DNV·GL

Certificate No:
TAA0000217

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Direct Acting Control Valve

with type designation(s)
D6xx series

Issued to
Moog GmbH
Böblingen, Germany

is found to comply with
DNV GL rules for classification – Ships

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Temperature	**B, +0°C up to +80°C**
Humidity	**B**
Vibration	**B**
EMC	**A**
Enclosure	**C**

Issued at **Hamburg** on **2019-01-16**
This Certificate is valid until **2024-01-15**.
DNV GL local station: **Augsburg**

Approval Engineer: **Hagen Markus**

for **DNV GL**

Olaf Drews
Head of Section

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.

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Product description

The D6xx series of valves is based on a modular system comprising a pilot valve, different sizes of main stages and two variants of the LVDT position sensor. Details and type designations of the included modular parts of the D6xx series valves is given below:

Overview

Material valve body[1]	EN GJS 400-15
Seals	NBR, HNBR, FKM, ECOpur, HiFlour
Nominal pressure PN – Connection port p, A, B	315
Nominal pressure PN - Connection port T	315[2]
Operation medium	Hydraulic oil acc. to DIN 51524 / ISO 11158
Hydraulic oil purity grade	ISO 4406 18/15/12 or NAS 1638 Class 6
Oil temperature range	0°C to +80°C
Protection class	IP 65
Power supply	18-32VDC
Input signal	+/- 10V, +/- 10mA, 4 to 20mA
Output signal	4 to 20mA, 2 to 10V
Software version	B9922X-DV01X-X-211

Pilot valve(s)

Manufacturer	MOOG		
Types	Size	Mounting pattern	Max flow @ 5bar pressure drop per land
D636	NG6	ISO4401-03-03-0-05	16l/min

Main stage(s)

Manufacturer	MOOG		
Types	Size	Mounting pattern	Max flow @ 5bar pressure drop per land
D636[3]	NG6	ISO4401-03-03-0-05	16l/min
D672	NG16	ISO4401-05-05-0-05	250l/min

LVDT position sensor(s)

Manufacturer	MOOG / µEpsilon
Types	C72998-001, CC43763-001
Supply Voltage	24 VDC via dedicated pilot valve supply

Notes

[1] For valve body a works certificate (W) is to be provided for each batch.
[2] Only with external leakage port
[3] Use without pilot

Application/Limitation

The Two Stage Proportional Valve of series D6xx is type approved for activation of fuel injection and exhaust gas valve of two stroke marine diesel engines and hydraulic pump control.

Production testing

Each valve is to be subjected to production test according to individual MOOG test specification.
Appropriate works certificate (W) for the product is to be issued und delivered to customer.
Refer to DNV GL Pt.1, Chapter 3, Section 5.

Marking of product

Each valve shall bear legible and durabale marking on the body by a securely fixed plate to the body.
Sope of marking shall be at least as follows

Scope	**Example**
Manufacture Name	MOOG
Type designation	D636...
Serial Number	S/N D...
Revision	Rev ...
Signal	4...20mA
Supply	24V=

Type Approval documentation

Test reports

Tests carried out

Periodical assessment

For retention of the type approval certificate periodical assessments shall be carried out at production places by DNVGL surveyor.

The objective of the periodical assessment is to verify that the design and production conditions for the type approval has not been altered.

Main scope of the assessment:
- verification of the production and quality control system
- review of quality control documentation of recent deliveries
- review of drawings in production to verify any design changes which may have an impact on data specified in the type approval certificate, performance and range of application
- verification of the product marking

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

End of certificate