

## Radiant Process Heaters



Universal 2000

# TUBULAR RADIANT HEATER ASSEMBLIES



**UNIVERSAL  
2000®**

*Universal 2000 heaters are ideal for reliable service, providing great flexibility for many diverse industrial and commercial applications.*

### ***Designed for Maximum Efficiency, Ease of Installation and Trouble-Free Service...***

As the product name implies, Universal 2000 radiant heaters are a direct retrofit replacement for existing and new applications, utilizing similar products regardless of make.

Their unique design offer several quality enhancements without compromising fit and function on existing applications.

### **Delivering Value-Added Performance**

Universal 2000 heaters are ideal for reliable service, providing great flexibility for many diverse industrial and commercial applications. Manufactured with the proper options, Universal 2000 Radiant Heater Assemblies can be used outdoors or in wet locations.

### **Typical Applications**

- Adhesive Drying
- Comfort Heating
- Conveyorized Drying
- Drying Bulk Materials
- Drying Ceramics
- Food Warming
- Freeze Protection
- Heating Rubber or Steel Rolls
- Ink Drying
- Manufacturing Glass & Mirrors
- Moisture Evaporation
- Outdoor Comfort Heating
- Paint Drying
- Resin Curing
- Shrink Fitting
- Thermoforming
- Washdown Facilities
- Welding Preheating



### Universal 2000

#### Construction Characteristics

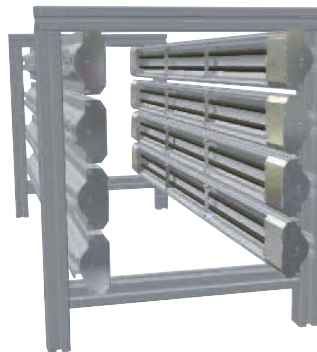
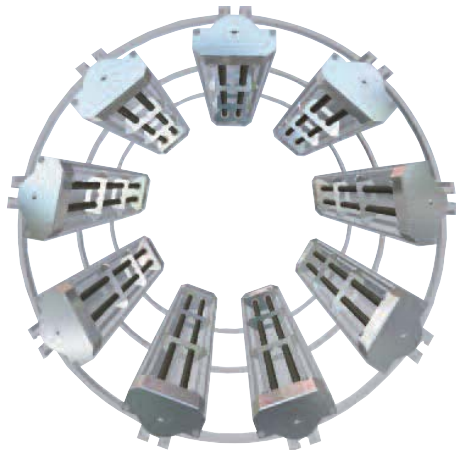
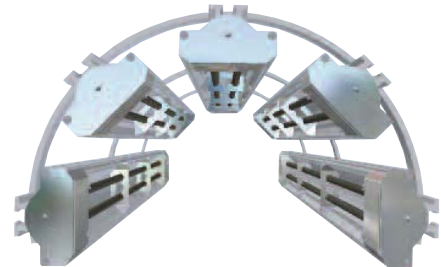
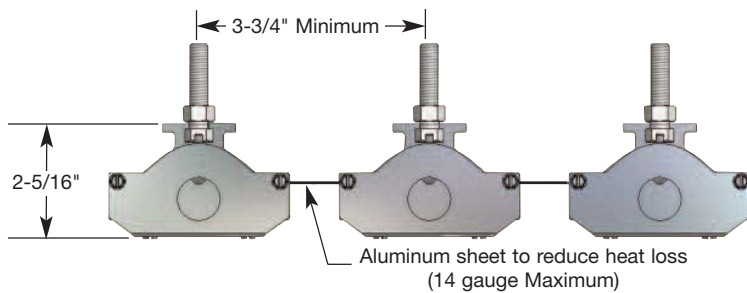
The Universal 2000 Radiant Heater stands apart from all other similar products. Its rugged construction, enhanced design features and flexibility in installation allow it to be used in applications requiring a single unit or to be used as modules creating various configurations for process radiant heating systems.

Universal 2000 Radiant Heaters are available in a full range of standard construction variations, physical dimensions and electrical ratings. They are also available in custom engineered/manufactured units up to 132" (3353 mm) for series TRH1, 4 and 6. TRH3 and 5 series units are available up to 120" (3048 mm) lengths. Special electrical ratings, single end wiring, dual voltage, multiple heat designs, and optional fast response Quartz heater options (TRH1 & 2 NEMA1 units only), along with pre-wired units using flexible/rigid conduit or SJO cord/plug can be custom designed to fit your application.

#### Design Features

- \* *Direct retrofit to existing applications*
- \* *Rugged anodized extruded aluminum housing*
- \* *Polished aluminum reflector (replaceable)*
- \* *Incoloy® sheath tubular heaters (replaceable)*
- \* *Element Support brackets (replaceable)*
- \* *Sliding mounting bolts (replaceable)*
- \* *Dual internal wireways for single end wiring*
- \* *Ground terminal lug*
- \* *Slots for heat shield on side of housing for between units*
- \* *Convenient field wiring*
- \* *Made to order*

### Typical Installations

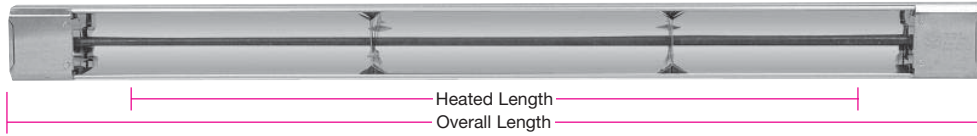


# Radiant Process Heaters



## Universal 2000 TRH1

### TRH1 Series — Single Straight Element Double End Termination



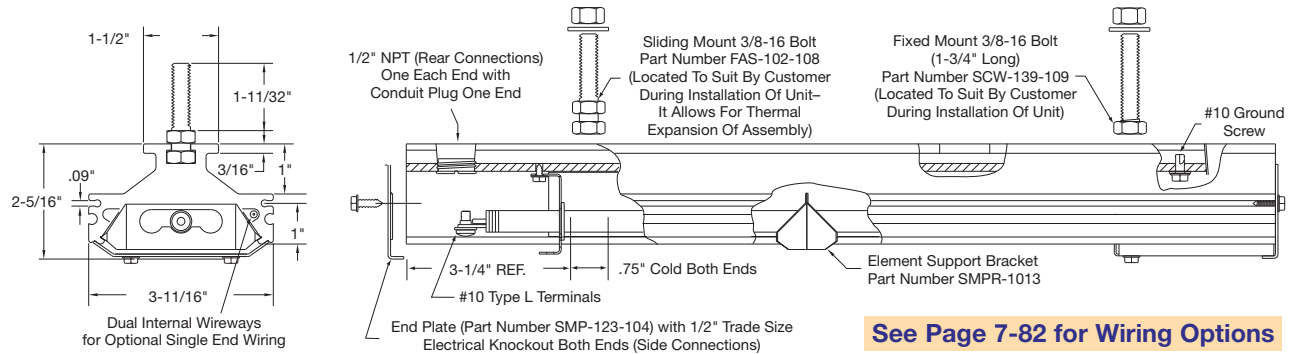
#### Standard (Non-Stock) Sizes and Electrical Ratings

Wattage	Volts	Overall Length in.	Heated Length in.	Part Number without Wire Guard	Part Number with Protective Wire Guard	Replacement Heating Element	Replacement Protective Wire Guard	Replacement Reflector Set
600	120	18	10	TRH10001	TRH10040	THE09100	GRD-104-104	SMPR-1018
	208			TRH10002	TRH10046	THE09101		
	240			TRH10003	TRH10047	THE09102		
	277			TRH10004	TRH10048	THE09103		
800	120	24	16	TRH10005	TRH10049	THE09104	GRD-104-105	SMPR-1019
	208			TRH10006	TRH10050	THE09105		
	240			TRH10007	TRH10051	THE09106		
	277			TRH10008	TRH10052	THE09107		
1100	120	30	22	TRH10009	TRH10053	THE09108	GRD-104-106	SMPR-1020
	208			TRH10010	TRH10054	THE09109		
	240			TRH10011	TRH10055	THE09110		
	277			TRH10012	TRH10056	THE09111		
1300	208	36	28	TRH10014	TRH10058	THE09113	GRD-104-107	SMPR-1021
	240			TRH10015	TRH10059	THE09114		
	277			TRH10016	TRH10060	THE09115		
	480			TRH10017	TRH10061	THE09116		
1800	208	48	40	TRH10018	TRH10062	THE09117	GRD-104-108	SMPR-1022
	240			TRH10019	TRH10063	THE09118		
	277			TRH10020	TRH10064	THE09119		
	480			TRH10021	TRH10065	THE09120		
2500	208	60	51	TRH10022	TRH10066	THE09121	GRD-104-109	SMPR-1023
	240			TRH10023	TRH10067	THE09122		
	277			TRH10024	TRH10068	THE09123		
	480			TRH10025	TRH10069	THE09124		
3000	208	72	63	TRH10026	TRH10070	THE09125	GRD-104-110	SMPR-1024
	240			TRH10027	TRH10071	THE09126		
	277			TRH10028	TRH10072	THE09127		
	480			TRH10029	TRH10073	THE09128		
3600	208	84	75	TRH10030	TRH10044	THE09129	GRD-104-111	SMPR-1025
	240			TRH10031	TRH10074	THE09130		
	277			TRH10032	TRH10075	THE09131		
	480			TRH10033	TRH10076	THE09132		



#### Optional Heating Element Protective Guard

Prevents accidental direct contact with heating element.

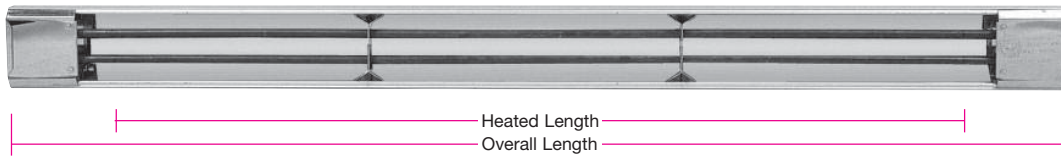


See Page 7-82 for Wiring Options

See Page 7-84 for Stock Heavy Duty Quick Disconnect Plugs and Receptacles



### TRH2 Series — Dual Straight Element Double End Termination

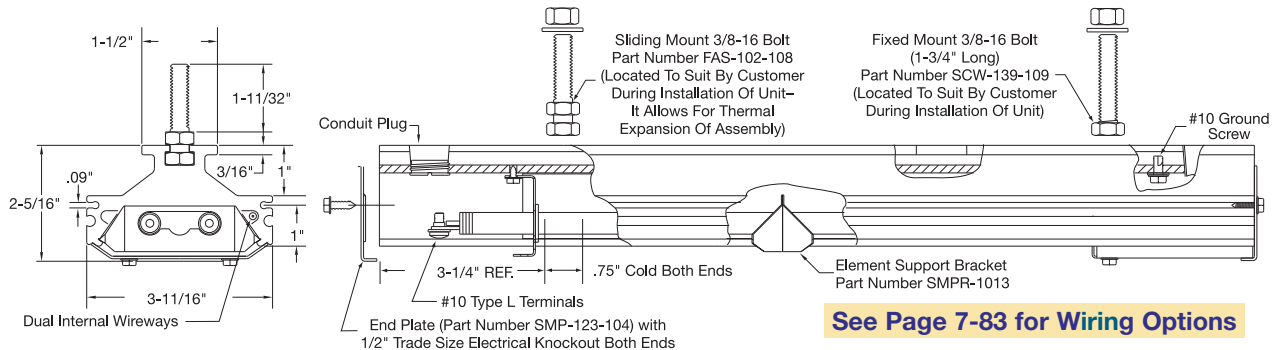


### Standard (Non-Stock) Sizes and Electrical Ratings

Wattage	Volts	Overall Length in.	Heated Length in.	Part Number without Wire Guard	Part Number with Protective Wire Guard	Replacement Heating Element	Replacement Protective Wire Guard	Replacement Reflector Set
1200	120	18	10	TRH20001	TRH20054	THE09100	GRD-104-104	SMPR-1018
	208			TRH20002	TRH20055	THE09101		
	240			TRH20003	TRH20056	THE09102		
	277			TRH20004	TRH20057	THE09103		
1600	120	24	16	TRH20005	TRH20058	THE09104	GRD-104-105	SMPR-1019
	208			TRH20006	TRH20059	THE09105		
	240			TRH20007	TRH20060	THE09106		
	277			TRH20008	TRH20061	THE09107		
2200	120	30	22	TRH20009	TRH20062	THE09108	GRD-104-106	SMPR-1020
	208			TRH20010	TRH20063	THE09109		
	240			TRH20011	TRH20064	THE09110		
	277			TRH20012	TRH20065	THE09111		
2600	208	36	28	TRH20014	TRH20067	THE09113	GRD-104-107	SMPR-1021
	240			TRH20015	TRH20068	THE09114		
	277			TRH20016	TRH20069	THE09115		
	480			TRH20017	TRH20070	THE09116		
3600	208	48	40	TRH20018	TRH20071	THE09117	GRD-104-108	SMPR-1022
	240			TRH20019	TRH20072	THE09118		
	277			TRH20020	TRH20073	THE09119		
	480			TRH20021	TRH20074	THE09120		
5000	208	60	51	TRH20022	TRH20075	THE09121	GRD-104-109	SMPR-1023
	240			TRH20023	TRH20050	THE09122		
	277			TRH20024	TRH20076	THE09123		
	480			TRH20025	TRH20077	THE09124		
6000	208	72	63	TRH20026	TRH20078	THE09125	GRD-104-110	SMPR-1024
	240			TRH20027	TRH20079	THE09126		
	277			TRH20028	TRH20080	THE09127		
	480			TRH20029	TRH20081	THE09128		
7200	208	84	75	TRH20030	TRH20082	THE09129	GRD-104-111	SMPR-1025
	240			TRH20031	TRH20083	THE09130		
	277			TRH20032	TRH20084	THE09131		
	480			TRH20033	TRH20085	THE09132		



**Note:** Tubular elements are supplied at the same rated voltage as the overall assembly and are wired in parallel. 120 or 240V rated assemblies can be used at twice the rated voltage by wiring the elements in series (120/240V or 240/480V).



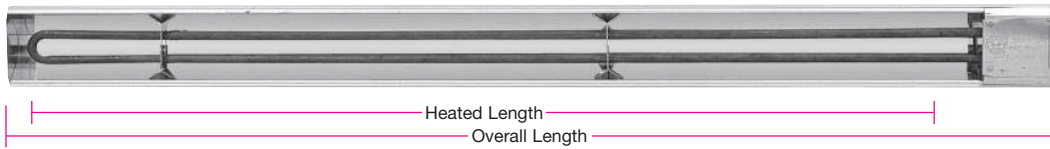
**See Page 7-83 for Wiring Options**

# Radiant Process Heaters



## Universal 2000 TRH3

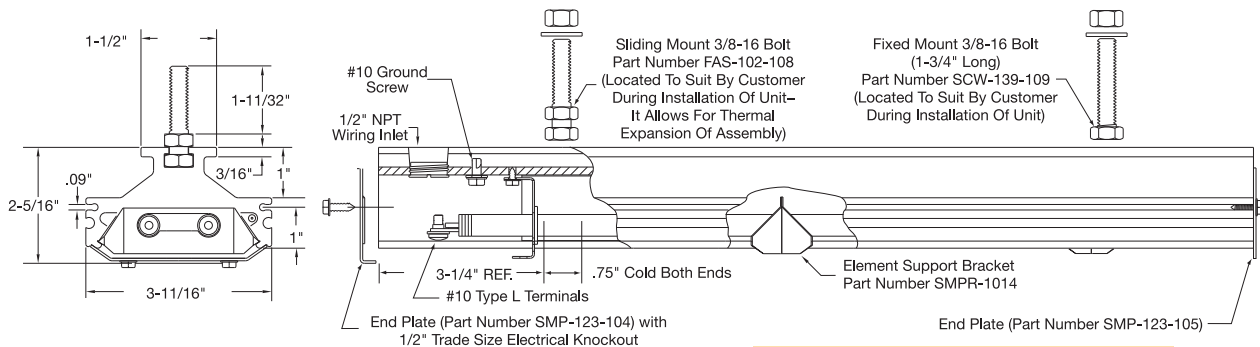
### TRH3 Series — Single Hairpin Element Bend Single End Termination



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

Stock Items Are Shown In **RED**

Wattage	Volts	Overall Length in.	Heated Length in.	Part Number without Wire Guard	Part Number with Protective Wire Guard	Replacement Heating Element	Replacement Protective Wire Guard	Replacement Reflector
800	120	12	7	TRH30001	TRH30036	THE09133	GRD-104-112	SMPR-1028
	208			TRH30002	TRH30037	THE09134		
	240			TRH30003	TRH30038	THE09135		
	277			TRH30004	TRH30039	THE09136		
1200	120	18	13	<b>TRH30005</b>	<b>TRH30040</b>	<b>THE09137</b>	GRD-104-113	SMPR-1029
	208			TRH30006	TRH30041	THE09138		
	240			<b>TRH30007</b>	<b>TRH30042</b>	<b>THE09139</b>		
	277			TRH30008	TRH30043	THE09140		
1800	208	24	19	TRH30009	TRH30044	THE09141	GRD-104-114	SMPR-1030
	240			<b>TRH30010</b>	<b>TRH30045</b>	<b>THE09142</b>		
	277			TRH30011	TRH30046	THE09143		
	480			TRH30012	TRH30047	THE09144		
2500	208	30	25	TRH30013	TRH30048	THE09145	GRD-104-115	SMPR-1031
	240			TRH30014	TRH30049	THE09146		
	277			TRH30015	TRH30050	THE09147		
	480			TRH30016	TRH30051	THE09148		
3000	208	36	31	TRH30017	TRH30052	THE09149	GRD-104-116	SMPR-1032
	240			<b>TRH30018</b>	<b>TRH30053</b>	<b>THE09150</b>		
	277			TRH30019	TRH30054	THE09151		
	480			TRH30020	TRH30035	THE09152		
3600	208	48	43	TRH30021	TRH30055	THE09153	GRD-104-117	SMPR-1033
	240			<b>TRH30022</b>	<b>TRH30056</b>	<b>THE09154</b>		
	277			TRH30023	TRH30057	THE09155		
	480			<b>TRH30024</b>	<b>TRH30058</b>	<b>THE09156</b>		
5000	208	60	55	TRH30025	TRH30059	THE09157	GRD-104-118	SMPR-1034
	240			<b>TRH30026</b>	<b>TRH30060</b>	<b>THE09158</b>		
	277			TRH30027	TRH30061	THE09159		
	480			<b>TRH30028</b>	TRH30062	<b>THE09160</b>		
6000	208	72	67	TRH30030	TRH30064	THE10305	GRD-104-124	SMPR-1095
	240			<b>TRH30031</b>	<b>TRH30065</b>	<b>THE10306</b>		
	277			TRH30032	TRH30066	THE10307		
	480			<b>TRH30033</b>	<b>TRH30067</b>	<b>THE10308</b>		

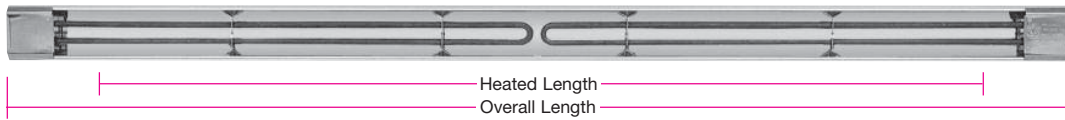


See Page 7-84 for Wiring Options

See Page 7-84 for Stock Heavy Duty Quick Disconnect Plugs and Receptacles



### TRH4 Series — Dual Hairpin Element Bend Double End Termination



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

Wattage	Volts	Overall Length in.	Heated Length in.	Part Number without Wire Guard	Part Number with Protective Wire Guard	Replacement Heating Element	Replacement Protective Wire Guard	Replacement Reflector Set
6000	208	72	64	TRH40001	TRH40019	THE09161	GRD-104-119	SMPR-1070
	240			TRH40002	TRH40020	THE09162		
	277			TRH40003	TRH40021	THE09163		
	480			TRH40004	TRH40022	THE09164		
7200	208	84	76	TRH40005	TRH40023	THE09165	GRD-104-120	SMPR-1069
	240			TRH40006	TRH40024	THE09166		
	277			TRH40007	TRH40025	THE09167		
	480			TRH40008	TRH40026	THE09168		
8000	208	96	88	TRH40009	TRH40027	THE09169	GRD-104-121	SMPR-1071
	240			TRH40010	TRH40028	THE09170		
	277			TRH40011	TRH40029	THE09171		
	480			TRH40012	TRH40030	THE09172		
9000	208	108	100	TRH40013	TRH40031	THE09173	GRD-104-122	SMPR-1072
	240			TRH40014	TRH40032	THE09174		
	277			TRH40015	TRH40033	THE09175		
	480			TRH40016	TRH40034	THE09176		

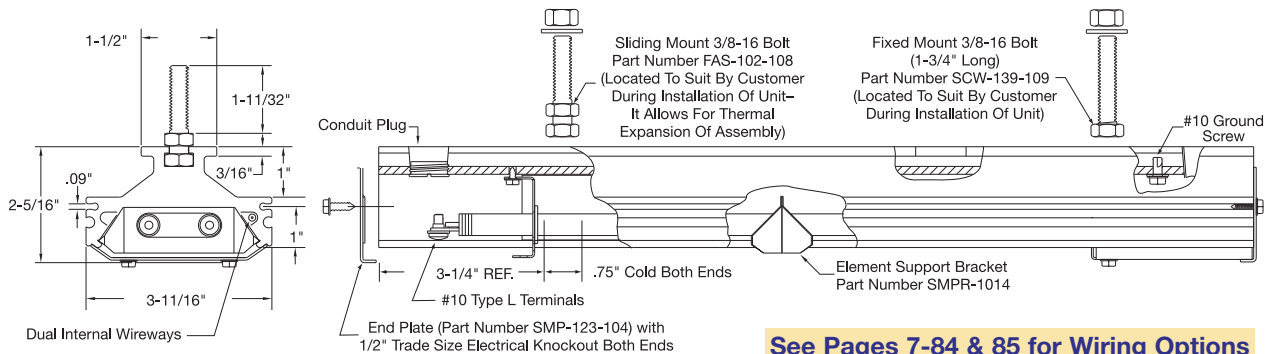


#### Heater with Protective Guard

Helps prevent accidental direct contact with heating element.



**Note:** Tubular elements are supplied at the same rated voltage as the overall assembly and are wired in parallel. 120 or 240V rated assemblies can be used at twice the rated voltage by wiring the elements in series (120/240V or 240/480V).



See Pages 7-84 & 85 for Wiring Options

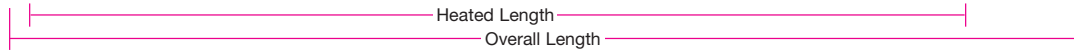
See Page 7-84 for Stock Heavy Duty Quick Disconnect Plugs and Receptacles

# Radiant Process Heaters



## Universal 2000 TRH5

### TRH5 Series — Single Hairpin Element Liquid Tight Single End Termination



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

Stock Items Are Shown In **RED**

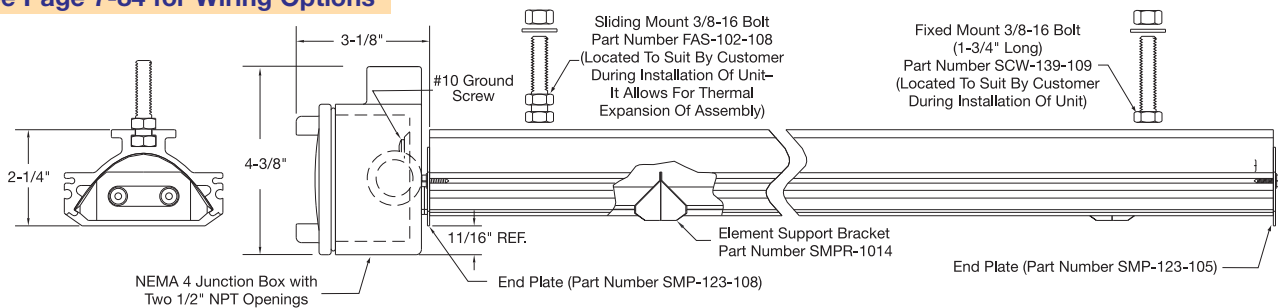
Wattage	Volts	Overall Length in.	Heated Length in.	Part Number without Wire Guard	Part Number with Protective Wire Guard	Replacement Heating Element	Replacement Protective Wire Guard	Replacement Reflector Set
800	120	12	7	TRH50001	TRH50040	THE09177	GRD-104-112	SMPR-1035
	208			TRH50002	TRH50041	THE09178		
	240			TRH50003	TRH50042	THE09179		
	277			TRH50004	TRH50043	THE09180		
1200	120	18	13	<b>TRH50005</b>	<b>TRH50044</b>	<b>THE09181</b>	GRD-104-113	SMPR-1036
	208			TRH50006	TRH50045	THE09182		
	240			<b>TRH50007</b>	<b>TRH50046</b>	<b>THE09183</b>		
	277			TRH50008	TRH50047	THE09184		
1800	208	24	19	TRH50009	TRH50048	THE09185	GRD-104-114	SMPR-1037
	240			<b>TRH50010</b>	<b>TRH50049</b>	<b>THE09186</b>		
	277			TRH50011	TRH50050	THE09187		
	480			TRH50012	TRH50051	THE09188		
2500	208	30	25	TRH50013	TRH50052	THE09189	GRD-104-115	SMPR-1038
	240			TRH50014	TRH50053	THE09190		
	277			TRH50015	TRH50054	THE09191		
	480			TRH50016	TRH50055	THE09192		
3000	208	36	31	TRH50017	TRH50056	THE09193	GRD-104-116	SMPR-1039
	240			<b>TRH50018</b>	<b>TRH50057</b>	<b>THE09194</b>		
	277			TRH50019	TRH50058	THE09195		
	480			TRH50020	TRH50038	THE09196		
3600	208	48	43	TRH50021	TRH50059	THE09197	GRD-104-117	SMPR-1040
	240			<b>TRH50022</b>	<b>TRH50060</b>	<b>THE09198</b>		
	240			TRH50023	TRH50061	THE09199		
	480			<b>TRH50024</b>	<b>TRH50062</b>	<b>THE09200</b>		
5000	208	60	55	TRH50025	TRH50063	THE09201	GRD-104-118	SMPR-1041
	240			<b>TRH50026</b>	<b>TRH50064</b>	<b>THE09202</b>		
	277			TRH50027	TRH50065	THE09203		
	480			<b>TRH50028</b>	<b>TRH50066</b>	<b>THE09204</b>		
6000	208	72	67	TRH50033	TRH50073	THE10301	GRD-104-124	SMPR-1094
	240			<b>TRH50034</b>	<b>TRH50074</b>	<b>THE10302</b>		
	277			TRH50035	TRH50075	THE10303		
	480			<b>TRH50036</b>	<b>TRH50076</b>	<b>THE10304</b>		



### Heater with Protective Guard

Helps prevent accidental direct contact with heating element.

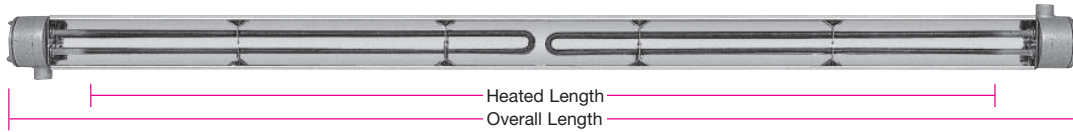
See Page 7-84 for Wiring Options



See Page 7-84 for Stock Heavy Duty Quick Disconnect Plugs and Receptacles



### TRH6 Series — Dual Hairpin Element Liquid Tight Double End Termination

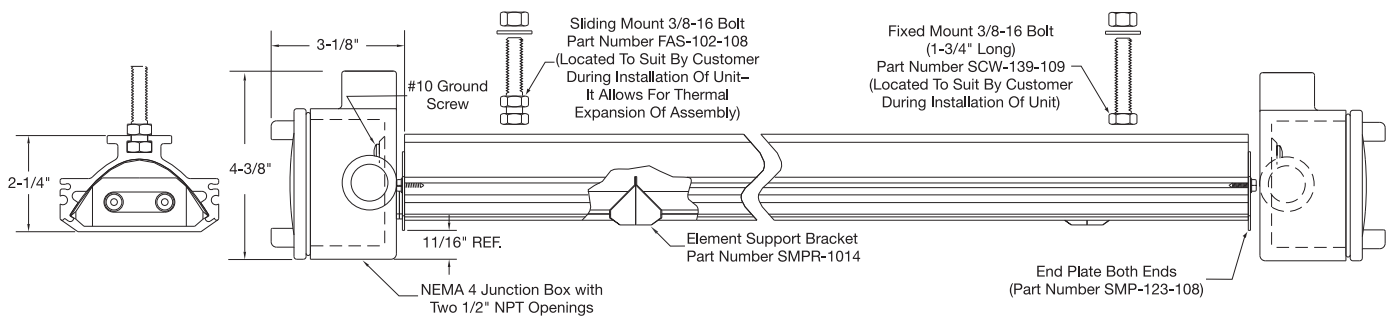


### Standard (Non-Stock) Sizes and Electrical Ratings

Wattage	Volts	Overall Length in.	Heated Length in.	Part Number without Wire Guard	Part Number with Protective Wire Guard	Replacement Heating Element	Replacement Protective Wire Guard	Replacement Reflector Set
6000	208	72	64	TRH60001	TRH60020	THE09205	GRD-104-119	SMPR-1047
	240			TRH60002	TRH60021	THE09206		
	277			TRH60003	TRH60022	THE09207		
	480			TRH60004	TRH60023	THE09208		
7200	208	84	76	TRH60005	TRH60024	THE09209	GRD-104-120	SMPR-1048
	240			TRH60006	TRH60025	THE09210		
	277			TRH60007	TRH60026	THE09211		
	480			TRH60008	TRH60027	THE09212		
8000	208	96	88	TRH60009	TRH60028	THE09213	GRD-104-121	SMPR-1049
	240			TRH60010	TRH60029	THE09214		
	277			TRH60011	TRH60030	THE09215		
	480			TRH60012	TRH60031	THE09216		
9000	208	108	100	TRH60013	TRH60032	THE09217	GRD-104-122	SMPR-1050
	240			TRH60014	TRH60033	THE09218		
	277			TRH60015	TRH60034	THE09219		
	480			TRH60016	TRH60035	THE09220		



**Note:** Tubular elements are supplied at the same rated voltage as the overall assembly and are wired in parallel. 120 or 240V rated assemblies can be used at twice the rated voltage by wiring the elements in series (120/240V or 240/480V).



See Page 7-84 for Wiring Options

See Page 7-84 for Stock Heavy Duty Quick Disconnect Plugs and Receptacles

# Radiant Process Heaters



## Universal 2000

### Installation Recommendations

#### Installation Recommendations

- Sliding mounting bolts (1-3/4" long, 3/8-16 thread) slide along the length of the aluminum housing for mounting the heater to common structural framing materials, creating multiple heater installations accommodating flat, rectangular, polygonal, cylindrical or any other shape arrays.  
*Minimum distance of 3-3/4" on center for heaters mounted side-by-side. Do not exceed 42" between sliding mounting bolts.*
- To reduce heat losses, heat deflector shields up to 14 gauge thick are recommended between heaters. Fiber insulation can also be placed behind the heater housing.
- In applications where water or solvents are being evaporated, proper ventilation is required to expel vapors or fumes.
- Standard NEMA 1 electrical enclosures located at opposite ends of the heater housing with standard 7/8" diameter knock-outs and a 1/2" NPT conduit threaded opening out the top of the housing facilitate single or double end wiring. Heaters with NEMA 3-4 boxes have dual 1/2" trade size hubs oriented 90° to each other. Openings accept standard electrical fittings.
- Hold the tubular heater terminal tabs with pliers when tightening the screws to ensure secure electrical connections. Use only high temperature hook-up lead wire and nickel-plated steel or monel lugs — Available from Tempco; see page 7-23 and Section 15.



**Notes:** Electrical wiring should be done by a qualified electrician with full knowledge of the installation and in accordance with local codes and the National Electrical Code.

**High temperature hook-up wire and terminal lugs are available from stock. See page 7-23 and Section 15.**

#### Maintenance

- Never perform any type of service prior to disconnecting all electrical power to the heater installation.**
- To maintain reflector efficiency, clean periodically with mild soap and water. Do not use alkali or other strong cleaners. They will dull the aluminum reflector finish.
- Replacement of elements, support brackets and reflectors.**  
(A) Remove terminal enclosure covers. (B) Disconnect power wires from element terminals. (C) Snap out support brackets. (D) Remove elements and old reflectors from front of unit. When replacing elements, reflectors should be replaced. Install new reflectors by snapping edges into housing grooves and reassemble other parts in reverse order.  
Replacement parts are available from stock; see pages 7-86 and 7-87.



**Wiring Hints** – Wire selection depends on the requirements of the installation.

**Wire Temperature Rating** for inside the heater housing should be 482°F (250°C) or higher depending on the installation.

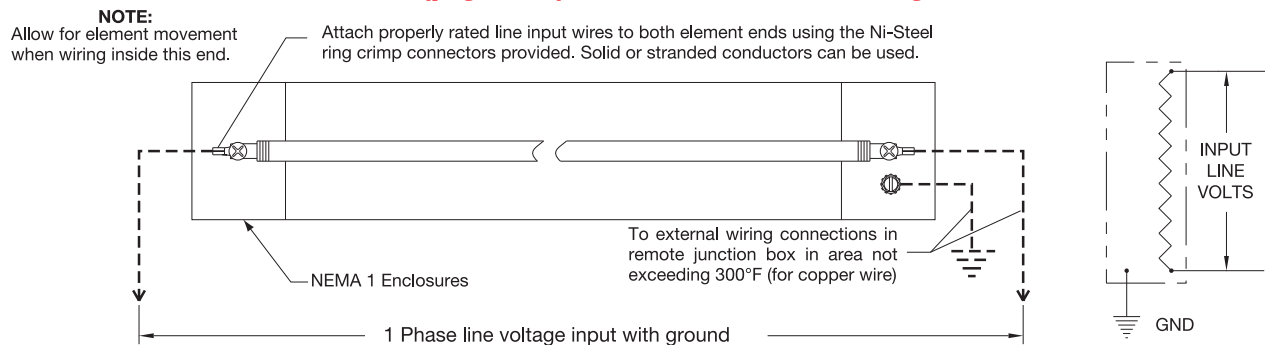
**Voltage Rating** should be equal to the operating voltage of the installation.

**Wire Conductors** should be nickel, nickel plated copper or nickel clad copper.

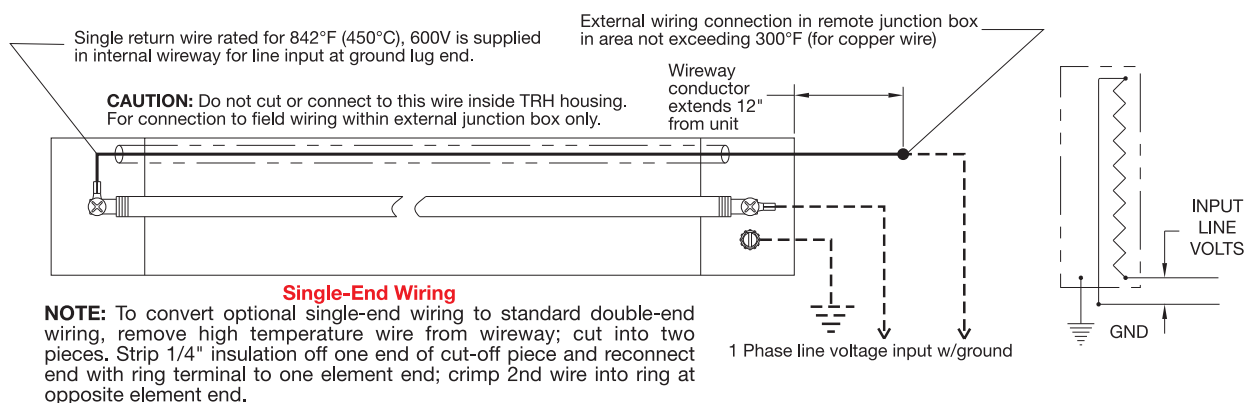
**Do not use silver plated or unplated copper wire conductors.**

**Amperage Rating** (wire gauge) should be 12 gauge for units drawing over 20 Amps of current. Use 14 gauge for units drawing under 20 Amps of current.

### TRH1 (page 7-76) Standard Double-End Wiring



### TRH1 (page 7-76) Optional Single End-Wiring

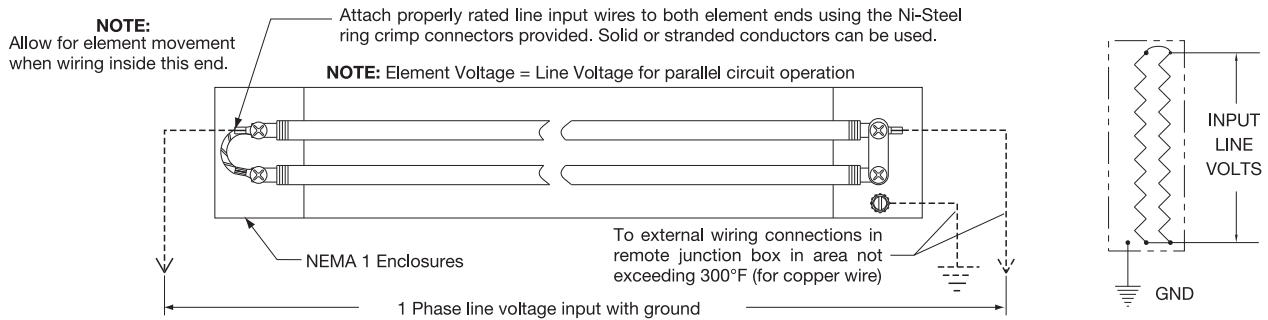




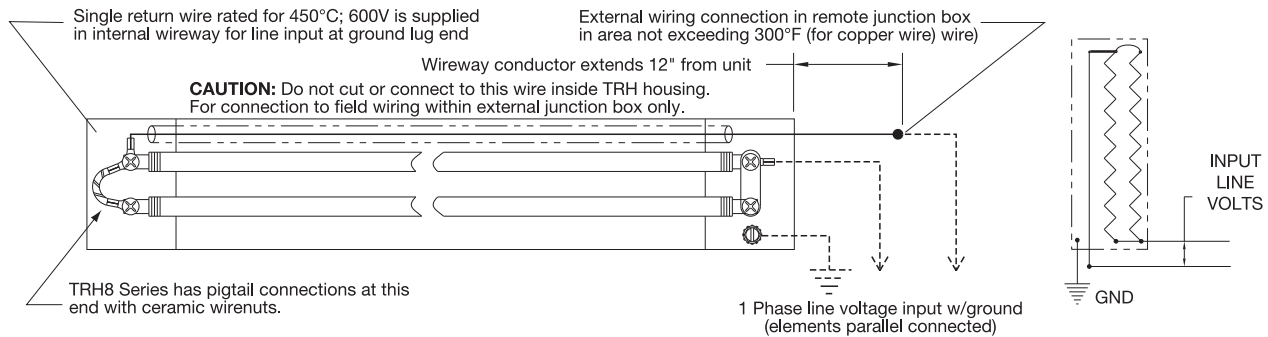
# Radiant Process Heaters

## Universal 2000 TRH Wiring Options

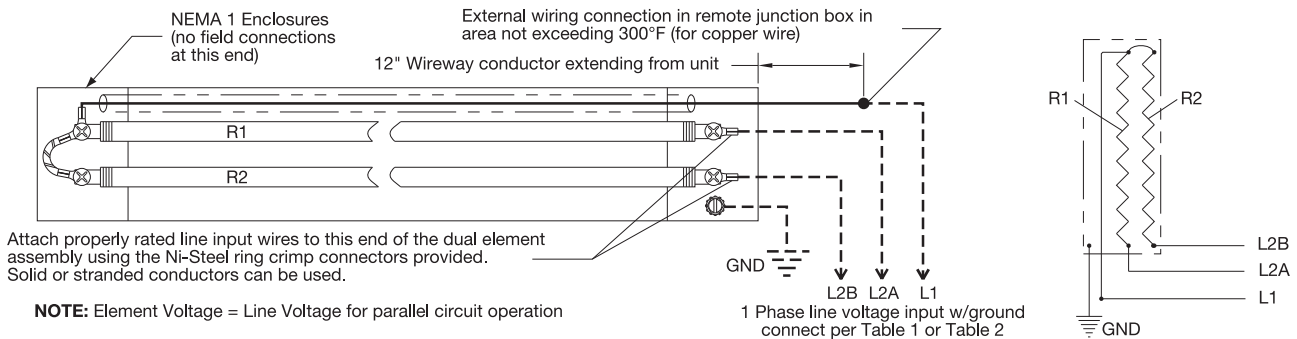
### TRH2 (page 7-77) Standard Double-End Wiring



### TRH2 (page 7-77) Optional Single-End Wiring



### TRH2 (page 7-77) Multiple Heat/Dual Voltage Wiring



**TABLE 1**

Multiple Heat Connections (Single Input Voltage)

Heat Range	Line Input Wiring
Max Heat	L1 to L2A & L2B in parallel
Medium Heat	L1 to L2A or L2B only
Low Heat	L2A to L2B (L1 not used)

**TABLE 2**

Dual Voltage Connections (for 240/480V or 120/240V rated units)

Input Voltage	Line Input Wiring
High (480 or 240V)	L2A to L2B (L1 not used)
Low (240 or 120V)	L1 to L2A & L2B in Parallel



**DANGER: Fire Hazard.** Radiant Process Heaters with NEMA 1 electrical housings are not to be used in applications where flammable vapors, gases or liquids are present as defined in the National Electrical Code. Do not mount the heater closer than 6 inches to any structural or surrounding material that does not have a minimum temperature rating of continuous operation at 395°F (200°C).

Proper ventilation is required to expel vapors or fumes away from the process and personnel.

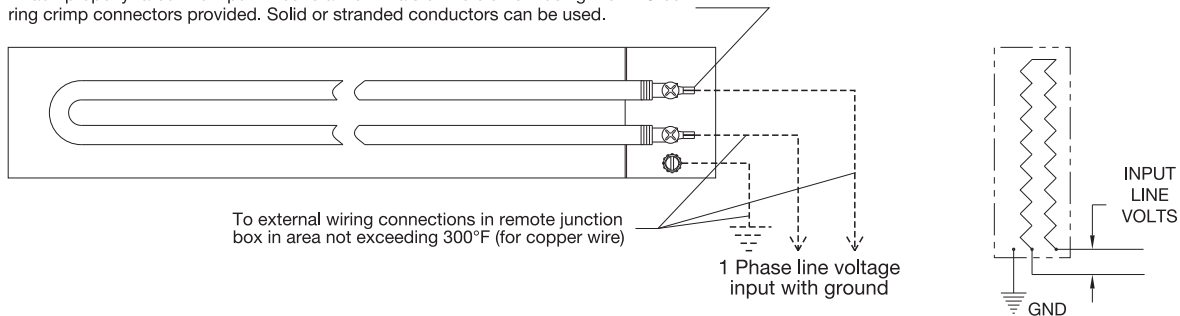
# Radiant Process Heaters



## Universal 2000 TRH Wiring Options

### TRH3 (page 7-78) and TRH5 (page 7-80) Standard Single-End Wiring

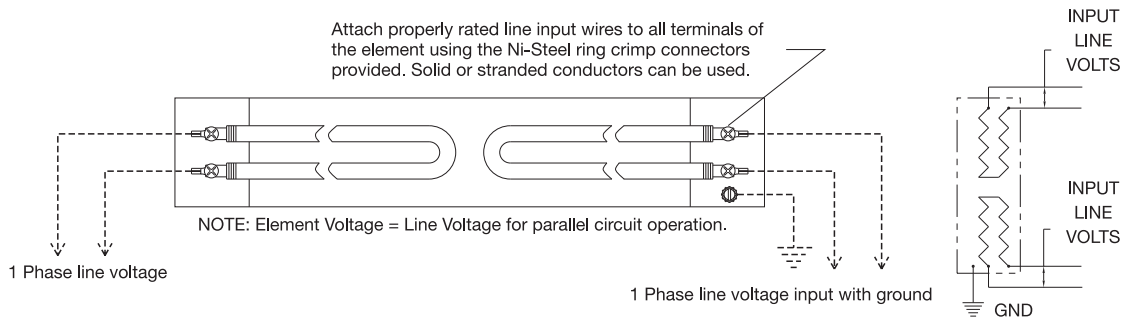
Attach properly rated line input wires to all terminals of the element using the Ni-Steel ring crimp connectors provided. Solid or stranded conductors can be used.



### TRH4 (page 7-79) and TRH6 (page 7-81) Standard Double-End Wiring

**NOTE:** This is the only option available for TRH 6 series.

Attach properly rated line input wires to all terminals of the element using the Ni-Steel ring crimp connectors provided. Solid or stranded conductors can be used.



## Wiring Options

### Prewired with Plain Leads, Armor Cable or Wire Braid (includes ground wire)

**Stainless steel armor cable** — 18" armor cable over 24" leads

**Galvanized armor cable** — 18" armor cable over 24" leads

**Stainless steel wire braid** — 18" wire braid over 24" leads

**Fiberglass leads (450°C rating)** — 12" long plain leads

If longer leads and/or longer armor cable are required, specify when ordering.

### Prewired with 24" SJO Cable (includes ground wire)

- 16 ga. cable (Up to 15 Amps)
- 14 ga. cable (Up to 22 Amps Max.)
- 12 ga. cable (Up to 28 Amps Max.)
- Max. terminal box temperature 194°F (90°C)
- If longer cable is required, specify when ordering.

## Stock Heavy Duty Quick Disconnect Plugs and Connectors

Reference	NEMA P or R	Max. Amps	Volts	Plug Part Number	Connectors (Female) Part Number
P3 straight	5-15	15A	125V	EHD-102-103	EHD-103-102
P4 twist lock	L5-15	15A	125V	EHD-102-113	EHD-103-104
P6 twist lock	L6-20	20A	250V	EHD-102-122	EHD-103-105
P7 twist lock	L6-30	30A	250V	EHD-102-126	EHD-103-125



**Notes: Optional Electrical Plugs** listed can be attached to armor cable or SJO cord described under wiring options above.

Connectors listed are cable mount matching units for the plugs listed and are ordered separately.



P3



P6



P7

*All Items Available from Stock*

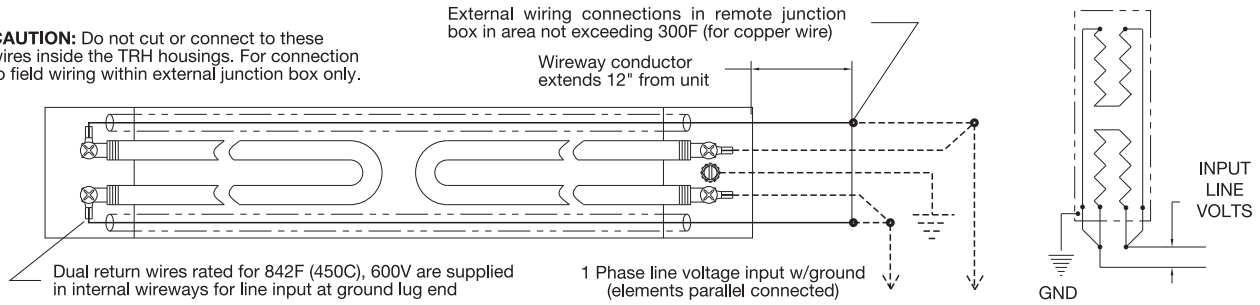


# Radiant Process Heaters

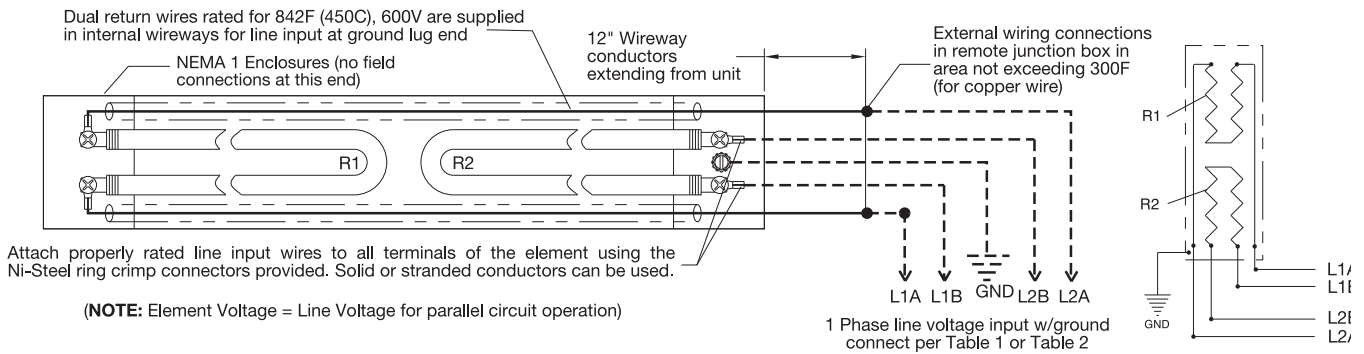
## Universal 2000 TRH Wiring Options

### TRH4 (page 7-79) Optional Single-End Wiring

**CAUTION:** Do not cut or connect to these wires inside the TRH housings. For connection to field wiring within external junction box only.



### TRH4 (page 7-79) Multiple Heat/Dual Voltage Wiring



**TABLE 1**

Multiple Heat Connections (Single Input Voltage)

Heat Range	Line Input Wiring
Max Heat	L1A & L1B to L2A & L2B in parallel
Medium Heat	L1A to L1B or L2A to L2B only
Low Heat	L1A to L1B, input L2A to L2B

**TABLE 2**

Dual Voltage Connections (for 240/480V or 120/240V rated units)

Input Voltage	Line Input Wiring
High (480 or 240V)	L1A to L1B, input L2A to L2B
Low (240 or 120V)	L1A & L1B to L2A & L2B in parallel

### Type ART Tubular Radiant Heater Arrays

Tempco can design and manufacture a custom tubular heater array to your specifications. Call for details.

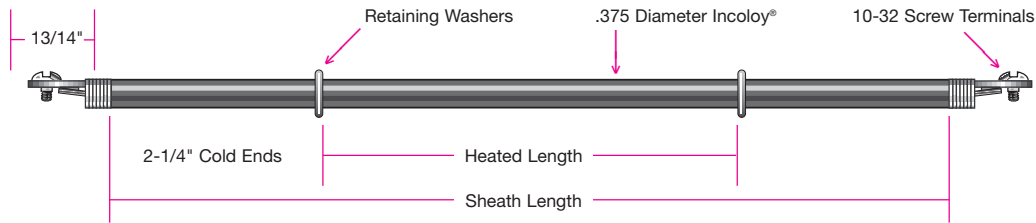


# Radiant Process Heaters



## Standard Universal Heater Replacements

### Standard Universal Heater Replacements



### Straight Elements Standard Sizes and Electrical Ratings/Universal Replacement Cross Reference

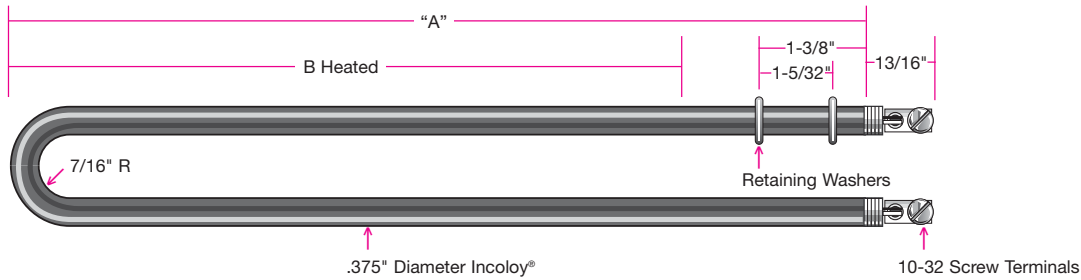
Watts	Volts	Overall Length in.	Heated Length in.	Cold Ends in.	Watlow® No.	Chromalox® Catalog No.	PCN	TEMPCO Part Number
400	120	10 <sup>1</sup> / <sub>4</sub>	7 <sup>1</sup> / <sub>4</sub>	1 <sup>1</sup> / <sub>2</sub>	RDN10E1	RTU-2063AX35	147766	THE04300
650	120	16 <sup>5</sup> / <sub>8</sub>	13 <sup>3</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>2</sub>	RDN16L1	RTU-2063AX29	147774	THE04301
800	120	21 <sup>1</sup> / <sub>16</sub>	16 <sup>13</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>8</sub>	RDN21B1	RTU-2083A	106112	THE04302
800	208	21 <sup>1</sup> / <sub>16</sub>	16 <sup>13</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>8</sub>	RDN21B2	RTU-2083AV	106120	THE04303
800	240	21 <sup>1</sup> / <sub>16</sub>	16 <sup>13</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>8</sub>	RDN21B10	RTU-2083A	106139	THE04304
800	277	21 <sup>1</sup> / <sub>16</sub>	16 <sup>13</sup> / <sub>16</sub>	2 <sup>1</sup> / <sub>8</sub>	RDN21B4	RTU-2083AV	106147	THE04305
1100	120	27 <sup>1</sup> / <sub>8</sub>	22 <sup>7</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>8</sub>	RDN27C1	RTU-3113A	106155	THE04306
1100	208	27 <sup>1</sup> / <sub>8</sub>	22 <sup>7</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>8</sub>	RDN27C2	RTU-3113AV	106163	THE04307
1100	240	27 <sup>1</sup> / <sub>8</sub>	22 <sup>7</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>8</sub>	RDN27C10	RTU-3113A	106171	THE04308
1100	277	27 <sup>1</sup> / <sub>8</sub>	22 <sup>7</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>8</sub>	RDN27C4	RTU-3113AV	106180	THE04309
1300	240	32 <sup>1</sup> / <sub>2</sub>	27 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>8</sub>	RDN32C10	RTU-3133A	108409	THE04310
1300	480	32 <sup>1</sup> / <sub>2</sub>	27 <sup>1</sup> / <sub>2</sub>	2 <sup>1</sup> / <sub>8</sub>	RDN32C11	RTU-3133A	108396	THE04311
1800	208	42 <sup>1</sup> / <sub>8</sub>	38 <sup>3</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>8</sub>	RDN42R2	RTU-4183AV	106198	THE04312
1800	240	42 <sup>1</sup> / <sub>8</sub>	38 <sup>3</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>8</sub>	RDN42R10	RTU-4183A	106200	THE04314
1800	277	42 <sup>1</sup> / <sub>8</sub>	38 <sup>3</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>8</sub>	RDN42R4	RTU-4183AV	106219	THE04315
1800	480	42 <sup>1</sup> / <sub>8</sub>	38 <sup>3</sup> / <sub>8</sub>	2 <sup>1</sup> / <sub>8</sub>	RDN42R11	RTU-4183A	106227	THE04316
2500	208	57 <sup>1</sup> / <sub>2</sub>	53 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	RDN57J2	RTU-5253AV	106235	THE04317
2500	240	57 <sup>1</sup> / <sub>2</sub>	53 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	RDN57J10	RTU-5253A	106243	THE04318
2500	277	57 <sup>1</sup> / <sub>2</sub>	53 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	RDN57J4	RTU-5253AV	106251	THE04319
2500	480	57 <sup>1</sup> / <sub>2</sub>	53 <sup>3</sup> / <sub>4</sub>	2 <sup>1</sup> / <sub>8</sub>	RDN57J11	RTU-5253A	106260	THE04320
3000	208	69 <sup>1</sup> / <sub>4</sub>	65	2 <sup>1</sup> / <sub>8</sub>	RDN69E2	RTU-6303AV	106278	THE04321
3000	240	69 <sup>1</sup> / <sub>4</sub>	65	2 <sup>1</sup> / <sub>8</sub>	RDN69E10	RTU-6303A	106286	THE04322
3000	277	69 <sup>1</sup> / <sub>4</sub>	65	2 <sup>1</sup> / <sub>8</sub>	RDN69E4	RTU-6303AV	106294	THE04323
3000	480	69 <sup>1</sup> / <sub>4</sub>	65	2 <sup>1</sup> / <sub>8</sub>	RDN69E11	RTU-6303A	106307	THE04324
3600	208	81 <sup>1</sup> / <sub>4</sub>	77	2 <sup>1</sup> / <sub>8</sub>	RDN81E2	RTU-7363AV	106315	THE04325
3600	240	81 <sup>1</sup> / <sub>4</sub>	77	2 <sup>1</sup> / <sub>8</sub>	RDN81E10	RTU-7363A	106323	THE04326
3600	277	81 <sup>1</sup> / <sub>4</sub>	77	2 <sup>1</sup> / <sub>8</sub>	RDN81E4	RTU-7363AV	106331	THE04327
3600	480	81 <sup>1</sup> / <sub>4</sub>	77	2 <sup>1</sup> / <sub>8</sub>	RDN81E11	RTU-7363A	106340	THE04328
4000	240	109 <sup>1</sup> / <sub>4</sub>	105	2 <sup>1</sup> / <sub>8</sub>	RDN109E10	RTU-7303AX10	106358	THE04329
5000	240	134 <sup>1</sup> / <sub>2</sub>	127 <sup>3</sup> / <sub>4</sub>	3 <sup>3</sup> / <sub>8</sub>	RDN134J10	RTU-7303AX13	106366	THE04330
5500	240	153 <sup>3</sup> / <sub>8</sub>	145 <sup>7</sup> / <sub>8</sub>	4	RDN153R10	RTU-7303AX9A	106374	THE04331
6500	240	179 <sup>1</sup> / <sub>4</sub>	171 <sup>1</sup> / <sub>4</sub>	4	RDN179E10	RTU-7363AX38	106382	THE04332



# Radiant Process Heaters

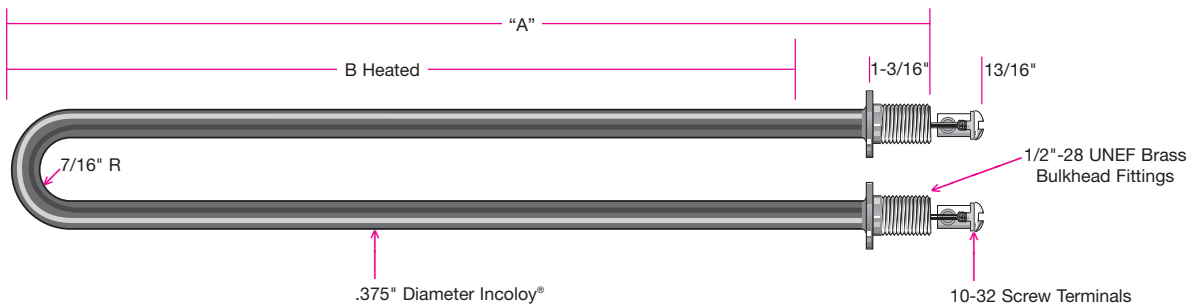
## Standard Universal Heater Replacements

### Standard Universal Heater Replacements



**Universal "U" Bend Elements  
Standard Sizes and  
Electrical Ratings Replacement  
Cross Reference Listing**

Watts	Volts	Heated "B" Dim. in.	Overall "A" Dim. in.	Watlow® No.	Chromalox® Catalog No.	PCN	TEMPCO Part Number
800	120	8 <sup>3</sup> / <sub>8</sub>	10 <sup>1</sup> / <sub>2</sub>	RDN21B1U	UTU-2	106438	THE04333
800	240	8 <sup>3</sup> / <sub>8</sub>	10 <sup>1</sup> / <sub>2</sub>	RDN21B10U	UTU-2	106454	THE04334
800	277	8 <sup>3</sup> / <sub>8</sub>	10 <sup>1</sup> / <sub>2</sub>	RDN21B4U	UTU-2V	106462	THE04335
1100	120	11 <sup>1</sup> / <sub>16</sub>	13 <sup>1</sup> / <sub>16</sub>	RDN27C1U	UTU-3	106470	THE04336
1100	208	11 <sup>1</sup> / <sub>16</sub>	13 <sup>1</sup> / <sub>16</sub>	—	UTU-3V	106489	THE04350
1100	240	11 <sup>1</sup> / <sub>16</sub>	13 <sup>1</sup> / <sub>16</sub>	RDN27C10U	UTU-3	106497	THE04337
1100	277	11 <sup>1</sup> / <sub>16</sub>	13 <sup>1</sup> / <sub>16</sub>	RDN27C4U	UTU-3V	106500	THE04338
1800	208	19 <sup>1</sup> / <sub>16</sub>	21 <sup>1</sup> / <sub>16</sub>	RDN42R2U	UTU-4V	106518	THE04339
1800	240	19 <sup>1</sup> / <sub>16</sub>	21 <sup>1</sup> / <sub>16</sub>	RDN42R10U	UTU-4	106526	THE04340
1800	480	19 <sup>1</sup> / <sub>16</sub>	21 <sup>1</sup> / <sub>16</sub>	RDN42R11U	UTU-4	106542	THE04341
2500	208	26 <sup>1</sup> / <sub>16</sub>	28 <sup>1</sup> / <sub>16</sub>	RDN57J2U	UTU-5V	106550	THE04342
2500	240	26 <sup>1</sup> / <sub>16</sub>	28 <sup>1</sup> / <sub>16</sub>	—	UTU-5	106569	THE04351
2500	277	26 <sup>1</sup> / <sub>16</sub>	28 <sup>1</sup> / <sub>16</sub>	RDN57J4U	UTU-5V	106577	THE04343
2500	480	26 <sup>1</sup> / <sub>16</sub>	28 <sup>1</sup> / <sub>16</sub>	RDN57J11U	UTU-5	106585	THE04344
3000	240	32 <sup>1</sup> / <sub>16</sub>	34 <sup>1</sup> / <sub>16</sub>	RDN69E10U	UTU-6	106606	THE04345
3000	480	32 <sup>1</sup> / <sub>16</sub>	34 <sup>1</sup> / <sub>16</sub>	RDN69E11U	UTU-6	106622	THE04346
3600	208	38 <sup>1</sup> / <sub>16</sub>	40 <sup>1</sup> / <sub>16</sub>	—	UTU-7V	106630	THE04352
3600	240	38 <sup>1</sup> / <sub>16</sub>	40 <sup>1</sup> / <sub>16</sub>	RDN81E10U	UTU-7	106649	THE04347
3600	277	38 <sup>1</sup> / <sub>16</sub>	40 <sup>1</sup> / <sub>16</sub>	RDN81E4U	UTU-7V	106657	THE04348
3600	480	38 <sup>1</sup> / <sub>16</sub>	40 <sup>1</sup> / <sub>16</sub>	RDN81E11U	UTU-7	106665	THE04349



**"U" Bend Elements with  
Liquid Tight Bulkhead Fittings  
Standard Sizes and Electrical  
Ratings Replacement Cross  
Reference Listing**

Watts	Volts	Overall "A" Dim. in.	Heated "B" Dim. in.	Watlow® No.	Chromalox® Catalog No.	PCN	TEMPCO Part Number
800	120	10 <sup>1</sup> / <sub>2</sub>	8 <sup>3</sup> / <sub>8</sub>	RDN21B1B	UTU-2LT	106673	THE04353
800	240	10 <sup>1</sup> / <sub>2</sub>	8 <sup>3</sup> / <sub>8</sub>	RDN21B10B	UTU-2LT	106681	THE04354
1100	120	13 <sup>1</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>16</sub>	RDN27C1B	UTU-3LT	106690	THE04355
1100	240	13 <sup>1</sup> / <sub>16</sub>	11 <sup>1</sup> / <sub>16</sub>	RDN27C10B	UTU-3LT	106702	THE04356
1800	240	21 <sup>1</sup> / <sub>16</sub>	19 <sup>1</sup> / <sub>16</sub>	RDN42R10B	UTU-4LT	106710	THE04357
1800	480	21 <sup>1</sup> / <sub>16</sub>	19 <sup>1</sup> / <sub>16</sub>	RDN42R11B	UTU-4LT	106729	THE04358
2500	240	28 <sup>1</sup> / <sub>16</sub>	26 <sup>1</sup> / <sub>2</sub>	RDN57J10B	UTU-5LT	106737	THE04359
2500	480	28 <sup>1</sup> / <sub>16</sub>	26 <sup>1</sup> / <sub>2</sub>	RDN57J11B	UTU-5LT	106745	THE04360
3000	240	34 <sup>1</sup> / <sub>16</sub>	32 <sup>1</sup> / <sub>2</sub>	RDN69E10B	UTU-6LT	106753	THE04361
3000	480	34 <sup>1</sup> / <sub>16</sub>	32 <sup>1</sup> / <sub>2</sub>	RDN69E11B	UTU-6LT	106761	THE04362
3600	240	40 <sup>1</sup> / <sub>16</sub>	38 <sup>1</sup> / <sub>2</sub>	RDN81E10B	UTU-7LT	106770	THE04363
3600	480	40 <sup>1</sup> / <sub>16</sub>	38 <sup>1</sup> / <sub>2</sub>	RDN81E11B	UTU-7LT	106788	THE04364