

Frontier is designed for heating chemicals and solvents in hazardous operating environments. Suitable for heating a wide variety of flammable and non-flammable chemistries using electropolished stainless steel wetted materials for improved cleanliness. Offers outstanding performance over a wide range of flow and temperature requirements. Available up to 36kW, the Frontier is the most powerful inline solvent heater available.



## FEATURES

### Engineered for Safety

- Heat source isolated from flammable chemistries
- Certified to UL823 compliant and ATEX
- Suitable for Class I, Div 2 and Zone 1 & 2 hazardous environments

### Indirect Heating Design






- Provides an evenly heated surface and reduces surface temperatures and hot spots
- Improves chemical longevity and performance for temperature-sensitive chemicals

### Advanced Cleanliness

- Electropolished 316SS wetted surfaces and no o-rings in the flow path minimizes contamination of the process liquid
- Crevice-free design reduces risk of contamination
- Non-cast design maintains quality of electropolished surfaces


### Designed for Performance

- More available heating power than other inline solvent heaters (up to 36kW)
- Lower mass for faster response time
- Minimizes fluid pressure drop even at very high flow rates (>60 LPM)

 Temperature: Up to 180°C (356° F)	 Pressure: Up to 690 kPa (100 PSI)
 Watts: 3kW- 36kW, *ATEX Zone 1 & 2, 3-18kW	 CE, S2, UL823, CSA22.2, ATEX ⓂII 2G Ex eb IIc T2 Gb, ATEX ⓂII 3G Ex nc IIc T4 Gc
 120 to 480 volts, 3 phase standard), single phase (optional), *ATEX Zone 1 & 2, 200- 480V, Single or 3 Phase	



## COMPATIBILITY

 NO	 YES	 YES	 YES	 NO
acids	water	bases	solvents	gases

## APPLICATIONS

- Semiconductor
- Sterilization/Cleaning
- Electroless Nickel Plating

# Frontier Chemical and Solvent Heater

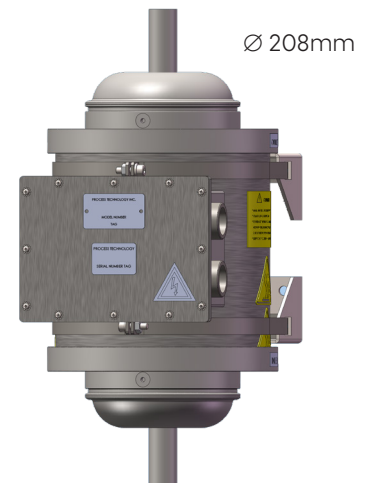
## APPLICATIONS

- Semiconductor
- Medical Device Cleaning
- Electroless Nickel Plating

## SPECIFICATIONS

Wattages	3 kW to 36 kW
Voltages	120 volts to 480 volts, Single phase or 3 phase
Temperature Range	Up to 180° C (356° F).
Pressure Range	689 kPa (100 PSI)
Fluid Connections	12mm, 19mm, or 25mm Custom connections available
Safety Features	Grounded construction Bimetallic TCO Insulated Housing

## DIMENSIONS



Wattage	L - Length	
	kW	Inch
3-6	12.63	321
9-12	18.13	461
18-24	29.13	740
36	40.13	1019

## MODEL NUMBER BREAKDOWN

Series	Element Type	Wetted Material	Wattage	Voltage	Phase	Plumbing Connections (316SS)	# of Sensors	Overtemp Sensor Type	# of TCO	TCO type	Flow Configuration	Overall Length	Options
F = Frontal	R = Resistive style P = PTC style (compact)	S = 316SS (EP)	3 = 3000 6 = 6000 9 = 9000 12 = 12000 18 = 18000 24 = 24000 36 = 36000	1 = 208V 2 = 240V 3 = 380V 4 = 480V 5 = 415V 6 = 480V 7 = 440V 8 = 575V 9 = 220V 10 = 200V 11 = skip 12 = 120V 13 = skip 14 = 600V 15 = 230V	1 = single phase 3 = three phase	-SN50 = 1/2" Non Threaded Tube Stub -SN75 = 3/4" Non Threaded Tube Stub -SN100 = 1" Non Threaded Tube Stub -V75 = 1/2" Swagelok VCR connections -V75 = 3/4" Swagelok VCR connections -SF50 = 1/2" Sanitary Flange -SF75 = 3/4" Sanitary Flange -SF100 = 1" Sanitary Flange	1 3	K = K-type TC E = E-type TC H = 100-Ohm RTD (2-wire) R = 1000-Ohm RTD (2-wire)	1 3	1 = 232°C TCO. For applications up to 125°C 2 = 268°C TCO. For applications between 125-200°C 3 = Non-Hermetically sealed 270°C TCO 4 = Non-Hermetically sealed 232°C TCO (for applications up to 125°C) 5 = Non-Hermetically sealed 288°C TCO (for applications up to 200°C) <small>* Are not UL 823</small>	L = Low flow range: (0-30) lpm M = Medium flow range: (20-80) lpm H = High flow range: (60+1) lpm	1 = 12.63" Overall Length 2 = 18.13" Overall Length 3 = 29.13" Overall Length 4 = 40.13" Overall Length	Blank = No Options X_# = With Wire (specify length in inches and conduit position (ex. X180A) NE = Non-electropolished ## = TBD as needed ### = Custom Clean req