

API Standard 641, First Edition, 2016
Test Report

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

Performed for

PBM, Inc.

www.pbmvalve.com



0.5 inch Class 1500 Instrument Ball Valve
with Graphite Packing
Product Code: IM

Project Number: 217112
Test Start Date: June 26, 2017



Performed by

YARMOUTH RESEARCH AND TECHNOLOGY, LLC

434 Walnut Hill Road
North Yarmouth, ME 04097 USA
(207) 829-5359

info@yarmouthresearch.com
www.yarmouthresearch.com

Yarmouth Research and Technology, LLC

API 641 TEST CERTIFICATE

Certificate Number: 217112A

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: 0.5 in Valve Pressure Class: 1500
Valve Description: 0.5in Class 1500 Instrument Ball Valve, Graphite Packing
Product Code: IM
Assembly Drawing No.: IMH-E6QQNCC-04
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

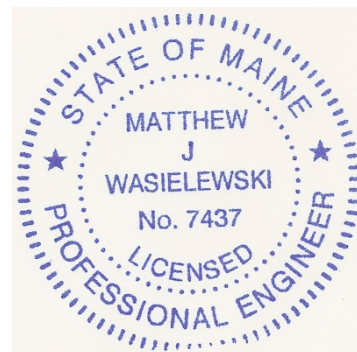
Test Specification: API 641, Oct 2016
Max. Allowable Stem Seal Leakage: 100 PPMv Methane
Number of Mechanical Cycles: 610
High Temperature: 500 deg. F
Test Pressure at Ambient Temp.: 600 psig
Test Pressure at High Temp.: 600 psig
Did valve pass test requirements? **YES**

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



Yarmouth Research and Technology, LLC

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: 0.5in Class 1500 Instrument Ball Valve, Graphite Packing	
Product Code: IM	
Valve Selected by: Mfgr	
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: 13 ft-lb	Closing Torque: 13 ft-lb

Stem Seal Information

Stem Seal Description: Chesterton 1622 Graphite Packing	
Recommended Packing Torque: 10	ft-lb
Nominal ID: 0.375	inches
OD: 0.625	inches
Minimum Sealing Stress: Not Provided	Stack Height: 0.250
inches	inches
Stem Seal Chamber Depth: 0.285	# of Rings: 2
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	85	600	1	1		
100	87	600	1	1	1	1
101	498	600	8	9		
200	496	600	5	6	6	7
201	85	600	2	3		
300	88	600	2	3	1	2
301	496	600	44	47		
400	493	600	21	22	23	25
401	76	600	2	2		
500	78	600	2	3	2	6
501	501	600	13	14		
600	494	600	14	15	14	15
601	70	600	1	2		
610	71	600	0	1	1	2
Averages ->			8	9	7	8
Maximums ->			44	47	23	25

Yarmouth Research and Technology, LLC

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	84	600	2	2
610	71	600	4	5

Valve Operating Torque

<i>Operating Torque First Cycle:</i>	110	in-lb
<i>Operating Torque Last Cycle:</i>	120	in-lb

Results

Number of Mechanical Cycles Completed:	610	
Number of Thermal Cycles Completed:	3	
Maximum Static Leakage Throughout Test:	47	PPMv
Maximum Dynamic Leakage Throughout Test:	25	PPMv
Maximum Body/Bonnet Leakage Throughout Test:	5	PPMv

<i>Final Test Results:</i>	PASS
-----------------------------------	-------------

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

<i>Valve Group:</i>	A
----------------------------	----------

Test Notes:

Certified By



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

