

CX1 ProVector® Explosion-Proof Heaters

For hazardous locations heating, rely on the Ruffneck™ CX1 ProVector® for the most dependable, trouble-free service available. CCI Thermal Technologies Inc. manufactures explosion-proof air heaters to satisfy the demanding requirements of the oil and gas well drilling industry. The harsh operating conditions of this application require the utmost in heater reliability.

Feature

- sloped-top cabinet
- no exposed copper or brass
- high-velocity airflow
- 14-gauge steel cabinet, available with stainless-steel construction
- one of the shortest cabinet lengths available
- optional built-in thermostat
- Incoloy® 840 heating elements
- radial-embossed aluminum plate fins
- galvanized steel mounting brackets
- approvals - Groups A, B, C, D; IIA, IIB & IIC; available IP55 moisture ingress protection

The unique design features and rugged, quality construction details that have made Ruffneck™ heaters the choice of the oil and gas industry are also appreciated by other heavy-duty industries throughout the world. The CX1 ProVector® explosion-proof heater offers the following outstanding features and benefits:

Benefit

- prevents objects from being set on top which restrict airflow
- corrosion resistant, suitable for H₂S environments
- heats up area faster with better heat distribution
- rugged reliability and unsurpassed corrosion resistance available with stainless-steel construction
- smaller profile utilizes less wall and floor space
- reduced field installation costs
- longer life expectancy
- reduced fin warping for better heat transfer capabilities
- quick installation
- industry first approvals for built-in thermostat with Groups A, B, C, D; IIA, IIB, IIC ratings



Sloped top cabinet prevents objects from being set on top which could restrict airflow

Openings optimized for maximum safety and high airflow velocity

Epoxy-coated 14-gauge steel front and side cabinet panels
SS 304 available

Finned tube assembly can be easily removed

Radial-embossed aluminum plate fins

14-gauge galvanized steel rear cabinet panel
SS 304 available

Large, heavy-duty aluminum data plate for legibility

Upward facing bolted explosion-proof cover

Aluminum enclosure

Incoloy® 840 heating elements contained in aluminum tube assembly


Optional built-in room thermostat with low (1) to high (10) settings. Available with Defender® or x-Max® housings (not shown)

CX1 ProVector®



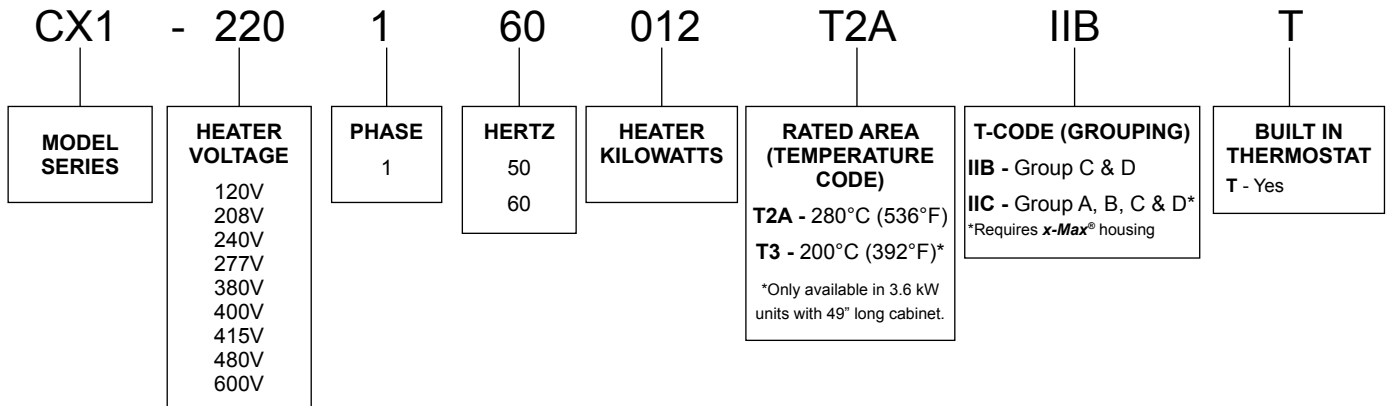
Explosion-Proof Convection Heaters

CX1 ProVector® General Specifications

Approvals	
Hazardous Location Classifications	
Without Built-in Thermostat	Defender® housing Class I, Div. 1 & 2, Groups B, C, & D; Zones 1 & 2, Groups IIA, IIB + H ₂ x-Max ® housing Class I, Div. 1 & 2, Groups A, B, C, & D; Zones 1 & 2, Groups IIA, IIB, & IIC ²
With Built-in Thermostat	XCT Defender® thermostat: Class I, Div. 1 & 2, Groups C & D; Zones 1 & 2, Groups IIA & IIB XT thermostat: Class I, Div. 1 & 2, Groups A, B, C, & D; Zones 1 & 2, Groups IIA, IIB, & IIC
Enclosure	Defender® housing is cast aluminum with bolt on cover. Groups IIB x-Max ® housing is extruded aluminum with two screwed on covers. The x-Max ® housing offers IP55 moisture ingress protection. Groups IIC
Mounting Brackets	Two 14-gauge (0.075" / 12 mm) galvanized steel brackets for standard cabinet. Stainless-steel brackets provided with optional stainless-steel cabinet
Heating Elements	Two Incoloy® 840 sheathed elements
Temperature Code Rating	Temperature Code T2A - 536°F (280°C) or T3 - 392°F (200°C)
Temperature Limitations	Operational: -49°F to 104°F (-45°C to 40°C) Storage: -49°F to 176°F (-45°C to 80°C). Optional up to 300°F (149°C) available
Cabinet Material	14-gauge (0.075" / 1.90mm) epoxy coated steel with galvanized rear panel. Optional - 14-gauge 304 stainless-steel cabinet and mounting hardware available

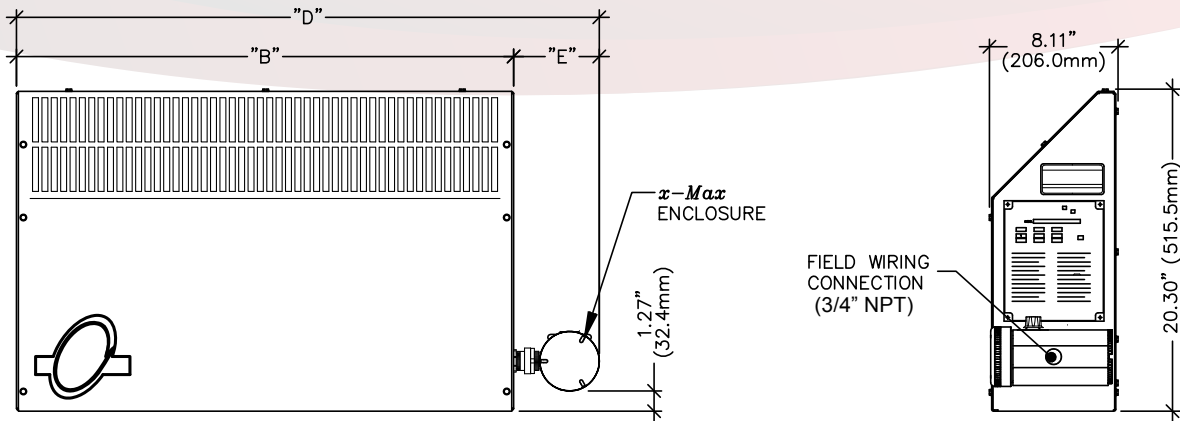
Nominal kW		0.75 - 2.69 & 3.6 (T2A)	3.01 - 3.59, 3.6 (T3) & 4.8	4.76, 5.28 - 7.6
Cabinet Length	in (mm)	31.3 (796)	49.4 (1256)	59.5 (1511)
Net Weight	(lbs)	55.3	80.7	92.8
	(kg)	25.1	36.6	42.1
Shipping Weight	(lbs)	65	95	105
	(kg)	30	44	48

Model Coding



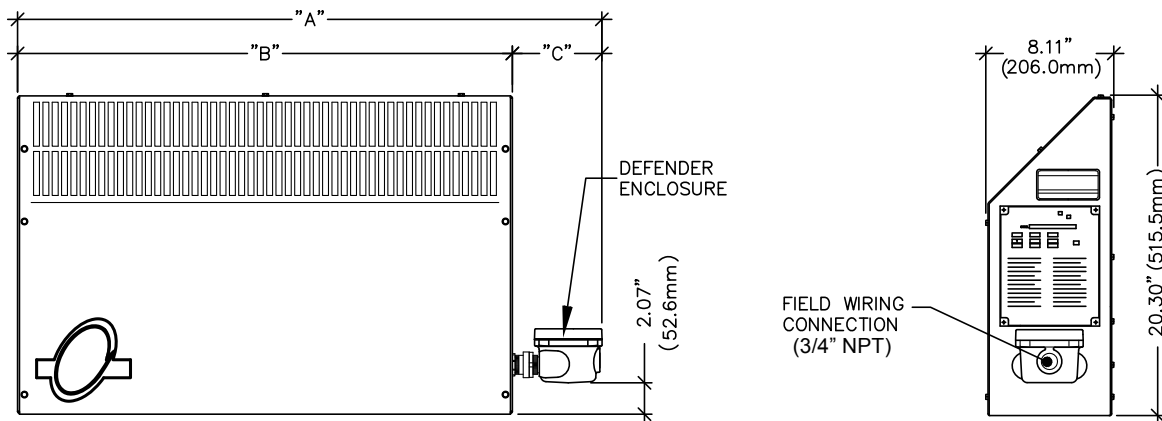
Reminder: This nomenclature illustration is intended primarily to explain how a product part number is defined. Not all voltage and/or wattage combinations are available - please consult the Performance Data chart(s) for product availability.

CX1 ProVector® Physical Dimensions with x-Max® housing



HEATER KW RATING	"D" DIMENSION		"B" DIMENSION	"E" DIMENSION	
	W/O EXTENSION	WITH EXTENSION		W/O EXTENSION	WITH EXTENSION
0.75 - 2.69, 3.6 (T2A)	37.6" (954mm)	39.6" (1007mm)	31.34" (796.0mm)	6.2" (158mm)	8.3" (211mm)
3.01 - 3.59, 3.6 (T3), 4.8	55.7" (1414mm)	57.8" (1467mm)	49.45" (1256.0mm)	6.2" (158mm)	8.3" (211mm)
4.76, 5.28 - 7.6	65.7" (1669mm)	67.8" (1722mm)	59.49" (1511.0mm)	6.2" (158mm)	8.3" (211mm)

CX1 ProVector® Physical Dimensions with Defender® housing



HEATER KW RATING	"A" DIMENSION		"B" DIMENSION	"C" DIMENSION	
	W/O EXTENSION	WITH EXTENSION		W/O EXTENSION	WITH EXTENSION
0.75 - 2.69, 3.6 (T2A)	36.9" (938mm)	39.0" (991mm)	31.34" (796.0mm)	5.6" (142mm)	7.7" (195mm)
3.01 - 3.59, 3.6 (T3), 4.8	55.0" (1398mm)	57.1" (1451mm)	49.45" (1256.0mm)	5.6" (142mm)	7.7" (195mm)
4.76, 5.28 - 7.6	65.1" (1653mm)	67.2" (1706mm)	59.49" (1511.0mm)	5.6" (142mm)	7.7" (195mm)

Notes: Heaters with built-in thermostat come with tube extensions.

Performance Data for CX1 ProVector®

MODEL CODE	kW (BTU/hr)	UNIT VOLTAGE (VOLTS)	BASIC UNIT	GAS GROUP				SUPPLY WIRE SIZE (AWG)***	UNIT CURRENT (AMPS)	MAXIMUM CIRCUIT FUSE (AMPS)*	CABINET LENGTH in(mm)	TEMP. CODE
				IIB + H2	IIB	IIC						
				W/O T'STAT	W/ T'STAT	W/O T'STAT	W/ T'STAT					
CX1-120160-012-T3	1.2 (4095)	120	✓	✓	✓	✓	✓	12	10.0	15	31.3 (796)	T3
CX1-120160-018-T3	1.8 (6142)	120	✓	✓	✓	✓	✓	12	15.0	20	31.3 (796)	T3
CX1-208160-012-T3	1.2 (4095)	208	✓	✓	✓	✓	✓	12	5.8	15	31.3 (796)	T3
CX1-208160-018-T3	1.8 (6142)	208	✓	✓	✓	✓	✓	12	8.7	15	31.3 (796)	T3
CX1-208160-036-T3**	3.6 (12284)	208	✓	✓	✓	✓	✓	12	17.3	20	49.5 (1256)	T3
CX1-208160-048-T2A	4.8 (16378)	208	✓	✓		✓	✓	8	23.1	25	49.5 (1256)	T2A
CX1-208160-076-T2A	7.6 (25932)	208	✓	✓		✓		8	36.5	40	59.5 (1511)	T2A
CX1-240160-012-T3	1.2 (4095)	240	✓	✓	✓	✓	✓	12	5.0	15	31.3 (796)	T3
CX1-240160-018-T3	1.8 (6142)	240	✓	✓	✓	✓	✓	12	7.5	15	31.3 (796)	T3
CX1-240160-036-T3**	3.6 (12284)	240	✓	✓	✓	✓	✓	12	15.0	20	49.5 (1256)	T3
CX1-240160-048-T2A	4.8 (16378)	240	✓	✓	✓	✓	✓	10	20.0	25	49.5 (1256)	T2A
CX1-240160-076-T2A	7.6 (25932)	240	✓	✓		✓		8	31.7	35	59.5 (1511)	T2A
CX1-277160-012-T3	1.2 (4095)	277	✓	✓	✓	✓	✓	12	4.3	15	31.3 (796)	T3
CX1-277160-018-T3	1.8 (6142)	277	✓	✓	✓	✓	✓	12	6.5	15	31.3 (796)	T3
CX1-277160-036-T3**	3.6 (12284)	277	✓	✓	✓	✓	✓	12	13.0	15	49.5 (1256)	T3
CX1-277160-048-T2A	4.8 (16378)	277	✓	✓	✓	✓	✓	12	17.3	20	49.5 (1256)	T2A
CX1-277160-076-T2A	7.6 (25932)	277	✓	✓		✓		8	27.4	30	59.5 (1511)	T2A
CX1-380160-0075-T3	0.75 (2560)	380	✓	✓	✓			12	2.0	15	31.3 (796)	T3
CX1-380160-0113-T3	1.13 (3856)	380	✓	✓	✓			12	3.0	15	31.3 (796)	T3
CX1-380160-012-T3	1.2 (4095)	380	✓	✓	✓	✓	✓	12	3.2	15	31.3 (796)	T3
CX1-380160-018-T3	1.8 (6142)	380	✓	✓	✓	✓	✓	12	4.7	15	31.3 (796)	T3
CX1-380160-0226-T2A	2.26 (7711)	380	✓	✓	✓			12	5.9	15	31.3 (796)	T2A
CX1-380160-0301-T3	3.01 (10271)	380	✓	✓	✓			12	7.9	15	49.5 (1256)	T3
CX1-380160-036-T3**	3.6 (12284)	380	✓	✓	✓	✓	✓	12	9.5	15	49.5 (1256)	T3
CX1-380160-0476-T2A	4.76 (16241)	380	✓	✓	✓			10	12.5	15	59.5 (1511)	T2A
CX1-380160-048-T2A	4.8 (16378)	380	✓	✓	✓	✓	✓	12	12.6	15	49.5 (1256)	T2A
CX1-380160-076-T2A	7.6 (25932)	380	✓	✓	✓	✓		10	20.0	25	59.5 (1511)	T2A
CX1-400160-0083-T3	0.83 (2832)	400	✓	✓	✓			12	2.1	15	31.3 (796)	T3
CX1-400160-012-T3	1.2 (4095)	400	✓	✓	✓	✓	✓	12	3.0	15	31.3 (796)	T3
CX1-400160-0125-T3	1.25 (4565)	400	✓	✓	✓			12	3.1	15	31.3 (796)	T3
CX1-400160-018-T3	1.8 (6142)	400	✓	✓	✓	✓	✓	12	4.5	15	31.3 (796)	T3
CX1-400160-025-T2A	2.5 (8530)	400	✓	✓	✓			12	6.3	15	31.3 (796)	T2A
CX1-400160-0333-T3	3.33 (11362)	400	✓	✓	✓			12	8.3	15	49.5 (1256)	T3
CX1-400160-036-T3**	3.6 (12284)	400	✓	✓	✓	✓	✓	12	9.0	15	49.5 (1256)	T3
CX1-400160-048-T2A	4.8 (16378)	400	✓	✓	✓	✓	✓	12	12.0	15	49.5 (1256)	T2A

CX1 ProVector®

Performance Data for CX1 ProVector® (cont'd)

MODEL CODE	kW (BTU/hr)	UNIT VOLTAGE (VOLTS)	BASIC UNIT	GAS GROUP				SUPPLY WIRE SIZE (AWG)***	UNIT CURRENT (AMPS)	MAXIMUM CIRCUIT FUSE (AMPS)*	CABINET LENGTH in (mm)	TEMP. CODE
				IIB + H2	IIB	IIC						
				W/O T'STAT	W/ T'STAT	W/O T'STAT	W/ T'STAT					
CX1-400160-0528-T2A	5.28 (18016)	400	✓	✓	✓			10	13.2	15	59.5 (1511)	T2A
CX1-400160-076-T2A	7.6 (25932)	400	✓	✓	✓	✓		10	19.0	20	59.5 (1511)	T2A
CX1-415160-009-T3	0.9 (3071)	415	✓	✓	✓			12	2.2	15	31.3 (796)	T3
CX1-415160-012-T3	1.2 (4095)	415	✓	✓	✓	✓	✓	12	2.9	15	31.3 (796)	T3
CX1-415160-0135-T3	1.35 (4606)	415	✓	✓	✓			12	3.3	15	31.3 (796)	T3
CX1-415160-018-T3	1.8 (6142)	415	✓	✓	✓	✓	✓	12	4.3	15	31.3 (796)	T3
CX1-415160-0269-T2A	2.69 (9179)	415	✓	✓	✓			12	6.5	15	31.3 (796)	T2A
CX1-415160-0359-T3	3.59 (12250)	415	✓	✓	✓			12	8.7	15	49.5 (1256)	T3
CX1-415160-036-T3**	3.6 (12284)	415	✓	✓	✓	✓	✓	12	8.7	15	49.5 (1256)	T3
CX1-415160-048-T2A	4.8 (16378)	415	✓	✓	✓	✓	✓	12	11.6	15	49.5 (1256)	T2A
CX1-415160-0568-T2A	5.68 (19381)	415	✓	✓	✓			10	13.7	15	59.5 (1511)	T2A
CX1-415160-076-T2A	7.6 (25932)	415	✓	✓	✓	✓		10	18.3	20	59.5 (1511)	T2A
CX1-480160-012-T3	1.2 (4095)	480	✓	✓	✓	✓	✓	12	2.5	15	31.3 (796)	T3
CX1-480160-018-T3	1.8 (6142)	480	✓	✓	✓	✓	✓	12	3.8	15	31.3 (796)	T3
CX1-480160-036-T3**	3.6 (12284)	480	✓	✓	✓	✓	✓	12	7.5	15	49.5 (1256)	T3
CX1-480160-048-T2A	4.8 (16378)	480	✓	✓	✓	✓	✓	12	10.0	15	49.5 (1256)	T2A
CX1-480160-076-T2A	7.6 (25932)	480	✓	✓	✓	✓		10	15.8	20	59.5 (1511)	T2A
CX1-600160-012-T3	1.2 (4095)	600	✓	✓		✓	✓	12	2.0	15	31.3 (796)	T3
CX1-600160-018-T3	1.8 (6142)	600	✓	✓		✓	✓	12	3.0	15	31.3 (796)	T3
CX1-600160-036-T3**	3.6 (12284)	600	✓	✓		✓	✓	12	6.0	15	49.5 (1256)	T3
CX1-600160-048-T2A	4.8 (16378)	600	✓	✓		✓	✓	12	8.0	15	49.5 (1256)	T2A
CX1-600160-076-T2A	7.6 (25932)	600	✓	✓		✓	✓	12	12.7	15	59.5 (1511)	T2A

All units are single phase

* Or equivalent breaker as per local electrical inspection authority requirements.

** For 3.6 kW heaters rated T3 cabinet length is 49.5" (1256mm). 3.6 kW heaters rated T2A cabinet length is 31.3" (796mm)

*** Ensure supply wire size adheres to applicable local and national electrical codes

Notes

1. Heater is functioning normally if, at rated voltage, the current draw is within 10% of the value in this table.

2. Operation at lower voltages that rated will result in reduced output and current draw.

Actual Output (kW) = [(Supply Voltage)² + (Rated Voltage)²] × Rated Unit Wattage (kW)

3. Add suffix "T" for optional built-in thermostat. Thermostat not available on IIB + H₂ models.

4. Add suffix "H" for high-temperature ambient storage option. High temperature storage option is not available with thermostat option. Not available on IIB models.

5. For IIB model with XCT built-in thermostat - Class I, Div. 1 & 2, Groups C & D; Zones 1 & 2, Groups IIA and IIB

6. For IIC model with XT built-in thermostat - Class I, Div. 1 & 2, Groups A,B,C & D; Zones 1 & 2, Groups IIA, IIB, IIC

7. IIC Grouping units come with **x-Max**® housing

8. Remote mounted, Defender, explosion-proof room thermostats are not suitable for Group B & IIC applications

9. Remote contactors are required on all 600V heaters, and heaters with a current draw greater than 22 amps

(supplied & installed by others), when utilizing XT-311 remote thermostat.

10. Temperature code ratings: T2A - 536°F (280°C), T3 - 392°F (200°C)