

API Standard 641, First Edition, 2016
Test Report

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

Performed for

Guide Valve Limited

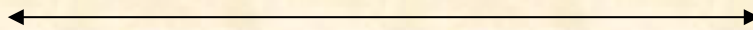
www.gvs-vci.com



3 inch ANSI 600 Metal Seated Ball Valve
Product Code: GVS B1-600-RF-G metal
seated Ball valve

Project Number: 219548

Test Start Date: January 7, 2020



Performed by

YARMOUTH RESEARCH AND TECHNOLOGY, LLC

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API 641 TEST CERTIFICATE

Certificate Number:	219548A
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Test Start Date:	7-Jan-20
Test End Date:	10-Jan-20

Customer Information

Customer: Guide Valve Limited
Web Address: www.gvs-vci.com
Manufacturer Location: 51 Terecar Drive, Woodbridge, ON L4L 0B5

Valve Information

Valve Size: 3"	Valve Pressure Class: ANSI 600
Valve Description: 3" ANSI 600 Metal Seated Ball Valve	
Product Code: GVS B1-600-RF-G metal seated Ball valve	
Assembly Drawing No.: 7645-02	
API/ASME Design Standards: API 6D and ASME B16.34	
Stem Seal Description: Chesterton 1622 graphite packings - Live Loaded	
Body Seal Description: Spiral wound graphite filled gasket	

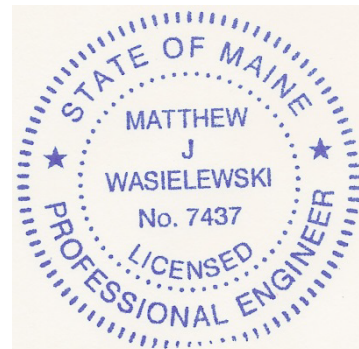
Test Results

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	

<i>Valves of the same quarter-turn design as the test valve may be deemed to be qualified subject to paragraph 11 of the test specification.</i>
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FUGITIVE EMISSION TEST SUMMARY

Customer: Guide Valve Limited	Start Date: 7-Jan-20
Project Number: 219548	End Date: 10-Jan-20
Manufacturing Facility: 51 Terecar Drive, Woodbridge, ON L4L 0B5	

Valve Information

Valve Description: 3" ANSI 600 Metal Seated Ball Valve	
Product Code: GVS B1-600-RF-G metal seated Ball valve	
Valve Selected by: Manufacturer	
API/ASME Design Standard(s): API 6D and ASME B16.34	
Body Material: LF2	Stem Material: 17-4 PH
Body Seal Description: Spiral wound graphite filled gasket	
Manufacturer's Published Running Torque: 500 ft-lb	Closing Torque: 800 ft-lb

Stem Seal Information

Stem Seal Description: Chesterton 1622 graphite packings - Live Loaded				
Recommended Packing Torque: N/A				
Nominal ID:	1.29	inches	OD:	1.94 inches
Minimum Sealing Stress:	<i>Not provided</i>		Stack Height:	1.50 inches
Stem Seal Chamber Depth:	2.50	inches	# of Rings:	5

Test Conditions

Test Specification: API 641, First Edition, 2016		
Maximum Allowable Leakage:	100	PPMv
Cycling Rate:	30	seconds per cycle
Maximum Temperature:	500	F
Amb. Temp. Test Pressure:	600 psig	High Temp. Test Pressure: 600 psig

Stem Seal Leakage Data

Cycle Number	Stem Seal Temp - (F)	Pressure (psig)	Static Leakage (PPMv)		Dynamic Leakage (PPMv)	
			Avg.	Max.	Avg.	Max.
0	71	600	1	1		
100	78	600	1	2	1	2
101	506	600	87	93		
200	500	600	69	74	67	74
201	81	600	3	4		
300	83	600	1	2	1	2
301	503	600	61	63		
400	505	600	60	62	62	65
401	72	600	3	3		
500	76	600	1	2	1	2
501	502	600	41	42		
600	504	600	39	40	38	41
601	72	600	1	2		
610	73	600	0	1	1	2
Averages ->			26	28	24	27
Maximums ->			87	93	67	74

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Body Seal Leakage

<i>Leak Path</i>	<i>Cycle Number</i>	<i>Bonnet Temp - (F)</i>	<i>Pressure (psig)</i>	<i>Leakage (PPMv)</i>	
				<i>Avg.</i>	<i>Max.</i>
Body Seal A	0	72	600	0	1
Body Seal B	0	72	600	0	1
Bonnet Seal	0	72	600	1	1
Trunnion Seal	0	72	600	1	1
Body Seal A	610	72	600	1	1
Body Seal B	610	72	600	0	1
Bonnet Seal	610	72	600	1	2
Trunnion Seal	610	72	600	2	2

Operating Actuator Pressure

<i>Operating Actuator Pressure First Cycle:</i>	37	psig
<i>Operating Actuator Pressure Last Cycle:</i>	52	psig

Results

Number of Mechanical Cycles Completed:	610	
Number of Thermal Cycles Completed:	3	
Maximum Static Leakage Throughout Test:	93	PPMv
Maximum Dynamic Leakage Throughout Test:	74	PPMv
Maximum Body/Bonnet Leakage Throughout Test:	1	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

