

# TYPE APPROVAL CERTIFICATE

**This is to certify:****That the Flexible Hoses of Metallic Material with permanently fitted couplings**

with type designation(s)

**Parker 422, Parker 471 TC, Parker 472 TC, Parker 471 ST**

Issued to

**Parker Hannifin dba Hose Products Division  
Wickliffe, OH, USA**

is found to comply with

**DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems****DNV GL class programme DNVGL-CP-0183 – Type approval – Flexible hoses****Application :****Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.**

| Type:                | Temperature range:                              | Max. working press.:               | Sizes:                              |
|----------------------|-------------------------------------------------|------------------------------------|-------------------------------------|
| <b>Parker 422</b>    | <b>-40°C up to +100°C (dependent on medium)</b> | <b>225 bar (dependent on size)</b> | <b>6,3 mm to 51 mm (1/4" to 2")</b> |
| <b>Parker 471 TC</b> | <b>-40°C up to +100°C (dependent on medium)</b> | <b>400 bar (dependent on size)</b> | <b>6,3 mm to 25 mm (1/4" to 1")</b> |
| <b>Parker 472 TC</b> | <b>-40°C up to +100°C (dependent on medium)</b> | <b>157 bar (dependent on size)</b> | <b>1 1/4", 1 1/2" and 2"</b>        |
| <b>Parker 471 ST</b> | <b>-40°C up to +100°C (dependent on medium)</b> | <b>400 bar (dependent on size)</b> | <b>6,3 mm to 25 mm (1/4" to 1")</b> |

Issued at **Hamburg** on **2019-03-11**This Certificate is valid until **2024-03-10**.for **DNV GL**DNV GL local station: **Certification & Inspection Services**Approval Engineer: **Christian Kaemmer**

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**Olaf Drews**  
**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

### 422 Series:

One-wire hose design; hose assemblies designed according to EN 853 type 1SN / SAE 100 R1 type AT/ ISO 1436 type 1SN.

Inner tube: Synthetic rubber / Nitrile  
Reinforcement: One high tensile steel wire braid  
Cover: Synthetic rubber  
Coupling: Permanent hose fittings  
Parker Coupling Series 43 of carbon steel or 316 stainless steel

### 471TC / 471ST / 472TC Series:

Two-wire hose design; hose assemblies designed according to EN 857 Type 2SC / SAE 100R16 /ISO 11237 type 2SC.

Inner tube: Synthetic rubber / Nitrile  
Reinforcement: Two high tensile steel wire braids  
Cover: Synthetic rubber / 471ST: High abrasion-resistant polymeric cover  
Coupling: Permanent hose fittings  
Parker Coupling Series 43 of carbon steel or 316 stainless steel

### Maximum working pressure:

| -no | Hose I.D. |    | 422              |      | 471TC            |      | 472TC            |      | 471ST            |      |
|-----|-----------|----|------------------|------|------------------|------|------------------|------|------------------|------|
|     |           |    | Working pressure |      | Working pressure |      | Working pressure |      | Working pressure |      |
|     | inch      | mm | bar              | psi  | bar              | psi  | bar              | psi  | bar              | psi  |
| -4  | ¼         | 6  | 225              | 3250 | 400              | 5800 | -                | -    | 400              | 5800 |
| -5  | 5/16      | 8  | 215              | 3125 |                  |      | -                | -    |                  |      |
| -6  | 3/8       | 10 | 180              | 2600 | 350              | 5000 | -                | -    | 350              | 5000 |
| -8  | ½         | 12 | 160              | 2325 | 297              | 4250 | -                | -    | 297              | 4250 |
| -10 | 5/8       | 16 | 130              | 1875 | 250              | 3625 | -                | -    | 250              | 3625 |
| -12 | ¾         | 19 | 105              | 1525 | 215              | 3125 | -                | -    | 215              | 3125 |
| -16 | 1         | 25 | 88               | 1275 | 175              | 2500 | -                | -    | 175              | 2500 |
| -20 | 1 ¼       | 31 | 63               | 900  | -                | -    | 157              | 2250 | -                | -    |
| -24 | 1 ½       | 38 | 50               | 725  | -                | -    | 125              | 1800 | -                | -    |
| -32 | 2         | 51 | 40               | 575  | -                | -    | 90               | 1300 | -                | -    |

### Production places

- Parker Hannifin dba Hose Products Division, 125 E Meadowview Rd, Greensboro, NC, USA.
- Parker Hannifin Corp., Hose Products Division, 3737 West River Drive, Davenport, IA 52802, USA.

### Responsibility

Parker Hannifin, Wickliffe, OH, USA, takes the responsibility that the design and production of the hoses, hose end fittings and manufacturing of hose assemblies are in compliance with Rules, Standards and/or Regulations listed on page 1 of this certificate.

## Application/Limitation

Hose assemblies covered by this type approval certificate are type approved for petroleum-based hydraulic fluids, lubricating oils, water, water/oil emulsion, water based fluids, water/glycol, air.

Flexible hoses are only to be used in short lengths up to 2 m 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.

## Installation

The hose assemblies must only be fitted in places where they are always accessible.

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

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

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

Hose assemblies with couplings made of carbon steel are not to be used at temperatures below -10°C unless the material is normalized. The cover on hoses for gaseous applications > 17 bar shall be pin-pricked.

## Type Approval documentation

### Tests carried out

### Production testing

All hose assemblies shall be subject to a pressure test at 1.5 times the maximum working pressure and shall be delivered with the pressure test report with reference to the type approval certificate.

### Marking of product

For traceability to this type approval, each hose assembly is to be marked with:

|                                   |
|-----------------------------------|
| Manufacturer's name               |
| Type, Nominal Diameter            |
| Maximum working pressure M.A.W.P. |
| Date Code                         |
| Temperature Rating                |

### Periodical assessment

For retention of the type approval certificate periodical assessments shall be carried out at production places by DNVGL surveyor.

The objective of the periodical assessment is to verify that the design and production conditions for the type approval have not been altered.

Main scope of the assessment:

- verification of the production and quality control system
- review of quality control documentation of recent deliveries
- review of drawings in production to verify any design changes which may have an impact on data specified in the type approval certificate, performance and range of application
- verification of the product marking

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate. In connection with the renewal assessment, a surveyor shall witness / review test reports with respect to the following tests on every 3rd size appropriate test reports to be submitted:

- dimensional check, change in length test,
- pressure test with 1.5 times M.A.W.P. and burst test (witnessed by DNV GL surveyor)