

API Standard 641, First Edition, 2016
Test Report

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

Performed for

Clarke Industrial Engineering

www.clarkeindustrialengineering.com



1 inch Class 900 Shutter Valve
Product Code: SV-DN25-900-A01HP-000

Project Number: 218119
Test Start Date: March 16, 2018



Performed by

YARMOUTH RESEARCH AND TECHNOLOGY, LLC

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API 641 TEST CERTIFICATE

Certificate Number: 218119A

Test Start Date: 19-Mar-18

Test End Date: 22-Mar-18

Customer Information

Customer: Clarke Industrial Engineering

Web Address: www.clarkeindustrialengineering.com

Manufacturer Location: 42 Whitecap Dr, North Kingstown, RI 02852

Valve Information

Valve Size: NPS 1 Valve Pressure Class: 900

Valve Description: 1" Shutter Valve CL900

Product Code: SV-DN25-900-A01HP-000

Assembly Drawing No.: SV-DN25-900-A01HP-000 RevB

API/ASME Design Standards: ASME B16.34

Stem Seal Description: PTFE, Kyflon and Spring Energized Seal (SES)

Body/Bonnet Seal Description: Fluoroelastomer (FKM)

Test Results

Test Specification: API 641, First Edition, 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



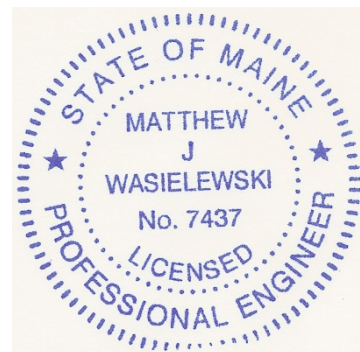
Matthew J. Wasielewski, PE

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: Clarke Industrial Engineering

Start Date: 19-Mar-18

Project Number: 218119

End Date: 22-Mar-18

Manufacturing Facility: 42 Whitecap Dr, North Kingstown, RI 02852

Valve Information

Valve Description: 1" Shutter Valve CL900

Product Code: SV-DN25-900-A01HP-000

Valve Selected by: Manufacturer

API/ASME Design Standard(s): ASME B16.34

Body Material: 316 SS

Stem Material: 316 SS

Body Seal Description: Fluoroelastomer (FKM)

Manufacturer's Published Running Torque: 1 ft-lb

Closing Torque: 20 ft-lb

Stem Seal Information

Stem Seal Description: PTFE, Kyflon and Spring Energized Seal (SES)

Recommended Packing Torque: N/A

Nominal ID: 0.625 inches

OD: 0.875 inches

Minimum Sealing Stress: N/A

Stack Height: 0.800 inches

Stem Seal Chamber Depth: 0.800 inches

of Rings: 4

Test Conditions

Test Specification: API 641, First Edition, 2016

Maximum Allowable Leakage: 100 PPMv

Cycling Rate: 30 seconds per cycle

Valve Elevated Temperature: 500 F (± 5%)

Amb. Temp. Test Pressure: 600 psig High Temp. Test Pressure: 600 psig (± 5%)

Stem Seal Leakage Data

Cycle Number	Stem Seal Temp - (F)	Pressure (psig)	Static Leakage (PPMv)		Dynamic Leakage (PPMv)	
			Avg.	Max.	Avg.	Max.
0	81	600	2	3		
100	82	600	1	2	1	1
101	500	600	4	5		
200	499	600	4	4	4	4
201	83	600	1	1		
300	83	600	2	3	2	2
301	504	600	4	5		
400	504	600	4	5	4	5
401	82	600	6	9		
500	81	600	5	7	5	7
501	503	600	4	5		
600	501	600	8	9	7	8
601	81	600	12	17		
610	80	600	13	18	17	20
Averages ->			5	7	6	7
Maximums ->			13	18	17	20

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Body / Bonnet Leakage

Cycle Number	Bonnet Temp - (F)	Pressure (psig)	Leakage (PPMv)	
			Avg.	Max.
0	81	600	1	2
610	80	600	14	16

Valve Operating Torque

Operating Torque First Cycle:	10	in-lb
Operating Torque Last Cycle:	10	in-lb

Results

Number of Mechanical Cycles Completed:	610
Number of Thermal Cycles Completed:	3
Maximum Static Leakage Throughout Test:	18 PPMv
Maximum Dynamic Leakage Throughout Test:	20 PPMv
Maximum Body/Bonnet Leakage Throughout Test:	16 PPMv

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

Valve Group:	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

