

APPLICATION FOR APPROVAL OF VALVES AND FITTINGS

Applicant MIDLAND MANUFACTURING CORP. AAR No. E092002 REV A
 Description of Device 2-1/2" & 1-1/2" VACUUM RELIEF VALVE

Applicant No. _____ Device Ident. No. A-210, A-211, A-212 Date 7-30-12

1. Manufacturer MIDLAND MANUFACTURING CORP
 Address 7733 GROSS POINT ROAD City SKOKIE State IL Zip 60077
 2. Test facility MIDLAND MANUFACTURING Address SKOKIE, IL
 3. Test date 12-8-08 thru 3-16-12 4. Observer Khiem Hoang

TEST PROCEDURE: 5. Weight or mass of device _____ lb. (_____ kg)

6. Description of prototype testing: BODY AND SEAT TEST ON ASSEMBLY AT POSITIVE PRESSURE 100 PSI, SEAT VACUUM TEST AT NEGATIVE PRESSURE TO .75 to 2 PSI. FUNCTIONAL PERFORMANCE TEST

7. Description of production testing: 100% PRESSURE TESTING AT 100 PSI OF SEAT SEAL AND BODY CASTING, SEAT SEAL AT NEGATIVE PRESSURE .75 to 2 PSI.

8. Cycles	Min. Temp.	@ Pressure	Cycles	Max. Temp.	@ Pressure	Test Medium	Remarks
500	-20 °F °C	-.76 psi kPa	500	180 °F °C	-.78 psi kPa		NO LEAKS NO WEAR
Cycles	Min. Temp.	@ Pressure	Cycles	Max. Temp.	@ Pressure	Test Medium	Remarks
500	70 °F °C	-.78 psi kPa	500	150 °F °C	-.71 psi kPa		NO LEAKS NO WEAR
9. Cycles	Min. Pressure	@ Temp.	Cycles	Max. Pressure	@ Temp.	Test Medium	Remarks
500	-2 psi kPa	70 °F °C	500	20 psi kPa	70 °F °C	SHOP AIR	NO LEAKS NO WEAR
Cycles	Min. Pressure	@ Temp.	Cycles	Max. Pressure	@ Temp.	Test Medium	Remarks
	psi kPa	°F °C		psi kPa	°F °C		

10. Initial commodity (or commodity type) GENERAL PURPOSE 11. Flow rate (if applicable) N/A gpm (N/A L/min)

Applicable drawings	Material	Drawing Number latest revision	Precedent	
			Drawing Number	Application/Certificate
12. Device application				
13. Device assembly	STAINLESS STEEL	SEE ATTACHED	A-210	E092002 SERVICE TRIAL 429
14. Device details				

15. Quality control statement: MIDLAND MANUFACTURING IS CERTIFIED ISO 9000 AND REGISTERED CLASS F FACILITY MIDLAND HAS RIGID QUALITY CONTROL PROCEDURES TO ENSURE THAT ALL TESTS AND MANUFACTURING SPECIFICATION ARE MET. VACUUM RELIEF VALVES ARE 100% TESTED

REVISIONS:

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

By Khiem Q. Hoang Title DIRECTOR OF ENGINEERING

APPROVAL AAR Tank Car Committee
 Date Approved 7/30/12 *Valve approval date 7/17/2009*
 (Signature) on behalf of Tank Car Committee *Kenneth [Signature]*

Form AAR 4-5 Revised 12/1/2000 Subject to AAR Service Trial No. 429