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 footprint 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, CO₂, 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

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

(2) Conduit Openings
1 in. NPT Typ.

7.5 in. (191 mm)

7.5 in. (191 mm)

6.9 in. (175 mm)

5.75 in. (146 mm)

2.63 in. (67 mm)

(2) ø1.093 Thru Conduit Openings

1 in. NPT Typ.

7.5 in. (191 mm)

6.9 in. (175 mm)

5.75 in. (146 mm)

2.63 in. (67 mm)

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:

- 300A = 25.8kW, 480V, 2 delta circuits
- 300B = 12.9kW, 480V, 3-phase delta
- 300C = 8.6kW, 480V, 3-phase wye parallels
- 300D = 6.4kW, 480V, 3-phase delta (2R)
- 300E = 4.3kW, 480V, 1 circuit
- 300F = 4.3kW, 480V, 3-phase wye
- 300G = 16.2kW, 380V, 2 delta circuits
- 300H = 8.1kW, 380V, 3-phase delta
- 300I = 5.4kW, 380V, 3-phase wye parallels
- 300J = 4.0kW, 380V, 3-phase delta (2R)
- 300K = 2.7kW, 380V, 1 circuit
- 300M = 2.7kW, 380V, 3-phase wye
- 300N = 28.4kW, 240V, 2 delta circuits
- 300P = 14.2kW, 240V, 3-phase delta
- 300Q = 9.5kW, 240V, 3-phase wye parallels
- 300R = 7.1kW, 240V, 3-phase delta (2R)
- 300S = 4.7kW, 240V, 1 circuit
- 300T = 4.7kW, 240V, 3-phase wye
- 300U = 2.13kW, 208V, 2 delta circuits
- 300V = 10.6kW, 208V, 3-phase delta
- 300W = 7.1kW, 208V, 3-phase wye parallels
- 300X = 5.3kW, 208V, 3-phase delta (2R)
- 300Y = 3.5kW, 208V, 1 circuit
- 300Z = 3.5kW, 208V, 3-phase wye

Enclosures and Thermostats:

- W00 = NEMA 4 housing, no t-stat
- W0J = NEMA 4 housing with Type J T/C in t-well
- W0K = NEMA 4 housing with Type K process T/C in t-well
- WJJ = NEMA 4 housing with Type J T/C for process and high-limit control
- WKK = NEMA 4 housing with Type K T/C for process and high-limit control
- E00 = NEMA 7 ATEX housing, no t-stat
- E0K = NEMA 7 ATEX housing with Type K process T/C in t-well
- E0J = NEMA 7 ATEX housing with Type J process T/C in t-well
- EJJ = NEMA 7 ATEX housing with Type J for process and high-limit control
- EKK = 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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