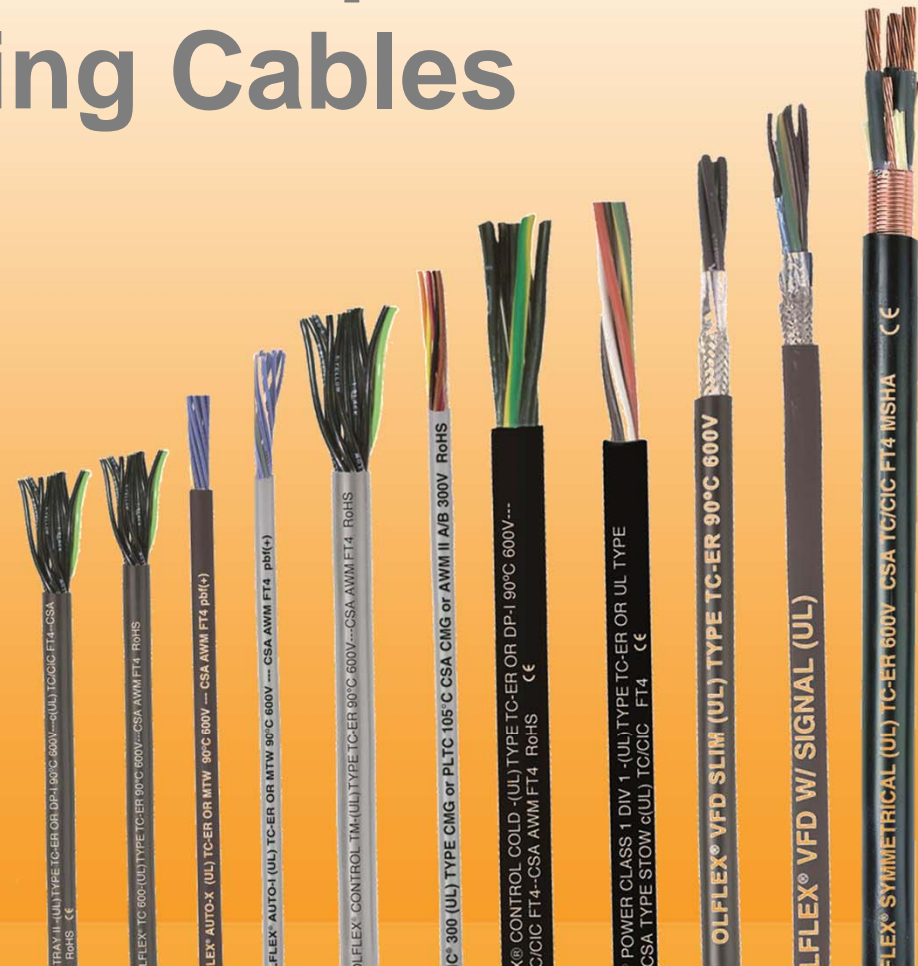


Typical Cabling Techniques and Motions for Flexing Cables

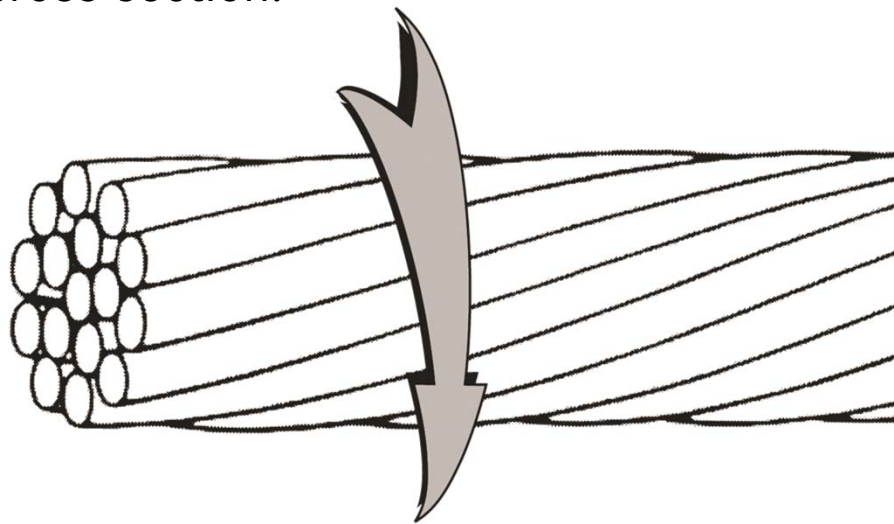


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Typical Cabling Techniques

UNILAY or BUNCH

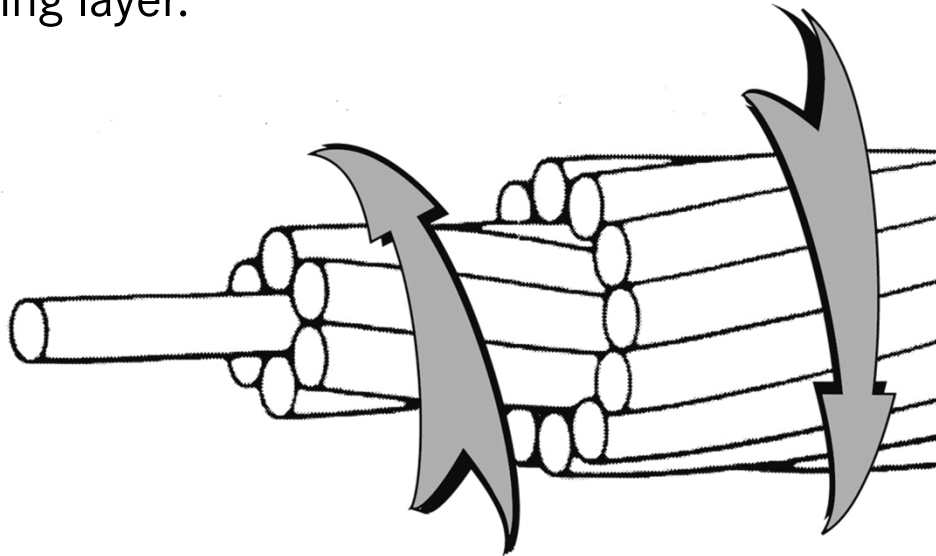
- Conductors of any number are twisted together with the same lay direction and cable lay length.
- BUNCH construction will not have a well defined geometric configuration and may have a variable cross-section
- A UNILAY construction will have a well defined geometric configuration and a defined cross-section.



*This type of cabling technique is usually used in **static designs**.*

CABLING TECHNIQUES

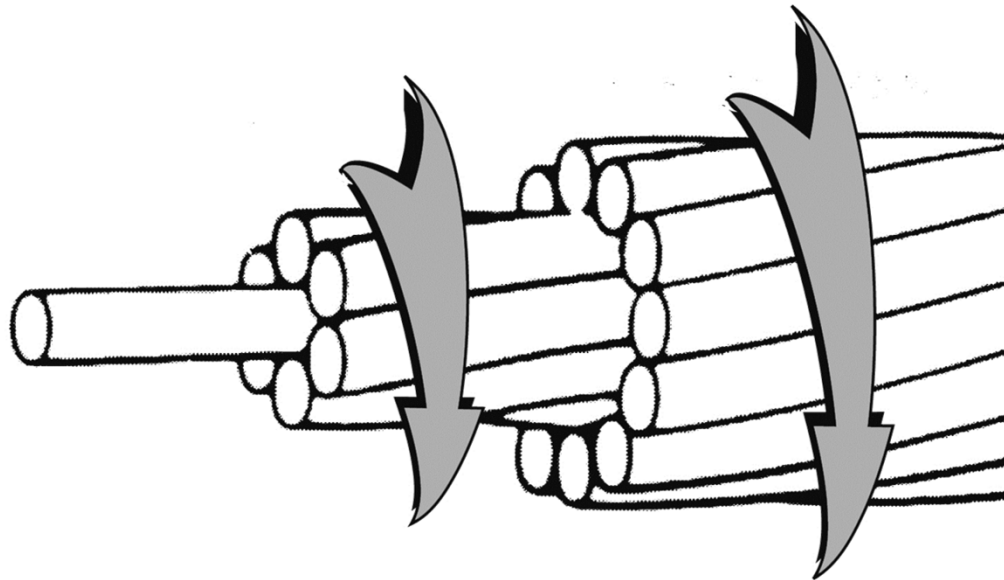
- Conductors that are surrounded by well defined layers of helically laid conductors.
- Each layers have a reversed lay direction and an increasing lay length in each succeeding layer.



*This type of cabling technique is usually used on **continuous flex designs**.*

CABLING TECHNIQUES

- Conductors that are surrounded by one or more layers of helically laid conductors with the same direction of lay and increasing lay length in each succeeding layers.



This type of cabling technique is usually used on torsional and continuous flex designs.

Typical Motions for Flexing Cables



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FLEXING CABLES APPLICATIONS



Robotics



Material Handling



Assembly Machinery



Packaging machinery



Medical

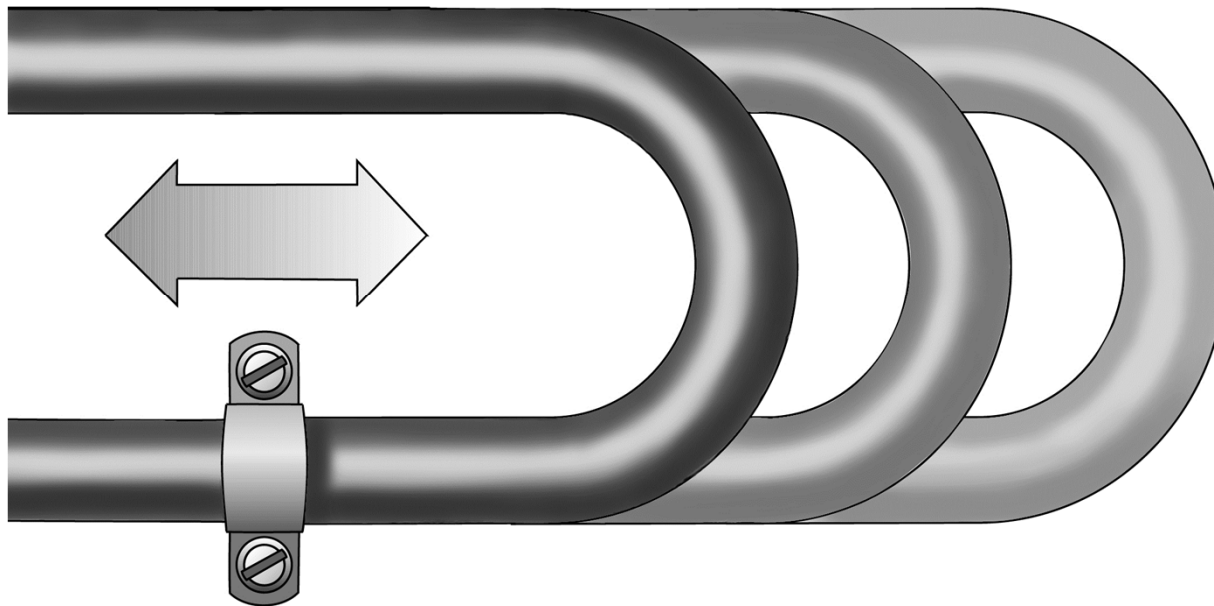


Semiconductor
manufacturing

-
- The flex type and application of the cable will determine how the cable is manufactured.
 - When the cable is designed with a special flexing application, the cable has to be manufactured on a unique cabling machine that will minimize any back-twist on the cable core.

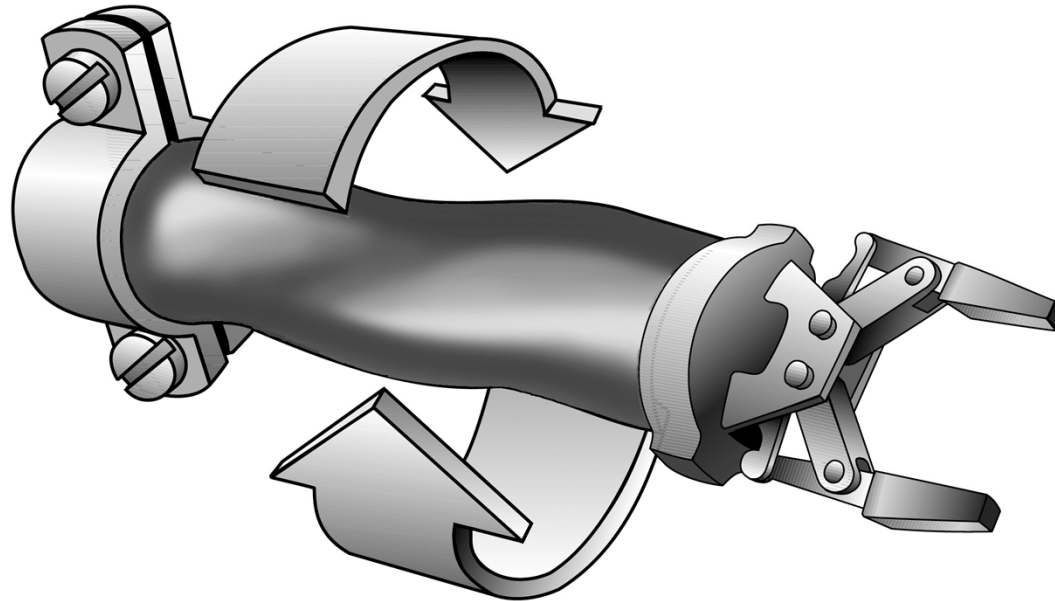
CONTINUOUS FLEX

- The cable is rolling/flexing back and forth in a linear motion.
- Usually, these cables are used in C-track applications where the bend radius is designed for 10X the cable diameter or less.



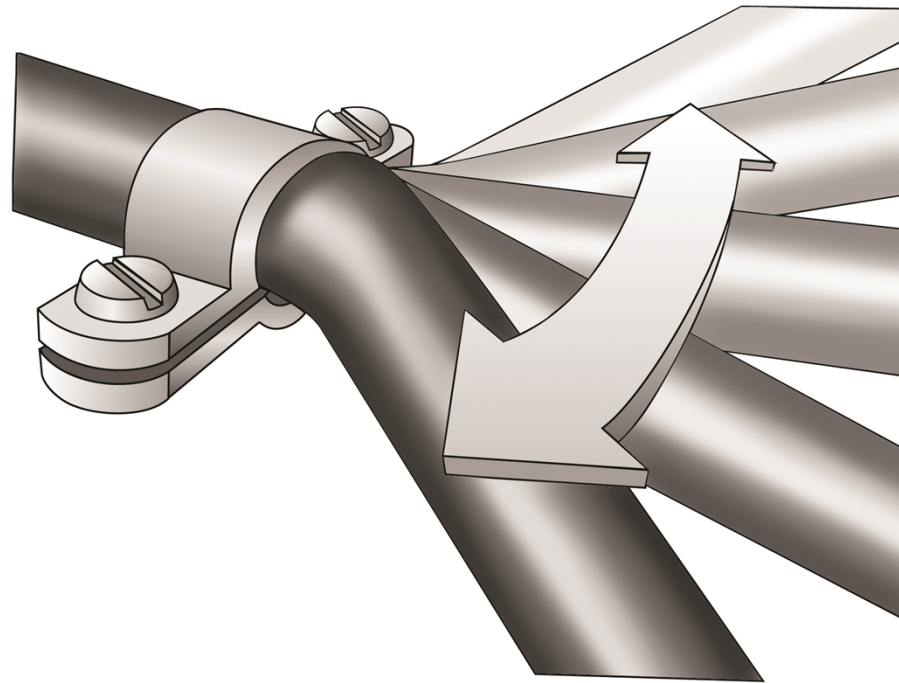
TORSIONAL FLEX

- The cable is twisted clockwise and counter-clockwise with angles varying from 90 to 360 degrees.
- This type of flexing usually occurs on robotic equipment that is being twisted constantly for a long period of time.



BENDING FLEX

- The cable is flexed back and forth with one of the ends stationary. This is referred to in the industry as a “tick-tock” motion.
- The majority of the stress on the cable is on the two focal points where the bend and the load are applied.



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