

## Ideal Where Fluid Cleanliness, Temperature Accuracy and High Pressure are Required

The CAST-X 2000 circulation heater is an ideal heating solution for demanding applications. The CAST-X 2000 heater consists of a helical coiled tube cast into an aluminum body with tubular elements. The aluminum body serves as the heat transfer media between the tubular element and the coiled tube through which the fluid being heated passes through.

The unique construction of the heater allows it to be used where thermally sensitive materials are being heated such as paints, resins and flammable materials such as fuels and solvents. The aluminum mass acts as a "thermal flywheel" and ensures accurate temperature control of the fluid to prevent degradation. The CAST-X 2000 is available with optional explosion proof enclosure for use in flammable environments and is well suited to applications where fluid cleanliness is critical because the material being heated never comes in contact with the heating elements. This is a performance requirement in many foodservice equipment, semiconductor and analytical markets.



## Typical Applications

- Solvent Heating
- Diesel and Jet Fuel Heating
- Glycol Heating for Heat Transfer Systems
- Sample Heating – Analytical Instrumentation
- Steam Generation
- Food and Beverage Heating – Pasteurization
- Pain Heating
- Two-Part Urethane and Foam System Heating
- Air, CO<sub>2</sub> and Nitrogen
- Deionized (DI) Water Heating

## Features and Benefits

- Fluid path constructed independent from heater sheath
  - Allows sensitive materials to be heated safely
  - Prevents fluid contamination
- Robust cast-in aluminum construction
  - Assures longer heater life
  - Provides accurate temperature control
- Integrated thermostat and enclosure
  - Assures easy use and installation
  - Allows heater to run dry
  - Provides protection in explosive environments
- Standard 316L stainless steel fluid path
  - Ensures material compatibility with many different materials
- Non-welded construction
  - Offers economical package price
  - Allows high pressure operation up to 4300 psi

## Specifications

- (4) 1/4 - 20, 1/2 in. (13 mm) deep mounting holes
- Tubing - 1/2 in. dia. x 0.065 in. wall (12.7 x 1.65 mm)
- Wetted area - 316 stainless steel
- Process tube length - 150 in. (3.81m)
- NEMA 1 metal enclosure - Up to 6000 watts, 3-phase
- Max. working fluid pressure - 4300 psi (297 Bar)
- Max. working temperatures
  - 250°F (NEMA 7)
  - 350°F (NEMA 1, NEMA 4)
  - 500°F (NEMA 4 with standoff )
- Max. working temp w/stand-off housing is 500°F (260°C)

## Standard Options

- NEMA 1, 4 and 7 enclosures with and without process thermostats
- Snap action high-limit thermostat
- Insulated body
- Process and high-limit thermocouples

Interconnect either a single or double-pole thermostat with a single-phase heater when the supply voltage does not exceed 277V $\bar{A}$ (ac) for SPST or 480V $\bar{A}$ (ac) for DPST

Only interconnect three-phase delta heaters to DPST thermostats

Use a single-pole thermostat for pilot duty where the thermostat is not interconnected with the heater; or heater exceeds the volt/amp rating

In single-phase applications one, two, or three elements may be connected in parallel

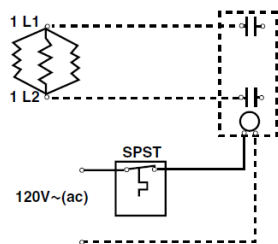
If selected, high limit snap action thermostat should be used for pilot duty only

DESCRIPTION	S2	S5	W2	W5	E1
300A = 6000 W, 480V, 3-phase (delta)	2	6	2	6	2
300B = 2000 W, 480V, 3-phase (wye)	3	7	3	7	3
300C = 6000 W, 480V, 1-phase (3 elements)	1	5	1	5	1
300D = 4000 W, 480V, 1-phase (2 elements)	1	5	1	5	1
300E = 2000 W, 480V, 1-phase (1 element)	1	5	1	5	1
300F = 6000 W, 240V, 3-phase (delta)	2	6	2	6	2
300G = 2000 W, 240V, 3-phase (wye)	3	7	3	7	3
300H = 6000 W, 240V, 1-phase (3 elements)	1	5	1	5	1
300J = 4000 W, 240V, 1-phase (2 elements)	1	5	1	5	1
300K = 2000 W, 240V, 1-phase (1 element)	1	5	1	5	1
300L = 1500 W, 240V, 1-phase	4	5	4	5	4
300M = 1000 W, 240V, 1-phase	4	5	4	5	4
300Q = 4500 W, 208V, 3-phase (delta)	2	6	2	6	2
300R = 1500 W, 208V, 3-phase (wye)	3	7	3	7	3
300S = 4500 W, 208V, 1-phase	4	5	4	5	4
300T = 3000 W, 208V, 1-phase	4	5	4	5	4
300U = 1500 W, 208V, 1-phase	4	5	4	5	4
300N = 1500 W, 120V, 1-phase	4	5	4	5	4
300P = 1000 W, 120V, 1-phase	4	5	4	5	4

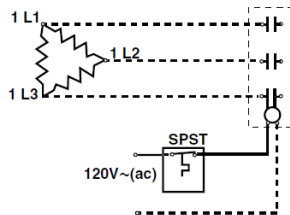
On the drawings below, the dashed lines represent components or wiring supplied by the customer.

DESCRIPTION	AMPACITY			
	LINE VOLTAGE			
	120V	240V	277V	480V
Single pole single throw for NEMA 1 and 4 housings	2	6	2	6
Double pole single throw for NEMA 1 and 4 housings	3	7	3	7
Single pole single throw for NEMA 7 housings	1	5	1	5
High limit snap action, single pole single throw	1	5	1	5

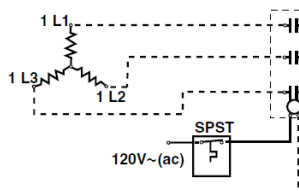
1 SPST, 1-PHASE



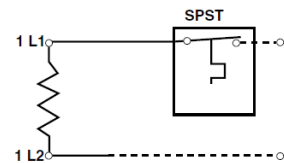
2 SPST, 3-PHASE DELTA



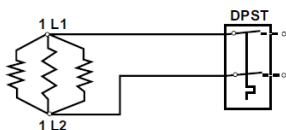
3 SPST, 3-PHASE WYE



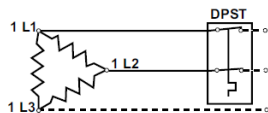
4 SPST, 1-PHASE



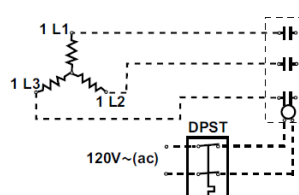
5 DPST, 1-PHASE



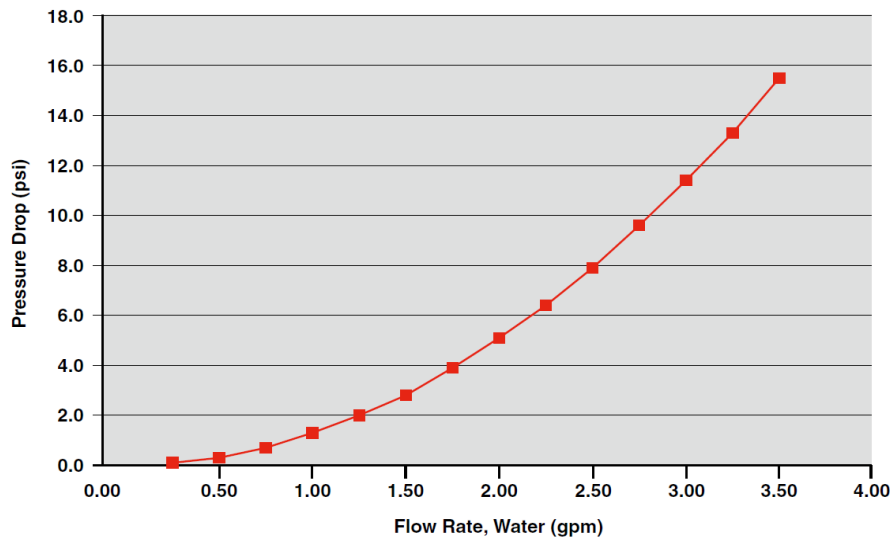
6 DPST, 3-PHASE DELTA



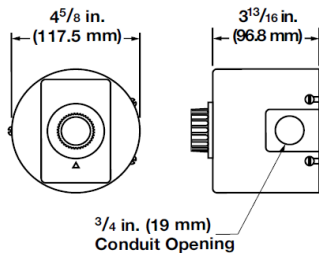
7 DPST, 3-PHASE WYE



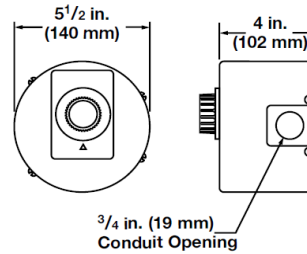
PRESSURE DROP



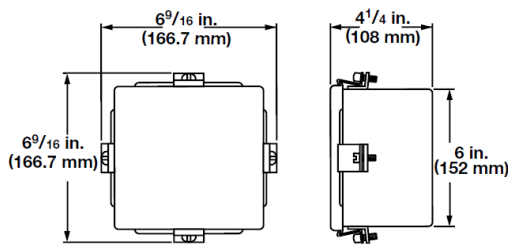
**NEMA 1**  
HOUSING WITH SINGLE-POLE THERMOSTAT



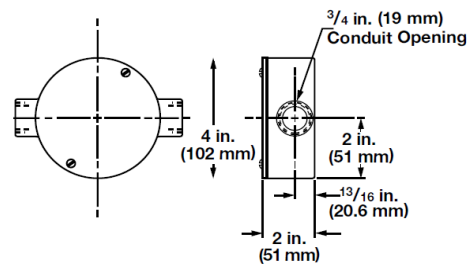
**NEMA 1**  
HOUSING WITH DOUBLE-POLE THERMOSTAT



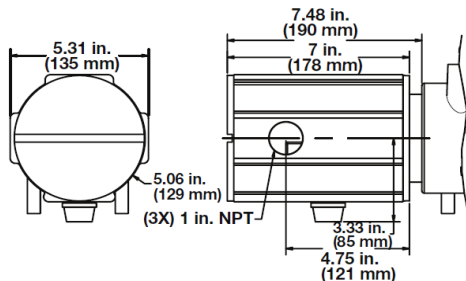
**NEMA 4**  
HOUSING WITH SIN/DBLE-POLE THERMOSTAT



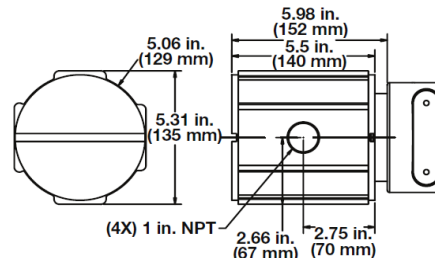
**NEMA 4**  
HOUSING WITHOUT THERMOSTAT



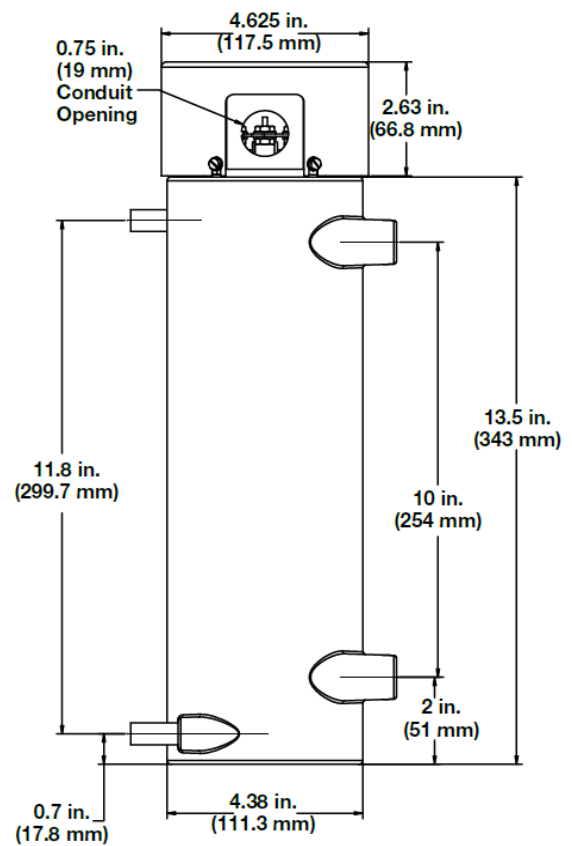
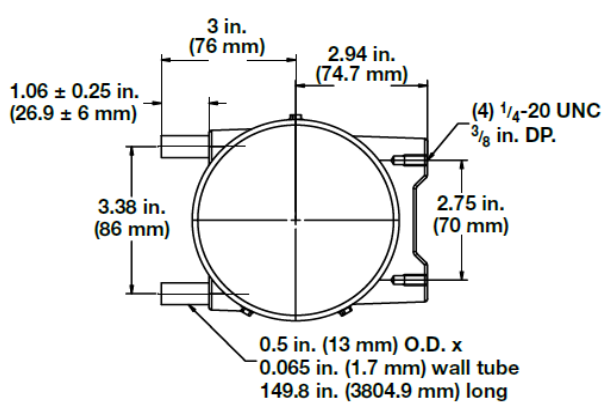
**NEMA 7**  
HOUSING WITH SINGLE-POLE THERMOSTAT



**NEMA 7**  
HOUSING WITHOUT THERMOSTAT



### Dimensions



### Ordering Information

To order, complete the number code with the information below.

#### Cast-X 2000:

0.5 in. (13 mm) O.D. inlet/outlet, 0.065 in. (1.7 mm) wall seamless 316 SS tubing, NEMA 1 housing

WATTAGES	ENCLOSURES AND SENSORS	HIGH LIMITS
<b>300A</b> = 480V 6kW 3PH Delta	<b>S2</b> = NEMA 1 housing w/30-250°F single pole thermostat	<b>1</b> = Snap action hi-limit set at 260°F / 127°C
<b>300B</b> = 480V 2kW 3PH Wye	<b>S5</b> = NEMA 1 housing w/60-250°F double pole thermostat	<b>2</b> = Snap action hi-limit set at 500°F / 260°C
<b>300C</b> = 480V 6kW 1PH	<b>W0</b> = NEMA 4 housing - no thermostat	
<b>300D</b> = 480V 4kW 1PH	<b>W2</b> = NEMA 4 housing w/30-250°F single pole thermostat	
<b>300E</b> = 480V 2kW 1PH	<b>W5</b> = NEMA 4 housing w/60-250°F double pole thermostat	
<b>300F</b> = 480V 6kW 3PH Delta	<b>WJ</b> = NEMA 4 housing w/Type J Process T/C in thermowell	
<b>300G</b> = 240V 2kW 3PH Wye	<b>WK</b> = NEMA 4 housing w/Type K Process T/C in thermowell	
<b>300H</b> = 240V 6kW 1PH	<b>SJ</b> = NEMA 1 housing w/Type J Process T/C in thermowell	
<b>300J</b> = 240V 4kW 1PH	<b>SK</b> = NEMA 1 housing w/Type K Process T/C in thermowell	
<b>300K</b> = 240V 2kW 1PH	<b>EJ</b> = NEMA 7 housing w/Type J Process T/C in thermowell	
<b>300L</b> = 240V 1.5kW 1PH	<b>EK</b> = NEMA 7 housing w/Type K Process T/C in thermowell	
<b>300M</b> = 240V 1kW 1PH	<b>E0</b> = NEMA 7 housing - no thermostat	
<b>300Q</b> = 208V 4.5kW 3PH Delta	<b>E1</b> = NEMA 7 housing w/50-250°F double pole thermostat	
<b>300R</b> = 208V 1.5kW 3PH Wye		
<b>300S</b> = 208V 4.5kW 1PH		
<b>300T</b> = 208V 3kW 1PH		
<b>300N</b> = 120V 1.5kW 1PH		
<b>300P</b> = 120V 1kW 1PH		

**B X 1 3 J 4 G -**

#### Accessories:

Compression fitting 274-55-6-5

Insulation jacket 307-0-11-1