

Dynamic Friction: Slick Solutions for Sticky Situations

During cable installation, care must be taken to avoid exceeding either the maximum pulling tension or the sidewall bearing pressure of the cable design as it is pulled through a raceway. Contributing significantly to both of these factors is the Coefficient of Dynamic Friction, which measures the resistance to movement between two surfaces. A lower coefficient of dynamic friction means less resistance as a cable is installed, reducing the chance of critically damaging the cable or installation equipment.

The coefficient of dynamic friction can be affected by many variables, including the materials of the cable and raceway, the installation temperature, and the raceway's surface condition. In any case, proper lubrication applied during installation can significantly reduce the coefficient of dynamic friction, resulting in an easier pull. It is important to note that while many lubricants may be effective, the ideal lubricant will be compatible with the cable and raceway materials at the anticipated installation temperature. More information can be found in Section 3.2.3 of General Cable's Installation Manual.

Typical coefficient of dynamic friction values for General Cable products are shown in the table below. These values assume installation with a well-lubricated cable.

Cable Outer Surface Material	Type of Raceway	
	Metallic	PVC
PVC/ Nylon	0.20	0.20
XLPE	0.25	0.25
PVC	0.25	0.25
Thermoplastic CPE	0.20	0.20
Thermoplastic LSZH	0.25	0.25
Thermoset LSZH	0.25	0.25
Thermoset CPE	0.40	0.40

Metallic = Steel or Aluminum

PVC = Polyvinyl Chloride (Thinwall or Heavy Schedule 40)

Note: Values are current as of May, 2016. This information supersedes Page 31, Section 3.7.3.5 in General Cable's Cable Installation Manual for Power and Control Cables, Ninth Edition (September, 2011).