Made in USA

Over-the-Side Immersion Heaters

Application

Tempco Over-the-Side Immersion Heaters are specifically designed for heating fluids in tanks. Depending on the tank shape, size, accessibility and working area inside the tank, choose a round or L shaped heater.

Standard sheath materials are Incoloy® 800 and steel with all wetted parts made with compatible alloys.

Construction

Tubular heating elements are welded into a liquid-tight junction box. Power leads for the elements travel up through the riser pipe and are connected to a terminal block in a NEMA 4 Housing. Unless otherwise specified, heaters are wired for three-phase from the factory but can easily be converted to single-phase.

A thermowell for a 3/8" diameter bulb is standard to accommodate an optional thermostat. A thermostat can be field installed to mounting lugs located in the electrical enclosure.

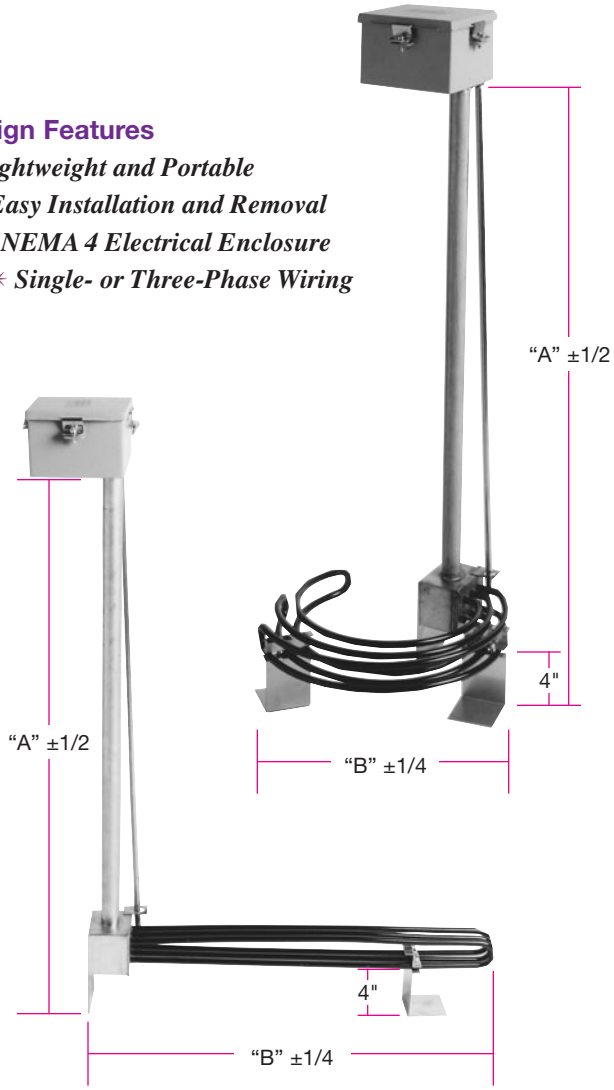
4" (102 mm) sludge legs keep the elements off the bottom of the tank and above any deposits that may accumulate there.

Optional Features

- *304 or 316 Stainless Steel construction for all wetted parts*
- *Passivation of all wetted parts. Electropolished or bright annealed surface treatments for Stainless Steel or Incoloy designs (heating elements only)*
- *NEMA 1 or NEMA 4/7 (explosion resistant) terminal housings*
- *Flange, fixed or adjustable bracket on riser for mounting*
- *Mounting flange for terminal housing*
- *External power wiring options include flexible cord/plug, armored cable, wire braided or plain lead wire*
- *Double- or Single- pole thermostat (see page 11-6 for available ranges)*
- *Process or Hi-limit thermocouple in thermowell in place of the thermostat*
- *Hi-limit MI thermocouple on sheath*
- *Special riser and/or sludge leg heights*
- *Up to 12 elements per heater assembly*
- *Right-angle riser design*

Design Features

- *Lightweight and Portable*
- *Easy Installation and Removal*
- *NEMA 4 Electrical Enclosure*
- *Single- or Three-Phase Wiring*



Typical Heating Applications: *Lightweight Oils • Degreasing Solutions • Mineral Oil*

Design Features

- *Steel Sheath Heating Elements*
- *NEMA 4 Terminal Housing*
- *Watt Density of 23 watts/in² (3.6 watts/cm²)*

Standard (Non-Stock) and Stock Sizes and Electrical Ratings

Stock Items Are Shown In RED

Element Shape	"A" in	"A" mm	"B" in	"B" mm	KW	Part Number 240V-3Ph	Part Number 480V-3Ph	Approximate Net Weight lbs	Approximate Net Weight kg
Round	39 5/16	999	13 1/2	343	3	TAT20001	TAT20002	17	8
	51 5/16	1303	18 1/2	470	6	TAT20003	TAT20004	20	9
	51 5/16	1303	23 1/2	597	9	TAT20005	TAT20006	22	10
Straight	39 5/16	999	22 5/8	575	3	**TAT10001**	TAT10002	15	7
	51 5/16	1303	37 5/8	956	6	**TAT10003**	**TAT10004**	18	8
	51 5/16	1303	52 5/8	1337	9	**TAT10005**	**TAT10006**	20	9

View Product Inventory @ www.tempco.com

Over-the-Side Immersion Heaters

Typical Heating Applications: Citric and Phosphoric Acid Solutions • Water-Based Chemical Solutions

Design Features

- ✳ *Incoloy® Sheath Heating Elements*
- ✳ *NEMA 4 Terminal Housing*
- ✳ *Watt Density of 23 watts/in² (3.6 watts/cm²)*

Standard (Non-Stock) and Stock Sizes and Electrical Ratings

Stock Items Are Shown In RED

Element Shape	"A" in	"A" mm	"B" in	"B" mm	KW	Part Number 240V-3Ph	Part Number 480V-3Ph	Approximate Net Weight lbs	Approximate Net Weight kg
Round	39 5/16	999	13 1/2	343	3	TAT20007	TAT20008	17	8
	51 5/16	1303	18 1/2	470	6	TAT20009	TAT20010	20	9
	51 5/16	1303	23 1/2	597	9	TAT20011	TAT20012	22	10
Straight	39 5/16	999	22 5/8	575	3	**TAT10007**	TAT10008	15	7
	51 5/16	1303	37 5/8	956	6	**TAT10009**	**TAT10010**	18	8
	51 5/16	1303	52 5/8	1337	9	**TAT10011**	**TAT10012**	20	9

Typical Heating Applications: Process Water • Mild Caustic Solutions (2% max.) • Clean Water

Design Features

- ✳ *Incoloy® Sheath Heating Elements*
- ✳ *NEMA 4 Terminal Housing*
- ✳ *Watt Density of 42 watts/in² (7.4 watts/cm²)*

Standard (Non-Stock) and Stock Sizes and Electrical Ratings

Stock Items Are Shown In RED

Element Shape	"A" in	"A" mm	"B" in	"B" mm	KW	Part Number 240V-3Ph	Part Number 480V-3Ph	Approximate Net Weight lbs	Approximate Net Weight kg
Round	39 5/16	999	10 3/4	273	3	TAT20013	TAT20014	16	7
	39 5/16	999	13 1/2	343	6	TAT20015	TAT20016	17	8
	39 5/16	999	16	406	9	TAT20017	TAT20018	18	8
	51 5/16	1303	18 1/2	470	12	TAT20019	TAT20020	20	9
	51 5/16	1303	21 1/4	540	15	TAT20021	TAT20022	21	10
	51 5/16	1303	23 1/2	597	18	TAT20023	TAT20024	22	10
Straight	39 5/16	999	14 5/8	371	3	**TAT10013**	**TAT10014**	14	6
	39 5/16	999	22 5/8	575	6	TAT10015	TAT10016	15	7
	39 5/16	999	30 1/8	765	9	**TAT10017**	**TAT10018**	16	7
	51 5/16	1303	37 5/8	956	12	**TAT10019**	TAT10020	18	8
	51 5/16	1303	45 1/8	1146	15	TAT10021	TAT10022	19	9
	51 5/16	1303	52 5/8	1337	18	**TAT10023**	**TAT10024**	20	9

Ordering Information

Catalog Heaters

Over-the-Side Immersion Heater Part Numbers in red are in stock for immediate delivery.

Non-Stock Part Numbers are standard designs that are stocked as sub-assemblies for 2-3 week delivery.

Custom Engineered/Manufactured Heaters

An electric heater can be very application specific, for sizes and ratings not listed, **TEMPCO** will design and manufacture an Over-the-Side Immersion Heater to meet your requirements.

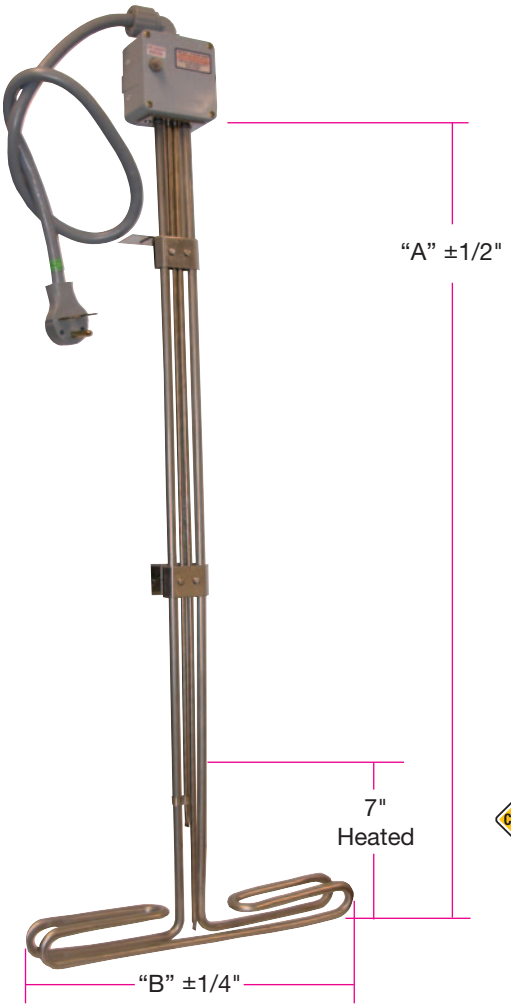
Standard lead time is Stock to 3 weeks.

Please Specify the following:

- ❑ Application
- ❑ Wattage, Voltage and Phase
- ❑ Element Sheath Material
- ❑ Number of Elements
- ❑ Element Watt Density
- ❑ "A" and "B" dimensions
- ❑ Optional Features
- ❑ Quantity

⚠ **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

General Purpose Tank or Reservoir Water Immersion Heater



Design Features

- *Immersion section of heater made of 316 Stainless Steel*
- *Cold riser extends to the top of container where control housing is located*
- *Cord set with 3-wire grounding plug is included for easy installation and wiring.*
- *Adjustable vapor-proof thermostat control with temperature range of 55°F to 115°F (±3°)*
- *Hi-limit cut switch set to 125°F (±4°)*
- *Stainless Steel mounting bracket also supplied for easy mounting*
- *Pilot light and on-off switch provided*

Hi-Limit:

If the thermostat should fail and its contacts stick in a closed position, the heating element will continue to heat to about 125°F. At this temperature the Hi-Limit will open and turn the heating element off. After repairing or replacing the thermostat the Hi-Limit can be manually reset.

CAUTION

Hazard of electric shock. Installation must be grounded to earth and heater connected to line input through properly sized GFCI circuit breaker.

Disconnect power to heater before servicing. There should be no body contact with the water while the heater is in the water.

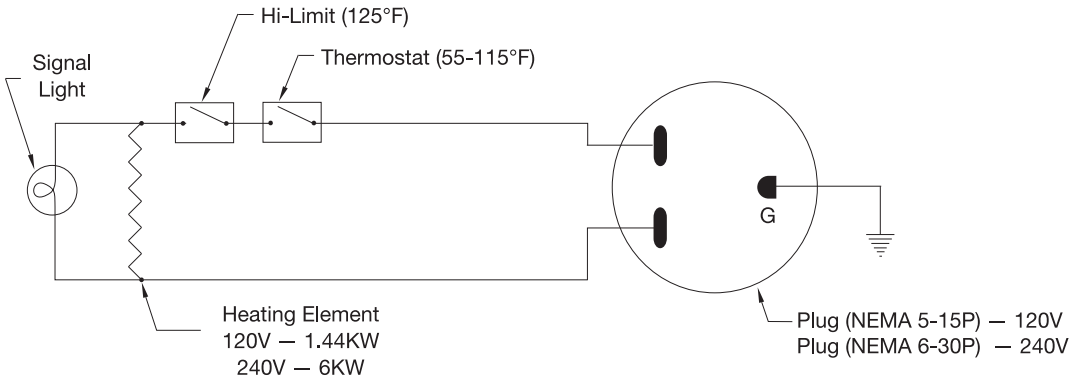
Under NO circumstances should this heater be turned on unless the system is full of water.

Standard (Non-Stock) and Stock Sizes and Electrical Ratings

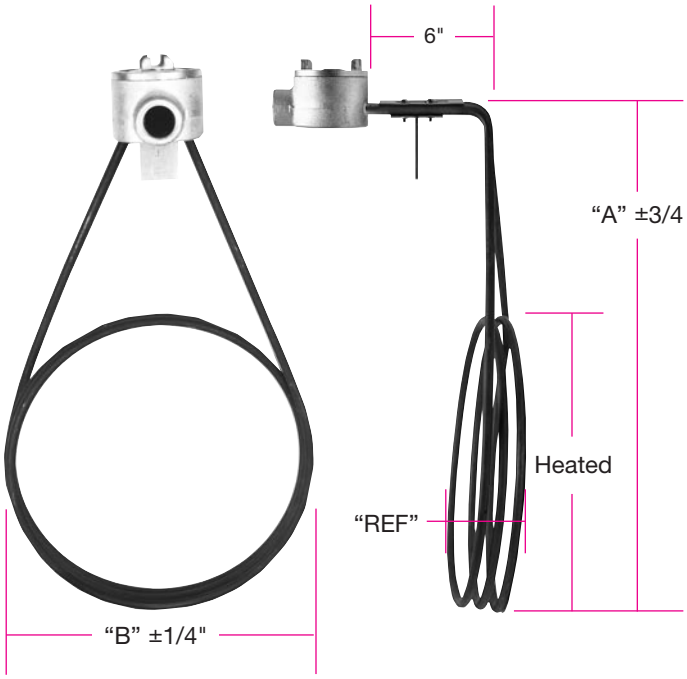
Stock Items Are Shown In RED

Sheath	Watt Density w/in²	Watts	Volts	"A" Dim. in	"B" Dim. in	Part Number 4 ft. cord	Part Number 6 ft. cord
316 Stainless Steel	51	6000	240	39-3/4	17-1/2	TAT40012	**TAT40017**
(Bright Annealed)	13	1440	120	39-3/4	17-1/2	TAT40016	**TAT40013**

Wiring Diagram — Internal Electrical Connections



Vertical Loop – Low Profile Immersion Heaters



Design Features

- *Used on open-top tanks for heating water, water-based solutions, citrus juices, plating tanks, oil tempering, salt baths and other mild corrosive solutions.*
- *NEMA 4 (moisture resistant) housing with integral grounding terminal is standard. Other NEMA ratings available.*
- *Low-profile design with adjustable SS mounting bracket.*
- *Optional Passivated, Electropolished, or Bright Annealed surface treatments available for Stainless Steel or Incoloy sheath designs.*
- *External power wiring options including flexible cord/plug, armor cable, braided or plain lead wire.*
- *Optional Hi-limit MI thermocouple on heater sheath.*

Standard (Non-Stock) and Stock Sizes

Stock Items Are Shown In RED

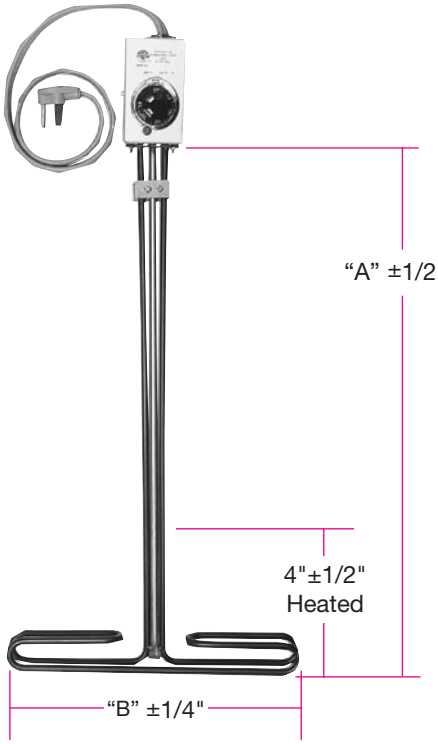
Sheath	Watt Density w/in²	Watts	Volts	Dimensions (in) "A"	"B"	"REF"	Part Number
Copper	25	5000	240	26	15	2	TAT50011
	40	7500	240	26	15	2	TAT50012
Stainless Steel	25	5000	240	26	15	2¾	**TAT50013**
	40	7500	240	26	15	2¾	TAT50014
Steel	25	5000	240	26	15	2	TAT50015
	40	7500	240	26	15	2	TAT50016

Standard lead time is Stock to 3 weeks.

Sanitizing Sink Immersion Heaters

Design Features

- *Used for sterilization of water tanks in restaurants, taverns and laboratories*
- *Double Pole 60-250°F thermostat with over-temperature cutout. Optional pilot lamp to indicate heater on/off status available.*
- *Standard 6 ft. (optional 4 ft.) cord set with grounding plug (NEMA 5-15P for 120V and 6-30P for 240V)*
- *Adjustable Stainless Steel mounting bracket*
- *Consult Tempco for custom designs*



Standard (Non-Stock) and Stock Sizes

Stock Items Are Shown In RED

Sheath	Watt Density w/in²	Watts	Volts	"A" Dim. in	"B" Dim. in	Part Number
316 Stainless Steel (Electropolished)	65	6000	240	26	17	TAT40001
	56	4000	240	26	13	TAT40002
	16	1500	120	26	17	TAT40003
	14	1000	120	26	13	TAT40004
316 Stainless Steel (Bright Annealed)	65	6000	240	26	17	**TAT40005**
	56	4000	240	26	13	**TAT40006**
	16	1500	120	26	17	**TAT40007**
	14	1000	120	26	13	**TAT40008**

Standard lead time is Stock to 3 weeks.

Ordering Information

Catalog Heaters

Order by Part Number for catalog heaters listed.

Custom Engineered/Manufactured Heaters

Consult Tempco.

⚠ **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

Deep Tank/Sump Immersion Heater

Application

These fluid immersion heaters are designed for top mounting in large or deep enclosed tanks having a manhole access or opening suitable to insert & attach the heater. They are usable for either outdoor or indoor applications, within exposed or in-ground tanks and sewerage sumps. They are designed for permanent mounting and can be sealed weather-tight with supplied gaskets and adjustable riser fittings.

NEMA 4 terminal housing is easily removable & resealed to facilitate installation. Units are available with element watt densities from 6 wsi for heavy oils, to 60 wsi for clean water immersion applications. Element bundle diameters ranging from minimum of 10" OD to a maximum of 30" OD are available.

Construction

The tubular elements are welded into a submersible liquid-tight stainless steel junction box. Element power leads are routed up through adjustable riser pipe and connected to a terminal block inside the upper NEMA 4 terminal housing. Unless specified otherwise, heaters are factory wired for three phase and are easily converted to single phase.

All wetted parts are 300 series stainless steel. Standard unit includes 60-250°F double-pole thermostat mounted in upper housing that has a 3/8" dia. bulb & capillary installed in watertight thermowell with adjustable compression fitting.

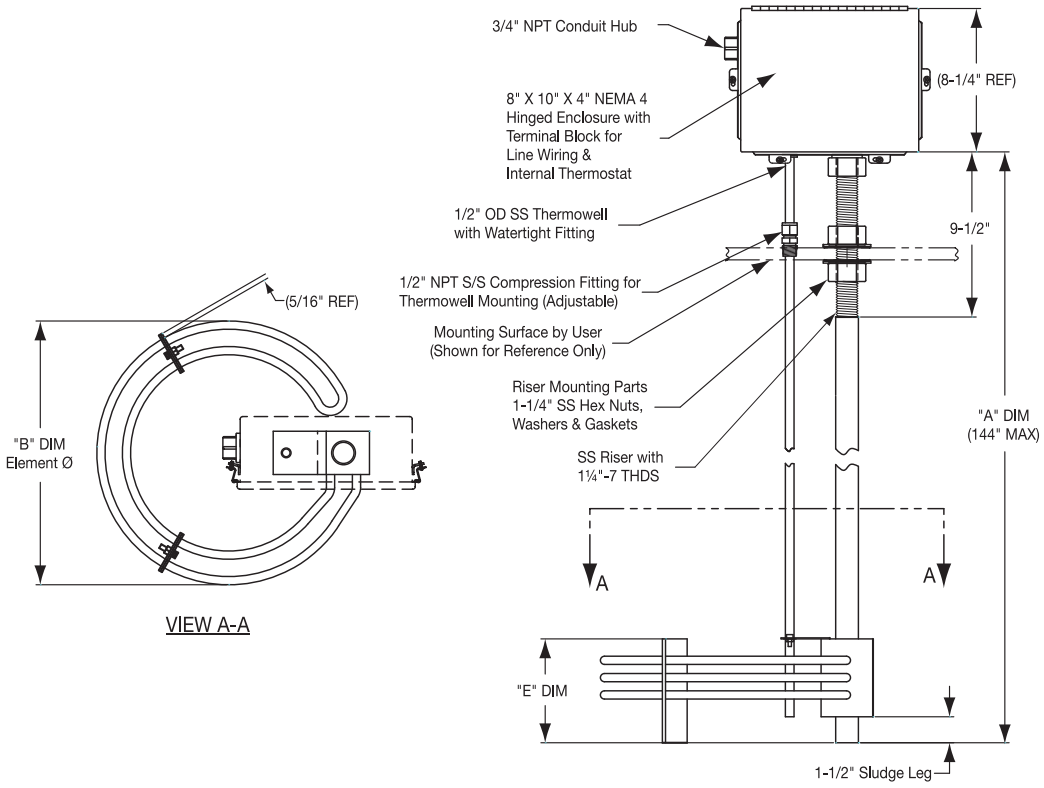
Design Features

- *.475 diameter Incoloy elements and stainless steel wetted parts standard*
- *Designed for permanent installation in outdoor/indoor applications*
- *2 ft to 12 ft vertical riser height (for thermostat designs)*
- *Weathertight mounting hardware supplied*
- *Riser adjustable to facilitate mounting variations*
- *NEMA 4 Electrical Enclosure with 3/4 conduit fitting*
- *1-1/2" Sludge legs*
- *Double-pole 60-250°F pilot duty thermostat*
- *Watertight thermowell sized for 3/8" max. dia. sensing bulb*
- *120V, 208V, 277V, & 575V versions available (consult Tempco)*

Optional Features

- *316 SS, Steel, or Copper element designs*
- *Passivation, electropolished, or bright annealed surface treatments for stainless steel or Incoloy designs (elements only)*
- *Custom or ASI pressure rated flange on riser for mounting*
- *NEMA 1 or NEMA 4/7 (explosion resistant) terminal housings*
- *Alternate single- or double-pole thermostat (see page 11-6 through 11-9 for ranges)*
- *Internally mounted definite purpose Magnetic Contactor, single circuit units only (see page 13-96 for volt/amp ratings and coil voltages available)*
- *RTD or Process MI thermocouple in thermowell in place of thermostat*
- *Hi-limit thermocouple on element sheath*
- *Special riser or sludge leg heights*
- *Right-angle riser design for offset terminal housing*
- *Up to 24 elements per heater assembly*
- *1/32 DIN temperature controller, internal or panel mounted on terminal housing and used with T/C or RTD probe & contactor for heater control*
- *Integrated float switch for liquid level control*

Deep Tank/Sump Immersion Heaters



Standard (Non-Stock) Deep Tank & Sump Immersion Heaters – 12 watts/sq. in.

KW	Number of Elements	"A" Dim. in	"B" Dim. in	"E" Dim. in	Part Number 240V-1Ph	240V-3Ph	480V-1Ph	480V-3Ph
4	3	72	15-1/4	7-1/2	TAT60001	TAT60002	TAT60003	TAT60004
8	6	72	15-1/4	10-1/2	TAT60005	TAT60006	TAT60007	TAT60008
12	9	72	15-1/4	13-1/2	TAT60009	TAT60010	TAT60011	TAT60012
15	12	72	15-1/4	16-1/2	—	TAT60013	TAT60014	TAT60015
20	15	72	15-1/4	19-1/2	—	TAT60016	TAT60017	TAT60018
30	24	72	15-1/4	28-1/2	—	—	TAT60019	TAT60020

Ordering Information

Catalog Heaters
Order-by Part Numbers.

Custom Engineered/Manufactured Heaters
An electric heater can be very application specific; for sizes and ratings not listed, **TEMPCO** will design and manufacture an Over-the-Side Immersion Heater to meet your requirements.
Standard lead time is 4 weeks.

Please Specify the following:

- ❑ Application
- ❑ Wattage, Voltage and Phase
- ❑ Element Sheath Material
- ❑ Number of Elements
- ❑ Element Watt Density
- ❑ "A" and "B" dimensions
- ❑ Optional Features
- ❑ Quantity

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