

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Miscellaneous**

with type designation(s)
Goldenguard/5000

Issued to

Manuli Hydraulics (Suzhou) Co., Ltd.
Suzhou, Jiangsu, China

is found to comply with
DNVGL-OS-E101 – Drilling facilities, Edition January 2018

Application :

Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV GL.

Product(s) covered by this certificate are: Control hoses for surface BOP stacks on drilling rigs

Issued at **Høvik** on **2019-03-01**

This Certificate is valid until **2022-12-31**.

for **DNV GL**

DNV GL local station: **Shanghai**

Approval Engineer: **Maheshraja Venkatesan**

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Marianne Spæren Marveng
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: **262.1-027152-1**
Certificate No: **TAD00000VN**

Product description

Flexible hoses of non-metallic material with permanently fitted couplings. The hoses may be used for surface BOP control lines on drilling rigs.

Spec:

DNV GL Class Programme DNVGL-CP-0183, Edition January 2018
Fire test according to: API Specification 16D, Second edition (July 2004)

Hose size		Design Pressure		Design Temperature		No. of wire spirals	Rubber Tube
DN	inch	bar	psi	Min °C(°F)	Max °C(°F)		
10	3/8"	345	5000	-40 (-40)	100 (212)	2	NBR
12	1/2"	345	5000	-40 (-40)	100 (212)	2	NBR
16	5/8"	345	5000	-40 (-40)	121 (250)	4	NBR
19	3/4"	345	5000	-40 (-40)	121 (250)	4	NBR
25	1"	345	5000	-40 (-40)	121 (250)	4	NBR
31	1 1/4"	345	5000	-40 (-40)	121 (250)	6	NBR
38	1 1/2"	345	5000	-40 (-40)	121 (250)	6	NBR
51	2"	345	5000	-40 (-40)	121 (250)	6	NBR

Hose size		Ferrule designation	Insert Designation	Fire sleeve code	Metal sleeve code
DN	inch				
10	3/8"	M00910/ M00920	MF type	JP24A05022I099	O82110-06
12	1/2"	M00910/ M00920	MF type	JP24A05025I099	O82110-08
16	5/8"	M01500	IP type	JP24A05032I099	O82110-10
19	3/4"	M01500	IP type	JP24A05038I099	O82110-12
25	1"	M01500	IP type	JP24A05045I099	O82110-16
31	1 1/4"	M01600	IP type	JP24A05057I099	O82110-20
38	1 1/2"	M01600	IP type	JP24A05064I099	O82110-24
51	2"	M01800	IP type	JP24A05076I099	O82110-32

Hose manufacturer:

Manuli Hydraulics (Suzhou) Co., Ltd.
No. 85, Xinglin Street,
Suzhou Industrial Park, Jiangsu Province, P. R. China

Coupling manufacturer:

Manuli Hydraulics Polska S.A.
41-404 Mysłowice
ul.Brzezińska 50

Material of ferrules:

Application/Limitation

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

The hose assemblies connected to the surface BOP control lines on drilling rigs shall be supplied with fire sleeve and metal sleeve as specified in this certificate.

Each hose assembly is, before delivery, to be hydraulic pressure tested to 1.5 times the maximum working pressure and delivered with the manufacturer's Works certificate.

End connectors shall be of standard design according to DNV GL-OS-E101 Ch.3 Sec.3 [Table 15].

The end connectors (part of one of MF or IP type Inserts) that are NOT according to recognised international standard (such as API 6A or ISO 6162), will need to be in compliance with DNVGL-OS-E101.

For this, suitability for all internal and external loading shall be proven for each individual hose. Certification of these end connectors shall be according to DNV GL-OS-E101 Ch.3 Sec.3 [Table 15]. This type approval certificate does NOT cover compliance with DNVGL-OS-E101, for NOT standard end couplings, this shall be established separately.

Hoses covered by this certificate shall not be installed in systems subjected to pressure below atmospheric or vacuum condition.

Type Approval documentation

Tests carried out

- Dimensional check,
- Change in length,
- Cold flexibility,
- Resistance against liquids,
- Cover adhesion test,
- Ozone resistance,
- Fire Test,
- Impulse test,
- Burst pressure test.

Marking of product

Equipment shall be clearly marked with identification and serial number which relates the equipment to certificates and manufacturing documentation. In particular, each hose shall be permanently marked with:

- Hose manufacturer's name or trademark
- Date of manufacture (month/year)
- Designation type reference
- Nominal diameter
- Pressure rating
- 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 approval are complied with. Reference is made to DNVGL-CP-0338.