



Certificate No:
TAP00002DH

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Flexible hoses of metallic material with permanently fitted couplings

with type designation(s)
BHA/EM-22/01

Issued to

Bengal Industries Pvt. Ltd.
Faridabad, Haryana, India

is found to comply with

DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV-OS-D101 – Marine and machinery systems and equipment, Edition July 2021
DNV GL class programme DNVGL-CP-0184 – Type approval – Flexible hoses with permanently fitted couplings

Application :

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

Temperature range: 0°C to +55°C

Max. working press.: 35 bar

Sizes: DN80 - 3"

Issued at **Høvik** on **2021-09-20**

This Certificate is valid until **2026-09-19**.

DNV local station: **Mumbai FiS**

for **DNV**

Approval Engineer: **Renata Rossi**

.....
Zeinab Sharifi
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.



Form code: TA 251

Revision: 2021-03

www.dnv.com

Page 1 of 3

Product description

Corrugated flexible metal hoses with two layers of wire braid reinforcement and grooved end fittings constructed according to Type 1-50 of ISO 10380:2012.

Materials:

Hose	: ASTM A240 TP321
Braid reinforcement	: EN10088-3 1.4307/1.4306 (SUS 304L)
End pipe	: ASTM A312 TP304
Ferrule	: ASTM A240 304L
End fittings	: AISI 304

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.

Hose assemblies covered by this certificate may be used in systems conveying refrigerant systems.

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.

Hose assemblies covered by this certificate shall not be used in system subject to pressure below atmospheric or systems subject to pressure pulsation.

All hoses used in fuel oil, lubricating oil and compressed air systems must be possible to shut off from the system.

Hose assemblies covered by this certificate shall not be used in LNG/LPG systems or fuel piping systems.

Welding shall fulfil requirements in DNV-RU-SHIP Pt.2 Ch.4.

The outermost end of the coupling performing the connection to the fixed piping is not covered by this certificate and shall fulfil the restrictions in Pt.4 Ch.6 Sec.9 [5] and Pt.6 Ch.2 Sec.5 [11.2] as below:

- Flanged ends shall be according to a recognized standard.
- Threaded joints having pipe threads where pressure-tight joints are made on the threads:
 - 1) with parallel or tapered threads, shall comply with requirements of a recognized national or international standard.
 - 2) shall not be used for piping systems conveying toxic or flammable media or services where fatigue, severe erosion or crevice corrosion is expected to occur.
- Other mechanical joints are not covered by this certificate and shall be type approved separately in accordance with DNVGL-CP-0185.

Hose assemblies covered by this certificate shall not to be used in systems where pressure pulsations may occur.

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

Burst, pliability (bending) and fatigue 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;



Job Id: **262.1-035635-1**
Certificate No: **TAP00002DH**

- 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 DNVGL-CP-0338.