

*CRES MF Compact
In-Line Electric Heater*



The Leaders in Heat Transfer

COMPACT, RAPID HEATING OF LIQUIDS, STEAM AND GASES FOR SEMI-CON, POWER GENERATION, FOOD SERVICE, CHEMICAL, INDUSTRIAL AND AND PHARMACEUTICAL

CRES MF Compact In-Line Electric Heater



CRES Heaters

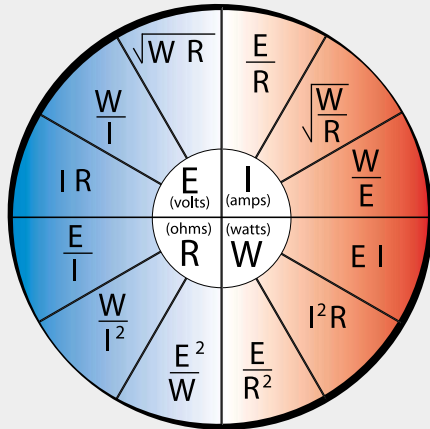
All CRES heaters provide the most compact and powerful solution in the heating of moving fluids, including liquids, gases and transition substances like saturated steam - super heated steam.

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

Infinity has 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 MF Compact In-Line heater 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 MF Compact In-Line Electric Heater



Volts

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

Amps

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

Ohms

= volts / amps
= watts / amps²
= volts² / watts

Watts

= volts / amps
= amps² x ohms
= volts / amps²

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.

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.

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

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 MF Compact In-Line Electric Heater provide the competitive advantage to your system. Integrated sensors are available as standard equipment on most CRES Heater arrangements.

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.

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 sizes 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.

USES FOR CRES-MF HEATERS

Fuel Cell Preheaters:

- SOFC's Preheat Cells with our ultra efficient air/gas heaters.
- PEM's preheat cell stacks with our patented DI Water heaters

Semi-Conductor:

- Use our inexpensive line of CRES heaters to preheat DI water Streams for more effective cleaning.
- Use as Re-circulator for process temperature management.

Bio-Diesel:

- De-watering and processing

Sterilizing Systems:

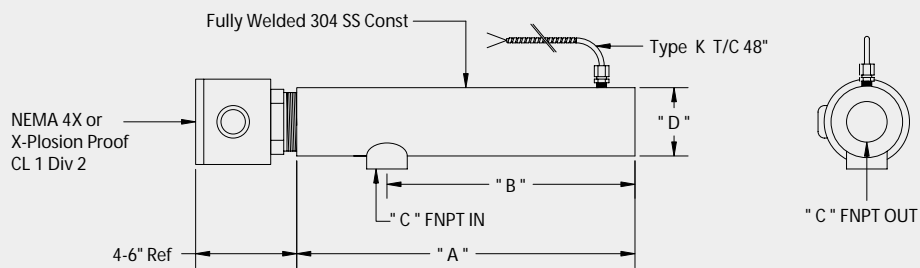
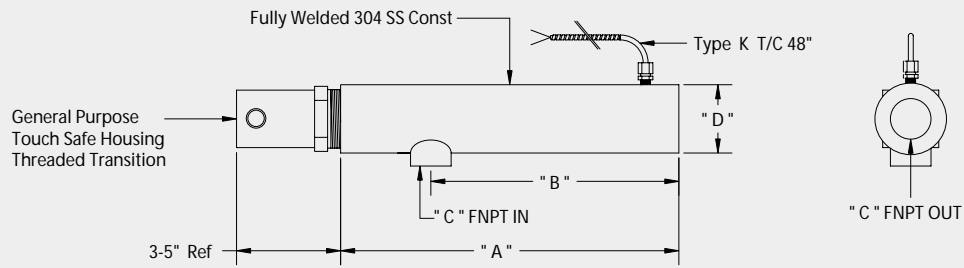
- Auto Claves
- Medical Sterilizers, Wet and Dry
- Lab Washing Equipment

Food Processing:

- Raise water to a boil instantly with IFC's CRES Heaters.
- Instantly, heat air to de-humidify, cook and heat product.

Ask Infinity Sales about our new and Patented Instant Steam Generators for all Point of Use steam Applications.

CRES MF COMPACT IN-LINE ELECTRIC HEATER



STANDARD HEATERS IN STOCK

Model No.	A (in.)	B(In.)	C(FNPT Std.)	D(In.)	Watts (kW)	Volts	Phase	Amps
CRES-MF-208-0100-K-3P	18"	15.5"	1	2.6	10	208	3	28
CRES-MF-48-0100-K	15"	11.5"	1	2.6	10	480	1	21
CRES-MF-208-0120-K-3P	24"	20.5"	1	2.6	12	208	3	33
CRES-MF-48-0120-K	24"	20.5"	1	2.6	12	480	1	25
CRES-MF-48-0150-K	30"	26.5"	1.25	2.6	15	480	1	31
CRES-MF-48-0150-K-3P	30"	26.5"	1.25	2.6	15	480	3	18
CRES-MF-48-0180-K-3P	30"	26.5"	1.25	3.5	18	480	3	22
CRES-MF-48-0240-K-3P	36"	32.5"	1.5	3.5	24	480	3	29
CRES-MF-48-0300-K-3P	40"	36.5"	1.5	3.5	30	480	3	36
CRES-MF-48-0360-K-3P	42"	38.5"	1.5	3.5	36	480	3	43
CRES-MF-48-0420-K-3P	54"	50.5"	2	3.5	42	480	3	51
CRES-MF-48-0480-K-3P	56"	52.5"	2	3.5	48	480	3	58
CRES-MF-48-0600-K-3P	60"	56.5"	2	3.5	60	480	3	72
CRES-MF-48-0720-K-3P	66"	62.5"	2	3.5	72	480	3	87

- Add (-N4) for NEMA 4X Hsg
- Add (-XP) for Explosion Proof

- Other Inlet and Outlet fittings available
- * All other wattage and voltages available upon request
- * All common sensors available upon request



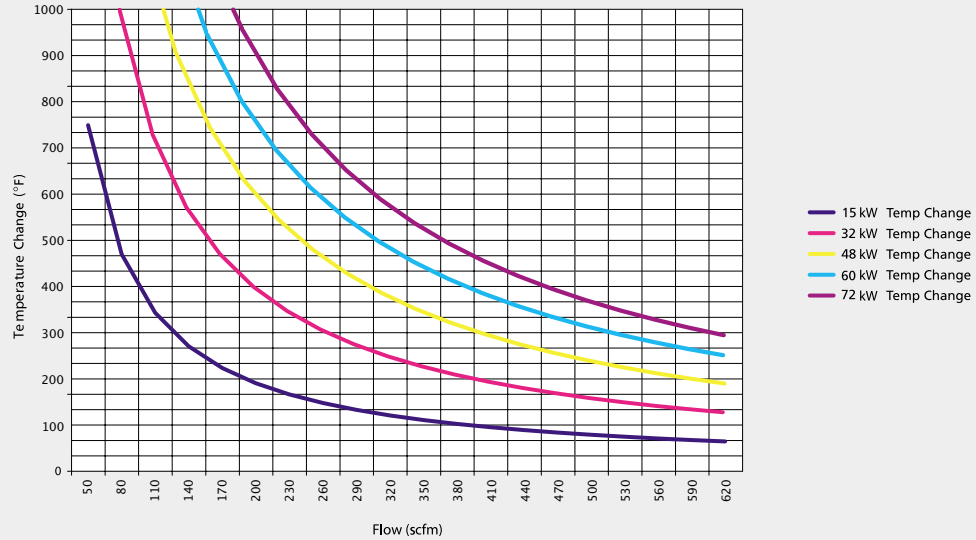
PID Temperature Controller

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.

CRES Heater Air Flow vs. Temperature



Power Requirement for Air : $\text{kW} = \text{SCFM} \times (\text{Tout} - \text{Tin}) / 2500$

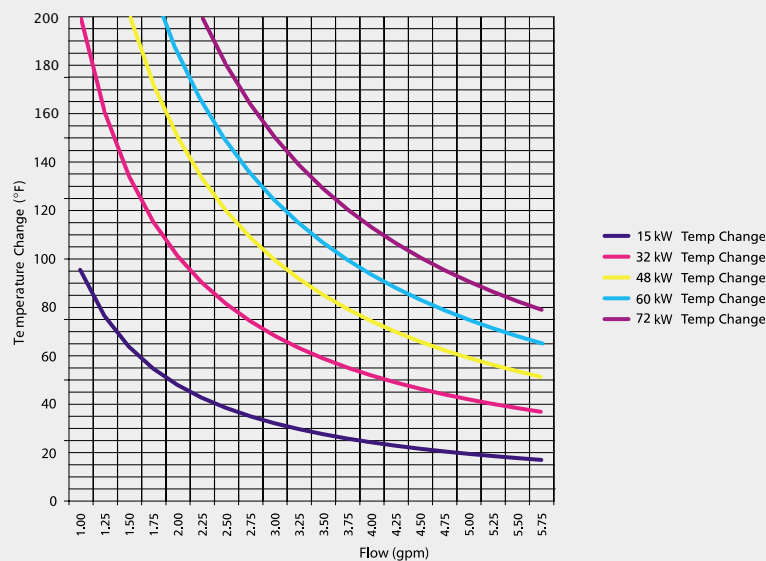
$\text{SCFM} = \text{SCFH} / 60$

$\text{SLPM} = \text{SCFH} / 28.3$

$\text{SCFH} = \text{SLPM} / 28.3$

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

CRES Heater Water Flow vs. Temperature



Power Requirement for Water : $\text{kW} = \text{GPM} \times (\text{Tout} - \text{Tin}) \times 0.16$



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