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Series 48 Filter Housing Heaters

HEATER JACKETS FOR SINGLE ROUND FILTER HOUSING SIZES 5" TO 30"

Series 48 Filter Housing Heaters are a cost-effective and low maintenance solution for biopharmaceutical processes requiring superior thermal control. Series 48 heaters prevent vapor condensation in sterile vent and process filters and piping systems and help maintain preferred material viscosities. Series 48 heaters offer tight temperature control and advanced functionality, while complying with strict safety regulations.

Series 48 heaters feature a unique temperature controller which integrates a temperature process controller, a high-low temperature alert, and power switching with a safety high limit — all inside a NEMA 4X enclosure. The controller features a user-friendly digital display and an optional Modbus RTU Communications module allows users to remotely adjust parameters through its RS485 interface.

Features & Benefits

Improved Heater Design

- Specially designed heater jackets for optimum performance and increased thermal uniformity
- Thermocouple embedded in heater mat for tight temperature control
- Corrosion-resistant stainless steel snaps for easy installation or removal
- Contoured foam insulator covers dome section to prevent heat loss
- External heater surfaces safe to touch

Advanced Temperature Control

- User-adjustable and resettable temperature set points for advanced process control
- User-friendly communication and display options provide greater temperature control versatility and functionality
- Adjustable and resettable safety limit device integrated into controller circuitry eliminates the need for a thermal fuse
- Optional Modbus communications allows for remote display, control, and diagnostics of individual heater status
- No-arc relay ensures long controller lifetime and increased reliability
- Programmable Low Temperature Alert/ High Temperature Alert (LTA/HTA) integrated into controller circuitry
- Multiple LEDs display controller/heater operating and alert conditions and status

NEMA 4X-Rated

- Heater jacket, controller and cables are certified to NEMA 4X requirements
- Water and dust resistant
- Corrosion resistant
- Resists damage from ice buildup

Additional Features

- Control components reside inside controller, away from heat source, extending heater life
- Increased energy efficiency outperforms steam-jacketed housings
- Fast delivery of standard heaters. Custom heaters available upon request

Applications

Series 48 filter housing heaters are used in conjunction with sterile vent and process filter housings and are ideally suited for processes such as:

- Bioprocessing and Pharmaceutical Process Fluids
- Fermentation
- Product Recovery
- Water for Injection
- Filtration and Purification Processes
- Skidded Systems
- Tanks and Vessels

The NEMA-rated heaters allow for installation in the harshest of environments. The units can be mounted in any location where moisture is present, including clean-in-place (CIP) washdown areas.

Description

The Series 48 filter housing heaters consist of molded silicone foam with a thermocouple embedded in the heater mat. The contoured design conforms to the housing body, preventing heat loss. The heaters are easily removed for filter cartridge replacement.

Each heater features a separate temperature controller inside a polycarbonate/ABS NEMA enclosure. The temperature controller provides unsurpassed thermal control via two micro-processor control circuits, each with a power relay — one dedicated to temperature control and the other to over-temperature protection. This significantly reduces downtime potential and the need to stock spare heaters.

The temperature controller manages all of the functions for the heater, including: temperature control, thermal safety, and operating status notification via three colored LEDs.

Temperature controllers are available in two different options: a Display Module or a Display and Communications Module. The Display Module (Figure 1) allows the user to locally adjust the operating parameters, including temperature set point, high/low temperature alerts, high limit (safety) set point, control mode (on-off/PID) and related parameters. It contains an alphanumeric LED display that displays the heater's current temperature and alert condition.

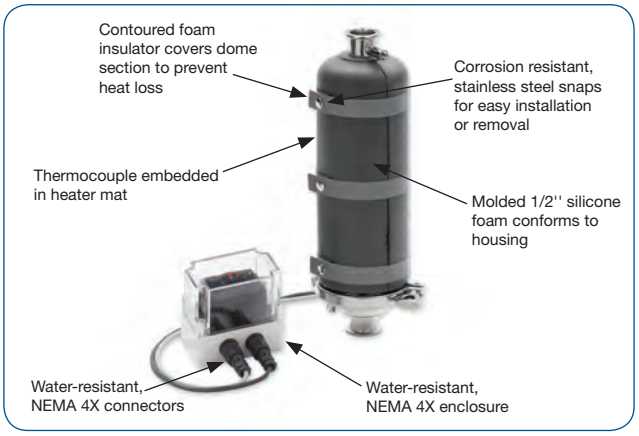
The Display and Communications Module (Figure 2) includes all the functionality of the Display Module, but adds Modbus RTU communications with an RS485 interface. This allows users to remotely adjust the operating parameters and monitor heater operating status. The temperature controller is housed inside a protective NEMA 4X-rated enclosure that is resistant to water and dust. The enclosure is also resistant to corrosion and damage from ice buildup.



Figure 1 —
Display Module



Figure 2 —
Display & Communications Module



Heater Features

Specifications

Heater Specifications

Pre-Set Temperature Set Points	95°C (203°F)
Exterior Range Temperature	Ambient to ≈ 43°C (109°F) (based on 95°C set point)
Interior Range Temperature	Ambient to 185°C (365°F)
Foam Thickness	0.5 in. (12.7 mm)
Materials	Molded silicone foam, fiberglass reinforced silicone, Teflon® insulated wire
Connectors	Bulgin Mini Buccaneer
Weight Range	1 to 5 lbs (0.45 to 2.27 kg)
Compliance	CE, UL E493192, cUL E493192, SEMI S2, NEMA 4X

Controller Specifications

Enclosure	Polycarbonate Lid, ABS Base
Power Requirements	100-240VAC input (240VAC provided with flying leads)
Power Consumption	0.3 W
Relay Contact Rating	SPDT, 2 A @ 50 VAC resistive, 1 A @ 30 VDC
Dimensions	4.69" x 2.72" x 4.61" (119 x 69 x 117 mm)
Compliance	CE, UL E43684, cUL E43684, SEMI S2, NEMA 4X

Power Consumption

120VAC	5" heater = 1.31A 10" heater = 2.33A 20" heater = 4.37A 30" heater = 5.00A
240VAC	5" heater = 0.65A 10" heater = 1.16A 20" heater = 2.18A 30" heater = 3.21A

Dry Contact

Optional access port for dry-contact relay provides a remote signal indicating whether the heater is within or outside of the preferred temperature range. The temperature range is user-adjustable. When the heater is within this preferred temperature range the relay is closed. When the heater is outside the temperature range, either above or below, the relay will be open.

NEMA 4X Heater Assembly Ordering Information

Display Module	Part Number	Housing	Controller/Cable/Reference Numbers
120V, w/Flying Leads	48-1105-1-X 48-1110-1-X 48-1120-1-X 48-1130-1-X	5" Single Round 10" Single Round 20" Single Round 30" Single Round	100015411 KIT, CNTRL, SERIES 48, NEMA 100015472 POWER CABLE
240V, w/Flying Leads	48-1205-1-X 48-1210-1-X 48-1220-1-X 48-1230-1-X	5" Single Round 10" Single Round 20" Single Round 30" Single Round	
120V, NEMA 5-15P	48-1105-2-X 48-1110-2-X 48-1120-2-X 48-1130-2-X	5" Single Round 10" Single Round 20" Single Round 30" Single Round	100015411 KIT, CNTRL, SERIES 48, NEMA 100015453 CABLE, 20FT, 120V, NEMA 5-15P
120V, NEMA L5-15P	48-1105-3-X 48-1110-3-X 48-1120-3-X 48-1130-3-X	5" Single Round 10" Single Round 20" Single Round 30" Single Round	100015411 KIT, CNTRL, SERIES 48, NEMA 100015562 CABLE, 20FT, NEMA 4X, L5-15P
Display/Dry Contacts	**Part Number**	**Housing**	**Reference Numbers**
120V, w/Flying Leads, Dry Contacts	48-2105-1-X 48-2110-1-X 48-2120-1-X 48-2130-1-X	5" Single Round 10" Single Round 20" Single Round 30" Single Round	100015472 CABLE, 20FT, NEMA 4X, F-LEADS 100016388 KIT, CNTRL, SERIES 48, NEMA 4X, LTA 100016392 ASSY, CABLE, SGNL, TMP, 20FT, NEMA 4X
240V w/Flying Leads, Dry Contacts	48-2205-1-X 48-2210-1-X 48-2220-1-X 48-2230-1-X	5" Single Round 10" Single Round 20" Single Round 30" Single Round	
120V, NEMA 5-15P, Dry Contacts	48-2105-2-X 48-2110-2-X 48-2120-2-X 48-2130-2-X	5" Single Round 10" Single Round 20" Single Round 30" Single Round	100015453 CABLE, 20FT, 120V, NEMA 5-15P 100016388 KIT, CNTRL, SERIES 48, NEMA 4X, LTA 100016392 ASSY, CABLE, SGNL, TMP, 20FT, NEMA 4X
120V, NEMA L5-15P, Dry Contacts	48-2105-3-X 48-2110-3-X 48-2120-3-X 48-2130-3-X	5" Single Round 10" Single Round 20" Single Round 30" Single Round	100015562 CABLE, 20FT, NEMA 4X, L5-15P 100016388 KIT, CNTRL, SERIES 48, NEMA 4X, LTA 100016392 ASSY, CABLE, SGNL, TMP, 20FT, NEMA 4X
Display/Communications Module	**Part Number**	**Housing**	**Reference Numbers**
120V, w/Flying Leads	48-3105-1-X 48-3110-1-X 48-3120-1-X 48-3130-1-X	5" Single Round 10" Single Round 20" Single Round 30" Single Round	100015472 CABLE, 20FT, NEMA 4X, F-LEADS 100015572 KIT, CNTRL, SERIES 48, NEMA, COM 100015577 CABLE, RJ45, IP68, 5M
240V, w/Flying Leads	48-3205-1-X 48-3210-1-X 48-3220-1-X 48-3230-1-X	5" Single Round 10" Single Round 20" Single Round 30" Single Round	
120V, NEMA 5-15P	48-3105-2-X 48-3110-2-X 48-3120-2-X 48-3130-2-X	5" Single Round 10" Single Round 20" Single Round 30" Single Round	100015453 CABLE, 20FT, 120V, NEMA 5-15P 100015572 KIT, CNTRL, SERIES 48, NEMA, COM 100015577 CABLE, RJ45, IP68, 5M
120V, NEMA L5-15P	48-3105-3-X 48-3110-3-X 48-3120-3-X 48-3130-3-X	5" Single Round 10" Single Round 20" Single Round 30" Single Round	100015562 CABLE, 20FT, NEMA 4X, L5-15P 100015572 KIT, CNTRL, SERIES 48, NEMA, COM 100015577 CABLE, RJ45, IP68, 5M

Housing Heater	Part Number	Housing	Housing Heater	Part Number	Housing
120V	9840-0071-X 9840-0072-X 9840-0073-X 9840-0074-X	5" Single Round 10" Single Round 20" Single Round 30" Single Round	240V	9840-0075-X 9840-0076-X 9840-0077-X 9840-0078-X	5" Single Round 10" Single Round 20" Single Round 30" Single Round

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Series 48 Filter Housings - 2/18
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