



# CAST-X 3000 Circulation Heater

**WELL SUITED TO APPLICATIONS WHERE INDIRECT HEATING AND  
FLUID CLEANLINESS IS IMPORTANT**

The new CAST-X 3000 circulation heater from Cast Aluminum Solutions offers high wattage and long tubing allowing high flow volume at required temperatures through a single compact unit.

The CAST-X 3000 heater consists of two helical coiled tubes and tubular elements cast into an aluminum body. The aluminum body serves as the heat transfer media between the tubular element and the process tubes.

The compact size of the heater is due to the construction which allows long heater life due to the elements being in contact with aluminum and reduces the foot print required by traditional heat exchangers. Also, the use of heavy wall 316L stainless steel tubing assures high reliability and high pressure operation. The CAST-X 3000 is well suited to applications where indirect heating and fluid cleanliness are important. This is because the material being heated never comes in contact with the heating

source. This is a critical performance requirement in many industries such as semiconductor, and food and beverage. The CAST-X 3000 is configured and designed for rapid delivery. Because the lower level cast parts are in stock the typical delivery is 5-7 days on quantities less than 10 pieces. This is ideal for applications where lead time is critical.

### APPLICATIONS

- Water and Oil Heating for Food and Beverage**
- Steam Generation and Superheating for Process Applications**
- Glycol and Oil Heating for Heat Transfer Systems**
- Deionized Water Heating for Sterilization in Food and Beverage**
- Air, CO<sub>2</sub> and Nitrogen Heating**
- Fuel and Oil Heating for Test Stands**

### FEATURES AND BENEFITS

#### **Dual-tube construction**

Ensures water flow to 20 GPM when run in parallel  
Maintains accurate temperature control quicker when running one coil to heat and one to cool

#### **Fluid path independent of 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 housing**

Permits ease of installation and use  
Allows heater to run dry  
Provides protection in an explosion environment

#### **Seamless 316L stainless steel fluid path**

Allows compatibility with different materials  
Safety allows high-pressure operation up to 2500 psi

#### **Non-welded construction**

Offers economical package price  
Minimizes potential leakage  
Ensures self-draining when mounted vertically



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## SPECIFICATIONS

(4) 3/8 - 16 UNC, 3/4 in. (19 mm) deep mounting holes  
Tubing (2) 3/4 in. (19 mm) dia. x 0.065 in. (1.7 mm) wall

Wetted area - 316L seamless SS tube

Process tube length - 142 in. (3607 mm) per tube

Max. working fluid pressure - 2500 psi (172 Bar)

Max. working temperatures - 250°F (121°C) (NEMA 7)  
500°F (260°C) (NEMA 4)

## STANDARD OPTIONS

Single- or three-phase operation to 480V

NEMA 4 or 7 housings with and without pilot duty process thermostat

Process and high limit thermocouples

ATEX approved explosion proof housing

## NON STANDARD OPTIONS

Passivated or electropolished wetted surfaces

Custom fittings and sensors

## WIRING

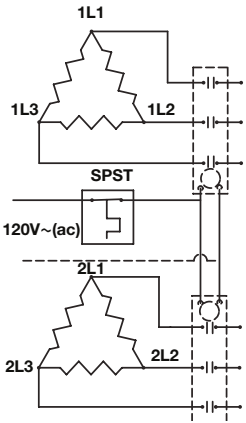
On the drawings below, the dashed lines represent components or wiring supplied by the customer

Single-pole thermostats are intended for pilot duty only

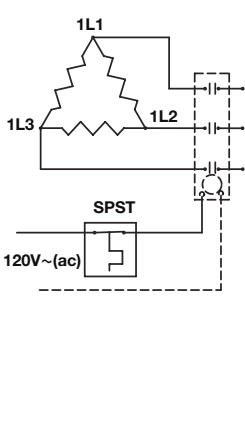
Use of a high limit controller is highly recommended in addition to a thermostat

## WIRING SCHEMATICS

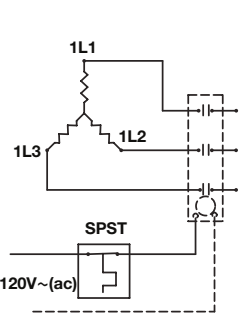
**Figure 1 (2) CIRCUITS, 3-PHASE DELTA WITH OPTIONAL PILOT DUTY THERMOSTAT**



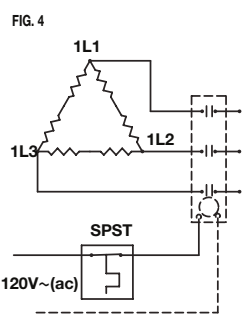
**Figure 2 (1) CIRCUIT, 3-PHASE DELTA WITH OPTIONAL PILOT DUTY THERMOSTAT**



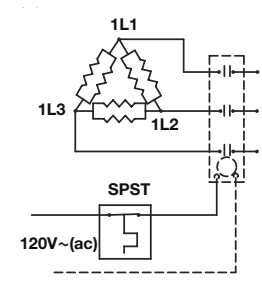
**Figure 3 (1) CIRCUIT, 6 ELEMENT, 3-PHASE WYE WITH OPTIONAL PILOT DUTY THERMOSTAT**



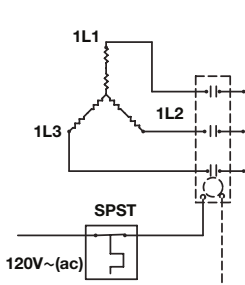
**Figure 4 (1) CIRCUIT, 6 ELEMENT, 3-PHASE DELTA WITH OPTIONAL PILOT DUTY THERMOSTAT**



**Figure 5 (1) CIRCUIT, 1 ELEMENT, SINGLE-PHASE WITH OPTIONAL PILOT DUTY THERMOSTAT**



**Figure 6 (1) CIRCUIT, 3-PHASE WYE WITH OPTIONAL PILOT DUTY THERMOSTAT**



DESCRIPTION				FIGURE NUMBER	I (LINE)
300A	25.8kW	480V	2 delta circuits	1	15.6A
300B	12.9kW	480V	3-phase delta	2	15.6A
300C	8.6kW	480V	3-phase wye parallels	3	10.4A
300D	6.4kW	480V	3-phase delta (2R)	4	7.7A
300E	4.3kW	480V	1 circuit	5	9.0A
300F	4.3kW	480V	3-phase wye	6	5.2A
300G	16.2kW	380V	2 delta circuits	1	12.3A
300H	8.1kW	380V	3-phase delta	2	12.3A
300J	5.4kW	380V	3-phase wye parallels	3	8.2A
300K	4.0kW	380V	3-phase delta (2R)	4	6.2A
300L	2.7kW	380V	1 circuit	5	7.1A
300M	2.7kW	380V	3-phase wye	6	4.1A
300N	28.4kW	240V	2 delta circuits	1	34.1A
300P	14.2kW	240V	3-phase delta	2	34.1A
300Q	9.5kW	240V	3-phase wye parallels	3	22.8A
300R	7.1kW	240V	3-phase delta (2R)	4	17.1A
300S	4.7kW	240V	1 circuit	5	19.7A
300T	4.7kW	240V	3-phase wye	6	11.4A
300U	21.3kW	208V	2 delta circuits	1	29.6A
300V	10.6kW	208V	3-phase delta	2	29.6A
300W	7.1kW	208V	3-phase wye parallels	3	19.7A
300X	5.3kW	208V	3-phase delta (2R)	4	14.8A
300Y	3.5kW	208V	1 circuit	5	17.1A
300Z	3.5kW	208V	3-phase wye	6	9.9A

# CAST-X 3000 Circulation Heater

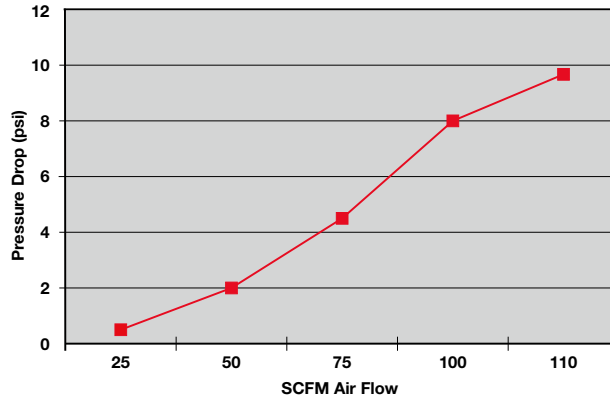
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## PRESSURE DROP - AIR

Assumes 100psi inlet pressure

Values are for one tube only. Running tubes in parallel  
will have similar pressure drop and double the flow rate

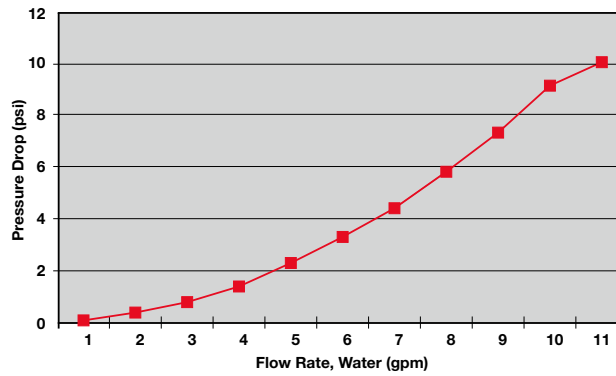
Values are approximate



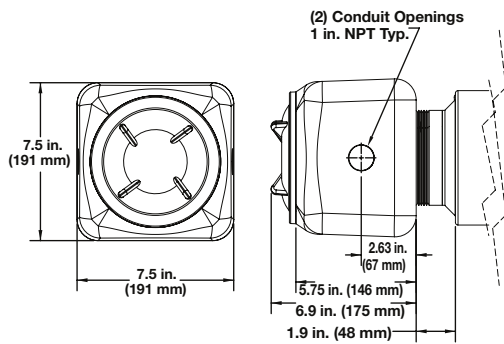
## PRESSURE DROP - WATER

Values are for one tube only. Running tubes in parallel  
will have similar pressure drop and double the flow rate

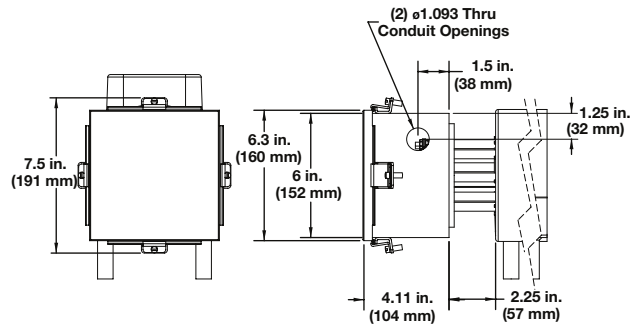
Values are approximate



## EXPLOSION PROOF HOUSING WITHOUT THERMOSTAT



## NEMA 4 HOUSING WITH AND WITHOUT THERMOSTAT

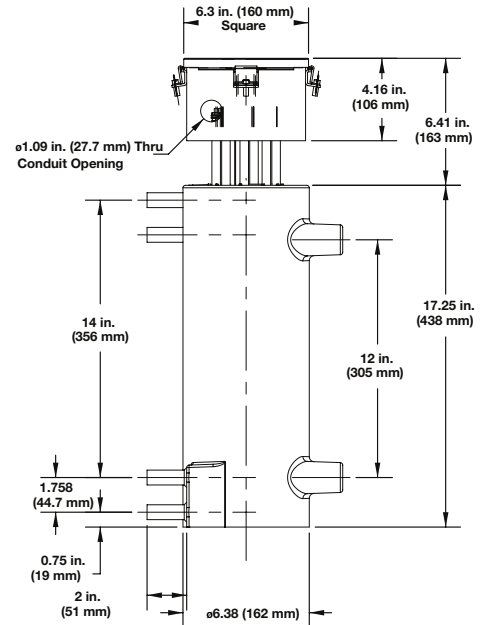
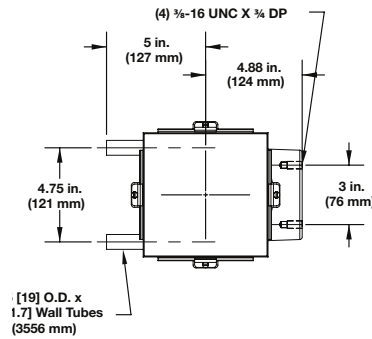


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## DIMENSIONS



## ORDERING INFORMATION

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

**Cast-X 3000:** (2) 3/4 in. (19 mm) O.D., 0.065 in. (1.7 mm) wall, seamless 316L SS tubing

### Heater Wattage:

<b>300A</b>	= 25.8kW, 480V, 2 delta circuits
<b>300B</b>	= 12.9kW, 480V, 3-phase delta
<b>300C</b>	= 8.6kW, 480V, 3-phase wye parallels
<b>300D</b>	= 6.4kW, 480V, 3-phase delta (2R)
<b>300E</b>	= 4.3kW, 480V, 1 circuit
<b>300F</b>	= 4.3kW, 480V, 3-phase wye
<b>300G</b>	= 16.2kW, 380V, 2 delta circuits
<b>300H</b>	= 8.1kW, 380V, 3-phase delta
<b>300J</b>	= 5.4kW, 380V, 3-phase wye parallels
<b>300K</b>	= 4.0kW, 380V, 3-phase delta (2R)
<b>300L</b>	= 2.7kW, 380V, 1 circuit
<b>300M</b>	= 2.7kW, 380V, 3-phase wye
<b>300N</b>	= 28.4kW, 240V, 2 delta circuits
<b>300P</b>	= 14.2kW, 240V, 3-phase delta
<b>300Q</b>	= 9.5kW, 240V, 3-phase wye parallels
<b>300R</b>	= 7.1kW, 240V, 3-phase delta (2R)
<b>300S</b>	= 4.7kW, 240V, 1 circuit
<b>300T</b>	= 4.7kW, 240V, 3-phase wye
<b>300U</b>	= 21.3kW, 208V, 2 delta circuits
<b>300V</b>	= 10.6kW, 208V, 3-phase delta
<b>300W</b>	= 7.1kW, 208V, 3-phase wye parallels
<b>300X</b>	= 5.3kW, 208V, 3-phase delta (2R)
<b>300Y</b>	= 3.5kW, 208V, 1 circuit
<b>300Z</b>	= 3.5kW, 208V, 3-phase wye

### Enclosures and Thermostats:

<b>W00</b>	= NEMA 4 housing, no t-stat
<b>W0J</b>	= NEMA 4 housing with Type J T/C in t-well
<b>W0K</b>	= NEMA 4 housing with Type K process T/C in t-well
<b>WJJ</b>	= NEMA 4 housing with Type J T/C for process and high-limit control
<b>WKK</b>	= NEMA 4 housing with Type K T/C for process and high-limit control
<b>E00</b>	= NEMA 7 ATEX housing, no t-stat
<b>E0K</b>	= NEMA 7 ATEX housing with Type K process T/C in t-well
<b>EOJ</b>	= NEMA 7 ATEX housing with Type J process T/C in t-well
<b>EJJ</b>	= NEMA 7 ATEX housing with Type J for process and high-limit control
<b>EKK</b>	= NEMA 7 ATEX housing with Type K for process and high-limit control

### Accessories:

High pressure compression fitting - 274-55-6-7

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