

TYPE APPROVAL CERTIFICATE

This is to certify:

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

with type designation(s)
INTERPUMP LongLife 1SC, INTERPUMP LongLife 2SC

Issued to
I.M.M. Hydraulics S.p.A.
Atessa, CH, 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.

Type:	Temperature range:	Max. working press.:	Sizes:
INTERPUMP LongLife 1SC	-40°C to +120°C	See page 2	DN06 to DN25
INTERPUMP LongLife 2SC	-40°C to +120°C	See page 2	DN06 to DN25

Issued at **Høvik** on **2022-05-20**

This Certificate is valid until **2027-05-04**.

for **DNV**

DNV local station: **Italy/Malta CMC**

Approval Engineer: **Andreas Hansen**

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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

Two types of no-skive non-metallic flexible hose assemblies constructed according to EN 857 1SC/2SC.

INTERPUMP LongLife 1SC constructed according to ISO 11237 / EN 857 1SC

Tube	:	Synthetic rubber
Reinforcement	:	One high tensile steel wire braid
Cover	:	Smooth abrasion resistant synthetic rubber / MSHA

INTERPUMP LongLife 2SC constructed according to ISO 11237 / EN 857 2SC / SAE 100R16

Tube	:	Synthetic rubber
Reinforcement	:	Two high tensile steel wire braids
Cover	:	Smooth abrasion resistant synthetic rubber / MSHA

Material of construction for couplings:

Ferrule	:	Carbon steel material grade 11SMnPB37/C10C Stainless steel material grade AISI 316L
Insert	:	Carbon steel material grade 11SMnPB37/C10C Stainless steel material grade AISI 316L

Manufacturing location:

I.M.M. Hydraulics S.p.A.
Via Italia 49-51 – 66041 Athesa (CH) – Italy

Assembly locations:

1. I.M.M. Hydraulics S.p.A.
Lungotorrente Secca 4B-r – 16163 Genova (GE) – Italy
2. I.M.M. Hydraulics S.p.A.
Zona Ind.le C. da Gianera Grande – 71022 Ascoli Satriano (FG) – Italy
3. I.M.M. Hydraulics S.p.A.
Viale Industria 112 – 36015 Schio (VI) – 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.

Type designation ¹⁾	Size		MAWP [bar]	End fitting ²⁾		
	DN	Inch		Ferrule	Insert	
THE201K-04	06	¼	250	001C-04	Standard Tail	
THE201K-05	08	5/16	250	001C-05		
THE201K-06	10	3/8	250	001C-06		
THE201K-08	12	½	200	001C-08		
THE201K-10	16	5/8	150	001C-10		
THE201K-12	19	¾	150	001C-12		
THE201K-16	25	1	110	001C-16		
THE202K-04	06	¼	430	001C-04		
THE202K-05	08	5/16	400	001C-05		
THE202K-06	09	3/8	350	001C-06		
THE202K-08	12	½	310	001C-08		
THE202K-10	16	5/8	280	001C-10		
THE202K-12	19	¾	240	001C-12		
THE202K-16	25	1	210	001C-16		
1) Hoses with fire resistant MSHA cover have respective type designations THEY01K-XX and THEY02K-XX						
2) Couplings are available in carbon steel (001C) and stainless steel (X001C).						

Hose assemblies covered by this certificate are approved to be used as flexible connections between bottle valve and manifold in CO₂ fire extinguishing systems.

Hose assemblies covered by this certificate may be used in systems conveying petroleum based hydraulic fluid, water based hydraulic fluids, fresh water, and air in the below temperature range:

- Petroleum based hydraulic fluids: -40° to +120°C
- Water based hydraulic fluids: -40° to +70°C
- Water and air: 0°C to +70°C

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

The hose assemblies must only be fitted on places where they are always accessible for inspection and shall be mounted according to the manufacturer's instructions.

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

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

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

Tests carried out

Proof pressure test, change in length test, bend test, burst test, pressure pulsation tests, fire test, cold flexibility test, fluid resistance test, abrasion resistance test, cover adhesion test, ozone resistance test, vacuum test, and endurance test.

Marking of product

For traceability to this type approval the products are 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.