Umbilicals FAQ

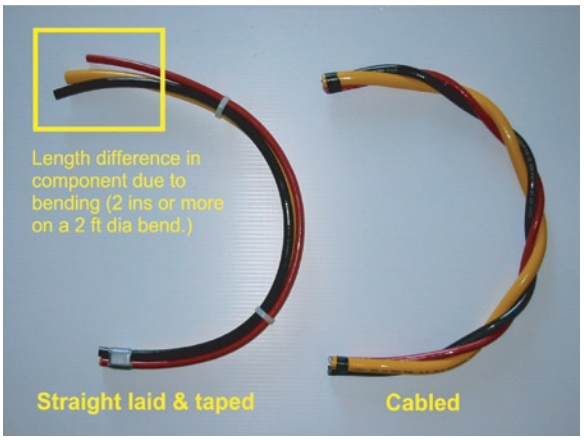
UMBILICALS International

Q. What are the advantages of a spiraled (cabled) umbilical construction compared to a straight laid and taped ?

Answer

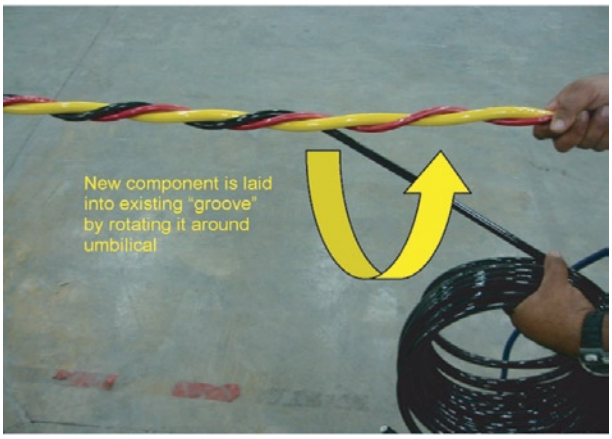
A Diveline cabled umbilical is made like a wire rope, each component follows a helical path around its neighbors. It is important to remember that the factory cabling process is "planetary" this prevents the torsion build up which would cause the umbilical to unwind. With no stored stresses in the components the umbilical stays cabled with light binding/taping only needed at the ends.

Cabling produces a unified flexible structure that allows components to realign when flexed, minimizing stresses induced by bending. No individual component is always on the inside or outside of the bend this ensures they are neither compressed nor stretched..



The photo at right shows the effect of bending a straight laid versus a cabled 3 part umbilical. Notice the difference in length of the components in the straight laid assembly, compare this to the very same units when cabled. This length difference has to be absorbed in the umbilical and results in components either stretching or buckling (as they can't compress). This usually means early failure of cable elements and/or loops of component breaking out of the assembly, causing a potential hazard to the Diver and the need for re-work.

Q. How can a failed component be replaced in a cabled umbilical. ?



Answer

Because of the construction of the umbilical, components are much less likely to become damaged, (see above) therefore the need to replace them is reduced. Even so it's easy to replace (or add) any single element provided the basic structure of the umbilical is intact (two or more components remain). In fact as there is no tape to remove and replace the process can be quicker than with a conventional umbilical (see photo left)

Q Why is a Diveline cabled umbilical safer to use for the diver and tender ?

Answer

As discussed above the natural shape of the umbilical means all components work together allowing easier bending without the possibility of dangerous loops developing that could become entangled on underwater structures and obstructions. The "rope like" form also means that the tensile strength of the umbilical is properly distributed at all times avoiding the possibility of stressing any one component as can happen when taped umbilicals develop loops.

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Q. How does the choice of components affect the performance of a cabled umbilical ?.

Answer
The benefits of cabling can be significantly enhanced by careful choice of component. Diveline hoses and cables are designed for diving and enhance the umbilicals performance by significantly reducing weight and diameter. This means the umbilical can be made to be positive, neutral or slightly negatively buoyant without adding bulky flotation.

Neutral umbilicals further reduce Diver fatigue in most situations and improve safety by keeping the umbilical in view and away from bottom hazards. The use of bright colors for the hose and cable components also adds to underwater visibility

Dive tenders also benefit greatly from the reduced weight, diameter and smoother profile of the umbilical, reducing fatigue and improving safety.

Q. Our company is involved in long penetration dives, what advantage does a Diveline umbilical give us ?

Answer
With the ability to make very long continuous lengths of umbilical (3000 ft plus) without joints and its neutral buoyancy, a Diveline umbilical drastically decreases the Diver's effort in a penetration dive. This in turn improves his efficiency and safety.

Q. We frequently dive in contaminated/polluted water how does a Diveline umbilical help us ?

Answer
Diveline hoses and cables all have outer jackets of Polyurethane. This engineering thermoplastic is exceptionally resistant to abrasion and chemical attack (far more so than rubber or PVC). In addition it is smooth and easily cleaned so does not trap contaminants. With no tape to dissolve or loosen there is no fear of components separating.

Q. We inspect potable water tanks/pipes, why should we use Diveline

Answer
For the same reasons that make a Diveline umbilical the best solution for contaminated diving, easy de-contamination, in this case pre and post dive.

Q. How can a Diveline cabled umbilical save me time and money ?

Answer
Although the initial cost is slightly higher than a traditional taped umbilical the savings in rework and repair costs and the extended lifetime of a Diveline umbilical make it a much more economical product in the long term.

Add these financial savings to all the other safety and operational benefits discussed above and the case is conclusive. Diveline cabled umbilicals are the clear choice for commercial diving applications.

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