

Chromalox®

Installation Instructions

SERVICE REFERENCE

DIVISION 4	SECTION
SALES REFERENCE (Supersedes PD447-1)	PD447-2
161-304262-001	
DATE	DECEMBER, 2004

Replacement Thermal Fuses

For Use on Products Listed in Table Below

Single Use Fuse			Resettable Fuse ²			Applicable Products	Lead Length (in)
Model No.	PCN	Fuse Temp. Limit (°F) ^{3,4,5}	Model No. ²	PCN	Fuse Temp. Limit (°F) ^{3,4,5}		
F	360330	219	RF	360436	219	GS, GT, GS3, GT3	18
FM ¹	360348	262	RFM	360444	262		18
FH	360356	330	RFH	360452	330		18
FT	360364	219	RFT	360460	219	GTF, GTFL, GXF GTF6, GTF9, QM, QM3	18
FTM ¹	360372	262	RFTM	360479	262		18
FL	360399	219	RFL	360495	219		86
FLM ¹	360401	262	RFLM	360508	262	GSL, GTL, GSL3, GTL3, GSV3, GTV3	86
FLH	360410	330	RFLH	360516	330		86
FLT	224717	219	RFLT	224725	219	GTFL, GXFL, GTFL3	86
Resettable Fuse System Circuitry ²							
Model No.	PCN	Temp.	Products Used on				
RFM-EC	360321	All	All				



Note: Single fuse rated to 240V, 25A cold. Resettable fuse rated to 240 V, 5 A cold.

¹ Standard fuse from factory for product types listed in box to right.

² Resettable fuse is bi-metal switch only and requires connection to Resettable Fuse System Circuitry, model RFM-EC, PCN 360321 which must be ordered separately. RFM-EC includes Manual Reset, Audible Alarm and Relay rated to 240 V, 5 Amp.

³ Process temperature of solution must always be a minimum of 30°F below Fuse Temperature Limit.

⁴ For fluoropolymer series process temperatures over 180°F, consult factory. (GTF / GXF Series)

⁵ For QM Series process temperatures above 230°F, consult factory.

INSTALLATION

⚠ WARNING

ELECTRIC SHOCK HAZARD. Disconnect all power to heater before replacing Fuse. Failure to do so could result in personal injury or death.

The thermal fuse device must be properly installed and these procedures must be followed or heater failure or fire may result.

A liquid level control is required as an additional safety feature to help minimize the possibility of fire.

1. Insure all electrical power to the heater is shut-off.
2. Unscrew the terminal head cover. Remove the wire nuts from the fuse leads and save for reuse.
3. Remove the sealing material and pull the fuse out of the well. Save the sealing material for reuse.
4. Check the fuse and the inside of the well for wetness. If wet, the well must be dried out. We recommend using a heat gun or hair dryer. Immerse the tube into the solution. If moisture again appears inside the well, **DO NOT** use the heater! Call your local Chromalox representative for further advice.
5. If the removed fuse is dry, proceed by using it as a guide to

cut and strip the new fuse lead wires to the correct lengths.

6. Reconnect the fuse leads to the extension leads using the original wire nuts.
7. Reinsert the fuse into the well making sure it is fully seated to the bottom of the well.
8. Reseal using the original sealing material or an RTV type sealant.
9. Replace the head cover, return the heater to the tank.
10. Turn power back on.

Thermal Fuse Temperature System —

Grounded electric immersion heaters are practical, efficient and safe when used properly and installed in tanks that have proper solution levels, good ventilation, trained operators and safeguards such as liquid level controls and Chromalox thermal fuse over-temperature sensors.

Chromalox thermal fuse systems help reduce the hazards created by low liquid levels and when properly seated and wired, they will cut off the power to the heaters, thus avoiding the high temperatures resulting if solution levels are low enough to expose heater hot zones.

THERMAL FUSE INSTALLATION/REPLACEMENT

Single Use System —

Sensor consists of a one-time thermal fuse which is standard on the over-the-side metal, Teflon® and quartz heaters, and L-shaped metal and Teflon® heaters, listed in the table on page 1.

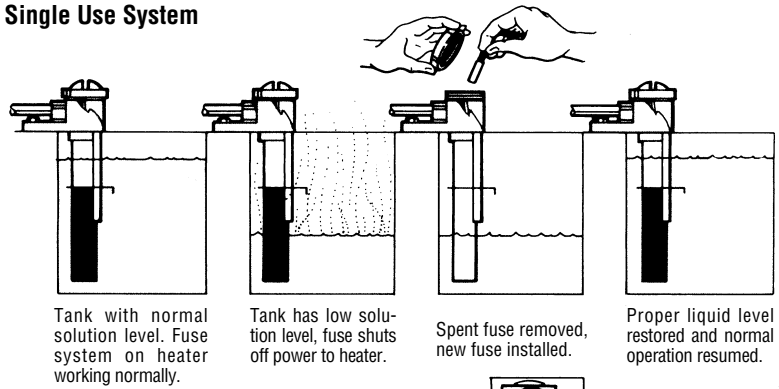
The thermal fuse is wired in series with the controller. To operate properly, the fuse must be fully seated to the bottom of the thermowell tube. When the fuse blows, shut off the main power to the heater, remove the spent fuse, install the new one, then refill the tank. Turn power back on. Replacement thermal devices must be purchased from Chromalox.

Resettable Fuse System —

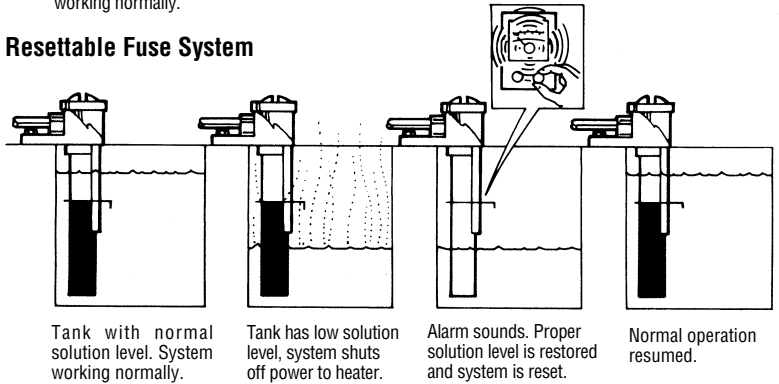
Sensor consists of a Bi-metallic thermostatic sensor, an audible alarm, alarm relay, and reset button. This option is available on metal, Teflon® and quartz heaters, as listed in the table on page 1.

The system operates on the same principle as the single use fuse except that the sensor does not blow. It operates as a Bi-metallic thermostat which opens and sounds the alarm. The reset button must be pushed to re-activate the heater and control after the solution level in the tank has been raised to the proper level.

Single Use System



Resettable Fuse System



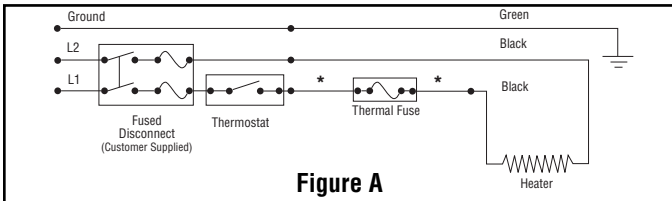
⚠ WARNING

In both of the above cases make sure the cause of the failure has been determined and corrected.

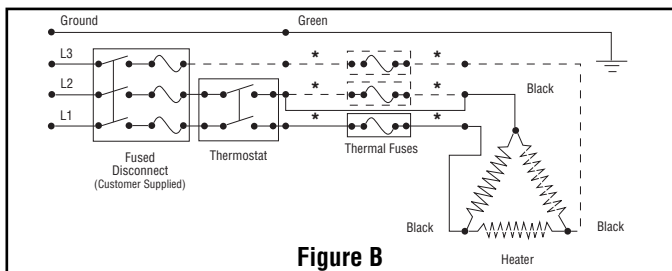
WIRING

Representative wiring diagrams for heaters with Thermal Fuses —

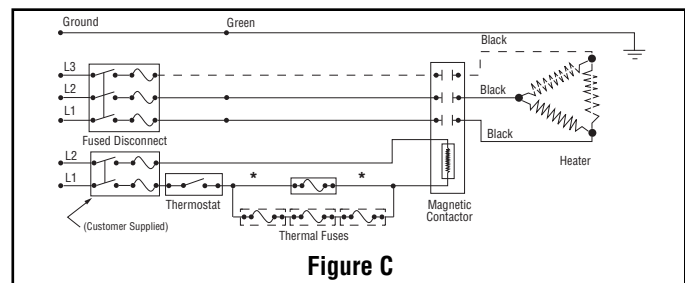
Single phase heater circuit using a SPST thermostat. Line voltage and/or current do not exceed thermostat or thermal fuse rating (Figure A).



One Single phase heater or (3) single phase heaters equal in size and each having a thermal fuse wired as a 3 phase heater circuit using a DPST thermostat. Line voltage and current do not exceed thermostat or thermal fuse(s) rating (Figure B). Dotted line and L3 indicate 3 phase connections.



Single phase or 3 phase heater circuit. Line voltage and/or current exceeds thermostat or thermal fuses ratings (Figure C).



Dotted line and L3 indicate 3 phase connections.

Thermal Fuse Electrical and Temperature Ratings —

Single Use Fuses rated at 25 amps, 240 VAC max.

Resettable Fuses rated at 5 amps, 240 VAC max.

Heater	Single Use Wire Color	Reset Wire Color	Temp.	Process Temp.
GS, GT, GS3, GT3	White	White	219	<180
	Blue	Blue	262	<230
	Red	Red	330	<300
QM, QM3	Red	White	219	<180
	Blue	Blue	262	<230
GTF, GTFL, GXF, GXFL	Red	White	219	<180
GTF6, GTF9, GTFL3	Red	White	219	<180
GSL, GTL or GSL3, GTL3 or GSV3, GTV3	White	White	219	<180
	Blue	Blue	262	<230
	Red	Red	330	<300

Limited Warranty:

Please refer to the Chromalox limited warranty applicable to this product at <http://www.chromalox.com/customer-service/policies/terms-of-sale.aspx>.

Chromalox
PRECISION HEAT AND CONTROL

2150 N. RULON WHITE BLVD., OGDEN, UT 84404
Phone: 1-800-368-2493 www.chromalox.com