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 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.

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:

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**

BENEFIT

- **prevents objects from being set on top which restrict airflow**
- **corrosion resistant, suitable for H_2S 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**

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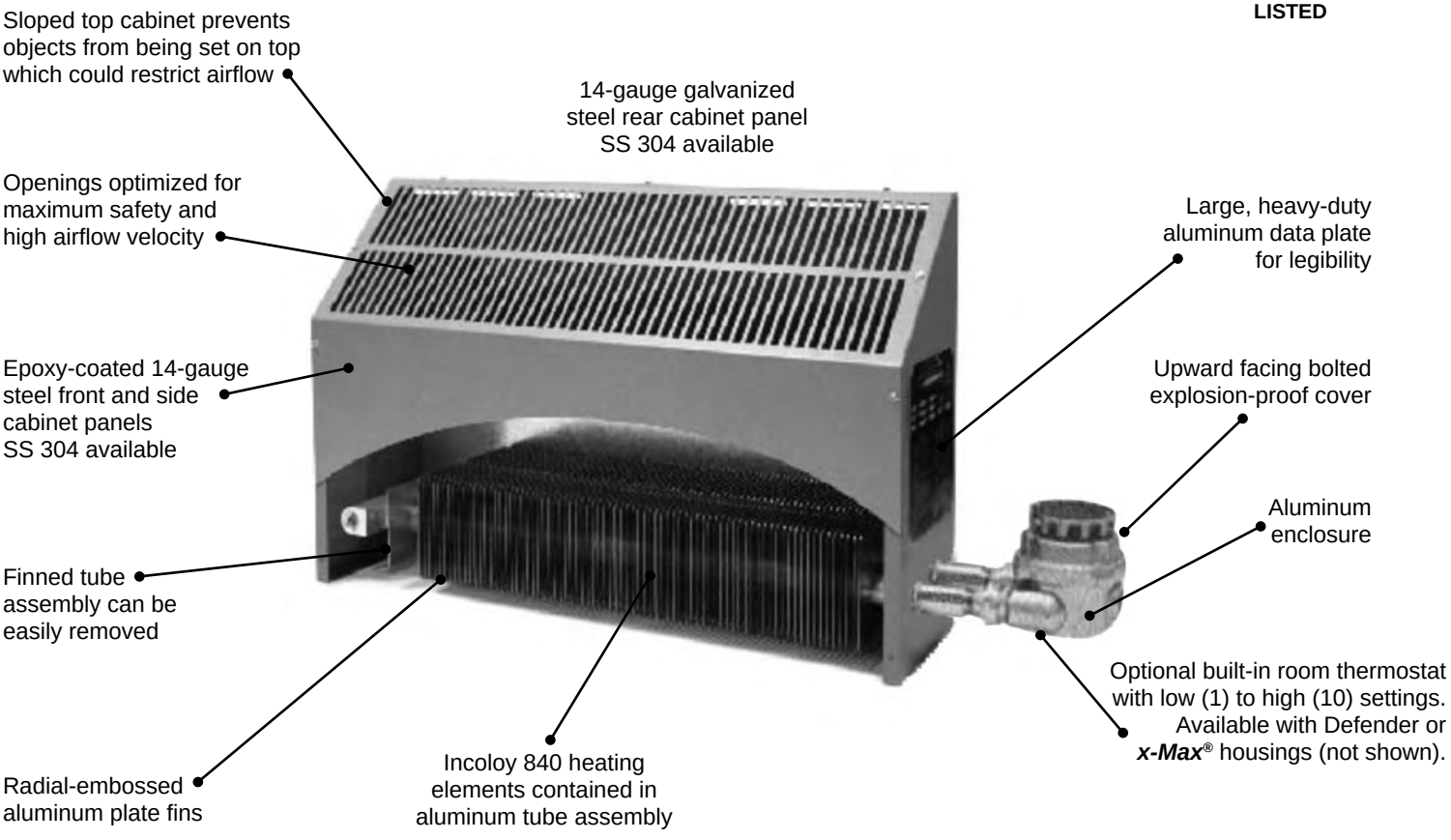


CX1 ProVector® Performance Data

Model (See Note #3)	Unit Wattage (kW)	Unit Output (BTU/hr)	Cabinet Length (inches)	Unit Voltage (volts)	Phase	Unit Current (amps)
Without built-in room thermostat (See Note #3)						
CX1-120160-012-T2A-IIB	1.2	4097	31.34	120	1	10.0
CX1-208160-012-T2A-IIB	1.2	4097	31.34	208	1	5.8
CX1-240160-012-T2A-IIB	1.2	4097	31.34	240	1	5.0
CX1-277160-012-T2A-IIB	1.2	4097	31.34	277	1	4.3
CX1-480160-012-T2A-IIB	1.2	4097	31.34	480	1	2.5
CX1-600160-012-T2A-IIB*	1.2	4097	31.34	600	1	2.0
CX1-120160-018-T2A-IIB	1.8	6146	31.34	120	1	15.0
CX1-208160-018-T2A-IIB	1.8	6146	31.34	208	1	8.7
CX1-240160-018-T2A-IIB	1.8	6146	31.34	240	1	7.5
CX1-277160-018-T2A-IIB	1.8	6146	31.34	277	1	6.5
CX1-480160-018-T2A-IIB	1.8	6146	31.34	480	1	3.8
CX1-600160-018-T2A-IIB*	1.8	6146	31.34	600	1	3.0
CX1-208160-036-T2A-IIB	3.6	12292	31.34	208	1	17.3
CX1-240160-036-T2A-IIB	3.6	12292	31.34	240	1	15.0
CX1-277160-036-T2A-IIB	3.6	12292	31.34	277	1	13.0
CX1-480160-036-T2A-IIB	3.6	12292	31.34	480	1	7.5
CX1-600160-036-T2A-IIB*	3.6	12292	31.34	600	1	6.0
CX1-208160-048-T2A-IIB*	4.8	16389	49.45	208	1	23.1
CX1-240160-048-T2A-IIB	4.8	16389	49.45	240	1	20.0
CX1-277160-048-T2A-IIB	4.8	16389	49.45	277	1	17.3
CX1-480160-048-T2A-IIB	4.8	16389	49.45	480	1	10.0
CX1-600160-048-T2A-IIB*	4.8	16389	49.45	600	1	8.0
CX1-208160-076-T2A-IIB*	7.6	25950	59.49	208	1	36.5
CX1-240160-076-T2A-IIB*	7.6	25950	59.49	240	1	31.7
CX1-277160-076-T2A-IIB*	7.6	25950	59.49	277	1	27.4
CX1-480160-076-T2A-IIB	7.6	25950	59.49	480	1	15.8
CX1-600160-076-T2A-IIB*	7.6	25950	59.49	600	1	12.7
CX1-480160-036-T3-IIB~	3.6	12292	49.45	480	1	7.5
CX1-600160-036-T3-IIB*~	3.6	12292	49.45	600	1	6.0

* Unit not available with built-in thermostat. See note below.
~ Special Build

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 than 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.
4. With XCT built-in thermostat - Class I, Div. 1 & 2, Groups C & D; Zones 1 & 2, Groups IIA and IIB
5. Remote mounted, Defender, explosion-proof room thermostats are not suitable for Group B & IIC applications.
6. Remote contactors are required on all 600-volt heaters, and heaters with a current draw greater than 22 amps (supplied & installed by others), when utilizing XT-311 remote thermostat.
7. Temperature code ratings: T2A - 300ºC (536ºF), T3 - 200ºC (392ºF)

CX1 ProVector® Performance Data

Model (See Note #3)	Unit Wattage (kW)	Unit Output (BTU/hr)	Cabinet Length (inches)	Unit Voltage (volts)	Phase	Unit Current (amps)
Without built-in room thermostat (See Note #4)						
CX1-120160-012-T2A-IIC	1.2	4097	31.34	120	1	10.0
CX1-208160-012-T2A-IIC	1.2	4097	31.34	208	1	5.8
CX1-240160-012-T2A-IIC	1.2	4097	31.34	240	1	5.0
CX1-277160-012-T2A-IIC	1.2	4097	31.34	277	1	4.3
CX1-480160-012-T2A-IIC	1.2	4097	31.34	480	1	2.5
CX1-600160-012-T2A-IIC	1.2	4097	31.34	600	1	2.0
CX1-120160-018-T2A-IIC	1.8	6146	31.34	120	1	15.0
CX1-208160-018-T2A-IIC	1.8	6146	31.34	208	1	8.7
CX1-240160-018-T2A-IIC	1.8	6146	31.34	240	1	7.5
CX1-277160-018-T2A-IIC	1.8	6146	31.34	277	1	6.5
CX1-480160-018-T2A-IIC	1.8	6146	31.34	480	1	3.8
CX1-600160-018-T2A-IIC	1.8	6146	31.34	600	1	3.0
CX1-208160-036-T2A-IIC	3.6	12292	31.34	208	1	17.3
CX1-240160-036-T2A-IIC	3.6	12292	31.34	240	1	15.0
CX1-277160-036-T2A-IIC	3.6	12292	31.34	277	1	13.0
CX1-480160-036-T2A-IIC	3.6	12292	31.34	480	1	7.5
CX1-600160-036-T2A-IIC	3.6	12292	31.34	600	1	6.0
CX1-208160-048-T2A-IIC*	4.8	16389	49.45	208	1	23.1
CX1-240160-048-T2A-IIC	4.8	16389	49.45	240	1	20.0
CX1-277160-048-T2A-IIC	4.8	16389	49.45	277	1	17.3
CX1-480160-048-T2A-IIC	4.8	16389	49.45	480	1	10.0
CX1-600160-048-T2A-IIC	4.8	16389	49.45	600	1	8.0
CX1-208160-076-T2A-IIC*	7.6	25950	59.49	208	1	36.5
CX1-240160-076-T2A-IIC*	7.6	25950	59.49	240	1	31.7
CX1-277160-076-T2A-IIC*	7.6	25950	59.49	277	1	27.4
CX1-480160-076-T2A-IIC	7.6	25950	59.49	480	1	15.8
CX1-600160-076-T2A-IIC	7.6	25950	59.49	600	1	12.7
CX1-480160-036-T3-IIC*	3.6	12292	49.45	480	1	7.5
CX1-600160-036-T3-IIC*	3.6	12292	49.45	600	1	6.0

* Unit not available with built-in thermostat. See note below.

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 than rated will result in reduced output and current draw.
   Actual Output (kW) = [(Supply Voltage)^2 ÷ (Rated Voltage)^2] × Rated Unit Wattage (kW)
3. IIC Grouping units come with x-Max® housing.
4. Add suffix “T” for optional built-in thermostat.
5. Remote contactors are required on all 600-volt heaters, and heaters with a current draw greater than 22 amps (supplied & installed by others), when utilizing XT-311 remote thermostat.
6. With XT built-in thermostat - Class I, Div. 1 & 2, Groups A,B,C & D; Zones 1 & 2, Groups IIA, IIB, IIC
7. Temperature code ratings: T2A - 300ºC (536ºF), T3 - 200ºC (392ºF)

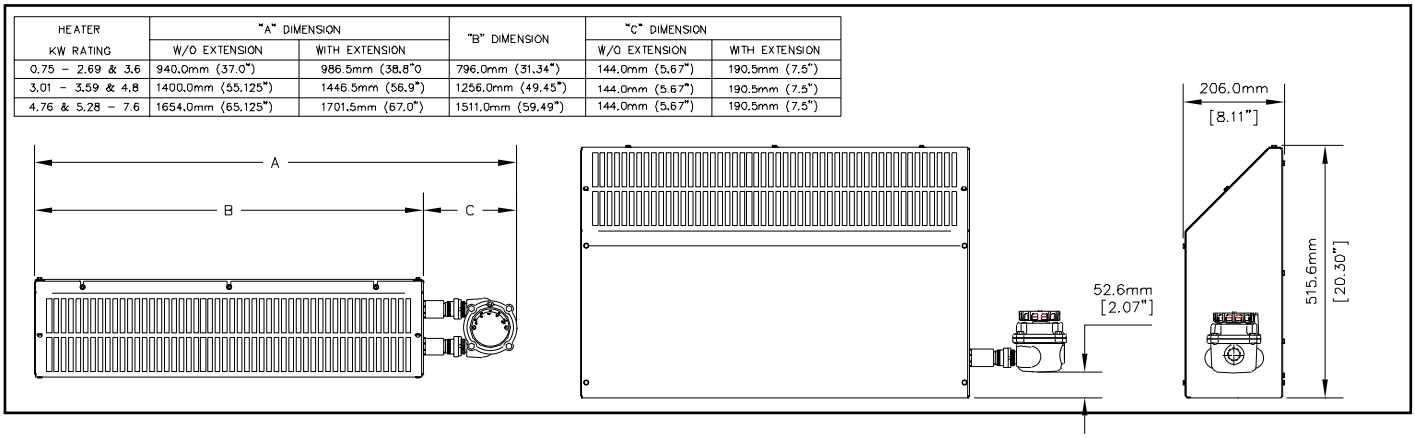
CX1 ProVector® General Specifications

Nominal kW		1.2	1.8	3.6	4.8	7.6
Net weight	(lbs.)	54.0	54.0	54.0	79.4	91.5
	(kg)	24.5	24.5	24.5	36.0	41.5
Shipping weight	(lbs.)	61.3	61.3	61.3	88.4	104.3
	(kg)	27.8	27.8	27.8	40.1	47.3

Approvals	c UL us
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 in. / 1.90 mm) galvanized steel brackets for standard cabinet. Stainless steel brackets provided with optional stainless steel cabinet.
Heating elements	Two incoloy 840 sheathed elements.
Cabinet material	14 gauge (0.075 in. / 1.90mm) epoxy coated steel with galvanized rear panel. Optional - Gauge 304 stainless steel cabinet and mounting hardware available.
Temperature code rating	Temperature Code T2A – 280°C (536°F) or T3 – 200°C (392°F).
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
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
Temperature limitations	Operational: – 45°C to 40°C (– 49°F to 104°F)
	Storage: – 45°C to 80°C (– 49°F to 176°F). Optional up to 149°C (300°F) available

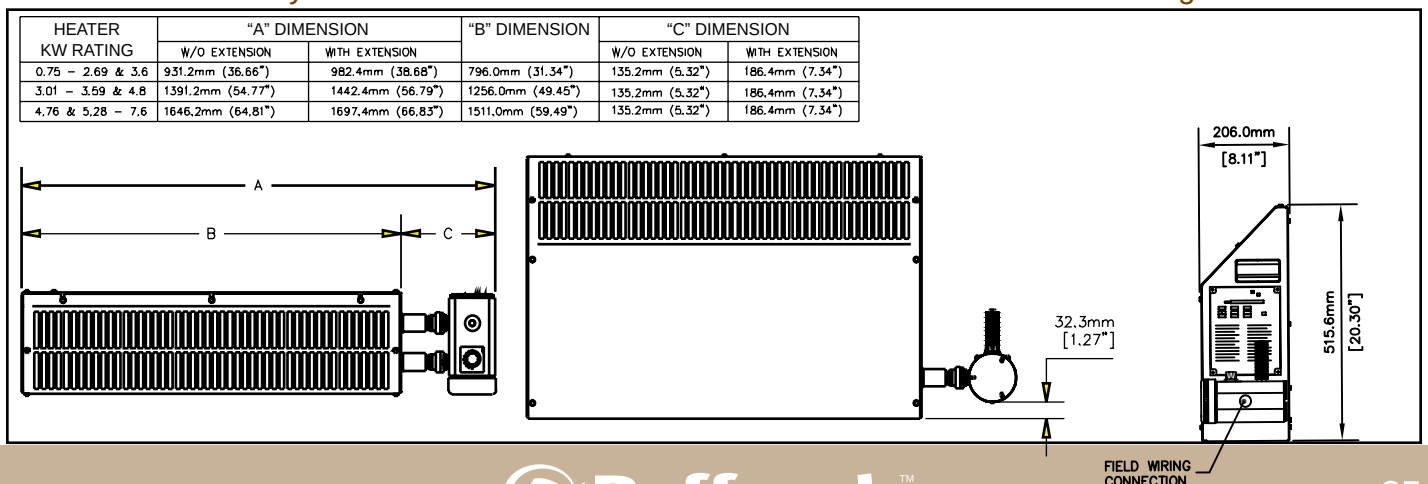
CX1 ProVector® Physical Dimensions for built-in XCT Thermostat with Defender housing

HEATER KW RATING	"A" DIMENSION W/O EXTENSION	"A" DIMENSION WITH EXTENSION	"B" DIMENSION	"C" DIMENSION W/O EXTENSION	"C" DIMENSION WITH EXTENSION
0.75 – 2.69 & 3.6	940.0mm (37.0")	986.5mm (38.8"0	796.0mm (31.34")	144.0mm (5.67")	190.5mm (7.5")
3.01 – 3.59 & 4.8	1400.0mm (55.125")	1446.5mm (56.9")	1256.0mm (49.45")	144.0mm (5.67")	190.5mm (7.5")
4.76 & 5.28 – 7.6	1654.0mm (65.125")	1701.5mm (67.0")	1511.0mm (59.49")	144.0mm (5.67")	190.5mm (7.5")



CX1 ProVector® Physical Dimensions for built-in XT Thermostat with *x-Max*® housing

HEATER KW RATING	"A" DIMENSION W/O EXTENSION	"A" DIMENSION WITH EXTENSION	"B" DIMENSION	"C" DIMENSION W/O EXTENSION	"C" DIMENSION WITH EXTENSION
0.75 – 2.69 & 3.6	931.2mm (36.66")	982.4mm (38.68")	796.0mm (31.34")	135.2mm (5.32")	186.4mm (7.34")
3.01 – 3.59 & 4.8	1391.2mm (54.77")	1442.4mm (56.79")	1256.0mm (49.45")	135.2mm (5.32")	186.4mm (7.34")
4.76 & 5.28 – 7.6	1646.2mm (64.81")	1697.4mm (66.83")	1511.0mm (59.49")	135.2mm (5.32")	186.4mm (7.34")



Model Coding

BASE MODEL

SERIES	POWER SUPPLY	KILOWATTS	RATED AREA	T-CODE	THERMOSTAT
CX1 -	120 1 60 -	012 -	T2A -	IIB -	T

SERIES	
c UL us	CX1
CE Ex	CF1

VOLTAGE			
120V	120	**380V**	380
208V	208	**400V**	400
③ **220V**	220	**415V**	415
③ **230V**	230	**480V**	480
240V	240	**600V**	600
277V	277		

PHASE	
1 Phase	1

FREQUENCY	
50 Hertz	50
60 Hertz	60

KILOWATTS			
007	0.75kW	027	2.69kW
008	0.83kW	030	3.01kW
009	0.90kW	033	3.33kW
011	1.13kW	035	3.59kW
012	1.20kW	036	3.60kW
013	1.25kW	047	4.76kW
014	1.35kW	048	4.80kW
018	1.80kW	053	5.28kW
023	2.26kW	057	5.68kW
025	2.50kW	076	7.60kW

BUILT-IN THERMOSTAT	
YES	T
NO	-

GROUPING	
GROUP C & D	IIB
① GROUP A, B, C, & D	IIC

TEMPERATURE CODE	
280°C	T2A
② 200°C	T3

Note:
① Requires x-Max® housing.
② CX1 only available in 3.6 kW units with 49” long cabinet.
③ CF1 only

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 catalogue chart(s) for product availability.