

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Bulk Loading Hoses with Permanently Fitted Couplings**

with type designation(s)

Potable Water hose (81451-100), Bulk Loading hose (21627-100)

Issued to

Flux Active Service AS
LAKSEVÅG, Norway

is found to comply with

DNV GL class programme DNVGL-CP-0183 – Type approval – Flexible hoses**Application :****Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV GL.**

Type:	Temperature range:	Max. working press.:	Sizes:
Potable Water hose (81451-100)	-25°C to 82°C	20 bar	4"
Bulk Loading hose (21627-100)	-40°C to 100°C	27 bar	4"

Issued at **Høvik** on **2018-11-08**This Certificate is valid until **2023-11-07**.for **DNV GL**DNV GL local station: **Bergen**Approval Engineer: **Iselinn Vindstad**

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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.



Product description

Bulk loading hose – Part no. 21627-100:

Suction and delivery dock loading hose assemblies constructed according to EN 1765 for ship-to-shore applications with the following construction:

Tube	: Black NBR rubber
Reinforcement	: 4 layer synthetic textile cord with high tensile strength. Embedded copper wire to assure electrical continuity.
Cover	: CR Rubber - Oil, weather, abrasion and ozone resistant

End fittings comprising of:

Ferrule & Nipple	: AISI 316
Lock ring	: AISI 316

Potable water hose – Part no. 81451-100:

Suction and delivery dock loading hose assemblies constructed according to DNVGL-CP-0183 for ship-to-shore applications with the following construction:

Tube	: White finish NR tube
Reinforcement	: 4 ply textile reinforcement
Cover	: EPDM

End fittings comprising of:

Ferrule & Nipple	: AISI 316
Lock ring	: AISI 316

Both hoses and fittings are manufactured by the Type Approval holder.

Application/Limitation

This certificate is valid for the specific assembly of hose and coupling type as specified, assembled and delivered by the holder (named as manufacturer) of this certificate.

The hoses are to be mounted in accordance with the manufacturer's instructions.

For hose type 21627-100:

Hose assemblies covered by this certificate are approved to be used in suction and delivery of sea water, oil and petroleum products with maximum aromatic content up to 50%.

Production tests shall be carried out on all hose assemblies in accordance with Table H.1 of EN 1765 prior to dispatch. In addition, production acceptance tests shall be carried out on each batch in accordance with Table I.1 of EN 1765.

For hose type 81451-100:

The hoses are not to be installed on systems subject to:

- pressure pulsations
- pressures below vacuum

Type Approval documentation

Tests carried out

For hose type 21627-100:

Resistance against liquids on lining and cover, resistance against ozone, abrasion resistance, adhesion between components (dry), adhesion between components (wet), change in length, proof pressure test, bending test, electrical properties (continuity and discontinuity), burst pressure test, end load test, dimensional check

For hose type 81451-100:

Job Id: **262.1-026911-1**
Certificate No: **TAP00001KH**

Dimensional check, change in length, leakage test, cold flexibility test, cover adhesion test, ozone test, burst pressure test, electrical resistance and conductivity, abrasion resistance, end load test, bending test

Marking of product

Each hose assembly and compensator shall be at least permanently marked on the hose end fitting as follows:

- the manufacturer's name or trade mark
- type and designation
- size
- the maximum working pressure
- quarter and year of manufacturer
- the serial number of the hose assembly

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.