

API Standard 641, First Edition, 2016
Test Report

“Type Testing of Quarter-turn Valves for
Fugitive Emissions”

Performed for

PBM, Inc.

www.pbmvalve.com



1 inch ANSI Class 1500 Ball Valve
with Graphite Packing
Product Code: IB – 1IN CLASS 1500

Project Number: 217112

Test Start Date: June 26, 2017



Performed by

YARMOUTH RESEARCH AND TECHNOLOGY, LLC

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API 641 TEST CERTIFICATE

Certificate Number: 217112B

Test Start Date: 26-Jun-17
Test End Date: 29-Jun-17

Customer Information

Customer: PBM, Inc.
Web Address: pbmvalve.com
Manufacturer Location: Irwin, PA

Valve Information

Valve Size: 1 in Valve Pressure Class: 1500
Valve Description: 1in ANSI CL1500 BALL VALVE, GRAPHITE PACKING
Product Code: IB - 1IN CLASS 1500
Assembly Drawing No.: IBH-E6LLN44-20-T146
API/ASME Design Standards: API 608
Stem Seal Description: Chesterton 1622 Graphite Packing
Body/Bonnet Seal Description: Spiral Wound Gasket, 3.375 I.D., SS & Grafoil

Test Results

Test Specification: API 641, Oct 2016
Max. Allowable Stem Seal Leakage: 100 PPMv Methane
Number of Mechanical Cycles: 610
High Temperature: 500 deg. F
Test Pressure at Ambient Temp.: 600 psig
Test Pressure at High Temp.: 600 psig
Did valve pass test requirements? **YES**

Qualifications of similar valves according to para. 11 of test standard

Certified By



Matthew J. Wasielewski, PE
President and Manager
Yarmouth Research and Technology, LLC
434 Walnut Hill Road
North Yarmouth, ME 04097 USA



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FUGITIVE EMISSION TEST SUMMARY

Customer: PBM, Inc.	Start Date: 26-Jun-17
Project Number: 217112	End Date: 29-Jun-17
Manufacturing Facility: Irwin, PA	

Valve Information

Valve Description: 1in ANSI CL1500 BALL VALVE, GRAPHITE PACKING	
Product Code: IB - 1IN CLASS 1500	
Valve Selected by: Manufacturer	
API/ASME Design Standard(s): API 608	
Body Material: 316SST	Stem Material: 17-4PH SST
Body Seal Description: Spiral Wound Gasket, 3.375 I.D., SS & Grafoil	
Manufacturer's Published Running Torque: 25 ft-lb	Closing Torque: 25 ft-lb

Stem Seal Information

Stem Seal Description: Chesterton 1622 Graphite Packing	
Recommended Packing Torque: 25	ft-lb
Nominal ID: 0.625	inches
OD: 0.875	inches
Minimum Sealing Stress: Not Provided	Stack Height: 0.500
inches	inches
Stem Seal Chamber Depth: 0.680	# of Rings: 4
inches	

Test Conditions

Test Specification: API 641, Oct 2016	
Maximum Allowable Leakage: 100	PPMv
Cycling Rate: 30	seconds per cycle
Maximum Temperature: 500	F
Test Pressure at Ambient Temperature: 600	psig
Test Pressure at Maximum Temperature: 600	psig

Stem Seal Leakage Data

Cycle Number	Bonnet Temp - (F)	Pressure (psig)	Static Leakage (PPMv)		Dynamic Leakage (PPMv)	
			Avg.	Max.	Avg.	Max.
0	67	600	1	1		
100	67	600	1	1	0	1
101	499	600	8	9		
200	496	600	16	17	16	18
201	67	600	21	32		
300	66	600	44	54	33	44
301	499	600	26	39		
400	506	600	36	38	40	44
401	69	600	6	8		
500	68	600	12	19	11	16
501	502	600	3	4		
600	504	600	9	10	9	10
601	66	600	2	3		
610	70	600	3	4	4	4
Averages ->			13	17	16	20
Maximums ->			44	54	40	44

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Body / Bonnet Leakage

<i>Cycle Number</i>	<i>Bonnet Temp - (F)</i>	<i>Pressure (psig)</i>	<i>Leakage (PPMv)</i>	
			<i>Avg.</i>	<i>Max.</i>
0	67	600	1	1
610	70	600	6	10

Valve Operating Torque

<i>Operating Torque First Cycle:</i>	272	in-lb
<i>Operating Torque Last Cycle:</i>	272	in-lb

Results

Number of Mechanical Cycles Completed:	610	
Number of Thermal Cycles Completed:	3	
Maximum Static Leakage Throughout Test:	54	PPMv
Maximum Dynamic Leakage Throughout Test:	44	PPMv
Maximum Body/Bonnet Leakage Throughout Test:	10	PPMv

<i>Final Test Results:</i>	PASS
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Qualifications of similar valves according to para. 11 of test standard per

<i>Valve Group:</i>	A
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Test Notes:

Certified By



Matthew J Wasielewski, PE
 President and Manager
 Yarmouth Research and Technology, LLC
 Test Technician: Jesse Jarvi

