

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings**

with type designation(s)

Aeroquip GH493, Aeroquip FC254

Issued to

**Eaton Corporation
Van Wert, 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:
Aeroquip GH493	-40°C up to +126°C	276 bar / 4000 psi	3/8" up to 2"
Aeroquip FC254	-40°C up to +126°C	431 bar / 6250 psi	3/4" up to 2"

Issued at **Hamburg** on **2019-04-23**This Certificate is valid until **2024-04-22**.for **DNV GL**DNV GL local station: **Certification & Inspection
Services**Approval Engineer: **Christian Kaemmer**

**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

GH493-Series:

Synthetic rubber tube, 4-heavy spiral wire reinforcement and synthetic rubber cover (with fire sleeve).

Couplings:

Permanently fitted Eaton Global 4S TTC crimp fittings made of zinc plated carbon steel.

FC254-Series:

Synthetic rubber tube, 4-heavy spiral wire reinforcement and synthetic rubber cover (with fire sleeve).

Couplings:

Permanently fitted Eaton Global 4S TTC fittings made of zinc plated carbon steel.

Size and pressure range:

Part No. Hose ID(inch)		FC 254		GH 493	
No.	ID	psi	bar	psi	bar
-06	0.38	-	-	4000	276
-08	0.50	-	-	4000	276
-10	0.63	-	-	4000	276
-12	0.75	6250	431	4000	276
-16	1.00	5000	345	4000	276
-20	1.25	3500	241	3000	207
-24	1.50	3000	207	2500	172
-32	2.00	3000	207	2500	172

Production places

- Eaton Corporation, 860 Blankenship Road, Newbern, Tennessee 38059
- Eaton Fluid Power GmbH, Auefeld 1, 34346 Hann. Münden Germany
- In addition, hoses FC254 & GH493 manufactured by: Eaton Corporation, 1830 Highway 201 South Spur, Mountain Home, Arkansas 72653
- Eaton Industries PTE Ltd, Eaton Building, 45 Tuas View Circuit, Singapore, 637660 Singapore
- Eaton Corporation, 1225 W. Main Street, Van Wert, Ohio 45891-0389, USA

Responsibility

Eaton Corporation Van Wert, 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 GH493 are approved for use with petroleum base fluids and water base hydraulic fluids within a temperature range of -40°C to +126°C (-40°F to +259°F).

Hose assemblies FC254 are approved for use with petroleum base fluids and water base hydraulic fluids within a temperature range of -40°C to +126°C (-40°F to +259°F).

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.

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, 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 Type Approval are complied with. Refer to DNVGL-CP-0338, Sec.4.