurations

Some FR units are supplied from the factory with an electrical cord and plug installed and are shipped with a receptacle. Plugs and receptacles are supplied according to the applications.



ELECTRIC SHOCK HAZARD: Units supplied with an electrical cord, plug, and receptacle require installation of receptacle to on-site electrical system. Connection must be properly grounded and of correct voltage, size, and configuration for electrical specifications of unit. Contact a qualified electrician to determine and install proper electrical connection.

NOTE: The specification label is located on the lower right side on the front of the unit. See label for serial number and verification of unit electrical information.



Plug Configurations

Model	208 Volt Models	240 Volt Models
FR-3	NEMA 6-20P	NEMA 6-20P
FR-4	NEMA 6-30P	NEMA 6-30P

Electrical Rating Chart—3CS-X Models

Model	Voltage	Kilowatts (kW)	Phase	Amps	Wiring Sizing AWG*†	Fuse or Circuit Breaker*	Shipping Weight
3CS-3	208	3.0	1	14.4	12	20	24 lbs. (11 kg)
	240	3.0	1	12.5	12	20	24 lbs. (11 kg)
	480	3.0	1	6.3	14	15	24 lbs. (11 kg)
	220–230	2.5–2.8	1	11.5–12	14	15	24 lbs. (11 kg)
	230–240	2.8–3.0	1	12–12.5	12	20	24 lbs. (11 kg)
3CS-4	208	4.5	1	22	10	30	24 lbs. (11 kg)
	240	4.5	1	18.8	10	30	24 lbs. (11 kg)
	480	4.5	1	9.4	14	15	24 lbs. (11 kg)
	415	4.5	3♦	9.4	14	15	24 lbs. (11 kg)
3CS-6	208	6.0	1	29	8	40	27 lbs. (12 kg)
	240	6.0	1	25	8	40	27 lbs. (12 kg)
	480	6.0	1	12.5	12	20	27 lbs. (12 kg)
	220–230	5.0–5.5	1	23–24	10	30	27 lbs. (12 kg)
	230–240	5.5–6.0	1	24–25	8	40	27 lbs. (12 kg)
	208	6.0	3♦	25	8	40	27 lbs. (12 kg)
	240	6.0	3♦	21.7	10	30	27 lbs. (12 kg)
	415	6.0	3♦	14	12	20	27 lbs. (12 kg)
480	6.0	3♦	10.8	14	15	27 lbs. (12 kg)	
3CS-9	208	9.0	1	43.3	4	60	27 lbs. (12 kg)
	240	9.0	1	37.5	6	50	27 lbs. (12 kg)
	480	9.0	1	18.8	10	30	27 lbs. (12 kg)
	208	9.0	3♦	37.5	6	50	27 lbs. (12 kg)
	240	9.0	3♦	32.5	8	40	27 lbs. (12 kg)
	480	9.0	3♦	16.2	12	20	27 lbs. (12 kg)

Electrical Rating Chart—3CS-XB Models

Model	Voltage	Kilowatts (kW)	Phase	Amps	Wiring Sizing AWG*†	Fuse or Circuit Breaker*	Shipping Weight
3CS-3B	208	3.0	3 (Bal.)	8.3	14	15	30 lbs. (14 kg)
	240	3.0	3 (Bal.)	7.2	14	15	30 lbs. (14 kg)
	480	3.0	3 (Bal.)	3.6	14	15	30 lbs. (14 kg)
	220–230	3.4–3.4	3 (Bal.)	8.8–9.2	14	15	30 lbs. (14 kg)
	380–400	2.3–2.5	3 (Bal.)	3.4–3.5	14	15	30 lbs. (14 kg)
	400–415	2.5–2.7	3 (Bal.)	3.5–3.7	14	15	30 lbs. (14 kg)
3CS-4B	208	4.5	3 (Bal.)	12.5	12	20	30 lbs. (14 kg)
	240	4.5	3 (Bal.)	10.8	14	15	30 lbs. (14 kg)
	480	4.5	3 (Bal.)	5.4	14	15	30 lbs. (14 kg)
3CS-6B	208	6.0	3 (Bal.)	18.8	10	30	30 lbs. (14 kg)
	240	6.0	3 (Bal.)	14.4	12	20	30 lbs. (14 kg)
	380	6.0	3 (Bal.)	10.2	14	15	30 lbs. (14 kg)
	480	6.0	3 (Bal.)	7.2	14	15	30 lbs. (14 kg)
	220–230	5.0–5.5	3 (Bal.)	13.2–13.8	12	20	30 lbs. (14 kg)
3CS-9B	208	9.0	3 (Bal.)	25	10	40	30 lbs. (14 kg)
	240	9.0	3 (Bal.)	21.7	10	30	30 lbs. (14 kg)
	380	9.0	3 (Bal.)	12.9	12	20	30 lbs. (14 kg)
	440	9.0	3 (Bal.)	11.8	14	15	30 lbs. (14 kg)
	480	9.0	3 (Bal.)	10.8	14	15	30 lbs. (14 kg)
	380–400	7.6–8.3	3 (Bal.)	11.5–11.9	14	15	30 lbs. (14 kg)
	400–415	8.3–9.0	3 (Bal.)	11.9–12.5	12	20	30 lbs. (14 kg)

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

* Wire size is based on THHN wire for branch circuit protection at 0.91 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.

† Based upon THHN wire rated 90°C.

◆ Open Delta—standard construction (Amperage higher than Balanced 3-phase)

NOTE: Shipping Weight includes packaging.

SPECIFICATIONS

Electrical Rating Chart—FR-X Models

Model	Voltage	Kilowatts (kW)	Phase	Amps	Wiring Sizing AWG*†	Fuse or Circuit Breaker*	Shipping Weight
FR-3	208	3.0	1	14.4	12	20	24 lbs. (11 kg)
	240	3.0	1	12.5	12	20	24 lbs. (11 kg)
	480	3.0	1	6.3	14	15	24 lbs. (11 kg)
	220–230	2.5–2.8	1	11.5–12	14	15	24 lbs. (11 kg)
	230–240	2.8–3.0	1	12–12.5	12	20	24 lbs. (11 kg)
FR-4	208	4.5	1	22	10	30	24 lbs. (11 kg)
	240	4.5	1	18.8	10	30	24 lbs. (11 kg)
	480	4.5	1	9.4	14	15	24 lbs. (11 kg)
	415	4.5	3♦	9.4	14	15	24 lbs. (11 kg)
FR-6	208	6.0	1	29	8	40	27 lbs. (12 kg)
	240	6.0	1	25	8	40	27 lbs. (12 kg)
	480	6.0	1	12.5	12	20	27 lbs. (12 kg)
	220–230	5.0–5.5	1	23–24	10	30	27 lbs. (12 kg)
	230–240	5.5–6.0	1	24–25	8	40	27 lbs. (12 kg)
	208	6.0	3♦	25	8	40	27 lbs. (12 kg)
	240	6.0	3♦	21.7	10	30	27 lbs. (12 kg)
	415	6.0	3♦	14	12	20	27 lbs. (12 kg)
480	6.0	3♦	10.8	14	15	27 lbs. (12 kg)	
FR-9	208	9.0	1	43.3	4	60	27 lbs. (12 kg)
	240	9.0	1	37.5	6	50	27 lbs. (12 kg)
	480	9.0	1	18.8	10	30	27 lbs. (12 kg)
	208	9.0	3♦	37.5	6	50	27 lbs. (12 kg)
	240	9.0	3♦	32.5	8	40	27 lbs. (12 kg)
	480	9.0	3♦	16.2	12	20	27 lbs. (12 kg)

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

* Wire size is based on THHN wire for branch circuit protection at 0.91 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.

† Based upon THHN wire rated 90°C.

♦ Open Delta—standard construction (Amperage higher than Balanced 3-phase)

NOTE: Shipping Weight includes packaging.

Electrical Rating Chart—FR-XB Models

Model	Voltage	Kilowatts (kW)	Phase	Amps	Wiring Sizing AWG*†	Fuse or Circuit Breaker*	Shipping Weight
FR-3B	208	3.0	3 (Bal.)	8.3	14	15	30 lbs. (14 kg)
	240	3.0	3 (Bal.)	7.2	14	15	30 lbs. (14 kg)
	480	3.0	3 (Bal.)	3.6	14	15	30 lbs. (14 kg)
	220–230	3.4–3.4	3 (Bal.)	8.8–9.2	14	15	30 lbs. (14 kg)
	380–400	2.3–2.5	3 (Bal.)	3.4–3.5	14	15	30 lbs. (14 kg)
	400–415	2.5–2.7	3 (Bal.)	3.5–3.7	14	15	30 lbs. (14 kg)
	FR-4B	208	4.5	3 (Bal.)	12.5	12	20
	240	4.5	3 (Bal.)	10.8	14	15	30 lbs. (14 kg)
	480	4.5	3 (Bal.)	5.4	14	15	30 lbs. (14 kg)
FR-6B	208	6.0	3 (Bal.)	18.8	10	30	30 lbs. (14 kg)
	240	6.0	3 (Bal.)	14.4	12	20	30 lbs. (14 kg)
	380	6.0	3 (Bal.)	10.2	14	15	30 lbs. (14 kg)
	480	6.0	3 (Bal.)	7.2	14	15	30 lbs. (14 kg)
	220–230	5.0–5.5	3 (Bal.)	13.2–13.8	12	20	30 lbs. (14 kg)
FR-9B	208	9.0	3 (Bal.)	25	10	40	30 lbs. (14 kg)
	240	9.0	3 (Bal.)	21.7	10	30	30 lbs. (14 kg)
	380	9.0	3 (Bal.)	12.9	12	20	30 lbs. (14 kg)
	440	9.0	3 (Bal.)	11.8	14	15	30 lbs. (14 kg)
	480	9.0	3 (Bal.)	10.8	14	15	30 lbs. (14 kg)
	380–400	7.6–8.3	3 (Bal.)	11.5–11.9	14	15	30 lbs. (14 kg)
	400–415	8.3–9.0	3 (Bal.)	11.9–12.5	12	20	30 lbs. (14 kg)

Electrical Rating Chart—FRC Models

Model	Voltage	Kilowatts (kW)	Phase	Amps	Wiring Sizing AWG*†	Fuse or Circuit Breaker*	Shipping Weight
FRC-I	208	3.0	1	14.4	12	20	42 lbs. (19 kg)
	220–230	2.5–2.8	1	11.5–12	14	15	42 lbs. (19 kg)
	240	3.0	1	12.5	12	20	42 lbs. (19 kg)
FRC-II	208	3.0	1	14.4	12	20	69 lbs. (31 kg)
	220–230	2.5–2.8	1	11.5–12	14	15	69 lbs. (31 kg)
	240	3.0	1	12.5	12	20	69 lbs. (31 kg)

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

* Wire size is based on THHN wire for branch circuit protection at 0.91 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.

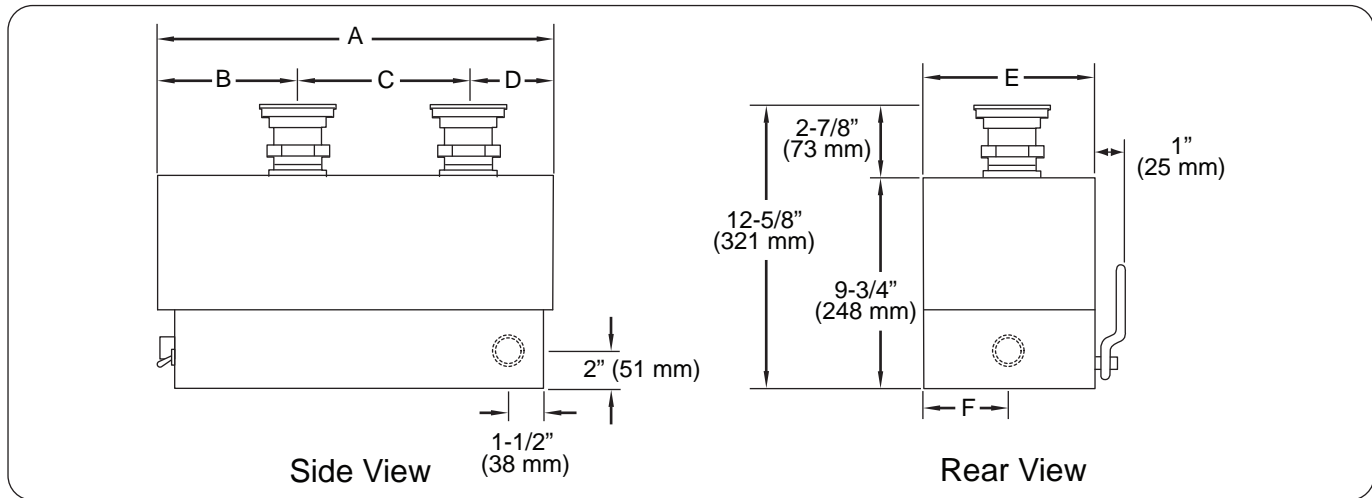
† Based upon THHN wire rated 90°C.

NOTE: Shipping Weight includes packaging.

SPECIFICATIONS

Dimensions

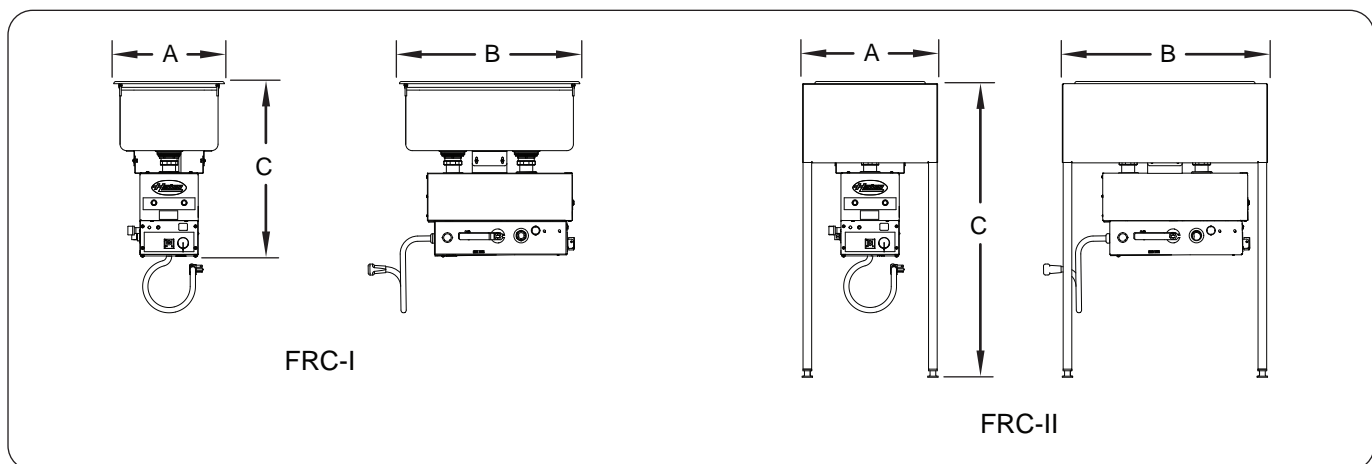
Model	A	B	C	D	E	F
3CS-X and FR-X	16-7/8" (429 mm)	5-1/2" (140 mm)	8-1/2" (216 mm)	2-7/8" (73 mm)	6-3/4" (171 mm)	3-3/8" (86 mm)
3CS-XB and FR-XB	17-1/8" (435 mm)	4-5/8" (117 mm)	8-1/2" (216 mm)	4" (102 mm)	8" (203 mm)	4" (102 mm)



Dimensions—3CS and FR Models

Dimensions—FRC Models

Model	Width (A)	Depth (B)	Height (C)
FRC-I	12-3/4" (325 mm)	20-7/8" (530 mm)	19-7/8" (503 mm)
FRC-II	15-5/8" (397 mm)	23-3/4" (603 mm)	34-1/4" (870 mm)



Dimensions—FRC Models

General

Hatco Water Heaters are shipped factory assembled. Care should be taken when unpacking shipping carton to avoid damage to unit and components enclosed.

⚠ WARNING

ELECTRIC SHOCK HAZARD:

- Units supplied without an electrical cord and plug require a hardwired connection to on-site electrical system. Connection must be properly grounded and of correct voltage, size, and configuration for electrical specifications of unit. Contact a qualified electrician to determine and install proper electrical connection.
- Units supplied with an electrical cord, plug, and receptacle require installation of receptacle to on-site electrical system. Connection must be properly grounded and of correct voltage, size, and configuration for electrical specifications of unit. Contact a qualified electrician to determine and install proper electrical connection.
- Unit must be installed by qualified, trained installers. Installation must conform to all local electrical and plumbing codes. Installation by unqualified personnel will void the unit warranty and may lead to electric shock or burn, as well as damage to unit and/or its surroundings. Check with local plumbing and electrical inspectors for proper procedures and codes.
- Unit is not weatherproof. Locate the unit indoors where the ambient air temperature is a minimum of 70°F (21°C).

FIRE HAZARD: Install unit with a minimum of 3-1/2" (89 mm) of space from bottom of unit to all combustible surfaces to prevent combustion.

1. Remove the unit from the box.

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

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

Sizing Information

Hatco recommends the following guidelines be used to ensure proper operation and sanitation.

For 3CS Models in a Sink Heater Application

- Minimum of 2000 watts per square foot (2.2 watts per sq. cm) of vessel top.
- 3CS Models are sized based on 140°F (60°C) supply water with a 30-minute preheat period to reach the sanitizing temperature.

For FR Models in a Bain-Marie or Steam Table Application

- Minimum 750 watts per square foot (0.8 watts per sq. cm) of vessel top.

For FR Models in a Food Rethernalizer Application

- Minimum 2000 watts per square foot (2.2 watts per sq. cm) of vessel top.

NOTE: Use one heater for a Bain-Marie up to 6' (1829 mm) long. Units over 6' (1829 mm) require a minimum of two heaters.

Installing 3CS and FR Models

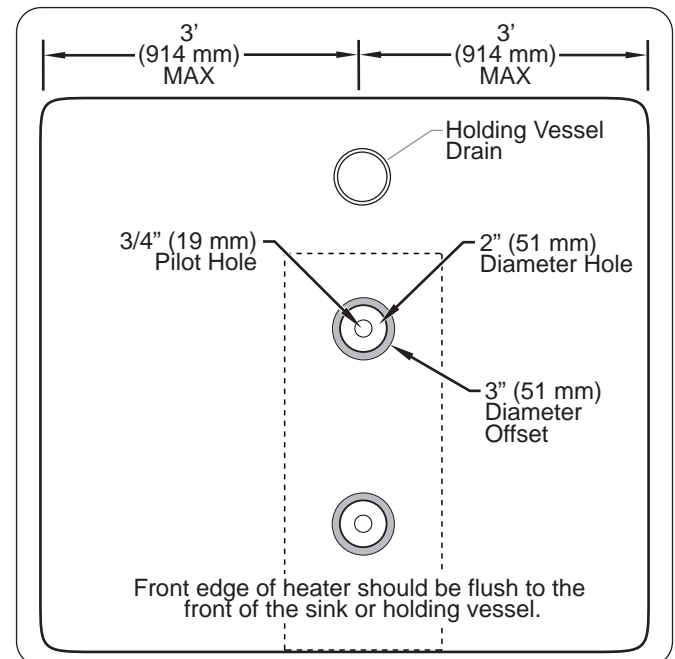
An adhesive backed paper template is shipped with the unit and is used to locate the sink strainer holes. Use the following procedure to mount to the sink or holding vessel.

⚠ CAUTION

BURN HAZARD: Drain water may reach temperatures in excess of 200°F (93°C). Use appropriate plumbing materials when installing drain.

Do not use extension pipes on the inlet and outlet connections on water heater units. Poor performance or unsafe conditions may occur.

NOTE: FR Models should be installed with a perforated water baffle (not supplied with unit) to distribute the heated water properly. The baffle should be 3/4" (19 mm) high with a divider wall between the inlet and outlet. The baffle should also have 3/4" (19 mm) holes around the periphery every 6" (152 mm).



Top View of Sink or Holding Vessel

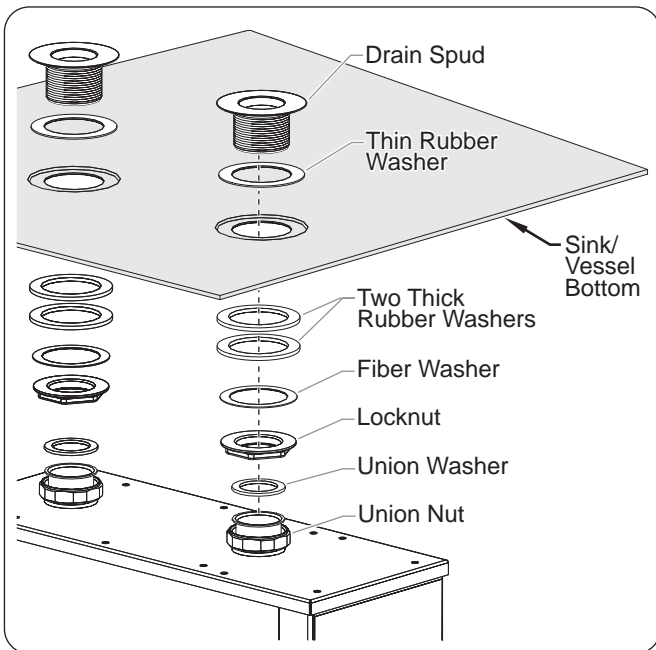
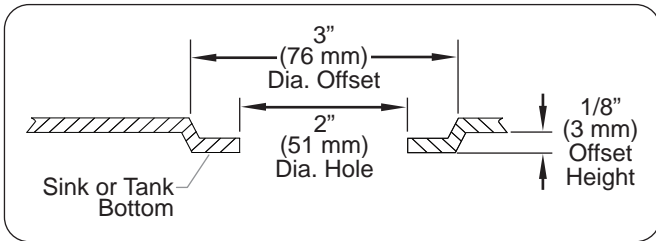
NOTE: The dotted lines in the image above indicate the position of the unit under the sink or holding vessel.

1. Expose the adhesive back of the paper template and position it on the bottom of the sink or holding vessel.
 - The decal should be positioned exactly above where the water heater will be positioned below the sink or holding vessel.
 - Make sure the front edge of the decal is flush with the front edge of the sink or holding vessel.
 - FR Models should be positioned with no more than 3' (914 mm) on either side when mounted under the sink or holding vessel.
2. Center punch and drill a 3/4" (19 mm) pilot hole at each of the two center marks on the template.

NOTE: The pilot holes are for cutting larger holes with a knockout hole punch.

INSTALLATION

- Remove the template and cut a 2" (51 mm) diameter hole at each pilot hole location using a knockout hole punch.
- Make a 1/8" (3 mm) offset around each 2" (51 mm) diameter hole. The offset should be a diameter of 3" (76 mm) centered around the hole.



- Unscrew the drain spud assembly from the welded pipe on the heater.

- Unscrew the locknut from the drain spud assembly and slide off all of the washers except the thin rubber washer.
 - With only the thin rubber washer attached to the drain spud, slide the drain spud through the sink hole from above.
 - Secure the drain spud assembly to the sink or holding vessel.
 - From under the sink, slide the two thick rubber washers followed by the fiber washer onto the drain spud.
 - Screw the locknut (flat side up) onto the drain spud.
 - Repeat steps 5–8 for the other spud assembly.
 - Secure the unit to the sink or holding vessel. Two people are required for this step.
 - Position the unit under the two spud assemblies.
- NOTE: Make sure the union washers are positioned properly inside the union nuts and are not crimped.*
- Screw the union nut to the threaded drain spud assembly.

NOTICE

Do not use excessive force when tightening unions or nuts. Over-tightening and excessive force may cause leaks.

- Tighten the union nuts and locknuts securely.
- Fill the sink or holding vessel with water and check for leaks.

NOTE: A 3/4" (19 mm) hose or pipe may be connected to the sump drain and run to an open sight drain. The sump drain should not be permanently connected to the sanitary drain system. Check local plumbing code for proper drain installation. See the MAINTENANCE section for more information.

Installing FRC Models

The FRC-I Model mounts into a countertop. Use the following procedure to mount the unit to the countertop.

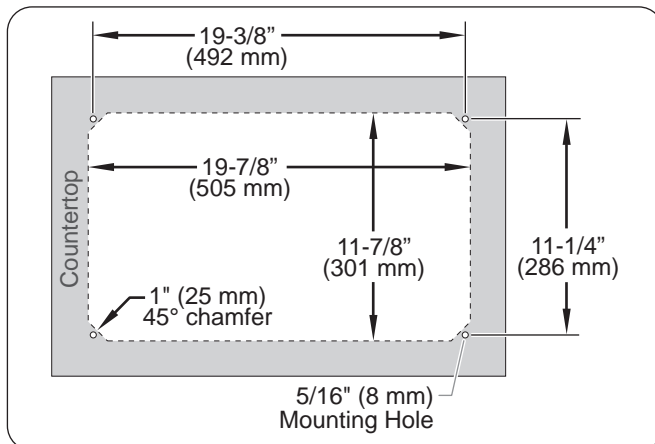
NOTE: FRC-II Models are shipped pre-assembled in a stand from the factory.

CAUTION

BURN HAZARD: Drain water may reach temperatures in excess of 200°F (93°C). Use appropriate plumbing materials when installing drain.

Do not use extension pipes on the inlet and outlet connections on water heater units. Poor performance or unsafe conditions may occur.

- Cut the countertop opening. Refer to the Countertop Cutout figure in this section for more information.
 - Measure and mark the countertop for the cutout. (19-7/8" [505 mm] x 11-7/8" [301 mm]).
 - The corners need a 1" (25 mm) x 45° chamfer for the 5/16" (8 mm) mounting holes.
 - Cutout the countertop using the markings.
- Drill the 5/16" (8 mm) mounting holes at each chamfer corner. Refer to the Countertop Cutout figure in this section for dimensions.



Top View of Countertop Cutout

NOTE: The dotted lines in the Countertop Cutout figure mark the area to cut out.

- Apply a bead of NSF-approved sealant between the countertop material and the mounting flange on the unit. The sealant must be rated for use at a minimum temperature of 250°F (121°C).
- Place the unit into the countertop opening.
 - Align the studs on the bottom of the sink into the 5/16" (8 mm) mounting holes at each chamfer corner.
 - Fasten with the included nylock nuts.

NOTE: There must be a minimum of 30" (762 mm) clearance below the countertop to accommodate the tank, heater, and drain assembly.

- Remove any excess sealant.

Electrical Information

Hatco 3CS and FR Model Water Heaters are available for operation on standard power systems. Check the specification label for the proper power supply.

All internal electrical connections have been made at the factory. Refer to the appropriate "Electrical Rating Chart" for wiring and voltage requirements.

NOTICE

Connect Water Heaters to the same power supply as indicated on the specification decal only. Connecting units to an incorrect power supply will void the product warranty and may damage the equipment.

Hardwired Connections

Conductors from a properly sized fused disconnect switch or circuit breaker must be wired to the heater in accordance with local electrical codes.

- Remove the bottom cover screws and remove the bottom cover.
- Locate the heater terminal block inside the unit.

NOTE: 3CS and FR Models rated for 6, 7, and 9 kW (wired for three phase open delta) can be field converted to single phase. Refer to the electrical diagram supplied with unit or contact Hatco for assistance.

- Bring power leads from a properly sized disconnect switch or circuit breaker through the knockouts provided on the unit, and connect to the terminal block.
 - Use copper wire only. Tighten connections properly to a minimum of 40 inch pounds.

NOTE: Refer to "Dimensions" in the SPECIFICATION section for knockout locations.

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

- A grounding lug is provided near the terminal block. An equipment grounding conductor must be properly connected to it.
- Replace and secure bottom cover using previously removed screws.

Cord, Plug, and Receptacle Connections

FR-3 and FR-4 water heaters may be supplied with an optional electrical cord, plug, and receptacle. FR-3 Models use a NEMA 6-20R receptacle, FR-4 Models use a NEMA 6-30R receptacle.

All FRC Models are shipped with cords.

WARNING

ELECTRIC SHOCK HAZARD: Units supplied with an electrical cord, plug, and receptacle require installation of receptacle to on-site electrical system. Connection must be properly grounded and of correct voltage, size, and configuration for electrical specifications of unit. Contact a qualified electrician to determine and install proper electrical connection.

OPERATION

General

Use the following procedures to operate a water heater.



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



BURN HAZARD:

- Water in holding vessel may reach temperatures in excess of 190°F (88°C). Use appropriate protection when operating unit.
- Units are designed to heat water up to 190°F (88°C). DO NOT set temperature controls to a setting higher than 190°F (88°C). Water over 190°F (88°C) is very active and could splash onto operator causing serious burns or injury.

NOTICE

Make sure a minimum of 2 liters (0.5 gallons) of water is in unit before plugging in or operating. Operating unit with less than 2 liters of water will cause unit to overheat.

Startup

1. Check that the fused disconnect switch or circuit breaker is on, or if equipped with power cord and plug make sure unit is plugged into a properly grounded receptacle of the correct voltage, size, and plug configuration. See the SPECIFICATIONS section for details.
2. Make sure that the drain cap is securely tightened to the heating chamber drain.
3. Close sump drain by moving the drain handle toward the front of the unit until it stops.
4. Fill the sink or holding vessel with hot tap water to the normal operating level.

NOTE: FR Models should be installed with a perforated water baffle (not supplied with unit) to distribute the heated water properly. The baffle should be 3/4" (19 mm) high with a divider wall between the inlet and outlet. The baffle should also have 3/4" (19 mm) holes around the periphery every 6" (152 mm).

5. Move the Power ON/OFF (I/O) toggle switch to the ON (I) position.
 - The POWER ON light will glow indicating power is supplied.
6. On FR Models, set the water temperature control to the desired temperature.
7. Wait until the water reaches the desired temperature.
 - FR Models: The WATER AT TEMPERATURE light will glow when water is at the control temperature.
 - 3CS models: An optional WATER AT TEMPERATURE light or an optional temperature monitor can be used to determine when a sanitizing temperature is reached.

Energy Cut-Off Switch (ECO)

All Hatco water heaters have a built-in Energy Cut-Off switch (ECO) that will shut "OFF" the power if the unit should overheat.

If the Energy Cut-Off switch has activated, a low water level may be the cause. To continue operation the unit needs to be reset.

To reset FR Models:

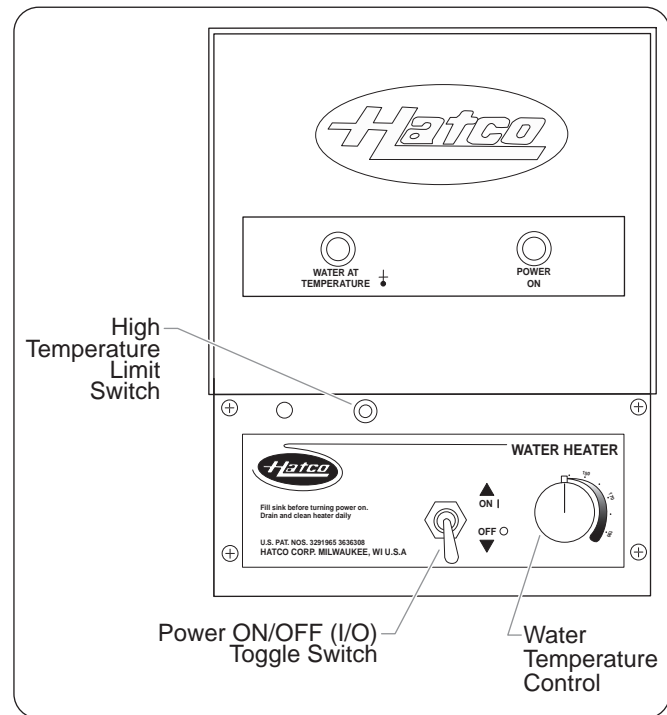
- Fill to the proper water level. Push the high temperature limit switch on the front of the heater.

To reset 3CS Models:

- Fill to the proper water level. Turn the Power ON/OFF (I/O) switch to OFF (O) position and then to the ON (I) position.

NOTE: The ECO on FR Models does not protect the heater when both reservoirs are drained. The optional low-water cut-off (LWCO) system disconnects power to the heating elements if water is drained.

NOTE: The ECO on 3CS Models does not protect the heating elements when both reservoirs are drained. Dry firing of unit will damage the heating elements and is not covered under warranty.



Control Panel (FR Model shown)

General

Hatco Water Heaters are designed for maximum durability and performance with minimum maintenance.



ELECTRIC SHOCK HAZARD:

- Turn OFF power switch, unplug power cord/turn off power at circuit breaker, and allow unit to cool before performing any cleaning, adjustments, or maintenance.
- DO NOT submerge or saturate with water. Unit is not waterproof. Do not operate if unit has been submerged or saturated with water.
- Do not steam clean or use excessive water on unit.
- Do not clean unit when it is energized or hot.

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

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

Recommended Cleaning Schedule

Complete cleaning and power flushing should be done:

- On a daily basis.
- Whenever food accumulates in the tank.
- Whenever a non-food spill occurs.
- Whenever the unit is to be stored or shipped, especially in freezing temperatures.

Helpful Hints

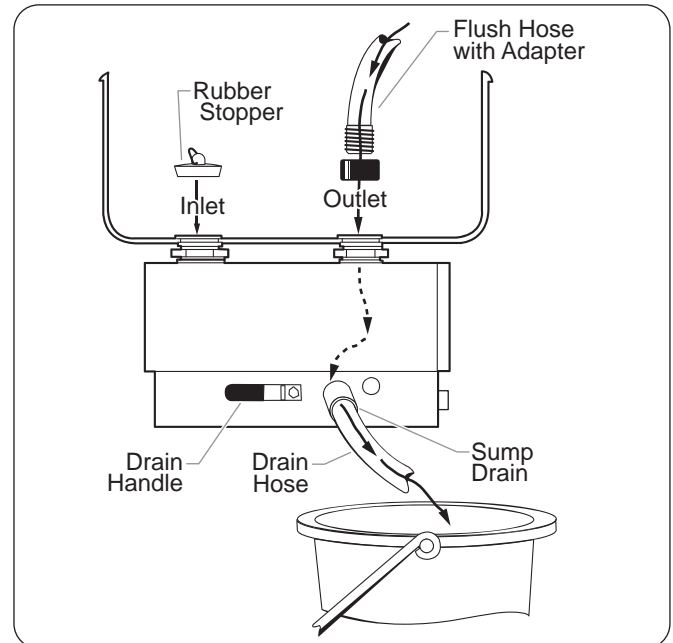
- Keep inlet and outlet free of debris.
- Keep perforated water baffle (not supplied) in place and free of debris (FR units only).
- Delime unit using a non-corrosive deliming solution.

Cleaning

Use the following procedure to clean the unit. The unit should be cleaned daily. Lime and mineral deposits should be removed regularly. The flush hose kit accessory is recommended to clean the unit properly.

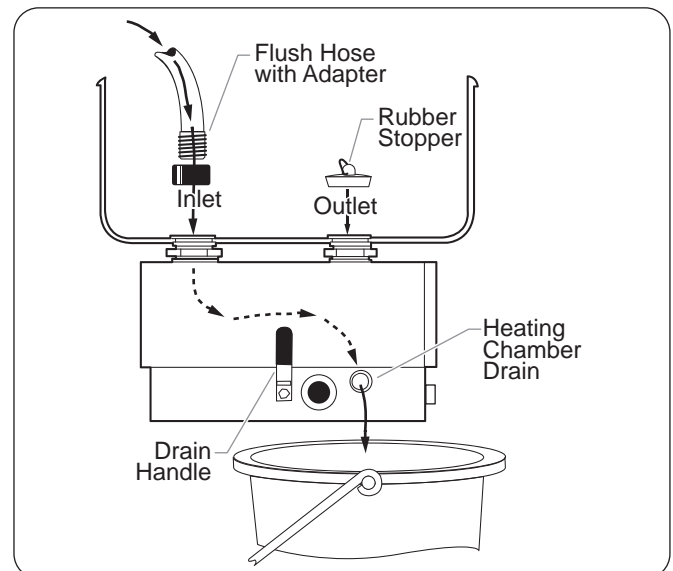
1. Move the POWER ON/OFF (I/O) toggle switch to the OFF (O) position and allow the unit and water to cool.
2. Connect one end of a drain hose onto the sump drain with the other end in a bucket or open sight drain in a manner according to local plumbing codes.
3. Place rubber stopper into the inlet strainer.
4. Open the sump drain by moving the drain handle backward until it is in the horizontal position. Water will now flow from the drain hose.

5. Attach the flush hose with adapter to a fresh water supply and position adapter end into outlet strainer. Flush with water until discharge from sump drain is clear.



Draining the Sump Reservoir

6. Close the sump drain by moving the drain handle towards the front of the unit until it stops.
7. Place the rubber stopper into the outlet strainer and the flush hose in the inlet.
8. Place a bucket under the heating chamber drain and remove the drain cap. Flush water through the unit until discharge water from heating compartment is clear.



Draining the Heating Reservoir

9. Turn the water supply off and allow the unit to finish draining.
10. Replace the drain cap and tighten to stop any leaks.
11. Remove the rubber stopper and the flush hose.

MAINTENANCE

Remove Lime and Mineral Deposits

The amount of lime and mineral content in the water and how often the unit is operated will dictate how often the unit needs to be delimed.

Units used with water that contains high lime and mineral content may require deliming on a daily basis.

Use the following procedure to remove lime and mineral deposits.

1. Move the Power ON/OFF (I/O) toggle switch to the OFF (O) position and allow the unit and water to cool.
2. Connect one end of a drain hose onto the sump drain with the other end in a bucket or open sight drain in a manner according to local plumbing codes.
3. Remove drain cap from side of unit and drain all water from heating compartment.
4. Close the sump drain by moving the drain handle toward the front of the unit until it stops.
5. Add a mixture of 75% water and 25% white vinegar into the heat tank through the sink strainer assemblies. Do not use flavored vinegar. Allow the unit to stand with the mixture in the reservoir for an appropriate period of time.

NOTE: The amount of lime and mineral content in the water and how often the unit is operated will dictate how often the unit needs to be delimed. Units used with water that contains high lime and mineral content may require deliming on a daily basis.

NOTE: The time required will vary depending on the solution used and amount of deposits in reservoir.

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

NOTE: The delimer used should be a safe, non-toxic, non-corrosive solution. Follow the delimer's instructions.

6. After cleaning, drain all expended solution from the unit through the sump drain and heating chamber drain.
7. Thoroughly flush heater through the front and rear openings with fresh water for several minutes until discharge is clear.
8. Re-install drain cap and close sump drain.
9. Upon visual inspection, if tank is not thoroughly clean, repeat steps 3-8.

Draining Heater For Service Protection

Use the following procedure when shutting down the unit for long periods of time.

1. Move the Power ON/OFF (I/O) toggle switch to the OFF (O) position.
2. Perform the entire "Cleaning" procedure in this section.
3. Turn off the electrical power supply to the heater.
4. Make sure the water has been drained from the unit as well as the sink or holding vessel.

NOTE: Heating element chamber holds from 2-1/2 up to 4-1/2 quarts of water, depending upon model.

Resetting the Energy Cut-Off Switch (ECO)

FR Models are equipped with a manually-resettable high temperature limit switch that prevents the water temperature from getting dangerously high.

If the water inside the unit becomes too hot, the high temperature limit switch will shut the unit off.

To reset the energy cut-off switch after it activates, use the following procedure.

1. Move the Power ON/OFF (I/O) toggle switch to the OFF (O) position.
2. Press the high temperature limit switch until it clicks. The switch is a small red button located on the front of the unit.
 - The high temperature limit switch is now reset.

NOTE: 3CS models do not have a high temperature limit switch. If the unit shuts off due to high water temperature, turn the unit off and let it cool.

NOTE: Contact an Authorized Service Agent if the high temperature limit continues to trip.

TROUBLESHOOTING GUIDE



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



ELECTRIC SHOCK HAZARD: Turn OFF power switch, unplug power cord/turn off power at circuit breaker, and allow unit to cool before performing any cleaning, adjustments, or maintenance.

Symptom	Probable Cause	Corrective Action
Water temperature too high.	The water temperature control (FR only) is set too high.	Adjust the water temperature control (FR only) to the desired temperature.
Water temperature too low.	Water heaters need approximately 30 minutes to reach a safe sanitizing temperature.	Wait 30 minutes for the unit to reach proper temperature.
	The water temperature control (FR only) is set too low.	Adjust the water temperature control (FR only) to the desired temperature.
Heating elements burn out.	The sink or holding vessel is dry or has a low level of water.	Fill the sink or holding vessel with water to normal operating level.
	Deposits built up in heater are restricting water flow.	Perform the entire "Cleaning" procedure in the MAINTENANCE section.
The sink or holding vessel leaks.	Fittings are too loose or too tight.	Adjust any fittings that may be causing the unit to leak. Replace gasket, if necessary.
The Power ON/OFF (I/O) toggle switch is in the ON (I) position but the unit is not heating the water.	The Low-Water Cut-Off switch was activated.	The unit was shutdown due to a low water level or from being overheated. Fill the heater to the proper water level and turn the Power ON/OFF (I/O) toggle switch to the OFF (O) position and then to the ON (I) position.
	Fuses may be blown, the circuit breaker may be tripped, or the power cord may be unplugged.	Check for proper fuse sizing and replace fuses, check/reset circuit breaker, and/or check/replace power cord.

OPTIONS AND ACCESSORIES

Temperature Monitor

An optional temperature monitor is available for 3CS Models. The temperature monitor displays the current water temperature.

Temperature Light

An optional temperature light is available for 3CS Models. The temperature light glows when the water temperature reaches safe sanitizing temperature.

Low-Water Cut-Off

An optional low-water cut-off (LWCO) feature is available for FR Models. This feature prevents element burn out from low water conditions.

Flush Hose Kit

The Flush Hose Kit is available for 3CS and FR Models and is used to power flush the unit to keep it working at peak efficiency. The kit consists of a drain stopper and a hose with adapter.

Security Package

A security package is a factory-installed option for 3CS and FR Models. A security package contains Torx® screws and a control cover.

Cord and Plug with Receptacle

An optional cord and plug with the matching receptacle is available for FR-3 and FR-4 Models. Refer to "Plug Configurations" in the SPECIFICATION section for more information.

NOTE: Optional items are not field retrofittable.

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 registering the Product with Hatco 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:**
 - Conveyor Toaster Elements (metal sheathed)
 - Drawer Warmer Elements (metal sheathed)
 - Drawer Warmer Drawer Rollers and Slides
 - Strip Heater Elements (metal sheathed)
 - Display Warmer Elements (metal sheathed air heating)
 - Holding Cabinet Elements (metal sheathed air heating)
 - Heated Well Elements — HWB Series (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

- d) **Ninety (90) Day Parts-Only Warranty:**
 - Replacement Parts

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, heat lamp bulbs, coated halogen light bulbs, halogen heat lamp bulbs, xenon light bulbs, LED light tubes, glass components, and fuses; Product failure in booster tank, fin tube heat exchanger, or other water heating equipment caused by liming, sediment buildup, chemical attack, or freezing; or 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 using new or refurbished parts or Product by Hatco or 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. In the context of this Limited Warranty, "refurbished" means a part or Product that has been returned to its original specifications by Hatco or a Hatco-authorized service agency. 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.

HATCO AUTHORIZED PARTS DISTRIBUTORS

ALABAMA

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

ARIZONA

Service Solutions Group
Phoenix 602-234-2443

Byassee Equipment Co.
Phoenix 602-252-0402

CALIFORNIA

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

Chapman Appl. Service
San Diego 619-298-7106

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

COLORADO

Hawkins Commercial Appliance
Englewood 303-781-5548

FLORIDA

Whaley Foodservice Repair
Jacksonville 904-725-7800

3Wire Nass Service Co., Inc.
Orlando 407-425-2681

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

Comm. Appliance Service
Tampa 813-663-0313

GEORGIA

TWC Services
Mableton 770-438-9797

Heritage Service Group
Norcross 866-388-9837

Southeastern Rest. Svc.
Norcross 770-446-6177

HAWAII

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

Food Equip Parts & Service
Honolulu 808-847-4871

ILLINOIS

Parts Town
Lombard 708-865-7278

Eichenauer Elec. Service
Decatur 217-429-4229

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

Cone's Repair Service
Moline 309-797-5323

INDIANA

GCS Service
Indianapolis 317-545-9655

IOWA

Electric Motor Service Co.
Davenport 319-323-1823

Goodwin Tucker Group
Des Moines 515-262-9308

KENTUCKY

Service Solutions Group
Lexington 859-254-8854

Service Solutions Group
Louisville 502-451-5411

LOUISIANA

Chandlers Parts & Service
Baton Rouge 225-272-6620

MARYLAND

Electric Motor Service
Baltimore 410-467-8080

GCS Service
Silver Spring 301-585-7550

MASSACHUSETTS

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

MICHIGAN

Bildons Appliance Service
Detroit 248-478-3320

Commercial Kitchen Service
Bay City 517-893-4561

Midwest Food Equip. Service
Grandville 616-261-2000

MINNESOTA

GCS Service
Plymouth 800-345-4221

MISSOURI

General Parts
Kansas City 816-421-5400

Commercial Kitchen Services
St. Louis 314-890-0700

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

NEBRASKA

Anderson Electric
Omaha 402-341-1414

NEVADA

Burney's Commercial
Las Vegas 702-736-0006

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

NEW JERSEY

Jay Hill Repair
Fairfield 973-575-9145

Service Plus
Flanders 973-691-6300

NEW YORK

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

Alpro Service Co.
Brooklyn 718-386-2515

Appliance Installation
Buffalo 716-884-7425

Duffy's Equipment Services, Inc.
Buffalo 800-836-1014

3Wire Northern
Plattsburgh 800-634-5005

Duffy's Equipment Services, Inc.
Sauquoit 800-836-1014

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

NORTH CAROLINA

Authorized Appliance
Charlotte 704-377-4501

OHIO

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

Service Solutions Group
Cincinnati 513-772-6600

Commercial Parts and Service
Columbus 614-221-0057

Electrical Appl. Repair Service
Brooklyn Heights 216-459-8700

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

OKLAHOMA

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

Krueger, Inc.
Oklahoma City 405-528-8883

OREGON

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

PENNSYLVANIA

Elmer Schultz Services
Philadelphia 215-627-5401

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

Appliance Installation & Service
Pittsburgh 412-809-0244

K & D Service Co.
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