



Certificate No:
TAP00002MZ

TYPE APPROVAL CERTIFICATE

This is to certify:

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

with type designation(s)
15R7 CNG5000

Issued to

Transfer Oil S.p.A.
Colorno PR, Italy

is found to comply with

DNV rules for classification – Ships Pt.6 Ch.2 Sec.5 Gas fuelled ship installations – Gas fuelled LNG
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 all vessels classed by DNV.

Temperature range: up to 80°C
Max. working press.: 350bar
Sizes: 3/4"

Issued at **Hamburg** on **2023-03-02**

This Certificate is valid until **2028-03-01**.

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

Approval Engineer: **Hagen Markus**

for **DNV**

Sven Klinger
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

The hose assembly of type CNG5000 Compressed Natural Gas hose assemblies consist of a hoses of type 15R crimped with hose end fittings made of carbon steel.

Component	Design specifications
Hose	Hose data specification "15R - CNG 5000 - COMPRESSED NATURAL GAS Hose" Hose design specification "15R7 CNG5000 – ¾" RED"
Hose end fitting	Ferrule SAF172, Insert SOH1D7
Fire sleeve	"PROTECH/SIL." Transfer Oil code BS15000002P00 – Glass sleeve ID 38 ISO 15540

Hose design standard references:

ISO 3949:2020

"Plastics hoses and hose assemblies Textile-reinforced types for hydraulic applications Specification"

SAE J343:2017

"Test and Test Procedures for SAE 100R Series Hydraulic Hose and Hose Assemblies"

For application requiring fire resistance, e.g. flammable gas or liquids the hose assembly is to be protected by a fire sleeve of type "PROTECH/SIL".

Application/Limitation

The CNG5000 Compressed Natural Gas Hose Assemblies are type approved for application in compressed natural gas piping systems.

Sizes and Maximum working pressure (M.A.W.P.) pressure range

Type	Size inch/DN/Dash	Dimensions ID/OD mm	M.A.W.P. bar
15R7	¾" / DN20 / -12	19.5 / 29.6	350

Flexible hoses are only to be used in short lengths (up to 1.5m) where it is necessary due to vibrations or flexible mounting of the machinery.

Hose assemblies with couplings made of carbon steel are not to be used at temperatures below -10°C unless the material is normalised.

Hoses assemblies covered by this certificate shall not be installed in systems subject to pressure below atmospheric.

Installation

For installation, the manufacturer's instructions "CNG Hose range – Assembling instructions" are to be observed.

Hose assemblies shall be fitted at locations always accessible.

Means are to be provided to shut off hose assemblies to avoid uncontrolled release of the media in the case of hose rupture.

Production testing

All hose assemblies shall be subjected to a pressure test at 1.5 times the maximum working pressure.

Appropriate works certificate (inspection certificate 3.1 acc. to 10204) to be issued and shipped with the delivery.

Reference is made to Transfer Oil instruction "Compressed Natural Gas Hose Assembly Procedure."



Job Id: **262.1-038834-1**
Certificate No: **TAP00002MZ**

Type Approval documentation

Tests carried out

Test standard ANSI/CSA NGV 4.2-2014

Impulse test covered by Pressure cycle test (100,000 cycles between 0 Bar and MAWP)
Pressure cycle test, minimum bend test in clause, Kink resistance, Ozone resistance ISO1431/ASTM D1149

Test standard ISO 1402

Leakage test (70% of min. burst test)

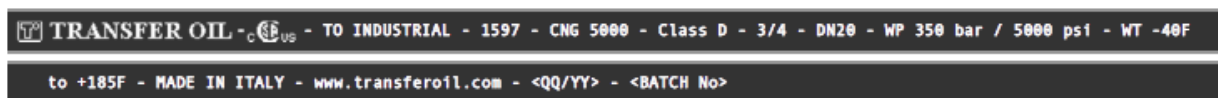
Test standard CP-0183 (ISO 3949) Change in length test, Cold flexibility (EN ISO 4672), Fluid resistance test (ISO 1817), Impulse test ISO 6803, Burst pressure test (ISO 1402), Fire resistance test (wet condition).

Marking of product

After a successful pressure test, the product is to be marked on the ferrule using a roll embossing machine or engraving. In case of final inspection by DNV surveyor, additional laser marking of Product certificate number (PC) will be applied.

Hose

Example 3/4", DN20



Ferrule, Fire sleeve

Scope	Example
Code number	M2301091

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment to verify that the conditions for the Type Approval are complied with. Refer to the Class Programme DNV-CP-0338, Sec.4.

To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>