DNV·GL

Certificate No:
TAS000002U

TYPE EXAMINATION CERTIFICATE

This is to certify:

That the Exhaust Hoses

with type designation(s)
Gas Exhaust - D and Gas Exhaust - SD

Manufactured by
MANIFATTURA TUBI GOMMA S.P.A.
Grisignano de Zocco VI, Italy

is found to comply with
ISO/DIS 13363 - Rubber or plastic hoses for marine wet exhaust systems - Specification

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.
The hoses may be used in marine wet exhaust systems (where the exhaust gases are mixed with the discharge of cooling water)

This Certificate is valid until **2018-12-31**.

Issued at **Høvik** on **2015-07-29**

for **DNV GL**

DNV GL local station: **Venice**

Approval Engineer: **Tom Berg-Nielsen**

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.

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Product description

Type "Gas Exhaust - D":

Inner tube of CR
2 layers of Rayon textile reinforcement separated by a CR rubber layer
Cover is cloth finished CR.

Size range:
I.D: 30, 35, 40, 42, 45, 50, 55, 57, 60, 65, 70, 75, 80, 85, 90, 100, 115, 120, 125, 130, 150, 155, 160, 165, 168, 170, 175, 180, 200, 220, 254, 406, and 457 mm.

Maximum working pressure:

I.D 30 to 80 mm:	5 bar
I.D 85 to 115 mm:	4 bar
I.D 120 to 220 mm:	3 bar
I.D 254 to 457 mm:	2 bar

Temperature range:
-30ºC to 100ºC

Type "Gas Exhaust - SD":

Inner tube of CR
2 layers of Rayon textile reinforcement separated by a CR rubber layer
A steel helix wire wraps the inner reinforcement.
Cover is convoluted CR rubber

Size range:
I.D: 20, 25, 30, 32, 35, 38, 40, 42, 45, 48, 51, 55, 60, 65, 70, 75, 80, 80, 82, 85, 90, 100, 102, 105, 110, 115, 120, 125, 130, 140, 152, 154, 160, 168, 178, 203, 219 and 254 mm

Maximum working pressure:

I.D 20 to 80 mm:	5 bar
I.D 82 to 140 mm:	3 bar
I.D 152 to 254 mm:	2 bar

Temperature range:
-30ºC to 100ºC

Hoses of sizes up to 457 millimetres are designed and tested in accordance with the principles given in the standard ISO 13363 and are found to comply with the standard even though the standard only covers hose sizes up to 127 millimetres

Application

The hoses may be used in marine wet exhaust systems (where the exhaust gases are mixed with the discharge of cooling water)

Limitation

- The hoses may be used as exhaust gas hoses for combustion engines on yachts
- The exhaust gas shall be water cooled
- Testing of hoses is to be performed in accordance with ISO 13363/2004 Part 9 Annex C

Type Examination documentation

Tests carried out

Tensile strength, elongation at break, accelerated ageing, compression set, minimum burst pressure, flexibility, ozone resistance, adhesion, abrasion resistance, heat resistance and ageing after 1000 h at 85ºC

Marking of product

The hoses shall be legibly and durably marked at lease once every 0.5 m with the following information:

- Manufacturer's name or trade mark
- The number and year of publication of the ISO standard
- The type and class of hose
- Size
- The quarter and year of manufacture

Certificate Retention Survey

For retention of the Type Examination Certificate, a DNV Surveyor shall perform a survey before the expiry date of this certificate to verify that the conditions of the type examination are complied with.

END OF CERTIFICATE