Certificate No:
TAP00002SE

TYPE APPROVAL CERTIFICATE

This is to certify:

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

with type designation(s)
MR1SN, MR2SN, MCP4S, MCP5S, MCP6S, MR16SC

Issued to
ContiTech (Shandong) Engineered Rubber Products Co., Ltd.
Jining, Shandong, China

is found to comply with
DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV class programme DNV-CP-0183 – Type approval – Flexible non-metallic hoses

Application :

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

Type:	Temperature range:	Max. working press.:	Sizes:
MR1SN	-40°C up to +100°C	22.5 MPa	1/4" up to 2" / Dash 4 up to 32
MR2SN	-40°C up to +100°C	40 MPa	1/4" up to 2" / Dash 4 up to 32
MCP4S	-40°C up to +121°C	28 MPa	3/8" up to 2" / Dash 6 up to 32
MCP5S	-40°C up to +121°C	35 MPa	3/8" up to 2" / Dash 6 up to 32
MCP6S	-40°C up to +121°C	42 MPa	3/8" up to 2" / Dash 6 up to 32
MR16SC	-40°C up to +100°C	40 MPa	1/4" up to 2" / Dash 4 up to 32

Issued at **Hamburg** on **2023-09-07**
This Certificate is valid until **2028-09-06**.
DNV local unit: **Qingdao NB & CMC**

Approval Engineer: **Christian Kaemmer**

for **DNV**

Sven Klinger
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description

MR1SN-Series:
Flexible non-metallic hose consisting of inner synthetic rubber tube, one steel wire braid reinforcement, synthetic rubber cover. Fire resistant acc. to ISO 15540.

MR2SN-Series:
Flexible non-metallic hose consisting of inner synthetic rubber tube, two steel wire braids reinforcement, synthetic rubber cover. Fire resistant acc. to ISO 15540.

MCP4S-Series:
Flexible non-metallic hose consisting of inner synthetic rubber tube, four or six alternating layers of spiralled steel wire reinforcement, synthetic rubber cover. Fire resistant acc. to ISO 15540.

MCP5S-Series:
Flexible non-metallic hose consisting of inner synthetic rubber tube, four or six alternating layers of spiralled steel wire reinforcement, synthetic rubber cover. Fire resistant acc. to ISO 15540.

MCP6S-Series:
Flexible non-metallic hose consisting of inner synthetic rubber tube, four or six alternating layers of spiralled steel wire reinforcement, synthetic rubber cover. Fire resistant acc. to ISO 15540.

MR16SC-Series:
Flexible non-metallic hose consisting of inner synthetic rubber tube, two steel wire braids reinforcement, synthetic rubber cover. Fire resistant acc. to ISO 15540.

Couplings: S15611 -04 / -32 for MR1SN; MR2SN; MR16SC
S15612 -06 / -32 for MCP4S; MCP5S; MCP6S
made from carbon steel 1214 or 1215.

Size and pressure range:

MR1SN	Hose I.D.			Maximum Working pressure		MR2SN	Hose I.D.			Maximum Working pressure	
	Dash	mm	inch	[MPa]	[psi]		Dash	mm	inch	[MPa]	[psi]
MR1SN-04-06	-4	6.3	¼	22.5	3260	MR2SN-04-06	-4	6.3	¼	40	5801
MR1SN-05-08	-5	8	5/16	21.5	3120	MR2SN-05-08	-5	8	5/16	35	5076
MR1SN-06-10	-6	10	3/8	18	2615	MR2SN-06-10	-6	10	3/8	33	4766
MR1SN-08-13	-8	12.5	½	16	2320	MR1SN-08-13	-8	12.5	½	27.5	3989
MR1SN-10-16	-10	16	5/8	13	1890	MR1SN-10-16	-10	16	5/8	25	3625
MR1SN-12-19	-12	19	¾	10.5	1530	MR1SN-12-19	-12	19	¾	21.5	3118
MR1SN-16-25	-16	25	1	8.7	1280	MR1SN-16-25	-16	25	1	16.5	2393
MR1SN-20-32	-20	31.5	1 ¼	6.2	910	MR1SN-20-32	-20	31.5	1 ¼	12.5	1813
MR1SN-24-38	-24	38	1 ½	5	720	MR1SN-24-38	-24	38	1 ½	9	1305
MR1SN-32-51	-32	51	2	4	580	MR1SN-32-51	-32	51	2	8	1160

MCP4S	Hose I.D.			Maximum Working pressure		MCP5S	Hose I.D.			Maximum Working pressure	
	Dash	mm	inch	[MPa]	[psi]		Dash	mm	inch	[MPa]	[psi]
MCP4S -06-10	-6	10	3/8	28	4100	MCP5S-06-10	-6	10	3/8	35	5100
MCP4S -08-13	-8	12.5	½	28	4100	MCP5S -08-13	-8	12.5	½	35	5100
MCP4S -10-16	-10	16	5/8	28	4100	MCP5S -10-16	-10	16	5/8	35	5100
MCP4S -12-19	-12	19	¾	28	4100	MCP5S -12-19	-12	19	¾	35	5100
MCP4S -16-25	-16	25	1	28	4100	MCP5S -16-25	-16	25	1	35	5100
MCP4S -20-32	-20	31.5	1 ¼	28	4100	MCP5S -20-32	-20	31.5	1 ¼	35	5100
						MCP5S -20-32	-20	31.5	1 ¼	35	5100
MCP4S -24-38	-24	38	1 ½	28	4100	MCP5S-24-38	-24	38	1 ½	35	5100
MCP4S -32-51	-32	51	2	28	4100	MCP5S-32-51	-32	51	2	35	5100

MCP6S	Hose I.D.			Maximum Working pressure		MR16SC	Hose I.D.			Maximum Working pressure	
	Dash	mm	inch	[MPa]	[psi]		Dash	mm	inch	[MPa]	[psi]
						MR16SC-04-06	-4	6.3	¼	40	5800
						MR16SC-05-08	-5	8	5/16	35	5075
MCP6S -06-10	-6	10	3/8	42	6100	MR16SC-06-10	-6	10	3/8	34.5	5000
MCP6S -08-13	-8	12.5	½	42	6100	MR16SC-08-13	-8	12.5	½	34.5	5000
MCP6S -10-16	-10	16	5/8	42	6100	MR16SC-10-16	-10	16	5/8	27.6	4000
MCP6S -12-19	-12	19	¾	42	6100	MR16SC-12-19	-12	19	¾	24.1	3500
MCP6S -16-25	-16	25	1	42	6100	MR16SC-16-25	-16	25	1	21	3000
MCP6S -20-32	-20	31.5	1 ¼	42	6100	MR16SC-20-32	-20	31.5	1 ¼	15.5	2250
MCP6S -24-38	-24	38	1 ½	42	6100	MR16SC-24-38	-24	38	1 ½	13.8	2000
MCP6S -32-51	-32	51	2	42	6100	MR16SC-32-51	-32	51	2	11	1600

Application/Limitation

Hose assemblies covered by this Type Approval Certificate are type-approved for hydraulic application or water based hydraulic fluids like fuel oil, lubricating-oil and hydraulic-oil.

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. It must be possible to shut off from the system all flexible hoses used in systems for applications like lube oil, fuel oil and petroleum base hydraulic oil. For temperatures below 0°C the supplementary material requirements acc. to DNV-Rules “Ships / Metallic Materials” Part 2 Chapter 2 Section 5 Item 4 are to be observed. The hoses shall not replace / be used where permanent piping is possible/required.

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:

Marking	Example
Manufacturer's name	Continental
Type, Name	MCP4S
Maximum working pressure M.A.W.P.	28 MPa
Quarter and year (QQYY)	3Q22

Periodical assessment
For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment to verify that the conditions for the Type Approval are complied with. Refer to the Class Programme DNV-CP-0338, Sec.4.

To check the validity of this certificate, please look it up in https://approvalfinder.dnv.com