

Why you should use chainflex® cables within e-chain® cable carriers

While e-chain® cable carriers are cable-friendly and designed to protect the cables being used within them, this doesn't mean just any cable is suited for moving applications within e-chains. chainflex® continuous-flex cables are the ideal cable to use in these applications, not only due to their superior performance and service life, but because the combination of e-chain and chainflex allows customers to purchase an entire energy supply from a single source, eliminating the hassle of dealing with multiple suppliers and any concerns about compatibility.

Structure of a continuous-flex cable

The key difference between a continuous-flex cable and a standard or "high-flex" cable is the structure of the cable. A continuous-flex cable's structure can be broken down into seven main elements:

1. Center strain-relieving element
2. Optimized conductor structure
3. Insulation material
4. Overall cabling
5. Gusset-filled pressure-extruded outer jacket
6. Shielding structure
7. Outer jacket material



Read more: [7 guidelines for continuous-flex cables](#)

Each of these elements serves a specific purpose, and aids in achieving an extensive service life. For example, the braided design of the cable shielding ensures constant protection against electromagnetic interference (EMI), and the strain-relieving core absorbs forces present during standard linear movement that could otherwise cause core ruptures. Other cables are often missing some of, if not all, these structural elements, making them much less reliable and effective in moving applications, even within an e-chain.

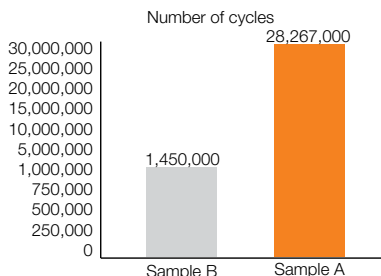
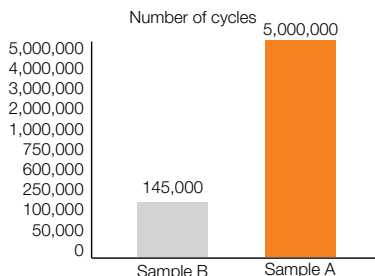
Performance comparison

As already mentioned, the structure of a continuous-flex cable is what gives it an edge in performance over common alternatives. However, thanks to the data collected from the 41,000-square-foot igus test lab — where over 2 billion test cycles are carried out each year — this edge can be quantified.

One such test compared nearly identical cables, with the only difference being the conductor material used. “Item A” used a specialized alloy, while “Item B” used a standard copper conductor. Item A showed no damage at all after over 28 million cycles, whereas Item B only lasted 1.4 million cycles before complete conductor destruction occurred.

Another similar test compared two near-identical cables, one with an extruded inner jacket (Item A), and another with a fleece wrapping and fillers (Item B). The test was conducted using a low bend factor (4.76), and yet Item A showed no signs of wear after 5 million cycles, whereas Item B succumbed to corkscrewing after just 145,000 cycles.

These tests demonstrate just how much of a difference a single cable element can make in terms of service life. This is ultimately why there’s no comparable alternative to chainflex cables — each element has been painstakingly designed for optimal performance and lifetime in moving applications. To completely put any doubts to rest, chainflex cables are all backed by a UL-verified service life guarantee of up to 36 months based upon the 2 billion test cycles conducted each year.



Single-source energy supply

Performance isn’t the only reason to pair chainflex cables with e-chain cable carriers. Another key reason is the advantages of acquiring your entire energy supply system from a single source. Rather than get your cable carrier from igus, cables from another supplier and possibly even connectors from a third supplier, the entire system can be ordered directly from igus, either as individual pieces that you then assemble or as a pre-assembled readychain system.

readychain cable carriers are e-chains that have been filled with either standard chainflex cables or readycable cable assemblies. The entire system is shipped as a single part — meaning only one PO and part number is required, rather than each cable, connector and chain having their own. Better yet, readychain systems with connectors included offer plug-and-play operation, reducing harnessing and installation time significantly.

An added benefit of sourcing cables and chains together from igus is the ability to use online configurators to both select the ideal parts, as well as accurately calculate the service life of those parts under your application conditions. You can also contact a readychain expert if you have specific questions about a product or application.

