



THE NATIONAL BOARD
OF BOILER AND PRESSURE VESSEL INSPECTORS

November 16, 2017

Zachary Berggren
Engineered Controls International, LLC
100 Rego Drive
Elon, NC 27244

**Subject: Capacity Certification, Valve Type: B-19434B350-375 & C-19434B350-375
NB Cap Cert. No.: REG-M46325**

Dear Mr. Berggren:

We have reviewed the enclosed test results, referenced below, which were performed at the **National Board Testing Laboratory** on November 9, 2017 for the purpose of testing for capacity certification of the subject valve type as required by paragraph UG-136(c)(3) of Section VIII of the ASME Code.

Engineered Controls International, LLC is hereby granted capacity certification and authorization to apply the “NB” mark and ASME Certification mark with “UV” designator to the valve type listed in the scope of certification. This authorization is valid only for the above location and only while the organization is fully implementing its quality control system as accepted by the National Board.

SCOPE OF CERTIFICATION

Valve Type: B-19434B350-375 & C-19434B350-375

Organization Type: Manufacturer

Certified Rating Value/Sizes/Pressure Ranges: As listed in the NB-18

Certification Expiration Date: November 9, 2023

Sincerely,

Thomas P. Beirne, P.E.
Technical Manager, Pressure Relief Dept.

REFERENCING TEST NUMBERS: 45757A, 45754A, 45756A, 45755A

File:GF: 171116 REG-M46325 Pass

National Board Testing Laboratory

Nitrogen Test - Orifice Plate Flow Meter Method

Valve ID Data		Revision 2.4	
1	Test Number	45757A	
2	Test Sponsor	Engineered Controls International, LLC	
3	Company Type	Manufacturer	Elon, NC
4	Test Date	11/9/2017	REG
5	Valve Type	C-19434B375	
6	Manufacturer	Engineered Controls International, LLC	
7	Cap. Cert. ID No.	46325	
8	Set Pressure	375 psig	
9	Inlet Size	1/2 M	
10	Outlet Size	Top	
11	Stamped Capacity	759. SCFM	
12	Code Section	VIII	
13	Serial Number		
14	Date Code	10C17	
Operational Data and Measured Dimensions			
15	Warn Pressure		psig
16	Set Pressure	387.6	psig
17	Reset Set Pressure		psig
18	Blowdown	98.6	psi
19	Reset Blowdown		psi
20	Bore Diameter	0.386	inch
21	Lift		inch
Measured Data			
22	Flow Area	0.11702	in ²
23	Line Pressure	438.0	psig
24	Differential Pressure	12.33	psid
25	Line Temp.	48	°F
26	Vessel Pressure	426.3	psig
27	Vessel Temp.	66	°F
28	P _b	14.32	psia
29	Plate ID Number	1A	0.8 Plate Dia.
Calculated Data			
	Line Pressure (absolute)	452.315	psia
32	Density @ Flow Condition _(w)	2.3436	lbm/ft ³
33	Area Factor _(Fa)	0.999686	
34	Trial Flow Rate	1.0712	lbm/sec
35	Viscosity	1.1441E-05	lbm/ft-sec
36	Reynolds Number RD	394,735	
37	Theoretical Capacity _(WT)		
	WT=CKAP√M/T	4,236.9	lbm/hr N2
38	Measured Capacity at Std. Cond.	3,856.2	lbm/hr N2
39	Measured Capacity at Std. Cond.	856.0	SCFM AIR
40	Slope	1.943	SCFM/PSIA
41	Coefficient	0.91016	
42	Rated Capacity For Measured Set	783.4	SCFM
43	Rated Slope	1.778	
44			

National Board Testing Laboratory

Air Test - Orifice Plate Method: Test Summary

Test Summary for test 45757A:

1. Valve tested for Quality Control Demonstration as a Manufacturer.
2. Valve tested as replacement for test number 43789A, 43790A tested at The National Board Testing Lab.

I certify that the data on the attached test data sheets was obtained under my supervision in accordance with the provisions of ASME PTC 25, the applicable sections of the ASME Boiler and Pressure Vessel Code, and the National Board Testing Laboratory Quality Control Manual. To the best of my knowledge and belief the objects tested were of the same type and design as indicated.

S. Finley
Authorized Observer: Sam Finley

11-9-17
Date

Test Personnel

Company Representatives

Steve Bowman
Sam Finley

George McGonagle

National Board Testing Laboratory

Nitrogen Test - Orifice Plate Flow Meter Method

Valve ID Data		Revision 2.4	
1	Test Number	45754A	
2	Test Sponsor	Engineered Controls International, LLC	
3	Company Type	Manufacturer	Elon, NC
4	Test Date	11/9/2017	REG
5	Valve Type	B-19434B350	
6	Manufacturer	Engineered Controls International, LLC	
7	Cap. Cert. ID No.	46325	
8	Set Pressure	350 psig	
9	Inlet Size	1/2 M	
10	Outlet Size	Top	
11	Stamped Capacity	710. SCFM	
12	Code Section	VIII	
13	Serial Number		
14	Date Code	10C17	
Operational Data and Measured Dimensions			
15	Warn Pressure	364.3	psig
16	Set Pressure	365.7	psig
17	Reset Set Pressure		psig
18	Blowdown		psi
19	Reset Blowdown		psi
20	Bore Diameter	0.387	inch
21	Lift		inch
Measured Data			
22	Flow Area		in ²
23	Line Pressure		psig
24	Differential Pressure		psid
25	Line Temp.		°F
26	Vessel Pressure		psig
27	Vessel Temp.		°F
28	P _b	14.34	psia
29	Plate ID Number		
Calculated Data			
	Line Pressure (absolute)	14.336	psia
32	Density @ Flow Condition _(w)		lbm/ft ³
33	Area Factor _(Fa)		
34	Trial Flow Rate		lbm/sec
35	Viscosity		lbm/ft-sec
36	Reynolds Number RD		
37	Theoretical Capacity _(WT)		
	WT=CKAP√M/T	#VALUE!	lbm/hr N2
38	Measured Capacity at Std. Cond.		lbm/hr N2
39	Measured Capacity at Std. Cond.		SCFM AIR
40	Slope		SCFM/PSIA
41	Coefficient		
42	Rated Capacity For Measured Set		SCFM
43	Rated Slope		
44			

National Board Testing Laboratory


Air Test - Orifice Plate Method: Test Summary

Test Summary for test 45754A:

1. Valve tested for Quality Control Demonstration as a Manufacturer.
2. Valve tested as replacement for test number 43789A, 43790A tested at The National Board Testing Lab.

I certify that the data on the attached test data sheets was obtained under my supervision in accordance with the provisions of ASME PTC 25, the applicable sections of the ASME Boiler and Pressure Vessel Code, and the National Board Testing Laboratory Quality Control Manual. To the best of my knowledge and belief the objects tested were of the same type and design as indicated.


Authorized Observer: Sam Finley


Date

Test Personnel

Company Representatives

Steve Bowman
Sam Finley

George McGonagle

National Board Testing Laboratory

Nitrogen Test - Orifice Plate Flow Meter Method

Valve ID Data		Revision 2.4	
1	Test Number	45756A	
2	Test Sponsor	Engineered Controls International, LLC	
3	Company Type	Manufacturer	Elon, NC
4	Test Date	11/9/2017	REG
5	Valve Type	B-19434B350	
6	Manufacturer	Engineered Controls International, LLC	
7	Cap. Cert. ID No.	46325	
8	Set Pressure	350 psig	
9	Inlet Size	1/2 M	
10	Outlet Size	Top	
11	Stamped Capacity	710. SCFM	
12	Code Section	VIII	
13	Serial Number		
14	Date Code	10C17	
Operational Data and Measured Dimensions			
15	Warn Pressure	338.7	psig
16	Set Pressure	352.2	psig
17	Reset Set Pressure		psig
18	Blowdown	66.3	psi
19	Reset Blowdown		psi
20	Bore Diameter	0.386	inch
21	Lift		inch
Measured Data			
22	Flow Area	0.11702	in ²
23	Line Pressure	398.0	psig
24	Differential Pressure	11.11	psid
25	Line Temp.	44	°F
26	Vessel Pressure	387.4	psig
27	Vessel Temp.	63	°F
28	P _b	14.32	psia
29	Plate ID Number	1A	0.8 Plate Dia.
Calculated Data			
	Line Pressure (absolute)	412.323	psia
32	Density @ Flow Condition _(w)	2.1542	lbm/ft ³
33	Area Factor _(Fa)	0.999620	
34	Trial Flow Rate	0.9749	lbm/sec
35	Viscosity	1.1368E-05	lbm/ft-sec
36	Reynolds Number RD	361,563	
37	Theoretical Capacity _(wT)		
	WT=CKAP√M/T	3,872.9	lbm/hr N2
38	Measured Capacity at Std. Cond.	3,509.6	lbm/hr N2
39	Measured Capacity at Std. Cond.	779.0	SCFM AIR
40	Slope	1.939	SCFM/PSIA
41	Coefficient	0.90622	
42	Rated Capacity For Measured Set	714.3	SCFM
43	Rated Slope	1.778	
44			

National Board Testing Laboratory

Air Test - Orifice Plate Method: Test Summary

Test Summary for test 45756A:

1. Valve tested for Quality Control Demonstration as a Manufacturer.
2. Valve tested as replacement for test number 45754A tested at The National Board Testing Lab.

I certify that the data on the attached test data sheets was obtained under my supervision in accordance with the provisions of ASME PTC 25, the applicable sections of the ASME Boiler and Pressure Vessel Code, and the National Board Testing Laboratory Quality Control Manual. To the best of my knowledge and belief the objects tested were of the same type and design as indicated.


Authorized Observer: Sam Finley


Date

Test Personnel

Company Representatives

Steve Bowman
Sam Finley

George McGonagle

National Board Testing Laboratory

Nitrogen Test - Orifice Plate Flow Meter Method

Valve ID Data		Revision 2.4	
1	Test Number	45755A	
2	Test Sponsor	Engineered Controls International, LLC	
3	Company Type	Manufacturer	Elon, NC
4	Test Date	11/9/2017	REG
5	Valve Type	B-19434B350	
6	Manufacturer	Engineered Controls International, LLC	
7	Cap. Cert. ID No.	46325	
8	Set Pressure	350 psig	
9	Inlet Size	1/2 M	
10	Outlet Size	Top	
11	Stamped Capacity	710. SCFM	
12	Code Section	VIII	
13	Serial Number		
14	Date Code	10C17	
Operational Data and Measured Dimensions			
15	Warn Pressure	354.5	psig
16	Set Pressure	356.5	psig
17	Reset Set Pressure		psig
18	Blowdown	83.5	psi
19	Reset Blowdown		psi
20	Bore Diameter	0.385	inch
21	Lift		inch
Measured Data			
22	Flow Area	0.11642	in ²
23	Line Pressure	397.9	psig
24	Differential Pressure	11.09	psid
25	Line Temp.	41	°F
26	Vessel Pressure	387.3	psig
27	Vessel Temp.	61	°F
28	P _b	14.33	psia
29	Plate ID Number	1A	0.8 Plate Dia.
Calculated Data			
	Line Pressure (absolute)	412.227	psia
32	Density @ Flow Condition _(w)	2.1683	lbm/ft ³
33	Area Factor _(Fa)	0.999572	
34	Trial Flow Rate	0.9772	lbm/sec
35	Viscosity	1.1314E-05	lbm/ft-sec
36	Reynolds Number RD	364,124	
37	Theoretical Capacity _(wT)		
	WT=CKAP√M/T	3,861.5	lbm/hr N2
38	Measured Capacity at Std. Cond.	3,517.7	lbm/hr N2
39	Measured Capacity at Std. Cond.	780.8	SCFM AIR
40	Slope	1.944	SCFM/PSIA
41	Coefficient	0.91098	
42	Rated Capacity For Measured Set	714.1	SCFM
43	Rated Slope	1.778	
44			

National Board Testing Laboratory

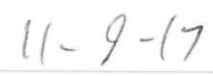
Air Test - Orifice Plate Method: Test Summary

Test Summary for test 45755A:

1. Valve tested for Quality Control Demonstration as a Manufacturer.
2. Valve tested as replacement for test number 45754A tested at The National Board Testing Lab.

I certify that the data on the attached test data sheets was obtained under my supervision in accordance with the provisions of ASME PTC 25, the applicable sections of the ASME Boiler and Pressure Vessel Code, and the National Board Testing Laboratory Quality Control Manual. To the best of my knowledge and belief the objects tested were of the same type and design as indicated.


Authorized Observer: Sam Finley


Date

Test Personnel

Company Representatives

Steve Bowman
Sam Finley

George McGonagle