

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Air Reservoir**

with type designation(s)

125, 250, 500, 1000, 1500, 2000, 3000, 3800, 4800, 5000 and 5500 litres

Issued to

**UWIRA OY
VAASA, Finland**

is found to comply with

DNV GL rules for classification – Ships Pt.4 Ch.7 Pressure equipment**Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Temperature range: -40°C / +100°C****Design pressure: 33 bar****Sizes: Ø480, Ø600, Ø800, Ø1000, Ø1200, Ø1400**Issued at **Høvik** on **2017-04-10**This Certificate is valid until **2022-04-09**.for **DNV GL**DNV GL local station: **Turku**Approval Engineer: **Iselinn Vindstad**

**Marianne Spæren Marveng
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.



Job Id: **262.1-007512-3**
Certificate No: **TAP00000WS**

Product description

Cylindrical shaped starting air vessels with dished ends designed to DNV GL Ship Pt.4 Ch.7 in the following sizes:

Nominal Diameter (mm)	Shell Thickness (mm)	Head Thickness (mm)
480	7	7
600	8	8
800	10	10
1000	12	12
1200	14	14
1400	16	16

The head for vessel with diameter 480 mm shall be made from one plate without any welding.

DNV GL Vessel class: Class I

Corrosion allowance: 1 mm

Fabrication tolerance: 0mm

Joint efficiency: 0.85

Materials:

Shell and heads: P355NL1 EN 10028-3

Nozzles/flanges: P355NL1 EN 10028-3

Application/Limitation

Material certification shall be in line with requirements in DNV GL Ship Rules Pt.4 Ch.7 Sec.1 Table 5.

Charpy V-notch impact testing at -45°C is required. Results shall show at least 27 joules in transverse direction and 41 joules in longitudinal direction.

Manufacturing, workmanship and testing shall be in line with requirements in DNV GL Ship Rules Pt.4 Ch.7 Sec.7.

Vessels covered by this certificate shall be subject to hydrostatic testing in presence of a DNV GL surveyor and be delivered with a DNV GL product certificate.

Type Approval documentation

Marking of product

Each pressure equipment shall be permanently and legibly marked on the pressure part or on a nameplate permanently attached to a principal pressure part to show its identity and origin.

The marking of pressure vessels shall show at least the following particulars:

- manufacturer's name and address
- type designation and serial number
- year of manufacture
- maximum allowable working pressure
- hydrostatic test pressure.

Periodical assessment

For retention of the Type Approval, a DNV GL surveyor shall perform a survey - every second year and before the expiry date of this certificate - to verify that the conditions for the Type Approval are complied with.