



**THE
NATIONAL
BOARD**

**OF BOILER AND
PRESSURE VESSEL
INSPECTORS**

April 1, 2010

Mr. Paul Heald
Valvtechnologies, Incorporated
5904 Bingle Rd
Houston, TX 77092

Subject: Capacity Certification, Valve Type Z*21N7BWRA6P1-MK1B
(NB Cap. Cert ID No.: VLC-M59093)**

Dear Mr. Heald,

Please find enclosed copies of test numbers 28274S through 28277S performed on April 1, 2010 at the National Board Testing Laboratory for the purpose of obtaining capacity certification of the subject valve type as required by paragraph PG-69.3 of Section I of the ASME Code. Steam was the test medium.

This is a power operated valve which was manually opened and tested for flow rate only. Four tests were performed and an average slope of 137.7 PPH/PSIA was determined. All four tests had a measured slope within the +/-5% acceptance criteria. Based upon this testing, Valvtechnologies, Inc. can use a rated slope of no higher than 123.9 PPH/PSIA (137.7 x 0.9) for capacity rating of this design.

Valvtechnologies, Incorporated is hereby granted capacity certification and authorization to apply the "NB" mark to the valve type listed in the scope of certification. This authorization is valid for the above location and only while the organization holds a current ASME "V" Certificate of Authorization and is fully implementing its quality system as accepted by the National Board.

SCOPE OF CERTIFICATION

VALVE TYPE: Z*21N7BWRA6P1-MK1B**

Organization Type: Manufacturer

Certified Rating Value: Slope = 123.9 PPH/PSIA

Size: 2-1/2" x 4"

Pressure Range: 35 through 5000 psig

Certification Expiration Date: April 1, 2015

Yours truly,

Joseph F. Ball, P. E.
Director, Pressure Relief Department
REF: VLC-M59093ini4-10.doc

1055 CRUPPER AVE.
COLUMBUS, OHIO
43229-1183
U.S.A.
614.888.8320

EXECUTIVE
Fax 614.888.0750

TECHNICAL
Fax 614.847.1828

PRESSURE RELIEF DEPT.
Fax 614.848.3474

ORDER DEPARTMENT
Fax 614.847.1147

TRAINING DEPARTMENT
Fax 614.847.5542

EMAIL
information@nationalboard.org

WEB SITE
nationalboard.org

Provisional Testing at NBB Testing Lab

Steam Test Report—Timed Weight Method

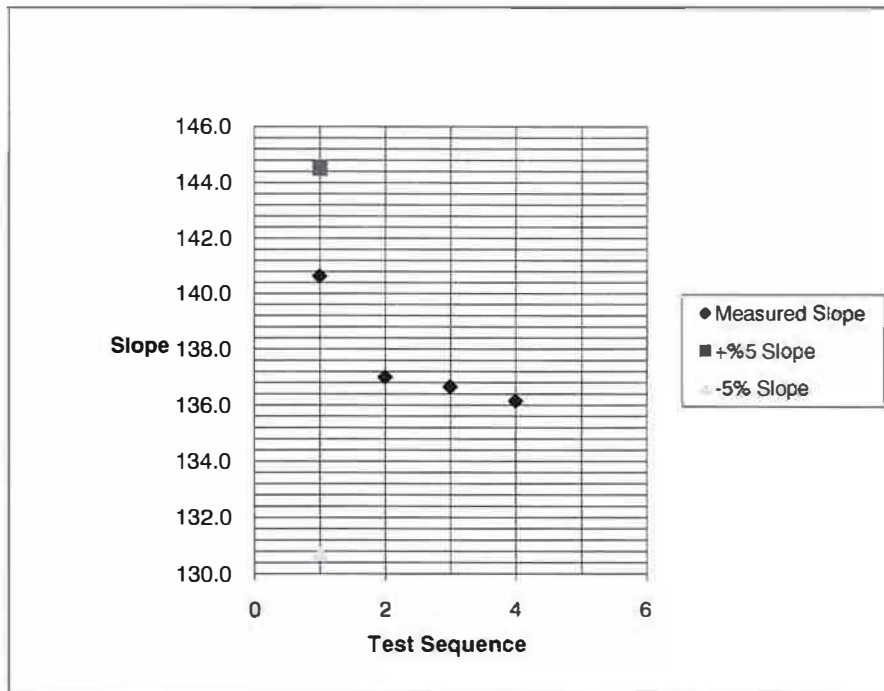
Valvetechologies, Incorporated

Provisional Test Series

Valve Type **Z***21NTBWRA6P1-MK1B**

VLC-M59093

Test No.	Orif. Size Inches	Set Pressure PSIG	Slope PPH/PSIA	Within Range?
28274S	1.871	35	140.6	Yes
28275S	1.871	55	137.0	Yes
28276S	1.871	65	136.7	Yes
28277S	1.871	80	136.2	Yes



Average Slope	137.614	PPH/PSIA
+5% Slope	144.494	PPH/PSIA
-5% Slope	130.733	PPH/PSIA
90% Slope	123.852	PPH/PSIA

Notes:

1. Valves tested for initial capacity certification per paragraph PG-69.2.2 of Section I, ASME Boiler and Pressure Vessel Code.

I certify that the data on the attached test data sheet(s) was obtained under my supervision in accordance with the provisions of ANSI/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 _____ DATE 4-1-10

Test Personnel:

T. Brown
D. Hennon
S. Irwin

Company Representatives

National Board Testing Laboratory

Steam Test - Timed Weight Method

Valve ID Data			C:\Data\Steam Tests\28274S.xls
1	Test Number	28274S	
2	Test Sponsor	Valvtechnologies, Incorporated	
3	Company Type	Manufacturer	Houston, TX
4	Test Date	4/1/2010	VLC
5	Valve Type	Z***21N78WRA6P1-MK1B	
6	Manufacturer	Valvtechnologies, Incorporated	
7	Cap. Cert. ID No.	59093	
8	Set Pressure		
9	Inlet Size	3 FI	
10	Outlet Size	4 FI	
11	Stamped Capacity		
12	Code Section	I	
13	Serial Number		
14	Date Code		
Operational Data and Measured Dimensions			
15	Warn Pressure		psig
16	Set Pressure		psig
17	Reset Set Pressure		psig
18	Blowdown		psi
19	Reset Blowdown		psi
20	Bore Diameter	1.871	inch
21	Lift		inch
Measured Data			
22	Flow Area	2.7494	in ²
23	Vessel Pressure	35.0	psig
24	P _b	14.26	psia
25	Calorimeter Temp.	265.8	°F
26	Time of Run	4.0	minutes
27	Weight	460.1	lbm
28	Leakage	0.0	PPH
Calculated Data			
29			
30	Vessel Pressure	49.3	psia
31	Enthalpy, calorimeter	1,176.5	BTU/lbm
32	Saturation Temp., Vessel	280.1	°F
33	Saturation Volume, Vessel	8.6372	ft ³ /lbm
34	Steam Quality, Vessel	100.0	%
35	Vessel Temp. (Theoretical)	284.8	°F
36	Vessel Volume	8.7032	ft ³ /lbm
37	Degrees Superheat	4.8	°F
38	Capacity Correction	1.0038	
39	Measured Capacity	6927.8	PPH
40	Slope	140.638	PPH/PSIA
41	Coefficient	0.99325	
42	Rated Capacity For Measured Set	N/A	PPH
43			
44			in ²

National Board Testing Laboratory

Steam Test - Timed Weight Method

Valve ID Data		C:\Data\Steam Tests\28275S.xls	
1	Test Number	28275S	
2	Test Sponsor	Valvtechnologies, Incorporated	
3	Company Type	Manufacturer	Houston, TX
4	Test Date	4/1/2010	VLC
5	Valve Type	Z***21N7BWR6P1-MK1B	
6	Manufacturer	Valvtechnologies, Incorporated	
7	Cap. Cert. ID No.	59093	
8	Set Pressure		
9	Inlet Size	3 FI	
10	Outlet Size	4 FI	
11	Stamped Capacity		
12	Code Section	I	
13	Serial Number		
14	Date Code		
Operational Data and Measured Dimensions			
15	Warn Pressure		psig
16	Set Pressure		psig
17	Reset Set Pressure		psig
18	Blowdown		psi
19	Reset Blowdown		psi
20	Bore Diameter	1.871	inch
21	Lift		inch
Measured Data			
22	Flow Area	2.7494	in ²
23	Vessel Pressure	55.0	psig
24	P _b	14.26	psia
25	Calorimeter Temp.	284.8	°F
26	Time of Run	4.0	minutes
27	Weight	628.1	lbm
28	Leakage	0.0	PPH
Calculated Data			
29			
30	Vessel Pressure	69.3	psia
31	Enthalpy, calorimeter	1,185.6	BTU/lbm
32	Saturation Temp., Vessel	302.2	°F
33	Saturation Volume, Vessel	6.2696	ft ³ /lbm
34	Steam Quality, Vessel	100.0	%
35	Vessel Temp. (Theoretical)	311.1	°F
36	Vessel Volume	6.3594	ft ³ /lbm
37	Degrees Superheat	8.9	°F
38	Capacity Correction	1.0071	
39	Measured Capacity	9488.7	PPH
40	Slope	137.002	PPH/PSIA
41	Coefficient	0.96757	
42	Rated Capacity For Measured Set	N/A	PPH
43			
44			in ²

National Board Testing Laboratory

Steam Test - Timed Weight Method

Valve ID Data			C:\Data\Steam Tests\28276S.xls
1	Test Number	28276S	
2	Test Sponsor	Valvtechnologies, Incorporated	
3	Company Type	Manufacturer	Houston, TX
4	Test Date	4/1/2010	VLC
5	Valve Type	Z***21N7BWEA6P1-MK1B	
6	Manufacturer	Valvtechnologies, Incorporated	
7	Cap. Cert. ID No.	59093	
8	Set Pressure		
9	Inlet Size	3 FI	
10	Outlet Size	4 FI	
11	Stamped Capacity		
12	Code Section	I	
13	Serial Number		
14	Date Code		
Operational Data and Measured Dimensions			
15	Warn Pressure		psig
16	Set Pressure		psig
17	Reset Set Pressure		psig
18	Blowdown		psi
19	Reset Blowdown		psi
20	Bore Diameter	1.871	inch
21	Lift		inch
Measured Data			
22	Flow Area	2.7494	in ²
23	Vessel Pressure	65.1	psig
24	P _b	14.26	psia
25	Calorimeter Temp.	294.8	°F
26	Time of Run	4.0	minutes
27	Weight	715.8	lbm
28	Leakage	0.0	PPH
Calculated Data			
29			
30	Vessel Pressure	79.4	psia
31	Enthalpy, calorimeter	1,190.4	BTU/lbm
32	Saturation Temp., Vessel	311.5	°F
33	Saturation Volume, Vessel	5.5146	ft ³ /lbm
34	Steam Quality, Vessel	100.0	%
35	Vessel Temp. (Theoretical)	324.0	°F
36	Vessel Volume	5.6263	ft ³ /lbm
37	Degrees Superheat	12.5	°F
38	Capacity Correction	1.0101	
39	Measured Capacity	10845.2	PPH
40	Slope	136.659	PPH/PSIA
41	Coefficient	0.96515	
42	Rated Capacity For Measured Set	N/A	PPH
43			
44			in ²

National Board Testing Laboratory

Steam Test - Timed Weight Method

Valve ID Data		C:\Data\Steam Tests\28277S.xls	
1	Test Number	28277S	
2	Test Sponsor	Valvtechnologies, Incorporated	
3	Company Type	Manufacturer	Houston, TX
4	Test Date	4/1/2010	VLC
5	Valve Type	Z***21N7BWRA6P1-MK1B	
6	Manufacturer	Valvtechnologies, Incorporated	
7	Cap. Cert. ID No.	59093	
8	Set Pressure		
9	Inlet Size	3 FI	
10	Outlet Size	4 FI	
11	Stamped Capacity		
12	Code Section	I	
13	Serial Number		
14	Date Code		
Operational Data and Measured Dimensions			
15	Warn Pressure		psig
16	Set Pressure		psig
17	Reset Set Pressure		psig
18	Blowdown		psi
19	Reset Blowdown		psi
20	Bore Diameter	1.871	inch
21	Lift		inch
Measured Data			
22	Flow Area	2.7494	in ²
23	Vessel Pressure	79.9	psig
24	P _b	14.26	psia
25	Calorimeter Temp.	291.8	°F
26	Time of Run	4.0	minutes
27	Weight	851.7	lbm
28	Leakage	0.0	PPH
Calculated Data			
29			
30	Vessel Pressure	94.2	psia
31	Enthalpy, calorimeter	1,188.9	BTU/lbm
32	Saturation Temp., Vessel	323.5	°F
33	Saturation Volume, Vessel	4.6921	ft ³ /lbm
34	Steam Quality, Vessel	100.0	%
35	Vessel Temp. (Theoretical)	327.8	°F
36	Vessel Volume	4.7252	ft ³ /lbm
37	Degrees Superheat	4.3	°F
38	Capacity Correction	1.0035	
39	Measured Capacity	12820.5	PPH
40	Slope	136.156	PPH/PSIA
41	Coefficient	0.96160	
42	Rated Capacity For Measured Set	N/A	PPH
43			
44			in ²