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CANAM
pipe & supply



XEC1



Explosion-Proof Convection Air Heater Owner's Manual, Version: XEC1-OM-B

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



Convection Heater for Hazardous Locations



Class I, Division 1 & 2, Groups B, C & D (T2B or T3A)

Class I, Zone 1 & 2, Ex db, Groups IIA, IIB+H₂, Gb
Class I, Zone 1 & 2, AEx db, Groups IIA, IIB+H₂, Gb
Ta = -50°C to +40°C, IP66, Type 4, (T2 or T3)

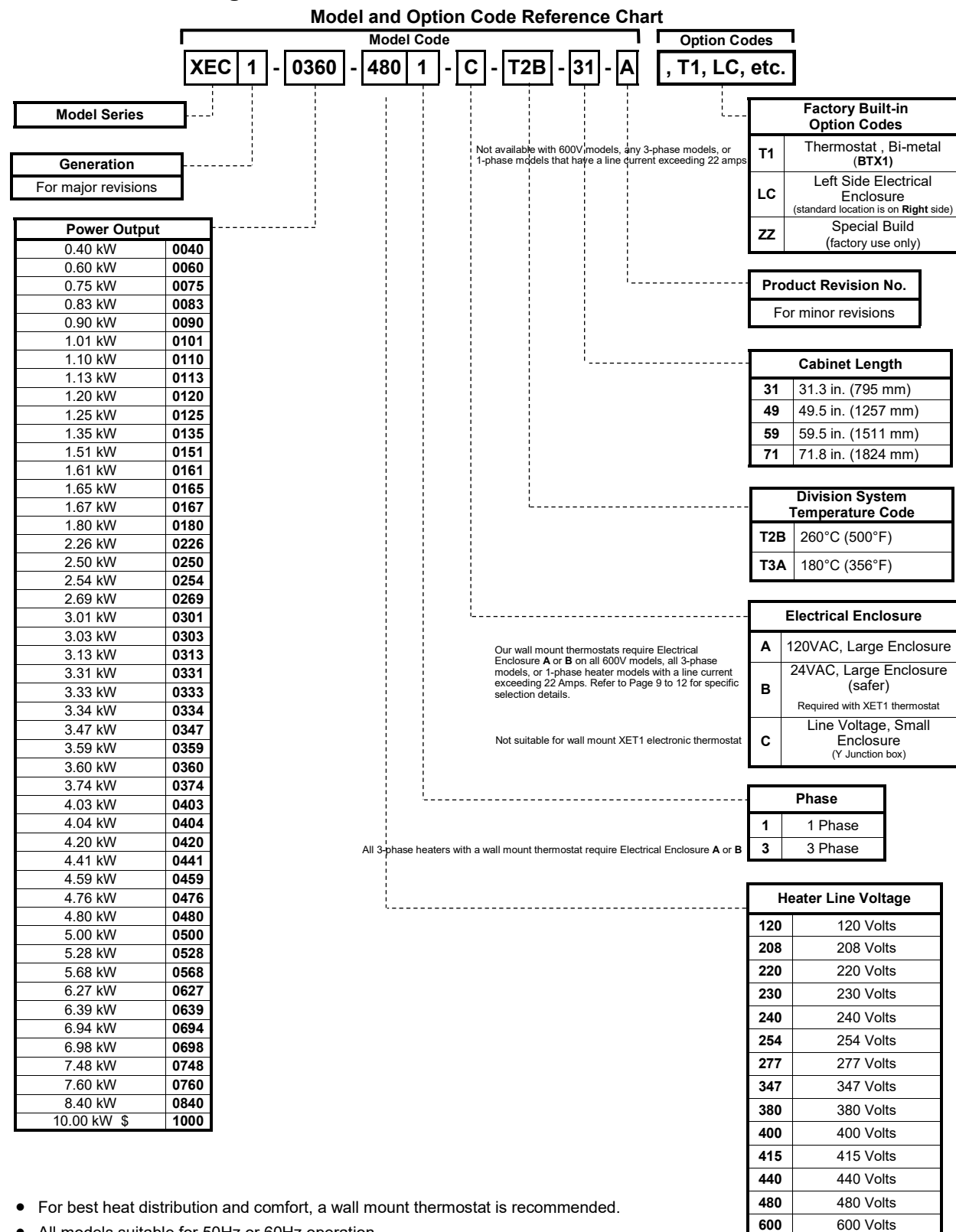


WARNING!

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

**Note: XEC1 heaters must not be exposed to rain or snow. This applies to installed & stored heaters.
The XEC1 heater should not be modified in any way.**

XEC1 Model Coding



- For best heat distribution and comfort, a wall mount thermostat is recommended.
 - All models suitable for 50Hz or 60Hz operation.
 - This model coding illustration is intended to explain how a product model number is described and engraved on the heater data plate. Not all voltage, wattage, built-in options and electrical enclosure combinations are available. Refer to product performance data on Pages 9 to 12 for exact product availability.
 - Our wall mount thermostats require Electrical Enclosure A or B on all 600V models, all 3-phase models, or 1-phase heater models with a line current exceeding 22 Amps. Refer to Page 9 to 12 for specific selection details.
 - WARNING: Supply voltage must be within +/- 10% of rated heater voltage.
 - Operating at voltages other than rated will result in different kW output and amp draw.

$$Actual\ Output\ (kW) = [(Supply\ Voltage)^2 \div (Rated\ Voltage)^2] \times Rated\ Unit\ Output\ (kW)$$
- (§) All 10kW heaters include a 1/4" (6.35mm) diameter 304 stainless steel safety guard pre-installed over the outlet grills.

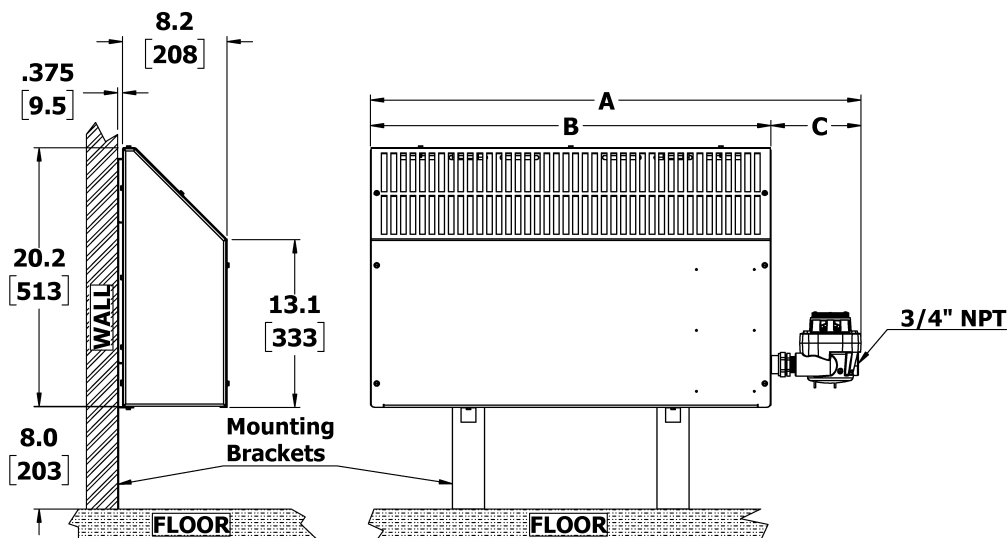
XEC1 Weights By Model Size

Single Phase Heater	Cabinet Length in. (mm)		31.3 (795)	49.5 (1257)	59.5 (1511)	71.8 (1824)
	Approx. Net Weight Lbs (kg)	Heater with Electrical Enclosure "C" (with or without T1 built-in thermostat)	57 (25.9)	84 (38.1)	96 (43.5)	113 (51.3)
		Heater with Electrical Enclosure A or B	73 (33.1)	100 (45.4)	112 (50.8)	129 (58.5)
	Approx. Shipping Weight* Lbs (kg)	Heater with Electrical Enclosure "C" (with or without T1 built-in thermostat)	75 (33.9)	107 (48.6)	121 (54.9)	143 (64.8)
		Heater with Electrical Enclosure A or B	91 (41.1)	123 (56.0)	137 (62.3)	159 (72.0)

Three Phase Heater	Cabinet Length in. (mm)		31.3 (795)	49.5 (1257)	59.5 (1511)	71.8 (1824)
	Approx. Net Weight Lbs (kg)	Heater with Electrical Enclosure "C"	54 (24.5)	81 (36.7)	93 (42.2)	110 (49.9)
		Heater with Electrical Enclosure A or B	70 (31.7)	97 (44.0)	109 (49.4)	126 (57.1)
	Approx. Shipping Weight* Lbs (kg)	Heater with Electrical Enclosure "C"	72 (32.5)	104 (47.2)	118 (53.7)	140 (63.4)
		Heater with Electrical Enclosure A or B	88 (39.7)	120 (54.5)	134 (60.9)	156 (70.6)

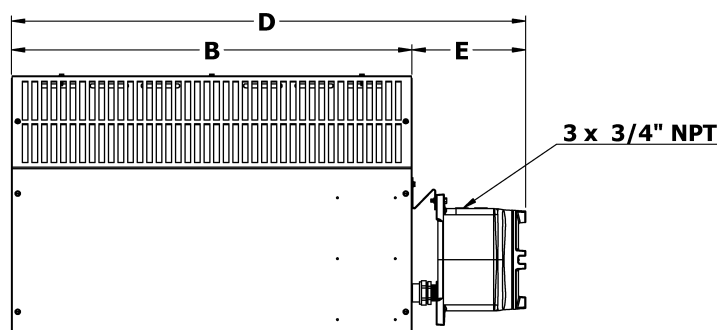
* All heaters are individually packed in cardboard packaging and then strapped to a wooden pallet.

XEC1 Physical Dimensions



Dimension drawing for Y-mount with optional built-in room thermostat.

Cabinet Length	31	49	59	71
Dim.	Inches (mm)	Inches (mm)	Inches (mm)	Inches (mm)
A	38.4 (975)	56.5 (1435)	66.5 (1690)	78.8 (2003)
B	31.3 (795)	49.5 (1257)	59.5 (1511)	71.8 (1824)
C	7.0 (179)	7.0 (179)	7.0 (179)	7.0 (179)
D	40.2 (1022)	58.3 (1482)	68.4 (1737)	80.7 (2050)
E	8.9 (226)	8.9 (226)	8.9 (226)	8.9 (226)



Dimension drawing for electrical enclosure. Mounting brackets not shown

XEC1 General Specifications

Approvals	Certification	cCSAus 235730 - Certified to Canadian and U.S. standards.
	Standards	CSA C22.2 No. 30 CSA C22.2 No. 60079-0 CSA C22.2 No. 60079-1 CSA C22.2 No. 46 ANSI/UL 823 ANSI/UL 60079-0 ANSI/UL 60079-1 CSA 22.2 No. 60529 CSA 22.2 No. 94.2 ANSI/IEC 60529 UL 50E
	North American Hazardous Location Classifications	Class I, Division 1 & 2, Groups B, C & D (T2B or T3A) Class I, Zone 1 & 2, Ex db, Groups IIA, IIB+H₂, Gb Class I, Zone 1 & 2, AEx db, Groups IIA, IIB+H₂, Gb Ta = -50°C to +40°C, IP66, Type 4, (T2 or T3)
	Temperature Code	Division System - T2B 260°C (500°F) or T3A 180°C (356°F) Zone System - T2 300°C (572°F) or T3 200°C (392°F) (refer to pages 9 to 12 for exact temperature class code rating)
	Ingress Protection	IP66 and Type 4
Cabinet	Cabinet Material	14-gauge (0.075 in.) (1.9 mm) steel. Rear panel is galvanized steel. Front and side cabinet panels are yellow epoxy/polyester powder coated with five stage pretreatment, including iron phosphate. All 10kW heaters include a 1/4" (6.35mm) diameter 304 stainless steel safety guard pre-installed over the outlet grills.
	Fasteners	Zinc plated steel for corrosion resistance.
	Electrical Enclosure	Cast aluminum (non-copper alloy) with O-ring. The Y junction box (Small Electrical Enclosure "C") has a bolt on cover and a 3/4"-14 NPT field wiring entry on the side. The Large Electrical Enclosure ("A or B") has a threaded lid and three 3/4"-14 NPT field wiring entries located on the top and two on the bottom.
	Mounting Brackets	Two 14-gauge (0.075 in.) (1.9 mm) galvanized steel brackets with spacing tabs to maintain proper wall clearance. Each bracket can be mounted to back of cabinet in any of the 5 designated mounting positions on each side.
Tube Assembly	Heating Elements	Long-life, Incoloy® 800 low watt-density, high-grade sheathed elements. Six 0.375 in. (9.5 mm) diameter elements for 3-phase (WYE configuration) heaters and two 0.430 (10.9 mm) diameter elements for 1-phase (Series configuration) heaters.
	Conduit Materials & Fittings	Plated steel and aluminum alloy for corrosion resistance.
	Element Tubes	Copper-free extruded aluminum.
	Fins	Copper-free, radial-embossed, aluminum plate fins spaced at 134 fins per linear meter (41 fins per linear foot)
Controls	Electrical Enclosure	Built-in 120VAC or 24VAC controls (24VAC recommended) installed inside a large aluminum enclosure is available (Large Electrical Enclosure "A or B") . For no controls, a Y junction box (Small Electrical Enclosure "C") for line voltage is used. Refer to Pages 9 to 12 for availability.
	Control Contactor	40 FLA (50A resistive per pole) Definite Purpose. Suitable for 50Hz or 60Hz operation. Rated for 500,000 mechanical operations.
	Control Transformer	Multitap primary, 120VAC or 24VAC secondary. Suitable for 50Hz or 60Hz operation.
	Fuse Protection	Thermal delay fuse with spare, .25" x 1.25" , 120VAC = 1/4A, 24VAC = 1A.
	Room Thermostat With Lockable Temperature Dial (option code T1)	Built-in, BTX1 (T1) bi-metal explosion-proof thermostat, 40°F to 80°F (5°C to 25°C) available with Electrical Enclosure "C" only. Wall mount thermostats also available. See Page 9 to 12 for availability. Wall thermostats won't switch 3-phase circuits directly. Note: Optional BLK1-N-B thermostat conversion kit allows simple interchangeability from a built-in thermostat to a wall mount configuration. For best heat distribution and comfort, a wall mount thermostat is recommended.
Additional Options	Left Side Electrical Enclosure (option code LC)	Electrical Enclosure located on left side of heater (standard configuration is for the Electrical Enclosure to be located on right side of heater).
Operating Limits	Ambient Temperature	-58°F to 104°F (-50°C to +40°C). Storage: -58°F to 140°F (-50°C to 60°C).

— WARNING! —

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

Data Plate Cautions and Warnings **(English and French)**

CAUTION/WARNING

- Do not open if energized or if an explosive atmosphere is present.
- Seal all entries within 18 inches.
- Clean cover joints before assembling.
- Potential electrostatic charging hazard - see owner's manual for operating, installation, and maintenance instructions.
- Wipe cabinet surfaces with a damp cloth to prevent electrostatic build-up
- Use copper supply wire rated for 90°C minimum.
- Minimum heater installation clearances are:
8" (203mm) from the floor, $\frac{3}{8}$ " (9.5mm) from any side wall,
 $\frac{3}{8}$ " (9.5mm) from the rear wall, and 18" (457mm) from the ceiling.
- Do not install in areas where the heater operating temperature exceeds the ignition temperature of the hazardous atmosphere.

ATTENTION / AVERTISSEMENT

- Ne pas ouvrir si sous tension ou si une atmosphère explosive est présente
- Scellez toutes les entrées à moins de 18 pouces.
- Nettoyer les joints du couvercle avant l'assemblage.
- Risque potentiel de charge électrostatique - voir le manuel du propriétaire pour les instructions d'utilisation, d'installation et d'entretien.
- Essuyez les surfaces de l'armoire avec un chiffon humide pour éviter l'accumulation d'électricité statique.
- Utilisez un fil d'alimentation en cuivre évalué à 90°C minimum.
- Les dégagements minimums d'installation du l'appareil sont:
8 "(203 mm) du sol, $\frac{3}{8}$ " (9,5 mm) de tout mur latéral, $\frac{3}{8}$ " (9,5 mm) du mur arrière et 18" (457 mm) du plafond.
- Ne pas installer dans des endroits où la température de fonctionnement de l'appareil excède la température d'inflammation de l'atmosphère dangereuse.

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CONDITIONS FOR SAFE USE & IMPORTANT SAFETY INFORMATION

1. Heater is to be connected and serviced only by qualified electrician experienced with hazardous location equipment. It is the responsibility of the installer to verify the safety and suitability of the installation.
2. Installation and wiring of the heater must adhere to all applicable codes. Heater must be effectively grounded to eliminate shock hazard.
3. Heater is to be used only in atmospheres having an ignition temperature higher than the heater's maximum rated operating temperature as shown on the heater data plate. For details of hazardous locations with potential for explosion, refer to the Canadian Electrical Code, Part 1, Section 18 or Articles 500 through 516 of the National Electrical Code.
4. Do not operate heater in ambient temperatures above 40°C (104°F).
5. Do not block heater inlet, ensure there is a free flow of air into the bottom of the heater.
6. Do not plug heater outlet with gloves, clothing, etc. Ensure there is a free flow of air out of the top of the heater
7. **WARNING:** External surfaces get hot and can cause burns with prolonged contact.
8. **WARNING:** Wipe cabinet surfaces with a damp cloth to prevent electrostatic charge build-up.
9. **Explosion/Electric Shock Hazard.** Disconnect heater from power supply or fuse box before opening enclosures or servicing heater. Lock the switch in the "OFF" (open) position and/or tag the switch to prevent unexpected power application.
10. Operate the heater only while it is permanently mounted in an upright position. See the Installation instructions on Page 7 for the minimum safe installation spacing. Never recess the heater into a wall.
11. Do not install a second heater above an existing heater.
12. Keep all electrical enclosure covers tightly closed and secured. Cover joints must be clean before replacing covers.
13. All unused threaded openings not used for supply wiring or remote mount room thermostat must be fitted with threaded plugs approved for use in hazardous locations.
14. Heater must be kept clean. When operating in a dirty environment, regularly clean the fin assemblies. Refer to recommended maintenance procedures.
15. Keep away from rain or snow. Heater is for dry indoor use only.
16. Do not operate heater in atmospheres which are corrosive to aluminum or steel.
17. All field installed conduits must be sealed within 18" and comply with local electrical codes. Factory installed conduits require no further sealing.
18. **Do not modify the heater in any way.**
19. Flameproof joints are NOT field repairable.
20. Use factory approved replacement parts only. Contact factory for any questions or concerns.

Location

Please follow guidelines below for optimum heating results:

1. Ensure the selected location provides the minimum safety clearances as per the diagram on page 7. Heater dimensions are located on Page 3 for your reference.
2. Do not install heaters such that airflow is blocked or impeded by equipment or walls.
3. For occupant comfort, position heaters so that air discharge is directed across areas of highest heat loss, such as windows, and outside walls.
4. For equipment freeze protection, locate heater as close to equipment as possible while maintaining the minimum safety distances.
5. For large workshops or warehouses it may be acceptable to use fewer, larger heaters.
6. For best heat distribution and comfort, a wall mount thermostat is recommended. Locate wall mount room thermostat on interior partition walls or posts away from cold drafts, internal heat sources, and away from heater discharge air streams.

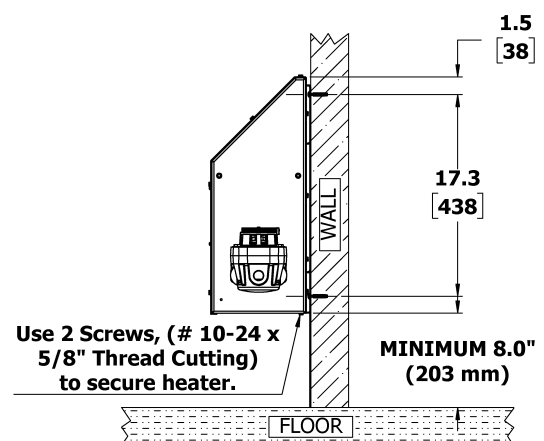
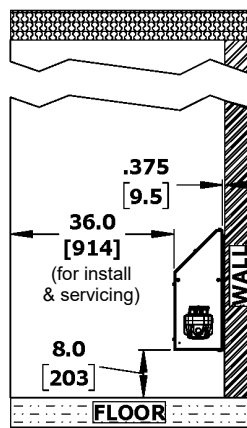
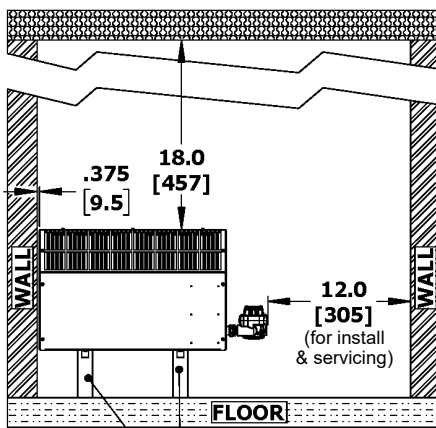
— WARNING! —

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

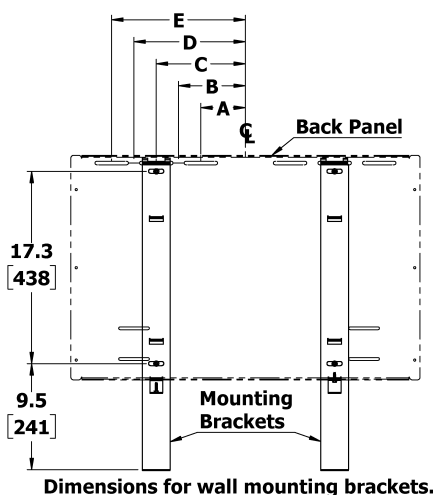
— INSTALLATION — Mechanical

Mounting

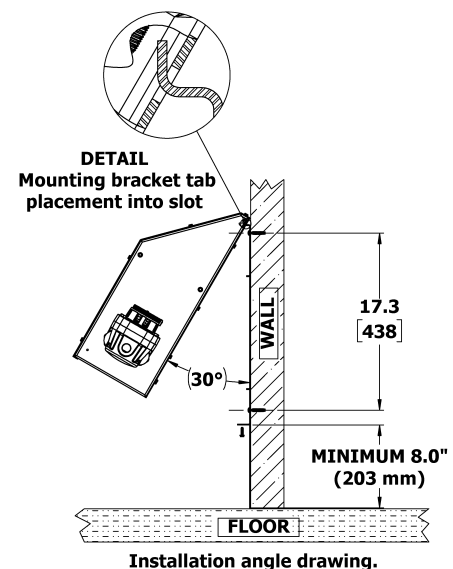
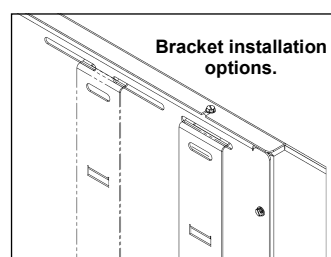
1. Disassembly of the heater is NOT required for mounting or installation.
2. Mounting brackets are supplied with the heater. Use of the factory supplied brackets is recommended.
3. If the factory supplied mounting brackets are not used ensure that all minimum safety distances are maintained during the installation.
4. Heater must be installed on a vertical surface, ensure heater is level.
5. It is essential that adequate structural support be provided for installation. **The mounting structure must be strong enough to support the heaters weight**, and withstand all probable abusive situations such as transportable installations where truck off-loading impacts, etc. may occur. Refer to table on Page 3, for heater net weights.
6. Secure the mounting brackets to the mounting surface, see diagram below for dimensions.
7. Install heater onto mounting brackets, see diagrams below.
8. Install the two screws on the underside of the heater to secure the back panel to the mounting brackets, see diagrams below.



Factory supplied mounting brackets provide the minimum required spacing from the floor and rear wall.



Cabinet Length	31	49	59	71
Dim.	Inches (mm)	Inches (mm)	Inches (mm)	Inches (mm)
A	4 (102)	8 (203)	12 (305)	16 (406)
B	6 (152)	10 (254)	14 (356)	18 (457)
C	8 (203)	12 (305)	16 (406)	20 (508)
D	10 (254)	14 (356)	18 (457)	22 (559)
E	12 (305)	16 (406)	20 (508)	24 (610)



— WARNING! —

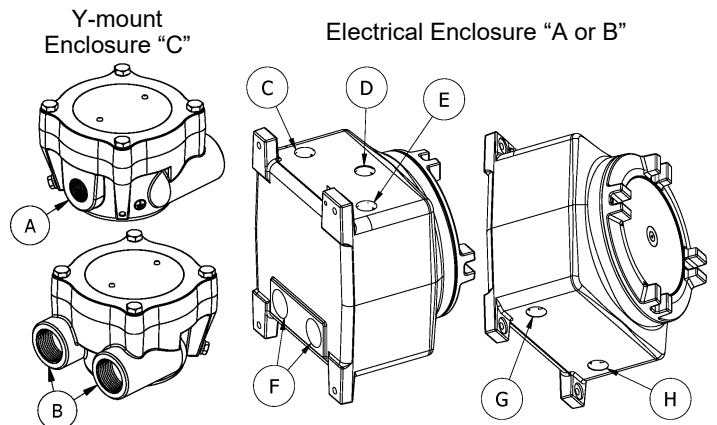
Read and follow the instructions in this manual. Failure to do so may result in severe or fatal injury.

**— INSTALLATION —
Electrical**

1. Heater is to be connected and serviced only by qualified electrician experienced with hazardous location equipment. It is the responsibility of the installer to verify the safety and suitability of the installation.
2. **Explosion/Electric Shock Hazard.** Disconnect heater from power supply or fuse box before opening enclosures or servicing heater. Lock the switch in the "OFF" (open) position and/or tag the switch to prevent unexpected power application.
3. Use copper conductors only for supply wires and approved explosion-proof means of wiring during installation. **Use minimum 90°C rated wire.** Refer to data tables on Pages 9 to 12 and heater data plate for conductor wire rating.
4. Installation must include appropriate over-current protection devices (fusing or circuit breakers) as required by the CEC or NEC. Refer to data tables on Pages 9 to 12 and heater data plate for current ratings. Supply voltage is to be within 10% of the data plate voltage.
5. Confirm that the electrical power supply matches the nameplate voltage, phase, amperage and frequency rating of the heater to be connected.
6. Supply conductors and ground conductor pass through the 3/4" NPT opening on the enclosure. All supply wire connection fittings must have a smooth, rounded inlet hole.
7. Proper installation of the heater requires that an adequate grounding conductor be connected to the ground terminal.
8. Heater may be supplied with a factory installed integral room thermostat with lockable temperature dial. If a **remote explosion-proof room thermostat** is used, connection is to be made via the 3/4" NPT entry. Refer to the thermostat installation manual and the wiring diagrams on Page 15 to connect the remote thermostat.
9. Refer to wiring diagram on Page 15 to ensure that all connections are as required and securely fastened.
10. **All** unused threaded openings in enclosures, not used for supply wiring or external room thermostat, must be fitted with threaded plugs approved for use in hazardous locations (included). Factory installed conduits require no additional sealing.
11. Installer must seal each conduit run within 18" (457 mm) of enclosure. This seal must be suitable and listed for hazardous locations. Ensure that any liquids used in the sealing process do not enter into any of the electrical enclosures.
12. Ensure that input conductors and conduit have adequate strain relief at installation.
13. Before application of electrical power, recheck all connections to ensure compliance with the wiring diagram and any code requirements. Remove any foreign objects from the enclosure. Ensure all wire terminals are tight and not pinching the wire insulation. Reinstall cover tightly.
14. A light coating of grease may be applied to threaded joints to prevent seizing.

Enclosure Entries

Entry	Entry Type	Entry Detail
A	Threaded: 3/4" -14 NPT	Line Power
B	Threaded: 1" -11½ NPT	Fin Assembly Port
C	Threaded: 3/4" -14 NPT	Optional: Line Power
D	Threaded: 3/4" -14 NPT	Optional: Thermostat
E	Threaded: 3/4" -14 NPT	Optional: Line Power
F	Threaded: 1" -11½ NPT	Fin Assembly Port
G	Threaded: 3/4" -14 NPT	Optional: Line Power
H	Threaded: 3/4" -14 NPT	Optional: Line Power



(Right Side Connection Configuration Shown)

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**— INSTALLATION —
Electrical**

**Single Phase - T2B (260°C / 500°F) Division Temperature Classification Rating
- T2 (300°C / 572°F) Zone Temperature Classification Rating**

Output Power (kW)	Line Volts (V)	Phase (ø)	Cabinet Length Inches (mm)	Base Model Code before Options † ? = Select an Electrical Enclosure Code (A or B or C Based on Availability)	“Electrical Enclosure Code” See below for built-in T1 thermostat, wall mount BTX1 or XET1 thermostat or your own control device.				Total Amps (A)	Max Fuse Amps (A)	Supply Wire Size (AWG)
					Built-in T1 Thermostat	Wall Mount BTX1 Thermostat	Wall Mount XET1 Thermostat	Your Own Control Device			
2.26	380	1	31.3 (795)	XEC1-0226-3801-?-T2B-31-A	C	B or C	B	B or C	5.9	15	14
2.50	400	1	31.3 (795)	XEC1-0250-4001-?-T2B-31-A	C	B or C	B	B or C	6.3	15	14
2.69	415	1	31.3 (795)	XEC1-0269-4151-?-T2B-31-A	C	B or C	B	B or C	6.5	15	14
3.03	220	1	31.3 (795)	XEC1-0303-2201-?-T2B-31-A	C	B or C	B	B or C	13.8	20	12
3.03	254	1	31.3 (795)	XEC1-0303-2541-?-T2B-31-A	C	B or C	B	B or C	11.9	15	14
3.03	440	1	31.3 (795)	XEC1-0303-4401-?-T2B-31-A	C	B or C	B	B or C	6.9	15	14
3.31	230	1	31.3 (795)	XEC1-0331-2301-?-T2B-31-A	C	B or C	B	B or C	14.4	20	12
3.60	208	1	31.3 (795)	XEC1-0360-2081-?-T2B-31-A	C	A or B or C	B	A or B or C	17.3	30	10
3.60	240	1	31.3 (795)	XEC1-0360-2401-?-T2B-31-A	C	A or B or C	B	A or B or C	15.0	20	12
3.60	277	1	31.3 (795)	XEC1-0360-2771-?-T2B-31-A	C	A or B or C	B	A or B or C	13.0	20	14
3.60	380	1	31.3 (795)	XEC1-0360-3801-?-T2B-31-A	C	B or C	B	B or C	9.5	15	14
3.60	400	1	31.3 (795)	XEC1-0360-4001-?-T2B-31-A	C	B or C	B	B or C	9.0	15	14
3.60	415	1	31.3 (795)	XEC1-0360-4151-?-T2B-31-A	C	B or C	B	B or C	8.7	15	14
3.60	480	1	31.3 (795)	XEC1-0360-4801-?-T2B-31-A	C	A or B or C	B	A or B or C	7.5	15	14
3.60	600	1	31.3 (795)	XEC1-0360-6001-?-T2B-31-A *	Not Available	A or B	B	A or B or C	6.0	15	14
4.03	220	1	49.5 (1257)	XEC1-0403-2201-?-T2B-49-A	C	B or C	B	B or C	18.3	30	10
4.03	440	1	49.5 (1257)	XEC1-0403-4401-?-T2B-49-A	C	B or C	B	B or C	9.2	15	14
4.04	254	1	49.5 (1257)	XEC1-0404-2541-?-T2B-49-A	C	B or C	B	B or C	15.9	20	12
4.41	230	1	49.5 (1257)	XEC1-0441-2301-?-T2B-49-A	C	B or C	B	B or C	19.2	30	10
4.76	380	1	59.5 (1511)	XEC1-0476-3801-?-T2B-59-A	C	B or C	B	B or C	12.5	20	12
4.80	208	1	49.5 (1257)	XEC1-0480-2081-?-T2B-49-A #	Not Available	A or B	B	A or B or C	23.1	30	10
4.80	240	1	49.5 (1257)	XEC1-0480-2401-?-T2B-49-A	C	A or B or C	B	A or B or C	20.0	30	10
4.80	277	1	49.5 (1257)	XEC1-0480-2771-?-T2B-49-A	C	A or B or C	B	A or B or C	17.3	30	10
4.80	380	1	49.5 (1257)	XEC1-0480-3801-?-T2B-49-A	C	B or C	B	B or C	12.6	20	12
4.80	400	1	49.5 (1257)	XEC1-0480-4001-?-T2B-49-A	C	B or C	B	B or C	12.0	15	14
4.80	415	1	49.5 (1257)	XEC1-0480-4151-?-T2B-49-A	C	B or C	B	B or C	11.6	15	14
4.80	480	1	49.5 (1257)	XEC1-0480-4801-?-T2B-49-A	C	A or B or C	B	A or B or C	10.0	15	14
4.80	600	1	49.5 (1257)	XEC1-0480-6001-?-T2B-49-A *	Not Available	A or B	B	A or B or C	8.0	15	14
5.28	400	1	59.5 (1511)	XEC1-0528-4001-?-T2B-59-A	C	B or C	B	B or C	13.2	20	12
5.68	415	1	59.5 (1511)	XEC1-0568-4151-?-T2B-59-A	C	B or C	B	B or C	13.7	20	12
6.27	380	1	71.8 (1824)	XEC1-0627-3801-?-T2B-71-A	C	B or C	B	B or C	16.5	30	10
6.39	220	1	59.5 (1511)	XEC1-0639-2201-?-T2B-59-A #	Not Available	B	B	B or C	29.0	40	8
6.39	254	1	59.5 (1511)	XEC1-0639-2541-?-T2B-59-A #	Not Available	B or C	B	B or C	25.2	35	8
6.39	440	1	59.5 (1511)	XEC1-0639-4401-?-T2B-59-A	C	B or C	B	B or C	14.5	20	12
6.94	400	1	71.8 (1824)	XEC1-0694-4001-?-T2B-71-A	C	B or C	B	B or C	17.4	30	10
6.98	230	1	59.5 (1511)	XEC1-0698-2301-?-T2B-59-A #	Not Available	B	B	B or C	30.4	40	8
7.48	415	1	71.8 (1824)	XEC1-0748-4151-?-T2B-71-A	C	B or C	B	B or C	18.0	30	10
7.60	208	1	59.5 (1511)	XEC1-0760-2081-?-T2B-59-A #	Not Available	A or B	B	A or B or C	36.5	50	6
7.60	240	1	59.5 (1511)	XEC1-0760-2401-?-T2B-59-A #	Not Available	A or B	B	A or B or C	31.7	40	8
7.60	277	1	59.5 (1511)	XEC1-0760-2771-?-T2B-59-A #	Not Available	A or B	B	A or B or C	27.4	35	8
7.60	380	1	59.5 (1511)	XEC1-0760-3801-?-T2B-59-A	C	B or C	B	B or C	20.0	30	10
7.60	400	1	59.5 (1511)	XEC1-0760-4001-?-T2B-59-A	C	B or C	B	B or C	19.0	30	10
7.60	415	1	59.5 (1511)	XEC1-0760-4151-?-T2B-59-A	C	B or C	B	B or C	18.3	30	10
7.60	480	1	59.5 (1511)	XEC1-0760-4801-?-T2B-59-A	C	A or B or C	B	A or B or C	15.8	20	12
7.60	600	1	59.5 (1511)	XEC1-0760-6001-?-T2B-59-A *	Not Available	A or B	B	A or B or C	12.7	20	12
8.40	440	1	71.8 (1824)	XEC1-0840-4401-?-T2B-71-A	C	B or C	B	B or C	19.1	30	10
10.00 \$	380	1	71.8 (1824)	XEC1-1000-3801-C-T2B-71-A #	Not Available	Not Available	Not Available	C	26.3	35	8
10.00 \$	400	1	71.8 (1824)	XEC1-1000-4001-C-T2B-71-A #	Not Available	Not Available	Not Available	C	25.0	35	8
10.00 \$	415	1	71.8 (1824)	XEC1-1000-4151-C-T2B-71-A #	Not Available	Not Available	Not Available	C	24.1	35	8
10.00 \$	480	1	71.8 (1824)	XEC1-1000-4801-C-T2B-71-A	C	C	Not Available	C	20.8	30	10
10.00 \$	600	1	71.8 (1824)	XEC1-1000-6001-C-T2B-71-A *	Not Available	Not Available	Not Available	C	16.7	30	10

(*) (#) Exceeds 480 Volt or 22 Amp rating on factory built-in T1 thermostat. To add the factory supplied wall mount thermostats, Electrical Enclosure A or B is required. If using your own temperature control device, a remote contactor may be required. Ensure control devices comply to local electrical code and meets the heater's electrical ratings and is suitable for the area's hazardous atmosphere classification

(†) Refer to Page 2 for XEC1 Model and Option Code Reference Chart

(?) A = 120VAC Controls in Large Electrical Enclosure; B = 24VAC Controls in Large Electrical Enclosure; C = Line Voltage Electrical Enclosure (small Y junction box). Large Electrical Enclosure A & B include a contactor, transformer, and printed circuit board with fuses.

(\$) All 10kW heaters include a safety guard pre-installed over the outlet grills.

— WARNING! —

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

**— INSTALLATION —
Electrical**

**Single Phase - T3A (180°C / 356°F) Division Temperature Classification Rating
- T3 (200°C / 392°F) Zone Temperature Classification Rating**

Output Power (kW)	Line Volts (V)	Phase (ø)	Cabinet Length Inches (mm)	Base Model Code before Options † ? = Select an Electrical Enclosure Code (A or B or C Based on Availability)	“Electrical Enclosure Code” See below for built-in T1 thermostat, wall mount BTX1 or XET1 thermostat or your own control device.				Total Amps (A)	Max Fuse Amps (A)	Supply Wire Size (AWG)
					Built-in T1 Thermostat	Wall Mount BTX1 Thermostat	Wall Mount XET1 Thermostat	Your Own Control Device			
0.40	347	1	31.3 (795)	XEC1-0040-3471-?T3A-31-A	C	A or B or C	B	A or B or C	1.2	15	14
0.60	347	1	31.3 (795)	XEC1-0060-3471-?T3A-31-A	C	A or B or C	B	A or B or C	1.7	15	14
0.75	380	1	31.3 (795)	XEC1-0075-3801-?T3A-31-A	C	B or C	B	B or C	2.0	15	14
0.83	400	1	31.3 (795)	XEC1-0083-4001-?T3A-31-A	C	B or C	B	B or C	2.1	15	14
0.90	415	1	31.3 (795)	XEC1-0090-4151-?T3A-31-A	C	B or C	B	B or C	2.2	15	14
1.01	220	1	31.3 (795)	XEC1-0101-2201-?T3A-31-A	C	B or C	B	B or C	4.6	15	14
1.01	254	1	31.3 (795)	XEC1-0101-2541-?T3A-31-A	C	B or C	B	B or C	4.0	15	14
1.01	440	1	31.3 (795)	XEC1-0101-4401-?T3A-31-A	C	B or C	B	B or C	2.3	15	14
1.10	230	1	31.3 (795)	XEC1-0110-2301-?T3A-31-A	C	B or C	B	B or C	4.8	15	14
1.13	380	1	31.3 (795)	XEC1-0113-3801-?T3A-31-A	C	B or C	B	B or C	3.0	15	14
1.20	120	1	31.3 (795)	XEC1-0120-1201-C-T3A-31-A	C	C	Not Available	C	10.0	15	14
1.20	208	1	31.3 (795)	XEC1-0120-2081-?T3A-31-A	C	A or B or C	B	A or B or C	5.8	15	14
1.20	240	1	31.3 (795)	XEC1-0120-2401-?T3A-31-A	C	A or B or C	B	A or B or C	5.0	15	14
1.20	277	1	31.3 (795)	XEC1-0120-2771-?T3A-31-A	C	A or B or C	B	A or B or C	4.3	15	14
1.20	347	1	31.3 (795)	XEC1-0120-3471-?T3A-31-A	C	A or B or C	B	A or B or C	3.5	15	14
1.20	380	1	31.3 (795)	XEC1-0120-3801-?T3A-31-A	C	B or C	B	B or C	3.2	15	14
1.20	400	1	31.3 (795)	XEC1-0120-4001-?T3A-31-A	C	B or C	B	B or C	3.0	15	14
1.20	415	1	31.3 (795)	XEC1-0120-4151-?T3A-31-A	C	B or C	B	B or C	2.9	15	14
1.20	480	1	31.3 (795)	XEC1-0120-4801-?T3A-31-A	C	A or B or C	B	A or B or C	2.5	15	14
1.20	600	1	31.3 (795)	XEC1-0120-6001-?T3A-31-A *	Not Available	A or B	B	A or B or C	2.0	15	14
1.25	400	1	31.3 (795)	XEC1-0125-4001-?T3A-31-A	C	B or C	B	B or C	3.1	15	14
1.35	415	1	31.3 (795)	XEC1-0135-4151-?T3A-31-A	C	B or C	B	B or C	3.3	15	14
1.51	220	1	31.3 (795)	XEC1-0151-2201-?T3A-31-A	C	B or C	B	B or C	6.9	15	14
1.51	254	1	31.3 (795)	XEC1-0151-2541-?T3A-31-A	C	B or C	B	B or C	5.9	15	14
1.51	440	1	31.3 (795)	XEC1-0151-4401-?T3A-31-A	C	B or C	B	B or C	3.4	15	14
1.61	347	1	49.5 (1257)	XEC1-0161-3471-?T3A-49-A	C	A or B or C	B	A or B or C	4.6	15	14
1.65	230	1	31.3 (795)	XEC1-0165-2301-?T3A-31-A	C	B or C	B	B or C	7.2	15	14
1.67	347	1	71.8 (1824)	XEC1-0167-3471-?T3A-71-A	C	A or B or C	B	A or B or C	4.8	15	14
1.80	120	1	31.3 (795)	XEC1-0180-1201-C-T3A-31-A	C	C	Not Available	C	15.0	20	12
1.80	208	1	31.3 (795)	XEC1-0180-2081-?T3A-31-A	C	A or B or C	B	A or B or C	8.7	15	14
1.80	240	1	31.3 (795)	XEC1-0180-2401-?T3A-31-A	C	A or B or C	B	A or B or C	7.5	15	14
1.80	277	1	31.3 (795)	XEC1-0180-2771-?T3A-31-A	C	A or B or C	B	A or B or C	6.5	15	14
1.80	380	1	31.3 (795)	XEC1-0180-3801-?T3A-31-A	C	B or C	B	B or C	4.7	15	14
1.80	400	1	31.3 (795)	XEC1-0180-4001-?T3A-31-A	C	B or C	B	B or C	4.5	15	14
1.80	415	1	31.3 (795)	XEC1-0180-4151-?T3A-31-A	C	B or C	B	B or C	4.3	15	14
1.80	480	1	31.3 (795)	XEC1-0180-4801-?T3A-31-A	C	A or B or C	B	A or B or C	3.8	15	14
1.80	600	1	31.3 (795)	XEC1-0180-6001-?T3A-31-A *	Not Available	A or B	B	A or B or C	3.0	15	14
2.54	347	1	59.5 (1511)	XEC1-0254-3471-?T3A-59-A	C	A or B or C	B	A or B or C	7.3	15	14
3.01	380	1	49.5 (1257)	XEC1-0301-3801-?T3A-49-A	C	B or C	B	B or C	7.9	15	14
3.03	220	1	49.5 (1257)	XEC1-0303-2201-?T3A-49-A	C	B or C	B	B or C	13.8	20	12
3.03	254	1	49.5 (1257)	XEC1-0303-2541-?T3A-49-A	C	B or C	B	B or C	11.9	15	14
3.03	440	1	49.5 (1257)	XEC1-0303-4401-?T3A-49-A	C	B or C	B	B or C	6.9	15	14
3.13	380	1	71.8 (1824)	XEC1-0313-3801-?T3A-71-A	C	B or C	B	B or C	8.2	15	14
3.31	230	1	49.5 (1257)	XEC1-0331-2301-?T3A-49-A	C	B or C	B	B or C	14.4	20	12
3.33	400	1	49.5 (1257)	XEC1-0333-4001-?T3A-49-A	C	B or C	B	B or C	8.3	15	14
3.34	347	1	71.8 (1824)	XEC1-0334-3471-?T3A-71-A	C	A or B or C	B	A or B or C	9.6	15	14
3.47	400	1	71.8 (1824)	XEC1-0347-4001-?T3A-71-A	C	B or C	B	B or C	8.7	15	14
3.59	415	1	49.5 (1257)	XEC1-0359-4151-?T3A-49-A	C	B or C	B	B or C	8.7	15	14
3.60	208	1	49.5 (1257)	XEC1-0360-2081-?T3A-49-A	C	A or B or C	B	A or B or C	17.3	30	10
3.60	240	1	49.5 (1257)	XEC1-0360-2401-?T3A-49-A	C	A or B or C	B	A or B or C	15.0	20	12
3.60	277	1	49.5 (1257)	XEC1-0360-2771-?T3A-49-A	C	A or B or C	B	A or B or C	13.0	20	14
3.60	380	1	49.5 (1257)	XEC1-0360-3801-?T3A-49-A	C	B or C	B	B or C	9.5	15	14
3.60	400	1	49.5 (1257)	XEC1-0360-4001-?T3A-49-A	C	B or C	B	B or C	9.0	15	14
3.60	480	1	49.5 (1257)	XEC1-0360-4801-?T3A-49-A	C	A or B or C	B	A or B or C	7.5	15	14
3.60	600	1	49.5 (1257)	XEC1-0360-6001-?T3A-49-A *	Not Available	A or B	B	A or B or C	6.0	15	14
3.74	415	1	71.8 (1824)	XEC1-0374-4151-?T3A-71-A	C	B or C	B	B or C	9.0	15	14
4.20	220	1	71.8 (1824)	XEC1-0420-2201-?T3A-71-A	C	B or C	B	B or C	19.1	30	10
4.20	254	1	71.8 (1824)	XEC1-0420-2541-?T3A-71-A	C	B or C	B	B or C	16.5	30	10
4.20	440	1	71.8 (1824)	XEC1-0420-4401-?T3A-71-A	C	B or C	B	B or C	9.5	15	14

(Continued on Next Page)

— WARNING! —

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**— INSTALLATION —
Electrical**

**Single Phase - T3A (180°C / 356°F) Division Temperature Classification Rating
- T3 (200°C / 392°F) Zone Temperature Classification Rating**

Output Power (kW)	Line Volts (V)	Phase (ø)	Cabinet Length Inches (mm)	Base Model Code before Options † ? = Select an Electrical Enclosure Code (A or B or C Based on Availability)	“Electrical Enclosure Code” See below for built-in T1 thermostat, wall mount BTX1 or XET1 thermostat or your own control device.				Total Amps (A)	Max Fuse Amps (A)	Supply Wire Size (AWG)
					Built-in T1 Thermostat	Wall Mount BTX1 Thermostat	Wall Mount XET1 Thermostat	Your Own Control Device			
4.59	230	1	71.8 (1824)	XEC1-0459-2301-?-T3A-71-A	C	B or C	B	B or C	20.0	30	10
5.00	208	1	71.8 (1824)	XEC1-0500-2081-?-T3A-71-A *	Not Available	A or B	B	A or B or C	24.0	30	10
5.00	240	1	71.8 (1824)	XEC1-0500-2401-?-T3A-71-A	C	A or B or C	B	A or B or C	20.8	30	10
5.00	277	1	71.8 (1824)	XEC1-0500-2771-?-T3A-71-A	C	A or B or C	B	A or B or C	18.1	30	10
5.00	380	1	71.8 (1824)	XEC1-0500-3801-?-T3A-71-A	C	B or C	B	B or C	13.2	20	12
5.00	400	1	71.8 (1824)	XEC1-0500-4001-?-T3A-71-A	C	B or C	B	B or C	12.5	20	12
5.00	415	1	71.8 (1824)	XEC1-0500-4151-?-T3A-71-A	C	B or C	B	B or C	12.0	15	14
5.00	480	1	71.8 (1824)	XEC1-0500-4801-?-T3A-71-A	C	A or B or C	B	A or B or C	10.4	15	14
5.00	600	1	71.8 (1824)	XEC1-0500-6001-?-T3A-71-A *	Not Available	A or B	B	A or B or C	8.3	15	14

(*) (#) Exceeds 480 Volt or 22 Amp rating on factory built-in T1 thermostat. To add the factory supplied wall mount thermostats, Electrical Enclosure A or B is required. If using your own temperature control device, a remote contactor may be required. Ensure control devices comply to local electrical code and meets the heater's electrical ratings and is suitable for the area's hazardous atmosphere classification

(†) Refer to Page 2 for XEC1 Model and Option Code Reference Chart

(?) A = 120VAC Controls in Large Electrical Enclosure; B = 24VAC Controls in Large Electrical Enclosure; C = Line Voltage Electrical Enclosure (small Y junction box). Large Electrical Enclosure A & B include a contactor, transformer, and printed circuit board with fuses.

• Supply voltage must be within +/- 10% of rated heater voltage. Actual Output (kW) = [(Line voltage)² ÷ (Rated Voltage)²] x Rated Unit Wattage (kW)

**Three Phase - T2B (260°C / 500°F) Division Temperature Classification Rating
- T2 (300°C / 572°F) Zone Temperature Classification Rating**

Output Power (kW)	Line Volts (V)	Phase (ø)	Cabinet Length Inches (mm)	Base Model Code before Options † ? = Select an Electrical Enclosure Code (A or B or C Based on Availability)	“Electrical Enclosure Code” See below for wall mount BTX1 or XET1 thermostat or your own control device.			Total Amps (A)	Max Fuse Amps (A)	Supply Wire Size (AWG)
					Wall Mount BTX1 Thermostat	Wall Mount XET1 Thermostat	Your Own Control Device			
2.26	380	3	31.3 (795)	XEC1-0226-3803-?-T2B-31-A	B	B	B or C	3.4	15	14
2.50	400	3	31.3 (795)	XEC1-0250-4003-?-T2B-31-A	B	B	B or C	3.6	15	14
2.69	415	3	31.3 (795)	XEC1-0269-4153-?-T2B-31-A	B	B	B or C	3.7	15	14
3.03	440	3	31.3 (795)	XEC1-0303-4403-?-T2B-31-A	B	B	B or C	4.0	15	14
3.60	208	3	31.3 (795)	XEC1-0360-2083-?-T2B-31-A	A or B	B	A or B or C	10.0	15	14
3.60	240	3	31.3 (795)	XEC1-0360-2403-?-T2B-31-A	A or B	B	A or B or C	8.7	15	14
3.60	277	3	31.3 (795)	XEC1-0360-2773-?-T2B-31-A	A or B	B	A or B or C	7.5	15	14
3.60	380	3	31.3 (795)	XEC1-0360-3803-?-T2B-31-A	B	B	B or C	5.5	15	14
3.60	400	3	31.3 (795)	XEC1-0360-4003-?-T2B-31-A	B	B	B or C	5.2	15	14
3.60	415	3	31.3 (795)	XEC1-0360-4153-?-T2B-31-A	B	B	B or C	5.0	15	14
3.60	480	3	31.3 (795)	XEC1-0360-4803-?-T2B-31-A	A or B	B	A or B or C	4.3	15	14
3.60	600	3	31.3 (795)	XEC1-0360-6003-?-T2B-31-A	A or B	B	A or B or C	3.5	15	14
4.03	440	3	49.5 (1257)	XEC1-0403-4403-?-T2B-49-A	B	B	B or C	5.3	15	14
4.76	380	3	59.5 (1511)	XEC1-0476-3803-?-T2B-59-A	B	B	B or C	7.2	15	14
4.80	208	3	49.5 (1257)	XEC1-0480-2083-?-T2B-49-A	A or B	B	A or B or C	13.3	20	12
4.80	240	3	49.5 (1257)	XEC1-0480-2403-?-T2B-49-A	A or B	B	A or B or C	11.5	15	14
4.80	277	3	49.5 (1257)	XEC1-0480-2773-?-T2B-49-A	A or B	B	A or B or C	10.0	15	14
4.80	480	3	49.5 (1257)	XEC1-0480-4803-?-T2B-49-A	A or B	B	A or B or C	5.8	15	14
4.80	600	3	49.5 (1257)	XEC1-0480-6003-?-T2B-49-A	A or B	B	A or B or C	4.6	15	14
5.28	400	3	59.5 (1511)	XEC1-0528-4003-?-T2B-59-A	B	B	B or C	7.6	15	14
5.68	415	3	59.5 (1511)	XEC1-0568-4153-?-T2B-59-A	B	B	B or C	7.9	15	14
6.27	380	3	71.8 (1824)	XEC1-0627-3803-?-T2B-71-A	B	B	B or C	9.5	15	14
6.39	440	3	59.5 (1511)	XEC1-0639-4403-?-T2B-59-A	B	B	B or C	8.4	15	14
6.94	400	3	71.8 (1824)	XEC1-0694-4003-?-T2B-71-A	B	B	B or C	10.0	15	14
7.48	415	3	71.8 (1824)	XEC1-0748-4153-?-T2B-71-A	B	B	B or C	10.4	15	14
7.60	208	3	59.5 (1511)	XEC1-0760-2083-?-T2B-59-A	A or B	B	A or B or C	21.1	30	10
7.60	240	3	59.5 (1511)	XEC1-0760-2403-?-T2B-59-A	A or B	B	A or B or C	18.3	30	10
7.60	277	3	59.5 (1511)	XEC1-0760-2773-?-T2B-59-A	A or B	B	A or B or C	15.8	20	12
7.60	480	3	59.5 (1511)	XEC1-0760-4803-?-T2B-59-A	A or B	B	A or B or C	9.1	15	14
7.60	600	3	59.5 (1511)	XEC1-0760-6003-?-T2B-59-A	A or B	B	A or B or C	7.3	15	14
8.40	440	3	71.8 (1824)	XEC1-0840-4403-?-T2B-71-A	B	B	B or C	11.0	15	14
10.00 (\$)	208	3	71.8 (1824)	XEC1-1000-2083-C-T2B-71-A	Not Available	Not Available	C	27.8	35	8
10.00 (\$)	240	3	71.8 (1824)	XEC1-1000-2403-C-T2B-71-A	Not Available	Not Available	C	24.1	30	10
10.00 (\$)	277	3	71.8 (1824)	XEC1-1000-2773-C-T2B-71-A	Not Available	Not Available	C	20.8	30	10

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— WARNING! —

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

**— INSTALLATION —
Electrical**

**Three Phase - T2B (260°C / 500°F) Division Temperature Classification Rating
- T2 (300°C / 572°F) Zone Temperature Classification Rating**

Output Power (kW)	Line Volts (V)	Phase (ø)	Cabinet Length Inches (mm)	Base Model Code before Options † ? = Select an Electrical Enclosure Code (A or B or C Based on Availability)	“Electrical Enclosure Code” See below for wall mount BTX1 or XET1 thermostat or your own control device.			Total Amps (A)	Max Fuse Amps (A)	Supply Wire Size (AWG)
					Wall Mount BTX1 Thermostat	Wall Mount XET1 Thermostat	Your Own Control Device			
10.00 (\$)	380	3	71.8 (1824)	XEC1-1000-3803-C-T2B-71-A	Not Available	Not Available	C	15.2	20	12
10.00 (\$)	400	3	71.8 (1824)	XEC1-1000-4003-C-T2B-71-A	Not Available	Not Available	C	14.4	20	12
10.00 (\$)	415	3	71.8 (1824)	XEC1-1000-4153-C-T2B-71-A	Not Available	Not Available	C	13.9	20	12
10.00 (\$)	480	3	71.8 (1824)	XEC1-1000-4803-C-T2B-71-A	Not Available	Not Available	C	12.0	15	14
10.00 (\$)	600	3	71.8 (1824)	XEC1-1000-6003-C-T2B-71-A	Not Available	Not Available	C	9.6	15	14

(†) Refer to Page 2 for XEC1 Model and Option Code Reference Chart

(?) A = 120VAC Controls in Large Electrical Enclosure; B = 24VAC Controls in Large Electrical Enclosure; C = Line Voltage Electrical Enclosure (small Y junction box). Large Electrical Enclosure A & B include a contactor, transformer, and printed circuit board with fuses.

(\$)

• Supply voltage must be within +/- 10% of rated heater voltage. Actual Output (kW) = [(Line voltage)² ÷ (Rated Voltage)²] x Rated Unit Wattage (kW)

Note: BTX1 and XET1 thermostats are not designed to switch three phase heaters directly. A factory built-in Electrical Enclosure (A or B), or customer supplied remote mount, “Control Circuit” is required.

**Three Phase - T3A (180°C / 356°F) Division Temperature Classification Rating
- T3 (200°C / 392°F) Zone Temperature Classification Rating**

Output Power (kW)	Line Volts (V)	Phase (ø)	Cabinet Length Inches (mm)	Base Model Code before Options † ? = Select an Electrical Enclosure Code (A or B or C Based on Availability)	“Electrical Enclosure Code” See below for wall mount BTX1 or XET1 thermostat or your own control device.			Total Amps (A)	Max Fuse Amps (A)	Supply Wire Size (AWG)
					Wall Mount BTX1 Thermostat	Wall Mount XET1 Thermostat	Your Own Control Device			
1.13	380	3	31.3 (795)	XEC1-0113-3803-?-T3A-31-A	B	B	B or C	1.7	15	14
1.20	208	3	31.3 (795)	XEC1-0120-2083-?-T3A-31-A	A or B	B	A or B or C	3.3	15	14
1.20	240	3	31.3 (795)	XEC1-0120-2403-?-T3A-31-A	A or B	B	A or B or C	2.9	15	14
1.20	277	3	31.3 (795)	XEC1-0120-2773-?-T3A-31-A	A or B	B	A or B or C	2.5	15	14
1.25	400	3	31.3 (795)	XEC1-0125-4003-?-T3A-31-A	B	B	B or C	1.8	15	14
1.35	415	3	31.3 (795)	XEC1-0135-4153-?-T3A-31-A	B	B	B or C	1.9	15	14
1.51	440	3	31.3 (795)	XEC1-0151-4403-?-T3A-31-A	B	B	B or C	2.0	15	14
1.80	208	3	31.3 (795)	XEC1-0180-2083-?-T3A-31-A	A or B	B	A or B or C	5.0	15	14
1.80	240	3	31.3 (795)	XEC1-0180-2403-?-T3A-31-A	A or B	B	A or B or C	4.3	15	14
1.80	277	3	31.3 (795)	XEC1-0180-2773-?-T3A-31-A	A or B	B	A or B or C	3.8	15	14
1.80	480	3	31.3 (795)	XEC1-0180-4803-?-T3A-31-A	A or B	B	A or B or C	2.2	15	14
2.26	380	3	49.5 (1257)	XEC1-0226-3803-?-T3A-49-A	B	B	B or C	3.4	15	14
2.50	400	3	49.5 (1257)	XEC1-0250-4003-?-T3A-49-A	B	B	B or C	3.6	15	14
2.69	415	3	49.5 (1257)	XEC1-0269-4153-?-T3A-49-A	B	B	B or C	3.7	15	14
3.01	380	3	49.5 (1257)	XEC1-0301-3803-?-T3A-49-A	B	B	B or C	4.6	15	14
3.03	440	3	49.5 (1257)	XEC1-0303-4403-?-T3A-49-A	B	B	B or C	4.0	15	14
3.13	380	3	71.8 (1824)	XEC1-0313-3803-?-T3A-71-A	B	B	B or C	4.8	15	14
3.33	400	3	49.5 (1257)	XEC1-0333-4003-?-T3A-49-A	B	B	B or C	4.8	15	14
3.47	400	3	71.8 (1824)	XEC1-0347-4003-?-T3A-71-A	B	B	B or C	5.0	15	14
3.59	415	3	49.5 (1257)	XEC1-0359-4153-?-T3A-49-A	B	B	B or C	5.0	15	14
3.60	208	3	49.5 (1257)	XEC1-0360-2083-?-T3A-49-A	A or B	B	A or B or C	10.0	15	14
3.60	240	3	49.5 (1257)	XEC1-0360-2403-?-T3A-49-A	A or B	B	A or B or C	8.7	15	14
3.60	277	3	49.5 (1257)	XEC1-0360-2773-?-T3A-49-A	A or B	B	A or B or C	7.5	15	14
3.60	380	3	49.5 (1257)	XEC1-0360-3803-?-T3A-49-A	B	B	B or C	5.5	15	14
3.60	400	3	49.5 (1257)	XEC1-0360-4003-?-T3A-49-A	B	B	B or C	5.2	15	14
3.60	480	3	49.5 (1257)	XEC1-0360-4803-?-T3A-49-A	A or B	B	A or B or C	4.3	15	14
3.60	600	3	49.5 (1257)	XEC1-0360-6003-?-T3A-49-A	A or B	B	A or B or C	3.5	15	14
3.74	415	3	71.8 (1824)	XEC1-0374-4153-?-T3A-71-A	B	B	B or C	5.2	15	14
4.20	440	3	71.8 (1824)	XEC1-0420-4403-?-T3A-71-A	B	B	B or C	5.5	15	14
5.00	208	3	71.8 (1824)	XEC1-0500-2083-?-T3A-71-A	A or B	B	A or B or C	13.9	20	12
5.00	240	3	71.8 (1824)	XEC1-0500-2403-?-T3A-71-A	A or B	B	A or B or C	12.0	15	14
5.00	277	3	71.8 (1824)	XEC1-0500-2773-?-T3A-71-A	A or B	B	A or B or C	10.4	15	14
5.00	380	3	71.8 (1824)	XEC1-0500-3803-?-T3A-71-A	B	B	B or C	7.6	15	14
5.00	400	3	71.8 (1824)	XEC1-0500-4003-?-T3A-71-A	B	B	B or C	7.2	15	14
5.00	415	3	71.8 (1824)	XEC1-0500-4153-?-T3A-71-A	B	B	B or C	7.0	15	14
5.00	480	3	71.8 (1824)	XEC1-0500-4803-?-T3A-71-A	A or B	B	A or B or C	6.0	15	14
5.00	600	3	71.8 (1824)	XEC1-0500-6003-?-T3A-71-A	A or B	B	A or B or C	4.8	15	14

(†) Refer to Page 2 for XEC1 Model and Option Code Reference Chart

(?) A = 120VAC Controls in Large Electrical Enclosure; B = 24VAC Controls in Large Electrical Enclosure; C = Line Voltage Electrical Enclosure (small Y junction box). Large Electrical Enclosure A & B include a contactor, transformer, and printed circuit board with fuses.

• Supply voltage must be within +/- 10% of rated heater voltage. Actual Output (kW) = [(Line voltage)² ÷ (Rated Voltage)²] x Rated Unit Wattage (kW)

Note: BTX1 and XET1 thermostats are not designed to switch three phase heaters directly. A factory built-in Electrical Enclosure (A or B), or customer supplied remote mount, “Control Circuit” is required.

— WARNING! —

Heater is to be serviced only by qualified electrician experienced with hazardous location equipment.

Explosion/Electric Shock Hazard. Disconnect heater from power supply or fuse box before opening enclosures or servicing heater. Lock the switch in the “OFF” (open) position and/or tag the switch to prevent unexpected power application.

— Repair and Replacement —

Fin Assembly Replacement (See Page 16 for assembly diagram) (see Page 15 for wiring diagram)

The fin assembly is not field repairable. Replacement fin assemblies are available from the factory and are inspected and electrically tested.

1. **Explosion/Electric Shock Hazard.** Disconnect heater from power supply or fuse box before opening enclosures or servicing heater. Lock the switch in the “OFF” (open) position and/or tag the switch to prevent unexpected power application.
2. To prevent burn hazard, be sure heater has been allowed to cool before proceeding.
3. Remove enclosure cover. Disconnect line power wires.
4. Remove the line power fitting from the enclosure.
5. Remove the two screws on the underside of the heater that are holding the back panel to the mounting brackets.
6. Angle the bottom of the heater away from the wall and then lift the heater off the mounting brackets.
7. Place the heater on a stable work surface.
8. If the heater has a Y-mount junction box, Electrical Enclosure (“C”) with a built-in thermostat, disconnect the element wires from the thermostat, see wiring diagram on Page 15.
9. If the heater has a large Electrical Enclosure (“A or B”) , disconnect the element wires from the contactor, see wiring diagram on Page 15.
10. Separate the two unions, attached to the enclosure, into their two halves.
11. Remove the union halves from the fin assembly. NOTE: do not remove the union halves from the enclosure.
12. Remove the front cabinet panel.

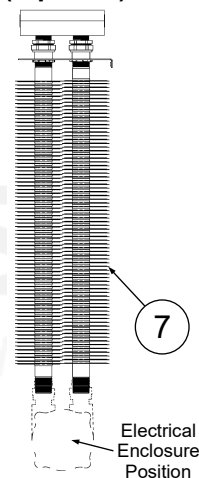
FOR SINGLE PHASE HEATERS:

1. Remove the two screws securing the fin assembly bracket to the back panel.
2. Remove the entire fin assembly unit (including fin assembly bracket) from the heater.
3. Remove the two conduit nuts from the fin assembly.
4. Reverse the above procedure to install the new single phase fin assembly, starting with threading the two conduit nuts onto the new fin assembly.

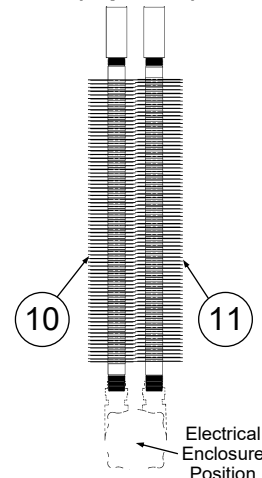
FOR THREE PHASE HEATERS:

1. Remove the two screws securing the fin assembly bracket to the back panel.
2. Carefully remove the entire fin assembly unit (including fin assembly bracket) from the heater.
3. NOTE: take care not to damage the good fin assembly during the replacement of the malfunctioning fin assembly.
4. Identify the fin assembly to be replaced. Secure the fin assembly so that it can't rotate during the removal process and damage the good fin assembly.
5. Remove the conduit nut, that was next to the heater side panel, from the malfunctioning fin assembly.
6. Loosen the conduit nut, that is next to the fin assembly bracket, on the malfunctioning assembly.
7. Remove the end cap from the malfunctioning assembly.
8. Remove the malfunctioning fin assembly from the fin assembly bracket, remove the conduit nut.
9. Reverse the above procedure to install the new three phase fin assembly, starting with threading the conduit nut onto the new fin assembly.

**Single phase
replacement kit,
part #7
(top view)**



**Three phase
replacement kit,
part #10 or 11
(top view)**



— WARNING! —

Heater is to be serviced only by qualified electrician experienced with hazardous location equipment.

Explosion/Electric Shock Hazard. Disconnect heater from power supply or fuse box before opening enclosures or servicing heater. Lock the switch in the "OFF" (open) position and/or tag the switch to prevent unexpected power application.

— Repair and Replacement, Continued —

Contactor (See Page 16 for assembly diagram) (see Page 15 for wiring diagram)

1. Replace with a factory supplied contactor of the same rating.
2. Loosen, but do not remove contactor mounting screws. Slide contactor off mounting screws.
3. Remove all wires from the faulty contactor and install on the replacement contactor.
4. Slide the new contactor onto the mounting screws and tighten screws.

Transformer (See Page 16 for assembly diagram) (see Page 15 for wiring diagram)

1. Replace with a factory supplied transformer of the same rating.
2. Remove mounting screws that hold the transformer / PCB assembly.
3. Separate the PCB from the transformer.
4. Disconnect all wires from the faulty transformer and install on the replacement transformer.
5. Individually terminate all unused wires using closed end connections.
6. Place the PCB on the transformer and reinstall in the housing using the two screws.

Printed Circuit Board (See Page 16 for assembly diagram) (see Page 15 for wiring diagram)

1. Replace with a factory supplied printed circuit board .
2. Remove mounting screws that hold the transformer / PCB assembly.
3. Separate the PCB from the transformer.
4. Disconnect all wires from the faulty PCB and install on the replacement PCB.
5. Place the PCB on the transformer and reinstall in the housing using the two screws.

Thermal Delay Fuse (See Page 16 for assembly diagram) (see Page 15 for wiring diagram)

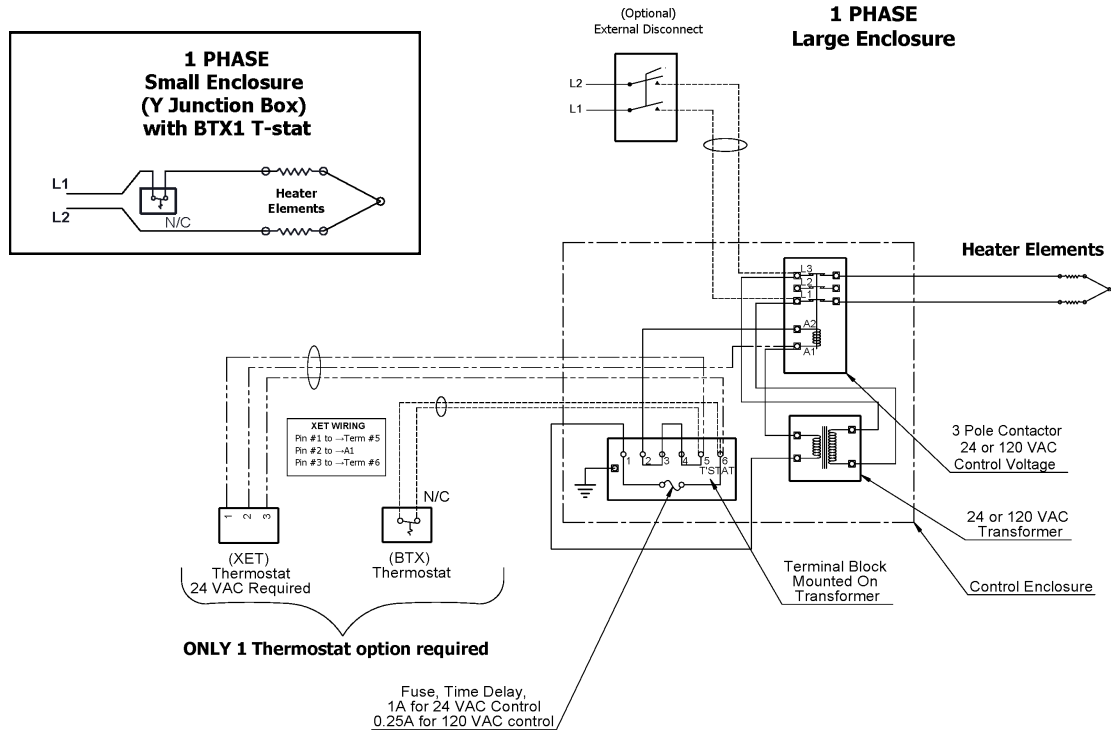
1. Replace fuse with one of the same type and rating as indicated on printed circuit board or refer to parts list. An extra fuse should be stored in the clips marked "SPARE".

— Warning —

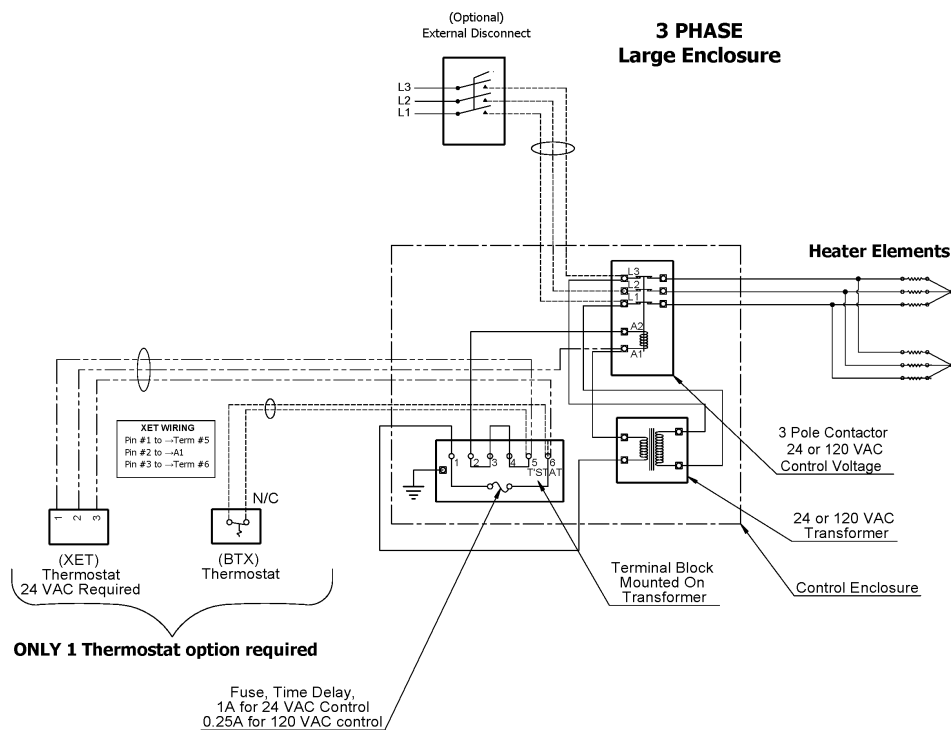
Wiring should only be connected by qualified personnel experienced in electrical work.

— Electrical Wiring —

Wiring Diagram for Single Phase XEC Heaters

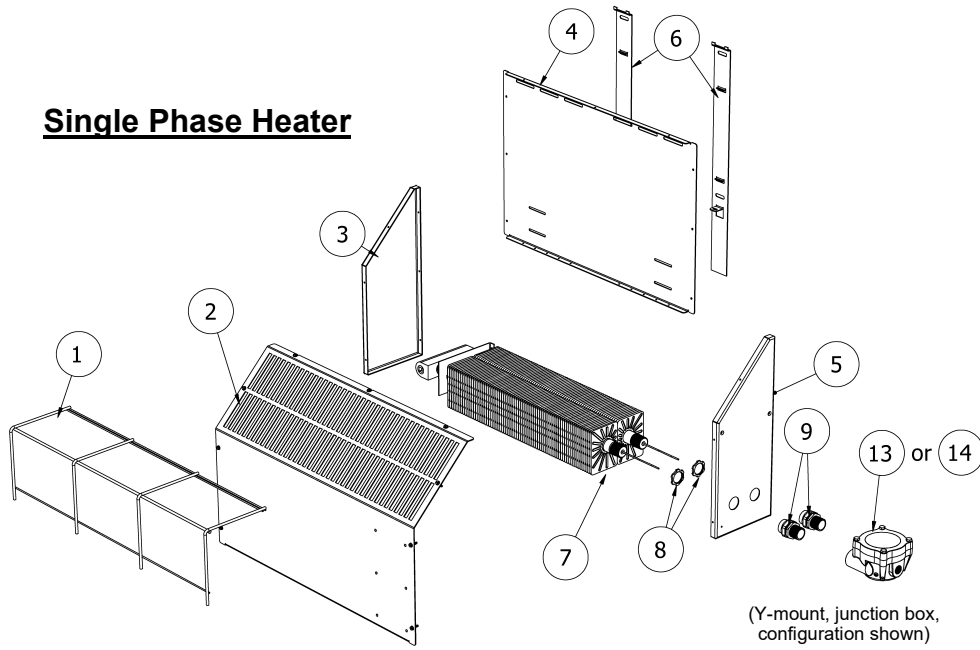


Wiring Diagram for Three Phase XEC Heaters

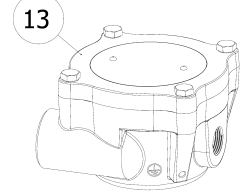


— Assembly Diagram —

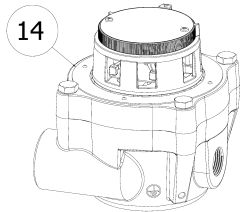
Single Phase Heater



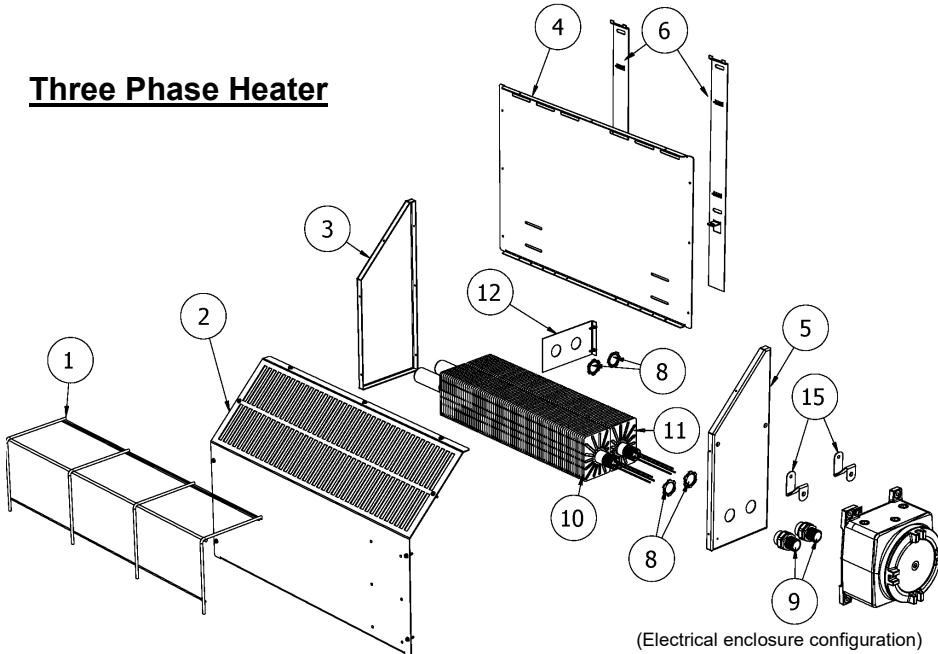
**Y-mount
(junction box)
configuration**



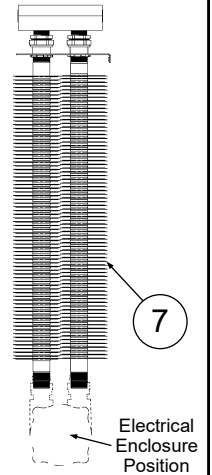
**Y-mount “T1”
(BTX1)
configuration**



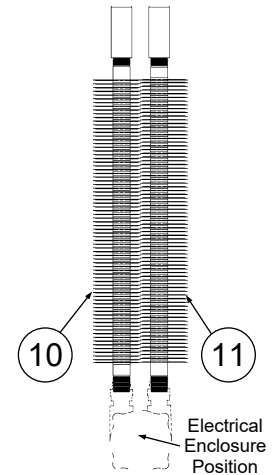
Three Phase Heater



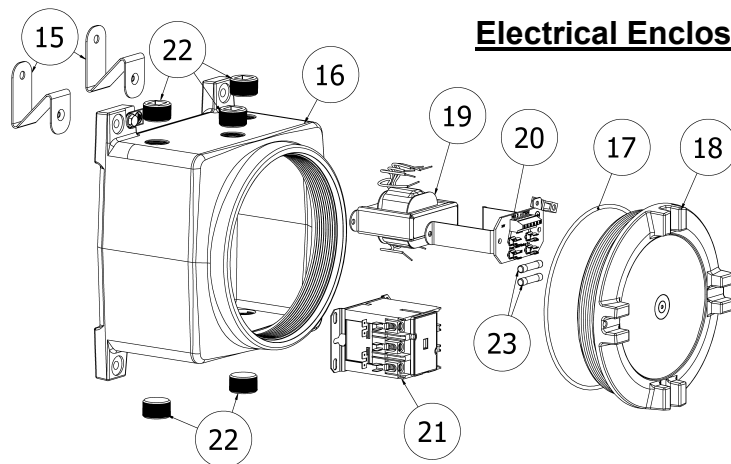
**Single phase,
part #7 (top view)**



**Three phase,
part #10 or 11
(top view)**



Electrical Enclosure



— Parts List —

***** Please have model & serial number available before calling *****

Item No.	Description	31.3" Cabinet	49.5" Cabinet	59.5" Cabinet	71.8" Cabinet
1	Wire Guard (2 pcs)	----	----	----	1991
2	Front Panel*	1563*	1564*	1565*	1566*
3	Left Panel	1572			
3a	Left Panel, with Tube Holes	1778			
4	Back Panel	1577	1578	1579	1580
5	Right Panel, with Tube Holes	1575			
5a	Right Panel	1775			
6	Mounting Bracket (2 pcs)	1582			
7	Element Assembly, Single Phase	Specify Voltage, Phase, Kilowatts, and Cabinet Length			
8	Conduit Nut (2 pcs)	1842			
9	Union, 1" NPT	1702			
10	Left Side Element Assembly, Three Phase	Specify Voltage, Phase, Kilowatts, and Cabinet Length			
11	Right Side Element Assembly, Three Phase	Specify Voltage, Phase, Kilowatts, and Cabinet Length			
12	Fin Tube Bracket	1581			
13	BLK1, Y-mount, Junction Box	1879			
14	BTX1, Y-mount, (T1) Bi-metal T-stat	1882			
15	Z-Shaped Bracket (2 pcs)	1781			
16	Electrical Enclosure	1599			
17	O-ring	1942			
18	Cover, Electrical Enclosure	1600			
19	Transformer	Specify Line Voltage, Control Voltage and Heater Kilowatts			
20	Printed Circuit Board Assembly	120V = 1307, 24V = 1086			
21	Contactor	120V = 1553, 24V = 1084			
22	Plug, 3/4" NPT Explosion-proof	1841			
23	Fuse, Time Delay	120V = 1556, 24V = 1087			

* The front panel comes with a new heater data plate. Please provide the heater model number and serial number when ordering.

— WARNING! —

Heater should only be service by qualified personnel experienced in electrical work.

Disconnect unit heater from power supply before starting any service or repair work. Lock the disconnect switch in the "OFF" (open) position and/or tag the switch to prevent unexpected power application. Failure to follow these procedures may result in severe or fatal injury.

— Maintenance Program —

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

Annual Inspection (before each heating season)

1. Check all terminal connections and electrical conductors for damage, looseness, defects, fraying, etc. and replace or tighten where applicable.
2. For heaters with the large electrical enclosure, inspect contactor contacts. If badly pitted, burned or welded shut, replace with factory supplied contactor. It is recommended that the contactor be replaced at least every two (2) years.
3. For heaters with the large electrical enclosure, inspect thermal delay fuses. Fuse rating and type are printed on circuit board. Correct fuse must be in the "ACTIVE" fuse clip. An extra fuse should be stored in the clips marked "SPARE".
4. Check all explosion-proof conduit and fittings. Replace damaged components. All threaded conduit connections must have a minimum 5 turns of engagement. Taper threaded connections must be wrench tight. Inside of enclosures must be clean, dry, and free from any foreign materials. Enclosure covers must also be completely on and tight.
5. Check electrical resistance on all load side legs. Reading should be balanced ($\pm 5\%$).

Periodic Maintenance (before and as required during heating season)

1. Clean the following (remove dust using compressed air):
 - Fin Assembly
 - Cabinet

⇒ Wipe cabinet with a damp cloth to remove any remaining dirt / dust and to mitigate any electrostatic charge buildup
2. Check the following:
 - All explosion-proof covers and fittings for tightness
 - Contactor for signs of wear or pitting



HEATER MAINTENANCE RECORD

Heater Model: _____

Serial No.: _____

[illegible]

Limited Warranty

Hazloc Heaters™ warrants all **XEC1** series of explosion-proof electric convection heaters against defects in materials and workmanship under normal conditions of use for a period of eighteen (18) months from date of purchase, or twelve (12) months from date the product is first placed into service, whichever period lapses first, based on the following terms:

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

Exclusive Representative

For additional information or to order contact Canam Pipe & Supply with the link below.



canam@canamservices.com

www.canamservices.com