Why use

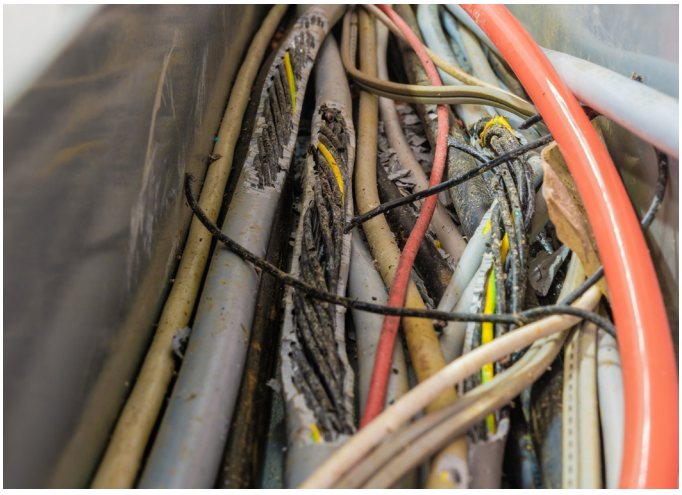
CABLE PROTECTION ?

Why protect cables?
Stress on cables and wires in an industrial environment

Particularly cables and wires deployed on industrial applications can be subject to various types of stress. For example, mechanical stress, vibrations or motions can damage the cable and can lead to cable breaks. Such breaks then can cause power supply disruptions, defective signal transmissions or even entire machine breakdowns. Another source of trouble can be electric devices causing electromagnetic faults which may lead to signal distortions or malfunctions.

Also humidity, dust and corrosive substances can damage the cable insulation material and can lead to short circuits or leakage current. This particularly happens relatively often where cables are exposed to humid or chemically aggressive environments. Another factor not to be underestimated is stress on the lines caused by a high ambient temperature. High or low temperatures can affect the performance of cables and wires, overheating can lead to cable failures, and low temperatures reduce the bending capabilities (flexibility) of cables. Finally, cables can be worn out through mechanical stress such as friction, e.g. when the cable is in motion or runs over a sharp edge.

Facing increasing electrification, it is important to consider the above stated issues and to take appropriate action in order to ensure steady reliable and effective performance of the cables and thus of the machines and of the plants. Therefore, regular inspections, proper installation techniques, the application of high-quality materials – and protective systems such as cable protection systems are essential. Implementing such measures can improve the reliability and the efficiency of cables and wires which then in the end leads to trouble-free power supply and/or signal transmission and thus preventively avoids cost-intensive breakdowns of machines and plants.



Damaged cables on a machine lacking appropriate cable protection

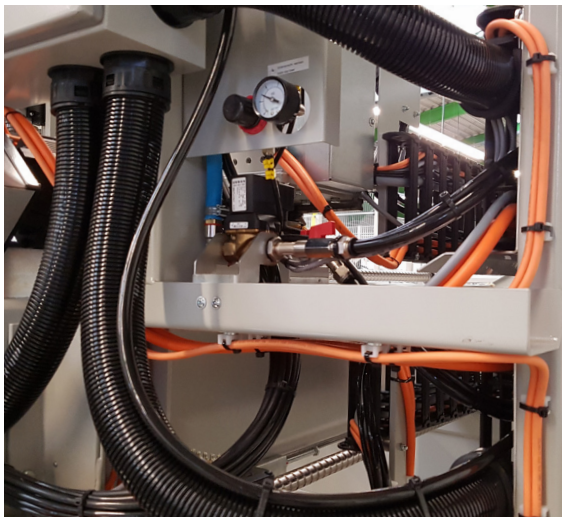
Non-protected cables and wires are often subject to rodent bites

What is a corrugated tubing?

Corrugated tubings made of plastics are deployed in many areas of our daily life. The production industry, the mechanical and plant engineering sector, the construction industry, the freight traffic and passenger transport sector as well as railway infrastructure systems and the shipbuilding industry use such corrugated plastic tubings. But what exactly is a corrugated plastic tubing, and why is it so versatile?

Materials and properties

A corrugated plastic tubing consists of flexible plastic material and features a corrugated shape. The corrugated structure provides the tubing wih both increased flexibility and enhanced stability and thus makes the tubing a perfect fit for varied applications. Corrugated plastic tubings can be made of various materials such as polyethylene (PE), polypropylene (PP), polyamide (PA) or polyvinyl chloride (PVC).



Various corrugated plastic tubings in use on production machines in industry

Broad protection in numerous fields of applications

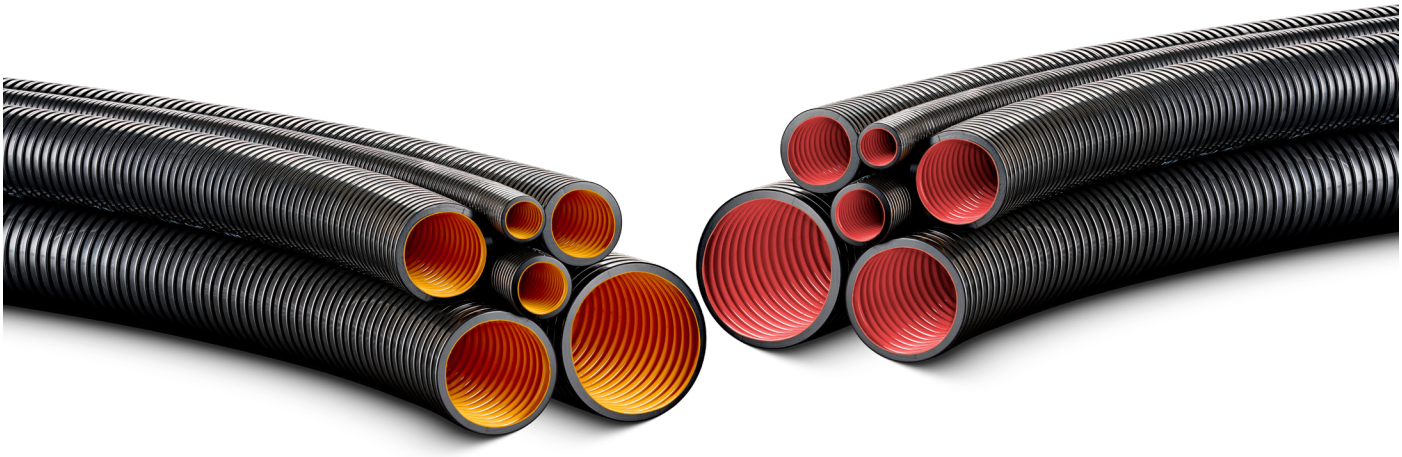
One major advantage of corrugated plastic tubings is their specific properties in terms of resistance against different chemical agents and liquids. Depending on the material applied and on the composition, the tubings can also be resistant to temperature, UV radiation and rodent bites. These properties make the tubings perfectly well fit numerous fields of applications such as renewable energies (photovoltaic conversion plants, wind power stations, etc.), agriculture and forestry and the building industry where corrugated tubings are applied to protect cables and tubings against external stress. Also the electrical industry uses corrugated plastic tubings to protect cables and tubings against mechanical stress (shock protection, anti-crushing protection, protection against cuts and impact protection), humidity, dust and other detrimental external influences.

Easy installation, easy handling

Another benefit of corrugated plastic tubings is the fact that they can be installed and handled very easily. They can be cut to the desired length and can be easily formed and bended due to their flexibility and stability.

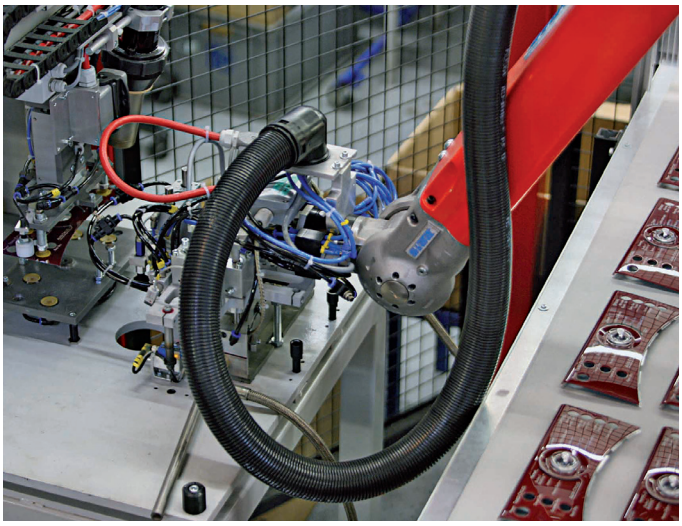
Single-layer and mlti-layer technology

Corrugated plastic tubings can be produced with a single layer of material, but they can also be produced with different materials and are then called multi-layer corrugated tubings. Such a multi-layer corrugated plastic tubing combines the best properties of the two different materials used for its production. Furthermore, in comparison to a single-layer tubing, a multi-layer tubing features an anti-abrasion coefficient. This is particularly relevant when the tubing is exposed to high mechanical stress. So when the tubing has undergone significant outside abrasion, the coloured inner layer becomes visible and thus indicates the rate of wear. So preventative maintenance is quite simple to avoid consequential damage.

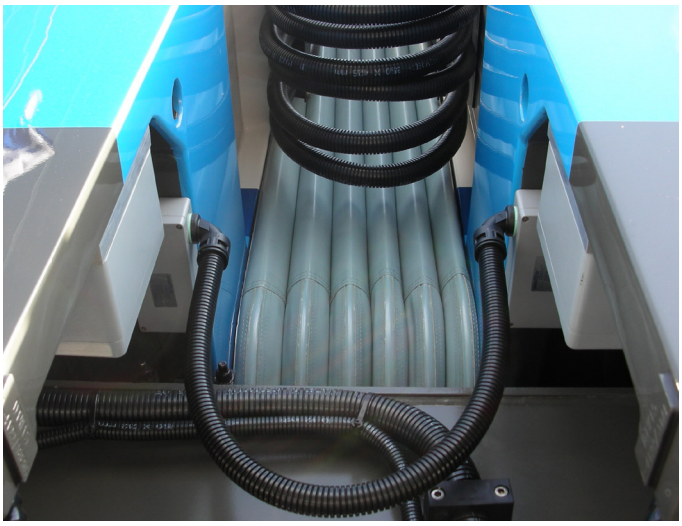


It all depends on the demands on your application

Corrugated plastic tubings are a cost-efficient and versatile option suitable for numerous fields of applications. Selecting the appropriate corrugated plastic tubing follows the specific requirements for your application such as resistance to pressure, impact absorption capabilities, vibration tolerance, the temperature range, environmental conditions and chemical resistance requirements.
Note: Not every corrugated plastic tubing is equally suitable to be applied for motions, for outdoor positioning, for underground applications, for exposure to heat or flames or for retrofitting. However, the appropriate choice and proper handling of corrugated plastic tubing offer a reliable and long-term solution.



A ROHRflex protective tubing in action to protect harnesses on automation machines

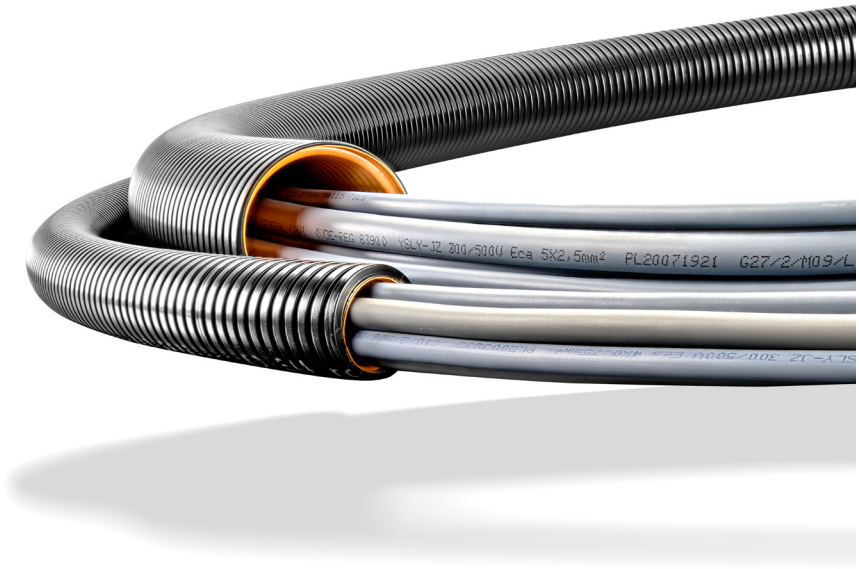


Multi-layer corrugated tubing in the rail traffic sector applied between two railway carriages

What is relevant when using corrugated tubings as cable bunchers?

Before a corrugated tubing is applied as a cable buncher, different aspects have to be taken into consideration. First, the number of cables led through the cable buncher is relevant. The outer diameter of the cable buncher determines the inner diameter of the tubing and thus the space available for the cables to be combined. Make sure the selected tubing size offers sufficient space for the cables so that the cables can be threaded and fed through easily.

Also, the decision has to be made whether the tubing is to be a closed tubing or an open tubing, i.e. a so-called slitted corrugated tubing. The slitted corrugated tubing is particularly suitable for tailored cables. You can select from the products of our ROHRflex DUO product range offering two-part tubings which are divisible and resealable, or you can choose from our comfortable FLEXAzip product range. These systems are particularly suitable for subsequent installations with long cable lengths.

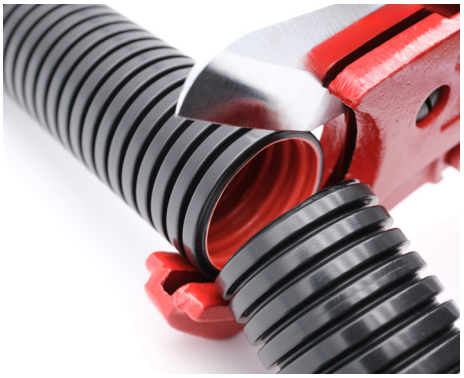


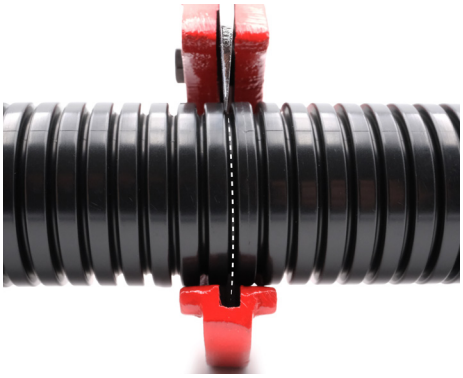
The appropriate connector for the entire protective tubing system

Our comprehensive FLEXAquick connector range provides for quick and easy assembly of tubings as a system. The single-part connector stands out due to its compact and solid structural shape and allows easy mounting and detaching without any tools. Various shapes are available: straight versions, bended versions, angled versions, Y-shape versions, T-shape versions or flange-type versions – FLEXAquick connectors fit any FLEXA corrugated tubing and are available up to protection class IP 69k.

Proper cutting of corrugated tubings

If a corrugated tubing is to be cut to a pre-defined length, please consider the following advice. In order to retain optimal performance and tightness properties of the tubing in combination with a connector, the corrugated tubing has to be cut in a straight cut in the corrugation trough by using a cutter or ideally by using a specific tubing cutter.





FAQ – frequently asked questions on corrugated tubings

What are corrugated tubings used for?
Corrugated tubings are applied to tie cables into bundles, the lay cables or to protect them.

What are the available diameters for corrugated tubings?
Corrugated tubings are available from diameters of 10 mm up to so-called multi-tubings featuring diameters of up to 106 mm.

Corrugated tubings of which materials are available?
Corrugated tubings are made of PA 6 plastics or of PA 12 plastics, with PA 6 plastics being the standard material. Depending on the intended application and on the requested specifications, however, different materials are applied.

What are the available colours of corrugated tubings?
Corrugated tubings have become established in different colours such as black, grey or orange.

What should be taken into consideration when selecting a corrugated tubing?
When a corrugated tubing is to be selected, the intended application should be taken into close consideration. In addition, demanded features such as flexibility, compressive strength, requested official approvals or the inner and outer diameter are relevant as well.

Recommendations on areas of application, fields of use, products or product combinations are made by FLEXA to the best of its knowledge and previous findings and experience. The use of FLEXA products for specific applications must be verified by the user. All published texts, product illustrations, drawings and tables may not be copied, edited or modified without the consent of FLEXA. Technical drawings, approvals, certificates and results of FLEXA's own test laboratory will be provided upon request. We reserve the right to make printing errors, mistakes in technical drawings, errors and technical changes.