

APPLICATION FOR APPROVAL OF VALVES AND FITTINGS

Applicant HEROSE GmbH AAR No. E149502
 Description of Device actuated cryogenic gate valve
DN 25 (1") to DN 80 (3")
 Applicant No. _____ Device Ident. No. 09343 Date 2013-02-05

1. Manufacturer HEROSE GmbH
 Address ELLY-HEUSS-KWAPP-STR. 12 City Bad Oldesloe State Germany Zip 23843
 2. Test facility TUV NORD SYSTEMS GmbH Address Große Bahnstraße 31, 22525 Hamburg
 3. Test date 2009-11-14 4. Observer S. KORN
 5. Weight or mass of device 21.8-38.6 lb. (9.9-17.5 kg)

TEST PROCEDURE:
 6. Description of prototype testing: according to DIN EN 1626 and DIN EN 12567

7. Description of production testing: Hydrostatic test 1.5 x PN 50 and leak tightness test acc. to DIN EN 12266

8. Cycles	Min. Temp.	@ Pressure	Cycles	Max. Temp.	@ Pressure	Test Medium	Remarks
<u>2000</u>	<u>-320 °F</u> <u>-196 °C</u>	<u>725 psi</u> <u>5000 kPa</u>		<u>+248 °F</u> <u>+120 °C</u>	<u>psi</u> <u>kPa</u>	<u>Liquide nitrogen</u>	
Cycles	Min. Temp. °F °C	@ Pressure psi kPa	Cycles	Max. Temp. °F °C	@ Pressure psi kPa	Test Medium	Remarks

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

10. Initial commodity (or commodity type) cryogenic liquefied gas 11. Flow rate (if applicable) N/A gpm (_____ L/min)
LNG, ETHAN

Applicable drawings	Material	Drawing Number latest revision	Precedent	
			Drawing Number	Application/Certificate
12. Device application				
13. Device assembly	<u>stainless steel</u>	<u>see list of drawings</u>		
14. Device details				

15. Quality control statement: According to PED 97/23/EC
DIN EN ISO 9001:2008

REVISIONS: 1

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 MARC ZAUBITZER Title QUALITY MANAGEMENT

APPROVAL AAR Tank Car Committee

SEP 30 2013

Date Approved _____

Kenneth B. Dorsey
 (Signature) on behalf of Tank Car Committee