

ESSENTIAL FEATURES OF CABLE JOINTING KITS

Cable Jointing kits are essential for the long term reliable performance of medium and high voltage cable . In fact even low voltage cable connections can be made more reliable by using kits, although fewer features may be necessary.

Some of the essential features of a medium voltage cable jointing kit are listed in this note.

Lugs:

Lugs must be of a physical size and current rating matched to that of the cable conductor.

The material of the lug must be compatible with the conductor material as well as the equipment terminal material to avoid bimetallic corrosion.

Earthing:

The kit must provide a method for firmly earthing the screen with adequate current carrying capacity for normal leakage currents and for abnormal short circuit currents up to the full current capacity of the cable screen. Similarly, the armour too must be provided with hardware to make a good electrical connection capable of carrying the expected short circuit current.

Voltage stress control system:

High voltage stresses develop at the end of the cable where the screen is stripped back. These stresses lead to "partial discharge" which can damage the cable, and so must be controlled to a level below the ionisation stress of air. Commonly used devices to achieve this include stress cones, heat shrink tubing, and stress control tapes or pads.

Surface Protection:

The surface from the high voltage point at the lug to the earth connection at the sheath of the cable needs protection from the leakage currents that arise due to the potential difference. The sparking caused by the leakage current should not result in a conducting carbon track being formed. In other words, the surface must be "non-tracking".

In the case of outdoor terminations, rain skirts are essential to prevent a continuous wet film formation between the live and earth points. The number and size of skirts must be adequate for the voltage level.

Sealing:

XLPE insulation is now well accepted to need protection from entry of water to prevent pre-mature failure due to water-treeing. The cable termination must therefore be sealed at the lug, at the crutch, and at all intermediate joints along the length.

Instructions and Kit List:

Each kit must provide complete step-by - step instructions to guide the installer. It should also provide him a check list of all items supplied in the kit to detect possible missing items.

Low voltage cables are connected by simply stripping off a length of insulation at the end to expose the conductor and connected to where the voltage is to be applied.

Why then are higher voltage cables connected using special "kits"?

What are the essential features of such cable jointing kits ?

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