



Marine & Offshore

Certificate number: 23366/C1 BV

File number: ACM135/0712/002

Product code: 73101

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

GUTTELING BV

ROTTERDAM - NETHERLANDS

for the type of product

CARGO TRANSFER HOSE

Multi-LNG White STS Cargo Hoses Assemblies for LNG ship to ship transfer

Requirements:

BUREAU VERITAS Rules for the Classification of Steel Ships

BUREAU VERITAS Rules for LNG Bunkering Ship

IGC Code

IGF Code

EN 1474-2: Design and testing of marine transfer systems - Part 2: Design and testing of transfer hoses

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 15 Feb 2025

For Bureau Veritas Marine & Offshore,

At BV GRONINGEN, on 30 Apr 2020,

John Mondt



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

Cargo Hose Assemblies: Multi-LNG White STS

1.1 - Range

Hose size	6" (ID 150 mm / OD 183 mm)	8" (ID 200 mm / OD 240 mm)	10" (ID 250 mm / OD 295 mm)
Minimum bend radius (MBR)	660 mm @ 10.5 barg 750 mm @ 21 barg	910mm @ 10.5 barg 1000 mm @ 21 barg	1500 mm @ 10.5 barg 1500 mm @ 21 barg
Maximum allowable applied twist (MAAT)	4 °/m		
Maximum working load	40 kN		
Maximum length	30 m		
Maximum Working pressure	21 bar		
Temperature range	-196°C to +50°C		

1.2 - Couplings

Fixed flange and floating flange:	1" to 12"	ASA or DIN or TTMA or JIS
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1.3 - Construction

Inner wire:	Stainless steel 316
Lining:	Polyester fabrics and films
Outer cover:	Polyamide
Outer wire:	Stainless steel 316
Coupling:	Stainless steel
Ferrule:	Stainless steel

2. DOCUMENTS AND DRAWINGS

- Technical sheets of Gutteling BV composite hoses and couplings.
- As per the Manufacturer's drawings dated 10/03/2019:
 - N° GUT/HOSE/05-103 rev.01
 - N° GUT/HOSE/05-104 rev.01
 - N° GUT/HOSE/06-105 rev.01
 - N° GUT/HOSE/16-103 rev.01
 - N° GUT/HOSE/16-104 rev.01
 - N° GUT/HOSE/16-105 rev.01
- TNO Protocol N° TNO-034-DTM-2009-00630 dated 06/12/2009.
- "Composite hose handling & installation booklet" - Doc. 140329/SV, Rev 05.

No departure from the above documents shall be made without the prior consent of the Society. The manufacturer must inform the Society of any modification or changes to these documents and drawings.

3. TEST REPORTS

Tests carried out: Change in length, tensile strength, proof pressure test, burst test at -196°C, cold flexibility test at -196°C, pressure cycle test, bend test:

- Test report N° TNO-034-DTM-2009-02941 dated 09/2009, from TNO, The Netherlands.
- Test report N° TNO-034-DTM-2009-00733 dated 12/2009, from TNO, The Netherlands.
- Test report N° TNO 2016 R10624 dated 13/05/2016, from TNO, The Netherlands.

4. APPLICATION / LIMITATION

4.1 - **Restricted application:** Hoses are qualified for ship to ship transfer operation in systems that are qualified according to a recognised standard such as Part 3 (Offshore transfer systems) and Part 1 if relevant (Design and testing of transfer arms) of EN 1474.

4.2 - Prior to any use, justifications are to be given in order to demonstrate that the design conditions listed in §1 above are never exceeded.

4.3 - The hoses are to be handled and installed according to manufacturer's instructions.

4.4 - According to EN1474 Part 2, the maximum service life of the hose assembly is to be agreed between the vendor and the owner.

5. PRODUCTION SURVEY REQUIREMENTS

5.1 - The **Multi LNG White STS** are to be supplied by **GUTTELING BV** in compliance with the type and the requirements described in this certificate.

5.2 - This type of product is within the category IBV of Bureau Veritas Rule Note NR320

5.3 - BV product certificate is required.

6. MARKING OF PRODUCT:

Each hose shall be permanently marked with at least the following information:

- Manufacturer's name or logo
- Hose designation and size
- Maximum working pressure
- Maximum working temperature
- Date of manufacture
- Society's brand as relevant

7. OTHERS

7.1 - It is **GUTTELING BV** 's responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

7.2 - This Certificate supersedes the Type Approval Certificate N° 23366/C0 BV issued on 15/02/2020 by the Society.

***** END OF CERTIFICATE *****