DNV·GL

Certificate No:
TAA000023R

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Direct Acting Control Valve

with type designation(s)
STW0175-1X (FIVA 1000), STW0280-1X (FIVA 2000), STW0280-2X (FIVA 2000)

Issued to
Bosch Rexroth AG
Lohr a. Main, Bayern, 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.

Type	Temperature	Humidity	Vibration	EMC	Enclosure
STW0175-1X (FIVA 1000)	**A**	**B**	**B**	**A**	**B**
STW0280-1X (FIVA 2000)	**D**	**B**	**B**	**A**	**B**
STW0280-2X (FIVA 2000)	**A**	**B**	**B**	**A**	**B**

Issued at **Hamburg** on **2018-12-14**
This Certificate is valid until **2023-12-13**.
DNV GL local station: **Essen**

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

Pilot operated 3-stage directional control valve in a 5/3-way version with 2-stage servo hydraulic pilot. Consisting of main stage with integrated position feedback of the main control spool and integrated electronics.

Overview

Operating pressures connection ports	
P, FI, VA	Max. 300 bar
T_{FI}, T_{VA}	Pressure peaks <100bar, static< 10bar
Nominal flow at 10bar	
STW0175-1X (FIVA 1000)	1000 l/min
STW0280-1X, 2X (FIVA 2000)	2000 l/min
Operating medium	Hydraulic fluid DIN 51524 HLP46 or equivalent
Purity grade	ISO 4406 -/16/13 or (NAS 1638 Class 7)
Oil temperature range	+20°C up to +50°C
Materials	
Material main stage body[1]	EN GJS 400-15
Seals	NBR
Electrical data	
Protection class	IP 65 with mating connector mounted and locked
Power supply	+24V DC
Input / output signal	6.2mA up to 18.7mA
Power consumption	240mA at 24V

Notes
[1] For the main stage housing and cover a material works certificate (W) is to be provided for each batch.

Application/Limitation

The 3-stage directional control valve of type STW 0175 and STW 0280 are type approved for activation of fuel injection (FI) and exhaust gas valve activation (VA) of two stroke marine diesel engines.

Marking of product

For traceability to this type approval certificate each valve is to be provided with a name plate containing at least the following content:

Scope	**Example**
Main Stage	
Manufacturers name or short sign	Rexroth
Type designation / serial number	STW 0175-1X/4
Material number	R901173560
Controller	
Manufacturers name or short sign	Rexroth
Type designation	VORSTEUERVENTIL -22/STW0175-12/
Material number	R901284873

Production testing

Each valve is to be subjected to production test according to test specification RA50157095 (STW0175-1X), RA50157182 (STW0280-1X) and RA50186002 (STW0280-2X).

Appropriate works certificate[1] (W) for the product is to be issued and delivered to customer.

Notes

[1] Refer to DNV GL Pt.1, Chapter 3, Section 5.

Type Approval documentation

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