

FUGITIVE EMISSION TESTING STANDARDS

Valve packing is a significant source of Fugitive Emissions (FE). In order to reduce fugitive emissions there are four acceptable standards for fugitive emission levels.

APV Valves including Gate, Globe, Ball & High Performance Butterfly Valves have been fugitive emission certified to ISO 15848-1. Furthermore, the gland packing qualified to be used on APV gland packed valves are also independently tested to API 622 and API 624 and 641. Special ISO 15848-2 batch testing can be performed as required.

ISO 15848-1 Qualification Test and ISO 15848-2 Production Test	API Standard 622 (FE packing test in test fixture)	API Standard 624 and 641 (FE test of 622 packing in valve)
<ul style="list-style-type: none"> • Uses the “global” test method 	<ul style="list-style-type: none"> • Uses the local “sniffing/flushing” test method 	<ul style="list-style-type: none"> • Uses the “sniffing” test method
<ul style="list-style-type: none"> • Testing performed on valve 	<ul style="list-style-type: none"> • API 622 test is performed in a test fixture designed to simulate a valve. The test qualifies the “packing” only 	<ul style="list-style-type: none"> • Testing of API 622 qualified packing in an APV valve

	ISO 15848-1	ISO 15848-2	API 622	API 624/641
Qualifies:	Valve Design	Production	Packing	Valve Design
EPA Method 21 compliant:	Yes	Yes	Yes	Yes
Prerequisite:	None	ISO 15848-1 qualified valve design	None	API 622 qualified packing
Test Medium:	Helium or Methane	Helium	Methane	Methane
Packing Tested in:	Valve	Valve	Fixture	Valve
Test Pressure:	Rate Valve Pressure at Test Temperature per ASME B16.34	6 bar (87 psi)	0-600 psi	The lower of 600 psi or maximum allowable pressure at 260°C (500°F) per B16.34
Test Temperature:	Variable ^[1]	Ambient	Ambient and 260°C (500°F)	Ambient and 260°C (500°F)
Mechanical Cycles:	Variable ^[1]	5	1,510	310
Thermal Cycles:	Variable ^[1]	0	5	3
Allowable Packing Adjustments:	1	0	1 ^[2]	0
Measured Units:	mg/sec-m	ppm	ppm	ppm
Acceptance Criteria:	Variable ^[1]	Variable ^[3]	500 ppm	100 ppm
Qualification Coverage:	Same basic design Stem Diameters: 50% lower and 200% higher. Pressure class: Same class and lower ^[4]	N/A	Packing Only	Variable ^{[4][5]}

^[1] ISO 15848-1 has several different classes for the acceptance criteria, number of test cycles, and test temperatures

^[2] Packing adjustment allowed if leakage exceeds 500 ppm

^[3] Acceptance criteria is based on the leakage class the design was tested to per ISO 15848-1

^[4] Valve must be same basic stem and packing design. Gate and globe valves each require separate qualification testing due to the difference in non-rotating stem (gate) and a rotating stem (typical globe)

^[5] The scope of the standard is class 150 through 1500 valves, 24” and smaller