# ASSE International Product (Seal) Listing Program

#### ASSE Standard #1081 Revised 2014

Backflow Preventers with Integral Pressure Reducing Boiler Feed Valve and Intermediate Atmospheric Vent Style for Domestic and Light Commercial Water Distribution Systems

	,
Manufacturer	
	E-mail
Address	
Model # Tested	
Additional Model Information (i.e. orientation	on, series, end connections, shut-off valves)
Date Models Received by Laboratory	Date Testing Began
Date Testing was Completed	
If Models were Damaged During Shipment,	Describe Damages
Prototype or Production	
Were All Tests Performed at the Selected L	.aboratory? 🗌 Yes 🗌 No
If offsite, identify location and tests involve	ed:
General information and instructions for the	
The results within this report apply only to the	เทเบนตร แรเดน สมบิงค.

There may be items for which the judgment of the test engineer will be involved. Should there be a question of compliance with that provision of the standard, a conference with the manufacturer should be arranged to enable a satisfactory solution of the question.

Should disagreement persist and compliance remain in question by the test agency, the agency shall, if the product is in compliance with all other requirements of the standard, file a complete report on the questionable items together with the test report, for evaluation by the ASSE Seal Board. The Seal Board will then review and rule on the question of compliance with the intent of the standard then involved.

Documentation of material compliance must be furnished by the manufacturer. The manufacturer shall furnish to the testing agency, a bill of material which clearly identifies the material of each part included in the product construction. This identification must include any standards which relate thereto.

## Section I

1.0	Genera	al		
1.1	Is the p	ourpose of the device, as described by the manufacturer, as state	d in thi	Yes No
	If no or	questionable, explain		Questionable
	11 110 01	questionable, explain		
1.2	Scope 1.2.1	Does the device conform to the product described in the standa	rd?_	
				Yes No Questionable
		If no or questionable, explain		
	1.2.2	Inlet pipe size: inches NPS Outlet pipe size: inches NPS		
	1.2.3	Maximum working pressure as stated by the manufacturer's specific psi (kPa)	cificat	ion sheet:
	1.2.4	Operating temperature range as stated by the manufacturer's sp°F to°F (°C to°C).	ecifica	ation sheet:
	1.2.5	Maximum flow rate as stated by the manufacturer's specification gpm (Lpm)	ı sheet	t:
1.3	Limitati	ons on Design		
		1.3.1(a) Can the integral parts of the device or strainers be acce cleaning, repair, or replacement?	ssible	for inspection,
				Yes
				No
				Questionable
		If no or questionable, explain		
		Is the design serviceable without removing it from the pipeline?		
				Yes
				No
				Questionable
		If no or questionable, explain		

## Section II

2.0	Test Specimens								
2.1	How many devices of each size and model were submitted by the manufacturer to the testing laboratory?								
2.2	How many devices were utilized during the laboratory evaluation?								
	If more than one (1) device was used during the evaluation, state why additional devices were necessary:								
2.3	Were t	op-level assembly drawings, installation instruction	ons, and specifica	☐ Yes ☐ No					
		If no or guartianable, avalain		Questionable					
		If no or questionable, explain		_					
	ion III								
3.0	Perfor	mance Requirements and Compliance Testing	g						
3.1	<b>Hydro</b> 3.1.2	static Test #1 at inlet Procedure Inlet supply pressure:psi (kPa) Reduced pressure at outlet:psi (kF Test period: minutes.	<sup>o</sup> a)						
	3.1.3	Was there a continued rise in reduced pressure	at the outlet?	☐ Yes ☐ No					
		device in compliance?	] No	Questionable					
3.2	•	static Test #2 of Complete Device  Procedure Inlet supply pressure:psi (kPa)  Reduced pressure at outlet:psi (kF  Test period: minutes.	Pa)						
	3.2.3	Were there any external leaks or indication of d	☐ Yes ☐ No						
		device in compliance?	] No	☐ Questionable					

3.3 Hydrostatic Test of Downstream Check – Test #3										
3.3.2 Procedure										
		Pressure at upstream s	kPa)							
		Pressure applied at do					a)			
				c or the outle	t dricok:	psi (Ki	u)			
		Test period: min	utes.							
	0.00	AA7 41 2 12 42								
	3.3.3	Was there any indication	on of water dis	scharging thr	ough the atmo	•				
						☐ Yes				
						☐ No				
	Is the c	levice in compliance?	☐ Yes		No	Question	able			
	If no or	questionable, explain _								
3.4	Shock	(Water Hammer) Test	of the Device	e – Test #4						
	3.4.2	Procedure								
		Was an electronic pres	sure transduc	er used for t	his test?					
						☐ Yes				
						☐ No				
		Flow rate used to creat	e shock:	apm (	Lpm)	_				
		Shock wave pressure at outlet: psi ( kPa)								
	onock wave pressure at outletpsi \kr aj									
			anm	(Lpm)	psi	(kPa)				
		First Trial	gpm	(црііі)	μοι	(KFa)				
		First Trial								
		Second Trial								
		Third Trial								
		Fourth Trial								
	3.4.3	Was there any damage	to the intend	ed function of	of the device?					
						☐ Yes				
						□ No				
	Is the c	levice in compliance?	☐ Question	able						
		questionable, explain								
3.5	Reseat	ting Tightness of the D	ownstream (	Check – Tes	t #5					
	3.5.2	Procedure								
	0.0.2	Beginning level of water	or in the sight	ulass.	in ( mm)	<b>\</b>				
		Test period: min	•	g.aoo	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,	•				
		Final level of water in the		· in (	mm)					
		i manevenui watei III ti	ie signit glass							
	la tha -	lovice in compliance?	□ Vaa		No	Ougation	abla			
		levice in compliance?	☐ Yes		No	☐ Question	able			
	ii no or	questionable, explain _								

3.6	_	Tightness of to	he Upstream	Check – Te	st #6		
	Ве	ginning level of	water in the s	ight glass:	in (	_mm)	
		st period:					
	Fin	al level of wate	r in the sight g	ılass:i	n (mm)		
		e in compliance stionable, expl			☐ No	☐ Que	stionable
3.7	Atmosphe	ric Vent Valve					
	3.7.2 Pro	ocedure					
	Flow %	Inlet Supply	Pressure	Flov	/rate		2
	of max	psi	(kPa)	gpm	(Lpm)	Leaka	ige?
	0%			0	0		
	25%					□Yes	□No
	50%					□Yes	☐ No
	75%					□Yes	☐ No
	100%					□Yes	☐ No
	Is the devic	e in complianc	e? □ Yes		□ No	☐ Yes	stionable
		•					Stioriable
3.8	If no or questionable, explain						ischarge water
		Downstream T	est Pressure	Supply	Pressure at A	tmospheric Ver	nt Opening
		psi	(kPa)		psi	(kPa	a)
		e in compliance stionable, expl	<del></del>		☐ No	☐ Que	stionable

## 3.9 Reduced Flowing Pressure Deviation Test – Test #9

#### 3.9.2 Procedure

Upstream Su	oply Pressure	Reduced Outlet Pressure			
psi	(kPa)	psi	(kPa)		

				•	sure change mor		,	for every 10.0	
			mpliance? ole, explain	☐ Yes	□ No		☐ Questid	onable	
3.10		Procedure Supply pro Maximum	e essure at de reduced pre	evice inlet: essure attaina	psi (kFble:psi (	kPa)			
			mpliance? ole, explain		□ No		☐ Questid	onable	
3.11	Backflow Through the Upstream Check 3.11.2 Procedure  The downstream check is held open and the vent outlet is sealed closed.								
	Step	in H <sub>2</sub> O	(mm H <sub>2</sub> O)	) psi	(kPa) n	ninutes held	Colored	water in inlet?	
	1						□Yes	□No	
	2						□Yes	☐ No	
	3						□Yes	☐ No	
	Is the device in compliance?								

3.12		Siphonage – Test 1							
	3.12.2	Procedure							
		Diameter of fouling wire for downstream check: in (mm)							
		Type of upstream check valve:							
		Type of downstream check valve:							
		Diameter of sight glass: in (mm)							
		3.12.2(a)							
		Vacuum of in-Hg (mm-Hg) held for seconds							
		Rise of water level Crown of meniscus >0.13in							
		in sight glass? above reservoir water level?							
		☐ Yes ☐ Yes							
		□ No □ No							
		Release vacuum.							
		3.12.2(b)							
		Vacuum raised from in-Hg (mm-Hg) to in-Hg (mm-Hg) over							
		seconds							
		Rise of water level Crown of meniscus >0.13in							
		in sight glass? above reservoir water level?							
		☐ Yes ☐ Yes							
		□ No □ No							
		Vacuum lowered from in-Hg (mm-Hg) to in-Hg (mm-Hg) over seconds							
		Rise of water level Crown of meniscus >0.13in							
		in sight glass? above reservoir water level?							
		☐ Yes ☐ Yes							
		□ No □ No							
		Release vacuum.							
		3.12.2(c) Create the surge effect.							
		Rise of water level Crown of meniscus >0.13in							
		in sight glass? above reservoir water level?							
		☐ Yes ☐ Yes							
		□ No □ No							
		levice in compliance?							

Procedure
3.13.2(a)
Foul the upstream check.
Vacuum of in-Hg (mm-Hg) held for seconds
Rise of water level Crown of meniscus >0.13in
in sight glass? above reservoir water level?
Yes Yes
No No
Release vacuum.
Release vacuum.
3.13.2(b)
Vacuum raised from in-Hg (mm-Hg) to in-Hg (mm-Hg) over
seconds
Rise of water level Crown of meniscus >0.13in
in sight glass? above reservoir water level?
☐ No ☐ No
Vacuum lowered from in-Hg (mm-Hg) to in-Hg (mm-Hg) over
seconds
Rise of water level Crown of meniscus >0.13in
in sight glass? above reservoir water level?
Yes Yes
No No
Deleges vessions
Release vacuum.
3.13.2(c)
Create the surge effect.
Rise of water level Crown of meniscus >0.13in
Rise of water level   Crown of meniscus >0.13in
in sight glass? above reservoir water level?

3.13

Back-Siphonage Back Pressure – Test #2

3.13.2(d)

Drain upstream fluid into beaker

-	th downstream che	ck.	
3.13.2(a)	ownstream check.		
		(mm-Hg) held for secon	de
vacuum oi	III-1 Ig	(IIIIII-119) Held for Secon	us
	Rise of water level	Crown of meniscus >0.13in	]
	in sight glass?	above reservoir water level?	
	☐ Yes	☐ Yes	
	☐ No	☐ No	
Release va	acuum.		
3.13.2(b)			
	aised from in-l	Hg (mm-Hg) to in-	Hg (mm-Hg) over
	seconds		
Γ	Rise of water level	Crown of meniscus >0.13in	7
	in sight glass?	above reservoir water level?	
	☐ Yes	☐ Yes	
	☐ No	□ No	_
	seconds		٦
	Rise of water level	Crown of meniscus >0.13in	
	in sight glass?	above reservoir water level?	
	∐ Yes	☐ Yes	
L	☐ No	☐ No	_
Release va	acuum.		
3.13.2(c)			
	surge effect.		
	Rise of water level	Crown of meniscus >0.13in	
	in sight glass?	above reservoir water level?	
	☐ Yes	☐ Yes	
	☐ No	☐ No	_
3.13.2(d)	Drain upstream	n fluid into beaker	
device in cor	mpliance?   Yes	s 🔲 No	☐ Questionable
r questionab	-		

3.14	<b>Deterioration at Extremes of Manufacturer's Temperature Range Test</b> 3.14.2 Procedure												
Hot w	vater te	st											
			ure of the ho	t water?		°F (		°C)					
		-	culation time:					0)					
		vvator one	diation time.		iouis.								
3.7	Atmos	pheric Ver	nt Valve Lea	kage – T	Γest #	7							
	3.7.2	Procedure	e										
	Flow	/ % Inle	et Supply Pre	ssure		Flow	rate						]
	of m			kPa)		gpm		Lpm)		Leaka	ige?		
	0%			····,		0	,	0					
	259							Ů		Yes	П	No	
	509									Yes		No	
	759									Yes		No	
	100									Yes		No	
	100	70			1					100		110	
	3.11.2	Procedure The down	e stream chec	k is held	open	and the	vent	outlet is s	sealed	closed.			
	Step	in H <sub>2</sub> O	(mm H <sub>2</sub> O)	ps	si	(kPa	)	minutes	held	Colore	ed wate	er in ir	nlet?
	1									□Y	es		No
	2									□Y	es		No
	3									□Y	es		No
3.13.2 Procedure  3.13.2(a) Foul the upstream check. Vacuum of in-Hg (mm-Hg) held for seconds  Rise of water level   Crown of meniscus >0.13in													
			in sight g	lass?	abo	ve reser	voir v	water leve	el?				
			□ Y	es			Ye	es					
		□ No □ No		0									
		Release v	acuum.										
		3.13.2(b)											

Vacuum raised from in-l	Hg(mm	-Hg) to i	n-Hg	(mm-Hg) over
seconds				
	ı			
Rise of water level		eniscus >0.13in		
in sight glass?	above reserv	oir water level?	?	
Yes		Yes		
☐ No		No		
Vacuum lowered from ir	n-Hg (m	m-Hg) to	_ in-Hg	(mm-Hg) over
seconds				
Rise of water level		eniscus >0.13in		
in sight glass?	above reserv	oir water level?	<u>^</u>	
<u></u> Yes		Yes		
No		No		
Deleges vestions				
Release vacuum.				
2 12 2(a)				
3.13.2(c) Create the surge effect.				
Create the surge effect.				
Rise of water level	Crown of me	eniscus >0.13in		
in sight glass?		oir water level?		
☐ Yes	above reserv	Yes	<u> </u>	
□ No		No		
		140		
3.13.2(d) Drain upstream	n fluid into heal	(er		
5.75.2(d) Drain apolical	ii iidid iiilo bedi	COI		
Repeat with downstream che	eck.			
3.13.2(a)				
Foul the upstream check.				
Vacuum of in-Hg	(mm-Ha) held	for seco	onds	
g	_ (			
Rise of water level	Crown of me	eniscus >0.13in		
in sight glass?	above reserv	oir water level?	?	
☐ Yes	П	Yes		
□ No		No		
Release vacuum.				
3.14.2(b)				
Vacuum raised from in-l	Hg(mm	-Hg) to i	n-Hg	(mm-Hg) over
seconds				

			<u></u>
	Rise of water level	Crown of meniscus >0.13in	
	in sight glass?	above reservoir water level?	
	☐ Yes	☐ Yes	
	☐ No	☐ No	
			_
Vacuum I	owered from in	-Hg (mm-Hg) to	in-Hg (mm-Hg) over
	_ seconds		
	Rise of water level	Crown of meniscus >0.13in	
	in sight glass?	above reservoir water level?	
	☐ Yes	☐ Yes	
	☐ No	☐ No	
Release v	/acuum.		
3.14.2(c)			
Create th	e surge effect.		
			_
	Rise of water level	Crown of meniscus >0.13in	
	in sight glass?	above reservoir water level?	
	☐ Yes	☐ Yes	
	☐ No	☐ No	
'			_
3.14.2(d)	Drain upstream	n fluid into beaker	
( )	•		
Is the device in co	mpliance with the hot	water test?	No Questionable
If no or questiona	•		
· ·	-		

Amb	ient wa	ater test	
		Temperature of the ambient water? °F ( °C)	
3.1	Hydro	static Test #1 at Inlet	
	3.1.2	Procedure	
		Inlet supply pressure:psi (kPa)	
		Reduced pressure at outlet:psi (kPa)	
		Test period: minutes.	
	3.1.3	Was there a continued rise in reduced pressure at the outlet?	☐ Yes ☐ No
3.2	Hydro	static Test #2 of Complete Device	
	3.2.2	Procedure	
		Inlet supply pressure:psi (kPa)	
		Reduced pressure at outlet:psi (kPa)	
		Test period: minutes.	
	3.2.3	Were there any external leaks or indication of damage?	☐ Yes ☐ No
		If yes, explain:	
3.3	Hydro	static Test of Downstream Check – Test #3	
	3.3.2	Procedure	
		Pressure at upstream side of the outlet check?psi (	kPa)
		Pressure applied at downstream side of the outlet check?	_psi (kPa)
		Test period: minutes.	
	3.3.3	Was there any indication of water discharging through the atmo	espheric vent?
			☐ Yes
			☐ No
	Is the	device in compliance with the ambient water test?	☐ No ☐ Questionable
	If no o	r questionable, explain	

wa	ter te			.a.t.a. #0	o <b>⊏</b> /		۰۵۱					
			e of the cold wation time:			·	°C)					
At	mosp	heric Vent	Valve Leakag	je – Test	t #7							
	-	Procedure	_									
	Flow	% Inlet	Supply Pressu	ire	Flow	rate			Leaka	nae?		1
_	of ma	ıx psi	(kPa	a)	gpm	(Lp	om)		Loako	igo:		
-	0%				0		0					
_	25%								Yes		No	
_	50%								Yes		No	
_	75%								Yes		No	
	100%	6							Yes		No	
			ream check is	<u> </u>								_
	Step	in H₂O	(mm H <sub>2</sub> O)	psi	(kPa	a)	minute	s held		ed wat	er in i	
-	2									∕es ∕es		1
-	3									res /es		1
	13.2	phonage B Procedure 3.13.2(a)	ack Pressure	– Test #	<b>#2</b>						<del></del>	
		` ,	stream check.	Vacuum	of i	n-Hg	(	(mm-Hg	g) held f	or	sec	)(
		F	Rise of water le	evel (	Crown of m	eniscu	ıs >0.13	Bin				
			in sight glass	s? a	bove reser	voir wa	ater lev	el?				
			☐ Yes			] Yes						
			☐ No			No						
		Release va	cuum.									
		3.13.2(b)										
		` ,	sed from	_ in-Hg	(mr	n-Hg) t	to	_ in-Hg	<u> </u>	(mm-l	Hg) ov	'e
			econds	_	_ ,			Ū		-		

	Rise of water level	Crown of meniscus >0.13in	
	in sight glass?	above reservoir water level?	
	Yes	Yes	
	∐ No	∐ No	
Vacuum I	owered from in _ seconds	-Hg (mm-Hg) to ir	n-Hg(mm-Hg) over
	Rise of water level	Crown of meniscus >0.13in	
	in sight glass?	above reservoir water level?	
	☐ Yes	☐ Yes	
	☐ No	No	
Release v	vacuum.		
3.13.2(c)			
	e surge effect.		
Create th	e surge enect.		
	Dies of water level	Crown of monicous - 0.13in	
	Rise of water level	Crown of meniscus >0.13in	
	in sight glass?	above reservoir water level?	
	Yes	Yes	
	☐ No	☐ No	
3.13.2(d)	Drain upstream	n fluid into beaker	
Repeat with dow	instream check		
3.13.2(a)	iisticaiii ciicck.		
` '	unatroom abook Vaau	um of in Ha (mm	La) hold for
roul the dov	vnstream check, vacu	um of in-Hg (mm-	ng) neid forseconds
	D'and atack at	0	]
	Rise of water level		
	in sight glass?		
	☐ Yes	☐ Yes	
	☐ No	☐ No	
Release v	/acuum.		
3.14.2(b)			
Vacuum r	raised from in-l	Hg (mm-Hg) to in-	Hg (mm-Hg) over
	_ seconds		
			,
	Rise of water level	Crown of meniscus >0.13in	
	in sight glass?	above reservoir water level?	
	☐ Yes	☐ Yes	
	□ No	□ No	
			J

Vacuum I	owered from in	-Hg (m	nm-Hg) to	in-Hg	(mm-Hg) over
	_ seconds				
	Rise of water level	Crown of m	eniscus >0.13	3in	
	in sight glass?	above reser	voir water lev	el?	
	☐ Yes		Yes		
	☐ No		7 No		
		L	] 140		
Dalagas	(0.0111100				
Release	acuum.				
0.44.0(:)					
3.14.2(c)					
Create th	e surge effect.				
	Rise of water level	Crown of m	eniscus >0.13	3in	
	in sight glass?	above reser	voir water lev	el?	
	☐ Yes		Yes		
	□ No		] No		
	<u> </u>	_	-		
3.14.2(d)	Drain upstream	n fluid into hea	kor		
0.14.2(d)	Drain apolican	i iidid iiilo bod	KOI		
Is the device in co	ompliance with the col	d water test?	☐ Yes	☐ No	☐ Questionable
	•				☐ Questionable
ii no or questiona	ble, explain				
	empliance with Section			☐ No	Questionable
If no or questiona	ble, explain				

## **Section IV**

#### 4.0 Detailed Requirements

4.1	Materi	als		
	4.1.1	List the materials of non-ferrous parts in contact with water	_	
			_	
	4.1.2	List the materials of internal non-cast parts		
	4.1.3	List the materials of stainless steel or nickel alloy parts	_	
	4.1.4	List the materials of springs and screens	<u> </u>	
	4.1.5	List the materials of flexible non-metallic parts.	<del>-</del> -	
			_ _ _	
	4.1.6 4.1.7 4.1.8	Are there any metal-to-metal seating check valves?  Do screw threads meet ANSI/ASME B1.1-08?  Pipe Threads  Yes  Yes		No No
	4.1.0	4.1.8(a) Do taper pipe threads meet ANSI/ASME B1.20.1-13? Yes 4.1.8(b) Do dryseal pipe threads meet ANSI/ASME B1.20.3-13? Yes 4.1.8(c) Do metric pipe threads meet BS EN 10226-1? Yes		No No No
4.2	Markir	List the markings found on the test unit:  (a) Name of Manufacturer or Trademark:  (b) Type and/or Model:  (c) Maximum working Pressure:  (d) Maximum water Temperature:  (e) Serial number:  (f) Nominal size of device:  (g) Direction of water flow:		

4.3	Installa	ation instructions				
	4.3.1	Is the minimum working pressure stated?		Yes		No
	4.3.2	If the unit can be maintained or repaired in the field, are those in	nstruc		ent?	
	4 2 2	le this statement in the installation instructions?		Yes		No
	4.3.3	Is this statement in the installation instructions?  "The device shall not be installed in a concealed or inacces venting of water from the device during its normal functioning objectionable."				the
				Yes		No

TESTING AGENCY	
ADDRESS	
PHONE:	
TEST ENGINEER(S)	
We certify that the evaluations are based accurate record of the performance of the	on our best judgments and that the test data recorded is an device on test.
Signature of the official of the agency:	
Title of the official:	Date:
Signature and seal of the Registered Profesupervising the laboratory evaluation:	essional Engineer
Signature	Seal