

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Pressure Vessel**

with type designation(s)
Oil Separator LT.290 DNV

Issued to

A.S.T.R.A. REFRIGERANTI S.p.A. - AIR COM Plant
S. Pietro Mosezzo NO, Italy

is found to comply with

DNV GL rules for classification – Ships Pt.4 Ch.7 Pressure equipment
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.

Max. working temp.: 120
Design pressure: 15 bar
Operating Medium Air/Oil

Issued at **Høvik** on **2019-03-13**

This Certificate is valid until **2024-03-12**.

DNV GL local station: **Milan**

for **DNV GL**

Approval Engineer: **Sinisa Sedlan**

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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: **262.1-030681-1**
Certificate No: **TAP00001ST**

Product description

Unfired pressure vessel designed according to DNV GL Rules Part 4 Chapter 7.

Outer diameter: 550 mm

Volume: 290 lit

Materials:

Shell	P295GH (EN 10028-2)
Elliptical head	P295GH (EN 10028-2)
Cover	SA-395 Gr.60-40-18
Flanges / couplings	SA-105
Nozzles	SA-106 Gr.B

Application/Limitation

Model	Oil Separator LT.290 DNV
Design pressure (bar)	15
Test pressure (bar)	22.5
Design temperature (°C)	-10/120
Pressure vessel class	II
Joint efficiency	0.85
Corrosion allowance (mm)	1

Type Approval documentation

Tests carried out

Proof test of the cover.

Production testing

Each pressure vessel shall be subjected to hydrostatic pressure test upon completion to at least 1.5 times the design pressure in the presence of a DNV GL Surveyor.

Certification

Materials for pressure retaining parts are to be delivered with material certificates according to DNVGL-RU-SHIP Pt. 4 Ch. 7 Sec. 1 Table 6. Also, relevant requirements in DNVGL-RU-SHIP Pt. 2 Ch. 2 shall be fulfilled.

Approval of manufacturer is required for VL and W material certificates.

Manufacturer of pressure vessels of class I and II shall be approved manufacturer.

Each pressure vessel shall be certified by a DNV GL surveyor and to be delivered with a DNV GL product certificate.

Marking of product

Each pressure vessel 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 the heat exchanger 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
- design temperature range.



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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.