

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Flexible Hoses for CO2 Systems

with type designation(s)
G119-8K

Issued to

PARKER HANNIFIN CONNECTORS LTD.
Yangsan-si Gyeongsangnam-do, Republic of Korea

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 :

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

Temperature range: -60 to 100 °C
Max. working press.: 175 bar(g)
Sizes: 1/2" (ID: 12.7 mm)

This Certificate is valid until **2021-06-29**.

Issued at **Høvik** on **2016-08-08**

for **DNV GL**

DNV GL local station: **Gimhae MC & FIS**

Approval Engineer: **Maheshraja Venkatesan**

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

Flexible rubber hose with permanently fitted couplings. The inner tube is made of NBR, and the hose has one braid of steel wire reinforcement. The outer cover is made of an oil and weather resistant rubber.

The couplings are manufactured by:
Parker Hannifin Connectors Ltd.,
77, 4-gil Yusangongdan, Yangsan-si,
Gyeongsangnam-do,
50592, Rep. of Korea.

Coupling design:
PK-series
Materials: SM10C, SM20C

Application/Limitation

Approved for use for high pressure CO₂ fire extinguishing system.

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.

All hose assemblies delivered under this type approval certificate shall be in compliance with an assembly procedure issued by the certificate holder.

All hose assemblies delivered under the DNV GL type approval scheme 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.

Flexible hoses are only to be used in short lengths 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.

Hose assemblies covered by this certificate shall not be subject to pressure below atmospheric.

Hose assemblies with couplings made of carbon steel are not to be used at temperatures below -10°C unless the material is normalized.

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

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

The hoses shall be pin pricked according to manufacturer's written procedure.

Type Approval documentation

Manufacturer's data- and specification sheets.
Parker test report 8JB9, dated 2008-10-27
Parker test report dated 2008-11-07 witnessed by DNV
Parker test report dated 2012-12-04 witnessed by DNV
Parker test report (for renewal) dated 2016-05-19 witnessed by DNV GL Gimhae
Pin pricking & endurance test report no. K-16091 dated 2016-07-19

Tests carried out

Dimensional check, Change in length, Cold bend, Cover adhesion, Ozone resistance, Impulse test, Burst (and Burst test at -60°C), Pin pricking & Endurance test

Job Id: **262.1-006380-4**
Certificate No: **TAP00000EX**

Marking of product

For traceability to this type approval the final products (hoses with couplings) are to be marked with:

- Manufacturer's name or trade mark
- Type designation
- Maximum working pressure
- Size
- Additional marking at manufacturer's option

Periodical assessment

For retention of the Type Approval, DNV GL Surveyor shall perform a periodical assessment every second year, to verify that the conditions for the type approval are complied with and to witness the following tests:

- Dimensional check
- Change in length
- Burst test

The tests are to be performed with the type of couplings fitted that are Type Approved with the hoses.