

TYPE APPROVAL CERTIFICATE**This is to certify:****That the Pneumatic Actuator**

with type designation(s)

EB4.1, EB5.1, EB6.1, EB8.1, EB9.1, EB10.1, EB12.1, EB14.1, EB16.1, EB18.1, EB20.1, EB22.1, EB26.1, EB265, EB270, EB280-SYD, EB5.1, EB6.1, EB8.1, EB 9.1 EB10.1, EB12.1 -SYDDW with emergency override

Issued to

**EBRO Armaturen Gebr. Bröer GmbH
Hagen Nordrhein-Westfalen, Germany**

is found to comply with

DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems**Application :****Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.****Type****EB4.1, EB5.1, EB6.1, EB8.1, EB9.1, EB10.1, EB12.1, EB14.1, EB16.1, EB18.1, EB20.1, EB22.1, EB26.1, EB265, EB270, EB280-SYD
EB5.1, EB6.1, EB8.1, EB 9.1 EB10.1, EB12.1 -SYDDW with emergency override****Dsgn. press./Torque
see manufacturer's
data sheet
see manufacturer's
data sheet**Issued at **Høvik** on **2017-12-06**for **DNV GL**This Certificate is valid until **2022-12-05**.DNV GL local station: **Essen**Approval Engineer: **Guido Friederich****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.



Product description

Pneumatic double acting actuators.

Technical data

Supply pressure	Min. 2,5 bar / max. 10 bar
Temperature range	-20°C to + 80°C
Operating medium	Filtered compressed air, dry or lubricated
Closing time	0,15 sec to 0,7 sec (according to actuator size)
Swivel angle	90° ± 3°
Valve interface	EN ISO 5211
Torques	27 Nm to 9768 Nm, further details see manufacturer's technical data sheet

Materials

Actuator cylinder	EN AW 6063-T6 / 3.3206
Piston	EN AC-Al Si9Cu3(Fe)
End cover	EN AC-Al Si9Cu3(Fe)
Drive shaft	16 Mn Cr 5 / 1.7131
Yoke	16 Mn Cr 5 / 1.7131

Application/Limitation

Approved for application on remote operating butterfly valves
The selection of a suitable actuator for a specific valve type including operation and service conditions shall be carried out according to the technical instructions of the manufacturer.

Type Approval documentation

- Actuator data sheets, pneumatic actuator EB-SYD EBRO Catalogue Chapter 6.2, double acting, dated 01/2017
- Operating manual
- Type Approval Assessment Report, dated 2017-09-20

Tests carried out

- Pressure test. Test pressure in amount of 1,5 times the design pressure
- Functional test

Job Id: **262.1-025221-1**
Certificate No: **TAP000014M**

Marking of product

For traceability to this type approval the products are to be marked with:

- Manufacturers name or trade mark
- Actuator type designation,
- Size
- Mode of action [single acting or double acting]
- Operating pressure

Periodical assessment

A condition for retention of the Type Approval Certificate in its validity period is that periodical assessments are successfully carried out.

The objective of the periodical assessment is to verify that the conditions for the type approval have not been altered.

The main scope of the periodical assessment will normally include:

- Verification of the TA applicant's production and quality system w.r.t ensuring continued consistent production of the type approved products at the TA applicant's own premises and at other companies that are given the responsibility for manufacturing of the products.
- Review of the TA documentation and that this is still used as a basis for the production
- Review of possible changes to the design, the material and the performance of the product
- Verification of the product marking

END OF CERTIFICATE