

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Pressure Vessel

with type designation(s)
P-BC 250, P-BC 600, P-BC 1000, P-BC1500

Issued to

Minimax GmbH & Co KG
BAD OLDESLOE, Germany

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

Application :

Dry Powder Extinguishing Pressure Tanks approved by this certificate are accepted for installation on all vessels classed by DNV GL.

Max. working temp.: 55 °C
Design pressure: 14 bar
Operating Medium Air, dry Extinguishing Powder

This Certificate is valid until **2021-07-26**.

Issued at **Hamburg** on **2016-07-27**

DNV GL local station: **Hamburg**

Approval Engineer: **Stefan Wiemer**

for **DNV GL**

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

Dry Powder Extinguishing Pressure Tank, designed according to DNVGL Rules Pt.4 Ch.7 (October 2015) and graded as class II.

Dimensions

Type	Shell External diameter (mm)	Length cyl. shell (mm)	Volume (Liter)
PBC 250	500	1158	250
PBC 600	800	1000	600
PBC 1000	1000	900	1000
PBC 1500	1300	830	1500

Material

According to approved drawings

Corrosion allowance (shell and ends): 1 mm

Joint efficiency is $v = 0,85$

Minimum Design Temperature -20°C, for PBC1500 also -40°C possible according to material list in the approved drawings.

Application/Limitation

The materials used shall conform DNVGL Rules Pt.2 Ch.2 Sec.3 (Steel for low temperature services), e.g. test temperature of Impact Testing according to the minimum design temperature

Materials used shall have certificates according to DNV Rules Pt.4 Ch.7 Sec. 2 Table 1

The handholes shall be suitable for the design conditions. This shall be demonstrated by the documentation of the handhole manufacturer

The extent of non-destructive testing shall be in line with DNV Rules Pt.4 Ch.7 Sec.7 No. 4.1.2

Each Powder Tank is to be:

- Hydraulic pressure tested to 1,5 times design pressure,
- Certified by DNVGL and to be delivered with a product certificate.

Type Approval documentation

Approved Drawings:

Title
P-BC 250/05 Marine c/w Hose, Powder Tank 250 Liter,
P-BC 250/05 without Hose Marine, Powder Tank 250 Liter,
P-BC 600/10 Marine, Powder Tank 600 Liter,
P-BC 1000/10 Marine, Powder Tank 1000 Liter,
P-BC 1500/13 Marine Powder Tank 1500 Liter,
P-BC 1500/13 Marine, Powder Tank 1500 Liter,
P-BC 1500/13 Marine, Powder Tank 1500 Liter,

DWG. No.
S8-01-01/101, Rev 2 Ind. 3
S8-01-04/101, Rev. 2 Ind. 3
S8-01-03/101, Rev. 1 Ind. 2
S8-01-04/101.01, Rev 1 Ind. 2
S8-01-05/101 Page 1/3, Rev 4 Ind. 4
S8-01-05/101 Page 2/3, Rev 0
S8-01-05/101 Page 3/3, Rev 0

Marking of product

For tracability of this Type Approval the products should at least be marked with:

- a. the name and domicile of the manufacturer
- b. the manufacturer's type designation and serial number
- c. the year of manufacture
- d. the design pressure
- e. the design temperature in °C
- f. the hydraulic test pressure

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
- 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