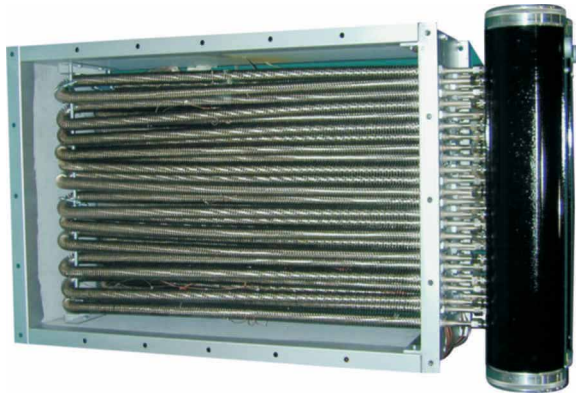


Explosion-Proof Duct Heaters - XDF



Application

Caloritech™ XDF duct heaters are designed for heating air or gases which contain potentially explosive substances.

Designed for Application in Hazardous Environments, such as:

- Oil refineries
- Coal mines
- Pulp and paper mills
- Petrochemical plants
- Grain elevators
- Sewage treatment plants

XDF heaters feature the unique Caloritech™ approach to explosion-proof electric heater design which embodies safety, reliability and economic value. The XDF heater is a factory pre-wired explosion-proof duct heater. Standard models are available in three duct sizes, with either a single or double bank of heating modules. XDF heaters are available as standard units with a T2D, T3A or T3B hazardous area temperature codes.

Construction

The XDF explosion-proof duct heater utilizes heavy walled carbon steel finned tubular elements with nickel plated finish to provide safe, efficient, low temperature heat transfer. Standard units have a painted steel duct with mounting holes provided for attachment to the duct section.

XDF heaters feature the unique copper free aluminum extruded **x-Max**® terminal housing (U.S. Pat. No. 5,798,910, CDN. Pat. No. 2,212,500). A track and trolley system and threaded covers at each end allow easy access to wiring terminal connections. Units are approved for mounting in a horizontal duct section.

Wattage

Units are available in wattages up to 50 kW.

Control Panels

Control panel options are shown in Control Packages, page C18.

Thermostats

CCI Thermal Technologies Inc. offers a wide variety of explosion-proof thermostats to suit most every need. All model XDF heaters are available with remote externally adjustable thermostats which are field convertible to tamper-proof.

Heater Selection

Standard Caloritech™ XDF duct heaters may be operated in hazardous areas where the ambient temperature does not exceed 104°F (40°C) and the maximum heater surface temperature does not exceed the temperature code rating.

Use the following steps for heater selection.

1. Determine temperature code rating Standard heaters are available for the T2D, T3A or T3B areas.
2. Determine kW rating Standard heaters are available up to 50 kW.
3. Determine duct size Three standard sizes are available and transition sections can be provided for other duct sizes.
4. Verify air flow requirements Table 11, page C15 lists the minimum air flow (SCFM) required for each heater type.
5. Verify temperature rise using the following formula:
$$\frac{^{\circ}\text{F Temperature Rise}}{^{\circ}\text{F temp. rise} = \frac{\text{kW} \times 3000}{\text{SCFM}}}$$
$$\frac{^{\circ}\text{C Temperature Rise}}{^{\circ}\text{C temp. rise} = \frac{\text{kW} \times 47.2}{\text{m}^3/\text{min}}}$$
6. Determine power supply voltage and phase. Standard units are available in 208, 240, 480 or 600V (3-phase). Optional 1-phase units also available.



Figure 19

Standard Heater Features

- T2D, T3A or T3B temperature code
- Painted steel duct section
- Differential pressure switch
- Factory installed high limit sensing thermocouples

Optional Features

- Transition sections
- Stainless steel duct section
- Mechanical temperature control
- Outlet air thermocouple
- Special temperature code
- Outlet air thermostat

To Order Specify

- Quantity
- Catalog number
- Voltage
- Phase
- Wattage
- Hazardous location designation
- Temperature code
- Control package
- Optional Features

Table 10 – Dimensions

Duct Size		A		B		C		D		L	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
24 x 12	610 x 305	24.0	610	12.0	305	27.0	686	15.0	381	36.5	927
30 x 18	762 x 457	30.0	762	18.0	457	33.0	838	21.0	533	42.5	1080
36 x 24	914 x 610	36.0	914	24.0	610	39.0	991	27.0	686	48.5	1232

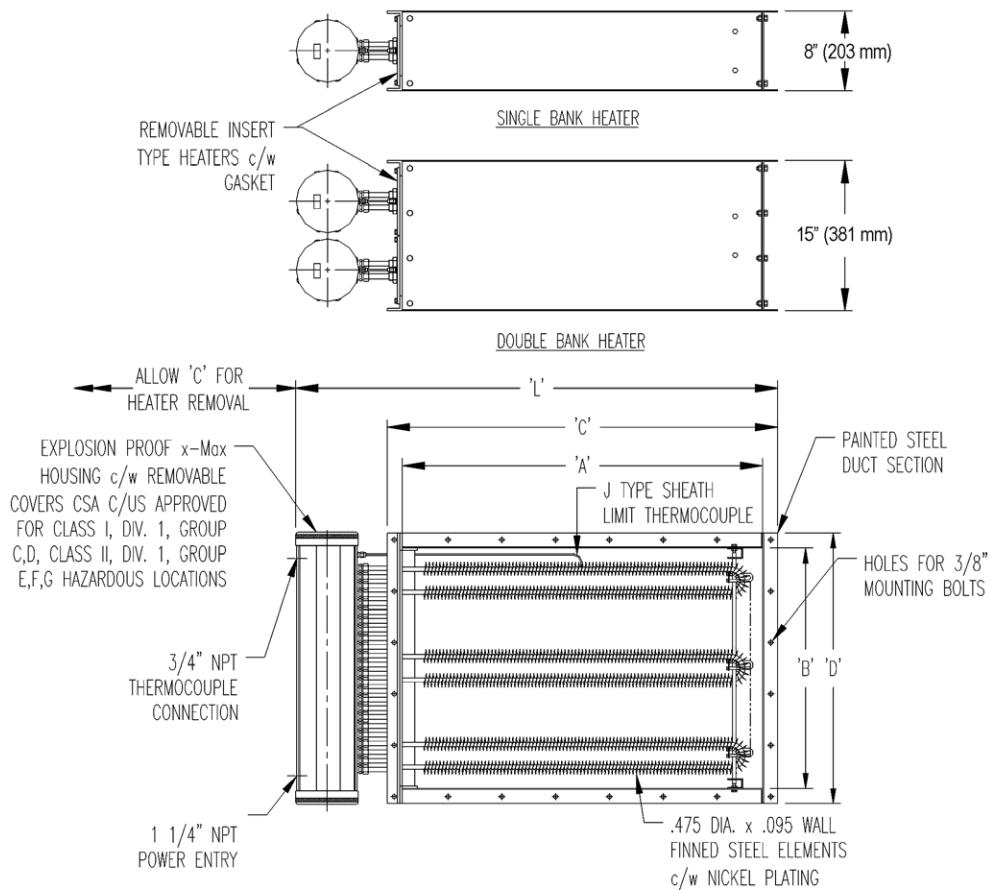


Figure 20

Table 11 – Heater Specifications for High Temperature Rise Units

Duct Size (A x B)		No. of Heating Banks	kW	Available Voltages		High Temperature Rise Units - T2D (482°F / 215°C)						Net Weight	
				208V	240V, 480V, 600V	Class I, Div. 1 & 2, Groups C, D							
						Temp. Code	Catalog No.	Max. Temp. Rise		Min. Air Flow	Min. Air Flow		
in	mm	3Ø	3Ø					°F	°C	SCFM	m³/min	lbs	kg
24 x 12	610 x 305	1	2.5	✓	✓	T2D	XDF1-24X12-025T2D	13.9	7.7	540	15.3	90	41
			3.75				XDF1-24X12-038T2D	20.8	11.6	540	15.3		
			5				XDF1-24X12-050T2D	19.7	11.0	761	21.6		
			7.5				XDF1-24X12-075T2D	18.0	10.0	1247	35.3		
		2	5				XDF2-24X12-050T2D	27.8	15.4	540	15.3	160	73
			7.5				XDF2-24X12-075T2D	41.7	23.2	540	15.3		
			10				XDF2-24X12-100T2D	39.4	21.9	761	21.6		
			15				XDF2-24X12-150T2D	36.1	20.1	1247	35.3		
30 x 18	762 x 457	1	5	✓	✓	T2D	XDF1-30X18-050T2D	14.8	8.2	1013	29.2	135	61
			5.25				XDF1-30X18-063T2D	18.5	10.3	1013	29.2		
			7.5				XDF1-30X18-075T2D	22.2	12.3	1013	29.2		
			10				XDF1-30X18-100T2D	19.6	10.8	1538	43.6		
			12.5				XDF1-30X18-125T2D	18.9	10.5	1989	56.3		
			15				XDF1-30X18-150T2D	18.4	10.2	2440	69.1		
		2	10				XDF2-30X18-100T2D	29.5	16.5	1013	29.2	250	114
			12.5				XDF2-30X18-125T2D	37.0	20.6	1013	29.2		
			15				XDF2-30X18-150T2D	44.5	24.7	1013	29.2		
			20				XDF2-30X18-200T2D	39.0	21.7	1538	43.6		
			25				XDF2-30X18-250T2D	37.7	21.0	1989	56.3		
			30				XDF2-30X18-300T2D	36.9	20.5	2440	69.1		
36 x 24	914 x 610	1	7.5	✓	✓	T2D	XDF1-36X24-075T2D	13.9	7.7	1620	45.9	180	82
			10				XDF1-36X24-100T2D	18.5	10.3	1620	45.9		
			12.5				XDF1-36X24-125T2D	23.2	12.9	1620	45.9		
			15				XDF1-36X24-150T2D	20.2	11.2	2230	63.1		
			20				XDF1-36X24-200T2D	19.3	10.7	3115	88.2		
			25				XDF1-36X24-250T2D	18.8	10.4	4000	113.3		
			2				15	XDF2-36X24-150T2D	27.8	15.4	1620		
		20					XDF2-36X24-200T2D	37.0	20.6	1620	45.9		
		25					XDF2-36X24-250T2D	46.3	25.7	1620	45.9		
		30					XDF2-36X24-300T2D	40.4	22.4	2230	63.1		
		40					XDF2-36X24-400T2D	38.5	21.4	3115	88.2		
		50					XDF2-36X24-500T2D	37.5	20.8	4000	113.3		

Table 12 – Heater Specifications for Low Temperature Rise Units

Duct Size (A x B)		No. of Heating Banks	kW	Available Voltages		Low Temperature Rise Units T3A (356°F / 180°C) or T3B (329°F / 165°C)						Net Weight					
				208V	240V, 480V, 600V	Class I, Div. 1 & 2, Groups C, D Class II, Div. 1 & 2, Groups E, F Class II, Division 1 & 2, Group G (T3B Units Only)				Temp Code	Catalog No.			Max. Temp. Rise		Min. Air Flow	Min. Air Flow
in	mm		3Ø	3Ø			°F	°C	SCFM			m³/min	lbs	kg			
24 x 12	610 x 305	1	2.5	✓	✓	T3B	XDF1-24X12-025T3B	6.8	3.8	1107	31.3	90	41				
			3.75			T3B	XDF1-24X12-038T3B	8.4	4.7	1334	37.8						
			5			T3B	XDF1-24X12-050T3B	9.6	5.3	1562	44.2						
			7.5			T3A	XDF1-24X12-075T3A	13.0	7.2	1728	48.9						
		2	5			T3B	XDF2-24X12-050T3B	13.6	7.5	1107	31.3	160	73				
			7.5			T3B	XDF2-24X12-075T3B	16.9	9.4	1334	37.8						
			10			T3B	XDF2-24X12-100T3B	19.2	10.7	1562	44.2						
			15			T3A	XDF2-24X12-150T3A	26.0	14.6	1728	48.9						
30 x 18	762 x 457	1	5	✓	✓	T3B	XDF1-30X18-060T3B	7.1	4.0	2109	59.7	135	61				
			5.25			T3B	XDF1-30X18-063T3B	8.0	4.5	2331	66.0						
			7.5			T3B	XDF1-30X18-075T3B	8.8	4.9	2553	72.3						
			10			T3B	XDF1-30X18-100T3B	10.0	5.6	2991	84.7						
			12.5			T3B	XDF1-30X18-125T3B	10.9	6.1	3434	97.2						
			15			T3A	XDF1-30X18-150T3A	13.5	7.5	3333	94.4						
			10			T3B	XDF2-30X18-100T3B	14.2	7.9	2109	59.7			250	114		
		12.5	T3B			XDF2-30X18-125T3B	16.1	8.9	2331	66.0							
		15	T3B			XDF2-30X18-150T3B	17.6	9.8	2553	72.3							
		20	T3B			XDF2-30X18-200T3B	20.1	11.1	2991	84.7							
		25	T3B			XDF2-30X18-250T3B	21.8	12.1	3434	97.2							
		30	T3A			XDF2-30X18-300T3A	27.0	15.0	3333	94.4							
		36 x 24	914 x 610			1	7.5	✓	✓	T3B	XDF1-36X24-075T3B	6.9	3.8			3256	92.2
							10			T3B	XDF1-36X24-100T3B	8.1	4.5	3690	104.5		
12.5	T3B			XDF1-36X24-125T3B	9.1		5.1			4125	116.8						
15	T3B			XDF1-36X24-150T3B	9.9		5.5			4559	129.1						
20	T3B			XDF1-36X24-200T3B	11.1		6.1			5428	153.7						
25	T3A			XDF1-36X24-250T3A	13.8		7.7			5427	153.7						
15	T3B			XDF2-36X24-150T3B	13.8		7.7			3256	92.2	325	148				
20	T3B			XDF2-36X24-200T3B	16.3	9.0	3690			104.5							
25	T3B			XDF2-36X24-250T3B	18.2	10.1	4125			116.8							
30	T3B			XDF2-36X24-300T3B	19.7	11.0	4559			129.1							
40	T3B			XDF2-36X24-400T3B	22.1	12.3	5428			153.7							
50	T3A			XDF2-36X24-500T3A	27.6	15.4	5427			153.7							

Note: For optional disconnect switch, add 'D' to end of catalog number.