


Model AT-1000



GENERAL INFORMATION

The Model AT-1000 Freeze Valve was developed to indicate the presence or absence of moisture in Liquefied Propane Gas (LPG). The AT-1000 is designed to be compliant to the Valve Freeze Method (ASTM D2713-13) The Valve Freeze Method was first published for information only by the American Society for Testing Materials in the "ASTM 1963 Standards: Volume 18". The use of this valve and test method provides a relative measure of the tendency of propane type liquefied petroleum gases containing moisture to freeze in pressure reducing regulators which may interrupt the normal flow of gas. Antifreeze agents will interfere with this test method and can indicate that the product is drier than it really is. However, the relative test times of LPG with antifreeze agents may still provide an indication of the tendency of these products to cause freezing in systems.

FEATURES

- Indicates presence or absence of moisture in LPG
- Designed to meet ASTM D 2713 and JLPGA-S-10T Freeze Valve Method
- Portable device, includes a rugged carrying case
- Rugged stainless steel construction
-  Declaration of Conformity

TYPICAL APPLICATIONS

- LPG commercial custody transfer lines
- Propane Storage Tanks
- Propane Trucks- "Bobtail"
- Propane Trucks- "Transport"
- Rail Tank Cars

FUNCTIONAL DESCRIPTION

The freeze valve has two operating positions, a full flow position for chilling and/or purging and a restricted flow position for testing. A liquid-phase sample is allowed to flow through the valve under the full flow condition to chill the valve housing by the cooling effect of the change from a liquid to a gaseous state. A spring loaded valve stem and cam action actuator provide instantaneous switching from the full flow conditions to the testing condition. After the housing has been chilled, the operation of the valve is switched to the closed testing condition. (continued...)

FUNCTIONAL DESCRIPTION (continued)

The valve features includes four (4) independent restricted flow passages acting as flow smoothers to maintain a pressure drop which will result in increased expansion of the fluids and increased cooling effect when entering the testing zone.

The outlet of the valve has internal threads to assist the operator in determining when the flow has been interrupted or shut off as a result of ice having formed in the aperture of the valve. The instant the LP gas stops flowing over the threads, a frost line rolls over the lip of the valve outlet. The time required for the freezing moisture to block the valve operating is measured. This time is recorded as the freeze time of the sample.

Three successive tests in excess of 60 seconds are required by ASTM D2713 to be recorded as a pass.

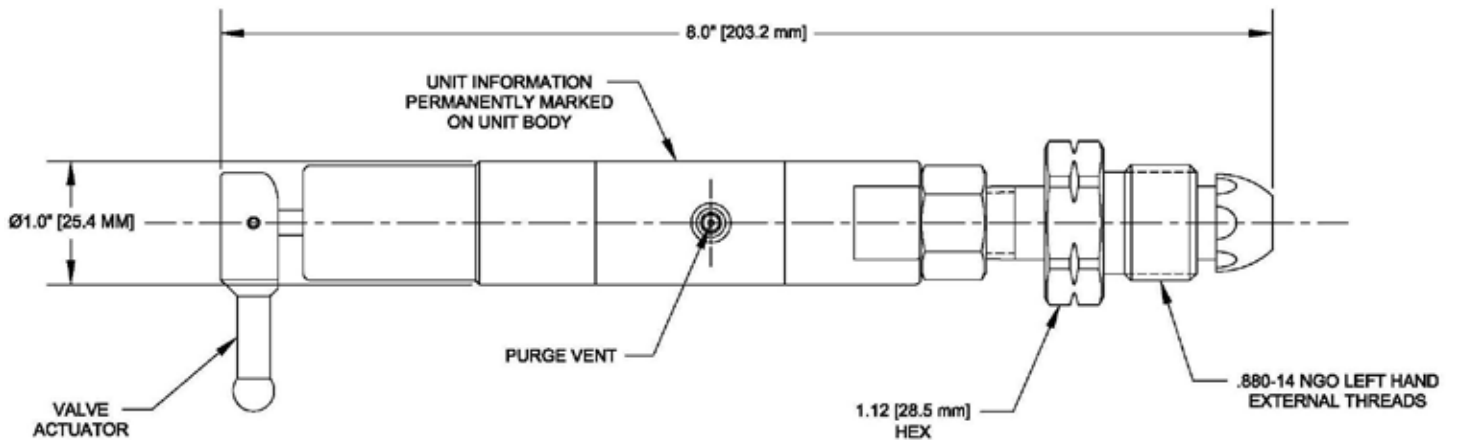
The valve freeze test method is designed for use outside the laboratory. Therefore, it may be used by comparatively unskilled labor and under existing conditions at commercial terminals with sufficient accuracy to determine if the moisture content of the product meets specifications. The valve also incorporates a filter to exclude foreign particles from the testing zone.

LPG Freeze Valve

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SPECIFICATIONS

Size	8" long x 1" diameter (203 mm long x 25 mm diameter)
Weight	1.1 pounds (510 grams)
Connection880 - 14 NGO left-hand external thread
Material of Construction	stainless steel
Operating Pressure	Less than 100 pounds/in ² (7.03 Kg/cm ² g)
.....	plus vapor pressure of product at test temperature
Meets Standards	ASTM D 2713-13, JLPGA-S-10T



Valve Application on Tank



Valve Applied to Transfer Line