DNV·GL

Certificate No:
TAP000016W

TYPE APPROVAL CERTIFICATE

This is to certify:

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

with type designation(s)
EC881

Issued to
Eaton Germany GmbH
Baden-Baden Baden-Württemberg, Germany

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.

Temperature range:	**-46°C up to +126°C, see page 2**
Max. working press.:	**110 bar up to 450 bar**
Sizes:	**DN 6 up to DN 51**

Issued at **Hamburg** on **2018-03-14**
This Certificate is valid until **2023-03-13**.
DNV GL local station: **Augsburg**

Approval Engineer: **Christian Kaemmer**

for **DNV GL**

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.

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Product description

EC881-Series: Flexible non-metallic hose consisting of synthetic rubber tube, 2 wire braid reinforcement and synthetic rubber cover. Fire resistant acc. to ISO 15540.

Materials:

Reinforcement:	Two steel wire braid
Coupling:	Global 1A TTC fittings, Carbon steel
Tube:	Synthetic rubber
Cover:	Synthetic rubber

Size and pressure range:

Part Number	DN	Hose I.D.		Maximum working pressure	
		mm	inch	[bar]	[psi]
EC881-4	6	6.4	0.25	450	6525
EC881-5	8	7.9	0.31	400	5800
EC881-6	10	9.5	0.38	400	5800
EC881-8	12	12.7	0.50	360	5220
EC881-10	16	15.9	0.63	350	5075
EC881-12	19	19.0	0.75	330	4785
EC881-16	25	25.4	1.00	280	4060
EC881-20	31	31.8	1.25	172	2500
EC881-24	38	38.1	1.50	138	2000
EC881-32	51	50.8	2.00	110	1600

Temperature range:

- -46°C up to +126°C for petroleum based hydraulic fluids
- -46°C up to + 70°C for water based hydraulic fluids
- -0°C up to + 70°C for water

Production places

- Eaton Germany GmbH, Dr. Reckwegstr. 1, 76532 Baden-Baden.
- Eaton Corporation, 1225 W. Main Street, Van Wert, Ohio, USA.

Responsibility

Eaton Germany GmbH, Baden-Baden 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 approved for lubricating oil, hydraulic systems with petroleum and water based fluid, water.

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.

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, 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 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)