DNV·GL

Certificate No:
TAP000027Y

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Hull Penetration

with type designation(s)
R1 Easy Tank

Issued to
SAL Navigation AB
Hägersten, Sweden

is found to comply with
DNV GL rules for classification – High speed and light craft
DNV GL rules for classification – Ships

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.
Sizes:
168 [mm]

Issued at **Høvik** on **2020-12-18**

This Certificate is valid until **2022-02-20**.

for **DNV GL**

DNV GL local station: **Sweden CMC**

Approval Engineer: **Eivind Finne Riley**

Dalibor Bukarica
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 GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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

The R1 Easy Tank is an SDME transducer integrated in a flange top that seals the hull penetration.

The hull penetration mechanics consists of two main parts: the flange (R1 EASY TANK FLANGE /R1 EASY TANK FLANGE ALU 5083) to be welded into the hull, and the flange top with the integrated transducer (SAL R1 TRU EASY TANK). The flange top is bolted to the flange creating a seal towards the sea.

The mounted Easy Tank hull penetration is a closed ended installation having sufficient watertight integrity and resistance to damage in itself, and as such no additional precautions has to be made considering the water tightness.

Application/Limitation

The Easy Tank hull penetration shall be mounted in accordance with manufacturer's instructions.

The welding procedure for mounting the flange to the hull is subject to separate approval by DNV GL for each installation onboard a ship. All welding shall be carried out by approved welders according to approved welding procedures. Non-destructive testing after installation shall be carried out to the surveyor's satisfaction.

Type Approval documentation

Dwg/Doc No.	***Rev.***	***Title***
5413201	A01	Cable gland AGRO with part number: 1100.20.96.150
5413382	A03	SAL R1a Easy Tank Bottom Flange
5414230	A02	SAL R1a Easy Tank Flange Alu
5413386	A06	SAL R1a Easy Tank Transducer House
5413387	A05	SAL R1 Easy Tank Assy
5492303	A05	SAL R1a Easy Tank Installation
111CQFLZ-9	1	Pressure test of Easy Tank Speed Log Phase II – Test report
TP20145	A01	FEM-calculations of SAL R1a TRU Easy Tank

Tests carried out

The Easy Tank hull penetration has been pressure tested with a hydraulic pressure, equivalent to class PN16, between 26 and 32 bar with a holding time of 24 hours. The Easy Tank hull penetration has been tested both in normal condition and various applied damage conditions.

Marking of product

For traceability the following marking is to be carried out on each product:
- Manufacturers name or mark
- Type designation (Serial Number)
- Additional marking at manufacturer's option.

Periodical assessment

DNV GL's surveyor is to be given permission to perform Periodical Assessments at any time during the validity of this certificate and at least every second year. The arrangement is to be in accordance with procedure described in Class Program DNVGL-CP-0338, Section 4.