

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electro-Hydraulic Actuators

with type designation(s)

EHS-S3/D3, EHS-SB/DB, EHS-EXS/EXD, EHS-US, EHS-UD

Issued to

Pleiger Maschinenbau GmbH & Co. KG
Witten Nordrhein-Westfalen, 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.

Location classes:

Temperature	D
Humidity	B
Vibration	A
EMC	A
Enclosure	D

This Certificate is valid until **2021-05-23**.

Issued at **Hamburg** on **2016-05-24**

for **DNV GL**

DNV GL local station: **Essen**

Approval Engineer: **Dariusz Lesniewski**

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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.

Product description

- EHS-S3 Single acting rotary actuator
- EHS-D3 Double acting rotary actuator
- EHS-SB Single acting rotary actuator, bus compatible
- EHS-DB Double acting rotary actuator, bus compatible
- EHS-EXS Single acting rotary actuator, explosion proof
- EHS-EXD Double acting rotary actuator, explosion proof
- EHS-US Single acting rotary actuator, submersible
- EHS-UD Double acting rotary actuator, submersible
- EHS-OC3-2 Inside position indicator for rotary actuators

Degree of protection: IP 68; Test: 10 mWS, 36 hours (actuators)
IP 68; Test: 150 mWS, 20 days (actuators EHS-US and EHS-UD)

Application/Limitation

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 GL Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

The EHS system is considered suitable for carrying out the functions specified in SOLAS Ch.XII Reg. 13.1, provided the correct selection of valves and actuators are utilised.
The actual installation will have to be approved in each case.

Max. pressure 150 bar (actuators)

Ex-certification is not covered by this certificate. Application in hazardous area to be approved in each case according to the Rules and Ex-Certification/ Special Condition for Safe Use listed in valid Ex-certificate issued by a notified/recognized Certification Body.

Type Approval documentation

Tests carried out

Applicable tests according to Class Guideline DNVGL CG-0339, November 2015.

Periodical assessment

The scope of the periodical assessment 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 assessment 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

Periodical assessment is to be performed at least once during the validity period and at renewal of this certificate.



Job Id: **262.1-001631-6**
Certificate No: **TAA00000FG**

END OF CERTIFICATE