

API Standard 641, First Edition, 2016
Test Report

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

Performed for

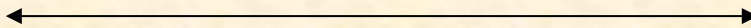
PBM, Inc.

www.pbmvalve.com



2 inch ANSI Class 300 Ball Valve
with Graphite Packing
Product Code: AN SER 6 – 2IN CLASS 300

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: 217112D

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: 2 in Valve Pressure Class: 300

Valve Description: 2in ANSI CL300 BALL VALVE, GRAPHITE PACKING

Product Code: AN SER 6 - 2IN CLASS 300

Assembly Drawing No.: ANH-H6M-G---20--P323

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.: 480 psig

Did valve pass test requirements? **YES**

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

Certified By



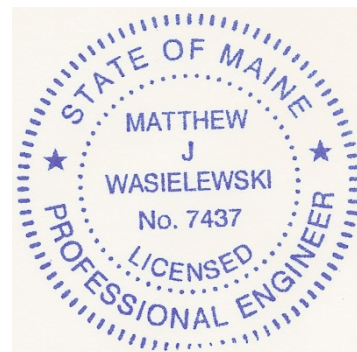
Matthew J. Wasielewski, PE

President and Manager

Yarmouth Research and Technology, LLC

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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: 2in ANSI CL300 BALL VALVE, GRAPHITE PACKING	
Product Code: AN SER 6 - 2IN CLASS 300	
Valve Selected by: Manufacturer	
API/ASME Design Standard(s): API 608	
Body Material: 316SS	Stem Material: 316SS
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: 0.750	inches	OD: 1.125	inches
Minimum Sealing Stress: Not Provided		Stack Height: 0.750	inches
Stem Seal Chamber Depth: 0.760	inches	# of Rings: 4	

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:	480	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	85	600	1	1	1	1
101	499	480	12	13		
200	497	480	26	27	31	60
201	86	600	2	3		
300	88	600	3	4	4	5
301	495	480	36	56		
400	499	480	16	17	19	35
401	84	600	2	2		
500	83	600	3	4	4	6
501	495	480	6	7		
600	500	480	10	12	11	16
601	76	600	3	7		
610	70	600	1	2	2	3
Averages ->			9	11	10	18
Maximums ->			36	56	31	60

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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	85	600	2	2
610	70	600	6	9

Valve Operating Torque

<i>Operating Torque First Cycle:</i>	360	in-lb
<i>Operating Torque Last Cycle:</i>	360	in-lb

Results

Number of Mechanical Cycles Completed:	610
Number of Thermal Cycles Completed:	3
Maximum Static Leakage Throughout Test:	56 PPMv
Maximum Dynamic Leakage Throughout Test:	60 PPMv
Maximum Body/Bonnet Leakage Throughout Test:	9 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>	B
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Test Notes:

Certified By



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

