NEWSLETTER

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CABLE INSTALLATION IN DRAG CHAIN

Polyurethane has superior physical properties, making it the ideal jacket for cables in motion control applications subjected to continuous flexing. Following some basic installation practices will further improve the lifetime of your motion control equipment.

TKFF390 for continuous flexing

EXTENDING CABLE LIFETIME IN DRAG CHAIN APPLICATIONS

Manufacturing technology, as well as compounds for specialty industrial cable, has made significant advances in recent years. While electrical cable is often viewed as a simple commodity item, the truth is that when it comes to continuously flexing cables, the good ones and the not so good ones can be miles apart in technology and quality.

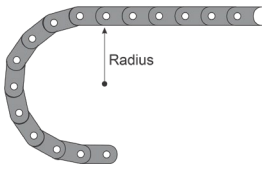
However, the best cable can still be mistreated during the installation process causing accelerated wear and possibly expensive machine down time. The following list includes five quick tips that are easy to follow and can make a difference for the lifetime and uptime of your motion control equipment.

1. Select the proper cable

Maximizing cable lifetime in drag chains starts with the proper selection of cables and materials. Choose cables that are rated for continuously flexing duty. Be aware that the terminology “flexible cable” does not necessarily indicate suitability for the mechanical requirements in continuously flexing drag chain application. Cycle ratings can be just as confusing because without additional context such as the bending radius, speed, acceleration and travel distance, the cycle rating means little. It’s best to check with your supplier to make sure that your cable is designed and rated for continuously flexing duty within the linear motion parameters meeting your requirements. Be prepared to state your desired application bending radius, travel speed, travel distance and acceleration when verifying the proper cable.

2. Observe the proper bending radius

The largest cable in your drag chain determines the bend radius of the chain. Keep in mind that the bend radius is measured from the midpoint of the bend. Match cable diameters and drag chain size to assure every cable operates within the manufacturer recommended minimum bending radius.



3. Look out for twists

Cables for continuously flexing applications are being manufactured free of any mechanical twist for optimal performance. A twisted cable will not follow the linear rolling bend inside the drag chain and will break out to the left and right during the linear movement. This may lead to rapid deterioration and

Vertical dividers used to create cavities

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cork screws in the cable. Twists can easily be added unintentionally, for example, when pulling the cable over the reel flange or from the coil that is laying on the floor. Ideally, cable should be unspooled straight from the coil or reel and without adding any twists. The cable print legend can act as a visual guide by making sure the print legend is not spiraling around the longitudinal axis. Another option is to relax the uncoiled cable on even surface for 24 hours to remove twists before installation in the drag chain.

4. **Position of proper strain relief**

A common installation mistake is the excessive clamping or tying of cables inside the moving drag chain. Cables in continuously moving applications require space and free movement. Cables should only be clamped at the end(s) of the drag chain and must **not** be positioned within moving chain links. In some cases, it is advisable to clamp only on the fixed end. When in doubt consult your chain supplier. Do no use zip ties to bundle cables together inside the moving portion of the drag chain.

5. **Ensure free movement**

Make sure the cable has room to move inside the drag chain cavity and has free movement. The headroom inside the cavity should be a minimum of 15% of the cable diameter in short travel chains. Cables in longer chains (>5m) may require more headroom. When installing multiple cables, it's best practice to use vertical dividers to create cavities. Instead of stacking cables on top of each other, use horizontal dividers. The cable should be length adjusted after a few movements to make sure no excessive rubbing over the chain links occurs.

CONCLUSION

Following these basic installation guidelines along with choosing high performance cables can improve the lifetime and reliability of your moving machine parts. Our cables are compatible with all major drag chain brands. TecniKabel offers high quality continuously flexing cables with Polyurethane jackets, which is an excellent choice for cables in drag chain to avoid abrasion. All Polyurethane cables are halogen free, UL approved and in compliance with NFPA 79 standard for electrical machinery. Our mechanical testing procedure for dynamic or continuous flexing cables includes several different drag chain tests, simulating real life applications at different travel length, speed, and acceleration parameters.

TecniKabel has several decades of experiences making cables for motion applications such as cranes, machine tools, boom extensions etc. Please contact us to see if our polyurethane solution is right for your application.