REFLUX SAMPLE CONDITIONER

Electric Py - Gas Sampler
EPG Series

Self Cleaning Gas Sample Conditioner

Applications

- Ethylene production
- Coke oven gases
- Blast furnace gases
- Coal gasifiers
- FCCU regenerator gas
- Acetylene production (with mechanical controller)
- Reformer sampling for catalyst removal
- Fluidized cat crackers
- Green oil removal

Features & Benefits

- Provides clean uniform sample to analyzer sample conditioning systems
- Self-cleaning (Cyclone generator and two cones for unusual heavy material)
- Coolant options include vortex air, chilled-water or vaporizing propylene
- Designed for hazardous area use
- Sample gas temperature output via 4-20 mA
- Temperature setting via Modbus RS-485
- 110 / 220 VAC, 50-60 Hz
- Ex II2 G Ex db eb mb IIB+H2 T3 Gb
- Temp. : -20 ~ +55 °C
- Meas. Accuracy : Less than 1 °C

Proven Track Record

The reliable Taechin Py-Gas Reflux sample conditioner cleans hot, Dirty and/or wet gas samples at the Process tap and delivers a reproducible Sample to a variety of analyzers, Including mass spectrometers and gas Chromatographs, for physical property or Composition measurement. Designed on Simple chemical engineering principles of Fractionation combined with controlled Sample velocity and temperature Differential, it enables analysis of lighter Hydrocarbons by removing liquid mist or Water, heavy particulates and fine Carbons from complex, hot hydrocarbon Gas mixtures. Practical for a variety of Applications, the Py-Gas conditions The sample via cooling and refluxing and is ideal for treating condensables, polymers and particulates.

Application-Specific Models

All four Electric Py-Gas models are suitable for hazardous area use and are virtually maintenance-free:

- **EPG 3000** - Most often used in ethylene cracking furnace sampling applications (i.e., ethane/propane and naphtha/gas oil cracking)
- **EPG 5000** - Reliably samples the stack of a FCCU regenerator and features an elongated cooling section and additional density packing to handle higher temperatures
- **EPG 6000** - Used in applications similar to those of the EPG 3000 But does not generally handle as much volume as the other two models
- **EPG 7000** - Used for the same applications as the EPG 3000 and offers the capacity to handle twice the volume

Self-Cleaning Design

The Py-Gas was developed to sample a reactive pyrolysis gas online without the problems associated with conventional sampling systems which tend to plug rapidly, suffer from a high degree of unreliability, and require extensive and frequent maintenance.
Designed to drop out condensables and wash them back into the process together with any solids, this self cleaning unit provides a saturated, cooled and representative sample for the required measurement.

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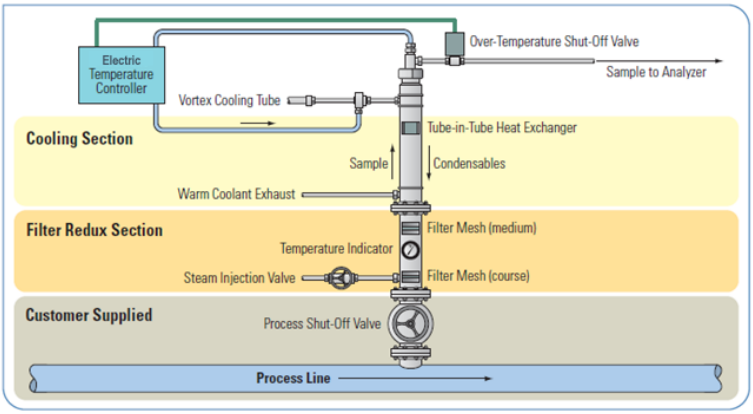

Operating Specifications				
Sample Line Temperature 1	**EPG 3000** +205°C to +650°C (+400°F to +1202°F)	**EPG 5000** +640°C to +740°C (+1184°F to +1364°F)	**EPG 6000** +40°C to +540°C (+104°F to +1004°F)	**EPG 7000** +205°C to +650°C (+400°F to +1202°F)
Sample Line Pressure 2	1.5 to 20 psig (10.5 to 140 Kpa)	5.5 to 11.5 psig (40 to 80 Kpa)	1.5 to 600 psig (10.5 to 4200 Kpa)	1.5 to 20 psig (10.5 to 140 Kpa)

Operating Specifications (all models)	
Sample Inlet	1.5 to 600 psig; +40°C to +740°C (+104°F to +1364°F)
Sample Outlet	Sample Outlet PG 3000 and 5000: 100 to 5000 cc/min (0.2 to 10.6 SCFH); +3°C to +32°C (+37.4°F to +90°F) PG 6000: 100 to 1500 cc/min (0.2 to 3.2 SCFH); +10°C to +32°C (+50°F to +90°F) PG 7000: 100 to 3000 cc/min (0.2 to 6.4 SCFH); +10°C to +32°C (+50°F to +90°F)
Pressure Drop	Typically 1 psi (6.9 Kpa)
Filter Section Temperature	+50°C to +60°C (+122°F to +140°F)
Utility Requirements	
Vortex Air (standard) 3	15 SCFM (0.425 m3/min) @ 80 to 100 psig (5.5 to 6.8 bar) [8 SCFM (0.23 m3/min) optional] for vortex cooler. Quality: clean, dry, -40°C (-40°F) dew point, oil-free, particles <5µ, ISA grade hydrocarbon-free
Chilled Propylene (option) 3	~0.38 lpm (0.1 gpm) @ 13.8 bar (200 psig) in [2.8 bar (40 psig) out optional] for chilling sample
Steam	2 to 2.8 bar (30 to 40 psig), for sample cooling and added reflux (optional depending on application)
Hardware Specifications	
Sample Wetted Materials	316 SS, Teflon, Carpenter 20 (optional depending on model) or Titanium (for corrosive applications, consult Taechin)
Process Gas Connections (optional depending on model)	1-in NPT 1-in, 1.5-in, 2-in, 3-in 150# R.F. ANSI Flange 1-in, 1.5-in, 2-in, 3-in 300# R.F. ANSI Flange (2-in, 300# model is standard)
Sample Outlet	0.25-in tubing fitting
Steam Injection	0.5-in tubing fitting
Coolant Inlet and Outlet	0.25-in to 0.375-in (optional, depending on cooling medium)
Mounting	Vertical to process line with centerline 90° ±5° from horizontal; outlet of sample conditioner must be upright
Weight (approximate)	EPG 3000: 55kg (121.2 lb) EPG 5000: 62 kg (136.6 lb) EPG 6000: 50 kg (110.2 lb) EPG 7000: 63 kg (138.9 lb)

1 Actual maximum limited by pressure and material of construction
2 Actual maximum limited by temperature and material of construction
3 Vortex air is standard; a different utility (i.e., chilled water) may be specified depending on the application

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