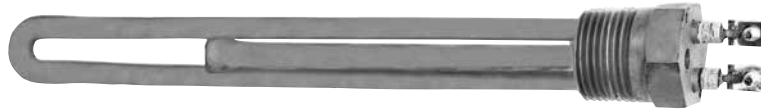


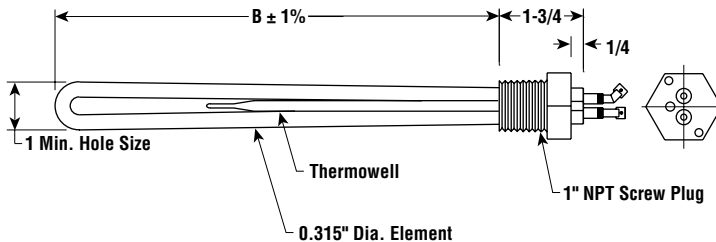
TMW-1 & TMWS-1

Small Tank Applications



- 1" NPT Brass or Passivated Stainless Steel Screw Plug
- Copper or Stainless Steel Passivated Sheath Element
- 43 - 86 W/In²
- 350 - 3,000 Watts
- 120 and 240 Volt, Single Phase
- Without Terminal Cover
- Thermowell

Dimensions (Inches)



Specifications and Ordering Information

Applications

- Clean Water Heating (type TMW-1)
- De-ionized Water Heating (type TMWS-1)

Watts	Volts	Phase	W/In ²	DIM B (In.)	Model	Stock	PCN	Wt. (Lbs.)
TMW-1 — Copper Sheath Element — Brass Screw Plug								
350	120	1	45	4-1/4	TMW-1036 ¹	NS	138974	0.5
500	120	1	43	6-3/8	TMW-1051	S	138982	0.5
500	240	1	43	6-3/8	TMW-1051	NS	138990	0.5
600	120	1	51	6-3/8	TMW-1060	S	139002	1
600	240	1	51	6-3/8	TMW-1060	NS	139010	1
750	120	1	64	6-3/8	TMW-1076	NS	139029	1
750	240	1	64	6-3/8	TMW-1076	S	139037	1
1,000	120	1	85	6-3/8	TMW-1101	S	139045	1
1,000	240	1	85	6-3/8	TMW-1101	NS	139053	1
1,250	120	1	83	8-1/16	TMW-1121	NS	139061	1.25
1,250	240	1	83	8-1/16	TMW-1121	S	139070	1.25
1,500	120	1	86	9-1/4	TMW-1415	S	139088	1.5
1,500	240	1	86	9-1/4	TMW-1415	S	139096	1.5
2,000	120	1	83	12-3/4	TMW-1200	S	139109	2
2,000	240	1	83	12-3/4	TMW-1200	S	139117	2
2,500	240	1	79	16-1/2	TMW-1250	NS	139133	2.5
3,000	240	1	78	19-7/8	TMW-1430	NS	139141	3
TMWS-1 — Passivated Stainless Steel Sheath Element — Passivated Stainless Steel Screw Plug								
750	120	1	64	6-3/8	TMWS-1076	NS	328655	1
750	240	1	64	6-3/8	TMWS-1076	NS	328663	1
1,000	120	1	85	6-3/8	TMWS-1101	NS	328671	1
1,000	240	1	85	6-3/8	TMWS-1101	NS	328680	1
1,250	120	1	83	8-1/16	TMWS-1121	NS	328698	1.25
1,250	240	1	83	8-1/16	TMWS-1121	NS	328700	1.25
1,500	120	1	86	9-1/4	TMWS-1415	NS	328719	1.5
1,500	240	1	86	9-1/4	TMWS-1415	NS	328727	1.5
2,000	120	1	83	12-3/4	TMWS-1200	NS	328735	2
2,000	240	1	83	12-3/4	TMWS-1200	NS	328743	2
2,500	240	1	79	16-1/2	TMWS-1250	NS	328751	2.5
3,000	240	1	78	19-7/8	TMWS-1430	NS	328760	3

Stock Status: S = stock NS = non-stock
To Order—Specify model, volts, phase, watts, PCN and quantity.

1. Well extends 1" below heating element.

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TMW-2 Small Tank Applications

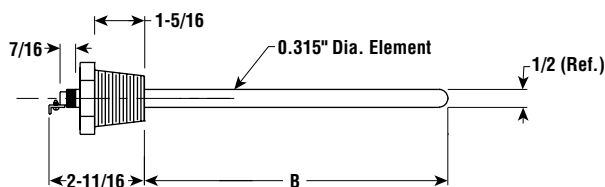
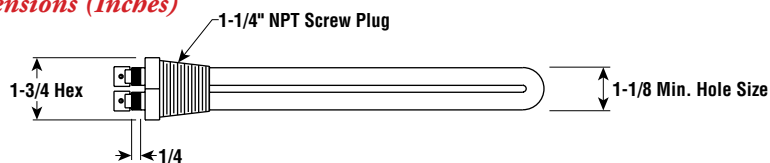
- 1-1/4" NPT Brass Screw Plug
- Copper Sheath Element
- 64 - 86 W/in²
- 750 - 5,000 Watts
- 120 and 240 Volt, Single Phase
- Without Terminal Cover
- Without Thermowell

Application

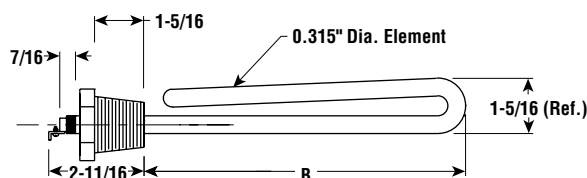
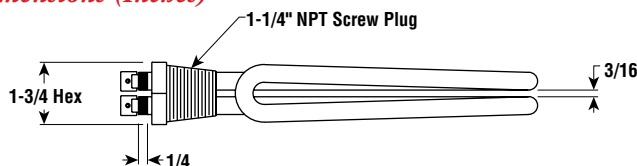
- Clean Water Heating



Dimensions (Inches)



Dimensions (Inches)



Specifications and Ordering Information

Watts	Volts	Phase	W/in ²	DIM B (In.)	Model	Stock	PCN	Wt. (Lbs.)
Straight Element								
750	120	1	64	6-1/8	TMW-207A	NS	139150	0.5
750	240	1	64	6-1/8	TMW-207A	NS	139168	0.5
1,000	120	1	85	6-1/8	TMW-210A	NS	139176	0.5
1,000	240	1	85	6-1/8	TMW-210A	NS	139184	0.5
1,250	120	1	82	7-7/8	TMW-212A	NS	139192	1
1,250	240	1	82	7-7/8	TMW-212A	NS	139205	1
1,500	120	1	86	9-1/16	TMW-215A	S	139213	1.25
1,500	240	1	86	9-1/16	TMW-215A	NS	139221	1.25
Foldback Element								
2,000	120	1	85	6-5/8	TMW-220A	S	139230	1.5
2,000	240	1	85	6-5/8	TMW-220A	S	139248	1.5
2,500	240	1	80	8-1/2	TMW-225A	S	139264	2
3,000	240	1	78	10-3/16	TMW-230A	S	139280	2.25
4,000	240	1	77	13-9/16	TMW-240A	NS	139299	2.5
5,000	240	1	76	16-15/16	TMW-250A	S	139301	3
Stock Status: S = stock NS = non-stock To Order —Specify model, volts, phase, watts, PCN and quantity.								

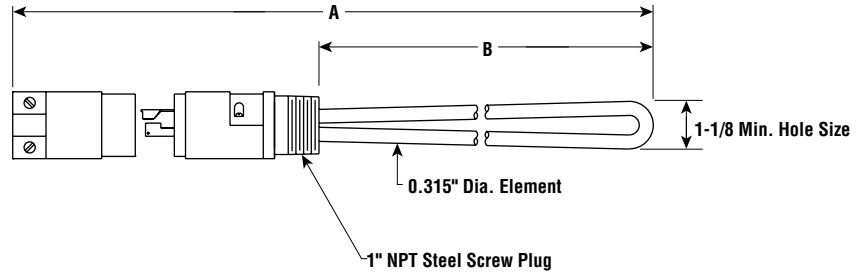
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TM-1 & TMO-1 Small Tank Applications



- 1" NPT Brass or Steel Screw Plug
- Copper or Steel Sheath Element
- 20 - 86 W/in²
- 350 - 1,500 Watts
- 120 and 240 Volt, Single Phase
- Integral Plug and Receptacle

Dimensions (Inches)



Applications

- Water Heating (type TM-1)
- Light Weight Oil Heating (type TMO-1)

Specifications and Ordering Information

Watts	Volts	Phase	W/in ²	Dimensions (In.)		Model	Stock	PCN	Wt. (Oz.)
				A	B				
TM-1 — Copper Sheath Element for Water Heating — Brass Screw Plug									
350	120	1	46	8-5/8	4-3/8	TM-1036G	S	138819	14
500	120	1	43	10-3/4	6-1/2	TM-1051G	NS	138827	14
500	240	1	43	10-3/4	6-1/2	TM-1051G	NS	138835	14
750	120	1	64	10-3/4	6-1/2	TM-1076G	NS	138843	16
750	240	1	64	10-3/4	6-1/2	TM-1076G	S	138851	16
1,000	120	1	85	10-3/4	6-1/2	TM-1101G	S	138860	16
1,000	240	1	85	10-3/4	6-1/2	TM-1101G	S	138878	16
1,500	120	1	86	13-5/8	9-3/8	TM-1415G	S	138886	17
1,500	240	1	86	13-5/8	9-3/8	TM-1415G	NS	138894	17
TMO-1 — Steel Sheath Element for Oil Heating — Steel Screw Plug									
350	120	1	20	13-1/16	8-7/8	TMO-1036G	S	138907	16
500	120	1	20	17-3/16	13	TMO-1051G	S	138915	18
500	240	1	20	17-3/16	13	TMO-1051G	NS	138923	18
750	120	1	20	23-1/8	18-7/8	TMO-1076G	NS	138931	20
750	240	1	20	23-1/8	18-7/8	TMO-1076G	NS	138940	20
900	120	1	21	25-5/8	21-3/8	TMO-1091G	S	138958	22
900	240	1	21	25-5/8	21-3/8	TMO-1091G	S	138966	22

Stock Status: S = stock NS = non-stock
To Order—Specify model, volts, phase, watts, PCN and quantity.

Immersion

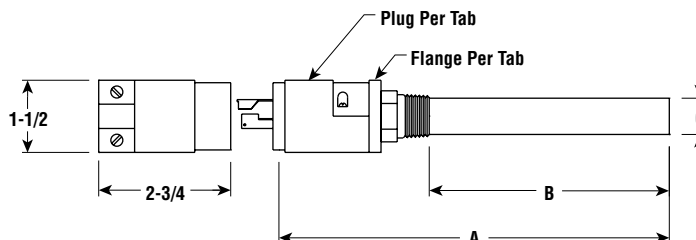


RI, RIO & RIS Small Tank Applications



- 1/2 and 3/4" NPT Brass or Stainless Steel Screw Plug
- INCOLOY® or Stainless Steel Sheath Element
- 20 - 36 W/In²
- 100 - 1,000 Watts
- 120 and 240 Volt, Single Phase
- Integral Plug and Receptacle

Dimensions (Inches)



SCREW PLUG

Specifications and Ordering Information

Applications

- Water Heating
- Mild Corrosive Solution Heating
- Light Weight Oil Heating (type RIO)
- De-ionized Water Heating (type RIS)

Watts	Volts	Phase	W/In ²	Dimensions (In.)			Pipe Thd.	Model	Stock	PCN	Wt. (Lbs.)
				A	B	C					
RI — INCOLOY® Sheath Element — Brass Screw Plug											
100	120	1	31	4-7/8	1-1/2	5/8	1/2	RI-100	S	138528	3
250	120	1	33	6-7/8	3-1/2	5/8	1/2	RI-250	S	138544	4
250	240	1	33	6-7/8	3-1/2	5/8	1/2	RI-250	NS	138536	4
500	120	1	34	11-5/16	7-7/8	5/8	1/2	RI-500	NS	138675	10
500	240	1	34	11-5/16	7-7/8	5/8	1/2	RI-500	S	138667	10
750	120	1	33	15-3/8	12	5/8	1/2	RI-750	S	138552	14
750	240	1	33	15-3/8	12	5/8	1/2	RI-750	S	138659	14
300	120	1	30	8-7/16	4-11/16	3/4	3/4	RI-1300	S	138579	8
300	240	1	30	8-7/16	4-11/16	3/4	3/4	RI-1300	S	138560	8
500	120	1	36	10-1/8	6-5/16	3/4	3/4	RI-1500	S	138595	9
500	240	1	36	10-1/8	6-5/16	3/4	3/4	RI-1500	S	138587	9
750	120	1	32	14-3/8	10-9/16	3/4	3/4	RI-1750	S	138616	13
750	240	1	32	14-3/8	10-9/16	3/4	3/4	RI-1750	S	138608	13
1,000	120	1	32	17	13-9/16	3/4	3/4	RI-1100	S	138640	15
1,000	240	1	32	17	13-9/16	3/4	3/4	RI-1100	S	138632	15
RIO — Stainless Steel Sheath Element — Brass Screw Plug											
150	120	1	20	6-7/8	3-1/2	5/8	1/2	RIO-150	S	138683	4
300	120	1	20	10-15/16	7-7/8	5/8	1/2	RIO-300	S	138691	10
300	240	1	20	10-15/16	7-7/8	5/8	1/2	RIO-300	S	138704	10
500	120	1	22	15-7/16	12	5/8	1/2	RIO-500	NS	138712	14
500	240	1	22	15-7/16	12	5/8	1/2	RIO-500	S	138720	14
200	120	1	20	8-7/16	4-11/16	3/4	3/4	RIO-1200	S	138739	8
200	240	1	20	8-7/16	4-11/16	3/4	3/4	RIO-1200	NS	138747	8
300	120	1	22	10-1/8	6-5/16	3/4	3/4	RIO-1300	S	138755	9
300	240	1	22	10-1/8	6-5/16	3/4	3/4	RIO-1300	NS	138763	9
500	120	1	21	14-3/8	10-9/16	3/4	3/4	RIO-1500	S	138771	13
500	240	1	21	14-3/8	10-9/16	3/4	3/4	RIO-1500	NS	138780	13
600	120	1	20	17-3/8	13-9/16	3/4	3/4	RIO-1600	S	138798	15
600	240	1	20	17-3/8	13-9/16	3/4	3/4	RIO-1600	NS	138800	15
RIS — Passivated Stainless Steel Sheath Element and Screw Plug											
250	120	1	35	6-5/8	3-1/2	5/8	1/2	RIS-255	NS	253745	6
500	120	1	28	10-15/16	7-7/8	5/8	1/2	RIS-505	S	253761	10
750	120	1	31	15-1/8	12	5/8	1/2	RIS-755	S	253788	15

Stock Status: S = stock NS = non-stock

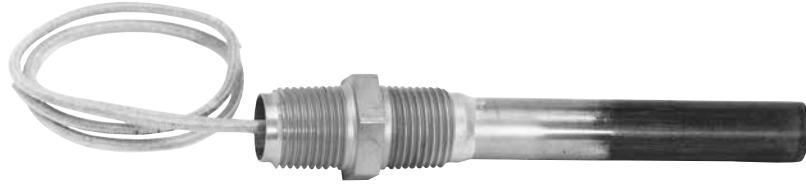
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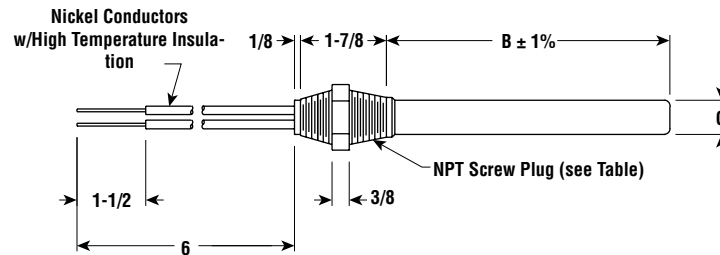
RIN & RINO

Small Tank Applications



- 1/2 and 3/4" NPT Brass or Steel Screw Plug, Double Threaded
- INCOLOY® or Stainless Steel Sheath Element
- 17 - 40 W/in²
- 100 - 1,000 Watts
- 120 and 240 Volt, Single Phase
- 6" Leadwires

Dimensions (Inches)



Applications

- Water Heating
- Mild Corrosive Solution Heating (type RIN)
- Light Weight Oil Heating (type RINO)

Specifications and Ordering Information

Watts	Volts	Phase	W/in ²	Dimensions (In.)		Pipe Thd.	Model	Stock	PCN	Wt. (Lbs.)
				B	C					
RIN — INCOLOY® Sheath Element — Brass Screw Plug										
100	120	1	30	1-3/4	5/8	1/2	RIN-10	S	253323	3
250	120	1	35	3-3/4	5/8	1/2	RIN-25	S	253331	4.5
250	240	1	35	3-3/4	5/8	1/2	RIN-25	NS	253340	4.5
500	120	1	40	8	5/8	1/2	RIN-50	S	253358	10
500	240	1	40	8	5/8	1/2	RIN-50	NS	253366	10
750	120	1	40	12	5/8	1/2	RIN-75	NS	253374	14
750	240	1	40	12	5/8	1/2	RIN-75	NS	253382	14
300	120	1	25	5	3/4	3/4	RIN-130	NS	283390	8
300	240	1	25	5	3/4	3/4	RIN-130	NS	253403	8
500	120	1	30	6-1/2	3/4	3/4	RIN-150	NS	253411	9
500	240	1	30	6-1/2	3/4	3/4	RIN-150	NS	253420	9
750	120	1	30	10-3/4	3/4	3/4	RIN-175	NS	253438	13
750	240	1	30	10-3/4	3/4	3/4	RIN-175	NS	253446	13
1,000	120	1	30	13-3/4	3/4	3/4	RIN-1100	NS	253454	15
1,000	240	1	30	13-3/4	3/4	3/4	RIN-1100	S	253462	15
RINO — Stainless Steel Sheath Element — Steel Screw Plug										
150	120	1	20	3-3/4	5/8	1/2	RINO-15	S	253470	4
150	240	1	20	3-3/4	5/8	1/2	RINO-15	S	253489	4
300	120	1	25	8	5/8	1/2	RINO-30	S	253497	10
300	240	1	25	8	5/8	1/2	RINO-30	S	253500	10
500	120	1	25	12	5/8	1/2	RINO-50	S	253518	14
500	240	1	25	12	5/8	1/2	RINO-50	NS	253526	14
200	120	1	17	5	3/4	3/4	RINO-120	S	253534	8
200	240	1	17	5	3/4	3/4	RINO-120	S	253542	8
300	120	1	18	6-1/2	3/4	3/4	RINO-130	S	253550	9
300	240	1	18	6-1/2	3/4	3/4	RINO-130	S	253569	9
500	120	1	20	10-3/4	3/4	3/4	RINO-150	S	253577	13
500	240	1	20	10-3/4	3/4	3/4	RINO-150	S	253585	13
600	120	1	18	13-3/4	3/4	3/4	RINO-160	S	253593	15
600	240	1	18	13-3/4	3/4	3/4	RINO-160	NS	253606	15

Stock Status: S = stock NS = non-stock

To Order—Specify model, volts, phase, watts, PCN and quantity.

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DWH-MR

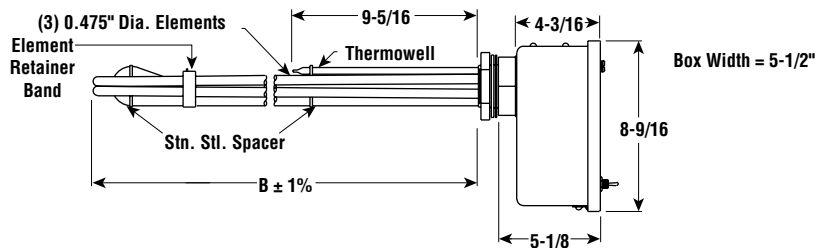
Dishwasher Applications

- 2" NPT Brass Screw Plug
- INCOLOY® Sheath Elements
- 52 - 56 W/In²
- 5 - 15 kW
- Integral Thermostat and Cutout
- 208, 240 and 480 Volt, Three Phase



SCREW PLUG

DWH-MR — Dimensions (Inches)



Applications

- Commercial Dishwashers
- Sterilizing Equipment
- Other Water Heating Applications

Features

- Integral SPST Thermostat (100 - 210°F) and Manual Reset Cutout
- Pilot Light
- On/Off Switch
- Moisture and Spray Resistant Hinged Terminal Enclosure
- Built-in Contactor (480V requires external 120V control circuit)
- Clamping Nut and Gasket supplied for mounting through tank wall up to 1/4" thick with a 2-7/8" diameter opening

Specifications and Ordering Information

kW	Volts	Phase	W/In ²	DIM B (In.)	Model	Stock	PCN	Wt. (Lbs.)
5	120	1	53	13-3/16	DWH-MR-5PS	NS	293000	11
5	208	1	53	13-3/16	DWH-MR-5PS	S	293085	11
5	240	1	53	13-3/16	DWH-MR-5PS	S	293106	11
7.5	208	1	52	18-7/8	DWH-MR-7.5PS	NS	293026	12
7.5	240	1	52	18-7/8	DWH-MR-7.5PS	NS	293034	12
10	208	1	53	24	DWH-MR-10PS	NS	293050	13
10	240	1	53	24	DWH-MR-10PS	NS	293069	13
5	208	3	53	13-3/16	DWH-MR-5PS	S	293093	11
5	240	3	53	13-3/16	DWH-MR-5PS	S	293114	11
5	480	3	53	13-3/16	DWH-MR-5PS	S	293018	11
7.5	208	3	52	18-7/8	DWH-MR-7.5PS	S	293122	12
7.5	240	3	52	18-7/8	DWH-MR-7.5PS	NS	293130	12
7.5	480	3	52	18-7/8	DWH-MR-7.5PS	S	293042	12
10	208	3	53	24	DWH-MR-10PS	NS	293149	13
10	240	3	53	24	DWH-MR-10PS	NS	293157	13
10	480	3	53	24	DWH-MR-10PS	S	293165	13
15	208	3	56	32-5/8	DWH-MR-15PS	NS	293077	17
15	240	3	56	32-5/8	DWH-MR-15PS	S	293173	17
15	480	3	56	32-5/8	DWH-MR-15PS	S	293181	17

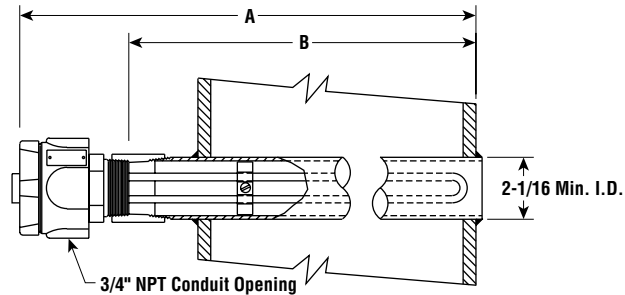
Stock Status: S = stock NS = non-stock
To Order—Specify model, volts, phase, kW, PCN and quantity.

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MTO-LT Pipe Insert Applications

- 2" NPT Steel Screw Plug
- INCOLOY® Sheath Element
- 12 W/In²
- 4 - 13 kW
- 240 and 480 Volt, Single Phase
- Moisture Resistant/Explosion Resistant Terminal Enclosure
- Without Controls

Dimensions (Inches)



Features

- Low Watt Density to permit operation in dead air space of pipes
- Insertion into 2" Dia. Sch. 40 pipe, will not fit into heavier wall pipe
- Install or Remove heater without draining tank
- Avoids coking or charring of heat sensitive materials as pipe surface functions as low watt density heat transfer surface

Applications

- Asphalt
- Heavy Weight Fuel Oil
- Heavy Weight Lubricating Oil
- Tar
- Molasses
- Other High Viscosity Materials

Specifications and Ordering Information

kW	Volts	Phase	W/In ²	Dimensions (In.)		Model	Stock	PCN	Wt. (Lbs.)
				A	B				
4	240	1	12	127	120	MTO-241LT	S	253155	12
4	480	1	12	127	120	MTO-241LT	S	186036	12
5	240	1	12	163	156	MTO-251LT	S	186044	16
5	480	1	12	163	156	MTO-251LT	NS	253180	16
7.5	240	1	12	211	204	MTO-275LT	NS	253198	22
7.5	480	1	12	211	204	MTO-275LT	NS	253200	22
11.5	480	1	12	319	312	MTO-212LT	NS	253219	36
13	480	1	12	367	360	MTO-213LT	NS	253227	42

Stock Status: S = stock NS = non-stock
To Order—Specify model, volts, phase, kW, PCN and quantity.

1. Higher kW available. Contact your Local Chromalox Sales office.

VTS

Screw Plug Clean Water and Oil Applications

- 2 1/2" NPT Steel Screw Plug
- INCOLOY Sheath Elements
(2 to 80 W/In² Water)
(2 to 23 W/In² Oil)
- Field Adjustable kW's
and Voltage Ratings
- 0.5 - 40 kW Water
0.5 - 10 kW Oil
- Integral Thermocouple
- 120, 208, 240 and 480V, 1 Phase
208, 240 and 480V, 3 Phase
- General Purpose Terminal
Enclosure
- Process Temperature up to 300°F

Applications

Chromalox Versatherm screw plug immersion heaters can be applied to a variety of clean water and oil applications.

The unique versatility of this design allows field adjustment of the rating by simple connections to the six elements of the heater. This simplifies selection and spare parts since each heater may be used in several different heating applications.

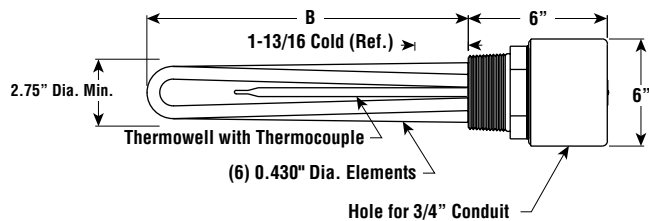
See the application matrix for the many kW values available with different wiring styles

Advantages

- High Power levels available
- Short insertion length (B-dim)
- 3 day Fast Ship
- Versatile applications, voltage options and power levels
- Temperature sensing thermocouple included. Bayonet fitting allows removal for inspection or replacement.



E1 — Dimensions (Inches)



Features

Field Adjustable Ratings — Each standard heater may be wired to different voltages and kW's. See chart on following page for application matrix.

Terminal Enclosures — E1 General Purpose is standard. Enclosure can be rotated 360° to match conduit connections.

Elements — INCOLOY sheath heating element welded to a 2.5" steel screw plug.

Mounting — Easy to install; compact size.

Note — Element bundle is larger than the I.D. of a 2.5" pipe.

Standard Integral Thermocouple — J type thermocouple in a thermowell; can be used for process or overtemperature control on the process fluid. See 4468 series control panel for stock power and temperature control components for complete heating solution.

Specifications and Ordering Information-Table

Max. kW	Max. Volts	Dim. (In.) B	Model	Stock	PCN	Wt. (Lbs.)
See Application Matrix for Rating		20-13/16	VTS-3180	NS	181075	12
		20-13/16	VTS-3180	NS	181083	12
		30-3/8	VTS-3200	NS	181913	15
		20-13/16	VTS-3240	NS	181921	12
		20-13/16	VTS-3240	NS	181930	12
		30-3/8	VTS-3400	NS	181948	15

Stock Status: S = stock NS = non-stock
To Order — Specify model, volts, phase, kW, PCN and quantity.

VTS Screw Plug

Selection Steps

Note that the same part can be field adjusted for another rating or reapplied for a different application.

1. Select which type of heater you need: oil, or water.
2. Using the application matrix for the oil or water heater find the row in the matrix that has kW capacity and W/In² you need. Select next larger unit if between ratings. For ratings over 40 kW on water and 10 kW on oil use multiple units piped in series or parallel.
3. Select the column that matches the voltage rating that you require.
4. Find the intersection of the column and row selected. This is the PCN for your voltage and wattage requirement. Verify voltage for single or three phase. Shaded areas are 3 phase only.
5. Go to the specifications and ordering table on the prior page. Locate PCN number identified in step 4. Note model number and description from this table. Dimensions will be shown.
6. Place order for item identified in step 5. When unit is received, instructions will show you how to wire the kW and voltage configuration that you desire. Only show description from ordering table when ordering.

Example:

Light Oil heating application,
2.75 kW 240V 3 phase capacity.

1. Select oil application matrix.
2. Locate 2.75 kW on chart. Use 3 kW as next higher rating. Confirm that 20 w/sq. in. is suitable for light oil.
3. Find column with 240Volt 3 phase power.
4. Intersection of row and column is PCN 181930. Confirm 3 phase and single phase available. Note there is spare capacity for back up or for future increase in requirements.
5. Locate PCN 181930 in specifications and ordering table as a VTS-3240 unit. When received this will have instructions on wiring for 3 kW 240 V 3 phase application with labels for this rating.
6. Order VTS-3240 PCN 181930 unit.

Contact Sales Office with any questions

Application Matrix - Oil

kW	W/In ²	PCN			
		120 Volts 1ph	208 Volts 1 or 3 ph	240 Volts 1 or 3 ph	480 Volts 1 or 3 ph
0.50	2			181930	
0.75	5	181930*	181930*		
1.50	5	181930	181930	181930	181083
2.25	15		181930*	181083*	
2.50	6	181948	181948	181948	
3.00	20	181921*	181921*	181930*	
4.50	15	181075	181930	181083	181083
5.00	11	181913	181913	181913	
6.00	20	181921	181921	181930	181930
10.00	21			181948	181948

Note — Shaded items are 3 ph only *items have 100% spare capacity

Application Matrix - Water

kW	W/In ²	PCN			
		120 Volts 1ph	208 Volts 1 or 3ph	240 Volts 1 or 3 ph	480 Volts 1 or 3 ph
0.50	2			181930	
0.75	5	181930*	181930*		
1.50	5	181930	181930	181930	181083
2.25	15		181930*	181083*	
2.50	6	181948	181948	181948	
3.00	20	181921*	181921*	181930*	
4.50	15	181075	181930	181083	181083
5.00	11	181913	181913	181913	
6.00	20	181921	181921	181930	181930
9.00	59			181075*	181083*
10.00	21			181948	181948
12.00	78			181921*	181930*
18.00	59			181075	181083
20.00	80			181913	181948*
24.00	78			181921	181930
40.00	80				181948

Note — Shaded items are 3 ph only * items have 100% spare capacity

1. Single-phase: 2 circuits must be utilized to keep amperage/circuit below 48 Amps.

Watt Density Guide:

Refer to heater selection in the technical section of the catalog for details.

Light Weight Oil ≤ 23 W/In²

Medium Weight Oil ≤ 15 W/In²

Heavy Weight Oil ≤ 6.5 W/In²

Clean Water see technical section of catalog for recommended watt density

Flanged Immersion Heaters

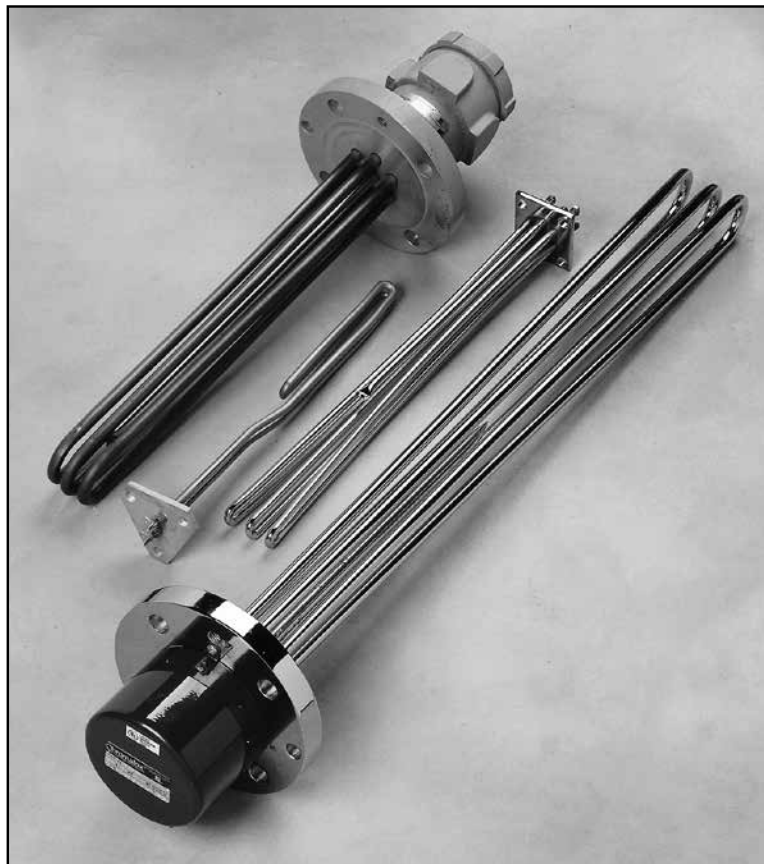
Overview

Flanged Immersion Heaters consist of hairpin bent tubular elements welded or brazed into a flange and provided with wiring boxes for electrical connections. Flange heaters are installed by bolting to a matching flange welded to the tank wall or nozzle. A wide selection of flange sizes, kilowatt ratings, voltages, terminal enclosures and sheath materials make these heaters ideal for all types of heating applications.

Applications

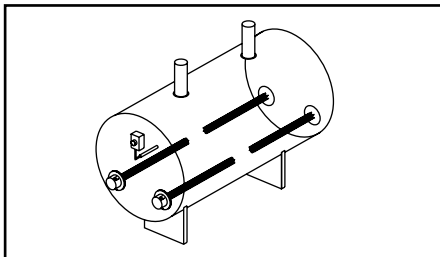
Flanged immersion heaters are one of the most widely used methods for heating gases and liquids (such as water, oil, heat transfer fluid and corrosive solutions). Designed for use in tanks and pressurized vessels, they are easy to install and maintain to provide heat for many processes. The direct immersion method is energy efficient and easily monitored and controlled.

- Hot Water Storage Tanks
- Warming Equipment
- Preheating All Grades of Oil
- Food Processing Equipment
- Cleaning and Rinsing Tanks
- Heat Transfer Systems
- Process Air Equipment
- Boiler Equipment
- Freeze Protection of Any Fluid

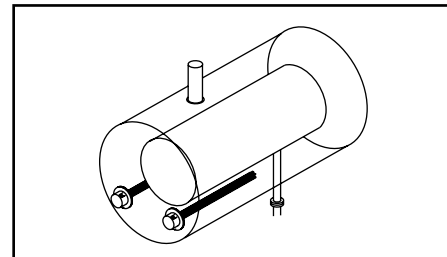


FLANGED

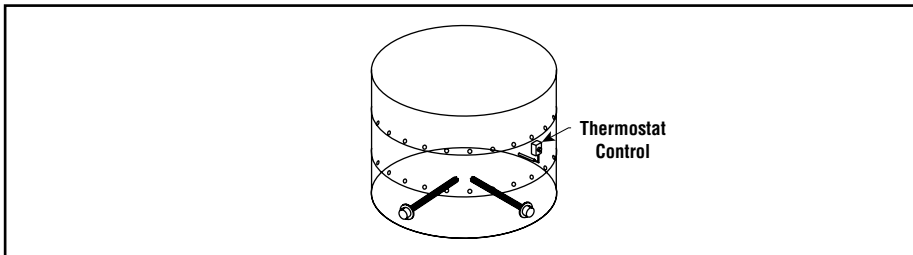
Typical Applications



Flange heaters mounted on each end of hot water storage tank or for an efficient shower system.



Flange heaters in tank of water to heat inner tank of viscous materials.



Flange heaters mounted angularly around tank bottom permitting free vertical work area.

Flanged Immersion Heaters

Application & Selection Guidelines

Selection Guidelines

The selection of the proper Flanged Immersion Heater requires critical engineering judgement. After determining the heat requirement (see the applications section of this catalog), the proper selection of the flange material, heating element sheath material and correct watt density is critical for long life of a heater. The following table may be used as a guide to this selection along with the Technical Information at the back of this catalog. Ultimate choice is determined by the knowledge of the process and engineering acumen of the plant engineer.

Heater application is influenced by the following parameters.

- ① The heated medium viscosity, specific heat density and corrosive properties.
- ② Contaminants present in the medium.
- ③ The heater sheath material corrosion resistant properties.
- ④ Watt density of the heating element — the heat output per square inch.
- ⑤ Maximum sheath temperature — this is the recommended maximum sheath temperature of the element material. It is not the operating temperature of the heated medium (sheath temperature is dependent on items 1 thru 4).

Applications

See Selection Guidelines below for your application.

- Hot Water Storage Tanks
- Warming Equipment
- Preheating All Grades of Oil
- Food Processing Equipment
- Cleaning and Rinsing Tanks
- Heat Transfer Systems
- Process Air Equipment
- Boiler Equipment
- Freeze Protection of Any Fluid

Application Selection — Guidelines

Application	①	②	③	④	⑤
	Solution or Heater Type	Alkaline or Acid Content (Est. % by Volume)	Sheath Material	Watt Density (W/In ²)	Max. Recommended Sheath Temp. (°F)
Water & Very Mild Solutions	Clean Water	pH6 to pH8 Neutral	Copper	45	350
	Process Water	pH5 to pH9	Stainless Steel ¹	45	1200
	Very Weak solutions	2 - 3%	INCOLOY®	45	1600
	Weak Solutions	5 - 6%	INCOLOY®	45	1600
Corrosive & High Viscous Solutions	Demineralized, De-ionized or pure water	—	INCOLOY® w/ Stainless Flange	45	1600
	Mild Corrosive Solution	5 - 15%	Stainless Steel ¹	23	1200
	More Severe Corrosive Solution	10 - 25%	INCOLOY®	23	1200
Specialty Water	Severe Corrosive Solution	30 - 60%	INCOLOY® w/ Stainless Flange	15	1600
	Steam Boilers	Treated	INCOLOY®, Copper	—	1600
Oil	Low Viscosity Oil	—	Steel	23	750
	Medium Viscosity Oil	—	Steel	15	750
	High Viscosity Oil	—	Steel	6.5	750
Oil Reservoir	Lubrication Oil	—	Steel	15	750
Air, Gases & Steam	Low Temperature		Stainless Steel	23	1200
	High Temperature		INCOLOY®	23	1600

1. Passivated stainless steel recommended for water.

Flanged Immersion Heaters Selection Guidelines

Flanged Immersion Heaters — Selection Guidelines

Application	Flange Size (In.)	Sheath Material	Flange Material	Heater Type	Page
Clean Water	3	Copper	Steel	TM	B-95
	5	Copper	Steel	TM	B-95
	6	Copper	Steel	TM	B-96
	8	Copper	Steel	TM	B-96
	10	Copper	Steel	TM	B-96
	12	Copper	Steel	TM	B-96
Process Water	3	SS	Steel	TMS	B-97
	5	SS	Steel	TMS	B-98
	6	SS	Steel	TMS	B-98
	8	SS	Steel	TMS	B-98
Solution Water	3	INCOLOY®	Steel	TMI	B-99
	5	INCOLOY®	Steel	TMI	B-100
	6	INCOLOY®	Steel	TMI	B-100
	8	INCOLOY®	Steel	TMI	B-100
Mildly Corrosive Solution	3	SS	Steel	TMS	B-101
	5	SS	Steel	TMS	B-102
	6	SS	Steel	TMS	B-102
	8	SS	Steel	TMS	B-102
Corrosive Solution & Gas	3	INCOLOY®	Steel	TMI	B-103
	5	INCOLOY®	Steel	TMI	B-104
	6	INCOLOY®	Steel	TMI	B-104
	8	INCOLOY®	Steel	TMI	B-104
	10	INCOLOY®	Steel	TMI	B-104
	12	INCOLOY®	Steel	TMI	B-104
Severely Corrosive Solution	3	INCOLOY®	SS	TMIS	B-105
	5	INCOLOY®	SS	TMIS	B-105
	6	INCOLOY®	SS	TMIS	B-105
Demineralized or De-ionized Water	3	INCOLOY®	SS	TMIS	B-106
	5	INCOLOY®	SS	TMIS	B-106
Light Weight Oil	3	Steel	Steel	TMO	B-107
	5	Steel	Steel	TMO	B-107
	6	Steel	Steel	TMO	B-108
	8	Steel	Steel	TMO	B-108
	10	Steel	Steel	TMO	B-108
	12	Steel	Steel	TMO	B-108
Medium Weight Oil	3	Steel	Steel	TMO	B-109
	5	Steel	Steel	TMO	B-109
	6	Steel	Steel	TMO	B-109
Heavy Weight Oil	3	Steel	Steel	TMO	B-111
	5	Steel	Steel	TMO	B-111
Boiler & Water	2-1/2 Sq.	Copper	Brass	TTSF	B-112
	2-1/2 Sq.	INCOLOY®	Steel	TTSF	B-112
	4-1/2 Sq.	Copper	Steel	WCSF	B-112
Food Equipment	3-1/4 Dia.	Copper	Brass	TTUH	B-113
		Copper	Brass	TTUH-CO	B-114

FLANGED

Flanged Immersion Heaters

Technical & Application Data

Description

These thru-the-side immersion heaters utilize standard pipe flanges ranging from 3 to 14" nominal pipe diameter to support high tank pressures of superheated steam, compressed gases or liquids. They are installed through a matching companion flange (obtainable from local industrial supply houses) to the tank wall. A wide selection of watt densities, heating outputs and flange sizes and ratings make this an excellent heater for all tanks, vats or irregularly shaped vessels.

Features — Stock Units

Element

- **Materials** — Copper, steel, 304 stainless steel, INCOLOY®.
- **Number Elements in Flanges** — 3, 6, 12, 18, 27, 36 and 45.
- **Element Diameter** — 0.475".
- **Watt Density** — 6.5, 15, 23, 45 & 75 W/In².

Flange

- **Material** — Carbon steel, stainless steel.
- **Rating** — 150 lb. pressure class per ANSI B16.5
- **Sizes** — 3, 5, 6, 8, 10, 12 and 14", 150 lb.

Process Control Thermowell

- **Materials** — Copper, carbon steel, stainless steel, INCOLOY®.
- 1/2" diameter.

Special Features

Kilowatt Ratings — 500 kW and above available.

Element

- **Materials** — 316, 321, 347 stainless steel, INCONEL® and more.

Flange

- **Materials** — 316, 321, 347 stainless steel, INCONEL®, INCOLOY® and more.

- **Rating** — 300, 400, 600, 900, 1,500 and 2,500 lb. pressure class.
- **Size** — 16, 18" and larger.

Optional Features

ASME Section I, III, IV and VIII designed and certified

Baffles to distribute flow on elements

Passivation of stainless steel

Immersion Lengths up to 240 inches

Stand-off Terminal Enclosures to isolate terminal housing from flange in high temperature applications

Stock Status & Availability

S — Stocked in finished form

AS — Assembly Stock. Items put together using major stocked subassemblies requiring three day shipping lead time

NS — Non Stock (made to order). Contact your Local Chromalox Sales office for delivery

Terminal Enclosures

Type E1 General Purpose, sheet metal (NEMA 1) painted with red enamel

Type E2 Combination Moisture Resistant, Explosion Resistant enclosures involve the use of wiring enclosures for use in hazardous location conditions.

Type E4 Moisture Resistant

Safe operation of heaters equipped with these enclosures depends on employment of electrical wiring meeting the National Electrical Code and/or IEC for hazardous locations and limiting maximum operating temperatures (including temperatures on outside of vessel, piping, flanges, screw plugs, enclosures and other heat conducting parts) as dictated by flammable liquids, vapors or gases present. Approved pressure and/or temperature limiting controls must be used to assure safe operation in the event of a system malfunction.

Temperature Controls

- A thermostat protective well is standard on most models. This well is installed through the flange, parallel with the heating elements. An AR type on-off mechanical control can be externally mounted to the heater with the capillary bulb installed in this well (order separately — see Controls section for details).
- A contactor is needed when the line voltage and/or current exceeds the thermostat rating.
- Other types of controls and sensors are available where a high degree of accuracy or a more versatile control scheme is required. Electronic controls and complete control panels are easily installed. See the Controls section for details.

Corrosion Policy

Chromalox cannot warrant any electric immersion heater against failure by sheath corrosion if such failure is the result of operating conditions beyond the control of the heater manufacturer. It is the responsibility of the purchaser to make the ultimate choice of sheath material based on their knowledge of the chemical composition of the corrosive solution, character of materials entering the solution, and controls which he maintains on the process.

Flanged Immersion Heaters

Technical & Application Data

ATEX/IECEX/CSA Zone Classification Selection chart for terminal enclosure standoff dimension based on 30°C rise over 40°C ambient

70°C Cable Supply			Vertical Heater Orientation		Horizontal Heater Orientation	
Temperature Code	Wet Face Temperature: °F	Wet Face Temperature: °C	Minimum Standoff Dimension		Minimum Standoff Dimension	
			Inches	mm	Inches	mm
T6	185	85	3	76	1	25
T5	212	100	3	76	2	50
T4A	248	120	5	127	3	76
T4	275	135	6	152	3	76
T3C	320	160	7.5	191	4	102
T3B	329	165	7.5	191	4	102
T3A	356	180	7.5	191	5	127
T3	392	200	9	229	5	127
T2D	419	215	9	229	5	127
T2C	446	230	9	229	6	152
T2B	500	260	10.5	267	6	152
T2A	536	280	10.5	267	6	152
T2	572	300	10.5	267	7.5	191
T1	842	450	13.5	343	9	229

FLANGED

ATEX/IECEX/CSA Zone Classification Selection chart for terminal enclosure standoff dimension based on 10°C rise over 60°C ambient

70°C Cable Supply			Vertical Heater Orientation		Horizontal Heater Orientation	
Temperature Code	Wet Face Temperature: °F	Wet Face Temperature: °C	Minimum Standoff Dimension		Minimum Standoff Dimension	
			Inches	mm	Inches	mm
T6	185	85	9	229	6	152
T5	212	100	10.5	267	7.5	191
T4A	248	120	12	305	7.5	191
T4	275	135	12	305	7.5	191
T3C	320	160	12	305	7.5	191
T3B	329	165	12	305	9	229
T3A	356	180	13.5	343	9	229
T3	392	200	15	381	9	229
T2D	419	215	15	381	10.5	267
T2C	446	230	15	381	10.5	267
T2B	500	260	16.5	419	10.5	267
T2A	536	280	18	457	10.5	267
T2	572	300	18	457	10.5	267
T1	842	450	24	610	12	305

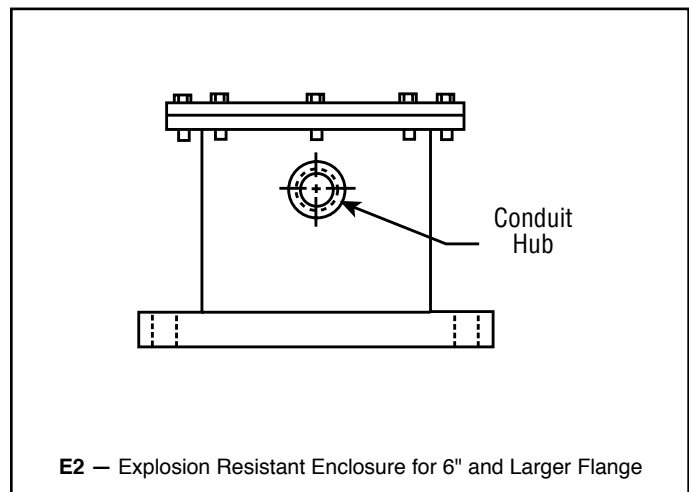
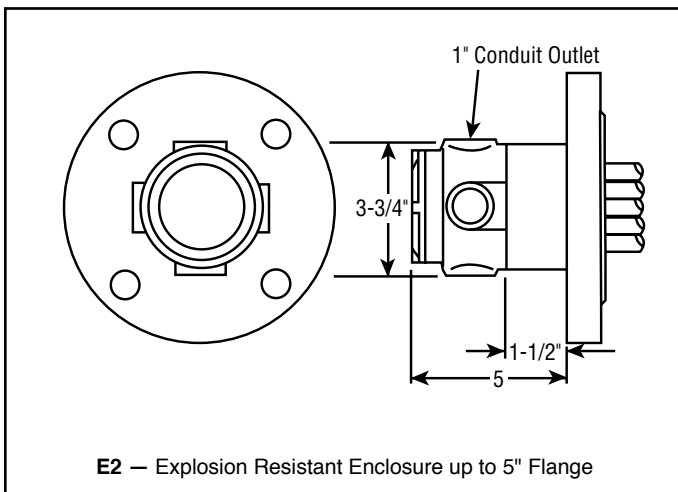
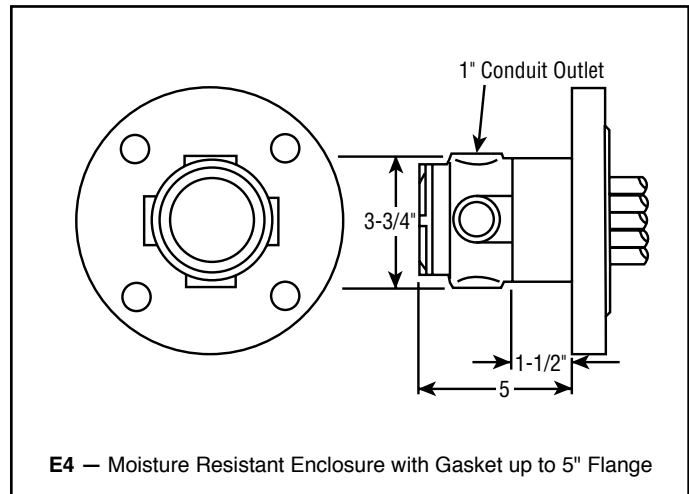
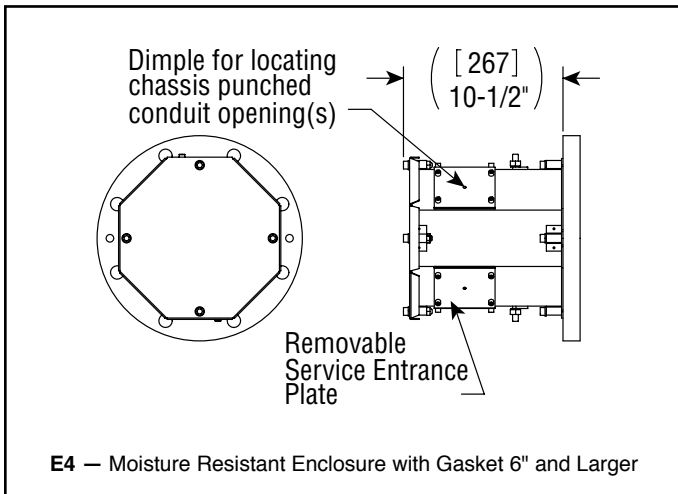
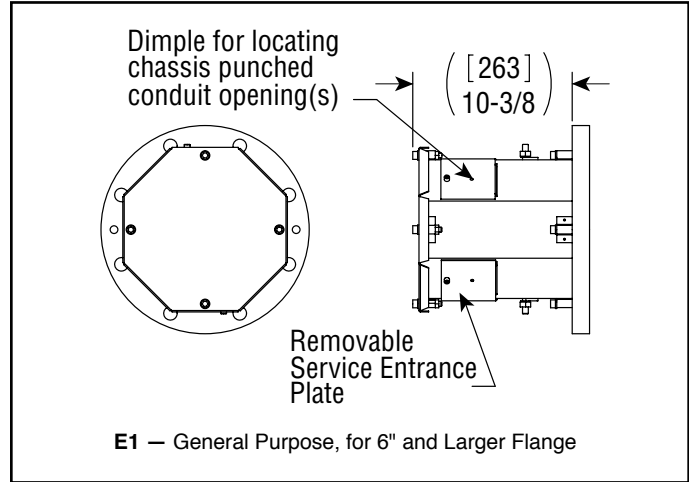
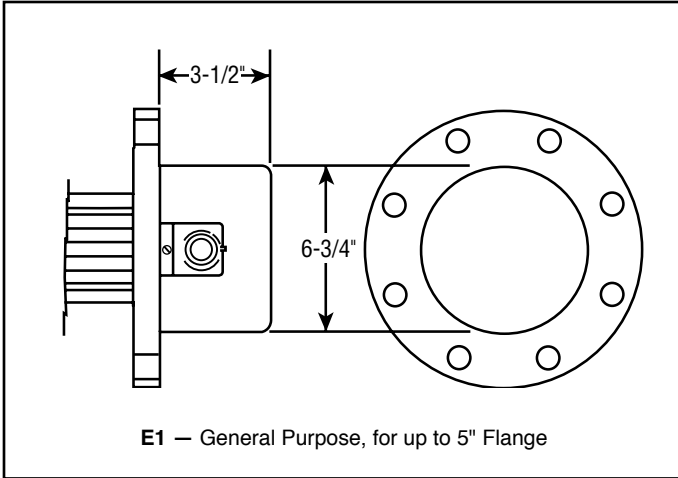
CSA Class and Division Classification Selection chart for terminal enclosure standoff dimension based on 85°C rise over 40°C ambient

125°C Cable Supply			Vertical Heater Orientation		Horizontal Heater Orientation	
Temperature Code	Wet Face Temperature: °F	Wet Face Temperature: °C	Minimum Standoff Dimension		Minimum Standoff Dimension	
			Inches	mm	Inches	mm
T6	185	85	0	0	0	0
T5	212	100	0	0	0	0
T4A	248	120	0	0	0	0
T4	275	135	0	0	0	0
T3C	320	160	2	50	0	0
T3B	329	165	2	50	0	0
T3A	356	180	4	102	2	50
T3	392	200	4	102	2	50
T2D	419	215	4	102	2	50
T2C	446	230	4	102	2	50
T2B	500	260	6	152	4	102
T2A	536	280	6	152	4	102
T2	572	300	6	152	4	102
T1	842	450	7.5	191	6	152

Flanged Immersion Heaters

Terminal Enclosures

Enclosure Styles and Dimensions (Inches)



Flanged Immersion Heaters

Terminal Enclosures

Third Party Specifications by Housing Style

Model	Purpose		North American Designation(s)	Canadian Designation(s)	European Designation(s)	International Designation(s)
E1	General Purpose	Generic Agency (s)	NEMA 1, NEC UL/CSAus	NEMA 1 IP32 CSA	IP32 CE: Manufacturer's Declaration	CE: Manufacturer's Declaration
		Ratings	General Duty Only	General Duty Only	General Duty Only	General Duty Only
E4*	Moisture Resistant Note: Temps over T3 (200°C) require standoffs for third party listing. Refer to IECex & ATEX certifs. for standoff dimensions	Generic Agency (s)	NEMA 4 UL / CSAus	NEMA 4 CSA	IP66 CE: Manufacturer's Declaration	IP66 CE: Manufacturer's Declaration
		Ratings	Class I Div. 2, Groups B, C, D Groups E, F: 200°C (T3) Group G 165°C (T3B) Class I Zone 2 AEx nA II T1 to T6	Class I Div. 2, Groups B, C, D Class II Division 2, Groups E, F: 200°C (T3) Group G 165°C (T3B) Class I Zone 2 Ex nA II T1 to T6	II 3 G Ex nA II T1 to T6	Ex nA II T1 to T6
E2	Moisture Resistant/Explosion Proof Ex de IIB+H2 T1 to T6, 540°C, 600°C Note: Temps over T4 (135°C) require standoffs for third party listing. Refer to IECex & ATEX certifs. for standoff dimensions	Generic Agency (s)	CSAus	CSA	ATEX	IECex
		Ratings	Class I, Div. 1 Groups B,C & D Class II, Div. 1 Groups E, F & G Class I Zone 1 AEx d IIB + H2 T1 to T6	Class I, Div. 1 Groups B,C & D Class II, Div. 1 Groups E, F & G Class I Zone 1 Ex d IIB + H2 T1 to T6	I 2 G EEx d IIB+H2 T1 to T6	Ex d IIB+H2 T1 to T6
E5 Flange Size 3"-8" 8"-12" 12"-18"	Moisture Resistant/Explosion Proof Ex de IIC T1 to T6 540°C, 600°C ATEX IIC Labeling Reference CFP, CFP2, CFP4, CFP8, CFP12, CFP20 Refer to European Catalog.	Generic Agency (s)			ITS ATEX	IECex
		Ratings			II 2 G EEx de IIC T1 to T6, 540°C, 600°C	Ex de IIC T1 to T6 540°C, 600°C

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* **WARNING:** Addition of sparking devices such as a Thermostat to an E4 housing will annul hazardous area rating.

Flanged Immersion Heaters

Process Temperature & Overtemperature Controls

Temperature Control — Mechanical Devices

An integral on-off process temperature control thermostat can be factory installed into the housing of the heater. The sensing bulb of the thermostat is inserted into a thermowell in the center of the heating bundle. AR type mechanical controls (see Controls section for details) are utilized.

Mechanical Devices

Option Number	Thermostat Range
T1	0 - 100°F
T2	60 - 250°F
T3	200 - 550°F

Notes —

- A. The controls are for pilot duty only and must be connected to a remote mounted magnetic contactor.
- B. For explosion resistant heaters, an integral thermostat can only be specified on a 3, 5 and 6" flange immersion heater.

Temperature Control — Electronic Devices

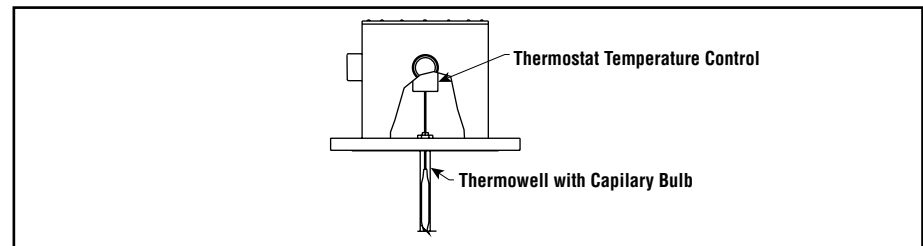
A process control thermocouple can be factory installed into a thermowell in the center of the heating bundle for process control. This thermocouple must be connected to a remote mounted electronic temperature controller.

Overtemperature Protection — Electronic Devices

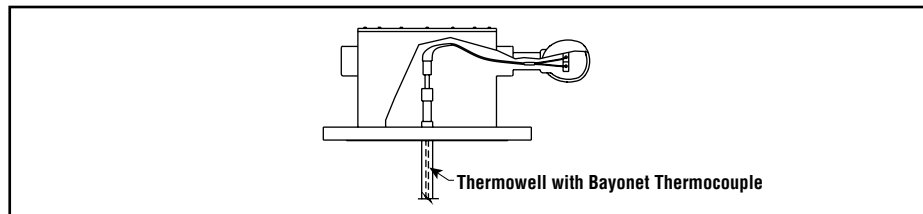
A thermocouple can be attached to the heating element sheath to switch the heater off in the event of a high temperature condition. This thermocouple must be connected to a remote mounted electronic high limit temperature controller.

Please refer to the Controls section for an overview of power control panels.

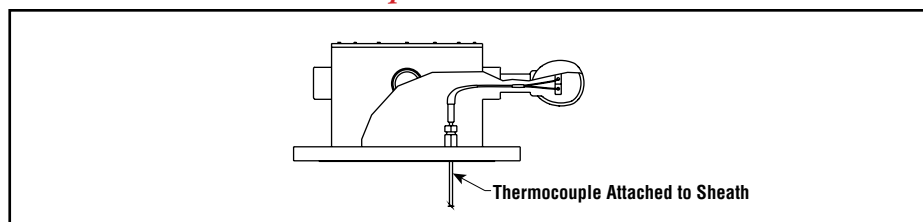
Mechanical Device Temperature Control



Process Control Thermocouple



Overheat Protection Thermocouple



Flanged Immersion Heaters

Flanged Immersion Heater Model Descriptions

Model

TM	ANSI Flange Immersion Heater									
	Code	Element Sheath Material								
	(Blank)	Copper								
	0	Carbon Steel								
	S	304 Stainless Steel								
	I	Incoloy 800								
	X	Other Material								
	Code	Flange Material								
	(Blank)	Carbon Steel								
	S	304 Stainless Steel								
	X	Other Material								
	Code	Baffled Flow								
	(Blank)	No Baffles								
	B	Baffled Flow								
	Code	Number of Elements								
	03	Three Heating Elements								
	06	Six Heating Elements								
	12	Twelve Heating Elements								
	18	Eighteen Heating Elements								
	27	Twenty-Seven Heating Elements								
	36	Thirty-Six Heating Elements								
	45	Forty-Five Heating Elements								
	Code	Wattage								
	004P5	4.5 kW (use actual kilowatt in 3 digits)								
	Code	Terminal Housing Style								
	E1	General Purpose								
	E4	Moisture Resistant								
	E2	Explosion / Moisture Resistant								
	E5	Explosion / Moisture Resistant - addition of Group IIC w/ Acetylene (IEC only)								
	Code	Non-Standard Feature								
	(Blank)	Catalog PCN item								
	XX	Custom Feature								
	Code	Voltage								
	208	208V								
	240	240V								
	380	380V								
	415	415V								
	480	480V								
	575	575V								
	Code	Number of circuits								
	1	One								
	2	Two								
	3	Three								
	4	Four								
	Code	Phase								
	1P	Single Phase								
	3P	Three Phase								
	Code	Kilowatts								
	4.5	kW								
TM	I	- 03	- 004P5	- E4	480V	1	- 3P	4.5	kW	Typical Model Number

Example of Final Model Description: TMI-03-004P5-E4 480V 1-3P 4.5kW

Note: Shaded sections of the model build table are not a finite list. Items such as Number of Elements, Wattage, Voltage, Circuits, and Phase should be adjusted to match design.

FLANGED

Immersion

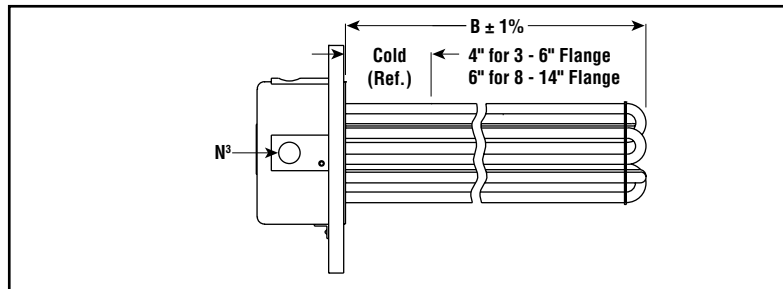
TM Clean Water Applications



- 3 - 14" 150 Lb. Carbon Steel Flange
- Copper Sheath Elements
- Copper Thermowell
- 45 W/in²
- 6 - 350 kW
- 240 and 480 Volt, 1 & 3 Phase
- General Purpose, Moisture Resistant or Moisture Resistant/Explosion Resistant Terminal Enclosures

Note — Refer to the dimensional reference page for enclosure and flange details.

Dimensions (Inches)



Specifications and Ordering Information

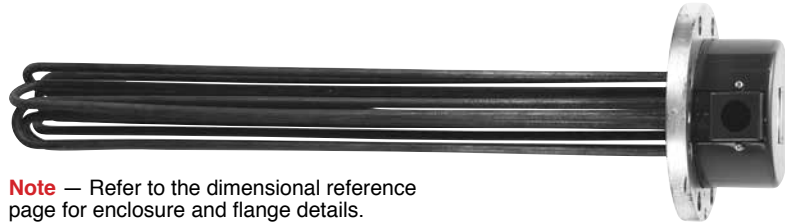
					E1 General Purpose				E2 Moisture Resistant/Explosion Resistant							
kW	Volts	CKT & PhNSe	DIM B (In.)	Wt* (lbs)	Model	Stock	PCN	DIM. N (In.)	Model	Stock	PCN	DIM. N (In.)				
3 Inch - 150 Lb. Steel Flange — 3 Copper Sheath Elements — 45 W/in²																
6	240	1-1	18-1/16	16	TM-03-006P-E1	NS	196066	1	TM-03-006P-E2	NS	180005	3/4				
6	240	1-3	18-1/16	16	TM-03-006P-E1	S	196074	1	TM-03-006P-E2	NS	180013	3/4				
6	480	1-1	18-1/16	16	TM-03-006P-E1	NS	196082	1	TM-03-006P-E2	NS	180021	3/4				
6	480	1-3	18-1/16	16	TM-03-006P-E1	S	196090	1	TM-03-006P-E2	NS	180030	3/4				
9	240	1-1	25-3/16	17	TM-03-009P-E1	NS	196103	1	TM-03-009P-E2	NS	180048	3/4				
9	240	1-3	25-3/16	17	TM-03-009P-E1	S	196111	1	TM-03-009P-E2	NS	180056	3/4				
9	480	1-1	25-3/16	17	TM-03-009P-E1	NS	196120	1	TM-03-009P-E2	NS	180064	3/4				
9	480	1-3	25-3/16	17	TM-03-009P-E1	S	196138	1	TM-03-009P-E2	NS	180072	3/4				
12	240	1-1	33-1/16	18	TM-03-012P-E1	NS	196146	1-1/4	TM-03-012P-E2	NS	180080	1				
12	240	1-3	33-1/16	18	TM-03-012P-E1	S	196154	1	TM-03-012P-E2	NS	180099	3/4				
12	480	1-1	33-1/16	18	TM-03-012P-E1	NS	196162	1	TM-03-012P-E2	NS	180101	3/4				
12	480	1-3	33-1/16	18	TM-03-012P-E1	S	196170	1	TM-03-012P-E2	NS	180110	3/4				
15	240	1-1	40-9/16	20	TM-03-015P-E1	NS	196189	1-1/4	TM-03-015P-E2	NS	180128	1				
15	240	1-3	40-9/16	20	TM-03-015P-E1	NS	196197	1	TM-03-015P-E2	NS	180136	3/4				
15	480	1-1	40-9/16	20	TM-03-015P-E1	NS	196200	1	TM-03-015P-E2	NS	180144	3/4				
15	480	1-3	40-9/16	20	TM-03-015P-E1	S	196218	1	TM-03-015P-E2	NS	180152	3/4				
18	240	1-1	48-1/16	21	TM-03-018P-E1	NS	196226	1-1/4	TM-03-018P-E2	NS	180160	1-1/4				
18	240	1-3	48-1/16	21	TM-03-018P-E1	NS	196234	1	TM-03-018P-E2	NS	180179	3/4				
18	480	1-1	48-1/16	21	TM-03-018P-E1	NS	196242	1	TM-03-018P-E2	NS	180187	3/4				
18	480	1-3	48-1/16	21	TM-03-018P-E1	S	196250	1	TM-03-018P-E2	NS	180195	3/4				
					E1 General Purpose				E2 Moisture Resistant/Explosion Resistant				E4 Moisture Resistant			
kW	Volts	CKT & PhNSe	DIM B (In.)	Wt* (lbs)	Model	Stock	PCN	DIM. N (In.)	Model	Stock	PCN	DIM. N (In.)	Model	Stock	PCN	DIM. N (In.)
5 Inch - 150 Lb. Steel Flange — 6 Copper Sheath Elements — 45 W/in²																
12	240	1-3	18-1/16	30	TM-06-012P-E1	NS	196470	1	TM-06-012P-E2	NS	181147	1-1/2	TM-06-012P-E4	NS	181155	1
12	480	1-3	18-1/16	30	TM-06-012P-E1	NS	196496	1	TM-06-012P-E2	NS	181163	1-1/2	TM-06-012P-E4	NS	181171	1
15	240	1-3	19-3/16	31	TM-06-015P-E1	NS	196517	1	TM-06-015P-E2	NS	181180	1-1/2	TM-06-015P-E4	NS	181198	1
15	480	1-3	19-3/16	31	TM-06-015P-E1	S	196533	1	TM-06-015P-E2	NS	181200	1-1/2	TM-06-015P-E4	NS	181219	1
18	240	1-3	25-3/16	33	TM-06-018P-E1	NS	196550	1	TM-06-018P-E2	NS	181227	1-1/2	TM-06-018P-E4	NS	181235	1
18	480	1-3	25-3/16	33	TM-06-018P-E1	S	196576	1	TM-06-018P-E2	NS	181243	1-1/2	TM-06-018P-E4	NS	181251	1
24	240	2-3	33-1/16	37	TM-06-024P-E1	NS	196592	1	TM-06-024P-E2	NS	181260	1-1/2	TM-06-024P-E4	NS	181278	1
24	480	1-3	33-1/16	37	TM-06-024P-E1	S	196613	1	TM-06-024P-E2	NS	181286	1-1/2	TM-06-024P-E4	NS	181294	1
30	240	2-3	40-9/16	40	TM-06-030P-E1	S	196630	1	TM-06-030P-E3	NS	181307	1-1/2	TM-06-030P-E4	NS	181315	1
30	480	1-3	40-9/16	40	TM-06-030P-E1	S	196656	1	TM-06-030P-E3	NS	181323	1-1/2	TM-06-030P-E4	NS	181331	1

Immersion

TMS

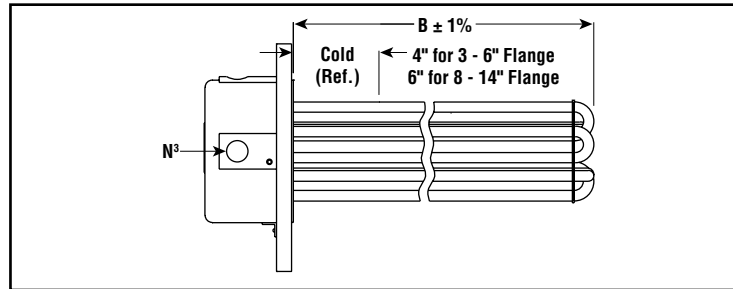
Process Water Applications

- 3 - 8" 150 Lb. Carbon Steel Flange
- Stainless Steel Sheath Elements
- Stainless Steel Thermowell
- 45 W/in²
- 6 - 200 kW
- 240 and 480 Volt, 1 & 3 Phase
- General Purpose, Moisture Resistant or Moisture Resistant/Explosion Resistant Terminal Enclosures



Note — Refer to the dimensional reference page for enclosure and flange details.

Dimensions (Inches)



Specifications and Ordering Information

kW	Volts	CKT & Phase	DIM B (In.)	Wt. * (Lbs.)	E1 General Purpose				E2 Moisture Resistant/Explosion Resistant			
					Model	Stock	PCN	DIM N ³ (In.)	Model	Stock	PCN	DIM N (In.)
3 Inch - 150 Lb. Steel Flange — 3 Stainless Steel Sheath Elements — 45 W/in²												
6	240	1-1	18-1/16	16	TMS-03-006P-E	NS	232012	1	TMS-03-006P-E2	NS	232215	3/4
6	240	1-3	18-1/16	16	TMS-03-006P-E	NS	232020	1	TMS-03-006P-E2	NS	232223	3/4
6	480	1-1	18-1/16	16	TMS-03-006P-E	NS	232039	1	TMS-03-006P-E2	NS	232231	3/4
6	480	1-3	18-1/16	16	TMS-03-006P-E	NS	232047	1	TMS-03-006P-E2	NS	232240	3/4
9	240	1-1	25-3/16	17	TMS-03-009P-E1	NS	232055	1	TMS-03-009P-E2	NS	232258	3/4
9	240	1-3	25-3/16	17	TMS-03-009P-E1	NS	232063	1	TMS-03-009P-E2	NS	232264	3/4
9	480	1-1	25-3/16	17	TMS-03-009P-E1	NS	232071	1	TMS-03-009P-E2	NS	232274	3/4
9	480	1-3	25-3/16	17	TMS-03-009P-E1	NS	232080	1	TMS-03-009P-E2	NS	232282	3/4
12	240	1-1	33-1/16	18	TMS-03-012P-E1	NS	232098	1-1/4	TMS-03-012P-E2	NS	232290	1
12	240	1-3	33-1/16	18	TMS-03-012P-E1	NS	232100	1	TMS-03-012P-E2	NS	232303	3/4
12	480	1-1	33-1/16	18	TMS-03-012P-E1	NS	232119	1	TMS-03-012P-E2	NS	232311	3/4
12	480	1-3	33-1/16	18	TMS-03-012P-E1	NS	232127	1	TMS-03-012P-E2	NS	232320	3/4
15	240	1-1	40-9/16	20	TMS-03-015P-E1	NS	232135	1-1/4	TMS-03-015P-E2	NS	232330	1-1/4
15	240	1-3	40-9/16	20	TMS-03-015P-E1	NS	232143	1	TMS-03-015P-E2	NS	232346	3/4
15	480	1-1	40-9/16	20	TMS-03-015P-E1	NS	232151	1	TMS-03-015P-E2	NS	232354	3/4
15	480	1-3	40-9/16	20	TMS-03-015P-E1	NS	232160	1	TMS-03-015P-E2	NS	232362	3/4
18	240	1-1	48-1/16	21	TMS-03-018P-E1	NS	232178	1-1/4	TMS-03-018P-E2	NS	232370	1-1/4
18	240	1-3	48-1/16	21	TMS-03-018P-E1	NS	232186	1	TMS-03-018P-E2	NS	232389	3/4
18	480	1-1	48-1/16	21	TMS-03-018P-E1	NS	232194	1	TMS-03-018P-E2	NS	232397	3/4
18	480	1-3	48-1/16	21	TMS-03-018P-E1	NS	232207	1	TMS-03-018P-E2	NS	232408	3/4

TMS

Process Water Applications *(cont'd.)*

Specifications and Ordering Information

					E1 General Purpose				E2 Moisture Resistant/Explosion Resistant				E4 Moisture Resistant			
kW	Volts	CKT & Phase	DIM B (In.)	Wt. * (Lbs.)	Model	Stock	PCN	DIM N (In.)	Model	Stock	PCN	DIM N (In.)	Model	Stock	PCN	DIM N (In.)
12	240	1-3	18-1/16	30	TMS-06-012P-E1	NS	232410	1	TMS-06-012P-E2	NS	232573	1-1/2	TMS-06-012P-E4	NS	232733	1
12	480	1-3	18-1/16	30	TMS-06-012P-E1	NS	232426	1	TMS-06-012P-E2	NS	232581	1-1/2	TMS-06-012P-E4	NS	232741	1
15	240	1-3	19-13/16	31	TMS-06-015P-E1	NS	232434	1	TMS-06-015P-E2	NS	232590	1-1/2	TMS-06-015P-E4	NS	232750	1
15	480	1-3	19-13/16	31	TMS-06-015P-E1	NS	232442	1	TMS-06-015P-E2	NS	232602	1-1/2	TMS-06-015P-E4	NS	232768	1
18	240	1-3	25-3/16	33	TMS-06-018P-E1	NS	232450	1	TMS-06-018P-E2	NS	232610	1-1/2	TMS-06-018P-E4	NS	232776	1
18	480	1-3	25-3/16	33	TMS-06-018P-E1	NS	232469	1	TMS-06-018P-E2	NS	232629	1-1/2	TMS-06-018P-E4	NS	232784	1
24	240	2-3	33-1/16	37	TMS-06-024P-E1	NS	232477	1	TMS-06-024P-E2	NS	232637	1-1/2	TMS-06-024P-E4	NS	232792	1
24	480	1-3	33-1/16	37	TMS-06-024P-E1	NS	232489	1	TMS-06-024P-E2	NS	232645	1-1/2	TMS-06-024P-E4	NS	232805	1
30	240	2-3	40-9/16	40	TMS-06-030P-E1	NS	232493	1	TMS-06-030P-E2	NS	232653	1-1/2	TMS-06-030P-E4	NS	232813	1
30	480	1-3	40-9/16	40	TMS-06-030P-E1	NS	232504	1	TMS-06-030P-E2	NS	232661	1-1/2	TMS-06-030P-E4	NS	232821	1
40	240	2-3	52-1/16	51	TMS-06-040P-E1	NS	232514	1	TMS-06-040P-E2	NS	232670	1-1/2	TMS-06-040P-E4	NS	232830	1
40	480	2-3	52-1/16	51	TMS-06-040P-E1	NS	232522	1	TMS-06-040P-E2	NS	232688	1-1/2	TMS-06-040P-E4	NS	232848	1
50	240	2-3	65-1/16	64	TMS-06-050P-E1	NS	232530	1	TMS-06-050P-E2	NS	232696	1-1/2	TMS-06-050P-E4	NS	232856	1
50	480	2-3	65-1/16	64	TMS-06-050P-E1	NS	232549	1	TMS-06-050P-E2	NS	232709	1-1/2	TMS-06-050P-E4	NS	232864	1
60	240	2-3	78-1/16	77	TMS-06-060P-E1	NS	232557	1	TMS-06-060P-E2	NS	232717	1-1/2	TMS-06-060P-E4	NS	232872	1
60	480	2-3	78-1/16	77	TMS-06-060P-E1	NS	232565	1	TMS-06-060P-E2	NS	232725	1-1/2	TMS-06-060P-E4	NS	232880	1
6 Inch - 150 Lb. Steel Flange — 12 Stainless Steel Sheath Elements — 45 W/in²																
36	240	2-3	25-1/8	67	TMS-12-036P-E1	NS	232899	1	TMS-12-036P-E2	NS	232979	1-1/2	TMS-12-036P-E4	NS	233056	1-1/2
36	480	2-3	25-1/8	67	TMS-12-036P-E1	NS	232901	1	TMS-12-036P-E2	NS	232987	1-1/2	TMS-12-036P-E4	NS	233066	1-1/2
48	240	2-3	33	76	TMS-12-048P-E1	NS	232910	1-1/4	TMS-12-048P-E2	NS	232995	1-1/2	TMS-12-048P-E4	NS	233074	1-1/2
48	480	2-3	33	76	TMS-12-048P-E1	NS	232928	1	TMS-12-048P-E2	NS	233007	1-1/2	TMS-12-048P-E4	NS	233082	1-1/2
60	240	2-3	40-1/2	84	TMS-12-060P-E1	NS	232936	1-1/4	TMS-12-060P-E2	NS	233015	1-1/2	TMS-12-060P-E4	NS	233090	1-1/2
60	480	2-3	40-1/2	84	TMS-12-060P-E1	NS	232944	1	TMS-12-060P-E2	NS	233023	1-1/2	TMS-12-060P-E4	NS	233103	1-1/2
72	240	2-3	48	111	TMS-12-072P-E1	NS	232952	1-1/4	TMS-12-072P-E2	NS	233031	1-1/2	TMS-12-072P-E4	NS	233111	1-1/2
72	480	2-3	48	111	TMS-12-072P-E1	NS	232960	1	TMS-12-072P-E2	NS	233040	1-1/2	TMS-12-072P-E4	NS	233120	1-1/2
8 Inch - 150 Lb. Steel Flange — 18 Stainless Steel Sheath Elements — 45 W/in²																
50	240	3-3	27-7/8	107	TMS-18-050P-E1	NS	233138	1	TMS-18-050P-E2	NS	233277	3/4	TMS-18-050P-E4	NS	233410	1-1/2
50	480	3-3	27-7/8	107	TMS-18-050P-E1	NS	233146	1	TMS-18-050P-E2	NS	233205	3/4	TMS-18-050P-E4	NS	233429	1-1/2
75	240	3-3	36-7/8	121	TMS-18-075P-E1	NS	233154	1	TMS-18-075P-E2	NS	233293	3/4	TMS-18-075P-E4	NS	233437	1-1/2
75	480	3-3	36-7/8	121	TMS-18-075P-E1	NS	233162	1	TMS-18-075P-E2	NS	233306	3/4	TMS-18-075P-E4	NS	233445	1-1/2
100	240	3-3	43-11/16	126	TMS-18-100P-E1	NS	233170	1-1/4	TMS-18-100P-E2	NS	233314	3/4	TMS-18-100P-E4	NS	233453	1-1/2
100	480	3-3	43-11/16	126	TMS-18-100P-E1	NS	233189	1	TMS-18-100P-E2	NS	233322	3/4	TMS-18-100P-E4	NS	233461	1-1/2
120	240	3-3	51-7/8	128	TMS-18-120P-E1	NS	233197	1-1/2	TMS-18-120P-E2	NS	233330	3/4	TMS-18-120P-E4	NS	233470	1-1/2
120	480	3-3	51-7/8	128	TMS-18-120P-E1	NS	233200	1	TMS-18-120P-E2	NS	233349	3/4	TMS-18-120P-E4	NS	233488	1-1/2
150	240	3-3	61-3/8	134	TMS-18-150P-E1	NS	233218	2	TMS-18-150P-E2	NS	233357	3/4	TMS-18-150P-E4	NS	233496	1-1/2
150	480	3-3	61-3/8	134	TMS-18-150P-E1	NS	233226	1-1/4	TMS-18-150P-E2	NS	233365	3/4	TMS-18-150P-E4	NS	233509	1-1/2
175	240	3-3	69-7/8	140	TMS-18-175P-E1	NS	233234	2	TMS-18-175P-E2	NS	233373	1-1/4	TMS-18-175P-E4	NS	233517	1-1/2
175	480	3-3	69-7/8	140	TMS-18-175P-E1	NS	233242	1-1/4	TMS-18-175P-E2	NS	233381	3/4	TMS-18-175P-E4	NS	233525	1-1/2
200	240	3-3	78-7/8	145	TMS-18-200P-E1	NS	233250	2-1/2	TMS-18-200P-E2	NS	233390	1-1/4	TMS-18-200P-E4	NS	233533	1-1/2
200	480	3-3	78-7/8	145	TMS-18-200P-E1	NS	233269	1-1/4	TMS-18-200P-E2	NS	233402	3/4	TMS-18-200P-E4	NS	233451	1-1/2

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.

* Weights:

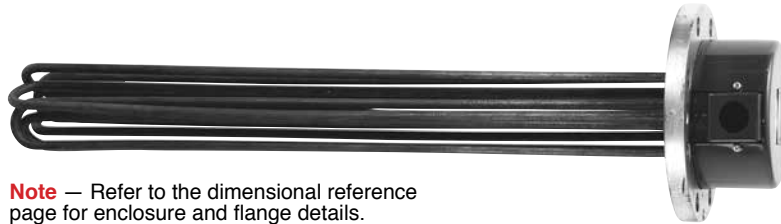
- A. For Wt. of 3" flange with E2 enclosure add 3 lbs. to Wt. of E1 enclosure heater.
- B. For Wt. of 5 and 6" flange with E4 enclosure add 7 lbs. to Wt. of E1 enclosure heater.
- C. For Wt. of 8" flange with E4 enclosure add 10 lbs. to Wt. of E1 enclosure heater.

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Immersion

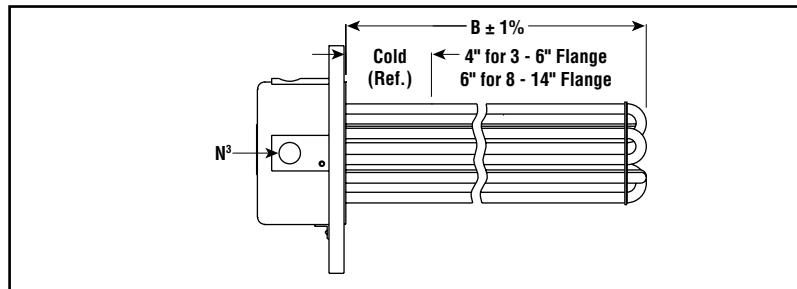
TMI Solution Water Applications

- 3 - 8" 150 Lb. Carbon Steel Flange
- INCOLOY® Sheath Elements
- INCOLOY® Thermowell
- 45 W/in²
- 6 - 200 kW
- 240 and 480 Volt, 1 & 3 Phase
- General Purpose, Moisture Resistant or Moisture Resistant/Explosion Resistant Terminal Enclosures



Note — Refer to the dimensional reference page for enclosure and flange details.

Dimensions (Inches)



Specifications and Ordering Information

					E1 General Purpose				E2 Moisture Resistant/Explosion Resistant			
kW	Volts	CKT & Phase	DIM B (In.)	Wt.* (Lbs.)	Model	Stock	PCN	DIM N (In.)	Model	Stock	PCN	DIM N (In.)
3 Inch - 150 Lb. Steel Flange — 3 INCOLOY® Sheath Elements — 45 W/in²												
6	240	1-1	18-1/16	16	TMI-03-006P-E1	NS	233550	1	TMI-03-006P-E2	NS	233752	3/4
6	240	1-3	18-1/16	16	TMI-03-006P-E1	NS	233568	1	TMI-03-006P-E2	NS	233760	3/4
6	480	1-1	18-1/16	16	TMI-03-006P-E1	NS	233576	1	TMI-03-006P-E2	NS	233779	3/4
6	480	1-3	18-1/16	16	TMI-03-006P-E1	NS	233584	1	TMI-03-006P-E2	NS	233787	3/4
9	240	1-1	25-3/16	17	TMI-03-009P-E1	NS	233592	1	TMI-03-009P-E2	NS	233795	3/4
9	240	1-3	25-3/16	17	TMI-03-009P-E1	NS	233605	1	TMI-03-009P-E2	NS	233808	3/4
9	480	1-1	25-3/16	17	TMI-03-009P-E1	NS	233613	1	TMI-03-009P-E2	NS	233818	3/4
9	480	1-3	25-3/16	17	TMI-03-009P-E1	NS	233621	1	TMI-03-009P-E2	NS	233824	3/4
12	240	1-1	33-1/16	18	TMI-03-012P-E1	NS	233630	1-1/4	TMI-03-012P-E2	NS	233832	1
12	240	1-3	33-1/16	18	TMI-03-012P-E1	NS	233648	1	TMI-03-012P-E2	NS	233840	3/4
12	480	1-1	33-1/16	18	TMI-03-012P-E1	NS	233656	1	TMI-03-012P-E2	NS	233859	3/4
12	480	1-3	33-1/16	18	TMI-03-012P-E1	NS	233664	1	TMI-03-012P-E2	NS	233867	3/4
15	240	1-1	40-9/16	20	TMI-03-015P-E1	NS	233672	1-1/4	TMI-03-015P-E2	NS	233875	1-1/4
15	240	1-3	40-9/16	20	TMI-03-015P-E1	NS	233680	1	TMI-03-015P-E2	NS	233883	3/4
15	480	1-1	40-9/16	20	TMI-03-015P-E1	NS	233699	1	TMI-03-015P-E2	NS	233891	3/4
15	480	1-3	40-9/16	20	TMI-03-015P-E1	NS	233701	1	TMI-03-015P-E2	NS	233904	3/4
18	240	1-1	48-1/16	21	TMI-03-018P-E1	NS	233710	1-1/4	TMI-03-018P-E2	NS	233912	1-1/4
18	240	1-3	48-1/16	21	TMI-03-018P-E1	NS	233728	1	TMI-03-018P-E2	NS	233920	3/4
18	480	1-1	48-1/16	21	TMI-03-018P-E1	NS	233730	1	TMI-03-018P-E2	NS	233939	3/4
18	480	1-3	48-1/16	21	TMI-03-018P-E1	NS	233744	1	TMI-03-018P-E2	NS	233947	3/4

TMI

Solution Water Applications *(cont'd.)*

Specifications and Ordering Information

					E1 General Purpose				E2 Moisture Resistant/Explosion Resistant				E4 Moisture Resistant			
KW	Volts	CKT & pH	DIM B (In.)	Wt. (Lbs.)	Model	Stock	PCN	DIM N (In.)	Model	Stock	PCN	DIM N (In.)	Model	Stock	PCN	DIM N (In.)
5 Inch - 150 Lb. Steel Flange — 6 INCOLOY® Sheath Elements — 45 W/in²																
12	240	1-3	18-1/16	30	TMI-06-012P-E1	NS	233955	1	TMI-06-012P-E2	NS	230113	1-1/2	TMI-06-012P-E4	NS	230279	1
12	480	1-3	18-1/16	30	TMI-06-012P-E1	NS	233963	1	TMI-06-012P-E2	NS	230121	1-1/2	TMI-06-012P-E4	NS	230287	1
15	240	1-3	19-13/16	31	TMI-06-015P-E1	NS	233971	1	TMI-06-015P-E2	NS	230130	1-1/2	TMI-06-015P-E4	NS	230295	1
15	480	1-3	19-13/16	31	TMI-06-015P-E1	NS	233980	1	TMI-06-015P-E2	NS	230146	1-1/2	TMI-06-015P-E4	NS	230308	1
18	240	1-3	25-3/16	33	TMI-06-018P-E1	NS	233998	1	TMI-06-018P-E2	NS	230150	1-1/2	TMI-06-018P-E4	NS	230316	1
18	480	1-3	25-3/16	33	TMI-06-018P-E1	NS	234000	1	TMI-06-018P-E2	NS	230164	1-1/2	TMI-06-018P-E4	NS	230324	1
24	240	2-3	33-1/16	37	TMI-06-024P-E1	NS	230017	1	TMI-06-024P-E2	NS	230172	1-1/2	TMI-06-024P-E4	NS	230332	1
24	480	1-3	33-1/16	37	TMI-06-024P-E1	NS	230025	1	TMI-06-024P-E2	NS	230180	1-1/2	TMI-06-024P-E4	NS	230340	1
30	240	2-3	40-9/16	40	TMI-06-030P-E1	NS	230033	1	TMI-06-030P-E2	NS	230199	1-1/2	TMI-06-030P-E4	NS	230359	1
30	480	1-3	40-9/16	40	TMI-06-030P-E1	NS	230041	1	TMI-06-030P-E2	NS	230201	1-1/2	TMI-06-030P-E4	NS	230367	1
40	240	2-3	52-1/16	51	TMI-06-040P-E1	NS	230050	1	TMI-06-040P-E2	NS	230210	1-1/2	TMI-06-040P-E4	NS	230375	1
40	480	2-3	52-1/16	51	TMI-06-040P-E1	NS	230066	1	TMI-06-040P-E2	NS	230226	1-1/2	TMI-06-040P-E4	NS	230383	1
50	240	2-3	65-1/16	64	TMI-06-050P-E1	NS	230076	1	TMI-06-050P-E4	NS	230236	1-1/2	TMI-06-050P-E4	NS	230391	1
50	480	2-3	65-1/16	64	TMI-06-050P-E1	NS	230084	1	TMI-06-050P-E4	NS	230244	1-1/2	TMI-06-050P-E4	NS	230404	1
60	240	2-3	78-1/16	77	TMI-06-060P-E1	NS	230092	1	TMI-06-060P-E2	NS	230252	1-1/2	TMI-06-060P-E4	NS	230412	1
60	480	2-3	78-1/16	77	TMI-06-060P-E1	NS	230105	1	TMI-06-060P-E2	NS	230260	1-1/2	TMI-06-060P-E4	NS	230420	1
6 Inch - 150 Lb. Steel Flange — 12 INCOLOY® Sheath Elements — 45 W/in²																
36	240	2-3	25-1/8	67	TMI-12-036P-E1	NS	230439	1	TMI-12-036P-E2	NS	230519	1-1/2	TMI-12-036P-E4	NS	230594	1-1/2
36	480	2-3	25-1/8	67	TMI-12-036P-E1	NS	230447	1	TMI-12-036P-E2	NS	230527	1-1/2	TMI-12-036P-E4	NS	230607	1-1/2
48	240	2-3	33	76	TMI-12-048P-E1	NS	230455	1-1/4	TMI-12-048P-E2	NS	230535	1-1/2	TMI-12-048P-E4	NS	230615	1-1/2
48	480	2-3	33	76	TMI-12-048P-E1	NS	230463	1	TMI-12-048P-E2	NS	230543	1-1/2	TMI-12-048P-E4	NS	230623	1-1/2
60	240	2-3	40-1/2	84	TMI-12-060P-E1	NS	230471	1-1/4	TMI-12-060P-E2	NS	230551	1-1/2	TMI-12-060P-E4	NS	230631	1-1/2
60	480	2-3	40-1/2	84	TMI-12-060P-E1	NS	230480	1	TMI-12-060P-E2	NS	230560	1-1/2	TMI-12-060P-E4	NS	230640	1-1/2
72	240	2-3	48	111	TMI-12-072P-E1	NS	230498	1-1/4	TMI-12-072P-E2	NS	230578	1-1/2	TMI-12-072P-E4	NS	230658	1-1/2
72	480	2-3	48	111	TMI-12-072P-E1	NS	230500	1	TMI-12-072P-E2	NS	230586	1-1/2	TMI-12-072P-E4	NS	230666	1-1/2
8 Inch - 150 Lb. Steel Flange — 18 INCOLOY® Sheath Elements — 45 W/in²																
50	240	3-3	27-7/8	107	TMI-18-050P-E1	NS	230674	1	TMI-18-050P-E2	NS	230818	3/4	TMI-18-050P-E4	NS	231010	1-1/2
50	480	3-3	27-7/8	107	TMI-18-050P-E1	NS	230682	1	TMI-18-050P-E2	NS	230826	3/4	TMI-18-050P-E4	NS	231028	1-1/2
75	240	3-3	36-7/8	121	TMI-18-075P-E1	NS	230690	1	TMI-18-075P-E2	NS	230834	3/4	TMI-18-075P-E4	NS	231036	1-1/2
75	480	3-3	36-7/8	121	TMI-18-075P-E1	NS	230703	1	TMI-18-075P-E2	NS	230842	3/4	TMI-18-075P-E4	NS	231044	1-1/2
100	240	3-3	43-11/16	126	TMI-18-100P-E1	NS	230711	1-1/4	TMI-18-100P-E2	NS	230850	3/4	TMI-18-100P-E4	NS	231052	1-1/2
100	480	3-3	43-11/16	126	TMI-18-100P-E1	NS	230720	1	TMI-18-100P-E2	NS	230869	3/4	TMI-18-100P-E4	NS	231060	1-1/2
120	240	3-3	51-7/8	128	TMI-18-120P-E1	NS	230738	1-1/4	TMI-18-120P-E2	NS	230877	3/4	TMI-18-120P-E4	NS	231079	1-1/2
120	480	3-3	51-7/8	128	TMI-18-120P-E1	NS	230746	1	TMI-18-120P-E2	NS	230885	3/4	TMI-18-120P-E4	NS	231087	1-1/2
150	240	3-3	61-3/8	134	TMI-18-150P-E1	NS	230754	2	TMI-18-150P-E2	NS	230693	3/4	TMI-18-150P-E4	NS	230957	1-1/2
150	480	3-3	61-3/8	134	TMI-18-150P-E1	NS	230762	1-1/4	TMI-18-150P-E2	NS	230906	3/4	TMI-18-150P-E4	NS	230965	1-1/2
175	240	3-3	69-7/8	140	TMI-18-175P-E1	NS	230770	2	TMI-18-175P-E2	NS	230914	1-1/4	TMI-18-175P-E4	NS	230973	1-1/2
175	480	3-3	69-7/8	140	TMI-18-175P-E1	NS	230789	1-1/4	TMI-18-175P-E2	NS	230922	3/4	TMI-18-175P-E4	NS	230981	1-1/2
200	240	3-3	78-7/8	145	TMI-18-200P-E1	NS	230797	2-1/2	TMI-18-200P-E2	NS	230930	1-1/4	TMI-18-200P-E4	NS	230990	1-1/2
200	480	3-3	78-7/8	145	TMI-18-200P-E1	NS	230800	1-1/4	TMI-18-200P-E2	NS	230949	3/4	TMI-18-200P-E4	NS	231001	1-1/2

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, pHSe and quantity.

* Weights:

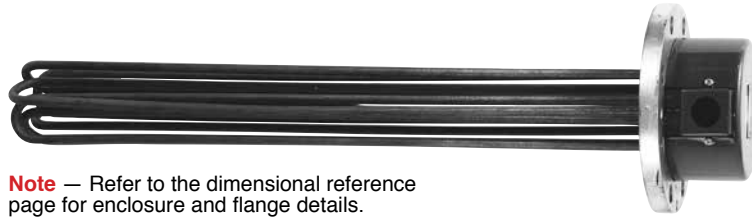
- A. For Wt. of 3" flange with E2 enclosure add 3 lbs. to Wt. of E1 enclosure heater.
- B. For Wt. of 5 and 6" flange with E4 enclosure add 7 Lbs. to Wt. of E1 enclosure heater.
- C. For Wt. of 8" flange with E4 enclosure add 10 lbs. to Wt. of E1 enclosure heater.

FLANGED

TMS

Mildly Corrosive Solution Applications

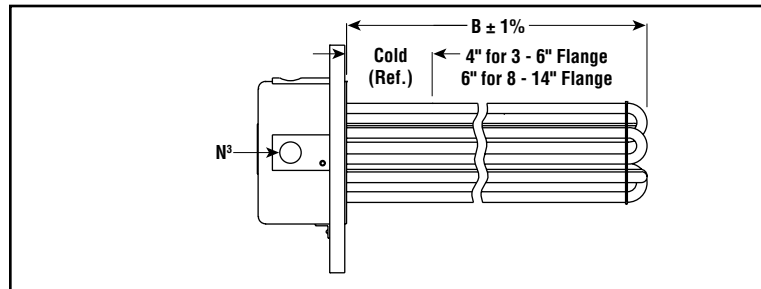
- 3 - 8" 150 Lb. Carbon Steel Flange
- Stainless Steel Sheath Elements
- Stainless Steel Thermowell
- 23 W/in²
- 3 - 50 kW
- 240 and 480 Volt, 1 & 3 Phase
- General Purpose, Moisture Resistant or Moisture Resistant/Explosion Resistant Terminal Enclosures



Note — Refer to the dimensional reference page for enclosure and flange details.



Dimensions (Inches)



Specifications and Ordering Information

					E1 General Purpose				E2 Moisture Resistant/Explosion Resistant			
kW	Volts	CKT & Phase	DIM B (In.)	Wt.* (Lbs.)	Model	Stock	PCN	DIM N (In.)	Model	Stock	PCN	DIM N (In.)
3 Inch - 150 Lb. Steel Flange — 3 Stainless Steel Sheath Elements — 23 W/in²												
3	240	1-1	18-1/16	16	TMS-03-003P-E1	NS	231095	1	TMS-03-003P-E2	NS	030015	3/4
3	240	1-3	18-1/16	16	TMS-03-003P-E1	NS	231108	1	TMS-03-003P-E2	NS	030023	3/4
3	480	1-1	18-1/16	16	TMS-03-003P-E1	NS	231116	1	TMS-03-003P-E2	NS	030031	3/4
3	480	1-3	18-1/16	16	TMS-03-003P-E1	NS	231124	1	TMS-03-003P-E2	NS	030040	3/4
4.5	240	1-1	25-3/16	17	TMS-03-004P5-E1	NS	231132	1	TMS-03-004P5-E2	NS	030058	3/4
4.5	240	1-3	25-3/16	17	TMS-03-004P5-E1	NS	231140	1	TMS-03-004P5-E2	NS	030066	3/4
4.5	480	1-1	25-3/16	17	TMS-03-004P5-E1	NS	231159	1	TMS-03-004P5-E2	NS	030074	3/4
4.5	480	1-3	25-3/16	17	TMS-03-004P5-E1	NS	231167	1	TMS-03-004P5-E2	NS	030082	3/4
6	240	1-1	33-1/16	18	TMS-03-006P-E1	NS	231175	1	TMS-03-006P-E2	NS	030090	3/4
6	240	1-3	33-1/16	18	TMS-03-006P-E1	NS	231183	1	TMS-03-006P-E2	NS	030103	3/4
6	480	1-1	33-1/16	18	TMS-03-006P-E1	NS	231191	1	TMS-03-006P-E2	NS	030111	3/4
6	480	1-3	33-1/16	18	TMS-03-006P-E1	NS	231204	1	TMS-03-006P-E2	NS	030120	3/4
7.5	240	1-3	40-9/16	19	TMS-03-007P5-E1	NS	231212	1	TMS-03-007P5-E2	NS	030138	3/4
7.5	480	1-3	40-9/16	19	TMS-03-007P5-E1	NS	231220	1	TMS-03-007P5-E2	NS	030146	3/4
9	480	1-1	48-1/16	21	TMS-03-009P-E1	NS	231239	1	TMS-03-009P-E2	NS	030154	3/4
9	480	1-3	48-1/16	21	TMS-03-009P-E1	NS	231247	1	TMS-03-009P-E2	NS	030162	3/4
9	240	1-3	48-1/16	21	TMS-03-009P-E1	NS	231255	1	TMS-03-009P-E2	NS	030170	3/4

TMS

Mildly Corrosive Solution Applications (cont'd.)

Specifications and Ordering Information

					E1 General Purpose				E2 Moisture Resistant/Explosion Resistant				E4 Moisture Resistant			
kW	Volts	CKT & Phase	DIM B (In.)	Wt. * (Lbs.)	Model	Stock	PCN	DIM N (In.)	Model	Stock	PCN	DIM N (In.)	Model	Stock	PCN	DIM N (In.)
5 Inch - 150 Lb. Steel Flange — 6 Stainless Steel Sheath Elements — 23 W/In²																
9	240	1-3	25-3/16	32	TMS-06-009P-E1	NS	231263	1	TMS-06-009P-E2	NS	030189	1-1/2	TMS-06-009P-E4	NS	030306	1
9	480	1-3	25-3/16	32	TMS-06-009P-E1	NS	231271	1	TMS-06-009P-E2	NS	030197	1-1/2	TMS-06-009P-E4	NS	030314	1
12	240	1-3	33-1/16	33	TMS-06-012P-E1	NS	231280	1	TMS-06-012P-E2	NS	030200	1-1/2	TMS-06-012P-E4	NS	030322	1
12	480	1-3	33-1/16	33	TMS-06-012P-E1	NS	231298	1	TMS-06-012P-E2	NS	030218	1-1/2	TMS-06-012P-E4	NS	030330	1
15	240	1-3	40-9/16	35	TMS-06-015P-E1	NS	231300	1	TMS-06-015P-E2	NS	030226	1-1/2	TMS-06-015P-E4	NS	030349	1
15	480	1-3	40-9/16	35	TMS-06-015P-E1	NS	231319	1	TMS-06-015P-E2	NS	030234	1-1/2	TMS-06-015P-E4	NS	030357	1
20	240	1-3	52-1/16	38	TMS-06-020P-E1	NS	231327	1	TMS-06-020P-E2	NS	030242	1-1/2	TMS-06-020P-E4	NS	030365	1
20	480	1-3	52-1/16	38	TMS-06-020P-E1	NS	231335	1	TMS-06-020P-E2	NS	030250	1-1/2	TMS-06-020P-E4	NS	030373	1
25	240	2-3	65-1/16	42	TMS-06-025P-E1	NS	231343	1	TMS-06-025P-E2	NS	030269	1-1/2	TMS-06-025P-E4	NS	030381	1
25	480	1-3	65-1/16	42	TMS-06-025P-E1	NS	231351	1	TMS-06-025P-E2	NS	030277	1-1/2	TMS-06-025P-E4	NS	030390	1
30	240	2-3	78-1/16	46	TMS-06-030P-E1	NS	231360	1	TMS-06-030P-E2	NS	030285	1-1/2	TMS-06-030P-E4	NS	030402	1
30	480	1-3	78-1/16	46	TMS-06-030P-E1	NS	231378	1	TMS-06-030P-E2	NS	030293	1-1/2	TMS-06-030P-E4	NS	030410	1
6 Inch - 150 Lb. Steel Flange — 12 Stainless Steel Sheath Elements — 23 W/In²																
18	240	1-3	25-1/8	67	TMS-12-018P-E1	NS	231386	1	TMS-12-018P-E2	NS	030429	1-1/2	TMS-12-018P-E4	NS	030509	1-1/2
18	480	1-3	25-1/8	67	TMS-12-018P-E1	NS	231394	1	TMS-12-018P-E2	NS	030437	1-1/2	TMS-12-018P-E4	NS	030517	1-1/2
24	240	2-3	33	76	TMS-12-024P-E1	NS	231407	1	TMS-12-024P-E2	NS	030445	1-1/2	TMS-12-024P-E4	NS	030525	1-1/2
24	480	1-3	33	76	TMS-12-024P-E1	NS	231415	1	TMS-12-024P-E2	NS	030453	1-1/2	TMS-12-024P-E4	NS	030533	1-1/2
30	240	2-3	40-1/2	84	TMS-12-030P-E1	NS	231423	1	TMS-12-030P-E2	NS	030461	1-1/2	TMS-12-030P-E4	NS	030541	1-1/2
30	480	1-3	40-1/2	84	TMS-12-030P-E1	NS	231431	1	TMS-12-030P-E2	NS	030470	1-1/2	TMS-12-030P-E4	NS	030550	1-1/2
36	240	2-3	48	111	TMS-12-036P-E1	NS	231440	1	TMS-12-036P-E2	NS	030488	1-1/2	TMS-12-036P-E4	NS	030568	1-1/2
36	480	1-3	48	111	TMS-12-036P-E1	NS	231458	1	TMS-12-036P-E2	NS	030496	1-1/2	TMS-12-036P-E4	NS	030576	1-1/2
8 Inch - 150 Lb. Steel Flange — 18 Stainless Steel Sheath Elements — 23 W/In²																
30	240	3-3	32-7/8	112	TMS-18-030P-E1	NS	231466	1	TMS-18-030P-E2	NS	030584	3/4	TMS-18-030P-E4	NS	030648	1-1/2
30	480	3-3	32-7/8	112	TMS-18-030P-E1	NS	231474	1	TMS-18-030P-E2	NS	030592	3/4	TMS-18-030P-E4	NS	030656	1-1/2
40	240	3-3	43-11/16	125	TMS-18-040P-E1	NS	231482	1	TMS-18-040P-E2	NS	030605	3/4	TMS-18-040P-E4	NS	030664	1-1/2
40	480	3-3	43-11/16	125	TMS-18-040P-E1	NS	231490	1	TMS-18-040P-E2	NS	030613	3/4	TMS-18-040P-E4	NS	030672	1-1/2
50	240	3-3	51-7/8	130	TMS-18-050P-E1	NS	231503	1	TMS-18-050P-E2	NS	030621	3/4	TMS-18-050P-E4	NS	030680	1-1/2
50	480	3-3	51-7/8	130	TMS-18-050P-E1	NS	231511	1	TMS-18-050P-E2	NS	030630	3/4	TMS-18-050P-E4	NS	030699	1-1/2

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.

* Weights:

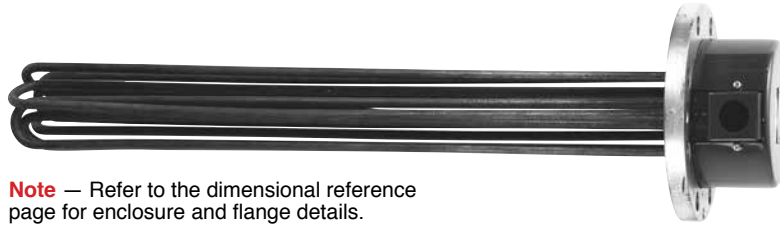
- A. For Wt. of 3" flange with E2 enclosure add 3 lbs. to Wt. of E1 enclosure heater.
- B. For Wt. of 5 and 6" flange with E4 enclosure add 7 lbs. to Wt. of E1 enclosure heater.
- C. For Wt. of 8" flange with E4 enclosure add 10 lbs. to Wt. of E1 enclosure heater.

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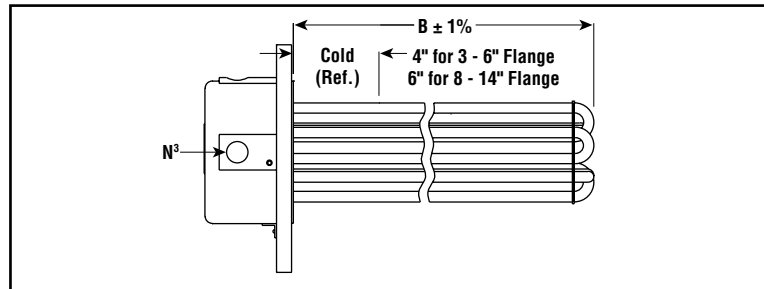
Corrosive Solution Applications

- 3 - 14" 150 Lb. Carbon Steel Flange
- INCOLOY® Sheath Elements
- INCOLOY® Thermowell
- 20 - 23 W/In²
- 3 - 125 kW
- 240 and 480 Volt, 1 & 3 Phase
- General Purpose, Moisture Resistant or Moisture Resistant/Explosion Resistant Terminal Enclosures



Note — Refer to the dimensional reference page for enclosure and flange details.

Dimensions (Inches)



Specifications and Ordering Information

					E1 General Purpose				E2 Moisture Resistant/Explosion Resistant			
kW	Volts	CKT & Phase	DIM B (In.)	Wt.* (Lbs.)	Model	Stock	PCN	DIM N (In.)	Model	Stock	PCN	DIM N (In.)
3 Inch - 150 Lb. Steel Flange — 3 INCOLOY® Sheath Elements — 23 W/In²												
3	240	1-1	18-1/16	16	TMI-03-003P-E1	NS	259397	1	TMI-03-003P-E2	NS	180873	3/4
3	240	1-3	18-1/16	16	TMI-03-003P-E1	NS	256233	1	TMI-03-003P-E2	NS	180881	3/4
3	480	1-1	18-1/16	16	TMI-03-003P-E1	NS	259400	1	TMI-03-003P-E2	NS	180890	3/4
3	480	1-3	18-1/16	16	TMI-03-003P-E1	NS	256241	1	TMI-03-003P-E2	NS	180902	3/4
4.5	240	1-1	25-3/16	17	TMI-03-004P5-E1	NS	259418	1	TMI-03-004P5-E2	NS	180910	3/4
4.5	240	1-3	25-3/16	17	TMI-03-004P5-E1	NS	256250	1	TMI-03-004P5-E2	NS	180929	3/4
4.5	480	1-1	25-3/16	17	TMI-03-004P5-E1	NS	259426	1	TMI-03-004P5-E2	NS	180937	3/4
4.5	480	1-3	25-3/16	17	TMI-03-004P5-E1	NS	256268	1	TMI-03-004P5-E2	NS	180945	3/4
6	240	1-1	33-1/16	18	TMI-03-006P-E1	NS	259434	1	TMI-03-006P-E2	NS	180961	3/4
6	240	1-3	33-1/16	18	TMI-03-006P-E1	NS	256276	1	TMI-03-006P-E2	NS	180953	3/4
6	480	1-1	33-1/16	18	TMI-03-006P-E1	NS	259442	1	TMI-03-006P-E2	NS	180970	3/4
6	480	1-3	33-1/16	18	TMI-03-006P-E1	S	256284	1	TMI-03-006P-E2	NS	180988	3/4
7.5	240	1-3	40-9/16	19	TMI-03-007P5-E1	NS	259477	1	TMI-03-007P5-E2	NS	181104	3/4
7.5	480	1-3	40-9/16	19	TMI-03-007P5-E1	NS	259485	1	TMI-03-007P5-E2	NS	181112	3/4
9	480	1-1	48-1/16	21	TMI-03-009P-E1	NS	259506	1	TMI-03-009P-E2	NS	181059	3/4
9	480	1-3	48-1/16	21	TMI-03-009P-E1	NS	259522	1	TMI-03-009P-E2	NS	181067	3/4
9	240	1-3	48-1/16	21	TMI-03-009P-E1	NS	259514	1	TMI-03-009P-E2	NS	181120	3/4

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Corrosive Solution Applications (cont'd.)

Specifications and Ordering Information

					E1 General Purpose				E2 Moisture Resistant/Explosion Resistant				E4 Moisture Resistant			
kW	Volts	CKT & Phase	DIM B (In.)	Wt.* (Lbs.)	Model	Stock	PCN	DIM N (In.)	Model	Stock	PCN	DIM N (In.)	Model	Stock	PCN	DIM N (In.)
5 Inch - 150 Lb. Steel Flange — 6 INCOLOY® Sheath Elements — 23 W/in²																
9	240	1-3	25-3/16	32	TMI-06-009P-E1	NS	256292	1	TMI-06-009P-E2	NS	182406	1-1/2	TMI-06-009P-E4	NS	182414	1
9	480	1-3	25-3/16	32	TMI-06-009P-E1	S	259637	1	TMI-06-009P-E2	NS	182422	1-1/2	TMI-06-009P-E4	NS	182430	1
12	240	1-3	33-1/16	33	TMI-06-012P-E1	NS	256305	1	TMI-06-012P-E2	NS	182449	1-1/2	TMI-06-012P-E4	NS	182457	1
12	480	1-3	33-1/16	33	TMI-06-012P-E1	S	259661	1	TMI-06-012P-E2	NS	182465	1-1/2	TMI-06-012P-E4	NS	182473	1
15	240	1-3	40-9/16	35	TMI-06-015P-E1	NS	259696	1	TMI-06-015P-E2	NS	182481	1-1/2	TMI-06-015P-E4	NS	182490	1
15	480	1-3	40-9/16	35	TMI-06-015P-E1	NS	259709	1	TMI-06-015P-E2	NS	182502	1-1/2	TMI-06-015P-E4	NS	182510	1
20	240	2-3	52-1/16	38	TMI-06-020P-E1	NS	259733	1	TMI-06-020P-E2	NS	182529	1-1/2	TMI-06-020P-E4	NS	182537	1
20	480	1-3	52-1/16	38	TMI-06-020P-E1	NS	259741	1	TMI-06-020P-E2	NS	182545	1-1/2	TMI-06-020P-E4	NS	182553	1
25	240	2-3	65-1/16	42	TMI-06-025P-E1	NS	182561	1	TMI-06-025P-E2	NS	182570	1-1/2	TMI-06-025P-E4	NS	182588	1
25	480	1-3	65-1/16	42	TMI-06-025P-E1	NS	182596	1	TMI-06-025P-E2	NS	182609	1-1/2	TMI-06-025P-E4	NS	182617	1
30	240	2-3	78-1/16	46	TMI-06-030P-E1	NS	182625	1	TMI-06-030P-E2	NS	182633	1-1/2	TMI-06-030P-E4	NS	182641	1
30	480	1-3	78-1/16	46	TMI-06-030P-E1	NS	182650	1	TMI-06-030P-E2	NS	182668	1-1/2	TMI-06-030P-E4	NS	182676	1
6 Inch - 150 Lb. Steel Flange — 12 INCOLOY® Sheath Elements — 23 W/in²																
18	240	1-3	25-1/8	67	TMI-12-018P-E1	NS	197069	1	TMI-12-018P-E2	NS	186360	1-1/2	TMI-12-018P-E4	NS	186351	1-1/2
18	480	1-3	25-1/8	67	TMI-12-018P-E1	NS	197085	1	TMI-12-018P-E2	NS	186343	1-1/2	TMI-12-018P-E4	NS	186378	1-1/2
24	240	2-3	33	76	TMI-12-024P-E1	NS	197093	1	TMI-12-024P-E2	NS	186386	1-1/2	TMI-12-024P-E4	NS	186394	1-1/2
24	480	1-3	33	76	TMI-12-024P-E1	NS	197114	1	TMI-12-024P-E2	NS	186407	1-1/2	TMI-12-024P-E4	NS	186415	1-1/2
30	240	2-3	40-1/2	84	TMI-12-030P-E1	NS	197122	1	TMI-12-030P-E2	NS	186423	1-1/2	TMI-12-030P-E4	NS	186431	1-1/2
30	480	1-3	40-1/2	84	TMI-12-030P-E1	NS	197149	1	TMI-12-030P-E2	NS	186440	1-1/2	TMI-12-030P-E4	NS	186458	1-1/2
36	240	2-3	48	111	TMI-12-036P-E1	NS	291952	1	TMI-12-036P-E2	NS	186466	1-1/2	TMI-12-036P-E4	NS	186474	1-1/2
36	480	1-3	48	111	TMI-12-036P-E1	NS	197173	1	TMI-12-036P-E2	NS	186482	1-1/2	TMI-12-036P-E4	NS	186490	1-1/2
8 Inch - 150 Lb. Steel Flange — 18 INCOLOY® Sheath Elements — 23 W/in²																
30	240	3-3	32-7/8	112	TMI-18-030P-E1	NS	197270	1	TMI-18-030P-E2	NS	030701	3/4	TMI-18-030P-E4	NS	030760	1-1/2
30	480	3-3	32-7/8	112	TMI-18-030P-E1	NS	197296	1	TMI-18-030P-E2	NS	030710	3/4	TMI-18-030P-E4	NS	030779	1-1/2
40	240	3-3	43-11/16	125	TMI-18-040P-E1	NS	197309	1	TMI-18-040P-E2	NS	030728	3/4	TMI-18-040P-E4	NS	030787	1-1/2
40	480	3-3	43-11/16	125	TMI-18-040P-E1	NS	197325	1	TMI-18-040P-E2	NS	030736	3/4	TMI-18-040P-E4	NS	030795	1-1/2
50	240	3-3	51-7/8	130	TMI-18-050P-E1	NS	197333	1	TMI-18-050P-E2	NS	030744	1	TMI-18-050P-E4	NS	030808	1-1/2
50	480	3-3	51-7/8	130	TMI-18-050P-E1	NS	197350	1	TMI-18-050P-E2	NS	030752	3/4	TMI-18-050P-E4	NS	030816	1-1/2
10 Inch - 150 Lb. Steel Flange — 27 INCOLOY® Sheath Elements — 20 W/in²																
45	240	3-3	32-13/16	135	TMI-27-045P-E1	NS	197544	1-1/2	TMI-27-045P-E2	NS	096161	1-1/4	TMI-27-045P-E4	NS	096225	1-1/4
45	480	3-3	32-13/16	135	TMI-27-045P-E1	NS	197552	1-1/2	TMI-27-045P-E2	NS	096170	1-1/4	TMI-27-045P-E4	NS	096233	1-1/4
60	240	3-3	43-5/8	165	TMI-27-060P-E1	NS	197560	1-1/2	TMI-27-060P-E2	NS	096188	1-1/4	TMI-27-060P-E4	NS	096241	1-1/4
60	480	3-3	43-5/8	165	TMI-27-060P-E1	NS	197579	1-1/2	TMI-27-060P-E2	NS	096196	1-1/4	TMI-27-060P-E4	NS	096250	1-1/4
75	240	3-3	51-13/16	200	TMI-27-075P-E1	NS	197587	1-1/2	TMI-27-075P-E2	NS	096209	1-1/4	TMI-27-075P-E4	NS	096268	1-1/4
75	480	3-3	51-13/16	200	TMI-27-075P-E1	NS	197595	1-1/2	TMI-27-075P-E2	NS	096217	1-1/4	TMI-27-075P-E4	NS	096276	1-1/4
12 Inch - 150 Lb. Steel Flange — 36 INCOLOY® Sheath Elements — 20 W/in²																
60	240	3-3	32-3/4	175	TMI-36-060P-E1	NS	197608	1-1/2	TMI-36-060P-E2	NS	096284	1-1/4	TMI-36-060P-E4	NS	096348	1-1/2
60	480	3-3	32-3/4	175	TMI-36-060P-E1	NS	197616	1-1/2	TMI-36-060P-E2	NS	096292	1-1/4	TMI-36-060P-E4	NS	096356	1-1/2
80	240	3-3	43-9/16	210	TMI-36-080P-E1	NS	197624	1-1/2	TMI-36-080P-E2	NS	096305	1-1/4	TMI-36-080P-E4	NS	096364	1-1/2
80	480	3-3	43-9/16	210	TMI-36-080P-E1	NS	197632	1-1/2	TMI-36-080P-E2	NS	096313	1-1/4	TMI-36-080P-E4	NS	096372	1-1/2
100	240	3-3	51-3/4	250	TMI-36-100P-E1	NS	197640	1-1/2	TMI-36-100P-E2	NS	096321	1-1/4	TMI-36-100P-E4 ⁵	NS	096380	1-1/2
100	480	3-3	51-3/4	250	TMI-36-100P-E1	NS	197659	1-1/2	TMI-36-100P-E2	NS	096330	1-1/4	TMI-36-100P-E4	NS	096399	1-1/2
14 Inch - 150 Lb. Steel Flange — 45 INCOLOY® Sheath Elements — 20 W/in²																
75	240	3-3	32-5/8	195	TMI-45-075P-E1	NS	197667	2	TMI-45-075P-E2	NS	096401	1-1/4	TMI-45-075P-E4	NS	096460	1-1/2
75	480	3-3	32-5/8	195	TMI-45-075P-E1	NS	197675	2	TMI-45-075P-E2	NS	096410	1-1/4	TMI-45-075P-E4	NS	096479	1-1/2
100	240	3-3	43-7/16	225	TMI-45-100P-E1	NS	197683	2	TMI-45-100P-E2	NS	096428	1-1/4	TMI-45-100P-E4	NS	096487	1-1/2
100	480	3-3	43-7/16	225	TMI-45-100P-E1	NS	197691	2	TMI-45-100P-E2	NS	096436	1-1/4	TMI-45-100P-E4	NS	096495	1-1/2
125	240	3-3	51-5/8	270	TMI-45-125P-E1	NS	197704	2	TMI-45-125P-E2	NS	096444	1-1/2	TMI-45-125P-E4	NS	096508	1-1/2
125	480	3-3	51-5/8	270	TMI-45-125P-E1	NS	197712	2	TMI-45-125P-E2	NS	096452	1-1/4	TMI-45-125P-E4	NS	096532	1-1/2

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.

***Weights:**

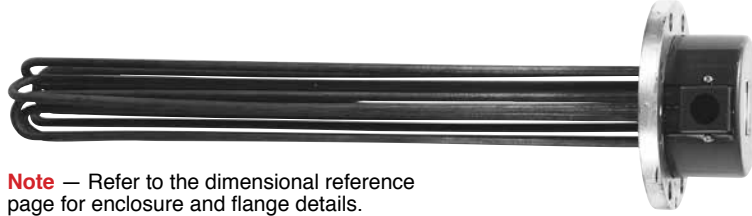
- A. For Wt. of 3" flange with E2 enclosure add 3 lbs. to Wt. of E1 enclosure heater.
- B. For Wt. of 5 and 6" flange with E4 enclosure add 7 lbs. to Wt. of E1 enclosure heater.
- C. For Wt. of 8, 10, 12 and 14" flange with E4 enclosure add 10 lbs. to Wt. of E1 enclosure heater.

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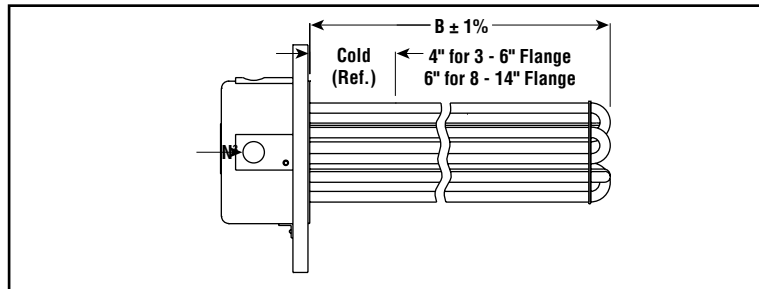
Severely Corrosive Solution Applications

- 3 - 6" 150 Lb. Stainless Steel Flange
- INCOLOY® Sheath Elements
- INCOLOY® Thermowell
- 15 W/in²
- 2 - 24 kW
- 240 and 480 Volt, 1 & 3 Phase
- General Purpose, Moisture Resistant or Moisture Resistant/Explosion Resistant Terminal Enclosures



Note — Refer to the dimensional reference page for enclosure and flange details.

Dimensions (Inches)



Specifications and Ordering Information

					E1 General Purpose				E2 Moisture Resistant/Explosion Resistant							
kW	Volts	CKT & Phase	DIM B (In.)	Wt (lbs)	Model	Stock	PCN	DIM. N (In.)	Model	Stock	PCN	DIM. N (In.)				
3 Inch - 150 Lb. Stainless Steel Flange — 3 INCOLOY® Sheath Elements — 15 W/in²																
2	240	1-3	18-1/16	16	TMIS-03-002P-E1	NS	231802	1	TMIS-03-002P-E2	NS	030824	3/4				
2	480	1-3	18-1/16	16	TMIS-03-002P-E1	NS	231810	1	TMIS-03-002P-E2	NS	030832	3/4				
4	240	1-3	33-1/16	18	TMIS-03-004P-E1	NS	231829	1	TMIS-03-004P-E2	NS	030840	3/4				
4	480	1-3	33-1/16	18	TMIS-03-004P-E1	NS	231837	1	TMIS-03-004P-E2	NS	030859	3/4				
6	240	1-3	48-1/16	21	TMIS-03-006P-E1	NS	231845	1	TMIS-03-006P-E2	NS	030867	3/4				
6	480	1-3	48-1/16	21	TMIS-03-006P-E1	NS	231853	1	TMIS-03-006P-E2	NS	030875	3/4				
					E1 General Purpose				E2 Moisture Resistant/Explosion Resistant				E4 Moisture Resistant			
kW	Volts	CKT & Phase	DIM B (In.)	Wt (lbs)	Model	Stock	PCN	DIM. N (In.)	Model	Stock	PCN	DIM. N (In.)	Model	Stock	PCN	DIM. N (In.)
5 Inch - 150 Lb. Stainless Steel Flange — 6 INCOLOY® Sheath Elements — 15 W/in²																
4	240	1-3	18-1/16	27	TMIS-06-004P-E1	NS	231861	1	TMIS-06-004P-E2	NS	030883	1-1/2	TMIS-06-004P-E4	NS	030947	1
4	480	1-3	18-1/16	27	TMIS-06-004P-E1	NS	231870	1	TMIS-06-004P-E2	NS	030891	1-1/2	TMIS-06-004P-E4	NS	030955	1
8	240	1-3	33-1/16	33	TMIS-06-008P-E1	NS	231888	1	TMIS-06-008P-E2	NS	030904	1-1/2	TMIS-06-008P-E4	NS	030963	1
8	480	1-3	33-1/16	33	TMIS-06-008P-E1	NS	231896	1	TMIS-06-008P-E2	NS	030912	1-1/2	TMIS-06-008P-E4	NS	030971	1
12	240	1-3	48-1/16	37	TMIS-06-012P-E1	NS	231909	1	TMIS-06-012P-E2	NS	030920	1-1/2	TMIS-06-012P-E4	NS	030980	1
12	480	1-3	48-1/16	37	TMIS-06-012P-E1	NS	231917	1	TMIS-06-012P-E2	NS	030939	1-1/2	TMIS-06-012P-E4	NS	030998	1
6 Inch - 150 Lb. Stainless Steel Flange — 12 INCOLOY® Sheath Elements — 15 W/in²																
8	240	1-3	18	60	TMIS-12-008P-E1	NS	231925	1	TMIS-12-008P-E2	NS	031000	1-1/2	TMIS-12-008P-E4	NS	031106	1-1/2
8	480	1-3	18	60	TMIS-12-008P-E1	NS	231933	1	TMIS-12-008P-E2	NS	031018	1-1/2	TMIS-12-008P-E4	NS	031114	1-1/2
12	240	1-3	25-1/8	67	TMIS-12-012P-E1	NS	231941	1	TMIS-12-012P-E2	NS	031026	1-1/2	TMIS-12-012P-E4	NS	031122	1-1/2
12	480	1-3	25-1/8	67	TMIS-12-012P-E1	NS	231950	1	TMIS-12-012P-E2	NS	031034	1-1/2	TMIS-12-012P-E4	NS	031130	1-1/2
16	240	1-3	33	76	TMIS-12-016P-E1	NS	231968	1	TMIS-12-016P-E2	NS	031042	1-1/2	TMIS-12-016P-E4	NS	031149	1-1/2
16	480	1-3	33	76	TMIS-12-016P-E1	NS	231976	1	TMIS-12-016P-E2	NS	031050	1-1/2	TMIS-12-016P-E4	NS	031157	1-1/2
20	240	1-3	40-1/2	84	TMIS-12-020P-E1	NS	231984	1	TMIS-12-020P-E2	NS	031069	1-1/2	TMIS-12-020P-E4	NS	031165	1-1/2
20	480	1-3	40-1/2	84	TMIS-12-020P-E1	NS	231992	1	TMIS-12-020P-E2	NS	031077	1-1/2	TMIS-12-020P-E4	NS	031173	1-1/2
24	240	1-3	48	111	TMIS-12-024P-E1	NS	232004	1	TMIS-12-024P-E2	NS	031085	1-1/2	TMIS-12-024P-E4	NS	031181	1-1/2
24	480	1-3	48	111	TMIS-12-024P-E1	NS	234018	1	TMIS-12-024P-E2	NS	031093	1-1/2	TMIS-12-024P-E4	NS	031190	1-1/2

Stock Status: S = stock NS = non-stock

To Order—Specify model, PCN, kW, volts, phase and quantity.

*Weights: A. For Wt. of 3" flange with E2 enclosure add 3 lbs. to Wt. of E1 enclosure heater.

B. For Wt. of 5 and 6" flange with E4 enclosure add 7 lbs. to Wt. of E1 enclosure heater.

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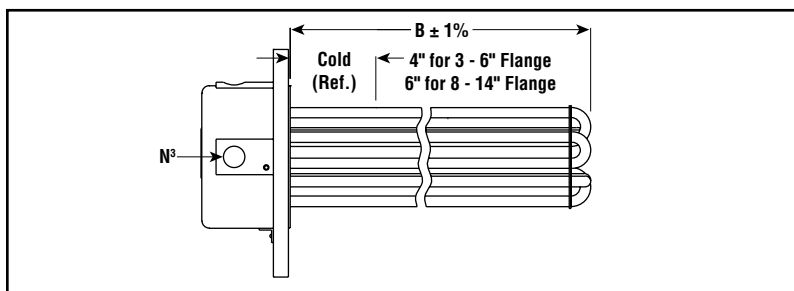
Demineralized Water Applications *(cont'd.)*



FLANGED

- 3 - 5" 150 Lb. Stainless Steel Flange
- INCOLOY® Sheath Elements
- INCOLOY® Thermowell
- 45 W/in²
- 6 - 50 kW
- 240 and 480 Volt, Three Phase
- General Purpose, Moisture Resistant or Moisture Resistant/Explosion Resistant Terminal Enclosures

Dimensions (Inches)

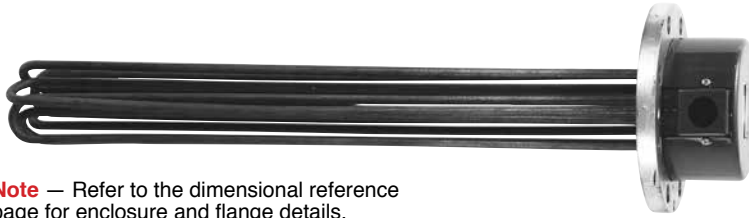


Specifications and Ordering Information

					E1 General Purpose				E2 Moisture Resistant/Explosion Resistant							
kW	Volts	CKT & Phase	DIM B (In.)	Wt* (lbs)	Model	Stock	PCN	DIM. N (In.)	Model	Stock	PCN	DIM. N (In.)				
3 Inch - 150 Lb. Stainless Steel Flange — INCOLOY® Sheath Elements — 45 W/in²																
6	240	1-3	18-1/16	16	TMIS-03-006P-E1	NS	231669	1	TMIS-03-006P-E2	NS	031202	3/4				
6	480	1-3	18-1/16	16	TMIS-03-006P-E1	NS	231677	1	TMIS-03-006P-E2	NS	031210	3/4				
12	240	1-3	33-1/16	18	TMIS-03-012P-E1	NS	231685	1	TMIS-03-012P-E2	NS	031229	3/4				
12	480	1-3	33-1/16	18	TMIS-03-012P-E1	NS	231693	1	TMIS-03-012P-E2	NS	031237	3/4				
18	240	1-3	48-1/16	21	TMIS-03-018P-E1	NS	231706	1	TMIS-03-018P-E2	NS	031245	3/4				
18	480	1-3	48-1/16	21	TMIS-03-018P-E1	NS	231714	1	TMIS-03-018P-E2	NS	031253	3/4				
					E1 General Purpose				E2 Moisture Resistant/Explosion Resistant				E4 Moisture Resistant			
kW	Volts	CKT & Phase	DIM B (In.)	Wt* (lbs)	Model	Stock	PCN	DIM. N (In.)	Model	Stock	PCN	DIM. N (In.)	Model	Stock	PCN	DIM. N (In.)
5 Inch - 150 Lb. Stainless Steel Flange — INCOLOY® Sheath Elements — 45 W/in²																
24	240	2-3	33-1/16	37	TMIS-06-024P-E1	NS	231722	1	TMIS-06-024P-E2	NS	031261	1-1/2	TMIS-06-024P-E4	NS	031341	1
24	480	1-3	33-1/16	37	TMIS-06-024P-E1	NS	231730	1	TMIS-06-024P-E2	NS	031270	1-1/2	TMIS-06-024P-E4	NS	031350	1
30	240	2-3	40-9/16	40	TMIS-06-030P-E1	NS	231749	1	TMIS-06-030P-E2	NS	031288	1-1/2	TMIS-06-030P-E4	NS	031368	1
30	480	1-3	40-9/16	40	TMIS-06-030P-E1	NS	231757	1	TMIS-06-030P-E2	NS	031296	1-1/2	TMIS-06-030P-E4	NS	031376	1
40	240	2-3	52-1/16	51	TMIS-06-040P-E1	NS	231765	1	TMIS-06-040P-E2	NS	031309	1-1/2	TMIS-06-040P-E4	NS	031384	1
40	480	2-3	52-1/16	51	TMIS-06-040P-E1	NS	231773	1	TMIS-06-040P-E2	NS	031317	1-1/2	TMIS-06-040P-E4	NS	031392	1
50	240	2-3	65-1/16	64	TMIS-06-050P-E1	NS	231781	1	TMIS-06-050P-E2	NS	031325	1-1/2	TMIS-06-050P-E4	NS	031405	1
50	480	2-3	65-1/16	64	TMIS-06-050P-E1	NS	231790	1	TMIS-06-050P-E2	NS	031333	1-1/2	TMIS-06-050P-E4	NS	031413	1
Stock Status: S = stock NS = non-stock To Order— Specify model, PCN, kW, volts, phase and quantity.																
4. Weights: A. For Wt. of 3" flange with E2 enclosure add 3 lbs. to Wt. of E1 enclosure heater. B. For Wt. of 5" flange with E4 enclosure add 7 lbs. to Wt. of E1 enclosure heater.																

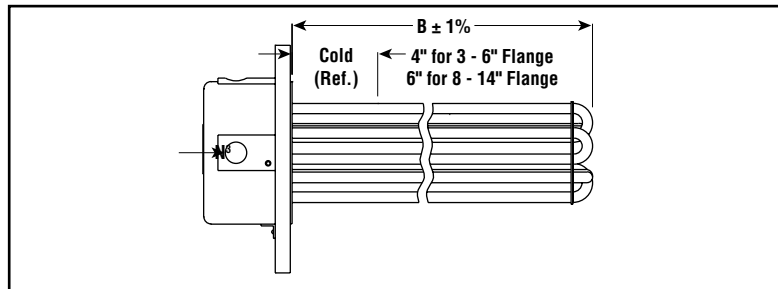
TMO Light Weight Oil Applications

- 3 - 14" 150 Lb. Carbon Steel Flange
- Steel Sheath Elements
- Steel Thermowell
- 20 - 23 W/In²
- 3 - 125 kW
- 240 and 480 Volt, 1 & 3 Phase
- General Purpose, Moisture Resistant or Moisture Resistant/Explosion Resistant Terminal Enclosures



Note — Refer to the dimensional reference page for enclosure and flange details.

Dimensions (Inches)



Specifications and Ordering Information

					E1 General Purpose				E2 Moisture Resistant/Explosion Resistant							
kW	Volts	CKT & Phase	DIM B (In.)	Wt* (lbs)	Model	Stock	PCN	DIM. N (In.)	Model	Stock	PCN	DIM. N (In.)				
3 Inch - 150 Lb. Steel Flange — 3 Steel Sheath Elements — 23 W/In²																
3	240	1-1	18-1/16	16	TMO-03-003P-E1	NS	196269	1	TMO-03-003P-E2	NS	180291	3/4				
3	240	1-3	18-1/16	16	TMO-03-003P-E1	NS	196277	1	TMO-03-003P-E2	NS	180304	3/4				
3	480	1-1	18-1/16	16	TMO-03-003P-E1	NS	196285	1	TMO-03-003P-E2	NS	180312	3/4				
3	480	1-3	18-1/16	16	TMO-03-003P-E1	NS	196293	1	TMO-03-003P-E2	NS	180320	3/4				
4.5	240	1-1	25-3/16	17	TMO-03-004P5-E1	NS	196306	1	TMO-03-004P5-E2	NS	180339	3/4				
4.5	240	1-3	25-3/16	17	TMO-03-004P5-E1	NS	196314	1	TMO-03-004P5-E2	NS	180347	3/4				
4.5	480	1-1	25-3/16	17	TMO-03-004P5-E1	NS	196322	1	TMO-03-004P5-E2	NS	180355	3/4				
4.5	480	1-3	25-3/16	17	TMO-03-004P5-E1	S	196330	1	TMO-03-004P5-E2	NS	180363	3/4				
6	240	1-1	33-1/16	18	TMO-03-006P-E1	NS	196349	1	TMO-03-006P-E2	NS	180371	3/4				
6	240	1-3	33-1/16	18	TMO-03-006P-E1	S	196357	1	TMO-03-006P-E2	NS	180380	3/4				
6	480	1-1	33-1/16	18	TMO-03-006P-E1	NS	196365	1	TMO-03-006P-E2	NS	180398	3/4				
6	480	1-3	33-1/16	18	TMO-03-006P-E1	S	196373	1	TMO-03-006P-E2	NS	180400	3/4				
7.5	480	1-1	40-9/16	20	TMO-03-007P5-E1	NS	196402	1	TMO-03-007P5-E2	NS	180435	3/4				
7.5	480	1-3	40-9/16	20	TMO-03-007P5-E1	NS	196410	1	TMO-03-007P5-E2	NS	180443	3/4				
9	240	1-1	48-1/16	21	TMO-03-009P-E1	NS	196429	1	TMO-03-009P-E2	NS	180451	3/4				
9	240	1-3	48-1/16	21	TMO-03-009P-E1	NS	196437	1	TMO-03-009P-E2	NS	180460	3/4				
9	480	1-1	48-1/16	21	TMO-03-009P-E1	NS	196445	1	TMO-03-009P-E2	NS	180478	3/4				
9	480	1-3	48-1/16	21	TMO-03-009P-E1	S	196453	1	TMO-03-009P-E2	S	180486	3/4				
					E1 General Purpose				E2 Moisture Resistant/Explosion Resistant				E4 Moisture Resistant			
kW	Volts	CKT & Phase	DIM B (In.)	Wt* (lbs)	Model	Stock	PCN	DIM. N (In.)	Model	Stock	PCN	DIM. N (In.)	Model	Stock	PCN	DIM. N ³ (In.)
5 Inch - 150 Lb. Steel Flange — 6 Steel Sheath Elements — 23 W/In²																
6	240	1-3	18-1/16	27	TMO-06-006P-E1	NS	196710	1	TMO-06-006P-E2	NS	177607	1-1/2	TMO-06-006P-E4	NS	177631	1
6	480	1-3	18-1/16	27	TMO-06-006P-E1	NS	196736	1	TMO-06-006P-E2	NS	177623	1-1/2	TMO-06-006P-E4	NS	177615	1
7.5	240	1-3	19-3/16	30	TMO-06-007P5-E1	NS	196752	1	TMO-06-007P5-E2	NS	177640	1-1/2	TMO-06-007P5-E4	NS	177658	1
7.5	480	1-3	19-3/16	30	TMO-06-007P5-E1	NS	196779	1	TMO-06-007P5-E2	NS	177666	1-1/2	TMO-06-007P5-E4	NS	177674	1
9	240	1-3	25-3/16	32	TMO-06-009P-E1	NS	196795	1	TMO-06-009P-E2	NS	181614	1-1/2	TMO-06-009P-E4	NS	181622	1
9	480	1-3	25-3/16	32	TMO-06-009P-E1	NS	196816	1	TMO-06-009P-E2	NS	181630	1-1/2	TMO-06-009P-E4	NS	181649	1
12	240	1-3	33-1/16	33	TMO-06-012P-E1	S	196832	1	TMO-06-012P-E2	NS	181657	1-1/2	TMO-06-012P-E4	NS	181665	1
12	480	1-3	33-1/16	33	TMO-06-012P-E1	S	196859	1	TMO-06-012P-E2	NS	181673	1-1/2	TMO-06-012P-E4	NS	181681	1
15	240	1-3	40-9/16	35	TMO-06-015P-E1	S	196875	1	TMO-06-015P-E2	NS	181690	1-1/2	TMO-06-015P-E4	NS	181702	1
15	480	1-3	40-9/16	35	TMO-06-015P-E1	S	196891	1	TMO-06-015P-E2	NS	181710	1-1/2	TMO-06-015P-E4	NS	181729	1
20	240	2-3	52-1/16	38	TMO-06-020P-E1	S	196912	1	TMO-06-020P-E2	NS	181737	1-1/2	TMO-06-020P-E4	NS	181745	1
20	480	1-3	52-1/16	38	TMO-06-020P-E1	S	196939	1	TMO-06-020P-E2	NS	181753	1-1/2	TMO-06-020P-E4	NS	181761	1

TMO

Light Weight Oil Applications *(cont'd.)*

Specifications and Ordering Information

					E1 General Purpose				E2 Moisture Resistant/Explosion Resistant				E4 Moisture Resistant			
kW	Volts	CKT & Phase	DIM B (In.)	Wt.* (Lbs.)	Model	Stock	PCN	DIM N (In.)	Model	Stock	PCN	DIM N (In.)	Model	Stock	PCN	DIM N (In.)
5 Inch - 150 Lb. Steel Flange — 6 Steel Sheath Elements — 23 W/in²																
25	240	2-3	65-1/16	42	TMO-06-025P-E1	NS	181770	1	TMO-06-025P-E2	NS	181788	1-1/2	TMO-06-025P-E4	NS	181796	1
25	480	1-3	65-1/16	42	TMO-06-025P-E1	NS	181809	1	TMO-06-025P-E2	NS	181817	1-1/2	TMO-06-025P-E4	NS	181825	1
30	240	2-3	78-1/16	46	TMO-06-030P-E1	NS	181833	1	TMO-06-030P-E2	NS	181841	1-1/2	TMO-06-030P-E4	NS	181850	1
30	480	1-3	78-1/16	46	TMO-06-030P-E1	NS	181868	1	TMO-06-030P-E2	NS	181876	1-1/2	TMO-06-030P-E4	NS	181884	1
6 Inch - 150 Lb. Steel Flange — 12 Steel Sheath Elements — 23 W/in²																
18	240	1-3	25-1/8	67	TMO-12-018P-E1	NS	196947	1	TMO-12-018P-E2	NS	290650	1-1/2	TMO-12-018P-E4	NS	290669	1-1/2
18	480	1-3	25-1/8	67	TMO-12-018P-E1	NS	196963	1	TMO-12-018P-E2	NS	290677	1-1/2	TMO-12-018P-E4	NS	290685	1-1/2
24	240	2-3	33	76	TMO-12-024P-E1	NS	196998	2	TMO-12-024P-E2	NS	290693	1-1/2	TMO-12-024P-E4	NS	290706	1-1/2
24	480	1-3	33	76	TMO-12-024P-E1	NS	196971	1	TMO-12-024P-E2	NS	290714	1-1/2	TMO-12-024P-E4	NS	290722	1-1/2
30	240	2-3	40-1/2	84	TMO-12-030P-E1	NS	197000	2	TMO-12-030P-E2	NS	290730	1-1/2	TMO-12-030P-E4	NS	290749	1-1/2
30	480	1-3	40-1/2	84	TMO-12-030P-E1	NS	197018	1	TMO-12-030P-E2	NS	290757	1-1/2	TMO-12-030P-E4	NS	290765	1-1/2
36	240	2-3	48	111	TMO-12-036P-E1	NS	197034	2	TMO-12-036P-E2	NS	290773	1-1/2	TMO-12-036P-E4	NS	290781	1-1/2
36	480	1-3	48	111	TMO-12-036P-E1	NS	197050	1	TMO-12-036P-E2	NS	290790	1-1/2	TMO-12-036P-E4	NS	290802	1-1/2
8 Inch - 150 Lb. Steel Flange — 18 Steel Sheath Elements — 23 W/in²																
30	240	3-3	32-7/8	112	TMO-18-030P-E1	NS	197181	1	TMO-18-030P-E2	NS	291178	3/4	TMO-18-030P-E4	NS	291186	1-1/2
30	480	3-3	32-7/8	112	TMO-18-030P-E1	NS	197202	1	TMO-18-030P-E2	NS	291194	3/4	TMO-18-030P-E4	NS	291207	1-1/2
40	240	3-3	43-11/16	125	TMO-18-040P-E1	NS	197210	1	TMO-18-040P-E2	NS	291215	3/4	TMO-18-040P-E4	NS	291223	1-1/2
40	480	3-3	43-11/16	125	TMO-18-040P-E1	NS	197237	1	TMO-18-040P-E2	NS	291231	3/4	TMO-18-040P-E4	NS	291240	1-1/2
50	240	3-3	51-7/8	130	TMO-18-050P-E1	NS	197245	1	TMO-18-050P-E2	NS	291258	1	TMO-18-050P-E4	NS	291266	1-1/2
50	480	3-3	51-7/8	130	TMO-18-050P-E1	NS	197261	1	TMO-18-050P-E2	NS	291274	3/4	TMO-18-050P-E4	NS	291282	1-1/2
60	240	3-3	61-3/8	136	TMO-18-060P-E1	NS	291290	1	TMO-18-060P-E2	NS	291303	1	TMO-18-060P-E4	NS	291311	1-1/2
60	480	3-3	61-3/8	136	TMO-18-060P-E1	NS	291320	1	TMO-18-060P-E2	NS	291338	3/4	TMO-18-060P-E4	NS	291346	1-1/2
70	240	3-3	69-7/8	142	TMO-18-070P-E1	NS	291354	1-1/4	TMO-18-070P-E2	NS	291362	1-1/4	TMO-18-070P-E4	NS	291370	1-1/2
70	480	3-3	69-7/8	142	TMO-18-070P-E1	NS	291389	1	TMO-18-070P-E2	NS	291397	3/4	TMO-18-070P-E4	NS	291400	1-1/2
80	240	3-3	78-7/8	147	TMO-18-080P-E1	NS	291418	1-1/4	TMO-18-080P-E2	NS	291426	1-1/4	TMO-18-080P-E4	NS	291434	1-1/2
80	480	3-3	78-7/8	147	TMO-18-080P-E1	NS	291442	1	TMO-18-080P-E2	NS	291450	3/4	TMO-18-080P-E4	NS	291469	1-1/2
10 Inch - 150 Lb. Steel Flange — 27 Steel Sheath Elements — 20 W/in²																
45	240	3-3	32-13/16	135	TMO-27-045P-E1	NS	197368	1-1/4	TMO-27-045P-E2	NS	291477	1-1/4	TMO-27-045P-E4	NS	291485	1-1/4
45	480	3-3	32-13/16	135	TMO-27-045P-E1	NS	197376	1-1/4	TMO-27-045P-E2	NS	291493	1-1/4	TMO-27-045P-E4	NS	291506	1-1/4
60	240	3-3	43-5/8	165	TMO-27-060P-E1	NS	197384	1-1/4	TMO-27-060P-E2	NS	291514	1-1/4	TMO-27-060P-E4	NS	291522	1-1/4
60	480	3-3	43-5/8	165	TMO-27-060P-E1	NS	197392	1-1/4	TMO-27-060P-E2	NS	291530	1-1/4	TMO-27-060P-E4	NS	291549	1-1/4
75	240	3-3	51-13/16	200	TMO-27-075P-E1	NS	197405	1-1/4	TMO-27-075P-E2	NS	291557	1-1/4	TMO-27-075P-E4	NS	291565	1-1/4
75	480	3-3	51-13/16	200	TMO-27-075P-E1	NS	197413	1-1/4	TMO-27-075P-E2	NS	291573	1-1/4	TMO-27-075P-E4	NS	291581	1-1/4
12 Inch - 150 Lb. Steel Flange — 36 Steel Sheath Elements — 20 W/in²																
60	240	3-3	32-3/4	175	TMO-36-060P-E1	NS	197421	1-1/2	TMO-36-060P-E2	NS	291590	1-1/4	TMO-36-060P-E4	NS	291602	1-1/2
60	480	3-3	32-3/4	175	TMO-36-060P-E1	NS	197430	1-1/2	TMO-36-060P-E2	NS	291610	1-1/4	TMO-36-060P-E4	NS	291629	1-1/2
80	240	3-3	43-9/16	210	TMO-36-080P-E1	NS	197448	1-1/2	TMO-36-080P-E2	NS	291637	1-1/4	TMO-36-080P-E4	NS	291645	1-1/2
80	480	3-3	43-9/16	210	TMO-36-080P-E1	NS	197456	1-1/2	TMO-36-080P-E2	NS	291653	1-1/4	TMO-36-080P-E4	NS	291661	1-1/2
100	240	3-3	51-3/4	250	TMO-36-100P-E1	NS	197464	1-1/2	TMO-36-100P-E2	NS	291670	1-1/4	TMO-36-100P-E4	NS	291688	1-1/2
100	480	3-3	51-3/4	250	TMO-36-100P-E1	NS	197472	1-1/2	TMO-36-100P-E2	NS	291696	1-1/4	TMO-36-100P-E4	NS	291709	1-1/2
14 Inch - 150 Lb. Steel Flange — 45 Steel Sheath Elements — 20 W/in²																
75	240	3-3	32-5/8	195	TMO-45-075P-E1	NS	197480	2	TMO-45-075P-E2	NS	093930	1-1/4	TMO-45-075P-E4	NS	093999	1-1/2
75	480	3-3	32-5/8	195	TMO-45-075P-E1	NS	197499	2	TMO-45-075P-E2	NS	093948	1-1/4	TMO-45-075P-E4	NS	094000	1-1/2
100	240	3-3	43-7/16	225	TMO-45-100P-E1	NS	197501	2	TMO-45-100P-E2	NS	093956	1-1/4	TMO-45-100P-E4	NS	096129	1-1/2
100	480	3-3	43-7/16	225	TMO-45-100P-E1	NS	197510	2	TMO-45-100P-E2	NS	093964	1-1/4	TMO-45-100P-E4	NS	096137	1-1/2
125	240	3-3	51-5/8	270	TMO-45-125P-E1	NS	197528	2	TMO-45-125P-E2	NS	093972	1-1/4	TMO-45-125P-E4	NS	096145	1-1/2
125	480	3-3	51-5/8	270	TMO-45-125P-E1	NS	197536	2	TMO-45-125P-E2	NS	093980	1-1/4	TMO-45-125P-E4	NS	096153	1-1/2

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.

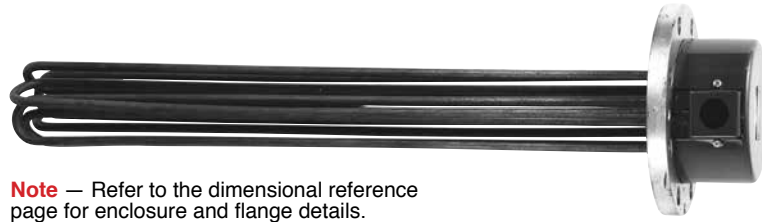
*Weights:

- A. For Wt. of 3" flange with E2 enclosure add 3 lbs. to Wt. of E1 enclosure heater.
- B. For Wt. of 5 and 6" flange with E4 enclosure add 7 lbs. to Wt. of E1 enclosure heater.
- C. For Wt. of 8, 10, 12 and 14" flange with E4 enclosure add 10 lbs. to Wt. of E1 enclosure heater.

FLANGED

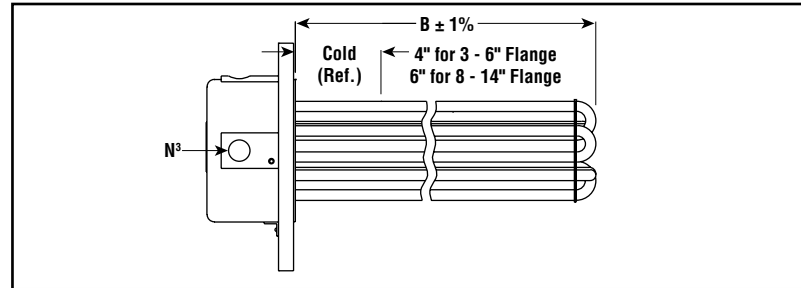
TMO Medium Weight Oil Applications

- 3 - 8" 150 Lb. Carbon Steel Flange
- Steel Sheath Elements
- Steel Thermowell
- 15 W/in²
- 3 - 45 kW
- 240 and 480 Volt, 1 & 3 Phase
- General Purpose, Moisture Resistant or Moisture Resistant/Explosion Resistant Terminal Enclosures



Note — Refer to the dimensional reference page for enclosure and flange details.

Dimensions (Inches)



Specifications and Ordering Information

					E1 General Purpose				E2 Moisture Resistant/Explosion Resistant							
kW	Volts	CKT & Phase	DIM B (In.)	Wt* (lbs)	Model	Stock	PCN	DIM. N (In.)	Model	Stock	PCN	DIM. N (In.)				
3 Inch - 150 Lb. Steel Flange — 3 Steel Sheath Elements — 15 W/in²																
3	240	1-1	25-3/16	17	TMO-03-003P-E1	NS	180558	1	TMO-03-003P-E2	NS	180566	3/4				
3	240	1-3	25-3/16	17	TMO-03-003P-E1	NS	180574	1	TMO-03-003P-E2	NS	180582	3/4				
3	480	1-1	25-3/16	17	TMO-03-003P-E1	NS	180590	1	TMO-03-003P-E2	NS	180603	3/4				
3	480	1-3	25-3/16	17	TMO-03-003P-E1	NS	180611	1	TMO-03-003P-E2	NS	180620	3/4				
4	240	1-1	33-1/16	18	TMO-03-004P-E1	NS	180638	1	TMO-03-004P-E2	NS	180646	3/4				
4	240	1-3	33-1/16	18	TMO-03-004P-E1	NS	180654	1	TMO-03-004P-E2	NS	180662	3/4				
4	480	1-1	33-1/16	18	TMO-03-004P-E1	NS	180670	1	TMO-03-004P-E2	NS	180689	3/4				
4	480	1-3	33-1/16	18	TMO-03-004P-E1	NS	180697	1	TMO-03-004P-E2	NS	180700	3/4				
6	240	1-1	48-1/16	21	TMO-03-006P-E1	NS	180718	1	TMO-03-006P-E2	NS	180726	3/4				
6	240	1-3	48-1/16	21	TMO-03-006P-E1	NS	180734	1	TMO-03-006P-E2	NS	180742	3/4				
6	480	1-1	48-1/16	21	TMO-03-006P-E1	NS	180750	1	TMO-03-006P-E2	NS	180769	3/4				
6	480	1-3	48-1/16	21	TMO-03-006P-E1	NS	180777	1	TMO-03-006P-E2	NS	180785	3/4				
					E1 General Purpose				E2 Moisture Resistant/Explosion Resistant				E4 Moisture Resistant			
kW	Volts	CKT & Phase	DIM B (In.)	Wt* (lbs)	Model	Stock	PCN	DIM. N (In.)	Model	Stock	PCN	DIM. N (In.)	Model	Stock	PCN	DIM. N (In.)
5 Inch - 150 Lb. Steel Flange — 6 Steel Sheath Elements — 15 W/in²																
8	240	1-3	33-1/16	33	TMO-06-008P-E1	NS	181956	1	TMO-06-008P-E2	NS	181964	1-1/2	TMO-06-008P-E4	NS	181972	1
8	480	1-3	33-1/16	33	TMO-06-008P-E1	NS	181980	1	TMO-06-008P-E2	NS	181999	1-1/2	TMO-06-008P-E4	NS	182000	1
10	240	1-3	40-9/16	34	TMO-06-010P-E1	NS	182019	1	TMO-06-010P-E2	NS	182027	1-1/2	TMO-06-010P-E4	NS	182035	1
10	480	1-3	40-9/16	34	TMO-06-010P-E1	NS	182043	1	TMO-06-010P-E2	NS	182051	1-1/2	TMO-06-010P-E4	NS	182060	1
12	240	1-3	48-1/16	37	TMO-06-012P-E1	NS	182078	1	TMO-06-012P-E2	NS	182086	1-1/2	TMO-06-012P-E4	NS	182094	1
12	480	1-3	48-1/16	37	TMO-06-012P-E1	NS	182107	1	TMO-06-012P-E2	NS	182115	1-1/2	TMO-06-012P-E4	NS	182123	1
15	240	1-3	57-1/16	40	TMO-06-015P-E1	NS	182131	1	TMO-06-015P-E2	NS	182140	1-1/2	TMO-06-015P-E4	NS	182158	1
15	480	1-3	57-1/16	40	TMO-06-015P-E1	NS	182166	1	TMO-06-015P-E2	NS	182174	1-1/2	TMO-06-015P-E4	NS	182182	1
18	240	1-3	68-1/16	43	TMO-06-018P-E1	NS	182190	1	TMO-06-018P-E2	NS	182203	1-1/2	TMO-06-018P-E4	NS	182211	1
18	480	1-3	68-1/16	43	TMO-06-018P-E1	NS	182220	1	TMO-06-018P-E2	NS	182238	1-1/2	TMO-06-018P-E4	NS	182246	1
6 Inch - 150 Lb. Steel Flange — 12 Steel Sheath Elements — 15 W/in²																
12	240	1-3	25-1/8	67	TMO-12-012P-E1	NS	234405	1	TMO-12-012P-E2	NS	234510	1-1/2	TMO-12-012P-E4	NS	234560	1-1/2
12	480	1-3	25-1/8	67	TMO-12-012P-E1	NS	234413	1	TMO-12-012P-E2	NS	234528	1-1/2	TMO-12-012P-E4	NS	234579	1-1/2
16	240	1-3	33	76	TMO-12-016P-E1	NS	234421	1	TMO-12-016P-E2	NS	234536	1-1/2	TMO-12-016P-E4	NS	234587	1-1/2
16	480	1-3	33	76	TMO-12-016P-E1	NS	234430	1	TMO-12-016P-E2	NS	234480	1-1/2	TMO-12-016P-E4	NS	234595	1-1/2
20	240	2-3	40-1/2	84	TMO-12-020P-E1	NS	234448	1	TMO-12-020P-E2	NS	234499	1-1/2	TMO-12-020P-E4	NS	234608	1-1/2
20	480	1-3	40-1/2	84	TMO-12-020P-E1	NS	234456	1	TMO-12-020P-E2	NS	234501	1-1/2	TMO-12-020P-E4	NS	234616	1-1/2
24	240	2-3	48	111	TMO-12-024P-E1	NS	234464	1	TMO-12-024P-E2	NS	234544	1-1/2	TMO-12-024P-E4	NS	234624	1-1/2
24	480	1-3	48	111	TMO-12-024P-E1	NS	234472	1	TMO-12-024P-E2	NS	234552	1-1/2	TMO-12-024P-E4	NS	234632	1-1/2

TMO

Medium Weight Oil Applications (cont'd.)

Specifications and Ordering Information

					E1 General Purpose				E2 Moisture Resistant/Explosion Resistant				E4 Moisture Resistant			
kW	Volts	CKT & Phase	DIM B (In.)	Wt.* (Lbs.)	Model	Stock	PCN	DIM N (In.)	Model	Stock	PCN	DIM N (In.)	Model	Stock	PCN	DIM N (In.)
8 Inch - 150 Lb. Steel Flange — 18 Steel Sheath Elements — 15 W/In²																
20	240	3-3	32-7/8	112	TMO-18-020P-E1	NS	290810	1	TMO-18-020P-E2	NS	290829	3/4	TMO-18-020P-E4	NS	290837	1-1/2
20	480	3-3	32-7/8	112	TMO-18-020P-E1	NS	290845	1	TMO-18-020P-E2	NS	290853	3/4	TMO-18-020P-E4	NS	290861	1-1/2
25	240	3-3	43-11/16	125	TMO-18-025P-E1	NS	290870	1	TMO-18-025P-E2	NS	290888	3/4	TMO-18-025P-E4	NS	290896	1-1/2
25	480	3-3	43-11/16	125	TMO-18-025P-E1	NS	290909	1	TMO-18-025P-E2	NS	290917	3/4	TMO-18-025P-E4	NS	290925	1-1/2
30	240	3-3	51-7/8	130	TMO-18-030P-E1	NS	290933	1	TMO-18-030P-E2	NS	290941	3/4	TMO-18-030P-E4	NS	290950	1-1/2
30	480	3-3	51-7/8	130	TMO-18-030P-E1	NS	290968	1	TMO-18-030P-E2	NS	290976	3/4	TMO-18-030P-E4	NS	290984	1-1/2
35	240	3-3	61-3/8	135	TMO-18-035P-E1	NS	290992	1	TMO-18-035P-E2	NS	291004	3/4	TMO-18-035P-E4	NS	291012	1-1/2
35	480	3-3	61-3/8	135	TMO-18-035P-E1	NS	291020	1	TMO-18-035P-E2	NS	291039	3/4	TMO-18-035P-E4	NS	291047	1-1/2
40	240	3-3	69-7/8	135	TMO-18-040P-E1	NS	291055	1	TMO-18-040P-E2	NS	291063	3/4	TMO-18-040P-E4	NS	291071	1-1/2
40	480	3-3	69-7/8	135	TMO-18-040P-E1	NS	291080	1	TMO-18-040P-E2	NS	291098	3/4	TMO-18-040P-E4	NS	291100	1-1/2
45	240	3-3	78-7/8	147	TMO-18-045P-E1	NS	291119	1	TMO-18-045P-E2	NS	291127	1	TMO-18-045P-E4	NS	291135	1-1/2
45	480	3-3	78-7/8	147	TMO-18-045P-E1	NS	291143	1	TMO-18-045P-E2	NS	291151	3/4	TMO-18-045P-E4	NS	291160	1-1/2

Stock Status: S = stock NS = non-stock

To Order—Specify model, PCN, kW, volts, phase and quantity.

*Weights:

- A. For Wt. of 3" flange with E2 enclosure add 3 lbs. to Wt. of E1 enclosure heater.
- B. For Wt. of 5 and 6" flange with E4 enclosure add 7 lbs. to Wt. of E1 enclosure heater.
- C. For Wt. of 8" flange with E4 enclosure add 10 lbs. to Wt. of E1 enclosure heater

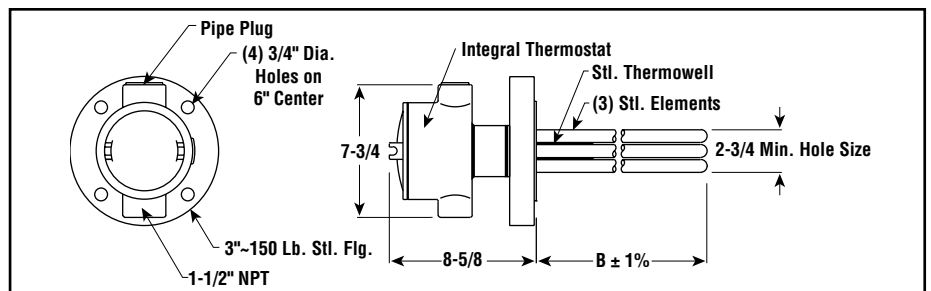
TMO-3

Medium Weight Oil Applications



- 3" 150 Lb. Carbon Steel Flange
- Steel Sheath Elements
- Steel Thermowell
- Built-in AR Thermostat (60 - 250°F)
 - Single Phase on 480V (contactor required)
 - Three Phase on 240V (no contactor required)
- 15 W/In²
- 3 - 6 kW
- 240 and 480 Volt, Three Phase
- Moisture Resistant/Explosion Resistant Terminal Enclosure

Dimensions (Inches)



Specifications and Ordering Information

					E2 Moisture Resistant/Explosion Resistant		
kW	Volts	CKT & Phase	DIM B (In.)	Wt. (Lbs.)	Model	Stock	PCN
3 Inch - 150 Lb. Steel Flange — 3 Steel Sheath Elements — 15 W/In²							
3	240	1-3	25-1/4	24	TMO-30315E2T93	NS	326166
3	480	1-3	25-1/4	24	TMO-30315E2T2	NS	326174
4	240	1-3	33-1/16	25	TMO-30415E2T93	NS	326182
4	480	1-3	33-1/16	25	TMO-30415E2T2	NS	326190
6	240	1-3	48-1/16	29	TMO-30615E2T93	NS	326203
6	480	1-3	48-1/16	29	TMO-30615E2T2	NS	326211

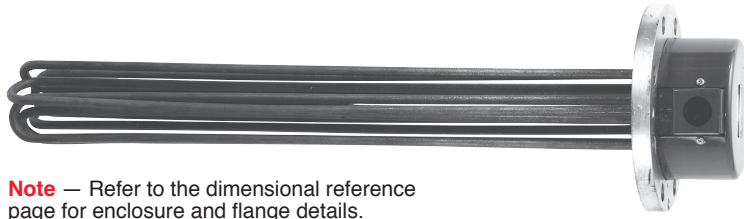
Stock Status: S = stock NS = non-stock

To Order—Specify model, PCN, kW, volts, phase and quantity.

Note — Other kW ratings and flange sizes available, contact your Local Chromalox Sales office.

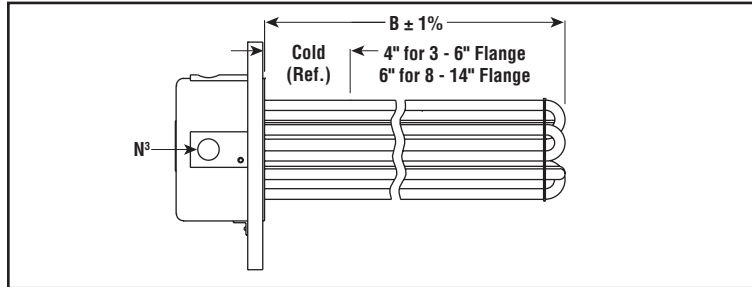
TMO Heavy Weight Oil Applications

- 3 - 5" 150 Lb. Carbon Steel Flange
- Steel Sheath Elements and Steel Thermowell
- 6.5 W/in²
- 1.2 - 8.4 kW
- 240 and 480 Volt, Three Phase
- General Purpose, Moisture Resistant or Moisture Resistant/Explosion Resistant Terminal Enclosures



Note — Refer to the dimensional reference page for enclosure and flange details.

Dimensions (Inches)



Specifications and Ordering Information

					E1 General Purpose				E2 Moisture Resistant/Explosion Resistant							
kW	Volts	CKT & Phase	DIM B (In.)	Wt* (lbs)	Model	Stock	PCN	DIM. N (In.)	Model	Stock	PCN	DIM. N (In.)				
3 Inch - 150 Lb. Steel Flange — 3 Steel Sheath Elements — 6.5 W/in²																
1.2	240	1-3	25-3/16	17	TMO-03-001P2-E1	NS	179223	1	TMO-03-001P2-E2	NS	031421	3/4				
1.65	240	1-3	33-1/16	18	TMO-03-001P6.5-E1	NS	179274	1	TMO-03-001P6.5-E2	NS	031430	3/4				
2.1	240	1-3	40-9/16	20	TMO-03-002P1-E1	NS	179320	1	TMO-03-002P1-E2	NS	031448	3/4				
2.1	480	1-3	40-9/16	20	TMO-03-002P1-E1	NS	179346	1	TMO-03-002P1-E2	NS	031456	3/4				
2.48	240	1-3	48-1/16	21	TMO-03-002P4.8-E1	NS	179389	1	TMO-03-002P4.8-E2	NS	031464	3/4				
					E1 General Purpose				E2 Moisture Resistant/Explosion Resistant				E4 Moisture Resistant			
kW	Volts	CKT & Phase	DIM B (In.)	Wt* (lbs)	Model	Stock	PCN	DIM. N (In.)	Model	Stock	PCN	DIM. N (In.)	Model	Stock	PCN	DIM. N (In.)
5 Inch - 150 Lb. Steel Flange — 6 Steel Sheath Elements — 6.5 W/in²																
1.5	240	1-3	18-1/16	27	TMO-06-001P5-E1	NS	179469	1	TMO-06-001P5-E2	NS	031472	1-1/2	TMO-06-001P5-E4	NS	031667	1
1.8	240	1-3	19-13/16	30	TMO-06-001P8-E1	NS	179514	1	TMO-06-001P8-E3	NS	031480	1-1/2	TMO-06-001P8-E4	NS	031675	1
2.4	240	1-3	25-3/16	32	TMO-06-002P4-E1	NS	179565	1	TMO-06-002P4-E2	NS	031499	1-1/2	TMO-06-002P4-E4	NS	031683	1
3.3	240	1-3	33-1/16	33	TMO-06-003P3-E1	NS	179610	1	TMO-06-003P3-E2	NS	031501	1-1/2	TMO-06-003P3-E4	NS	031691	1
3.3	480	1-3	33-1/16	33	TMO-06-003P3-E1	NS	179637	1	TMO-06-003P3-E2	NS	031510	1-1/2	TMO-06-003P3-E4	NS	031704	1
4.2	240	1-3	40-9/16	34	TMO-06-004P2-E1	NS	179688	1	TMO-06-004P2-E2	NS	031528	1-1/2	TMO-06-004P2-E4	NS	031712	1
4.2	480	1-3	40-9/16	34	TMO-06-004P2-E1	NS	179709	1	TMO-06-004P2-E2	NS	031536	1-1/2	TMO-06-004P2-E4	NS	031720	1
4.95	240	1-3	48-1/16	37	TMO-06-004P9.5-E1	NS	179741	1	TMO-06-004P9.5-E2	NS	031544	1-1/2	TMO-06-004P9.5-E4	NS	031739	1
4.95	480	1-3	48-1/16	37	TMO-06-004P9.5-E1	NS	179768	1	TMO-06-004P9.5-E2	NS	031552	1-1/2	TMO-06-004P9.5-E4	NS	031747	1
5.4	240	1-3	52-1/16	38	TMO-06-005P4-E1	NS	179784	1	TMO-06-005P4-E2	NS	031560	1-1/2	TMO-06-005P4-E4	NS	031755	1
5.4	480	1-3	52-1/16	38	TMO-06-005P4-E1	NS	179805	1	TMO-06-005P4-E2	NS	031579	1-1/2	TMO-06-005P4-E4	NS	031763	1
6	240	1-3	58-3/8	40	TMO-06-006P-E1	NS	179821	1	TMO-06-006P-E2	NS	031587	1-1/2	TMO-06-006P-E4	NS	031771	1
6	480	1-3	58-3/8	40	TMO-06-006P-E1	NS	179848	1	TMO-06-006P-E2	NS	031595	1-1/2	TMO-06-006P-E4	NS	031780	1
6.9	240	1-3	65-1/16	42	TMO-06-006P9-E1	NS	179864	1	TMO-06-006P9-E2	NS	031608	1-1/2	TMO-06-006P9-E4	NS	031798	1
6.9	480	1-3	65-1/16	42	TMO-06-006P9-E1	NS	179880	1	TMO-06-006P9-E2	NS	031616	1-1/2	TMO-06-006P9-E4	NS	031800	1
7.2	240	1-3	68-5/8	43	TMO-06-007P2-E1	NS	179901	1	TMO-06-007P2-E2	NS	031624	1-1/2	TMO-06-007P2-E4	NS	031819	1
7.2	480	1-3	68-5/8	43	TMO-06-007P2-E1	NS	179928	1	TMO-06-007P2-E2	NS	031632	1-1/2	TMO-06-007P2-E4	NS	031827	1
8.4	240	1-3	78-1/16	46	TMO-06-008P4-E1	NS	179944	1	TMO-06-008P4-E2	NS	031640	1-1/2	TMO-06-008P4-E4	NS	031835	1
8.4	480	1-3	78-1/16	46	TMO-06-008P4-E1	NS	179960	1	TMO-06-008P4-E2	NS	031659	1-1/2	TMO-06-008P4-E4	NS	031843	1

Stock Status: S = stock NS = non-stock

To Order—Specify model, PCN, kW, volts, phase and quantity.

4. Weights:

A. For Wt. of 3" flange with E2 enclosure add 3 lbs. to Wt. of E1 enclosure heater.

B. For Wt. of 5" flange with E4 enclosure add 7 lbs. to Wt. of E1 enclosure heater.

Immersion

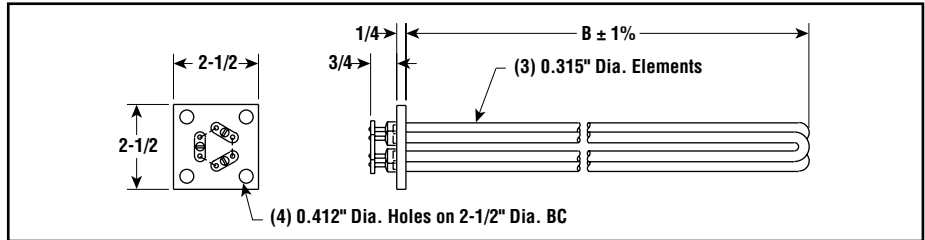
TTSF Boiler & Water Applications

- 2-1/2 x 2-1/2" Square Brass or Steel Flange
- Copper or INCOLOY® Sheath Elements
- High Watt Densities (See Table)
- 5 - 18 kW
- 208, 240 and 480 Volt, Three Phase

"Under the U.S. Federal Safe Drinking Water Act, it is unlawful to install or use this product in any service that comes into contact with water for human consumption (including drinking, food or beverage preparation, hand washing, or teeth brushing). This product is intended exclusively for use in non-potable service."



Dimensions (Inches)



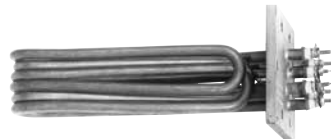
Specifications and Ordering Information

kW	Volts	W/In ²	CKT & Phase	DIM B (In.)	Model	Stock	PCN	Wt. (Lbs.)
Steam Boiler — INCOLOY® Sheath Elements — Steel Flange								
5	208	93	1 - 3	12	TTSFISF-317-50B	NS	203123	2
5	240	93	1 - 3	12	TTSFISF-317-50B	NS	203131	2
10	208	78	1 - 3	24-7/16	TTSFISF-317-100B	NS	202526	3
10	240	78	1 - 3	24-7/16	TTSFISF-317-100B	S	202534	3
10	480	78	1 - 3	24-7/16	TTSFISF-317-100B	S	202542	3
15	208	81	1 - 3	34	TTSFISF-317-150B	NS	202497	4
15	240	81	1 - 3	34	TTSFISF-317-150B	NS	202500	4
15	480	81	1 - 3	34	TTSFISF-317-150B	S	202489	4
Water — Copper Sheath Elements — Brass Flange								
13.5	208	184	1 - 3	13-7/16	TTSFBBF-310-135	NS	292550	2
13.5	480	184	1 - 3	13-7/16	TTSFBBF-310-135	NS	292568	2
15	480	155	1 - 3	17-7/16	TTSFBBF-310-150	S	292541	3
18	480	153	1 - 3	21-1/16	TTSFBBF-310-180	S	292533	4
Stock Status: S = stock NS = non-stock								
To Order—Specify model, PCN, kW, volts, phase and quantity.								

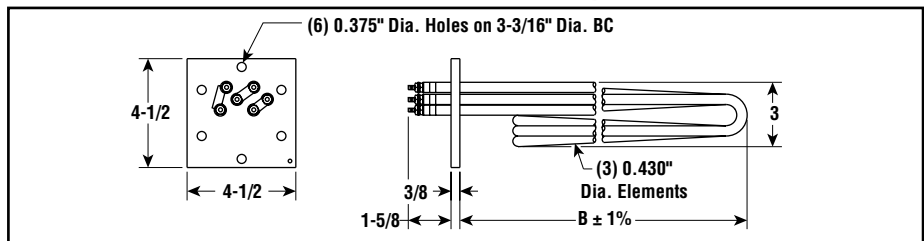
FLANGED

WCSF Boiler Replacement Elements

- 4-1/2 x 4-1/2" Square Steel Flange with Zinc Coating
- Copper Sheath Elements
- High Watt Densities (See Table)
- 12 - 22.5 kW
- 208, 240 and 480 Volt, Three Phase



Dimensions (Inches)



Specifications and Ordering Information

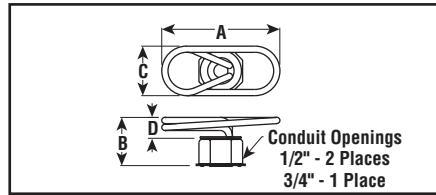
kW	Volts	W/In ²	CKT & Phase	DIM B (In.)	Model	Stock	PCN	Wt. (Lbs.)
12	208	80	1 - 3	10-3/8	WCSF-347-120B-45	NS	800278	6
12	240	80	1 - 3	10-3/8	WCSF-347-120B-45	NS	800155	6
12	480	80	1 - 3	10-3/8	WCSF-347-120B-45	NS	807189	6
17	208	109	1 - 3	10-3/8	WCSF-345-170B-45	NS	807576	6
17	240	109	1 - 3	10-3/8	WCSF-345-170B-45	NS	807517	6
17	480	109	1 - 3	10-3/8	WCSF-345-170B-45	NS	807091	6
20	208	131	1 - 3	10-3/8	WCSF-340-200B-45	NS	810687	6
20	230	131	1 - 3	10-3/8	WCSF-340-200B-45	NS	806397	6
20	240	131	1 - 3	10-3/8	WCSF-340-200B-45	NS	810695	6
22.5	480	99	1 - 3	15-5/16	WCSF-347-225B-45	NS	809192	6
Stock Status: S = stock NS = non-stock								
To Order—Specify model, PCN, kW, volts, phase and quantity.								

Immersion

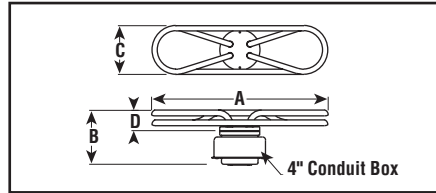
TTUH Food Equipment Water Applications

- Bottom Mounted
- Brass Flange
- Copper Sheath Elements
- 1 - 12 kW
- 120, 208, 240 and 480 Volt, 1 & 3 Phase
- Without Integral Thermal Cutout
- High Watt Densities (see Table)

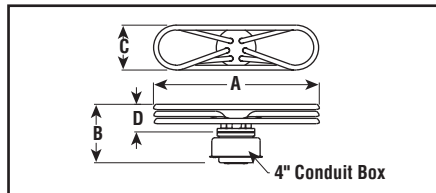
Dimensions (Inches)



Dimensions (Inches)



Dimensions (Inches)



Specifications and Ordering Information

Applications

- Steam Tables
- Kettles
- Humidifiers

kW	Volts	W/In ²	Dimensions (In.)				Model	Stock	PCN	Wt. (Lbs.)	No. Elements
			A	B	C	D					
1 Phase w/o Cutout — 2" Min. Liquid Depth											
1	120	42	6-3/4	4-9/16	4-1/4	2-5/16	TTUH-10A	NS	272321	3	1
1.5	120	57	6-3/4	4-9/16	4-1/4	2-5/16	TTUH-15A	S	272330	3	1
1.5	208	57	6-3/4	4-9/16	4-1/4	2-5/16	TTUH-15A	S	272348	3	1
1.5	240	57	6-3/4	4-9/16	4-1/4	2-5/16	TTUH-15A	S	272356	3	1
2	120	57	6-3/4	4-9/16	4-1/4	2-5/16	TTUH-20A	S	272364	3	1
2	208	57	6-3/4	4-9/16	4-1/4	2-5/16	TTUH-20A	S	272372	3	1
2	240	57	6-3/4	4-9/16	4-1/4	2-5/16	TTUH-20A	S	272380	3	1
2.5	120	58	6-3/4	4-9/16	4-1/4	2-5/16	TTUH-25A	S	272399	3	1
2.5	208	58	6-3/4	4-9/16	4-1/4	2-5/16	TTUH-25A	S	272401	3	1
2.5	240	58	6-3/4	4-9/16	4-1/4	2-5/16	TTUH-25A	S	272410	3	1
3	120	55	6-3/4	4-9/16	4-1/4	2-5/16	TTUH-30A	NS	272428	3	1
3	208	55	6-3/4	4-9/16	4-1/4	2-5/16	TTUH-30A	S	272436	3	1
3	240	55	6-3/4	4-9/16	4-1/4	2-5/16	TTUH-30A	S	272444	3	1
4	120	53	9-1/2	4-9/16	4	1-3/8	TTUH-40A	S	272452	3	1
4	208	53	9-1/2	4-9/16	4	1-3/8	TTUH-40A	S	272460	3	1
4	240	53	9-1/2	4-9/16	4	1-3/8	TTUH-40A	S	272479	3	1
5	208	39	12-3/4	4-9/16	4	1-11/16	TTUH-50	S	192583	5	2
5	240	39	12-3/4	4-9/16	4	1-11/16	TTUH-50	S	192591	5	2
6	208	42	14-1/2	4-9/16	4	1-11/16	TTUH-60	S	192604	6	2
6	240	42	14-1/2	4-9/16	4	1-11/16	TTUH-60	S	192612	6	2
7	208	49	14-1/2	4-9/16	4	1-11/16	TTUH-70	NS	192620	6	2
7	240	49	14-1/2	4-9/16	4	1-11/16	TTUH-70	S	192639	6	2
3 Phase w/o Cutout — 3" Min. Liquid Depth											
3	208	55	8-3/4	4-5/8	3-1/8	1-15/16	TTUH-303	S	255943	4	3
3	240	55	8-3/4	4-5/8	3-1/8	1-15/16	TTUH-303	NS	255951	4	3
4	208	74	8-3/4	4-5/8	3-1/8	1-15/16	TTUH-403	S	255960	4	3
4	240	74	8-3/4	4-5/8	3-1/8	1-15/16	TTUH-403	S	255978	4	3
4	480	74	8-3/4	4-5/8	3-1/8	1-15/16	TTUH-403	NS	258511	4	3
5	208	73	11	4-5/8	3-1/8	1-15/16	TTUH-503	S	255986	5	3
5	240	73	11	4-5/8	3-1/8	1-15/16	TTUH-503	S	255994	5	3
6	208	67	11-1/16	5	4-1/16	2-3/8	TTUH-603	NS	256006	5	3
6	240	67	11-1/16	5	4-1/16	2-3/8	TTUH-603	S	256014	5	3
6	480	67	11-1/16	5	4-1/16	2-3/8	TTUH-603	NS	258520	5	3
7	208	78	11-1/16	5	4-1/16	2-3/8	TTUH-703	S	256022	5	3
7	240	78	11-1/16	5	4-1/16	2-3/8	TTUH-703	S	256030	5	3
8	208	69	11-1/8	5	4-1/16	2-3/8	TTUH-803	S	258423	5	3
8	240	69	11-1/8	5	4-1/16	2-3/8	TTUH-803	NS	258431	5	3
12	240	98	17-3/4	5	4-1/16	2-3/8	TTUH-1203	NS	186052	6	3

"Under the U.S. Federal Safe Drinking Water Act, it is unlawful to install or use this product in any service that comes into contact with water for human consumption (including drinking, food or beverage preparation, hand washing, or teeth brushing). This product is intended exclusively for use in non-potable service."

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.

Immersion

TTUH-CO Food Equipment Water Applications

- Bottom Mounted
- Brass Flange
- Copper Sheath Elements
- 1 - 12 kW
- 120, 208, 240 and 480 Volt, 1 & 3 Phase
- Integral Low Liquid Thermal Cutout
- High Watt Densities (see Table)

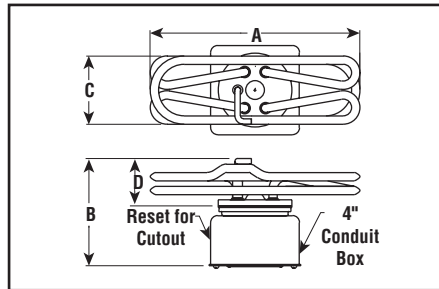
Applications

- Steam Tables
- Kettles
- Humidifiers

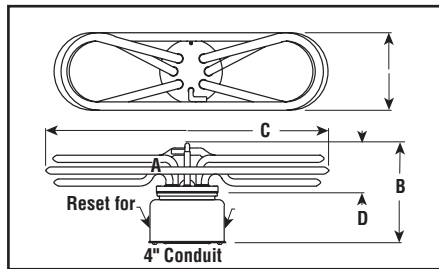
Note — Models above 25 Amp or 240V single phase, and all 3 phase models require a suitable magnetic contactor to interrupt the heater load, with the cutout connected for pilot duty. See the Controls section for contactors.

"Under the U.S. Federal Safe Drinking Water Act, it is unlawful to install or use this product in any service that comes into contact with water for human consumption (including drinking, food or beverage preparation, hand washing, or teeth brushing). This product is intended exclusively for use in non-potable service."

Dimensions (Inches)



Dimensions (Inches)



FLANGED

Specifications and Ordering Information

kW	Volts	W/in ²	Dimensions (In.)				Model	Stock	PCN	Wt. (Lbs.)	No. Elements
			A	B	C	D					
1 Phase w/Cutout — 2-1/2" Min. Liquid Depth											
1	120	42	7-7/16	4-9/16	3-1/16	1-7/8	TTUH-CO-10	NS	186060	3	2
1.5	120	62	7-7/16	4-13/16	3-1/16	2-1/8	TTUH-CO-15	S	186079	3	2
1.5	208	62	7-7/16	4-13/16	3-1/16	2-1/8	TTUH-CO-15	NS	256049	3	2
1.5	240	62	7-7/16	4-13/16	3-1/16	2-1/8	TTUH-CO-15	NS	256057	3	2
2	208	60	9-7/16	4-13/16	3-1/16	2-1/8	TTUH-CO-20	S	256065	3	2
2	240	60	9-7/16	4-13/16	3-1/16	2-1/8	TTUH-CO-20	S	256073	3	2
2.5	208	40	6-3/4	4-13/16	3-1/16	2-1/8	TTUH-CO-25	S	256081	3	2
2.5	240	40	6-3/4	4-13/16	3-1/16	2-1/8	TTUH-CO-25	S	256090	3	2
3	208	55	6-3/4	4-13/16	3-1/16	2-1/8	TTUH-CO-30	S	256102	3	2
3	240	55	6-3/4	4-13/16	3-1/16	2-1/8	TTUH-CO-30	S	256110	3	2
4	208	64	9-1/2	4-13/16	3-1/16	2-1/8	TTUH-CO-40	S	256129	4	2
4	240	64	9-1/2	4-13/16	3-1/16	2-1/8	TTUH-CO-40	S	256137	4	2
5	208	70	12-3/4	5-3/8	4	2-11/16	TTUH-CO-50	S	256145	5	2
5	240	70	12-3/4	5-3/8	4	2-11/16	TTUH-CO-50	S	256153	5	2
6	208	73	14-1/2	5-3/8	4	2-11/16	TTUH-CO-60	S	256161	6	2
6	240	73	14-1/2	5-3/8	4	2-11/16	TTUH-CO-60	S	256170	6	2
7	240	85	14-1/2	5-3/8	4	2-11/16	TTUH-CO-70	S	256188	6	2
3 Phase w/Cutout — 3" Min. Liquid Depth											
3	208	55	8-3/4	5-13/16	3-1/8	2-3/4	TTUH-CO-303	S	256444	4	3
3	240	55	8-3/4	5-13/16	3-1/8	2-3/4	TTUH-CO-303	NS	256452	4	3
4	208	74	8-3/4	5-13/16	3-1/8	2-3/4	TTUH-CO-403	S	256479	5	3
4	240	74	8-3/4	5-13/16	3-1/8	2-3/4	TTUH-CO-403	S	256487	5	3
5	208	73	11	5-13/32	3-1/8	2-3/4	TTUH-CO-503	S	256508	5	3
5	240	73	11	5-13/32	3-1/8	2-3/4	TTUH-CO-503	S	256516	5	3
5	480	73	11	5-13/32	3-1/8	2-3/4	TTUH-CO-503	S	204150	5	3
6	208	72	11-1/16	5-3/4	4-1/16	3	TTUH-CO-603	S	256532	5	3
6	240	72	11-1/16	5-3/4	4-1/16	3	TTUH-CO-603	S	256540	5	3
7	208	78	11-1/16	5-3/4	4-1/16	3	TTUH-CO-703	S	256559	5	3
7	240	78	11-1/16	5-3/4	4-1/16	3	TTUH-CO-703	NS	256567	5	3
7	480	78	11-1/16	5-3/4	4-1/16	3	TTUH-CO-703	S	256575	5	3
8	208	69	14-1/2	5-3/4	4-1/16	3	TTUH-CO-803	S	256583	6	3
8	240	69	14-1/2	5-3/4	4-1/16	3	TTUH-CO-803	S	256591	6	3
8	480	69	14-1/2	5-3/4	4-1/16	3	TTUH-CO-803	NS	256604	6	3
9	208	78	14-1/2	5-3/4	4-1/16	3	TTUH-CO-903	S	256612	6	3
9	240	78	14-1/2	5-3/4	4-1/16	3	TTUH-CO-903	NS	256620	6	3
9	480	78	14-1/2	5-3/4	4-1/16	3	TTUH-CO-903	NS	256639	6	3
10	208	82	17-11/16	5-3/4	4-1/16	3	TTUH-CO-1003	S	256647	7	3
10	240	82	17-11/16	5-3/4	4-1/16	3	TTUH-CO-1003	NS	256655	7	3
10	480	82	17-11/16	5-3/4	4-1/16	3	TTUH-CO-1003	NS	256663	7	3
12	240	98	17-11/16	5-3/4	4-1/16	3	TTUH-CO-1203	NS	256680	7	3
12	480	98	17-11/16	5-3/4	4-1/16	3	TTUH-CO-1203	NS	256698	7	3

Stock Status: S = stock NS = non-stock

To Order—Specify model, PCN, kW, volts, phase and quantity.

Over-the-Side Immersion Heaters

Overview

Description

Over-the-Side Immersion Heaters are designed for installing in the top of a tank with the heated portion directly immersed along the side or at the bottom. This provides easy removal of the heater and ample working space inside the tank. These heaters are available with heating elements made of Copper, Steel, Stainless Steel, Cast Iron, INCOLOY®, Titanium, Fluoropolymer coated, and Quartz. A wide selection of kW ratings, shapes and mounting methods are available to suit many different types of applications.



Over-the-Side Immersion Heaters — Selection Guidelines

Configuration	Model	Sheath Material	Typ. Watt Density	Phase	See Note	
L-Shaped This type of heater puts the heat at the bottom of the tank. The vertical riser is unheated so lower liquid levels are acceptable. Many types of heating element materials are available along with various riser heights and element configurations. Legs are provided at the bottom of most heaters to prevent direct contact of the heating elements with the bottom of the tank.	KBLS	304SS	11	1	1	
	TLS, KTLS	304SS	40	1 or 3	1	
	GSL	316SS	20 and 40	1	2	
	GSL3, GSV3	316SS	20 and 40	3	2	
	CIT	Cast Iron	20	1	—	
	TLC, KTLC	Copper	40	1 or 3	1	
	TBL	INCOLOY®	20	1	—	
	TLI	INCOLOY®	40	1 or 3	1	
	KTLI	INCOLOY®	40	1	1	
	KBLC	Steel	11	1	1	
	TBL	Steel	20	1	—	
	TLO, KTLO	Steel	20	1 or 3	1	
	BLCK-MH	Steel	12 and 18	1 or 3	1	
	BLCS	Steel	12 and 18	1 or 3	—	
	GTFL, GXFL	Fluoropolymer	10	1	2	
	GTFNL3	Fluoropolymer	10	3	2	
	GTL	Titanium	20 and 40	1	2	
	GTL3, GTV3	Titanium	20 and 40	3	2	
	Side Mount/Top Mount This heater is placed on the side of the tank with mounting brackets for easy installation. A cold section is provided at the top of the heater for various levels of liquid in the tank (consult heater specification tables for the specific length of the cold section). Low profile side mounted heaters provide more working space in the heated tank.	PTHF	304SS	20	3	2
		CTSS	304SS	25 and 40	1	—
PTH		316SS	30	1	—	
GS		316SS	20 and 40	1	2	
GS3		316SS	20 and 40	1 or 3	2	
CTAC		Carp 20 SS	25 and 40	1	—	
CS		Ceramic-SIAION	70	1 - 3	—	
CH-OTS		Copper	60	1	3	
CTC		Copper	25 and 40	1	—	
QM		Quartz	25	1	2	
QM3		Quartz	25	1 or 3	2	
GTF, GXF		Fluoropolymer	10	1	2	
GTF6, GTF9		Fluoropolymer	10	3	2	
TPR		Fluoropolymer	20	1	2	
TPF		Fluoropolymer	20	3	2	
PTHT		Titanium	20	1	—	
CTT		Titanium	44	1	—	
GT	Titanium	20 and 40	1	2		
Heat/Cool Exchangers Side mounted metal or fluoropolymer coils provide heat or cooling of tanks from remote mounted heating or cooling sources.	GT3	Titanium	20 and 40	1 or 3	2	
	GHTF	Fluoropolymer	N/A	N/A	—	
	GRS	316SS	N/A	N/A	—	
	GRT	Titanium	N/A	N/A	—	
	US	316SS	N/A	N/A	—	
	UT	Titanium	N/A	N/A	—	

1. Optional Integral Thermostat - requires wiring to remote relay (not included).
2. Integral Overheat Thermal Protection - requires wiring to remote relay (not included).
3. Integral Thermostat and Cutout.

Over-the-Side Immersion Heaters

Application & Selection Guidelines

Applications

The large variation in heating element material and shapes of over-the-side immersion heaters offers a wide selection in the application of these units. Water, oils, solvents, plating baths, salts and acids are some of the many liquids and viscous materials commonly heated with immersion heaters. Over-the-side types permit portability, easy removal for cleaning of tanks and heaters and ample working area within the tank when installed.

Important — When selecting a tank heater design, the user should make sure the sheath material is suitable for the solution being heated at the maximum temperature expected, with proper safety factor.

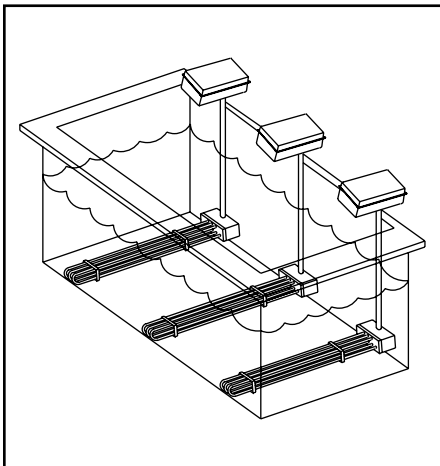
Sheath Material — Selection Guidelines¹

Material Being Heated	Typical Sheath Material
Clean Water (pH6 to pH8)	Copper
Demineralized or De-ionized Water	Stainless Steel (passivated) INCOLOY® Fluoropolymer
Medium Weight Oil, Alkaline Cleaning (low concentration) Mild Soaking Cleaners	Steel
Mild to Medium Corrosive Solutions, Many Oxidizing Acids, Organic Chemicals, Mild Aqueous Solutions	Stainless Steel INCOLOY®
Chromic Acid (10%), Nitric Acid (to 65%) Salt Brine, Many Plating Solutions (i.e. Nickel, Silver, Zinc, Gold)	Titanium
Soft Metal Melting	Cast Iron
Molten Metal, High Corrosive	Ceramic
Most Acids, Plating Solutions, Pickling Solutions	Fluoropolymer Quartz ²

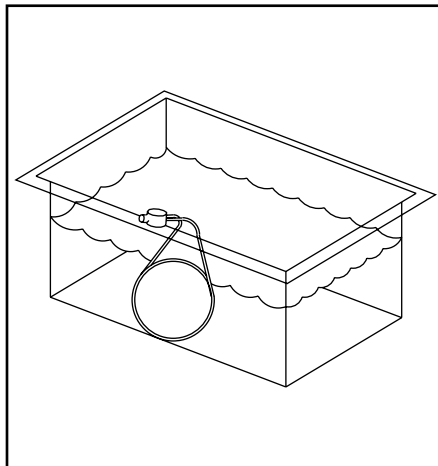
1. Consult Corrosion Guide in the Technical section for specific material recommendations.
2. Not for use in hydrofluoric acid and alkaline solutions.

OVER-THE-SIDE

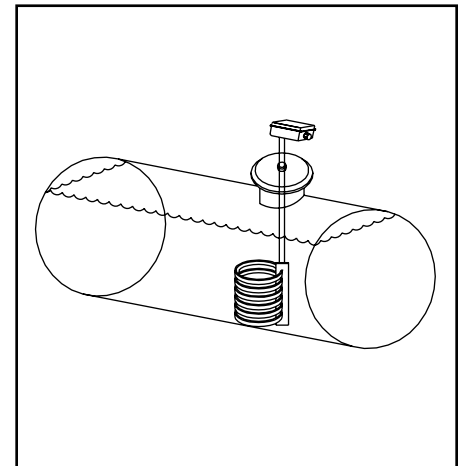
L-Shaped Installation



Side Mount Installation



Deep Tank Installation



Over-the-Side Immersion Heaters — Selection Guidelines

Heater	Model	Page
L-Shaped Metal Sheath	TLC & KTLC	B-118
	TLO & KTLO	B-119
	TLS & KTLS	B-120
	TLI & KTLI	B-121
Side Mount Metal Tube	GS & GT	B-122
	GS3 & GT3	B-123
L-Shaped Metal Tube	GSL & GTL	B-124
	GSL3 & GTL3	B-125
	GSV3 & GTV3	B-126
Side Mount Quartz Tube	QM & QM3	B-127
Side Mount Metal Sheath	PTH & PTHT	B-128
	PTHF	B-129
	CT	B-130
Side Mount	TPR & TPF	B-131
Fluoropolymer Coated	GTF & GTFL	B-132
	GXF & GXFL	B-133
	GTF6 & GTF9	B-135

Heater	Model	Page
L-Shaped Fluoropolymer Coated	GTFL3	B-136
Drum Heater	KBLC & KBLS	B-137
Salt Bath Heater	TBL & TBL-A	B-138
Deep Tank Heater	BLCK-MH & BLCS	B-139
Portable Tank Heater	CH-OTS	B-140
Soft Metal Melting Heater	CIT	B-141
Ceramic Sheath	CS	B-142
Side Mount Heat Exchanger	GRT & GRS	B-144
	US & UT	B-146
	GHTF	B-147
Terminal Enclosure Dimensions		B-148
Optional Accessories		B-150

Over-the-Side Immersion Heaters

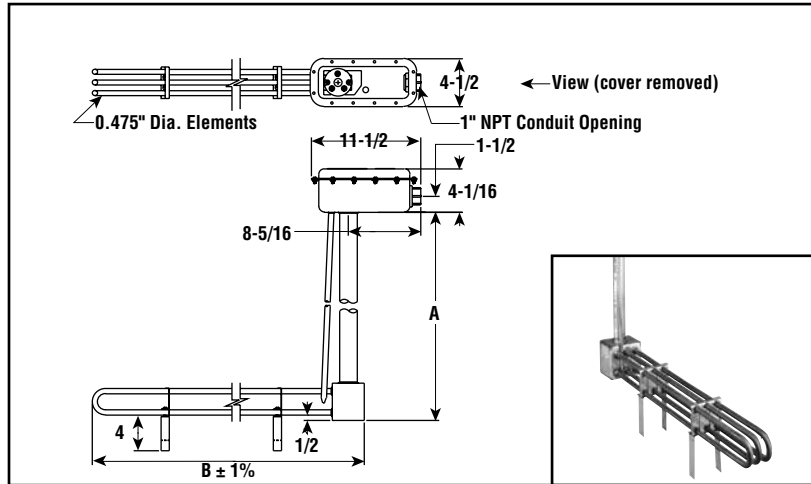
L-Shaped Metal Sheath Heaters



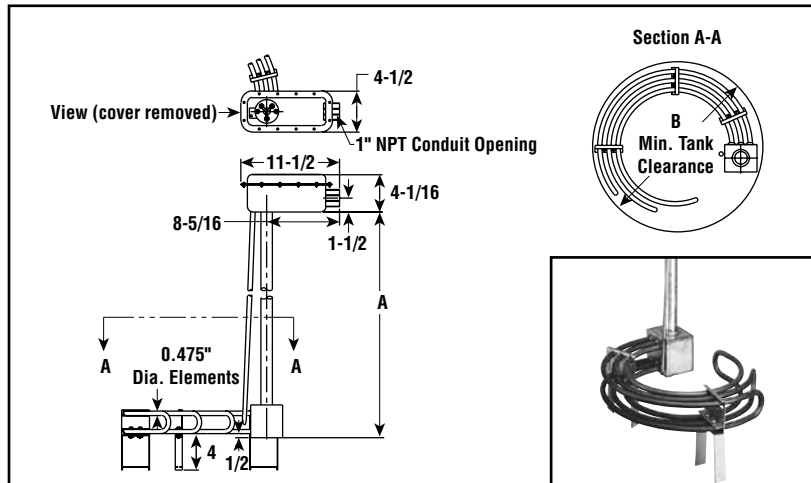
TLC, KTLC, TLO, KTLO,
TLS, KTLS, TLI, KTLI

- Copper, Steel, Stainless Steel, INCOLOY® Sheath Elements
- 20 and 40 W/In²
- 2 - 18 kW
- 120, 240 and 480 Volt, 1 & 3 Phase
- Moisture Resistant Terminal Enclosure
- Optional Integral Thermostat

Straight Elements — Dimensions (Inches)



Circular Elements — Dimensions (Inches)



Description

Light weight, portable, easy to install L-shape construction, puts the heat at the bottom of the tank and the terminal enclosure at the top of the tank. Capacities, dimensions and heater sheaths fit a wide range of heating applications. Easy to install and remove for cleaning with straight or circular element designs to fit many tank configurations.

Features

- Copper Sheath and Riser (40 W/In²)
- Steel Sheath and Riser (20 W/In²)
- Stainless Steel Sheath and Riser (40 W/In²)
- INCOLOY® Sheath and Stainless Steel Riser (40 W/In²)
- 36 and 48" Riser Heights
- Moisture Resistant Terminal Enclosure
- Thermowell (standard on S and AS heaters)
- 4" Sludge Legs (standard on S and AS heaters). Increases A dimension 3-1/2". Keeps heated section off bottom of tank.

Optional Features

- Integral Thermostat Kit DPST "AR" type rated 30 Amp at 120 - 277V (field installed)
 - 60 - 250°F (AR-219 Kit, PCN 277819)
 - 200 - 550°F (AR-519 Kit, PCN 277827)¹
 - 0 - 100°F (AR-115 Kit, PCN 277835)
- Factory Installed Thermostat (specify range above)
- Explosion Resistant Terminal Enclosure (CSA/NRTL Certified)
- Longer Riser and Sludge Leg Heights
- INCOLOY® Riser
- Process and Overtemperature Protection Thermocouples
- Increase Number of Elements (horizontally and/or vertically) for larger kW ratings
- Lower Watt Densities for heating Viscous Materials
- Manhole Construction for Covered Tanks

Note —

1. Not UL Listed or CSA Certified with 200 - 550°F Thermostat Kit

TLC & KTLC

L-Shaped Metal Sheath Heaters

- Copper Sheath Elements (40 W/In²)
- 304 SS Riser
- 2 - 18 kW
- 120, 240 and 480V, 1 & 3 Phase
- Moisture Resistant Terminal Enclosure
- For Clean Water



OVER-THE-SIDE

Specifications and Ordering Information

kW	Volts	Phase	Riser A - DIM (In.)	Straight Elements				Circular Elements				Wt. (Lbs.)
				Min. Tank Clearance B - DIM (In.)	Model	Stock	PCN	Min. Tank Clearance B - DIM (In.)	Model	Stock	PCN	
2 Elements — Copper (40 W/In²)												
2	120	1	36	12-1/4	TLC-220A-036	NS	193375	10-5/8	KTLC-220A-036	NS	183134	7
2	240	1	36	12-1/4	TLC-220A-036	NS	193383	10-5/8	KTLC-220A-036	NS	183142	7
2	480	1	36	12-1/4	TLC-220A-036	NS	193391	10-5/8	KTLC-220A-036	NS	183150	7
4	120	1	36	22-1/4	TLC-240A-036	NS	193404	13-3/4	KTLC-240A-036	NS	183169	9
4	240	1	36	22-1/4	TLC-240A-036	NS	193412	13-3/4	KTLC-240A-036	NS	183177	9
4	480	1	36	22-1/4	TLC-240A-036	NS	193420	13-3/4	KTLC-240A-036	NS	183185	9
6	120	1	36	29-1/2	TLC-260A-036 ¹	NS	193439	16-1/8	KTLC-260A-036 ¹	NS	183193	9
6	240	1	36	29-1/2	TLC-260A-036	NS	193447	16-1/8	KTLC-260A-036	NS	183206	9
6	480	1	36	29-1/2	TLC-260A-036	NS	193455	16-1/8	KTLC-260A-036	NS	183214	9
4.5/6	208/240	1	48	29-1/2	TLC-260TI-048	S	277755	—	—	—	—	11
8	240	1	36	37-3/8	TLC-280A-036	NS	193463	18-5/8	KTLC-280A-036	NS	183222	11
8	480	1	36	37-3/8	TLC-280A-036	NS	193471	18-5/8	KTLC-280A-036	NS	183230	11
10	240	1	48	45	TLC-210A-048	NS	193480	21-1/4	KTLC-210A-048	NS	183249	14
10	480	1	48	45	TLC-210A-048	NS	193498	21-1/4	KTLC-210A-048	NS	183257	14
12	240	1	48	52-1/2	TLC-212A-048 ¹	NS	193500	23-1/2	KTLC-212A-048 ¹	NS	183265	16
12	480	1	48	52-1/2	TLC-212A-048	NS	193519	23-1/2	KTLC-212A-048	NS	183273	16
3 Elements — Copper (40 W/In²)												
3	120	1	36	12-1/4	TLC-330A-036	NS	194466	10-5/8	KTLC-330A-036	NS	183281	12
3	240	1	36	12-1/4	TLC-330A-036	NS	194482	10-5/8	KTLC-330A-036	NS	183290	12
3	240	3	36	12-1/4	TLC-330A-036	NS	277712	10-5/8	KTLC-330A-036	NS	183302	12
3	480	1	36	12-1/4	TLC-330A-036	NS	194503	10-5/8	KTLC-330A-036	NS	183310	12
3	480	3	36	12-1/4	TLC-330A-036	NS	194511	10-5/8	KTLC-330A-036	NS	183329	12
6	120	1	36	22-1/4	TLC-360A-036 ¹	NS	194520	13-3/4	KTLC-360A-036 ¹	NS	183337	12
6	240	1	36	22-1/4	TLC-360A-036	NS	194546	13-3/4	KTLC-360A-036	NS	183345	12
6	240	3	36	22-1/4	TLC-360A-036	NS	277720	13-3/4	KTLC-360A-036	NS	183353	12
6	480	1	36	22-1/4	TLC-360A-036	NS	194562	13-3/4	KTLC-360A-036	NS	183361	12
6	480	3	36	22-1/4	TLC-360A-036	NS	277739	13-3/4	KTLC-360A-036	NS	183370	12
9	120	1	36	29-1/2	TLC-390A-036 ¹	NS	194589	16-1/8	KTLC-390A-036 ¹	NS	183388	13
9	240	1	36	29-1/2	TLC-390A-036	NS	194600	16-1/8	KTLC-390A-036	NS	183396	13
9	240	3	36	29-1/2	TLC-390A-036	NS	194618	16-1/8	KTLC-390A-036	NS	183409	13
9	480	1	36	29-1/2	TLC-390A-036	NS	194626	16-1/8	KTLC-390A-036	NS	183417	13
9	480	3	36	29-1/2	TLC-390A-036	NS	194634	16-1/8	KTLC-390A-036	NS	183425	13
12	240	1	48	37-3/8	TLC-312A-048 ¹	NS	194642	18-5/8	KTLC-312A-048 ¹	NS	183433	16
12	240	3	48	37-3/8	TLC-312A-048	NS	194650	18-5/8	KTLC-312A-048	NS	183441	16
12	480	1	48	37-3/8	TLC-312A-048	NS	194669	18-5/8	KTLC-312A-048	NS	183450	16
12	480	3	48	37-3/8	TLC-312A-048	NS	277747	18-5/8	KTLC-312A-048	NS	183468	16
15	240	1	48	45	TLC-315A-048 ¹	NS	194685	21-1/4	KTLC-315A-048 ¹	NS	183476	17
15	240	3	48	45	TLC-315A-048	NS	194693	21-1/4	KTLC-315A-048	NS	183484	17
15	480	1	48	45	TLC-315A-048	NS	194706	21-1/4	KTLC-315A-048	NS	183492	17
15	480	3	48	45	TLC-315A-048	NS	194714	21-1/4	KTLC-315A-048	NS	183505	17
18	240	1	48	52-1/2	TLC-318A-048 ¹	NS	194722	23-1/2	KTLC-318A-048 ¹	NS	183513	18
18	240	3	48	52-1/2	TLC-318A-048	NS	194730	23-1/2	KTLC-318A-048	NS	183521	18
18	480	1	48	52-1/2	TLC-318A-048	NS	194749	23-1/2	KTLC-318A-048	NS	183530	18
18	480	3	48	52-1/2	TLC-318A-048	NS	194757	23-1/2	KTLC-318A-048	NS	183548	18

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.

Note — Thermostat Kit Option: 0 - 100°F (AR-115 Kit, PCN 277835);
 60 - 250°F (AR-2529 Kit, PCN 277819); 200 - 550°F
 (AR-5529 Kit, PCN 277827)

1. Not UL or CSA (units exceed 48 Amps). Contact your Local Chromalox Sales office for additional circuits to comply with 48 Amp maximum.

TLO & KTLO

L-Shaped Metal Sheath Heaters

- Steel Sheath Elements (20 W/In²)
- Steel Riser (36 and 48")
- 2 - 10 kW
- 120, 240 and 480V, 1 & 3 Phase
- Moisture Resistant Terminal Enclosure
- For Medium Weight Oils & Degreasing Solutions



Specifications and Ordering Information

kW	Volts	Phase	Riser A - DIM (In.)	Straight Elements			Circular Elements			Wt. (Lbs.)		
				Min. Tank Clearance B - DIM (In.)	Model	Stock	PCN	Min. Tank Clearance B - DIM (In.)	Model		Stock	PCN
2 Elements — Steel (20 W/In²)												
2	120	1	36	22-1/4	TLO-220A-036	NS	193201	13-3/4	KTLO-220A-036	NS	182967	9
2	240	1	36	22-1/4	TLO-220A-036	NS	193210	13-3/4	KTLO-220A-036	NS	182975	9
2	480	1	36	22-1/4	TLO-220A-036	NS	193228	13-3/4	KTLO-220A-036	NS	182983	9
3	120	1	36	29-1/2	TLO-230A-036	NS	193236	16-1/8	KTLO-230A-036	NS	182991	10
3	240	1	36	29-1/2	TLO-230A-036	NS	193244	16-1/8	KTLO-230A-036	NS	183003	10
3	480	1	36	29-1/2	TLO-230A-036	NS	193252	16-1/8	KTLO-230A-036	NS	183011	10
4	120	1	36	37-3/8	TLO-240A-036	NS	193260	18-5/8	KTLO-240A-036	NS	183020	11
4	240	1	36	37-3/8	TLO-240A-036	NS	193279	18-5/8	KTLO-240A-036	NS	183038	11
4	480	1	36	37-3/8	TLO-240A-036	NS	193287	18-5/8	KTLO-240A-036	NS	183046	11
5	120	1	48	45	TLO-250A-048	NS	193295	21-1/4	KTLO-250A-048	NS	183054	12
5	240	1	48	45	TLO-250A-048	NS	193308	21-1/4	KTLO-250A-048	NS	183062	12
5	480	1	48	45	TLO-250A-048	NS	193316	21-1/4	KTLO-250A-048	NS	183070	12
6	120	1	48	52-1/2	TLO-260A-048 ¹	NS	193324	23-1/2	KTLO-260A-048 ¹	NS	183089	13
6	240	1	48	52-1/2	TLO-260A-048	NS	193332	23-1/2	KTLO-260A-048	NS	183097	13
6	480	1	48	52-1/2	TLO-260A-048	NS	193340	23-1/2	KTLO-260A-048	NS	183100	13
7	240	1	48	56-1/2	TLO-270A-048	NS	193359	24-7/8	KTLO-270A-048	NS	183118	14
7	480	1	48	56-1/2	TLO-270A-048	NS	193367	24-7/8	KTLO-270A-048	NS	183126	14
3 Elements — Steel (20 W/In²)												
3	120	1	36	22-1/4	TLO-330A-036	NS	193826	13-3/4	KTLO-330A-036	NS	183847	12
3	240	1	36	22-1/4	TLO-330A-036	NS	193842	13-3/4	KTLO-330A-036	NS	183855	12
3	240	3	36	22-1/4	TLO-330A-036	NS	277624	13-3/4	KTLO-330A-036	NS	183863	12
3	480	1	36	22-1/4	TLO-330A-036	NS	193869	13-3/4	KTLO-330A-036	NS	183871	12
3	480	3	36	22-1/4	TLO-330A-036	NS	193877	13-3/4	KTLO-330A-036	NS	183880	12
4.5	120	1	36	29-1/2	TLO-345A-036	NS	193885	16-1/8	KTLO-345A-036	NS	183898	13
4.5	240	1	36	29-1/2	TLO-345A-036	NS	193906	16-1/8	KTLO-345A-036	NS	183900	13
4.5	240	3	36	29-1/2	TLO-345A-036	NS	193914	16-1/8	KTLO-345A-036	NS	183919	13
4.5	480	1	36	29-1/2	TLO-345A-036	NS	193922	16-1/8	KTLO-345A-036	NS	183927	13
4.5	480	3	36	29-1/2	TLO-345A-036	NS	193930	16-1/8	KTLO-345A-036	NS	183935	13
6	120	1	48	37-3/8	TLO-360A-048 ¹	NS	193949	18-5/8	KTLO-360A-048 ¹	NS	183943	13
6	240	1	48	37-3/8	TLO-360A-048	NS	193965	18-5/8	KTLO-360A-048	NS	183951	13
6	240	3	48	37-3/8	TLO-360A-048	S	277632	18-5/8	KTLO-360A-048	NS	277659	13
6	480	1	48	37-3/8	TLO-360A-048	NS	193981	18-5/8	KTLO-360A-048	NS	183960	13
6	480	3	48	37-3/8	TLO-360A-048	S	277640	18-5/8	KTLO-360A-048	S	277667	13
7.5	120	1	48	45	TLO-375A-048 ¹	NS	194001	21-1/4	KTLO-375A-048 ¹	NS	183978	14
7.5	240	1	48	45	TLO-375A-048	NS	194028	21-1/4	KTLO-375A-048	NS	183986	14
7.5	240	3	48	45	TLO-375A-048	NS	194036	21-1/4	KTLO-375A-048	NS	183994	14
7.5	480	1	48	45	TLO-375A-048	NS	194044	21-1/4	KTLO-375A-048	NS	184006	14
7.5	480	3	48	45	TLO-375A-048	NS	194052	21-1/4	KTLO-375A-048	NS	184014	14
9	120	1	48	52-1/2	TLO-390A-048 ¹	NS	194060	23-1/2	KTLO-390A-048 ¹	NS	184022	15
9	240	1	48	52-1/2	TLO-390A-048	NS	194087	23-1/2	KTLO-390A-048	NS	184030	15
9	240	3	48	52-1/2	TLO-390A-048	S	277675	23-1/2	KTLO-390A-048	NS	277691	15
9	480	1	48	52-1/2	TLO-390A-048	NS	194108	23-1/2	KTLO-390A-048	NS	184049	15
9	480	3	48	52-1/2	TLO-390A-048	S	277683	23-1/2	KTLO-390A-048	S	277704	15
10	240	1	48	56-1/2	TLO-310A-048 ¹	NS	194124	24-7/8	KTLO-310A-048 ¹	NS	184057	16
10	240	3	48	56-1/2	TLO-310A-048	NS	194132	24-7/8	KTLO-310A-048	NS	184065	16
10	480	1	48	56-1/2	TLO-310A-048	NS	194140	24-7/8	KTLO-310A-048	NS	184073	16
10	480	3	48	56-1/2	TLO-310A-048	NS	194159	24-7/8	KTLO-310A-048	NS	184081	16

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.

Note — Thermostat Kit Option: 0 - 100°F (AR-115 Kit, PCN 277835);
 60 - 250°F (AR-2529 Kit, PCN 277819); 200 - 550°F
 (AR-5529 Kit, PCN 277827)

1. Not UL or CSA (units exceed 48 Amps). Contact your Local Chromalox Sales office for additional circuits to comply with 48 Amp maximum.

TLS & KTLS

L-Shaped Metal Sheath Heaters

- Stainless Steel Sheath Elements (40 W/In²)
- Stainless Steel Riser (36 and 48")
- 2 - 18 kW
- 120, 240 and 480V, 1 & 3 Phase
- Moisture Resistant Terminal Enclosure
- For Mildly Corrosive Fluids



OVER-THE-SIDE

Specifications and Ordering Information

kW	Volts	Phase	Riser A - DIM (In.)	Straight Elements				Circular Elements				Wt. (Lbs.)
				Min. Tank Clearance B - DIM (In.)	Model	Stock	PCN	Min. Tank Clearance B - DIM (In.)	Model	Stock	PCN	
2 Elements — Stainless Steel (40 W/In²)												
2	120	1	36	12-1/4	TLS-220A-036	NS	193527	10-5/8	KTLS-220A-036	NS	182810	8
2	240	1	36	12-1/4	TLS-220A-036	NS	193535	10-5/8	KTLS-220A-036	NS	182828	8
2	480	1	36	12-1/4	TLS-220A-036	NS	193543	10-5/8	KTLS-220A-036	NS	182836	8
4	120	1	36	22-1/4	TLS-240A-036	NS	193551	13-3/4	KTLS-240A-036	NS	182844	8
4	240	1	36	22-1/4	TLS-240A-036	NS	193560	13-3/4	KTLS-240A-036	NS	182852	8
4	480	1	36	22-1/4	TLS-240A-036	NS	193578	13-3/4	KTLS-240A-036	NS	182860	8
6	120	1	36	29-1/2	TLS-260A-036 ¹	NS	193586	16-1/8	KTLS-260A-036 ¹	NS	182879	10
6	240	1	36	29-1/2	TLS-260A-036	NS	193594	16-1/8	KTLS-260A-036	NS	182887	10
6	480	1	36	29-1/2	TLS-260A-036	NS	193607	16-1/8	KTLS-260A-036	NS	182895	10
8	240	1	36	37-3/8	TLS-280A-036	NS	193615	18-5/8	KTLS-280A-036	NS	182908	12
8	480	1	36	37-3/8	TLS-280A-036	NS	193623	18-5/8	KTLS-280A-036	NS	182916	12
10	240	1	48	45	TLS-210A-048	NS	193631	21-1/4	KTLS-210A-048	NS	182924	14
10	480	1	48	45	TLS-210A-048	NS	193640	21-1/4	KTLS-210A-048	NS	182932	14
12	240	1	48	52-1/2	TLS-212A-048 ¹	NS	193658	23-1/2	KTLS-212A-048 ¹	NS	182940	16
12	480	1	48	52-1/2	TLS-212A-048	NS	193666	23-1/2	KTLS-212A-048	NS	182959	16
3 Elements — Stainless Steel (40 W/In²)												
3	120	1	36	12-1/4	TLS-330A-036	NS	194765	10-5/8	KTLS-330A-036	NS	183628	9
3	240	1	36	12-1/4	TLS-330A-036	NS	194781	10-5/8	KTLS-330A-036	NS	183636	9
3	240	3	36	12-1/4	TLS-330A-036	NS	277499	10-5/8	KTLS-330A-036	NS	183644	9
3	480	1	36	12-1/4	TLS-330A-036	NS	194802	10-5/8	KTLS-330A-036	NS	183652	9
3	480	3	36	12-1/4	TLS-330A-036	NS	194810	10-5/8	KTLS-330A-036	NS	183660	9
6	120	1	36	22-1/4	TLS-360A-036 ¹	NS	194829	13-3/4	KTLS-360A-036 ¹	NS	183679	10
6	240	1	36	22-1/4	TLS-360A-036	NS	194845	13-3/4	KTLS-360A-036	NS	183687	10
6	240	3	36	22-1/4	TLS-360A-036	NS	277501	13-3/4	KTLS-360A-036	NS	183695	10
6	480	1	36	22-1/4	TLS-360A-036	NS	194861	13-3/4	KTLS-360A-036	NS	183708	10
6	480	3	36	22-1/4	TLS-360A-036	S	277510	13-3/4	KTLS-360A-036	NS	183716	10
9	120	1	36	29-1/2	TLS-390A-036 ¹	NS	194888	16-1/8	KTLS-390A-036 ¹	NS	183724	12
9	240	1	36	29-1/2	TLS-390A-036	NS	194909	16-1/8	KTLS-390A-036	NS	183732	12
9	240	3	36	29-1/2	TLS-390A-036	S	277528	16-1/8	KTLS-390A-036	S	277544	12
9	480	1	36	29-1/2	TLS-390A-036	NS	194925	16-1/8	KTLS-390A-036	NS	183740	12
9	480	3	36	29-1/2	TLS-390A-036	S	277536	16-1/8	KTLS-390A-036	S	277552	12
12	240	1	48	37-3/8	TLS-312A-048 ¹	NS	194941	18-5/8	KTLS-312A-048 ¹	NS	183759	14
12	240	3	48	37-3/8	TLS-312A-048	S	194950	18-5/8	KTLS-312A-048	NS	183767	14
12	480	1	48	37-3/8	TLS-312A-048	NS	194968	18-5/8	KTLS-312A-048	NS	183775	14
12	480	3	48	37-3/8	TLS-312A-048	S	277560	18-5/8	KTLS-312A-048	S	277579	14
15	240	1	48	45	TLS-315A-048 ¹	NS	194984	21-1/4	KTLS-315A-048 ¹	NS	183783	16
15	240	3	48	45	TLS-315A-048	NS	194992	21-1/4	KTLS-315A-048	NS	183791	16
15	480	1	48	45	TLS-315A-048	NS	195004	21-1/4	KTLS-315A-048	NS	183804	16
15	480	3	48	45	TLS-315A-048	S	277587	21-1/4	KTLS-315A-048	NS	277595	16
18	240	1	48	52-1/2	TLS-318A-048 ¹	NS	195020	23-1/2	KTLS-318A-048 ¹	NS	183812	18
18	240	3	48	52-1/2	TLS-318A-048	NS	195039	23-1/2	KTLS-318A-048	NS	183820	18
18	480	1	48	52-1/2	TLS-318A-048	NS	195047	23-1/2	KTLS-318A-048	NS	183839	18
18	480	3	48	52-1/2	TLS-318A-048	S	277608	23-1/2	KTLS-318A-048	S	277616	18

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.

Note — Thermostat Kit Option: 0 - 100°F (AR-115 Kit, PCN 277835); 60 - 250°F (AR-2529 Kit, PCN 277819); 200 - 550°F (AR-5529 Kit, PCN 277827)

1. Not UL or CSA (units exceed 48 Amps). Contact your Local Chromalox Sales office for additional circuits to comply with 48 Amp maximum.

TLI & KTLI

L-Shaped Metal Sheath Heaters



- INCOLOY® Sheath Elements (40 W/in²)
- Stainless Steel Riser (36 and 48")
- 2 - 18 kW
- 120, 240 and 480V, 1 & 3 Phase
- Moisture Resistant Terminal Enclosure
- For Corrosive Fluids

Specifications and Ordering Information

kW	Volts	Phase	Riser A - DIM (In.)	Straight Elements			Circular Elements			Wt. (Lbs.)		
				Min. Tank Clearance B - DIM (In.)	Model	Stock	PCN	Min. Tank Clearance B - DIM (In.)	Model		Stock	PCN
2 Elements — INCOLOY® (40 W/in²)												
2	120	1	36	12-1/4	TLI-220A-036	NS	092970	10-5/8	KTLI-220A-036	NS	093120	8
2	240	1	36	12-1/4	TLI-220A-036	NS	092988	10-5/8	KTLI-220A-036	NS	093139	8
2	480	1	36	12-1/4	TLI-220A-036	NS	092996	10-5/8	KTLI-220A-036	NS	093147	8
4	120	1	36	22-1/4	TLI-240A-036	NS	093008	13-3/4	KTLI-240A-036	NS	093155	8
4	240	1	36	22-1/4	TLI-240A-036	NS	093016	13-3/4	KTLI-240A-036	NS	093163	8
4	480	1	36	22-1/4	TLI-240A-036	NS	093024	13-3/4	KTLI-240A-036	NS	093171	8
6	120	1	36	29-1/2	TLI-260A-036 ¹	NS	093032	16-1/8	KTLI-260A-036 ¹	NS	093180	10
6	240	1	36	29-1/2	TLI-260A-036	NS	093040	16-1/8	KTLI-260A-036	NS	093198	10
6	480	1	36	29-1/2	TLI-260A-036	NS	093059	16-1/8	KTLI-260A-036	NS	093200	10
8	240	1	36	37-3/8	TLI-280A-036	NS	093067	18-5/8	KTLI-280A-036	NS	093219	12
8	480	1	36	37-3/8	TLI-280A-036	NS	093075	18-5/8	KTLI-280A-036	NS	093227	12
10	240	1	48	45	TLI-210A-048	NS	093083	21-1/4	KTLI-210A-048	NS	093235	14
10	480	1	48	45	TLI-210A-048	NS	093091	21-1/4	KTLI-210A-048	NS	093243	14
12	240	1	48	52-1/2	TLI-212A-048 ¹	NS	093104	23-1/2	KTLI-212A-048 ¹	NS	093251	16
12	480	1	48	52-1/2	TLI-212A-048	NS	093112	23-1/2	KTLI-212A-048	NS	093260	16
3 Elements — INCOLOY® (40 W/in²)												
3	120	1	36	12-1/4	TLI-330A-036	NS	093278	10-5/8	KTLI-330A-036	NS	093542	9
3	240	1	36	12-1/4	TLI-330A-036	NS	093286	10-5/8	KTLI-330A-036	NS	093550	9
3	240	3	36	12-1/4	TLI-330A-036	NS	093294	10-5/8	KTLI-330A-036	NS	093569	9
3	480	1	36	12-1/4	TLI-330A-036	NS	093307	10-5/8	KTLI-330A-036	NS	093577	9
3	480	3	36	12-1/4	TLI-330A-036	NS	093315	10-5/8	KTLI-330A-036	NS	093585	9
6	120	1	36	22-1/4	TLI-360A-036 ¹	NS	093323	13-3/4	KTLI-360A-036 ¹	NS	093593	10
6	240	1	36	22-1/4	TLI-360A-036	NS	093331	13-3/4	KTLI-360A-036	NS	093606	10
6	240	3	36	22-1/4	TLI-360A-036	NS	093340	13-3/4	KTLI-360A-036	NS	093614	10
6	480	1	36	22-1/4	TLI-360A-036	NS	093358	13-3/4	KTLI-360A-036	NS	093622	10
6	480	3	36	22-1/4	TLI-360A-036	NS	093366	13-3/4	KTLI-360A-036	NS	093630	10
9	120	1	36	29-1/2	TLI-390A-036 ¹	NS	093374	16-1/8	KTLI-390A-036 ¹	NS	093649	12
9	240	1	36	29-1/2	TLI-390A-036	NS	093382	16-1/8	KTLI-390A-036	NS	093657	12
9	240	3	36	29-1/2	TLI-390A-036	NS	093390	16-1/8	KTLI-390A-036	NS	093665	12
9	480	1	36	29-1/2	TLI-390A-036	NS	093403	16-1/8	KTLI-390A-036	NS	093673	12
9	480	3	36	29-1/2	TLI-390A-036	NS	093411	16-1/8	KTLI-390A-036	NS	093681	12
12	240	1	48	37-3/8	TLI-312A-048 ¹	NS	093420	18-5/8	KTLI-312A-048 ¹	NS	093690	14
12	240	3	48	37-3/8	TLI-312A-048	NS	093438	18-5/8	KTLI-312A-048	NS	093702	14
12	480	1	48	37-3/8	TLI-312A-048	NS	093446	18-5/8	KTLI-312A-048	NS	093710	14
12	480	3	48	37-3/8	TLI-312A-048	NS	093454	18-5/8	KTLI-312A-048	NS	093729	14
15	240	1	48	45	TLI-315A-048 ¹	NS	093462	21-1/4	KTLI-315A-048 ¹	NS	093737	16
15	240	3	48	45	TLI-315A-048	NS	093470	21-1/4	KTLI-315A-048	NS	093745	16
15	480	1	48	45	TLI-315A-048	NS	093489	21-1/4	KTLI-315A-048	NS	093753	16
15	480	3	48	45	TLI-315A-048	NS	093497	21-1/4	KTLI-315A-048	NS	093761	16
18	240	1	48	52-1/2	TLI-318A-048 ¹	NS	093500	23-1/2	KTLI-318A-048 ¹	NS	093770	18
18	240	3	48	52-1/2	TLI-318A-048	NS	093518	23-1/2	KTLI-318A-048	NS	093788	18
18	480	1	48	52-1/2	TLI-318A-048	NS	093526	23-1/2	KTLI-318A-048	NS	093796	18
18	480	3	48	52-1/2	TLI-318A-048	NS	093534	23-1/2	KTLI-318A-048	NS	093809	18

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.

Note — Thermostat Kit Option: 0 - 100°F (AR-115 Kit, PCN 277835);
 60 - 250°F (AR-2529 Kit, PCN 277819); 200 - 550°F
 (AR-5529 Kit, PCN 277827)

1. Not UL or CSA (units exceed 48 Amps). Contact your Local Chromalox Sales office for additional circuits to comply with 48 Amp maximum.

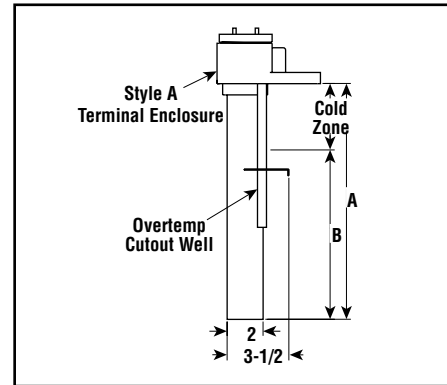
Immersion

GS & GT Side Mount Metal Tube Heaters

- 316 Stainless Steel and Titanium Sheath Tubes
- 20 and 40 W/in²
- 1 - 12 kW
- 120, 240 and 480 Volt, Single Phase
- Moisture Resistant Terminal Enclosure



Dimensions (Inches)



OVER-THE-SIDE

Features

- Moisture Resistant Terminal Enclosure
- Side Mounted Construction with Mounting Flange
- Single Use Overtemperature Protection Thermal Fuse Supplied as Standard, for Process Temperatures up to 180°F (82°C)/ Fuse Temperature 219°F (104°C) Limit. For Higher Process/Fuse Temperature Limits, Consult Factory. Field Replaceable
- Resettable Overtemperature Protection Thermal Fuses also Available
- Steel, 304SS and Other Sheath Materials and Configurations available

Specifications and Ordering Information

kW	Volts	W/in ²	Phase ¹	Dimensions (In.)		316SS			Titanium			Wt. (Lbs.)
				A	B	Model	PCN	Stock	Model	PCN	Stock	
GS and GT — 40 W/in²												
1	120	40	1	11	6	GS-11	050016	S	GT-11	050331	NS	6
1	240	40	1	11	6	GS-12	050024	NS	GT-12	050340	NS	6
2	240	40	1	17	10	GS-22	050032	S	GT-22	050358	NS	9
2	480	40	1	17	10	GS-24	050040	NS	GT-24	050366	NS	9
3	240	40	1	23	16	GS-32	050059	NS	GT-32	050374	NS	11
3	480	40	1	23	16	GS-34	050067	NS	GT-34	050382	NS	11
4	240	40	1	29	20	GS-42	050075	NS	GT-42	050390	NS	13
4	480	40	1	29	20	GS-44	050083	NS	GT-44	050403	NS	13
5	240	40	1	35	25	GS-52	050091	NS	GT-52	050411	NS	16
5	480	40	1	35	25	GS-54	050104	NS	GT-54	050420	NS	16
6	240	40	1	40	30	GS-62	050112	S	GT-62	050438	NS	18
6	480	40	1	40	30	GS-64	050120	S	GT-64	050446	NS	18
8	240	40	1	47	37	GS-82	050139	NS	GT-82	050454	NS	21
8	480	40	1	47	37	GS-84	050147	NS	GT-84	050462	NS	21
9	240	40	1	54	44	GS-92	050155	NS	GT-92	050470	NS	23
9	480	40	1	54	44	GS-94	050163	NS	GT-94	050489	NS	23
10	240	40	1	59	49	GS-102	050171	NS	GT-102	050497	NS	25
10	480	40	1	59	49	GS-104	050180	NS	GT-104	050500	NS	25
12	480	40	1	68	58	GS-124	050200	NS	GT-124	050526	NS	29
GDS and GDT — 20 W/in²												
1	240	20	1	17	10	GDS-12	050219	NS	GDT-12	050534	NS	9
1	480	20	1	17	10	GDS-14	050227	NS	GDT-14	050542	NS	9
2	240	20	1	29	20	GDS-22	050235	NS	GDT-22	050550	NS	13
2	480	20	1	29	20	GDS-24	050243	NS	GDT-24	050569	NS	13
3	240	20	1	40	30	GDS-32	050251	NS	GDT-32	050577	NS	17
3	480	20	1	40	30	GDS-34	050260	NS	GDT-34	050585	NS	17
4	240	20	1	47	37	GDS-42	050278	NS	GDT-42	050593	NS	21
4	480	20	1	47	37	GDS-44	050286	NS	GDT-44	050606	NS	21
5	240	20	1	59	49	GDS-52	050294	NS	GDT-52	050614	NS	25
5	480	20	1	59	49	GDS-54	050307	NS	GDT-54	050622	NS	25
6	240	20	1	68	58	GDS-62	050315	NS	GDT-62	050630	NS	29
6	480	20	1	68	58	GDS-64	050323	NS	GDT-64	050649	NS	29

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.

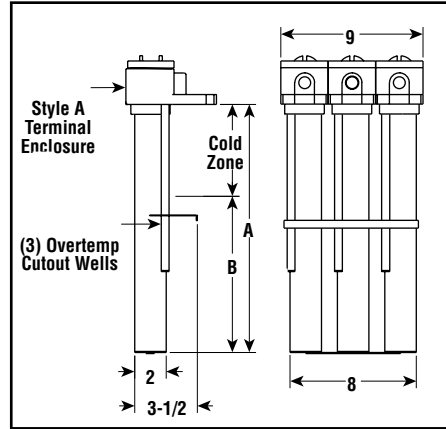
GS3 & GT3

Side Mount Metal Tube Heaters

- 316 Stainless Steel and Titanium Sheath Tubes
- 20 and 40 W/In²
- 3 - 36 kW
- 120, 240 and 480 Volt, 1 or 3 Phase
- Moisture Resistant Terminal Enclosure



Dimensions (Inches)



Features

- Moisture Resistant Terminal Enclosure
- Side Mounted Construction with Mounting Flange
- Single Use Overtemperature Protection Thermal Fuse Supplied as Standard, for Process Temperatures up to 180°F (82°C)/ Fuse Temperature 219°F (104°C) Limit. For Higher Process/Fuse Temperature Limits, Consult Factory. Field Replaceable
- Resettable Overtemperature Protection Thermal Fuses also Available
- Available in Single Phase
- Steel, 304SS and Other Sheath Materials and Configurations available

Specifications and Ordering Information

kW	Volts	W/In ²	Phase ¹	Dimensions (In.)		316SS			Titanium			Wt. (Lbs.)
				A	B	Model	PCN	Stock	Model	PCN	Stock	
GS3 and GT3 – 40 W/In²												
3	240	40	3	11	6	GS3-32	050665	NS	GT3-32	050980	NS	18
6	240	40	3	17	10	GS3-62	050673	NS	GT3-62	050999	NS	27
6	480	40	3	17	10	GS3-64	050681	NS	GT3-64	051000	NS	27
9	240	40	3	23	16	GS3-92	050690	NS	GT3-92	051019	NS	33
9	480	40	3	23	16	GS3-94	050702	NS	GT3-94	051027	NS	33
12	240	40	3	29	20	GS3-122	050710	NS	GT3-122	051035	NS	39
12	480	40	3	29	20	GS3-124	050729	NS	GT3-124	051043	NS	39
15	240	40	3	35	25	GS3-152	050737	NS	GT3-152	051051	NS	46
15	480	40	3	35	25	GS3-154	050745	NS	GT3-154	051060	NS	46
18	240	40	3	40	30	GS3-182	050753	NS	GT3-182	051078	NS	50
18	480	40	3	40	30	GS3-184	050761	NS	GT3-184	051086	NS	50
24	240	40	3	47	37	GS3-242	050770	NS	GT3-242	051094	NS	63
24	480	40	3	47	37	GS3-244	050788	NS	GT3-244	051107	NS	63
27	480	40	3	54	44	GS3-274	050809	NS	GT3-274	051123	NS	69
30	480	40	3	59	49	GS3-304	050825	NS	GT3-304	051140	NS	75
36	480	40	3	68	58	GS3-364	050841	NS	GT3-364	051166	NS	84
GDS3 and GDT3 – 20 W/In²												
3	240	20	3	17	10	GDS3-32	050850	NS	GDT3-32	051174	NS	27
3	480	20	3	17	10	GDS3-34	050868	NS	GDT3-34	051182	NS	27
6	240	20	3	29	20	GDS3-62	050876	NS	GDT3-62	051190	NS	39
6	480	20	3	29	20	GDS3-64	050884	NS	GDT3-64	051203	NS	39
9	240	20	3	40	30	GDS3-92	050892	NS	GDT3-92	051211	NS	54
9	480	20	3	40	30	GDS3-94	050905	NS	GDT3-94	051220	NS	54
12	240	20	3	47	37	GDS3-122	050913	NS	GDT3-122	051238	NS	63
12	480	20	3	47	37	GDS3-124	050921	NS	GDT3-124	051246	NS	63
15	240	20	3	59	49	GDS3-152	050930	NS	GDT3-152	051254	NS	75
15	480	20	3	59	49	GDS3-154	050948	NS	GDT3-154	051262	NS	75
18	240	20	3	68	58	GDS3-182	050956	NS	GDT3-182	051270	NS	87
18	480	20	3	68	58	GDS3-184	050964	NS	GDT3-184	051289	NS	87

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.

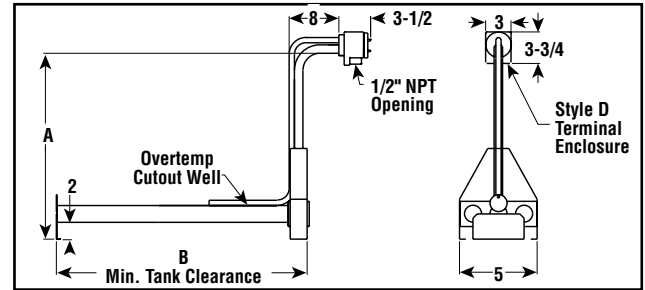
GSL & GTL

L-Shaped Metal Tube Heaters

- 316 Stainless Steel and Titanium Sheath Tubes
- 20 and 40 W/in²
- 1 - 12 kW
- 120, 240 and 480 Volt, Single Phase
- Moisture Resistant Terminal Enclosure



Dimensions (Inches)*



*Heaters with 40 Full load amps or more require larger electrical box.

Features

- Moisture Resistant Terminal Enclosure
- Bottom Mounted L-Shaped Construction
- Single Use Overtemperature Protection Thermal Fuse Supplied as Standard, for Process Temperatures up to 180°F (82°C)/ Fuse Temperature 219°F (104°C) Limit. For Higher Process/Fuse Temperature Limits, Consult Factory. Field Replaceable
- Resettable Overtemperature Protection Thermal Fuses also Available
- Steel, 304SS and Other Sheath Materials and Configurations available
- Optional Riser Heights available
- Optional Housing Offsets available

OVER-THE-SIDE

Specifications and Ordering Information

kW	Volts	W/in ²	Phase ¹	Dimensions (In.)		316SS		Titanium		Stock	Wt. (Lbs.)
				A	B	Model	PCN	Model	PCN		
GSL and GTL — 40 W/in²											
1	120	40	1	15	13	GSL-11	051297	GTL-11	051617	NS	11
1	240	40	1	15	13	GSL-12	051300	GTL-12	051625	NS	11
2	240	40	1	19	17	GSL-22	051318	GTL-22	051633	NS	12
2	480	40	1	19	17	GSL-24	051326	GTL-24	051641	NS	12
3	240	40	1	25	22	GSL-32	051334	GTL-32	051650	S	13
3	480	40	1	25	22	GSL-34	051342	GTL-34	051668	NS	13
4	240	40	1	25	26	GSL-42	051350	GTL-42	051676	NS	14
4	480	40	1	25	26	GSL-44	051369	GTL-44	051684	NS	14
5	240	40	1	37	31	GSL-52	051377	GTL-52	051692	NS	15
5	480	40	1	37	31	GSL-54	051385	GTL-54	051705	NS	15
6	240	40	1	50	36	GSL-62	051393	GTL-62	051713	NS	16
6	480	40	1	50	36	GSL-64	051406	GTL-64	051721	NS	16
8	240	40	1	50	44	GSL-82	051414	GTL-82	051730	NS	19
8	480	40	1	50	44	GSL-84	051422	GTL-84	051748	NS	19
9	240	40	1	50	50	GSL-92	051430	GTL-92	051756	NS	21
9	480	40	1	50	50	GSL-94	051449	GTL-94	051764	NS	21
10	240	40	1	50	55	GSL-102	051457	GTL-102	051772	NS	23
10	480	40	1	50	55	GSL-104	051465	GTL-104	051780	NS	23
12	240	40	1	50	64	GSL-122	051473	GTL-122	051799	NS	26
12	480	40	1	50	64	GSL-124	051481	GTL-124	051801	NS	26
GDSL and GDTL — 20 W/in²											
1	120	20	1	19	17	GDSL-11	051490	GDTL-11	051810	NS	12
1	240	20	1	19	17	GDSL-12	051502	GDTL-12	051828	NS	12
2	240	20	1	25	26	GDSL-22	051510	GDTL-22	051836	NS	14
2	480	20	1	25	26	GDSL-24	051529	GDTL-24	051844	NS	14
3	240	20	1	50	36	GDSL-32	051537	GDTL-32	051852	NS	16
3	480	20	1	50	36	GDSL-34	051545	GDTL-34	051860	NS	16
4	240	20	1	50	44	GDSL-42	051553	GDTL-42	051879	NS	19
4	480	20	1	50	44	GDSL-44	051561	GDTL-44	051887	NS	19
5	240	20	1	50	55	GDSL-52	051570	GDTL-52	051895	NS	23
5	480	20	1	50	55	GDSL-54	051588	GDTL-54	051908	NS	23
6	240	20	1	50	64	GDSL-62	051596	GDTL-62	051916	NS	26
6	480	20	1	50	64	GDSL-64	051609	GDTL-64	051924	NS	26

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.

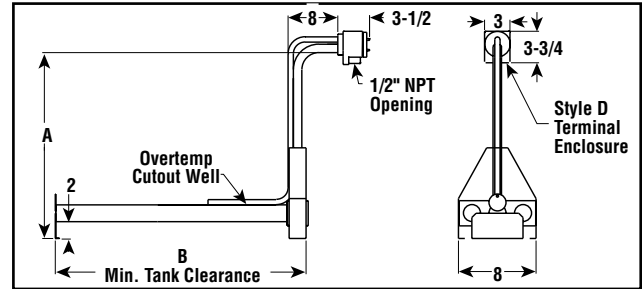
GSL3 & GTL3

L-Shaped Metal Tube Heaters

- 316 Stainless Steel and Titanium Sheath Tubes
- 20 and 40 W/in²
- 3 - 36 kW
- 240 and 480 Volt, Three Phase
- Moisture Resistant Terminal Enclosure



Dimensions (Inches)*



*Heaters with 40 Full load amps or more require larger electrical box.

Features

- Moisture Resistant Terminal Enclosure
- Bottom Mounted L-Shaped Construction
- Single Use Overtemperature Protection Thermal Fuse Supplied as Standard, for Process Temperatures up to 180°F (82°C)/ Fuse Temperature 219°F (104°C) Limit. For Higher Process/Fuse Temperature Limits, Consult Factory. Field Replaceable
- Resettable Overtemperature Protection Thermal Fuses also Available
- Steel, 304SS and Other Sheath Materials and Configurations available
- Optional Riser Heights available
- Optional Housing Offsets available

Specifications and Ordering Information

kW	Volts	W/in ²	Phase ¹	Dimensions (In.)		316SS			Titanium			Wt. (Lbs.)
				A	B	Model	PCN	Stock	Model	PCN	Stock	
GSL3 and GTL3 — 40 W/in²												
3	240	40	3	15	13	GSL3-32	051932	NS	GTL3-32	052257	NS	25
3	480	40	3	15	13	GSL3-34	051940	NS	GTL3-34	052265	NS	25
6	240	40	3	37	17	GSL3-62	051959	NS	GTL3-62	052273	NS	29
6	480	40	3	37	17	GSL3-64	051967	NS	GTL3-64	052281	NS	29
9	240	40	3	37	22	GSL3-92	051975	NS	GTL3-92	052290	NS	35
9	480	40	3	37	22	GSL3-94	051983	S	GTL3-94	052302	NS	35
12	240	40	3	37	26	GSL3-122	051991	NS	GTL3-122	052310	NS	43
12	480	40	3	37	26	GSL3-124	052003	NS	GTL3-124	052329	NS	43
15	240	40	3	37	31	GSL3-152	052011	NS	GTL3-152	052337	NS	50
15	480	40	3	37	31	GSL3-154	052020	S	GTL3-154	052345	NS	50
18	240	40	3	50	36	GSL3-182	052038	NS	GTL3-182	052353	NS	58
18	480	40	3	50	36	GSL3-184	052046	S	GTL3-184	052361	NS	58
24	240	40	3	50	44	GSL3-242	052054	NS	GTL3-242	052370	NS	69
24	480	40	3	50	44	GSL3-244	052062	NS	GTL3-244	052388	NS	69
27	240	40	3	50	50	GSL3-272	052070	NS	GTL3-272	052396	NS	76
27	480	40	3	50	50	GSL3-274	052089	NS	GTL3-274	052409	NS	76
30	240	40	3	50	55	GSL3-302	052097	NS	GTL3-302	052417	NS	83
30	480	40	3	50	55	GSL3-304	052100	NS	GTL3-304	052425	NS	83
36	240	40	3	50	64	GSL3-362	052118	NS	GTL3-362	052433	NS	94
36	480	40	3	50	64	GSL3-364	052126	NS	GTL3-364	052441	NS	94
GDLS3 and GDTL3 — 20 W/in²												
3	240	20	3	15	17	GDLS3-32	052134	NS	GDTL3-32	052450	NS	29
3	480	20	3	15	17	GDLS3-34	052142	NS	GDTL3-34	052468	NS	29
6	240	20	3	37	26	GDLS3-62	052150	NS	GDTL3-62	052476	NS	43
6	480	20	3	37	26	GDLS3-64	052169	NS	GDTL3-64	052484	NS	43
9	240	20	3	50	36	GDLS3-92	052177	NS	GDTL3-92	052492	NS	58
9	480	20	3	50	36	GDLS3-94	052185	NS	GDTL3-94	052505	NS	58
12	240	20	3	50	44	GDLS3-122	052193	NS	GDTL3-122	052513	NS	69
12	480	20	3	50	44	GDLS3-124	052206	NS	GDTL3-124	052521	NS	69
15	240	20	3	50	55	GDLS3-152	052214	NS	GDTL3-152	052530	NS	83
15	480	20	3	50	55	GDLS3-154	052222	NS	GDTL3-154	052548	NS	83
18	240	20	3	50	64	GDLS3-182	052230	NS	GDTL3-182	052556	NS	94
18	480	20	3	50	64	GDLS3-184	052249	NS	GDTL3-184	052564	NS	94

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.

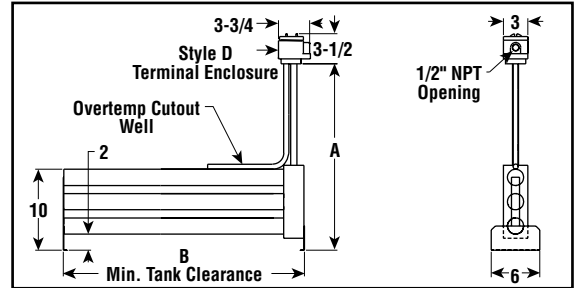
GSV3 & GTV3

L-Shaped Vertical Stacked Metal Tube Heaters

- 316 Stainless Steel and Titanium Sheath Tubes
- 20 and 40 W/in²
- 3 - 36 kW
- 240 and 480 Volt, Three Phase
- Moisture Resistant Terminal Enclosure



Dimensions (Inches)



OVER-THE-SIDE

Features

- Moisture Resistant Terminal Enclosure
- Bottom Mounted L-Shaped Construction
- Single Use Overtemperature Protection Thermal Fuse Supplied as Standard, for Process Temperatures up to 180°F (82°C)/ Fuse Temperature 219°F (104°C) Limit.

For Higher Process/Fuse Temperature Limits, Consult Factory. Field Replaceable

- Resettable Overtemperature Protection Thermal Fuses also Available
- Steel, 304SS and Other Sheath Materials and Configurations available
- Optional Riser Heights available

Specifications and Ordering Information

kW	Volts	W/in ²	Phase ¹	Dimensions (In.)		316SS		Titanium		Stock	Wt. (Lbs.)
				A	B	Model	PCN	Model	PCN		
GSV3 and GTV3 — 40 W/in²											
3	240	40	3	15	13	GSV3-32	052572	GTV3-32	052898	NS	25
3	480	40	3	15	13	GSV3-34	052580	GTV3-34	052900	NS	25
6	240	40	3	37	17	GSV3-62	052599	GTV3-62	052919	NS	29
6	480	40	3	37	17	GSV3-64	052601	GTV3-64	052927	NS	29
9	240	40	3	37	22	GSV3-92	052610	GTV3-92	052935	NS	35
9	480	40	3	37	22	GSV3-94	052628	GTV3-94	052943	NS	35
12	240	40	3	37	26	GSV3-122	052636	GTV3-122	052951	NS	43
12	480	40	3	37	26	GSV3-124	052644	GTV3-124	052960	NS	43
15	240	40	3	50	31	GSV3-152	052652	GTV3-152	052978	NS	50
15	480	40	3	50	31	GSV3-154	052660	GTV3-154	052986	NS	50
18	240	40	3	50	36	GSV3-182	052679	GTV3-182	052994	NS	58
18	480	40	3	50	36	GSV3-184	052687	GTV3-184	053006	NS	58
24	240	40	3	50	44	GSV3-242	052695	GTV3-242	053014	NS	69
24	480	40	3	50	44	GSV3-244	052708	GTV3-244	053022	NS	69
27	240	40	3	50	50	GSV3-272	052716	GTV3-272	053030	NS	76
27	480	40	3	50	50	GSV3-274	052724	GTV3-274	053049	NS	76
30	240	40	3	50	55	GSV3-302	052732	GTV3-302	053057	NS	83
30	480	40	3	50	55	GSV3-304	052740	GTV3-304	053065	NS	83
36	240	40	3	50	64	GSV3-362	052759	GTV3-362	053073	NS	94
36	480	40	3	50	64	GSV3-364	052767	GTV3-364	053081	NS	94
GDSV3 and GDTV3 — 20 W/in²											
3	240	20	3	15	17	GDSV3-32	052775	GDTV3-32	053090	NS	29
3	480	20	3	15	17	GDSV3-34	052783	GDTV3-34	053102	NS	29
6	240	20	3	37	26	GDSV3-62	052791	GDTV3-62	053110	NS	43
6	480	20	3	37	26	GDSV3-64	052804	GDTV3-64	053129	NS	43
9	240	20	3	50	36	GDSV3-92	052812	GDTV3-92	053137	NS	58
9	480	20	3	50	36	GDSV3-94	052820	GDTV3-94	053145	NS	58
12	240	20	3	50	44	GDSV3-122	052839	GDTV3-122	053153	NS	69
12	480	20	3	50	44	GDSV3-124	052847	GDTV3-124	053161	NS	69
15	240	20	3	50	55	GDSV3-152	052855	GDTV3-152	053170	NS	83
15	480	20	3	50	55	GDSV3-154	052863	GDTV3-154	053188	NS	83
18	240	20	3	50	64	GDSV3-182	052871	GDTV3-182	053196	NS	94
18	480	20	3	50	64	GDSV3-184	052880	GDTV3-184	053209	NS	94

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.

QM & QM3 Side Mount Quartz Tube Heaters



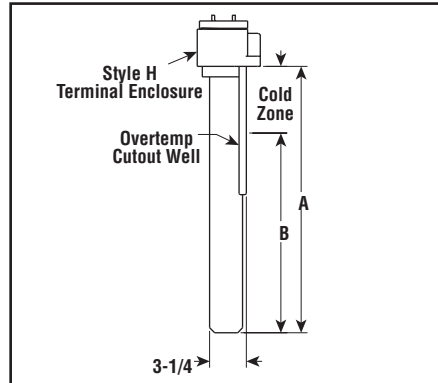
QM – Single Unit

- INCOLOY® Sheath Elements Enclosed in Quartz Tube
- 25 W/In²
- 1 - 10 kW
- 120, 240 and 480 Volt, 1 or 3 Phase
- Moisture Resistant Terminal Enclosure

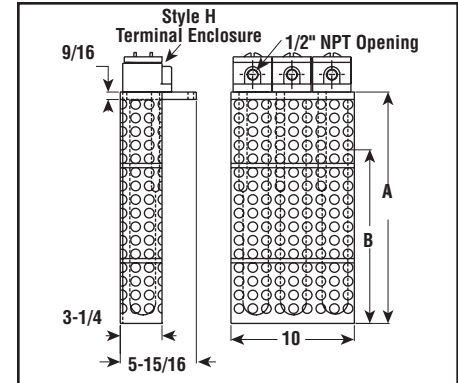
QM3 – Triple Units

- INCOLOY® Sheath Elements Enclosed in Quartz Tube
- 25 W/In²
- 3 - 30 kW
- 120, 240 and 480 Volt, 1 or 3 Phase
- Moisture Resistant Terminal Enclosure

QM – Dimensions (Inches)



QM3 – Dimensions (Inches)



Specifications and Ordering Information

kW	Volts	W/In ²	Phase	DIM (In.)		Model	Stock	Element PCN	Quartz Tube PCN	Guard PCN	Wt. (Lbs.)
				A	B						
QM – Single Unit											
Order 1 Element + 1 Quartz Tube + 1 Guard											
1	120	25	1	11	7	QM-11	S	054973	056012	055132	10
1	240	25	1	11	7	QM-12	NS	054981			10
2	240	25	1	17	12	QM-22	NS	054990	056020	055140	11
2	480	25	1	17	12	QM-24	S	055001			11
3	240	25	1	23	18	QM-32	NS	055010	056039	055159	14
3	480	25	1	23	18	QM-34	NS	055028			14
4	240	25	1	35	28	QM-42	S	055036	056047	055167	20
4	480	25	1	35	28	QM-44	NS	055044			20
5	240	25	1	41	33	QM-52	NS	055052	056071	055175	23
5	480	25	1	41	33	QM-54	NS	055060			23
6	240	25	1	47	39	QM-62	NS	055079	056080	055183	26
6	480	25	1	47	39	QM-64	NS	055087			26
8	240	25	1	59	49	QM-82	NS	055095	056098	055191	31
8	480	25	1	59	49	QM-84	NS	055108			31
10	240	25	1	71	62	QM-102	NS	055116	056100	055204	34
10	480	25	1	71	62	QM-104	NS	055124			34
QM3 – Three Units											
Order 3 Elements + 3 Quartz Tubes + 1 Guard											
3	120	25	1	11	7	QM3-31	NS	054973	056012	055458	22
3	240	25	1	11	7	QM3-32	NS	054981			22
6	240	25	1	17	12	QM3-62	NS	054990	056020	055466	26
6	480	25	1	17	12	QM3-64	NS	055001			26
9	240	25	1	23	18	QM3-92	NS	055010	056039	055474	30
9	480	25	1	23	18	QM3-94	NS	055028			30
12	240	25	1	35	28	QM3-122	NS	055036	056047	055482	38
12	480	25	1	35	28	QM3-124	NS	055044			38
15	240	25	1	41	33	QM3-152	NS	055052	056071	055490	44
15	480	25	1	41	33	QM3-154	NS	055060			44
18	240	25	1	47	39	QM3-182	NS	055079	056080	055503	48
18	480	25	1	47	39	QM3-184	NS	055087			48
24	240	25	1	59	49	QM3-242	NS	055095	056098	055511	55
24	480	25	1	59	49	QM3-244	NS	055108			55
30	240	25	1	71	62	QM3-302	NS	055116	056100	055520	65
30	480	25	1	71	62	QM3-304	NS	055124			65

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.
Notes —

- A. Individual single phase heaters can be field wired for three phase.
- B. Guard (not shown), required for tank mounting. Order separately by PCN.
- C. Elements, quartz tube and guard shipped separately.

PTH & PTHT Side Mount Metal Sheath Heaters

- Passivated 316 Stainless Steel and Titanium Sheath Elements
- 1 - 9 kW
- 20 - 35 W/in²
- 120, 240 and 480 Volt, Single Phase
- Moisture Resistant Terminal Enclosure

Features

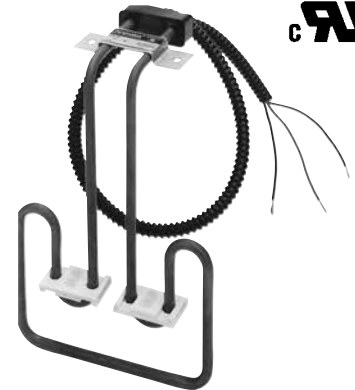
Heavy Duty, Non-Fragile and will not break due to thermal shock.

Flat Profile consumes little tank work area space, is easily removed for cleaning or for use in another tank.

Spacer Bar prevents element from touching the tank wall.

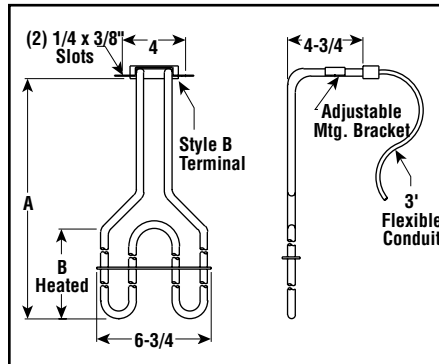
Long Life Construction — Compacted magnesium oxide construction with passivated type 316 stainless steel or Titanium sheath provides longer life than the large diameter probe type heaters.

Vapor-Tight Terminal Enclosure and 3-foot long flexible conduit containing two power leads and a ground wire.

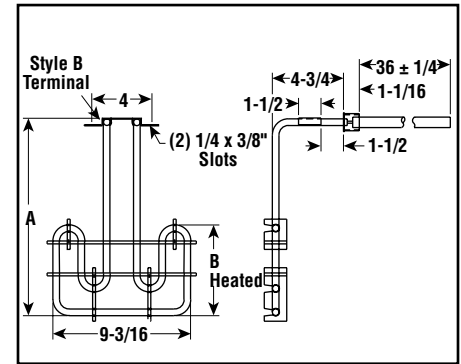


OVER-THE-SIDE

PTH — Dimensions (Inches)



PTHT — Dimensions (Inches)



Specifications and Ordering Information

kW	Volts	W/in ²	Phase	Dimensions (In.)		Model	Stock	PCN	Wt. (Lbs.)
				A	B				
PTH — Passivated 316 Stainless Steel									
1	120	21	1	14	8	PTH-101	S	326043	4
1	240	21	1	14	8	PTH-102	S	326051	4
2	240	31	1	21	11	PTH-202	S	326060	4
2	480	31	1	21	11	PTH-204	S	326078	4
3	240	32	1	26	16	PTH-302	S	326086	5
3	480	32	1	26	16	PTH-304	S	326094	5
4	240	34	1	30	20	PTH-402	S	326107	5
4	480	34	1	30	20	PTH-404	S	326115	5
6	240	34	1	40	30	PTH-602	S	326123	6
6	480	34	1	40	30	PTH-604	S	326131	6
9	240	34	1	54	44	PTH-902	NS	326140	8
9	480	34	1	54	44	PTH-904	S	326158	8
PTHT — Titanium									
1	120	20	1	13	6	PTHT-101	NS	098976	4
1	240	20	1	13	6	PTHT-102	NS	098984	4
2	240	30	1	21	12	PTHT-202	NS	098992	4
2	480	30	1	21	12	PTHT-204	NS	099004	4
3	240	30	1	26	17	PTHT-302	NS	099012	5
3	480	30	1	26	17	PTHT-304	NS	099020	5
4	240	35	1	31	22	PTHT-402	NS	099039	5
4	480	35	1	31	22	PTHT-404	NS	099047	5
6	240	35	1	42	33	PTHT-602	NS	099055	6
6	480	35	1	42	33	PTHT-604	NS	099063	6
8	240	35	1	53	44	PTHT-802	NS	099071	8
8	480	35	1	53	44	PTHT-804	NS	099080	8

Stock Status: S = stock NS = non-stock

To Order—Specify model, PCN, kW, volts, phase and quantity.

Notes —

A. Liquid level should be above B dimension.

B. Also available in other sheath materials and electrical ratings. Contact your Local Chromalox Sales office.

C. If used in solutions that develop a scale on the sheath, periodic cleaning is required.



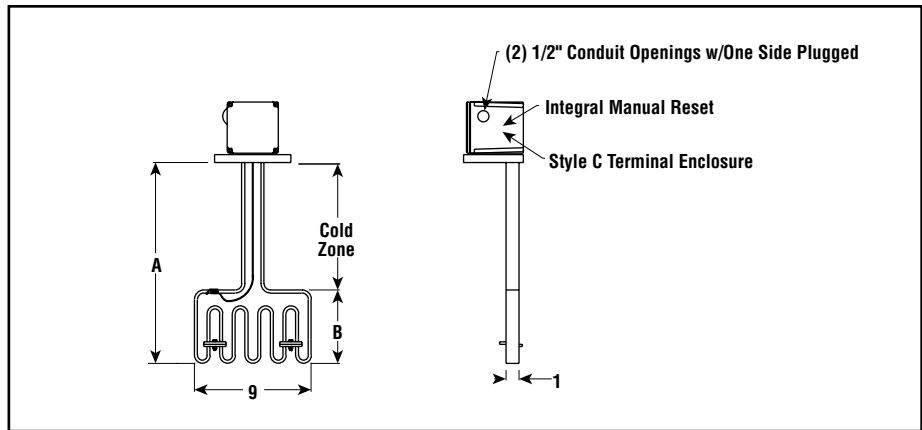
PTHF

Side Mount Metal Sheath Thin Blade Heater

- 304 Stainless Steel Electro-polished Thinblade Elements
- 20 W/In²
- 3 - 10 kW
- 240 and 480 Volt, Three Phase
- Moisture Resistant Terminal Enclosure



Dimensions (Inches)



Features

- Moisture Resistant Terminal Enclosure
- Side Mounted Construction with PVC Mounting Flange
- Overtemperature Protection Integral Manual Reset Cutout (240°F)
- Low Profile, Light Weight

Specifications and Ordering Information

kW	Volts	W/In ²	Phase	Dimensions (In.)		304SS			Wt. (Lbs.)
				A	B	Model	Stock	PCN	
3	240	20	1-3	16	7	PTHF-302	S	098870	7
3	480	20	1-3	16	7	PTHF-304	NS	098880	7
4	240	20	1-3	18	9	PTHF-402	S	098896	8
4	480	20	1-3	18	9	PTHF-404	S	098909	8
6	240	20	3	22	13	PTHF-602	S	098917	9
6	480	20	3	22	13	PTHF-604	S	098925	9
8	240	20	3	27	18	PTHF-802	S	098933	10
8	480	20	3	27	18	PTHF-804	S	098941	10
10	240	20	3	31	22	PTHF-1002	S	098950	11
10	480	20	3	31	22	PTHF-1004	S	098968	11

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.

Note: 480 Volt units not UL Listed or CSA Certified

CT Side Mount Metal Sheath Heater

- 304 Stainless Steel, Titanium, Steel, Copper, and Carpenter 20 Sheath Elements
- 5 - 7.5 kW
- 20 - 44 W/In²
- 240 Volt, Single Phase
- Moisture Resistant Terminal Enclosure

Features

Choice of six different sheath materials.

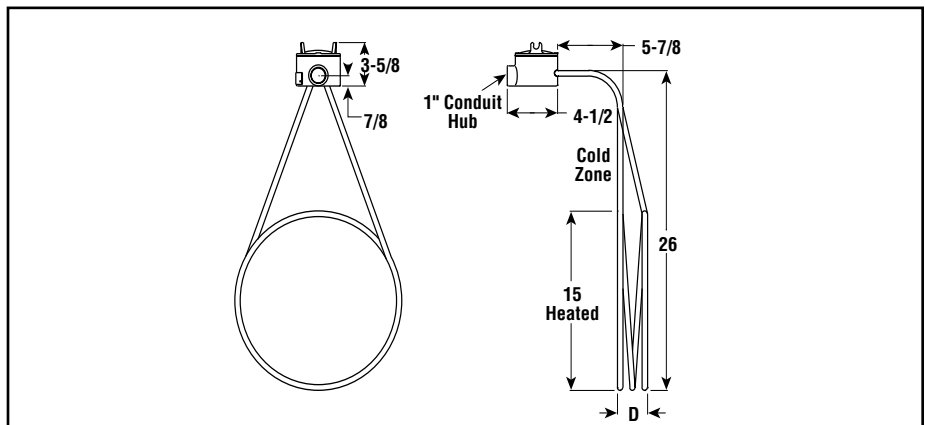
Vertical Loop configuration with low profile for maximum conservation of tank space.

Medium to high watt density.

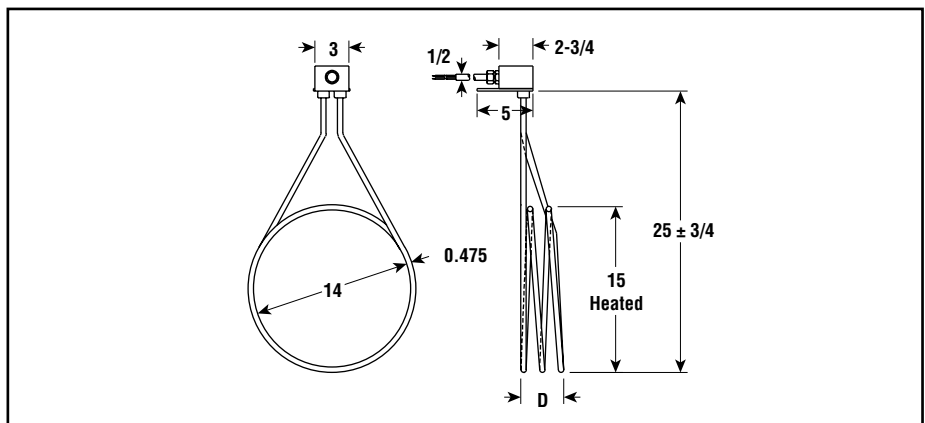
Vapor-Tight Cast Alloy Terminal Enclosure on all except type CTT. Type CTT has special plastic covered terminal enclosure and 3-foot lead wire (two conductors and a ground wire) inside a liquid-tight flexible conduit with removable lid.



Dimensions (Inches) — CTS, CTC, CTSS, CTAC



Dimensions (Inches) — CTT



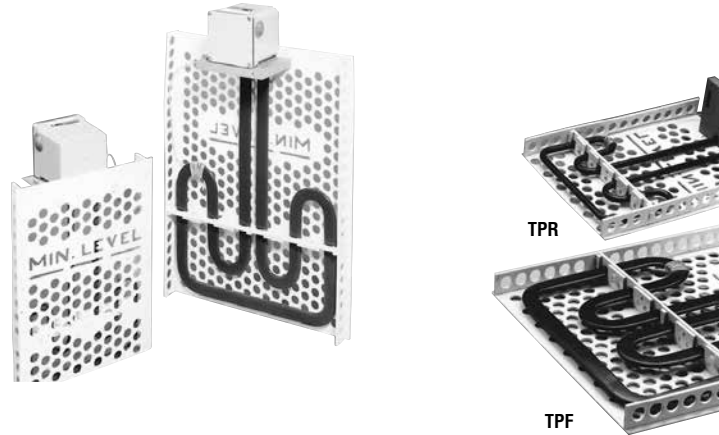
Specifications and Ordering Information

kW	Volts	W/In ²	Phase	DIM D (In.)	Sheath Material	Model	Stock	PCN	Wt. (Lbs.)
5	240	25	1	2	Steel	CTS-50	NS	195901	20
7.5	240	40	1	2	Steel	CTS-75	S	195910	20
5	240	25	1	2	Copper	CTC-50	NS	195928	20
7.5	240	40	1	2	Copper	CTC-75	S	195936	20
5	240	25	1	2-3/4	304SS	CTSS-50	S	195944	20
7.5	240	40	1	2-3/4	304SS	CTSS-75	S	195952	20
5	240	25	1	2-3/4	Carpenter 20	CTAC-50	S	195995	20
7.5	240	40	1	2-3/4	Carpenter 20	CTAC-75	NS	196007	20
5	240	44	1	1-1/2	Titanium	CTT-50	S	269350	20
7.5	240	44	1	2-1/2	Titanium	CTT-75	NS	269368	20

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.

TPR & TPF

Side Mount Fluoropolymer Coated Metal Thin Blade Heaters



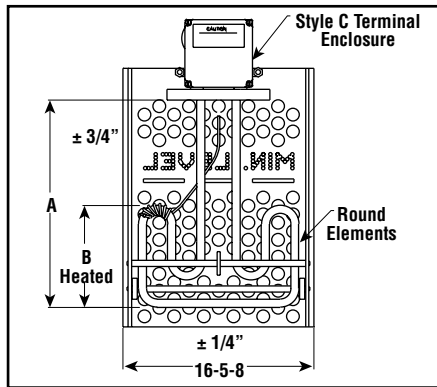
TPR — Round Cross Section Elements

- Fluoropolymer Coated Stainless Steel Elements
- 20 W/In²
- 1 - 8 kW
- 120, 240 and 480 Volt, Single Phase
- Moisture Resistant Terminal Enclosure

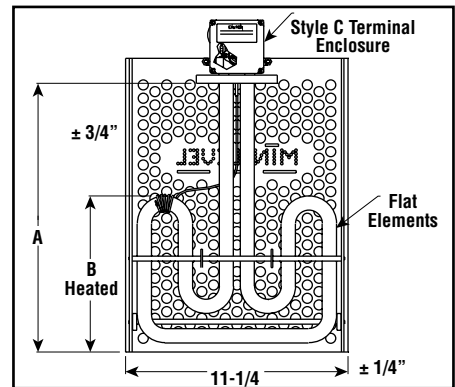
TPF — Flat Elements

- Fluoropolymer Coated Stainless Steel Thinblade Elements
- 20 W/In²
- 3 - 10 kW
- 240 and 480 Volt, Three Phase
- Moisture Resistant Terminal Enclosure

TPR — Dimensions (Inches)



TPF — Dimensions (Inches)



Specifications and Ordering Information

kW	Volts	W/In ²	Phase	Dimensions (In.)		Fluoropolymer			WT. (Lbs.)
				A	B	Model	Stock	PCN	
TPR — Round Cross Section Elements									
1	120	20	1	13	6	TPR-101	S	097287	4
1	240	20	1	13	6	TPR-102	NS	097295	4
2	240	20	1	21	12	TPR-202	S	097308	5
2	480	20	1	21	12	TPR-204	NS	097316	5
3	240	20	1	26	17	TPR-302	S	097324	6
3	480	20	1	26	17	TPR-304	NS	097332	6
4	240	20	1	31	22	TPR-402	S	097340	7
4	480	20	1	31	22	TPR-404	S	097359	7
6	240	20	1	42	33	TPR-602	S	097367	10
6	480	20	1	42	33	TPR-604	NS	097375	10
8	240	20	1	53	44	TPR-802	NS	097383	12
8	480	20	1	53	44	TPR-804	NS	097391	12
TPF — Flat Elements									
3	240	20	3	20	11	TPF-302	S	097439	8
3	480	20	3	20	11	TPF-304	S	097447	8
4	240	20	3	23	14	TPF-402	NS	097455	9
4	480	20	3	23	14	TPF-404	S	097463	9
6	240	20	3	30	21	TPF-602	S	097471	11
6	480	20	3	30	21	TPF-604	S	097480	11
8	240	20	3	37	28	TPF-802	S	097498	12
8	480	20	3	37	28	TPF-804	S	097500	12
10	240	20	3	44	35	TPF-1002	S	097535	14
10	480	20	3	44	35	TPF-1004	S	097543	14

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.

Note: 480 Volt units not UL Listed or CSA Certified

Features

- Moisture Resistant Terminal Enclosure
- Standard Polypropylene Guard
- Side Mounted Construction with PVC Mounting Flange
- Overtemperature Protection Integral Manual Reset Cutout (240°F)
- Low Profile, Light Weight

GTF & GTFL Fluoropolymer Covered Heaters

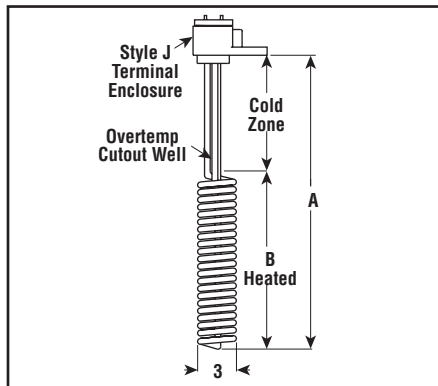
- GTF — Side Mount
- GTFL — L-Shaped
- Fluoropolymer Covered Stainless Steel Elements
- 10 W/in²
- 1- 6 kW
- 120, 240 and 480 Volt, Single Phase
- Moisture Resistant Terminal Enclosure

Features

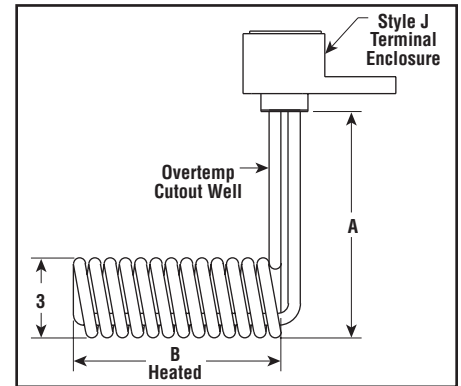
- Moisture Resistant Terminal Enclosure
- Side Mounted Vertical Construction with Mounting Bracket (GTF only)
- Side Mounted Horizontal Heater L-Shaped (GTFL only)
- Single Use Overtemperature Protection Thermal Fuse Supplied as Standard, for Process Temperatures up to 180°F (82°C)/ Fuse Temperature 219°F (104°C) Limit. For Higher Process/Fuse Temperature Limits, Consult Factory. Field Replaceable
- Resettable Overtemperature Protection Thermal Fuses also Available
- Polypropylene Guard, order separately
- Optional Riser Heights available (GTFL only)



GTF — Dimensions (Inches)



GTFL — Dimensions (Inches)



Specifications and Ordering Information

kW	Volts	W/in ²	Phase	Dimensions (In.)		Fluoropolymer			Wt. (Lbs.)	Guard ¹ PCN
				A	B	Model	Stock	PCN		
GTF — Side Mount										
1	120	10	1	11	7	GTF-11	S	053217	7	053330
1	240	10	1	11	7	GTF-12	NS	053225	7	053330
2	240	10	1	17	12	GTF-22	S	053233	8	053348
2	480	10	1	17	12	GTF-24	S	053241	8	053348
3	240	10	1	23	16	GTF-32	S	053250	13	053356
3	480	10	1	23	16	GTF-34	NS	053268	13	053356
4	240	10	1	29	20	GTF-42	S	053276	15	053364
4	480	10	1	29	20	GTF-44	S	053284	15	053364
5	240	10	1	35	25	GTF-52	NS	053292	18	053372
5	480	10	1	35	25	GTF-54	NS	053305	18	053372
6	240	10	1	40	29	GTF-62	NS	053313	21	053380
6	480	10	1	40	29	GTF-64	S	053321	21	053380
GTFL — L-Shaped										
1	120	10	1	12	8	GTFL-11	NS	053698	8	053815
1	240	10	1	12	8	GTFL-12	NS	053700	8	053815
2	240	10	1	18	12	GTFL-22	NS	053719	9	053823
2	480	10	1	18	12	GTFL-24	NS	053727	9	053823
3	240	10	1	18	17	GTFL-32	NS	053735	13	053831
3	480	10	1	18	17	GTFL-34	NS	053743	13	053831
4	240	10	1	18	20	GTFL-42	NS	053751	16	053840
4	480	10	1	18	20	GTFL-44	NS	053760	16	053840
5	240	10	1	18	24	GTFL-52	NS	053778	18	053858
5	480	10	1	18	24	GTFL-54	NS	053786	18	053858
6	240	10	1	18	29	GTFL-62	NS	053794	21	053866
6	480	10	1	18	29	GTFL-64	NS	053807	21	053866

Stock Status: S = stock NS = non-stock

To Order—Specify model, PCN, kW, volts, phase and quantity.

1. Guard (not shown). Order separately by PCN. Guard adds approximately 1/2" to overall heater dimensions.

OVER-THE-SIDE

GXF & GXFL Fluoropolymer Covered Heaters

- **GXF — Side Mount**
- **GXFL — L-Shaped**
- **Fluoropolymer Covered Stainless Steel Elements**
- **10 W/In²**
- **1- 6 kW**
- **120, 240 and 480 Volt, Single Phase**
- **Moisture/Corrosion Resistant Terminal Enclosure**

Features

- Grounded Internal Element
- Side Mounted Vertical Construction with Mounting Bracket (GFX only)
- Side Mounted Horizontal Heater L-Shaped Construction (GXFL only)
- Single Use Overtemperature Protection Thermal Fuse Supplied as Standard, for Process Temperatures up to 180°F (82°C)/ Fuse Temperature 219°F (104°C) Limit. For Higher Process/Fuse Temperature Limits, Consult Factory. Field Replaceable
- Resettable Overtemperature Protection Thermal Fuses also Available
- Polypropylene Guard, Order Separately
 - Additional Guard Material Available
- Additional Riser Heights Available for both GFX and GXFL
- For all Additional Items, Consult Factory

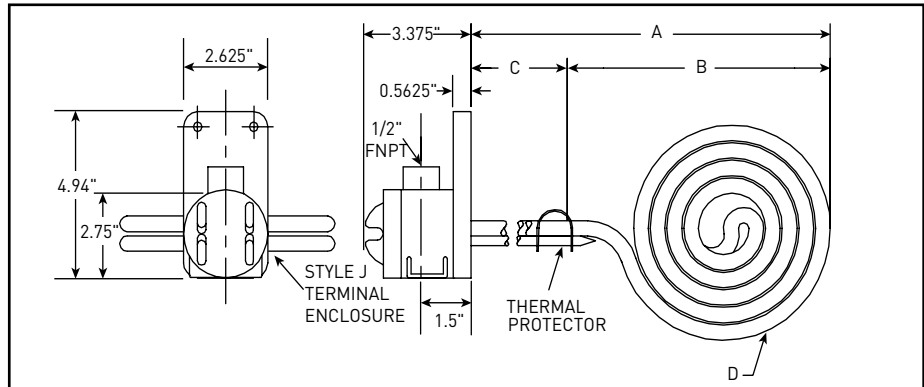
GXF



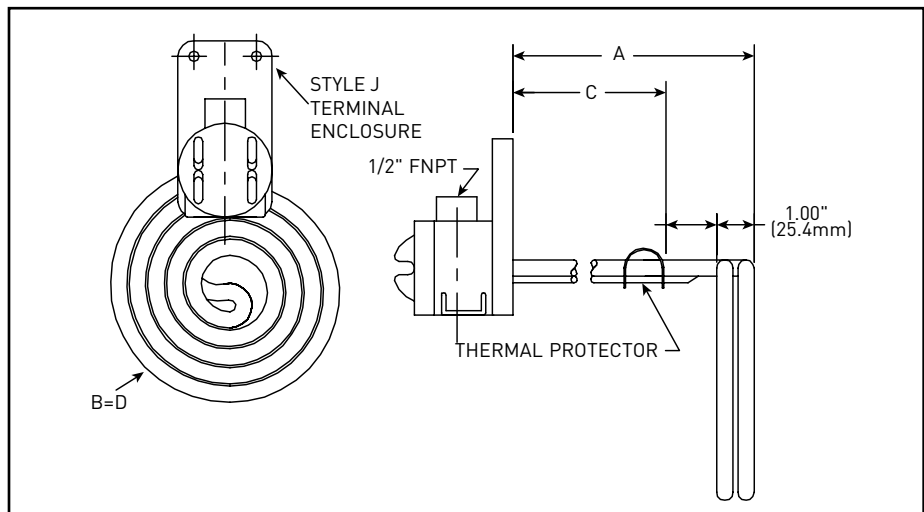
GXFL



GXF — Dimensions (Inches)



GXFL — Dimensions (Inches)



Note – Housing dimensions are identical for GXF and GXFL

Immersion

GXF & GXFL Fluoropolymer Covered Heaters (cont'd.)

Specifications and Ordering Information

kW	Volts	W/In ²	Phase	Dimensions ¹ (In.)				Fluoropolymer			Wt. (Lbs.)	Guard ² PCN
				A	B	C	D	Model	Stock	PCN		
GXF – Side Mount												
1	120	10	1	14	7	7	6	GXF-11	NS	354010	8	354255
1	240	10	1	14	7	7	6	GXF-12	NS	354028	8	354255
2	240	10	1	17	9	8	8	GXF-22	NS	354036	9	354263
2	480	10	1	17	9	8	8	GXF-24	NS	354044	9	354263
3	240	10	1	23	10	13	9	GXF-32	NS	354052	13	354271
3	480	10	1	23	10	13	9	GXF-34	NS	354060	13	354271
4	240	10	1	29	12	17	11	GXF-42	NS	354079	16	354280
4	480	10	1	29	12	17	11	GXF-44	NS	354087	16	354280
5	240	10	1	35	13	22	12	GXF-52	NS	354095	18	354298
5	480	10	1	35	13	22	12	GXF-54	NS	354108	18	354298
6	240	10	1	40	14	26	13	GXF-62	NS	354116	21	354300
6	480	10	1	40	14	26	13	GXF-64	NS	354124	21	354300
GXFL – L-Shaped												
1	120	10	1	12	6	6	6	GXFL-11	NS	354132	6	354319
1	240	10	1	12	6	6	6	GXFL-12	NS	354140	6	354319
2	240	10	1	18	8	10	8	GXFL-22	NS	354159	8	354327
2	480	10	1	18	8	10	8	GXFL-24	NS	354167	8	354327
3	240	10	1	18	9	9	9	GXFL-32	NS	354175	12	354335
3	480	10	1	18	9	9	9	GXFL-34	NS	354183	12	354335
4	240	10	1	18	11	7	11	GXFL-42	NS	354191	15	354343
4	480	10	1	18	11	7	11	GXFL-44	NS	354204	15	354343
5	240	10	1	18	12	6	12	GXFL-52	NS	354212	19	354351
5	480	10	1	18	12	6	12	GXFL-54	NS	354220	19	354351
6	240	10	1	18	13	5	13	GXFL-62	NS	354239	23	354360
6	480	10	1	18	13	5	13	GXFL-64	NS	354247	23	354360

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.

1. A=Riser height, B=Head Zone, C=Cold Zone D=Coil Diameter
 2. Guard (not shown). Order separately by PCN. Riser Height shown includes Guard. For height without Guard, subtract 1/4" from A

OVER-THE-SIDE

Ordering Information

Complete the model number using the matrix provided.

Note:

1. Heater and Guard have separate PCN numbers. For Heater only or Guard only use related PCN. For Heater supplied with Guard request both PCN's.

Heater Model (For Heater Only)

GXF GXFL	Side Mount Side Mount - L Shaped	Wattage (kW)		Watts
		1	2	
		1	2	1000
		2	3	2000
		3	4	3000
		4	5	4000
		5	6	5000
		6		6000
		Volts		
		1	2	120
		2	4	240
		4		480
GXF(L)		1	1	Typical Model Number

Guard Model (For Guard Only)

GXF GXFL	Side Mount Side Mount - L Shaped	Wattage Series (kW)		Watts
		1	2	
		1	2	1000
		2	3	2000
		3	4	3000
		4	5	4000
		5	6	5000
		6		6000
GXF(L)- 1 1				Typical Model Number

GTF6 & GTF9

Side Mount Fluoropolymer Covered Heaters



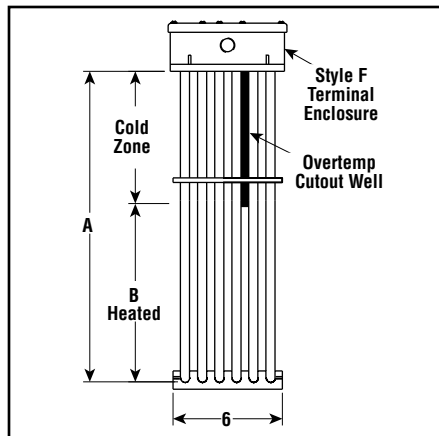
GTF6 — 6 Elements

- 6 Fluoropolymer Covered Stainless Steel Elements
- 10 W/In²
- 2 - 12 kW
- 240 and 480 Volt, Three Phase
- Moisture Resistant Terminal Enclosure

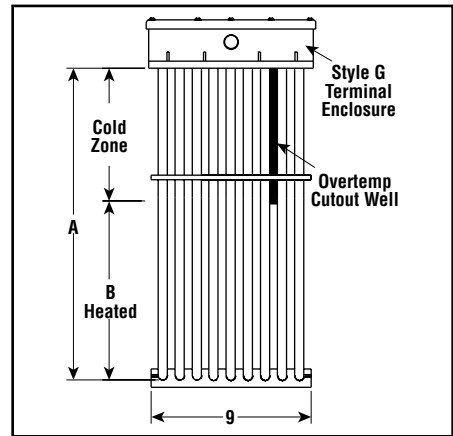
GTF9 — 9 Elements

- 9 Fluoropolymer Covered Stainless Steel Elements
- 10 W/In²
- 3 - 18 kW
- 240 and 480 Volt, Three Phase
- Moisture Resistant Terminal Enclosure

GTF6 — Dimensions (Inches)



GTF9 — Dimensions (Inches)



Specifications and Ordering Information

Features

- Moisture Resistant Terminal Enclosure
- Side Mounted Construction with Mounting Flange
- Single Use Overtemperature Protection Thermal Fuse Supplied as Standard, for Process Temperatures up to 180°F (82°C)/ Fuse Temperature 219°F (104°C) Limit. For Higher Process/Fuse Temperature Limits, Consult Factory. Field Replaceable
- Resettable Overtemperature Protection Thermal Fuses also Available
- Polypropylene Guard, order separately
- Custom Vertical Heights and Other Configurations available
- Alternate Voltages and Single Phase available

kW	Volts	W/In ²	Phase	DIM (In.)		Fluoropolymer			Wt. (Lbs.)	Guard ¹ PCN
				A	B	Model	Stock	PCN		
GTF6 — 6 Elements										
2	240	10	3	17	9	GTF6-22	NS	054412	19	054551
2	480	10	3	17	9	GTF6-24	NS	054420	19	054551
3	240	10	3	23	15	GTF6-32	NS	054439	22	054560
3	480	10	3	23	15	GTF6-34	NS	054447	22	054560
4	240	10	3	29	21	GTF6-42	NS	054455	24	054578
4	480	10	3	29	21	GTF6-44	NS	054463	24	054578
6	240	10	3	35	27	GTF6-62	NS	054471	27	054586
6	480	10	3	35	27	GTF6-64	S	054480	27	054586
8	240	10	3	47	38	GTF6-82	NS	054498	33	054594
8	480	10	3	47	38	GTF6-84	S	054500	33	054594
10	240	10	3	59	47	GTF6-102	NS	054519	40	054607
10	480	10	3	59	47	GTF6-104	S	054527	40	054607
12	240	10	3	68	55	GTF6-122	NS	054535	45	054615
12	480	10	3	68	55	GTF6-124	NS	054543	45	054615
GTF9 — 9 Elements										
3	240	10	3	17	9	GTF9-32	NS	054690	28	054834
3	480	10	3	17	9	GTF9-34	NS	054703	28	054834
4.5	240	10	3	23	15	GTF9-452	NS	054711	33	054842
4.5	480	10	3	23	15	GTF9-454	NS	054720	33	054842
6	240	10	3	29	21	GTF9-62	NS	054738	36	054850
6	480	10	3	29	21	GTF9-64	NS	054746	36	054850
9	240	10	3	35	27	GTF9-92	NS	054754	40	054869
9	480	10	3	35	27	GTF9-94	NS	054762	40	054869
12	240	10	3	47	38	GTF9-122	NS	054770	49	054877
12	480	10	3	47	38	GTF9-124	NS	054789	49	054877
15	240	10	3	59	47	GTF9-152	NS	054797	60	054885
15	480	10	3	59	47	GTF9-154	NS	054800	60	054885
18	240	10	3	68	55	GTF9-182	NS	054818	67	054893
18	480	10	3	68	55	GTF9-184	NS	054826	67	054893

Stock Status: S = stock NS = non-stock

To Order—Specify model, PCN, kW, volts, phase and quantity.

1. Guard (not shown). Order separately by PCN. Guard adds approximately 1/2" to overall heater dimensions.

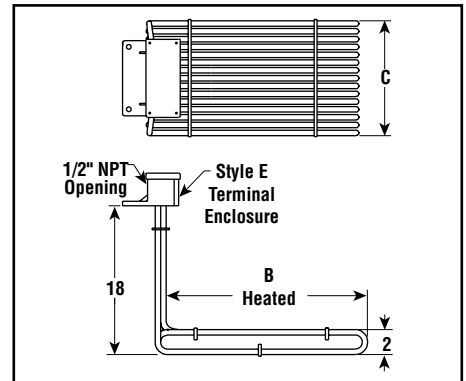


GTFL3 L-Shaped Fluoropolymer Covered Heater

- Fluoropolymer Covered Stainless Steel Elements
- 10 W/In²
- 3 - 18 kW
- 240 and 480 Volt, Three Phase
- Moisture Resistant Terminal Enclosure



Dimensions (Inches)



OVER-THE-SIDE

Features

- Moisture Resistant Terminal Enclosure
- Bottom Mounted L-Shaped Construction
- Single Use Overtemperature Protection Thermal Fuse Supplied as Standard, for Process Temperatures up to 180°F (82°C)/ Fuse Temperature 219°F (104°C) Limit. For Higher Process/Fuse Temperature Limits, Consult Factory. Field Replaceable
- Resettable Overtemperature Protection Thermal Fuses also Available
- Polypropylene Guard, order separately
- Optional Riser Heights available

Specifications and Ordering Information

kW	Volts	W/In ²	Phase	Dimensions (In.)		Fluoropolymer			Wt. (Lbs.)	Guard ¹ PCN
				B	C	Model	Stock	PCN		
3	240	10	3	13	7	GTFL3-32	NS	054172	20	054295
3	480	10	3	13	7	GTFL3-34	NS	054180	20	054295
6	240	10	3	19	10	GTFL3-62	NS	054199	22	054308
6	480	10	3	19	10	GTFL3-64	NS	054201	22	054308
9	240	10	3	23	12	GTFL3-92	NS	054210	36	054316
9	480	10	3	23	12	GTFL3-94	NS	054228	36	054316
12	240	10	3	30	12	GTFL3-122	NS	054236	42	054324
12	480	10	3	30	12	GTFL3-124	NS	054244	42	054324
15	240	10	3	37	12	GTFL3-152	NS	054252	48	054332
15	480	10	3	37	12	GTFL3-154	NS	054260	48	054332
18	240	10	3	45	12	GTFL3-182	NS	054279	54	054340
18	480	10	3	45	12	GTFL3-184	NS	054287	54	054340

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.

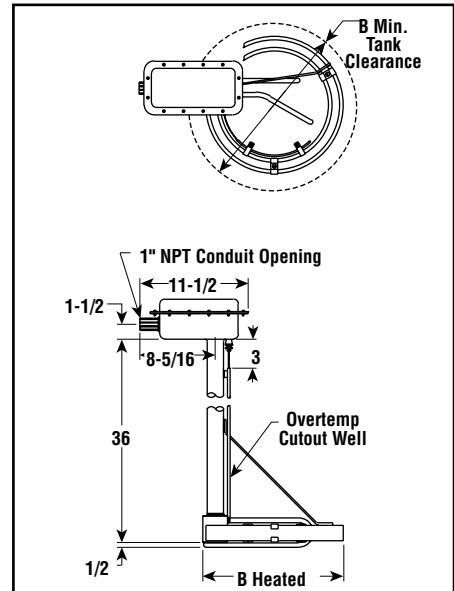
1. Guard (not shown). Order separately by PCN. Guard adds approximately 1/2" to overall heater dimensions.

KBLC & KBLS Drum Heaters

- Steel and Stainless Steel Sheath Elements
- 11 W/in²
- 2.2 and 4.4 kW
- 240 Volt, Single Phase
- Moisture Resistant Terminal Enclosure



Dimensions (Inches)



Features

- 36" Riser (unheated section)
- With and Without Integral Control
0 - 100, 60 - 250 or 200 - 550°F
- Moisture Resistant Terminal Enclosure

Applications

- Melting Wax
- Melting Lard
- Melting Grease
- Melting Other Heat Sensitive Materials

Specifications and Ordering Information

kW	Volts	W/in ²	DIM B (In.)	AR Stat Range (°F)	Model	Stock	PCN	Wt. (Lbs.)
KBLC – Steel Sheath and Riser								
2.2	240	11	12-3/4	—	KBLC-24	NS	195637	14
2.2	240	11	12-3/4	60 - 250	KBLC-24T2	NS	256196	14
2.2	240	11	12-3/4	200 - 550	KBLC-24T3	NS	195653	14
4.4	240	11	17-3/4	—	KBLC-28	NS	195741	18
4.4	240	11	17-3/4	60 - 250	KBLC-28T2	S	256209	18
4.4	240	11	17-3/4	200 - 550	KBLC-28T3	S	256217	18
KBLS – Stainless Steel Sheath and Riser								
2.2	240	11	12-3/4	—	KBLS-244	NS	195776	14
2.2	240	11	12-3/4	0 - 100	KBLS-244T1	NS	183564	14
2.2	240	11	12-3/4	60 - 250	KBLS-244T2	NS	256858	14
2.2	240	11	12-3/4	200 - 550	KBLS-244T3	NS	195792	14
4.4	240	11	17-3/4	—	KBLS-288	NS	195880	18
4.4	240	11	17-3/4	0 - 100	KBLS-288T1	NS	183556	18
4.4	240	11	17-3/4	60 - 250	KBLS-288T2	S	256225	18
4.4	240	11	17-3/4	200 - 550	KBLS-288T3	NS	195899	18
Stock Status: S = stock NS = non-stock To Order—Specify model, PCN, kW, volts and quantity.								

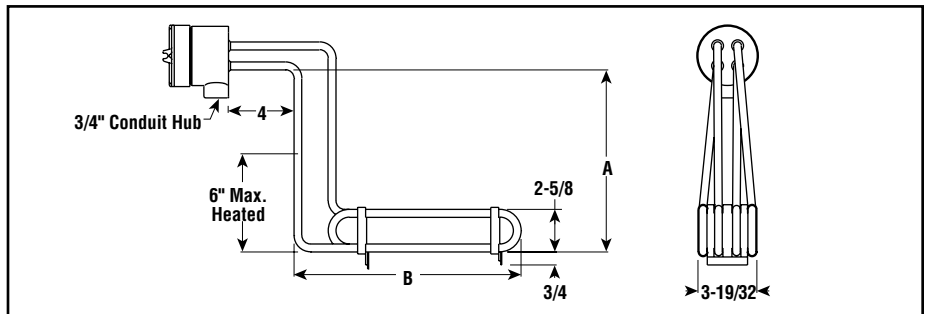
TBL & TBL-A Salt Bath Heaters

- Steel and INCOLOY® Sheath Elements
- 20 W/in²
- 3, 4.5, 6 and 7.5 kW
- 240 and 480 Volt, Single Phase



OVER-THE-SIDE

Dimensions (Inches)



Features

- Cast Iron Moisture Resistant Terminal Enclosure
- Bottom Mounted L-Shaped Construction
- Sludge Legs, order separately (factory installed)

Applications

- Primarily for use in Salt Baths

Specifications and Ordering Information

kW	Volts	W/in ²	Phase	Dimensions (In.)		Model	Stock	PCN	Wt. (Lbs.)
				A	B				
TBL – Steel (20 W/in²)									
3	240	20	1	11-1/8	13-7/8	TBL-1301	NS	192735	18
3	480	20	1	11-1/8	13-7/8	TBL-1301	NS	192727	18
4.5	240	20	1	11-1/8	15	TBL-4501	NS	192743	21
4.5	480	20	1	11-1/8	15	TBL-4501	NS	192751	21
6	240	20	1	11-7/8	20-5/16	TBL-6001	NS	192760	27
6	480	20	1	11-7/8	20-5/16	TBL-6001	NS	192778	27
7.5	240	20	1	14-5/8	25-9/16	TBL-7501	NS	192786	35
7.5	480	20	1	14-5/8	25-9/16	TBL-7501	NS	192794	35
TBL-A – INCOLOY® (20 W/in²)									
3	240	20	1	11-1/8	13-7/8	TBL-A-131	NS	192807	18
3	480	20	1	11-1/8	13-7/8	TBL-A-131	NS	192815	18
4.5	240	20	1	11-1/8	15	TBL-A-451	NS	192823	21
4.5	480	20	1	11-1/8	15	TBL-A-451	NS	192831	21
6	240	20	1	11-7/8	20-5/16	TBL-A-601	NS	192840	27
6	480	20	1	11-7/8	20-5/16	TBL-A-601	NS	192851	27
7.5	240	20	1	14-5/8	25-9/16	TBL-A-751	NS	192866	35
7.5	480	20	1	14-5/8	25-9/16	TBL-A-751	NS	192874	35

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.

BLCK-MH & BLCS Deep Tank Blade Heaters

- BLCK-MH — Circular Blades
- BLCS — Straight Blades
- Steel Sheath Elements
- Low Watt Density (12 and 18 W/In²)
- 7.5 - 24 kW
- 240 and 480 Volt, 1 & 3 Phase
- Moisture Resistant Terminal Enclosure
- 12 Ft. Riser (Other Lengths Available)

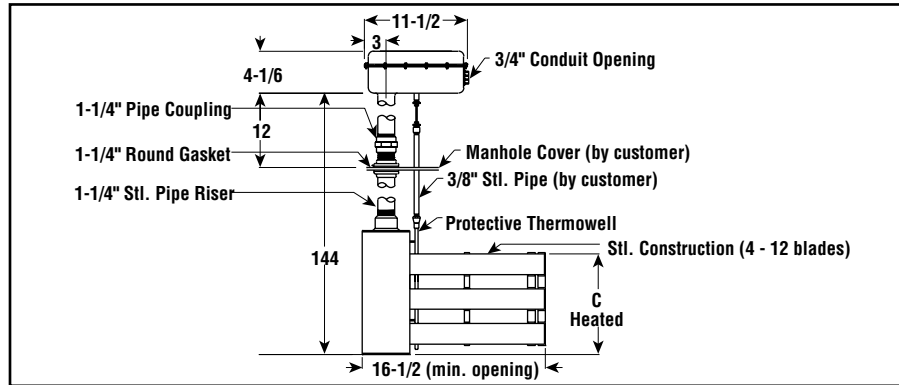
Features (BLCK-MH)

- Moisture Resistant Terminal Enclosure
- Integral DPST Thermostat 60 - 250°F rated 30 Amp at 120 - 277 Volt with 180" capillary length
- 4 - 12 Circular Heating Elements permit entry into tanks with 16-1/2" diameter minimum opening
- Split Riser adapts to customer's manhole cover
 - 6" threaded ends on each riser end
 - Two 1-1/4" threaded Malleable Iron Floor Flanges
 - Threaded Malleable Iron Union
 - Thermostat Packing Gland Fittings
- Manhole Cover, 3/8" Thermostat Protective Well and 3/8" Threaded Couplings (by customer)
- For manhole construction, recommend compression fittings shown on page H-189. CCF-25D or 25E.

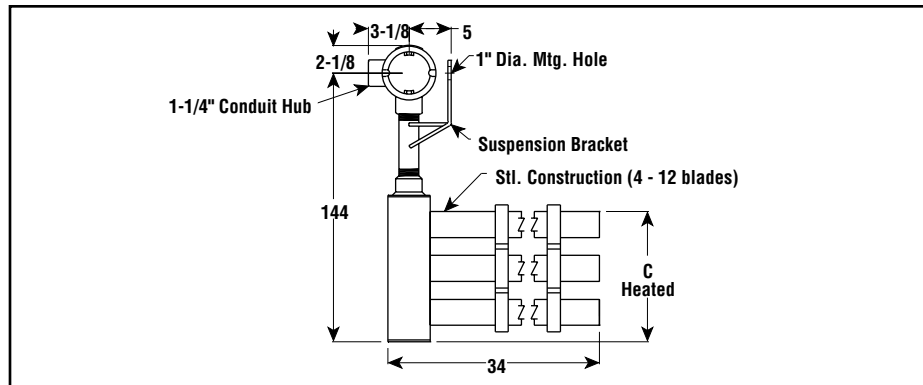
Features (BLCS)

- Moisture Resistant Terminal Enclosure
- 4 - 12 Straight Heating Elements requires manhole access that will accept 34" blade length

BLCK-MH — Dimensions (Inches)



BLCS — Dimensions (Inches)



Specifications and Ordering Information

kW	Volts	Phase	DIM C (In.)	Circular Blades		Straight Blades		Stock	Wt. (Lbs.)
				Model	PCN	Model	PCN		
Regular Oil — 18 W/In²									
12	240	1	8-7/8	BLCK-MH618	192903	BLCS-618	193068	NS	42
12	240	3	8-7/8	BLCK-MH618	192911	BLCS-618	193076	NS	42
12	480	1	8-7/8	BLCK-MH618	192920	BLCS-618	193084	NS	42
12	480	3	8-7/8	BLCK-MH618	192938	BLCS-618	193092	NS	42
16	240	1	12	BLCK-MH824	192946	BLCS-824	193105	NS	55
16	240	3	12	BLCK-MH824	192954	BLCS-824	193113	NS	55
16	480	1	12	BLCK-MH824	192962	BLCS-824	193121	NS	55
16	480	3	12	BLCK-MH824	192970	BLCS-824	193130	NS	55
20	240	3	15-1/8	BLCK-MH1030	192989	BLCS-1030	193148	NS	75
20	480	1	15-1/8	BLCK-MH1030	192997	BLCS-1030	193156	NS	75
20	480	3	15-1/8	BLCK-MH1030	193009	BLCS-1030	193164	NS	75
24	240	3	18-1/4	BLCK-MH1236	193017	BLCS-1236	193172	NS	90
24	480	1	18-1/4	BLCK-MH1236	193025	BLCS-1236	193180	NS	90
24	480	3	18-1/4	BLCK-MH1236	193033	BLCS-1236	193199	NS	90
Fuel Oil — 12 W/In²									
7.5	240	1	8-7/8	BLCK-MH618	258925	BLCS-618	259100	NS	42
7.5	240	3	8-7/8	BLCK-MH618	258933	BLCS-618	259119	NS	42
7.5	480	1	8-7/8	BLCK-MH618	258941	BLCS-618	259127	NS	42
7.5	480	3	8-7/8	BLCK-MH618	258950	BLCS-618	259135	NS	42
10	240	1	12	BLCK-MH824	258968	BLCS-824	259143	NS	55
10	240	3	12	BLCK-MH824	258976	BLCS-824	259151	NS	55
10	480	1	12	BLCK-MH824	258984	BLCS-824	259160	NS	55
10	480	3	12	BLCK-MH824	258992	BLCS-824	259178	NS	55
12.5	240	1	15-1/8	BLCK-MH1030	259004	BLCS-1030	259186	NS	75
12.5	240	3	15-1/8	BLCK-MH1030	097404	BLCS-1030	259194	NS	75
12.5	480	1	15-1/8	BLCK-MH1030	259020	BLCS-1030	259207	NS	75
12.5	480	3	15-1/8	BLCK-MH1030	259039	BLCS-1030	259215	NS	75
15	240	1	18-1/4	BLCK-MH1236	259047	BLCS-1236	259223	NS	90
15	240	3	18-1/4	BLCK-MH1236	259055	BLCS-1236	259231	NS	90
15	480	1	18-1/4	BLCK-MH1236	259063	BLCS-1236	259240	NS	90
15	480	3	18-1/4	BLCK-MH1236	259071	BLCS-1236	259258	NS	90

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.

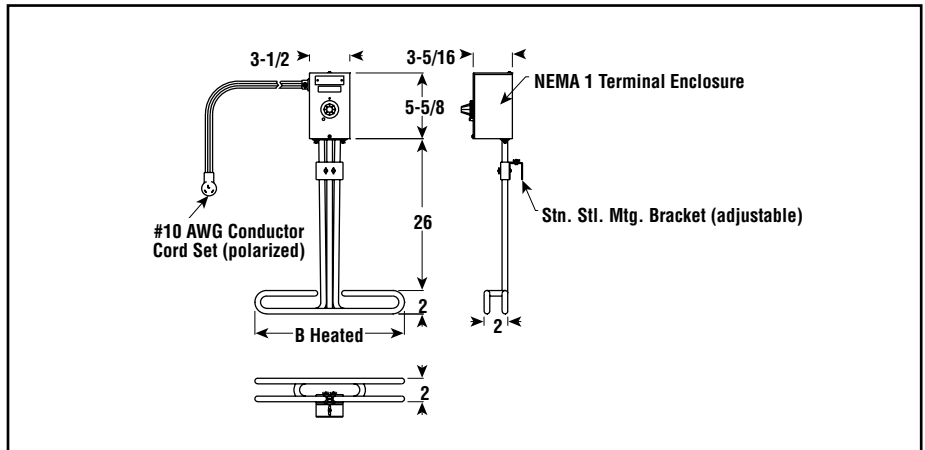
CH-OTS Portable Tank Heater

- Copper Sheath Nickel Plated Elements
- High Watt Density (49 - 58W/In²)
- 4 and 6 kW
- 208 and 240 Volt, Single Phase



OVER-THE-SIDE

Dimensions (Inches)



Features

- 26" Riser (unheated section)
- Integral Control (60 - 250°F)
- Manual Reset Cutout (set @ 50°F above temperature setpoint)
- Built-in Pilot Light
- 36" Long Cord with 10 - 30P Plug

Specifications and Ordering Information

kW	Volts	W/In ²	Phase	DIM B (In.)	Copper			Wt. (Lbs.)
					Model	Stock	PCN	
4	240	49	1	14	CH-OTS-404	S	093833	10
6	208	58	1	17	CH-OTS-608	S	093817	10
6	240	58	1	17	CH-OTS-604	S	093825	10

Stock Status: S = stock NS = non-stock
To Order— Specify model, PCN, kW, volts, phase and quantity.

Immersion

CIT

Soft Metal Melting Heater

- Cast Iron Construction
- Low Watt Density
- 3, 5 and 10 kW
- 240 Volt, Single Phase
- Moisture Resistant Terminal Enclosure

Applications

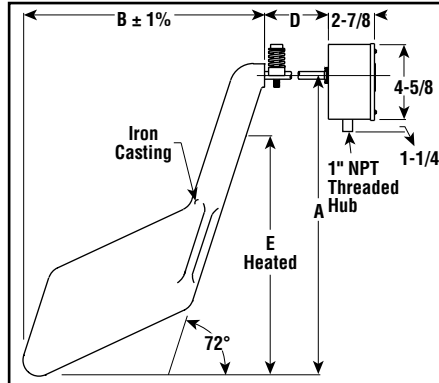
To melt metals such as solder, lead, tin, stereotype metal and babbitt (with 4% or less Copper content). Maximum working temperature of 950°F (not suitable for immersion in zinc or aluminum).

Features

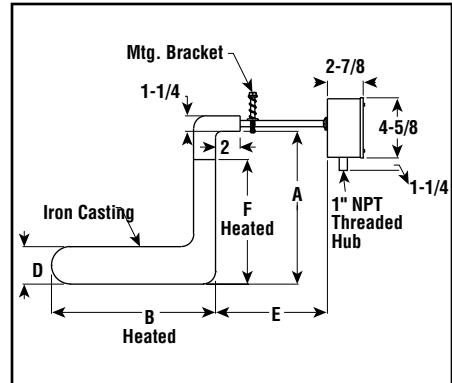
- Cast Iron Moisture Resistant Terminal Enclosure
- Over-the-Side and Through-the-Side Mounting Options
- Cold Starts without Damage



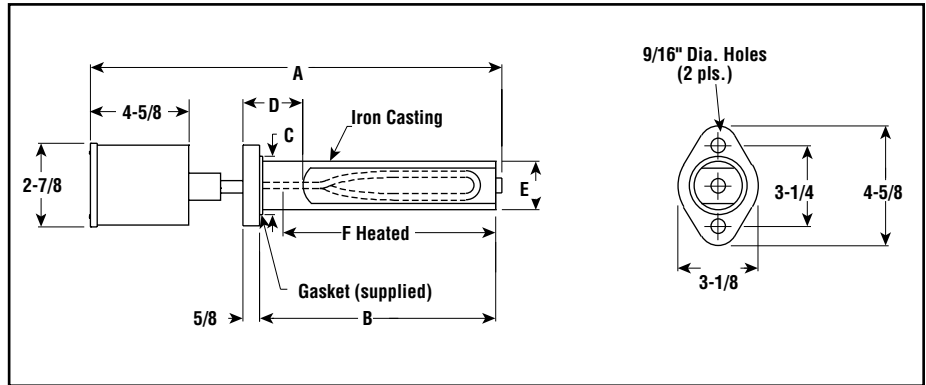
CIT-2319 — Dimensions (Inches)



CIT-1612 — Dimensions (Inches)



CIT-218 — Dimensions (Inches)



Specifications and Ordering Information

kW	Volts	Phase	Dimensions (In.)						Displacement (In ³)	Steel			Wt. (Lbs.)
			A	B	C	D	E	F		Model	Stock	PCN	
Over-the-Side Mounting													
5	240	1	12-1/4	16	—	3	9	10	135	CIT-1612	S	196031	40
5	240	1	19-1/4	16	—	3	6	17	180	CIT-1619	S	196040	55
Through-the-Side Mounting													
3	240	1	23-1/4	18	2-1/4	2-1/4	1-7/8	17-1/8	57	CIT-218	S	196058	22
Special Stereotype Design													
5	240	1	18-1/2	12-1/2	—	6-1/2	14-1/2	—	—	CIT-2219	NS	196023	51
10	240	1	19	15-1/4	—	9	15	—	—	CIT-2319	NS	196015	80

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN, kW, volts, phase and quantity.

GRT & GRS

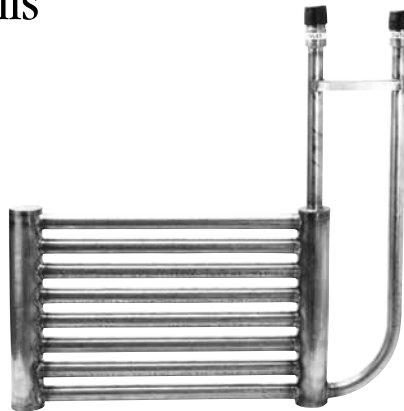
Side Mount Heat Exchangers Metal Tube Heating or Cooling Coils

- 316 Stainless Steel and Titanium Sheath Tubes
- Surface Area (4.6 - 89.8 Ft²)

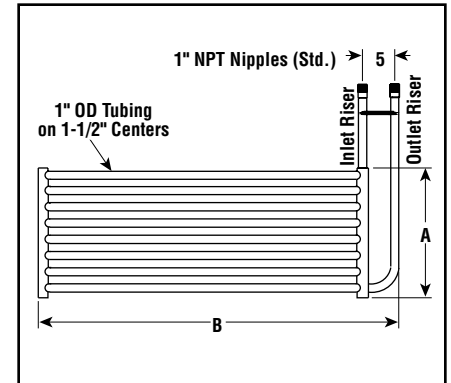
Features

- 8 - 28 Tubes
- 1" Inlet and Outlet
- 100 psi Maximum Pressure
- Standoffs, Hooks and Hanger Straps, sold separately
- Optional Surface Areas and Configurations available

Note: Configurations differ for steam and water service. PCN's shown are for water service. Steam service units ordered as special.



Dimensions (Inches)



OVER-THE-SIDE

Specifications and Ordering Information

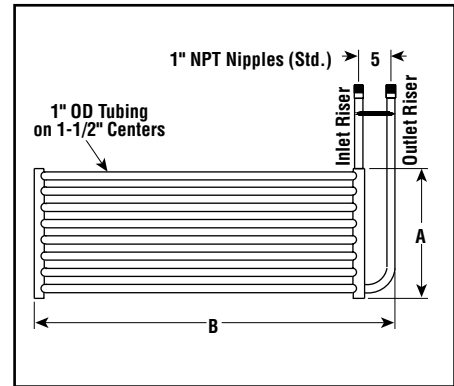
Surf. Area (Ft ²)	DIM (In.)		316SS		Titanium		Stock	Wt. (Lbs.)
	A	B	Model	PCN	Model	PCN		
12" Width — 8 Tubes								
4.6	12	24	GRS-12-24	056160	GRT-12-24	056880	NS	13
5.6	12	30	GRS-12-30	056178	GRT-12-30	056899	NS	15
6.7	12	36	GRS-12-36	056186	GRT-12-36	056901	NS	18
8.8	12	48	GRS-12-48	056194	GRT-12-48	056910	NS	24
10.9	12	60	GRS-12-60	056207	GRT-12-60	056928	NS	30
13.7	12	72	GRS-12-72	056215	GRT-12-72	056936	NS	34
15.1	12	84	GRS-12-84	056223	GRT-12-84	056944	NS	38
17.2	12	96	GRS-12-96	056231	GRT-12-96	056952	NS	43
19.2	12	108	GRS-12-108	056240	GRT-12-108	056960	NS	48
21.3	12	120	GRS-12-120	056258	GRT-12-120	056979	NS	53
23.4	12	132	GRS-12-132	056266	GRT-12-132	056987	NS	59
25.5	12	144	GRS-12-144	056274	GRT-12-144	056995	NS	64
18" Width — 12 Tubes								
6.8	18	24	GRS-18-24	056282	GRT-18-24	057007	NS	19
8.4	18	30	GRS-18-30	056290	GRT-18-30	057015	NS	23
10	18	36	GRS-18-36	056303	GRT-18-36	057023	NS	28
13.2	18	48	GRS-18-48	056311	GRT-18-48	057031	NS	36
16.3	18	60	GRS-18-60	056320	GRT-18-60	057040	NS	45
19.5	18	72	GRS-18-72	056338	GRT-18-72	057058	NS	49
22.6	18	84	GRS-18-84	056346	GRT-18-84	057066	NS	57
25.7	18	96	GRS-18-96	056354	GRT-18-96	057074	NS	64
28.9	18	108	GRS-18-108	056362	GRT-18-108	057082	NS	72
32	18	120	GRS-18-120	056370	GRT-18-120	057090	NS	80
35.2	18	132	GRS-18-132	056389	GRT-18-132	057103	NS	88
38.3	18	144	GRS-18-144	056397	GRT-18-144	057111	NS	96
24" Width — 16 Tubes								
9.4	24	24	GRS-24-24	056400	GRT-24-24	057120	NS	26
11.5	24	30	GRS-24-30	056418	GRT-24-30	057138	NS	32
13.6	24	36	GRS-24-36	056426	GRT-24-36	057146	NS	37
17.8	24	48	GRS-24-48	056434	GRT-24-48	057154	NS	49
22	24	60	GRS-24-60	056442	GRT-24-60	057162	NS	61
26.1	24	72	GRS-24-72	056450	GRT-24-72	057170	NS	65
30.3	24	84	GRS-24-84	056469	GRT-24-84	057189	NS	76
34.6	24	96	GRS-24-96	056477	GRT-24-96	057197	NS	87
38.7	24	108	GRS-24-108	056485	GRT-24-108	057200	NS	97
42.9	24	120	GRS-24-120	056493	GRT-24-120	057218	NS	107
47.1	24	132	GRS-24-132	056506	GRT-24-132	057226	NS	118
51.3	24	144	GRS-24-144	056514	GRT-24-144	057234	NS	128

GRT & GRS

Side Mounted Heat Exchangers Metal Tube Heating or Cooling Coils
(cont'd.)



Dimensions (Inches)



Specifications and Ordering Information

Surf. Area (Ft ²)	DIM (In.)		316SS		Titanium		Stock	Wt. (Lbs.)
	A	B	Model	PCN	Model	PCN		
30" Width — 20 Tubes								
11.5	30	24	GRS-30-24	056522	GRT-30-24	057242	NS	32
14.2	30	30	GRS-30-30	056530	GRT-30-30	057250	NS	39
16.8	30	36	GRS-30-36	056549	GRT-30-36	057269	NS	46
22	30	48	GRS-30-48	056557	GRT-30-48	057277	NS	61
27.2	30	60	GRS-30-60	056565	GRT-30-60	057285	NS	75
32.5	30	72	GRS-30-72	056573	GRT-30-72	057293	NS	81
37.7	30	84	GRS-30-84	056581	GRT-30-84	057306	NS	94
42.9	30	96	GRS-30-96	056590	GRT-30-96	057314	NS	107
48.2	30	108	GRS-30-108	056602	GRT-30-108	057322	NS	121
53.4	30	120	GRS-30-120	056610	GRT-30-120	057330	NS	133
58.6	30	132	GRS-30-132	056629	GRT-30-132	057349	NS	147
63.9	30	144	GRS-30-144	056637	GRT-30-144	057357	NS	160
36" Width — 24 Tubes								
13.7	36	24	GRS-36-24	056645	GRT-36-24	057365	NS	38
16.8	36	30	GRS-36-30	056653	GRT-36-30	057373	NS	46
20	36	36	GRS-36-36	056661	GRT-36-36	057381	NS	55
26.3	36	48	GRS-36-48	056670	GRT-36-48	057390	NS	72
32.5	36	60	GRS-36-60	056688	GRT-36-60	057402	NS	89
38.8	36	72	GRS-36-72	056696	GRT-36-72	057410	NS	97
45.1	36	84	GRS-36-84	056709	GRT-36-84	057429	NS	113
51.4	36	96	GRS-36-96	056717	GRT-36-96	057437	NS	129
57.7	36	108	GRS-36-108	056725	GRT-36-108	057445	NS	144
64	36	120	GRS-36-120	056733	GRT-36-120	057453	NS	160
70.3	36	132	GRS-36-132	056741	GRT-36-132	057461	NS	176
76.6	36	144	GRS-36-144	056750	GRT-36-144	057470	NS	192
42" Width — 28 Tubes								
15.8	42	24	GRS-42-24	056768	GRT-42-24	057488	NS	43
19.5	42	30	GRS-42-30	056776	GRT-42-30	057496	NS	54
23.2	42	36	GRS-42-36	056784	GRT-42-36	057509	NS	64
30.6	42	48	GRS-42-48	056792	GRT-42-48	057517	NS	84
38	42	60	GRS-42-60	056805	GRT-42-60	057525	NS	105
45.4	42	72	GRS-42-72	056813	GRT-42-72	057533	NS	114
52.8	42	84	GRS-42-84	056821	GRT-42-84	057541	NS	132
60.2	42	96	GRS-42-96	056830	GRT-42-96	057550	NS	151
67.6	42	108	GRS-42-108	056848	GRT-42-108	057568	NS	169
75	42	120	GRS-42-120	056856	GRT-42-120	057576	NS	188
82.4	42	132	GRS-42-132	056864	GRT-42-132	057584	NS	206
89.8	42	144	GRS-42-144	056872	GRT-42-144	057592	NS	225

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN and quantity.

Notes —

- A. Heat transfer coefficient steam = 150 BTUH/FT²/°F.
- B. Heat transfer coefficient liquid = 90 BTUH/FT²/°F.

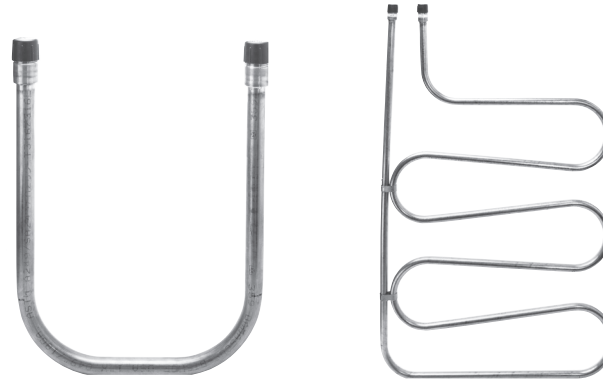
US & UT

Side Mount Heat Exchangers Metal Tube Heating or Cooling Coils

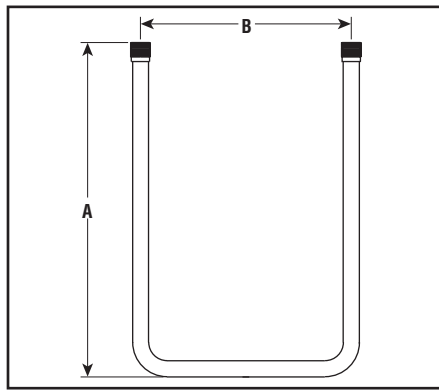
- 316 Stainless Steel and Titanium Sheath Tubes
- Surface Area (0.8 - 10 Ft²)

Features

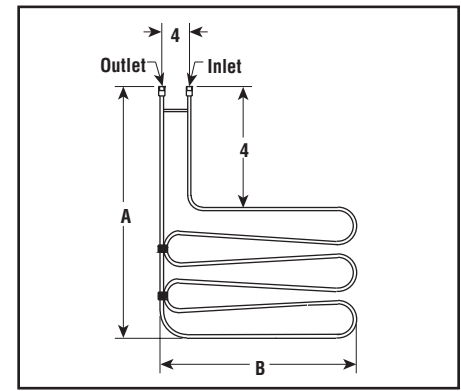
- Single, 4 and 6 Pass Coils
- 1" Inlet and Outlet
- 100 psi Maximum Pressure
- Standoffs, Hooks and Hanger Straps sold separately
- Optional Surface Areas and Configurations available



US1 — Dimensions (Inches)



US4 — Dimensions (Inches)



Specifications and Ordering Information

Surface Area (Ft ²)	Dimensions (In.)		316SS		Titanium		Stock	Wt. (Lbs.)
	A	B	Model	PCN	Model	PCN		
US1 — Single Pass U-Coils								
0.8	18	12	US1-12-18	055765	UT1-12-18	055968	NS	3
1	24	12	US1-12-24	055773	UT1-12-24	055976	NS	4
1.3	30	12	US1-12-30	055781	UT1-12-30	055984	NS	5
1.6	36	12	US1-12-36	055790	UT1-12-36	055992	NS	6
1.8	42	12	US1-12-42	055802	UT1-12-42	056004	NS	7
2.1	48	12	US1-12-48	055810	UT1-12-48	059053	NS	8
2.4	54	12	US1-12-54	055829	UT1-12-54	059061	NS	9
2.6	60	12	US1-12-60	055837	UT1-12-60	059070	NS	10
US4 — 4 Pass Units								
2.7	36	24	US4-24-36	055845	UT4-24-36	059088	NS	11
3.7	36	36	US4-36-36	055853	UT4-36-36	056055	NS	12
4.7	36	48	US4-48-36	055861	UT4-48-36	056063	NS	14
5.7	36	60	US4-60-36	055870	UT4-60-36	059096	NS	16
7.3	36	78	US4-78-36	055888	UT4-78-36	059109	NS	20
8.8	36	96	US4-96-36	055896	UT4-96-36	059117	NS	25
US6 — 6 Pass Units								
3.7	48	20	US6-20-48	055909	UT6-20-48	056100	NS	12
5	48	30	US6-30-48	055917	UT6-30-48	056119	NS	14
6.3	48	40	US6-40-48	055925	UT6-40-48	056127	NS	17
7.5	48	50	US6-50-48	055933	UT6-50-48	056135	NS	20
8.7	48	60	US6-60-48	055941	UT6-60-48	056143	NS	25
10	48	70	US6-70-48	055950	UT6-70-48	056151	NS	28

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN and quantity.

Notes —

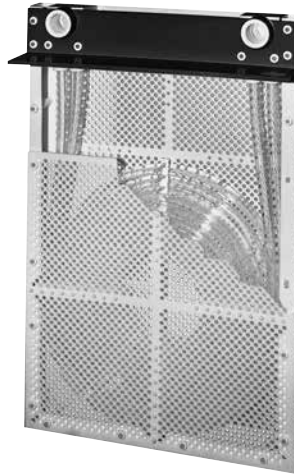
- A. Heat transfer coefficient steam = 150 BTUH/FT²/°F
- B. Heat transfer coefficient liquid = 90 BTUH/FT²/°F

OVER-THE-SIDE

GHTF

Side Mount Heat Exchangers Fluoropolymer Heating or Cooling Coils

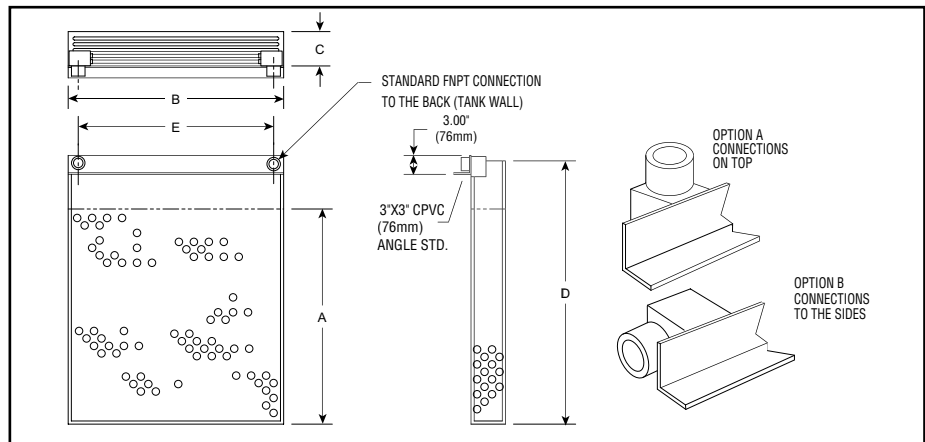
- Fluoropolymer Tube - 1/4" and 1/2" OD
- Surface Area (2-1/4 - 46-1/2 Ft²)



Features

- Polypropylene Guard, standard
- Standard Coils Rated to 30 psi Steam Service. Coils Available up to 60 psi
- 10 psi Minimum Steam Pressure Required for Operation
- Integral Inlet and Outlet Manifolds for Single Point Connections
- Options Available:
 - Anti-Floatation Brackets
 - Special Sizes and Manifold Configurations
 - L Shaped Configurations
 - Dual Coils for both Heating and Cooling

Dimensions (Inches)



Note: Vacuum breakers recommended for fluoropolymer heat exchanger steam heating installations. Consult factory regarding reduced pressure applications.

Specifications and Ordering Information

Surface Area (Ft ²)	Dimensions (In.)					Fluoropolymer			Wt. (Lbs.)
	A	B	C	D	E	Model	Stock	PCN	
2-1/4*	11-1/2	11-1/2	1-1/2	17-1/2	9	GHTF-118	NS	362010	10
4-1/2*	11-1/2	11-1/2	2	17-1/2	8	GHTF-218	NS	362028	12
4-1/2*	15-1/2	15-1/2	1-1/2	21-1/2	12	GHTF-222	NS	362036	15
9-1/4*	15-1/2	15-1/2	2	21-1/2	12	GHTF-422	NS	362044	18
6	17-1/2	17-1/2	2	23-1/2	12-1/2	GHTF-224	NS	362052	22
12	17-1/2	17-1/2	3-1/2	23-1/2	12-1/2	GHTF-424	NS	362060	30
18	17-1/2	17-1/2	4-1/2	23-1/2	12-1/2	GHTF-624	NS	362079	38
24	17-1/2	17-1/2	5-3/4	23-1/2	12-1/2	GHTF-824	NS	362087	42
11-1/2	23-1/2	23-1/2	2	29-1/2	18-1/2	GHTF-230	NS	362095	32
23	23-1/2	23-1/2	3-1/4	29-1/2	18-1/2	GHTF-430	NS	362108	37
34-1/2	23-1/2	23-1/2	4-1/2	29-1/2	18-1/2	GHTF-630	NS	362116	41
46-1/2	23-1/2	23-1/2	5-3/4	29-1/2	18-1/2	GHTF-830	NS	362124	60

Stock Status: S = stock NS = non-stock
To Order— Specify model, PCN and quantity.

* Designates 1/4" diameter tubing. All others 1/2" diameter tubing

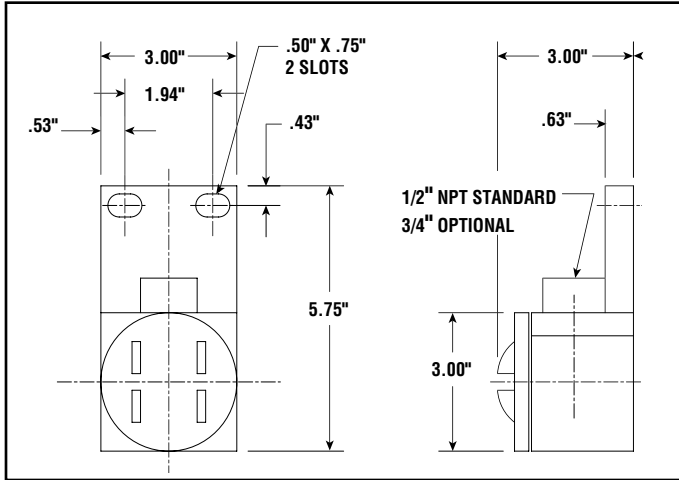
Notes —

- A. Heat transfer coefficient steam = 35 BTUH/FT²/°F.
- B. Heat transfer coefficient liquid = 30BTUH/FT²/°F.

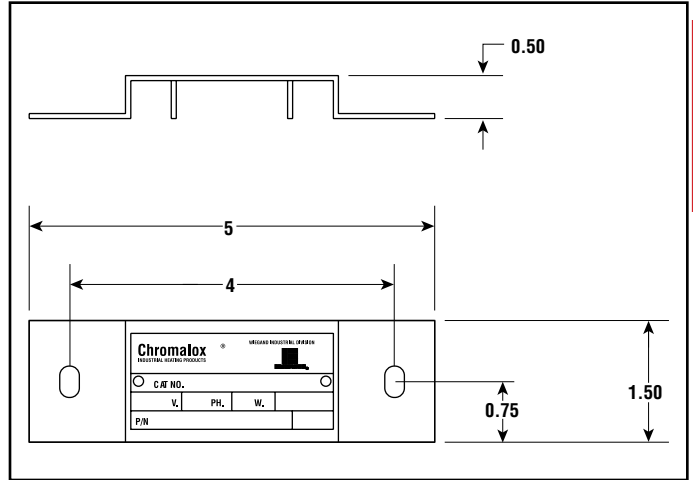
Over-the-Side Immersion Heaters

Terminal Enclosure Dimensions

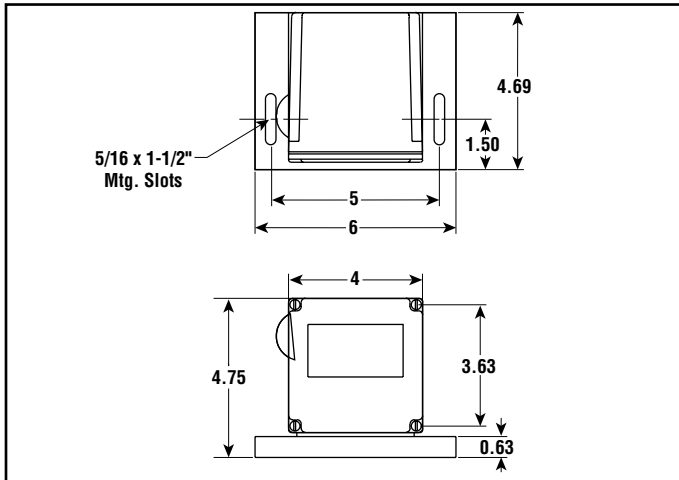
Style A — Dimensions (Inches) GS, GT, GS3, GT3



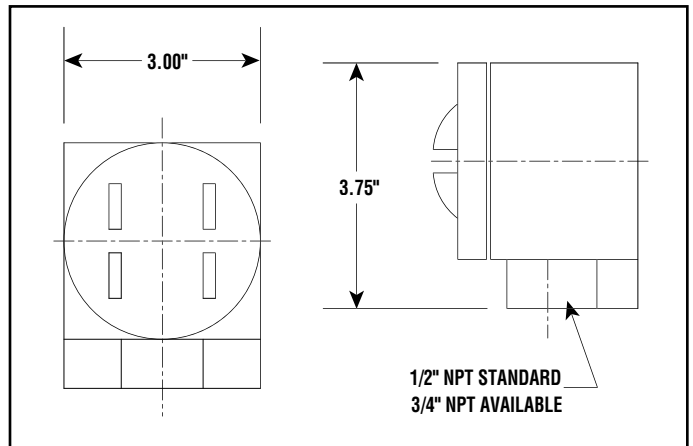
Style B — Dimensions (Inches) PTH, PTHT



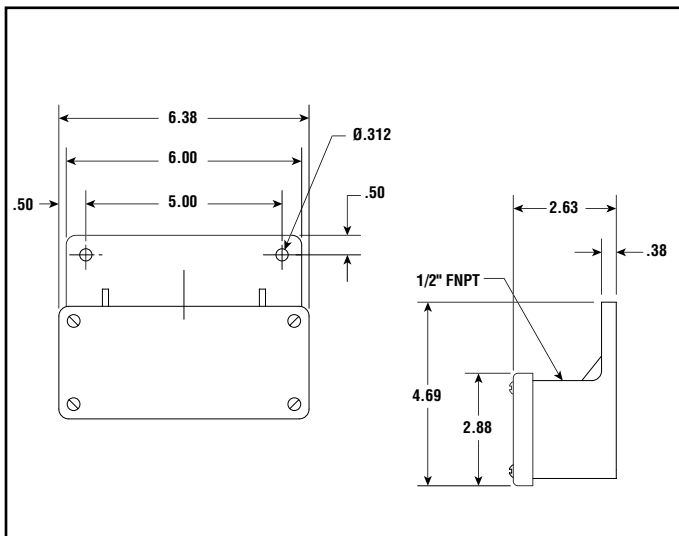
Style C — Dimensions (Inches) PTFE, TPR, TPF



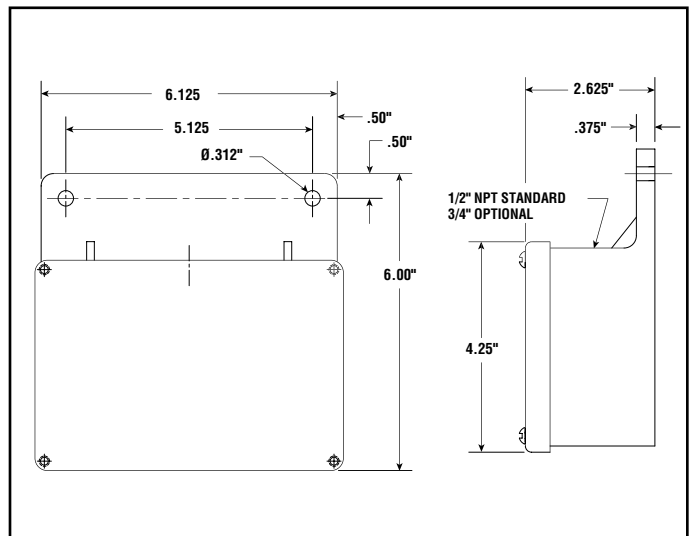
Style D — Dimensions (Inches) GSV3, GTV3, GSL3, GTL3, GSL, GTL



Style E — Dimensions (Inches) GTFL 3



Style F — Dimensions (Inches) GTF6

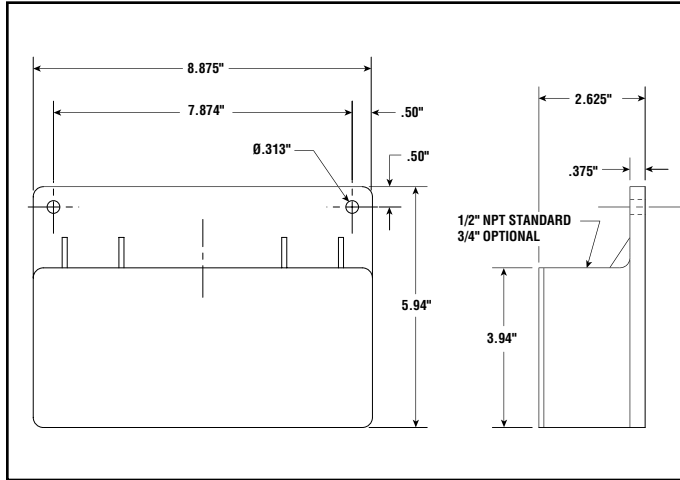


OVER-THE-SIDE

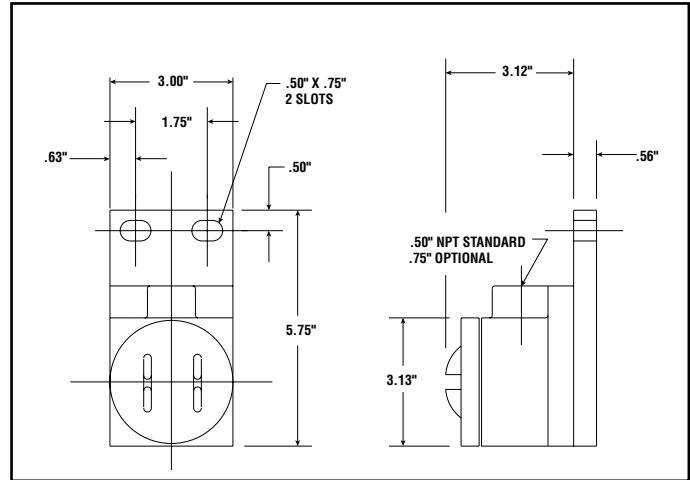
Over-the-Side Immersion Heaters

Terminal Enclosure Dimensions

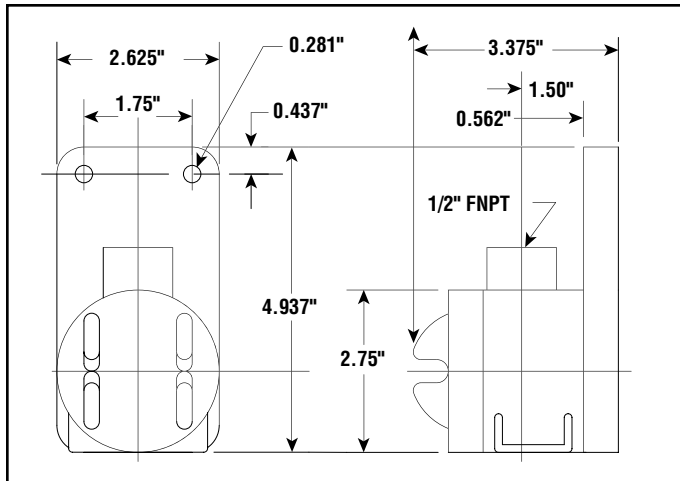
Style G — Dimensions (Inches) GTF9



Style H — Dimensions (Inches) QM, QM3



Style J — Dimensions (Inches) GTF, GTFL, GXF, GXFL



Over-the-Side Immersion Heaters

Optional Accessories

- Thermal Fuses
- Thermowells
- Thermowell Guards

Thermowell



Fuse



OVER-THE-SIDE

Fuse — Specifications and Ordering Information (1)

For Heater Models	Lead Length (In)	Max. Process Temperature (°F) (2)	Single Use Fuse				Resettable Fuse				Stock Status
			Model	PCN	Fuse Temp Limit (°F)	Wire Color	Model	PCN	Fuse Temp Limit (°F)	Wire Color	
GS, GT, GS3, GT3	18	180	F	360330	219	White	RF	360436	219	White	S
	18	230	FM	360348	262	Blue	RFM	360444	262	Blue	S
	18	300	FH	360356	330	Red	RFH	360452	330	Red	NS
GTF,GXF, GTF6, GTF9 (3)	18	180	FT	360364	219	Red	RFT	360460	219	White	S
QM, QM3 (4)	18	180	FT	360364	219	Red	RFT	360460	219	White	S
	18	230	FTM	360372	262	Blue	RFTM	360479	262	Blue	S
GSL, GTL, GSL3, GTL3, GSV3, GTV3	86	180	FL	360399	219	White	RFL	360495	219	White	S
	86	230	FLM	360401	262	Blue	RFLM	360508	262	Blue	S
	86	300	FLH	360410	330	Red	RFLH	360516	330	Red	NS
GTFL,GXFL,GTFL3 (3)	86	180	FLT	224717	219	Red	RFLT	224725	219	White	NS
Resettable fuse circuitry (5)	NA	All	NA	NA	NA	NA	RFM-EC	360321	NA	NA	NS

Stock Status: S = stock NS = non-stock
To Order—Specify model, PCN and quantity.

Notes

1. PCN's shown above are for individual replacement parts only.
2. Process solution temperatures must always be a minimum of 30°F below fuse temperature limit.
3. For Fluoropolymer series (GTF) process temps over 180°F, Consult Factory. Fluoropolymer heaters should always be supplied with low temp fuse. Fluoropolymer Series PCN's for Fuse Temperature Limit of 262°F such as FTM 360372, RFTM 360479, FLTM 360428, and RFLTM 360524 are available on a "Consult Factory" basis only.
4. For QM series process temps over 230°F, Consult Factory.
5. Resettable fuse is bi-metal switch only and requires connection to Resettable Fuse System Circuitry, Model RFM-EC, PCN 360321, which must be ordered separately. RFM-EC includes: Manual reset, Audible Alarm, and Relay rated to 240V, 5Amp.

Fuse Temperature Ranges: (based on Fuse temp limit)
 Low temp: 219°F, Mid temp: 262°F High temp: 330°F

Standard Heater Offering

1. On Standard Heaters unless specified otherwise, will supply low temp (219°F) single use fuse. Resettable fuses, along with Mid temp and High Temp fuses are special order by PCN.

Thermowell — Specifications and Ordering Information

Well Material	ID/OD (In.)	12" Length			24" Length			36" Length		
		Model	PCN	Stock	Model	PCN	Stock	Model	PCN	Stock
316 SS	0.43 / 1/2	GSTW-12	360575	NS	GSTW-24	360612	S	GSTW-36	360655	NS
Titanium	0.43 / 1/	GTTW-12	360583	NS	GTTW-24	360620	NS	GTTW-36	360663	NS
Fluoropolymer ¹	0.44 / 1/2	GTFTW-12	360591	S	GTFTW-24	360639	NS	GTFTW-36	360671	NS
Quartz ¹	0.50 / 5/8	GQTW-12	360604	NS	GQTW-24	360647	NS	GQTW-36	360680	NS
Thermowell Guards — made of Polypropylene²										
Fluoropolymer Well Guard	—	GTFTW-12G	360698	NS	GTFTW-24G	360719	NS	GTFTW-36G	360735	NS
Quartz Well Guard	—	GQTW-12G	360700	NS	GQTW-24G	360727	NS	GQTW-36G	360743	NS

Stock Status: S = stock NS = non-stock
To Order—Specify model, volts, phase, kW and PCN.

1. Guards recommended. (See Thermowell Guards listed above.)
2. Other materials available. Contact your Local Chromalox Sales office.

Other Notes —

- A. Bracket dimensions: 1" wide x 4" long. 3/8" mounting hole centered 3/16" from end.
- B. Other lengths, diameters and sheath materials available. Contact your Local Chromalox Sales office.