



THE NATIONAL BOARD

OF BOILER AND PRESSURE VESSEL INSPECTORS

October 10, 2017

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

Subject: Capacity Certification, Valve Type: AA3130A250
NB Cap Cert. No.: REG-M46000

Dear Mr. Berggren:

We have reviewed the enclosed test results, referenced below, which were performed at the **National Board Testing Laboratory** on October 4, 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: AA3130A250

Organization Type: Manufacturer

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

Certification Expiration Date: October 4, 2023

Sincerely,

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

REFERENCING TEST NUMBERS: 45536A, 45541A, 45539A, 45545A, 45543A, 45537A

File:GF: 171010 REG-M46000 Pass

National Board Testing Laboratory

Nitrogen Test - Sonic Flow Method

Valve ID Data		Revision 3.8	V:\apps\Labview Programs\DATA\Air Tests\45536A.xls
1	Test Number	45536A	
2	Test Sponsor	Engineered Controls International, LLC	
3	Company Type	Manufacturer	Elon, NC
4	Test Date	10/4/2017	REG
5	Valve Type	AA3130A250	
6	Manufacturer	Engineered Controls International, LLC	
7	Cap. Cert. ID No.	46000	
8	Set Pressure	250 psig	
9	Inlet Size	3/4 M	
10	Outlet Size	Top	
11	Stamped Capacity	1,706 SCFM	
12	Code Section	VIII	
13	Serial Number	1	
14	Date Code	9E17	
Operational Data and Measured Dimensions			
15	Warn Pressure		psig
16	Set Pressure	252.5	psig
17	Reset Set Pressure		psig
18	Blowdown	39.0	psi
19	Reset Blowdown		psi
20	Bore Diameter	0.750	inch
21	Lift		inch
Measured Data			
22	Flow Area	0.44179	in ²
23	Vessel Pressure	277.8	psig
24	P _b	14.45	psia
25	Vessel Temp.	66.3	°F
26	Nozzle Pressure	749.1	psig
27	Nozzle Temp.	57.5	°F
28	Nozzle Area	0.11589	in ²
Calculated Data			
29	Vessel Pressure	292.3	psia
30	Nozzle Total Press.	763.6	psia
31	Nozzle Total Temp.	517.5	°R
32	Critical Flow Function	0.6996	C
34	Meas. Cap.	2.05725	lbm/sec N2
35	Vessel Total Temp.	526.3	°R
36	Reference Temp.	520.0	°R
37	Nitrogen Density	0.073835	lbm/ft ³
38	Vessel Temp. Correction	1.006039	
39	Measured Capacity	1653.9	scfm AIR
40	Slope	5.6591	scfm/psia
41	Coefficient	0.6984	
42	Rated Capacity For Measured Set	1721.0	scfm
43	Rated 3 Vlv. Ave.	1706.	
44			

National Board Testing Laboratory

Air Test - Sonic Flow Method: Test Summary

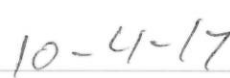
Test Summary for test 45536A:

V:\apps\Labview Programs\DATA\Air Tests\45536A.xls

1. Valve tested for 6 Year Capacity Recertification as a Manufacturer.
2. Valve tested as replacement for test number 44489A tested at The National Board Testing Lab.
3. Checked nozzle gauge pressure.

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
Sam Finley

Kevin Jordan

National Board Testing Laboratory

Nitrogen Test - Sonic Flow Method

Valve ID Data		Revision 3.8	V:\apps\Labview Programs\DATA\Air Tests\45541A.xls
1	Test Number	45541A	
2	Test Sponsor	Engineered Controls International, LLC	
3	Company Type	Manufacturer	Elon, NC
4	Test Date	10/4/2017	REG
5	Valve Type	AA3130A250	
6	Manufacturer	Engineered Controls International, LLC	
7	Cap. Cert. ID No.	46000	
8	Set Pressure	250 psig	
9	Inlet Size	3/4 M	
10	Outlet Size	Top	
11	Stamped Capacity	1,706. SCFM	
12	Code Section	VIII	
13	Serial Number	2	
14	Date Code	9E17	
Operational Data and Measured Dimensions			
15	Warn Pressure		psig
16	Set Pressure	242.1	psig
17	Reset Set Pressure		psig
18	Blowdown	43.5	psi
19	Reset Blowdown		psi
20	Bore Diameter	0.751	inch
21	Lift		inch
Measured Data			
22	Flow Area	0.44297	in ²
23	Vessel Pressure	266.3	psig
24	P _b	14.43	psia
25	Vessel Temp.	66.7	°F
26	Nozzle Pressure	764.9	psig
27	Nozzle Temp.	58.8	°F
28	Nozzle Area	0.11589	in ²
Calculated Data			
29	Vessel Pressure	280.7	psia
30	Nozzle Total Press.	779.3	psia
31	Nozzle Total Temp.	518.8	°R
32	Critical Flow Function	0.6997	C
34	Meas. Cap.	2.09756	lbm/sec N2
35	Vessel Total Temp.	526.7	°R
36	Reference Temp.	520.0	°R
37	Nitrogen Density	0.073835	lbm/ft ³
38	Vessel Temp. Correction	1.006422	
39	Measured Capacity	1686.9	scfm AIR
40	Slope	6.0091	scfm/psia
41	Coefficient	0.7396	
42	Rated Capacity For Measured Set	1653.2	scfm
43	Rated 3 Vlv. Ave.	1706.	
44			

National Board Testing Laboratory

Air Test - Sonic Flow Method: Test Summary

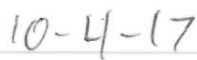
Test Summary for test 45541A:

V:\apps\Labview Programs\DATA\Air Tests\45541A.xls

1. Valve tested for 6 Year Capacity Recertification as a Manufacturer.
2. Valve tested as replacement for test number 45536A 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

Tim Brown
Sam Finley

Kevin Jordan

National Board Testing Laboratory

Nitrogen Test - Sonic Flow Method

Valve ID Data		Revision 3.8	V:\apps\Labview Programs\DATA\Air Tests\45539A.xls
1	Test Number	45539A	
2	Test Sponsor	Engineered Controls International, LLC	
3	Company Type	Manufacturer	Elon, NC
4	Test Date	10/4/2017	REG
5	Valve Type	AA3130A250	
6	Manufacturer	Engineered Controls International, LLC	
7	Cap. Cert. ID No.	46000	
8	Set Pressure	250 psig	
9	Inlet Size	3/4 M	
10	Outlet Size	Top	
11	Stamped Capacity	1,706. SCFM	
12	Code Section	VIII	
13	Serial Number	3	
14	Date Code	9E17	
Operational Data and Measured Dimensions			
15	Warn Pressure		psig
16	Set Pressure	242.9	psig
17	Reset Set Pressure		psig
18	Blowdown	46.5	psi
19	Reset Blowdown		psi
20	Bore Diameter	0.750	inch
21	Lift		inch
Measured Data			
22	Flow Area	0.44179	in ²
23	Vessel Pressure	267.2	psig
24	P _b	14.44	psia
25	Vessel Temp.	70.1	°F
26	Nozzle Pressure	813.4	psig
27	Nozzle Temp.	59.7	°F
28	Nozzle Area	0.11589	in ²
Calculated Data			
29	Vessel Pressure	281.6	psia
30	Nozzle Total Press.	827.8	psia
31	Nozzle Total Temp.	519.7	°R
32	Critical Flow Function	0.7005	C [*]
34	Meas. Cap.	2.22868	lbm/sec N2
35	Vessel Total Temp.	530.1	°R
36	Reference Temp.	520.0	°R
37	Nitrogen Density	0.073835	lbm/ft ³
38	Vessel Temp. Correction	1.009665	
39	Measured Capacity	1798.2	scfm AIR
40	Slope	6.3847	scfm/psia
41	Coefficient	0.7879	
42	Rated Capacity For Measured Set	1658.5	scfm
43	Rated 3 Vlv. Ave.	1706.	
44			

National Board Testing Laboratory

Air Test - Sonic Flow Method: Test Summary

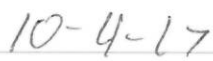
Test Summary for test 45539A:

V:\apps\Labview Programs\DATA\Air Tests\45539A.xls

1. Valve tested for 6 Year Capacity Recertification as a Manufacturer.
2. Valve tested as replacement for test number 45536A 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

Tim Brown
Sam Finley

Kevin Jordan

National Board Testing Laboratory

Nitrogen Test - Sonic Flow Method

Valve ID Data		Revision 3.8	V:\apps\Labview Programs\DATA\Air Tests\45545A.xls
1	Test Number	45545A	
2	Test Sponsor	Engineered Controls International, LLC	
3	Company Type	Manufacturer	Elon, NC
4	Test Date	10/4/2017	REG
5	Valve Type	AA3130A250	
6	Manufacturer	Engineered Controls International, LLC	
7	Cap. Cert. ID No.	46000	
8	Set Pressure	250 psig	
9	Inlet Size	3/4 M	
10	Outlet Size	Top	
11	Stamped Capacity	1,706. SCFM	
12	Code Section	VIII	
13	Serial Number	4	
14	Date Code	9E17	
Operational Data and Measured Dimensions			
15	Warn Pressure	243.8	psig
16	Set Pressure	249.2	psig
17	Reset Set Pressure		psig
18	Blowdown	49.2	psi
19	Reset Blowdown		psi
20	Bore Diameter	0.750	inch
21	Lift		inch
Measured Data			
22	Flow Area	0.44179	in ²
23	Vessel Pressure	274.0	psig
24	P _b	14.42	psia
25	Vessel Temp.	67.7	°F
26	Nozzle Pressure	821.5	psig
27	Nozzle Temp.	60.1	°F
28	Nozzle Area	0.11589	in ²
Calculated Data			
29	Vessel Pressure	288.4	psia
30	Nozzle Total Press.	835.9	psia
31	Nozzle Total Temp.	520.1	°R
32	Critical Flow Function	0.7006	C [*]
34	Meas. Cap.	2.24993	lbm/sec N2
35	Vessel Total Temp.	527.7	°R
36	Reference Temp.	520.0	°R
37	Nitrogen Density	0.073835	lbm/ft ³
38	Vessel Temp. Correction	1.007377	
39	Measured Capacity	1811.2	scfm AIR
40	Slope	6.2796	scfm/psia
41	Coefficient	0.775	
42	Rated Capacity For Measured Set	1698.5	scfm
43	Rated 3 Vlv. Ave.	1706.	
44			

National Board Testing Laboratory

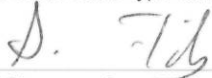
Air Test - Sonic Flow Method: Test Summary

Test Summary for test 45545A:

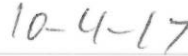
V:\apps\Labview Programs\DATA\Air Tests\45545A.xls

1. Valve tested for 6 Year Capacity Recertification as a Manufacturer.
2. Valve tested as replacement for test number 45537A tested at The National Board Testing Lab.
3. Flowed 0.7556 inch flow nozzle to check 45536A, 45537A capacity failures.
Measured Kd was 1.0097 (1.35% from historical average).

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
Sam Finley

Kevin Jordan

National Board Testing Laboratory

Nitrogen Test - Sonic Flow Method

Valve ID Data		Revision 3.8	V:\apps\Labview Programs\DATA\Air Tests\45543A.xls
1	Test Number	45543A	
2	Test Sponsor	Engineered Controls International, LLC	
3	Company Type	Manufacturer	Elon, NC
4	Test Date	10/4/2017	REG
5	Valve Type	AA3130A250	
6	Manufacturer	Engineered Controls International, LLC	
7	Cap. Cert. ID No.	46000	
8	Set Pressure	250 psig	
9	Inlet Size	3/4 M	
10	Outlet Size	Top	
11	Stamped Capacity	1,706. SCFM	
12	Code Section	VIII	
13	Serial Number	5	
14	Date Code	9E17	
Operational Data and Measured Dimensions			
15	Warn Pressure	238.9	psig
16	Set Pressure	245.1	psig
17	Reset Set Pressure		psig
18	Blowdown	50.3	psi
19	Reset Blowdown		psi
20	Bore Diameter	0.750	inch
21	Lift		inch
Measured Data			
22	Flow Area	0.44179	in ²
23	Vessel Pressure	269.6	psig
24	P _b	14.43	psia
25	Vessel Temp.	69.8	°F
26	Nozzle Pressure	826.8	psig
27	Nozzle Temp.	60.1	°F
28	Nozzle Area	0.11589	in ²
Calculated Data			
29	Vessel Pressure	284.0	psia
30	Nozzle Total Press.	841.2	psia
31	Nozzle Total Temp.	520.1	°R
32	Critical Flow Function	0.7007	C
34	Meas. Cap.	2.26454	lbm/sec N2
35	Vessel Total Temp.	529.8	°R
36	Reference Temp.	520.0	°R
37	Nitrogen Density	0.073835	lbm/ft ³
38	Vessel Temp. Correction	1.009379	
39	Measured Capacity	1826.6	scfm AIR
40	Slope	6.4309	scfm/psia
41	Coefficient	0.7936	
42	Rated Capacity For Measured Set	1672.6	scfm
43	Rated 3 Vlv. Ave.	1706.	
44			

National Board Testing Laboratory

Air Test - Sonic Flow Method: Test Summary

Test Summary for test 45543A:

V:\apps\Labview Programs\DATA\Air Tests\45543A.xls

1. Valve tested for 6 Year Capacity Recertification as a Manufacturer.
2. Valve tested as replacement for test number 45537A 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

Tim Brown
Sam Finley

Kevin Jordan

National Board Testing Laboratory

Nitrogen Test - Sonic Flow Method

Valve ID Data		Revision 3.8	V:\apps\Labview Programs\DATA\Air Tests\45537A.xls
1	Test Number	45537A	
2	Test Sponsor	Engineered Controls International, LLC	
3	Company Type	Manufacturer	Elon, NC
4	Test Date	10/4/2017	REG
5	Valve Type	AA3130A250	
6	Manufacturer	Engineered Controls International, LLC	
7	Cap. Cert. ID No.	46000	
8	Set Pressure	250 psig	
9	Inlet Size	3/4 M	
10	Outlet Size	Top	
11	Stamped Capacity	1,706. SCFM	
12	Code Section	VIII	
13	Serial Number	6	
14	Date Code	9E17	
Operational Data and Measured Dimensions			
15	Warn Pressure		psig
16	Set Pressure	252.8	psig
17	Reset Set Pressure		psig
18	Blowdown	31.1	psi
19	Reset Blowdown		psi
20	Bore Diameter	0.750	inch
21	Lift		inch
Measured Data			
22	Flow Area	0.44179	in ²
23	Vessel Pressure	279.1	psig
24	P _b	14.45	psia
25	Vessel Temp.	64.3	°F
26	Nozzle Pressure	754.8	psig
27	Nozzle Temp.	57.6	°F
28	Nozzle Area	0.11589	in ²
Calculated Data			
29	Vessel Pressure	293.6	psia
30	Nozzle Total Press.	769.3	psia
31	Nozzle Total Temp.	517.6	°R
32	Critical Flow Function	0.6997	C
34	Meas. Cap.	2.07268	lbm/sec N2
35	Vessel Total Temp.	524.3	°R
36	Reference Temp.	520.0	°R
37	Nitrogen Density	0.073835	lbm/ft ³
38	Vessel Temp. Correction	1.004126	
39	Measured Capacity	1663.1	scfm AIR
40	Slope	5.6655	scfm/psia
41	Coefficient	0.6992	
42	Rated Capacity For Measured Set	1728.7	scfm
43	Rated 3 Vlv. Ave.	1706.	
44			

National Board Testing Laboratory

Air Test - Sonic Flow Method: Test Summary

Test Summary for test 45537A:

V:\apps\Labview Programs\DATA\Air Tests\45537A.xls

1. Valve tested for 6 Year Capacity Recertification as a Manufacturer.
2. Valve tested as replacement for test number 44489A 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

Tim Brown
Sam Finley

Kevin Jordan