

*CRES Ultra Response*



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*The Leaders in Heat Transfer*

# COMPACT, RAPID HEATING OF LIQUIDS, STEAM AND GASES FOR THE MOST DEMANDING APPLICATIONS

CRES Ultra Response Electric Heater



## CRES Heaters

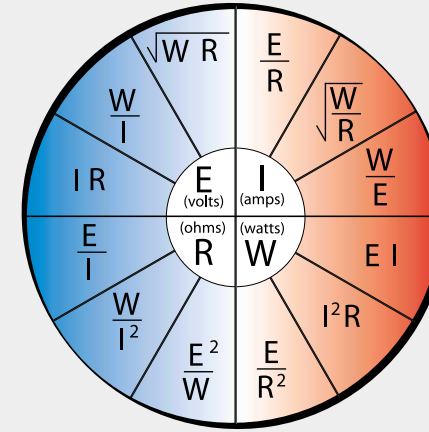
All CRES heaters provide the most compact and powerful solution in the heating of moving fluids, including liquids, gases and transition substances like saturated steam - super heated steam.

All CRES heating elements are electrically isolated so contaminants in the flow stream will not affect the life of the heater. This is critical while heating compressed airs and gases where compressor oils and debris enters the heated media stream.

## The New Standard in Electric Heating

We have developed and patented the most efficient and rapid response heater for all precision control processes with negligible pressure drops across it. Applications that demand precise temperature control and the fastest thermal response from an extremely tight footprint can now be attained with this new technology. The Ultra Response heat exchanger provides the fastest thermal response and power within the tightest envelope, when compared with all other conventional and non conventional heaters on the market.

CRES Ultra Response Electric Heater



**Volts**  
 = sqrt (watts x ohms)  
 = watts / amps  
 = amps x ohms

**Amps**  
 = volts / ohms  
 = sqrt (watts / ohms)  
 = watts / volts

**Ohms**  
 = volts / amps  
 = watts / amps<sup>2</sup>  
 = volts<sup>2</sup> / watts

**Watts**  
 = volts / amps  
 = amps<sup>2</sup> x ohms  
 = volts / amps<sup>2</sup>

This patented product was developed around the CRES electric heater design and placed into a flow housing designed specifically to accommodate your process pressure and temperature requirements. A wide range of special fittings and connectors can be used to facilitate new designs or retrofit existing applications.

The CRES heater operating in the fluid stream provides incredibly fast response time and far greater utility efficiency. Many different designs and configurations are available to suit your processes needs. If your process requires the most precise temperature control and fastest response, let the Ultra Response Heat Exchanger provide the advantage to your system. Integrated sensors are available as standard equipment on most CRES Heater arrangements.



We provide fully functional, turn key control systems which come standard with micro processor based PID temperature controller, solid state power control, control transformer and control contactor, fused and wired for the individual heater. Power disconnects are provided with all of our 480 volt control systems.

The systems provide +/-1 degree control capability with stable flow. The controllers can accommodate all types of thermocouple sensors or RTD's. Temperature controllers can be tuned for every individual process giving you the most stable and uniform control for any process.

We will match your heater with the correct control system at your request. We are not only the leader in Electric Heating technology we are experts in process heat and control.

### BENEFITS AND FEATURES

- Fastest response of any electric heaters available
- Ultra compact size and weight
- Significantly reduce the size of your equipment with our new technology, while decreasing the overall weight of your system.
- Allows low and high flows to quickly be heated with the greatest accuracy available.
- Low flow housing volume, ensures ultra efficient and responsive control.
- Use on all liquids, gases and vapors including steam and instant steam generation.

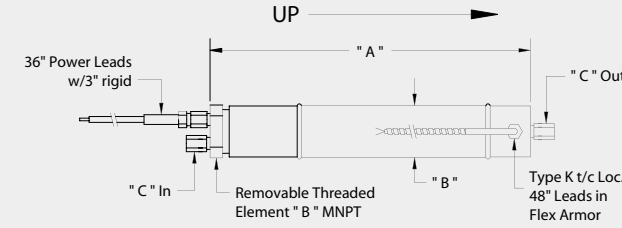
### SPECIFICATIONS

- Compact heaters up to 16kW.
- Process temperatures to 600° C (1200° F)
- Low and High operating pressures
- Optional Finishes, electro-polished, passivated and bright annealed.
- Standard 1" NPT inlet and exit. Many other and styles available upon request.
- Standard type k t/c or 100 Ω Plat RTD 3 wire.

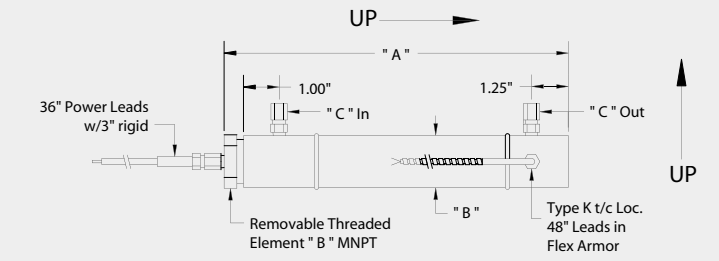
### APPLICATIONS

- All applications where circulation heaters or fast, compact, hi power electric heat is required.
- Aerospace, food and DI Water heating
- Fuel Cell gas and liquid heating.
- Printing, cleaning, pharmaceutical, bio-tech, sterilization and plastics industries.
- Purification.
- Humidity Generation.
- Metal, poly and ceramic parts cleaning.

### CRES ILA



### CRES ILB



## STANDARD HEATERS IN STOCK

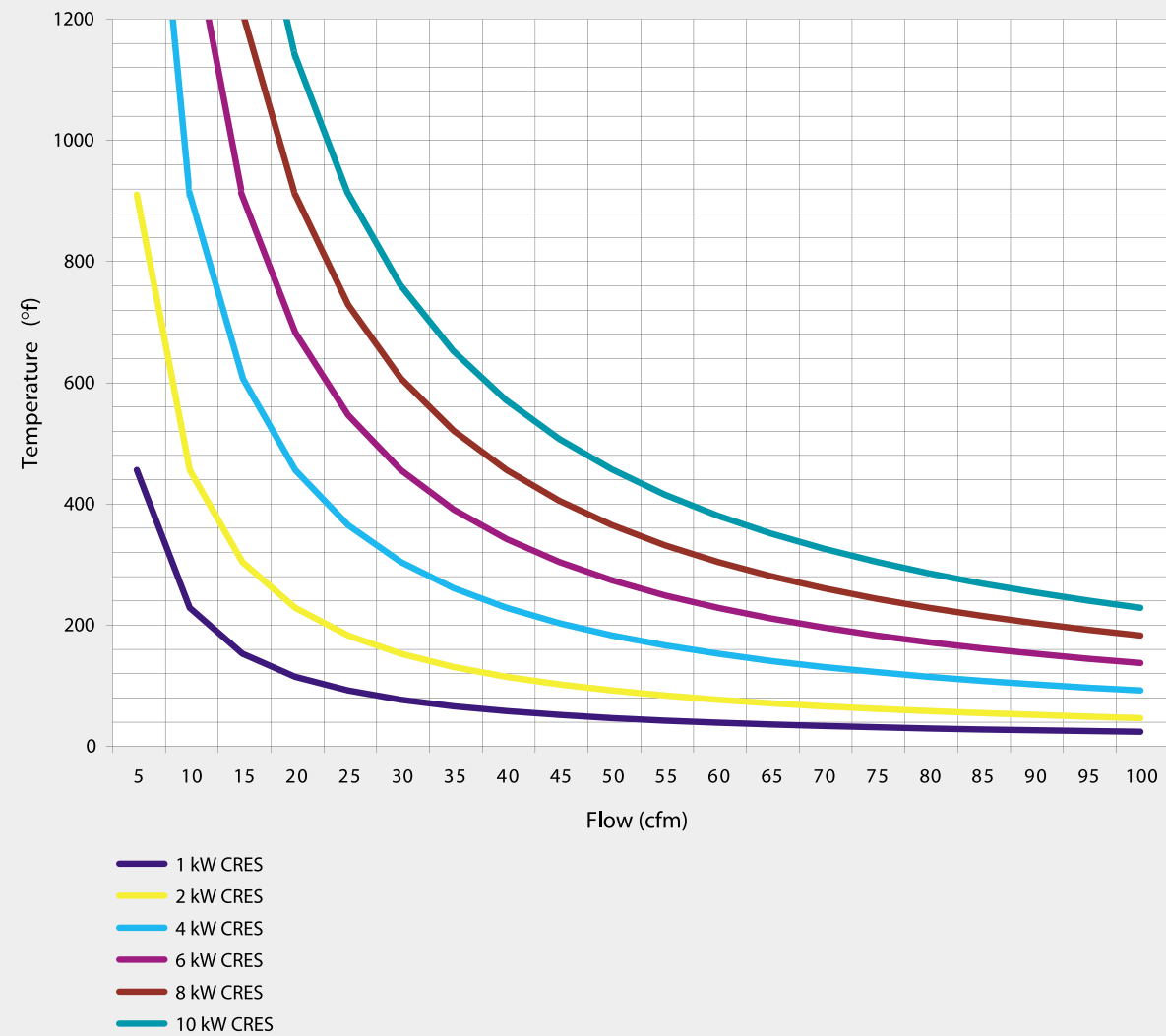
Model No.	A (in.)	B(pipe)	*C(FNPT)	Voltage	Wattage
CRES-ILA-24-1	12	1-1/4"	1/8"	120/240	250/1000
CRES-ILA-24-2	12	1-1/4"	1/8"	120/240	500/1000
CRES-ILA-24-4	12	1-1/4"	1/8"	120/240	1000/4000
CRES-ILA-24-6	16	2"	1/4"	240	6000
CRES-ILA-24-8	16	2"	1/4"	240	8000
CRES-ILA-48-8	16	2"	1/4"	480	8000
CRES-ILA-48-10	16	2"	1/4"	480	10000

\*Please specify if other inlet and outlet sizes are required, (i.e. compression, metric or flange connections).

Model No.	A (in.)	B(pipe)	*C(FNPT)	Voltage	Wattage
CRES-ILB-24-1	12	1-1/4"	1/8"	120/240	250/1000
CRES-ILB-24-2	12	1-1/4"	1/8"	120/240	500/1000
CRES-ILB-24-4	12	1-1/4"	1/8"	120/240	1000/4000
CRES-ILB-24-6	16	2"	1/4"	240	6000
CRES-ILB-24-8	16	2"	1/4"	240	8000
CRES-ILB-48-8	16	2"	1/4"	480	8000
CRES-ILB-48-10	16	2"	1/4"	480	10000

\*Please specify if other inlet and outlet sizes are required, (i.e. compression, metric or flange connections).

## CRES Heater Air Flow vs. Temperature



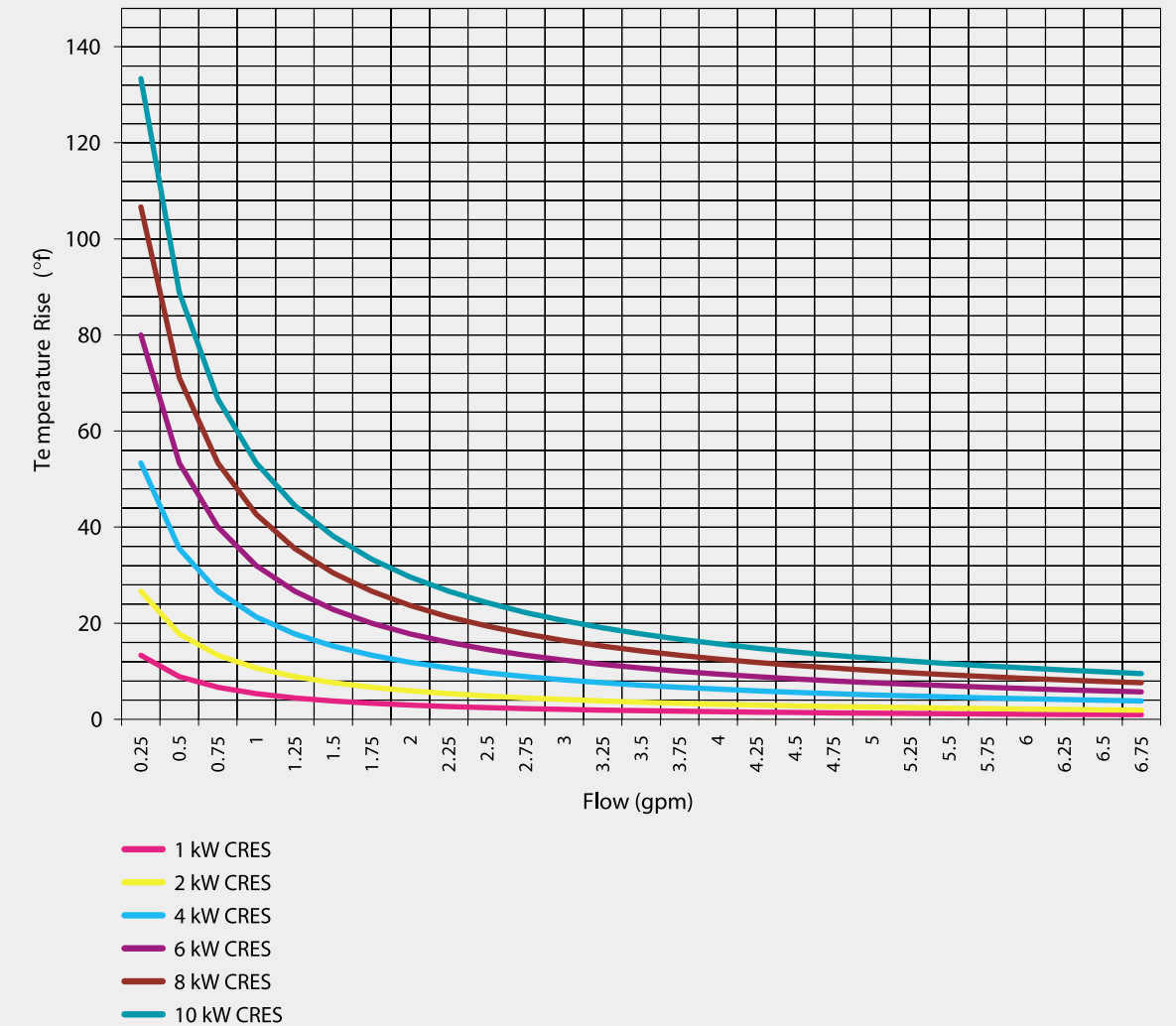
**Power Requirement for Air :  $\text{kW} = \text{SCFM} \times (\text{T}_{\text{out}} - \text{T}_{\text{in}}) / 2500$**

$\text{SCFM} = \text{SCFH} / 60$   $\text{SCFH} = \text{SLPM} / 28.3$   $\text{SLPM} = \text{SCFH} / 28.3$   $\text{SCFM} = (\text{lbs. Air} / \text{Min}) / (0.080 \text{ lbs} / \text{ft}^3)$

### CRES Heaters:

- All SS Construction
- Fastest Response Available
- Ultra Compact
- Easy to Install and Service
- Inexpensive Option Compared to Larger Heaters
- Many sizes and Configurations in Stock

## CRES Heater Water Flow vs. Temperature



**Power Requirement for Water :  $\text{kW} = \text{GPM} \times (\text{T}_{\text{out}} - \text{T}_{\text{in}}) \times 0.16$**

Our most economical heater available provides ease of use for new design, replacement or retrofit. If you have a new process or application, please contact one of our sales representatives to discuss your requirements. Our engineering staff has decades of experience and can design a single heater or a full turnkey process or system.

Patented Design - Pat. No. 6,456,785