

# TYPE APPROVAL CERTIFICATE

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

with type designation(s)

**GH 506 corresponding to DIN EN 856 / 4SH, FLAME RESISTANT HYDRAULIC HOSES ACC. WITH ISO 15540, ,**

Issued to

**Eaton Germany GmbH  
Baden-Baden Baden-Württemberg, Germany**

is found to comply with

**DNV GL rules for classification – Ships****DNV GL rules for classification – Yachts****DNV GL rules for classification – Offshore units****Application :****Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.****Type:****GH 506 corresponding to DIN EN 856 / 4SH, FLAME RESISTANT HYDRAULIC HOSES ACC. WITH ISO 15540****Temperature range:****-40°C up to 100°C****Max. working press.:****inside pressure : 250 bar  
up to 420 bar, outside  
pressure : 50 bar (only  
DN 20)****Sizes:****DN  
19 up  
to DN  
51**This Certificate is valid until **2021-09-05**.Issued at **Hamburg** on **2016-09-06**DNV GL local station: **Augsburg**Approval Engineer: **Peter Gierhan**for **DNV GL**

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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: **262.1-021641-1**  
Certificate No: **TAP00000DN**

## Production Place

Hose manufacturers:

|                                                                    |                                                                                                                                    |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Eaton Germany GmbH<br>Auefeld 1<br>D-34346 Hann. Münden<br>Germany | POLİMER KAUÇUK SAN. VE PAZ. A.Ş.<br>Çerkezköy Organize Sanayi Bölgesi<br>Karaağaç mah. 6. Sok No:3<br>Kapaklı / TEKİRDAĞ<br>TURKEY |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|

Coupling manufacturers:

|                                                                               |                                                                              |
|-------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Eaton Germany GmbH<br>Dr. Reckewegstrasse 1<br>D-76532 Baden-Baden<br>Germany | Eaton Corporation<br>1225 W. Main Street<br>Van Wert, Ohio 45891-0383<br>USA |
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## Product description

Synthetic rubber tube, 4-heavy spiral wire reinforcement, synthetic rubber cover.

## Application/Limitation

| Max Working Pressure (MWP), depending on nominal inner diameter (ID): |           |      |      |      |                            |      |
|-----------------------------------------------------------------------|-----------|------|------|------|----------------------------|------|
| Part no.                                                              | Hose I.D. |      | Hose |      | Maximum Operating Pressure |      |
|                                                                       | mm        | in   | mm   | in   | bar                        | psi  |
| GH506-12                                                              | 19,1      | 0.75 | 32,3 | 1.27 | 420,0                      | 6090 |
| GH506-16                                                              | 25,4      | 1.00 | 38,4 | 1.51 | 420,0                      | 6090 |
| GH506-20                                                              | 31,8      | 1.25 | 45,5 | 1.79 | 350,0                      | 5075 |
| GH506-24                                                              | 38,1      | 1.50 | 53,6 | 2.11 | 300,0                      | 4350 |
| GH506-32                                                              | 50,8      | 2.00 | 68,1 | 2.68 | 250,0                      | 3625 |

Range of Application

The a.m. hose sizes of GH506 are approved for use in:

- Fuel oil, lubricating oil and hydraulic oil systems
- Bilge and seawater systems
- Fresh and seawater cooling systems
- Compressed air systems\*\*

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

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 before delivery 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 to vibrations or flexible mounting of the machinery. The hoses shall not replace/be used where permanent piping is possible/required.

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.

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

The hose assemblies covered by this type approval may be assembled and delivered by other than the certificate holder under the following conditions:

- The assembler is authorised by a written authorization from the certificate holder. The certificate holder shall keep record of all assembler authorisations.
- Hose assemblies are in accordance with an assembly procedure issued by the certificate holder and the assembler has proved their qualifications by burst testing of a selection of hose/coupling combinations.
- Selection of sizes and testing is to be performed in compliance with the DNVGL CP 0183 and the testing is to be witnessed by DNV GL.

### **Type Approval documentation**

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.  
DNV GL-Ref.-No.: 14-100478, 14-100606

### **Tests carried out**

DNV GL class programme CP 0183 - Type Approval of flexible hoses non-metallic materials

### **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 second year, 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 Approval Program "Type Approval of Flexible Hoses of Non-Metallic Material" or another recognized standard.

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

### **END OF CERTIFICATE**