DNV·GL

TYPE APPROVAL CERTIFICATE

Certificate No:
TAP000003A
Revision No:
2

This is to certify:

That the Bulk Loading Hoses with Permanently Fitted Couplings

with type designation(s)
GGE, EGE, SST, SSE

Issued to
GASSO EQUIPMENTS S.A.
Sant Boi de Llobregat, Barcelona, Spain

is found to comply with
EN 13765:2018 Thermoplastic multi-layer (non-vulcanized) hoses and hose assemblies for the transfer of hydrocarbons, solvents and chemicals – Specification

Application :

Hose assemblies for carrying hydrocarbons, solvents and chemicals in liquid applications.

This certificate is not valid for hose assemblies which are subject to classification by DNV GL.

Temperature range:	**-30°C to 80°C**
Max. working press.:	**14 bar (vacuum rating equal to 0.9 bar)**
Sizes:	**1" to 10" (see page 2)**

Issued at **Høvik** on **2020-02-20**

This Certificate is valid until **2024-11-24** .
DNV GL local unit: **Barcelona FIS**

Approval Engineer: **Maheshraja Venkatesan**

for **DNV GL**
Digitally Signed By: Zeinab Sharifi
Location: DNV GL Høvik, Norway

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.

Job Id: **262.1-018888-5**
Certificate No: **TAP000003A**
Revision No: **2**

Product description

Four types of thermoplastic multi-layer hose assemblies – Designed and tested in accordance with EN 13765:2018 (Type 3).

Hoses are constructed with:

Hose Type	Inner wire spiral	Outer wire spiral	Inner lining
GGE	galvanized steel (1)	galvanized steel (1)	polypropylene
EGE	Polypropylene (2)	galvanized steel (1)	polypropylene
SST	stainless steel (3)	stainless steel (3)	PTFE
SSE	stainless steel (3)	stainless steel (3)	polypropylene

(1) in accordance with EN 13765 annex C
(2) with minimum wall thickness of 0.5 mm
(3) conforming to EN 10088-3:2005, Table 4, numbers 1.4306, 1.4401, 1.4404 or 1.4436

Dimensional data:

Internal diameter		Tolerance in diameter	Minimum bend radius
(inch)	(mm)		
1″	25 mm	±1 mm	200 mm
1 ½″	40 mm	±1 mm	200 mm
2″	50 mm	±1 mm	225 mm
2 ½″	65 mm	±2 mm	300 mm
3″	80 mm	±2 mm	350 mm
4″	100 mm	±2 mm	400 mm
6″	150 mm	±2 mm	575 mm
8″	200 mm	±3 mm	800 mm
10″	250 mm	±3 mm	1000 mm

End Fittings are attached to the hose using a seal and a metal ferrule which is crimped.

Material of fittings: stainless steel ANSI 316.

Tolerances (on length): +2% / -1% (in accordance with EN ISO 4671)

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.

This certificate is not valid for designs, components, equipment, systems or products which are subject to classification by DNV GL.

These hoses are not to be used for aircraft refueling, fuel dispensing, oil burners, LPG and LNG applications, firefighting, offshore LNG applications or refrigeration circuits.

Batch/Routine tests

Batch tests are to be carried out for every 10000 m of manufacture or once a year in accordance with EN 13765:2018 annex L.

Routine tests shall be carried out on each hose assembly in accordance with EN 13765:2018 Annex K.

Type Approval documentation

- Gassoflex catalogue ref. '2046 09-2019 TANDA' dated September 2019
- Manufacturer's test reports (Reviewed by DNV GL local station Barcelona – tests have been done between October 2014 – June 2015)

Drawings:
- GASSOFLEX DN80 14100 dated 29 November 2018
- MIC083 – RACCORD CS BRIDA ALU 3" dated 29 November 2018
- MIC020 dated 19 February 2020
- MIC0785 – Racord CX Brida 10" +stub end
- Fittings assembly procedure
- Test report titled '15-Electrical resistance between fittings: Hose 10"', Rev. 0 dated April 2019
- Test report titled '15-Electrical resistance between fittings: Hose 1"2, Rev. 0 dated April 2019
- Test report titled '15-Electrical resistance between fittings: Hose 3" 14100', Rev. 0 dated April 2019
- Test report titled '18-Series if Hydrostatic tests hose 1"', Rev. 0 dated April 2019
- Test report titled '18-Series if Hydrostatic tests hose 10"', Rev. 0 dated April 2019
- Test report titled '18-Series if Hydrostatic tests hose 3" 14100', Rev. 0 dated April 2019
- 'Procedures and results - Physical properties of hoses 1" 14 bar - Burst pressure' witnessed by DNV GL Surveyor dated 13 Nov. 2019
- 'Procedures and results - Physical properties of hoses 3" 14 bar - Burst pressure' witnessed by DNV GL Surveyor dated 13 Nov. 2019
- 'Procedures and results - Physical properties of hoses 10" 14 bar - Burst pressure' witnessed by DNV GL Surveyor dated 13 Nov. 2019
- Procedures and results - Physical properties of hoses 10" 14 bar rev. 0 dated October 2019: 1-Diameter, 3-pressure test, 4-changel in length at proof pressure, 5-twist at pressure test, 7-bend, 8-vacuum, 9-crush recovery, 10-fuel resistance, 12-thermal ageing, 13-flammability, 14-low temperature flexibility, 15-electrical resistance between fittings, 16- leak tightness, 17-security of end fitting, 18-series of hydrostatic tests
- Procedures and results - Physical properties of hoses 3" 14 bar rev. 0 dated October 2019: 1-Diameter, 3-pressure test, 4-changel in length at proof pressure, 5-twist at pressure test, 7-bend, 8-vacuum, 9-crush recovery, 10-fuel resistance, 12-thermal ageing, 13-flammability, 14-low temperature flexibility, 15-electrical resistance between fittings, 16- leak tightness, 17-security of end fitting, 18-series of hydrostatic tests
- Procedures and results - Physical properties of hoses 1" 14 bar rev. 0 dated October 2019: 1-Diameter, 3-pressure test, 4-changel in length at proof pressure, 5-twist at pressure test, 7-bend, 8-vacuum, 9-crush recovery, 10-fuel resistance, 12-thermal ageing, 13-flammability, 14-low temperature flexibility, 15-electrical resistance between fittings, 16- leak tightness, 17-security of end fitting, 18-series of hydrostatic tests
- Report no. 19/31708069 (cover adhesion and ozone resistance tests)

Tests carried out

On hose: change in length, twist at proof pressure, burst pressure, vacuum test, crush recovery, fuel resistance, ozone resistance, thermal ageing, flammability, low temperature flexibility

On hose assemblies: Series of hydrostatic test, proof pressure, bend test, Security of end fitting, electrical resistance between end fittings, burst pressure, leak tightness

Marking of product

For traceability to this Type Approval, each hose shall at least to be marked with the following information along with other requirements as stated in EN 13765 Section 10.1:

- manufacturer's name or identification mark
- hose identification
- internal diameter
- maximum working pressure
- working temperature range
- material of hose inner liquid barrier layer as referenced in EN ISO 1043-1
- Quarter and year of hose manufacture

In addition, each hose assembly shall be permanently marked on the ferrule at one end with the following information:

- assembler's name or identification mark;
- the hose assembly serial number;

- the test date of the hose assembly;
- maximum allowable working pressure for the assembly;
- quarter and year of hose assembly manufacture;

Periodical assessment

For retention of the Type Approval, a DNV GL 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 DNVGL-CP-0338.

Type tests shall be repeated during renewal, and the results recorded as described in EN13765 section 9.