

APPLICATION FOR OF APPROVAL FOR VALVES AND FITTINGS

Applicant: American Railcar Industries AAR No. E-121070G
 Description of device: Thermowell; Temperature Sensing Equipment. Cap and Body Assembly do not see internal tank pressure in normal operations. In the event of a leak into the thermowell pipe, the cap and body form a pressure tight seal when closed and allow a slow bleeding of pressure upon opening to alert operator of a pipe failure.

Applicant No. 3-Y-2451 Device Ident No. S245 Date: Orig: 7/24/12 Rev A: 8/16/12 Rev B: 8/17/12 Rev C: 5/7/13 Rev D: 8/13/13 Rev E: 8/21/13 Rev F: 8/28/13 Rev G: 10/2/13

1. Manufacturer American Railcar Industries
 Address: 100 Clark Street City St. Charles State MO Zip 63301
 2. Test facility Marmaduke Ar Address Hwy 34 E, Marmaduke Ar
 3. Test date 2-6-2010 4. Observer ARI Jackson, MO Plant QA
TEST PROCEDURE: 5. Weight or mass of device 2 lb. (.9 kg)
 6. Description of prototype testing: Qty = 1; Procedure: 1.25 * SV pressure = 585 psi

7. Description of production testing: Qty = 5; Procedure: 1 out of every 100 units to be tested to 585 psi.

8. Cycles	Min. Temp.	@ Pressure	Cycles	Max Temp.	@ Pressure	Test Medium	Remarks
<u>3</u>	<u>32</u> F	<u>585</u> psi	<u>3</u>	<u>120</u> F	<u>585</u> psi	<u>air</u>	No Leaks
<u>3</u>	<u>0</u> C	<u>4033</u> kPa	<u>3</u>	<u>48</u> C	<u>4033</u> kPa	<u>air</u>	
Cycles	Min. Temp.	@ Pressure	Cycles	Max Temp.	@ Pressure	Test Medium	Remarks
_____	_____ F	_____ psi	_____	_____ F	_____ psi	_____	_____
_____	_____ C	_____ kPa	_____	_____ C	_____ kPa	_____	_____

9. Cycles	Min. Temp.	@ Pressure	Cycles	Max Temp.	@ Pressure	Test Medium	Remarks
_____	_____ F	_____ psi	_____	_____ F	_____ psi	_____	_____
_____	_____ C	_____ kPa	_____	_____ C	_____ kPa	_____	_____
Cycles	Min. Temp.	@ Pressure	Cycles	Max Temp.	@ Pressure	Test Medium	Remarks
_____	_____ F	_____ psi	_____	_____ F	_____ psi	_____	_____
_____	_____ C	_____ kPa	_____	_____ C	_____ kPa	_____	_____

10. Initial Commodity (or commodity type) Compressed gases or free flowing liquids
 11. Flow rate (if applicable) N/A gmp (L/min)

Applicable drawings	Material	Drawing Number Latest revision	Precedent	
			Drawing Number	Application/Certificate
12. Device application.....		5-Y-1452-00-E typ	5-Y-1452-00-E	(L081042A)
13. Device assembly.....		See page 2		
14. Device details: Body	ASTM A312 Ty 304L	See page 2		
Body	A106 Gr B	See page 2		
Cap	ASTM A276 Ty 316L	7-Y-8347-00-B		
Cap	ASTM A351 Gr CF8M	7-Y-8349-00-A		

15. Quality control statement: The ARI Quality Assurance Inspection and Test Plan provides activities as necessary to assure conformance to drawing and specification requirements, addressing all criteria from incoming inspection through packaging and shipping.

CERTIFICATION: The subject data is correct and conforms with AAR Specifications for Tank Cars, Appendix A. The devices tested conform with drawings listed above.

By: Raph Title: Director of Tank Car Engineering

APPROVAL AAR Tank Car Committee: JAN 03 2014 Kenneth B. Dorsey
 Date Approved: _____ (Signature) on behalf of Tank Car Committee

REVISIONS: Rev A: line 12 was 5-Y-1452-00-A. Line 14 body was 3-Y-2444-00-A and material was Ty 304L, Cap was 3-Y-2496-00-A and material was Ty 316. Rev B: Line 14 Cap material was CF8M. Rev C: Added flanged device assembly to application. Added flanged configuration to items 13 & 14. Rev D: Line 13. A. was 3-Y-2451-00-C; Line 14. Was Cap 3-Y-2496-00-B & 2-Y-2440-00-A; Line 14. A. was 3-Y-2444-00-A1. Rev E: Corrected drawing numbers for lines 13.A & 14.A as described in Rev D. Rev F: Added carbon steel components. Added 7Y845900 to 13.A, added 7Y841900A to 14.A. Rev G: Line 14, Cap material was ASTM A240 Ty 316L, drawing was 7-Y-8347-00-A.

13.

- A. NPT connection: 7-Y-8345-00-A (S245A); 7-Y-8459-00-A (245A)
- B. Flanged connection: 7-Y-7775-00-B (S245F)

14.

Body:

- A. NPT connection: 7-Y-8346-00-A (S245A); 7-Y-8419-00-A (245A)
- B. Flanged connection: 7-Y-7777-00-A (body) & 7-Y-7776-01-A (flange) (S245F)

CERTIFICATION: The subject data is correct and conforms with AAR Specifications for Tank Cars, Appendix A. The devices tested conform with drawings listed above.

By: *Ra Pelle* Title: *Director Tankcar Engineering*

APPROVAL AAR Tank Car Committee: *JAN 03 2014* *Kenneth B Dorsey*
Date Approved: (Signature) on behalf of Tank Car Committee