

CAST-X 3000

Circulation Heater

CAST-X 3000 is a very popular heater, with wide use across industrial gas and fluid handling sectors.



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:

- Packaging Sterilization
- Foodservice Pasteurization
- Diesel & Jet Fuel Heating
- Mud Testing Applications (oil exploration)
- Fuel Gas Conditioning (moisture removal)
- Powder Coating Pre-Wash Systems
- Thermal Fluid Heating For Heat Transfer Systems

SPECIFICATIONS:

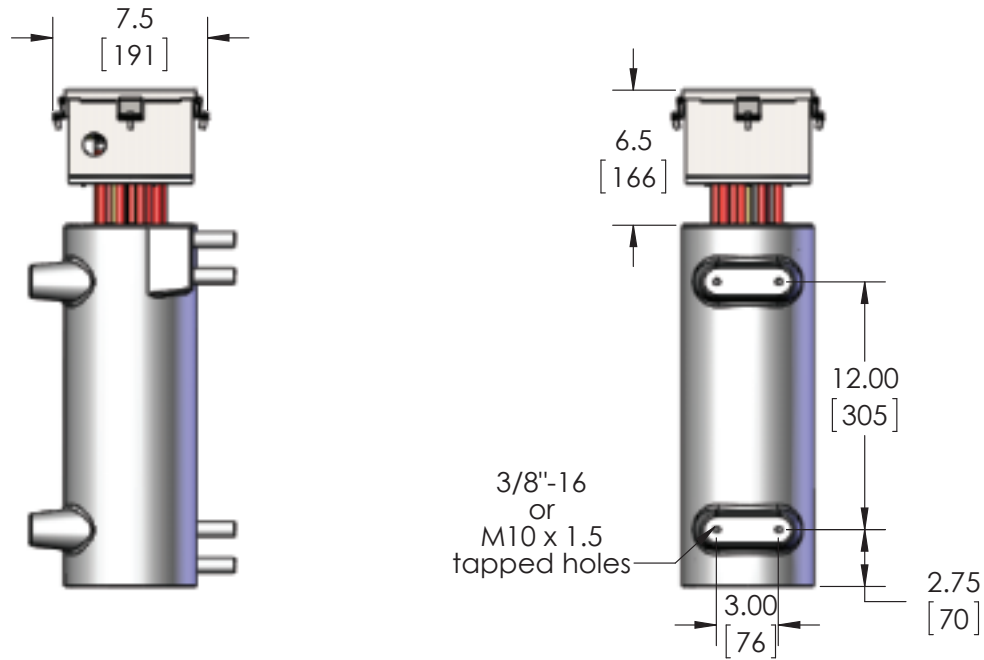
- Power:
 - 1 kW Total to 24.6 kW Total
 - Voltage Range: 208 - 480 V
 - Max Line Current: 35 A per circuit
 - Tubing:
 - .750" OD (3/4") (19.1 mm)
 - .065" Wall (1.7 mm)
 - Overall Process Tube Length: 142" (3606 mm) each
 - 316L Stainless Steel (standard)
 - Inconel (optional upgrade)
 - Passivated or Electro-Polished (optional upgrades)
 - Max Pressure: 3300 psi (227 bar)
 - Enclosures:
 - NEMA 4 (moisture-resistant)
 - NEMA 7 / ATEX (explosion-proof)
 - Max Working Temperatures:
 - NEMA 4 (moisture-resistant): 572°F (300°C)
 - NEMA 7 / ATEX (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
 - Process and High-Limit Thermocouples
 - Available Accessories:
 - Insulating Jackets
 - Compression Fittings

FEATURES & BENEFITS:

- SS 316L Fluid Path is Separate from Heating Elements (allows safe heating of sensitive materials and prevents contamination)
- Compact Design Replaces Larger Heat Exchangers
- Long Heater Life, Due To Cast-In Design
- Clean & Safe (self-draining, non-welded)
- Supports High Flowrate Applications
- Operable in Single-Tube or Dual-Tube Mode
- Dual Tube Mode Can Run in Series or Parallel

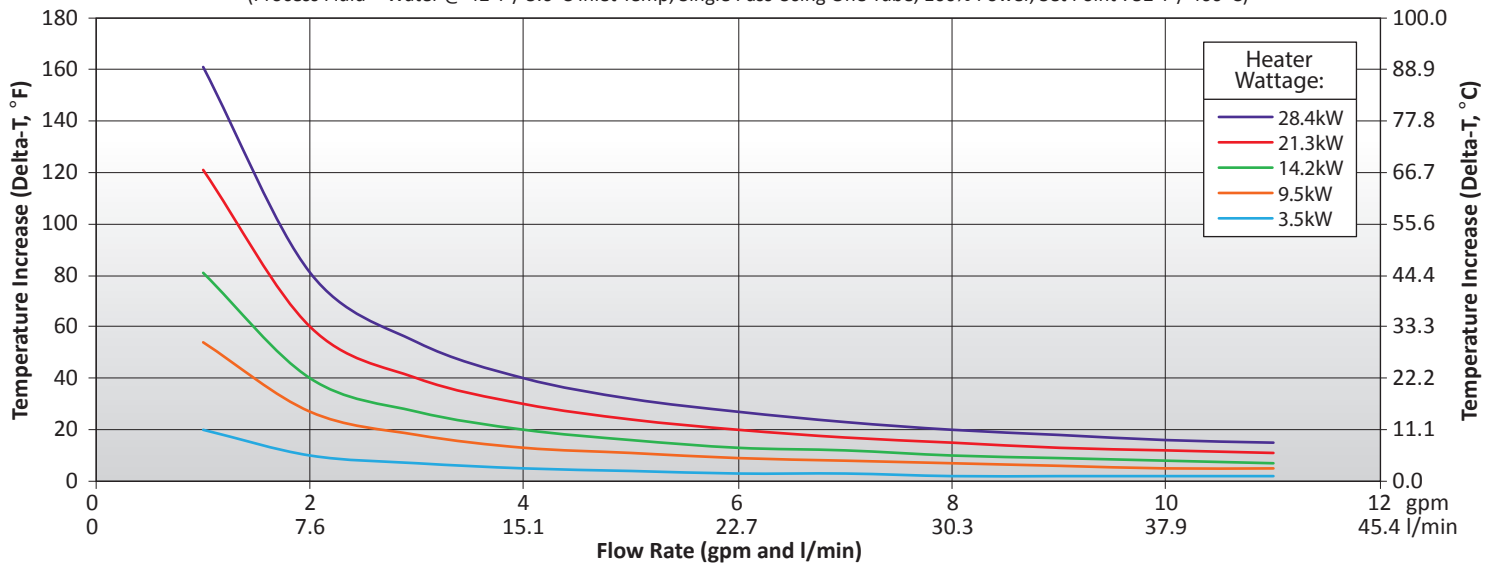
CAST-X 3000 Circulation Heater

MOISTURE-RESISTANT (NEMA 4) ENCLOSURE



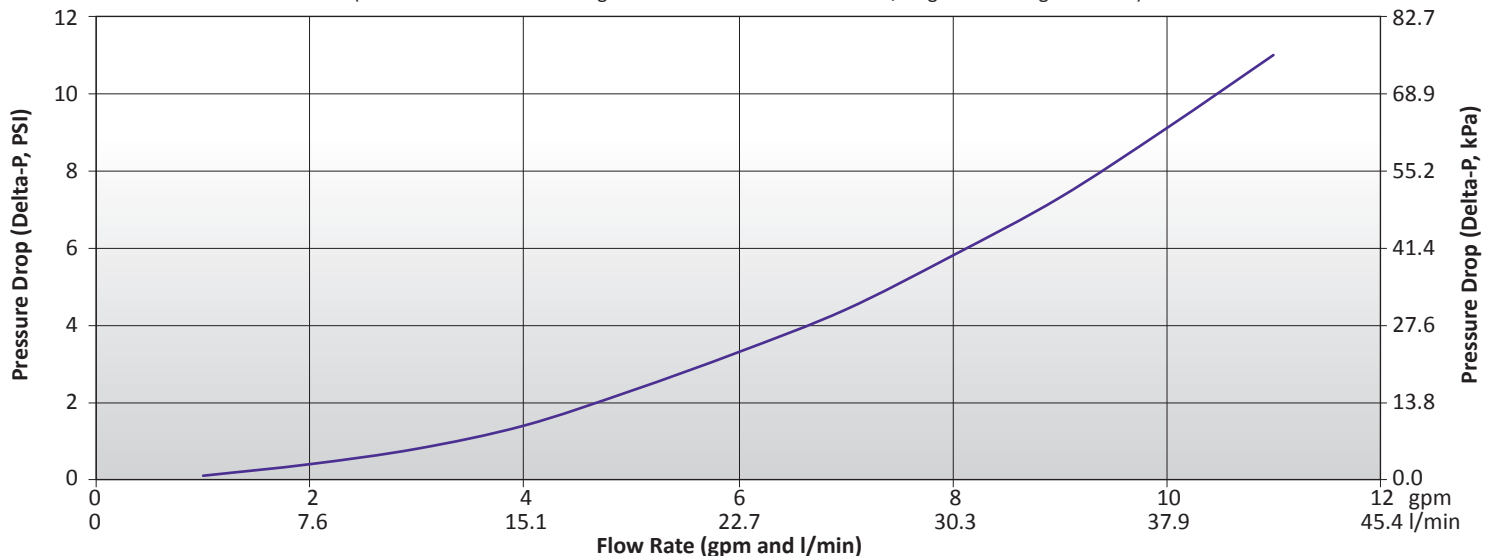
CAST-X 3000 Heating Profile: Delta-T Water

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

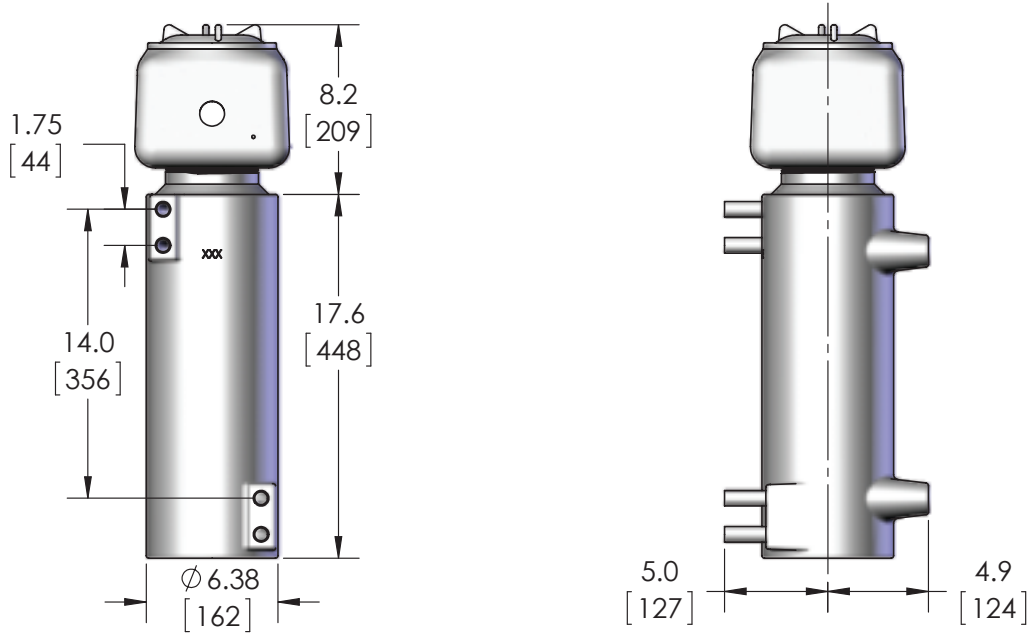


CAST-X 3000 Pressure Drop Profile: Delta-P Water

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

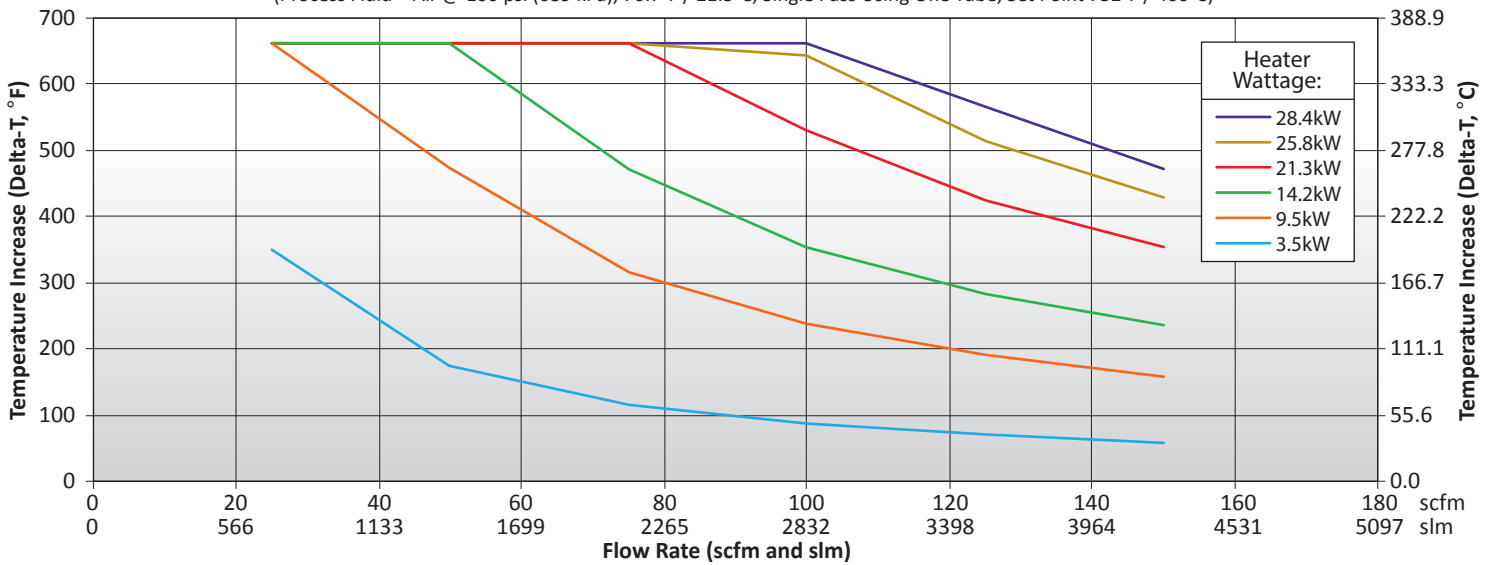


EXPLOSION-PROOF (NEMA 7 / ATEX) ENCLOSURE



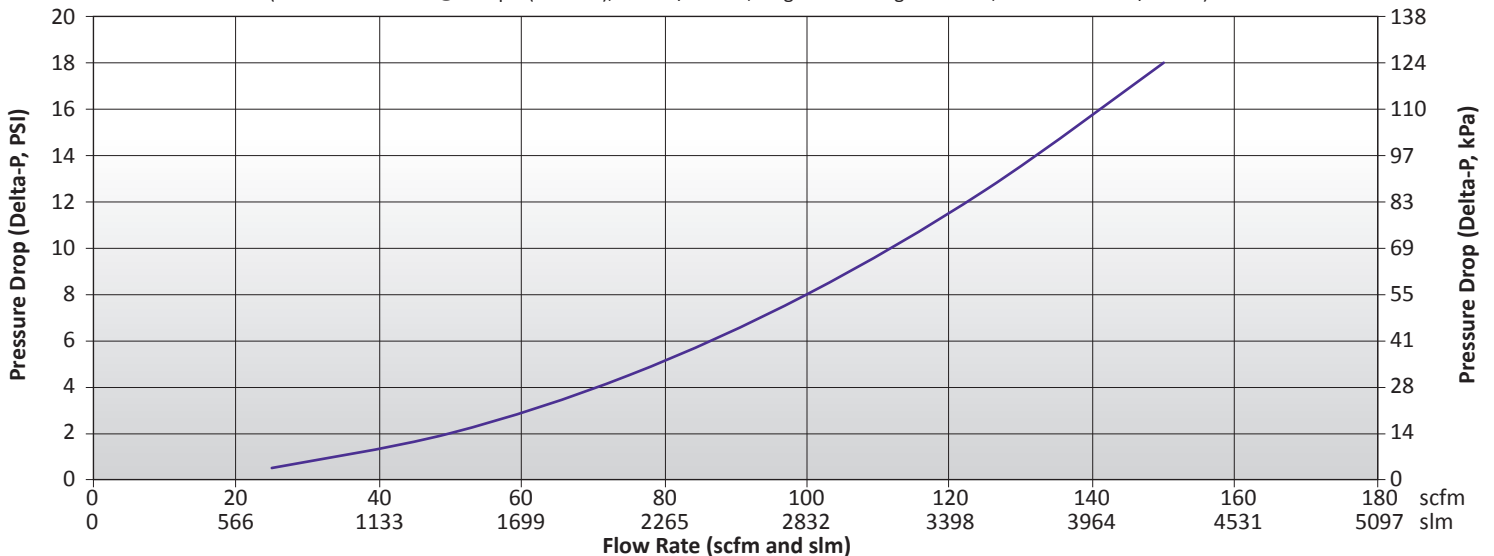
CAST-X 3000 Heating Profile: Delta-T Air

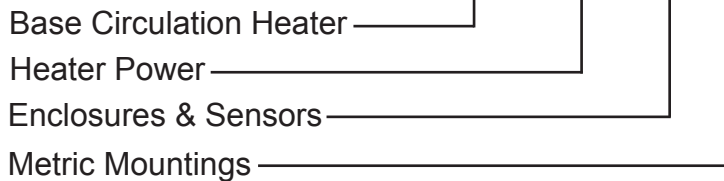
(Process Fluid = Air @ 100 psi (689 kPa), 70.7°F / 21.5°C, Single Pass Using One Tube, Set Point 752°F / 400°C)



CAST-X 3000 Heating Profile: Delta-P Air

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



BX17E6G AAAA-BBB-C**Building a CAST-X 3000 Part Number**

Use the graphs below to build your CAST-X 3000.
 Assigning numbers for sections AAAA and BBB.

If you need metric mountings, assign "M" to section C.
 If metric mounts are not required, leave section C blank.

For assistance, contact CAS directly.

VOLTAGE, POWER, CIRCUIT TYPE

Volts refers to line volts (V_L). Amps refers to line current (I_L).

Section "AAAA"	Volts (V)	Watts (kW)	Circuit Type	Amps (A) (per circuit)
300A	480	24.6	TWO THREE-PHASE DELTA CIRCUITS	14.8
300B	480	12.3	ONE THREE-PHASE DELTA CIRCUIT	14.8
300C	480	8.2	ONE THREE-PHASE WYE (PARALLEL) CIRCUIT	9.8
300D	480	6.2	ONE THREE-PHASE DELTA (SERIES)	7.4
300E	480	4.1	ONE SINGLE PHASE CIRCUIT	8.5
300F	480	4.1	ONE THREE-PHASE WYE	4.9
300G	380	15.4	TWO THREE-PHASE DELTA CIRCUITS	11.7
300H	380	7.7	ONE THREE-PHASE DELTA CIRCUIT	11.7
300J	380	5.1	ONE THREE-PHASE WYE (PARALLEL) CIRCUIT	7.8
300K	380	3.9	ONE THREE-PHASE DELTA (SERIES) CIRCUIT	5.9
300L	380	2.6	ONE SINGLE PHASE CIRCUIT	6.7
300M	380	2.6	ONE THREE-PHASE WYE CIRCUIT	3.9
300N	240	27	TWO THREE-PHASE DELTA CIRCUITS	32.5
300P	240	13.5	ONE THREE-PHASE DELTA CIRCUIT	32.5
300Q	240	9.0	ONE THREE-PHASE WYE (PARALLEL) CIRCUIT	21.6
300R	240	6.7	ONE THREE-PHASE DELTA (SERIES) CIRCUIT	16.2
300S	240	4.5	ONE SINGLE PHASE CIRCUIT	18.8
300T	240	4.5	ONE THREE-PHASE WYE CIRCUIT	10.8
300U	208	20.3	TWO THREE-PHASE DELTA CIRCUITS	28
300V	208	10.1	ONE THREE-PHASE DELTA CIRCUIT	28
300W	208	6.8	ONE THREE-PHASE WYE (PARALLEL) CIRCUIT	18.7
300X	208	5.1	ONE THREE-PHASE DELTA (SERIES) CIRCUIT	14.1
300Y	208	3.4	ONE SINGLE PHASE CIRCUIT	16.3
300Z	208	3.4	ONE THREE-PHASE WYE CIRCUIT	9.4

ENCLOSURES AND SENSORS

All thermocouples are ungrounded, for optimal performance

Section "BBB"	Description	Thermocouple Qty.	Enclosure
W00	NO SENSOR	0	NEMA 4
W0J	J-TYPE THERMOCOUPLE IN THERMOWELL	1	NEMA 4
W0K	K-TYPE THERMOCOUPLE IN THERMOWELL	1	NEMA 4
WJJ	J-TYPE THERMOCOUPLES IN THERMOWELLS	2	NEMA 4
WKK	K-TYPE THERMOCOUPLES IN THERMOWELLS	2	NEMA 4
E00	NO SENSOR	0	NEMA 7 / ATEX
E0J	J-TYPE THERMOCOUPLE IN THERMOWELL	1	NEMA 7 / ATEX
E0K	K-TYPE THERMOCOUPLE IN THERMOWELL	1	NEMA 7 / ATEX
EJJ	J-TYPE THERMOCOUPLES IN THERMOWELLS	2	NEMA 7 / ATEX
EKK	K-TYPE THERMOCOUPLES IN THERMOWELLS	2	NEMA 7 / ATEX

METRIC MOUNTING HOLES

Place an "M" in section C if metric mounting holes are required.

If standard Imperial mounting holes are desired, section C can be left blank

Section "C"	Metric Mounting Holes
M	M10 x 1.5 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.

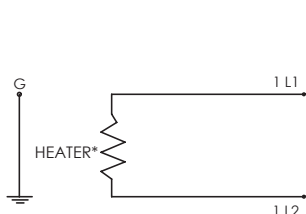
Options

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

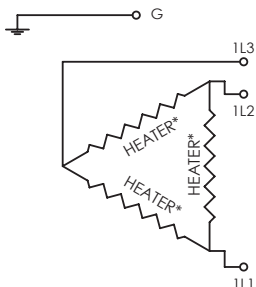
ACCESSORIES

These PNs are totally separate from the PNs for the heater

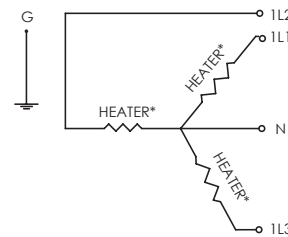
Part Number	Component
274-55-6-7	COMPRESSION FITTINGS (HIGH PRESSURE) / PAIR (SHIPPED LOOSE)
307-0-16-1	INSULATION JACKET, MAXIMUM TEMPERATURE 986°F (530°C)



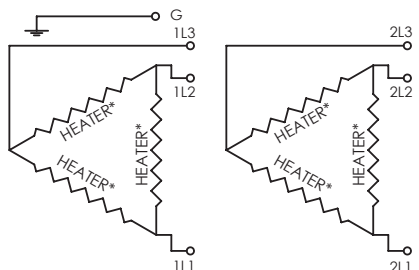
SINGLE PHASE CIRCUIT



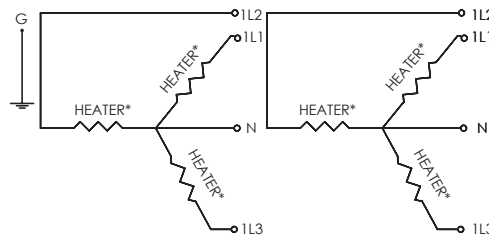
THREE-PHASE DELTA CIRCUIT



THREE-PHASE WYE CIRCUIT



TWO THREE-PHASE DELTA CIRCUITS



TWO THREE-PHASE WYE CIRCUITS

CAST-X 3000 Available Circuit Types

The CAST-X 3000 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 (if applicable).



NEMA 4 ENCLOSURE



NEMA 7 / ATEX ENCLOSURE

Need Help with Part Numbers or Engineering Calculations?



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