

# 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**

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

for **DNV**

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**

#### **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.