

APPLICATION FOR APPROVAL OF VALVES AND FITTINGS

Applicant MIDLAND MANUFACTURING CORP. AAR No. E142002
 Description of Device 4" BOTTOM OUTLET VALVE

Applicant No. _____ Device Ident. No. XA-541-XS-SJ, A-541-XS-SJ, A-541-XS Date 4/24/2014

1. Manufacturer MIDLAND MANUFACTURING CORP
 Address 7733 GROSS POINT ROAD City SKOKIE State IL Zip 60077
 2. Test facility MIDLAND MANUFACTURING AND GAYNES LAB Address SKOKIE, IL AND BRIDGEVIEW, IL
 3. Test date 2/24/14 THRU 4/2/14 4. Observer ANDREAS GUERRA, YURY BEYDERMAN

TEST PROCEDURE: 5. Weight or mass of device 100 lb. (_____ kg)

6. Description of prototype testing: BODY AND SEAT TEST ON ASSEMBLY AT 100 PSIG, OUTLET NOZZLE, PACKING AND CAP TEST ON ASSEMBLY AT 100 PSIG, SHOCK TEST (20) SHOCKS AT 20G IN 3 AXIS, VIBRATION TEST 1 MILLION CYCLES AT THE RESONANT FREQUENCY WITH THE HIGHEST OUTPUT G LEVEL NOTED DURING THE SWEEP, FUNCTIONAL PERFORMANCE TEST.

7. Description of production testing: 100% PRESSURE TESTING AT 100 PSIG OF SEAT SEAL, PACKING, OUTLET NOZZLE, CAP

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

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

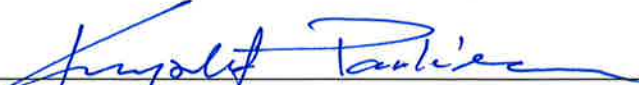
10. Initial commodity (or commodity type) DISEL FATTY ESTERS, NITROGEN FERTILIZER RAPESEED OIL, SOYBEAN OIL 1. Flow rate (if applicable) _____ gpm (_____ L/min)

Applicable drawings	Material	Drawing Number latest revision	Precedent	
			Drawing Number	Application/Certificate
12. Device application				
13. Device assembly	CARBON STEEL, STAINLESS STEEL	XA-541-XS-SJ REV A A-541-XS-SJ, A-541-XS	A-549-CS-SJ, A-549-JC	E122015
14. Device details				

15. Quality control statement: MIDLAND MANUFACTURING IS CERTIFIED ISO 900 AND REGISTERED CLASS F FACILITY. MIDLAND HAS RIGID QUALITY CONTROL PROCEDURES TO ENSURE THAT ALL TESTS MANUFACTURING SPECIFICATIONS ARE MET.

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  Title NEW PRODUCT DEVELOPMENT ENGINEER

APPROVAL AAR Tank Car Committee

Date Approved SEP 02 2014 
 (Signature) on behalf of Tank Car Committee