Circulation Heaters

Circulation Heaters	Sheath Materials	Max. Operating Temperatures °F	°C	Typical Max. Watt Densities W/in²	W/cm²	Page
HYDROSAFE® Heat Exchanger	316/316L stainless steel, Inconel® 625, super duplex 2507 stainless steel	572	300	N/A	N/A	299
STARFLOW™	316L stainless steel	1000	537	30	4.6	303
WATROD™ and FIREBAR®	Alloy 800/840	1600	870	120	18.6	305
	Stainless steel	1200	650	120	18.6	
	Steel	750	400	120	18.6	
	Alloy 800	350	175	120	18.6	
Booster Heaters	Alloy 800	350	175	60	9.3	360
	Steel	750	400	23	3.6	
Engine Preheaters	Alloy 800	1600	870	90	13.9	362
FLUENT® In-line	444 stainless steel (substrate tube), 316L stainless steel (baffle and fittings)	212 (in water)	100	450	70	365

HYDROSAFE® Heat Exchanger

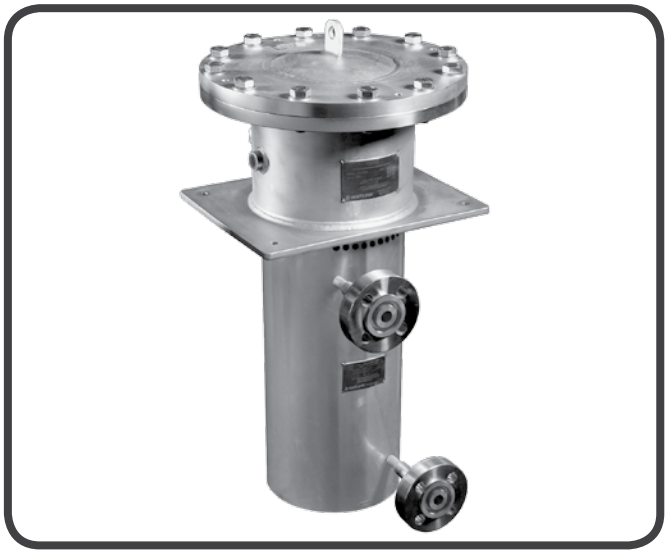
HYDROSAFE®, Watlow's indirect electric heat exchanger for dry gas seal applications, has been designed as a standardized thermal solution that minimizes custom engineering requirements because it can be adapted to a variety of conditions. The HYDROSAFE provides very flexible heating capabilities (12 to 31.2kW) to compensate for changes in gas flow rates, or changes in gas composition, when interconnected to our purpose engineered WATCONNECT® control panel. Multiple units may be connected in series for higher kW needs.

The HYDROSAFE holds complete assembly hazardous certifications with a "touch-safe" exterior versus competitors that offer enclosure-only certifications.

The seal gas is heated inside a small diameter seamless formed cylinder to allow for high system pressure capability requirements. In addition to high pressure capabilities, up to 6800 psi (469 bar) in the standard offering, the heater is up to 50 percent smaller than comparable circulation heaters. The empty weight of the HYDROSAFE heater is about 300 pounds (136 kgs) maximum. This small footprint and weight allow the user to reduce the cost of the supporting super structure on rigs, platforms, FPSOs, vessels, etc.

Indirect technology means there is no concern about your seal gas stream ever coming into contact with the heating elements, especially when elements reach end-of-life conditions and are typically more susceptible to corrosion. The small diameter and low volume pressure boundary allow use in many countries without the need for further pressure vessel certifications.

HYDROSAFE is extremely reliable and has been tested in both the Watlow lab and in the field. It also holds all necessary certifications including IECEx, ATEX, ASME and CSA/NRTL. The formed cylinder raw material is listed in accordance with NACE and ISO standards including MR 0175/ISO 15156/MR 0103.



Standard Performance Capabilities

- **Wattages:** from 12 to 31.2kW
- **Voltages:** from 380 to 600VAC
- **Design temperature:** -58 to 572°F (-50 to +300°C)
- **Design pressure**: up to 6800 psi (469 bar)*
- **Inlet temperature:** user specified
- **Outlet temperature:** maximum 450°F (232°C)**
- **Working pressure:** user specified
- **Flow rate:** user specified
- **Maximum back pressure:** user specified
- **Maximum ambient temperature:** 122°F (50°C) for North American certifications, 176°F (80°C) for IEC and ATEX certifications
- **Media phase:** liquid or gas
- **Typical media:** methane, natural gas (methane, butane, propane, ethane and water vapor) and nitrogen
- **Environment T code rating:** none, T2, T3 and T4

Features and Benefits

Fluid path constructed independent from the sheath

- Allows sensitive materials to be heated safely and effectively
- Assures safety because heater failure will not cause leaks or significant damage
- Prevents fluid contamination

Seamless fluid path construction

- Offers economical package price
- Minimizes potential leakage
- Allows high-pressure operation

Standard 316L SS fluid path

- Provides compatibility with different materials
- Assures high-pressure application reliability

* Higher custom pressures available
** T code dependent

HYDROSAFE Heat Exchanger

Heater Assembly Specifications

HYDROSAFE Assembly	Standard Offering	Standard Options	Other Available Options
Base Construction	Fully certified indirect electric heat exchanger assembly - flow coil and tubular elements cast into an aluminum cylinder. Complete with sensors, enclosure, insulation, nozzles and shroud.		
Control Configuration	Cascade using one internal cascade sensor per heater assembly (included) and separate process temperature sensor (not included)		
Casting Material	Al Alloy 356		
Corrosion Protection on Casting	Corrosion and weather protectant high temperature coating to 1000°F (538°C)		
Number of Flow Coils	1		
Heater Element	Tubular elements - 0.430 in. O.D. x 0.035 in. wall, 316 SS, NiCr resistance element, welded wire connection, bright annealed		
Heater Element Moisture Seal	Epoxy (180°C) rated		
Casting Insulation	Aerogel insulation		
Baseplate, Top Plate, Stand-off Shroud, Casting Shroud Material	316 SS		
HYDROSAFE Assembly Area Classification - Certification	North American (Class 1, Div. 1 & 2, Groups B, C, D)	ATEX (Ex d IIC) and/or IEC (Ex d IIC)	—
HYDROSAFE Assembly T Code Rating	None, T2 or T3	—	—
Maximum Casting Temperature Limit	302°F (150°C) for T3, 482°F (250°C), for T2	—	—
Pressure Boundary Compliance	Design, calculation and production acc. to ASME VIII Div. 1	—	Contact Watlow
Electrical			
Voltage	480V or 400V	380, 415, 440, 460, 575, or 600	—
Voltage Supply	3-phase AC + ground, with or without neutral connection (assembly is universally configured for both)		
Frequency	50 or 60Hz		
Wattage (at specified voltage)	31.2kW (480V and 600V) or 28.9kW (400V)	26.07kW (380V), 31.1kW (415V), 28.65kW (460V and 575V), 26.22kW (440V)	10.4kW (480V), 7.22kW (400V), 6.52kW (380V)
Number of Heater Supply Circuits	1		
Max Amperage per Circuit	Voltage/wattage dependent (max. 45 amps in any configuration)		
Power Connection Entry Size	1 in. NPT coupling or 1 in NPT x M32 x 1.5 (See Item 9, Ordering Information on page 302)		
Power Connection within Enclosure	Compression type, screw style distribution terminal block on DIN-rail within enclosure (3-phase + neutral) Compression type, screw style ground terminal block in enclosure (ground) Split bolt ground termination on external enclosure (with ATEX or IEC option)		
Flow Coil			
Vessel Coil Material	316/316L (dual rated)	—	Inconel® 625, Super Duplex 2507
Vessel Coil Raw Material Certifications	NACE MR-0175 / ISO15156 and MR-0103 with applicable technical circulars and addendas		
Inlet/Outlet			
Inlet/Outlet Connection Type	Standard flange	—	High pressure hub type connector
Inlet/Outlet Connection Material (match flow coil)	316/316L (dual rated)	—	Inconel® 625, Super Duplex 2507
Inlet/Outlet Connection	ANSI 1 in., Class 600, RF, sched 80 bore	ANSI 1 in., Class 2500, RTJ, sched 160 bore	Clamp hub
Inlet/Outlet Nozzle Connection Gaskets	—	Spiral wound or ring joint	—
Enclosure			
Enclosure Type	304 SS (North America) painted carbon steel (IEC/ATEX)	316 SS (North America) or (IEC/ATEX)	—
Enclosure Paint Color (only if Painted Carbon Steel)	RAL 7035 light grey	—	Other - custom color to be reviewed by factory (painted carbon steel enclosure only)
Enclosure Rating	See Item 7, Ordering Information on page 302		
Enclosure Anti Condensation Heater	None	—	Enclosure heater
Hazardous/Non-Hazardous Area Classification	Per assembly hazardous location rating		
External Enclosure Hardware	316 SS		

HYDROSAFE Heat Exchanger

Heater Assembly Specifications *(Continued)*

HYDROSAFE Assembly	Standard Offering	Standard Options	Other Available Options
Sensors			
Process and Limit Temperature Sensor Type	Duplex Pt 100, 3 wire RTDs 300 series SS sheath	—	Duplex thermocouple - Type K 300 series SS sheath
Number of Sensors	3		
Sensor Junctions	(1) Cascade process sensor, (1) Spare (1) Internal casting high limit, (1) Spare (1) Enclosure high limit, (1) Spare		
Inlet or Outlet Sensors	Customer supplied (not included)		
Sensor Connection Entry Size	See Item 9, Ordering Information on page 302		
Sensor Connections within Control Panel	3 wire RTD terminal blocks within heater enclosure	—	Type K thermocouple terminal blocks within heater enclosure (when thermocouple option selected)
Testing			
Pressure Testing (Hydro)	Standard on all assemblies per pressure vessel code requirements (15 minutes @ 1.3 x MAWP x LSR)	—	Custom time for hydro test
Other Options			
Country of Origin Materials	Watlow standard vendors - no restrictions	—	Certified countries

Specifications

Design temperature
- -58 to 572°F (-50 to +300°C)

Design pressure
- Up to 6800 psi (469 bar)

Weight (empty) maximum
- 300 lbs (136kg)

Inlet temperature
- User specified

Outlet temperature
- Max. 450°F (232°C)

Working pressure
- User specified

Flow rate
- User specified

Maximum back pressure
- User specified

Maximum ambient temperature
- 122°F (50°C) for North American certifications, 176°F (80°C) for IEC and ATEX certifications

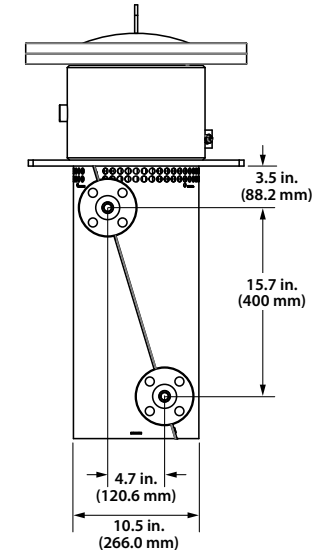
Media type
- Liquid or gas

Media
- Methane, natural gas (methane, butane, propane, ethane and water vapor) and nitrogen

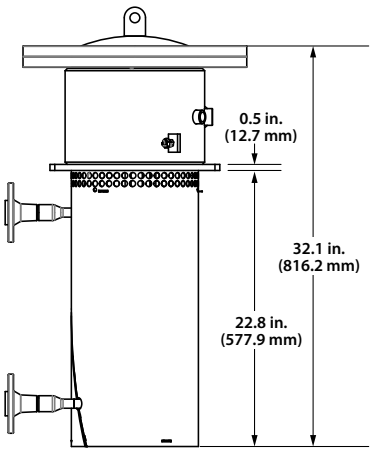
Environment T code rating
- None, T2, T3 or T4

Dimensional Drawings

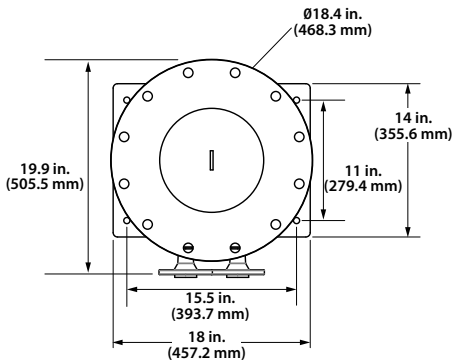
Front View



Side View



Top View



Note: Dimensions shown are approximate. Configuration GA drawing available with order or quote.

HYDROSAFE Heat Exchanger

Ordering Information

Part Number

①	② Gen. Size & Power	③ Input Voltage/ Phase	④ In/ Out & Gasket	⑤ Connect & Coil Material	⑥ Temperature Sensors	⑦ Assembly Cert. & Encl. Matl.	⑧ Design & Fab.	⑨ Power & Sensor Connections	⑩ Elec. Encl. Htr.	⑪ Testing Options	⑫ Material C.O.O.	⑬ ⑭ ⑮ Custom Options
H												AAA

②	General Size & Power
S =	Future option
M =	Medium (12 to 31.2kW)
L =	Future option

③	Input Voltage/Phase
A =	Future option
B =	Future option
C =	Future option
D =	Future option
E =	Future option
F =	26.07kW, 380V (medium size only)
G =	28.65kW, 460V or 575V (medium size only)
H =	28.9kW, 400V (medium size only)
J =	31.1kW, 415V (medium size only)
K =	31.2kW, 480V or 600V (medium size only)

④	Inlet & Outlet Connection & Gasket Selection
A =	Future option
B =	Future option
C =	Clamp hub 1 in. NPS 4 bolt without gasket
D =	ANSI 1 in. Cl 600 RF, sched 80 bore without gasket
E =	Future option
F =	Future option
G =	ANSI 1 in. 2500 RTJ, sched 160 bore without gasket
H =	Clamp hub 1 in. NPS 4 bolt with gasket
J =	ANSI 1 in. Cl 600 RF, sched 80 bore with spiral wound gasket
K =	ANSI 1 in. 2500 RTJ, sched 160 bore with ring joint gasket

⑤	Connection & Flow Coil Material
A =	316/L SS
B =	Inconel® 625 or equivalent
C =	Duplex stainless 2507

⑥	Temperature Sensors
1 =	RTD 3 wire 100 ohm
2 =	Thermocouple Type K

⑦	Assembly Certification & Enclosure Material
1 =	Cl 1, Div. 1 & 2, Groups B, C & D; 304 SS, Type 4X
2 =	Cl 1, Div. 1 & 2, Groups B, C & D; 316 SS, Type 4X
3 =	IEC & ATEX Dual Rated Ex d IIC; painted carbon steel, IP66
4 =	IEC & ATEX Dual Rated Ex d IIC; 316 SS, IP66
5 =	Future option

⑧	Design and Fabrication
A =	Design/Calculations in accordance to ASME VIII Div. 1
B =	Design/Calculation/Fabrication in accordance to ASME VIII Div. 1
C =	Design/Calculations in accordance to PED
D =	Design/Calculation/Fabrication in accordance to PED
E =	CRN (per ASME VIII Div. 1) + B

⑨	Power & Sensor Connection Entries (female couplings)
1 =	(1) 1 in. NPT coupling for power, (3) 3/4 in. NPT couplings for sensors
2 =	(1) M32 x 1.5 coupling for power, (3) M25 x 1.5 couplings for sensors
3 =	(1) 1 in. NPT coupling for power, (3) 1/2 in. NPT couplings for sensors
4 =	(1) M32 x 1.5 coupling for power, (3) M20 x 1.5 couplings for sensors

⑩	Electrical Enclosure Heater
1 =	Yes, 220V
2 =	No

⑪	Testing Options
A =	Watlow standard tests
B =	Custom time length hydrostatic pressure (includes option A)
C =	Radiography of heating coil weld joints (includes option A)
D =	Dye penetrant of heating coil weld joints (includes option A)
E =	PMI of pressure boundary materials (includes option A)
F =	A + B + C + E
G =	A + B + D + E

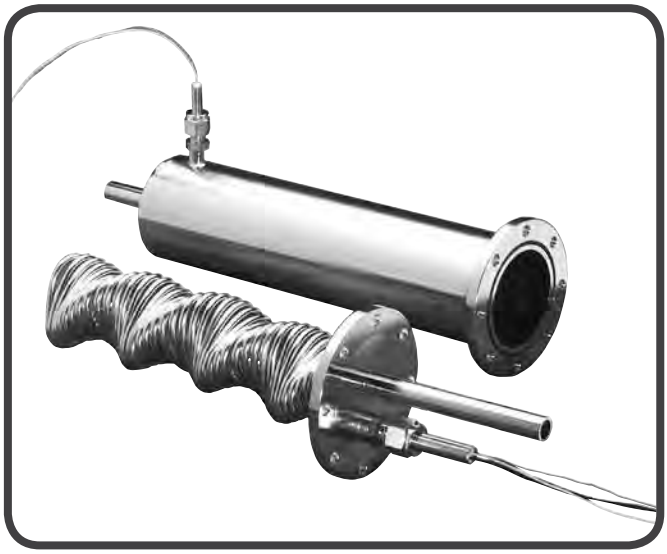
⑫	Material Country of Origin
1 =	Watlow standard
2 =	Watlow standard with no China origin
3 =	Watlow standard with no India Origin
4 =	Watlow standard with no Indonesia Origin
5 =	Watlow standard with no Russia Origin

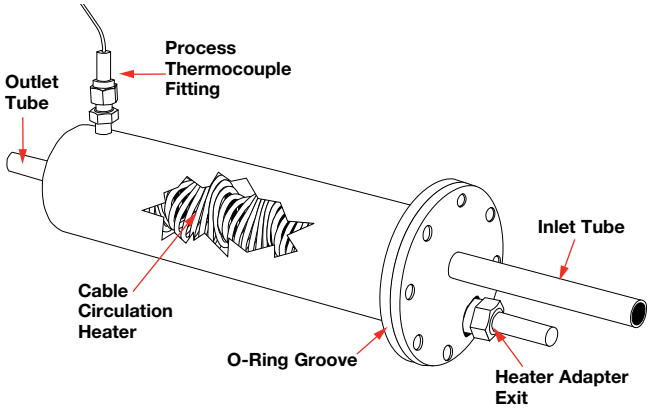
⑬ ⑭ ⑮	Custom Options
AAA =	Standard

STARFLOW™ Heaters

The STARFLOW™ circulation heater is engineered to heat a flowing gas stream to 1000°F (537°C). The 316L stainless steel chamber houses a small diameter sheathed element, which allows for quick response to both heat-up and cool down cycles.

Watlow's starwound, coiled cable heater provides extremely efficient and reliable heating by maximizing the contact area of the gas or fluid with the element. Because the element is sheathed, the unit can operate in gas streams requiring a clean environment as well as atmospheres containing contaminants and moisture. This provides superior performance compared to units with internally exposed or open element wires.





Performance Capabilities

- Temperatures up to 1000°F (537°C), 316L stainless steel sheath
- Maximum watt densities up to 30 W/in^2 (4.7 W/cm^2)
- Maximum voltage up to 240V

Features and Benefits

Small diameter heater
- Allows for quick response time

Internal starwound element
- Provides fast, efficient heating

Sheathed element
- Provides the ability to heat in clean or impure streams

Flexibility in configurations
- Allows for adaptability to any process

316L stainless steel
- Provides a rugged and corrosion resistant construction

Electropolishing available on all wetted surface
- Reduces particulate contamination

Note: Contact your Watlow representative for ultra-high purity applications

Low pressure loss
- Minimizes flow restriction

Note: Not suitable for use as a pressure vessel

Type J or K thermocouples
- Provide precise control and high-limit safety

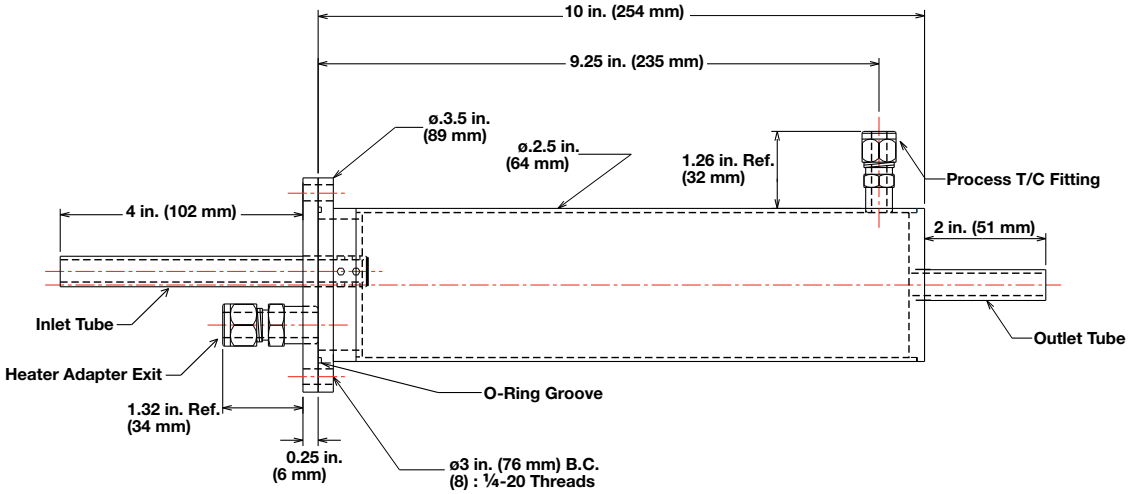
Replaceable heater and thermocouple
- Reduces replacement cost

Shipment from stock
- Reduces downtime

Typical Applications

- Semiconductor processing
- Curing and drying
- Electronics
- Heat shrinking
- Thermoforming/sealing

STARFLOW Heaters



Ordering Information

Part Number

①	②	③ ④ Type of Inlet	⑤ ⑥ Type of Outlet	⑦ ⑧ ⑨ ⑩ Heater Wattage	⑪ Internal T/C Calibration (Heater)	⑫ Surface Finish of Assembly and Heater	⑬ Process T/C Calibration (Assembly)	⑭ O-Ring Material
C	H							

③ ④	Type of Inlet
ET =	1/4 in. (6 mm) O.D. tube
JT =	1/2 in. (13 mm) O.D. tube

⑤ ⑥	Type of Outlet
ET =	1/4 in. (6 mm) O.D. tube
JT =	1/2 in. (13 mm) O.D. tube

⑦ ⑧ ⑨ ⑩	Heater Wattage
0375 =	120V, 375 W
0500 =	120V, 500 W
0750 =	120V, 750 W
1500 =	240V, 1500 W
2000 =	240V, 2000 W
3000 =	240V, 3000 W

⑪	Internal Thermocouple Calibration (Heater)
J =	Type J
K =	Type K

⑫	Surface Finish of Assembly and Heater
X =	Unfinished
E =	Electropolished

⑬	Process Thermocouple Calibration (Assembly)
J =	Type J
K =	Type K

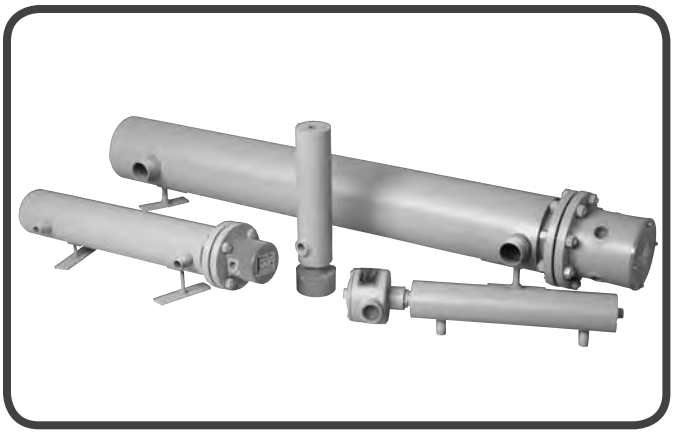
⑭	O-Ring Material
A =	FKM (FPM) 500°F (260°C)
M =	Alloy X750 1300°F (704°C)
T =	PTFE encapsulated FKM (FPM) 392°F (200°C)

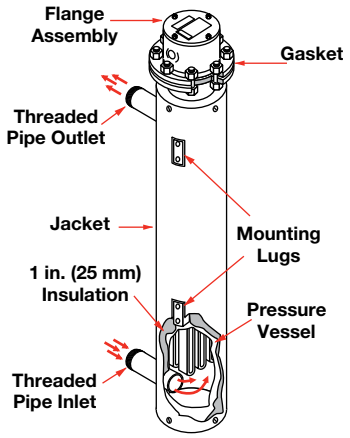
WATROD™ and FIREBAR® Circulation Heaters

Circulation heaters provide a ready-made means to install electric heating with a minimal amount of time and labor. This is accomplished by combining heating elements, vessel, insulation, terminal enclosure, mounting brackets and inlet and outlet connections into a complete assembly.

Made from NPT screw plug or ANSI flange heater assemblies mated with a pressure vessel (tank), circulation heaters are designed to heat forced-circulation air, gases or liquids. Ideal for either in-line or side-arm operations, these assemblies direct fluids past FIREBAR® or WATROD™ heating elements, to deliver fast response and even heat distribution.

Watlow® meets virtually all your circulation heater assembly needs with made-to-order units. These units can be made from a wide range of heating element sheath materials, wattages, vessel sizes and materials, pressure ratings, terminal enclosures and controls.





Performance Capabilities

- Watt densities up to 120 W/in^2 (18.6 W/cm^2)
- Wattages up to three megawatts
- UL® and CSA component recognition up to 690VAC
- Ratings up to ANSI Class 300 pressure class
- Alloy 800/840 sheath temperatures up to 1600°F (870°C)
- Passivated 316 stainless steel sheath temperatures up to 1200°F (650°C)
- Steel sheath temperatures up to 750°F (400°C)

Features and Benefits

Catalog screw plug and flange part numbers

- Provides a wide selection of WATROD and FIREBAR elements to meet specific application requirements

Type	Sizes (in.)
NPT Screw Plugs	1 1/4, 2 1/2
ANSI flanges	3, 4, 5, 6, 8, 10, 12, 14

ANSI B16.5, Class 150 on 3 to 14 inch WATROD element flanges

- Meets recognized agency standards

Compacted MgO insulation filled elements

- Maximizes dielectric strength, heat transfer and life

1 inch (25 mm) thermal insulation rated to 750°F (400°C)

- Reduces heat loss from the vessel

Heavy-gauge steel jacket (shroud)

- Protects thermal insulation and heating vessel and comes with protective primer coating

WATROD and FIREBAR Circulation Heaters

Features and Benefits *(Continued)*

All catalog units rated to ANSI pressure Class 150

- Provides pressure vessels (tanks) that are either carbon or 316 stainless steel

Standard offering includes units rated for up to and including ANSI pressure class (application review required)

- Provides pressure vessels (tanks) available in carbon steel, 304 or 316 stainless steel materials
- Includes schedule 40, standard and 80 pipe used in the pressure vessel construction

Catalog units provided with NPT or ANSI Class 150 nozzle connection

- Makes installation easy. Inlet and outlet nozzle connections are threaded MNPT on 8 in. (203 mm) and smaller tanks. Class 150 flanged connections on 10 in. (254 mm) and larger tanks

Mounting lugs are welded onto the tank wall of all 2 1/2 in. (64 mm) NPT and larger units

- Provides mounting support

General purpose or NEMA 4 enclosures available

- Offers easy access to terminal wiring

Flange mounting holes

- Straddles centerline to comply with industry standards

UL® and CSA component recognition under file numbers E52951 and 31388 respectively

- Meets industry safety standards

Typical Applications

Water:

- Deionized
- Demineralized
- Clean
- Potable
- Process
- Industrial water rinse tanks
- Hydraulic oil, crude, asphalt
- Lubricating oils at API specified watt densities
- Heat transfer oil
- Paraffin
- Caustic cleaners
- Nitrogen, hydrogen and other air/gas systems
- Superheating steam

Options

WATCONNECT® Standard Control Panels

WATCONNECT® standard control panels are configured to work with Watlow's circulation heaters. They are quickly configured for process heating applications and delivered within two weeks. WATCONNECT panels integrate Watlow's high-quality heater, sensor, temperature controller and power controller products for a complete thermal solution. Normally, competitive custom panels require significantly longer lead times. The broad range of standard features allow customers to quickly configure panels for each process heater included in this catalog.

Features and Benefits

Lead times of two weeks or less

- Provides faster delivery than competition

Full documentation provided for WATCONNECT control panels at the time of quotation

- Eliminates lengthy approval process and phone calls

Incorporates Watlow's temperature and power controllers

- Provides a turnkey solution for process heating applications

Range of standard input/output (I/O) options

- Provides the user with a higher level of monitoring and control assuring an efficient and safe operation

WATCONNECT enclosure easily mounts to wall or frame

- Decreases installation time

Note: The WATCONNECT part number associated with a heater is only a suggestion. The following installation details need to be compared to panel capabilities to assure a compatible match:

- Minimum and maximum ambient temperature where panel will be installed
- Statutory and regulatory requirements at installation site
- Sun loading, if any, at installation site
- Presence of any hazardous gases, dusts or fibers, if any
- Verification of process sensor type
- Verification of limit sensor type
- Input/Output (I/O) requirements

For additional product information see the WATCONNECT landing page at www.watlow.com/watconnect. On the WATCONNECT landing page you will find a complete specification sheet along with other tools to help you properly select your control panel. If you would like to know the specific configuration of a WATCONNECT part number, please use the Product Configuration Lookup Tool on Watlow.com.

WATROD and FIREBAR Circulation Heaters

Options *(Continued)*

Terminal Enclosures

General purpose terminal enclosures, without thermostats, are supplied on all Watlow circulation heaters. Moisture and explosion resistant ratings are available to meet specific application needs. For screw plug terminal enclosures, refer to page 151. For flange terminal enclosures, refer to page 226.

Stand-off Terminal Enclosures

Stand-off terminal enclosures help protect terminal enclosures against excessive temperatures. For details, refer to page 221.

ASME Pressure Vessel Code Welding

Flange or screw plug assemblies can be provided with an ASME Section VIII, Div. I pressure vessel stamp upon request.

Branch Circuits

Branch circuits are designed for 48 amperes per circuit maximum. Contact your Watlow representative for circuit requirements other than those listed in the part number tables.

Certified Enclosures

CSA, ATEX or IECEx certified enclosures protect wiring in hazardous gas environments. These terminal enclosures, covered under CSA file number 61707, ATEX certificate # SIRA 10ATEX 1155X or IECEx certificate # IECEx CSA 09.0010 are available on WATROD flange heaters. For additional information, see page 561 and 562 or contact your Watlow representative.

For products that will be installed in hazardous locations, please provide the following information:

- Operating conditions
- Minimum and maximum ambient temperatures for the installation location
- Mounting orientation
- Process temperature (°F)
- Maximum working pressure (MWP) of application (psig)
- Media being heated

Watlow must understand this information so that an appropriate design can be provided.

Thermocouples

To sense process or element sheath temperature, ASTM Type J or K thermocouples are available.

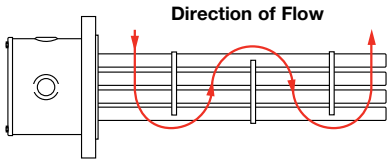
See *Screw Plug Immersion Heaters,* page 148 and *Flange Immersion Heaters*, on page 223 for details.

Thermostats

To provide process temperature control, Watlow offers optional single- and double-pole thermostats. Thermostats are typically mounted in the terminal enclosure.

See *Screw Plug Immersion Heaters,* page 147 *and Flange Immersion Heaters*, on page 222 for details.

Baffles



Baffles mounted on the heating element bundle enhance and/or modify liquid or gas flow for better heat transfer.

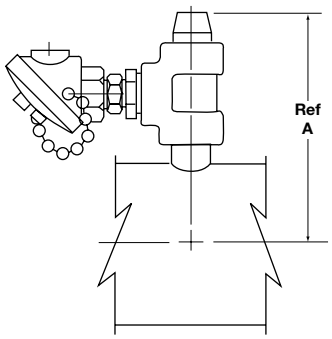
For critical sheath temperature and low flow conditions, baffles may be required.

Contact your Watlow representative for details.

Process Thermocouple in Nozzle

Note: Must specify which nozzle:

- Nozzle nearest flange or plug
- Nozzle away from flange or plug



Ref. Tank Size	Ref. Nozzle Size	Dimension "A"
1 1/4	3/4 NPT	8 3/16
2 1/2	1 NPT	8 3/16
3	1 NPT	8 3/16
4	1 1/2 NPT	10 3/8
5	2 NPT	11 1/16
6	2 1/2 NPT	13 3/8
8	2 1/2 NPT	14 3/8

For 10 in. (254 mm) and larger tanks contact your Watlow representative for dimension.

WATROD and FIREBAR Circulation Heaters

Options *(Continued)*

Sheath Materials

The following sheath materials are available on WATROD and FIREBAR heating elements:

Standard Sheath Materials

WATROD	Alloy 800/840 316 SS Copper clad steel
FIREBAR	Steel Alloy 800, 304 SS

Made-to-Order Sheath Materials

WATROD	304 SS Alloy 600 Titanium Hastelloy C276 Inconel®/Steel Monel®

Wattages and Voltages

Watlow routinely supplies circulation heaters with 120 to 690VAC as well as wattages from 500 watts to one megawatt. If required, Watlow will configure circulation heaters with voltages and wattages outside these parameters.

For more information on special voltage and wattage configurations, contact your Watlow representative.

Pressure Vessels

All catalog pressure vessel (tank) materials consist of standard schedule and 150# class forged fittings and are made from one of the following materials:

- Carbon steel
- 316 stainless steel

All catalog pressure vessels (tanks) are steel unless otherwise noted.

316 stainless steel pressure vessels (tanks) are passivated on all wetted surfaces. Available on $2^1/_2$ inch NPT and 4 or 6 inch ANSI flange circulation heaters.

Passivated Finish

For critical applications, passivation will remove free iron from all wetted surfaces.

Contact your Watlow representative for details.

Gaskets

Rubber, asbestos-free and spiral wound gaskets are available for all heater flanges, and inlet and outlet flange sizes.

Watlow recommends ordering spares in case replacement becomes necessary.

To order, specify **gasket type, flange size/rating** and **process operating temperature**.

For details on gasket materials and temperature ratings, see page 223.

Inlet and Outlet Nozzle Connections

All inlet and outlet materials are compatible with the pressure vessel material and pressure class rating.

Vessel sizes from $1^1/_4$ to 8 inches are typically configured with MNPT (Male National Taper Pipe Thread) nozzles. Optional NPT and flange sizes can be supplied to mate with existing piping.

10 inch and larger vessels are supplied with Class 150 inlet and outlet flanges. Optional Class 300 or Class 600 can be provided to mate with existing piping.

To order, specify **type, size** and **pressure class** rating for both inlet and outlet nozzle/flange connections.

Protective Jacket (Shroud)

To protect circulation heaters from weather or wash-down conditions, welded (standard) outer protective jackets are available. Standard steel, or made-to-order 304 or 316 stainless steel or aluminum can be supplied. Jacket diameter is dependent upon thermal insulation thickness.

To order, specify **protective jacket, material type** and **weatherproof**, if desired.

WATROD and FIREBAR Circulation Heaters

Technical Data

Maximum Velocities

The rate at which a gas or liquid flows through inlet and outlet pipes is critical to maintaining the desired output temperature. Pressure drop through the circulation heater must be considered to properly size blowers or pumps. The *Maximum Velocity to Avoid Excessive Pressure Drop* chart gives recommended maximum velocities, in feet per second and meters per second of gas or liquid being heated and nominal pipe size.

Maximum Velocity to Avoid Excessive Pressure Drop

Fluid	Nominal Pipe Size in.	Maximum Velocity ft/sec	(m/sec)
Gases	All	200	(61.0)
Liquid	4 and smaller	10	(3.0)
Liquid	6-8	15	(5.0)
Liquid	10-12	19	(6.0)
Liquid	14-16	21	(6.4)
Liquid	18-20	23	(7.0)
Liquid	24	24	(7.3)

Vessel Orientation Guidelines

Correctly orienting the heating vessel assures lower terminal enclosure temperatures and element immersion. Detailed instructions on vessel orientation are contained in the *Installation and Maintenance Instructions* that accompanies all circulation heaters.

The following are guidelines for vessel orientation in liquid and gas heating applications.

Liquids

Orient circulation heater:

- Horizontally with inlet and outlet pipes pointing up
- Vertically with the terminal enclosure up and the inlet pipe on the bottom

These orientations ensure the heating elements will be immersed at all times and help prevent premature failure.

Air or Gases

Orient circulation heater:

- Horizontally with the inlet nozzle closest to the terminal enclosure
- Vertically with terminal enclosure at the bottom of the tank. Use the nozzle nearest the bottom as the inlet connection

If installation constraints do not allow mounting in accordance with these guidelines, contact your Watlow representative.

Application Hints

- Select the recommended heating element sheath material and watt density for the substance being heated. Use the *Supplemental Applications Chart* on pages 550 to 553. If unable to determine the correct heating element type and material, contact your Watlow representative.
- Assure selecting proper vessel by considering the pressure or flow rate, process temperature and corrosiveness of the media being heated. If assistance with vessel selection is required, contact your Watlow representative.
- For maintenance/replacement procedures, retain an area twice the circulation heater's overall length to permit easy removal and inspection of screw plug or flange heater assemblies.
- Choose a FIREBAR assembly when you require:
  - A smaller package
  - More kilowatts or lower watt density in an equally sized WATROD circulation tank
- Minimize problems associated with low flow or low liquid level conditions with a low liquid level sensor and/or sheath high-limit control.
- Ensure wiring integrity by making sure terminal enclosure temperature does not exceed 400°F (205°C).
- Size power feeder wires in accordance with National Electrical Code (NEC) guidelines and other applicable codes.
- Protect against electrical shock by properly grounding the unit per NEC requirements.
- One or more circulation heaters may be connected in series to achieve the desired total kilowatt or temperature output.

EXTENDED CAPABILITY

Extended Capabilities for WATROD and FIREBAR Circulation Heaters

Performance Capabilities

- Up to 3000psi design pressure

Features and Benefits

Offering includes units rated above ANSI pressure class 300

- Pressure vessel tanks are available in 304 and 316 “H” series stainless steel, Alloy 600, Alloy 800, Chrome Moly, Monel®, Duplex and 321 stainless steel.

Options

Exotic Sheath Materials

Contact your Watlow representative for details and availability.

Pressure Vessels

Made-to-order units can be made in a variety of materials, flange sizes and pressure classes.

To order, specify **pressure vessel (tank) size, material** and **pressure class**.

Ratings to ANSI class 2500 pressure class are available for high-pressure applications.

High-Temperature Thermal Insulation

To further minimize heat loss, the pressure vessel’s standard one inch thermal insulation wrap may be replaced with thicker or higher temperature insulation. For more information, contact your Watlow representative.

To order, specify **insulation thickness, standard** or **high temperature insulation** and **temperature rating**.

Vessels may be supplied with a primer coating without insulation.

To order, specify **no insulation**.

Support Saddles

To mate with an existing installation, customized support saddle(s) and/or mounting lugs are available.

To order, specify **mounting lugs** or **support saddles** and supply a dimensional drawing.

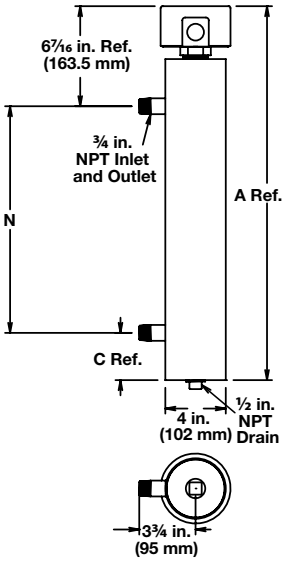
WATROD and FIREBAR Circulation Heaters

Application: Clean Water⑤

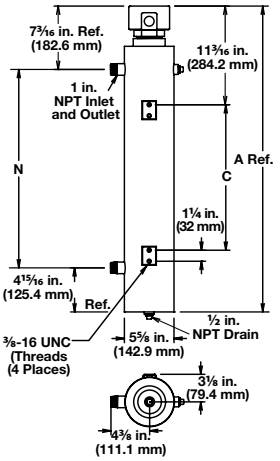
- WATROD or FIREBAR elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
1¼ inch NPT Screw Plug (WATROD)											
60 W/in² ④ Steel Tank 2-Alloy 800 Elements (9.3 W/cm²)	120	3.0	1	1	**CBEN15A6S**	**C1-15**	**C1-12**	23 (11)	24⅝ (625.5)	15 (381)	3⅛ (79.4)
	240	3.0	1	1	**CBEN15A6S**	**C1-17**	**C1-13**	23 (11)	24⅝ (625.5)	15 (381)	3⅛ (79.4)
	240	4.0	1	1	**CBEN19A10S**	**C1-17**	**C1-13**	29 (14)	24⅝ (625.5)	15 (381)	3⅛ (79.4)
	240	5.0	1	1	**CBEN23J10S**	**C/F**	**C/F**	29 (14)	32⅝ (828.7)	23 (584)	3⅛ (79.4)
	240	6.0	1	1	**CBEN27J10S**	**C/F**	**C/F**	31 (14)	32⅝ (828.7)	23 (584)	3⅛ (79.4)
1¼ inch NPT Screw Plug (FIREBAR)											
90 W/in² Steel Tank 1-Alloy 800 Element (14 W/cm²)	240	1.5	1	1	**CBDNF7R10S**	**C1-17**	**C1-13**	26 (12)	24⅝ (625.5)	15 (381)	3⅛ (79.4)
	480	1.5	1	1	**CBDNF7R11S**	**C/F**	**C/F**	26 (12)	24⅝ (625.5)	15 (381)	3⅛ (79.4)
	240	3.0	1	1	**CBDNF11G10S**	**C1-17**	**C1-13**	26 (12)	24⅝ (625.5)	15 (381)	3⅛ (79.4)
	480	3.0	1	1	**CBDNF11G11S**	**C/F**	**C/F**	26 (12)	24⅝ (625.5)	15 (381)	3⅛ (79.4)
	240	5.0	3	1	**CBDNF16G3S**	**C2-50**	**C2-92**	26 (12)	24⅝ (625.5)	15 (381)	3⅛ (79.4)
	480	5.0	3	1	**CBDNF16G5S**	**C2-43**	**C2-35**	26 (12)	24⅝ (625.5)	15 (381)	3⅛ (79.4)
	240	6.5	3	1	**CBDNF19G3S**	**C2-50**	**C2-92**	30 (14)	32⅝ (828.7)	23 (584)	3⅛ (79.4)
	480	6.5	3	1	**CBDNF19G5S**	**C2-43**	**C2-35**	30 (14)	32⅝ (828.7)	23 (584)	3⅛ (79.4)
	240	8.5	3	1	**CBDNF24L3S**	**C2-50**	**C2-92**	31 (14)	32⅝ (828.7)	23 (584)	3⅛ (79.4)
	480	8.5	3	1	**CBDNF24L5S**	**C2-43**	**C2-35**	31 (14)	32⅝ (828.7)	23 (584)	3⅛ (79.4)
	240	10.5	3	1	**CBDNF29R3S**	**C2-236**	**C2-214**	43 (20)	42⅝ (1082.7)	32 (813)	4⅜ (111.1)
	480	10.5	3	1	**CBDNF29R5S**	**C2-43**	**C2-35**	43 (20)	42⅝ (1082.7)	32 (813)	4⅜ (111.1)
	240	12.7	3	1	**CBDNF34R3S**	**C2-236**	**C2-214**	44 (20)	42⅝ (1082.7)	32 (813)	4⅜ (111.1)
	480	12.7	3	1	**CBDNF34R5S**	**C2-43**	**C2-35**	44 (20)	42⅝ (1082.7)	32 (813)	4⅜ (111.1)
	240	17.0	3	1	**CBDNF45G3S**	**C2-236**	**C2-214**	69 (32)	63⅝ (1616.1)	53 (1346)	4⅜ (111.1)
	480	17.0	3	1	**CBDNF45G5S**	**C2-43**	**C2-35**	69 (32)	63⅝ (1616.1)	53 (1346)	4⅜ (111.1)
	480	21.5	3	1	**CBDNF55R5S**	**C2-225**	**C2-226**	71 (33)	63⅝ (1616.1)	53 (1346)	4⅜ (111.1)
2½ inch NPT Screw Plug (WATROD)											
60 W/in² Steel Tank 3-Alloy 800 Elements (9.3 W/cm²)	240	6.0	3	1	**CBLN714L3S**	**C2-50**	**C2-92**	24 (11)	34¾ (881)	22½ (572)	16½ (419)
	480	6.0	3	1	**CBLN714L5S**	**C2-43**	**C2-35**	24 (11)	34¾ (881)	22½ (572)	16½ (419)
	240	7.5	3	1	**CBLN717L3S**	**C2-50**	**C2-92**	24 (11)	34¾ (881)	22½ (572)	16½ (419)
	480	7.5	3	1	**CBLN717L5S**	**C2-43**	**C2-35**	24 (11)	34¾ (881)	22½ (572)	16½ (419)
	240	9.0	3	1	**CBLN720L3S**	**C2-50**	**C2-92**	26 (12)	34¾ (881)	22½ (572)	16½ (419)
	480	9.0	3	1	**CBLN720L5S**	**C2-43**	**C2-35**	26 (12)	34¾ (881)	22½ (572)	16½ (419)
	240	12.0	3	1	**CBLN726C3S**	**C2-236**	**C2-214**	27 (13)	44¾ (1135)	32½ (826)	26½ (673)
	480	12.0	3	1	**CBLN726C5S**	**C2-43**	**C2-35**	27 (13)	44¾ (1135)	32½ (826)	26½ (673)
	240	15.0	3	1	**CBLN731L3S**	**C2-236**	**C2-214**	29 (14)	44¾ (1135)	32½ (826)	26½ (673)
	480	15.0	3	1	**CBLN731L5S**	**C2-43**	**C2-35**	29 (14)	44¾ (1135)	32½ (826)	26½ (673)
	240	18.0	3	1	**CBLN737C3S**	**C2-236**	**C2-214**	30 (14)	57¼ (1453)	45 (1143)	39 (991)
	480	18.0	3	1	**CBLN737C5S**	**C2-43**	**C2-35**	30 (14)	57¼ (1453)	45 (1143)	39 (991)

1¼ inch NPT Screw Plug



2½ inch NPT Screw Plug



④ Wired for higher voltage

⑤ When steel vessel materials are used in this application, some rust may be present in the process media

C/F - Contact factory, go to www.watlow.com/en/contact-us

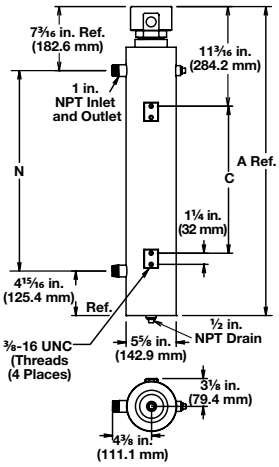
WATROD and FIREBAR Circulation Heaters

Application: Clean Water⑤

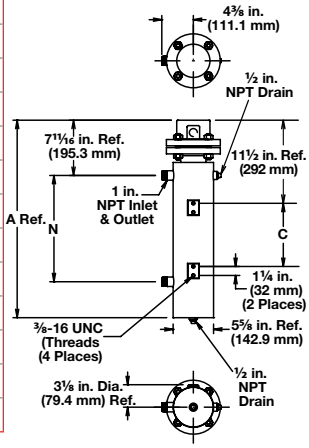
- WATROD or FIREBAR elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
2 1/2 inch NPT Screw Plug (FIREBAR)											
90 W/in² ⑧ Steel Tank 3-Alloy 800 Elements (14 W/cm²)	240	15.0	3	1	**CBLNF15C3S**	**C2-236**	**C2-214**	22 (10)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	15.0	3	1	**CBLNF15C5S**	**C2-43**	**C2-35**	22 (10)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	20.0	3	1	**CBLNF18C3S**	**C2-236**	**C2-214**	23 (11)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	20.0	3	1	**CBLNF18C5S③**	**C2-43**	**C2-35**	23 (11)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	25.0	3	1	**CBLNF23C5S**	**C2-225**	**C2-226**	31 (14)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	32.0	3	1	**CBLNF28L5S**	**C2-225**	**C2-226**	34 (16)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	480	38.0	3	1	**CBLNF33L5S**	**C2-225**	**C2-226**	35 (16)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
3 inch - 150 lb ANSI Flange (WATROD)											
60 W/in² Steel Tank 3-Alloy 800 Elements (9.3 W/cm²)	120	6.0	1	1	**CFMN715J10S**	**C/F**	**C/F**	66 (30)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	240	6.0	3	1	**CFMN715J3S**	**C2-50**	**C2-92**	66 (30)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	480	6.0	1	1	**CFMN715J11S**	**C/F**	**C/F**	66 (30)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	480	6.0	3	1	**CFMN715J5S**	**C2-43**	**C2-35**	66 (30)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	120	9.0	1	1	**CFMN721J10S**	**C/F**	**C/F**	70 (32)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	240	9.0	3	1	**CFMN721J3S**	**C2-50**	**C2-92**	70 (32)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	480	9.0	1	1	**CFMN721J11S**	**C/F**	**C/F**	70 (32)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	480	9.0	3	1	**CFMN721J5S**	**C2-43**	**C2-35**	70 (32)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	240	12.0	3	1	**CFMN727A3S**	**C2-236**	**C2-214**	80 (37)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	480	12.0	1	1	**CFMN727A11S**	**C/F**	**C/F**	80 (37)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	480	12.0	3	1	**CFMN727A5S**	**C2-43**	**C2-35**	80 (37)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	240	15.0	3	1	**CFMN732J3S**	**C2-236**	**C2-214**	96 (44)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	480	15.0	1	1	**CFMN732J11S**	**C/F**	**C/F**	96 (44)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	480	15.0	3	1	**CFMN732J5S**	**C2-43**	**C2-35**	96 (44)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	240	18.0	3	1	**CFMN738A3S**	**C2-236**	**C2-236**	98 (45)	57 3/4 (1465)	45 (1143)	39 (991)
	480	18.0	1	1	**CFMN738A11S**	**C/F**	**C/F**	98 (45)	57 3/4 (1465)	45 (1143)	39 (991)
	480	18.0	3	1	**CFMN738A5S**	**C2-43**	**C2-35**	98 (45)	57 3/4 (1465)	45 (1143)	39 (991)

2 1/2 inch NPT Screw Plug



3 inch - 150 lb ANSI Flange



③ Wired for 3-phase operation only

⑤ When steel vessel materials are used in this application, some rust may be present in the process media

⑧ Can be wired for 1-phase operation

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WATROD and FIREBAR Circulation Heaters

Application: Clean Water⑤

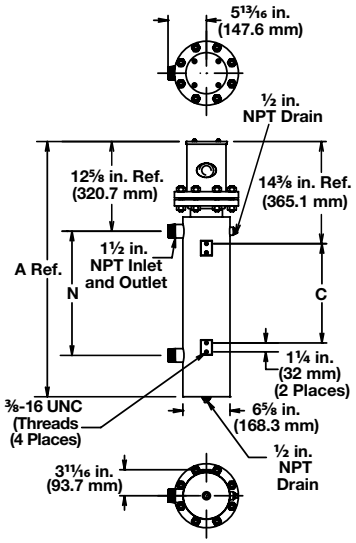
- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
4 inch - 150 lb ANSI Flange (WATROD)											
60 W/in² Steel Tank 6-Alloy 800 Elements (9.3 W/cm²)	240	12.0	1	2	**CFON715J10S**	**C/F**	**C/F**	124 (57)	39 (989)	20 1/2 (521)	17 (432)
	240	12.0	3	1	**CFON715J3S**	**C2-236**	**C2-214**	124 (57)	39 (989)	20 1/2 (521)	17 (432)
	480	12.0	1	1	**CFON715J11S**	**C/F**	**C/F**	124 (57)	39 (989)	20 1/2 (521)	17 (432)
	480	12.0	3	1	**CFON715J5S**	**C2-43**	**C2-35**	124 (57)	39 (989)	20 1/2 (521)	17 (432)
	240	18.0	1	2	**CFON721J10S**	**C/F**	**C/F**	127 (58)	39 (989)	20 1/2 (521)	17 (432)
	240	18.0	3	1	**CFON721J3S**	**C2-236**	**C2-214**	127 (58)	39 (989)	20 1/2 (521)	17 (432)
	480	18.0	1	1	**CFON721J11S**	**C/F**	**C/F**	127 (58)	39 (989)	20 1/2 (521)	17 (432)
	480	18.0	3	1	**CFON721J5S**	**C2-43**	**C2-35**	127 (58)	39 (989)	20 1/2 (521)	17 (432)
	240	24.0	1	2	**CFON727A10S**	**C/F**	**C/F**	160 (73)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	240	24.0	3	2	**CFON727A3S**	**C2-218**	**C2-224**	160 (73)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	480	24.0	1	1	**CFON727A11S**	**C/F**	**C/F**	160 (73)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	480	24.0	3	1	**CFON727A5S**	**C2-225**	**C2-226**	160 (73)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	240	30.0	3	2	**CFON732J3S**	**C2-218**	**C2-224**	163 (74)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	480	30.0	1	2	**CFON732J11S**	**C/F**	**C/F**	163 (74)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	480	30.0	3	1	**CFON732J5S**	**C2-225**	**C2-226**	163 (74)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	240	36.0	3	2	**CFON738A3S**	**C2-218**	**C2-224**	229 (104)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	480	36.0	1	2	**CFON738A11S**	**C/F**	**C/F**	229 (104)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	480	36.0	3	1	**CFON738A5S**	**C2-225**	**C2-226**	229 (104)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	480	50.0	3	2	**CFON751A5S**	**C2-229**	**C2-230**	234 (107)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	480	60.0	3	2	**CFON760J5S**	**C2-229**	**C2-230**	297 (135)	91 1/2 (2326)	73 (1854)	66 (1676)

⑤ When steel vessel materials are used in this application, some rust may be present in the process media

C/F - Contact factory, go to www.watlow.com/en/contact-us

4 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

Application: Clean Water⑤

- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
5 inch - 150 lb ANSI Flange (WATROD)											
60 W/in² Steel Tank 6-Alloy 800 Elements (9.3 W/cm²)	240	24.0	1	3	**CFNN727A10S**	**C/F**	**C/F**	140 (64)	49 1/4 (1249.0)	30 (762)	14 7/8 (378.8)
	240	24.0	3	2	**CFNN727A3S**	**C2-218**	**C2-224**	140 (64)	49 1/4 (1249.0)	30 (762)	14 7/8 (378.8)
	480	24.0	1	3	**CFNN727A11S**	**C/F**	**C/F**	140 (64)	49 1/4 (1249.0)	30 (762)	14 7/8 (378.8)
	480	24.0	3	1	**CFNN727A5S**	**C2-225**	**C2-226**	140 (64)	49 1/4 (1249.0)	30 (762)	14 7/8 (378.8)
	240	30.0	3	2	**CFNN732J3S**	**C2-218**	**C2-224**	142 (65)	49 1/4 (1249.0)	30 (762)	14 7/8 (378.8)
	480	30.0	1	2	**CFNN732J11S**	**C/F**	**C/F**	142 (65)	49 1/4 (1249.0)	30 (762)	14 7/8 (378.8)
	480	30.0	3	1	**CFNN732J5S**	**C2-225**	**C2-226**	142 (65)	49 1/4 (1249.0)	30 (762)	14 7/8 (378.8)
	240	36.0	3	2	**CFNN738A3S**	**C2-218**	**C2-224**	160 (73)	56 1/4 (1427.0)	37 (940)	18 5/8 (473.1)
	480	36.0	1	2	**CFNN738A11S**	**C/F**	**C/F**	160 (73)	56 1/4 (1427.0)	37 (940)	18 5/8 (473.1)
	480	36.0	3	1	**CFNN738A5S**	**C2-224**	**C2-226**	160 (73)	56 1/4 (1427.0)	37 (940)	18 5/8 (473.1)
	480	50.0	3	2	**CFNN751A5S**	**C2-229**	**C2-230**	180 (82)	67 3/4 (1719.0)	48 1/2 (1232)	25 (633.0)
	480	60.0	3	2	**CFNN760J5S**	**C2-229**	**C2-230**	190 (87)	81 1/8 (2060.6)	61 7/8 (1572)	30 7/8 (784.2)
5 inch - 150 lb ANSI Flange (WATROD)											
60 W/in² Steel Tank 9-Alloy 800 Elements (9.3 W/cm²)	240	36.0	3	3	**CFNN727A3XS**	**C4-144**	**C4-145**	145 (66)	49 1/4 (1249.0)	30 (762)	14 7/8 (378.8)
	480	36.0	1	3	**CFNN727A11XS**	**C/F**	**C/F**	145 (66)	49 1/4 (1249.0)	30 (762)	14 7/8 (378.8)
	480	36.0	3	1	**CFNN727A5XS**	**C2-225**	**C2-226**	145 (66)	49 1/4 (1249.0)	30 (762)	14 7/8 (378.8)
	240	45.0	3	3	**CFNN732J3XS**	**C4-144**	**C4-145**	147 (67)	49 1/4 (1249.0)	30 (762)	14 7/8 (378.8)
	480	45.0	1	3	**CFNN732J11XS**	**C/F**	**C/F**	147 (67)	49 1/4 (1249.0)	30 (762)	14 7/8 (378.8)
	480	45.0	3	3	**CFNN732J5XS**	**C4-150**	**C4-151**	147 (67)	49 1/4 (1249.0)	30 (762)	14 7/8 (378.8)
	240	54.0	3	3	**CFNN738A3XS**	**C4-144**	**C4-145**	166 (76)	56 1/4 (1427.0)	37 (940)	18 5/8 (473.1)
	480	54.0	1	3	**CFNN738A11XS**	**C/F**	**C/F**	166 (76)	56 1/4 (1427.0)	37 (940)	18 5/8 (473.1)
	480	54.0	3	3	**CFNN738A5XS**	**C4-150**	**C4-151**	166 (76)	56 1/4 (1427.0)	37 (940)	18 5/8 (473.1)
	480	75.0	3	3	**CFNN751A5XS**	**C4-152**	**C4-153**	188 (86)	67 3/4 (1719.0)	48 1/2 (1232)	25 (633.0)
	480	90.0	3	3	**CFNN760J5XS**	**C4-152**	**C4-153**	200 (91)	81 1/8 (2060.6)	61 7/8 (1572)	30 7/8 (784.2)

⑤ When steel vessel materials are used in this application, some rust may be present in the process media

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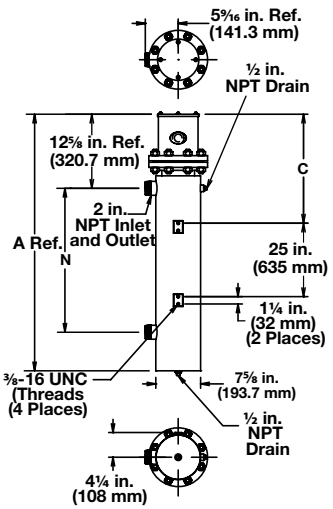
5 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

Application: Clean Water⑤

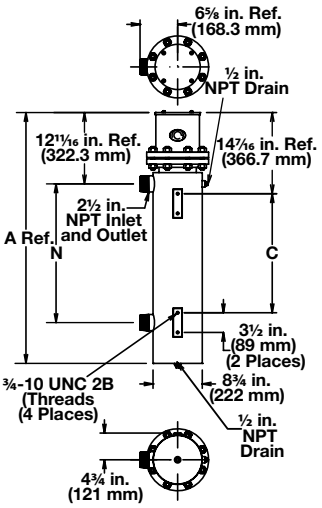
- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
6 inch - 150 lb ANSI Flange (WATROD)											
60 W/in² Steel Tank 12-Alloy 800 Elements (9.3 W/cm²)	240	24.0	1	3	**CFPN715G10S**	**C/F**	**C/F**	212 (97)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	24.0	3	2	**CFPN715G3S**	**C2-218**	**C2-224**	212 (97)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	24.0	1	2	**CFPN715G11S**	**C/F**	**C/F**	212 (97)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	24.0	3	1	**CFPN715G5S**	**C2-225**	**C2-226**	212 (97)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	36.0	1	4	**CFPN721G10S**	**C/F**	**C/F**	217 (99)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	36.0	3	2	**CFPN721G3S**	**C2-218**	**C2-224**	217 (99)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	36.0	1	2	**CFPN721G11S**	**C/F**	**C/F**	217 (99)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	36.0	3	1	**CFPN721G5S**	**C2-225**	**C2-226**	217 (99)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	48.0	3	4	**CFPN726R3S**	**C4-148**	**C4-149**	222 (101)	51 (1294)	31 (787)	27 1/2 (699)
	480	48.0	1	3	**CFPN726R11S**	**C/F**	**C/F**	222 (101)	51 (1294)	31 (787)	27 1/2 (699)
	480	48.0	3	2	**CFPN726R5S**	**C2-229**	**C2-230**	222 (101)	51 (1294)	31 (787)	27 1/2 (699)
	240	60.0	3	4	**CFPN732G3S**	**C4-148**	**C4-149**	288 (131)	51 (1294)	31 (787)	27 1/2 (699)
	480	60.0	1	3	**CFPN732G11S**	**C/F**	**C/F**	288 (131)	51 (1294)	31 (787)	27 1/2 (699)
	480	60.0	3	2	**CFPN732G5S**	**C2-229**	**C2-230**	288 (131)	51 (1294)	31 (787)	27 1/2 (699)
	240	72.0	3	4	**CFPN737R3S**	**C4-148**	**C4-149**	290 (132)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	72.0	3	2	**CFPN737R5S**	**C2-229**	**C2-230**	290 (132)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	100.0	3	4	**CFPN750R5S**	**C4-156**	**C4-157**	298 (136)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	120.0	3	4	**CFPN760G5S**	**C4-156**	**C4-157**	360 (164)	93 (2361)	73 (1854)	66 (1676)

⑤ When steel vessel materials are used in this application, some rust may be present in the process media

C/F - Contact factory, go to www.watlow.com/en/contact-us

6 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

Application: Clean Water⑤

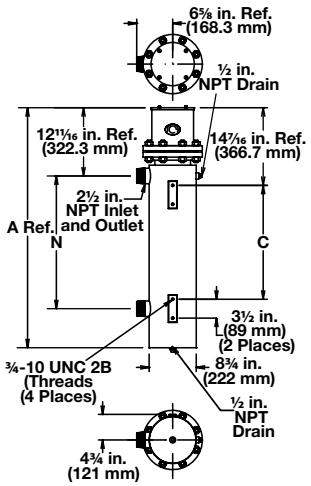
- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
6 inch - 150 lb ANSI Flange (WATROD)											
60 W/in² Steel Tank 15-Alloy 800 Elements (9.3 W/cm²)	240	30.0	1	3	**CFPN715G10XS**	**C/F**	**C/F**	215 (98)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	30.0	3	5	**CFPN715G3XS**	**C4-144**	**C4-145**	215 (98)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	30.0	1	3	**CFPN715G11XS**	**C/F**	**C/F**	215 (98)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	30.0	3	1	**CFPN715G5XS**	**C2-225**	**C2-226**	215 (98)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	45.0	1	5	**CFPN721G10XS**	**C/F**	**C/F**	223 (102)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	45.0	3	5	**CFPN721G3XS**	**C4-144**	**C4-145**	223 (102)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	45.0	1	3	**CFPN721G11XS**	**C/F**	**C/F**	223 (102)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	45.0	3	5	**CFPN721G5XS**	**C4-150**	**C4-151**	223 (102)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	60.0	3	5	**CFPN726R3XS**	**C/F**	**C/F**	226 (103)	51 (1294)	31 (787)	27 1/2 (699)
	480	60.0	1	3	**CFPN726R11XS**	**C/F**	**C/F**	226 (103)	51 (1294)	31 (787)	27 1/2 (699)
	480	60.0	3	5	**CFPN726R5XS**	**C4-152**	**C4-153**	226 (103)	51 (1294)	31 (787)	27 1/2 (699)
	240	75.0	3	5	**CFPN732G3XS**	**C/F**	**C/F**	288 (131)	51 (1294)	31 (787)	27 1/2 (699)
	480	75.0	1	5	**CFPN732G11XS**	**C/F**	**C/F**	288 (131)	51 (1294)	31 (787)	27 1/2 (699)
	480	75.0	3	5	**CFPN732G5XS**	**C4-152**	**C4-153**	288 (131)	51 (1294)	31 (787)	27 1/2 (699)
	240	90.0	3	5	**CFPN737R3XS**	**C/F**	**C/F**	296 (134)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	90.0	3	5	**CFPN737R5XS**	**C4-152**	**C4-153**	296 (134)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	125.0	3	5	**CFPN750R5XS**	**C/F**	**C/F**	306 (139)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	150.0	3	5	**CFPN760G5XS**	**C/F**	**C/F**	370 (168)	93 (2361)	73 (1854)	66 (1676)

⑤ When steel vessel materials are used in this application, some rust may be present in the process media

C/F - Contact factory, go to www.watlow.com/en/contact-us

6 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

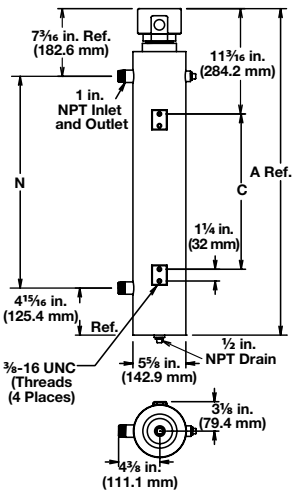
Application: Deionized or Demineralized Water

- WATROD elements
- Without thermostat
- General purpose enclosure

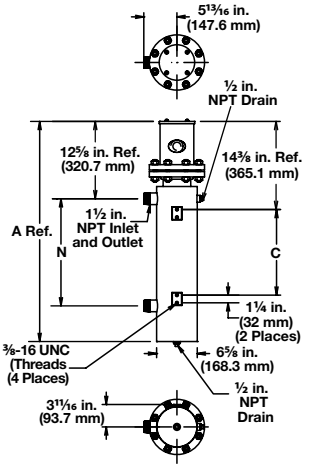
Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
2 1/2 inch NPT Screw Plug (WATROD)											
60 W/in² 316 SS Tank 3-316 SS Elements (9.3 W/cm²) Passivated	240	6.0	3	1	**CBLR714L3S**	**C2-50**	**C2-92**	24 (11)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	6.0	3	1	**CBLR714L5S**	**C2-43**	**C2-35**	24 (11)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	7.5	3	1	**CBLR717L3S**	**C2-50**	**C2-92**	24 (11)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	7.5	3	1	**CBLR717L5S**	**C2-43**	**C2-35**	24 (11)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	9.0	3	1	**CBLR720L3S**	**C2-50**	**C2-92**	26 (12)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	9.0	3	1	**CBLR720L5S**	**C2-43**	**C2-35**	26 (12)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	12.0	3	1	**CBLR726C3S**	**C2-236**	**C2-214**	27 (13)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	480	12.0	3	1	**CBLR726C5S**	**C2-43**	**C2-35**	27 (13)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	240	15.0	3	1	**CBLR731L3S**	**C2-236**	**C2-214**	29 (14)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	480	15.0	3	1	**CBLR731L5S**	**C2-43**	**C2-35**	29 (14)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	240	18.0	3	1	**CBLR737C3S**	**C2-236**	**C2-214**	30 (14)	57 1/4 (1453)	45 (1143)	39 (991)
	480	18.0	3	1	**CBLR737C5S**	**C2-43**	**C2-35**	30 (14)	57 1/4 (1453)	45 (1143)	39 (991)
4 inch - 150 lb ANSI Flange (WATROD)											
60 W/in² 316 SS Tank 6-316 SS Elements (9.3 W/cm²) Passivated	240	12.0	1	2	**CFOR716A10S**	**C/F**	**C/F**	124 (57)	39 (989)	20 1/2 (521)	17 (432)
	240	12.0	3	1	**CFOR716A3S**	**C2-236**	**C2-214**	124 (57)	39 (989)	20 1/2 (521)	17 (432)
	480	12.0	1	1	**CFOR716A11S**	**C/F**	**C/F**	124 (57)	39 (989)	20 1/2 (521)	17 (432)
	480	12.0	3	1	**CFOR716A5S**	**C2-43**	**C2-35**	124 (57)	39 (989)	20 1/2 (521)	17 (432)
	240	18.0	1	2	**CFOR722A10S**	**C/F**	**C/F**	127 (58)	39 (989)	20 1/2 (521)	17 (432)
	240	18.0	3	1	**CFOR722A3S**	**C2-236**	**C2-214**	127 (58)	39 (989)	20 1/2 (521)	17 (432)
	480	18.0	1	1	**CFOR722A11S**	**C/F**	**C/F**	127 (58)	39 (989)	20 1/2 (521)	17 (432)
	480	18.0	3	1	**CFOR722A5S**	**C2-43**	**C2-35**	127 (58)	39 (989)	20 1/2 (521)	17 (432)
	240	24.0	1	2	**CFOR727J10S**	**C/F**	**C/F**	160 (73)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	240	24.0	3	2	**CFOR727J3S**	**C2-218**	**C2-224**	160 (73)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	480	24.0	1	1	**CFOR727J11S**	**C/F**	**C/F**	160 (73)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	480	24.0	3	1	**CFOR727J5S**	**C2-225**	**C2-226**	160 (73)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	240	30.0	3	2	**CFOR733A3S**	**C2-218**	**C2-224**	163 (74)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	480	30.0	1	2	**CFOR733A11S**	**C/F**	**C/F**	163 (74)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	480	30.0	3	1	**CFOR733A5S**	**C2-225**	**C2-226**	163 (74)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	240	36.0	3	2	**CFOR738J3S**	**C2-218**	**C2-226**	229(104)	70 1/2 (1789)	52 (1321)	48 1/2(1232)
	480	36.0	1	2	**CFOR738J11S**	**C/F**	**C/F**	229(104)	70 1/2 (1789)	52 (1321)	48 1/2(1232)
	480	36.0	3	1	**CFOR738J5S**	**C2-225**	**C2-226**	229(104)	70 1/2 (1789)	52 (1321)	48 1/2(1232)
	480	50.0	3	2	**CFOR751J5S**	**C2-229**	**C2-230**	234(107)	70 1/2 (1789)	52 (1321)	48 1/2(1232)
	480	60.0	3	2	**CFOR761A5S**	**C2-229**	**C2-230**	297(135)	91 1/2 (2326)	73 (1854)	66 (1676)

C/F - Contact factory, go to www.watlow.com/en/contact-us

2 1/2 inch NPT Screw Plug



4 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

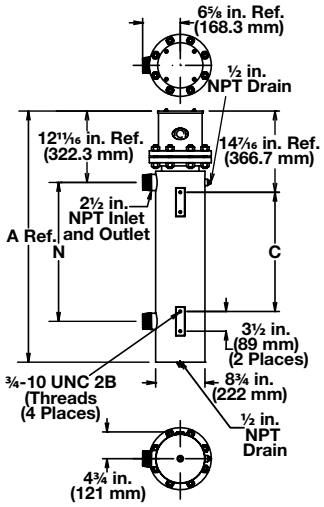
Application: Deionized or Demineralized Water

- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
6 inch - 150 lb ANSI Flange (WATROD)											
60 W/in² 316 SS Tank 12-316 SS Elements (9.3 W/cm²) Passivated	240	24.0	1	3	**CFPR715N10S**	**C/F**	**C/F**	212 (97)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	24.0	3	2	**CFPR715N3S**	**C2-218**	**C2-224**	212 (97)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	24.0	1	2	**CFPR715N11S**	**C/F**	**C/F**	212 (97)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	24.0	3	1	**CFPR715N5S**	**C2-225**	**C2-226**	212 (97)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	36.0	1	4	**CFPR721N10S**	**C/F**	**C/F**	217 (99)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	36.0	3	2	**CFPR721N3S**	**C2-218**	**C2-224**	217 (99)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	36.0	1	2	**CFPR721N11S**	**C/F**	**C/F**	217 (99)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	36.0	3	1	**CFPR721N5S**	**C2-225**	**C2-226**	217 (99)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	48.0	3	4	**CFPR727E3S**	**C4-148**	**C4-149**	222 (101)	51 (1294)	31 (787)	27 1/2 (699)
	480	48.0	1	3	**CFPR727E11S**	**C/F**	**C/F**	222 (101)	51 (1294)	31 (787)	27 1/2 (699)
	480	48.0	3	2	**CFPR727E5S**	**C2-229**	**C2-230**	222 (101)	51 (1294)	31 (787)	27 1/2 (699)
	240	60.0	3	4	**CFPR732N3S**	**C4-148**	**C4-149**	226 (103)	51 (1294)	31 (787)	27 1/2 (699)
	480	60.0	1	3	**CFPR732N11S**	**C/F**	**C/F**	226 (103)	51 (1294)	31 (787)	27 1/2 (699)
	480	60.0	3	2	**CFPR732N5S**	**C2-229**	**C2-230**	226 (103)	51 (1294)	31 (787)	27 1/2 (699)
	240	72.0	3	4	**CFPR738E3S**	**C4-148**	**C4-149**	290 (132)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	72.0	3	2	**CFPR738E5S**	**C2-229**	**C2-230**	290 (132)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	100.0	3	4	**CFPR751E5S**	**C4-156**	**C4-157**	298 (136)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	120.0	3	4	**CFPR760N5S**	**C4-156**	**C4-157**	360 (164)	93 (2361)	73 (1854)	66 (1676)

C/F - Contact factory, go to www.watlow.com/en/contact-us

6 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

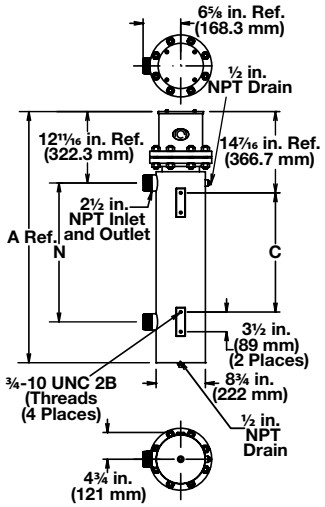
Application: Deionized or Demineralized Water

- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
6 inch - 150 lb ANSI Flange (WATROD)											
60 W/in² 316 SS Tank 15-316 SS Elements (9.3 W/cm²) Passivated	240	30.0	1	3	**CFPR715N10XS**	**C/F**	**C/F**	215 (98)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	30.0	3	5	**CFPR715N3XS**	**C4-144**	**C4-145**	215 (98)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	30.0	1	3	**CFPR715N11XS**	**C/F**	**C/F**	215 (98)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	30.0	3	1	**CFPR715N5XS**	**C2-225**	**C2-226**	215 (98)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	45.0	1	5	**CFPR721N10XS**	**C/F**	**C/F**	223 (102)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	45.0	3	5	**CFPR721N3XS**	**C4-144**	**C4-145**	223 (102)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	45.0	1	3	**CFPR721N11XS**	**C/F**	**C/F**	223 (102)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	45.0	3	5	**CFPR721N5XS**	**C4-150**	**C4-151**	223 (102)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	60.0	3	5	**CFPR727E3XS**	**C/F**	**C/F**	226 (103)	51 (1294)	31 (787)	27 1/2 (699)
	480	60.0	1	3	**CFPR727E11XS**	**C/F**	**C/F**	226 (103)	51 (1294)	31 (787)	27 1/2 (699)
	480	60.0	3	5	**CFPR727E5XS**	**C4-152**	**C4-153**	226 (103)	51 (1294)	31 (787)	27 1/2 (699)
	240	75.0	3	5	**CFPR732N3XS**	**C/F**	**C/F**	288 (131)	51 (1294)	31 (787)	27 1/2 (699)
	480	75.0	1	5	**CFPR732N11XS**	**C/F**	**C/F**	288 (131)	51 (1294)	31 (787)	27 1/2 (699)
	480	75.0	3	5	**CFPR732N5XS**	**C4-152**	**C4-153**	288 (131)	51 (1294)	31 (787)	27 1/2 (699)
	240	90.0	3	5	**CFPR738E3XS**	**C/F**	**C/F**	296 (135)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	90.0	3	5	**CFPR738E5XS**	**C4-152**	**C4-153**	296 (135)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	125.0	3	5	**CFPR751E5XS**	**C/F**	**C/F**	306 (139)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	150.0	3	5	**CFPR760N5XS**	**C/F**	**C/F**	370 (168)	93 (2361)	73 (1854)	66 (1676)

C/F - Contact factory, go to www.watlow.com/en/contact-us

6 inch - 150 lb ANSI Flange



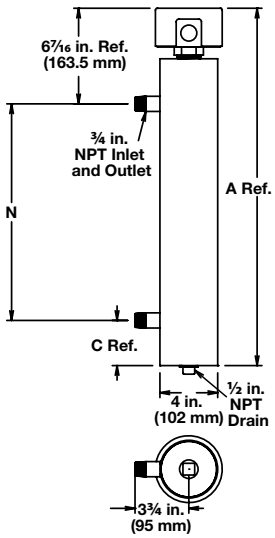
WATROD and FIREBAR Circulation Heaters

Application: Process Water⑤

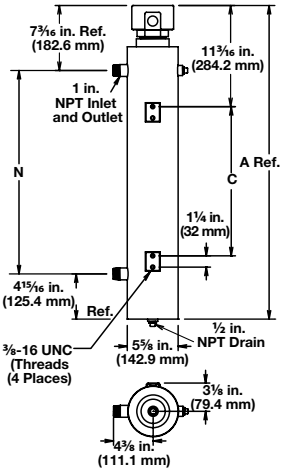
- WATROD or FIREBAR elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
1¼ inch NPT Screw Plug (FIREBAR)											
45 W/in² ⑧ Steel Tank 1-Alloy 800 Element (7 W/cm²)	240	2.0	3	1	**CBDNF13A27S**	**C2-50**	**C2-92**	25 (12)	24 5/8 (625.5)	15 (381)	3 1/8 (79.4)
	240	2.5	3	1	**CBDNF15J27S**	**C2-50**	**C2-92**	26 (12)	24 5/8 (625.5)	15 (381)	3 1/8 (79.4)
	240	3.0	3	1	**CBDNF18A27S**	**C2-50**	**C2-92**	30 (14)	32 5/8 (828.7)	23 (584)	3 1/8 (79.4)
	240	4.0	3	1	**CBDNF22J27S**	**C2-50**	**C2-92**	31 (14)	32 5/8 (828.7)	23 (584)	3 1/8 (79.4)
	480	4.0	3	1	**CBDNF22J28S**	**C2-43**	**C2-35**	31 (14)	32 5/8 (828.7)	23 (584)	3 1/8 (79.4)
	240	5.0	3	1	**CBDNF27J27S**	**C2-50**	**C2-92**	43 (20)	42 5/8 (1082.7)	32 (813)	4 3/8 (111.1)
	480	5.0	3	1	**CBDNF27J28S**	**C2-43**	**C2-35**	43 (20)	42 5/8 (1082.7)	32 (813)	4 3/8 (111.1)
	240	6.0	3	1	**CBDNF32J27S**	**C2-50**	**C2-92**	44 (20)	42 5/8 (1082.7)	32 (813)	4 3/8 (111.1)
	480	6.0	3	1	**CBDNF32J28S**	**C2-43**	**C2-35**	44 (20)	42 5/8 (1082.7)	32 (813)	4 3/8 (111.1)
	240	8.0	3	1	**CBDNF42A27S**	**C2-50**	**C2-92**	69 (32)	63 5/8 (1616.1)	53 (1346)	4 3/8 (111.1)
	480	8.0	3	1	**CBDNF42A28S**	**C2-43**	**C2-35**	69 (32)	63 5/8 (1616.1)	53 (1346)	4 3/8 (111.1)
	240	10.0	3	1	**CBDNF51J27S**	**C2-50**	**C2-92**	71 (33)	63 5/8 (1616.1)	53 (1346)	4 3/8 (111.1)
	480	10.0	3	1	**CBDNF51J28S**	**C2-43**	**C2-35**	71 (33)	63 5/8 (1616.1)	53 (1346)	4 3/8 (111.1)
2½ inch NPT Screw Plug (WATROD)											
48 W/in² ⑧ Steel Tank 3-Alloy 800 Elements (7.5 W/cm²)	240	6.0	3	1	**CBLN717G3S**	**C2-50**	**C2-92**	24 (11)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	6.0	3	1	**CBLN717G5S**	**C2-43**	**C2-35**	24 (11)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	7.5	3	1	**CBLN719R3S**	**C2-50**	**C2-92**	26 (12)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	7.5	3	1	**CBLN719R5S**	**C2-43**	**C2-35**	26 (12)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	9.0	3	1	**CBLN724R3S**	**C2-50**	**C2-92**	27 (13)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	9.0	3	1	**CBLN724R5S**	**C2-43**	**C2-35**	27 (13)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	12.0	3	1	**CBLN732G3S**	**C2-236**	**C2-214**	29 (14)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	480	12.0	3	1	**CBLN732G5S**	**C2-43**	**C2-35**	29 (14)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	240	15.0	3	1	**CBLN739R3S**	**C2-236**	**C2-214**	31 (14)	57 1/4 (1453)	45 (1143)	39 (991)
	480	15.0	3	1	**CBLN739R5S**	**C2-43**	**C2-35**	31 (14)	57 1/4 (1453)	45 (1143)	39 (991)
	240	18.0	3	1	**CBLN747G3S**	**C2-236**	**C2-214**	32 (15)	57 1/4 (1453)	45 (1143)	39 (991)
	480	18.0	3	1	**CBLN747G5S**	**C2-43**	**C2-35**	32 (15)	57 1/4 (1453)	45 (1143)	39 (991)
2½ inch NPT Screw Plug (FIREBAR)											
45 W/in² ⑧ Steel Tank 3-Alloy 800 Elements (7 W/cm²)	240	6.0	3	1	**CBLNF12A27S**	**C2-50**	**C2-92**	21 (10)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	7.5	3	1	**CBLNF14J27S**	**C2-50**	**C2-92**	22 (10)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	9.0	3	1	**CBLNF17A27S**	**C2-50**	**C2-92**	23 (11)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	12.0	3	1	**CBLNF21J27S**	**C2-236**	**C2-214**	31 (14)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	12.0	3	1	**CBLNF21J28S**	**C2-43**	**C2-35**	31 (14)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	15.0	3	1	**CBLNF26J27S**	**C2-236**	**C2-214**	34 (16)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	480	15.0	3	1	**CBLNF26J28S**	**C2-43**	**C2-35**	34 (16)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	240	18.0	3	1	**CBLNF31J27S**	**C2-236**	**C2-214**	35 (16)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	480	18.0	3	1	**CBLNF31J28S**	**C2-43**	**C2-35**	35 (16)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	480	24.0	3	1	**CBLNF41A28S**	**C2-225**	**C2-226**	44 (20)	57 1/4 (1453)	45 (1143)	39 (991)
	480	30.0	3	1	**CBLNF50J28S**	**C2-225**	**C2-226**	52 (24)	63 3/4 (1618)	51 1/2 (1308)	46 1/2 (1181)

1¼ inch NPT Screw Plug



2½ inch NPT Screw Plug



⑤ When steel vessel materials are used in this application, some rust may be present in the process media

⑧ Can be wired for 1-phase operation

WATROD and FIREBAR Circulation Heaters

Application: Process Water⑤

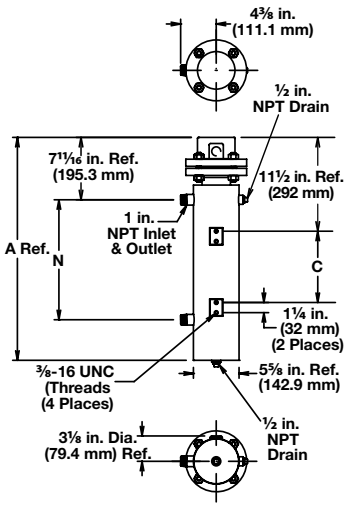
- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
3 inch - 150 lb ANSI Flange (WATROD)											
48 W/in² Steel Tank 3-Alloy 800 Elements (7.5 W/cm²)	240	6.0	1	1	**CFMN718A10S**	**C/F**	**C/F**	68 (31)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	240	6.0	3	1	**CFMN718A3S**	**C2-50**	**C2-92**	68 (31)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	480	6.0	1	1	**CFMN718A11S**	**C/F**	**C/F**	68 (31)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	480	6.0	3	1	**CFMN718A5S**	**C2-43**	**C2-35**	68 (31)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	240	7.5	1	1	**CFMN720J10S**	**C/F**	**C/F**	70 (32)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	240	7.5	3	1	**CFMN720J3S**	**C2-50**	**C2-92**	70 (32)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	480	7.5	1	1	**CFMN720J11S**	**C/F**	**C/F**	70 (32)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	480	7.5	3	1	**CFMN720J5S**	**C2-43**	**C2-35**	70 (32)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	240	9.0	1	1	**CFMN725J10S**	**C/F**	**C/F**	78 (36)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	240	9.0	3	1	**CFMN725J3S**	**C2-50**	**C2-92**	78 (36)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	480	9.0	1	1	**CFMN725J11S**	**C/F**	**C/F**	78 (36)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	480	9.0	3	1	**CFMN725J5S**	**C2-43**	**C2-35**	78 (36)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	240	12.0	3	1	**CFMN733A3S**	**C2-236**	**C2-214**	96 (44)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	480	12.0	1	1	**CFMN733A11S**	**C/F**	**C/F**	96 (44)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	480	12.0	3	1	**CFMN733A5S**	**C2-43**	**C2-35**	96 (44)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	240	15.0	3	1	**CFMN740J3S**	**C2-236**	**C2-214**	100 (46)	57 3/4 (1465)	45 (1143)	39 (991)
	480	15.0	1	1	**CFMN740J11S**	**C/F**	**C/F**	100 (46)	57 3/4 (1465)	45 (1143)	39 (991)
	480	15.0	3	1	**CFMN740J5S**	**C2-43**	**C2-35**	100 (46)	57 3/4 (1465)	45 (1143)	39 (991)
	240	18.0	3	1	**CFMN748A3S**	**C2-236**	**C2-214**	107 (49)	57 3/4 (1465)	45 (1143)	39 (991)
	480	18.0	1	1	**CFMN748A11S**	**C/F**	**C/F**	107 (49)	57 3/4 (1465)	45 (1143)	39 (991)
	480	18.0	3	1	**CFMN748A5S**	**C2-43**	**C2-35**	107 (49)	57 3/4 (1465)	45 (1143)	39 (991)

⑤ When steel vessel materials are used in this application, some rust may be present in the process media

C/F - Contact factory, go to www.watlow.com/en/contact-us

3 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

Application: Process Water[5]

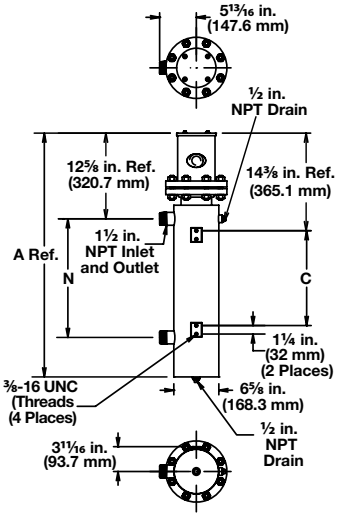
- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
4 inch - 150 lb ANSI Flange (WATROD)											
48 W/in² Steel Tank 6-Alloy 800 Elements (7.5 W/cm²)	240	9.0	1	1	**CFON713J10S**	**C/F**	**C/F**	122 (56)	39 (989)	20½ (521)	17 (432)
	240	9.0	3	1	**CFON713J3S**	**C2-50**	**C2-92**	122 (56)	39 (989)	20½ (521)	17 (432)
	480	9.0	1	1	**CFON713J11S**	**C/F**	**C/F**	122 (56)	39 (989)	20½ (521)	17 (432)
	480	9.0	3	1	**CFON713J5S**	**C2-43**	**C2-35**	122 (56)	39 (989)	20½ (521)	17 (432)
	240	12.0	1	2	**CFON718A10S**	**C/F**	**C/F**	125 (57)	39 (989)	20½ (521)	17 (432)
	240	12.0	3	1	**CFON718A3S**	**C2-236**	**C2-214**	125 (57)	39 (989)	20½ (521)	17 (432)
	480	12.0	1	1	**CFON718A11S**	**C/F**	**C/F**	125 (57)	39 (989)	20½ (521)	17 (432)
	480	12.0	3	1	**CFON718A5S**	**C2-43**	**C2-35**	125 (57)	39 (989)	20½ (521)	17 (432)
	240	15.0	1	2	**CFON720J10S**	**C/F**	**C/F**	127 (58)	39 (989)	20½ (521)	17 (432)
	240	15.0	3	1	**CFON720J3S**	**C2-236**	**C2-214**	127 (58)	39 (989)	20½ (521)	17 (432)
	480	15.0	1	1	**CFON720J11S**	**C/F**	**C/F**	127 (58)	39 (989)	20½ (521)	17 (432)
	480	15.0	3	1	**CFON720J5S**	**C2-225**	**C2-226**	127 (58)	39 (989)	20½ (521)	17 (432)
	240	18.0	1	2	**CFON725J10S**	**C/F**	**C/F**	160 (73)	39 (989)	20½ (521)	17 (432)
	240	18.0	3	1	**CFON725J3S**	**C2-236**	**C2-214**	160 (73)	39 (989)	20½ (521)	17 (432)
	480	18.0	1	1	**CFON725J11S**	**C/F**	**C/F**	160 (73)	39 (989)	20½ (521)	17 (432)
	480	18.0	3	1	**CFON725J5S**	**C2-43**	**C2-35**	160 (73)	39 (989)	20½ (521)	17 (432)
	240	24.0	1	2	**CFON733A10S**	**C/F**	**C/F**	163 (74)	49½ (1256)	31 (787)	27½ (699)
	240	24.0	3	2	**CFON733A3S**	**C2-218**	**C2-224**	163 (74)	49½ (1256)	31 (787)	27½ (699)
	480	24.0	1	1	**CFON733A11S**	**C/F**	**C/F**	163 (74)	49½ (1256)	31 (787)	27½ (699)
	480	24.0	3	1	**CFON733A5S**	**C2-225**	**C2-226**	163 (74)	49½ (1256)	31 (787)	27½ (699)
	240	30.0	3	2	**CFON740J3S**	**C2-218**	**C2-224**	229 (104)	70½ (1789)	52 (1321)	48½ (1232)
	480	30.0	1	2	**CFON740J11S**	**C/F**	**C/F**	229 (104)	70½ (1789)	52 (1321)	48½ (1232)
	480	30.0	3	1	**CFON740J5S**	**C2-225**	**C2-226**	229 (104)	70½ (1789)	52 (1321)	48½ (1232)
	240	36.0	3	2	**CFON748A3S**	**C2-218**	**C2-224**	234 (107)	70½ (1789)	52 (1321)	48½ (1232)
	480	36.0	1	2	**CFON748A11S**	**C/F**	**C/F**	234 (107)	70½ (1789)	52 (1321)	48½ (1232)
	480	36.0	3	1	**CFON748A5S**	**C2-225**	**C2-226**	234 (107)	70½ (1789)	52 (1321)	48½ (1232)

⑤ When steel vessel materials are used in this application, some rust may be present in the process media

C/F - Contact factory, go to www.watlow.com/en/contact-us

4 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

Application: Process Water⑤

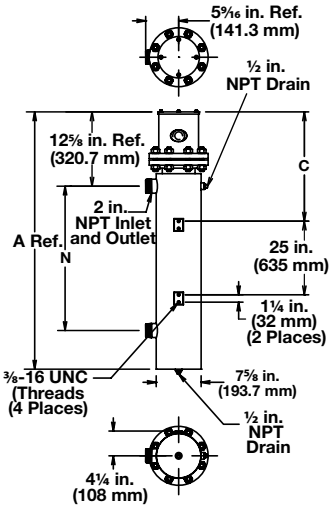
- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
5 inch - 150 lb ANSI Flange (WATROD)											
48 W/in² Steel Tank 6-Alloy 800 Elements (7.5 W/cm²)	240	24.0	1	3	**CFNN733A10S**	**C/F**	**C/F**	145 (66)	49 1/4 (1249)	30 (762)	14 7/8 (377.8)
	240	24.0	3	2	**CFNN733A3S**	**C2-218**	**C2-224**	145 (66)	49 1/4 (1249)	30 (762)	14 7/8 (377.8)
	480	24.0	1	2	**CFNN733A11S**	**C/F**	**C/F**	145 (66)	49 1/4 (1249)	30 (762)	14 7/8 (377.8)
	480	24.0	3	1	**CFNN733A5S**	**C2-225**	**C2-226**	145 (66)	49 1/4 (1249)	30 (762)	14 7/8 (377.8)
	240	30.0	3	2	**CFNN740J3S**	**C2-218**	**C2-224**	167 (76)	56 1/4 (1427)	37 (940)	18 5/8 (473.1)
	480	30.0	1	2	**CFNN740J11S**	**C/F**	**C/F**	167 (76)	56 1/4 (1427)	37 (940)	18 5/8 (473.1)
	480	30.0	3	1	**CFNN740J5S**	**C2-225**	**C2-226**	167 (76)	56 1/4 (1427)	37 (940)	18 5/8 (473.1)
	240	36.0	3	2	**CFNN748A3S**	**C2-218**	**C2-224**	180 (82)	67 3/4 (1719)	48 1/2 (1232)	25 (633.0)
	480	36.0	1	2	**CFNN748A11S**	**C/F**	**C/F**	180 (82)	67 3/4 (1719)	48 1/2 (1232)	25 (633.0)
	480	36.0	3	1	**CFNN748A5S**	**C2-225**	**C2-226**	180 (82)	67 3/4 (1719)	48 1/2 (1232)	25 (633.0)
5 inch - 150 lb ANSI Flange (WATROD)											
48 W/in² Steel Tank 9-Alloy 800 Elements (7.5 W/cm²)	240	36.0	3	3	**CFNN733A3XS**	**C4-144**	**C4-145**	150 (68)	49 1/4 (1249)	30 (762)	14 7/8 (377.8)
	480	36.0	1	3	**CFNN733A11XS**	**C/F**	**C/F**	150 (68)	49 1/4 (1249)	30 (762)	14 7/8 (377.8)
	480	36.0	3	1	**CFNN733A5XS**	**C2-225**	**C2-226**	150 (68)	49 1/4 (1249)	30 (762)	14 7/8 (377.8)
	240	45.0	3	3	**CFNN740J3XS**	**C4-144**	**C4-145**	173 (79)	56 1/4 (1427)	37 (940)	18 5/8 (473.1)
	480	45.0	1	3	**CFNN740J11XS**	**C/F**	**C/F**	173 (79)	56 1/4 (1427)	37 (940)	18 5/8 (473.1)
	480	45.0	3	3	**CFNN740J5XS**	**C4-150**	**C4-151**	173 (79)	56 1/4 (1427)	37 (940)	18 5/8 (473.1)
	240	54.0	3	3	**CFNN748A3XS**	**C4-144**	**C4-145**	188 (86)	67 3/4 (1719)	48 1/2 (1232)	25 (633.0)
	480	54.0	1	3	**CFNN748A11XS**	**C/F**	**C/F**	188 (86)	67 3/4 (1719)	48 1/2 (1232)	25 (633.0)
	480	54.0	3	3	**CFNN748A5XS**	**C4-150**	**C4-151**	188 (86)	67 3/4 (1719)	48 1/2 (1232)	25 (633.0)

⑤ When steel vessel materials are used in this application, some rust may be present in the process media

C/F - Contact factory, go to www.watlow.com/en/contact-us

5 inch - 150 lb ANSI Flange



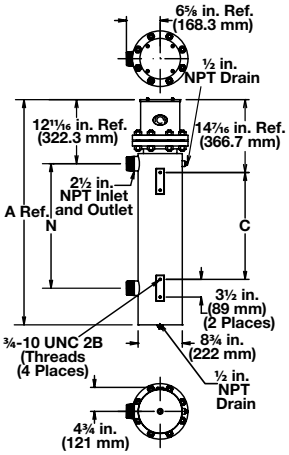
WATROD and FIREBAR Circulation Heaters

Application: Process Water⑤

- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
6 inch - 150 lb ANSI Flange (WATROD)											
48 W/in² Steel Tank 12-Alloy 800 Elements (7.5 W/cm²)	240	18.0	1	2	**CFPN713G10S**	**C/F**	**C/F**	212 (97)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	18.0	3	1	**CFPN713G3S**	**C2-236**	**C2-214**	212 (97)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	18.0	1	1	**CFPN713G11S**	**C/F**	**C/F**	212 (97)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	18.0	3	1	**CFPN713G5S**	**C2-43**	**C2-35**	212 (97)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	24.0	1	3	**CFPN717R10S**	**C/F**	**C/F**	214 (97)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	24.0	3	2	**CFPN717R3S**	**C2-218**	**C2-224**	214 (97)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	24.0	1	2	**CFPN717R11S**	**C/F**	**C/F**	214 (97)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	24.0	3	1	**CFPN717R5S**	**C2-225**	**C2-226**	214 (97)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	30.0	1	3	**CFPN720G10S**	**C/F**	**C/F**	217 (99)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	30.0	3	2	**CFPN720G3S**	**C2-218**	**C2-224**	217 (99)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	30.0	1	2	**CFPN720G11S**	**C/F**	**C/F**	217 (99)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	30.0	3	1	**CFPN720G5S**	**C2-225**	**C2-226**	217 (99)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	36.0	1	4	**CFPN725G10S**	**C/F**	**C/F**	222 (101)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	36.0	3	2	**CFPN725G3S**	**C2-218**	**C2-224**	222 (101)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	36.0	1	2	**CFPN725G11S**	**C/F**	**C/F**	222 (101)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	36.0	3	1	**CFPN725G5S**	**C2-225**	**C2-226**	222 (101)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	48.0	3	4	**CFPN732R3S**	**C4-148**	**C4-149**	226 (103)	51 (1294)	31 (787)	27 1/2 (699)
	480	48.0	1	3	**CFPN732R11S**	**C/F**	**C/F**	226 (103)	51 (1294)	31 (787)	27 1/2 (699)
	480	48.0	3	2	**CFPN732R5S**	**C2-229**	**C2-230**	226 (103)	51 (1294)	31 (787)	27 1/2 (699)
	240	60.0	3	4	**CFPN740G3S**	**C4-148**	**C4-149**	290 (132)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	60.0	1	3	**CFPN740G11S**	**C/F**	**C/F**	290 (132)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	60.0	3	2	**CFPN740G5S**	**C2-229**	**C2-230**	290 (132)	72 (1827)	52 (1321)	48 1/2 (1232)
	240	72.0	3	4	**CFPN747R3S**	**C4-148**	**C4-149**	298 (136)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	72.0	3	2	**CFPN747R5S**	**C2-229**	**C2-230**	298 (136)	72 (1827)	52 (1321)	48 1/2 (1232)
6 inch - 150 lb ANSI Flange (WATROD)											
48 W/in² Steel Tank 15-Alloy 800 Elements (7.5 W/cm²)	240	23.0	1	3	**CFPN713G10XS**	**C/F**	**C/F**	215 (98)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	23.0	3	5	**CFPN713G3XS**	**C4-143**	**C4-142**	215 (98)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	23.0	1	1	**CFPN713G11XS**	**C/F**	**C/F**	215 (98)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	23.0	3	1	**CFPN713G5XS**	**C2-225**	**C2-226**	215 (98)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	30.0	1	3	**CFPN717R10XS**	**C/F**	**C/F**	217 (99)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	30.0	3	5	**CFPN717R3XS**	**C4-144**	**C4-145**	217 (99)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	30.0	1	3	**CFPN717R11XS**	**C/F**	**C/F**	217 (99)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	30.0	3	1	**CFPN717R5XS**	**C2-225**	**C2-226**	217 (99)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	38.0	1	5	**CFPN720G10XS**	**C/F**	**C/F**	223 (102)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	38.0	3	5	**CFPN720G3XS**	**C4-144**	**C4-145**	223 (102)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	38.0	1	3	**CFPN720G11XS**	**C/F**	**C/F**	223 (102)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	38.0	3	1	**CFPN720G5XS**	**C2-225**	**C2-226**	223 (102)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	45.0	1	5	**CFPN725G10XS**	**C/F**	**C/F**	226 (103)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	45.0	3	5	**CFPN725G3XS**	**C4-144**	**C4-145**	226 (103)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	45.0	1	3	**CFPN725G11XS**	**C/F**	**C/F**	226 (103)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	45.0	3	5	**CFPN725G5XS**	**C4-150**	**C4-151**	226 (103)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	60.0	3	5	**CFPN732R3XS**	**C/F**	**C/F**	288 (131)	51 (1294)	31 (787)	27 1/2 (699)
	480	60.0	1	3	**CFPN732R11XS**	**C/F**	**C/F**	288 (131)	51 (1294)	31 (787)	27 1/2 (699)
	480	60.0	3	5	**CFPN732R5XS**	**C4-152**	**C4-153**	288 (131)	51 (1294)	31 (787)	27 1/2 (699)
	240	75.0	3	5	**CFPN740G3XS**	**C/F**	**C/F**	296 (135)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	75.0	1	5	**CFPN740G11XS**	**C/F**	**C/F**	296 (135)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	75.0	3	5	**CFPN740G5XS**	**C4-152**	**C4-153**	296 (135)	72 (1827)	52 (1321)	48 1/2 (1232)
	240	90.0	3	5	**CFPN747R3XS**	**C/F**	**C/F**	306 (139)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	90.0	3	5	**CFPN747R5XS**	**C4-152**	**C4-153**	306 (139)	72 (1827)	52 (1321)	48 1/2 (1232)

6 inch - 150 lb ANSI Flange



⑤ When steel vessel materials are used in this application, some rust may be present in the process media

C/F - Contact factory, go to www.watlow.com/en/contact-us

WATROD and FIREBAR Circulation Heaters

Application: Process Water[5]

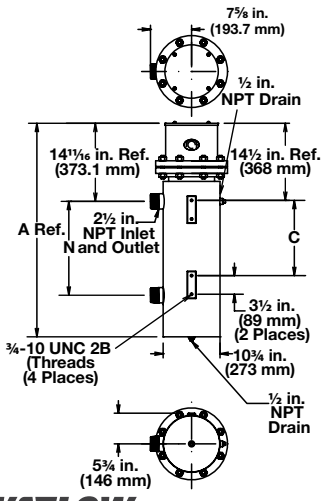
- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
8 inch - 150 lb ANSI Flange (WATROD)											
48 W/in² Steel Tank 18-Alloy 800 Elements (7.5 W/cm²)	240	50.0	3	3	**CFRN725N3S**	**C4-144**	**C4-145**	350 (159)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	480	50.0	1	3	**CFRN725N11S**	**C/F**	**C/F**	350 (159)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	480	50.0	3	2	**CFRN725N5S**	**C2-229**	**C2-230**	350 (159)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	240	75.0	3	6	**CFRN735N3S**	**C/F**	**C/F**	380 (173)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	480	75.0	3	2	**CFRN735N5S**	**C2-229**	**C2-230**	380 (173)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	240	100.0	3	6	**CFRN744E3S**	**C/F**	**C/F**	410 (186)	69 7/8 (1774.8)	47 3/8 (1203.3)	43 7/8 (1114.4)
	480	100.0	3	3	**CFRN744E5S**	**C2-229**	**C2-230**	410 (186)	69 7/8 (1774.8)	47 3/8 (1203.3)	43 7/8 (1114.4)
	240	125.0	3	6	**CFRN754M3S**	**C/F**	**C/F**	445 (202)	79 3/8 (2016.1)	56 7/8 (1444.6)	53 3/8 (1355.7)
	480	125.0	3	6	**CFRN754M5S**	**C/F**	**C/F**	445 (202)	79 3/8 (2016.1)	56 7/8 (1444.6)	53 3/8 (1355.7)
	480	150.0	3	6	**CFRN763M5S**	**C/F**	**C/F**	490 (223)	88 3/8 (2244.7)	65 7/8 (1673.2)	62 3/8 (1584.3)
	480	175.0	3	6	**CFRN773D5S**	**C/F**	**C/F**	530 (241)	98 3/8 (2498.7)	75 7/8 (1927.2)	72 3/8 (1838.3)
	480	200.0	3	6	**CFRN782M5S**	**C/F**	**C/F**	560 (254)	98 3/8 (2498.7)	75 7/8 (1927.2)	72 3/8 (1838.3)
8 inch - 150 lb ANSI Flange (WATROD)											
48 W/in² Steel Tank 24-Alloy 800 Elements (7.5 W/cm²)	240	67.0	3	4	**CFRN726D3XS**	**C4-148**	**C4-149**	358 (163)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	480	67.0	1	3	**CFRN726D11XS**	**C/F**	**C/F**	358 (163)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	480	67.0	3	2	**CFRN726D5XS**	**C2-229**	**C2-230**	358 (163)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	240	100.0	3	8	**CFRN736D3XS**	**C/F**	**C/F**	392 (178)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	480	100.0	3	4	**CFRN736D5XS**	**C4-156**	**C4-157**	392 (178)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	240	133.0	3	8	**CFRN744M3XS**	**C/F**	**C/F**	425 (193)	69 7/8 (1774.8)	47⅝ (1203.3)	43 7/8 (1114.4)
	480	133.0	3	4	**CFRN744M5XS**	**C4-156**	**C4-157**	425 (193)	69 7/8 (1774.8)	47⅝ (1203.3)	43 7/8 (1114.4)
	240	167.0	3	8	**CFRN754M3XS**	**C/F**	**C/F**	463 (210)	79 3/8 (2016.1)	56 7/8 (1444.6)	53 3/8 (1355.7)
	480	167.0	3	8	**CFRN754M5XS**	**C/F**	**C/F**	463 (210)	79 3/8 (2016.1)	56 7/8 (1444.6)	53 3/8 (1355.7)
	480	200.0	3	8	**CFRN763M5XS**	**C/F**	**C/F**	511 (232)	88 3/8 (2244.7)	65 7/8 (1673.2)	62 3/8 (1584.3)
	480	233.0	3	8	**CFRN773D5XS**	**C/F**	**C/F**	554 (252)	98 3/8 (2498.7)	75 7/8 (1927.2)	72 3/8 (1838.3)
	480	267.0	3	8	**CFRN782M5XS**	**C/F**	**C/F**	587 (267)	98 3/8 (2498.7)	75 7/8 (1927.2)	72 3/8 (1838.3)

⑤ When steel vessel materials are used in this application, some rust may be present in the process media

C/F - Contact factory, go to www.watlow.com/en/contact-us

8 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

Application: Process Water⑤

- WATROD elements
- Without thermostat
- General purpose enclosure

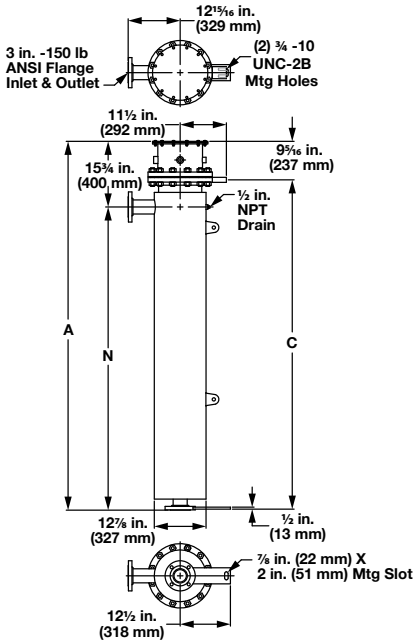
Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
10 inch - 150 lb ANSI Flange (WATROD)											
48 W/in² ⑧ Steel Tank 27-Alloy 800 Elements (7.5 W/cm²)	480	262.0	3	9	**CFSN773E5S**	**C/F**	**C/F**	600 (273)	106 5/8 (2708.3)	90 7/8 (2308.2)	97 5/16 (2471.7)
12 inch, 150 lb ANSI Flange (WATROD)											
48 W/in² Steel Tank 36-Alloy 800 Elements (7.5 W/cm²)	480	350.0	3	12	**CFTN773C5S**	**C/F**	**C/F**	650 (295)	106 1/2 (2705)	90 3/8 (2295.5)	97 1/8 (2467.0)
14 inch - 150 lb ANSI Flange (WATROD)											
48 W/in² Steel Tank 45-Alloy 800 Elements (7.5 W/cm²)	480	315.0	3	15	**CFWN754J5S**	**C/F**	**C/F**	600 (273)	83 1/4 (2115)	67 (1700)	73 11/16 (1871.7)
	480	375.0	3	15	**CFWN763J5S**	**C/F**	**C/F**	650 (295)	90 3/4 (2305)	74 1/2 (1891)	81 3/16 (2062.2)

⑤ When steel vessel materials are used in this application, some rust may be present in the process media

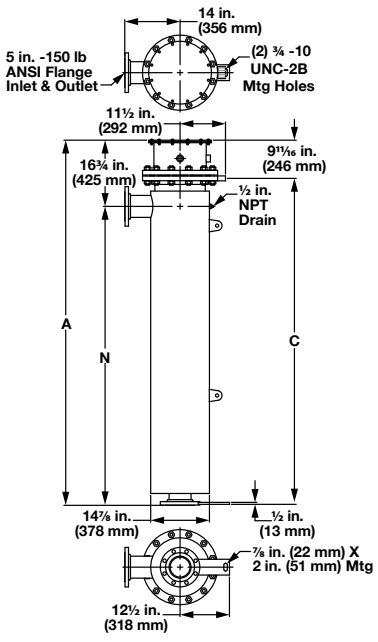
⑧ Can be wired for 1-phase operation

C/F - Contact factory, go to www.watlow.com/en/contact-us

10 inch - 150 lb ANSI Flange



12 inch - 150 lb ANSI Flange



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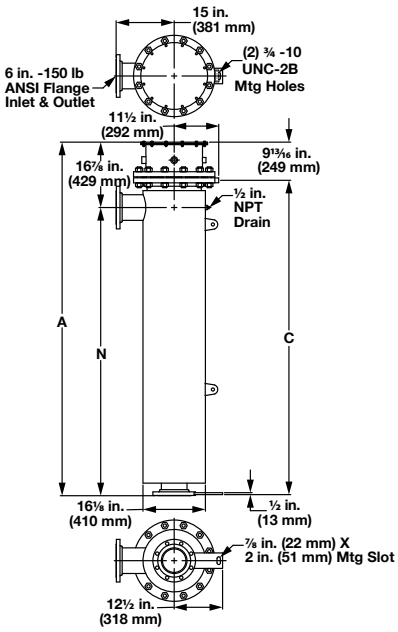


WATROD and FIREBAR Circulation Heaters

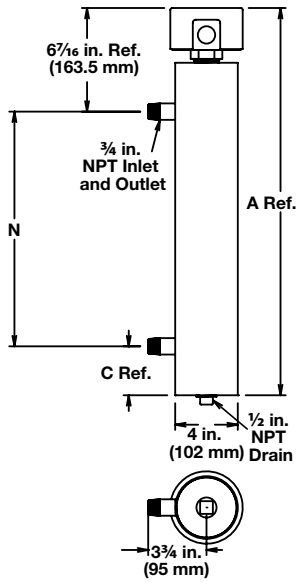
Application: Forced Air and Caustic Solutions

- WATROD elements
- Without thermostat
- General purpose enclosure

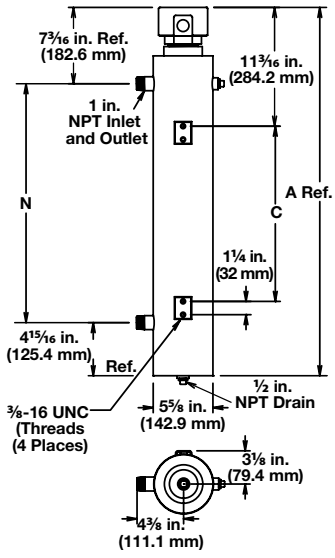
Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
1 1/4 inch NPT Screw Plug (WATROD)											
23 W/in² ④ Steel Tank 2-Alloy 800 Elements (3.6 W/cm²)	120	1.0	1	1	**CBEN13G6S**	**C1-15**	**C1-12**	21 (10)	24 5/8 (625.5)	15 (381)	3 1/8 (79.4)
	240	1.0	1	1	**CBEN13G6S**	**C1-17**	**C1-13**	21 (10)	24 5/8 (625.5)	15 (381)	3 1/8 (79.4)
	120	1.5	1	1	**CBEN19A6S**	**C1-15**	**C1-12**	29 (14)	24 5/8 (625.5)	15 (381)	3 1/8 (79.4)
	240	1.5	1	1	**CBEN19A6S**	**C1-17**	**C1-13**	29 (14)	24 5/8 (625.5)	15 (381)	3 1/8 (79.4)
	120	2.0	1	1	**CBEN24G6S**	**C1-15**	**C1-12**	29 (14)	32 5/8 (828.7)	23 (584)	3 1/8 (79.4)
	240	2.0	1	1	**CBEN24G6S**	**C1-17**	**C1-13**	29 (14)	32 5/8 (828.7)	23 (584)	3 1/8 (79.4)
2 1/2 inch NPT Screw Plug (WATROD)											
23 W/in² Steel Tank 3-Alloy 800 Elements (3.6 W/cm²)	240	3.0	3	1	**CBLNA17G3S**	**C2-50**	**C2-92**	24 (11)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	3.0	3	1	**CBLNA17G5S**	**C2-43**	**C2-35**	24 (11)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	4.5	3	1	**CBLNA24R3S**	**C2-50**	**C2-92**	27 (13)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	480	4.5	3	1	**CBLNA24R5S**	**C2-43**	**C2-35**	27 (13)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	240	6.0	3	1	**CBLNA32G3S**	**C2-50**	**C2-92**	29 (14)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	480	6.0	3	1	**CBLNA32G5S**	**C2-43**	**C2-35**	29 (14)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	240	7.5	3	1	**CBLNA39R3S**	**C2-50**	**C2-92**	31 (14)	57 1/4 (1453)	45 (1143)	39 (991)
	480	7.5	3	1	**CBLNA39R5S**	**C2-43**	**C2-35**	31 (14)	57 1/4 (1453)	45 (1143)	39 (991)
	240	9.0	3	1	**CBLNA47G3S**	**C2-50**	**C2-92**	32 (15)	57 1/4 (1453)	45 (1143)	39 (991)
	480	9.0	3	1	**CBLNA47G5S**	**C2-43**	**C2-35**	32 (15)	57 1/4 (1453)	45 (1143)	39 (991)

④ Wired for higher voltage

1 1/4 inch NPT Screw Plug



2 1/2 inch NPT Screw Plug



WATROD and FIREBAR Circulation Heaters

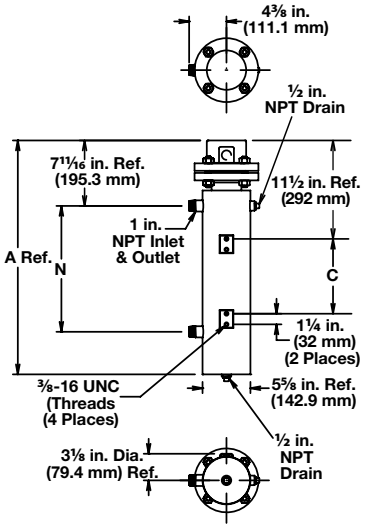
Application: Forced Air and Caustic Solutions

- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
3 inch - 150 lb ANSI Flange (WATROD)											
23 W/in² Steel Tank 3-Alloy 800 Elements (3.6 W/cm²)	240	3.0	1	1	**CFMNA18A10S**	**C1-17**	**C1-13**	68 (31)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	240	3.0	3	1	**CFMNA18A3S**	**C2-50**	**C2-92**	68 (31)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	480	3.0	1	1	**CFMNA18A11S**	**C/F**	**C/F**	68 (31)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	480	3.0	3	1	**CFMNA18A5S**	**C2-43**	**C2-35**	68 (31)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	240	4.5	1	1	**CFMNA25J10S**	**C/F**	**C/F**	78 (36)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	240	4.5	3	1	**CFMNA25J3S**	**C2-50**	**C2-92**	78 (36)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	480	4.5	1	1	**CFMNA25J11S**	**C/F**	**C/F**	78 (36)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	480	4.5	3	1	**CFMNA25J5S**	**C2-43**	**C2-35**	78 (36)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	240	6.0	1	1	**CFMNA33A10S**	**C/F**	**C/F**	96 (44)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	240	6.0	3	1	**CFMNA33A3S**	**C2-50**	**C2-92**	96 (44)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	480	6.0	1	1	**CFMNA33A11S**	**C/F**	**C/F**	96 (44)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	480	6.0	3	1	**CFMNA33A5S**	**C2-43**	**C2-35**	96 (44)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	240	7.5	1	1	**CFMNA40J10S**	**C/F**	**C/F**	100 (46)	57 3/4 (1465)	45 (1143)	39 (991)
	240	7.5	3	1	**CFMNA40J3S**	**C2-50**	**C2-92**	100 (46)	57 3/4 (1465)	45 (1143)	39 (991)
	480	7.5	1	1	**CFMNA40J11S**	**C/F**	**C/F**	100 (46)	57 3/4 (1465)	45 (1143)	39 (991)
	480	7.5	3	1	**CFMNA40J5S**	**C2-43**	**C2-35**	100 (46)	57 3/4 (1465)	45 (1143)	39 (991)
	240	9.0	1	1	**CFMNA48A10S**	**C/F**	**C/F**	107 (49)	57 3/4 (1465)	45 (1143)	39 (991)
	240	9.0	3	1	**CFMNA48A3S**	**C2-50**	**C2-92**	107 (49)	57 3/4 (1465)	45 (1143)	39 (991)
	480	9.0	1	1	**CFMNA48A11S**	**C/F**	**C/F**	107 (49)	57 3/4 (1465)	45 (1143)	39 (991)
	480	9.0	3	1	**CFMNA48A5S**	**C2-43**	**C2-35**	107 (49)	57 3/4 (1465)	45 (1143)	39 (991)

C/F - Contact factory, go to www.watlow.com/en/contact-us

3 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

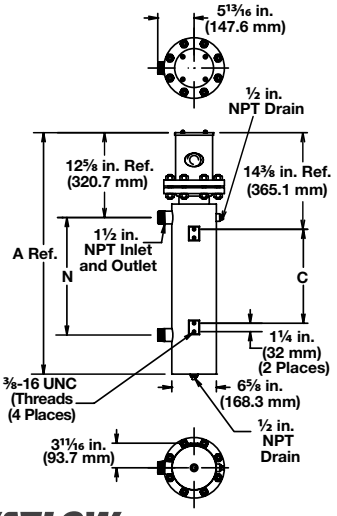
Application: Forced Air and Caustic Solutions

- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
4 inch - 150 lb ANSI Flange (WATROD)											
23 W/in² ⑥ Steel Tank 6-Alloy 800 Elements (3.6 W/cm²)	240	6.0	1	1	**CFONA18A10S**	**C/F**	**C/F**	125 (57)	39 (989)	20 1/2 (521)	17 (432)
	240	6.0	3	1	**CFONA18A3S**	**C2-50**	**C2-92**	125 (57)	39 (989)	20 1/2 (521)	17 (432)
	480	6.0	1	1	**CFONA18A11S**	**C/F**	**C/F**	125 (57)	39 (989)	20 1/2 (521)	17 (432)
	480	6.0	3	1	**CFONA18A5S**	**C2-43**	**C2-35**	125 (57)	39 (989)	20 1/2 (521)	17 (432)
	240	9.0	1	1	**CFONA25J10S**	**C/F**	**C/F**	160 (73)	39 (989)	20 1/2 (521)	17 (432)
	240	9.0	3	1	**CFONA25J3S**	**C2-50**	**C2-92**	160 (73)	39 (989)	20 1/2 (521)	17 (432)
	480	9.0	1	1	**CFONA25J11S**	**C/F**	**C/F**	160 (73)	39 (989)	20 1/2 (521)	17 (432)
	480	9.0	3	1	**CFONA25J5S**	**C2-43**	**C2-35**	160 (73)	39 (989)	20 1/2 (521)	17 (432)
	240	12.0	1	2	**CFONA33A10S**	**C/F**	**C/F**	163 (74)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	240	12.0	3	1	**CFONA33A3S**	**C2-236**	**C2-214**	163 (74)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	480	12.0	1	1	**CFONA33A11S**	**C/F**	**C/F**	163 (74)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	480	12.0	3	1	**CFONA33A5S**	**C2-43**	**C2-35**	163 (74)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	240	15.0	1	2	**CFONA40J10S**	**C/F**	**C/F**	229 (104)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	240	15.0	3	1	**CFONA40J3S**	**C2-236**	**C2-214**	229 (104)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	480	15.0	1	1	**CFONA40J11S**	**C/F**	**C/F**	229 (104)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	480	15.0	3	1	**CFONA40J5S**	**C2-43**	**C2-35**	229 (104)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	240	18.0	1	2	**CFONA48A10S**	**C/F**	**C/F**	234 (107)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	240	18.0	3	1	**CFONA48A3S**	**C2-236**	**C2-214**	234 (107)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	480	18.0	1	1	**CFONA48A11S**	**C/F**	**C/F**	234 (107)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	480	18.0	3	1	**CFONA48A5S**	**C2-43**	**C2-35**	234 (107)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	240	25.0	3	2	**CFONA64J3S**	**C2-236**	**C2-214**	298 (136)	91 1/2 (2326)	73 (1854)	66 (1676)
	480	25.0	1	2	**CFONA64J11S**	**C/F**	**C/F**	298 (136)	91 1/2 (2326)	73 (1854)	66 (1676)
	480	25.0	3	1	**CFONA64J5S**	**C2-225**	**C2-226**	298 (136)	91 1/2 (2326)	73 (1854)	66 (1676)
	240	30.0	3	2	**CFONA77A3S**	**C2-236**	**C2-214**	306 (139)	91 1/2 (2326)	73 (1854)	66 (1676)
	480	30.0	1	2	**CFONA77A11S**	**C/F**	**C/F**	306 (139)	91 1/2 (2326)	73 (1854)	66 (1676)
	480	30.0	3	1	**CFONA77A5S**	**C2-225**	**C2-226**	306 (139)	91 1/2 (2326)	73 (1854)	66 (1676)

⑥ Can be wired 3-phase wye to produce 1/3 of the rated kW and watt density C/F - Contact factory, go to www.watlow.com/en/contact-us

4 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

Application: Forced Air and Caustic Solutions

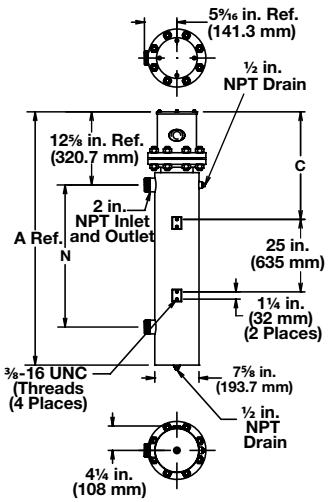
- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs	Ship Wt. (kg)	"A" Dim. in.	"A" Dim. (mm)	"N" Dim. in.	"N" Dim. (mm)	"C" Dim. in.	"C" Dim. (mm)
5 inch - 150 lb ANSI Flange (WATROD)															
23 W/in² ⑥ Steel Tank 6-Alloy 800 Elements (3.6 W/cm²)	240	9.0	1	1	**CFNNA25J10S**	**C/F**	**C/F**	140	(64)	49 1/4	(1249.0)	30	(762.0)	14 7/8	(377.8)
	240	9.0	3	1	**CFNNA25J3S**	**C2-50**	**C2-92**	140	(64)	49 1/4	(1249.0)	30	(762.0)	14 7/8	(377.8)
	480	9.0	1	1	**CFNNA25J11S**	**C/F**	**C/F**	140	(64)	49 1/4	(1249.0)	30	(762.0)	14 7/8	(377.8)
	480	9.0	3	1	**CFNNA25J5S**	**C2-43**	**C2-35**	140	(64)	49 1/4	(1249.0)	30	(762.0)	14 7/8	(377.8)
	240	12.0	1	2	**CFNNA33A10S**	**C/F**	**C/F**	145	(66)	56 1/4	(1427.0)	37	(940.0)	18 5/8	(473.1)
	240	12.0	3	1	**CFNNA33A3S**	**C2-236**	**C2-214**	145	(66)	56 1/4	(1427.0)	37	(940.0)	18 5/8	(473.1)
	480	12.0	1	1	**CFNNA33A11S**	**C/F**	**C/F**	145	(66)	56 1/4	(1427.0)	37	(940.0)	18 5/8	(473.1)
	480	12.0	3	1	**CFNNA33A5S**	**C2-43**	**C2-35**	145	(66)	56 1/4	(1427.0)	37	(940.0)	18 5/8	(473.1)
	240	15.0	1	2	**CFNNA40J10S**	**C/F**	**C/F**	167	(76)	56 1/4	(1427.0)	37	(940.0)	18 5/8	(473.1)
	240	15.0	3	1	**CFNNA40J3S**	**C2-236**	**C2-214**	167	(76)	56 1/4	(1427.0)	37	(940.0)	18 5/8	(473.1)
	480	15.0	1	1	**CFNNA40J11S**	**C/F**	**C/F**	167	(76)	56 1/4	(1427.0)	37	(940.0)	18 5/8	(473.1)
	480	15.0	3	1	**CFNNA40J5S**	**C2-43**	**C2-35**	167	(76)	56 1/4	(1427.0)	37	(940.0)	18 5/8	(473.1)
	240	18.0	1	2	**CFNNA48A10S**	**C/F**	**C/F**	180	(82)	67 3/4	(1719.0)	48 1/2	(1232.0)	25	(633.0)
	240	18.0	3	1	**CFNNA48A3S**	**C2-236**	**C2-214**	180	(82)	67 3/4	(1719.0)	48 1/2	(1232.0)	25	(633.0)
	480	18.0	1	1	**CFNNA48A11S**	**C/F**	**C/F**	180	(82)	67 3/4	(1719.0)	48 1/2	(1232.0)	25	(633.0)
	480	18.0	3	1	**CFNNA48A5S**	**C2-43**	**C2-35**	180	(82)	67 3/4	(1719.0)	48 1/2	(1232.0)	25	(633.0)
	240	25.0	3	2	**CFNNA64J3S**	**C2-218**	**C2-224**	195	(89)	81 1/8	(2060.6)	61 7/8	(1571.6)	25	(633.0)
	480	25.0	1	2	**CFNNA64J11S**	**C/F**	**C/F**	195	(89)	81 1/8	(2060.6)	61 7/8	(1571.6)	25	(633.0)
	480	25.0	3	1	**CFNNA64J5S**	**C2-225**	**C2-226**	195	(89)	81 1/8	(2060.6)	61 7/8	(1571.6)	25	(633.0)
	240	30.0	3	2	**CFNNA77A3S**	**C2-218**	**C2-224**	220	(100)	94 1/8	(2390.8)	75	(1902.0)	25	(633.0)
	480	30.0	1	2	**CFNNA77A11S**	**C/F**	**C/F**	220	(100)	94 1/8	(2390.8)	75	(1902.0)	25	(633.0)
	480	30.0	3	1	**CFNNA77A5S**	**C2-225**	**C2-226**	220	(100)	94 1/8	(2390.8)	75	(1902.0)	25	(633.0)

⑥ Can be wired 3-phase wye to produce 1/3 of the rated kW and watt density

C/F - Contact factory, go to www.watlow.com/en/contact-us

5 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

Application: Forced Air and Caustic Solutions

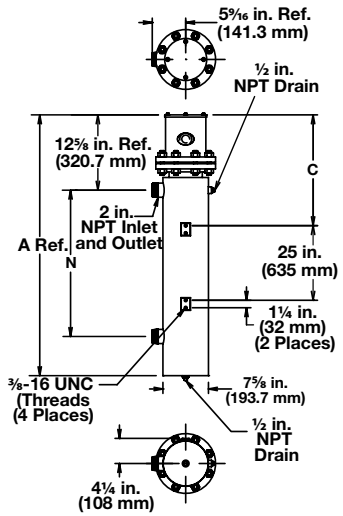
- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
5 inch - 150 lb ANSI Flange (WATROD)											
23 W/in² ⑥ Steel Tank 9-Alloy 800 Elements (3.6 W/cm²)	240	14.0	1	3	**CFNNA25J10XS**	**C/F**	**C/F**	145 (66)	49 1/4 (1249.0)	30 (762.0)	14 7/8 (377.8)
	240	14.0	3	1	**CFNNA25J3XS**	**C2-236**	**C2-214**	145 (66)	49 1/4 (1249.0)	30 (762.0)	14 7/8 (377.8)
	480	14.0	1	1	**CFNNA25J11XS**	**C/F**	**C/F**	145 (66)	49 1/4 (1249.0)	30 (762.0)	14 7/8 (377.8)
	480	14.0	3	1	**CFNNA25J5XS**	**C2-43**	**C2-35**	145 (66)	49 1/4 (1249.0)	30 (762.0)	14 7/8 (377.8)
	240	18.0	1	3	**CFNNA33A10XS**	**C/F**	**C/F**	150 (68)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (473.1)
	240	18.0	3	1	**CFNNA33A3XS**	**C2-236**	**C2-214**	150 (68)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (473.1)
	480	18.0	1	1	**CFNNA33A11XS**	**C/F**	**C/F**	150 (68)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (473.1)
	480	18.0	3	1	**CFNNA33A5XS**	**C2-43**	**C2-35**	150 (68)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (473.1)
	240	23.0	1	3	**CFNNA40J10XS**	**C/F**	**C/F**	174 (79)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (473.1)
	240	23.0	3	3	**CFNNA40J3XS**	**C4-143**	**C4-142**	174 (79)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (473.1)
	480	23.0	1	1	**CFNNA40J11XS**	**C/F**	**C/F**	174 (79)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (473.1)
	480	23.0	3	1	**CFNNA40J5XS**	**C2-225**	**C2-226**	174 (79)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (473.1)
	240	27.0	1	3	**CFNNA48A10XS**	**C/F**	**C/F**	189 (86)	67 3/4 (1719.0)	48 1/2 (1232.0)	25 (633.0)
	240	27.0	3	3	**CFNNA48A3XS**	**C4-143**	**C4-142**	189 (86)	67 3/4 (1719.0)	48 1/2 (1232.0)	25 (633.0)
	480	27.0	1	3	**CFNNA48A11XS**	**C/F**	**C/F**	189 (86)	67 3/4 (1719.0)	48 1/2 (1232.0)	25 (633.0)
	480	27.0	3	1	**CFNNA48A5XS**	**C2-225**	**C2-226**	189 (86)	67 3/4 (1719.0)	48 1/2 (1232.0)	25 (633.0)
	240	38.0	3	3	**CFNNA64J3XS**	**C4-144**	**C4-145**	207 (94)	81 1/8 (2060.6)	61 7/8 (1571.6)	25 (633.0)
	480	38.0	1	3	**CFNNA64J11XS**	**C/F**	**C/F**	207 (94)	81 1/8 (2060.6)	61 7/8 (1571.6)	25 (633.0)
	480	38.0	3	1	**CFNNA64J5XS**	**C2-225**	**C2-226**	207 (94)	81 1/8 (2060.6)	61 7/8 (1571.6)	25 (633.0)
	240	45.0	3	3	**CFNNA77A3XS**	**C4-144**	**C4-145**	233 (106)	94 1/8 (2389.0)	75 (1902.0)	25 (633.0)
	480	45.0	1	3	**CFNNA77A11XS**	**C/F**	**C/F**	233 (106)	94 1/8 (2389.0)	75 (1902.0)	25 (633.0)
	480	45.0	3	3	**CFNNA77A5XS**	**C4-150**	**C4-151**	233 (106)	94 1/8 (2389.0)	75 (1902.0)	25 (633.0)

⑥ Can be wired 3-phase wye to produce 1/3 of the rated kW and watt density

C/F - Contact factory, go to www.watlow.com/en/contact-us

5 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

Application: Forced Air and Caustic Solutions

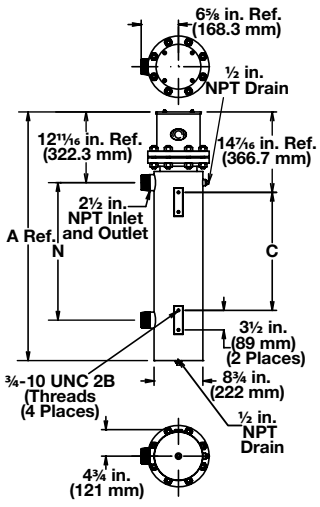
- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
6 inch - 150 lb ANSI Flange (WATROD)											
23 W/in² ⑥ Steel Tank 12-Alloy 800 Elements (3.6 W/cm²)	240	12.0	1	2	**CFPNA17R10S**	**C/F**	**C/F**	214 (97)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	12.0	3	1	**CFPNA17R3S**	**C2-236**	**C2-214**	214 (97)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	12.0	1	1	**CFPNA17R11S**	**C/F**	**C/F**	214 (97)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	12.0	3	1	**CFPNA17R5S**	**C2-43**	**C2-35**	214 (97)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	18.0	1	2	**CFPNA25G10S**	**C/F**	**C/F**	222 (101)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	18.0	3	1	**CFPNA25G3S**	**C2-236**	**C2-214**	222 (101)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	18.0	1	1	**CFPNA25G11S**	**C/F**	**C/F**	222 (101)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	480	18.0	3	1	**CFPNA25G5S**	**C2-43**	**C2-35**	222 (101)	40 1/2 (1027)	20 1/2 (521)	17 (432)
	240	24.0	1	3	**CFPNA32R10S**	**C/F**	**C/F**	226 (103)	51 (1294)	31 (787)	27 1/2 (699)
	240	24.0	3	2	**CFPNA32R3S**	**C2-218**	**C2-224**	226 (103)	51 (1294)	31 (787)	27 1/2 (699)
	480	24.0	1	2	**CFPNA32R11S**	**C/F**	**C/F**	226 (103)	51 (1294)	31 (787)	27 1/2 (699)
	480	24.0	3	1	**CFPNA32R5S**	**C2-225**	**C2-226**	226 (103)	51 (1294)	31 (787)	27 1/2 (699)
	240	30.0	1	3	**CFPNA40G10S**	**C/F**	**C/F**	290 (132)	72 (1827)	52 (1321)	48 1/2 (1232)
	240	30.0	3	2	**CFPNA40G3S**	**C2-218**	**C2-224**	290 (132)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	30.0	1	2	**CFPNA40G11S**	**C/F**	**C/F**	290 (132)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	30.0	3	1	**CFPNA40G5S**	**C2-225**	**C2-226**	290 (132)	72 (1827)	52 (1321)	48 1/2 (1232)
	240	36.0	1	4	**CFPNA47R10S**	**C/F**	**C/F**	298 (136)	72 (1827)	52 (1321)	48 1/2 (1232)
	240	36.0	3	2	**CFPNA47R3S**	**C2-218**	**C2-224**	298 (136)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	36.0	1	2	**CFPNA47R11S**	**C/F**	**C/F**	298 (136)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	36.0	3	1	**CFPNA47R5S**	**C2-225**	**C2-226**	298 (136)	72 (1827)	52 (1321)	48 1/2 (1232)
	240	50.0	3	4	**CFPNA64G3S**	**C4-148**	**C4-149**	360 (164)	93 (2361)	73 (1854)	66 (1676)
	480	50.0	1	3	**CFPNA64G11S**	**C/F**	**C/F**	360 (164)	93 (2361)	73 (1854)	66 (1676)
	480	50.0	3	2	**CFPNA64G5S**	**C2-229**	**C2-230**	360 (164)	93 (2361)	73 (1854)	66 (1676)
	240	60.0	3	4	**CFPNA76R3S**	**C4-148**	**C4-149**	368 (167)	93 (2361)	73 (1854)	66 (1676)
	480	60.0	1	3	**CFPNA76R11S**	**C/F**	**C/F**	368 (167)	93 (2361)	73 (1854)	66 (1676)
	480	60.0	3	2	**CFPNA76R5S**	**C2-229**	**C2-230**	368 (167)	93 (2361)	73 (1854)	66 (1676)

⑥ Can be wired 3-phase wye to produce 1/3 of the rated kW and watt density

C/F - Contact factory, go to www.watlow.com/en/contact-us

6 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

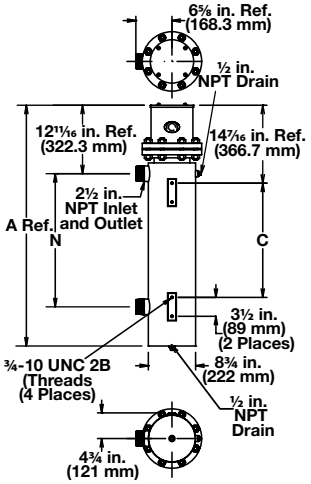
Application: Forced Air and Caustic Solutions

- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs	Ship Wt. (kg)	"A" Dim. in.	"A" Dim. (mm)	"N" Dim. in.	"N" Dim. (mm)	"C" Dim. in.	"C" Dim. (mm)
6 inch - 150 lb ANSI Flange (WATROD)															
23 W/in² Steel Tank 15-Alloy 800 Elements (3.6 W/cm²)	240	15.0	1	3	**CFPNA17R10XS**	**C/F**	**C/F**	217	(99)	40 1/2	(1027)	20 1/2	(521)	17	(432)
	240	15.0	3	1	**CFPNA17R3XS**	**C2-236**	**C2-214**	217	(99)	40 1/2	(1027)	20 1/2	(521)	17	(432)
	480	15.0	1	1	**CFPNA17R11XS**	**C/F**	**C/F**	217	(99)	40 1/2	(1027)	20 1/2	(521)	17	(432)
	480	15.0	3	1	**CFPNA17R5XS**	**C2-43**	**C2-35**	217	(99)	40 1/2	(1027)	20 1/2	(521)	17	(432)
	240	23.0	1	3	**CFPNA25G10XS**	**C/F**	**C/F**	226	(103)	40 1/2	(1027)	20 1/2	(521)	17	(432)
	240	23.0	3	5	**CFPNA25G3XS**	**C4-143**	**C4-142**	226	(103)	40 1/2	(1027)	20 1/2	(521)	17	(432)
	480	23.0	1	1	**CFPNA25G11XS**	**C/F**	**C/F**	226	(103)	40 1/2	(1027)	20 1/2	(521)	17	(432)
	480	23.0	3	1	**CFPNA25G5XS**	**C2-225**	**C2-226**	226	(103)	40 1/2	(1027)	20 1/2	(521)	17	(432)
	240	30.0	1	3	**CFPNA32R10XS**	**C/F**	**C/F**	288	(131)	51	(1294)	31	(787)	27 1/2	(699)
	240	30.0	3	5	**CFPNA32R3XS**	**C4-144**	**C4-145**	288	(131)	51	(1294)	31	(787)	27 1/2	(699)
	480	30.0	1	3	**CFPNA32R11XS**	**C/F**	**C/F**	288	(131)	51	(1294)	31	(787)	27 1/2	(699)
	480	30.0	3	1	**CFPNA32R5XS**	**C2-224**	**C2-226**	288	(131)	51	(1294)	31	(787)	27 1/2	(699)
	240	38.0	1	5	**CFPNA40G10XS**	**C/F**	**C/F**	296	(135)	72	(1827)	52	(1321)	48 1/2	(1232)
	240	38.0	3	5	**CFPNA40G3XS**	**C4-144**	**C4-145**	296	(135)	72	(1827)	52	(1321)	48 1/2	(1232)
	480	38.0	1	3	**CFPNA40G11XS**	**C/F**	**C/F**	296	(135)	72	(1827)	52	(1321)	48 1/2	(1232)
	480	38.0	3	1	**CFPNA40G5XS**	**C2-225**	**C2-226**	296	(135)	72	(1827)	52	(1321)	48 1/2	(1232)
	240	45.0	1	5	**CFPNA47R10XS**	**C/F**	**C/F**	306	(139)	72	(1827)	52	(1321)	48 1/2	(1232)
	240	45.0	3	5	**CFPNA47R3XS**	**C4-144**	**C4-145**	306	(139)	72	(1827)	52	(1321)	48 1/2	(1232)
	480	45.0	1	3	**CFPNA47R11XS**	**C/F**	**C/F**	306	(139)	72	(1827)	52	(1321)	48 1/2	(1232)
	480	45.0	3	5	**CFPNA47R5XS**	**C4-152**	**C4-153**	306	(139)	72	(1827)	52	(1321)	48 1/2	(1232)
	240	63.0	3	5	**CFPNA64G3XS**	**C/F**	**C/F**	370	(168)	93	(2361)	73	(1854)	66	(1676)
	480	63.0	1	3	**CFPNA64G11XS**	**C/F**	**C/F**	370	(168)	93	(2361)	73	(1854)	66	(1676)
	480	63.0	3	5	**CFPNA64G5XS**	**C4-152**	**C4-153**	370	(168)	93	(2361)	73	(1854)	66	(1676)
	240	75.0	3	5	**CFPNA76R3XS**	**C/F**	**C/F**	381	(173)	93	(2361)	73	(1854)	66	(1676)
	480	75.0	1	5	**CFPNA76R11XS**	**C/F**	**C/F**	381	(173)	93	(2361)	73	(1854)	66	(1676)
	480	75.0	3	5	**CFPNA76R5XS**	**C4-152**	**C4-153**	381	(173)	93	(2361)	73	(1854)	66	(1676)

C/F - Contact factory, go to www.watlow.com/en/contact-us

6 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

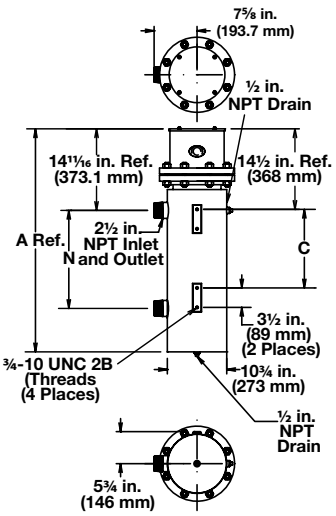
Application: Forced Air and Caustic Solutions

- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
8 inch - 150 lb ANSI Flange (WATROD)											
23 W/in² Steel Tank 18-Alloy 800 Elements (3.6 W/cm²)	240	30.0	1	3	**CFRNA32N10S**	**C/F**	**C/F**	370 (168)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	240	30.0	3	2	**CFRNA32N3S**	**C2-218**	**C2-224**	370 (168)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	480	30.0	1	2	**CFRNA32N11S**	**C/F**	**C/F**	370 (168)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	480	30.0	3	1	**CFRNA32N5S**	**C2-225**	**C2-226**	370 (168)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	240	40.0	3	3	**CFRNA43E3S**	**C4-144**	**C4-145**	410 (186)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	480	40.0	1	2	**CFRNA43E11S**	**C/F**	**C/F**	410 (186)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	480	40.0	3	3	**CFRNA43E5S**	**C4-150**	**C4-151**	410 (186)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	240	50.0	3	3	**CFRNA51M3S**	**C4-144**	**C4-145**	440 (200)	69 7/8 (1774.8)	47 3/8 (1203.3)	43 7/8 (1114.4)
	480	50.0	1	3	**CFRNA51M11S**	**C/F**	**C/F**	440 (200)	69 7/8 (1774.8)	47 3/8 (1203.3)	43 7/8 (1114.4)
	480	50.0	3	2	**CFRNA51M5S**	**C2-229**	**C2-230**	440 (200)	69 7/8 (1774.8)	47 3/8 (1203.3)	43 7/8 (1114.4)
8 inch - 150 lb ANSI Flange (WATROD)											
23 W/in² Steel Tank 24-Alloy 800 Elements (3.6 W/cm²)	240	40.0	1	4	**CFRNA33D10XS**	**C/F**	**C/F**	382 (174)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	240	40.0	3	4	**CFRNA33D3XS**	**C4-146**	**C4-147**	382 (174)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	480	40.0	1	2	**CFRNA33D11XS**	**C/F**	**C/F**	382 (174)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	480	40.0	3	2	**CFRNA33D5XS**	**C2-227**	**C2-228**	382 (174)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	240	53.0	3	4	**CFRNA43M3XS**	**C4-148**	**C4-149**	425 (193)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	480	53.0	1	3	**CFRNA43M11XS**	**C/F**	**C/F**	425 (193)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	480	53.0	3	2	**CFRNA43M5XS**	**C2-229**	**C2-230**	425 (193)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	240	67.0	3	4	**CFRNA51M3XS**	**C4-148**	**C4-149**	457 (207)	69 7/8 (1774.8)	47 3/8 (1203.3)	43 7/8 (1114.4)
	480	67.0	1	3	**CFRNA51M11XS**	**C/F**	**C/F**	457 (207)	69 7/8 (1774.8)	47 3/8 (1203.3)	43 7/8 (1114.4)
	480	67.0	3	2	**CFRNA51M5XS**	**C2-229**	**C2-230**	457 (207)	69 7/8 (1774.8)	47 3/8 (1203.3)	43 7/8 (1114.4)

C/F - Contact factory, go to www.watlow.com/en/contact-us

8 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

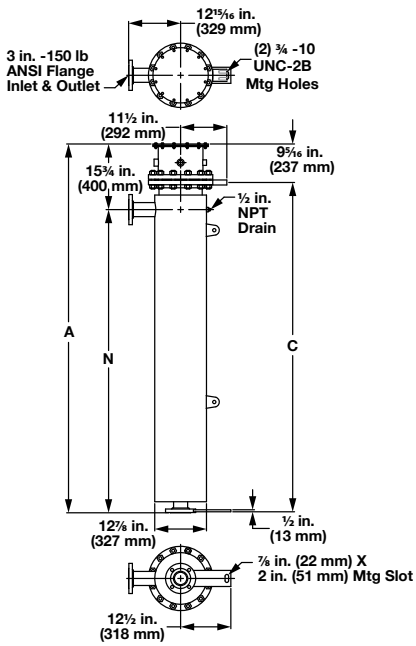
Application: Forced Air and Caustic Solutions

- WATROD elements
- Without thermostat
- General purpose enclosure

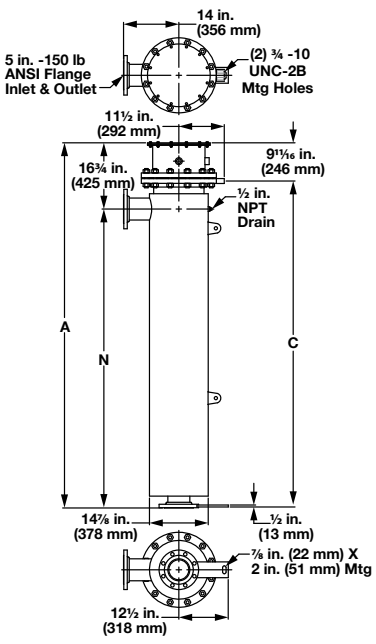
Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
10 inch - 150 lb ANSI Flange (WATROD)											
23 W/in² Steel Tank 27-Alloy 800 Elements (3.6 W/cm²)	240	60.0	3	3	**CFSNA43N3S**	**C4-144**	**C4-145**	515 (234)	76 5/8 (1946.3)	60 7/8 (1546.2)	67 5/16 (1709.7)
	480	60.0	3	3	**CFSNA43N5S**	**C4-150**	**C4-151**	515 (234)	76 5/8 (1946.3)	60 7/8 (1546.2)	67 5/16 (1709.7)
	240	75.0	3	9	**CFSNA51N3S**	**C/F**	**C/F**	530 (241)	84 1/8 (2136.8)	68 3/8 (1736.2)	74 13/16 (1900.2)
	480	75.0	3	3	**CFSNA51N5S**	**C4-152**	**C4-153**	530 (241)	84 1/8 (2136.8)	68 3/8 (1736.2)	74 13/16 (1900.2)
12 inch - 150 lb ANSI Flange (WATROD)											
23 W/in² Steel Tank 36-Alloy 800 Elements (3.6 W/cm²)	480	80.0	3	3	**CFTNA43L5S**	**C4-152**	**C4-153**	565 (257)	76 7/8 (1952.6)	60 3/4 (1541)	67 1/2 (1714.0)
	480	100.0	3	3	**CFTNA51L5S**	**C4-152**	**C4-153**	585 (266)	84 3/8 (2143.1)	68 1/4 (1732)	75 (1905.0)
14 inch - 150 lb ANSI Flange (WATROD)											
23 W/in² Steel Tank 45-Alloy 800 Elements (3.6 W/cm²)	480	100.0	3	3	**CFWNA43J5S**	**C4-152**	**C4-153**	570 (259)	75 3/4 (1924)	59 1/2 (1510)	66 3/16 (1681.2)
	480	125.0	3	5	**CFWNA51J5S**	**C/F**	**C/F**	590 (268)	83 1/4 (2115)	67 (1700)	73 11/16 (1871.7)

C/F - Contact factory, go to www.watlow.com/en/contact-us

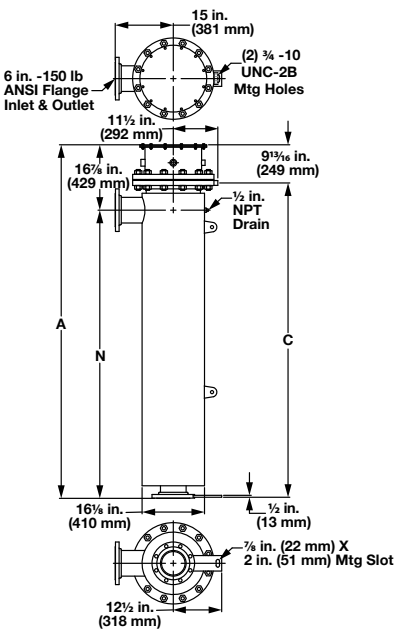
10 inch - 150 lb ANSI Flange



12 inch - 150 lb ANSI Flange



14 inch - 150 lb ANSI Flange



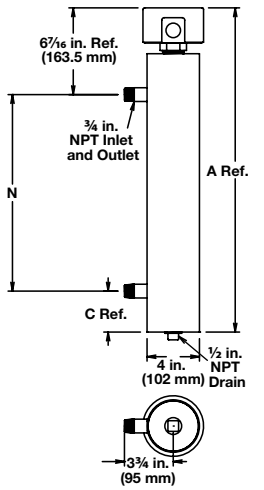
WATROD and FIREBAR Circulation Heaters

Application: Lightweight Oils and Heat Transfer Oils

- WATROD or FIREBAR elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
1 1/4 inch NPT Screw Plug (WATROD)											
23 W/in² ④ Steel Tank 2-Steel Element (3.6 W/cm²)	120	1.5	1	1	**CBES19G6S**	**C1-15**	**C1-12**	29 (14)	24 5/8 (625.5)	15 (381)	3 1/8 (79.4)
	240	1.5	1	1	**CBES19G6S**	**C1-17**	**C1-13**	29 (14)	24 5/8 (625.5)	15 (381)	3 1/8 (79.4)
	120	2.0	1	1	**CBES25G6S**	**C1-15**	**C1-12**	29 (14)	32 5/8 (828.7)	23 (584)	3 (76.0)
	240	2.0	1	1	**CBES25G6S**	**C1-17**	**C1-13**	29 (14)	32 5/8 (828.7)	23 (584)	3 (76.0)
1 1/4 inch NPT Screw Plug (FIREBAR)											
30 W/in² Steel Tank 1-Alloy 800 Element (4.7 W/cm²)	240	1.7	3	1	**CBDNF16G12S**	**C2-50**	**C2-92**	26 (12)	24 5/8 (625.5)	15 (381)	3 1/8 (79.4)
	480	1.7	3	1	**CBDNF16G13S**	**C2-43**	**C2-35**	26 (12)	24 5/8 (625.5)	15 (381)	3 1/8 (79.4)
	240	2.2	3	1	**CBDNF19G12S**	**C2-50**	**C2-92**	30 (14)	32 5/8 (828.7)	23 (584)	3 1/8 (79.4)
	480	2.2	3	1	**CBDNF19G13S**	**C2-43**	**C2-35**	30 (14)	32 5/8 (828.7)	23 (584)	3 1/8 (79.4)
	240	2.8	3	1	**CBDNF24L12S**	**C2-50**	**C2-92**	31 (14)	32 5/8 (828.7)	23 (584)	3 1/8 (79.4)
	480	2.8	3	1	**CBDNF24L13S**	**C2-43**	**C2-35**	31 (14)	32 5/8 (828.7)	23 (584)	3 1/8 (79.4)
	240	3.5	3	1	**CBDNF29R12S**	**C2-50**	**C2-92**	43 (20)	42 5/8 (1082.7)	32 (813)	4 3/8 (111.1)
	480	3.5	3	1	**CBDNF29R13S**	**C2-43**	**C2-35**	43 (20)	42 5/8 (1082.7)	32 (813)	4 3/8 (111.1)
	240	4.3	3	1	**CBDNF34R12S**	**C2-50**	**C2-92**	44 (20)	42 5/8 (1082.7)	32 (813)	4 3/8 (111.1)
	480	4.3	3	1	**CBDNF34R13S**	**C2-43**	**C2-35**	44 (20)	42 5/8 (1082.7)	32 (813)	4 3/8 (111.1)
	240	5.7	3	1	**CBDNF45G12S**	**C2-50**	**C2-92**	69 (32)	63 5/8 (1616.1)	53 (1346)	4 3/8 (111.1)
	480	5.7	3	1	**CBDNF45G13S**	**C2-43**	**C2-35**	69 (32)	63 5/8 (1616.1)	53 (1346)	4 3/8 (111.1)
	240	7.2	3	1	**CBDNF55R12S**	**C2-50**	**C2-92**	71 (33)	63 5/8 (1616.1)	53 (1346)	4 3/8 (111.1)
	480	7.2	3	1	**CBDNF55R13S**	**C2-43**	**C2-35**	71 (33)	63 5/8 (1616.1)	53 (1346)	4 3/8 (111.1)
1 1/4 inch NPT Screw Plug (FIREBAR)											
23 W/in² Steel Tank 1-Alloy 800 Element (3.6 W/cm²)	240	1.25	3	1	**CBDNF16G20S**	**C2-50**	**C2-92**	26 (12)	24 5/8 (625.5)	15 (381)	3 1/8 (79.4)
	240	1.65	3	1	**CBDNF19G20S**	**C2-50**	**C2-92**	30 (14)	32 5/8 (828.7)	23 (584)	3 1/8 (79.4)
	240	2.15	3	1	**CBDNF24L20S**	**C2-50**	**C2-92**	31 (14)	32 5/8 (828.7)	23 (584)	3 1/8 (79.4)
	480	2.15	3	1	**CBDNF24L19S**	**C2-43**	**C2-35**	31 (14)	32 5/8 (828.7)	23 (584)	3 1/8 (79.4)
	240	2.65	3	1	**CBDNF29R20S**	**C2-50**	**C2-92**	43 (20)	42 5/8 (1082.7)	32 (813)	4 3/8 (111.1)
	480	2.65	3	1	**CBDNF29R19S**	**C2-43**	**C2-35**	43 (20)	42 5/8 (1082.7)	32 (813)	4 3/8 (111.1)
	240	3.20	3	1	**CBDNF34R20S**	**C2-50**	**C2-92**	44 (20)	42 5/8 (1082.7)	32 (813)	4 3/8 (111.1)
	480	3.20	3	1	**CBDNF34R19S**	**C2-43**	**C2-35**	44 (20)	42 5/8 (1082.7)	32 (813)	4 3/8 (111.1)
	240	4.25	3	1	**CBDNF45G20S**	**C2-50**	**C2-92**	69 (32)	63 5/8 (1616.1)	53 (1346)	4 3/8 (111.1)
	480	4.25	3	1	**CBDNF45G19S**	**C2-43**	**C2-35**	69 (32)	63 5/8 (1616.1)	53 (1346)	4 3/8 (111.1)
	240	5.40	3	1	**CBDNF55R20S**	**C2-50**	**C2-92**	71 (33)	63 5/8 (1616.1)	53 (1346)	4 3/8 (111.1)
	480	5.40	3	1	**CBDNF55R19S**	**C2-43**	**C2-35**	71 (33)	63 5/8 (1616.1)	53 (1346)	4 3/8 (111.1)

1 1/4 inch NPT Screw Plug



④ Wired for higher voltage

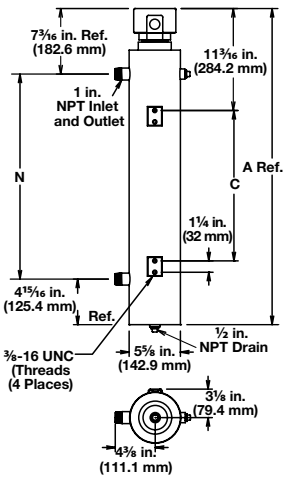
WATROD and FIREBAR Circulation Heaters

Application: Lightweight Oils and Heat Transfer Oils

- WATROD or FIREBAR elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
2 1/2 inch NPT Screw Plug (WATROD)											
23 W/in² Steel Tank 3-Steel (3.6 W/cm²)	240	3.0	3	1	**CBLS717E3S**	**C2-50**	**C2-92**	24 (11)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	3.0	3	1	**CBLS717E5S**	**C2-43**	**C2-35**	24 (11)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	4.5	3	1	**CBLS724N3S**	**C2-50**	**C2-92**	27 (13)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	4.5	3	1	**CBLS724N5S**	**C2-43**	**C2-35**	27 (13)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	6.0	3	1	**CBLS732E3S**	**C2-50**	**C2-92**	29 (14)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	480	6.0	3	1	**CBLS732E5S**	**C2-43**	**C2-35**	29 (14)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	240	7.5	3	1	**CBLS739N3S**	**C2-50**	**C2-92**	31 (14)	57 1/4 (1453)	45 (1143)	39 (991)
	480	7.5	3	1	**CBLS739N5S**	**C2-43**	**C2-35**	31 (14)	57 1/4 (1453)	45 (1143)	39 (991)
	240	9.0	3	1	**CBLS747E3S**	**C2-50**	**C2-92**	32 (15)	57 1/4 (1453)	45 (1143)	39 (991)
	480	9.0	3	1	**CBLS747E5S**	**C2-43**	**C2-35**	32 (15)	57 1/4 (1453)	45 (1143)	39 (991)
2 1/2 inch NPT Screw Plug (FIREBAR)											
30 W/in² ③ Steel Tank 3-Alloy 800 Elements (4.7 W/cm²)	240	5.0	3	1	**CBLNF15C12S**	**C2-50**	**C2-92**	22 (10)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	5.0	3	1	**CBLNF15C13S**	**C2-43**	**C2-35**	22 (10)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	6.5	3	1	**CBLNF18C12S**	**C2-50**	**C2-92**	23 (11)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	6.5	3	1	**CBLNF18C13S**	**C2-43**	**C2-35**	23 (11)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	8.5	3	1	**CBLNF23C12S**	**C2-50**	**C2-92**	31 (14)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	8.5	3	1	**CBLNF23C13S**	**C2-43**	**C2-35**	31 (14)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	10.5	3	1	**CBLNF28L12S**	**C2-236**	**C2-214**	34 (16)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	480	10.5	3	1	**CBLNF28L13S**	**C2-43**	**C2-35**	34 (16)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	240	12.8	3	1	**CBLNF33L12S**	**C2-236**	**C2-214**	35 (16)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	480	12.8	3	1	**CBLNF33L13S**	**C2-43**	**C2-35**	35 (16)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	240	17.0	3	1	**CBLNF44C12S**	**C2-236**	**C2-214**	44 (20)	57 1/4 (1453)	45 (1143)	39 (991)
	480	17.0	3	1	**CBLNF44C13S**	**C2-43**	**C2-35**	44 (20)	57 1/4 (1453)	45 (1143)	39 (991)
	480	21.5	3	1	**CBLNF54L13S**	**C2-225**	**C2-226**	52 (24)	63 3/4 (1618)	51 1/2 (1308)	46 1/2 (1181)
2 1/2 inch NPT Screw Plug (FIREBAR)											
23 W/in² ⑧ Steel Tank 3-Alloy 800 Elements (3.6 W/cm²)	240	3.80	3	1	**CBLNF15C20S**	**C2-50**	**C2-92**	22 (10)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	4.90	3	1	**CBLNF18C20S**	**C2-50**	**C2-92**	23 (11)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	6.40	3	1	**CBLNF23C20S**	**C2-50**	**C2-92**	31 (14)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	6.40	3	1	**CBLNF23C19S**	**C2-43**	**C2-35**	31 (14)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	7.90	3	1	**CBLNF28L20S**	**C2-50**	**C2-92**	34 (16)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	480	7.90	3	1	**CBLNF28L19S**	**C2-43**	**C2-35**	34 (16)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	240	9.60	3	1	**CBLNF33L20S**	**C2-50**	**C2-92**	35 (16)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	480	9.60	3	1	**CBLNF33L19S**	**C2-43**	**C2-35**	35 (16)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	240	12.80	3	1	**CBLNF44C20S**	**C2-236**	**C2-214**	44 (20)	57 1/4 (1453)	45 (1143)	39 (991)
	480	12.80	3	1	**CBLNF44C19S**	**C2-43**	**C2-35**	44 (20)	57 1/4 (1453)	45 (1143)	39 (991)
	240	16.10	3	1	**CBLNF54L20S**	**C2-236**	**C2-214**	52 (24)	63 3/4 (1618)	51 1/2 (1308)	46 1/2 (1181)
	480	16.10	3	1	**CBLNF54L19S**	**C2-43**	**C2-35**	52 (24)	63 3/4 (1618)	51 1/2 (1308)	46 1/2 (1181)

2 1/2 inch NPT Screw Plug



③ Wired for 3-phase operation only

⑧ Can be wired for 1-phase operation

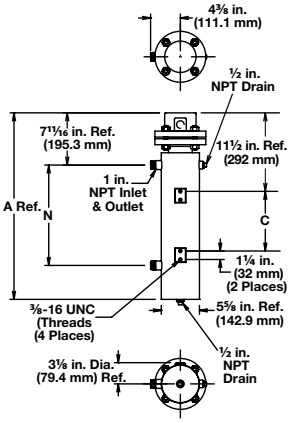
WATROD and FIREBAR Circulation Heaters

Application: Lightweight Oils and Heat Transfer Oils

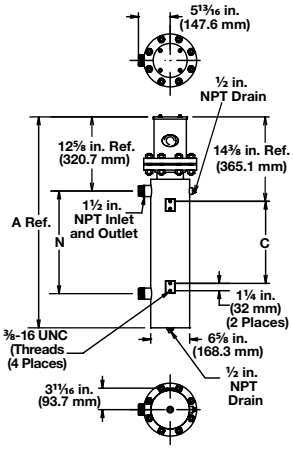
- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
3 inch - 150 lb ANSI Flange (WATROD)											
23 W/in² Steel Tank 3-Steel Elements (3.6 W/cm²)	240	3.0	1	1	**CFMS718A10S**	**C1-17**	**C1-13**	68 (31)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	240	3.0	3	1	**CFMS718A3S**	**C2-50**	**C2-92**	68 (31)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	480	3.0	1	1	**CFMS718A11S**	**C/F**	**C/F**	68 (31)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	480	3.0	3	1	**CFMS718A5S**	**C2-43**	**C2-35**	68 (31)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	240	4.5	1	1	**CFMS725J10S**	**C/F**	**C/F**	78 (36)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	240	4.5	3	1	**CFMS725J3S**	**C2-50**	**C2-92**	78 (36)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	480	4.5	1	1	**CFMS725J11S**	**C/F**	**C/F**	78 (36)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	480	4.5	3	1	**CFMS725J5S**	**C2-43**	**C2-35**	78 (36)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	240	6.0	1	2	**CFMS733A10S**	**C/F**	**C/F**	96 (44)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	240	6.0	3	1	**CFMS733A3S**	**C2-50**	**C2-92**	96 (44)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	480	6.0	1	1	**CFMS733A11S**	**C/F**	**C/F**	96 (44)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	480	6.0	3	1	**CFMS733A5S**	**C2-43**	**C2-35**	96 (44)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	240	7.5	1	2	**CFMS740J10S**	**C/F**	**C/F**	100 (46)	57 3/4 (1465)	45 (1143)	39 (991)
	240	7.5	3	1	**CFMS740J3S**	**C2-50**	**C2-92**	100 (46)	57 3/4 (1465)	45 (1143)	39 (991)
	480	7.5	1	1	**CFMS740J11S**	**C/F**	**C/F**	100 (46)	57 3/4 (1465)	45 (1143)	39 (991)
	480	7.5	3	1	**CFMS740J5S**	**C2-43**	**C2-35**	100 (46)	57 3/4 (1465)	45 (1143)	39 (991)
	240	9.0	1	2	**CFMS748A10S**	**C/F**	**C/F**	107 (49)	57 3/4 (1465)	45 (1143)	39 (991)
	240	9.0	3	1	**CFMS748A3S**	**C2-50**	**C2-92**	107 (49)	57 3/4 (1465)	45 (1143)	39 (991)
	480	9.0	1	1	**CFMS748A11S**	**C/F**	**C/F**	107 (49)	57 3/4 (1465)	45 (1143)	39 (991)
	480	9.0	3	1	**CFMS748A5S**	**C2-43**	**C2-35**	107 (49)	57 3/4 (1465)	45 (1143)	39 (991)
4 inch - 150 lb ANSI Flange (WATROD)											
23 W/in² Steel Tank 6-Steel Elements (3.6 W/cm²)	240	6.0	1	1	**CFOS718A10S**	**C/F**	**C/F**	125 (57)	39 (989)	20 1/2 (521)	17 (432)
	240	6.0	3	1	**CFOS718A3S**	**C2-50**	**C2-92**	125 (57)	39 (989)	20 1/2 (521)	17 (432)
	480	6.0	1	1	**CFOS718A11S**	**C/F**	**C/F**	125 (57)	39 (989)	20 1/2 (521)	17 (432)
	480	6.0	3	1	**CFOS718A5S**	**C2-43**	**C2-35**	125 (57)	39 (989)	20 1/2 (521)	17 (432)
	240	9.0	1	1	**CFOS725J10S**	**C/F**	**C/F**	160 (73)	39 (989)	20 1/2 (521)	17 (432)
	240	9.0	3	1	**CFOS725J3S**	**C2-50**	**C2-92**	160 (73)	39 (989)	20 1/2 (521)	17 (432)
	480	9.0	1	1	**CFOS725J11S**	**C/F**	**C/F**	160 (73)	39 (989)	20 1/2 (521)	17 (432)
	480	9.0	3	1	**CFOS725J5S**	**C2-43**	**C2-35**	160 (73)	39 (989)	20 1/2 (521)	17 (432)
	240	12.0	1	2	**CFOS733A10S**	**C/F**	**C/F**	163 (74)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	240	12.0	3	1	**CFOS733A3S**	**C2-236**	**C2-214**	163 (74)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	480	12.0	1	1	**CFOS733A11S**	**C/F**	**C/F**	163 (74)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	480	12.0	3	1	**CFOS733A5S**	**C2-43**	**C2-35**	163 (74)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	240	15.0	1	2	**CFOS740J10S**	**C/F**	**C/F**	229(104)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	240	15.0	3	1	**CFOS740J3S**	**C2-236**	**C2-214**	229(104)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	480	15.0	1	1	**CFOS740J11S**	**C/F**	**C/F**	229(104)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	480	15.0	3	1	**CFOS740J5S**	**C2-43**	**C2-35**	229(104)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	240	18.0	1	2	**CFOS748A10S**	**C/F**	**C/F**	234(107)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	240	18.0	3	1	**CFOS748A3S**	**C2-236**	**C2-214**	234(107)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	480	18.0	1	1	**CFOS748A11S**	**C/F**	**C/F**	234(107)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	480	18.0	3	1	**CFOS748A5S**	**C2-43**	**C2-35**	234(107)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	240	25.0	3	2	**CFOS764J3S**	**C2-218**	**C2-224**	298(136)	91 1/2 (2326)	73 (1854)	66 (1676)
	480	25.0	1	2	**CFOS764J11S**	**C/F**	**C/F**	298(136)	91 1/2 (2326)	73 (1854)	66 (1676)
	480	25.0	3	1	**CFOS764J5S**	**C2-225**	**C2-226**	298(136)	91 1/2 (2326)	73 (1854)	66 (1676)
	240	30.0	3	2	**CFOS777A3S**	**C2-218**	**C2-224**	306(139)	91 1/2 (2326)	73 (1854)	66 (1676)
	480	30.0	1	2	**CFOS777A11S**	**C/F**	**C/F**	306(139)	91 1/2 (2326)	73 (1854)	66 (1676)
	480	30.0	3	1	**CFOS777A5S**	**C2-225**	**C2-226**	306(139)	91 1/2 (2326)	73 (1854)	66 (1676)

3 inch - 150 lb ANSI Flange



4 inch - 150 lb ANSI Flange



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WATROD and FIREBAR Circulation Heaters

Application: Lightweight Oils and Heat Transfer Oils

- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
5 inch - 150 lb ANSI Flange (WATROD)											
23 W/in² Steel Tank 6-Steel Elements (3.6 W/cm²)	240	12.0	1	2	**CFNS733A10S**	**C/F**	**C/F**	145 (66)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (473.1)
	240	12.0	3	1	**CFNS733A3S**	**C2-236**	**C2-214**	145 (66)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (473.1)
	480	12.0	1	1	**CFNS733A11S**	**C/F**	**C/F**	145 (66)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (473.1)
	480	12.0	3	1	**CFNS733A5S**	**C2-43**	**C2-35**	145 (66)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (473.1)
	240	15.0	1	2	**CFNS740J10S**	**C/F**	**C/F**	167 (76)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (473.1)
	240	15.0	3	1	**CFNS740J3S**	**C2-236**	**C2-214**	167 (76)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (473.1)
	480	15.0	1	1	**CFNS740J11S**	**C/F**	**C/F**	167 (76)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (473.1)
	480	15.0	3	1	**CFNS740J5S**	**C2-43**	**C2-35**	167 (76)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (473.1)
	240	18.0	1	2	**CFNS748A10S**	**C/F**	**C/F**	180 (82)	67 3/4 (1719.0)	48 1/2 (1232.0)	18 5/8 (473.1)
	240	18.0	3	1	**CFNS748A3S**	**C2-236**	**C2-214**	180 (82)	67 3/4 (1719.0)	48 1/2 (1232.0)	18 5/8 (473.1)
	480	18.0	1	1	**CFNS748A11S**	**C/F**	**C/F**	180 (82)	67 3/4 (1719.0)	48 1/2 (1232.0)	18 5/8 (473.1)
	480	18.0	3	1	**CFNS748A5S**	**C2-43**	**C2-35**	180 (82)	67 3/4 (1719.0)	48 1/2 (1232.0)	18 5/8 (473.1)
	240	25.0	3	2	**CFNS764J3S**	**C2-218**	**C2-224**	195 (89)	81 1/8 (2060.6)	61 7/8 (1571.6)	25 (633.0)
	480	25.0	1	2	**CFNS764J11S**	**C/F**	**C/F**	195 (89)	81 1/8 (2060.6)	61 7/8 (1571.6)	25 (633.0)
	480	25.0	3	1	**CFNS764J5S**	**C2-225**	**C2-226**	195 (89)	81 1/8 (2060.6)	61 7/8 (1571.6)	25 (633.0)
	240	30.0	3	2	**CFNS777A3S**	**C2-218**	**C2-224**	220 (100)	94 1/8 (2390.8)	75 (1902.0)	25 (633.0)
	480	30.0	1	2	**CFNS777A11S**	**C/F**	**C/F**	220 (100)	94 1/8 (2390.8)	75 (1902.0)	25 (633.0)
	480	30.0	3	1	**CFNS777A5S**	**C2-225**	**C2-226**	220 (100)	94 1/8 (2390.8)	75 (1902.0)	25 (633.0)

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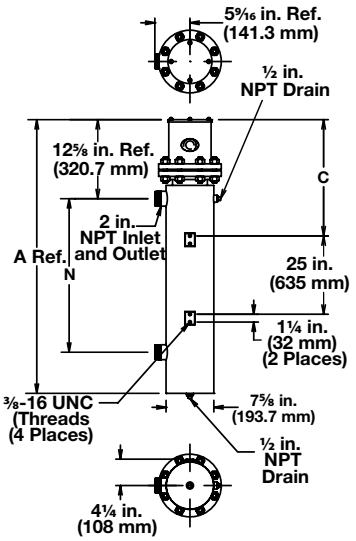
5 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

Application: Lightweight Oils and Heat Transfer Oils

- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
5 inch - 150 lb ANSI Flange (WATROD)											
23 W/in² Steel Tank 9-Steel Elements (3.6 W/cm²)	240	18.0	1	3	**CFNS733A10XS**	**C/F**	**C/F**	150 (68)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (471.1)
	240	18.0	3	1	**CFNS733A3XS**	**C2-236**	**C2-214**	150 (68)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (471.1)
	480	18.0	1	1	**CFNS733A11XS**	**C/F**	**C/F**	150 (68)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (471.1)
	480	18.0	3	1	**CFNS733A5XS**	**C2-43**	**C2-35**	150 (68)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (471.1)
	240	23.0	1	3	**CFNS740J10XS**	**C/F**	**C/F**	173 (79)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (471.1)
	240	23.0	3	3	**CFNS740J3XS**	**C4-143**	**C4-142**	173 (79)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (471.1)
	480	23.0	1	1	**CFNS740J11XS**	**C/F**	**C/F**	173 (79)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (471.1)
	480	23.0	3	1	**CFNS740J5XS**	**C2-225**	**C2-226**	173 (79)	56 1/4 (1427.0)	37 (940.0)	18 5/8 (471.1)
	240	27.0	1	3	**CFNS748A10XS**	**C/F**	**C/F**	188 (86)	67 3/4 (1719.0)	48 1/2 (1232.0)	25 (633.0)
	240	27.0	3	3	**CFNS748A3XS**	**C4-143**	**C4-142**	188 (86)	67 3/4 (1719.0)	48 1/2 (1232.0)	25 (633.0)
	480	27.0	1	3	**CFNS748A11XS**	**C/F**	**C/F**	188 (86)	67 3/4 (1719.0)	48 1/2 (1232.0)	25 (633.0)
	480	27.0	3	1	**CFNS748A5XS**	**C2-225**	**C2-226**	188 (86)	67¾ (1719.0)	48 1/2 (1232.0)	25 (633.0)
	240	38.0	3	3	**CFNS764J3XS**	**C4-144**	**C4-145**	206 (94)	81 1/8 (2060.6)	61 7/8 (1571.6)	25 (633.0)
	480	38.0	1	3	**CFNS764J11XS**	**C/F**	**C/F**	206 (94)	81 1/8 (2060.6)	61 7/8 (1571.6)	25 (633.0)
	480	38.0	3	1	**CFNS764J5XS**	**C2-225**	**C2-226**	206 (94)	81 1/8 (2060.6)	61 7/8 (1571.6)	25 (633.0)
	240	45.0	3	3	**CFNS777A3XS**	**C4-144**	**C4-145**	233 (106)	94 1/8 (2390.8)	75 (1902.0)	25 (633.0)
	480	45.0	1	3	**CFNS777A11XS**	**C/F**	**C/F**	233 (106)	94 1/8 (2390.8)	75 (1902.0)	25 (633.0)
	480	45.0	3	3	**CFNS777A5XS**	**C4-150**	**C4-151**	233 (106)	94 1/8 (2390.8)	75 (1902.0)	25 (633.0)

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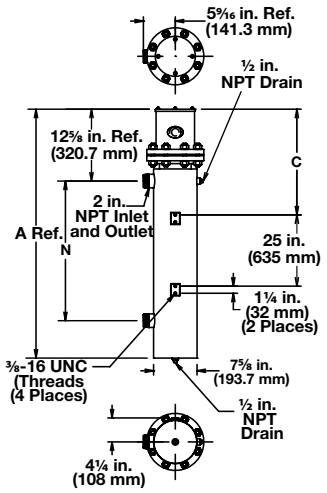
5 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

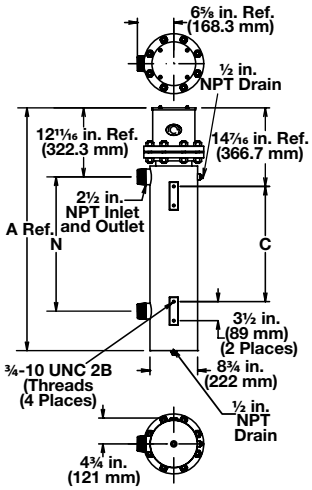
Application: Lightweight Oils and Heat Transfer Oils

- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
6 inch - 150 lb ANSI Flange (WATROD)											
23 W/in² Steel Tank 12-Steel Elements (3.6 W/cm²)	240	12.0	1	2	**CFPS717R10S**	**C/F**	**C/F**	214 (97)	40½ (1027)	20½ (521)	17 (432)
	240	12.0	3	1	**CFPS717R3S**	**C2-236**	**C2-214**	214 (97)	40½ (1027)	20½ (521)	17 (432)
	480	12.0	1	1	**CFPS717R11S**	**C/F**	**C/F**	214 (97)	40½ (1027)	20½ (521)	17 (432)
	480	12.0	3	1	**CFPS717R5S**	**C2-43**	**C2-35**	214 (97)	40½ (1027)	20½ (521)	17 (432)
	240	18.0	1	2	**CFPS725G10S**	**C/F**	**C/F**	222 (101)	40½ (1027)	20½ (521)	17 (432)
	240	18.0	3	1	**CFPS725G3S**	**C2-236**	**C2-214**	222 (101)	40½ (1027)	20½ (521)	17 (432)
	480	18.0	1	1	**CFPS725G11S**	**C/F**	**C/F**	222 (101)	40½ (1027)	20½ (521)	17 (432)
	480	18.0	3	1	**CFPS725G5S**	**C2-43**	**C2-35**	222 (101)	40½ (1027)	20½ (521)	17 (432)
	240	24.0	1	3	**CFPS732R10S**	**C/F**	**C/F**	226 (103)	51 (1294)	31 (787)	27½ (699)
	240	24.0	3	2	**CFPS732R3S**	**C2-218**	**C2-224**	226 (103)	51 (1294)	31 (787)	27½ (699)
	480	24.0	1	2	**CFPS732R11S**	**C/F**	**C/F**	226 (103)	51 (1294)	31 (787)	27½ (699)
	480	24.0	3	1	**CFPS732R5S**	**C2-225**	**C2-226**	226 (103)	51 (1294)	31 (787)	27½ (699)
	240	30.0	1	3	**CFPS740G10S**	**C/F**	**C/F**	290 (132)	72 (1827)	52 (1321)	48½ (1232)
	240	30.0	3	2	**CFPS740G3S**	**C2-218**	**C2-224**	290 (132)	72 (1827)	52 (1321)	48½ (1232)
	480	30.0	1	2	**CFPS740G11S**	**C/F**	**C/F**	290 (132)	72 (1827)	52 (1321)	48½ (1232)
	480	30.0	3	1	**CFPS740G5S**	**C2-225**	**C2-226**	290 (132)	72 (1827)	52 (1321)	48½ (1232)
	240	36.0	1	4	**CFPS747R10S**	**C/F**	**C/F**	298 (136)	72 (1827)	52 (1321)	48½ (1232)
	240	36.0	3	2	**CFPS747R3S**	**C2-218**	**C2-224**	298 (136)	72 (1827)	52 (1321)	48½ (1232)
	480	36.0	1	2	**CFPS747R11S**	**C/F**	**C/F**	298 (136)	72 (1827)	52 (1321)	48½ (1232)
	480	36.0	3	1	**CFPS747R5S**	**C2-225**	**C2-226**	298 (136)	72 (1827)	52 (1321)	48½ (1232)
	240	50.0	3	4	**CFPS764G3S**	**C4-148**	**C4-149**	360 (164)	93 (2361)	73 (1854)	66 (1676)
	480	50.0	1	3	**CFPS764G11S**	**C/F**	**C/F**	360 (164)	93 (2361)	73 (1854)	66 (1676)
	480	50.0	3	2	**CFPS764G5S**	**C2-225**	**C2-226**	360 (164)	93 (2361)	73 (1854)	66 (1676)
	240	60.0	3	4	**CFPS776R3S**	**C4-148**	**C4-149**	368 (167)	93 (2361)	73 (1854)	66 (1676)
	480	60.0	1	3	**CFPS776R11S**	**C/F**	**C/F**	368 (167)	93 (2361)	73 (1854)	66 (1676)
	480	60.0	3	2	**CFPS776R5S**	**C2-225**	**C2-226**	368 (167)	93 (2361)	73 (1854)	66 (1676)

C/F - Contact factory, go to www.watlow.com/en/contact-us

6 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

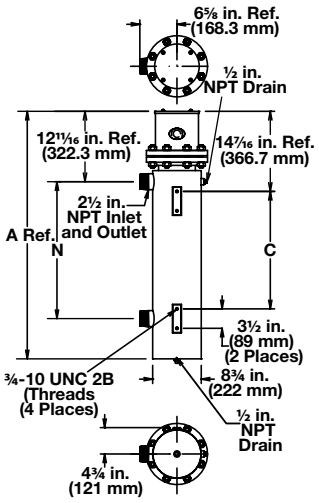
Application: Lightweight Oils and Heat Transfer Oils

- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
6 inch - 150 lb ANSI Flange (WATROD)											
23 W/in² Steel Tank 15-Steel Elements (3.6 W/cm²)	240	15.0	1	3	**CFPS717R10XS**	**C/F**	**C/F**	217 (99)	40½ (1027)	20½ (521)	17 (432)
	240	15.0	3	1	**CFPS717R3XS**	**C2-236**	**C2-214**	217 (99)	40½ (1027)	20½ (521)	17 (432)
	480	15.0	1	1	**CFPS717R11XS**	**C/F**	**C/F**	217 (99)	40½ (1027)	20½ (521)	17 (432)
	480	15.0	3	1	**CFPS717R5XS**	**C2-43**	**C2-35**	217 (99)	40½ (1027)	20½ (521)	17 (432)
	240	23.0	1	3	**CFPS725G10XS**	**C/F**	**C/F**	222 (101)	40½ (1027)	20½ (521)	17 (432)
	240	23.0	3	5	**CFPS725G3XS**	**C4-143**	**C4-142**	222 (101)	40½ (1027)	20½ (521)	17 (432)
	480	23.0	1	1	**CFPS725G11XS**	**C/F**	**C/F**	222 (101)	40½ (1027)	20½ (521)	17 (432)
	480	23.0	3	1	**CFPS725G5XS**	**C2-225**	**C2-226**	222 (101)	40½ (1027)	20½ (521)	17 (432)
	240	30.0	1	3	**CFPS732R10XS**	**C/F**	**C/F**	226 (103)	51 (1294)	31 (787)	27½ (699)
	240	30.0	3	5	**CFPS732R3XS**	**C4-144**	**C4-145**	226 (103)	51 (1294)	31 (787)	27½ (699)
	480	30.0	1	3	**CFPS732R11XS**	**C/F**	**C/F**	226 (103)	51 (1294)	31 (787)	27½ (699)
	480	30.0	3	1	**CFPS732R5XS**	**C2-225**	**C2-226**	226 (103)	51 (1294)	31 (787)	27½ (699)
	240	38.0	1	5	**CFPS740G10XS**	**C/F**	**C/F**	290 (132)	72 (1827)	52 (1321)	48½ (1232)
	240	38.0	3	5	**CFPS740G3XS**	**C4-144**	**C4-145**	290 (132)	72 (1827)	52 (1321)	48½ (1232)
	480	38.0	1	3	**CFPS740G11XS**	**C/F**	**C/F**	290 (132)	72 (1827)	52 (1321)	48½ (1232)
	480	38.0	3	1	**CFPS740G5XS**	**C2-225**	**C2-226**	290 (132)	72 (1827)	52 (1321)	48½ (1232)
	240	45.0	1	5	**CFPS747R10XS**	**C/F**	**C/F**	298 (136)	72 (1827)	52 (1321)	48½ (1232)
	240	45.0	3	5	**CFPS747R3XS**	**C4-144**	**C4-145**	298 (136)	72 (1827)	52 (1321)	48½ (1232)
	480	45.0	1	3	**CFPS747R11XS**	**C/F**	**C/F**	298 (136)	72 (1827)	52 (1321)	48½ (1232)
	480	45.0	3	5	**CFPS747R5XS**	**C4-150**	**C4-151**	298 (136)	72 (1827)	52 (1321)	48½ (1232)
	240	63.0	3	5	**CFPS764G3XS**	**C/F**	**C/F**	360 (164)	93 (2361)	73 (1854)	66 (1676)
	480	63.0	1	3	**CFPS764G11XS**	**C/F**	**C/F**	360 (164)	93 (2361)	73 (1854)	66 (1676)
	480	63.0	3	5	**CFPS764G5XS**	**C4-152**	**C4-153**	360 (164)	93 (2361)	73 (1854)	66 (1676)
	240	75.0	3	5	**CFPS776R3XS**	**C/F**	**C/F**	368 (167)	93 (2361)	73 (1854)	66 (1676)
	480	75.0	1	5	**CFPS776R11XS**	**C/F**	**C/F**	368 (167)	93 (2361)	73 (1854)	66 (1676)
	480	75.0	3	5	**CFPS776R5XS**	**C4-152**	**C4-153**	368 (167)	93 (2361)	73 (1854)	66 (1676)

C/F - Contact factory, go to www.watlow.com/en/contact-us

6 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

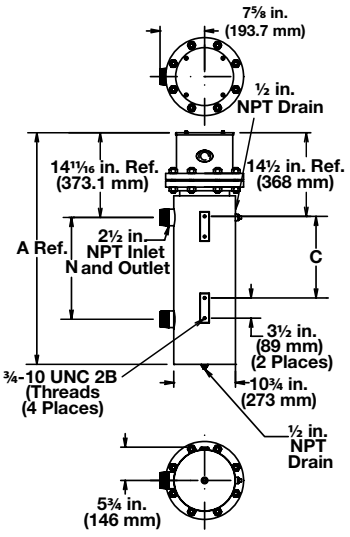
Application: Lightweight Oils and Heat Transfer Oils

- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
8 inch - 150 lb ANSI Flange (WATROD)											
23 W/in² Steel Tank 18-Steel Elements (3.6 W/cm²)	240	30.0	1	3	**CFRS732N10S**	**C/F**	**C/F**	370 (168)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	240	30.0	3	2	**CFRS732N3S**	**C2-218**	**C2-224**	370 (168)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	480	30.0	1	2	**CFRS732N11S**	**C/F**	**C/F**	370 (168)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	480	30.0	3	1	**CFRS732N5S**	**C2-225**	**C2-226**	370 (168)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	240	40.0	3	3	**CFRS743E3S**	**C4-144**	**C4-145**	410 (186)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	480	40.0	1	2	**CFRS743E11S**	**C/F**	**C/F**	410 (186)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	480	40.0	3	2	**CFRS743E5S**	**C2-227**	**C2-228**	410 (186)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	240	50.0	3	3	**CFRS751M3S**	**C4-144**	**C4-145**	440 (200)	69 7/8 (1774.8)	47 3/8 (1203.3)	43 7/8 (1114.4)
	480	50.0	1	3	**CFRS751M11S**	**C/F**	**C/F**	440 (200)	69 7/8 (1774.8)	47 3/8 (1203.3)	43 7/8 (1114.4)
	480	50.0	3	2	**CFRS751M5S**	**C2-229**	**C2-230**	440 (200)	69 7/8 (1774.8)	47 3/8 (1203.3)	43 7/8 (1114.4)
	240	60.0	3	6	**CFRS762D3S**	**C4-144**	**C4-145**	480 (218)	79 3/8 (2016.1)	56 7/8 (1444.6)	53 3/8 (1355.7)
	480	60.0	1	3	**CFRS762D11S**	**C/F**	**C/F**	480 (218)	79 3/8 (2016.1)	56 7/8 (1444.6)	53 3/8 (1355.7)
	480	60.0	3	2	**CFRS762D5S**	**C2-229**	**C2-230**	480 (218)	79 3/8 (2016.1)	56 7/8 (1444.6)	53 3/8 (1355.7)
	240	70.0	3	6	**CFRS770M3S**	**C/F**	**C/F**	530 (241)	88 3/8 (2244.7)	65 7/8 (1673.2)	62 3/8 (1584.3)
	480	70.0	1	6	**CFRS770M11S**	**C/F**	**C/F**	530 (241)	88 3/8 (2244.7)	65 7/8 (1673.2)	62 3/8 (1584.3)
	480	70.0	3	2	**CFRS770M5S**	**C2-229**	**C2-230**	530 (241)	88 3/8 (2244.7)	65 7/8 (1673.2)	62 3/8 (1584.3)
	240	80.0	3	6	**CFRS779M3S**	**C/F**	**C/F**	610 (277)	98 3/8 (2498.7)	75 7/8 (1927.2)	72 3/8 (1838.3)
	480	80.0	3	3	**CFRS779M5S**	**C4-152**	**C4-153**	610 (277)	98 3/8 (2498.7)	75 7/8 (1927.2)	72 3/8 (1838.3)

C/F - Contact factory, go to www.watlow.com/en/contact-us

8 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

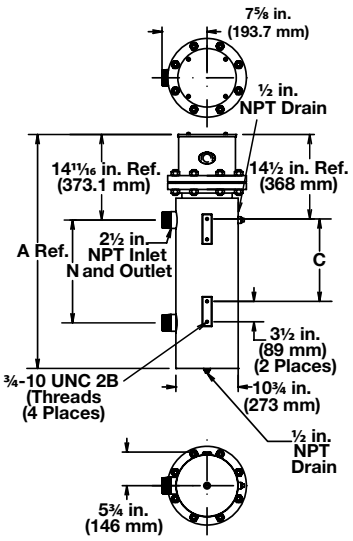
Application: Lightweight Oils and Heat Transfer Oils

- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
8 inch - 150 lb ANSI Flange (WATROD)											
23 W/in² Steel Tank 24-Steel (3.6 W/cm²)	240	40.0	1	4	**CFRS733D10XS**	**C/F**	**C/F**	382 (174)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	240	40.0	3	4	**CFRS733D3XS**	**C4-146**	**C4-147**	382 (174)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	480	40.0	1	2	**CFRS733D11XS**	**C/F**	**C/F**	382 (174)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	480	40.0	3	2	**CFRS733D5XS**	**C2-227**	**C2-228**	382 (174)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	240	53.0	3	4	**CFRS743M3XS**	**C4-148**	**C4-149**	425 (193)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	480	53.0	1	3	**CFRS743M11XS**	**C/F**	**C/F**	425 (193)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	480	53.0	3	2	**CFRS743M5XS**	**C2-229**	**C2-230**	425 (193)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	240	67.0	3	4	**CFRS751M3XS**	**C4-148**	**C4-149**	457 (208)	69 7/8 (1774.8)	47 3/8 (1203.3)	43 7/8 (1114.4)
	480	67.0	1	3	**CFRS751M11XS**	**C/F**	**C/F**	457 (208)	69 7/8 (1774.8)	47 3/8 (1203.3)	43 7/8 (1114.4)
	480	67.0	3	2	**CFRS751M5XS**	**C2-229**	**C2-230**	457 (208)	69 7/8 (1774.8)	47 3/8 (1203.3)	43 7/8 (1114.4)
	240	80.0	3	8	**CFRS762D3XS**	**C4-148**	**C4-149**	461 (209)	79 3/8 (2016.1)	56 7/8 (1444.6)	53 3/8 (1355.7)
	480	80.0	1	4	**CFRS762D11XS**	**C/F**	**C/F**	461 (209)	79 3/8 (2016.1)	56 7/8 (1444.6)	53 3/8 (1355.7)
	480	80.0	3	4	**CFRS762D5XS**	**C4-154**	**C4-155**	461 (209)	79 3/8 (2016.1)	56 7/8 (1444.6)	53 3/8 (1355.7)
	240	93.0	3	8	**CFRS770M3XS**	**C/F**	**C/F**	554 (252)	88 3/8 (2244.7)	65 7/8 (1673.2)	62 3/8 (1584.3)
	480	93.0	1	6	**CFRS770M11XS**	**C/F**	**C/F**	554 (252)	88 3/8 (2244.7)	65 7/8 (1673.2)	62 3/8 (1584.3)
	480	93.0	3	4	**CFRS770M5XS**	**C4-156**	**C4-157**	554 (252)	88 3/8 (2244.7)	65 7/8 (1673.2)	62 3/8 (1584.3)
	240	107.0	3	8	**CFRS779M3XS**	**C/F**	**C/F**	636 (289)	98 3/8 (2498.7)	75 7/8 (1927.2)	72 3/8 (1838.3)
	480	107.0	3	4	**CFRS779M5XS**	**C4-156**	**C4-157**	636 (289)	98 3/8 (2498.7)	75 7/8 (1927.2)	72 3/8 (1838.3)

C/F - Contact factory, go to www.watlow.com/en/contact-us

8 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

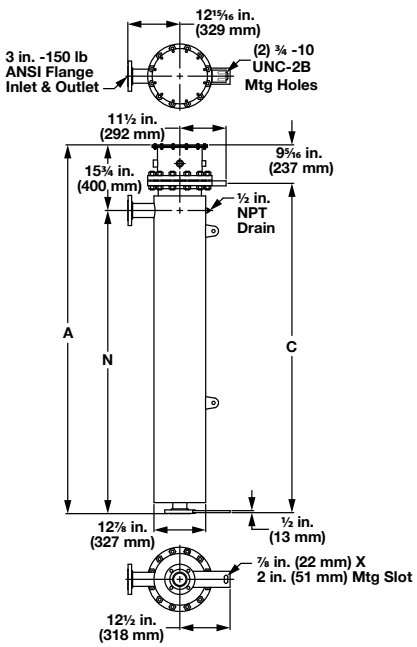
Application: Lightweight Oils and Heat Transfer Oils

- WATROD elements
- Without thermostat
- General purpose enclosure

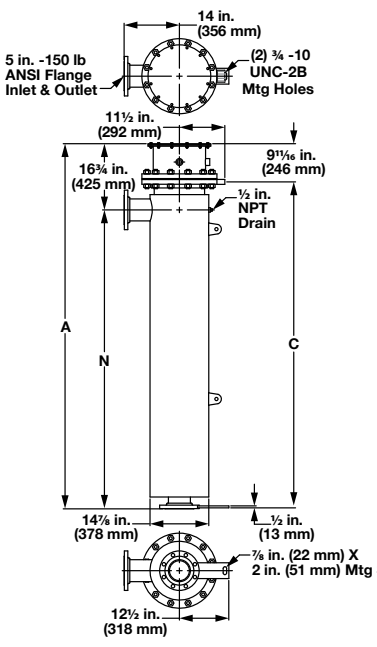
Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
10 inch - 150 lb ANSI Flange (WATROD)											
23 W/in² Steel Tank 27-Steel Elements (3.6 W/cm²)	480	90.0	3	3	**CFSS762E5S**	**C4-152**	**C4-153**	540 (245)	91 1/4 (2316.0)	75 1/2 (1916.0)	81 15/16 (2081.2)
	480	105.0	3	3	**CFSS770N5S**	**C4-152**	**C4-153**	600 (645)	99 1/8 (2517.8)	83 3/8 (2117.7)	89 13/16 (2281.2)
	480	120.0	3	3	**CFSS778N5S**	**C4-152**	**C4-153**	645 (293)	106 5/8 (2708.3)	90 7/8 (2308.2)	97 5/16 (2471.7)
12 inch - 150 lb ANSI Flange (WATROD)											
23 W/in² Steel Tank 36-Steel Elements (3.6 W/cm²)	480	140.0	3	4	**CFTS770L5S**	**C4-156**	**C4-157**	650 (295)	99 (2515)	82 7/8 (2105.0)	89 5/8 (2276.5)
	480	160.0	3	4	**CFTS778L5S**	**C4-156**	**C4-157**	700 (318)	106 1/2 (2705)	90 3/8 (2295.5)	97 1/8 (2467.0)
14 inch - 150 lb ANSI Flange (WATROD)											
23 W/in² Steel Tank 45-Steel Elements (3.6 W/cm²)	480	150.0	3	5	**CFWS762A5S**	**C/F**	**C/F**	650 (295)	90 3/4 (2305)	74 1/2 (1891)	81 3/16 (2062.2)
	480	175.0	3	5	**CFWS770J5S**	**C/F**	**C/F**	700 (318)	98 1/4 (2496)	82 (2081)	88 11/16 (2252.7)
	480	200.0	3	5	**CFWS778J5S**	**C/F**	**C/F**	780 (354)	105 3/4 (2686)	89 1/2 (2272)	96 3/16 (2443.2)

C/F - Contact factory, go to www.watlow.com/en/contact-us

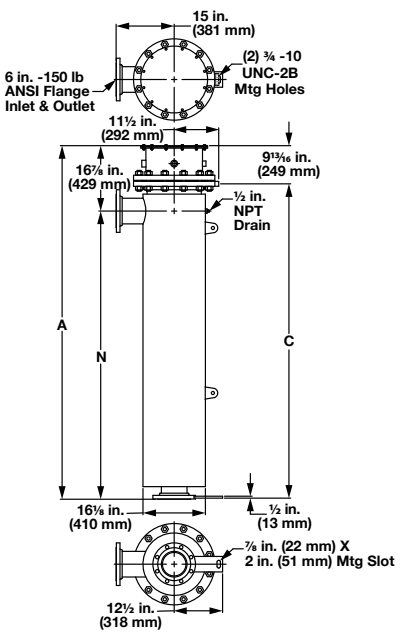
10 inch - 150 lb ANSI Flange



12 inch - 150 lb ANSI Flange



14 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

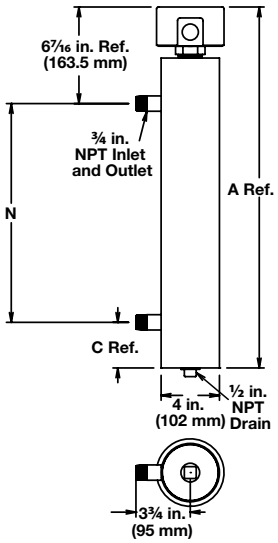
Application: Medium Weight Oils and Heat Transfer Oils

- WATROD or FIREBAR elements
- Without thermostat
- General purpose enclosure

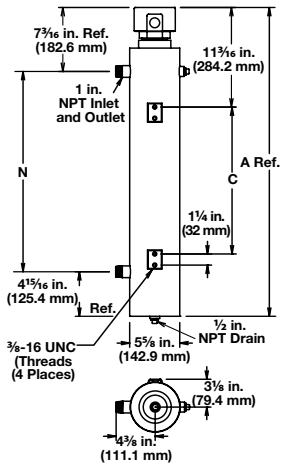
Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
1 1/4 inch NPT Screw Plug (FIREBAR)											
15 W/in² ③ Steel Tank 1-Alloy 800 Elements (2.3 W/cm²)	240	0.67	3	1	**CBDNF13A29S**	**C2-50**	**C2-92**	25 (12)	24 5/8 (625.5)	15 (381)	3 1/8 (79.4)
	240	0.83	3	1	**CBDNF15J29S**	**C2-50**	**C2-92**	26 (12)	24 5/8 (625.5)	15 (381)	3 1/8 (79.4)
	240	1.00	3	1	**CBDNF18A29S**	**C2-50**	**C2-92**	30 (14)	32 5/8 (828.7)	23 (584)	3 1/8 (79.4)
	240	1.33	3	1	**CBDNF22J29S**	**C2-50**	**C2-92**	31 (14)	32 5/8 (828.7)	23 (584)	3 1/8 (79.4)
	480	1.33	3	1	**CBDNF22J30S**	**C2-43**	**C2-35**	31 (14)	32 5/8 (828.7)	23 (584)	3 1/8 (79.4)
	240	1.67	3	1	**CBDNF27J29S**	**C2-50**	**C2-92**	43 (20)	42 5/8 (1082.7)	32 (813)	4 3/8 (111.1)
	480	1.67	3	1	**CBDNF27J30S**	**C2-43**	**C2-35**	43 (20)	42 5/8 (1082.7)	32 (813)	4 3/8 (111.1)
	240	2.00	3	1	**CBDNF32J29S**	**C2-50**	**C2-92**	44 (20)	42 5/8 (1082.7)	32 (813)	4 3/8 (111.1)
	480	2.00	3	1	**CBDNF32J30S**	**C2-43**	**C2-35**	44 (20)	42 5/8 (1082.7)	32 (813)	4 3/8 (111.1)
	240	2.67	3	1	**CBDNF42A29S**	**C2-50**	**C2-92**	69 (32)	63 5/8 (1616.1)	53 (1346)	4 3/8 (111.1)
	480	2.67	3	1	**CBDNF42A30S**	**C2-43**	**C2-35**	69 (32)	63 5/8 (1616.1)	53 (1346)	4 3/8 (111.1)
	240	3.33	3	1	**CBDNF51J29S**	**C2-50**	**C2-92**	71 (33)	63 5/8 (1616.1)	53 (1346)	4 3/8 (111.1)
	480	3.33	3	1	**CBDNF51J30S**	**C2-43**	**C2-35**	71 (33)	63 5/8 (1616.1)	53 (1346)	4 3/8 (111.1)
2 1/2 inch NPT Screw Plug (WATROD)											
16 W/in² ③ Steel Tank 3-Alloy 800 Elements (2.5 W/cm²)	240	2.0	3	1	**CBLN717G12S**	**C2-50**	**C2-92**	24 (11)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	2.0	3	1	**CBLN717G13S**	**C2-43**	**C2-35**	24 (11)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	2.5	3	1	**CBLN719R12S**	**C2-50**	**C2-92**	26 (12)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	2.5	3	1	**CBLN719R13S**	**C2-43**	**C2-35**	26 (12)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	3.0	3	1	**CBLN724R12S**	**C2-50**	**C2-92**	27 (13)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	3.0	3	1	**CBLN724R13S**	**C2-43**	**C2-35**	27 (13)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	4.0	3	1	**CBLN732G12S**	**C2-50**	**C2-92**	29 (14)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	480	4.0	3	1	**CBLN732G13S**	**C2-43**	**C2-35**	29 (14)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	240	5.0	3	1	**CBLN739R12S**	**C2-50**	**C2-92**	31 (14)	57 1/4 (1453)	45 (1143)	39 (991)
	480	5.0	3	1	**CBLN739R13S**	**C2-43**	**C2-35**	31 (14)	57 1/4 (1453)	45 (1143)	39 (991)
	240	6.0	3	1	**CBLN747G12S**	**C2-50**	**C2-92**	32 (15)	57 1/4 (1453)	45 (1143)	39 (991)
	480	6.0	3	1	**CBLN747G13S**	**C2-43**	**C2-35**	32 (15)	57 1/4 (1453)	45 (1143)	39 (991)
2 1/2 inch NPT Screw Plug (FIREBAR)											
15 W/in² ③ Steel Tank 3-Alloy 800 Elements (2.3 W/cm²)	240	2.00	3	1	**CBLNF12A29S**	**C2-50**	**C2-92**	21 (10)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	2.50	3	1	**CBLNF14J29S**	**C2-50**	**C2-92**	22 (10)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	3.00	3	1	**CBLNF17A29S**	**C2-50**	**C2-92**	23 (11)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	4.00	3	1	**CBLNF21J29S**	**C2-50**	**C2-92**	31 (14)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	4.00	3	1	**CBLNF21J30S**	**C2-43**	**C2-35**	31 (14)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	5.00	3	1	**CBLNF26J29S**	**C2-50**	**C2-92**	34 (16)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	480	5.00	3	1	**CBLNF26J30S**	**C2-43**	**C2-35**	34 (16)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	240	6.00	3	1	**CBLNF31J29S**	**C2-50**	**C2-92**	35 (16)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	480	6.00	3	1	**CBLNF31J30S**	**C2-43**	**C2-35**	35 (16)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	240	8.00	3	1	**CBLNF41A29S**	**C2-50**	**C2-92**	44 (20)	57 1/4 (1453)	45 (1143)	39 (991)
	480	8.00	3	1	**CBLNF41A30S**	**C2-43**	**C2-35**	44 (20)	57 1/4 (1453)	45 (1143)	39 (991)
	240	10.00	3	1	**CBLNF50J29S**	**C2-50**	**C2-92**	52 (24)	63 3/4 (1618)	51 1/2 (1308)	46 1/2 (1181)
	480	10.00	3		**CBLNF50J30S**	**C2-43**	**C2-35**	52 (24)	63 3/4 (1618)	51 1/2 (1308)	46 1/2 (1181)

③ Wired for 3-phase operation only

1 1/4 inch NPT Screw Plug



2 1/2 inch NPT Screw Plug



WATROD and FIREBAR Circulation Heaters

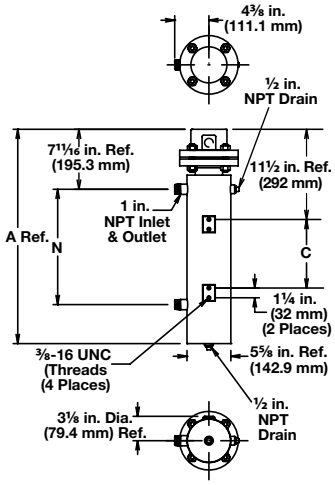
Application: Medium Weight Oils and Heat Transfer Oils

- WATROD elements
- Without thermostat
- General purpose enclosure

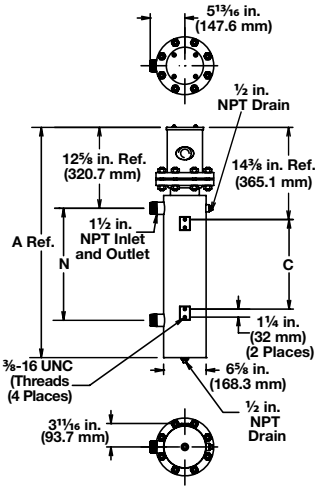
Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
3 inch - 150 lb ANSI Flange (WATROD)											
16 W/in² ③ Steel Tank 3-Alloy 800 Elements (2.6 W/cm²)	240	2.00	3	1	**CFMN718A12S**	**C2-50**	**C2-92**	68 (31)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	480	2.00	3	1	**CFMN718A13S**	**C2-43**	**C2-35**	68 (31)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	240	2.50	3	1	**CFMN720J12S**	**C2-50**	**C2-92**	70 (32)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	480	2.50	3	1	**CFMN720J13S**	**C2-43**	**C2-35**	70 (32)	35 1/4 (894)	22 1/2 (573)	16 1/2 (419)
	240	3.00	3	1	**CFMN725J12S**	**C2-50**	**C2-92**	78 (36)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	480	3.00	3	1	**CFMN725J13S**	**C2-43**	**C2-35**	78 (36)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	240	4.00	3	1	**CFMN733A12S**	**C2-50**	**C2-92**	96 (44)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	480	4.00	3	1	**CFMN733A13S**	**C2-43**	**C2-35**	96 (44)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	240	5.00	3	1	**CFMN740J12S**	**C2-50**	**C2-92**	100 (46)	57 3/4 (1465)	45 (1143)	39 (991)
	480	5.00	3	1	**CFMN740J13S**	**C2-43**	**C2-35**	100 (46)	57 3/4 (1465)	45 (1143)	39 (991)
	240	6.00	3	1	**CFMN748A12S**	**C2-50**	**C2-92**	107 (49)	57 3/4 (1465)	45 (1143)	39 (991)
	480	6.00	3	1	**CFMN748A13S**	**C2-43**	**C2-35**	107 (49)	57 3/4 (1465)	45 (1143)	39 (991)
4 inch - 150 lb ANSI Flange (WATROD)											
16 W/in² ③ Steel Tank 6-Alloy 800 Elements (2.5 W/cm²)	240	3.0	3	1	**CFON713J12S**	**C2-50**	**C2-92**	122 (56)	39 (989)	20 1/2 (521)	17 (432)
	480	3.0	3	1	**CFON713J13S**	**C2-43**	**C2-35**	122 (56)	39 (989)	20 1/2 (521)	17 (432)
	240	4.0	3	1	**CFON718A12S**	**C2-50**	**C2-92**	125 (57)	39 (989)	20 1/2 (521)	17 (432)
	480	4.0	3	1	**CFON718A13S**	**C2-43**	**C2-35**	125 (57)	39 (989)	20 1/2 (521)	17 (432)
	240	5.0	3	1	**CFON720J12S**	**C2-50**	**C2-92**	127 (58)	39 (989)	20 1/2 (521)	17 (432)
	480	5.0	3	1	**CFON720J13S**	**C2-43**	**C2-35**	127 (58)	39 (989)	20 1/2 (521)	17 (432)
	240	6.0	3	1	**CFON725J12S**	**C2-50**	**C2-92**	160 (73)	39 (989)	20 1/2 (521)	17 (432)
	480	6.0	3	1	**CFON725J13S**	**C2-43**	**C2-35**	160 (73)	39 (989)	20 1/2 (521)	17 (432)
	240	8.0	3	1	**CFON733A12S**	**C2-50**	**C2-92**	163 (74)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	480	8.0	3	1	**CFON733A13S**	**C2-43**	**C2-35**	163 (74)	49 1/2 (1256)	31 (787)	27 1/2 (699)
	240	10.0	3	1	**CFON740J12S**	**C2-50**	**C2-92**	229 (104)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	480	10.0	3	1	**CFON740J13S**	**C2-43**	**C2-35**	229 (104)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	240	12.0	3	1	**CFON748A12S**	**C2-236**	**C2-214**	234 (107)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	480	12.0	3	1	**CFON748A13S**	**C2-43**	**C2-35**	234 (107)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)

③ Wired for 3-phase operation only

3 inch - 150 lb ANSI Flange



4 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

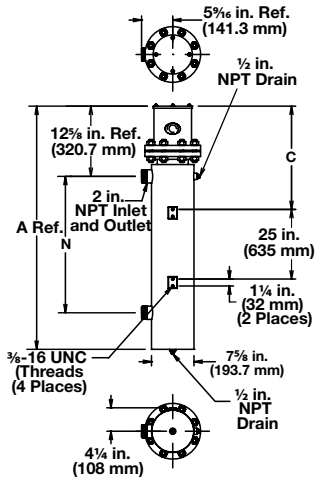
Application: Medium Weight Oils and Heat Transfer Oils

- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs	Ship Wt. (kg)	"A" Dim. in.	"A" Dim. (mm)	"N" Dim. in.	"N" Dim. (mm)	"C" Dim. in.	"C" Dim. (mm)
5 inch - 150 lb ANSI Flange (WATROD)															
16 W/in² ③ Steel Tank 6-Alloy 800 Elements (2.6 W/cm²)	240	8.0	3	1	**CFNN733A12S**	**C2-50**	**C2-92**	145	(66)	49 1/4	(1249)	30	(762)	25	(633.0)
	480	8.0	3	1	**CFNN733A13S**	**C2-43**	**C2-35**	145	(66)	49 1/4	(1249)	30	(762)	25	(633.0)
	240	10.0	3	1	**CFNN740J12S**	**C2-50**	**C2-92**	167	(76)	56 1/4	(1427)	37	(940)	25	(633.0)
	480	10.0	3	1	**CFNN740J13S**	**C2-43**	**C2-35**	167	(76)	56 1/4	(1427)	37	(940)	25	(633.0)
	240	12.0	3	1	**CFNN748A12S**	**C2-236**	**C2-214**	180	(82)	67 3/4	(1719)	48 1/2	(1232)	25	(633.0)
	480	12.0	3	1	**CFNN748A13S**	**C2-43**	**C2-35**	180	(82)	67 3/4	(1719)	48 1/2	(1232)	25	(633.0)
5 inch - 150 lb ANSI Flange (WATROD)															
16 W/in² ③ Steel Tank 9-Alloy 800 Elements (2.6 W/cm²)	240	12.0	3	1	**CFNN733A12XS**	**C2-236**	**C2-214**	150	(68)	49 1/4	(1249)	30	(762)	25	(633.0)
	480	12.0	3	1	**CFNN733A13XS**	**C2-43**	**C2-35**	150	(68)	49 1/4	(1249)	30	(762)	25	(633.0)
	240	15.0	3	1	**CFNN740J12XS**	**C2-236**	**C2-214**	173	(79)	56 1/4	(1427)	37	(940)	25	(633.0)
	480	15.0	3	1	**CFNN740J13XS**	**C2-43**	**C2-35**	173	(79)	56 1/4	(1427)	37	(940)	25	(633.0)
	240	18.0	3	1	**CFNN748A12XS**	**C2-236**	**C2-214**	188	(86)	67 3/4	(1719)	48 1/2	(1232)	25	(633.0)
	480	18.0	3	1	**CFNN748A13XS**	**C2-43**	**C2-35**	188	(86)	67 3/4	(1719)	48 1/2	(1232)	25	(633.0)

③ Wired for 3-phase operation only

5 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

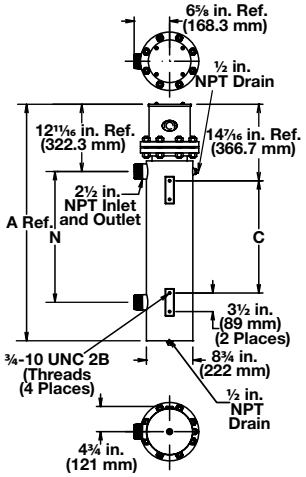
Application: Medium Weight Oils and Heat Transfer Oils

- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
6 inch - 150 lb ANSI Flange (WATROD)											
16 W/in² ③ Steel Tank 12-Alloy 800 Elements (2.6 W/cm²)	240	6.0	3	1	**CFPN713G12S**	**C2-50**	**C2-92**	212 (97)	40½ (1027)	20½ (521)	17 (432)
	480	6.0	3	1	**CFPN713G13S**	**C2-43**	**C2-35**	212 (97)	40½ (1027)	20½ (521)	17 (432)
	240	8.0	3	1	**CFPN717R12S**	**C2-50**	**C2-92**	214 (97)	40½ (1027)	20½ (521)	17 (432)
	480	8.0	3	1	**CFPN717R13S**	**C2-43**	**C2-35**	214 (97)	40½ (1027)	20½ (521)	17 (432)
	240	10.0	3	1	**CFPN720G12S**	**C2-50**	**C2-92**	217 (99)	40½ (1027)	20½ (521)	17 (432)
	480	10.0	3	1	**CFPN720G13S**	**C2-43**	**C2-35**	217 (99)	40½ (1027)	20½ (521)	17 (432)
	240	12.0	3	1	**CFPN725G12S**	**C2-236**	**C2-214**	222 (101)	40½ (1027)	20½ (521)	17 (432)
	480	12.0	3	1	**CFPN725G13S**	**C2-43**	**C2-35**	222 (101)	40½ (1027)	20½ (521)	17 (432)
	240	16.0	3	1	**CFPN732R12S**	**C2-236**	**C2-214**	226 (103)	51 (1294)	31 (787)	27½ (699)
	480	16.0	3	1	**CFPN732R13S**	**C2-43**	**C2-35**	226 (103)	51 (1294)	31 (787)	27½ (699)
	240	20.0	3	2	**CFPN740G12S**	**C2-219**	**C2-220**	290 (132)	72 (1827)	52 (1321)	48½ (1232)
	480	20.0	3	1	**CFPN740G13S**	**C2-43**	**C2-35**	290 (132)	72 (1827)	52 (1321)	48½ (1232)
	240	24.0	3	2	**CFPN747R12S**	**C2-219**	**C2-220**	298 (136)	72 (1827)	52 (1321)	48½ (1232)
	480	24.0	3	1	**CFPN747R13S**	**C2-225**	**C2-226**	298 (136)	72 (1827)	52 (1321)	48½ (1232)
6 inch - 150 lb ANSI Flange (WATROD)											
16 W/in² ③ Steel Tank 15-Alloy 800 Elements (2.6 W/cm²)	240	7.50	3	1	**CFPN713G12XS**	**C2-50**	**C2-92**	215 (98)	40½ (1027)	20½ (521)	17 (432)
	480	7.50	3	1	**CFPN713G13XS**	**C2-43**	**C2-35**	215 (98)	40½ (1027)	20½ (521)	17 (432)
	240	10.0	3	1	**CFPN717R12XS**	**C2-50**	**C2-92**	217 (99)	40½ (1027)	20½ (521)	17 (432)
	480	10.0	3	1	**CFPN717R13XS**	**C2-43**	**C2-35**	217 (99)	40½ (1027)	20½ (521)	17 (432)
	240	12.5	3	1	**CFPN720G12XS**	**C2-236**	**C2-214**	223 (102)	40½ (1027)	20½ (521)	17 (432)
	480	12.5	3	1	**CFPN720G13XS**	**C2-43**	**C2-35**	223 (102)	40½ (1027)	20½ (521)	17 (432)
	240	15.0	3	1	**CFPN725G12XS**	**C2-236**	**C2-214**	226 (103)	40½ (1027)	20½ (521)	17 (432)
	480	15.0	3	1	**CFPN725G13XS**	**C2-43**	**C2-35**	226 (103)	40½ (1027)	20½ (521)	17 (432)
	240	20.0	3	5	**CFPN732R12XS**	**C4-143**	**C4-142**	288 (131)	51 (1294)	31 (787)	27½ (699)
	480	20.0	3	1	**CFPN732R13XS**	**C2-43**	**C2-35**	288 (131)	51 (1294)	31 (787)	27½ (699)
	240	25.0	3	5	**CFPN740G12XS**	**C4-143**	**C4-142**	296 (135)	72 (1827)	52 (1321)	48½ (1232)
	480	25.0	3	1	**CFPN740G13XS**	**C2-225**	**C2-226**	296 (135)	72 (1827)	52 (1321)	48½ (1232)
	240	30.0	3	5	**CFPN747R12XS**	**C4-144**	**C4-145**	306 (139)	72 (1827)	52 (1321)	48½ (1232)
	480	30.0	3	1	**CFPN747R13XS**	**C2-225**	**C2-226**	306 (139)	72 (1827)	52 (1321)	48½ (1232)

③ Wired for 3-phase operation only

6 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

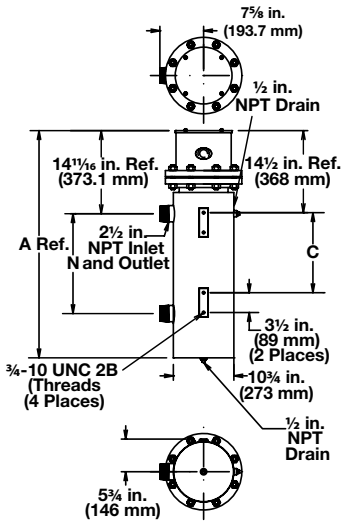
Application: Medium Weight Oils and Heat Transfer Oils

- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
8 inch - 150 lb ANSI Flange (WATROD)											
16 W/in² ③ Steel Tank 18-Alloy 800 Elements (2.6 W/cm²)	240	17.00	3	1	**CFRN725N12S**	**C2-236**	**C2-214**	350 (159)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	480	17.00	3	1	**CFRN725N13S**	**C2-43**	**C2-35**	350 (159)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	240	25.00	3	2	**CFRN735N12S**	**C2-219**	**C2-220**	380 (173)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	480	25.00	3	1	**CFRN735N13S**	**C2-225**	**C2-226**	380 (173)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	240	33.00	3	2	**CFRN744E12S**	**C2-218**	**C2-224**	410 (186)	69 7/8 (1774.8)	47 3/8 (1203.3)	43 7/8 (1114.4)
	480	33.00	3	1	**CFRN744E13S**	**C2-225**	**C2-226**	410 (186)	69 7/8 (1774.8)	47 3/8 (1203.3)	43 7/8 (1114.4)
	240	42.00	3	3	**CFRN754M12S**	**C4-144**	**C4-145**	445 (202)	79 3/8 (2016.1)	56 7/8 (1444.6)	53 3/8 (1355.7)
	480	42.00	3	2	**CFRN754M13S**	**C2-229**	**C2-230**	445 (202)	79 3/8 (2016.1)	56 7/8 (1444.6)	53 3/8 (1355.7)
	480	50.00	3	2	**CFRN763M13S**	**C2-229**	**C2-230**	490 (223)	88 3/8 (2244.7)	65 7/8 (1673.2)	62 3/8 (1584.3)
	480	58.00	3	2	**CFRN773D13S**	**C2-229**	**C2-230**	530 (241)	98 3/8 (2498.7)	75 7/8 (1927.2)	72 3/8 (1838.3)
	480	67.00	3	2	**CFRN782M13S**	**C2-229**	**C2-230**	560 (254)	98 3/8 (2498.7)	75 7/8 (1927.2)	72 3/8 (1838.3)
8 inch - 150 lb ANSI Flange (WATROD)											
16 W/in² ③ Steel Tank 24-Alloy 800 Elements (2.6 W/cm²)	240	23.0	3	2	**CFRN726D12XS**	**C2-218**	**C2-224**	358 (163)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	480	23.0	3	1	**CFRN726D13XS**	**C2-225**	**C2-226**	358 (163)	55 1/4 (1402.0)	32 3/4 (830.0)	29 1/4 (741.0)
	240	33.0	3	2	**CFRN736D12XS**	**C2-218**	**C2-224**	392 (178)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	480	33.0	3	1	**CFRN736D13XS**	**C2-225**	**C2-226**	392 (178)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	240	44.0	3	4	**CFRN744M12XS**	**C4-148**	**C4-149**	425 (193)	69 7/8 (1774.8)	47 3/8 (1203.3)	43 7/8 (1114.4)
	480	44.0	3	2	**CFRN744M13XS**	**C2-229**	**C2-230**	425 (193)	69 7/8 (1774.8)	47 3/8 (1203.3)	43 7/8 (1114.4)
	240	56.0	3	4	**CFRN754M12XS**	**C4-148**	**C4-149**	463 (210)	79 3/8 (2016.1)	56 7/8 (1444.6)	53 3/8 (1355.7)
	480	56.0	3	2	**CFRN754M13XS**	**C2-229**	**C2-230**	463 (210)	79 3/8 (2016.1)	56 7/8 (1444.6)	53 3/8 (1355.7)
	480	67.0	3	2	**CFRN763M13XS**	**C2-229**	**C2-230**	511 (232)	88 3/8 (2244.7)	65 7/8 (1673.2)	62 3/8 (1584.3)
	480	77.0	3	2	**CFRN773D13XS**	**C2-229**	**C2-230**	554 (252)	98 3/8 (2498.7)	75 7/8 (1927.2)	72 3/8 (1838.3)
	480	89.0	3	4	**CFRN782M13XS**	**C4-156**	**C4-157**	587 (267)	98 3/8 (2498.7)	75 7/8 (1927.2)	72 3/8 (1838.3)

③ Wired for 3-phase operation only

8 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

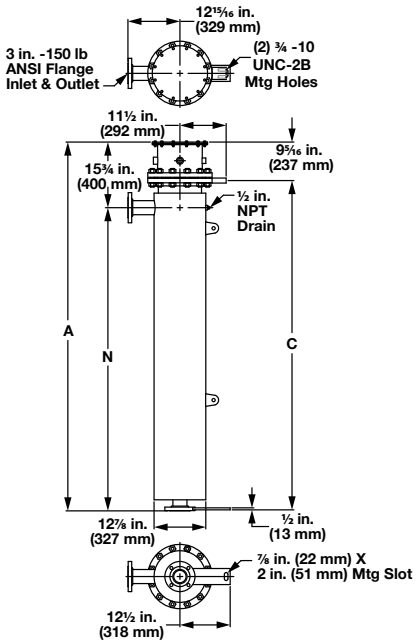
Application: Medium Weight Oils and Heat Transfer Oils

- WATROD elements
- Without thermostat
- General purpose enclosure

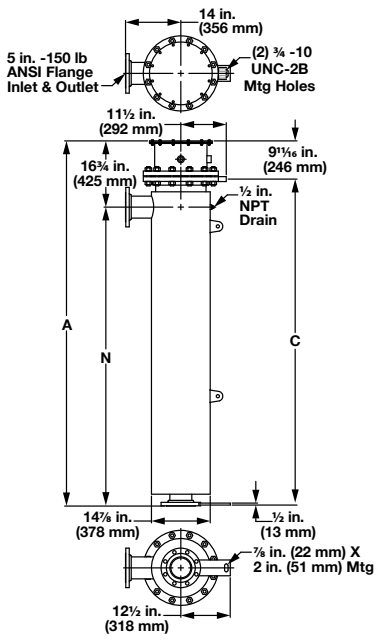
Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
10 inch - 150 lb ANSI Flange (WATROD)											
16 W/in² ③ Steel Tank 27-Alloy 800 Elements (2.6 W/cm²)	480	75.0	3	3	**CFSN763N13S**	**C4-152**	**C4-153**	540 (245)	91 3/16 (2316)	75 7/16 (1916)	81 15/16 (2081)
	480	87.0	3	3	**CFSN773E13S**	**C4-152**	**C4-153**	600 (273)	106 9/16 (2707)	90 13/16 (1037)	97 5/16 (2471)
12 inch - 150 lb ANSI Flange (WATROD)											
16 W/in² ③ Steel Tank 36-Alloy 800 Elements (2.6 W/cm²)	480	117.0	3	3	**CFTN773C13S**	**C4-152**	**C4-153**	650 (295)	106 1/2 (2705)	90 3/8 (2295.5)	97 3/16 (2468.6)
14 inch - 150 lb ANSI Flange (WATROD)											
16 W/in² ③ Steel Tank 45-Alloy 800 Elements (2.6 W/cm²)	480	105.0	3	3	**CFWN754J13S**	**C4-152**	**C4-153**	600 (273)	83 1/4 (2115)	67 (1700)	73 11/16 (1872)
	480	125.0	3	5	**CFWN763J13S**	**C/F**	**C/F**	650 (295)	90 3/4 (2305)	74 1/2 (1891)	81 3/16 (2062)

③ Wired for 3-phase operation only
C/F - Contact factory, go to www.watlow.com/en/contact-us

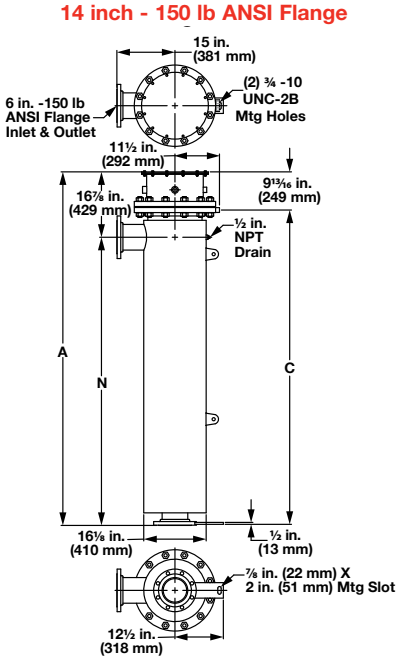
10 inch - 150 lb ANSI Flange



12 inch - 150 lb ANSI Flange



14 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

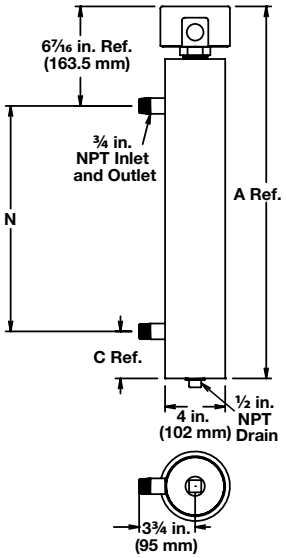
Application: Bunker C, Asphalt and #6 Fuel Oil

- WATROD or FIREBAR elements
- Without thermostat
- General purpose enclosure

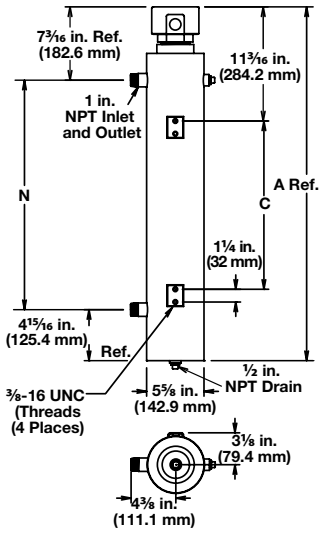
Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
1 1/4 inch NPT Screw Plug (FIREBAR)											
8 W/in² ③ Steel Tank 1-Alloy 800 Element (1.3 W/cm²)	240	0.43	3	1	**CBDNF16G22S**	**C2-50**	**C2-92**	26 (12)	24 5/8 (625.5)	15 (381)	3 1/8 (79.4)
	240	0.55	3	1	**CBDNF19G22S**	**C2-50**	**C2-92**	30 (14)	32 5/8 (828.7)	23 (584)	3 1/8 (79.4)
	240	0.70	3	1	**CBDNF24L22S**	**C2-50**	**C2-92**	31 (14)	32 5/8 (828.7)	23 (584)	3 1/8 (79.4)
	480	0.70	3	1	**CBDNF24L21S**	**C2-43**	**C2-35**	31 (14)	32 5/8 (828.7)	23 (584)	3 1/8 (79.4)
	240	0.88	3	1	**CBDNF29R22S**	**C2-50**	**C2-92**	43 (20)	42 5/8 (1082.7)	32 (813)	4 3/8 (111.1)
	480	0.88	3	1	**CBDNF29R21S**	**C2-43**	**C2-35**	43 (20)	42 5/8 (1082.7)	32 (813)	4 3/8 (111.1)
	240	1.08	3	1	**CBDNF34R22S**	**C2-50**	**C2-92**	44 (20)	42 5/8 (1082.7)	32 (813)	4 3/8 (111.1)
	480	1.08	3	1	**CBDNF34R21S**	**C2-43**	**C2-35**	44 (20)	42 5/8 (1082.7)	32 (813)	4 3/8 (111.1)
	240	1.40	3	1	**CBDNF45G22S**	**C2-50**	**C2-92**	69 (31)	63 5/8 (1616.1)	53 (1346)	4 3/8 (111.1)
	480	1.40	3	1	**CBDNF45G21S**	**C2-43**	**C2-35**	69 (31)	63 5/8 (1616.1)	53 (1346)	4 3/8 (111.1)
	240	1.80	3	1	**CBDNF55R22S**	**C2-50**	**C2-92**	71 (32)	63 5/8 (1616.1)	53 (1346)	4 3/8 (111.1)
	480	1.80	3	1	**CBDNF55R21S**	**C2-43**	**C2-35**	71 (32)	63 5/8 (1616.1)	53 (1346)	4 3/8 (111.1)
2 1/2 inch NPT Screw Plug (WATROD)											
8 W/in² ③ Steel Tank 3-Steel Elements (1.3 W/cm²)	240	2.0	3	1	**CBLS732E12S**	**C2-50**	**C2-92**	29 (14)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	480	2.0	3	1	**CBLS732E13S**	**C2-43**	**C2-35**	29 (14)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	240	3.0	3	1	**CBLS747E12S**	**C2-50**	**C2-92**	32 (15)	57 1/4 (1453)	45 (1143)	39 (991)
	480	3.0	3	1	**CBLS747E13S**	**C2-43**	**C2-35**	32 (15)	57 1/4 (1453)	45 (1143)	39 (991)

③ Wired for 3-phase operation only

1 1/4 inch NPT Screw Plug



2 1/2 inch NPT Screw Plug



WATROD and FIREBAR Circulation Heaters

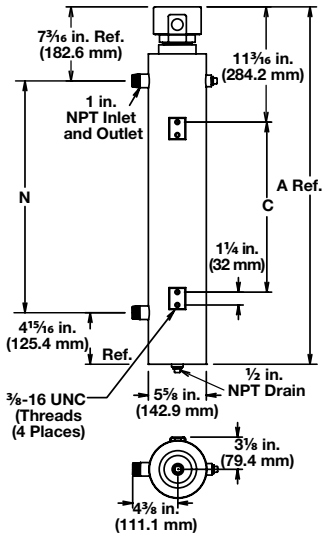
Application: Bunker C, Asphalt and #6 Fuel Oil

- WATROD or FIREBAR elements
- Without thermostat
- General purpose enclosure

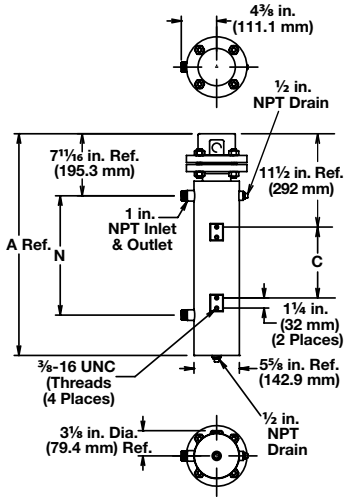
Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
2 1/2 inch NPT Screw Plug (FIREBAR)											
8 W/in² ③ Steel Tank 3-Alloy 800 Elements (1.3 W/cm²)	240	1.25	3	1	**CBLNF15C22S**	**C2-50**	**C2-92**	22 (10)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	1.63	3	1	**CBLNF18C22S**	**C2-50**	**C2-92**	23 (10)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	2.13	3	1	**CBLNF23C22S**	**C2-50**	**C2-92**	31 (14)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	480	2.13	3	1	**CBLNF23C21S**	**C2-43**	**C2-35**	31 (14)	34 3/4 (881)	22 1/2 (572)	16 1/2 (419)
	240	2.63	3	1	**CBLNF28L22S**	**C2-50**	**C2-92**	34 (15)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	480	2.63	3	1	**CBLNF28L21S**	**C2-43**	**C2-35**	34 (15)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	240	3.19	3	1	**CBLNF33L22S**	**C2-50**	**C2-92**	35 (16)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	480	3.19	3	1	**CBLNF33L21S**	**C2-43**	**C2-35**	35 (16)	44 3/4 (1135)	32 1/2 (826)	26 1/2 (673)
	240	4.25	3	1	**CBLNF44C22S**	**C2-50**	**C2-92**	44 (20)	57 1/4 (1453)	45 (1143)	39 (991)
	480	4.25	3	1	**CBLNF44C21S**	**C2-43**	**C2-35**	44 (20)	57 1/4 (1453)	45 (1143)	39 (991)
	240	5.38	3	1	**CBLNF54L22S**	**C2-50**	**C2-92**	52 (24)	63 3/4 (1453)	51 1/2 (1308)	46 1/2 (1181)
	480	5.38	3	1	**CBLNF54L21S**	**C2-43**	**C2-35**	52 (24)	63 3/4 (1453)	51 1/2 (1308)	46 1/2 (1181)
3 inch - 150 lb ANSI Flange (WATROD)											
8 W/in² ③ Steel Tank 3-Steel Elements (1.3 W/cm²)	240	2.0	3	1	**CFMS733A12S**	**C2-50**	**C2-92**	96 (44)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	480	2.0	3	1	**CFMS733A13S**	**C2-43**	**C2-35**	96 (44)	45 1/4 (1148)	32 1/2 (826)	26 1/2 (673)
	240	3.0	3	1	**CFMS748A12S**	**C2-50**	**C2-92**	107 (49)	57 3/4 (1465)	45 (1143)	39 (991)
	480	3.0	3	1	**CFMS748A13S**	**C2-43**	**C2-35**	107 (49)	57 3/4 (1465)	45 (1143)	39 (991)

③ Wired for 3-phase operation only

2½ inch NPT Screw Plug



3 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

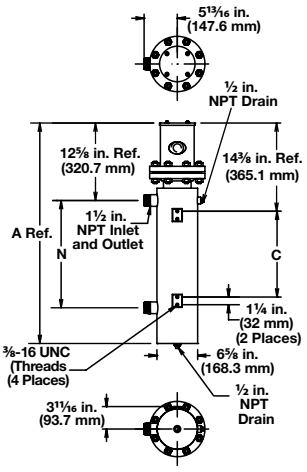
Application: Bunker C, Asphalt and #6 Fuel Oil

- WATROD elements
- Without thermostat
- General purpose enclosure

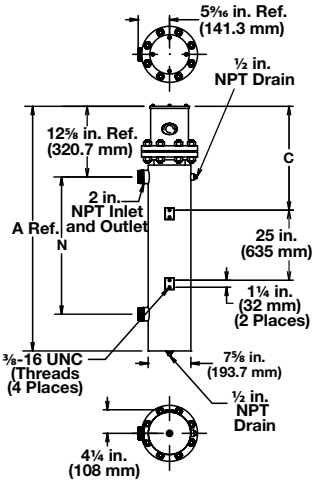
Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in (mm)	"C" Dim. in. (mm)
4 inch - 150 lb ANSI Flange (WATROD)											
8 W/in² ③ Steel Tank 6-Steel Elements (1.3 W/cm²)	240	5.00	3	1	**CFOS740J12S**	**C2-50**	**C2-92**	229 (104)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	480	5.00	3	1	**CFOS740J13S**	**C2-43**	**C2-35**	229 (104)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	240	6.00	3	1	**CFOS748A12S**	**C2-50**	**C2-92**	234 (106)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	480	6.00	3	1	**CFOS748A13S**	**C2-43**	**C2-35**	234 (106)	70 1/2 (1789)	52 (1321)	48 1/2 (1232)
	240	8.00	3	1	**CFOS764J12S**	**C2-50**	**C2-92**	298 (135)	91 1/2 (2326)	73 (1854)	66 (1676)
	480	8.00	3	1	**CFOS764J13S**	**C2-43**	**C2-35**	298 (135)	91 1/2 (2326)	73 (1854)	66 (1676)
	240	10.00	3	1	**CFOS777A12S**	**C2-50**	**C2-92**	306 (139)	91 1/2 (2326)	73 (1854)	66 (1676)
	480	10.00	3	1	**CFOS777A13S**	**C2-43**	**C2-35**	306 (139)	91 1/2 (2326)	73 (1854)	66 (1676)
5 inch - 150 lb ANSI Flange (WATROD)											
8 W/in² ③ Steel Tank 6-Steel Elements (1.3 W/cm²)	240	5.00	3	1	**CFNS740J12S**	**C2-50**	**C2-92**	167 (76)	56 1/4 (1427.0)	37 (940.0)	25 (633.0)
	480	5.00	3	1	**CFNS740J13S**	**C2-43**	**C2-35**	167 (76)	56 1/4 (1427.0)	37 (940.0)	25 (633.0)
	240	6.00	3	1	**CFNS748A12S**	**C2-50**	**C2-92**	180 (82)	67 3/4 (1719.0)	48 1/2 (1232.0)	25 (633.0)
	480	6.00	3	1	**CFNS748A13S**	**C2-43**	**C2-35**	180 (82)	67 3/4 (1719.0)	48 1/2 (1232.0)	25 (633.0)
	240	8.00	3	1	**CFNS764J12S**	**C2-50**	**C2-92**	195 (89)	81 1/8 (2060.6)	61 7/8 (1571.6)	25 (633.0)
	480	8.00	3	1	**CFNS764J13S**	**C2-43**	**C2-35**	195 (89)	81 1/8 (2060.6)	61 7/8 (1571.6)	25 (633.0)
	240	10.00	3	1	**CFNS777A12S**	**C2-50**	**C2-92**	220 (100)	94 1/8 (2390.8)	75 (1902.0)	25 (633.0)
	480	10.00	3	1	**CFNS777A13S**	**C2-43**	**C2-35**	220 (100)	94 1/8 (2390.8)	75 (1902.0)	25 (633.0)
5 inch - 150 lb ANSI Flange (WATROD)											
8 W/in² ③ Steel Tank 9-Steel Elements (1.3 W/cm²)	240	7.5	3	1	**CFNS740J12XS**	**C2-50**	**C2-92**	173 (79)	56 1/4 (1427.0)	37 (940.0)	25 (633.0)
	480	7.5	3	1	**CFNS740J13XS**	**C2-43**	**C2-35**	173 (79)	56 1/4 (1427.0)	37 (940.0)	25 (633.0)
	240	9.0	3	1	**CFNS748A12XS**	**C2-50**	**C2-92**	188 (86)	67 3/4 (1719.0)	48 1/2 (1232.0)	25 (633.0)
	480	9.0	3	1	**CFNS748A13XS**	**C2-43**	**C2-35**	188 (86)	67 3/4 (1719.0)	48 1/2 (1232.0)	25 (633.0)
	240	12.0	3	1	**CFNS764J12XS**	**C2-236**	**C2-214**	206 (94)	81 1/8 (2060.6)	61 7/8 (1571.6)	25 (633.0)
	480	12.0	3	1	**CFNS764J13XS**	**C2-43**	**C2-35**	206 (94)	81 1/8 (2060.6)	61 7/8 (1571.6)	25 (633.0)
	240	15.0	3	1	**CFNS777A12XS**	**C2-236**	**C2-214**	233 (106)	94 1/8 (2390.8)	75 (1902.0)	25 (633.0)
	480	15.0	3	1	**CFNS777A13XS**	**C2-225**	**C2-226**	233 (106)	94 1/8 (2390.8)	75 (1902.0)	25 (633.0)

③ Wired for 3-phase operation only

4 inch - 150 lb ANSI Flange



5 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

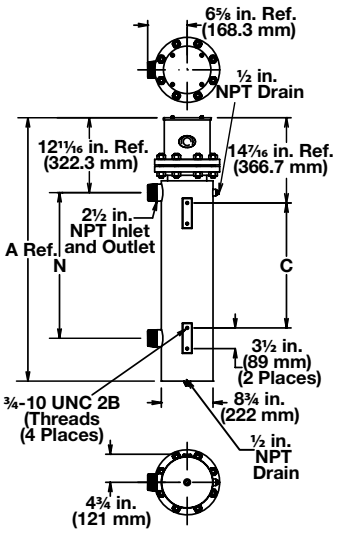
Application: Bunker C, Asphalt and #6 Fuel Oil

- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
6 inch - 150 lb ANSI Flange (WATROD)											
8 W/in² ③ Steel Tank 12-Steel Elements (1.3 W/cm²)	240	8.0	3	1	**CFPS732R12S**	**C2-50**	**C2-92**	226 (103)	51 (1294)	31 (787)	27 1/2 (699)
	480	8.0	3	1	**CFPS732R13S**	**C2-43**	**C2-35**	226 (103)	51 (1294)	31 (787)	27 1/2 (699)
	240	10.0	3	1	**CFPS740G12S**	**C2-50**	**C2-92**	290 (132)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	10.0	3	1	**CFPS740G13S**	**C2-43**	**C2-35**	290 (132)	72 (1827)	52 (1321)	48 1/2 (1232)
	240	12.0	3	1	**CFPS747R12S**	**C2-236**	**C2-214**	298 (136)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	12.0	3	1	**CFPS747R13S**	**C2-43**	**C2-35**	298 (136)	72 (1827)	52 (1321)	48 1/2 (1232)
	240	16.5	3	1	**CFPS764G12S**	**C2-236**	**C2-214**	360 (164)	93 (2361)	73 (1854)	66 (1676)
	480	16.5	3	1	**CFPS764G13S**	**C2-43**	**C2-35**	360 (164)	93 (2361)	73 (1854)	66 (1676)
	480	20.0	3	1	**CFPS776R13S**	**C2-43**	**C2-35**	368 (167)	93 (2361)	73 (1854)	66 (1676)
6 inch - 150 lb ANSI Flange (WATROD)											
8 W/in² ③ Steel Tank 15-Steel Elements (1.3 W/cm²)	240	10.0	3	1	**CFPS732R12XS**	**C2-50**	**C2-92**	288 (131)	51 (1294)	31 (787)	27 1/2 (699)
	480	10.0	3	1	**CFPS732R13XS**	**C2-43**	**C2-35**	288 (131)	51 (1294)	31 (787)	27 1/2 (699)
	240	12.5	3	1	**CFPS740G12XS**	**C2-236**	**C2-214**	296 (135)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	12.5	3	1	**CFPS740G13XS**	**C2-43**	**C2-35**	296 (135)	72 (1827)	52 (1321)	48 1/2 (1232)
	240	15.0	3	1	**CFPS747R12XS**	**C2-236**	**C2-214**	306 (139)	72 (1827)	52 (1321)	48 1/2 (1232)
	480	15.0	3	1	**CFPS747R13XS**	**C2-43**	**C2-35**	306 (139)	72 (1827)	52 (1321)	48 1/2 (1232)
	240	21.0	3	5	**CFPS764G12XS**	**C4-143**	**C4-142**	370 (168)	93 (2361)	73 (1854)	66 (1676)
	480	21.0	3	1	**CFPS764G13XS**	**C2-225**	**C2-226**	370 (168)	93 (2361)	73 (1854)	66 (1676)
	240	25.0	3	5	**CFPS776R12XS**	**C4-143**	**C4-142**	381 (173)	93 (2361)	73 (1854)	66 (1676)
	480	25.0	3	1	**CFPS776R13XS**	**C2-224**	**C2-226**	381 (173)	93 (2361)	73 (1854)	66 (1676)

③ Wired for 3-phase operation only

6 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

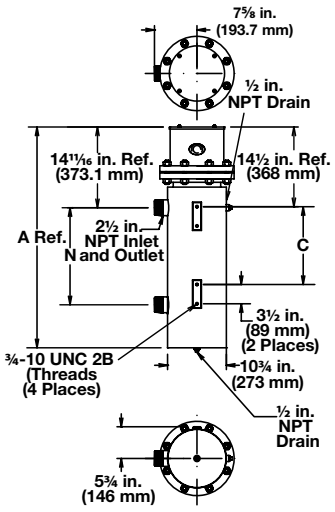
Application: Bunker C, Asphalt and #6 Fuel Oil

- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
8 inch - 150 lb ANSI Flange (WATROD)											
8 W/in² ③ Steel Tank 18-Steel Elements (1.3 W/cm²)	240	12.5	3	1	**CFRS743E12S**	**C2-236**	**C2-214**	410 (186)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	480	12.5	3	1	**CFRS743E13S**	**C2-43**	**C2-35**	410 (186)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	240	16.5	3	1	**CFRS751M12S**	**C2-236**	**C2-214**	440 (200)	69 7/8 (1774.8)	47 3/8 (1203.3)	43 7/8 (1114.4)
	480	16.5	3	1	**CFRS751M13S**	**C2-43**	**C2-35**	440 (200)	69 7/8 (1774.8)	47 3/8 (1203.3)	43 7/8 (1114.4)
	240	20.0	3	2	**CFRS762D12S**	**C2-219**	**C2-220**	480 (218)	79 3/8 (2016.1)	56 7/8 (1444.6)	53 3/8 (1355.7)
	480	20.0	3	1	**CFRS762D13S**	**C2-43**	**C2-50**	480 (218)	79 3/8 (2016.1)	56 7/8 (1444.6)	53 3/8 (1355.7)
	240	24.0	3	2	**CFRS770M12S**	**C2-218**	**C2-224**	530 (241)	88 3/8 (2244.7)	65 7/8 (1673.2)	62 3/8 (1584.3)
	480	24.0	3	1	**CFRS770M13S**	**C2-225**	**C2-226**	530 (241)	88 3/8 (2244.7)	65 7/8 (1673.2)	62 3/8 (1584.3)
	240	27.0	3	2	**CFRS779M12S**	**C2-218**	**C2-224**	610 (277)	98 3/8 (2498.7)	75 7/8 (1927.2)	72 3/8 (1838.3)
	480	27.0	3	1	**CFRS779M13S**	**C2-225**	**C2-226**	610 (277)	98 3/8 (2498.7)	75 7/8 (1927.2)	72 3/8 (1838.3)
8 inch - 150 lb ANSI Flange (WATROD)											
8 W/in² ③ Steel Tank 24-Steel Elements (1.3 W/cm²)	240	17.0	3	1	**CFRS743M12XS**	**C2-236**	**C2-214**	425 (193)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	480	17.0	3	1	**CFRS743M13XS**	**C2-43**	**C2-35**	425 (193)	62 1/4 (1580.0)	39 3/4 (1008.0)	36 1/4 (919.0)
	240	22.0	3	2	**CFRS751M12XS**	**C2-218**	**C2-224**	457 (208)	69 7/8 (1774.8)	47 3/8 (1203.3)	43 7/8 (1114.4)
	480	22.0	3	1	**CFRS751M13XS**	**C2-225**	**C2-226**	457 (208)	69 7/8 (1774.8)	47 3/8 (1203.3)	43 7/8 (1114.4)
	240	27.0	3	2	**CFRS762D12XS**	**C2-218**	**C2-224**	461 (209)	79 3/8 (2016.1)	56 7/8 (1444.6)	53 3/8 (1355.7)
	480	27.0	3	1	**CFRS762D13XS**	**C2-225**	**C2-226**	461 (209)	79 3/8 (2016.1)	56 7/8 (1444.6)	53 3/8 (1355.7)
	240	32.0	3	2	**CFRS770M12XS**	**C2-218**	**C2-224**	554 (252)	88 3/8 (2244.7)	65 7/8 (1673.2)	62 3/8 (1584.3)
	480	32.0	3	1	**CFRS770M13XS**	**C2-225**	**C2-226**	554 (252)	88 3/8 (2244.7)	65 7/8 (1673.2)	62 3/8 (1584.3)
	240	36.0	3	2	**CFRS779M12XS**	**C2-218**	**C2-224**	636 (289)	98 3/8 (2498.7)	75 7/8 (1927.2)	72 3/8 (1838.3)
	480	36.0	3	1	**CFRS779M13XS**	**C2-224**	**C2-226**	636 (289)	98 3/8 (2498.7)	75 7/8 (1927.2)	72 3/8 (1838.3)

③ Wired for 3-phase operation only

8 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

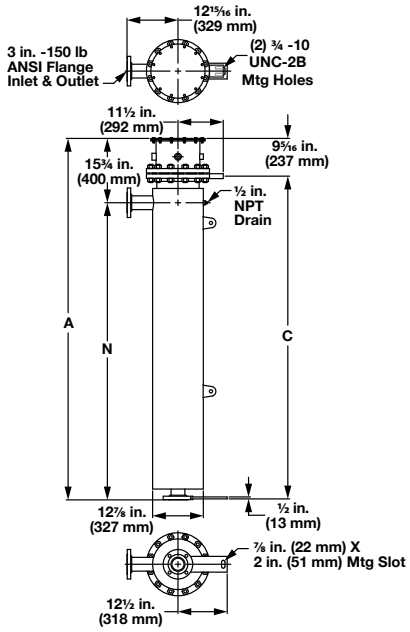
Application: Bunker C, Asphalt and #6 Fuel Oil

- WATROD elements
- Without thermostat
- General purpose enclosure

Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
10 inch - 150 lb ANSI Flange (WATROD)											
8 W/in² ③ Steel Tank 27-Steel Elements (1.3 W/cm²)	240	30.0	3	3	**CFSS762E12S**	**C4-143**	**C4-142**	540 (245)	91 1/4 (2316.0)	75 1/2 (1916.0)	82 1/4 (2088.0)
	480	30.0	3	1	**CFSS762E13S**	**C2-225**	**C2-226**	540 (245)	91 1/4 (2316.0)	75 1/2 (1916.0)	82 1/4 (2088.0)
	240	35.0	3	3	**CFSS770N12S**	**C4-144**	**C4-145**	600 (273)	99 1/8 (2517.8)	83 3/8 (2117.7)	89 13/16 (2281.2)
	480	35.0	3	1	**CFSS770N13S**	**C2-225**	**C2-226**	600 (273)	99 1/8 (2517.8)	83 3/8 (2117.7)	89 13/16 (2281.2)
	240	40.0	3	3	**CFSS778N12S**	**C4-144**	**C4-145**	645 (293)	106 5/8 (2708.3)	90 7/8 (2308.2)	97 5/16 (2471.7)
	480	40.0	3	1	**CFSS778N13S**	**C2-225**	**C2-226**	645 (293)	106 5/8 (2708.3)	90 7/8 (2308.2)	97 5/16 (2471.7)

③ Wired for 3-phase operation only

10 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

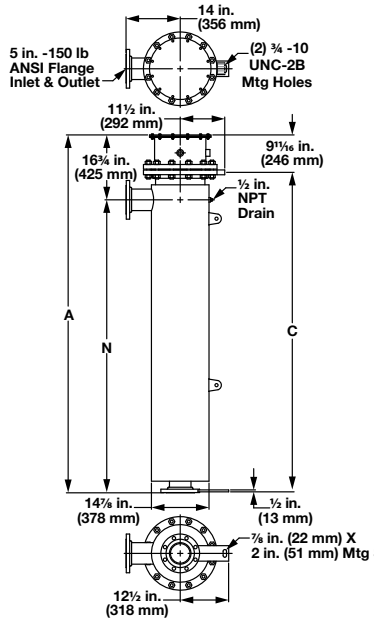
Application: Bunker C, Asphalt and #6 Fuel Oil

- WATROD elements
- Without thermostat
- General purpose enclosure

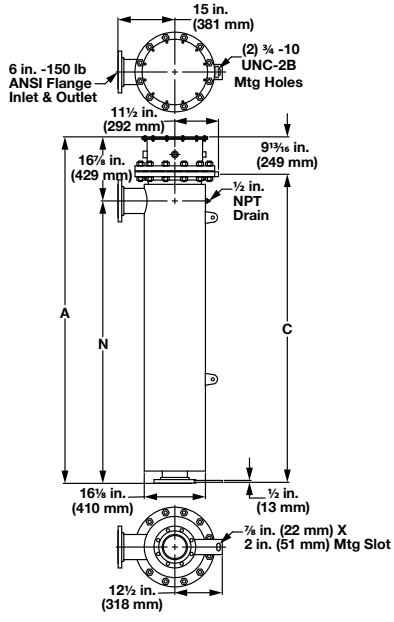
Description	Volts	kW	Ph	# Circ.	Part Number	WATCONNECT Part Number Type J T/C	WATCONNECT Part Number Type K T/C	Ship Wt. lbs (kg)	"A" Dim. in. (mm)	"N" Dim. in. (mm)	"C" Dim. in. (mm)
12 inch - 150 lb ANSI Flange (WATROD)											
8 W/in² ③ Steel Tank 36-Steel Elements (1.3 W/cm²)	240	47.0	3	3	**CFTS770L12S**	**C4-144**	**C4-145**	700 (318)	99 (2515)	82 7/8 (2105.0)	89 5/8 (2277)
	480	47.0	3	2	**CFTS770L13S**	**C2-229**	**C2-230**	700 (318)	99 (2515)	82 7/8 (2105.0)	89 5/8 (2277)
	240	54.0	3	3	**CFTS778L12S**	**C4-144**	**C4-145**	750 (341)	106 1/2 (2705)	90 3/8 (2295.5)	97 1/8 (2467)
	480	54.0	3	2	**CFTS778L13S**	**C2-229**	**C2-230**	750 (341)	106 1/2 (2705)	90 3/8 (2295.5)	97 1/8 (2467)
14 inch - 150 lb ANSI Flange (WATROD)											
8 W/in² ③ Steel Tank 45-Steel Elements (1.3 W/cm²)	240	60.0	3	3	**CFWS770J12S**	**C4-144**	**C4-145**	700 (318)	98 1/4 (2496)	82 (2081)	88 11/16 (2253)
	480	60.0	3	3	**CFWS770J13S**	**C4-150**	**C4-151**	700 (318)	98 1/4 (2496)	82 (2081)	88 11/16 (2253)
	240	67.0	3	5	**CFWS778J12S**	**C/F**	**C/F**	780 (354)	105 3/4 (2686)	89 1/2 (2272)	96 3/16 (2443)
	480	67.0	3	3	**CFWS778J13S**	**C4-152**	**C4-153**	780 (354)	105 3/4 (2686)	89 1/2 (2272)	96 3/16 (2443)

C/F - Contact factory, go to www.watlow.com/en/contact-us

12 inch - 150 lb ANSI Flange



14 inch - 150 lb ANSI Flange



WATROD and FIREBAR Circulation Heaters

Part Number

Stock Plug or ANSI Flange Part Number	Optional Terminal Enclosures	Optional Process Sensors	Sheath Limit Sensors

Stock Plug or ANSI Flange Part Number
Note: Catalog part numbers include optional enclosures and process sensors. To order optional enclosures or sensors, substitute the appropriate suffix.

Optional Terminal Enclosures	
S =	General purpose enclosure
W=	NEMA 4 enclosure
C =	Moisture/explosion resistant enclosure
Note: Catalog listings include either a general purpose enclosure or NEMA 4 enclosure. Substitute enclosure options are noted.	

Optional Bulb and Capillary Thermostats or Thermocouple Process Sensors	
2 =	30 to 250°F, (-1 to 121°C) SPST
3 =	175 to 550°F, (79 to 288°C) SPST
4 =	40 to 110°F, (-1 to 43°C) DPST
5A=	60 to 250°F, (16 to 121°C) DPST (FIREBAR)
7A=	100 to 550°F, (38 to 288°C) DPST (FIREBAR)
J =	Type J process thermocouple in thermowell
K =	Type K process thermocouple in thermowell
Note: Thermostat part numbers are shown in the *Thermostat Chart* on page 517.	

Sheath Limit Sensors	
HJ=	Type J high-limit thermocouple, horizontal mount
TJ=	Type J high-limit thermocouple, vertical/housing at top
BJ=	Type J high-limit thermocouple, vertical/housing at bottom
HK=	Type K high-limit thermocouple, horizontal mount
TK=	Type K high-limit thermocouple, vertical/housing at top
BK=	Type K high-limit thermocouple, vertical/housing at bottom
Note: Heater orientation is critical to accurate sensing of limit conditions. Use the appropriate code to indicate heater mounting orientation.	

Example Part Number: CFONA18A10 S 5 HJ

WATROD™ and FIREBAR® Heaters

Booster Heaters

Booster heaters are ideal for circulating applications requiring less kilowatts, including engine preheating.

Booster heaters are made from a steel or brass $1^{1}/_{4}$ in. (32 mm) NPT screw plug heater and insulated pressure vessel with 1 in. (25 mm) FNPT inlet and outlet. This assembly also contains an integral thermostat.

Performance Capabilities

- Watt densities up to 60 W/in^2 (9.3 W/cm^2)
- Wattages up to 3 kilowatts
- Voltages up to 480VAC
- Steel sheath temperatures up to 750°F (400°C)
- Alloy 800 sheath temperatures up to 350°F (175°C)

Features and Benefits

Dual voltages
- Simplifies stocking and wiring

Carbon steel, standard pipe wall vessel
- Assures compatibility with many applications

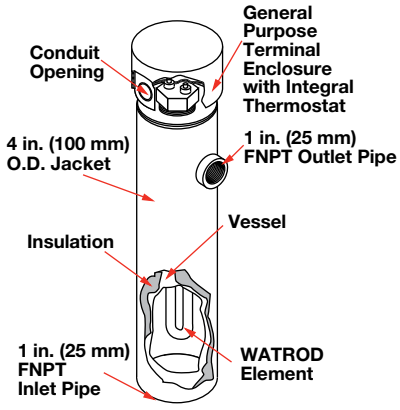
One inch thick (25 mm) fiberglass thermal insulation rated to 750°F (400°C)
- Reduces heat loss

Steel jacket (shroud)
- Provides a fully welded and painted shroud to protect thermal insulation

Inlet and outlet nozzle connections
- Includes threaded FNPT connections to meet OEM standards

General purpose terminal enclosures
- Protects terminals and thermostat

Integral thermostat controls process temperatures from: 60 to 160°F (15 to 70°C) on alloy 800 sheath elements and 175 to 550°F (80 to 290°C) on steel sheath elements
- Minimizes the amount of time that the heater operates while the engine is running



Typical Applications

- Stand by generators
- Peak power trimming generators
- Mobile generator sets
- Earth moving equipment
- Water heaters
- Lightweight oils

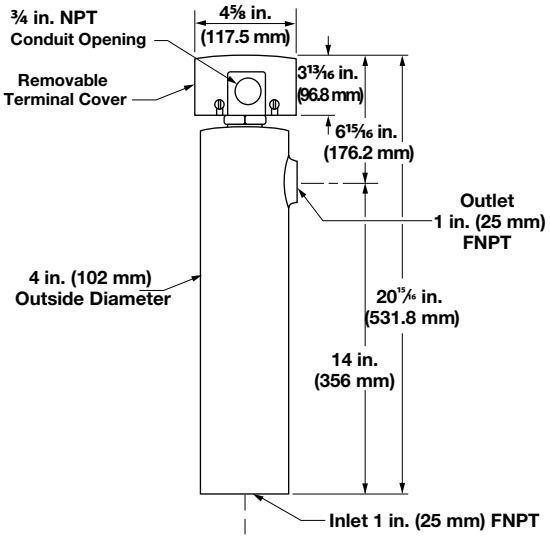
WATROD and FIREBAR Heaters

Booster Heaters

Terminal Enclosure

General purpose terminal enclosures with integral thermostats are supplied on all Watlow booster heaters. Optional moisture resistant terminal enclosures protect wiring and thermostat from liquid contaminants. To order, request the **moisture resistant enclosure option**.

For explosion resistant and explosion/moisture resistant terminal enclosures, request the **explosion/moisture resistant option**.



Description	kW	Phase	Part Number 120/240VAC	Est. Ship. Wt. lbs	(kg)
Application: Aqueous Solutions					
60 W/in²	1.50	1	**CBEN8G6**	18	(8.2)
Brass Plug	2.00	1	**CBEN10F6**	18	(8.2)
2-Alloy 800	2.50	1	**CBEN12F6**	18	(8.2)
(9.3 W/cm²)	3.00	1	**CBEN15A6X**	18	(8.2)
Application: Lightweight Oils					
23 W/in²	0.50	1	**CBES7G6**	18	(8.2)
Steel Plug	0.75	1	**CBES10B6**	18	(8.2)
2-Steel	1.00	1	**CBES12P6**	18	(8.2)
(3.6 W/cm²)					

For optional housing adders, use circulation heater adders.

WATROD™ and FIREBAR® Heaters

Engine Preheaters

Watlow engine preheaters help maintain a desired minimum engine temperature to make starting fast and easy. They also reduce engine wear caused by cold engine starting.

Engine preheaters mount conveniently on an engine or rail. The internal thermostat constantly adjusts to ambient temperature changes to keep engine coolant warm at all times.

An internal tank temperature sensor protects Watlow engine preheaters from dry-fire conditions caused by low coolant levels or blocked flow.

Installation is easy with just two mounting bolts and inlet and outlet hose connections.

Performance Capabilities

- Watt densities from 45 to 90 W/in^2 (7 to 14 W/cm^2)
- Wattages up to 5 kilowatts
- UL® and CSA component recognition up to 480VAC and 600VAC respectively
- Thermostatically controlled from 60 to 160°F (15 to 70°C)
- Alloy 800 sheath temperatures up to 1600°F (870°C)

Features and Benefits

Alloy 800 sheath
- Minimizes the risk of premature failure in the event of a dry-fire condition

Integral, prewired adjustable thermostat mounted in a general purpose terminal enclosure
- Provides a ready to install unit

Easy installation with standard 1 in. (25 mm) diameter beaded inlet and outlet nozzles
- Provides rubber hose connections eliminating the need for threaded fittings and adapters

120/240VAC or 240/480VAC dual voltages
- Makes field wiring flexible
- Minimizes stocking multiple voltages

Mounting bracket
- Isolates harmful engine vibration

Heavy-duty welded carbon steel tank
- Resists corrosion and extends life

Integral check valve
- Assures proper coolant flow and correct thermostat operation. Check valve will not interfere with adequate thermo-siphoning
- **UL® and CSA component recognition under file numbers E52951 and 31388 respectively**
  Simplifies obtaining third-party recognition for assembly

Typical Applications

- Stand by generators
- Primary power generators
- Fire pump engines

Options

Terminal Enclosure

The following terminal enclosures are available:
- Standard, general purpose
- Moisture resistant

WATROD and FIREBAR Heaters

Engine Preheaters

- Mount engine preheaters in horizontal position only (as shown in Figures 1, 2 and 3). Contact your Watlow representative if vertical mounting is unavoidable.
- Mount the heater near or below the lowest point on the engine block. Keep outlet nozzle pointed up, as indicated on the tank.
- Estimate kilowatt requirements with the following formula. First determine the engine displacement, then multiply:

English
Cubic inches X 3 = estimated wattage
Metric
Liters X 183 = estimated wattage

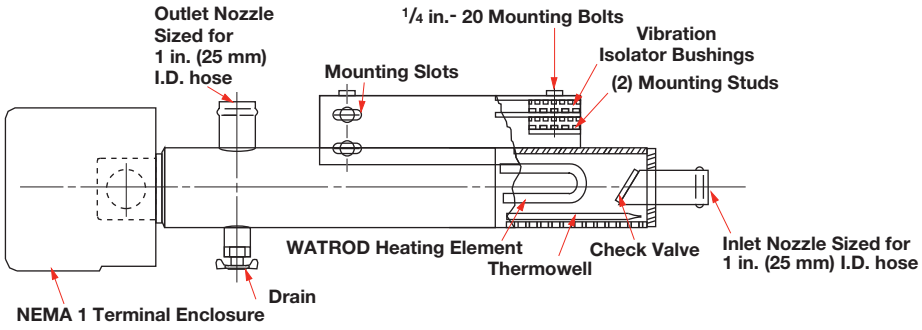
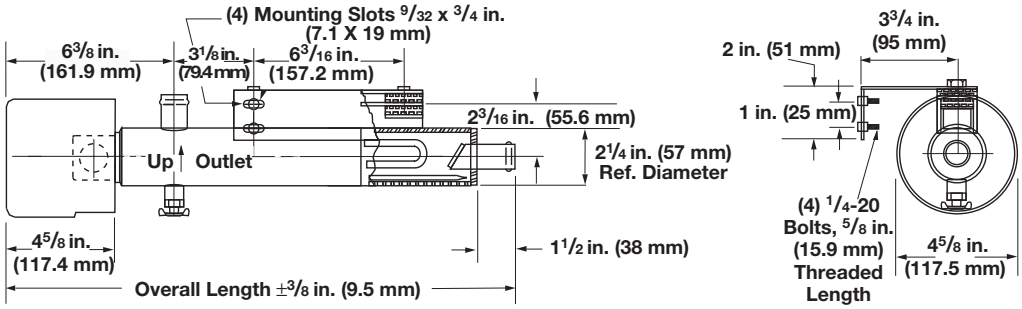


Figure 1

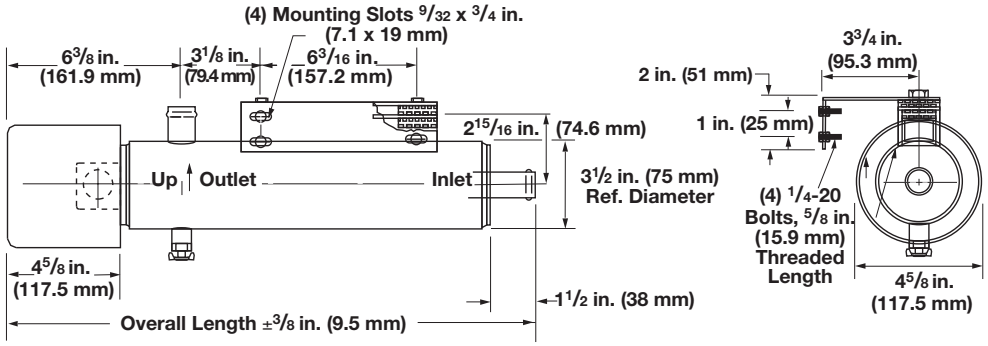


kW	Overall Length in.	Overall Length (mm)	Part Number 120/240VAC 1-Phase	Part Number 208VAC 1-Phase	Part Number 240/480VAC 1-Phase	Est. Ship. Wt. lbs	Est. Ship. Wt. (kg)
Application: Ethylene Glycol/Engine Coolant							
1.13	20 7/8	(530.2)		**CPBPL2S12**		12	(6)
1.50	20 7/8	(530.2)	**CPBPB6S12**	**CPBPB2S12**		12	(6)
1.69	20 7/8	(530.2)		**CPBPM2S12**		12	(6)
1.88	20 7/8	(530.2)		**CPBPN2S12**		12	(6)
2.00	20 7/8	(530.2)	**CPBPC6S12**			12	(6)
2.25	20 7/8	(530.2)	**CPBPD6S12**			12	(6)
2.25	26 11/16	(677.9)		**CPBPD2S12**		15	(7)
2.50	20 7/8	(530.2)	**CPBPE6S12**			12	(6)
3.00	26 11/16	(677.9)		**CPBPF2S12**	**CPBPF7S12**	15	(7)
3.75	26 11/16	(677.9)		**CPBPG2S12**		15	(7)
4.00	26 11/16	(677.9)			**CPBPH7S12**	15	(7)
5.00	26 11/16	(677.9)			**CPBPJ7S12**	15	(7)

WATROD and FIREBAR Heaters

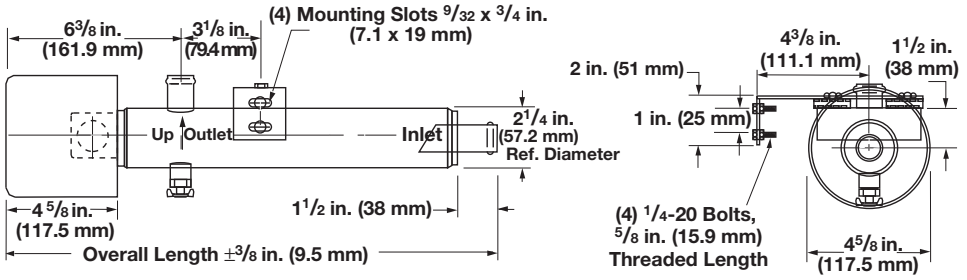
Engine Preheaters

Figure 2



kW	Overall Length in. (mm)	Part Number 277VAC 1-Phase	Part Number 480VAC 3-Phase	Est. Ship. Wt. lbs (kg)
Application: Ethylene Glycol/Engine Coolant				
1.50	20 7/8 (530.2)	**CPCPB4S12**	**CPCPB13S12**	12 (6)
2.00	20 7/8 (530.2)	**CPCPC4S12**	**CPCPC13S12**	12 (6)
2.50	20 7/8 (530.2)	**CPCPE4S12**	**CPCPE13S12**	12 (6)
3.75	20 7/8 (530.2)	**CPCPG4S12**	**CPCPG13S12**	12 (6)
4.00	20 7/8 (530.2)	**CPCPH4S12**	**CPCPH13S12**	12 (6)
5.00	20 7/8 (530.2)	**CPCPJ4S12**	**CPCPJ13S12**	12 (6)

Figure 3



kW	Overall Length in. (mm)	Part Number 120/240VAC 1-Phase	Part Number 208VAC 1-Phase	Est. Ship. Wt. lbs (kg)
Application: Ethylene Glycol/Engine Coolant				
0.75	15 5/8 (396.9)		**CPBPK2S12**	9 (4)
1.00	15 5/8 (396.9)	**CPBPA6S12**		9 (4)

FLUENT® In-line Heaters

Watlow's FLUENT® in-line fluid heater is a small, lightweight, high-performance heater that can replace both a traditional immersion type heater or a heater wrapped around a tube as part of a thermal system. Watlow's FLUENT heater is designed as an integrated solution that replaces multiple components in a system. This heater design reduces overall system cost and complexity. Because of its high watt density, it offers ultra-fast response leading to higher system performance. Featuring Watlow's patented layered heater technology, the heater makes use of its entire surface to produce heat, which optimizes heat transfer and temperature uniformity.

Features and Benefits

Small, lightweight, robust heater construction

- Replaces multiple components in a system
- Reduces overall system size
- Lowers total cost of ownership

Patented circuit patterning process

- Facilitates customizable heating profiles
- Enables distributed wattage and/or multiple zones
- Assures precise and repeatable power distribution

High watt density, low mass heater

- Contributes to fast response time
- Allows for efficient heat transfer
- Enables on-demand process start-up

Typical Applications

- Hemodialysis fluid heating
- Food cooking equipment
- Semiconductor purge and carrier gas heating
- Ink preheating systems
- On-demand fluid heating

For detailed product and technical data, see the full FLUENT In-line product section located on pages 445 through 448.