DNV·GL

Certificate No:
TAP00000TW

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Flexible Hoses of Metallic Material with permanently fitted couplings

with type designation(s)
MFH

Issued to
DK-Lok Corporation
Gimhae-si Gyeongsangnam-do, Republic of Korea

is found to comply with
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition July 2015
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 all vessels classed by DNV GL.

Temperature range:	**-40ºC to +450ºC**
Max. working press.:	**151 - 172 - 248 bar (dependent on size and maximum temperature)**
Sizes:	**1/4"- 3/8" - 1/2"**

Issued at **Høvik** on **2017-02-10**

This Certificate is valid until **2021-12-31**.

for **DNV GL**

DNV GL local station: **GYE**

Approval Engineer: **Adel Samiei**

Marianne Spæren Marveng
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.

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Job Id: **262.1-024438-1**
Certificate No: **TAP00000TW**

Product description

Corrugated stainless steel hose with one layer of stainless steel wire braid reinforcement. Permanently fitted couplings with front and back ferrules.

Materials:

Hose, braid and coupling body:	Stainless steel 316L
Front- and back ferrule and nut:	Stainless steel 316

Application/Limitation

Hose assemblies covered by this certificate may be used in systems for: Lubricating oil, fresh water, steam and compressed air. (They are not approved to be used in seawater systems.)

Nominal hose size	¼"	3/8"	½"
Maximum working pressure	248 bar	172 bar	151 bar

At elevated temperatures the maximum allowable pressure has to be reduced according to the table given below:

Temperature [ºC]	-40 to +20	50	100	150	200	250	300	350	400	450
Factor	1.0	0.88	0.74	0.67	0.62	0.58	0.54	0.52	0.50	0.48

Flexible hoses are only to be used in short lengths where it is necessary due to vibrations or flexible mounting of the machinery. The hose shall not be used to replace fixed piping and must only be fitted on places where they are always accessible for inspection.

Means shall be provided to isolate flexible hoses used in systems for fuel oil, lubricating oil and compressed air.

The hoses are to be mounted according to the manufacturer's instructions, and the hoses are to be supplied with end couplings from the manufacturer.

Each hose is to be hydraulically pressure tested to 1,5 times the maximum working pressure before installation and to be delivered with a test report with reference to this type approval certificate.

The hoses shall not be used in systems where pressure impulses may occur.

The hoses must only be fitted on places where they are always accessible for inspection.

Minimum bending radius is to be ensured according to the manufacturer's instructions/specifications.

Type Approval documentation

Tests carried out

Burst test - Pliability (bending) test – Fatigue test

Marking of product

For traceability to this type approval each hose is at least to be marked with:

- Manufacturers name or trade mark
- Type designation

Periodical assessment

For retention of the Type Approval, DNV GL Surveyor shall perform a survey - every second year and before the expiry date of this certificate - to verify that the conditions for the type approval are complied with and to witness a burst test on a selection of sizes.