

Circulation Heaters

Mechanical & Electronic Control Options

Ordering Information

To Order — Complete the Model Number using the Matrix provided.

Note – Shaded sections of the model build table are not a finite list. Items such as Number of Elements, Wattage, Voltage, Circuits, and Phase should be adjusted to match design.

Model	Clean Water
GCH	Gas Circulation Heater
NWH	Liquid Circulation Heater
Code	Bundle Connection Style
(Blank)	ANSI Flange
MT	NPT Threaded Screwplug
SRG	Special Galvanized Body w/ 2.5" NPT Plug, Incoloy Element
Code	Element Sheath Material
(Blank)	Copper
O	Carbon Steel
S	304 Stainless Steel
I	Incoloy 800
X	Other Material
Code	Shell Material
(Blank)	Carbon Steel
S	304 Stainless Steel
X	Other Material
Code	Baffled Flow
(Blank)	No Baffles
B	Baffled Flow
Code	Number of Elements
03	Three Heating Elements
06	Six Heating Elements
12	Twelve Heating Elements
18	Eighteen Heating Elements
27	Twenty Seven Heating Elements
36	Thirty Six Heating Elements
45	Forty Five Heating Elements
Code	Wattage
004P5	4.5 kW (use actual kilowatt in three digits)
Code	Terminal Housing Style
E1	General Purpose
E4	Moisture Resistant
E2	Explosion / Moisture Resistant
E5	Explosion / Moisture Resistant - addition of Group IIC w/ Acetylene (IEC only)
Code	Non-Standard Feature
(Blank)	Catalog PCN item
XX	Custom Feature
Code	Voltage
208	208V
240	240V
380	380V
415	415V
480	480V
575	575V
Code	Number of Circuits
1	One
2	Two
3	Three
4	Four
Code	Phase
1P	Single Phase
3P	Three Phase
Code	Kilowatts
4.5	kW

GCH **I** **-03** **-004P5** **-E4** **480V** **1** **-3P** **4.5kW** **Typical Model Number**

Example of Final Model Description: GCHI-03-004P5-E4 480V 1-3P 4.5kW

Note: Shaded sections of the model build table are not a finite list. Items such as Number of Elements, Wattage, Voltage, Circuits and Phase should be adjusted to match design.

Circulation Heaters

Mechanical & Electronic Control Options

- **Wide Range of Mechanical and Electronic Control Options**
- **NEMA 1, 4, 7 and 12 Enclosures**
- **Process Controllers - Integral or Remote with the Sensor in the Heater Thermowell (AR Control) or in the Heater Outlet**
- **High Limit Controllers - Integral or Remote, Sensor in the Heater Thermowell (AR Control) or Welded to Element Sheath**
- **Type J or K Thermocouples (Std.) RTD's and Other Type Thermocouples Available**
- **Mechanical and Electronic Controls can be Combined**
- **Magnetic Contactors or SCR Power Control for Multiple Circuits and High Amperages**

Applications

Mechanical and Electronic Controls & Thermal Sensors can be provided for all circulation heaters for overtemperature protection for the heater and fluid medium and/or for process control.

Control Selection Guidelines

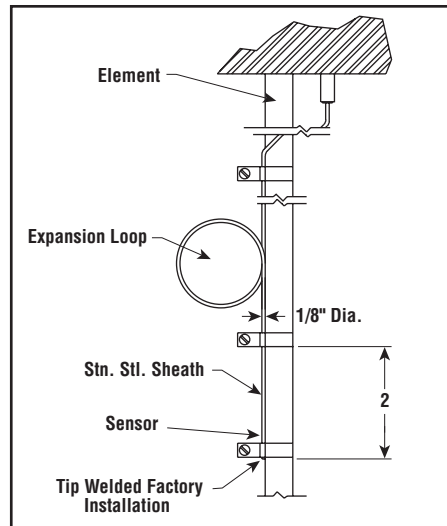
AR Controls — Type AR bulb and capillary controls are standard on many stock heaters with temperature ranges as indicated in the product descriptions. These rugged non-indicating controls are suitable for most applications. Optional temperature ranges are available. Consult the Controls Section for details.

Electronic Controls — Electronic process controls provide greater control accuracy and operating system flexibility than is available with mechanical controls. Consult the Controls Section for details.

Control Panels — Integral or remote mounted control panels with electronic controls and solid state (SCR) or contactor power controllers can be provided using virtually any combination of control devices. Consult the Controls Section for details.

Overtemperature Protection — De-energizing the heating elements when sheath temperatures exceed recommended limits can prevent element damage and extend the life of the heater. A thermal sensor can be attached to the element sheath for overheat protection. Properly connected to a solid state high limit controller, the sensor will turn the heater off in the event of a low-flow or no-flow condition. Type J thermocouples are recommended for liquid and type K for gas applications.

Remote Mounted Electronic Control

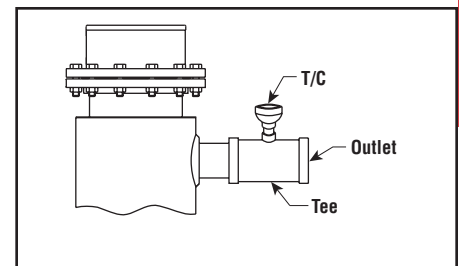


High Limit Controls — Electronic high limit controls can be mounted on the heater chamber with an overheat thermocouple welded to heating element sheath inside the chamber. This arrangement provides protection by shutting down the heater at a predetermined element sheath temperature. Option also available with thermocouple only, welded or clamped to heater element sheath as shown above.

Magnetic Contactors — Heaters utilizing two or more circuits or with amperage draw that exceeds the thermostat rating will require a contactor(s). Contactors are ordered separately and mounted remote from the heater. Consult the Controls Section for details.

Electronic Process Control Thermocouples — Thermal sensors can be mounted in a tee on the heater outlet nozzle. Electronic controller is remote mounted.

Ordering Information — To order circula-



tion heaters with electronic controls, specify model, volts, kW and provide the following information.

Overtemperature thermocouple: Yes / No /

Electronic Control Check List

High temperature limit controller: Yes / No /

Controller Model No. _____

Mounting: / Integral / Remote

Process control thermocouple: Yes / No /

Type: _____

Location: _____

Process controller: Yes / No /

Controller Model No. _____

Mounting: / Integral / Remote