



Certificate no.:
TAP00002XB

TYPE APPROVAL CERTIFICATE

This is to certify:

that the **Hydraulic Accumulator**

with type designation(s)
Diaphragm accumulator

issued to

Buccma Accumulator (Tianjin) Co.,Ltd.
Tianjin, China

is found to comply with

DNV rules for classification – Ships Pt.4 Ch.7 Pressure equipment
DNV-OS-D101 – Marine and machinery systems and equipment, Edition July 2021
DNV-OS-E201 – Oil and gas processing systems, Edition July 2022

Application:

Product approved by this certificate is accepted for installation on all vessels classed by DNV.

Temperature range: -25 to 80 °C
Operating media: Gas, N2, Water and Oil
Design pressure: 315 bar
Sizes: 2 L

Issued at **Hamburg** on **2024-08-28**

This Certificate is valid until **2029-08-27**.

for **DNV**

DNV local unit: **Dalian NB & CMC**

Approval Engineer: **Le Loi Nguyen**

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

- Diaphragm accumulator, for details (e. g. design data, materials or dimensions) see Application / Limitation and Type Approval documentation listed below.

Application/Limitation

Applied rules

- DNV-RU-SHIP Pt.4 Ch.7 (Edition July 2021)
- DNV-OS-D101 (Edition July 2021)
- DNV-OS-E201 (Edition July 2024)
- EN 14359 2017

Diaphragm accumulator	Main data
Design pressure [bar]	315 bar
Test pressure [bar]	472.5 bar
Design temperature [°C]	-25 / 80
Medium [-]	Gas, N2, Water and Oil
Joint efficiency [-]	1
Corrosion allowance [mm]	1
Pressure equipment class	I
Capacity [l]	2

- DNV Pressure Equipment Class (DNV-RU-SHIP Pt.4 Ch.7 Sec.1 Tab. 2 (Edition July 2021))
- All material used for pressurized parts shall be delivered with material certificates according to DNV-RU-SHIP Pt.4 Ch.7 Sec.1 Tab. 5 (Edition July 2021)). It shall meet the impact requirements as stated in DNV-RU-SHIP Pt.2 Ch.2 Sec.2 (Edition July 2023)).

The diaphragm accumulator is to be:

- Hydraulic pressure tested to minimum 1.5 x design pressure,
- Certified by DNV and to be delivered with a product certificate.

Type Approval documentation

Places of Production

Buccma Accumulator (Tianjin) Co., Ltd.
No. 2 Zhonghui Road, Jinnan Eda, Tianjin, China

Marking of product

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

- the name and domicile of the manufacturer,
- the manufacturer's type designation and serial number,
- the year of manufacture,
- the design pressure,
- the design temperature in °C,
- the hydraulic test pressure, and
- DNV's identifying mark.

Periodical assessment

The objective of the periodical assessment is to verify that the conditions for the type approval (TA) 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 TA products at the TA applicant's own premises and at other companies that are given the responsibility for manufacturing of the products,
- review of TA documentation and that this is still used as basis for the production,
- review of possible changes in the design, the materials and the performance of the product, and
- verification of the product marking.

For retention of the TA certificate in its validity period the periodical assessments will be carried out bi- yearly. Unscheduled assessments for retention of the certificate may be carried out when there is reason to believe that the type approval applicant has not adhered to the obligations stipulated in the type approval certificate.

End of Certificate