

ISO 15848-1
Helium Fugitive Emission Test Report

Performed for

Metso Automation USA

www.metso.com



1 inch ASME Class 800
Threaded End Ball Valve
with TFM Packing

Project Number: 214368
Test Start Date: December 24, 2014



Performed by

YARMOUTH RESEARCH AND TECHNOLOGY, LLC

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Fugitive Emission Test Data Sheet

Customer: Metso Automation USA

Date: 12/24/2014

Project #: 214368

Product Description: 1" ASME Class 800 Threaded End Ball Valve

Product Code: 1 4AB2236XTB1

Packing Description: TFM

Sample Supplied by: Customer

Stem Diameter: 0.497"

Packing Nut Torque: 20 in*lbs

Test Conditions

Test Standard: ISO 15848-1

Test Stand: Yarmouth Stand 1

Tightness Class: BH

Allowable: 2.22E-05 atm cc/sec

Test Media: 99% Helium

Endurance Class: CO1 500 Mechanical Cycles

Temperature Class: 200C 2 Thermal Cycles

Pressure Class: 800

Rating: 2000 psig @ambient

750 psig @high temp

Testing Method: Purge for stem seals, sniffing (enclosed area) for bonnet seal

Mounting Position: Stem and Bore Horizontal

Max. Allowable Bonnet Gasket Leakage: 50 PPMv by sniffing method

Leakage Device: Pfeiffer SmartTest HLT560

Cycling Rate: 1 cycle per 15 seconds

Test Data Summary - Stem Seal

Cycle Number	Nom.Temp (C)	Stem Seal Leakage Readings - atm cc/sec				Packing	Actuator Pressure	
		Static		Dynamic		Retorque	Opening	Closing
		Avg.	Max.	Avg.	Max.	See Notes	(psig)	(psig)
0	20	8.0E-07	8.2E-07	8.1E-07	8.3E-07		50	28
125	20	1.8E-06	1.8E-06	4.0E-06	8.5E-06		50	28
125	200	8.0E-06	8.3E-06	7.8E-06	8.0E-06		50	28
250	200	5.6E-06	5.8E-06	5.5E-06	5.9E-06		50	27
250	20	8.7E-07	9.0E-07	8.7E-07	9.0E-07		50	27
375	20	1.1E-06	1.2E-06	1.3E-06	1.5E-06		50	27
375	200	4.3E-06	4.4E-06	4.3E-06	4.4E-06		50	27
500	200	4.7E-06	4.8E-06	4.7E-06	4.9E-06		50	27
500	20	9.0E-07	1.0E-06	8.9E-07	1.1E-06		50	28
Maximum Leakage:		8.0E-06	8.3E-06	7.8E-06	8.5E-06			
Maximum Allowable:		2.2E-05	2.2E-05					

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Test Data Summary - Bonnet Seal

Cycle Number	Nom.Temp (C)	Leakage - PPMv	
		Avg.	Max.
0	20	2	2
500	20	18	18
Maximum Leakage:		18	18
Maximum Allowable:		50	50

Packing Retorque Notes:

			Static Leakage		Before	After
Adjustment	Cycle	Nom.Temp	Readings before Tightening		Adjustment	Adjustment
Number	Number	(C)	Avg.	Max.	Nut Torque	Nut Torque
					(ft-lb)	(ft-lb)
1						
2						
2						
	Maximum Allowable:		2.22E-05	2.22E-05		

Results

The valve meant the requirements for the CO1 endurance level for the 200C temperature class.

Certified By



Matthew J. Wasielewski, PE
President and Manager
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