

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings

with type designation(s)
HWB315, HWB313, HWB325, HWB2N-K32S

Issued to
Polimer Kaucuk San.ve Paz. A.S.
ISTANBUL, Türkiye

is found to comply with
DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV class programme DNV-CP-0183 – Type approval – Flexible non-metallic hoses

Application :

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

Type:	Temperature range:	Max. working press.:	Sizes:
HWB315	-40°C / +100°C	See page 2	DN6, DN8, DN10, DN12, DN16, DN19 and DN25
HWB313	-40°C / +100°C	See page 2	DN6, DN8, DN10, DN12, DN16, DN19 and DN25
HWB325	-40°C / +100°C	See page 2	DN6, DN8, DN10, DN12, DN16, DN19 and DN25
HWB2N-K32S	-40°C / +100°C	See page 2	DN6, DN8, DN10, DN12, DN16, DN19 and DN25

Issued at **Høvik** on **2023-01-06**

for **DNV**

This Certificate is valid until **2028-01-05**.

DNV local station: **Istanbul**

Approval Engineer: **Renata Rossi**

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Bosman van der Merwe
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

4 different types of non-metallic hose assemblies with permanently fitted VOSS Fluid couplings:

Type	According to	Tube	Reinforcement	Cover
HWB315	EN 857 1SC	Mineral, vegetable, and hydraulic oil resistant special synthetic rubber	1 layer of high tensile steel wire braid	Oil, abrasion, and weather resistant special synthetic rubber
HWB313	EN 853 1SN	Mineral, vegetable and hydraulic oil resistant special synthetic rubber	1 layer of high tensile steel wire braid	Oil, abrasion and weather resistant special synthetic rubber
HWB325	EN 857 2SC	Mineral, vegetable and hydraulic oil resistant special synthetic rubber	2 layer of high tensile steel wire braid	Oil, abrasion and weather resistant special synthetic rubber
HWB2N-K32S	Manufacturer's specification	Mineral, vegetable and hydraulic oil resistant special synthetic rubber	2 layer of high tensile steel wire braid	Oil, abrasion and weather resistant special synthetic rubber

Coupling details

Material of construction : Carbon steel 11SMn30, 11SMnPb30, 11SMn37 and 11SMnPb37 (according to EN 10277-3)
 Design : Swaged ferrule PF 24

Manufacturing locations

Hoses : Polimer Kaucuk San.ve Paz. A.S., Istanbul, Turkey
 Couplings : VOSS Fluid GmbH, Lüdenscheider Str 52-54, 51688 Wipperfürth, Germany

Application/Limitation

This certificate is valid for the specific assembly of hose and coupling type as specified, assembled and delivered by the holder (named as manufacturer) of this certificate.

Maximum working pressure:

Size			HWB315		HWB313		HWB325		HWB2N-K32S	
Dash	inch	DN	Design pressure	Burst Pressure	Design pressure	Burst Pressure	Design pressure	Burst Pressure	Design pressure	Burst Pressure
-04	1/4"	06	225	900	225	900	400	1600	450	1800
-05	5/16"	08	215	860	215	860	350	1400	420	1680
-06	3/8"	09	180	720	180	720	330	1320	385	1540
-08	1/2"	12	160	640	160	640	275	1100	345	1380
-10	5/8"	16	130	520	130	520	250	1000	290	1160
-12	3/4"	19	105	420	105	420	215	860	280	1120
-16	1"	25	88	352	88	352	165	660	200	800

Hose assemblies covered by this type approval certificate are approved for use with petroleum base and water base hydraulic fluids within a temperature range from -40°C to +100°C.

Flexible hoses are only to be used in short lengths where it is necessary due to vibrations or flexible mounting of the machinery. The hoses shall not replace/be used where permanent piping is possible/required.

The hose assemblies must only be fitted in places where they are always accessible. Flexible hoses of these types are not to be used on boiler fronts.

The hoses are to be mounted in accordance with the manufacturer's instructions.

The outer end of the pipe coupling (performing the connection to the fixed piping) is not covered by this certificate and shall follow the below requirements:

- Flanged ends shall be according to a recognized standard
- Slip-on threaded joints having pipe threads where pressure-tight joints are made on the threads with parallel or tapered threads, shall comply with requirements of a recognized standard. Limitations stated in DNV-RU-SHIP Pt.4 Ch.6 Sec.9 [5.2.6] to be followed
- If these outer ends are going to be part of a mechanical joint as covered by DNV-RU-SHIP Pt.4 Ch.6 Sec.9 [Table 8], then they shall be separately type approved.

Production testing

All hose assemblies delivered under the DNV type approval scheme shall be subject to a pressure test at 1.5 times the maximum working pressure and shall be delivered with the pressure test report with reference to this type approval certificate.

Type Approval documentation

TR-047497A, dated 2022.04.27 witnessed by DNV surveyor

Burst tests: KK22-0691, KK22-0692, KK22-0693, KK22-0694, KK22-0695, KK22-0696, KK22-0697, KK22-0698, KK22-0699, KK22-0700, KK22-0701, KK22-0702

Drawing numbers: HWB2N-K32S Rev. A, HWB325 Rev. B, HWB313 Rev. B, HWB315 Rev. B

Hose datasheets: HWB2N-K32S, HWB325, HWB313, HWB315

Hoses testing according to TAP000009S

VOSS Catalogue Hose fittings

Report no. TR-050224A witnessed by DNV dated 2022-12-28

Tests carried out

Dimensional check, Change-in-length, burst, cover adhesion, oil resistance, cold flex, ozone resistance, impulse, leakage tests, vacuum test, fire test.

Marking of product

For traceability to this Type Approval, the products are at least to be marked with:

- hose manufacturer's name or trademark;
- date of manufacture (month/year);
- designation type reference;
- nominal diameter;
- pressure rating;
- temperature rating.

Periodical assessment

For retention of the Type Approval, a DNV 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 DNV-CP-0338.