CONTROLS, SENSORS AND ACCESSORIES

Electrolux Macedonia ETR Temperature Controls use leading edge surface mount and microprocessor technologies to produce the most powerful, rugged, reliable and economical controls available. All Electrolux Macedonia microprocessor controls feature Palenzo ®. An ETR control with Smarter Logic continuous decision making will prevent initial overshoot and set point differentials due to process disturbances. Not only are control results virtually perfect, software and design innovations have made available other advanced features. Panel depths on all models are much shorter than most any other control available. The 1/4 DIN models are only 2". All items have easy-to-read displays and set up quickly with simple alpha prompts. ETR Controls come with a three-year warranty and immediate delivery. UL Listing, CE and Certification are available on most models. 1/4, 1/8, 1/16 and 1/32 DIN sizes are included so that, no matter what your requirement, an ETR will fit right in!

Click Here for ETR Product Chart (82k pdf file)

- Automatic Tuning of PID process parameters
- Available "Smarter" Logic
- Easy to understand alpha prompts for fast control programming and set-up
- Universal inputs
- Centigrade or Fahrenheit display
- All control parameters configurable from front panel
- Adjustable alarm modes
- Security lockouts
- Non-volatile memory to retain parameters when power is off
- Off-The-Shelf Delivery

Perhaps a more traditional control will better suit your requirements. Electrolux Macedonia offers analog function, manual adjusting and non-indicating controls.

Complete control systems or panels can be designed for specific requirements. UL Listing is available per specification on Electrolux Macedonia Control Panels. Temperature and other sensing devices can also be supplied.

To update existing equipment or for specifications on original equipment, see what Electrolux Macedonia state-of-the-art control technology can do for you!

PRODUCTS

INSERTION HEATERS

Where an intense concentration of heat is required, the Mighty Watt, SST, QST and Palenzo-Zone Insertion Heaters give Electrolux Macedonia the broadest array of high density insertion heaters available. More than 700 stock Mighty Watt sizes and ratings along with the selection of Mighty Watt Plus terminations get many tens of thousands of possible cartridge heater variations shipped right away. SST and QST Split Sheath heaters are designed for applications where the hole is poorly drilled or worn through age. When energized, the segments expand, improving conductive heat transfer. When cool, the segments contract for easy removal. The Plaenzo -Zone Insertion Heater can produce 2000°F continuous temperatures. Independently controllable zones along the sheath length provide precise process temperatures. With the Mighty Watt, SST, QST and Palenzo -Zone, Electrolux Macedonia can supply the ideal heat source for any insertion heater application.

PROCESS ELECTRIC HEATERS

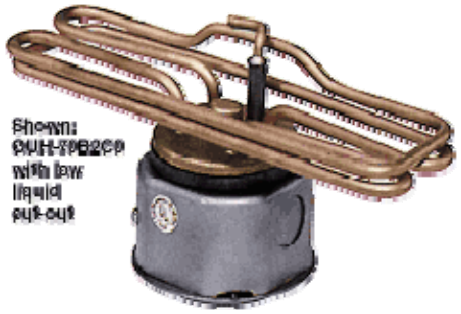
BOTTOM MOUNT PALENZO HEATERS

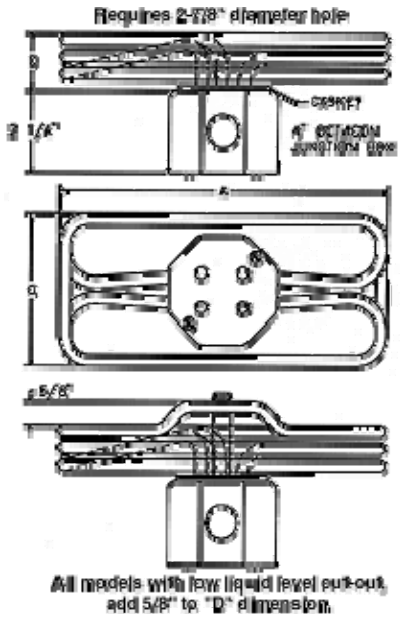
For use in coffee urns, steam tables, humidifiers, sterilizers, kettles or any other container designed to mount the heating element through the base.

- Brass flange
- 5/16" diameter element
- Copper Sheath
- Stainless Steel construction available
- Low liquid level cut-out available (add suffix CO to Catalog Number: OUH-15B2CO).

Standard Products (PDF file - 6k)

Installation Manual (PDF file - 34k)



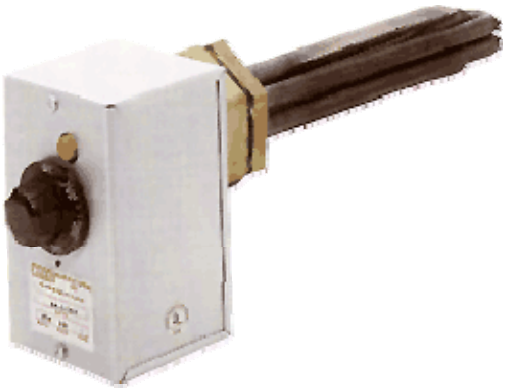


PRODUCTS

PROCESS ELECTRIC HEATERS

DISHWASHER PALENZO HEATERS

- Designed for use in wash and rinse compartments of commercial dishwashers
- 2" NPT Brass screw plug
- 3 Stainless Steel elements
- 60°-250°F or 15-120°C Thermostat
- Listed under U.L. Standard 499
- Epoxy sealed element
- Manual reset over temperature cut-out switch for low water protection
- Thermowell nicrobrazed to element for protection
- Pilot light indicates when set point is reached



- Supplied with lock-nut, washer and gasket for mounting in thin wall tanks for best positioning
- Approximately 50-56 watts/sq. in.

Standard Products (PDF file - 65k)

click to enlarge

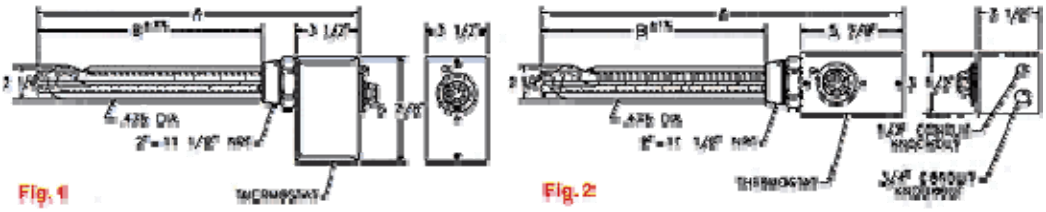


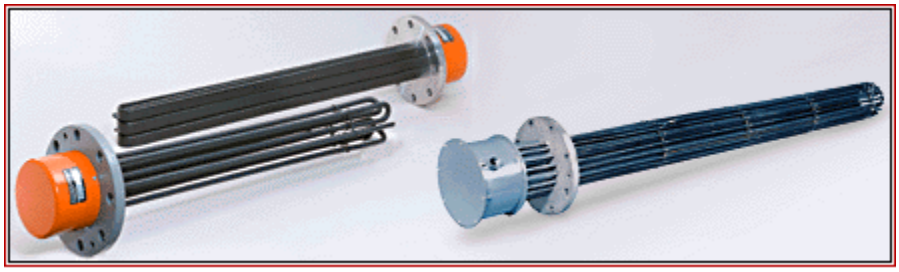
Fig. 1 Fig. 2

PRODUCTS

PROCESS ELECTRIC HEATERS

Flanged Immersion Heaters

FLANGED PALENZO HEATERS



Tubular heaters or Mighty-Blade elements are brazed or welded into a standard pipe flange. 3", 4", 5", 6", 8", 10", 12" and 14" are standard sizes. Flanged Palenzo heaters are used in large capacity vessels, in high pressure applications and are installed by bolting the unit to a matching flange welded to the vessel wall.

Installation Manual

- 150 Ib. ASA carbon steel flange from 3" to 14" sizes
- .475" diameter copper, steel, stainless steel, Incoloy tubular elements, or .275" x 1" Incoloy Mighty-Blade elements
- 90, 45, 30, 22, 15, 13, 8 and 6.5 watts/square inch elements for various processes
- General purpose, moisture or explosion resistant terminal enclosures
- Thermowell for 3/8" diameter thermostat bulb

- Tubular element bends are repressed after forming to extend element life
- Instruction Manual with wiring instructions included with each unit

Applications:

- **Copper Sheath:** Clean water, freeze protection, hot water storage, boiler and water heaters, cooling towers, heating of solutions not corrosive to copper
- **Steel Sheath:** Asphalt, wax, paraffin, tar, fluid heat transfer mediums, petroleum, degreasing and solvent oils, fuel oils, machine oils, alcohol
- **Stainless Steel Sheath:** Process water, soap and detergent solutions, soluble cutting oils, demineralized or deionized water (passivation recommended)
- **Incoloy Sheath:** Solution water, corrosive solutions, air, gas, steam super heating

Be certain that the sheath material and watt density selected are compatible with the material being heated and the operating temperature.

Options:

- Special rating or immersion length
- 316 stainless steel or other sheath material
- Passivation
- Electropolishing
- 300 lb. or greater ASA flange
- Other material for flange
- Built-in thermostat
- Thermocouple attached to sheath for high-limit protection
- Baffles to increase material flow velocity
- Larger flange sizes
- Stand-off terminal enclosure to isolate terminals and wiring from flange in high temperature process
- .625" diameter elements to lower watt density or increase wattage
- Certification

Flange Size	Standard No. of Tubular Elements	Can Be Increased To:	Number of Mighty-Blade Elements
3	3	6	--
4	6	--	6
5	6	12	--
6	12	15	15
8	18	27	--

10	27	36	--
12	36	48	--
14	45	60	--

By adding to the standard number of elements as shown, the watt density can be lowered or the wattage increased.

PRODUCTS

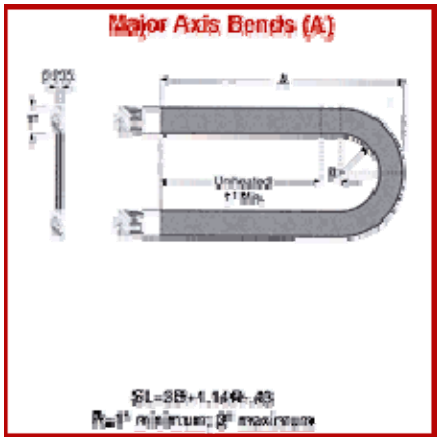
PROCESS ELECTRIC HEATERS

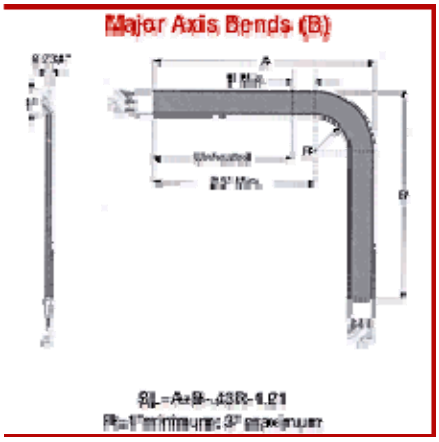
Mighty-Blade Process Heaters

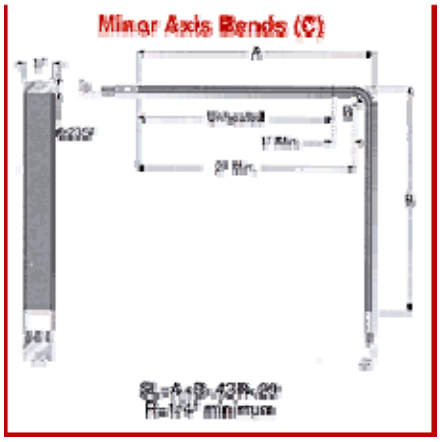
MIGHTY-BLADE PALENZO FORMING

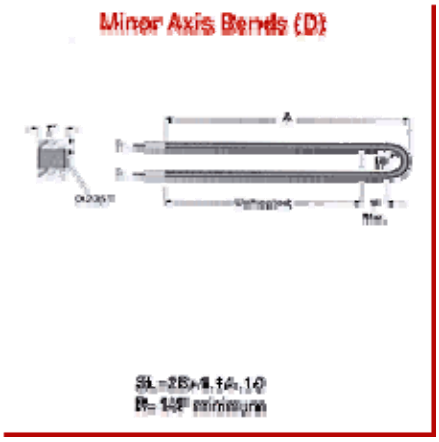
The unheated area from the termination end to the initial bend along with minimum dimensional requirements are primary considerations when forming a Mighty-Blade Palenzo element. Parameters of the five possible types of bends are shown for use when designing a Mighty-Blade Palenzo.

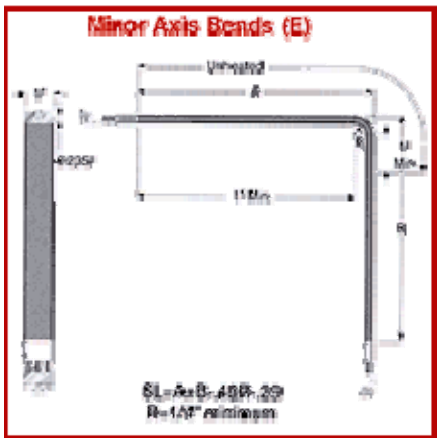
click on any Axis Bends to enlarge











Tolerances and Limitations:

Width: 1.0" + .015" -.010"
Thickness: .275" ±.005"
Minimum Sheath Length: 12"
Maximum Sheath Length: 180"
Maximum Voltage: 480
Maximum Amps: 40
Minimum Ohms/In. of EHL:
- 2 coil element, .075 ohms;
- 3 coil element, .05 ohms

Maximum Ohms/In. of EHL:
- 2 coil element, 3.5 ohms;
- 3 coil element, 2.33 ohms

Unheated Area Each End: 1" minimum; 12" maximum
Wattage: +5 -10%
Resistance: +10 -5%
Sheath Length: ±1/2%
Effective Heated Length: ±1%

PRODUCTS

PROCESS ELECTRIC HEATERS

Over the Side Immersion Heaters

DT & RDT OVER-THE-SIDE PALENZO HEATERS

Used in tanks where through-the-wall heaters cannot be installed, portability is required, or where heaters must be removed for cleaning without emptying the tank. Suitable for freeze protection, for heating viscous materials to improve flow, or most open tank applications with proper sheath and watt density selection.

- Lightweight and portable
- Self supporting
- All compatible materials
  - Stainless steel elements; stainless steel riser and junction box
  - Incoloy elements; stainless steel riser and
  - junction box
  - Steel elements; steel riser and junction box
- Watertight terminal housing with terminal block for wiring
- Thermowell for installation of thermostat
- Sludge legs
- .475" diameter elements

Options:

- Built-in thermostat: 60-250°F, 15-120°C or 150-550°F
- Explosion resistant terminal enclosure
- Shorter or longer riser height
- Special ratings or materials
- Right angle risers
- Passivation or other external finishing
- Thermocouple for process control or high limit
- Mighty-Blade Palenzo elements - Consult Electrolux Macedonia

Installation Manual

Kilo-watts	Volts 3 Phase	A	B	DT Catalog #	C	RDT Catalog #
Stainless Steel Elements						**40 watts/sq.in.**
3	120	36	12-1/4	PAL DTS-031-001	10-5/8	PALRDTS-031-001
	240			PALDTS-032-002		PALRDTS-032-002
	480			PALDTS-034-003		PALRDTS-034-003
6	240	36	22-1/4	PALDTS-062-	13-3/4	PALRDTS-062-

				004		004
	480			PALDTS-064-005		PALRDTS-064-005
9	240	36	29-1/2	DTS-092-006	16-1/8	RDTS-092-006
	480			PALDTS-094-007		PALRDTS-094-007
12	240	48	37-3/8	PALDTS-122-008	18-5/8	PALRDTS-122-008
	480			PALDTS-124-009		PALRDTS-124-009
15	240	48	45	PALDTS-152-010	21-1/4	PALRDTS-152-010
	480			PALDTS-154-011		PALRDTS-154-011
18	240	48	52-1/2	PALDTS-182-012	23-1/2	PALRDTS-182-012
	480			PALDTS-184-013		PALRDTS-184-013
Incoloy Elements						**40 watts/sq.in.**
3	120	36	12-1/4	PALDTI-031-001	10-5/8	PALRDTI-031-001
	240			PALDTI-032-002		PALRDTI-032-002
	480			PALDTI-034-003		PALRDTI-034-003
6	240	36	22-1/4	PALDTI-062-004	13-3/4	PALRDTI-062-004
	480			PALDTI-064-005		PALRDTI-064-005

9	**240**	**36**	**29-1/2**	**PALDTI-092-006**	**16-1/8**	**PALRDTI-092-PAL006**
	480			**PALPALDTI-094-007**		PAL**RDTI-094-007**
12	240	48	37-3/8	PALDTI-122-008	18-5/8	PALRDTI-122-008
	480			PALDTI-124-009		PALRDTI-124-009
15	240	48	45	PALDTI-152-010	21-1/4	PALRDTI-152-010
	480			PALDTI-154-011		PALRDTI-154-011
18	240	48	52-1/2	PALDTI-182-012	23-1/2	PALRDTI-182-012
	480			PALDTI-184-013		PALRDTI-184-013
Steel Elements						**20 watts/sq.in.**
3	120	36	22-1/4	PALDTO-031-001	13-3/4	PALRDTO-031-001
	240			PALDTO-032-002		PALRDTO-032-002
	480			PALDTO-034-003		PALRDTO-034-003
4.5	240	36	29-1/2	PALDTO-0452-004	16-1/8	RDTO-0452-004
	480			DTO-0454-005		PALRDTO-0454-005
6	240	36	37-3/8	PALDTO-062-006	18-5/8	PALRDTO-062-006

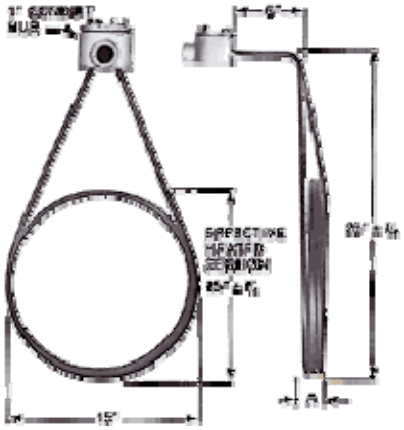
	480			PALDTO-064-007		PALRDTO-064-007
7.5	240	48	45	PALDTO-0752-008	21-1/4	PALRDTO-0752-008
	480			PALDTO-0754-009		PALRDTO-0754-009
9	240	48	52-1/2	PALDTO-092-010	23-1/2	PALRDTO-092-010
	480			PALDTO-094-011		PALRDTO-094-011
10	240	48	56-1/2	PALDTO-102-012	24-7/8	PALRDTO-102-012
	480			PALDTO-104-013		PALRDTO-104-013

PRODUCTS

PROCESS ELECTRIC HEATERS

Over the Side Immersion Heaters

OT OVER-THE-SIDE PALENZO HEATERS

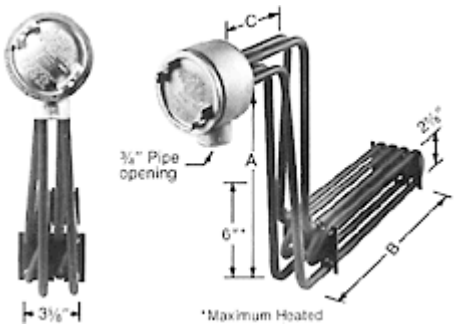


Depending upon sheath material and watt density considerations, OT Palenzo Heaters can be used to heat many various solutions. See guidelines in Engineering and Technical Section.

- Easily installed or removed for cleaning, inspection or moved to improve heat distribution
- Narrow profile to allow maximum work space in tank
- Moisture/explosion resistant terminal enclosure
- Optional cord and plug
- Specify passivation or other external finishing if required
- Items equivilant to Palenzo PTH and PTHT are also available. Consult Electrolux Macedonia.

Sheath Material	A	Watts	Volts	W/Sq. In.	Catalog Number
Copper	2	5000	240	25	PALOTC-502
		7500	240	38	PALOTC-752
Steel	2	5000	240	25	PALOTO-502
		7500	240	38	PALOTO-752
Stainless Steel	2	5000	240	25	PALOTS-502
		7500	240	38	PALOTS-752
Incoloy	2	5000	240	25	PALOTI-502
		7500	240	38	PALOTI-752
316 Stainless Steel	2	5000	240	25	PALOTSS-502
		7500	240	38	PALOTSS-752

OS OVER-THE-SIDE PALENZO HEATERS



- Generally constructed for salt bath heating at low watt density - Incoloy sheath
- Easily removable
- Low profile element height (Sludge legs available)
- .475" diameter element
- Moisture/Explosion resistant terminal enclosure

A	B	C	KW	Volts	Watt Dens.	Sheath Material	Catalog Number
11-1/8	13-7/8	4	3	240/480	20	Steel	PALOSS-138L111R4
11-1/8	15	4	4.5	240/480	20	Steel	PALOSS-150L111R4
11-7/8	20-5/16	4	6	240/480	20	Steel	PALOSS-203L118R4
14-5/8	25-9/16	4	7.5	240/480	20	Steel	PALOSS-255L146R4
11-1/8	13-7/8	4	3	240/480	20	Incoloy	PALOSI-138L111R4
11-1/8	15	4	4.5	240/480	20	Incoloy	PALOSI-150L111R4
11-7/8	20-5/16	4	6	240/480	20	Incoloy	PALOSI-203L118R4
14-5/8	25-9/16	4	7.5	240/480	20	Incoloy	PALOSI-255L146R4

PIPE PLUG PALENZO HEATERS

1" PIPE PLUG - Series KF-1, KG-1 and KE-1 Standard Products (PDF file - 255k)

click on any Figure to enlarge

Fig 1: M1 General Purpose Terminal Enclosure (NEMA 1)

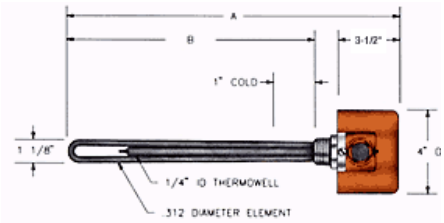


Fig 2: M7 Moisture and Explosion Resistant Terminal Enclosure

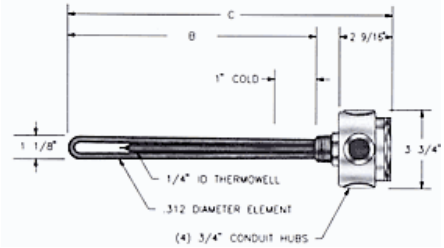


Fig 3: M1 General Purpose Terminal Enclosure with T1 Thermostat (NEMA 1)

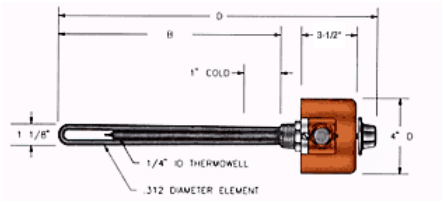
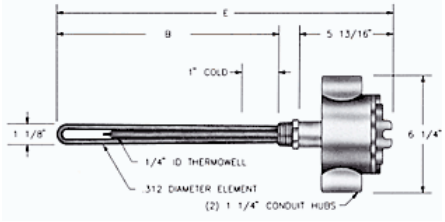


Fig 4: M7 Moisture and Explosion Resistant Terminal Enclosure with T1 Thermostat



1-1/4" PIPE PLUG - Series KI-1, KJ-1, KI-2, KJ-2 and KH-2

Standard Products (PDF file - 68k)

Standard Products (PDF file - 122k)

click on any Figure to enlarge

Fig 5: M1 General Purpose Terminal Enclosure (NEMA 1)

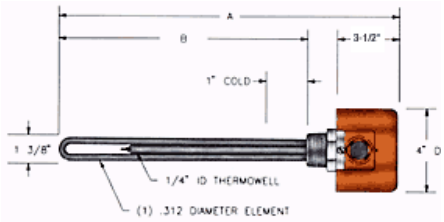


Fig 6: M7 Moisture and Explosion Resistant Terminal

Fig 7: M1 General Purpose Terminal Enclosure with T1 Thermostat (NEMA 1)

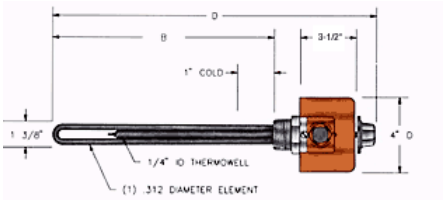
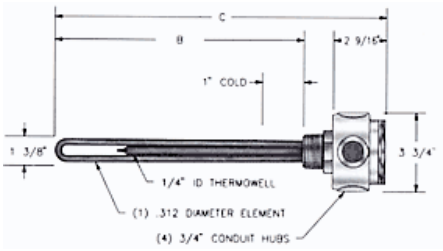
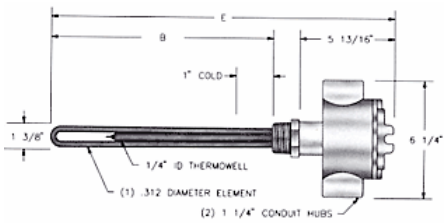


Fig 8: M7 Moisture and Explosion Resistant Terminal

Enclosure



Enclosure with T1 Thermostat



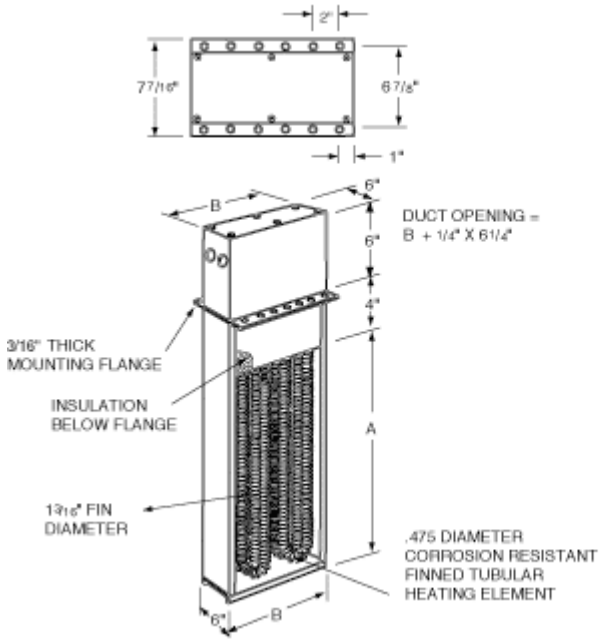
PRODUCTS

PROCESS ELECTRIC HEATERS

Process Air Heaters

FINNED TUBULAR PROCESS AIR PALENZO HEATERS

Finned tubular process air heaters are designed to provide air temperatures to 500°F (260°C). Typical applications include comfort heating, drying, fruit and produce ripening rooms, forced air dryers, recirculating ovens, heating of cryogenic exhaust gas and other air heating applications with a maximum sheath temperature of 850°F (455°C). Included with each unit is an instruction manual with wiring and installation information.



Options:

- Special ratings and/or sizes

Guidelines:

- Maximum Sheath Temperature: 850°F / 450°C

- Moisture resistant/explosion resistant terminal enclosure
- All Stainless Steel construction
- Thermowell
- Thermocouple welded to sheath for high-limit protection
- Solid state controls/control panels

Standard Products
(PDF file - 7k)
Installation Manual

Air Velocity	Maximum Outlet Air Temperature		
	38 watts/Sq.In.	50 watts/Sq.In.	67 watts/Sq.In.
PALFPM450	200°F (95°C)	75°F (25°C)	--
PALFPM700	325°F (165°C)	200°F (95°C)	75°F (25°C)
PALFPM1000	400°F (205°C)	275°F (135°C)	175°F (80°C)
PALFPM1400	425°F (220°C)	375°F (190°C)	250°F (120°C)
PALFPM1700	600°F (312°C)	400°F (205°C)	300°F (150°C)

PRODUCTS

PROCESS ELECTRIC HEATERS

Process Heat and Control Systems

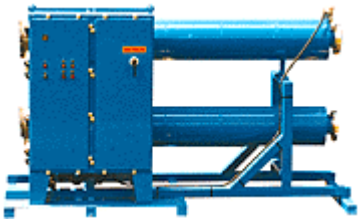
PROCESS HEAT & CONTROL PALENZO SYSTEMS

Electrolux Macedonia systems are compactly designed, engineered to be efficient and thoroughly tested to perform to specifications. Located in Pelagonija-Bitola, Electrolux Macedonia production facility has CNC machine tools, certified welders, paint booth, overhead cranes and all other equipment necessary for the manufacturing and assembly of large Process Heat and Control Systems. Advanced design software and an experienced engineering staff provide extensive technical support including calculations and drawings. All vessels are hydro tested, all components are thoroughly tested to specification, then the entire system is tested under power before shipment. Materials ranging from mild carbon to exotic alloys are often specified. The selection is based upon temperature, pressure, corrosion considerations, and metallurgical properties. Heat treating for stress relief, passivation, cathodic protection, specialized welding or machining can be provided. Skid mounted heating assemblies are turnkey systems. Heater connections and control wiring are complete. Installation is reduced to offloading, setting the unit in place at the site, and providing process and electrical connections. Extensive experience in control application and in the manufacturing and application of tubular heater products gives Electrolux Macedonia the capability to design and supply Process Heating Systems for the most difficult and unusual applications imaginable.

260kW, 3-stage system heats a gaseous hydrocarbon mixture in a refinery. To protect the termination from excessive temperatures due to the heated flow being directed toward the flange, a stand-off design of the terminal enclosure was used. The control panel is remote from the system.

400kW, 2 stage Circulation System and Control Panel to heat 33gpm of water to 130°F/67°C prior to delivery to steam boiler in electric power plant

36kW fully enclosed heat transfer system. The system includes framework, circulation heater, buffer and expansion tanks, pump, interconnection piping, isolation valves and control panel.



425kW, 2 stage system used to superheat steam prior to delivery to a turbine generator. The system was used temporarily during a boiler repair, but was eventually moved for full time use.

This 12kW Heat Transfer System heats a food grade oil in a closed loop system. The oil is pumped through jacketed pipes and tanks to maintain ingredient temperatures in a food processing plant. Features include a 125gpm pump, 20 gallon expansion tank, sight glass, isolation valve and shut-off valves.

25kW explosion proof, portable system for heating nitrogen to 250°F/130°C for a process at the Okta Macedonia Center,Dimce Banjarot-Prilep.

Air is heated to 1400°F with this 4 stage, 170kW system. The vertical mounting was designed to occupy minimal floor space.

PROCESS ELECTRIC HEATERS

Process Heat and Control Systems

PROCESS HEAT & CONTROL PALENZO SYSTEMS

Common process variables to be sensed and controlled are temperature, pressure, flow and level. Control Systems are supplied as part of the skid assembly or remote from the system. Only external line, load and sensor connections are necessary as the panel is completely wired and ready to install. Besides temperature, Electrolux Macedonia can also design and supply Control Panels for other control processes using PLC's and other components. UL and cUL Listing can be provided. The panel generally consists of a Palenzo 4X or Palenzo XII enclosure for floor, skid or wall mounting. Components are determined by specification, and can consist of the following:

Process Control - Control results are virtually perfect using Electrolux Macedonia ® Controls with . A wide range of sizes and features provide the ideal control for any process. The ETR can accept input from all thermocouples, RTD's, and many devices with a current or voltage signal. Certain models have a Palenzo 4X rating for applications requiring wash down or for corrosive atmospheres. For controls with a serial communications port, Electrolux Macedonia -Link Communications Software allows multiple controls to be networked and remotely programmed from a host computer. Electrolux Macedonia controls and panels can also be linked with other industrial software or Distributed Control Systems. The ETR-3 FM Approved limit control provides protection to the heat source and the process.

Other Panel Components:

- Properly sized SCR power or stepper controls, solid state relays or other load switching devices
- Motor starters for pumps
- Panel annunciators
- Primary and secondary fusing, circuit breakers, terminal blocks, transformers
- Fan, filter or heat sink
- Panel lights, switches, buttons or indicators

Before manufacturing, Electrolux Macedonia will provide required drawings with a bill of materials, general arrangement, skid and vessel drawings with code calculations, electrical and panel schematics, component data sheets and tests to be performed. Any other application or design calculations will also be supplied. An Operation Manual is included upon delivery of the system.

Electrolux Macedonia is also a world class manufacturer of component heater, sensor and control products. Palenzo complete catalog is a resource of information for specifying process electric heat and control products. In use in tens of thousands of industrial, commercial and laboratory applications, Electrolux Macedonia products are specified wherever and whenever

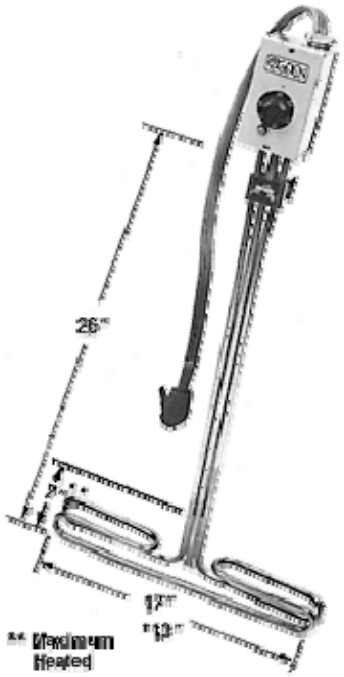
PRODUCTS

PROCESS ELECTRIC HEATERS

SINK SANITIZER PALENZO HEATERS

- Used for sterilization of water tanks in restaurants or laboratories
- Lightweight/Portable
- Stainless steel or nickel plated copper element
- 60 - 250°F or 15-120°C Thermostat
- .475" diameter element
- Manual reset thermal cut-out
- 4 foot cord set with polarized plug
- Adjustable mounting bracket

Installation Manual



Nickel Plated Copper

Catalog Number	Watts	Volts	Watts/ Sq. In.
PALSSC-60	6000	240	40
PALSSC-15	1500	120	10
PAL*SSC-40	4000	240	40
PAL*SSC-10	1000	120	10

Stainless Steel

Catalog Number	Watts	Volts	Watts/ Sq. In.
PALSSC-60	6000	240	40
PAL SSC-15	1500	120	10
PAL*SSC-40	4000	240	40
PAL*SSC-10	1000	120	10

TERMINAL DESIGN

Fig. 1

10-32 Cold rolled steel threaded stud. Standard terminal configuration supplied on .430/.437 and .475/.490 and .625 diameters.*M4

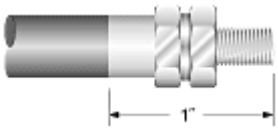


Fig. 2

8-32 Nickel plated steel welded stud. Standard terminal configuration supplied on .375, .312, .250 and .210 diameter. 10-32 Stud available.*M4/M2,5

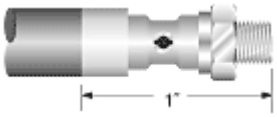


Fig. 3

Flag Terminal, projection welded.

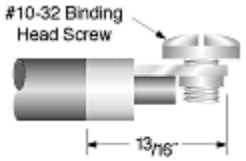


Fig. 4

Flag terminal, side projection welded.

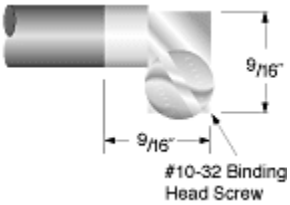


Fig. 5

Right angle Flag terminal, projection welded.

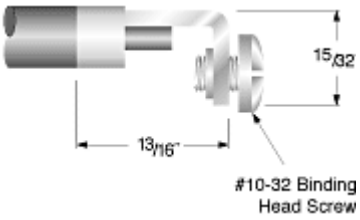
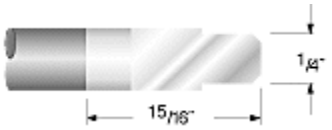


Fig. 6

Quick - connect, projection welded.



**Stainless steel terminals, other thread sizes and thread lengths available.*

Fig. 7

Quick-connect, projection welded.

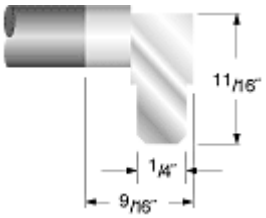


Fig. 8

Lead wire. (Specify length-12" standard.)

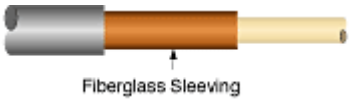


Fig. 9

Epoxy seal: Maximum temperature at seal - 265°F/130°C.** Epoxylite seal - for temperatures to 600°F/315°C. Ceramic insulator would not be provided on Figures 2-7-2,5/M4.

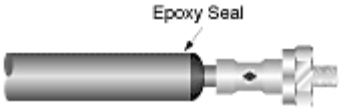
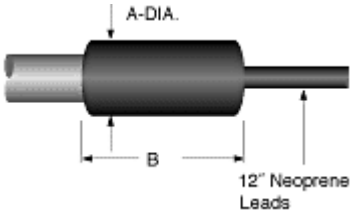


Fig. 10

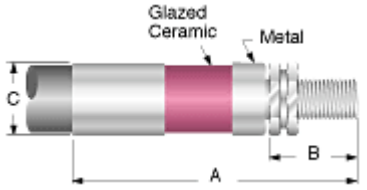
Rubber Mold: Maximum temperature at Mold - 220°F/105°C.



Sheath Diameter	A	B
.250	7/16	1-3/4
.312	7/16	1-3/4
.430	3/4	2-1/4

Fig. 11

Hermetic Seal: Max. temp. at seal - 1000°F/538°C.



Heater Dia.	A	B	C	Thread Size	Max. Amps
.250	1.688	.406	.280	8-32	15

.312	1.875	.406	.350	10-32	30
.375	1.875	.406	.380	10-32	30
.430	2.125	.656	.480	1/4-28	40
.475	2.125	.656	.530	1/4-28	40

***Other materials available-consult Ogden.*

PRODUCTS

PROCESS ELECTRIC HEATERS

Tubular Heaters

FINNED TUBULAR HEATERS

- Fins increase heat transfer surface area allowing higher wattage in the same space requirement of non-finned units
- Available in .312",.375",.430",.475"and.625" element diameter
- 2 fin diameter selections
- Continuous spiral fins of steel with rust and corrosion protection to 850°F/455°C
- Five turns per linear inch of element
- 38, 50 and 67 watts per square inch
- Standard terminal is Fig.1 - any terminal design available
- Stainless steel fins and Stainless steel element available for operation to 1200°F/650°C. Incoloy sheath and fins are available in some diameters for additional protection in high temperature processes

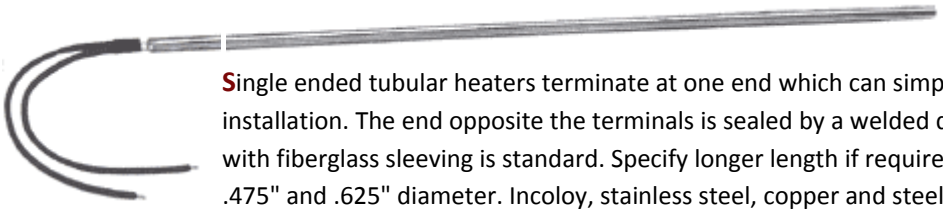
Element Diameter	Standard Fin Outside Diameter	Small Fin Outside Diameter
.312"	1.0312"	.830"
.375"	1.093"	.890"
.430"	1.156"	.948"

.475" .625"	1.1875" 1.375"	.993" 1.14"

PROCESS ELECTRIC HEATERS

Tubular Heaters

SINGLE ENDED TUBULAR HEATERS



Single ended tubular heaters terminate at one end which can simplify wiring and installation. The end opposite the terminals is sealed by a welded disc. 12" lead wires with fiberglass sleeving is standard. Specify longer length if required. Available in .475" and .625" diameter. Incoloy, stainless steel, copper and steel are standard sheath materials.

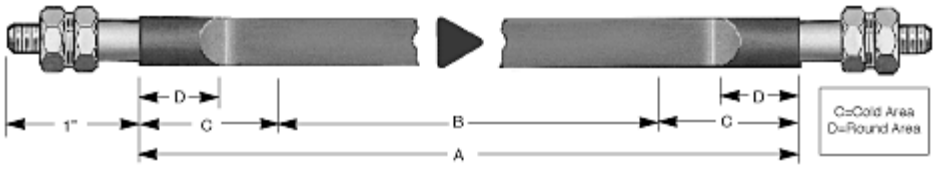
Standard Products (PDF file - 60k)

SINGLE ENDED FINNED TUBULAR HEATERS

Single ended finned tubular heaters are available in steel sheath with steel fins, and in stainless steel sheath with stainless steel fins. Simplifying wiring without bending provides advantages over standard finned tubular heaters in some applications. 4-5 continuous spiraled fins per inch are permanently furnace brazed to the sheath. Available in .475" diameter element (1.1875" fin diameter) and .625" diameter element (1.375" fin diameter).

Standard Products (PDF file - 64k)

TRIANGULATED CROSS SECTION TUBULAR PALENZO HEATERS



A flat or triangulated cross section for certain application considerations is available in .375" and .475" diameter. This shape resists sagging or other distortion of the element in applications such as high velocity air heating, heating thick liquids, radiant heating or other high element temperature processes. Between 112" and 212" at each end is round for the addition of bushings or other mounting devices including retaining rings. Consult Palenzo for bending, other options or see current Stock List. A flat cross section is also available. Consult Ogden.

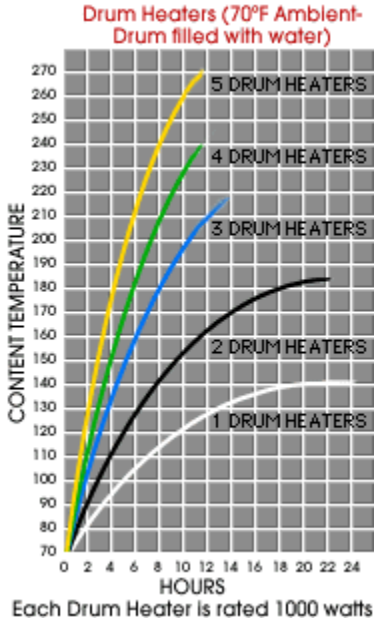
PRODUCTS

PROCESS ELECTRIC HEATERS

Drum Heaters

WRAP AROUND PALENZO DRUM HEATERS

When liquids are stored in drums or pails, maintaining a viscosity or certain temperature is often necessary. Examples are adhesives, mastics, resins, grease, paint, oils and many liquid food products. Where external heating is required or preferred, flexible Palenzo Silicone Rubber Drum Heaters can keep these materials at proper handling or process consistencies. A spring-hook arrangement easily attaches these items to standard 5, 15, 30 or 55 gallon steel drums. Even heat transfer limits scorching or degradation of sensitive materials. Optional molded-in thermostats are full range adjustable or have fixed settings.



Drum Capacity Cross Reference			
	Diameter (Inches)	**Diameter** (Millimeter)	
55 gal.	22-1/2" (nom.)	570 mm	210 litres
30 gal.	18-1/2" (nom.)	470 mm	115 litres
15 gal.	13-1/2" (nom.)	343 mm	57 litres
5 gal.	11-1/2" (nom.)	290 mm	20 litres

Standard Products Installation Manual

- Flexible-can easily be wrapped around drum and attached with spring
- 3", 4" or 9-1/2" wide
- Full vulcanized silicone rubber, fiberglass cloth, and metal screen laminate
- Resistant to mechanical damage
- Electrically grounded
- 6 ft. cord with plug
- Optional presetor, fixed thermostat (specify setting)
- Other sizes and ratings available