

3HX SERIES, THREE ELEMENT FLUOROPOLYMER (PTFE) HEATERS					
WATTS	VOLTS	HOT ZONE In./(mm)	OVERALL LENGTH In./(mm)	MODEL NUMBER	SHIP WGT. Lbs./(kg)
1000	120	9	17	3HX1117-1**	10
	240	(230)	(430)	3HX1217-**	(4.5)
1500	120	15	23	3HX1.5123-1**	11
	240	(380)	(585)	3HX1.5223-**	(5)
	480			3HX1.5423-**	
2000	120	21	29	3HX2129-1**	12
	240	(535)	(735)	3HX2229-**	(5.5)
	480			3HX2429-**	
3000	240	28	35	3HX3235-**	14
	480	(710)	(890)	3HX3435-**	(6.5)
4000	240	38	47	3HX4247-**	17
	480	(965)	(1195)	3HX4447-**	(8)
5000	240	47	59	3HX5259-**	20
	480	(1195)	(1500)	3HX5459-**	(9)
6000	240	55	68	3HX6268-**	23
	480	(1400)	(1725)	3HX6468-**	(10.5)

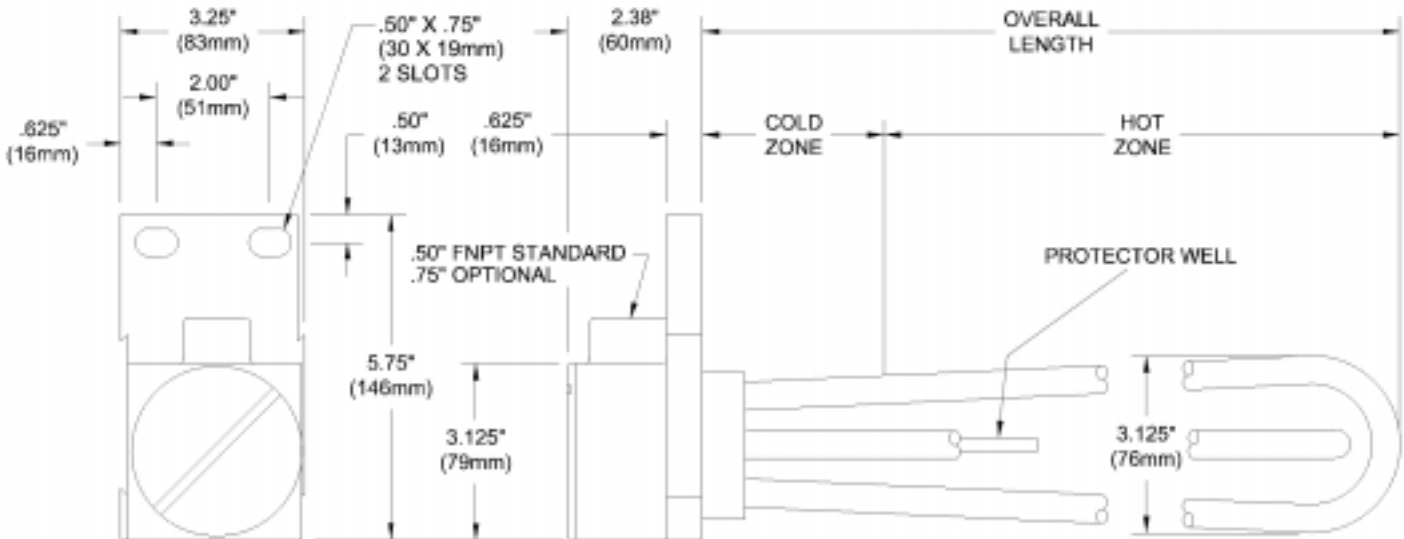
Three phase standard.

Product Features and Benefits:

- ◆ **SUPERIOR CHEMICAL RESISTANCE:** Inert to most aqueous acid, alkaline, anodizing and pickling solutions up to 212°F (100°C).
- ◆ **RUGGED CONSTRUCTION:** Heavy wall fluoropolymer (PTFE) covered stainless steel element reduces permeation and eliminates the need for gas purge systems. Guaranteed 100% pinhole free.
- ◆ **OUTSTANDING PERFORMANCE:** Low watt density design (10 watts/square inch, 1.5w/cm²) for long service life.
- ◆ **CORROSION RESISTANT HEAD:** Vapor tight, flame retardant polypropylene terminal enclosure with 3-foot (.9m) flexible PVC liquid tight conduit.
- ◆ **SAFETY FEATURES:**
 - Grounded internal metal element.
 - Thermal protector built in. Replaceable PT-I fuse standard for solutions up to 190°F (88°C).
 - Non-floating construction.
- ◆ **CERTIFICATIONS:** UL, CSA, and CE.
- ◆ **SIZES:** 1,000 watts to 6,000 watts.
- ◆ **VOLTAGES:** 120, 240 or 480 volts. 208, 380, 415, 600 and other voltages available. Three phase standard, single phase available.
- ◆ **OPTIONS AVAILABLE** (consult factory):
 - Replaceable thermal protectors:
 - PT-IM: for solutions from 190°F (88°C) to 220°F (104°C).
 - Resettable thermal protectors:
 - PT-II: bi-metal switch for solutions up to 190°F (88°C).
 - PT-III: type-J thermocouple for solutions from 190°F (88°C) to 210°F (99°C).
 - PIII: type-J thermocouple for solutions from 210°F (99°C) to 250°F (121°C).
 - Longer vertical lengths (cold zones).
 - Polypropylene guards: recommended for applications up to 180°F (82°C).
 - Fluoropolymer (PTFE) guards: recommended for chromic acid or solutions over 180°F (82°C).
 - Special configurations.
 - Longer wire and conduit lengths.
 - Lower watt densities for highly viscous solutions and technical acids.
 - Temperature and level controls sized to match the heater.

To Order Call - Star Electric - 1.800.345.0369

DIMENSIONS



THREE ELEMENT FLUOROPOLYMER (PTFE) HEATER

Series	Wattage	Voltage	Overall Length	Options	Type of Fuse	Wire and Conduit Length																
	1 = 1000 1.5 = 1500 2 = 2000 3 = 3000 4 = 4000 5 = 5000 6 = 6000	1 = 120 2 = 240 4 = 480 -208 = 208 -277 = 277 -380 = 380 -415 = 415 -600 = 600	17 = 1kW 23 = 1.5kW 29 = 2kW 35 = 3kW 47 = 4kW 59 = 5kW 68 = 6kW			no designator = 36" length standard specify variations from standard Ex: -X84 = 84"																
	3HX = PTFE 3HS = 304 stainless steel																					
	X = any special configuration not called out in the part number (specify in clear text) -C = complete with guard no designator = three phase power (standard) -1 = single phase power																					
					<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;">Replaceable Fuse</th> </tr> </thead> <tbody> <tr> <td style="width: 30%;">-PT-I (std)</td> <td>for solutions up to 190°F</td> </tr> <tr> <td>-PT-IM</td> <td>for 190° - 220°F solutions</td> </tr> <tr> <th colspan="2" style="text-align: center;">Resettable Fuse</th> </tr> <tr> <td colspan="2" style="text-align: center;">(additional control components required)</td> </tr> <tr> <td>-PT-II</td> <td>for solutions up to 190°F</td> </tr> <tr> <td>-PT-III</td> <td>for 190° - 210°F solutions</td> </tr> <tr> <td>-PIII</td> <td>for 210° - 250°F solutions</td> </tr> </tbody> </table>		Replaceable Fuse		-PT-I (std)	for solutions up to 190°F	-PT-IM	for 190° - 220°F solutions	Resettable Fuse		(additional control components required)		-PT-II	for solutions up to 190°F	-PT-III	for 190° - 210°F solutions	-PIII	for 210° - 250°F solutions
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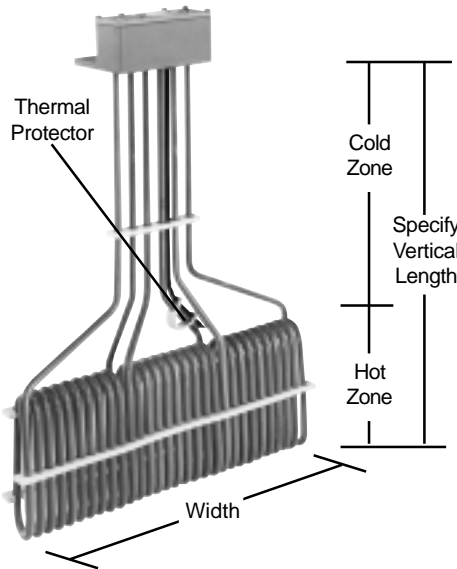
ORDERING EXAMPLE:

3HX15223-PT-I-X50

Three element fluoropolymer heater, 1500 watts, 240 volt, three phase, 23" overall length, PT-I thermal fuse, 50" wire and conduit

**PROCESS
TECHNOLOGY**

To Order Call - Star Electric - 1.800.345.0369



3HXO SERIES, MULTI ELEMENT FLUOROPOLYMER (PTFE) HEATERS							
WATTS	VOLTS	WIDTH	HOT ZONE	OVERALL LENGTH	MAX. COLD ZONE	MODEL NUMBER	SHIP WGT.
		in./(mm)	in./(mm)	in./(mm)	in./(mm)		Lbs./ (kg)
1500	120	10	6	11	36	3HXO1.5110-06-11-**	15
	240	(255)	(155)	(280)	(915)	3HXO1.5210-06-11-**	(7)
3000	240	10	6	11	36	3HXO3210-06-11-**	20
	480	(255)	(155)	(280)	(915)	3HXO3410-06-11-**	(9.5)
4500	240	10	9.5	17	35	3HXO4.5210-9.5-17-**	21
	480	(255)	(245)	(430)	(890)	3HXO4.5410-9.5-17-**	(9.5)
6000	240	12	10.5	17	35	3HXO6212-10.5-17-**	22
	480	(305)	(270)	(430)	(890)	3HXO6412-10.5-17-**	(10)
9000	240	12	16	23	35	3HXO9212-16-23-**	36
	480	(305)	(405)	(585)	(890)	3HXO9412-16-23-**	(16.5)
12000	240	12	20.5	29	35	3HXO12212-20.5-29-**	42
	480	(305)	(525)	(735)	(890)	3HXO12412-20.5-29-**	(20)
15000	240	12	25	35	31	3HXO15212-25-35-**	48
	480	(305)	(635)	(890)	(790)	3HXO15412-25-35-**	(22)
18000	240	12	29	40	25	3HXO18212-29-40-**	54
	480	(305)	(735)	(1015)	(635)	3HXO18412-29-40-**	(24.5)
24000	240	14	36	47	28	6HXO24214-36-47-**	58
	480	(355)	(915)	(1195)	(710)	6HXO24414-36-47-**	(26.5)
27000	240	14	40	54	30	6HXO27214-40-54-**	64
	480	(355)	(1015)	(1370)	(760)	6HXO27414-40-54-**	(29)

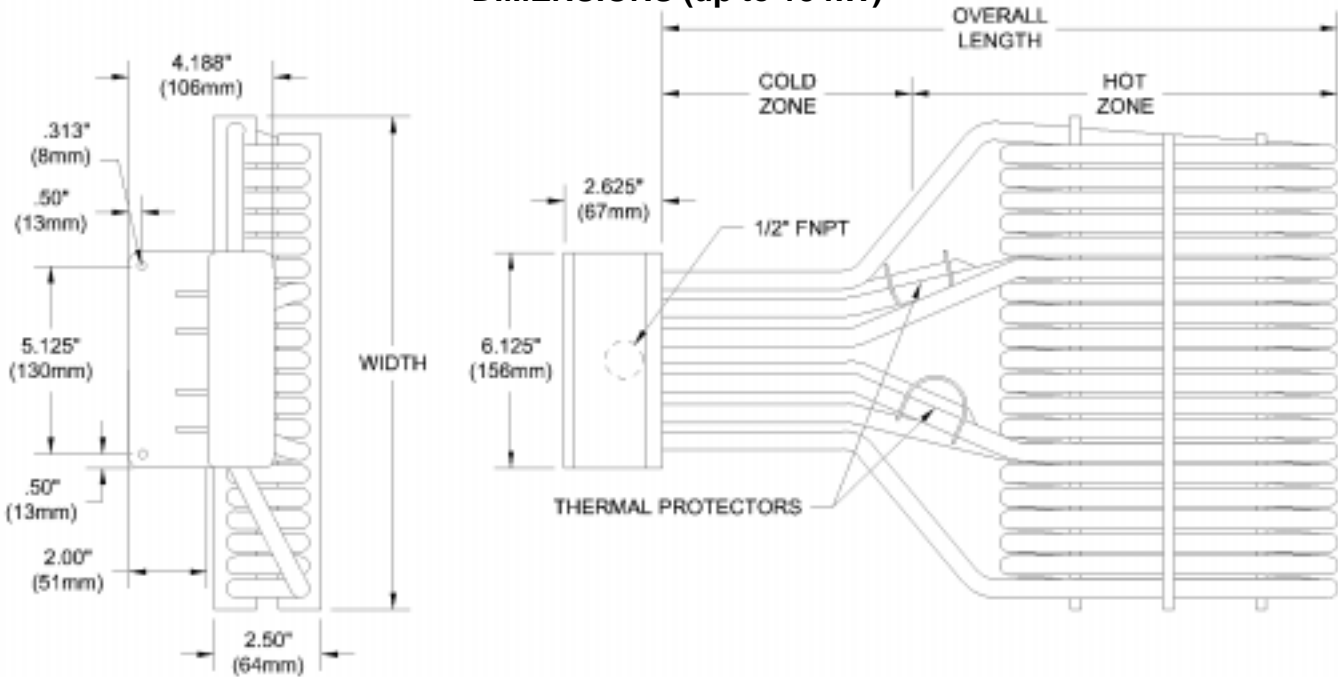
Three phase standard.

Product Features and Benefits:

- ◆ **SUPERIOR CHEMICAL RESISTANCE:** Inert to most aqueous acid, alkaline, anodizing and pickling solutions up to 212°F (100°C).
- ◆ **RUGGED CONSTRUCTION:** Heavy wall fluoropolymer (PTFE) covered stainless steel element reduces permeation and eliminates the need for gas purge systems. Guaranteed 100% pinhole free.
- ◆ **OUTSTANDING PERFORMANCE:** Low watt density design (10 watts/square inch, 1.5w/cm²) for long service life.
- ◆ **CORROSION RESISTANT HEAD:** Vapor tight, flame retardant polypropylene terminal enclosure with 3-foot (.9m) flexible PVC liquid tight conduit.
- ◆ **SAFETY FEATURES:**
 - Grounded internal metal element.
 - Thermal protector built in. Replaceable PT-I fuse standard for solutions up to 190°F (88°C).
 - Non-floating construction.
- ◆ **CERTIFICATIONS:** UL (1.5-18 kW), and CE.
- ◆ **SIZES:** 1,500 watts to 27,000 watts.
- ◆ **VOLTAGES:** 120, 240 or 480 volts. 208, 380, 415, 600 and other voltages available. Three phase standard, single phase available.
- ◆ **OPTIONS AVAILABLE** (consult factory):
 - Replaceable thermal protectors:
 - PT-IM: for solutions from 190°F (88°C) to 220°F (104°C).
 - Resettable thermal protectors:
 - PT-II bi-metal switch: for solutions up to 190°F (88°C).
 - PT-III type-J thermocouple for solutions from 190°F (88°C) to 210°F (99°C).
 - PIII type-J thermocouple for solutions from 210°F (99°C) to 250°F (121°C).
 - Longer vertical lengths (cold zones).
 - Polypropylene guards: recommended for applications up to 180°F (82°C).
 - Fluoropolymer (PTFE) guards: recommended for chromic acid or solutions over 180°F (82°C).
 - Special configurations.
 - Longer wire and conduit lengths.
 - Lower watt densities for highly viscous solutions and technical acids.
 - Temperature and level controls sized to match the heater.
 - Single phase voltage.

To Order Call - Star Electric - 1.800.345.0369

DIMENSIONS (up to 18 kW)



MULTI ELEMENT OVER THE SIDE FLUOROPOLYMER (PTFE) HEATER

Series	Wattage	Voltage	Width	Hot Zone	Overall Length	Options	Type of Fuse	Wire and Conduit Length
	1.5 = 1500 3 = 3000 4.5 = 4500 6 = 6000 9 = 9000 12 = 12000 15 = 15000 18 = 18000 24 = 24000 27 = 27000	1 = 120 2 = 240 4 = 480 -208- = 208 -277- = 277 -380- = 380 -415- = 415 -600- = 600		-06 = 1.5kW -06 = 3kW -9.5 = 4.5kW -10.5 = 6kW -16 = 9kW -20.5 = 12kW -25 = 15kW -29 = 18kW -36 = 24kW -40 = 27kW				no designator = 36" length standard specify variations from standard Ex: -X84 = 84"
		10 = 1.5kW 10 = 3kW 10 = 4.5W 12 = 6kW 12 = 9kW 12 = 12kW 12 = 15kW 12 = 18kW 14 = 24kW 14 = 27kW		-11 = 1.5kW -11 = 3kW -17 = 4.5W -17 = 6kW -23 = 9kW -29 = 12kW -35 = 15kW -40 = 18kW -47 = 24kW -54 = 27kW			<p style="text-align: center;">Replaceable Fuse</p> -PT-I (std) for solutions up to 190°F -PT-IM for 190° - 220°F solutions	
							<p style="text-align: center;">Resettable Fuse</p> (additional control components required) -PT-II for solutions up to 190°F -PT-III for 190° - 210°F solutions -PIII for 210° - 250°F solutions	
	3HXO = 3 element PTFE sheathed 6HXO = 6 element PTFE sheathed 3HSO = 3 element 304 stainless steel 6HSO = 6 element 304 stainless steel			specify custom lengths, not to exceed tank length			X = any special configuration not called out in the part number (specify in clear text) C = complete with guard no designator = three phase power (standard) -1 = single phase power	

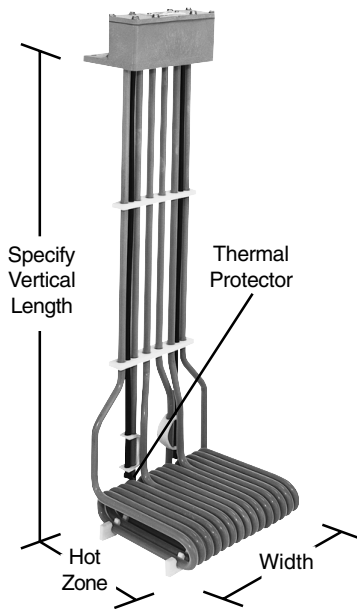
ORDERING EXAMPLE:

3HXO3210-06-11-PT-I-X50

Multi element fluoropolymer heater, 3000 watts, 240 volt, three phase, 10" wide, 6" hot zone, 11" overall length, PT-I thermal fuse, 50" wire and conduit

**PROCESS
TECHNOLOGY**

To Order Call - Star Electric - 1.800.345.0369



3HXOL SERIES, MULTI ELEMENT L-SHAPED FLUOROPOLYMER (PTFE) HEATERS							
WATTS	VOLTS	WIDTH In./(mm)	HOT	STD. VERT.	MAX.	MODEL NUMBER	SHIP WGT. Lbs./(kg)
			ZONE	LENGTH*	COLD ZONE		
			In./(mm)	In./(mm)	In./(mm)		
3000	240	7	13	18	36	3HXOL3207-13-R*-**	20
	480	(180)	(330)	(460)	(915)	3HXOL3407-13-R*-**	(9.5)
4500	240	9	10	18	35	3HXOL4.5209-10-R*-**	21
	480	(230)	(255)	(460)	(890)	3HXOL4.5409-10-R*-**	(9.5)
6000	240	10	19	18	35	3HXOL6210-19-R*-**	22
	480	(255)	(485)	(460)	(890)	3HXOL6410-19-R*-**	(10)
9000	240	10	23	18	35	3HXOL9210-23-R*-**	36
	480	(255)	(585)	(460)	(890)	3HXOL9410-23-R*-**	(16.5)
12000	240	10	30	18	35	3HXOL12210-30-R*-**	42
	480	(255)	(760)	(460)	(890)	3HXOL12410-30-R*-**	(19.5)
15000	240	10	36	18	31	3HXOL15210-36-R*-**	48
	480	(255)	(915)	(460)	(790)	3HXOL15410-36-R*-**	(22)
18000	240	10	42	18	25	3HXOL18210-42-R*-**	54
	480	(255)	(1070)	(460)	(635)	3HXOL18410-42-R*-**	(24.5)
24000	240	14	40	18	28	6HXOL24214-40-R*-**	58
	480	(355)	(1015)	(460)	(710)	6HXOL24414-40-R*-**	(26.5)
27000	240	14	45	18	30	6HXOL27214-45-R*-**	64
	480	(355)	(1145)	(460)	(760)	6HXOL27414-45-R*-**	(29)

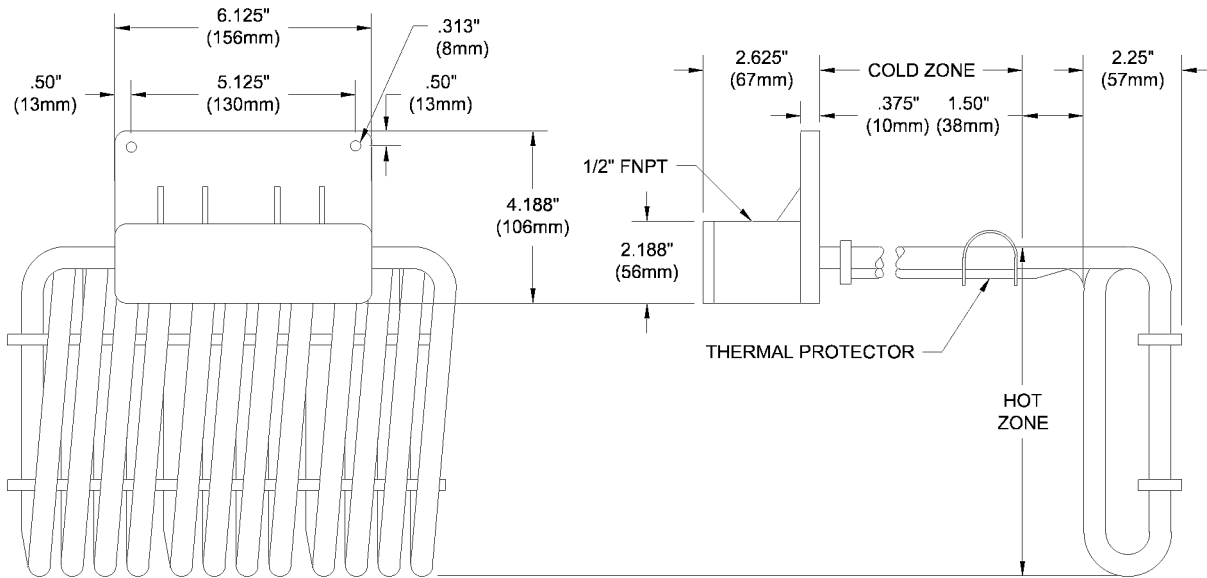
Three phase standard.

Product Features and Benefits:

- ◆ **SUPERIOR CHEMICAL RESISTANCE:** Inert to most aqueous acid, alkaline, anodizing and pickling solutions up to 212°F (100°C).
- ◆ **RUGGED CONSTRUCTION:** Heavy wall fluoropolymer (PTFE) covered stainless steel element reduces permeation and eliminates the need for gas purge systems. Guaranteed 100% pinhole free.
- ◆ **OUTSTANDING PERFORMANCE:** Low watt density design (10 watts/square inch, 1.5w/cm²) for long service life.
- ◆ **EVEN HEATING:** Bottom design for even heating and varying liquid levels.
- ◆ **CORROSION RESISTANT HEAD:** Vapor tight, flame retardant polypropylene terminal enclosure with 3-foot (.9m) flexible PVC liquid tight conduit.
- ◆ **SAFETY FEATURES:**
 - Grounded internal metal element.
 - Thermal protector built in. Replaceable PTL-I fuse standard for solutions up to 190°F (88°C).
 - Non-floating construction.
- ◆ **CERTIFICATIONS:** UL (3-18 kW), and CE.
- ◆ **SIZES:** 3,000 watts to 27,000 watts.
- ◆ **VOLTAGES:** 120, 240 or 480 volts. 208, 380, 415, 600 and other voltages available. Three phase standard, single phase available.
- ◆ **OPTIONS AVAILABLE** (consult factory):
 - Replaceable thermal protectors:
 - PTL-IM: for solutions from 190°F (88°C) to 220°F (104°C).
 - Resettable thermal protectors:
 - PTL-II: bi-metal switch for solutions up to 190°F (88°C).
 - PTL-III: type-J thermocouple for solutions from 190°F (88°C) to 210°F (99°C).
 - PIII: type-J thermocouple for solutions from 210°F (99°C) to 250°F (121°C).
 - Longer vertical lengths (cold zones).
 - Polypropylene guards: recommended for applications up to 180°F (82°C).
 - Fluoropolymer (PTFE) guards: recommended for chromic acid or solutions over 180°F (82°C).
 - Special configurations.
 - Longer wire and conduit lengths.
 - Lower watt densities for highly viscous solutions and technical acids.
 - Temperature and level controls sized to match the heater.
 - Single phase power.

To Order Call - Star Electric - 1.800.345.0369

DIMENSIONS (up to 18 kW)



MULTI ELEMENT L-SHAPED FLUOROPOLYMER (PTFE) HEATER

Series	Wattage	Voltage	Width	Options	Horizontal Length	Vertical Length	Guard Option	Type of Fuse	Wire and Conduit Length
	3 = 3000 4.5 = 4500 6 = 6000 9 = 9000 12 = 12000 15 = 15000 18 = 18000 24 = 24000 27 = 27000	1 = 120 2 = 240 4 = 480 -208 = 208 -277 = 277 -380 = 380 -415 = 415 -600 = 600	07 = 3kW 09 = 4kW 10 = 6kW 10 = 9kW 10 = 12kW 10 = 15kW 10 = 18kW 12 = 24kW 12 = 27kW	-13 = 3kW -10 = 4kW -19 = 6kW -23 = 9kW -30 = 12kW -36 = 15kW -42 = 18kW -40 = 24kW -45 = 27kW	-R18 = 3kW -R18 = 4kW -R18 = 6kW -R18 = 9kW -R18 = 12kW -R18 = 15kW -R18 = 18kW -R18 = 24kW -R18 = 27kW			no designator = 36" length standard specify variations from standard Ex: -X84 = 84"	
	3HXOL = 3 element PTFE sheathed 6HXOL = 6 element PTFE sheathed 3HSOL = 3 element 304 stainless steel 6HSOL = 6 element 304 stainless steel							Replaceable Fuse -PTL-I (std) for solutions up to 190°F -PTL-IM for 190° - 220°F solutions Resettable Fuse (additional control components required) -PTL-II for solutions up to 190°F -PTL-III for 190° - 210°F solutions -PIII for 210° - 250°F solutions	
	X = any special configuration not called out in the part number (specify in clear text)								
	C = complete with guard no designator = three phase power (standard) -1 = single phase power								

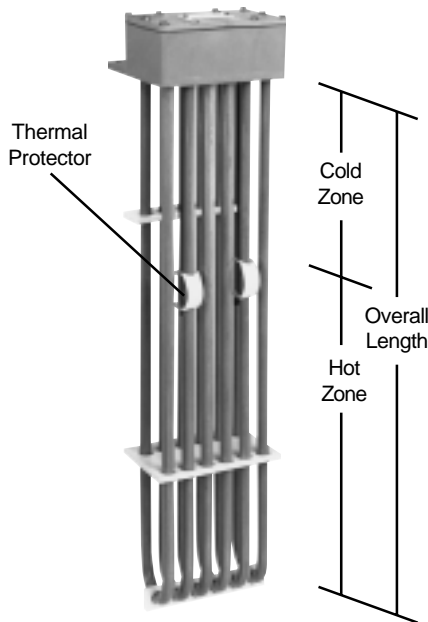
ORDERING EXAMPLE:

3HXOL6210-19-R18-PTL-I-X50

Multi element fluoropolymer L-Shaped heater, 6000 watts, 240 volt, three phase, 10" wide, 19" hot zone, 18" vertical length, PTL-I thermal fuse, 50" wire and conduit

**PROCESS
TECHNOLOGY**

To Order Call - Star Electric - 1.800.345.0369



6HX SERIES, SIX ELEMENT FLUOROPOLYMER (PTFE) HEATERS					
WATTS	VOLTS	HOT ZONE In./(mm)	OVERALL LENGTH In./(mm)	MODEL NUMBER	SHIP WGT. Lbs./(kg)
2000	120	9	17	6HX2117-1**	19
	240	(230)	(430)	6HX2217-**	(8.5)
	480			6HX2417-**	
3000	240	15	23	6HX3223-**	22
	480	(380)	(585)	6HX3423-**	(10)
4000	240	21	29	6HX4229-**	24
	480	(535)	(735)	6HX4429-**	(11)
6000	240	28	35	6HX6235-**	27
	480	(710)	(890)	6HX6435-**	(12.5)
8000	240	38	47	6HX8247-**	33
	480	(965)	(1195)	6HX8447-**	(15)
10000	240	47	59	6HX10259-**	40
	480	(1195)	(1500)	6HX10459-**	(18)
12000	240	55	68	6HX12268-**	45
	480	(1400)	(1725)	6HX12468-**	(20.5)

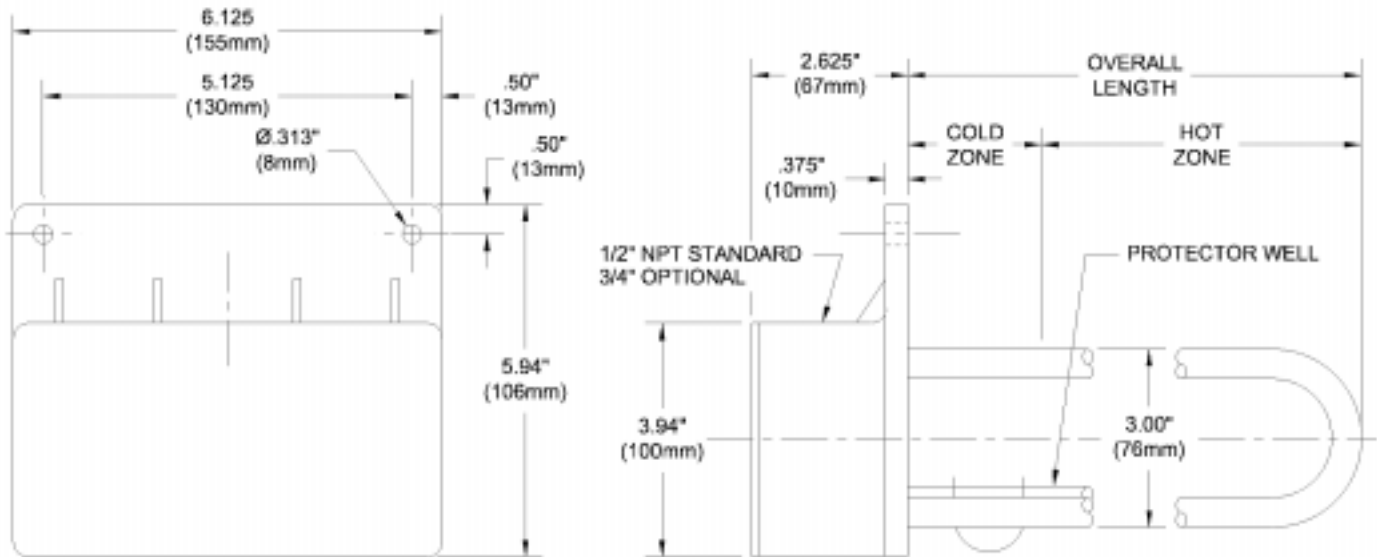
Three phase standard. Single phase available as option. Add "-1" before thermal protector designator.

Product Features and Benefits:

- ◆ **SUPERIOR CHEMICAL RESISTANCE:** Inert to most aqueous acid, alkaline, anodizing and pickling solutions up to 212°F (100°C).
- ◆ **RUGGED CONSTRUCTION:** Heavy wall fluoropolymer (PTFE) covered stainless steel element reduces permeation and eliminates the need for gas purge systems. Guaranteed 100% pinhole free.
- ◆ **OUTSTANDING PERFORMANCE:** Low watt density design (10 watts/square inch, 1.5w/cm²) for long service life. Excellent choice for electroless chemistries.
- ◆ **CORROSION RESISTANT HEAD:** Vapor tight, flame retardant polypropylene terminal enclosure with 3-foot (.9m) flexible PVC liquid tight conduit.
- ◆ **SAFETY FEATURES:**
 - Grounded internal metal element.
 - Thermal protector built in. Replaceable PT-I fuse standard for solutions up to 190°F (88°C).
 - Non-floating construction.
- ◆ **CERTIFICATIONS:** UL, CSA, and CE.
- ◆ **SIZES:** 2,000 watts to 12,000 watts.
- ◆ **VOLTAGES:** 120, 240 or 480 volts. 208, 380, 415, 600 and other voltages available. Three phase standard, single phase available.
- ◆ **OPTIONS AVAILABLE** (consult factory):
 - Resettable thermal protectors:
 - PT-II bi-metal switch: for solutions up to 190°F (88°C).
 - PT-III type-J thermocouple for solutions from 190°F (88°C) to 210°F (99°C).
 - PIII type-J thermocouple for solutions from 210°F (99°C) to 250°F (121°C).
 - Polypropylene guards: recommended for applications up to 180°F (82°C).
 - Fluoropolymer (PTFE) guards: recommended for chromic acid or solutions over 180°F (82°C).
 - L-Shaped and other special configurations.
 - Longer wire and conduit lengths.
 - Lower watt densities for highly viscous solutions and technical acids.
 - Temperature and level controls sized to match the heater.

To Order Call - Star Electric - 1.800.345.0369

DIMENSIONS



6 ELEMENT FLUOROPOLYMER (PTFE) HEATER

Series	Wattage	Voltage	Overall Length	Options	Type of Fuse	Wire and Conduit Length																
	2 = 2000 3 = 3000 4 = 4000 6 = 6000 8 = 8000 10 = 10000 12 = 12000	1 = 120 2 = 240 4 = 480 -208- = 208 -277- = 277 -380- = 380 -415- = 415 -600- = 600	17 = 2kW 23 = 13kW 29 = 4kW 35 = 6kW 47 = 8kW 59 = 10kW 68 = 12kW			36" length standard (no designator) specify variations from standard Ex: -X84 = 84"																
	6HX = PTFE 6HS = 304 stainless steel																					
X = any special configuration not called out in the number (specify in clear text) -C = complete with guard no designator = three phase power (standard) -1 = single phase power																						
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Replaceable Fuse																						
-PTI (std)	for solutions up to 190°F																					
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Resettable Fuse																						
(additional control components required)																						
-PT-II	for solutions up to 190°F																					
-PT-III	for 190° - 210°F solutions																					
-PIII	for 210° - 250°F solutions																					

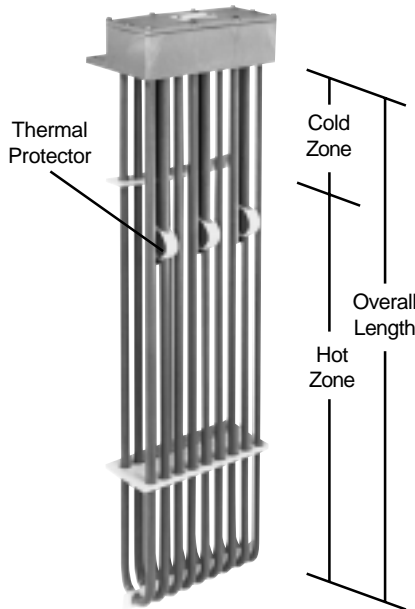
ORDERING EXAMPLE:

6HX8247C-PT-II

6 element, fluoropolymer, 8,000 watts, 240 volt, 47" overall length, complete with guard, PT-II fuse.

**PROCESS
TECHNOLOGY**

To Order Call - Star Electric - 1.800.345.0369



9HX SERIES, NINE ELEMENT FLUOROPOLYMER (PTFE) HEATERS					
WATTS	VOLTS	HOT ZONE	OVERALL LENGTH	MODEL NUMBER	SHIP WGT. Lbs./(kg)
		In./(mm)	In./(mm)		
3000	240	9	17	9HX3217-**-**	28
	480	(230)	(430)	9HX3417-**-**	(13)
4500	240	15	23	9HX4.5223-**-**	33
	480	(380)	(585)	9HX4.5423-**-**	(15)
6000	240	21	29	9HX6229-**-**	36
	480	(535)	(735)	9HX6429-**-**	(16.5)
9000	240	28	35	9HX9235-**-**	40
	480	(710)	(890)	9HX9435-**-**	(18)
12000	240	38	47	9HX12247-**-**	49
	480	(965)	(1195)	9HX12447-**-**	(22.5)
15000	240	47	59	9HX15259-**-**	60
	480	(1195)	(1500)	9HX15459-**-**	(27.5)
18000	240	55	68	9HX18268-**-**	67
	480	(1400)	(1725)	9HX18468-**-**	(30.5)

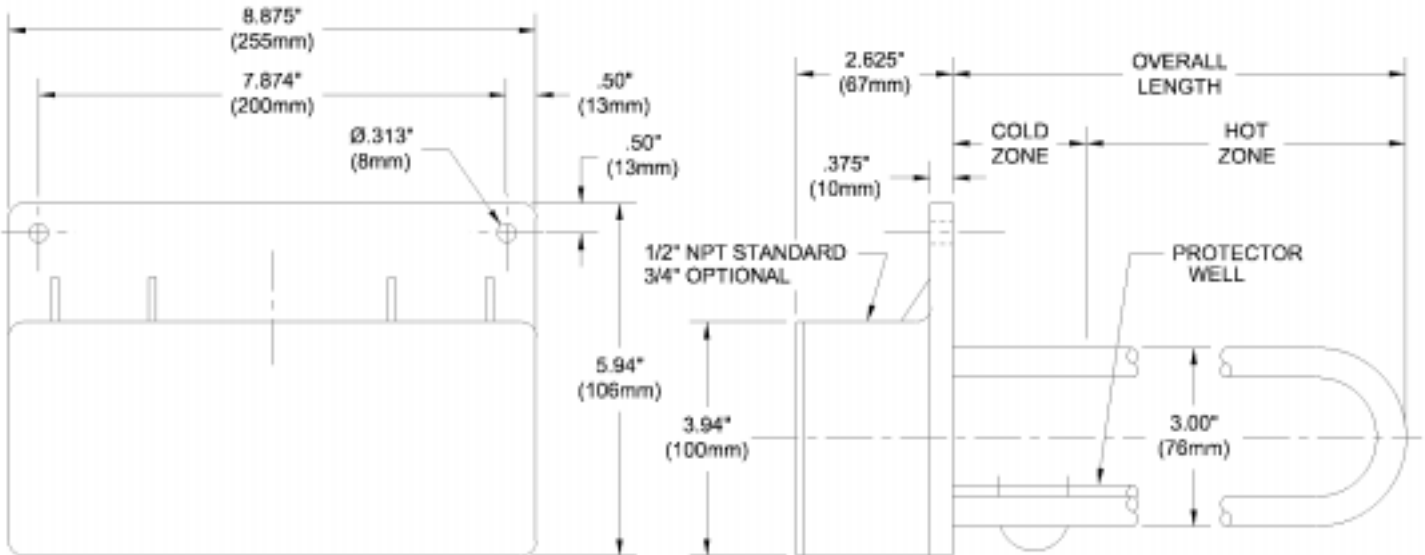
Three phase standard. Single phase available as option. Add "-1" before thermal protector designator.

Product Features and Benefits:

- ◆ **SUPERIOR CHEMICAL RESISTANCE:** Inert to most aqueous acid, alkaline, anodizing and pickling solutions up to 212°F (100°C).
- ◆ **RUGGED CONSTRUCTION:** Heavy wall fluoropolymer (PTFE) covered stainless steel element reduces permeation and eliminates the need for gas purge systems. Guaranteed 100% pinhole free.
- ◆ **OUTSTANDING PERFORMANCE:** Low watt density design (10 watts/square inch, 1.5w/cm²) for long service life. Excellent choice for electroless chemistries.
- ◆ **CORROSION RESISTANT HEAD:** Vapor tight, flame retardant polypropylene terminal enclosure with 3-foot (.9m) flexible PVC liquid tight conduit.
- ◆ **SAFETY FEATURES:**
 - Grounded internal metal element.
 - Thermal protector built in. Replaceable PT-I fuse standard for solutions up to 190°F (88°C).
 - Non-floating construction.
- ◆ **CERTIFICATIONS:** UL, CSA, and CE.
- ◆ **SIZES:** 3,000 watts to 18,000 watts.
- ◆ **VOLTAGES:** 120, 240 or 480 volts. 208, 380, 415, 600 and other voltages available. Three phase standard, single phase available.
- ◆ **OPTIONS AVAILABLE (consult factory):**
 - Resettable thermal protectors:
 - PT-II bi-metal switch: for solutions up to 190°F (88°C).
 - PT-III type-J thermocouple for solutions from 190°F (88°C) to 210°F (99°C).
 - PIII type-J thermocouple for solutions from 210°F (99°C) to 250°F (121°C).
 - Polypropylene guards: recommended for applications up to 180°F (82°C).
 - Fluoropolymer (PTFE) guards: recommended for chromic acid or solutions over 180°F (82°C).
 - L-Shaped and other special configurations.
 - Longer wire and conduit lengths.
 - Lower watt densities for highly viscous solutions and technical acids.
 - Temperature and level controls sized to match the heater.

To Order Call - Star Electric - 1.800.345.0369

DIMENSIONS



9 ELEMENT FLUOROPOLYMER (PTFE) HEATER

Series	Wattage	Voltage	Overall Length	Options	Type of Fuse	Wire and Conduit Length
	3 = 3000 4.5 = 4000 6 = 6000 9 = 9000 12 = 12000 15 = 15000 18 = 18000	1 = 120 2 = 240 4 = 480 -208- = 208 -380- = 380 -415- = 415 -600- = 600	17 = 3kW 23 = 4.5kW 29 = 6kW 35 = 9kW 47 = 12kW 59 = 15kW 68 = 18kW			no designator = 36" length standard specify variations from standard Ex: -X84 = 84" wire and conduit
	9HX = PTFE 9HS = 304 stainless steel					
	X = any special configuration not called out in the number (specify in clear text) -C = complete with guard no designator = three phase power (standard) -1 = single phase power					
					Replaceable Fuse -PTI (std) for solutions up to 190°F -PTIM for 190° - 220°F solutions	
					Resettable Fuse (additional control components required) -PT-II for solutions up to 190°F -PT-III for 190° - 210°F solutions -PIII for 210° - 250°F solutions	

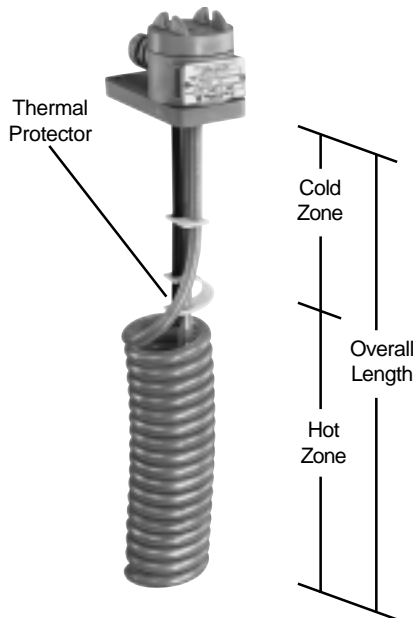
ORDERING EXAMPLE:

9HX6229-PT-II-X84

9 element, fluoropolymer, 6,000 watts, 240 volt, 29" overall length, PT-II fuse, 84" wire and conduit.

**PROCESS
TECHNOLOGY**

To Order Call - Star Electric - 1.800.345.0369



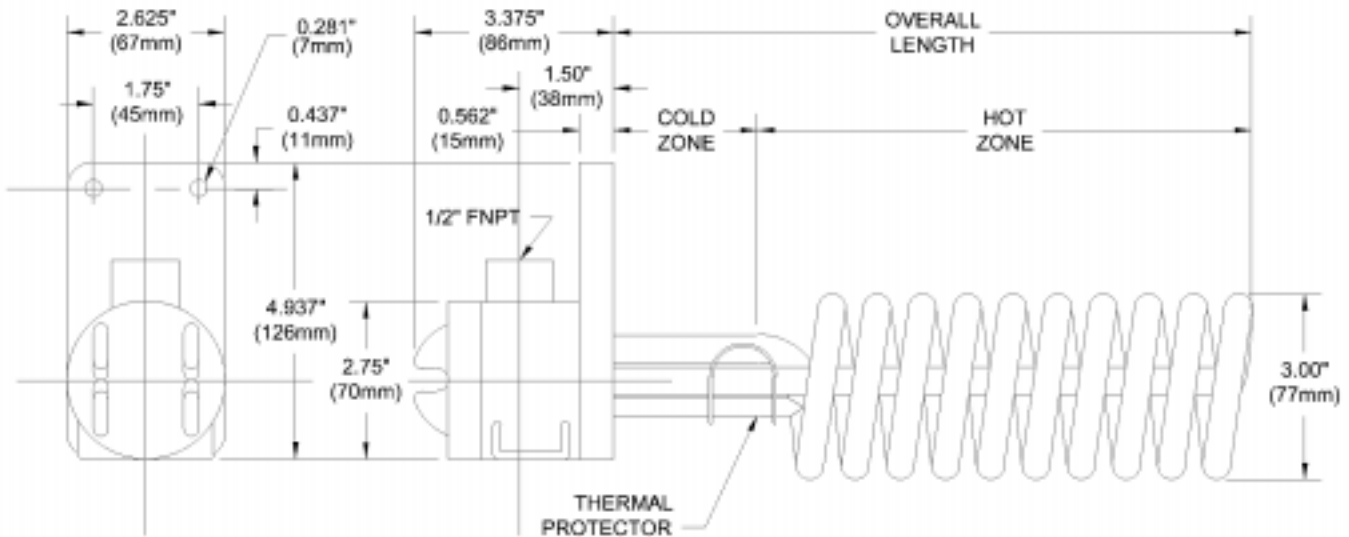
HX SERIES, SPIRAL FLUOROPOLYMER (PTFE) HEATERS						
WATTS	VOLTS	HOT ZONE In./(mm)	OVERALL LENGTH In./(mm)	MAX. COLD ZONE In./(mm)	MODEL NUMBER	SHIP WGT. Lbs./ (kg)
500	120	5	11	41	HX.5111-**	6
	240	(125)	(280)	(1040)	HX.5211-**	(2.5)
1000	120	7	11	41	HX1111-**	7
	240	(180)	(280)	(1040)	HX1211-**	(3.5)
2000	120	12	17	40	HX2117-**	8
	240	(305)	(430)	(1015)	HX2217-**	(4)
	480				HX2417-**	
3000	240	16	23	40	HX3223-**	13
	480	(405)	(585)	(1015)	HX3423-**	(6)
4000	240	20	29	40	HX4229-**	15
	480	(510)	(735)	(1015)	HX4429-**	(7)
5000	240	25	35	36	HX5235-**	18
	480	(635)	(890)	(915)	HX5435-**	(8)
6000	240	29	40	30	HX6240-**	21
	480	(735)	(1015)	(760)	HX6440-**	(10)
8000	240	37	47	32	2HX8247-**	25
	480	(940)	(1195)	(810)	2HX8447-**	(12)
9000	240	44	54	35	2HX9254-**	28
	480	(1120)	(1370)	(890)	2HX9454-**	(13)

Single phase only.

Product Features and Benefits:

- ◆ **SUPERIOR CHEMICAL RESISTANCE:** Inert to most aqueous acid, alkaline, anodizing and pickling solutions up to 212°F (100°C).
- ◆ **RUGGED CONSTRUCTION:** Heavy wall fluoropolymer (PTFE) covered stainless steel element reduces permeation and eliminates the need for gas purge systems. Guaranteed 100% pinhole free.
- ◆ **OUTSTANDING PERFORMANCE:** Low watt density design (10 watts/square inch, 1.5w/cm²) for long service life.
- ◆ **CORROSION RESISTANT HEAD:** Vapor tight, flame retardant polypropylene terminal enclosure with 3-foot (.9m) flexible PVC liquid tight conduit.
- ◆ **SAFETY FEATURES:**
 - Grounded internal metal element.
 - Thermal protector built in. Replaceable PT-I fuse standard for solutions up to 190°F (88°C).
 - Non-floating construction.
- ◆ **CERTIFICATIONS:** UL (1-6 kW), CSA, and CE.
- ◆ **SIZES:** 500 watts to 9,000 watts.
- ◆ **VOLTAGES:** 120, 240 or 480 volts. 208, 380, 415, 600 and other voltages available. Single phase only.
- ◆ **OPTIONS AVAILABLE** (consult factory):
 - Replaceable thermal protectors:
 - PT-IM: for solutions from 190°F (88°C) to 220°F (104°C).
 - Resettable thermal protectors:
 - PT-II: bi-metal switch for solutions up to 190°F (88°C).
 - PT-III: type-J thermocouple for solutions from 190°F (88°C) to 210°F (99°C).
 - PIII: type-J thermocouple for solutions from 210°F (99°C) to 250°F (121°C).
 - Longer vertical lengths (cold zones).
 - Polypropylene guards: recommended for applications up to 180°F (82°C).
 - Fluoropolymer (PTFE) guards: recommended for chromic acid or solutions over 180°F (82°C).
 - Special configurations.
 - Longer wire and conduit lengths.
 - Flexible continuous fluoropolymer leads (PIII protector only).
 - Lower watt densities for highly viscous solutions and technical acids.
 - Temperature and level controls sized to match the heater.

DIMENSIONS (up to 6 kW)



SPIRAL OVER THE SIDE FLUOROPOLYMER (PTFE) HEATER

Series	Wattage	Voltage	Overall Length	Options	Type of Fuse	Wire and Conduit Length
	.5 = 500 1 = 1000 2 = 2000 3 = 3000 4 = 4000 5 = 5000 6 = 6000 8 = 8000 9 = 9000	1 = 120 2 = 240 4 = 480 -208- = 208 -277- = 277 -380- = 380 -415- = 415 -600- = 600	11 = .5kW 11 = 1kW 17 = 2kW 23 = 3kW 29 = 4kW 35 = 5kW 40 = 6kW 47 = 8kW 54 = 9kW specify custom lengths, not to exceed tank depth			no designator = 36" length standard specify variations from standard Ex: -X84 = 84"
	HX = PTFE sheathed 2HX = 2 element PTFE sheathed HS = 304 stainless steel 2HS = 2 element 304 stainless steel				Replaceable Fuse	
					-PT-I (std) for solutions up to 190°F -PT-IM for 190° - 220°F solutions	
					Resettable Fuse (additional control components required)	
					-PT-II for solutions up to 190°F -PT-III for 190° - 210°F solutions -PIII for 210° - 250°F solutions	
	X = any special configuration not called out in the part number (specify in clear text) -C = complete with guard					

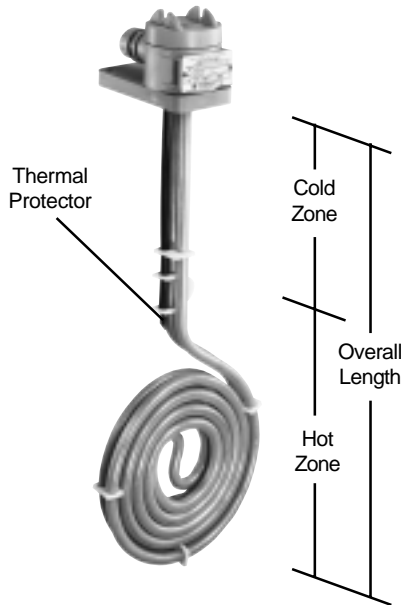
ORDERING EXAMPLE:

HX5435C-PT-I-X50

Spiral fluoropolymer heater, 5000 watts, 480 volt, single phase, 35" overall length, complete with polypropylene guard, PT-I thermal fuse, 50" wire and conduit

**PROCESS
TECHNOLOGY**

To Order Call - Star Electric - 1.800.345.0369



HXF SERIES, LOW PROFILE FLUOROPOLYMER (PTFE) HEATERS							
WATTS	VOLTS	HOT	OVERALL	DIA.	MAX.	MODEL NUMBER	SHIP WGT.
		ZONE	LENGTH		COLD ZONE		
		ln./(mm)	ln./(mm)	ln./(mm)	ln./(mm)		Lbs./(kg)
500	120	6	14	5	36	HXF.5105-14-**	6
	240	(155)	(355)	(125)	(915)	HXF.5205-14-**	(2.5)
1000	120	7	14	6	36	HXF1106-14-**	7
	240	(180)	(355)	(155)	(915)	HXF1206-14-**	(3.5)
2000	120	9	17	8	35	HXF2108-17-**	8
	240	(230)	(430)	(205)	(890)	HXF2208-17-**	(4)
	480					HXF2408-17-**	
3000	240	10	23	9	35	HXF3209-23-**	13
	480	(255)	(585)	(230)	(890)	HXF3409-23-**	(6)
4000	240	12	29	11	35	HXF4211-29-**	15
	480	(305)	(735)	(280)	(890)	HXF4411-29-**	(7)
5000	240	13	35	12	31	HXF5212-35-**	18
	480	(330)	(890)	(305)	(790)	HXF5412-35-**	(8)
6000	240	14	40	13	25	HXF6213-40-**	22
	480	(355)	(1015)	(330)	(635)	HXF6413-40-**	(10)

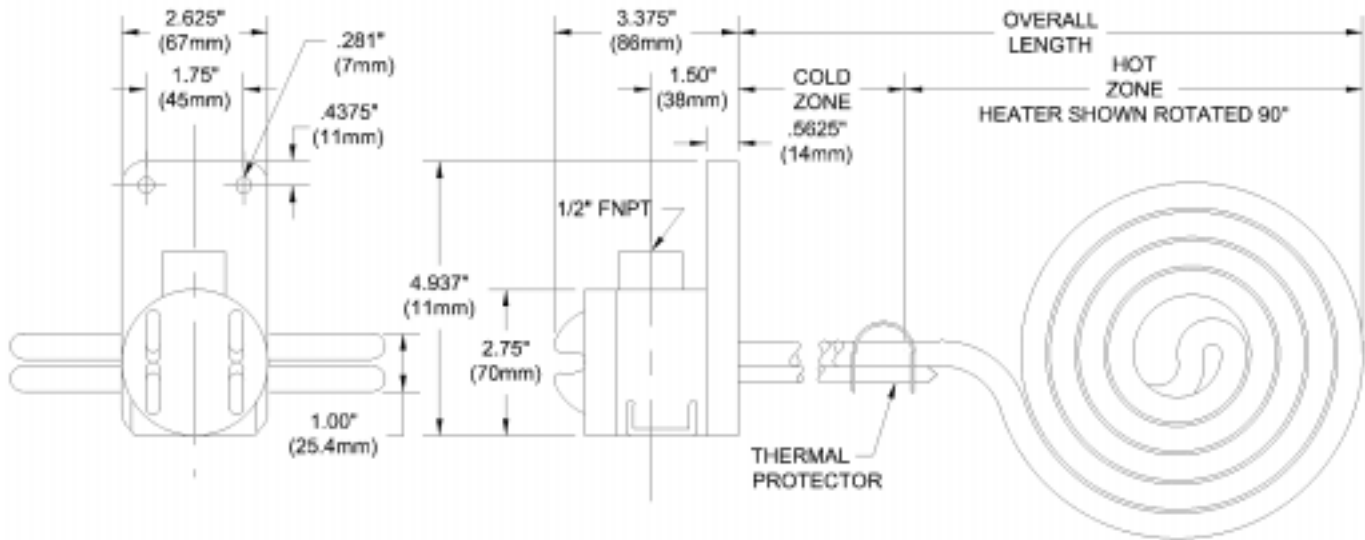
Single phase only. This configuration is not recommended for electroless chemistry or phosphoric acid.

Product Features and Benefits:

- ◆ **SUPERIOR CHEMICAL RESISTANCE:** Inert to most aqueous acid, alkaline, anodizing and pickling solutions up to 212°F (100°C).
- ◆ **RUGGED CONSTRUCTION:** Heavy wall fluoropolymer (PTFE) covered stainless steel element reduces permeation and eliminates the need for gas purge systems. Guaranteed 100% pinhole free.
- ◆ **OUTSTANDING PERFORMANCE:** Low watt density design (10 watts/square inch, 1.5w/cm²) for long service life. Flat, low profile design saves space in the tank. (This configuration not recommended for electroless chemistries or phosphoric acid).
- ◆ **CORROSION RESISTANT HEAD:** Vapor tight, flame retardant polypropylene terminal enclosure with 3-foot (.9m) flexible PVC liquid tight conduit.
- ◆ **SAFETY FEATURES:**
 - Grounded internal metal element.
 - Thermal protector built in. Replaceable PT-I fuse standard for solutions up to 190°F (88°C).
 - Non-floating construction.
- ◆ **CERTIFICATIONS:** UL, CSA, and CE.
- ◆ **SIZES:** 500 watts to 6,000 watts.
- ◆ **VOLTAGES:** 120, 240 or 480 volts. 208, 380, 415, 600 and other voltages available. Single phase only.
- ◆ **OPTIONS AVAILABLE** (consult factory):
 - Replaceable thermal protectors:
 - PT-IM: for solutions from 190°F (88°C) to 220°F (104°C).
 - Resettable thermal protectors:
 - PT-II: bi-metal switch for solutions up to 190°F (88°C).
 - PT-III: type-J thermocouple for solutions from 190°F (88°C) to 210°F (99°C).
 - PIII: type-J thermocouple for solutions from 210°F (99°C) to 250°F (121°C).
 - Longer vertical lengths (cold zones).
 - Polypropylene guards: recommended for applications up to 180°F (82°C).
 - Fluoropolymer (PTFE) guards: recommended for chromic acid or solutions over 180°F (82°C).
 - Special configurations.
 - Longer wire and conduit lengths.
 - Flexible continuous fluoropolymer leads (PIII protector only).
 - Lower watt densities for highly viscous solutions and technical acids.
 - Temperature and level controls sized to match the heater.

To Order Call - Star Electric - 1.800.345.0369

DIMENSIONS



LOW PROFILE FLUOROPOLYMER (PTFE) HEATER

Series	Wattage	Voltage	Diameter	Overall Length	Options	Type of Fuse	Wire and Conduit Length
	.5 = 500 1 = 1000 2 = 2000 3 = 3000 4 = 4000 5 = 5000 6 = 6000	1 = 120 2 = 240 4 = 480 -208- = 208 -277- = 277 -380- = 380 -415- = 415 -600- = 600	05 = .5kW 06 = 1kW 08 = 2W 09 = 3kW 11 = 4kW 12 = 5kW 13 = 6kW	-14 = .5kW -14 = 1kW -17 = 2kW -23 = 3kW -29 = 4kW -35 = 5kW -40 = 6kW specify custom lengths, not to exceed tank depth			no designator = 36" length standard specify variations from standard Ex: -X84 = 84"
	HXF = PTFE sheathed HSF = 304 stainless steel					Replaceable Fuse	
						-PT-I (std)	for solutions up to 190°F
						-PT-IM	for 190° - 220°F solutions
						Resettable Fuse	
						(additional control components required)	
						-PT-II	for solutions up to 190°F
						-PT-III	for 190° - 210°F solutions
						-PIII	for 210° - 250°F solutions
X = any special configuration not called out in the part number (specify in clear text) C = complete with guard							

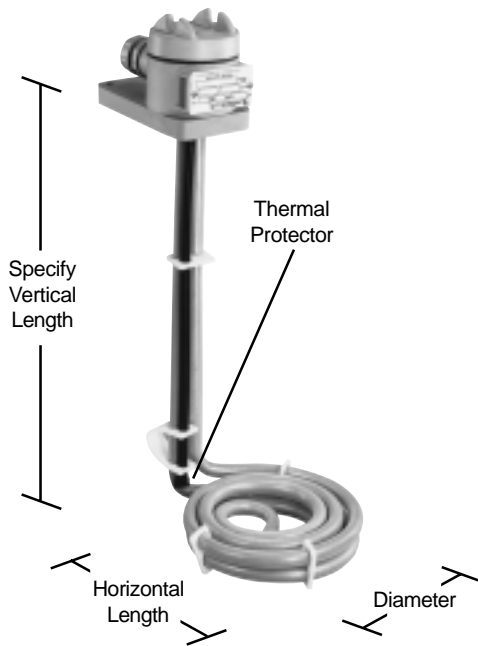
ORDERING EXAMPLE:

HXF5412-35-PT-I-X50

Flat fluoropolymer heater, 5000 watts, 480 volt, single phase, 12" diameter hot zone, 35" overall length, PT-I thermal fuse, 50" wire and conduit

**PROCESS
TECHNOLOGY**

To Order Call - Star Electric - 1.800.345.0369



HXFL SERIES, LOW PROFILE L-SHAPED FLUOROPOLYMER (PTFE) HEATERS							
WATTS	VOLTS (See Pg.1)	HORIZ.	STD. VERT.	DIA.	MAX. COLD ZONE	MODEL NUMBER	SHIP WGT. Lbs./.(kg)
		LENGTH In./.(mm)	LENGTH* In./.(mm)				
500	120	5	12	5	36	HXFL.5105-R*-.**	6
	240	(125)	(305)	(125)	(915)	HXFL.5205-R*-.**	(2.5)
1000	120	6	12	6	36	HXFL1106-R*-.**	7
	240	(155)	(305)	(155)	(915)	HXFL1206-R*-.**	(3.5)
2000	120	8	18	8	35	HXFL2108-R*-.**	8
	240	(205)	(460)	(205)	(890)	HXFL2208-R*-.**	(4)
	480					HXFL2408-R*-.**	
3000	240	9	18	9	35	HXFL3209-R*-.**	13
	480	(230)	(460)	(230)	(890)	HXFL3409-R*-.**	(6)
4000	240	11	18	11	35	HXFL4211-R*-.**	15
	480	(280)	(460)	(280)	(890)	HXFL4411-R*-.**	(7)
5000	240	12	18	12	31	HXFL5212-R*-.**	18
	480	(305)	(460)	(305)	(790)	HXFL5412-R*-.**	(8)
6000	240	13	18	13	25	HXFL6213-R*-.**	22
	480	(330)	(460)	(330)	(635)	HXFL6413-R*-.**	(10)

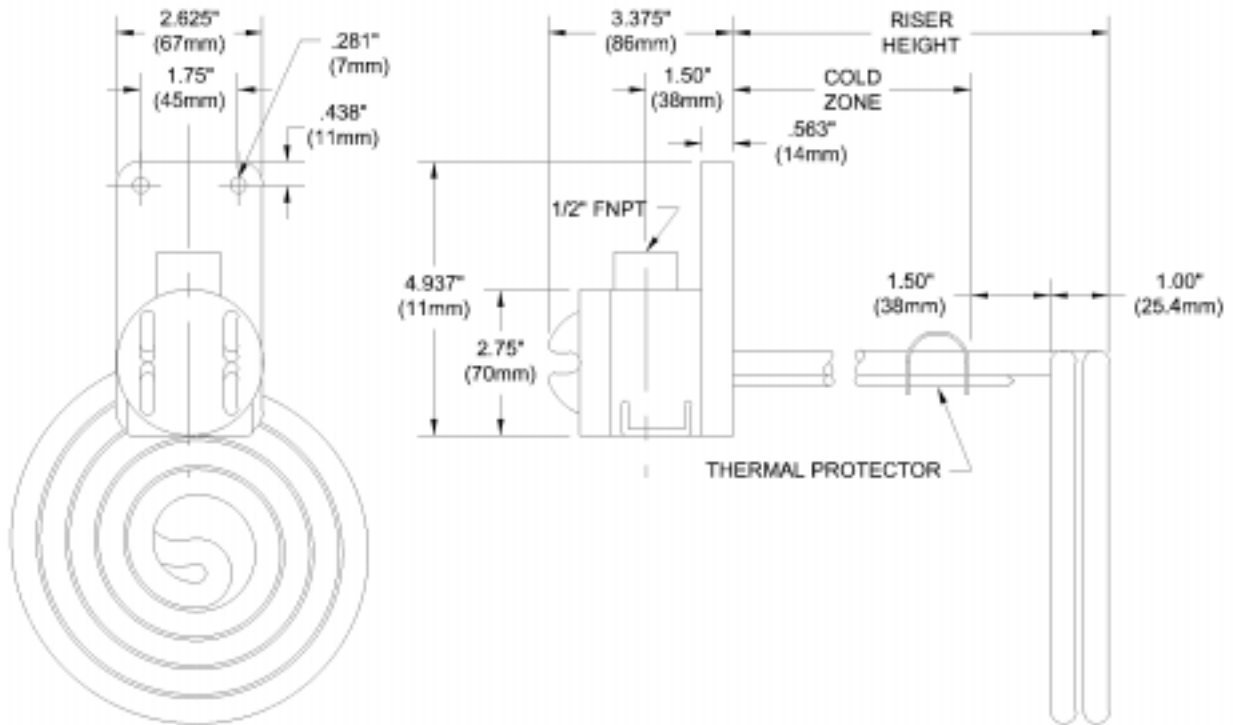
Single phase only. Guards recommended. This configuration is not recommended for electroless chemistry, phosphoric acid, or applications prone to sludge development.

Product Features and Benefits:

- ◆ **SUPERIOR CHEMICAL RESISTANCE:** Inert to most aqueous acid, alkaline, anodizing and pickling solutions up to 212°F (100°C).
- ◆ **RUGGED CONSTRUCTION:** Heavy wall fluoropolymer (PTFE) covered stainless steel element reduces permeation and eliminates the need for gas purge systems. Guaranteed 100% pinhole free.
- ◆ **OUTSTANDING PERFORMANCE:** Low watt density design (10 watts/square inch, 1.5w/cm²) for long service life.
- ◆ **EVEN HEATING:** Flat, low profile bottom design for even heating and varying liquid levels. (This configuration not recommended for electroless chemistry).
- ◆ **CORROSION RESISTANT HEAD:** Vapor tight, flame retardant polypropylene terminal enclosure with 3-foot (.9m) flexible PVC liquid tight conduit.
- ◆ **SAFETY FEATURES:**
 - Grounded internal metal element.
 - Thermal protector built in. Replaceable PTL-I fuse standard for solutions up to 190°F (88°C).
 - Non-floating construction.
- ◆ **CERTIFICATIONS:** UL, CSA, and CE.
- ◆ **SIZES:** 500 watts to 6,000 watts.
- ◆ **VOLTAGES:** 120, 240 or 480 volts. 208, 380, 415, 600 and other voltages available. Single phase only.
- ◆ **OPTIONS AVAILABLE** (consult factory):
 - Replaceable thermal protectors:
 - PTL-IM: for solutions from 190°F (88°C) to 220°F (104°C).
 - Resettable thermal protectors:
 - PTL-II: bi-metal switch for solutions up to 190°F (88°C).
 - PTL-III: type-J thermocouple for solutions from 190°F (88°C) to 210°F (99°C).
 - PIII: type-J thermocouple for solutions from 210°F (99°C) to 250°F (121°C).
 - Longer vertical lengths (cold zones).
 - Polypropylene guards: recommended for applications up to 180°F (82°C).
 - Fluoropolymer (PTFE) guards: recommended for chromic acid or solutions over 180°F (82°C).
 - Special configurations.
 - Longer wire and conduit lengths.
 - Flexible continuous fluoropolymer leads (PIII protector only).
 - Lower watt densities for highly viscous solutions and technical acids.
 - Temperature and level controls sized to match the heater.

To Order Call - Star Electric - 1.800.345.0369

DIMENSIONS



LOW PROFILE L-SHAPED FLUOROPOLYMER (PTFE) HEATER

Series	Wattage	Voltage	Diameter	Options	Vertical Length	Guard Option	Type of Fuse	Wire and Conduit Length
	.5 = 500 1 = 1000 2 = 2000 3 = 3000 4 = 4000 5 = 5000 6 = 6000	1 = 120 2 = 240 4 = 480 -208- = 208 -277- = 277 -380- = 380 -415- = 415 -600- = 600	05 = .5kW 06 = 1kW 08 = 2W 09 = 3kW 11 = 4kW 12 = 5kW 13 = 6kW		-R12 = .5kW -R12 = 1kW -R18 = 2kW -R18 = 3kW -R18 = 4kW -R18 = 5kW -R18 = 6kW specify custom lengths, not to exceed tank length			no designator = 36" length standard specify variations from standard Ex: -X84 = 84"
	HXFL = PTFE sheathed HSFL = 304 stainless steel						Replaceable Fuse	
							-PTL-I (std) for solutions up to 190°F -PTL-IM for 190° - 220°F solutions	
							Resettable Fuse	
							(additional control components required)	
							-PTL-II for solutions up to 190°F -PTL-III for 190° - 210°F solutions -PIII for 210° - 250°F solutions	
								C = complete with guard
				X = any special configuration not called out in the part number (specify in clear text)				

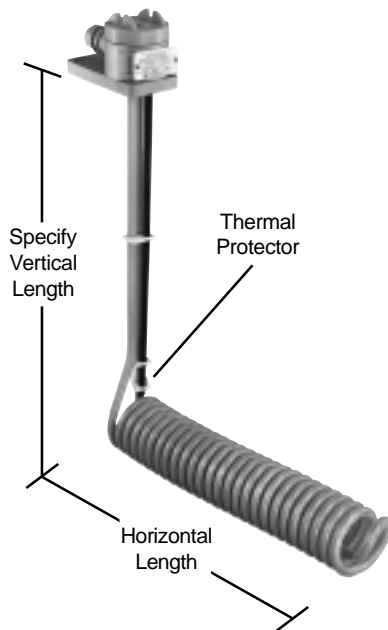
ORDERING EXAMPLE:

HXFL5412-R18-PTL-I-X50

Flat L-Shaped fluoropolymer heater, 5000 watts, 480 volt, single phase, 12" diameter hot zone, 18" vertical length, PTL-I thermal fuse, 50" wire and conduit

**PROCESS
TECHNOLOGY**

To Order Call - Star Electric - 1.800.345.0369



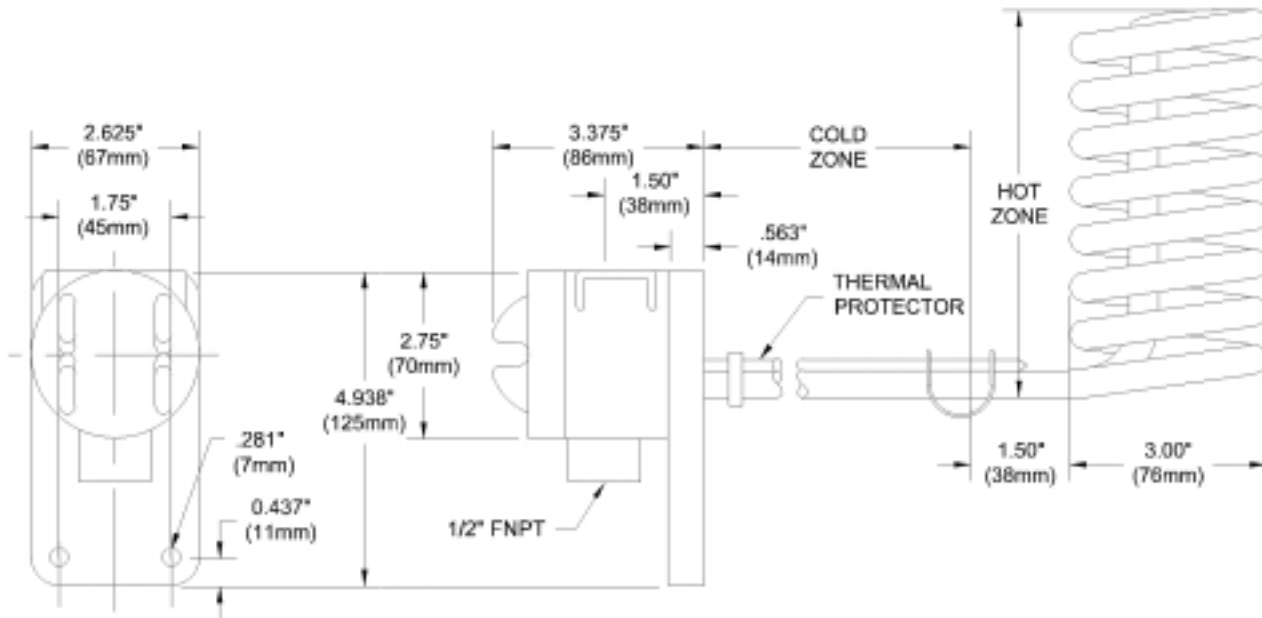
HXL SERIES, SPIRAL L-SHAPED FLUOROPOLYMER (PTFE) HEATERS						
WATTS	VOLTS	HOT	STD. VERT.	MAX.	MODEL NUMBER	SHIP WGT. Lbs./ (kg)
		ZONE In./ (mm)	LENGTH* In./ (mm)	COLD ZONE In./ (mm)		
500	120	6	12	41	HXL5106-R*-**	6
	240	(155)	(305)	(1040)	HXL5206-R*-**	(2.5)
1000	120	8	12	41	HXL1108-R*-**	7
	240	(205)	(305)	(1040)	HXL1208-R*-**	(3.5)
2000	120	12	18	40	HXL2112-R*-**	8
	240	(305)	(460)	(1015)	HXL2212-R*-**	(4)
3000	480				HXL2412-R*-**	
	240	17	18	40	HXL3217-R*-**	13
4000	480	(430)	(460)	(1015)	HXL3417-R*-**	(6)
	240	20	18	40	HXL4220-R*-**	15
5000	480	(510)	(460)	(1015)	HXL4420-R*-**	(7)
	240	24	18	36	HXL5224-R*-**	18
6000	480	(610)	(460)	(915)	HXL5424-R*-**	(8)
	240	29	18	30	HXL6229-R*-**	21
8000	480	(735)	(460)	(760)	HXL6429-R*-**	(10)
	240	37	18	32	2HXL8237-R*-**	26
9000	480	(940)	(460)	(810)	2HXL8437-R*-**	(12)
	240	44	18	35	2HXL9244-R*-**	29
	480	(1120)	(460)	(890)	2HXL9444-R*-**	(13)

Single phase only. This configuration is not recommended for electroless chemistry or applications prone to sludge development.

Product Features and Benefits:

- ◆ **SUPERIOR CHEMICAL RESISTANCE:** Inert to most aqueous acid, alkaline, anodizing and pickling solutions up to 212°F (100°C).
- ◆ **RUGGED CONSTRUCTION:** Heavy wall fluoropolymer (PTFE) covered stainless steel element reduces permeation and eliminates the need for gas purge systems. Guaranteed 100% pinhole free.
- ◆ **OUTSTANDING PERFORMANCE:** Low watt density design (10 watts/square inch, 1.5w/cm²) for long service life.
- ◆ **EVEN HEATING:** Bottom design for even heating and varying liquid levels.
- ◆ **CORROSION RESISTANT HEAD:** Vapor tight, flame retardant polypropylene terminal enclosure with 3-foot (.9m) flexible PVC liquid tight conduit.
- ◆ **SAFETY FEATURES:**
 - Grounded internal metal element.
 - Thermal protector built in. Replaceable PTL-I fuse standard for solutions up to 190°F (88°C).
 - Non-floating construction.
- ◆ **CERTIFICATIONS:** UL (1-6 kW), CSA, and CE.
- ◆ **SIZES:** 500 watts to 9,000 watts.
- ◆ **VOLTAGES:** 120, 240 or 480 volts. 208, 380, 415, 600 and other voltages available. Single phase only.
- ◆ **OPTIONS AVAILABLE** (consult factory):
 - Replaceable thermal protectors:
 - PTL-IM: for solutions from 190°F (88°C) to 220°F (104°C).
 - Resettable thermal protectors:
 - PTL-II: bi-metal switch for solutions up to 190°F (88°C).
 - PTL-III: type-J thermocouple for solutions from 190°F (88°C) to 210°F (99°C).
 - PIII: type-J thermocouple for solutions from 210°F (99°C) to 250°F (121°C).
 - Longer vertical lengths (cold zones).
 - Polypropylene guards: recommended for applications up to 180°F (82°C).
 - Fluoropolymer (PTFE) guards: recommended for chromic acid or solutions over 180°F (82°C).
 - Special configurations.
 - Longer wire and conduit lengths.
 - Flexible continuous fluoropolymer leads (PIII protector only).
 - Lower watt densities for highly viscous solutions and technical acids.
 - Temperature and level controls sized to match the heater.

DIMENSIONS (up to 6 kW)



SPIRAL L-SHAPED FLUOROPOLYMER (PTFE) HEATER

Series	Wattage	Voltage	Horizontal Length	Options	Vertical Length	Guard Option	Type of Fuse	Wire and Conduit Length
	.5 = 500 1 = 1000 2 = 2000 3 = 3000 4 = 4000 5 = 5000 6 = 6000 8 = 8000 9 = 9000	1 = 120 2 = 240 4 = 480 -208- = 208 -277- = 277 -380- = 380 -415- = 415 -600- = 600	06 = .5kW 08 = 1kW 12 = 2kW 17 = 3kW 20 = 4kW 24 = 5kW 29 = 6kW 37 = 8kW 44 = 9kW specify custom lengths, not to exceed tank length		-R12 = .5kW -R12 = 1kW -R18 = 2W -R18 = 3kW -R18 = 4kW -R18 = 5kW -R18 = 6kW -R18 = 8kW -R18 = 9kW specify custom lengths, not to exceed tank length			no designator = 36" length standard specify variations from standard Ex: -X84 = 84"
	HXL = PTFE sheathed 2HXL = 2 element PTFE sheathed HSL = 304 stainless steel 2HSL = 2 element 304 stainless steel						Replaceable Fuse -PTL-I (std) for solutions up to 190°F -PTL-IM for 190° - 220°F solutions Resettable Fuse (additional control components required) -PTL-II for solutions up to 190°F -PTL-III for 190° - 210°F solutions -PIII for 210° - 250°F solutions	
								C = complete with guard
				X = any special configuration not called out in the part number (specify in clear text)				

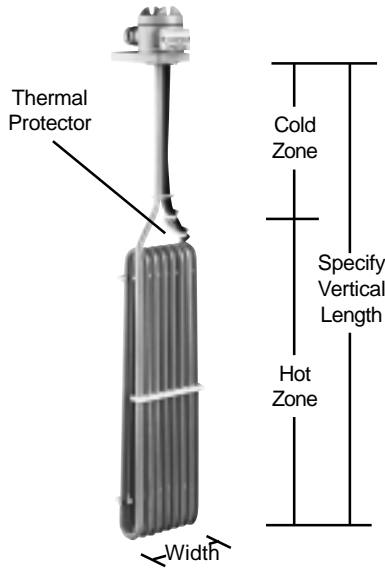
ORDERING EXAMPLE:

HXL5424-R18-PTL-I-X50

Spiral L-Shaped fluoropolymer heater, 5000 watts, 480 volt, single phase, 24" hot zone, 18" vertical length, PTL-I thermal fuse, 50" wire and conduit

**PROCESS
TECHNOLOGY**

To Order Call - Star Electric - 1.800.345.0369



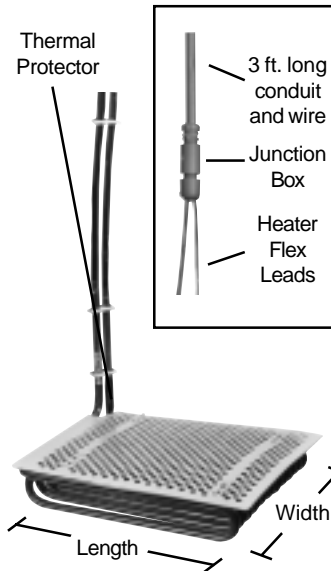
HXO SERIES, FLUOROPOLYMER (PTFE) HEATERS								
WATTS	VOLTS	WIDTH	HOT ZONE	STD. VERT. LENGTH	MAX. COLD ZONE	MODEL NUMBER	SHIP WGT.	
		In./(mm)	In./(mm)	In./(mm)	In./(mm)		Lbs./	(kg)
500	120	5	6	11	36	HXO.5105-06-11-**		6
	240	(125)	(155)	(280)	(915)	HXO.5205-06-11-**	(2.5)	
1000	120	6	6	11	36	HXO1106-06-11-**		7
	240	(155)	(155)	(280)	(915)	HXO1206-06-11-**	(3.5)	
2000	120	6	10	17	35	HXO2106-10-17-**		8
	240	(155)	(255)	(430)	(890)	HXO2206-10-17-**	(4)	
	480					HXO2406-10-17-**		
3000	240	6	12	23	35	HXO3206-12-23-**		13
	480	(155)	(305)	(585)	(890)	HXO3406-12-23-**	(6)	
4000	240	6	19	29	35	HXO4206-19-29-**		15
	480	(155)	(485)	(735)	(890)	HXO4406-19-29-**	(7)	
5000	240	6	20	35	31	HXO5206-20-35-**		18
	480	(155)	(510)	(890)	(790)	HXO5406-20-35-**	(8)	
6000	240	6	22	40	25	HXO6206-22-40-**		22
	480	(155)	(560)	(1015)	(635)	HXO6406-22-40-**	(10)	
8000	240	6	36	47	28	2HXO8206-36-47-**		25
	480	(155)	(915)	(1195)	(710)	2HXO8406-36-47-**	(11.5)	
9000	240	6	40	54	30	2HXO9206-40-54-**		28
	480	(155)	(1015)	(1370)	(760)	2HXO9406-40-54-**	(13)	

Single phase only.

Product Features and Benefits:

- ◆ **SUPERIOR CHEMICAL RESISTANCE:** Inert to most aqueous acid, alkaline, anodizing and pickling solutions up to 212°F (100°C).
- ◆ **RUGGED CONSTRUCTION:** Heavy wall fluoropolymer (PTFE) covered stainless steel element reduces permeation and eliminates the need for gas purge systems. Guaranteed 100% pinhole free.
- ◆ **OUTSTANDING PERFORMANCE:** Low watt density design (10 watts/square inch, 1.5w/cm²) for long service life.
- ◆ **CORROSION RESISTANT HEAD:** Vapor tight, flame retardant polypropylene terminal enclosure with 3-foot (.9m) flexible PVC liquid tight conduit.
- ◆ **SAFETY FEATURES:**
 - Grounded internal metal element.
 - Thermal protector built in. Replaceable PT-I fuse standard for solutions up to 190°F (88°C).
 - Non-floating construction.
- ◆ **CERTIFICATIONS:** UL (1-6 kW), and CE.
- ◆ **SIZES:** 500 watts to 9,000 watts.
- ◆ **VOLTAGES:** 120, 240 or 480 volts. 208, 380, 415, 600 and other voltages available. Single phase only.
- ◆ **OPTIONS AVAILABLE** (consult factory):
 - Replaceable thermal protectors:
 - PT-IM: for solutions from 190°F (88°C) to 220°F (104°C).
 - Resettable thermal protectors:
 - PT-II: bi-metal switch for solutions up to 190°F (88°C).
 - PT-III: type-J thermocouple for solutions from 190°F (88°C) to 210°F (99°C).
 - PIII: type-J thermocouple for solutions from 210°F (99°C) to 250°F (121°C).
 - Longer vertical lengths (cold zones).
 - Polypropylene guards: recommended for applications up to 180°F (82°C).
 - Fluoropolymer (PTFE) guards: recommended for chromic acid or solutions over 180°F (82°C).
 - Special configurations.
 - Longer wire and conduit lengths.
 - Flexible continuous fluoropolymer leads (PIII protector only).
 - Lower watt densities for highly viscous solutions and technical acids.
 - Temperature and level controls sized to match the heater.

To Order Call - Star Electric - 1.800.345.0369



HXOL SERIES, FLEX RISER FLUOROPOLYMER (PTFE) HEATERS											
WATTS	VOLTS	WIDTH In./(mm)	LENGTH In./(mm)	MODEL	SHIP	WATTS	VOLTS	WIDTH In./(mm)	LENGTH In./(mm)	MODEL	SHIP
				NUMBER	WGT. Lbs./(kg)					NUMBER	WGT. Lbs./(kg)
1000	120	2	11	HXOL1102-11L**	6	4000	240	6	14	HXOL4206-14L**	14
	240	(50)	(280)	HXOL1202-11L**	(2.5)		480	(155)	(355)	HXOL4406-14L**	(6.5)
1000	120	4	8	HXOL1104-08L**	6	4000	240	8	11	HXOL4208-11L**	14
	240	(100)	(205)	HXOL1204-08L**	(2.5)		480	(205)	(280)	HXOL4408-11L**	(6.5)
2000	120	4	13	HXOL2104-13L**	7	5000	240	6	18	HXOL5206-18L**	17
	240	(100)	(330)	HXOL2204-13L**	(3.5)		480	(155)	(460)	HXOL5406-18L**	(8)
	480			HXOL2404-13L**		5000	240	8	13	HXOL5208-13L**	17
2000	120	5	10	HXOL2105-10L**	7		480	(205)	(330)	HXOL5408-13L**	(8)
	240	(125)	(255)	HXOL2205-10L**	(3.5)	5000	240	9	11	HXOL5209-11L**	17
	480			HXOL2405-10L**			480	(230)	(280)	HXOL5409-11L**	(8)
2000	120	6	8	HXOL2106-08L**	7	5000	240	10	10	HXOL5210-10L**	17
	240	(155)	(205)	HXOL2206-08L**	(3.5)		480	(255)	(255)	HXOL5410-10L**	(8)
	480			HXOL2406-08L**		6000	240	7	18	HXOL6207-18L**	20
3000	240	4	18	HXOL3204-18L**	12		480	(180)	(460)	HXOL6407-18L**	(9)
	480	(100)	(460)	HXOL3404-18L**	(5.5)	6000	240	8	15	HXOL6208-15L**	20
3000	240	5	12	HXOL3205-12L**	12		480	(205)	(380)	HXOL6408-15L**	(9)
	480	(125)	(305)	HXOL3405-12L**	(5.5)	6000	240	9	13	HXOL6209-13L**	20
3000	240	6	11	HXOL3206-11L**	12		480	(230)	(330)	HXOL6409-13L**	(9)
	480	(155)	(280)	HXOL3406-11L**	(5.5)	6000	240	10	12	HXOL6210-12L**	20
3000	240	8	8	HXOL3208-08L**	12		480	(255)	(305)	HXOL6410-12L**	(9)
	480	(205)	(205)	HXOL3408-08L**	(5.5)	6000	240	11	11	HXOL6211-11L**	20
4000	240	5	18	HXOL4205-18L**	14		480	(280)	(280)	HXOL6411-11L**	(9)
	480	(125)	(460)	HXOL4405-18L**	(6.5)						

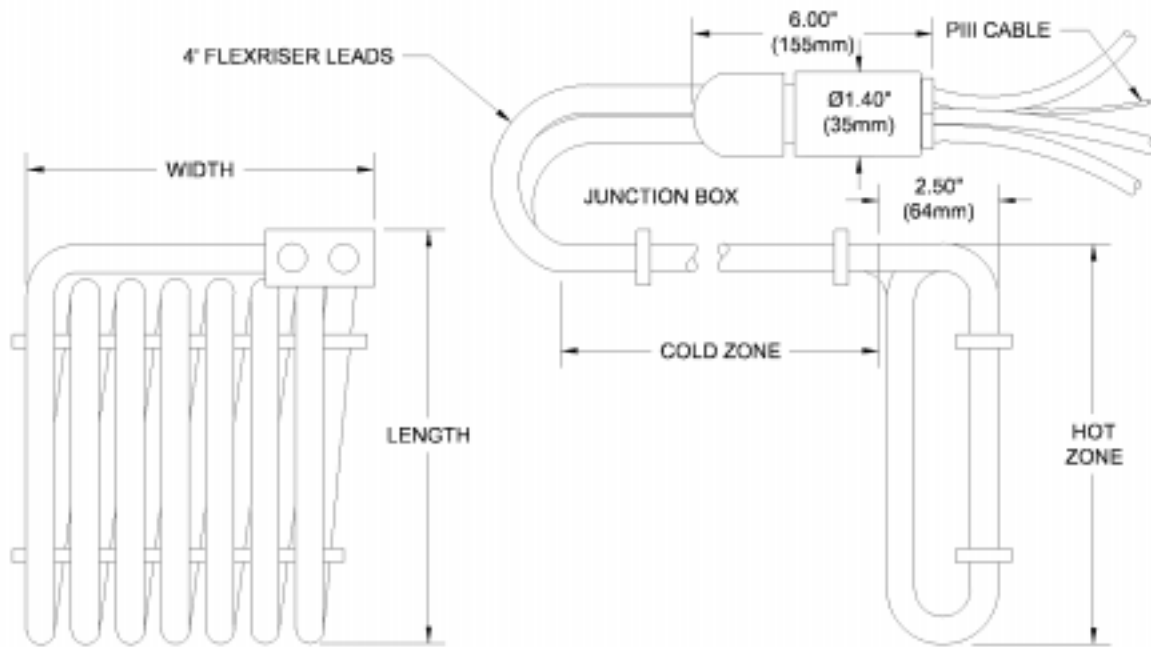
Other dimensional configurations available, consult factory. Single phase only. Fluoropolymer guards standard. Risers pictured in left position, right position available.

Product Features and Benefits:

- ◆ **SUPERIOR CHEMICAL RESISTANCE:** Inert to most aqueous acid, alkaline, anodizing and pickling solutions up to 212°F (100°C).
- ◆ **RUGGED CONSTRUCTION:** Heavy wall fluoropolymer (PTFE) covered stainless steel element reduces permeation and eliminates the need for gas purge systems. Guaranteed 100% pinhole free.
- ◆ **FLUOROPOLYMER GUARD STANDARD.**
- ◆ **OUTSTANDING PERFORMANCE:** Low watt density design (10 watts/square inch, 1.5w/cm²) for long service life.
- ◆ **FLEXIBLE RISER:** 4-foot (1.2m) continuous fluoropolymer (PTFE) cable leading to a vapor tight PVC terminal enclosure and 3-foot (.9m) flexible PVC liquid tight conduit.
- ◆ **SAFETY FEATURES:**
 - Grounded internal metal element.
 - Thermal protector built in. Resettable PIII J-type thermocouple standard.
 - Non-floating construction.
- ◆ **CERTIFICATIONS:** UL and CE.
- ◆ **SIZES:** 1,000 watts to 6,000 watts.
- ◆ **VOLTAGES:** 120, 240 or 480 volts. 208, 380, 415, 600 and other voltages available. Single phase only.
- ◆ **OPTIONS AVAILABLE (consult factory):**
 - Longer fluoropolymer (PTFE) riser lengths.
 - Rigid riser with vapor tight, flame retardant polypropylene terminal enclosure and either replaceable or resettable thermal protectors.
 - Special configurations.
 - Longer wire and conduit lengths.
 - Lower watt densities for highly viscous solutions and technical acids.
 - Temperature and level controls sized to match the heater.

To Order Call - Star Electric - 1.800.345.0369

DIMENSIONS



HXOL FLUOROPOLYMER (PTFE) HEATER

Series	Wattage	Voltage	Width	Options	Length	Riser Location	Riser Option	Type of Fuse	Wire and Conduit Length
1 = 1000 2 = 2000 3 = 3000 4 = 4000 5 = 5000 6 = 6000	1 = 120 2 = 240 4 = 480 -208 = 208 -380 = 380 -415 = 415 -600 = 600	specify in inches	specify in inches	L = left front corner R = right front corner -FR = flex riser length specify in inches Ex: -FR48 = 48" -R = rigid riser length	specify in inches	L = left front corner R = right front corner	-FR = flex riser length specify in inches Ex: -FR48 = 48" -R = rigid riser length	no designator = 36" length standard specify variations from standard Ex: -X84 = 84" wire and conduit	<div style="border: 1px solid black; padding: 2px; text-align: center;"> Thermal Protector (additional control components required) </div> -PIII for solutions up to 250°F (121°C)
HXOL = PTFE HSOL = 304 stainless steel (rigid riser only)			X = any special configuration not called out in the part number (specify in clear text) C = complete with guard						

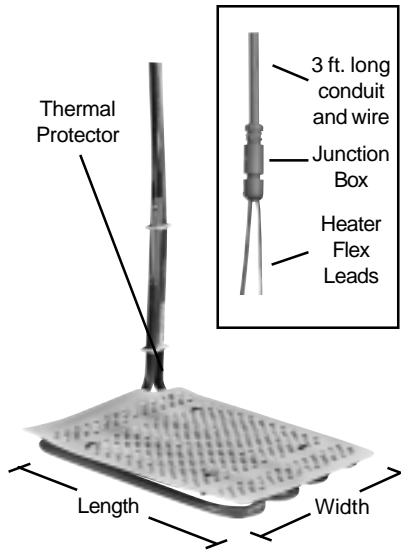
ORDERING EXAMPLE:

HXOL2206C-08R-FR60-PIII

L-shaped (oval configuration), fluoropolymer, 2,000 watts, 240 volt, 6" width, complete with guard, 8" length, riser located in the front right corner, 60" flex riser, PIII thermal protector.

**PROCESS
TECHNOLOGY**

To Order Call - Star Electric - 1.800.345.0369



HXRL SERIES, FLEX RISER FLUOROPOLYMER (PTFE) HEATERS																
WATTS	VOLTS	WIDTH		LENGTH		MODEL NUMBER	SHIP WGT. Lbs./kg)	WATTS	VOLTS	WIDTH		LENGTH		MODEL NUMBER	SHIP WGT. Lbs./kg)	
		In./mm)	In./mm)	In./mm)	In./mm)					In./mm)	In./mm)					
1000	120	4	19			HXRL1104-19L-*	6	3000	240	16	14			HXRL3216-14L-*	12	
	240	(100)	(485)			HXRL1204-19L-*	(2.5)		480	(405)	(355)			HXRL3416-14L-*	(5.5)	
1000	120	6	13			HXRL1106-13L-*	6	3000	240	18	13			HXRL3218-13L-*	12	
	240	(155)	(330)			HXRL1206-13L-*	(2.5)		480	(460)	(330)			HXRL3418-13L-*	(5.5)	
1000	120	8	10			HXRL1108-10L-*	6	4000	240	12	25			HXRL4212-25L-*	14	
	240	(205)	(255)			HXRL1208-10L-*	(2.5)		480	(305)	(635)			HXRL4412-25L-*	(6.5)	
2000	120	6	25			HXRL2106-25L-*	7	4000	240	14	22			HXRL4214-22L-*	14	
	240	(155)	(635)			HXRL2206-25L-*	(3.5)		480	(355)	(560)			HXRL4414-22L-*	(6.5)	
	480					HXRL2406-25L-*			4000	240	18	17			HXRL4218-17L-*	14
2000	120	8	19			HXRL2108-19L-*	7	4000	480	(460)	(430)			HXRL4418-17L-*	(6.5)	
	240	(205)	(485)			HXRL2208-19L-*	(3.5)		4000	240	20	15			HXRL4220-15L-*	14
	480					HXRL2408-19L-*			480	(510)	(380)			HXRL4420-15L-*	(6.5)	
2000	120	10	15			HXRL2110-15L-*	7	5000	240	12	31			HXRL5212-31L-*	17	
	240	(255)	(380)			HXRL2210-15L-*	(3.5)		480	(305)	(790)			HXRL5412-31L-*	(8)	
	480					HXRL2410-15L-*			5000	240	14	27			HXRL5214-27L-*	17
2000	120	12	13			HXRL2112-13L-*	7	5000	480	(355)	(685)			HXRL5414-27L-*	(8)	
	240	(305)	(330)			HXRL2212-13L-*	(3.5)		5000	240	16	24			HXRL5216-24L-*	17
	480					HXRL2412-13L-*			480	(405)	(610)			HXRL5416-24L-*	(8)	
2000	120	14	11			HXRL2114-11L-*	7	5000	240	18	21			HXRL5218-21L-*	17	
	240	(355)	(280)			HXRL2214-11L-*	(3.5)		480	(460)	(535)			HXRL5418-21L-*	(8)	
	480					HXRL2414-11L-*			6000	240	12	36			HXRL6212-36L-*	20
3000	240	10	23			HXRL3210-23L-*	12	6000	480	(305)	(915)			HXRL6412-36L-*	(9)	
	480	(255)	(585)			HXRL3410-23L-*	(5.5)		6000	240	14	30			HXRL6214-30L-*	20
3000	240	12	19			HXRL3212-19L-*	12	6000	480	(355)	(765)			HXRL6414-30L-*	(9)	
	480	(305)	(485)			HXRL3412-19L-*	(5.5)		6000	240	16	26			HXRL6216-26L-*	20
3000	240	14	16			HXRL3214-16L-*	12	6000	480	(405)	(660)			HXRL6416-26L-*	(9)	
	480	(355)	(405)			HXRL3414-16L-*	(5.5)		6000	240	20	21			HXRL6220-21L-*	20
									480	(510)	(535)			HXRL6420-21L-*	(9)	

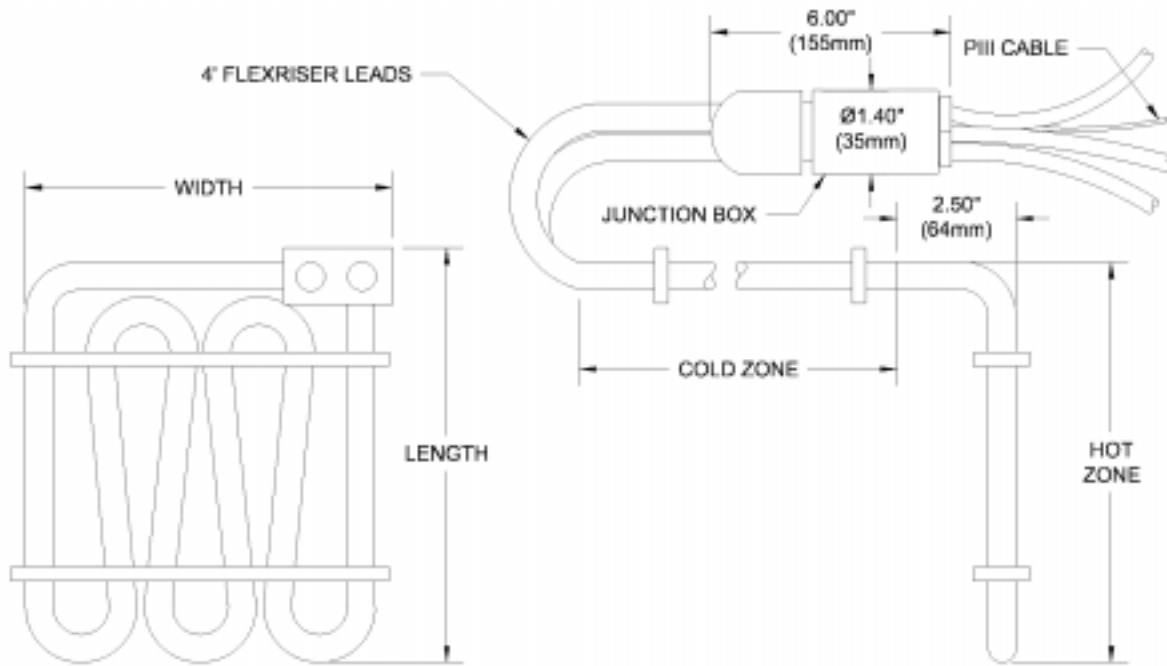
Other dimensional configurations available, consult factory. Single phase only. Fluoropolymer guards standard. Risers pictured in left position, right position available.

Product Features and Benefits:

- ◆ **SUPERIOR CHEMICAL RESISTANCE:** Inert to most aqueous acid, alkaline, anodizing and pickling solutions up to 212°F (100°C).
- ◆ **RUGGED CONSTRUCTION:** Heavy wall fluoropolymer (PTFE) covered stainless steel element reduces permeation and eliminates the need for gas purge systems. Guaranteed 100% pinhole free.
- ◆ **FLUOROPOLYMER (PTFE) GUARD STANDARD.**
- ◆ **LONG LASTING PERFORMANCE:** Low watt density design (10 watts/square inch, 1.5w/cm²) for long service life.
- ◆ **FLEXIBLE RISER:** 4-foot (1.2m) continuous fluoropolymer (PTFE) cable leading to a vapor tight PVC terminal enclosure and 3-foot (.9m) flexible PVC liquid tight conduit.
- ◆ **SAFETY FEATURES:**
 - Grounded internal metal element.
 - Thermal protector built in. Resettable PIII J-type thermocouple standard.
 - Non-floating construction.
- ◆ **CERTIFICATIONS:** UL and CE.
- ◆ **SIZES:** 1,000 watts to 6,000 watts.
- ◆ **VOLTAGES:** 120, 240 or 480 volts. 208, 380, 415, 600 and other voltages available. Single phase only.
- ◆ **OPTIONS AVAILABLE (consult factory):**
 - Longer fluoropolymer (PTFE) riser lengths.
 - Rigid riser with vapor tight, flame retardant polypropylene terminal enclosure and either replaceable or resettable thermal protectors.
 - Special configurations.
 - Longer wire and conduit lengths.
 - Lower watt densities for highly viscous solutions and technical acids.
 - Temperature and level controls sized to match the heater.

To Order Call - Star Electric - 1.800.345.0369

DIMENSIONS



HXRL FLUOROPOLYMER (PTFE) HEATER

Series	Wattage	Voltage	Width	Options	Length	Riser Location	Riser Option	Type of Fuse	Wire and Conduit Length
1 = 1000 2 = 2000 3 = 3000 4 = 4000 5 = 5000 6 = 6000	1 = 120 2 = 240 4 = 480 -208 = 208 -380 = 380 -415 = 415 -600 = 600	specify in inches	specify in inches	L = left front corner R = right front corner	-FR = flex riser length specify in inches Ex: -FR48 = 48" -R = rigid riser length	no designator = 36" length standard specify variations from standard Ex: -X84 = 84" wire and conduit	<div style="border: 1px solid black; padding: 2px; text-align: center;"> Thermal Protector (additional control components required) </div> -PIII for solutions up to 250°F (121°C)	HXRL = PTFE HSRL = 304 stainless steel (rigid riser only)	X = any special configuration not called out in the part number (specify in clear text) C = complete with guard

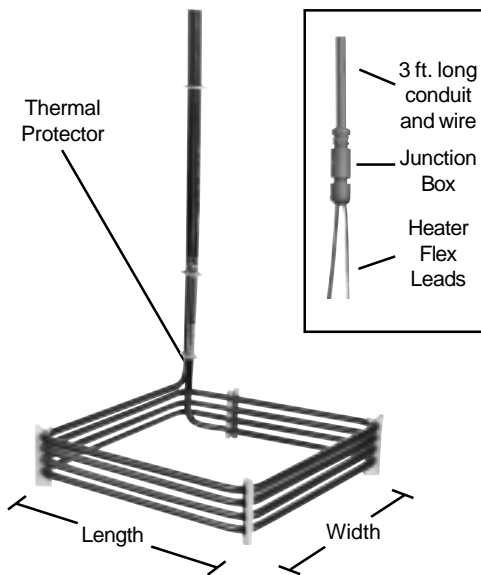
ORDERING EXAMPLE:

HXRL3414C-16L-FR54-PIII

L-shaped (serpentine configuration), fluoropolymer, 3,000 watts, 480 volt, 14" width, complete with guard, 16" length, riser located in the front left corner, 54" flex riser, PIII thermal protector.

**PROCESS
TECHNOLOGY**

To Order Call - Star Electric - 1.800.345.0369



HXSL SERIES, FLEX RISER FLUOROPOLYMER (PTFE) HEATERS					
WATTS	VOLTS	WIDTH*	LENGTH*	MODEL NUMBER	SHIP WGT. Lbs./ (kg)
1000	120	*	*	HXSL1**	6
	240	*	*		(2.5)
2000	120	*	*	HXSL2**	7
	240	*	*		(3.5)
	480	*	*		
3000	240	*	*	HXSL3**	12
	480	*	*		(5.5)
4000	240	*	*	HXSL4**	14
	480	*	*		(6.5)
5000	240	*	*	HXSL5**	17
	480	*	*		(8)
6000	240	*	*	HXSL6**	20
	480	*	*		(9)

*Please consult factory for model numbers of specific heaters. Single phase only. Heaters built to conform to tank dimensions. Risers pictured in left position, right position available.

Product Features and Benefits:

- ◆ **SUPERIOR CHEMICAL RESISTANCE:** Inert to most aqueous acid, alkaline, anodizing and pickling solutions up to 212°F (100°C).
- ◆ **RUGGED CONSTRUCTION:** Heavy wall fluoropolymer (PTFE) covered stainless steel element reduces permeation and eliminates the need for gas purge systems. Guaranteed 100% pinhole free.
- ◆ **CUSTOM BUILT TO CONFORM TO TANK DIMENSIONS.**
- ◆ **OUTSTANDING PERFORMANCE:** Low watt density design (10 watts/square inch, 1.5w/cm²) for long service life.
- ◆ **FLEXIBLE RISER:** 4-foot (1.2m) continuous fluoropolymer (PTFE) cable leading to a vapor tight PVC terminal enclosure and 3-foot (.9m) flexible PVC liquid tight conduit.
- ◆ **SAFETY FEATURES:**
 - Grounded internal metal element.
 - Thermal protector built in. Resettable PIII J-type thermocouple standard.
 - Non-floating construction.
- ◆ **CERTIFICATIONS:** UL and CE.
- ◆ **SIZES:** 1,000 watts to 6,000 watts.
- ◆ **VOLTAGES:** 120, 240 or 480 volts. 208, 380, 415, 600 and other voltages available. Single phase only.
- ◆ **OPTIONS AVAILABLE (consult factory):**
 - Longer fluoropolymer (PTFE) riser lengths.
 - Rigid riser with vapor tight, flame retardant polypropylene terminal enclosure and either replaceable or resettable thermal protectors.
 - Longer wire and conduit lengths.
 - Lower watt densities for highly viscous solutions and technical acids.
 - Temperature and level controls sized to match the heater.

