

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Flexible Hoses for Diving Systems**

with type designation(s)

FDH 04G, FDH 06G, FDH 08G, FDH 12G, FDH 08H, FDH 12H, FXH-HCSL-03, FXH 12

Issued to

Cortland Fibron BX Ltd
Hoddesdon, Hertfordshire, United Kingdom

is found to comply with

DNVGL-OS-E402 – Diving systems, Edition January 2017**DNV GL class programme DNVGL-CP-0183 – Type approval – Flexible hoses****Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**

Type:	Temperature range:	Max. working press.:	Sizes:
FDH 04G	-40/+99 °C	70 bar	1/4"
FDH 06G	-40/+99 °C	70 bar	3/8"
FDH 08G	-40/+99 °C	70 bar	1/2"
FDH 12G	-40/+99 °C	70 bar	3/4"
FDH 08H	-40/+99 °C	70 bar	1/2"
FDH 12H	-40/+99 °C	70 bar	3/4"
FXH-HCSL-03	-40/+99 °C	70 bar	3/16"
FXH 12	-40/+99 °C	70 bar	3/4"

Issued at **Høvik** on **2018-12-28**This Certificate is valid until **2020-06-30**.for **DNV GL**DNV GL local station: **Newcastle-upon-Tyne**Approval Engineer: **Mehdi Rowshan**

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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.



Product description

FXH-HCSL-03 (FDH-1-HC-03) Fibroflex Non-Collapse Gas Reclaim Hose

Nylon 11 Liner Tube
Single Ply Braided Polyester Fibre Reinforcement
Polyester Elastomer (Hytrel) Outer Cover

FDH 04P Fibroflex Pneumo Hose

FDH 06G/ 08G/ 12G Fibroflex Gas Supply Hose

Polyurethane Liner Tube
Braided Polyester Fibre Reinforcement
Braided Polyester Fibre Cover
Hose types FDH08G and FDH12G reinforced with two polyester fibre braids
The other types have single polyester fibre braid
The hoses will float in water

FDH 08H/12H Fibroflex Hot Water Hose

Thermoplastic Elastomer Liner Tube
Braided Polyester Fibre Reinforcement
Braided polyester Fibre Cover

FXH 12 Fibroflex Non-Collapse Gas Reclaim Hose

Polyurethane Liner Tube
Inner Pressure Reinforcement
High Tensile Galvanized Wire External Pressure Reinforcement
Polyurethane Innerlayer
Braided polyester fibre cover

End couplings material: phosphor bronze BS2874/BS EN 12163 PB102

Manufacturer:

Couplings: Cortland Fibron BX Ltd

Hose: Cortland Fibron BX Ltd

Application/Limitation

This certificate is valid for the specific assembly of hose and coupling type as specified, assembled and delivered by the holder (named as manufacturer) of this certificate.

The hoses are approved to be used in air, gas, water supply and gas reclaim for diving umbilicals.

The following diving gases are accepted:

- Air
- Mixed Gas Heliox 80/20%
- Nitrox accepted to be used only for types: FDH04G, FDH06G, FDH08G and FDH12G in applications of surface diving with maximum pressure of 20 bar.
- Other diving gasses containing no more than 25% Oxygen.

Each hose for use in umbilical shall be pressure tested to 1.5 times the design pressure before fitting in the umbilical. After hose end fittings have been mounted, a gas leakage test to design pressure shall be performed.

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

The hoses with couplings are to be delivered with a product certificate issued by society, when used in classed diving systems. When used in an umbilical, the hoses will be part of the umbilical certification and need no separate certificate.

Job Id: **262.1-026155-1**
Certificate No: **TAP00001B5**

Hoses covered by this certificate shall not be installed in systems subject to pressure pulsation or vacuum conditions.

Type Approval documentation

Tests carried out

Dimensional check, change in length, burst pressure, leakage test, pressure impulse, cold flexibility test, Tensile strength test, oxygen shock test (applicable only for FDH04G, FDH06G, FDH08G and FDH12G)

Marking of product

For traceability to this Type Approval the hoses are to be marked as a minimum:

- Date of Manufacturer (month/year)
- 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.