Self Cleaning Gas
Sample Conditioner

Instrument
Py-Gas

Description
The Py-Gas is an online sample conditioner designed for difficult sample conditioning situations such as the following.

- Hot and dirty gases
- Pyrolysis gases
- Liquid mists or water removal
- Wet, dirty gases
- Heavy particulate removal
- Fine carbon removal

The initial sample problem addressed by the Py-Gas was in gas/liquid feedstock for a cracking furnace producing ethylene. The problem was to sample a reactive pyrolysis gas to remove solids, water, and heavy oils from a complex, hot hydrocarbon gas mixture online so that the lighter hydrocarbons could be analyzed by a gas chromatograph or mass spectrometer.

Under such conditions, conventional sampling systems tend to plug rapidly, suffer from a high degree of unreliability, and require extensive and frequent maintenance. Py-Gas successfully overcame these difficulties while providing a saturated, cooled, and representative sample for the required measurement.

The basic design of the Py-Gas uses chemical engineering principles to drop out the condensable and wash them back into the process together with any solids resulting in a self-cleaning unit. From this basic design, a whole family of Py-Gas sample conditioners have been developed to address various difficult sample conditioning applications.

Features
On-Line Sample Conditioning
Self Cleaning
Uses Vortex Air or Chilled Liquid Coolant
No Moving Parts
Provides Clean Sample to Analyzers
Uniform Representative Sampling
Suitable for Hazardous Areas (No Electronic Parts)

Applications
Ethylene Production
Blast Furnace Gas
Coke Oven Gas
Coal Gasifiers
Acetic Acid Removal in TPA Plants
Acetylene Production
Reformers
Fluidized Cat Crackers
De-Coke Options

In some extreme applications, the self-cleaning function of the Py-Gas sample conditioner may not be adequate to remove all coke buildup at the sample tap. For such cases, two de-coke options are available for manual or automatic removal of coke buildup.

An optional pneumatic ram valve uses a piston to clear coke accumulations at the sample tap. Alternately, an optional electrical drill is used to remove coke buildup at the sample tap. Depending upon the application and operating conditions, the periodic operation of either style of de-coke accessory eliminates potential plugging of the process tap.

Specifications

Sample Inlet
1.5 to 600 psig
40 to 740° C (100 to 1364° F)

Sample Outlet
1000 to 1500 ml/min
10 to 32° C (50 to 90° F)

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