

CAST-X 2000

Circulation Heater

CAST-X 2000 is a very versatile heater, with multiple housing, standoff, control and enclosure options.



Designed and manufactured by Cast Aluminum Solutions (CAS), CAST-X Circulation Heaters are engineered using the latest thermal modeling and finite element analysis technology. CAST-X heaters feature low-watt-density heating elements cast into aluminum bodies which also contain the helical-coiled stainless steel flowpath tubes.

The media is sequestered in these tubes, never touching the heating elements: a critical safety benefit, especially when heating explosive or sensitive media. All CAST-X units are capable of heating liquids and gases alike.

CAST-X heaters are self-draining, for safety and cleanliness. With compact, non-welded bodies, plus NEMA & ATEX enclosures, CAST-X units are small-footprint, high-output heaters that meet the needs of high-purity processes, flammable operations, and your most critical heating applications.

APPLICATIONS:

- Compressor Condensate Evaporation
- Semiconductor Solvent Applications
- DI Water Heating
- Fuel and Oil Pre-Heating
- Nitrogen Gas Heating
- Two-Part Urethane and Foam Systems
- Anodizing / Plating Pre-Wash Applications

SPECIFICATIONS:

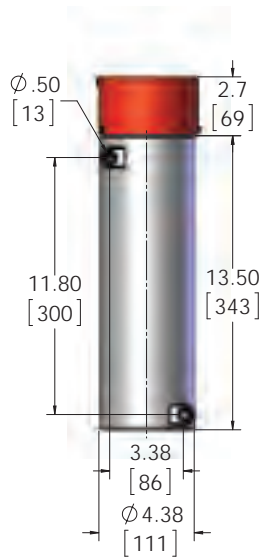
- Power:
 - 1 kW Total to 6 kW Total
 - Voltage Range: 120 - 480 V
 - Max Line Current: 25 A per circuit
 - Tubing:
 - .500" OD (1/2") (12.7 mm)
 - .065" Wall (1.7 mm)
 - Overall Process Tube Length: 150" (3810 mm)
 - 316L Stainless Steel (standard)
 - Inconel (optional upgrade)
 - Passivated or Electro-Polished (optional upgrades)
 - Max Pressure: 5100 psi (351 bar)
 - Enclosures:
 - NEMA 1 (general-purpose/dust-proof)*
 - NEMA 4 (moisture-resistant)*
 - NEMA 7 (explosion-proof)
 - Available with Standard or Standoff Design
 - Max Working Temperatures:
 - NEMA 1 (dust-proof/general-purpose): 482°F (250°C) with standoff: 662°F (350°C) with t-stat (w/ or w/o standoff: 250°F (121°C)
 - NEMA 4 (moisture-resistant): 350°F (175°C) with standoff: 662°F (350°C)
 - NEMA 7 (explosion-proof): 482°F (250°C)
- Published temperatures are for housing at 12 o'clock position; higher temps may be possible at 6 o'clock position. See factory for details.
- Sensors:
 - K or J Type Thermocouples Standard
 - Snap-Action High-Limit Thermostat
 - Process and High-Limit Thermocouples
 - Available Accessories:
 - Insulating Jacket
 - Compression Fittings

FEATURES & BENEFITS:

- SS 316L Fluid Path is Separate from Heating Elements (allows safe heating of sensitive materials and prevents contamination)
- Low Ownership Cost: Minimal Maintenance & Downtime
- Self-Draining & Non-Welded (reduces contamination)
- Food, Medical & Semiconductor Application Compatible
- Available with Cost-Effective Over-Temperature Protection
- Compatible with High Pressure Applications
- Standoff Housings Available (for higher temperatures)

CAST-X 2000 Circulation Heater

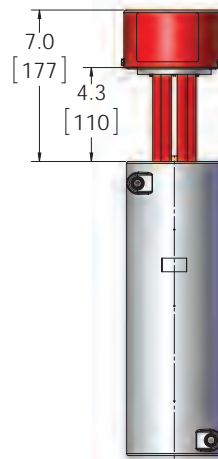
GENERAL-PURPOSE (NEMA 1) ENCLOSURE



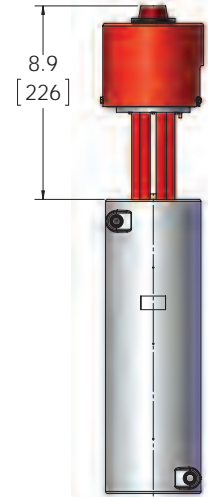
GENERAL-PURPOSE (NEMA 1) WITH THERMOSTAT



GENERAL-PURPOSE (NEMA 1) WITH STANDOFF, NO THERMOSTAT

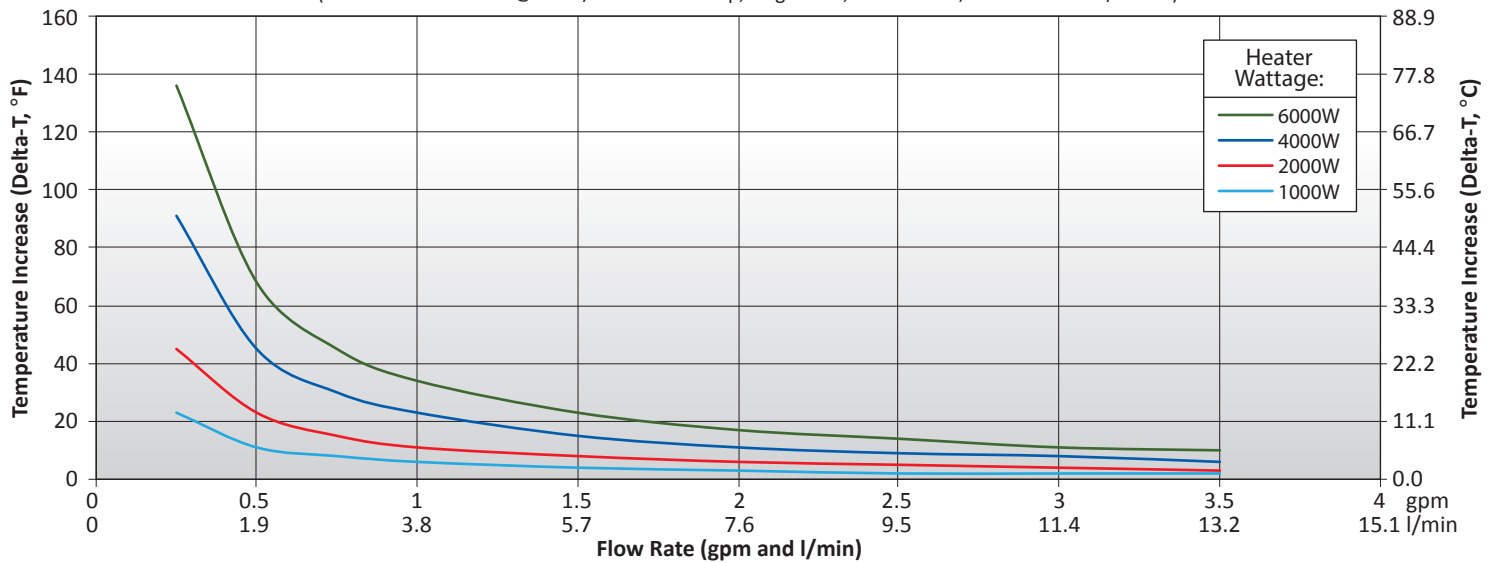


GENERAL-PURPOSE (NEMA 1) WITH STANDOFF & THERMOSTAT



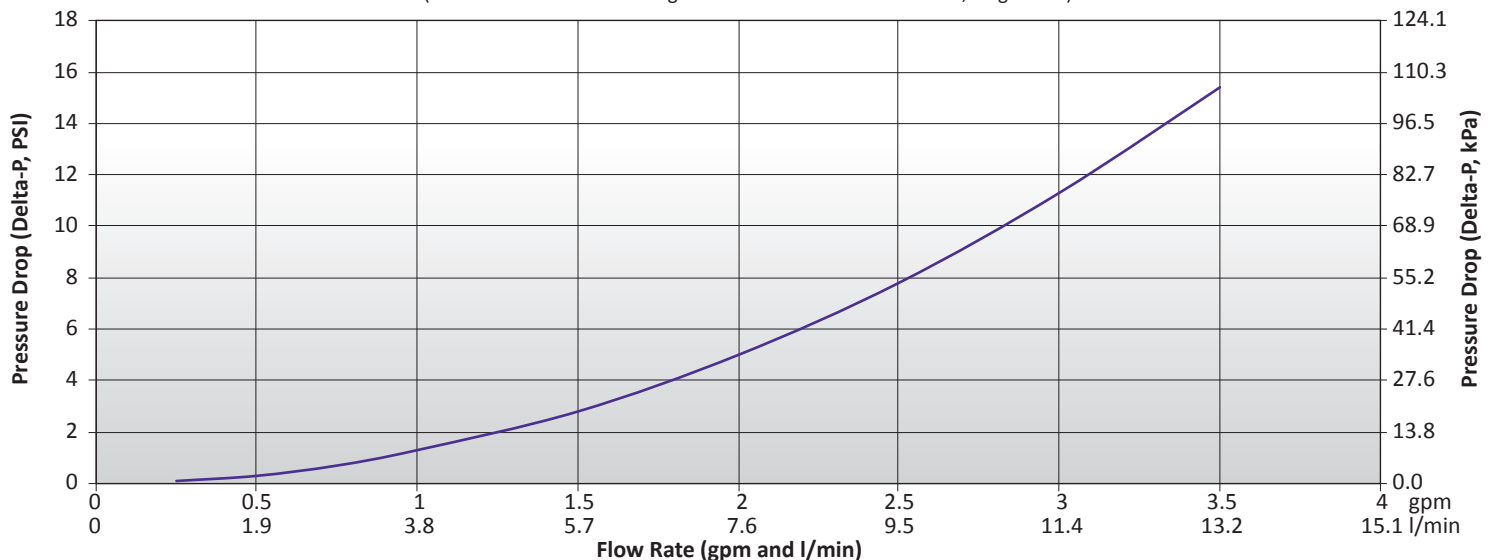
CAST-X 2000 Heating Profile: Delta-T Water

(Process Fluid = Water @ 42°F / 5.6°C Inlet Temp, Single Pass, 100% Power, Set Point 752°F / 400°C)

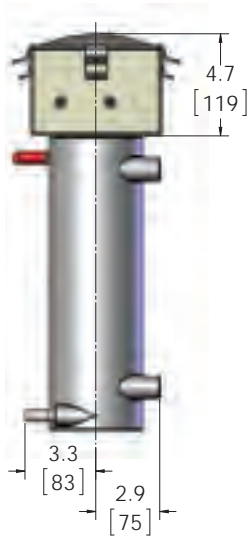


CAST-X 2000 Pressure Drop Profile: Delta-P Water

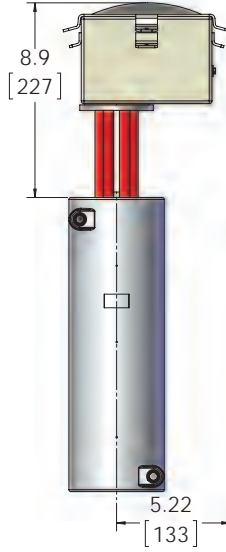
(Process Fluid = Water. Change in Pressure from Inlet to Outlet, Single Pass)



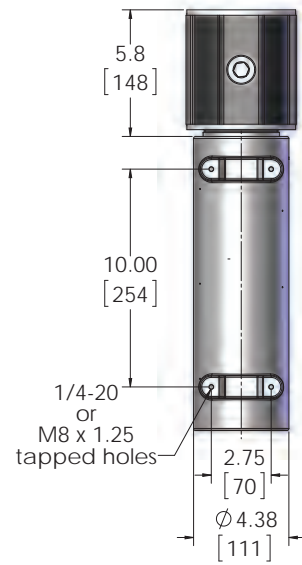
**MOISTURE-RESISTANT (NEMA 4)
WITH OR WITHOUT THERMOSTAT**



**MOISTURE-RESISTANT (NEMA 4) WITH
STANDOFF, WITH OR W/O THERMOSTAT**

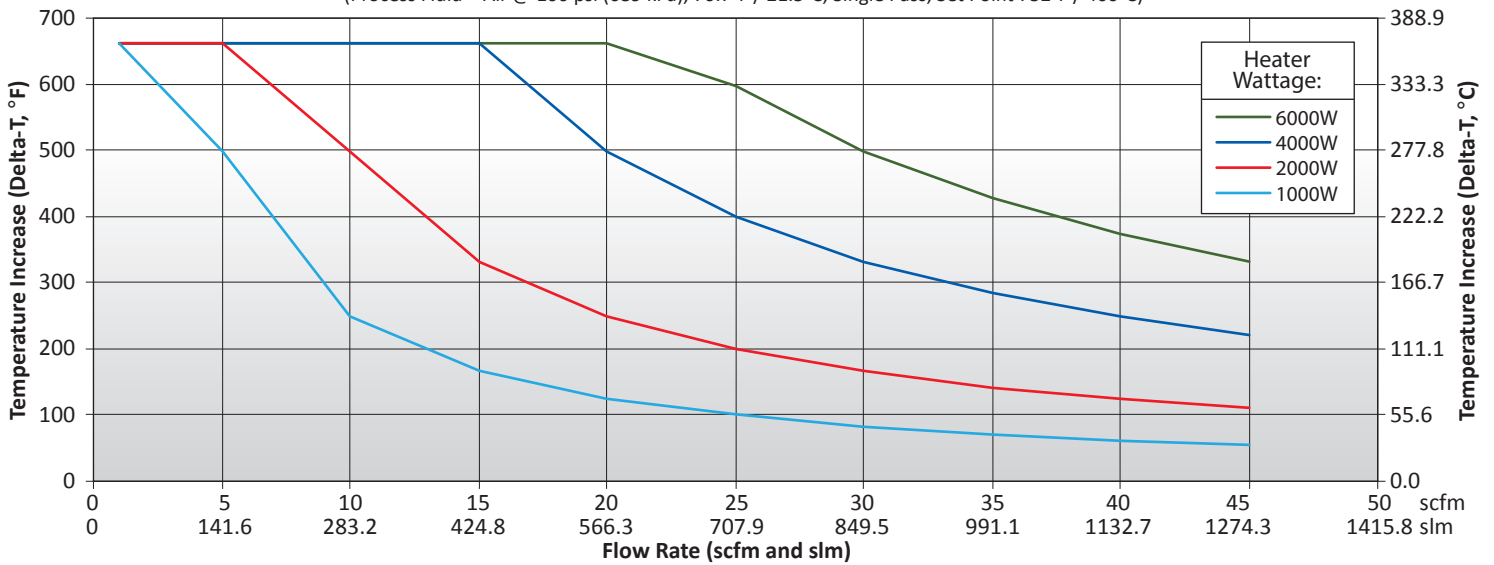


EXPLOSION-PROOF (NEMA 7)



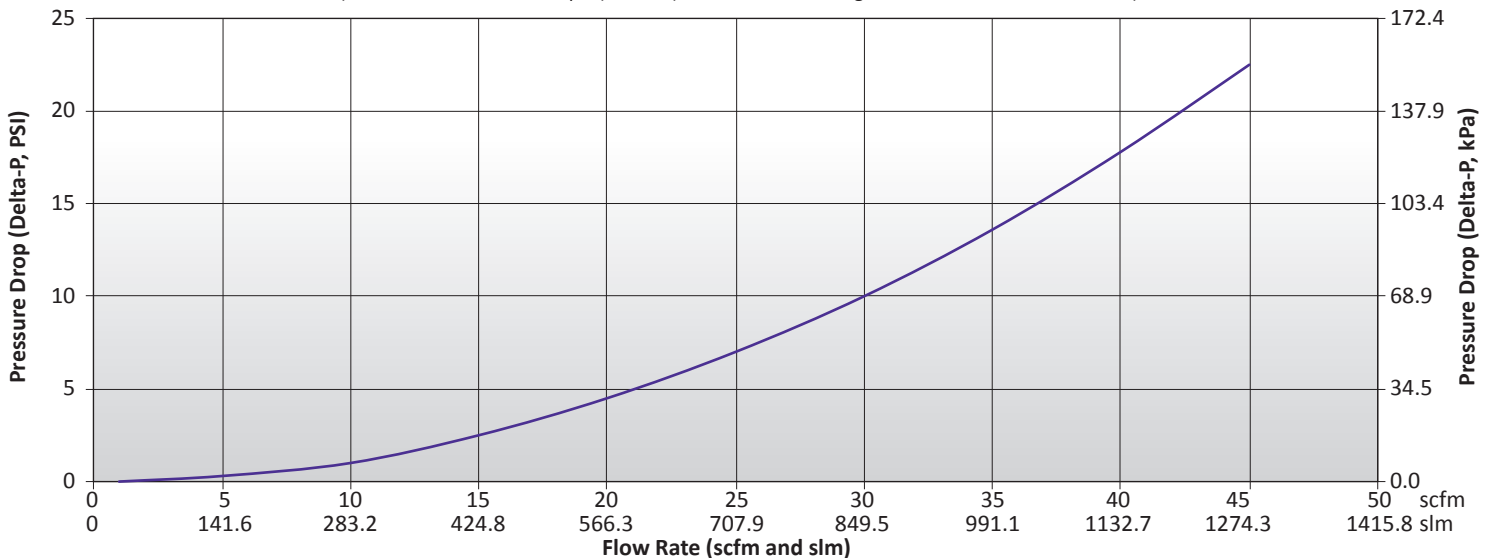
CAST-X 2000 Heating Profile: Delta-T Air

(Process Fluid = Air @ 100 psi (689 kPa), 70.7°F / 21.5°C, Single Pass, Set Point 752°F / 400°C)

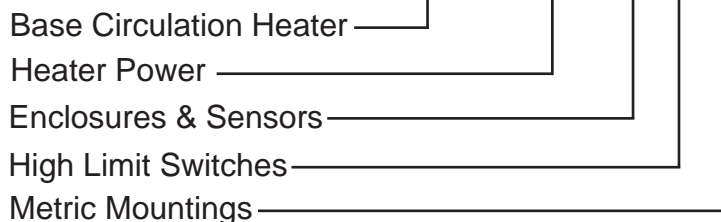


CAST-X 2000 Heating Profile: Delta-P Air

(Process Fluid = Air @ 100 psi (689 kPa), 70.7°F / 21.5°C, Single Pass, Set Point 752°F / 400°C)



BX13J4G AAAA-BBCC-D



Building a CAST-X 2000 Part Number

Use the graphs below to build your CAST-X 2000. Assigning numbers for sections AAAA, BB and CC. If you need metric mountings, assign "M" to section D. If metric mounts are not required, leave section D blank. For assistance, contact CAS directly.

VOLTAGE, POWER, CIRCUIT TYPE - STANDARD DESIGNS

*The CAST-X 2000 is available with both standard or standoff designs
Volts refers to line volts (V_L). Amps refers to line current (I_L).*

Section "AAAA"	Volts (V)	Watts (kW)	Circuit Type (all are single circuit)	Amps (A)
300A	480	6	THREE PHASE DELTA	7.2
300B	480	2	THREE PHASE WYE	2.4
300C	480	6	SINGLE PHASE	12.5
300D	480	4	SINGLE PHASE	8.3
300E	480	2	SINGLE PHASE	4.2
300F	240	6	THREE PHASE DELTA	14.4
300G	240	2	THREE PHASE WYE	4.8
300H	240	6	SINGLE PHASE	25
300J	240	4	SINGLE PHASE	16.7
300K	240	2	SINGLE PHASE	8.3
300L	240	1.5	SINGLE PHASE	6.6
300M	240	1	SINGLE PHASE	4.4
300Q	208	4.5	THREE PHASE DELTA	12.5
300R	208	1.5	THREE PHASE WYE	4.2
300S	208	4.5	SINGLE PHASE	22.8
300T	208	3	SINGLE PHASE	15.2
300U	208	1.5	SINGLE PHASE	7.2
300N	120	1.5	SINGLE PHASE	13.2
300P	120	1	SINGLE PHASE	8.8

VOLTAGE, POWER, CIRCUIT TYPE - STANDOFF DESIGNS

*The CAST-X 2000 is available with both standard or standoff designs
Volts refers to line volts (V_L). Amps refers to line current (I_L).*

Section "AAAA"	Volts (V)	Watts (kW)	Circuit Type (all are single circuit)	Amps (A)
30SA	480	6	THREE PHASE DELTA	7.2
30SB	480	2	THREE PHASE WYE	2.4
30SC	480	6	SINGLE PHASE	12.5
30SD	480	4	SINGLE PHASE	8.3
30SE	480	2	SINGLE PHASE	4.2
30SF	240	6	THREE PHASE DELTA	14.4
30SG	240	2	THREE PHASE WYE	4.8
30SH	240	6	SINGLE PHASE	25
30SJ	240	4	SINGLE PHASE	16.7
30SK	240	2	SINGLE PHASE	8.3
30SL	240	1.5	SINGLE PHASE	6.6
30SM	240	1	SINGLE PHASE	4.4
30SQ	208	4.5	THREE PHASE DELTA	12.5
30SR	208	1.5	THREE PHASE WYE	4.2
30SS	208	4.5	SINGLE PHASE	22.8
30ST	208	3	SINGLE PHASE	15.2
30SU	208	1.5	SINGLE PHASE	7.2
30SN	120	1.5	SINGLE PHASE	13.2
30SP	120	1	SINGLE PHASE	8.8

ENCLOSURES AND SENSORS

All thermocouples are ungrounded, for optimal performance

Section "BB"	Description	Thermocouple Qty.	Enclosure
S2	30 TO 250°F [-1 TO 121°C] SINGLE POLE THERMOSTAT	0	NEMA 1
S5	60 TO 250°F [16 TO 121°C] DOUBLE POLE THERMOSTAT	0	NEMA 1
SJ	J-TYPE THERMOCOUPLE IN THERMOWELL	1	NEMA 1
SK	K-TYPE THERMOCOUPLE IN THERMOWELL	1	NEMA 1
W0	NO SENSOR	0	NEMA 4
W2	30 TO 250°F [-1 TO 121°C] SINGLE POLE THERMOSTAT	0	NEMA 4
W5	60 TO 250°F [16 TO 121°C] DOUBLE POLE THERMOSTAT	0	NEMA 4
WJ	J-TYPE THERMOCOUPLE IN THERMOWELL	1	NEMA 4
WK	K-TYPE THERMOCOUPLE IN THERMOWELL	1	NEMA 4
E0	NO SENSOR	0	NEMA 7
E1	50 TO 250°F [10 TO 121°C] SINGLE POLE THERMOSTAT	0	NEMA 7
EJ	J-TYPE THERMOCOUPLE IN THERMOWELL	1	NEMA 7
EK	K-TYPE THERMOCOUPLE IN THERMOWELL	1	NEMA 7

SNAP ACTION HIGH LIMITS SWITCHES

Not available with standoff designs

Section "CC"	Switch
00	NONE
01	MANUAL RESET, 260°F (127°C)
02	AUTOMATIC RESET, 500°F (260°C)

METRIC MOUNTING HOLES

*Place an "M" in section D if metric mounting holes are required.
If standard Imperial mounting holes are desired, section D can be left blank*

Section "D"	Metric Mounting Holes
M	M8 X 1.25 METRIC TAPPED MOUNTING HOLES

CUSTOM DESIGNS & COMPONENTS

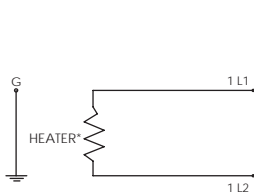
*CAS offers several options for special tubes, sensors, and finishes.
For these options, please call a CAS Representative for a quote.*

Options	
INCONEL, MONEL OR HASTELLOY TUBES	SPECIAL HIGH-LIMIT SWITCHES OR RTDs
ELECTRO-POLISHED OR PASSIVATED TUBES	NPT FITTINGS
THICK WALL TUBES	DUAL TUBE DESIGNS

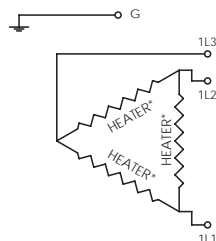
ACCESSORIES

These PNs are totally separate from the PNs for the heater

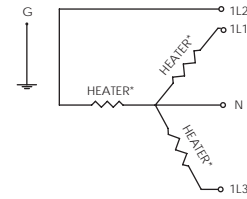
Part Number	Component
274-55-6-5	COMPRESSION FITTINGS (HIGH PRESSURE) / PAIR (SHIPPED LOOSE)
307-0-11-1	INSULATION JACKET, MAXIMUM TEMPERATURE 400°F (204°C)
307-0-21-1	INSULATION JACKET, MAXIMUM TEMPERATURE 986°F (530°C)



SINGLE PHASE CIRCUIT



THREE-PHASE DELTA CIRCUIT



THREE-PHASE WYE CIRCUIT

CAST-X 2000 Available Circuit Types

The CAST-X 2000 is manufactured with these types of circuit configurations.

*Wiring schematic only shows heater elements. Refer to I&M Manual for further details on wiring of snap-action switches and thermostats (if applicable).



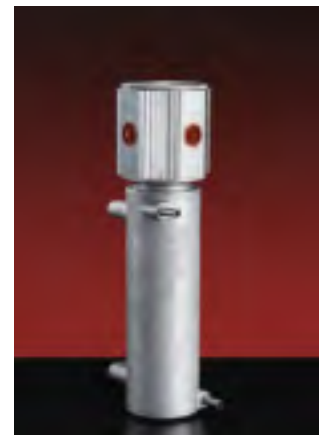
NEMA 1 ENCLOSURE WITH THERMOSTAT



NEMA 4 WITH THERMOSTAT INSIDE ENCLOSURE



NEMA 7 ENCLOSURE WITH THERMOSTAT



NEMA 7 ENCLOSURE NO THERMOSTAT



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