

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Filter**

with type designation(s)
Filter series AutoFilt® RF14

Issued to

HYDAC Process Technology GmbH
Neunkirchen, Saarland, Germany

is found to comply with
DNV GL rules for classification – Ships Pt.4 Ch.7 Pressure equipment

Application :

Filter(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Max. working temp.: 55°C
Working media: Seawater
Design pressure: 6 bar

Issued at **Hamburg** on **2019-07-05**

This Certificate is valid until **2024-07-04**.

DNV GL local station: **Essen**

Approval Engineer: **Stefan Wiemer**

for **DNV GL**

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Harald Pauli
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

10 types of welded filters with cylindrical shell and flat ends. Dimensions of the types:

Type	Shell External diameter (mm)	Nozzle Inlet / Outlet (DN)	Volume (app. Liter)
RF14-10	273	125	34
RF14-15	323,9	200	65
RF14-20	406,4	250	144
RF14-25	508	300	277
RF14-30	610	350	400
RF14-35	711	400	410
RF14-40	813	450	887
RF14-45	914	500	1397
RF14-50	1016	600	1692
RF14-60	1219	700	2830

For details of the filters (e. g. design data, materials or dimensions) see Approved Drawings (listed below in "Type Approval documentation").

Application/Limitation

- Seawater filter, designed according to DNV GL Rules Pt.4 Ch.7 (edition January 2018) and graded as class III (Pt.4 Ch.7 Sec.1 table 2),
- The joint efficiency is $v=0,85$, the corrosion allowance 1 mm (carbon steel),
- This type approval applies to the strength of the filter body as a pressure vessel, the filter function has not been assessed. For the installation of the filter on board of the ship, the requirements of DNV GL rules Pt.4 Ch.6 "Piping systems" and Pt.4 Ch.9 "Control and monitoring systems" shall be observed additionally,
- Materials used for pressurized parts shall conform DNV GL Rules Pt.2 Ch.2 Sec.3 and shall be delivered with material certificates according to DNV GL Rules Ship Pt.4 Ch.7 Sec.1 Table 7,
- each filter manufactured to this type approval is to be:
 - Constructionally checked and hydraulic pressure tested to minimum 1.5 x design pressure,
 - Certified by DNV GL and to be delivered with a product certificate when required by the DNV GL rules or by the purchaser.

Type Approval documentation

Marking of product

For traceability to this type approval the products are at least to be marked with:

- the name and domicile of the manufacturer,
- the manufacturer's type designation and serial number,
- the year of manufacture,
- the design pressure,
- the design temperature in °C,
- the hydraulic test pressure, and
- DNV GL's identifying mark.

Periodical assessment

The objective of the periodical assessment is to verify that the conditions for the type approval (TA) have not been altered.

The main scope of the periodical assessment will normally include:

- verification of the TA applicant's production and quality system w.r.t. ensuring continued consistent production of the TA products at the TA applicant's own premises and at other companies that are given the responsibility for manufacturing of the products,
- review of TA documentation and that this is still used as basis for the production,
- review of possible changes in the design, the materials and the performance of the product, and
- verification of the product marking.

For retention of the TA certificate in its validity period the periodical assessments will be carried out bi-yearly.

Unscheduled assessments for retention of the certificate may be carried out when there is reason to believe that the type approval applicant has not adhered to the obligations stipulated in the type approval certificate.

End of Certificate