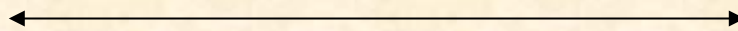


ISO 15848-1:2015
Helium Fugitive Emission Test Report

Performed for

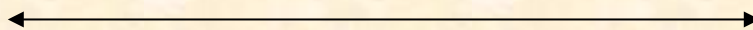
A-T Controls, Inc.

www.a-tcontrols.com



2 inch FD9C-F6 Series Direct Mount API-607 4th Edition
Firesafe 2-Piece, NACE MR-0175, Carbon Steel BV, ANSI
600# Flanged, Full Port, F07 / F10 B.C., W/ CTFE Seats
Product Code: FD9C-F1-0200-CXX

Project Number: 220470
Test Start Date: March 4, 2021



Performed by

YARMOUTH RESEARCH AND TECHNOLOGY, LLC

434 Walnut Hill Road
North Yarmouth, ME 04097 USA
(207) 829-5359
info@yarmouthresearch.com
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Yarmouth Research and Technology, LLC

Fugitive Emission Test Certificate ISO 15848-1: 2015

Certificate Number: 220470A

Test Start Date: 3/4/2021

Test End Date: 3/12/2021

Customer Information

Customer: A-T Controls, Inc.

Web Address: www.a-tcontrols.com

Manufacturer Location: 9955 International Blvd. Cincinnati, OH 45246

Valve Information

Valve Description: 2" FD9C-F6 Series Direct Mount API-607 4th Edition Firesafe
2-Piece, NACE MR-0175, Carbon Steel BV, ANSI 600# Flanged,
Full Port, F07 / F10 B.C., W/ CTFE Seats.

Product Code: FD9C-F1-0200-CXX

Stem Diameter: 23.9 mm

Body Seal: Graphite

Stem Seal: Graphite

Test Fluid: Helium

Tightness Class: CH ($\leq 4.3E-03$ mbar 1/sec)

Endurance Class: CO3 (2,500 mechanical cycles, 4 thermal cycles)

Temperature Class: 200C Test Pressure: 1480 psig at 20C

Number of Packing Adjustments (SSA): 0 1270 psig at 200C

Test Results

Performance Class: ISO 15848-CH-CO3-SSA0-t(200C)-ANSI Class 600

This certificate refers to the above mentioned product. This is to certify that the test specimen provided is in conformity with the standard mentioned above. This certificate does not imply assessment of the production of the product. Qualification of similar valves to the tested valve shall be done in accordance with section 8 of the test specification.

Certified By



Matthew J. Wasielewski, PE
President and Manager
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Yarmouth Research and Technology, LLC

Fugitive Emission Test Data Sheet

Customer: A-T Controls, Inc.

Date: 3/4/2021

Project #: 220470

Valve Description: 2" FD9C-F6 Series Direct Mount API-607 4th Edition Firesafe 2-Piece, NACE MR-0175, Carbon Steel BV, ANSI 600# Flanged, Full Port, F07 / F10 B.C., W/ CTFE Seats.

Product Code: FD9C-F1-0200-CXX

Sample Supplied by: Customer

Stem Diameter: 23.9 mm

Packing Nut Torque: 17.3 ft-lb

Test Conditions

Test Standard: ISO/FDIS 15848-1:2015

Test Stand: Yarmouth Stand 1

Tightness Class: CH

Allowable: 4.3E-03 mbar l/sec

Test Media: 99% Helium

Endurance Class: CO3 2500 Mechanical Cycles

Temperature Class: 200C 4 Thermal Cycles

Pressure Class: ANSI 600 **Rating:** 1480 psig @ambient 1270 psig @high temp

Testing Method: Suck Through Method

Mounting Position: Stem and Bore Horizontal

Max. Allowable Body Seal Leakage: 50 PPMv by sniffing method

Leakage Device: Pfeiffer SmartTest HLT560

Cycling Rate: 1 cycle per 30 seconds

Test Data Summary - Stem Seal

Cycle Number	Nom. Temp (C)	Static Stem Seal Leakage (mbar l/sec)		Packing Retorque See Notes
		Avg.	Max.	
0	20	8.6E-07	8.8E-07	
50	20	1.6E-06	1.7E-06	
50	200	2.0E-05	2.0E-05	
100	200	2.6E-05	2.6E-05	
100	20	2.1E-06	3.7E-06	
150	20	1.8E-06	1.9E-06	
150	200	9.3E-06	9.3E-06	
200	200	1.1E-05	1.1E-05	
205	20	1.3E-06	1.4E-06	
1,000	20	1.3E-06	1.3E-06	
1,000	200	6.2E-06	6.3E-06	
1,500	200	5.8E-06	6.0E-06	
1,500	20	1.4E-06	1.4E-06	
2,000	20	3.1E-06	3.1E-06	
2,000	200	2.3E-06	2.3E-06	
2,500	200	4.8E-06	4.8E-06	
2,500	20	1.3E-05	1.3E-05	
Maximum Leakage:		2.6E-05	2.6E-05	
Maximum Allowable:		4.3E-03	4.3E-03	

Yarmouth Research and Technology, LLC

Test Data Summary - Body Seal

Cycle Number	Nom. Temp (C)	Leakage - PPMv	
		Avg.	Max.
0	20	0	0
205	20	0	1
1,500	20	0	0
2,500	20	0	0
Maximum Leakage:		0	1
Maximum Allowable:		50	50

Test Data Summary - Operating Actuator Pressure

Cycle Number	Nom. Temp (C)	Operating Actuator Pressure (psig)
0	20	15
2,500	20	10

Packing Retorque Notes:

Adjustment Number	Static Leakage Readings before Tightening (mbar l/sec)		Before Adjustment Nut Torque (ft-lb)	After Adjustment Nut Torque (ft-lb)	Operating Actuator Pressure (psig)	
	Avg.	Max.			Before Adjustment	After Adjustment
	1					
2						
3						
	4.3E-03	4.3E-03	<- Maximum Allowable Leakage			

Performance Class:

ISO FE CH - CO3 - SSA 0 - t200C - ANSI Class 600 - ISO 15848-1

Results

The valve met the requirements of the performance class stated above.

Certified By



Matthew J. Wasielewski, PE
 President and Manager
 Yarmouth Research and Technology, LLC

