

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Bulk Loading Hoses with Permanently Fitted Couplings**with type designation(s)
"BUNKERFLAT"® ST - TESS part no. 10360.

Issued to

TESS AS
Lierstranda, Norway

is found to comply with

DNV GL class programme DNVGL-CP-0183 – Type approval – Flexible hoses**Application :****Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV GL.****Temperature range:** Oil and fuel: -20°C to +90°C. Other media: max +50°C**Max. working press.:** 17 bar**Sizes:** 1", 1 1/4", 1 1/2", 2", 3", 4", 5", 6", 8"This Certificate is valid until **2022-12-31**.Issued at **Høvik** on **2018-12-19**DNV GL local station: **Station Oslo Maritime and CAP**for **DNV GL**Approval Engineer: **Adel Samiei**

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

Product description

Design: Rubber hose reinforced with plies of textile yarn and built in double copper wire for grounding of static electricity.

Manufacturer of hoses: IVG Colbanchini SpA, Padova, Italy.
Hose Type: OSM360 / Bunkerflat ST.
Materials: Inner tube: Nitrile / PVC.
Cover: Neoprene rubber according to ASTM C-542
(Alternative cover in Nitrile / PVC, part no. 10367)
Coupling manufacturer: Manuli for sizes 1" up to 2"
Shand UK for sizes equal to 2" or greater
IVG Colbanchini SpA, Padova, Italy for 4"
Material of Couplings: Carbon steel with zinc protection or AISI 316/316L

The coupling Designations and Materials:

For sizes: 1", 1 1/4", 1 1/2" and 2".

Ferrule:

Carbon Steel:

65224/65124/65133 (9SnMnPb36, DIN1651) (Manuli ref.M00920,M00930,M00910,M00310)

65403 Luxe type (Carbon steel ASTM 1020/DIN 1C22)

Stainless Steel:

665224/665124/665133 (Manuli ref. IM00920,IM0910,IM00310) (AISI316L/316)

665403 Luxe type (AISI316L/316).

Tale part of Insert:

Carbon steel: 6501 (*) (9SnMnPb36, DIN 1651) - (Manuli ref. M20812)

Stainless steel: 66501 (*) (AISI316L/316)

(*) The tale part of insert is covered by this certificate and the outer end connection is out of scope of this certificate.

For sizes: 2" to 8"

Insert: 330021, 330041, 33004, 330021, 32968, 33111, 33002 in Carbon Steel (A106)
33062, 33061, 33070, 33604, 33064, 32967 in Stainless Steel (AISI316L)

Ferrule: 30133, 30134 in Carbon Steel (A105)
301462, 301464 in Stainless Steel (AISI316L)

Application/Limitation

This certificate is valid for the specific assembly of hose and coupling type as specified, assembled and delivered by the holder of this certificate and below approved locations:

- TESS Vest (Norway): Stavanger, Kokstad, Sotra, Mongstad
- TESS Logistikk AS, Lierstranda, Norway
- TESS, Esbjerg, Denmark
- TESS, Aberdeen, Scotland

Each hose assembly is to be hydraulic pressure tested to 1.5 times the maximum working pressure before delivery and shall be delivered with a pressure test report with reference to this certificate. No product certificate will be required.

Hose assemblies covered by this certificate are approved for installation on DNV GL classed ships and mobile offshore units as a "Bulk loading hose" ("Rig supply hose") and may be used for transfer of the following media: Hydraulic oil, Fuel and lubricating oil, Pneumatic Material Transfer (dry bulk), Fresh water.

Hoses covered by this certificate are not to be used in:

- DNV GL classed drilling units (applications covered by DNVGL-OS-E101)
- Wherever they might be subject to axial load during operation
- Wherever they might be subject to twisting during operation

Type Approval documentation

- Test report 25082002 rev.3 dated 2002-08-22 witnessed by DNV surveyor ((Test spec. EN1765-

Job Id: **262.1-009105-8**
Certificate No: **TAP00000ME**

- Burst Pressure test witnessed by DNV GL surveyor dated 2014-09-03, 2014-07-02, 2012-01-23/24, 2013-01-17/18,

Tests carried out

Dimensional check, Burst pressure, Oil resistance, Temporary and Permanent elongation, Proof, pressure test, Bending test, Electrical tests, Tension test, Break load test

Marking of product

For traceability to this type approval the products are to be marked with:
Manufacturer's name or trade mark, Type designation, size, Maximum working pressure

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.