DNV·GL

Certificate No:
TAP00000MZ

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Preheater, Electrically Heated

with type designation(s)
EH-X T33, EH-X T40

Issued to
Alfa Laval Aalborg A/S
Aalborg, Denmark

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.

Type:	**EH-X T33**	**EH-X T40**
Temperature range:	**0°C to 200°C**	**0°C to 200°C**
Design pressure:	**33 bar**	**40 bar**

This Certificate is valid until **2021-11-14**.

Issued at **Høvik** on **2016-11-15**

for **DNV GL**

DNV GL local station: **Aalborg**

Approval Engineer: **Sinisa Sedlan**

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.

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Job Id:
Certificate No: **TAP00000MZ**

Product description

Horizontal electrical heater with flat end.

Materials: Shall be in accordance with document 15 G 4002 revision U dated 2016-07-17

DNV GL pressure Class for shell side: Class I
Medium: Lubrication oil, fuel oil, heating oil and hydraulic oil
Corrosion allowance: 1 mm

Manufacturing locations:

Alfa Laval Aalborg A/S
Gasvaerksvej 21
9000 Aalborg
Denmark

Alfa Laval Qingdao Ltd
No.86, Guangzhou Road North
Jiaozhou, 266300, Shandong
China

Application/Limitation

This type approval does not cover the electrical installations; it only covers the strength of the mechanical part against internal pressure. Other types of loading (such as cyclic loading, wind, etc.) have not been considered in the design review.

Tube side is not pressurized and is not subject to approval

Extent of non-destructive testing shall be in accordance with DNV GL ship rules pt.4 Ch.7 Sec.7 [4].

Type Approval documentation

Production testing

Each heat exchanger is to be hydraulic pressure tested to minimum 1.5 x design pressure (as defined in DNV GL ship rules Pt.4 Ch.7 Sec.4 - 2.2).

Certification

Each heat exchanger is to be certified by DNV GL and to be delivered with a product certificate when required by DNV GL Rules or by the purchaser.

Materials used shall have certificates according to DNV GL ship Rules Pt.4 Ch.7 Sec. 2 Table1. Materials with VL or works certificates have to be supplied from an approved manufacturer of DNV GL for the type and grade of steel being supplied and for the relevant steelmaking and processing route.

Marking of product

For traceability to this type approval the valves are to be marked as a minimum with:

- Manufacturers name or trade mark
- Type designation
- Design pressure
- Design temperature

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment every second year and before the expiry date of this certificate, to verify that the conditions for the type approval are complied with.
When possible, this assessment may be harmonised with normal surveys for product certification and / or other surveys and audits carried out.

The main elements of the certificate retention survey are:

- Verification of the TA applicant’s production and quality system w.r.t. ensuring continued
- consistent production of the type approved products at the TA applicant’s own premises
- Review of Type Approval documentation and assurance that it is still used as basis for production
- Review of possible changes in design, materials and performance
- Assurance of traceability between manufacturer’s product type marking and Type Approval Certificate.

Renewal should be applied for in writing before the certificate expires.