

**PROCESS
TECHNOLOGY**

AQUACULTURE



Heating and Cooling Products

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www.process-technology.com

Process Technology - setting the standard.

Process Technology has taken heating technology one step further. Our innovative aquaculture heater design proves once again our commitment to a higher standard of excellence. Many heater companies make idealistic statements about quality and performance, but at Process Technology we back our claim with action.

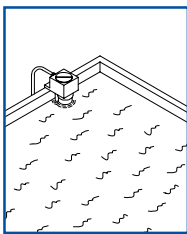
- **Innovative Design.** We're the first heater company to design and manufacture electric immersion heaters with aquaculture in mind. Our products include more standard features than the competition, at no additional cost.
- **Value.** Our new heater design delivers the highest value in the industry. Our innovative technology and assembly techniques enable us to provide products at the most competitive prices in the industry.

- **Quality.** Our reliability has been acknowledged and tested by the people who set the standards. We are CE-compliant and cUL listed. No other products deliver our combination of performance, reliability and safety.
- **Service.** We have the largest technical support team in the industry. Each member is experienced, knowledgeable and professional. With worldwide distribution as well as offices in Mentor, Ohio, and Henderson, Nevada, we are ready to serve you any time or any place.
- **Safety.** Safety is built-in, not added-on. Our products are the safest available at any price. We offer more models with over-temperature protection as standard than any other manufacturer.

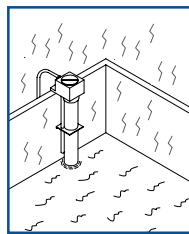


THERMAL OVERLOAD PROTECTION Protector I Series

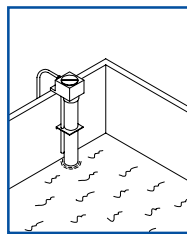
The Protector I over-temperature control system utilizes a heat sensitive fuse to detect overheat conditions. The fuse, placed inside a thermowell, positioned in contact with the heater sheath, will cut power to the heater in the event of low liquid level.



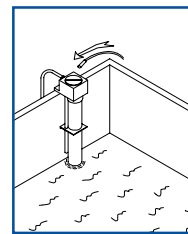
Immersion heater with PROTECTOR I working normally.



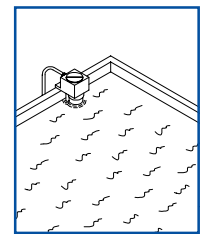
Process bath level drops due to tank leak or evaporation.



PROTECTOR I fuse sensor detects elevating temperature and shuts off power to heater.



Replace fuse.



Restore the liquid level and resume operation.



HEATER THERMAL PROTECTION CHART

PROTECTOR TYPE	METAL OVER THE SIDE AND FLANGED	METAL L-SHAPED
Replaceable	PT-I (White, 4573)	PLI (White, 3710)
*Resetable	PT-II (White, 4575)	PLII (White, 3804)



* Optional resettable thermal sensor requires special control components, consult factory.

VOLTAGES AVAILABLE (MOST HEATERS AND CONTROLS)

Voltages are designated in Process Technology model numbers as follows:

- 1=120 volt
- 2=240 volt
- 4=480 volt
- 208=208 volt
- 380=380 volt
- 415=415 volt
- 600=600 volt

Please specify voltage and single or three phase when ordering. Consult factory for other voltages.

W A R N I N G

ELECTRIC IMMERSION HEATERS WILL IGNITE MANY PLASTIC TANKS SUCH AS POLYPROPYLENE AND POLYETHYLENE, AND SUBJECT PERSONNEL TO SHOCK HAZARD IF NOT PROPERLY INSTALLED AND MAINTAINED.

IGNITION SOURCE
SHOCK HAZARD

Products listed in this catalog are designed for service in aquaculture-related applications only, not for use in chemical applications.

EASYPLUG™ HEATERS AND CONTROLS

EASYPLUG™ HEATER AND DIGITAL CONTROL SYSTEMS

WATTS	VOLTS	HOT	OVERALL	316L STAINLESS	TITANIUM HEATER	SHIP
		ZONE	LENGTH	HEATER W/ CONTROL	W/ CONTROL	
		In./(mm)	In./(mm)	MODEL NUMBER	MODEL NUMBER	WGT.
				(FOR FRESH WATER)	(FOR SALT WATER)	Lbs./(kg)
1000	120	7 (180)	11 (280)	EDRSA1111-PT-I	EDRTA1111-PT-I	6 (3)
	240			EDRSA1211-PT-I	EDRTA1211-PT-I	
1800	120	12 (305)	17 (430)	EDRSA1.8117-PT-I	EDRTA1.8117-PT-I	9 (4)
	240			EDRSA1.8217-PT-I	EDRTA1.8217-PT-I	
2500	240	17 (430)	23 (585)	EDRSA2.5223-PT-I	EDRTA2.5223-PT-I	11 (5)
3500	240	23 (585)	29 (735)	EDRSA3.5229-PT-I	EDRTA3.5229-PT-I	13 (6)

Each system includes: single phase heater with 10' (3050 mm) cord and plug, digital control with cord and plug, and heater mounting clip. Single phase only. Longer cord lengths available, consult factory.



EASYPLUG™ BOTTOM HEATER AND DIGITAL CONTROL SYSTEMS

WATTS	VOLTS	HORIZONTAL	STANDARD	316L STAINLESS	TITANIUM	SHIP
		LENGTH	VERTICAL	HEATER W/ CONTROL	HEATER W/ CONTROL	
		In./(mm)	In./(mm)	MODEL NUMBER	MODEL NUMBER	WGT.
				(FOR FRESH WATER)	(FOR SALT WATER)	Lbs./(kg)
1000	120	11 (280)	24 (610)	EDRLSA1111-R24S-PLI	EDRLTA1111-R24S-PLI	8 (4)
	240			EDRLSA1211-R24S-PLI	EDRLTA1211-R24S-PLI	
1800	120	16 (405)	24 (610)	EDRLSA1.8116-R24S-PLI	EDRLTA1.8116-R24S-PLI	11 (5)
	240			EDRLSA1.8216-R24S-PLI	EDRLTA1.8216-R24S-PLI	
2500	240	21 (535)	24 (610)	EDRLSA2.5221-R24S-PLI	EDRLTA2.5221-R24S-PLI	13 (6)
3500	240	27 (685)	24 (610)	EDRLSA3.5227-R24S-PLI	EDRLTA3.5227-R24S-PLI	16 (7.5)

Each system includes: single phase heater with 10' (3050 mm) cord/plug and digital control with cord/plug. Longer vertical lengths and special configurations available, consult factory. Single phase only. Longer cord lengths available, consult factory.



EASYPLUG™ REPLACEMENT OVER THE SIDE HEATERS

WATTS	VOLTS	HOT	OVERALL	316L STAINLESS	TITANIUM	SHIP
		ZONE	LENGTH	HEATER ONLY	HEATER ONLY	
		In./(mm)	In./(mm)	MODEL NUMBER	MODEL NUMBER	WGT.
				(FOR FRESH WATER)	(FOR SALT WATER)	Lbs./(kg)
1000	120	7 (180)	11 (280)	ESA1111-PT-I	ETA1111-PT-I	6 (3)
	240			ESA1211-PT-I	ETA1211-PT-I	
1800	120	12 (305)	17 (430)	ESA1.8117-PT-I	ETA1.8117-PT-I	9 (4)
	240			ESA1.8217-PT-I	ETA1.8217-PT-I	
2500	240	17 (430)	23 (585)	ESA2.5223-PT-I	ETA2.5223-PT-I	11 (5)
3500	240	23 (585)	29 (735)	ESA3.5229-PT-I	ETA3.5229-PT-I	13 (6)

Single phase only. 10' (3050 mm) flexible cord with EASYPLUG™ connector standard, longer lengths available. Heater mounting clip included.



EASYPLUG™ systems are simple to install!

- ★ Mount the control in an appropriate location and plug it in.
- ★ Mount the heater in the tank and plug it in.
- ★ That's all there is to it.
- ★ It's easy with EASYPLUG™ heater systems from Process Technology!

EASYPLUG™ HEATERS AND CONTROLS



EASYPLUG™ REPLACEMENT BOTTOM HEATERS

WATTS	VOLTS	HORIZONTAL	STANDARD	316L STAINLESS	TITANIUM	SHIP WGT. Lbs./(kg)
		LENGTH In./(mm)	VERTICAL LENGTH In./(mm)	HEATER ONLY MODEL NUMBER (FOR FRESH WATER)	HEATER ONLY MODEL NUMBER (FOR SALT WATER)	
1000	120	11 (280)	24 (610)	ELSA1111-R24S-PLI	ELTA1111-R24S-PLI	8 (4)
	240			ELSA1211-R24S-PLI	ELTA1211-R24S-PLI	
1800	120	16 (405)	24 (610)	ELSA1.8116-R24S-PLI	ELTA1.8116-R24S-PLI	11 (5)
	240			ELSA1.8216-R24S-PLI	ELTA1.8216-R24S-PLI	
2500	240	21 (535)	24 (610)	ELSA2.5221-R24S-PLI	ELTA2.5221-R24S-PLI	13 (6)
3500	240	27 (685)	24 (610)	ELSA3.5227-R24S-PLI	ELTA3.5227-R24S-PLI	16 (7.5)

Longer vertical lengths and special configurations available, consult factory. Single phase only. 10' (3050 mm) flexible cord with **EASYPLUG™** connector standard, longer lengths available.



EASYPLUG™ REPLACEMENT DIGITAL THERMOSTATS

VOLTS	MAX. AMPS	THERMOSTAT		TEMP. RANGE	REPLACEMENT SENSOR P/N	SHIP WGT. Lbs./(kg)
		ONLY MODEL NUMBER	SENSOR LENGTH			
120	15	DRAE15-1	8' (2440 mm)	-30°-220°F (-34°-104°C)	DRA-8L	3 (1.5)
240	8	DRAE15-2	8' (2440 mm)	-30°-220°F (-34°-104°C)	DRA-8L	3 (1.5)

Includes 8 foot (2440 mm) vinyl sleeved sensor. 6' (1830 mm) flexible power cord and plug included. Indoor use only. For outdoor applications, consult factory.



EASYPLUG™ NON-INDICATING REPLACEMENT THERMOSTATS

VOLTS	MAX. AMPS	THERMOSTAT		TEMP. RANGE	SENSOR LENGTH	REPLACEMENT SENSOR P/N	SHIP WGT. Lbs./(kg)
		ONLY MODEL NUMBER					
120	15	NA15E-1		32°-122°F (0°-50°C)	5' (1525 mm)	NA15-5L	3 (1.5)
240	15	NA15E-2		32°-122°F (0°-50°C)	5' (1525 mm)	NA15-5L	3 (1.5)

Includes 5 foot (1525 mm) vinyl sleeved sensor. 6' (1830 mm) flexible power cord and plug included. Indoor use only. For outdoor applications, consult factory.

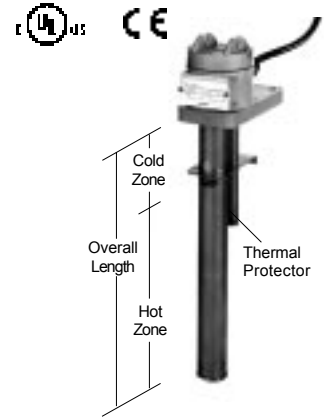
- ★ Most items in the catalog are available for immediate shipment from stock!
- ★ Let us size your electric heaters or heat exchangers for you with our computerized sizing program.
- ★ Why not buy a spare replacement fuse just to be safe? See heater thermal protectors on page 7.

IMMERSION HEATERS

SINGLE TUBE OVER THE SIDE HEATERS

WATTS	VOLTS	HOT ZONE	OVERALL LENGTH	316L STAINLESS MODEL NUMBER	TITANIUM MODEL NUMBER	SHIP WGT. Lbs./(kg)
		In./(mm)	In./(mm)	(FOR FRESH WATER)	(FOR SALT WATER)	
1000	120	7 (180)	11 (280)	SA1111-PT-I	TA1111-PT-I	5 (2.5)
	240			SA1211-PT-I	TA1211-PT-I	
1800	120	12 (305)	17 (430)	SA1.8117-PT-I	TA1.8117-PT-I	8 (4)
	240			SA1.8217-PT-I	TA1.8217-PT-I	
2500	240	17 (430)	23 (585)	SA2.5223-PT-I	TA2.5223-PT-I	10 (4.5)
3500	240	23 (585)	29 (735)	SA3.5229-PT-I	TA3.5229-PT-I	13 (6)
5000	240	32 (815)	39 (990)	SA5239-PT-I	TA5239-PT-I	16 (7.5)
6000	240	40 (1015)	47 (1195)	SA6247-PT-I	TA6247-PT-I	19 (8.5)

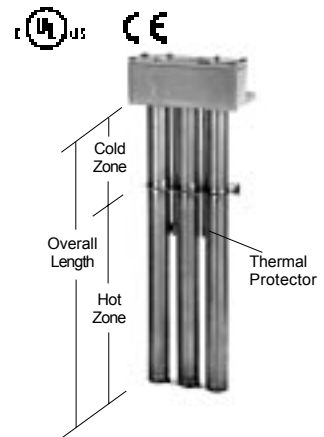
Single phase only. 10' (3050 mm) flexible cord standard. Wire and conduit provided on 5 and 6 kW models. Mounting clip, longer cord lengths and protective guards available.



TRIPLE TUBE OVER THE SIDE HEATERS

WATTS	VOLTS	HOT ZONE	OVERALL LENGTH	316L STAINLESS MODEL NUMBER	TITANIUM MODEL NUMBER	SHIP WGT. Lbs./(kg)
		In./(mm)	In./(mm)	(FOR FRESH WATER)	(FOR SALT WATER)	
3000	240	7 (180)	11 (280)	3SA3211-PT-I	3TA3211-PT-I	15 (7)
5500	240	12 (305)	17 (430)	3SA5.5217-PT-I	3TA5.5217-PT-I	24 (11)
7500	240	17 (430)	23 (585)	3SA7.5223-PT-I	3TA7.5223-PT-I	30 (14)
10500	240	23 (585)	29 (735)	3SA10.5229-PT-I	3TA10.5229-PT-I	38 (17)
15000	240	32 (815)	39 (990)	3SA15239-PT-I	3TA15239-PT-I	45 (20)
18000	240	40 (1015)	47 (1195)	3SA18247-PT-I	3TA18247-PT-I	52 (24)

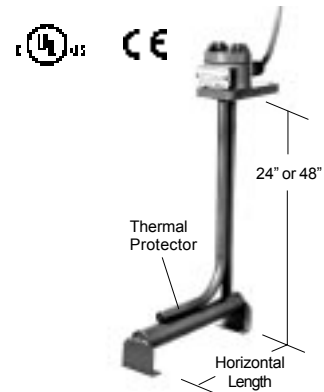
Three phase common box standard. Single phase common box available as option, add "-1" before thermal protection designator. 10' (3050 mm) wire and conduit standard, longer lengths and protective guards available.



SINGLE TUBE BOTTOM HEATERS

WATTS	VOLTS	HORIZONTAL LENGTH	STANDARD VERTICAL	316L STAINLESS MODEL NUMBER	TITANIUM MODEL NUMBER	SHIP WGT. Lbs./(kg)
		In./(mm)	In./(mm)	(FOR FRESH WATER)	(FOR SALT WATER)	
1000	120	11 (280)	24 (610)	LSA1111-R24S-PLI	LTA1111-R24S-PLI	7 (3.5)
	240			LSA1211-R24S-PLI	LTA1211-R24S-PLI	
1800	120	16 (405)	24 (610)	LSA1.8116-R24S-PLI	LTA1.8116-R24S-PLI	10 (4.5)
	240			LSA1.8216-R24S-PLI	LTA1.8216-R24S-PLI	
2500	240	21 (535)	24 (610)	LSA2.5221-R24S-PLI	LTA2.5221-R24S-PLI	12 (5.5)
3500	240	27 (685)	24 (610)	LSA3.5227-R24S-PLI	LTA3.5227-R24S-PLI	15 (7)
5000	240	36 (915)	48 (1220)	LSA5236-R48S-PLI	LTA5236-R48S-PLI	18 (8)
6000	240	44 (1120)	48 (1220)	LSA6244-R48S-PLI	LTA6244-R48S-PLI	21 (9.5)

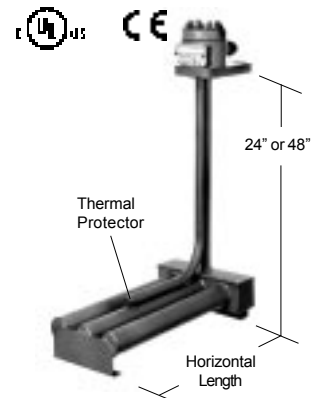
Single phase only. 10' (3050 mm) flexible cord standard, longer lengths available. Wire and conduit provided on 5 and 6 kW models. Longer vertical lengths, special configurations, longer cord lengths, and protective guards available, consult factory.



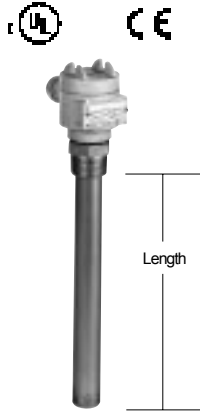
TRIPLE TUBE BOTTOM HEATERS

WATTS	VOLTS	HORIZONTAL LENGTH	STANDARD VERTICAL	316L STAINLESS MODEL NUMBER	TITANIUM MODEL NUMBER	SHIP WGT. Lbs./(kg)
		In./(mm)	In./(mm)	(FOR FRESH WATER)	(FOR SALT WATER)	
3000	240	11 (280)	24 (610)	3LSA3211-R24S-PLI	3LTA3211-R24S-PLI	18 (8)
5500	240	16 (405)	24 (610)	3LSA5.5216-R24S-PLI	3LTA5.5216-R24S-PLI	27 (12)
7500	240	21 (535)	24 (610)	3LSA7.5221-R24S-PLI	3LTA7.5221-R24S-PLI	33 (15)
10500	240	27 (685)	24 (610)	3LSA10.5227-R24S-PLI	3LTA10.5227-R24S-PLI	41 (19)
15000	240	36 (915)	48 (1220)	3LSA15236-R48S-PLI	3LTA15236-R48S-PLI	48 (22)
18000	240	44 (1120)	48 (1220)	3LSA18244-R48S-PLI	3LTA18244-R48S-PLI	55 (25)

Three phase standard. 10' (3050 mm) wire and conduit standard. Longer vertical lengths, special configurations, single phase, protective guards, and longer wire available as options, consult factory.



SCREWPLUG AND FLANGED HEATERS

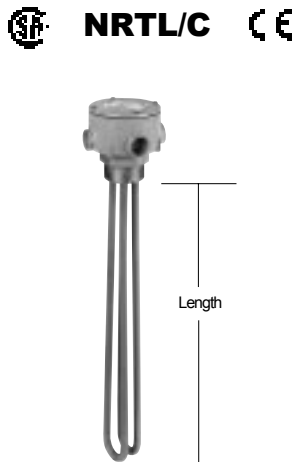


1 1/4" NPT SCREWPLUG HEATERS

WATTS	VOLTS	OVERALL	316L STAINLESS	TITANIUM	SHIP
		LENGTH	MODEL NUMBER	MODEL NUMBER	
		In./(mm)	(FOR FRESH WATER)	(FOR SALT WATER)	Lbs./(kg)
1000	120	10 (255)	STA1110	TTA1110	6 (3)
	240		STA1210	TTA1210	
1800	120	15 (380)	STA1.8115	TTA1.8115	8 (4)
	240		STA1.8215	TTA1.8215	
2500	240	20 (510)	STA2.5220	TTA2.5220	11 (5)
3500	240	26 (660)	STA3.5226	TTA3.5226	13 (6)
5000	240	35 (890)	STA5235	TTA5235	15 (7)
6000	240	43 (1090)	STA6243	TTA6243	18 (8)

Single phase only. Other sizes available, consult factory. 10' (3050 mm) flexible cord standard, longer lengths available. Wire and conduit provided on 5 and 6 kW models.

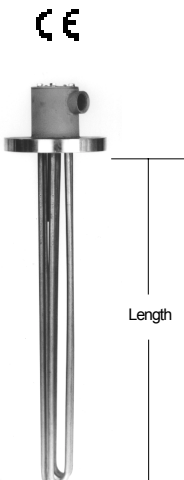
2" NPT SCREWPLUG HEATERS



WATTS	VOLTS	316L STAINLESS	STAINLESS	TITANIUM*	TITANIUM	SHIP
		MODEL NUMBER	LENGTH	MODEL NUMBER	LENGTH	
	(See pg. 1)	(FOR FRESH WATER)	In./(mm)	(FOR SALT WATER)	In./(mm)	Lbs./(kg)
2000	240	2T2208	8	T2T2208	8	5
	480	2T2408	(205)	T2T2408	(205)	(2.5)
3000	240	2T3212	12	T2T3210	10	6
	480	2T3412	(305)	T2T3410	(255)	(3)
4000	240	2T4218	18	T2T4213	13	7
	480	2T4418	(460)	T2T4413	(330)	(3.5)
6000	240	2T6225	25	T2T6223	23	8
	480	2T6425	(635)	T2T6423	(585)	(4)
8000	240	2T8228	28	T2T8228	28	10
	480	2T8428	(710)	T2T8428	(710)	(4.5)
10000	240	2T10241	41	T2T10234	34	10
	480	2T10441	(1040)	T2T10434	(865)	(4.5)
12000	240	2T12248	48	T2T12238	38	12
	480	2T12448	(1220)	T2T12438	(965)	(5.5)

* Assembled stock, consult factory for delivery. Single phase only. Other sizes available, consult factory.

3" 150 LBS. FLANGED HEATERS



WATTS	VOLTS	316L STAINLESS*	STAINLESS	TITANIUM*	TITANIUM	SHIP
		MODEL NUMBER	LENGTH	MODEL NUMBER	LENGTH	
	(See pg. 1)	(FOR FRESH WATER)	In./(mm)	(FOR SALT WATER)	In./(mm)	Lbs./(kg)
3000	240	3FLS3209-**	9	3FLT3209-**	9	14
	480	3FLS3409-**	(230)	3FLT3409-**	(230)	(6.5)
4500	240	3FLS4.5213-**	13	3FLT4.5213-**	13	15
	480	3FLS4.5413-**	(330)	3FLT4.5413-**	(330)	(7)
6000	240	3FLS6219-**	19	3FLT6214-**	14	16
	480	3FLS6419-**	(485)	3FLT6414-**	(355)	(7.5)
9000	240	3FLS9226-**	26	3FLT9224-**	24	17
	480	3FLS9426-**	(660)	3FLT9424-**	(610)	(8)
12000	240	3FLS12233-**	33	3FLT12230-**	30	18
	480	3FLS12433-**	(840)	3FLT12430-**	(760)	(8.5)
15000	240	3FLS15241-**	41	3FLT15235-**	35	20
	480	3FLS15441-**	(1040)	3FLT15435-**	(890)	(9)
18000	240	3FLS18249-**	49	3FLT18239-**	39	21
	480	3FLS18449-**	(1245)	3FLT18439-**	(990)	(10)

* Assembled stock, consult factory for delivery. Three phase standard, single phase and other sizes available.

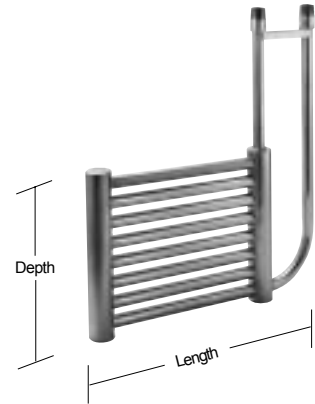
HEAT EXCHANGERS

GRID COILS

EXCHANGE AREA (Sq. Ft.)	NO. OF TUBES	DEPTH In./(mm)	LENGTH In./(mm)	316 STAINLESS MODEL NUMBER (FOR FRESH WATER)	TITANIUM MODEL NUMBER (FOR SALT WATER)	SHIP WGT. Lbs./(kg)
4.6	8	12.5 (318)	24 (610)	S8G-24-H*	T8G-24-H*	13 (6)
5.6	8	12.5 (318)	30 (760)	S8G-30-H*	T8G-30-H*	14 (6.5)
6.7	8	12.5 (318)	36 (915)	S8G-36-H*	T8G-36-H*	15 (7)
8.8	8	12.5 (318)	48 (1220)	S8G-48-H*	T8G-48-H*	18 (8)
10.9	8	12.5 (318)	60 (1525)	S8G-60-H*	T8G-60-H*	20 (9)
6.8	12	18.5 (470)	24 (610)	S12G-24-H*	T12G-24-H*	15 (7)
8.4	12	18.5 (470)	30 (762)	S12G-30-H*	T12G-30-H*	18 (8)
10.0	12	18.5 (470)	36 (915)	S12G-36-H*	T12G-36-H*	22 (10)
13.2	12	18.5 (470)	48 (1220)	S12G-48-H*	T12G-48-H*	28 (13)
16.3	12	18.5 (470)	60 (1525)	S12G-60-H*	T12G-60-H*	35 (16)

* W = water service, S = steam service.

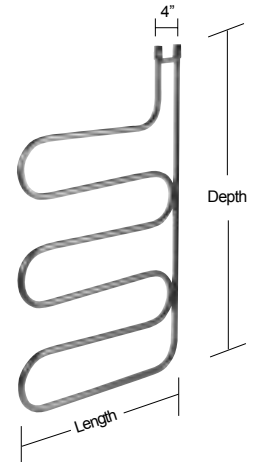
Larger sizes up to 90 square feet and special configurations available, consult factory.



SERPENTINE COILS

EXCHANGE AREA (Sq. Ft.)	DEPTH In./(mm)	LENGTH In./(mm)	NO. OF PASSES	316 STAINLESS MODEL NUMBER (FOR FRESH WATER)	TITANIUM MODEL NUMBER (FOR SALT WATER)	SHIP WGT. Lbs./(kg)
2.75	36 (915)	24 (610)	4	SP4-24S	SP4-24T	10 (4.5)
3.75	36 (915)	36 (915)	4	SP4-36S	SP4-36T	12 (5.5)
4.75	36 (915)	48 (1220)	4	SP4-48S	SP4-48T	14 (6.5)
5.75	36 (915)	60 (1525)	4	SP4-60S	SP4-60T	16 (7.5)
5.00	48 (1220)	30 (760)	6	SP6-30S	SP6-30T	14 (6.5)
6.25	48 (1220)	40 (1015)	6	SP6-40S	SP6-40T	17 (8)
7.50	48 (1220)	50 (1270)	6	SP6-50S	SP6-50T	20 (9)
8.75	48 (1220)	60 (1525)	6	SP6-60S	SP6-60T	24 (11)

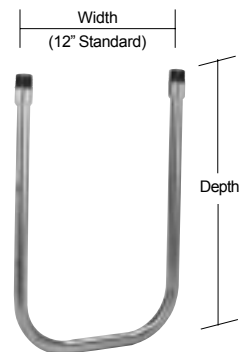
Other sizes up to 10 square feet and special configurations available, consult factory. 1" diameter tubing with 1" MNPT fittings standard.



U COILS

EXCHANGE AREA (Sq. Ft.)	DEPTH In./(mm)	WIDTH In./(mm)	316 STAINLESS MODEL NUMBER (FOR FRESH WATER)	TITANIUM MODEL NUMBER (FOR SALT WATER)	SHIP WGT. Lbs./(kg)
.75	18 (460)	12 (305)	UC18S	UC18T	3 (1.5)
1.00	24 (610)	12 (305)	UC24S	UC24T	4 (2)
1.25	30 (760)	12 (305)	UC30S	UC30T	5 (2.5)
1.50	36 (915)	12 (305)	UC36S	UC36T	6 (3)
1.75	42 (1065)	12 (305)	UC42S	UC42T	7 (3)
2.00	48 (1220)	12 (305)	UC48S	UC48T	8 (3.5)
2.25	54 (1370)	12 (305)	UC54S	UC54T	9 (4)
2.50	60 (1525)	12 (305)	UC60S	UC60T	10 (4.5)

1" diameter tubing with 1" MNPT fittings standard.



- ☆ **Need a shut-off valve and temperature control for your heat exchanger? See pages 7 and 8.**
- ☆ **Process Technology manufactures custom heat exchangers to suit most applications. Please call us if you don't see what you need - look on the back cover of this catalog for our contact information.**

ACCESSORIES

SOLENOID VALVES



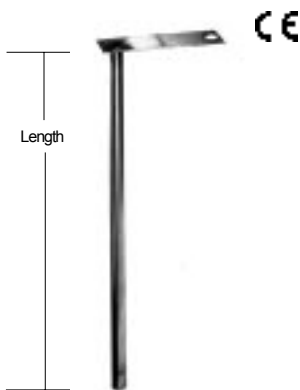
BRASS (Water Service)							
SIZE (NPT)	CV FACTOR	MINIMUM OPER. PRESSURE (PSI)	MAX (PSI) STEAM/WATER		MAX. FLUID TEMP.	MODEL NUMBER	SHIP WGT. Lbs./ (kg)
1/2"	4	5	N/A	125	180°F	S-5-W	3 (1.5)
3/4"	5	5	N/A	125	180°F	S-3-W	4 (2)
1"	13.5	5	N/A	125	180°F	S-1-W	6 (3)
1 1/4"	15	5	N/A	125	180°F	S-1-1/4-W	11 (5)
1 1/2"	22.5	5	N/A	125	180°F	S-1-1/2-W	12 (5.5)
2"	43	5	N/A	125	180°F	S-2-W	13 (6)
BRASS (Steam Service)							
1/2"	4	5	50	50	300°F	S-5-S	3 (1.5)
3/4"	5	5	50	50	300°F	S-3-S	4 (2)
1"	13.5	5	50	50	300°F	S-1-S	6 (3)
1 1/4"	15	5	50	50	300°F	S-1-1/4-S	11 (5)
1 1/2"	22.5	5	50	50	300°F	S-1-1/2-S	12 (5.5)
2"	43	5	50	50	300°F	S-2-S	13 (6)

Normally closed standard. Normally open optional. Stainless steel and zero minimum pressure valves available, consult factory.

STRAINERS FOR SOLENOID VALVES



SIZE (NPT)	MODEL NUMBER	SHIP WGT. Lbs./ (kg)
1/2"	ST5	3 (1.5)
3/4"	ST3	3 (1.5)
1"	ST1	4 (2)
1 1/4"	ST1-1/4	5 (2.5)
1 1/2"	ST1-1/2	6 (3)
2"	ST2	10 (4.5)



THERMOWELLS OVER THE SIDE WELLS

THERMOWELL MATERIAL	DIA.	MODEL NO.	MODEL NO.	MODEL NO.	SHIP WGT. Lbs./ (kg)
		12" LENGTH (305 mm)	24" LENGTH (610 mm)	36" LENGTH (915 mm)	
316L STAINLESS	1/2"	WS12	WS24	WS36	2 (1)
TITANIUM	1/2"	WT12	WT24	WT36	2 (1)
1/2" NPT THREADED WELLS					
316L STAINLESS	1/2"	WST12	WST24	WST36	2 (1)
TITANIUM	1/2"	WTT12	WTT24	WTT36	2 (1)



HEATER THERMAL PROTECTORS

PROTECTOR TYPE	METAL OVER-THE-SIDE AND FLANGED	METAL L-SHAPED
Replaceable	PT-I (White, 4573)	PLI (White, 3710)
	Resetttable	PT-II (White, 4575)

TEMPERATURE CONTROLS

DIGITAL THERMOSTATS

VOLTS	MAX. AMPS	MODEL NUMBER	SENSOR LENGTH	TEMP. RANGE	REPLACEMENT SENSOR P/N	SHIP WGT. Lbs./kg)
120	15	DRA15	8' (2440 mm)	-30°-220°F (-34°-104°C)	DRA-8L	3 (1.5)
240	8	DRA15	8' (2440 mm)	-30°-220°F (-34°-104°C)	DRA-8L	3 (1.5)

8' (2440 mm) vinyl sleeved sensor standard, longer sensor lengths available. Indoor use only. For outdoor applications, consult factory.



DIGITAL COMBINATION CONTROLS

VOLTS	MAX. AMPS	MODEL NUMBER	REPLACEMENT RELAY P/N	REPLACEMENT SENSOR P/N	SHIP WGT. Lbs./kg)
120	30	DRA301	AH30-1	DRA-8L	15 (7)
240	30	DRA302-LT	AH30-2	DRA-8L	15 (7)
120	50	DRA501	AH50-1	DRA-8L	16 (7.5)
240	50	DRA502-LT	AH50-2	DRA-8L	16 (7.5)
240	75	DRA752-LT	AH75-2	DRA-8L	23 (10.5)
240	90	DRA902-LT	AH90-2	DRA-8L	25 (11.5)
240	120	DRA1202-LT	AH120-2	DRA-8L	27 (12.5)
240	150	DRA1502-LT	AH150-2	DRA-8L	33 (15)

One or three phase. 8' (2440 mm) vinyl sleeved sensor standard. Combination control consists of gasketed plastic enclosure, thermostat, contactor and optional control transformer. Transformer must be used on 480 volt controls and is recommended for 240 volt applications. To add transformer, omit "LT" from end of model number. Indoor use only. For outdoor applications, longer sensor lengths and additional control options, consult factory.



NON-INDICATING THERMOSTATS

VOLTS	MAX. AMPS	MODEL NUMBER	TEMP. RANGE	SENSOR LENGTH	REPLACEMENT SENSOR P/N	SHIP WGT. Lbs./kg)
120/240	15	NA-15	32°-122°F (0°-50°C)	5' (1525 mm)	NA15-5L	3 (1.5)

Single phase. 5' (1525 mm) vinyl sleeved sensor standard. Indoor use only. For outdoor applications, consult factory.



NON-INDICATING COMBINATION CONTROLS

VOLTS	MAX. AMPS	MODEL NUMBER	REPLACEMENT RELAY P/N	REPLACEMENT SENSOR P/N	SHIP WGT. Lbs./kg)
120	30	NA301	AH30-1	NA15-5L	15 (7)
240	30	NA302-LT	AH30-2	NA15-5L	15 (7)
120	50	NA501	AH50-1	NA15-5L	16 (7.5)
240	50	NA502-LT	AH50-2	NA15-5L	16 (7.5)
240	75	NA752-LT	AH75-2	NA15-5L	23 (10.5)
240	90	NA902-LT	AH90-2	NA15-5L	25 (11.5)
240	120	NA1202-LT	AH120-2	NA15-5L	27 (12.5)
240	150	NA1502-LT	AH150-2	NA15-5L	33 (15)

One or three phase. 5' (1525 mm) vinyl sleeved sensor standard. Combination control consists of gasketed plastic enclosure, thermostat, contactor and optional control transformer. Transformer must be used on 480 volt controls and is recommended for 240 volt applications. To add transformer, omit "LT" from end of model number. Indoor use only. For outdoor applications and additional control options, consult factory.



TEMPERATURE CONTROLS AND ACCESSORIES



DIGITAL THERMOSTATS

MODEL NUMBER	VOLTS	MAX. AMPS	TEMP. RANGE	SENSOR LENGTH Ft./(mm)	REPL. SENSOR P/N	SHIP WGT. Lbs./(kg)
DSL	85-265	3	-100-500°F	10' (3050)	RTD1000	2(1)

Dual setpoint, single phase with 10' (3050 mm) FEP sleeved sensor (1/16 DIN). Longer sensor lengths and higher temperature ranges available. Many features included as standard. 0-10V, 4-20MA and RS485 outputs optional, consult factory. Available in a combination control with larger switching capacity, consult factory.



DIGITAL TIME FEEDER SWITCHES

VOLTS	SWITCHING CAPACITY	MODEL NUMBER	TIME PERIOD	SHIP WGT. Lbs./(kg)
120	20 amps	DTA-1-PB	7 day/24 hour	1 (.5)
240	20 amps	DTA-2-PB	7 day/24 hour	1 (.5)

Can be ordered as part of a combination control assembly. Indoor use only. For outdoor applications, consult factory. For timer without plastic box, omit "-PB".



LCA2 pictured.

"LCA" LIQUID LEVEL CONTROLS

LCA SERIES - 2 PROBES		LCA SERIES - 3 PROBES		REPLACEMENT BOARD ONLY	SHIP WGT. Lbs./(kg)
LENGTH In./(mm)	MODEL NUMBER	LENGTH In./(mm)	MODEL NUMBER		
6 (155)	LCA2(*)6	6 (155)	LCA3(*)6	LC	3 (1.5)
12 (305)	LCA2(*)12	12 (305)	LCA3(*)12	LC	3 (1.5)
18 (460)	LCA2(*)18	18 (460)	LCA3(*)18	LC	4 (2)
24 (610)	LCA2(*)24	24 (610)	LCA3(*)24	LC	4 (2)
30 (765)	LCA2(*)30	30 (765)	LCA3(*)30	LC	5 (2.5)
36 (915)	LCA2(*)36	36 (915)	LCA3(*)36	LC	5 (2.5)
48 (1220)	LCA2(*)48	48 (1220)	LCA3(*)48	LC	6 (3)

Standard Probe Materials: S=STAINLESS STEEL PROBES (for fresh water), T=TITANIUM PROBES (for salt water). * DESIGNATE MATERIAL SELECTION IN PART NUMBER.

(LCA2) Two probe units for single level control. (LCA3) Three probe units for two point control and refill/pump down capabilities. Four and five probe units are available for multiple level requirements, consult factory. Can be ordered as part of combination temperature control assembly.

★ What do the symbols mean?

cUL = UL listing for the United States and CSA certified for Canada.

CE = CE compliant for use in Europe.

★ Don't see what you need? Call us! Process Technology makes a large variety of special configurations and sizes to custom fit most applications.

Determining Heating Requirements for Electric Immersion Heaters

To determine the heating requirement of a tank, first obtain the following information:

- 1) Total cubic feet of tank. (Multiply the inside dimensions of the tank in feet - length x width x depth.)
- 2) Total gallons of water. Multiply by 7.48 the cubic feet of the tank occupied by water. (If the water is normally 6" below the top of the tank, allow for this when figuring.)
- 3) Average ambient (room) temperature at which tank will be used.
- 4) Temperature level at which water is to be held.
- 5) Heat-up time desired.

Losses due to agitation and ventilation should be considered in calculating total kW requirements. After this information is known, the following calculations can be made:

$$A \times 1.0 \times 8.35 \times B = \underline{\hspace{2cm}}$$

$$3412 \times C$$

$$D \times E = \underline{\hspace{2cm}}$$

Add the results of both calculations. The total is the Kilowatt requirement of the tank.

- A = Total gallons of solution. One liter = .264 gallons.
 B = Difference from ambient temperature and desired water temperature in degrees F.
 C = Desired heat-up time (hours).
 D = Heat loss of tank. Refer to chart below.
 E = Square feet of top of tank. Multiply length x width.

SURFACE LOSSES IN KILOWATTS FROM OPEN HOT WATER TANK (°F)		
75°	.01	80° .02
		85° .03

Based on 70°F ambient temperature.

Return/repair inquiries

Please direct all in- and out-of-warranty repairs to Process Technology, Inc.'s Customer Service Department. Before returning any equipment, please contact the Customer Service Department to obtain a Return Material Authorization (RMA) number and form. The designated RMA number should then be marked on the outside of the return package and completed forms returned with the product. To avoid processing delays, please be sure to include:

- 1) Completed RMA form
- 2) Purchase order number and invoice number
- 3) Returnee's name, address and phone number
- 4) Model and serial number
- 5) Repair instructions

Items returned to Process Technology, Inc. for any reason shall be via freight prepaid, unless prior arrangements have been made.

Warranty

All Process Technology, Inc. equipment, heaters and controls have been carefully inspected before shipping and are warranted to be free from defects in workmanship and material for a period of one year from date of purchase on a prorated basis. At its option, Process Technology, Inc. will repair or replace any defects which are exhibited under proper and normal use. Process Technology, Inc. disclaims any responsibility for misuse, misapplication, negligence or improper installation of equipment. Process Technology, Inc. makes no warranty or representation regarding the fitness for use or the application of its products by the purchaser.

Please ensure applicability of heater before installation since we cannot guarantee heaters against premature failure due to corrosion caused by unusual conditions over which we have no control, such as:

- Excessive sludge buildup
- Stagnant or turbulent flow of the solution
- Aeration
- Erosion

Process Technology, Inc. is not liable for costs incurred in removal, reinstallation, or unauthorized repair of the product, or for damage of any type whatsoever including incidental or consequential damage.

Amp Calculation for Control Selection

AMPS FOR HEATING LOAD								
Heater Watts	Single Phase				Three Phase (Balanced)			
	120V	208V	240V	480V	208V	240V	480V	
1,000	8.4	4.8	4.2	2.1	2.8	2.5	1.2	
1,800	15.0	8.6	7.5	3.8	5.0	4.4	2.2	
2,500	20.9	12.0	10.4	5.2	6.9	6.0	3.0	
3,500	29.2	16.8	14.6	7.3	9.7	8.4	4.2	
5,000	41.7	24.0	20.9	10.4	13.9	12.0	6.0	
6,000	50.0	28.9	25.0	12.5	16.7	14.5	7.3	
7,500	62.5	36.0	31.7	15.8	20.9	18.1	9.0	
10,500	87.5	50.5	43.8	21.9	29.2	25.3	12.6	
15,000	125.0	72.1	62.5	31.3	41.7	36.1	18.1	
18,000	150.0	86.6	75.0	37.5	50.1	43.4	21.7	

For single phase or two wire power supplies to heaters.

$$\text{AMP RATING PER POLE}^* = \frac{\text{Total capacity (watts)}}{\text{line voltage}}$$

Example: $\frac{3500 \text{ watts}}{240 \text{ volts}} = 14.58 \text{ Amps}$

For three phase balanced power supplies (Delta or Wye connections) to heaters using a three-pole contactor.

$$\text{AMP RATING PER POLE}^* = \frac{\text{Total capacity (watts)}}{\text{line voltage} \times 1.73}$$

Example: $\frac{3500 \text{ watts}}{240 \text{ amps} \times 1.73} = 8.43 \text{ Amps}$

Contactor sizing:

*Amp rating per pole x 1.25 = contactor rating

		GALLONS									
TEMPERATURE °F		50	100	250	500	750	1000	2000	3000	4000	5000
	70°	0.15	0.3	0.75	1.5	2.25	3	6	9	12	15
	75°	0.2	0.4	1	2	3	4	8	12	16	20
	80°	0.25	0.5	1.25	2.5	3.75	5	10	15	20	25
	85°	0.3	0.6	1.5	3	4.5	6	12	18	24	30

This chart provides an easy reference to estimate the kW required to heat a tank. Heat loss from the surface of the water and from the sides of the tank have been taken into account. Find the gallons at the top, move down the chart to the temperature at which you will be heating the water. The number indicated here is the kW required for the heating job. This kW figure assumes a heat-up period of twelve hours; for a six hour heat-up time, simply double the kW figure.

CAUTION: This chart is for quick estimates only. Use formula above for determining actual heat requirement.