

# TYPE EXAMINATION CERTIFICATE

Certificate No:  
**TAP000003D**  
Revision No:  
**1**

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**This is to certify:****That the LNG/LPG Loading hoses**

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

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

is found to comply with  
**EN 1762:2003**

**Application :**

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

**Temperature range:** -30°C to +70°C  
**Max. working press.:** 25 bar  
**Sizes:** Nominal bore: 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**

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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.

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## Product description

- Hose assembly type 60JAA (designed and tested according to EN1762:2003 type SD/M) suction and delivery hose, helix reinforced & electrically bonded:
  - Tube: Black NBR
  - Reinforcement: High tensile textile cords with embedded steel helix wires
  - Cover: Black CR - abrasion, ozone, salt water and hydrocarbon resistant  
Pin pricked
  - Fittings: Built in flanged nipples
    - Nipple: API 5L Gr.A or B / ASTM A106 Gr.A or B
    - RIB: ASTM A285 C / Fe 430-360 B C
    - Flange: ASTM A105 N (ANSI B16.5 class 300 lbs RF)

## Application/Limitation

- Hose assemblies type 60JAA is approved to be used for the transfer of liquefied petroleum gas (LPG) in liquid or gaseous phase and natural gas with a maximum working pressure of 25 bar within the temperature range of -30°C to +70°C.

- The dimensional data and tolerances shall be as follows:

Nominal bore	Internal diameter (mm)	Tolerance (mm)	Minimum bending radius (mm) measured to the surface of the hose on the inside of the bend.
100	100	±1,6	720
150	150	±2,0	1200
200	200	±2,0	1400
250	254	±2,0	1750
300	305	±2,0	2100

- The tolerances on the measured length of hoses and hose assemblies shall be ±1%.
- Hose assemblies shall not be subject to tank pressure or the discharge pressure of pumps or vapour compressors.
- Below tests shall be carried out on all hose assemblies prior to dispatch:
  - Dimensional check test
  - Electrical resistance test
  - Proof pressure test
  - Change in length test
  - Vacuum test
- Below tests (known as production acceptance tests in EN1762:2003) are to be carried out per batch. A batch is defined as either 1000 m of hose or 2000 kg of lining and/or cover compound:
  - Tensile strength and elongation test
  - Adhesion test (dry)
  - Dimensional check test
  - Electrical resistance test
  - Proof pressure test
  - Change in length test
  - Vacuum test
- The couplings should be attached in accordance with EN1762 clause 8.
- Below tests (known as production acceptance tests in EN1762:2003) are to be carried out per 10 batches:
  - Tensile strength and elongation test after ageing
  - Abrasion resistance

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- Mass increase and mass reduction
- Ozone resistance
- Cold flexibility test @ -30°C
- Bending test

## Type Approval documentation

- Technical datasheet for 60JAA dated 2015-09-16
- Test reports (on 60JAA dia. 300 mm) dated 2014-12-04 witnessed by DNV local station Milan:
  - Compound tests (Tensile test and elongation (new and after aging), abrasion resistance and Ozone resistance, numbers 1J, 2J, 3J, 4J, 5J, 6J & 7J
  - Adhesion test (dry) report number 1412J02
  - Dimensional check test report number 1412J01
  - Cold flexibility test (at -30°C) report number 1412J04
  - Vacuum test report number 1412J03
  - Electrical resistance test report number 1412J07
  - Proof pressure test report number 1412J08
  - Change in length test report number 1412J06
  - Burst pressure test report number 1412J09
  - Ageing in N-Pentane test report number 6J
- Flammability test report no., 1412J05 on a hose sample ID 25 mm dated 2014-12-04 witnessed by DNV local station Milan
- Test reports (on 60JAA dia. 300 mm) according to GMPHOM 2009 dated 2014-12-04 witnessed by DNV local station Milan:
  - Nipple adhesion report number 1412J10
  - Weight test report number 1412J11
  - Stiffness test report number 1412J12
  - Minimum Bend Radius test report number 1412J12A
  - Hydrostatic pressure test report number 1412J13
  - Dry and wet adhesion test report number 1412J14
- Fitting drawing AGI.045.00.2004-WN dated 2004-04-26

## Tests carried out

- Compound tests (Tensile test and elongation (new and after aging), abrasion resistance, Ozone resistance, Adhesion test (dry), Dimensional check test, Vacuum test, electrical resistance test, proof pressure, change in length test, burst pressure test, flammability, Mass increase and mass reduction (Ageing in N-pentane), cold flexibility test at -30°C.
- In addition, these type tests are done in accordance with GMPHOM: 2009 on hose with nominal diameter 300 mm: Nipple adhesion, weight test, stiffness test, minimum bend radius test, hydrostatic pressure test, dry and wet adhesion test

## Marking of product

For traceability to this Type Approval, the products are at least to be marked 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**