



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: A8436N (20% OP)
NB Cap Cert. No.: REG-M46145

Dear Mr. Berggren:

We have reviewed the enclosed test results, referenced below, which were performed at the **National Board Testing Laboratory** on November 14, 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: A8436N (20% OP)

Organization Type: Manufacturer

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

Certification Expiration Date: May 8, 2024

Sincerely,

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

REFERENCING TEST NUMBERS: 45764A, 45794A

File:GF: 171116 REG-M46145 Pass

National Board Testing Laboratory

Nitrogen Test - Orifice Plate Flow Meter Method

Valve ID Data		Revision 2.4	
1	Test Number	45764A	
2	Test Sponsor	Engineered Controls International, LLC	
3	Company Type	Manufacturer	Elon, NC
4	Test Date	11/9/2017	REG
5	Valve Type	A8436N	
6	Manufacturer	Engineered Controls International, LLC	
7	Cap. Cert. ID No.	46145	
8	Set Pressure	265 psig	
9	Inlet Size	3 M	
10	Outlet Size	Top	
11	Stamped Capacity	9839. SCFM	
12	Code Section	VIII	
13	Serial Number		
14	Date Code	10D17	
Operational Data and Measured Dimensions			
15	Warn Pressure		psig
16	Set Pressure	268.3	psig
17	Reset Set Pressure		psig
18	Blowdown	58.5	psi
19	Reset Blowdown		psi
20	Bore Diameter	1.766	inch Nominal
21	Lift		inch
Measured Data			
22	Flow Area	2.44947	in ²
23	Line Pressure	306.7	psig
24	Differential Pressure	6.74	psid
25	Line Temp.	39	°F
26	Vessel Pressure	296.4	psig
27	Vessel Temp.	53	°F
28	P _b	14.29	psia
29	Plate ID Number		9 3 Plate Dia.
Calculated Data			
	Line Pressure (absolute)	320.99	psia
32	Density @ Flow Condition _(w)	1.6920	lbm/ft ³
33	Area Factor _(Fa)	0.999544	
34	Trial Flow Rate	12.8875	lbm/sec
35	Viscosity	1.1283E-05	lbm/ft-sec
36	Reynolds Number RD	4,815,675	
37	Theoretical Capacity _(WT)		
	WT=CKAP√M/T	63,316.2	lbm/hr N2
38	Measured Capacity at Std. Cond.	46,394.9	lbm/hr N2
39	Measured Capacity at Std. Cond.	10298.4	SCFM AIR
40	Slope	33.147	SCFM/PSIA
41	Coefficient	0.73275	
42	Rated Capacity For Measured Set	9188.1	SCFM
43	Rated 3 Vlv. Ave.	9839.	
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National Board Testing Laboratory

Air Test - Orifice Plate Method: Test Summary

Test Summary for test 45764A:

1. Valve tested for 6 Year Capacity Recertification as a Manufacturer.

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

11-15-17
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	45794A	
2	Test Sponsor	Engineered Controls International, LLC	
3	Company Type	Manufacturer	Elon, NC
4	Test Date	11/14/2017	REG
5	Valve Type	A8436N	
6	Manufacturer	Engineered Controls International, LLC	
7	Cap. Cert. ID No.	46145	
8	Set Pressure	265 psig	
9	Inlet Size	3 M	
10	Outlet Size	Top	
11	Stamped Capacity	9839. SCFM	
12	Code Section	VIII	
13	Serial Number		
14	Date Code	10D17	
Operational Data and Measured Dimensions			
15	Warn Pressure		psig
16	Set Pressure	268.0	psig
17	Reset Set Pressure		psig
18	Blowdown	13.3	psi
19	Reset Blowdown		psi
20	Bore Diameter	1.766	inch Nominal
21	Lift		inch
Measured Data			
22	Flow Area	2.44947	in ²
23	Line Pressure	312.3	psig
24	Differential Pressure	7.71	psid
25	Line Temp.	42	°F
26	Vessel Pressure	300.8	psig
27	Vessel Temp.	55	°F
28	P _b	14.41	psia
29	Plate ID Number	9	3 Plate Dia.
Calculated Data			
	Line Pressure (absolute)	326.707	psia
32	Density @ Flow Condition _(w)	1.7091	lbm/ft ³
33	Area Factor _(Fa)	0.999600	
34	Trial Flow Rate	13.8385	lbm/sec
35	Viscosity	1.1345E-05	lbm/ft-sec
36	Reynolds Number RD	5,142,517	
37	Theoretical Capacity _(WT)		
	WT=CKAP√M/T	64,136.8	lbm/hr N2
38	Measured Capacity at Std. Cond.	49,818.5	lbm/hr N2
39	Measured Capacity at Std. Cond.	11058.4	SCFM AIR
40	Slope	35.083	SCFM/PSIA
41	Coefficient	0.77675	
42	Rated Capacity For Measured Set	9321.7	SCFM
43	Rated 3 Vlv. Ave.	9839.	
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National Board Testing Laboratory


Air Test - Orifice Plate Method: Test Summary

Test Summary for test 45794A:

1. Valve tested for 6 Year Capacity Recertification as a Manufacturer.

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

Tim Brown
Steve Bowman
Sam Finley