



# 3000 Series Gas Coolers for Hazardous Area (FM, CSA & ATEX)

## GENERAL DESCRIPTION:

The Universal Analyzers 3000 series Thermoelectric Gas Cooler's are widely used in both General Purpose and Electrically Hazardous Classified Areas such as those found at Refineries and Petrochemical plants. These gas coolers are used primarily in a gas analysis system to reduce a gas sample's dew point providing a dry gas sample to one or more downstream gas analyzers. Its chassis design allows the 3000 Series to be optionally equipped with many sample system features that can be attached directly to the gas coolers enclosure. These features can include a sample pump, peristaltic pump, inline filter with condensate carry over sensor and a flow meter. With our FM/CSA/ATEX approvals, the series 3000 can be installed confidently worldwide.

## OPERATION:

In order to analyze combustion products or incinerator effluents utilizing a direct extractive sampling technique, it is important to remove the water vapor without removing the water soluble fraction(s) from the gas sample. The 3000 Series uses Peltier elements to Thermo Electrically chill and reduce the dew point of a gas sample to rapidly condense and remove the water, providing a dry gas sample for the gas analyzers. The heat exchangers used in the Universal Analyzers gas sample coolers are designed to minimize the gas / condensate area and time of contact. This design will reduce to a minimum, the amount of mass transfer of those water soluble components from the gas phase into the liquid phase. The result is a dry gas sample which has the same composition on a dry basis before and after passing through the cooler.

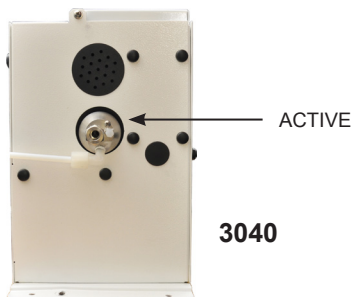
## FEATURES:

- FM/CSA approval for use in Class I, Div. 2 groups A, B, C, D
- TÜV Approval for ATEX Ex II 3 G Ex nA IIC 143°C
- Design allows integration of peristaltic pump and other accessories direct to enclosure
- Heat Exchangers for efficient condensate separation
- Heat Sink cooled with a highly efficient blower
- Digital Temperature Display
- Status Lights
- Alarm Contacts
- Stable Dew Point



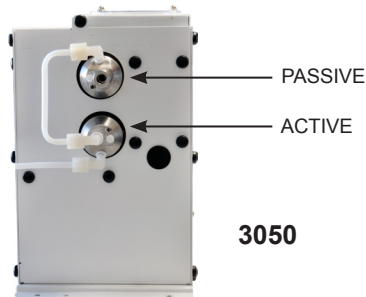
Shown with Options

Single Heat Exchanger  
Thermoelectric Gas Cooler



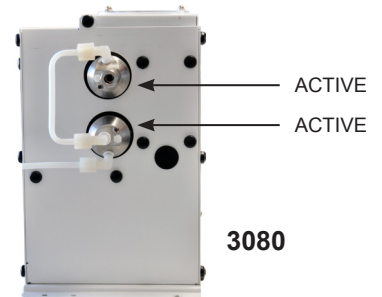
3040

Single Sample, Dual Stage  
Thermoelectric Gas Cooler



3050

Single (or Dual) Sample, Dual Stage  
Thermoelectric Gas Cooler

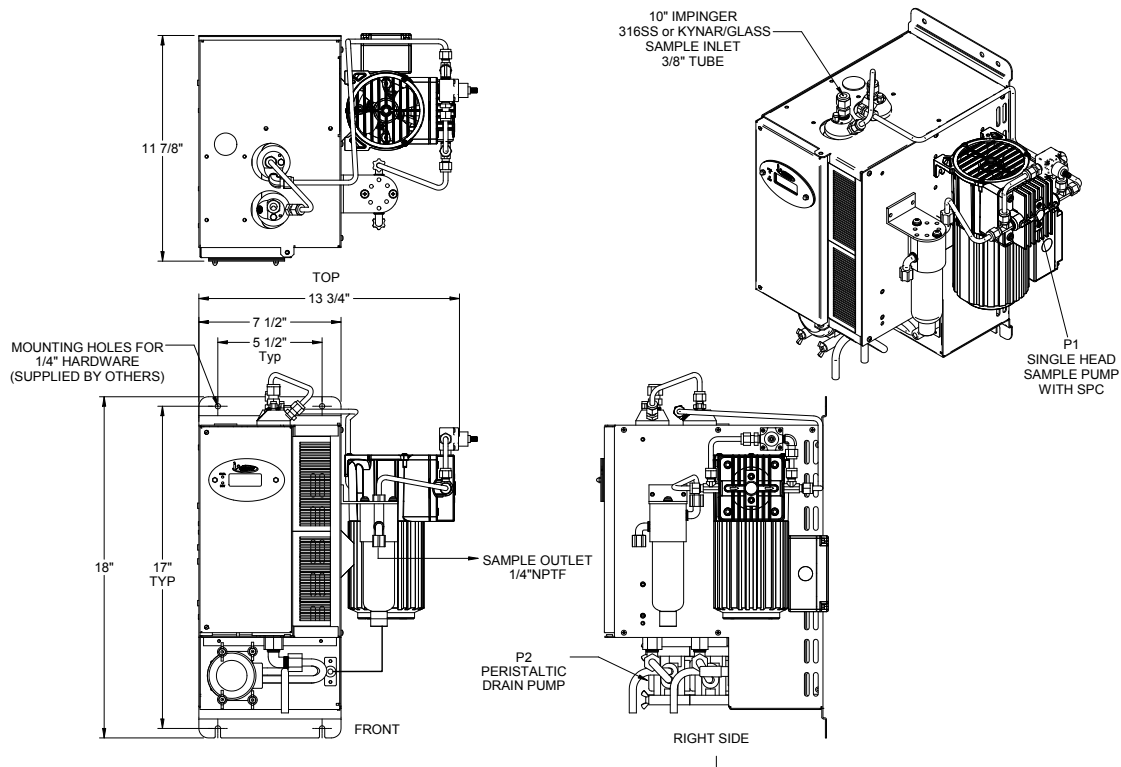


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Model	Ambient 77 °F/25 °C Water Vapor				Ambient 90 °F/35 °C Water Vapor				Ambient 105 °F/41 °C Water Vapor			
	12%	15%	30%	50%	12%	15%	30%	50%	12%	15%	30%	50%
3040	6 l/m	5 l/m	2.8 l/m	1.4 l/m	5 l/m	4 l/m	2 l/m	1 l/m	2.8 l/m	2.4 l/m	1.2 l/m	0.6 l/m
3050	8 l/m	8 l/m	7 l/m	6 l/m	6 l/m	6 l/m	5.5 l/m	4.5 l/m	3 l/m	3 l/m	2.5 l/m	2 l/m
3080	10 l/m	8 l/m	4 l/m	2 l/m	8 l/m	7 l/m	3.5 l/m	1.8 l/m	4.6 l/m	4 l/m	2.2 l/m	1.1 l/m

Sample Flow Rate:	(Specific to model; See Capacity Chart)
Maximum Inlet Sample Temperature: Stainless Steel Heat Exchanger:	700°F. (371°C.)
Kynar/Glass Heat Exchanger:	280°F. (138°C.)
Maximum Inlet Gas Dew Point:	180°F. (82°C.)
Maximum Inlet Water Concentration:	50%*
Maximum Ambient Temperature:	105°F. (41°C.)*
Maximum Active Cooling Power:	126 BTU'S/Hr. (120 kJ/Hr.) (Model 3040) 126 BTU'S/Hr. (120 kJ/Hr.) (Model 3050) 252 BTU'S/Hr. (240 kJ/Hr.) (Model 3080)
Outlet Sample Dew Point:	39° F. (4°C.), adjustable
Maximum Input Power:	350 WATTS
Voltage:	95-125 VAC, 50/60 Hz or 190-250 VAC, 50/60 Hz
Electrical Classification: NEMA 1 / IP 10 Enclosure Type	FM / CSA Approval: Class I, Div 2, Groups A, B, C, & D ATEX Approval: Ex II 3 G Ex nA IIC 143°C
Dimensions:	No Accessories: 18.0" (432mm) x 7.5" (190.5mm) x 11.0" (279.4mm) HWD With Optional Sample Pump: 18.0" (432mm) x 14.0" (355.6mm) x 11.0" (279.4mm) HWD
Weight:	33 LB (15 KG) (No optional accessories)
Soluble Gas Removal Rates:	NO 0% LOSS NO2 <10% LOSS SO2 < 2% LOSS CO 0% LOSS CO2 < 2% LOSS
*At reduced flow rates, see capacity chart.	