



## System Brief



# Wet Gas System - 580 Series -

## Introduction

The increased production of natural gas from unconventional sources, such as shale gas formations and deep-water offshore platforms, has created a need for more sampling points closer to the wellhead and gathering sites. Large quantities of free liquids are often continuously present at these sample points – hydrocarbons, water, corrosion inhibitors, methanol, and scavengers for example. This poses a challenge for traditional sampling equipment that was designed for transmission quality gas with a minimal amount of liquid entrained in the gas.

The scope of Natural Gas Sampling Standards does not include two-phase sampling. A membrane filter inserted directly in the line is an acceptable method of removing liquids by virtue of its location in the pipe, at the same temperature and pressure as the sample source. External filters may be used to eliminate liquids if operated at the same pressure and temperature of the sample source. If the membrane filter is above the sample source temperature, it may vaporize liquids and artificially enrich the sample. If it is below line temperature, it may condense components to artificially reduce heavy components in the sample. (Reference: GPA 2166 7.3.3 and 7.3.4)

When sampling from a two-phase source is unavoidable, the Wet Gas System can reliably extract a gas sample from a source containing an excessive amount of liquid. The Wet Gas System incorporates the essential elements of Genie® Membrane Separator and a Genie® Heated Regulator into a single, probe mounted sample handling component that can easily fit in a small rigid enclosure.

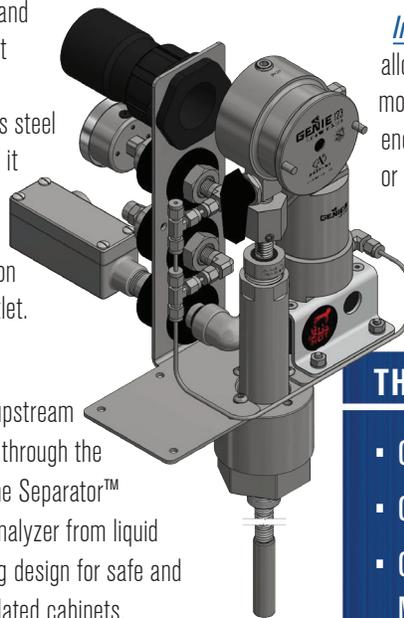
Although the gas exiting this system is liquid free and at low pressure, heat trace tubing may be required depending on the dew point temperature of the gas. It is also recommended that a Genie® Membrane Separator™ with Liquid Block™ be installed as close to the analyzer as possible in case of heat trace failure or major process upsets. The Wet Gas System is not recommended for custody transfer BTU analysis.

## System Component Breakdown

**Genie Probes™** The Wet Gas System can be used in association with either the Genie® Direct Drive™ 760 or the Genie® General Purpose GPHV™ probe. The 760™ can be easily inserted into and retracted from a pressurized source through a full port valve up to 48". The GPHV™ is a fixed, thick walled probe that is machined from a single piece of stainless steel and has a high natural resonant frequency that allows it to withstand gases flowing at high velocities. Both probes are non-membrane tipped probes which allow for liquids to drain back into the source after separation by our Genie Membrane Technology™ at the probe outlet.

### Genie Supreme 133 Membrane Separator™

This functions by separating entrained liquids on the upstream side of the media so that they can gravity drain down through the probe and back into the source. The Genie® Membrane Separator™ protects the entire sample handling system and the analyzer from liquid distortion and damage. Yet offers an improved housing design for safe and easy maintenance, especially in heated, densely populated cabinets.



**Genie Heated Regulators™** Connecting either of our analytical regulators will prevent condensation of the sample gas due to Joule Thomson (JT) cooling during pressure reduction process of high dew point gases or due to low operating temperatures.

**Insulated Enclosure** This insulated sample system case allows the sample pressure and enclosure temperature to be monitored at a quick glance, without having to remove the enclosure. For complete access to system components, one or both sides can be completely removed.

**Power Requirement:** 110 to 265 VAC, 80W or 24VDC, 25W

**Electrical Connection Approval:** ATEX/IECEX: II2G Ex db IIC T3

CSA: Class 1, Division 1, Group C&D, T3

Should you need assistance in selecting the appropriate components for your application, please consult the factory.

## THE A+ SYSTEM OF COMPONENTS

- Genie® Probes™: Model 760™ or GPHV™
- Genie® Supreme 133 Membrane Separator™
- Genie® Heated Regulators™: Model GHR™ or JTR-H™



Model 581 shown >>

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