DNV·GL

Certificate No:
TAP000000E
Revision No:
1

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings

with type designation(s)
492, 492TC and 492ST, 462, 462TC and 462ST

Issued to
Parker Hannifin Manufacturing S.r.l.
Veniano CO, Italy

is found to comply with
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition July 2015
DNV GL class programme DNVGL-CP-0183 – Type approval – Flexible hoses

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Type:	Temperature range:	Max. working press.:	Sizes:
492, 492TC and 492ST	**-40°C to +100°C (see page 2)**	**75 to 280 bar (see page 2)**	**DN6 to DN31 (see page 2)**
462, 462TC and 462ST	**-40°C to +100°C (see page 2)**	**70 to 425 bar (see page 2)**	**DN6 to DN76 (see page 2)**

Issued at **Høvik** on **2017-11-21**

This Certificate is valid until **2022-06-30**.
DNV GL local station: **Milan**

Approval Engineer: **Adel Samiei**

for **DNV GL**
Digitally Signed By: Marveng, Marianne Spæren
Location: DNV GL Høvik, Norway

Marianne 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.

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Job Id: **262.1-017480-5**
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Product description

1) Hose assemblies 492, 492TC and 492ST according to EN 857 1SC - ISO 11237 1SC
Construction:

- Inner Tube: Nitrile (NBR)
- Reinforcement: one high-tensile steel wire braid
- Cover: synthetic rubber
  Highly abrasion resistance synthetic rubber
  Synthetic rubber with a special polyethylene coating
  Couplings: Parker coupling series 46 made from carbon steel or 316 stainless steel

2) Hose assemblies 462, 462TC and 462ST according to EN 857 2SC - ISO 11237 2SC
Construction:

- Inner Tube: Nitrile (NBR)
- Reinforcement: one high-tensile steel wire braid
- Cover: synthetic rubber
  Highly abrasion resistance synthetic rubber
  Synthetic rubber with a special polyethylene coating
  Couplings: Parker coupling series 46/48 (for all sizes) & 43 (for sizes up to DN51) made from carbon steel or 316 stainless steel

Hoses made by: Parker Hannifin, Italy
Couplings made by: Parker Hannifin, Germany

Application/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.

Maximum working pressure:

Hose size (DN)	Type			Coupling series	Maximum working pressure in bar
6	492-4	492TC-4	492ST-4	46	280
8	492-5	492TC-5	492ST-5	46	250
10	492-6	492TC-6	492ST-6	46	225
12	492-8	492TC-8	492ST-8	46	190
16	492-10	492TC-10	492ST-10	46	150
19	492-12	492TC-12	492ST-12	46	150
25	492-16	492TC-16	492ST-16	46	110
31	492-20	-	492ST-20	46	75

Hose size (DN)	Type			Coupling series	Maximum working pressure in bar
6	462-4	462TC-4	462ST-4	46/48 - 43	425
8	462-5	462TC-5	462ST-5	46/48 - 43	400
10	462-6	462TC-6	462ST-6	46/48 - 43	350
12	462-8	462TC-8	462ST-8	46/48 - 43	310
16	462-10	462TC-10	462ST-10	46/48 - 43	280
19	462-12	462TC-12	462ST-12	46/48 - 43	280
25	462-16	462TC-16	462ST-16	46/48 - 43	210
31	462-20	462TC-20	462ST-20	46/48 - 43	172
38	-	462TC-24	-	46/48 - 43	146
51	-	462TC-32	-	46/48 - 43	112
63	-	462TC-40	-	46/48	70
76	-	462TC-48	-	46/48	70

The hose may be used for the following application: Petroleum base hydraulic fluids, water glycol and water oil emulsion hydraulic fluids, compressed air & fresh water.
Hose assemblies covered by this certificate are suitable for:

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- Petroleum base hydraulic fluids within a temperature range of -40°C to +100°C
- Water base hydraulic fluids within a temperature range of -40°C to +70°C.
- Fresh water and compressed air within a temperature range of 0°C to +70°C.

Each hose assembly is before delivery to be hydraulic pressure tested to 1.5 times the maximum working pressure and to be delivered with the pressure test report with reference to this type approval certificate.

Flexible hoses are only to be used where it is necessary due to vibrations or flexible mounting of the machinery. The hoses shall not replace/be used where permanent piping is possible/required and must only be fitted in places where they are always accessible.

Flexible hoses of these types are not to be used in boiler fronts.

The hoses are to be mounted in accordance with the manufacturer's instructions.

The cover of hoses for gaseous applications shall be pin-pricked.

It must be possible to shut off from the system all flexible hoses used in systems for lube oil, fuel oil and petroleum base hydraulic oil.

Hose assemblies covered by this certificate shall not be used in systems subject to pressure below atmospheric or vacuum conditions.

Type Approval documentation

Parker catalogue 4400/UK (Hydraulic hoses, Fittings & equipment) April 2017 pages Cab-17,-20,-21,-28,-29,-30
Burst pressure & change in length test reports (witnessed by DNV surveyor) numbers 2101, 2102, 2104 & 2107 dated 2010-07-05, 2151, 2152 & 2153 dated 2010-09-28, 2123 & 2125 dated 2010-09-28
Fire test reports done by LAPI 560.0IS0110/14, 561.0IS0110/14 & 562.0IS0110/14
Fire test reports done by LAPI 735.0IS0110/04, 736.0IS0110/04, 737.0IS0110/04, 738.0IS0110/04 and 739.0IS0110/04
Rubber hose test specification Nr. 047,48,49,50,51,52,53,54 dated 2014-06-24
Manufacturer’s burst test reports witnessed by DNV 1384, 1445, 1446, 1386, 1435, 1436 and 1437 dated 2004-08-10 and 2004-10-19.
HS-K46, Crimp standard 46 series dated 1995-03-03
Rubber hose test specification Nr. 001,2,3,4,5,6,7,8,9,10 (dated 2015-05-12)
Rubber hose test specification Nr. 021,022,023 (April 2014)
Burst pressure test, change in length test & dimensional check test N° 3297, 3298, 3299, 3300, 3301, 3302, 3304, 3307 (dated 2017-07-24) & 3303, 3306 (dated 2017-07-25)

Tests carried out

Fire, Burst, Impulse, Change in length, Abrasion, Adhesion, Oil resistance, Cold flexibility, Ozone resistance, Dimensional check

Marking of product

For traceability to this type approval the products are at least to be marked with:

- Manufacturer's name or trade mark
- Type designation
- Maximum working pressure
- Size

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.

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Renewal assessment

For renewal of this certificate, during the renewal assessment (as described in DNVGL-CP-0338), burst pressure tests shall be witnessed on every 3rd sizes of each type.

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