



FUGITIVE EMISSION TESTING STANDARDS

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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.

KAMROO 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 KAMROO 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)
Uses the "global" test method	Uses the local "sniffing/flushing" test method	Uses the "sniffing" test method
Testing performed on valve	API 622 testis performed in a test fixture designed to simulate a valve. The test qualifies the "packing" only	Testing of API 622 qualified packing in an KAMROO valve

Testing Basis and Leaking Rate References

	ISO 15848-1	ISO 15848-2	API 622	API 624/API 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 ❶	Ambient	Ambient and 260°C (500°F)	Ambient and 260°C (500°F)
Mechanical Cycles:	Variable ❶	5	1510	310
Thermal Cycles:	Variable ❶	0	5	3
Allowable Packing Adjustments:	1	0	1 ❷	0
Measured Units:	mg/sec-m	ppm	ppm	ppm
Acceptance Criteria:	Variable ❶	Variable ❸	500 ppm	100 ppm
Qualification Coverage:	Same basic design Stem Diameters: 50% lower and 200% higher. Pressure class: Same class and lower ❹	N/A	Packing Only	Variable ❹❺

Remarks

- ❶ ISO 15848-1 has several different classes for the acceptance criteria, number of test cycles, and test temperatures
- ❷ Packing adjustment allowed if leakage exceeds 500 ppm
- ❸ Acceptance criteria is based on the leakage class the design was tested to per ISO 15848-1
- ❹ 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)
- ❺ The scope of the standard is class 150 through 1500 valves, 24" and smaller size

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Ball Valve

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[Oxygen Ball Valve](#)
[Cryogenic Ball Valve](#)

Butterfly Valve

[Triple Eccentric Metal Seat Butterfly Valve](#)
[Triple Offset Laminated Seat Butterfly Valve](#)
[High Performance Butterfly Valve](#)
[Double Eccentric Rubber Seat Butterfly Valve](#)
[Full Lining Butterfly Valve](#)
[Half Lining Butterfly Valve](#)
[PTFE Lining Butterfly Valve](#)
[Oxygen Butterfly Valve](#)
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Gate Valve

[Wedge Gate Valve](#)
[Stainless Steel Gate Valve API603](#)
[Through Conduit Gate Valve](#)
[Bellow Seal Gate Valve](#)
[Pressure Bonnet Gate Valve](#)
[Non Rising Stem Gate Valve](#)
[Knife Gate Valve](#)
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Globe Valve

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[Pressure Bonnet Globe Valve](#)
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[Angle Globe Valve](#)
[Bellows Stop Valve](#)
[Non Rising Stem Gate Valve](#)
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