DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **A-12611**

This is to certify that the
Solenoid Valve

with type designation(s)
EV * *

Manufactured by
Danfoss A/S
KOLDING, Denmark

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

Application
Location classes:

Temperature	**A**
Humidity	**B**
Vibration	**B**
EMC	**A**
Enclosure	**C**

Høvik, 2012-01-11
for **Det Norske Veritas AS**

Odd Magne Nesvåg
Head of Section

DNV local office:
Fredericia

This Certificate is valid until
2015-12-31

Aleksandra Górowska
Surveyor

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.
If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

Product description

Type EV * * covering the following types:

EVR 2	EVRA 3	EVRAT 10	EV210B 1.5B	EV220B 6B	EV250B 12B
EVR 3	EVRA 10	EVRAT 15	EV210B 2B	EV220B 10B	
EVR 6	EVRA 15	EVRAT 20	EV210B 3B	EV220B 12B	
EVR 10	EVRA 20		EV210B 6B	EV220B 15B	
EVR 15	EVRA 25		EV210B 10B	EV220B 20B	
EVR 20	EVRA 32			EV220B 25B	
EVR 22	EVRA 40			EV220B 32B	
EVR 25				EV220B 40B	
EVR 32				EV220B 50B	
EVR 40					

At an ambient temperature of 80 °C the maximum temperature of medium is as follows:
For EVR: max. 105 °C

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Type Approval documentation

Type	Drawings	Data sheets
EVR 2/3	032M0760, Rev. 00 pg. 1 & 2	DKRCCPDBB0A302-520H1275
EVR 6/10	032M0761, Rev. 00 pg. 1 & 2	
EVR 15/20/22	032M0762, Rev. 00 pg. 1 & 2	
EVR 25	032M0589, Rev. 01 pg. 1 & 2	
EVR 32/40	032M0590, Rev. 01 pg. 1 & 2	
EVRA 3	032M0560, Rev. 01 pg. 1 & 2	DKRCI.PD.BM0.B2.02 - 520H0120
EVRA 10/15/20	032M0558, Rev. 01 pg. 1 & 2	
EVRA 25	032M0594, Rev. 01 pg. 1 & 2	
EVRA 32/40	032M0595, Rev. 02 pg. 1 & 2	
EVRAT 10/15/20	032M0588, Rev. 01 pg. 1 & 2	DKRCI.PD.BM0.B2.02 - 520H0120
EV210B 1.5B	032M0577, Rev. 00 pg. 1 & 2	IC.PD.200.A4.02 / 520B3082
EV210B 2 B		
EV210B 3 B		
EV210B 6B/10B	032M0659, Rev. 00 pg. 1 & 2	
EV220B 6B	032M0578, Rev. 00 pg. 1 & 2	IC.PD.200.C3.02 / 520B3242
EV220B 10B		
EV220B 12B	032M0579, Rev. 00 pg. 1 &2	
EV220B 15B	032M0581, Rev. 00 pg. 1 & 2	IC.PD.200.D5.02 / 520B3243
EV220B 20B		
EV220B 25B		
EV220B 32B		
EV220B 40B		
EV220B 50B		
EV250B 12B	032M0673, Rev. 01	IC.PD.200.H2.02.01 / 520B2690
Certificate retention survey report for A-10719, DNV Fredericia 2011-11-30.		

Tests carried out

Applicable tests according to Standard for Certification No. 2.4, April 2006.

Certificate Retention Survey

The scope of the retention/renewal survey is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the survey are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Retention survey is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE