

# TYPE APPROVAL CERTIFICATE

**This is to certify:**

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

with type designation(s)  
**Aeroquip FC300 AQP and Aeroquip 1503**

Issued to  
**Eaton Corporation**  
**Van Wert OH, United States**

is found to comply with  
**DNV GL class programme DNVGL-CP-0183 – Type approval – Flexible hoses**  
**DNV GL rules for classification – Ships**

**Application :**

**Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.**

**Temperature range:** -49°C up to 150°C (see certificate)  
**Max. working press.:** 20 bar up to 207 bar / 300 psi up to 3000 psi (see certificate)  
**Sizes:** 0.19" up to 2.38" (see certificate)

Issued at **Hamburg** on **2017-07-03**

for **DNV GL**

This Certificate is valid until **2022-07-02**.  
DNV GL local station: **Houston Containers**

Approval Engineer: **Peter Gierhan**

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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.



Job Id: **262.1-015630-3**  
Certificate No: **TAP00000Y7**

## Production Place

### Manufacturing plants:

#### Couplings:

Eaton Aeroquip LLC  
1225 W. Main Street  
Van Wert  
Ohio 45891-0389

#### Hoses:

Eaton Aeroquip LLC  
1830 Highway 201 South Spur  
Mountain Home  
Arkansas 72653

Eaton Aeroquip LLC  
860 Blankenship Road  
Newbern  
Tennessee 38059 USA

Eaton Fluid Power GmbH  
Auefeld 1  
34346 Hann Munden  
Germany

The following manufacturing site is approved for type Aeroquip FC-300 hoses part numbers -04, -05, -10, -12, -16 only:

Eaton Industries Pte Ltd.  
45 Tuas View Circuit  
Singapore 637660

## Product description

Hose types Aeroquip FC 300 AQP and Aeroquip 1503 according to SAE 100 R5.

Aeroquip FC 300 AQP: AQP elastomer tube, polyester inner braid, single wire braid reinforcement and blue polyester braid cover.

Aeroquip 1503: Synthetic rubber tube, textile inner braid, single wire braid reinforcement and black textile braid cover.

Couplings: Permanently fitted Eaton 100R5 type coupling made of zinc plated carbon steel.  
Reusable fitted Eaton 100R5 type couplings made of zinc plated carbon steel or brass.

## Application/Limitation

Maximum working pressure:

Aeroquip 1503 hose			
Part No.	Hose ID (inch)	MAWP	
		bar	psi
-04	0.19	207	3000
-05	0.25	207	3000
-06	0.31	155	2250
-08	0.41	138	2000
-10	0.50	121	1750
-12	0.62	103	1500
-16	0.88	55	800
-20	1.12	43	625
-24	1.38	34	500
-32	1.81	24	350
-40	2.38	24	350

Aeroquip FC 300 AQP hoses			
Part No.	Hose ID (inch)	MAWP	
		bar	psi
-04	0.19	207	3000
-05	0.25	207	3000
-06	0.31	155	2250
-08	0.41	138	2000
-10	0.50	121	1750
-12	0.62	103	1500
-16	0.88	55	800
-20	1.12	43	625
-24	1.38	34	500
-32	1.81	20	300
-40	2.38	20	300

Operating temperature range:

Aeroquip FC 300 AQP: -49°C to +150°C / -55°F to +300°F. Except air, max +121°C / +250°F.  
 Aeroquip 1503: -40°C to +121°C / -40°F to +250°F. Except air, max +71°C / +160°F.

## Range of Application

The a.m. hose sizes of Aeroquip1503 and Aeroquip FC300 AQP are approved for use in:

- Fresh water cooling systems
- Sanitary systems
- Compressed air systems\*\*

\*\*Pin prick cover is required for air or gas applications above 17 [bar].

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

Each hose assembly is pipe class III to be hydraulic pressure tested to 1.5 times the maximum working pressure and shall be delivered with manufacturer's pressure test certificate.

Flexible hoses are only to be used where it is necessary due relative movements or flexible mounting of the machinery. The hoses shall not be used where permanent piping is possible.

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

The hoses are not to be used for suction.

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

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

The use of hose assemblies is not permitted in permanently pressurized starting air lines of diesel engines.

## **Type Approval documentation**

### **Tests carried out**

Proof pressure test, Change in length test, Burst test, Pressure pulsation test, Fire test, Dimensional Check test, Cold Flexibility test, Oil Resistance test, Cover Adhesion test, Ozone resistance test.

## **Marking of product**

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

- Manufacturers name or trade mark
- Type designation

## **Periodical assessment**

For retention of the Type Approval, a DNV GL Surveyor shall perform a survey every 2,5 years, to verify that the conditions for the type approval are complied with and to witness the following tests on a selection of sizes:

- Dimensional check
- Change in length
- Leakage test
- Burst test

The tests shall be performed in accordance with procedures given in DNV GL Type Class Program CP-0183 "Type Approval of Flexible Hoses of Non-Metallic Material".

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

## **END OF CERTIFICATE**