Certificate No:
TAP00001K7

TYPE APPROVAL CERTIFICATE

This is to certify:

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

with type designation(s)
COFLEX® T3X

Issued to
COFI S.R.L.
Santa Margherita Ligure GE, GE, Italy

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 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.

Temperature range:	**-40 to +100°C (see page 2)**
Max. working press.:	**see page 3**
Sizes:	**DN 06 to DN 76 (see page 2)**

Issued at **Høvik** on **2023-04-27**
This Certificate is valid until **2028-04-26**.
DNV local unit: **Genoa**

for **DNV**

Approval Engineer: **Maheshraja Venkatesan**

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.

Product description

Three types of flexible hose assemblies with the following construction:

Hose (for all three types)

Tube : Synthetic and oil resistant rubber
Cover : Anti-abrasive synthetic, oil resistant and ozone resistant rubber
Reinforcement : Two high tensitle steel wire braids

End fittings

Type	Ferrule design	Material grade	Insert design	Material grade
COFLEX® T3X	Ferrule code 001C	Carbon steel (CS) grade 11SMnPb37 from EN 10277-3	As per COFI catalogue	Cu-Ni alloy grades CuNi10Fe1Mn and CuNi10Fe1.6Mn
	Ferrule code X001C	Stainless steel (SS) grade EN 10088-3 1.4404 (AISI 316L)		
	Ferrule code 0022	Carbon steel (CS) grade 11SMnPb37 from EN 10277-3		
	Ferrule code X0022	Stainless steel (SS) grade EN 10088-3 1.4404 (AISI 316L)		

Manufacturing locations

Type	End fittings	Hoses	Assembling location
COFLEX® T3X	COFI S.R.L., Santa Margherita Ligure, GE, Italy	I.M.M. Hydraulics S.p.A., Atessa CH, Italy	COFI S.R.L., Santa Margherita Ligure, GE, Italy

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 allowable working pressure (MAWP) rating:

Size		*COFLEX® T3X with Cu-Ni fittings*		
ID		*Part Number*	*MAWP*	
Inch	DN		psi	bar
¼”	06	THE002K-04	6235	430
3/8”	10	THE002K-06	5075	350
½”	12	THE002K-08	4495	310
5/8”	16	THE002K-10	4060	280
¾”	19	THE002K-12	3480	240
1”	25	THE002K-16	3045	210
1 ¼”	31	THD0021-20	2030	140
1 ½”	38	THD0021-24	1813	125
2”	51	THD0021-32	1305	90
2 ½”	63	THE002K-40	1160	80
3”	76	THE002K-48	943	65

Hose assemblies covered by this certificate are suitable for:

- petroleum base hydraulic fluids within a temperature range of -40°C to +100°C
- water base hydraulic fluids within a temperature range of -40°C to +70°C
- fresh water, sea water and compressed air within a temperature range of 0°C to +70°C

Flexible hoses are only to be used 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 and must only be fitted in places where they are always accessible.

Flexible hoses of these types are not to be used in boiler fronts.

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

The cover of hoses for gaseous applications shall be pin-pricked.

Hose assemblies covered by this type approval certificate shall not be installed in systems subject to vacuum.

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 Table 8 DNV-RU- SHIP Pt.4 Ch.6 Sec.9, then they shall be separately type approved.

Production testing

Each hose assembly shall be hydrostatically tested at a pressure of 1.5 times the maximum working pressure and be delivered with the pressure test report with reference to this type approval certificate.

Type Approval documentation

RINA fire test report for HIPAC 2SC DN6 dated 10/06/2021

Tests carried out

Fire, Burst, Impulse, Change in length, Abrasion, Adhesion, Oil resistance, Cold flexibility, Ozone resistance, Dimensional check.

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.