

## UMBILICALS AND REUSABLES

**Hytech** is official agent/distributor for Cortland Fibron BX hoses, power cables and hose/cable assemblies=umbilicals.

Cortland Fibron BX is a company specialized in the manufacturing of special hoses and power cables, which are mainly used in the diving- and offshore industry. All hose assemblies are made to customers specification such as length, no. of components, choice of phosphor bronze swage fittings, quick connectors, and electro connectors.

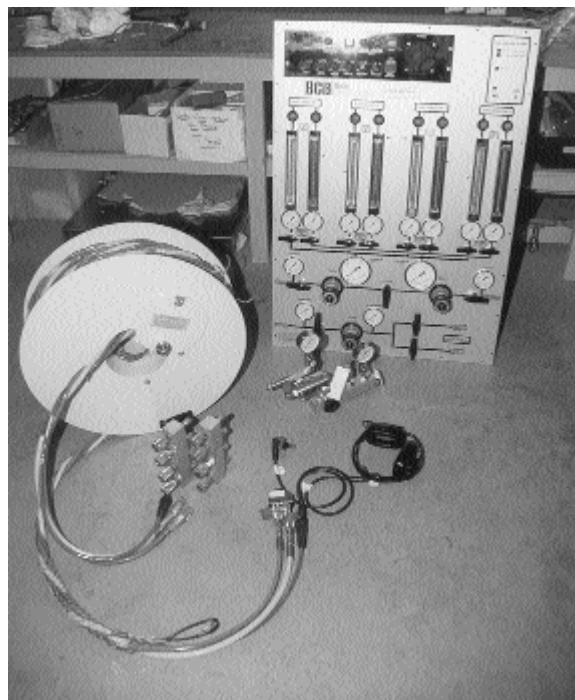
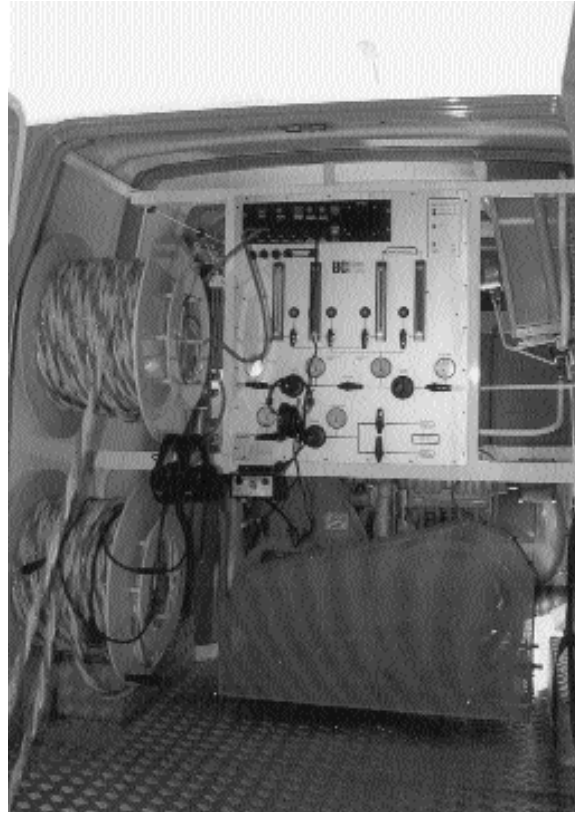
Further each hose assembly will be hydrostatically tested after completion and a test certificate will be supplied.

We also can supply you with TV camera umbilicals and other special type of power cable, for which we can offer in-house manufacturing and testing facilities.

The Cortland Fibron hoses/assemblies are used for the following applications:

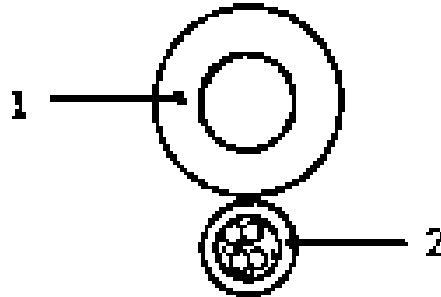
- Diver gas hoses
- Wet-bell umbilical
- Closed diving bell umbilicals
- Life support umbilicals
- Underwater camera/video umbilicals
- Etc., etc.

On the following pages you will find some types of breathing hoses/conductor cables. When you have a request for breathing hoses, power cables or hose assemblies. Please do not hesitate to contact us.



## “FIBROLINE” SURFACE DEMAND UMBILICAL FBLU/10

FBLU/10 “Fibroline” Surface Demand Umbilical has been designed to provide basic life support to Divers operating from Surface Demand diving systems not requiring a pneumofathometer. The design of the umbilical makes a lightweight, flexible, composite member capable of recovering a diver to the surface it times of emergency. Current users include shallow water commercial diving contractors and salvage operators on a worldwide basis.



### Composition:

1. 3/8”FBL 06G Fibroline air/gas supply hose
2. FCC0502STP Fibrocomm communication cable (4 x 0.50 mm SQ Cores)

### Construction:

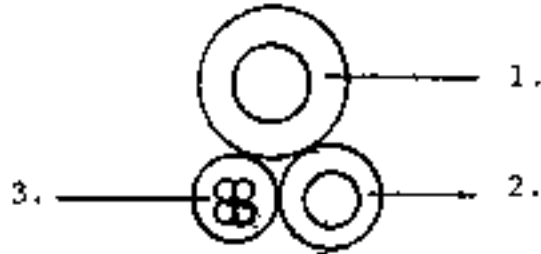
The components are specially laid up into a twisted “ropelike” structure so as to give a flexible composite unit which is capable of sharing the tensile load over the two members. Fibrocomm communication cable has an integral braided strength member which protects the electrical conductors and acts as a safety line to the diver. FBLU/10 Fibroline Surface Demand Umbilical can be further enhanced on request with the addition of a Fibrovision Mini TV cable and/or a Fibropower Hat Light cable for increased capability.

Pressure Rating:	Working = 500 PSI, Test = 1,000 PSI
Weight in air:	0.352 Kgs/meter
Weight in sea:	0.022 Kgs/meter buoyant (floats)
Tensile rating:	250 Kgs working load
Compatibility:	air and 80/20 Heliox
Temperature range:	-40 deg. C to +60 Deg. C
Optional extras:	
Hose termination:	Fibron swaged phosphor bronze swivel female parts no's:
	FPBSF06-06JIC
	FPBSF06-08JIC
	FPBSF06-06BSP
	FPBSF06-040XY
	(1/4” American oxygen head)
Cable termination:	RMG 4FS female underwater connector diver end.
Mechanical fixing:	LS3/25 stainless steel “Chinese finger” diver end.



## “FIBROLINE” SURFACE DEMAND UMBILICAL FBLU/1

FBLU/1 “Fibroline” Surface Demand Umbilical has been designed to provide basic life support to divers operating from surface demand diving systems. Applications include shallow water diving from oil platforms, dockside areas, inflatable dingies, and diving support vessels. The design of the umbilical provides a lightweight, neutrally buoyant, flexible, abrasion resistant composite member capable of recovering a diver to surface in times of emergency. Current users include commercial diving contractors, police forces, and salvage contractors.



**Composition:**

1. FBL 06G 3/8"ID Air/Gas supply hose
2. FBL 04P 1/4"ID Pneumofathometer hose
3. FCC0502STP Communication cable (4 conductors x 0.50 mm<sup>2</sup>)

**Construction:**

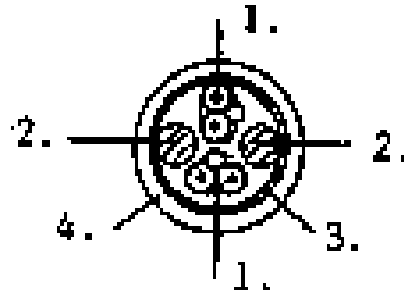
Components are specially laid up into a twisted “ropelike” structure. So as to give a flexible composite unit which shares the tensile load over all three components. The communication cable has an integral braided strength member which protects the electrical conductors and acts as a safe line to the diver.

Pressure rating :	Working=500 PSI, Test=1,000 PSI
Tensile rating:	200 Kgs working load; 500 Kgs minimum break load.
Optional extras:	
Hose termination:	Fibron swaged phosphor bronze swivel female.
Cable termination:	RMG 4FS female underwater connector, diver end.
Mechanical fixing:	LS3/25 stainless steel “Chinese finger” cable grip, diver end.



## “FIBROCOMM” COMMUNICATION CABLE FCC0502STP

FCC0502STP “Fibrocomm” Communication Cable has been designed to be used as a robust communication cable for inclusion into either Diver’s Surface Demand Umbilicals or Bell Excursion Umbilicals. Other applications for this type cable include diver monitoring in conjunction with an electro fathometer time/depth recorder, strain gauge monitoring, pressure gauge monitoring, temperature gauge monitoring etc. This cable also incorporates an integral strength member which eliminates the need for a separate safety line when constructing Diver’s Umbilicals.



### Composition:

1. 2 x 0.50 mm sq screen twisted pairs
2. 2 x filler cores
3. Braided polyester strength member
4. Polyurethane outer jacket

### Construction:

The components are laid up into a twisted structure so as to give a flexible composite unit.

Weight in air: 110 Kgs/km  
Weight in sea: 30 Kgs/km  
Nominal OD: 10.50 mm  
Tensile rating: 500 Kgs minimum break load  
Temperature Range: -40 deg. C to +60 deg. C

### Electrical characteristics at 20 deg. C:

Voltage rating: 110 volts  
Conductor resistance: 39.0 Ohms/km per conductor  
Insulation resistance: Greater than 100 Megohms at 500 VDC, core/core and core/screen.



## “FIBROLIFE” LIFE SUPPORT UMBILICAL FLS/3

FLS/3 “Fibrolife” Life Support Umbilical has been designed to provide basic life support to operatives working in hostile onshore environments. This type of “Fibrolife” Life Support Umbilical is similar to FLS/2 “Fibrolife” Life Support Umbilical with the exception that the communication cable is excluded. This type of umbilical makes use of FBL04P Fibroline air hose which is easier to clean where decontamination of the umbilical is called for. Applications are similar to those for FLS/1 & FLS/2 “Fibrolife” Life Support Umbilicals, ie petrochemical, nuclear, sewerage industries, and other such hazardous areas.

### Composition:

1. Two 1/4”id FBL04P “Fibroline” Air Supply Hoses

### Construction:

The two components are specially laid up into a twisted “ropelike” structure so as to give a flexible composite unit with the ability to share the tensile loading over the components. Materials that have a generally good chemical resistance have been utilized in the manufacture of the component parts and attention has been paid to the selection of a suitable hose liner that is compatible with breathing air.



Pressure rating : Working=500 PSI, Test=1,000 PSI  
Tensile rating: 500 Kgs minimum break load  
Weight: 210 Kgs/km  
Nominal OD: 23 mm

Hose termination: Fibron Swaged Phosphor Bronze Fittings or Fibron Brass Reusables Fittings, head size to suit client.

Cable termination: Client to specify.

Mechanical termination: Fibron LS2/20 Stainless Steel Cable Grip



## “FIBROLIFE” LIFE SUPPORT UMBILICAL FLS/2

FLS/2 “Fibrolife” Life Support Umbilical has been designed to provide basic life support and communication to operatives working in hostile onshore environments. This type of “Fibrolife” Life Support Umbilical is similar to FLS/1 “Fibrolife” Life Support Umbilical with the exception that the air hoses are FBL04P “Fibroline” Air Supply Hoses which have individual thermoplastic outer jackets.

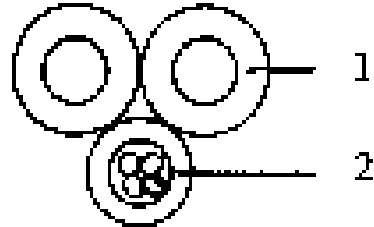
This type of hose is easier to clean where decontamination of the umbilical is called for. Applications are similar to those for FLS/1 “Fibrolife”, ie petrochemical, nuclear, sewerage industries, and other such hazardous areas.

### Composition:

1. Two 1/4” id FBL04P “Fibroline” Air Supply Hoses.
2. FCC0502STP “Fibrocomm” Communication Cable (4 x 0.50 mm<sup>2</sup> conductors).

### Construction:

The three components are specially laid up into a twisted “ropelike” structure so as to give a flexible composite unit with the ability to share the tensile loading over all three components. Materials that have a generally good chemical resistance have been utilized in the manufacture of the component parts and attention has been paid to the selection of a suitable hose liner that is compatible with breathing air.



Pressure Rating:	Working = 500 PSI, Test = 1,000 PSI
Tensile rating:	500 Kgs minimum break load
Weight in air:	330 Kgs/km
Nominal OD:	23 mm
Hose Termination:	Fibron Swaged Phosphor Bronze Fittings or Fibron Brass Reusables Fittings, head size to suit client.
Cable termination:	Client to specify.
Mechanical termination:	Fibron LS3/25 Stainless Steel Cable Grip



## “Fibroline” air/gas supply hose FBL06G3/8” ID

FBL 06G 3/8”ID “Fibroline” Air/Gas Supply Hose has been designed to convey breathing air or other types of breathing gas such as heliox, to operators working in hostile environments. FBL06G Hose was originally intended for use as life support to surface demand divers either being used as an individual supply or being used as a component in a composite umbilical. Recently FBL 06G Hose has found applications for use in conjunction with land based breathing systems as used in petrochemical works, air craft tank inspection and other such hostile environments.



### Composition:

1. Polyurethane liner tube
2. Braided polyester fiber reinforcement
3. Polyurethane outer jacket

Dimensions:	Nominal ID= 9.53 mm (3/8") Nominal OD= 18.50 mm
Pressure rating:	Working=500 PSI, Test=1.000 PSI Min. burst pressure=4.000 PSI
Weight in air:	0.21 Kgs per meter
Weight in sea:	0.06 Kgs per meter buoyant (floats)
Tensile rating:	100 Kgs working load
Compatibility:	Breathing air, 20/80% Heliox
Temperature range:	-40 Deg. C to +60 Deg. C
Flow rate:	100 liters per minute

### Optional extras:

#### Hose terminations:

Fibron swaged phosphor bronze swivel female types:  
FPBSF06-06JIC  
FPBSF06-08JIC  
FPBSF06-040XY (1/4" American O2 thread)

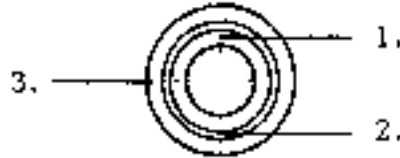
#### Mechanical termination:

LS2/20 Stainless steel “Chinese Finger” cable grip



## “FIBROLINE” PNEUMOFATHOMETER HOSE FBL04P 1/4”

FBL 04 1/4” ID “Fibroline” pneumofathometer hose has been designed for use as a kluge line when measuring the ‘in water’ depth of the diver of the diver working below water. FBL04P hose has found other applications such as suit inflation hose for divers or as a breathing hose for land based breathing systems for operators working in hostile environments.



### Composition:

1. Polyurethane liner tube
2. Braided polyester fibre reinforcement
3. Polyurethane outer jacket

Dimensions:	Nominal ID = 6.35 mm (1/4") Nominal OD = 12.50 mm
Pressure rating :	Working=500PSI max., Test=1.000PSI Min. Burst pressure=2.500PSI
Weight in air:	0.10 Kgs per meter
Weight in sea:	0.03 Kgs per meter buoyant (floats)
Tensile rating:	100 Kgs working load
Compatibility:	Breathing air, 20/80% heliox
Temperature range:	-40 Deg. C to +60 Deg. C

### Hose terminations:

Fibron swaged phosphor bronze swivel female types:  
FPBSF04-04JIC  
FPBSF04-06JIC  
FPBSF040XY (1/4" American O<sub>2</sub> thread)

