

# TYPE EXAMINATION CERTIFICATE

Certificate No:  
**TAP000003C**  
Revision No:  
**1**

**This is to certify:****That the Bulk Loading Hoses with Permanently Fitted Couplings**

with type designation(s)  
**60GAA**

Manufactured by  
**ALFAGOMMA INDUSTRIAL S.p.A.**  
**S.Atto TE, Italy**

is found to comply with  
**EN 1765:2004**

**Application :****Products are not approved to be installed in DNV class vessels.**

**Temperature range:** -20°C to 82°C  
**Max. working press.:** 15 bar  
**Sizes:** Nominal bores: 100, 150, 200, 250, 300 mm

This Certificate is valid until **2019-09-15**.

Issued at **Høvik** on **2015-09-29**

for **DNV GL**

DNV GL local station: **Milan**

Approval Engineer: **Adel Samiei**

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**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 Examination Certificate and not to the approval of equipment/systems installed.

## Product description

- Hose assembly for oil suction and discharge services according to EN 1765:2004 (Rubber hose assemblies for oil suction and discharge services Specification for the assemblies):
- 60GAA (designed and tested according to EN1765:2003 Type S15 Smooth Bore - Electrically bonded hose assembly – also may be produced discontinuous):
  - Tube: Black NBR
  - Reinforcement: High tensile textile cords with embedded steel helix wires
  - Cover: Black CR - abrasion, ozone, salt water and hydrocarbon resistant
  - Fittings: Built in flanged nipples

## Application/Limitation

- Hose assemblies are approved to be used for oil suction and discharge services for the conveyance of petroleum, including crude oils and other liquid petroleum products containing a maximum aromatics content of 50 % (v/v). It is not approved for liquefied petroleum gas and natural gas. They are to be used in the temperature range -20 °C to 82 °C and maximum working pressure of 15 bar.
- The nominal bore of hoses and fittings shall be as follow:

Nominal bore (mm)	Inside diameter (mm)	Tolerances (mm)
100	100	±1,6
150	150	±2,0
200	200	±2,0
250	250	±2,4
300	300	±5,0

- Hose assemblies are not fire tested; therefore they are not to be used when fire resistant components are required.
- For electrically bonded hose assemblies end of the wire helix shall be electrically bonded to the nipples by brazing, welding or by soldering a short of flexible bonding wire to the end of the helical wire and the nipple.
- Below tests shall be carried out on all hose assemblies prior to dispatch:
  - Change in length test at maximum working pressure
  - Vacuum test
  - Electrical test
- Below tests (known as production acceptance tests in EN1765:2004) are to be carried out per batch. A batch is defined as either 500 m of hose assembly or 2000 kg of lining and/or cover compound:
  - Compound tests  
(On lining: resistance to liquid / on cover: resistance to liquids and abrasion resistance)
  - Adhesion test (dry and wet) on hose assemblies
  - Change in length test at maximum working pressure
  - Proof pressure
  - Vacuum test
  - Bending test
  - Electrical tests
  - Stiffness test
- Hose assemblies should be wrapped in waterproof paper, hessian or other suitable material over their entire length. Flanged ends should be protected by circular discs of slightly greater diameter than the diameter of the flange, bolted in two places diametrically opposite. These discs should have holes for ventilation purposes.

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- Nipple tube, bands and other welded-on components shall conform to the requirements of BS EN ISO 15614-1:2004+A2:2012, Table 3, Group 1 with a minimum yield stress of 205 N/mm<sup>2</sup>, a minimum tensile strength of 331 N/mm<sup>2</sup> and a maximum carbon content of 0,23 %.
- Flanges shall be normalized carbon steel forgings with a maximum carbon content of 0,25 % and, where fitted, shall be drilled in accordance with a standard drilling table relating to the purchaser's requirements and the pressure designation of the hose.

## Type Approval documentation

- Technical datasheet for 60GAA dated 2015-09-16
- Test reports (on 60GAA dia. 300 mm) according to EN1765:2004 dated 2014-12-04 witnessed by DNV local station Milan:
  - Dimensional check test report no. 1412G01
  - Dry and wet adhesion test report no. 1412G02
  - Burst pressure (@60 bar) test report no. 1412G08
  - Elongation test report no. 1412G05
  - Stiffness test report no 1412G12
  - Electrical test report no. 1412G07
  - Proof pressure test no. 1412G06
  - Vacuum test (@-0,85 bar) report no. 1412G03
  - Minimum bend radius test report no. 1412G04
  - Compound test reports (Volume change, Abrasion resistance and ozone resistance) numbers 1G, 2G, 3G & 4G
- Test reports (on 60GAA dia. 300 mm) according to GMPHOM 2009 dated 2014-12-04 witnessed by DNV local station Milan:
  - Nipple adhesion test report no. 1412G09
  - Weight test report no. 1412G10
  - Vacuum test report no. 1412G11
  - Bending stiffness test report no. 1412G12
  - Hydrostatic pressure report no. 1412G13
  - Electrical test report no. 1412G14
  - Burst test report no. 1412G15 (@75 bar – 15 min / Burst pressure value:89 bar)
  - Dry and wet adhesion test report no. 1412G16
  - Compound test reports (Mechanical and Physical properties) numbers 5G & 6G
- Drawing number OG-FIT12INDOK rev.1 dated 2015-07-09

## Tests carried out

- Compound tests, Adhesion test (dry and wet), Change in length test at maximum working pressure, Proof pressure, Vacuum test, Stiffness test, Minimum bend radius test, Electrical test, Burst pressure according to EN1765:2004
- In addition, these type tests are done in accordance with GMPHOM: 2009 on hose with nominal diameter 300 mm: Nipple adhesion, weight test , vacuum test, bending stiffness test, hydrostatic pressure, electrical test, burst test, dry and wet adhesion test

## Marking of product

For traceability to this Type Examination, the products are at least to be marked at both ends with:

- The manufacturer's name or trade mark.
- Type designation.
- The nominal bore.
- The maximum working pressure.
- The quarter and year of manufacture.
- The serial number of the hose assembly.



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### **Periodical assessment**

For retention of the Type Examination, a DNV GL Surveyor shall perform a periodical assessment every second year, to verify that the conditions for the type examination are complied with, review and record batch test reports during last four years, and to witness the production acceptance tests.

**END OF CERTIFICATE**