

Screwplug Heaters - CX



Application

Screwplug heaters are primarily used to heat liquids in tanks or vessels. To do so safely and reliably requires that the heating elements remain fully immersed in the liquid. Liquids such as water, oils, trichlorethylene, etc. can be heated through natural convection currents created by the immersed elements.

Although electricity costs are generally higher than gas or oil, it can be demonstrated that a Caloritech™ immersion heater is often your best choice. The electric heater provides close to 100% efficiency, is safer and easier to control and is usually cheaper to install.

Terminal Block Simplifies Wiring

All thermostat equipped screwplug heaters with moisture or explosion-proof housings feature a convenient terminal block mounted to a slide out trolley.

This unique Caloritech™ feature simplifies installation and reduces maintenance.

Installation

Listed heaters have standard 1" to 2 1/2" NPT tapered plugs. Any other size or type of plug is available on special order. The heater is installed through a threaded half coupling located in the vessel wall well below the minimum liquid level but spaced sufficiently above the bottom to allow for sludge build-up which should never be allowed to cover any part of the elements.

Horizontal installation is preferred even though heater replacement will require draining of the tank. Vertical installation is sometimes possible but it is best that you contact the factory for advice prior to purchase.

Operation

For an immersion heater to transfer heat it must establish a balance between convection currents and the temperature difference between itself and the liquid. Viscous liquids which retard convection currents are the most difficult to heat. Care must be exercised to ensure that the required rate of heat transfer from the heating elements is achieved without overheating the element and the liquid resulting in coking. This is generally achieved through the selection of heater watt density.

Heaters immersed in liquids, such as water with high calcium and magnesium content, phosphates or eluate solutions, have a tendency to precipitate their solids over the elements on heating. These heaters require scheduled maintenance to remove scale build up which may thermally insulate the elements and reduce their service life.

Selection

Proper selection of the screwplug heater is required to maximize service life. Once the wattage requirement is established decide on heater voltage and phase. Remember that unrealistic heat-up time requirements will increase equipment and operating costs.

The tables list, under "watt density", the required heat transfer rate from the various heaters. Refer to Section D of the Caloritech™ catalog for guidance on the acceptable watt density for your application. If a heater is not listed with the density you require we can fabricate to suit.

Of equal importance is the selection of the materials of construction which will resist corrosion and not wear away or contaminate the liquid. Refer to the corrosion guide in Section D for a list of the standard materials for various solutions. Also see page B26 for discussion on watt density.

The heaters are not guaranteed against corrosion since Thermon Heating Systems has no control over the liquid type, concentration or temperature of the solution. Consult your factory representative or your chemical supplier for recommendation on materials for your solution. Recommendations are not implied guarantees.

Warning - Fire Hazard

The heaters listed in the catalog may occasionally malfunction in normal use and if operated in the presence of explosive or combustible materials may cause fires. Do not operate in the presence of explosive or combustible materials. Observe fire prevention precautions and consult the local sales office or contact Thermon Heating Systems for proper application and installation instructions.

The thermostat controls function as temperature controls. Because they do not fail safe, an approved temperature and/or pressure safety control may be required for safe operation. Inclusion of consumer warnings on assembled products containing these elements and thermostats is recommended.

Heaters with 1" and 1 1/4" Plugs

Application

Type CXC heaters are used primarily for water heating and have brass screwplugs and copper sheaths.

Type CXF are used primarily for oil heating and have steel screwplugs. Low watt density heaters are used in heavier, non-circulated oils. Higher watt density heaters are suitable for light oils or in forced oil circulation loops. Incoloy® elements are silver brazed into a steel screwplug.

Built-in Thermostats

Standard built-in thermostat is a one pole device limited to 240V 25 amp. Whenever the heater voltage exceeds 240V or the heater current exceeds 25 amps or for three phase supply, the thermostat is intended for pilot duty only and is not factory wired to the elements. See Section F of the Caloritech™ catalog for selection of the contactor and control transformer you may require in these instances.

To Order Specify

- Quantity
- Wattage
- Catalog number
- Special features
- Voltage

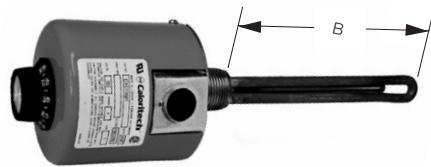


Table 1 – Screwplug Heaters (One Element) - 1" NPT

kW	Immersion Length 'B'		Standard Voltages 1 Phase Only	General Purpose Terminal Box		NEMA 4 Terminal Box		Explosion-Proof Terminal Box		Net Weight	
	in	mm		Without Thermostat	With Thermostat 50°F to 250°F (10°C to 120°C)	Without Thermostat	With Thermostat 50°F to 250°F (10°C to 120°C)	Without Thermostat	With Thermostat 50°F to 250°F (10°C to 120°C)	lbs	kg
Copper Sheath Brass Plug 80 W/in ² (12.4 W/cm ²)	0.50	5.5	140	120	CXC105P111	CXCT105P111	CXC105P1R11	CXCT105P1R11	CXC105P1X11	CXCT105P1X11	2.2 1
				208	CXC105P121	CXCT105P121	CXC105P1R21	CXCT105P1R21	CXC105P1X21	CXCT105P1X21	
				240	CXC105P131	CXCT105P131	CXC105P1R31	CXCT105P1R31	CXC105P1X31	CXCT105P1X31	
	0.75	5.5	140	120	CXC107P111	CXCT107P111	CXC107P1R11	CXCT107P1R11	CXC107P1X11	CXCT107P1X11	
				208	CXC107P121	CXCT107P121	CXC107P1R21	CXCT107P1R21	CXC107P1X21	CXCT107P1X21	
				240	CXC107P131	CXCT107P131	CXC107P1R31	CXCT107P1R31	CXC107P1X31	CXCT107P1X31	
	1.00	7.1	180	120	CXC110P111	CXCT110P111	CXC110P1R11	CXCT110P1R11	CXC110P1X11	CXCT110P1X11	
				208	CXC110P121	CXCT110P121	CXC110P1R21	CXCT110P1R21	CXC110P1X21	CXCT110P1X21	
				240	CXC110P131	CXCT110P131	CXC110P1R31	CXCT110P1R31	CXC110P1X31	CXCT110P1X31	
	1.50	10.6	270	120	CXC115P111	CXCT115P111	CXC115P1R11	CXCT115P1R11	CXC115P1X11	CXCT115P1X11	
				208	CXC115P121	CXCT115P121	CXC115P1R21	CXCT115P1R21	CXC115P1X21	CXCT115P1X21	
				240	CXC115P131	CXCT115P131	CXC115P1R31	CXCT115P1R31	CXC115P1X31	CXCT115P1X31	
	2.00	7.5	190	120	CXC120P111	CXCT120P111	CXC120P1R11	CXCT120P1R11	CXC120P1X11	CXCT120P1X11	
				208	CXC120P121	CXCT120P121	CXC120P1R21	CXCT120P1R21	CXC120P1X21	CXCT120P1X21	
				240	CXC120P131	CXCT120P131	CXC120P1R31	CXCT120P1R31	CXC120P1X31	CXCT120P1X31	
	3.00	10.8	275	120	CXC130P111	CXCT130P111	CXC130P1R11	CXCT130P1R11	CXC130P1X11	CXCT130P1X11	
				208	CXC130P121	CXCT130P121	CXC130P1R21	CXCT130P1R21	CXC130P1X21	CXCT130P1X21	
				240	CXC130P131	CXCT130P131	CXC130P1R31	CXCT130P1R31	CXC130P1X31	CXCT130P1X31	
	5.00	16.9	430	120	CXC150P111	CXCT150P111	CXC150P1R11	CXCT150P1R11	CXC150P1X11	CXCT150P1X11	
				208	CXC150P121	CXCT150P121	CXC150P1R21	CXCT150P1R21	CXC150P1X21	CXCT150P1X21	
				240	CXC150P131	CXCT150P131	CXC150P1R31	CXCT150P1R31	CXC150P1X31	CXCT150P1X31	

Table 1 – Screwplug Heaters (One Element) - 1" NPT (Cont'd)

kW	Immersion Length 'B'		Standard Voltages 1 Phase Only	General Purpose Terminal Box		NEMA 4 Terminal Box		Explosion-Proof Terminal Box		Net Weight		
	in	mm		Without Thermostat	With Thermostat 50°F to 250°F (10°C to 120°C)	Without Thermostat	With Thermostat 50°F to 250°F (10°C to 120°C)	Without Thermostat	With Thermostat 50°F to 250°F (10°C to 120°C)	lbs	kg	
Steel Plug Incoloy® Sheath 23 watts in ² (3.4 watts cm ²)	0.30	7.5	190	120	CXF103P111	CXFT103P111	CXF103P1R11	CXFT103P1R11	CXF103P1X11	CXFT103P1X11	2.2	1
				208	CXF103P121	CXFT103P121	CXF103P1R21	CXFT103P1R21	CXF103P1X21	CXFT103P1X21		
				240	CXF103P131	CXFT103P131	CXF103P1R31	CXFT103P1R31	CXF103P1X31	CXFT103P1X31		
	0.50	8.9	225	120	CXF105P111	CXFT105P111	CXF105P1R11	CXFT105P1R11	CXF105P1X11	CXFT105P1X11	2.2	1
				208	CXF105P121	CXFT105P121	CXF105P1R21	CXFT105P1R21	CXF105P1X21	CXFT105P1X21		
				240	CXF105P131	CXFT105P131	CXF105P1R31	CXFT105P1R31	CXF105P1X31	CXFT105P1X31		
	0.70	11	280	120	CXF107P111	CXFT107P111	CXF107P1R11	CXFT107P1R11	CXF107P1X11	CXFT107P1X11	4.4	2
				208	CXF107P121	CXFT107P121	CXF107P1R21	CXFT107P1R21	CXF107P1X21	CXFT107P1X21		
				240	CXF107P131	CXFT107P131	CXF107P1R31	CXFT107P1R31	CXF107P1X31	CXFT107P1X31		
	0.90	12	305	120	CXF109P111	CXFT109P111	CXF109P1R11	CXFT109P1R11	CXF109P1X11	CXFT109P1X11	4.4	2
				208	CXF109P121	CXFT109P121	CXF109P1R21	CXFT109P1R21	CXF109P1X21	CXFT109P1X21		
				240	CXF109P131	CXFT109P131	CXF109P1R31	CXFT109P1R31	CXF109P1X31	CXFT109P1X31		
Steel Plug Incoloy® Sheath 15 W/in ² (2.3 W/cm ²)	0.10	5	127	120	CXF101P1511	CXFT101P1511	CXF101P15R11	CXFT101P15R11	CXF101P15X11	CXFT101P15X11	2.2	1
	0.15	7	178	120	CXF101P1711	CXFT101P1711	CXF101P17R11	CXFT101P17R11	CXF101P17X11	CXFT101P17X11	2.2	1
	0.20	7.5	229	120	CXF102P111	CXFT102P111	CXF102P1R11	CXFT102P1R11	CXF102P1X11	CXFT102P1X11	2.2	1
				208	CXF102P121	CXFT102P121	CXF102P1R21	CXFT102P1R21	CXF102P1X21	CXFT102P1X21		
				240	CXF102P131	CXFT102P131	CXF102P1R31	CXFT102P1R31	CXF102P1X31	CXFT102P1X31		
	0.25	10	279	120	CXF102P11011	CXFT102P11011	CXF102P110R11	CXFT102P110R11	CXF102P110X11	CXFT102P110X11	4.4	2
				208	CXF102P11021	CXFT102P11021	CXF102P110R21	CXFT102P110R21	CXF102P110X21	CXFT102P110X21		
				240	CXF102P11031	CXFT102P11031	CXF102P110R31	CXFT102P110R31	CXF102P110X31	CXFT102P110X31		
	0.40	9.4	239	120	CXF104P111	CXFT104P111	CXF104P1R11	CXFT104P1R11	CXF104P1X11	CXFT104P1X11	4.4	2
				208	CXF104P121	CXFT104P121	CXF104P1R21	CXFT104P1R21	CXF104P1X21	CXFT104P1X21		
				240	CXF104P131	CXFT104P131	CXF104P1R31	CXFT104P1R31	CXF104P1X31	CXFT104P1X31		
	0.50	10	254	120	CXF105P11011	CXFT105P11011	CXF105P110R11	CXFT105P110R11	CXF105P110X11	CXFT105P110X11	4.4	2
				208	CXF105P11021	CXFT105P11021	CXF105P110R21	CXFT105P110R21	CXF105P110X21	CXFT105P110X21		
				240	CXF105P11031	CXFT105P11031	CXF105P110R31	CXFT105P110R31	CXF105P110X31	CXFT105P110X31		
	0.60	11	279	120	CXF106P111	CXFT106P111	CXF106P1R11	CXFT106P1R11	CXF106P1X11	CXFT106P1X11	4.4	2
				208	CXF106P121	CXFT106P121	CXF106P1R21	CXFT106P1R21	CXF106P1X21	CXFT106P1X21		
				240	CXF106P131	CXFT106P131	CXF106P1R31	CXFT106P1R31	CXF106P1X31	CXFT106P1X31		
	0.75	15	381	120	CXF107P11511	CXFT107P11511	CXF107P115R11	CXFT107P115R11	CXF107P115X11	CXFT107P115X11	4.4	2
				208	CXF107P11521	CXFT107P11521	CXF107P115R21	CXFT107P115R21	CXF107P115X21	CXFT107P115X21		
				240	CXF107P11531	CXFT107P11531	CXF107P115R31	CXFT107P115R31	CXF107P115X31	CXFT107P115X31		
	1.0	19	483	120	CXF110P11911	CXFT110P11911	CXF110P119R11	CXFT110P119R11	CXF110P119X11	CXFT110P119X11	4.4	2
				208	CXF110P11921	CXFT110P11921	CXF110P119R21	CXFT110P119R21	CXF110P119X21	CXFT110P119X21		
				240	CXF110P11931	CXFT110P11931	CXF110P119R31	CXFT110P119R31	CXF110P119X31	CXFT110P119X31		

To Order Specify

- Quantity
- Catalog number
- Voltage
- Wattage
- Special features

Heaters with 2" and 2 1/2" Plugs

Application

Type CXC heaters are used primarily for water heating and have brass screwplugs and copper sheaths.

Type CXF are used primarily for oil heating and have steel screwplugs. Low watt density heaters are used in heavier, non-circulated oils. Higher watt density heaters are suitable for light oils or in forced oil circulation loops. Incoloy® elements are silver brazed into a steel screwplug.

Type CXI heaters are used primarily for heating mildly corrosive solutions and use higher density Incoloy® elements welded into a stainless steel screwplug.

Built-in Thermostats

Standard built-in thermostat is a one pole device limited to 240V 25 amp. Whenever the heater voltage exceeds 240V or the heater current exceeds 25 amps or for three phase supply, the thermostat is intended for pilot duty only and is not factory wired to the elements. See Section F of the Caloritech™ catalog for selection of the contactor and control transformer you may require in these instances.

To Order Specify

- Quantity
- Wattage
- Catalog number
- Special features
- Voltage



Table 3 – Screwplug Heaters (Two Elements) - 2" NPT

	kW	Immersion Length 'B'		Standard Voltages 1 Phase Only	General Purpose Terminal Box		NEMA 4 Terminal Box		Explosion-Proof Terminal Box		Net Weight	
		in	mm		Without Thermostat 50°F to 250°F (10°C to 120°C)	With Thermostat 50°F to 250°F (10°C to 120°C)	Without Thermostat 50°F to 250°F (10°C to 120°C)	With Thermostat 50°F to 250°F (10°C to 120°C)	Without Thermostat 50°F to 250°F (10°C to 120°C)	With Thermostat 50°F to 250°F (10°C to 120°C)		
Copper Sheath Brass Plug 54 to 60 W/in ² (8.3 to 9.3 W/cm ²)	1.5	7.9	201	120	CXC215P211	CXCT215P211	CXC215P2R11	CXCT215P2R11	CXC215P2X11	CXCT215P2X11	8.8	4
				208	CXC215P221	CXCT215P221	CXC215P2R21	CXCT215P2R21	CXC215P2X21	CXCT215P2X21		
				240	CXC215P231	CXCT215P231	CXC215P2R31	CXCT215P2R31	CXC215P2X31	CXCT215P2X31		
				480	CXC215P271	CXCT215P271	CXC215P2R71	CXCT215P2R71	CXC215P2X71	CXCT215P2X71		
				600	CXC215P281	CXCT215P281	CXC215P2R81	CXCT215P2R81	CXC215P2X81	CXCT215P2X81		
	2.0	7.9	201	120	CXC220P211	CXCT220P211	CXC220P2R11	CXCT220P2R11	CXC220P2X11	CXCT220P2X11	8.8	4
				208	CXC220P221	CXCT220P221	CXC220P2R21	CXCT220P2R21	CXC220P2X21	CXCT220P2X21		
				240	CXC220P231	CXCT220P231	CXC220P2R31	CXCT220P2R31	CXC220P2X31	CXCT220P2X31		
				480	CXC220P271	CXCT220P271	CXC220P2R71	CXCT220P2R71	CXC220P2X71	CXCT220P2X71		
				600	CXC220P281	CXCT220P281	CXC220P2R81	CXCT220P2R81	CXC220P2X81	CXCT220P2X81		
	3.0	11.8	300	120	CXC230P211	CXCT230P211	CXC230P2R11	CXCT230P2R11	CXC230P2X11	CXCT230P2X11	11	5
				208	CXC230P221	CXCT230P221	CXC230P2R21	CXCT230P2R21	CXC230P2X21	CXCT230P2X21		
				240	CXC230P231	CXCT230P231	CXC230P2R31	CXCT230P2R31	CXC230P2X31	CXCT230P2X31		
				480	CXC230P271	CXCT230P271	CXC230P2R71	CXCT230P2R71	CXC230P2X71	CXCT230P2X71		
				600	CXC230P281	CXCT230P281	CXC230P2R81	CXCT230P2R81	CXC230P2X81	CXCT230P2X81		

Table 4 – Screwplug Heaters (Three Element) - 2" NPT (Cont'd)

	kW	Immersion Length 'B'		Phase	Standard Voltage	General Purpose Terminal Box		NEMA 4 Terminal Box		Explosion-Proof Terminal Box		Net Weight	
						Without Thermostat	With Thermostat 50°F to 250°F (10°C to 120°C)	Without Thermostat	With Thermostat 50°F to 250°F (10°C to 120°C)	Without Thermostat	With Thermostat 50°F to 250°F (10°C to 120°C)	lbs	kg
		in	mm										
Copper Sheath Brass Plug 54 to 60 W/in ² (8.3 to 8.9 W/cm ²)	7.5	21.7	551	1	208	CXC375P221	CXCT375P221	CXC375P2R21	CXCT375P2R21	CXC375P2X21	CXCT375P2X21	13.2	6
				3	208	CXC375P223	CXCT375P223	CXC375P2R23	CXCT375P2R23	CXC375P2X23	CXCT375P2X23		
				1	240	CXC375P231	CXCT375P231	CXC375P2R31	CXCT375P2R31	CXC375P2X31	CXCT375P2X31		
				1	480	CXC375P271	CXCT375P271	CXC375P2R71	CXCT375P2R71	CXC375P2X71	CXCT375P2X71		
				3	480	CXC375P273	CXCT375P273	CXC375P2R73	CXCT375P2R73	CXC375P2X73	CXCT375P2X73		
				1	600	CXC375P281	CXCT375P281	CXC375P2R81	CXCT375P2R81	CXC375P2X81	CXCT375P2X81		
	9.0	25.6	650	3	600	CXC375P283	CXCT375P283	CXC375P2R83	CXCT375P2R83	CXC375P2X83	CXCT375P2X83	15.4	7
				3	208	CXC390P223	CXCT390P223	CXC390P2R23	CXCT390P2R23	CXC390P2X23	CXCT390P2X23		
				1	240	CXC390P231	CXCT390P231	CXC390P2R31	CXCT390P2R31	CXC390P2X31	CXCT390P2X31		
				1	480	CXC390P271	CXCT390P271	CXC390P2R71	CXCT390P2R71	CXC390P2X71	CXCT390P2X71		
Incoloy® Sheath Steel Plug 23 W/in ² (3.6 W/cm ²)	12.0	32.5	826	3	480	CXC390P273	CXCT390P273	CXC390P2R73	CXCT390P2R73	CXC390P2X73	CXCT390P2X73	15.4	7
				1	600	CXC390P281	CXCT390P281	CXC390P2R81	CXCT390P2R81	CXC390P2X81	CXCT390P2X81		
				3	600	CXC390P283	CXCT390P283	CXC390P2R83	CXCT390P2R83	CXC390P2X83	CXCT390P2X83		
				3	208	CXC3120P223	CXCT3120P223	CXC3120P2R23	CXCT3120P2R23	CXC3120P2X23	CXCT3120P2X23		
				1	480	CXC3120P271	CXCT3120P271	CXC3120P2R71	CXCT3120P2R71	CXC3120P2X71	CXCT3120P2X71		
	3.0	17.7	450	3	480	CXC3120P273	CXCT3120P273	CXC3120P2R73	CXCT3120P2R73	CXC3120P2X73	CXCT3120P2X73	11	5
				1	600	CXC3120P281	CXCT3120P281	CXC3120P2R81	CXCT3120P2R81	CXC3120P2X81	CXCT3120P2X81		
				3	600	CXC3120P283	CXCT3120P283	CXC3120P2R83	CXCT3120P2R83	CXC3120P2X83	CXCT3120P2X83		
				1	120	CXF330P211	CXFT330P211	CXF330P2R11	CXFT330P2R11	CXF330P2X11	CXFT330P2X11		
				1	208	CXF330P221	CXFT330P221	CXF330P2R21	CXFT330P2R21	CXF330P2X21	CXFT330P2X21		
Incoloy® Sheath Steel Plug 23 W/in ² (3.6 W/cm ²)	6.0	34	864	3	208	CXF330P223	CXFT330P223	CXF330P2R23	CXFT330P2R23	CXF330P2X23	CXFT330P2X23	13.2	6
				1	240	CXF330P231	CXFT330P231	CXF330P2R31	CXFT330P2R31	CXF330P2X31	CXFT330P2X31		
				1	480	CXF330P271	CXFT330P271	CXF330P2R71	CXFT330P2R71	CXF330P2X71	CXFT330P2X71		
				3	480	CXF330P273	CXFT330P273	CXF330P2R73	CXFT330P2R73	CXF330P2X73	CXFT330P2X73		
				1	600	CXF330P281	CXFT330P281	CXF330P2R81	CXFT330P2R81	CXF330P2X81	CXFT330P2X81		
				3	600	CXF330P283	CXFT330P283	CXF330P2R83	CXFT330P2R83	CXF330P2X83	CXFT330P2X83		
				1	208	CXF360P23421	CXFT360P23421	CXF360P234R21	CXFT360P234R21	CXF360P234X21	CXFT360P234X21		
	9.0	50	1270	3	208	CXF360P23423	CXFT360P23423	CXF360P234R23	CXFT360P234R23	CXF360P234X23	CXFT360P234X23	13.2	6
				1	240	CXF360P23431	CXFT360P23431	CXF360P234R31	CXFT360P234R31	CXF360P234X31	CXFT360P234X31		
				1	480	CXF360P23471	CXFT360P23471	CXF360P234R71	CXFT360P234R71	CXF360P234X71	CXFT360P234X71		
				3	480	CXF360P23473	CXFT360P23473	CXF360P234R73	CXFT360P234R73	CXF360P234X73	CXFT360P234X73		
				1	600	CXF360P23481	CXFT360P23481	CXF360P234R81	CXFT360P234R81	CXF360P234X81	CXFT360P234X81		
				3	600	CXF360P23483	CXFT360P23483	CXF360P234R83	CXFT360P234R83	CXF360P234X83	CXFT360P234X83		
CX – Screwplug Heaters	To Order Specify						<ul style="list-style-type: none"> • Quantity • Catalog number • Voltage • Wattage • Special features 						

Table 4 – Screwplug Heaters (Three Element) - 2" NPT (Cont'd)

kW	Immersion Length 'B'		Phase	Standard Voltage	General Purpose Terminal Box		NEMA 4 Terminal Box		Explosion-Proof Terminal Box		Net Weight		
	in	mm			Without Thermostat	With Thermostat 50°F to 250°F (10°C to 120°C)	Without Thermostat	With Thermostat 50°F to 250°F (10°C to 120°C)	Without Thermostat	With Thermostat 50°F to 250°F (10°C to 120°C)	lbs	kg	
Incoloy® Sheath Steel Plug 15 W/in ² (2.3 W/cm ²)	1.5	17.7	450	1	120	CXF315P211	CXFT315P211	CXF315P2R11	CXFT315P2R11	CXF315P2X11	CXFT315P2X11	11	5
				1	208	CXF315P221	CXFT315P221	CXF315P2R21	CXFT315P2R21	CXF315P2X21	CXFT315P2X21		
				3	208	CXF315P223	CXFT315P223	CXF315P2R23	CXFT315P2R23	CXF315P2X23	CXFT315P2X23		
				1	240	CXF315P231	CXFT315P231	CXF315P2R31	CXFT315P2R31	CXF315P2X31	CXFT315P2X31		
				1	480	CXF315P271	CXFT315P271	CXF315P2R71	CXFT315P2R71	CXF315P2X71	CXFT315P2X71		
				3	480	CXF315P273	CXFT315P273	CXF315P2R73	CXFT315P2R73	CXF315P2X73	CXFT315P2X73		
				1	600	CXF315P281	CXFT315P281	CXF315P2R81	CXFT315P2R81	CXF315P2X81	CXFT315P2X81		
	3.0	32.5	826	3	600	CXF315P283	CXFT315P283	CXF315P2R83	CXFT315P2R83	CXF315P2X83	CXFT315P2X83		
				1	120	CXF330P23211	CXFT330P23211	CXF330P232R11	CXFT330P232R11	CXF330P232X11	CXFT330P232X11	15.4	7
				1	208	CXF330P23221	CXFT330P23221	CXF330P232R21	CXFT330P232R21	CXF330P232X21	CXFT330P232X21		
				3	208	CXF330P23223	CXFT330P23223	CXF330P232R23	CXFT330P232R23	CXF330P232X23	CXFT330P232X23		
				1	240	CXF330P23231	CXFT330P23231	CXF330P232R31	CXFT330P232R31	CXF330P232X31	CXFT330P232X31		
				1	480	CXF330P23271	CXFT330P23271	CXF330P232R71	CXFT330P232R71	CXF330P232X71	CXFT330P232X71		
				3	480	CXF330P23273	CXFT330P23273	CXF330P232R73	CXFT330P232R73	CXF330P232X73	CXFT330P232X73		
	4.5	39.4	1001	1	600	CXF330P23281	CXFT330P23281	CXF330P232R81	CXFT330P232R81	CXF330P232X81	CXFT330P232X81		
				3	600	CXF330P23283	CXFT330P23283	CXF330P232R83	CXFT330P232R83	CXF330P232X83	CXFT330P232X83		
				1	208	CXF345P221	CXFT345P221	CXF345P2R21	CXFT345P2R21	CXF345P2X21	CXFT345P2X21	15.4	7
				3	208	CXF345P223	CXFT345P223	CXF345P2R23	CXFT345P2R23	CXF345P2X23	CXFT345P2X23		
				1	240	CXF345P231	CXFT345P231	CXF345P2R31	CXFT345P2R31	CXF345P2X31	CXFT345P2X31		
				1	480	CXF345P271	CXFT345P271	CXF345P2R71	CXFT345P2R71	CXF345P2X71	CXFT345P2X71		
				3	480	CXF345P273	CXFT345P273	CXF345P2R73	CXFT345P2R73	CXF345P2X73	CXFT345P2X73		
				1	600	CXF345P281	CXFT345P281	CXF345P2R81	CXFT345P2R81	CXF345P2X81	CXFT345P2X81		
				3	600	CXF345P283	CXFT345P283	CXF345P2R83	CXFT345P2R83	CXF345P2X83	CXFT345P2X83		

To Order Specify

- Quantity
- Wattage
- Catalog number
- Special features
- Voltage

Table 5 – Screwplug Heaters (Three Element) - 2 1/2" NPT (Cont'd)

kW	Immersion Length 'B'		Phase	General Purpose Terminal Box		NEMA 4 Terminal Box		Explosion-Proof Terminal Box		Net Weight			
	in	mm		Standard Voltage	Without Thermostat	With Thermostat 50°F to 250°F (10°C to 120°C)	Without Thermostat	With Thermostat 50°F to 250°F (10°C to 120°C)	Without Thermostat	With Thermostat 50°F to 250°F (10°C to 120°C)	lbs	kg	
Incloy® Sheath Steel Plug 23 W/in² (3.6 W/cm²)	3.0	17.5	445	1	120	CXF330P2511	CXFT330P2511	CXF330P25R11	CXFT330P25R11	CXF330P25X11	CXFT330P25X11	11	5
				1	208	CXF330P2521	CXFT330P2521	CXF330P25R21	CXFT330P25R21	CXF330P25X21	CXFT330P25X21		
				3	208	CXF330P2523	CXFT330P2523	CXF330P25R23	CXFT330P25R23	CXF330P25X23	CXFT330P25X23		
				1	240	CXF330P2531	CXFT330P2531	CXF330P25R31	CXFT330P25R31	CXF330P25X31	CXFT330P25X31		
				1	480	CXF330P2571	CXFT330P2571	CXF330P25R71	CXFT330P25R71	CXF330P25X71	CXFT330P25X71		
				3	480	CXF330P2573	CXFT330P2573	CXF330P25R73	CXFT330P25R73	CXF330P25X73	CXFT330P25X73		
				1	600	CXF330P2581	CXFT330P2581	CXF330P25R81	CXFT330P25R81	CXF330P25X81	CXFT330P25X81		
				3	600	CXF330P2583	CXFT330P2583	CXF330P25R83	CXFT330P25R83	CXF330P25X83	CXFT330P25X83		
	6.0	25.4	645	1	208	CXF345P2521	CXFT345P2521	CXF345P25R21	CXFT345P25R21	CXF345P25X21	CXFT345P25X21	13.2	6
				3	208	CXF345P2523	CXFT345P2523	CXF345P25R23	CXFT345P25R23	CXF345P25X23	CXFT345P25X23		
				1	240	CXF345P2531	CXFT345P2531	CXF345P25R31	CXFT345P25R31	CXF345P25X31	CXFT345P25X31		
				1	480	CXF345P2571	CXFT345P2571	CXF345P25R71	CXFT345P25R71	CXF345P25X71	CXFT345P25X71		
				3	480	CXF345P2573	CXFT345P2573	CXF345P25R73	CXFT345P25R73	CXF345P25X73	CXFT345P25X73		
				1	600	CXF345P2581	CXFT345P2581	CXF345P25R81	CXFT345P25R81	CXF345P25X81	CXFT345P25X81		
				3	600	CXF345P2583	CXFT345P2583	CXF345P25R83	CXFT345P25R83	CXF345P25X83	CXFT345P25X83		
				1	208	CXF360P253421	CXFT360P253421	CXF360P2534R21	CXFT360P2534R21	CXF360P2534X21	CXFT360P2534X21		
				3	208	CXF360P253423	CXFT360P253423	CXF360P2534R23	CXFT360P2534R23	CXF360P2534X23	CXFT360P2534X23		
				1	240	CXF360P253431	CXFT360P253431	CXF360P2534R31	CXFT360P2534R31	CXF360P2534X31	CXFT360P2534X31		
				1	480	CXF360P253471	CXFT360P253471	CXF360P2534R71	CXFT360P2534R71	CXF360P2534X71	CXFT360P2534X71		
				3	480	CXF360P253473	CXFT360P253473	CXF360P2534R73	CXFT360P2534R73	CXF360P2534X73	CXFT360P2534X73		
				1	600	CXF360P253481	CXFT360P253481	CXF360P2534R81	CXFT360P2534R81	CXF360P2534X81	CXFT360P2534X81		
				3	600	CXF360P253483	CXFT360P253483	CXF360P2534R83	CXFT360P2534R83	CXF360P2534X83	CXFT360P2534X83		
7.5	42	1067	3	208	CXF375P254223	CXFT375P254223	CXF375P2542R23	CXFT375P2542R23	CXF375P2542X23	CXFT375P2542X23	15.4	7	
				1	240	CXF375P254231	CXFT375P254231	CXF375P2542R31	CXFT375P2542R31	CXF375P2542X31	CXFT375P2542X31		
				1	480	CXF375P254271	CXFT375P254271	CXF375P2542R71	CXFT375P2542R71	CXF375P2542X71	CXFT375P2542X71		
				3	480	CXF375P254273	CXFT375P254273	CXF375P2542R73	CXFT375P2542R73	CXF375P2542X73	CXFT375P2542X73		
				1	600	CXF375P254281	CXFT375P254281	CXF375P2542R81	CXFT375P2542R81	CXF375P2542X81	CXFT375P2542X81		
	9.0	50	3	600	CXF375P254283	CXFT375P254283	CXF375P2542R83	CXFT375P2542R83	CXF375P2542X83	CXFT375P2542X83			
				208	CXF390P25023	CXFT390P25023	CXF390P250R23	CXFT390P250R23	CXF390P250X23	CXFT390P250X23			
				240	CXF390P25031	CXFT390P25031	CXF390P250R31	CXFT390P250R31	CXF390P250X31	CXFT390P250X31			
				480	CXF390P25071	CXFT390P25071	CXF390P250R71	CXFT390P250R71	CXF390P250X71	CXFT390P250X71			
				480	CXF390P25073	CXFT390P25073	CXF390P250R73	CXFT390P250R73	CXF390P250X73	CXFT390P250X73			
To Order Specify				600	CXF390P25081	CXFT390P25081	CXF390P250R81	CXFT390P250R81	CXF390P250X81	CXFT390P250X81			
				600	CXF390P25083	CXFT390P25083	CXF390P250R83	CXFT390P250R83	CXF390P250X83	CXFT390P250X83			

To Order Specify

- Quantity
- Catalog number
- Voltage
- Wattage
- Special features

Special Features (Check Factory)

Heaters With Built-in Thermostats

All screwplug heaters listed are available with built-in thermostats. Heaters with thermostats have a "T" added to their catalog no. prefix. Standard thermostat range is 50°F to 250°F (10°C to 120°C). Ratings are normally 25 amps at 240V single pole single throw. 600V thermostats and double pole thermostats are available on special order.

Terminal Housings

Shown below are the different types of terminal housings used with screwplug heaters.

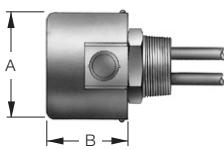


Figure 1

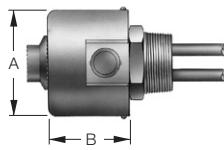


Figure 2

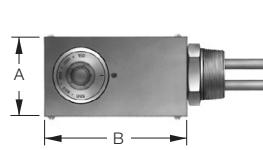


Figure 3

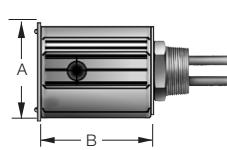


Figure 4

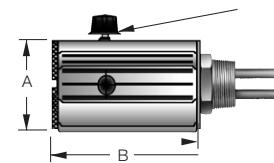


Figure 5 – Shown With Optional Externally Adjustable Thermostat

Table 6 – Terminal Housings

Description	Figure	'A'		'B'	
		in	mm	in	mm
Standard Housing Without Thermostat	1	4.000	102	2.750	70
Standard Thermostat Housing (1 Pole)	2	4.000	102	4.000	102
Special Thermostat Housing	3	4.125	106	7.000	180
Moisture Resistant Housing with 1 Pole Thermostat or without Thermostat	4	4.250	108	7.250	185
Moisture Resistant Housing with 2 Pole Thermostat	4	4.250	108	8.500	215
Explosion-Proof Housing with 1 Pole Thermostat or without Thermostat	5	4.250	108	8.000	205
Explosion-Proof Housing with 2 Pole Thermostat	5	4.250	108	9.250	235

Voltage

Custom built heaters are available in any special voltage rating up to 600V.

Wattage

Heaters listed are standard wattage. Any reasonable wattage is available to replace your present heater with a similar Caloritech™ unit.

Length

Heaters are available with immersed lengths up to 135" (3430 mm).

Internal vessel support must be used when immersed length exceeds 49" (1245 mm).

Plug Sizes and Ratings

Thermon Heating Systems can install elements in virtually any size or rating of plug, special or standard.

Special Materials

Special sheath, plug and terminal box materials are available on request.

Welded Elements

While welded elements are standard for CXI heaters, CXF heaters listed have the elements silver brazed to the plug which suits most applications. Thermon Heating Systems can provide listed CXF heaters with elements welded to the plug.

Special Thermostat Ranges

Thermostats with the following temperature ranges are also available upon request:

- 0°F to 100°F (-18°C to 40°C)
- 150°F to 550°F (70°C to 280°C)
- 300°F to 700°F (150°C to 370°C)

Built-in Thermostat Well

Built-in thermostat wells are available. Specify length and internal diameter required.

Heaters ordered with explosion-proof or moisture resistant housings have built-in wells as standard.

Passivation

Incoloy® and stainless steel sheathed heaters are available with chemically passivated sheaths which will provide superior corrosion resistance in most applications. Passivation is achieved through an electropolishing technique.

Heaters with stainless steel plugs are available with all wetted surfaces passivated.

Moisture Resistant Terminal Housings

Moisture resistant terminal housings suitable for outdoor applications are available for all heater sizes. See Figure 4 on page B20.

Explosion-Proof Terminal Housings

If the heater is to be operated in a hazardous environment an explosion-proof housing must be used. See Figure 5 on page B20. Specify Class, Div. (or Zone), Group and Temp. Code for the hazardous location.