



Certificate No:
TAP00000ST

TYPE APPROVAL CERTIFICATE

This is to certify:

That the **Hydraulic Accumulator**

with type designation(s)
Hydraulic accumulator for watertight door

Issued to

IMS Technologies AS
Akland, Norway

is found to comply with

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

Application :

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

Temperature range: -30° to 60°C
Operating media: Hydraulic Oil
Design pressure: 200 bar
Sizes: Inside diameter: 100 mm, custom lengths

Issued at **Høvik** on **2022-05-06**

This Certificate is valid until **2027-05-05**.

for **DNV**

DNV local station: **Kristiansand S**

Approval Engineer: **Renata Rossi**

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Zeinab Sharifi
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.

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.



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Product description

Hydraulic accumulators designed according to EN14359 as a DNV class I pressure equipment.

Material of Body	Outside diameter	Corrosion allowance	Material of end caps	Lock-ring
Stainless steel (1.4401 / 1.4404 EN 10216-5)	118 mm	0 mm	Stainless steel	Steel
Carbon steel	115 mm	1 mm	Carbon steel	Steel

Application/Limitation

The accumulators covered by this certificate are approved for unlimited number of cycles for dynamic loading of 140 to 180 bar.

Each accumulator shall be protected on both gas and hydraulic fluid side by a safety device such as relief valve, fuse plug or rupture disc to prevent excess pressure if overheated. When the accumulator is an integral part of a system with such a safety device, the accumulator itself need not be supplied with a safety device.

Production testing

Each accumulator shell/seamless gas bottle shall be hydraulically pressure tested at 1.43 times design pressure in the presence of a DNV Surveyor.

Final inspection of assembled product shall be witnessed by a DNV Surveyor.

Certification

Each accumulator shall be certified by a DNV Surveyor.

The materials are to be delivered with certificates as per DNV-RU-SHIP Pt. 4 Ch. 7 Sec. 1 Table 5. Approval of manufacturer is required for NV and W material certificates.

All manufacturing, workmanship and testing shall be done in accordance with EN 14359.

Type Approval documentation

Marking of Product

Each hydraulic accumulator is to be permanently and legibly marked with following information:

- Date of manufacture, (month/year)
- Manufacturer's serial number
- Manufacturer's name/symbol
- Total shell volume in liters
- Allowable temperature range in degrees Celsius
- Maximum allowable pressure
- Test pressure

The location and process of stamping of the accumulators shall not be detrimental to its strength.

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with.