

# TYPE APPROVAL CERTIFICATE

**This is to certify:****That the Hydraulic pipe system for watertight doors**with type designation(s)  
**Eagle, Albatros**

Issued to

**Winel B.V.**  
**Assen, Netherlands**

is found to comply with

**DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems**  
**DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition January 2018****Application :****Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV GL.**

|                 |                           |                       |                                    |
|-----------------|---------------------------|-----------------------|------------------------------------|
| <b>Type:</b>    | <b>Temperature range:</b> | <b>Max. pressure:</b> | <b>Design:</b>                     |
| <b>Eagle</b>    | <b>0°C to 55°C</b>        | <b>160 bar</b>        | <b>for watertight sliding door</b> |
| <b>Albatros</b> | <b>0°C to 55°C</b>        | <b>175 bar</b>        | <b>for watertight sliding door</b> |

Issued at **Høvik** on **2018-05-02**This Certificate is valid until **2022-06-30**.for **DNV GL**DNV GL local station: **Rotterdam**Approval Engineer: **Adel Samiei**

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**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: **262.1-014731-2**  
Certificate No: **TAP000015M**

## Product description

Hydraulic piping system (Class I) for opening and closing of watertight sliding doors.  
Pipe material is E235 (1.0308) according to EN10305-4 (Normalized)  
Pipes dimensions: Ø10 x 1,5 mm – Ø12 x 2 mm

## Application/Limitation

For sliding watertight doors (2100(h) x 1400(w)) used in watertight bulkheads in Ships and Mobile Offshore Units

Certification requirements of each component:

|                       |                                                |
|-----------------------|------------------------------------------------|
| Hydraulic cylinder    | Product certificate issued by DNV GL           |
| Hydraulic accumulator | Product certificate issued by DNV GL           |
| Valves                | Manufacturer's product certificate certificate |
| Couplings             | Type approval certificate issued by DNV GL     |
| Flexible hose         | Type approval certificate issued by DNV GL     |

Manufacture, Workmanship, testing and inspection shall be in accordance with DNV GL Ship Rules pt.4 Ch.6 Sec.10.

Each system is to be tested for tightness through hydrostatic testing at 1,5 times of design pressure at the manufacturer's premises to be witnessed by a DNV GL surveyor – Reference to DNV GL Ship Rules Pt.4 Ch.6 Sec.10 [5.1].

The system shall be hydraulically pressure tested after installation onboard in the presence of the DNV GL surveyor (1.5 × design pressure - the test pressure need not exceed the design pressure by more than 70 bar) - Reference to DNV GL Ship Rules Pt.4 Ch.6 Sec.10 [5.2].

In each installation requirements in SOLAS/II-1/B-2/13-1 (Openings in watertight bulkheads and internal decks in cargo ships) or SOLAS/II-1/B-2/13 (Openings in watertight bulkheads below the bulkhead deck in passenger ships) shall be observed.

## Type Approval documentation

### Periodical assessment

For retention of the Type Approval, a DNV GL 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. Reference is made to DNVGL-CP-0338.