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

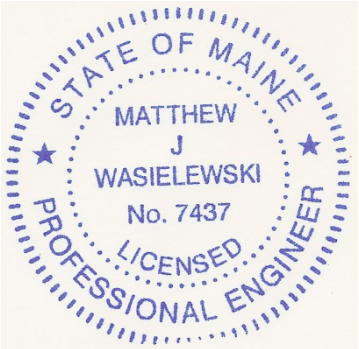
Test Start Date:	7-Jan-20
Test End Date:	10-Jan-20

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***	

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.



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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:	*Not provided*		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

Leak Path	*Cycle Number*	*Bonnet Temp - (F)*	*Pressure (psig)*	*Leakage (PPMv)*	
				Avg.	*Max.*
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

Operating Actuator Pressure First Cycle:	37	psig
Operating Actuator Pressure Last Cycle:	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

Final Test Results:	**PASS**

Qualifications of similar valves according to para. 11 of test standard per	
Valve Group:	***A***

Test Notes:

Certified By

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