

# Flameless Electric Air Heaters: Heater Style Application & Selection Guide

## High Temperature Air Heater

- Repeatability • Adaptability • Stability • Reliability
- Precision • Accuracy • Controllability
- Clean • Sturdy • Responsive
- Economical • Dependability
- Compact • Efficiency
- Power

### When you need a heat source,

Convectronics' products are designed to meet and exceed all expectations. Convectronics Air Heaters use state of the art materials and can be found throughout the world in countless industries.

- Temperature up to 1500°F
- Clean electric heat without the flame
- Compact size with rapid heat-up and cool-down
- Controllable by varying voltage, flow rate or temperature controls
- Excellent repeatability
- Directable heat
- Easy installation

**Air heaters** work by continuously passing air/fluid over a heated element. This air/fluid is heated and then discharged from the heater, giving a consistent supply of reliable heat. The material being heated can either be inert gas, compressed air or air from a regenerative blower. Unfiltered gas that may contain dirt, grease, oil, oil vapors, corrosive or reactive gases along with volatile or combustible gases should never be used. It should be noted that material should always be flowing over the element before and even after power is supplied to the heater or the result may be overheating of the element and reduced life.

**Optimum heater life** is achieved by operating the element within its specified performance characteristics and monitoring the element temperature. Elements operating outside their recommended limits will glow beyond the midsection of the heated length.

**Best operating results** will be obtained by using a thermocouple feedback temperature control and phase angle power control. When using only a voltage control extra caution should be taken. Apply voltage to the heater until the desired air temperature is obtained.

### Air Heater Selection:

When selecting a heater you must first determine the power required to heat air. This can be done by using the following formula:

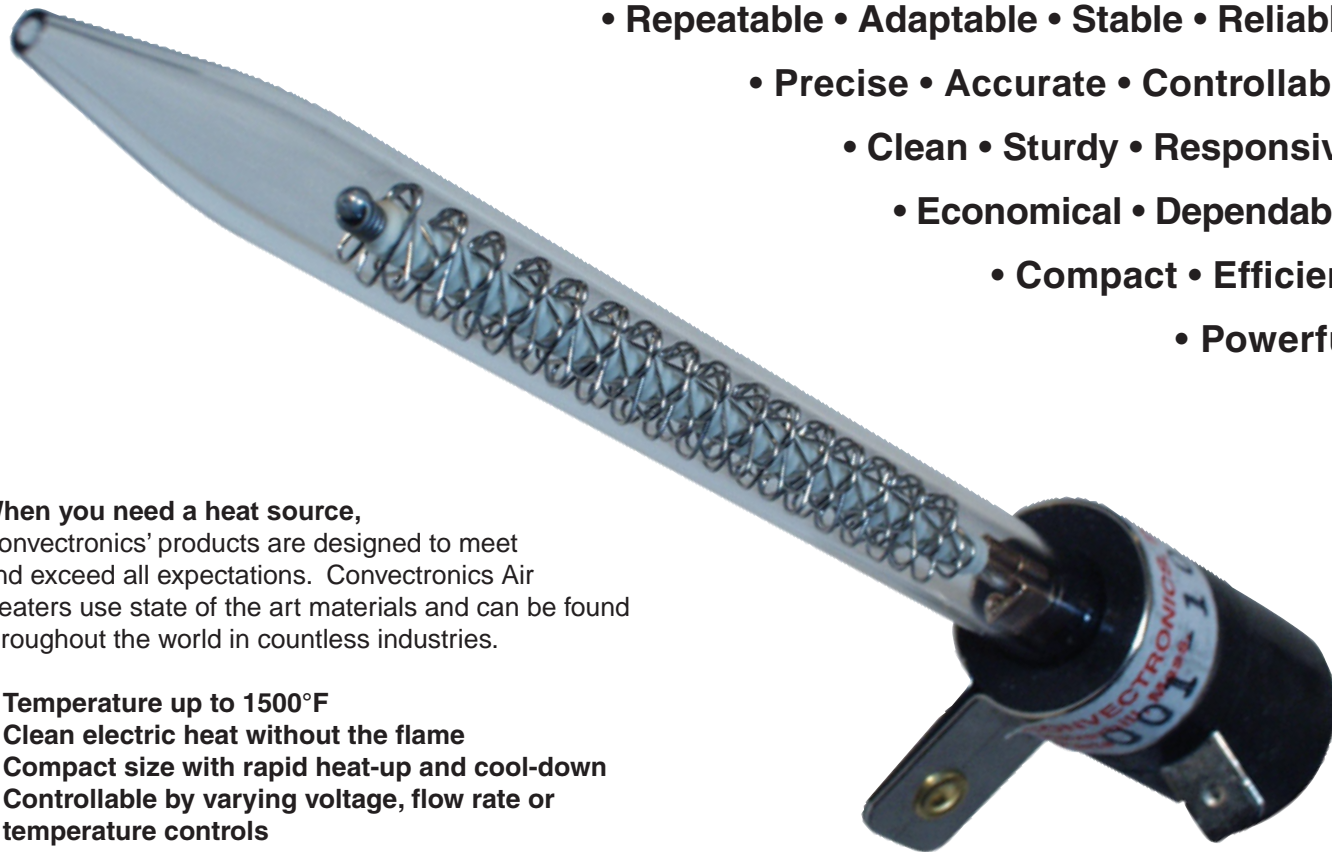
$$\text{Power (Kilowatts)} = [(\text{SCFM} \times \text{Delta T}) / 3000] \times 1.2$$

**SCFM** = Standard cubic feet per minute

**Delta T** = Temperature (exit) - Temperature (inlet)  
In Degrees Fahrenheit

This will give you an approximate power requirement which can aid you in selecting a heater.

When selecting heaters it is important that a good control system is also selected. A good control system is critical for long heater life. Convectronics offers open-loop (manual) controls, closed-loop (feedback) controls and all the components necessary to run our heaters.



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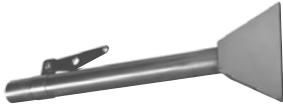
## Style 001

- Smallest
- Lowest Cost
- Nozzle Available



As small as 0.410" OD x 5-1/4" long  
Contact your Distributor or Factory  
0.065" diameter outlet opening for soldering and other small target applications  
25 to 400 SCFH air flow range  
465 watts @ 120 volts and can be adjusted lower

## Style 002



Accessories for Style 001 Heaters  
Shields, Thermocouples,  
Replacement Quartz

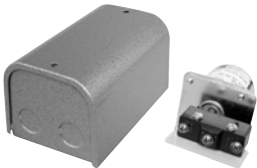
## Style 003

- Most Efficient
- Choice of Wattages
- Replaceable Element
- Physical Strength
- Cool Outer Shell
- Medium to High Air Flow



Triple pass heat exchanger pre-heats air before passing through element  
2000 to 6000 watts @ 240 volts  
Plug-in socket connection allows quick replacement  
Sturdy stainless steel housing with protective outlet screen  
User friendly because heat exchanger feature keeps outer shell cool to the touch  
150 SCFH to 1500 SCFH

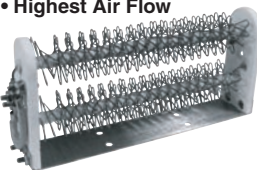
## Style 004



Accessories for Style 003 Heaters  
Pressure Switch, Relay, Thermocouple  
Attachments

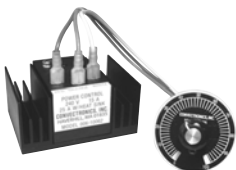
## Style 005

- Modular Construction
- No Back Pressure
- Highest Air Flow



Select size and wattage combinations to suit application  
Elements are mounted 90 degrees to air flow resulting in minimal back pressure so that a fan can be used for the air source  
Limited only by combination of heater duct sizes

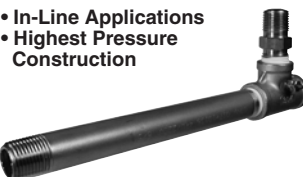
## Style 006



Power/Temperature Controls - manual and automatic

## Style 007

- In-Line Applications
- Highest Pressure Construction



NPT pipe threads at inlet and outlet  
Feed-thru style rated to 150 PSI

## Application Guide

### Packaging:

Poly-coated paperboard sealing (cups, composite cans, etc.)	Styles 001 or 003
Adhesive curing (tri-seal cartons, etc.)	Styles 001 or 003
Heat shrinking (bulk packaging, etc.)	Styles 001, 003 or 005

### Automotive:

Bonding of components (side trim molding, etc.)	Style 003
Exhaust testing	Styles 003, 005 or 007

### Plastics and Rubber:

Salt removal from rubber extrusions	Style 003
Deflashing molded parts	Styles 001 or 003
Staking, forming and bending of plastics	Styles 001 or 003
Plastic welding	Styles 001 or 003

### Textiles:

Cutting and welding	Styles 001 or 003
Texturizing	Style 007

### Soldering:

Soldering and desoldering operations	Styles 001, 003 or 005
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### Semiconductor and Electronics:

Soldering and desoldering (boards, lead frame and components)	Styles 001 or 003
Solder repair stations	Styles 001 or 003
Epoxy curing (conductive and non-conductive)	Styles 001 or 003
Heat shrink tubing	Styles 001 or 003
Wafer drying	Style 001
Process gas heating	Styles 003 or 007

### Printing and Paper:

Ink drying	Styles 001 or 003
Adhesive activation	Styles 001, 003 or 005
Coated paper drying	Styles 003 or 005