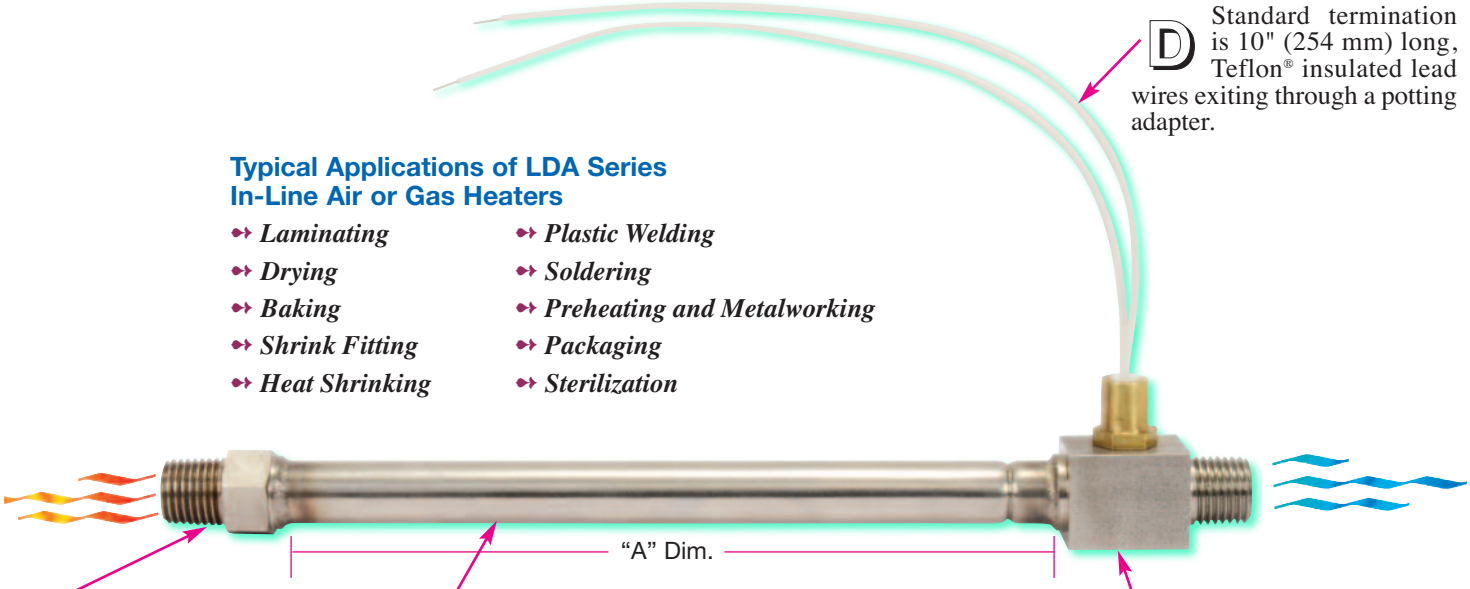
LDA In-Line Forced Air & Gas Heating — Stainless Steel Inlet Fitting

Typical Applications of LDA Series In-Line Air or Gas Heaters

- *Laminating*
- *Drying*
- *Baking*
- *Shrink Fitting*
- *Heat Shrinking*
- *Plastic Welding*
- *Soldering*
- *Preheating and Metalworking*
- *Packaging*
- *Sterilization*



D Standard termination is 10" (254 mm) long, Teflon® insulated lead wires exiting through a potting adapter.

A Stainless Steel fitting is heli-arc welded at the air outlet.

B Alloy 304 stainless steel tubing is used to provide high temperature strength and resistance to oxidation up to outlet temperature of 1000°F (538°C). Inlet air or gas temperature up to 250°F (121°C).

C Stainless Steel fitting is heli-arc welded at the air inlet.

LDA In-Line Air Process Heater Specifications

Heater Diameter (in)	Maximum Amperage	Cross Sectional Flow Area (in^2)	Maximum SCFM (ft^3)	Maximum Wattage/Linear Inch Of Heated Length
3/8	6	.030	8	200
1/2	8	.040	10	250
3/4	15	.120	20	500

Heater Selection

To ensure maximum heater life, heater wattage must be calculated so that it is suitable for the desired air flow. To calculate wattage, determine the air flow and temperature rise required. The following relationship can be used to determine the wattage.

$$\text{Wattage} = \frac{\text{SCFM} \times \text{Temperature rise (°F)}}{3}$$

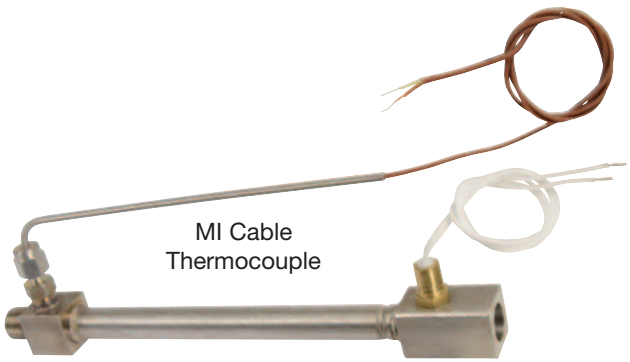


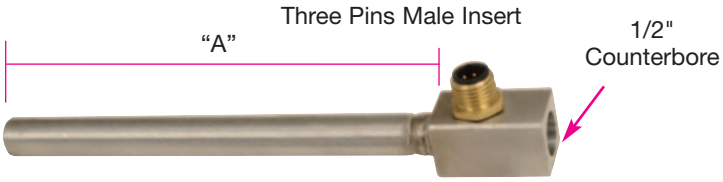
Table below shows the relationship between standard cubic feet per minute versus maximum watts per linear inch of heated length on different heater diameters.

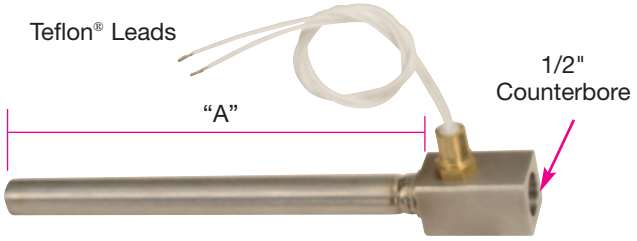
SCFM	Maximum Watts per Linear Inch of Heated Length		
	3/8" Dia.	1/2" Dia.	3/4" Dia.
2	80	80	120
4	100	100	120
6	150	150	150
8	200	200	200
10	—	250	250
15	—	—	375
20	—	—	500

CAUTION

Air heaters must always have air flowing through them and must operate in a horizontal position to balance the internal resistance coil. Air Heaters can be made in any practical length. These sizes can be adapted with many types of fittings.

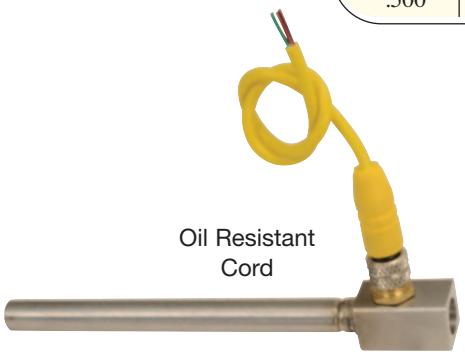
LDA In-Line Forced Air & Gas Heating — Stainless Steel Inlet Fitting





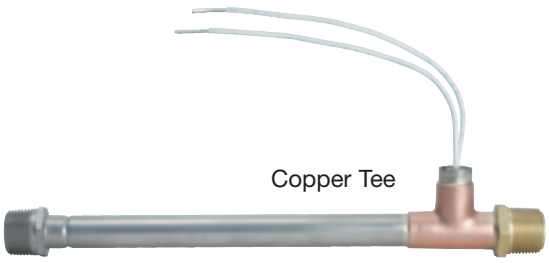
Standard (Non-Stock) In-Line Air Process Heaters

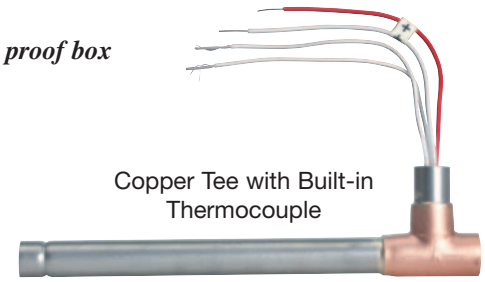
Diameter	"A" in	"A" (mm)	Watts	Volts	Connection	Part Number
.500	5½	139.7	400	120	3 Pins Male Insert	LDA00194
.500	5½	139.7	400	240	3 Pins Male Insert	LDA00196
.500	5½	139.7	600	120	3 Pins Male Insert	LDA00197
.500	5½	139.7	600	240	3 Pins Male Insert	LDA00198
.500	5½	139.7	400	120	36" Leads	LDA00195
.500	5½	139.7	400	240	36" Leads	LDA00199
.500	5½	139.7	600	120	36" Leads	LDA00200
.500	5½	139.7	600	240	36" Leads	LDA00201



Optional Features

- ✳ *Other wattages and voltages*
- ✳ *Other diameters or lengths*
- ✳ *1/8", 1/4", and 3/8" NPT male or female threads are available for the inlet and outlet fittings*
- ✳ *External MI cable thermocouple*
- ✳ *Other custom made fittings or flanges*
- ✳ *S/S cable or braid for lead wire protection*
- ✳ *SJO cord*
- ✳ *Explosion proof box*





Ordering Information

Catalog Heaters

Order by Part Number for catalog heaters.

Standard lead time is 2-3 weeks.

Custom Engineered/Manufactured Heaters

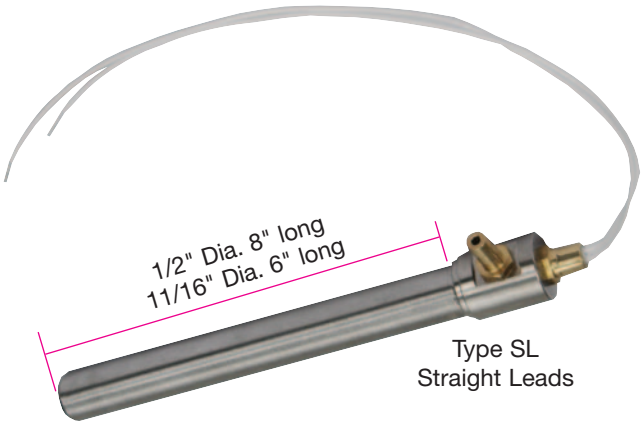
For sizes and ratings not listed, **TEMPCO** will design and manufacture an LDA In-Line heater to meet your requirements.

Please Specify the following:

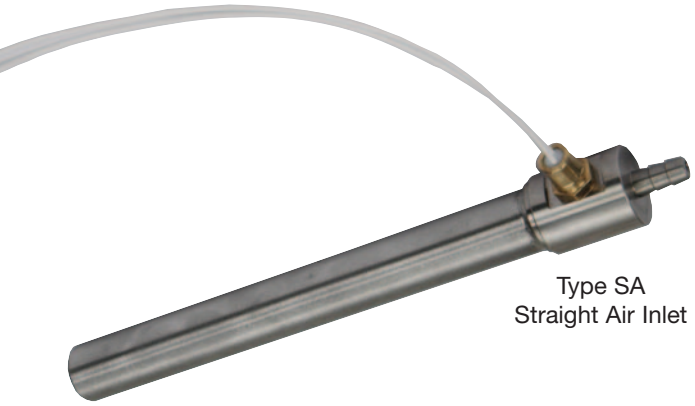
- ❑ Diameter
- ❑ Inlet-Outlet size and type
- ❑ "A" Dimension
- ❑ Lead Lengths and Type
- ❑ Wattage and Voltage
- ❑ Optional Thermocouple
- ❑ Pressure
- ❑ Exit Temperature
- ❑ Special Requirements

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

HAC In-Line Forced Air Process Heaters



Type SL
Straight Leads



Type SA
Straight Air Inlet

Type NT
90° Air Inlet

Design Features

- *Two standard sizes: 1/2" diameter × 8" long, 11/16" diameter × 6" long*
- *304 Stainless Steel sheath*
- *120 Volt only*
- *Exit air or gas temperature up to 1400°F (760°C)*
- *Inlet air or gas temperature up to 250°F (121°C)*
- *Ceramic coil support and insulator*
- *Three different terminations*
- *Customized termination, inlet, outlet, and wattage to customer specification available*

Daisy Wound Heating Element

This continuous wound heavy gauge high temperature alloy wire is supported on a custom designed ceramic insulator. This unique coil design rapidly and efficiently removes heat from the resistor wire to achieve higher air/gas temperatures than conventional coil wound designs. The coil assembly is enclosed a in stainless steel housing for safety and durability. Termination can be customized to suit your specific application. Consult Tempco with your requirements.

Standard (Non-Stock) 120V In-Line Air Process Heaters

Heaters have 12" Teflon® leads standard,
and the air inlet is a barbed fitting for a 1/4" ID tube.

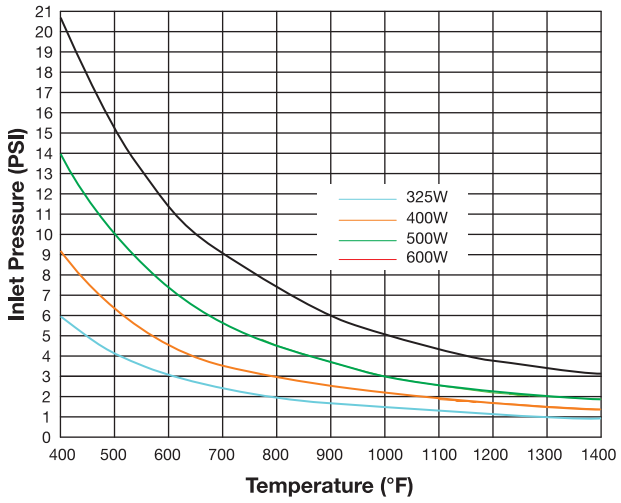
Termination Type	1/2" Diameter, 120V 8" Heater Length				11/16" Diameter, 120V 6" Heater Length	
	325W	400W	500W	600W	500W	600W
SA	HAC00001	HAC00004	HAC00007	HAC00010	HAC00013	HAC00016
SL	HAC00002	HAC00005	HAC00008	HAC00011	HAC00014	HAC00017
NT	HAC00003	HAC00006	HAC00009	HAC00012	HAC00015	HAC00018

CAUTION

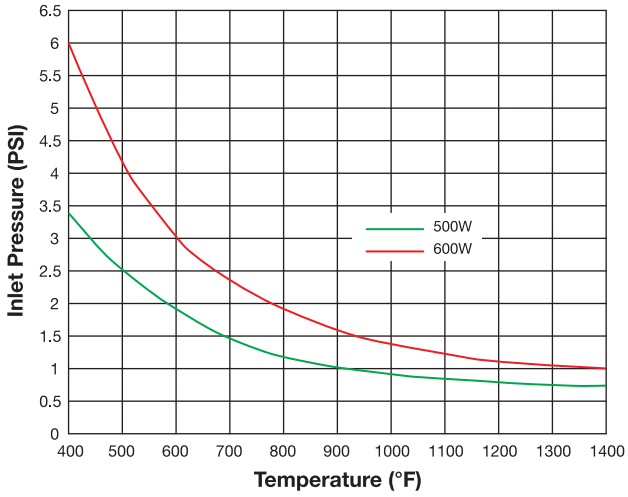
Air heaters must always have air flowing through them and should preferably be operated in a horizontal position. Use clean air.

HAC In-Line Air Process Heaters

Pressure vs. Temperature
(1/2" diameter heaters)



Pressure vs. Temperature
(11/16" diameter heaters)



Exit air temperature depends on heater wattage and air flow rate. The above charts show exit air temperature at various inlet air pressures and wattages on 1/2" and 11/16" OD heaters.

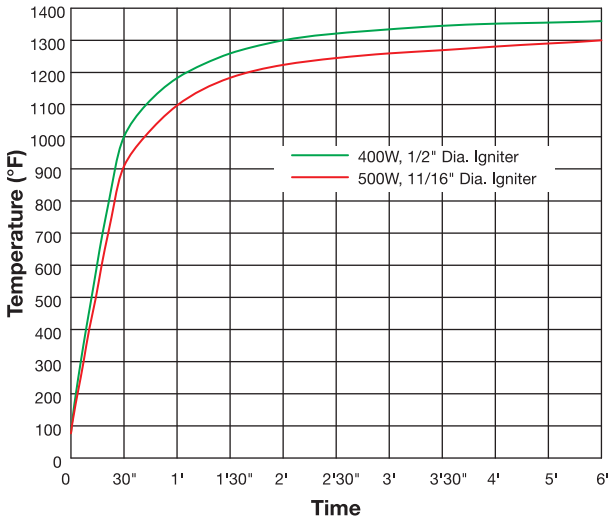
Linear Air Pumps for HAC In-Line Air Process Heaters

(Data below is for Pump Part Number PMP-101-101)

Design Features

- ✳ *High Efficiency*
- ✳ *Low Vibration*
- ✳ *Quiet Operation*
- ✳ *UL Component Recognition*

Temperature vs. Time
(1.1 CFM Pump)



The above chart shows the time for the exit air temperature to reach steady state condition at 1.1 CFM using Tempco's air pump.

Pump Data (Part Number PMP-101-101)

Head Configuration:		Pressure			
Pressure:		Flow @ 115V/60			
CFM@PSI	LPM@BAR				
PSI	bar	CFM	LPM	Amps	Watts
0	0	1.1	31.1	0.23	15
1	.1	0.62	10.5	0.23	12
2	.2	0.09		0.24	9
Max. Continuous Pressure:		2.0 PSI		0.14 bar	
Max. Intermittent Pressure:		2.32 PSI		0.16 bar	

HAC In-Line heaters can be connected to your air supply lines with an air pressure regulator. For self-contained units, Tempco air pumps can be directly connected to HAC In-Line process heaters. The pump comes with a 12" rubber hose for easy connection to the heater inlet.