Type Testing of Quarter-turn Valves for Fugitive Emissions

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Contents

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Introduction

The purpose of this standard is to establish a uniform procedure for the evaluation of emission performance of process valves. The testing program will provide a basis for the comparison of the emissions and performance of process valves.

Use of this standard assumes the execution of its provisions is entrusted to appropriately qualified and experienced personnel because it calls for procedures that can be injurious to health if adequate precautions are not taken. This standard refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage of the procedure.

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Type Testing of Quarter-turn Valves for Fugitive Emissions

1 Scope

This standard specifies the requirements and acceptance criteria for fugitive emission type testing of quarter-turn valves. The type testing requirements contained herein are based on elements of EPA Method 21.

Valves larger than NPS 24 and valves greater than ASME B16.34 class 1500 are outside the scope of this standard. Valves with a pressure rating at ambient temperature less than 6.89 barg (100 psig) are outside the scope of this standard. Repacking or resealing of valves is outside the scope of this standard.

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

API Standard 622, *Type Testing of Process Valve Packing for Fugitive Emissions*

EPA Method 21 [1], *Determination of Volatile Organic Compound Leaks*

ASME B16.34 [2], *Valves—Flanged, Threaded, and Welding End*

3 Terms and Definitions

For the purposes of this standard, the following definitions apply.

3.1
ambient temperature
Temperature that is between 15 °C to 40 °C (59 °F to 104 °F).

3.2
auxiliary connection(s)
Drain(s), vent(s), thermal relief(s), or injection port(s).

3.3
closing torque
The amount of torque required to achieve valve closure and seat leakage tightness meeting manufacturer's published acceptance criteria at maximum pressure differential.

3.4
dynamic leak measurement
Measurement of leakage (take) at the valve stem while the stem is travelling through an opening and/or closing cycle per elements of EPA Method 21.

3.5
EPA Method 21
A leak check method established by the United States Environmental Protection Agency (EPA) for performing emission measurements on equipment such as valves, pumps, and flanges.

3.6
emissions
Gaseous leak given off by a piece of equipment used in reference to volatile organic compounds and expressed in parts per million volumetric (ppmv or ppm) for methane.

[1] United States Environmental Protection Agency, 1200 Pennsylvania Avenue, NW, Washington, DC 20460, www.epa.gov.
[2] ASME International, 2 Park Avenue, New York, New York 10016-5990, www.asme.org.

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