DNV·GL

Certificate No:
TAP000006K

TYPE EXAMINATION CERTIFICATE

This is to certify:

That the Filter

with type designation(s)
Filtervessel Ø1000 / Filtervessel Ø350

Manufactured by
MossHydro AS
Drammen, Norway

is found to comply with
EN 13445:2014 Unfired pressure vessels

Application :

see certificate

Max. working temp.: **-5 to +55deg.C**
Working media: **Seawater**
Design pressure: **6,9 bar**
This Certificate is valid until **2019-11-22**.

Issued at **Høvik** on **2015-11-23**

for **DNV GL**

DNV GL local station: **Station Oslo Maritime and CAP**

Approval Engineer: **Bjørn Kroken**

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 Examination Certificate and not to the approval of equipment/systems installed.

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Product description

Filtervessel Ø1000 and Filtervessel Ø350 designed according to EN13445:2014

- Material of shell and head: DX2205/1.4462 according to EN10028-7
- Material of nozzle and flanges:
  1.4404 plates according to EN 10088-2 and pipes according to EN10217-7
- Flanges according to DIN, ASME B16.5 and JIS with pressure class 10bar
- Flanges with pressure class 6bar may be used. Vessel shall then be marked with 6bar maximum allowable pressure
- Testing group: 3a (refer to EN13445-5, 6.6.1.2.2)
- Corrosion allowance: 0 mm

Manufactured by

- OSO Manufacturing AB
  Åmål Göteborgs / Bohus Län, Sweden

Application/Limitation

- Each individual filter shall be inspected during construction and upon completion. Inspections shall be made to ensure that in all respects materials, manufacturing, and testing comply with the requirements of EN13445:2014.

- The material of shell, heads, nozzles and flanges are to be passivated by pickling.

- Each filter has to be hydrostatic pressure tested with 1.43 times design pressure according to part 10.2.3.3 of EN13445-5:2014.

- The vessel manufacturer shall verify that welding has been done only by welders and operators who have been approved under the requirements of EN 287-1:2011 and EN 1418:1997 or equivalent. Welding procedures shall be qualified in accordance with EN 13445-4:2014.

- Welder and welding operators identification shall be controlled in accordance with EN 13445-4:2014.

- Final assessment shall be done in accordance with EN13445-5:2014 section 10.1.

Type Examination documentation

- Drawing no. 00-03 rev.10
- Drawing no. 00-01 rev.07
- Design calculation report for filters Ø1000mm and Ø350mm according to EN-13445-3:2014

Marking of product

For traceability of this certificate, each filter shall be permanently marked on a separate nameplate (with minimum thickness not less than 1 mm) with:

- Type designation
- Manufacturer's trade mark
- Technical data:
  - maximum allowable pressure P_s in bar;
  - maximum allowable temperature T_{smax} in °C
  - minimum allowable temperature T_{smin} in °C;

Certificate Retention Survey

For retention of the Type examination, a DNV GL Surveyor shall perform a periodical assessment every second year and before the expiry date of this certificate. The scope of the periodical assessment, is to verify that the conditions stipulated for the certificate is complied with and that no alterations are made to the product design or choice of materials.
The main elements of the certificate retention survey are:

- review of documentation
- review of possible changes in design, materials and performance
- ensure traceability between manufacturer's product type marking and Certificate.

END OF CERTIFICATE