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Maximo REF No. n/a

Protecting Cables During Installation

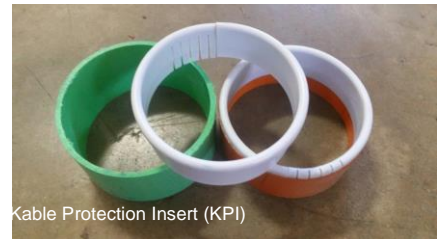
ISSUE IDENTIFIED:

Site observations have identified installations where Kable Protection Inserts (KPI) have not been installed, and cable damage is occurring as a result.

While we spend so much time and effort on protecting our primary assets during installation, we need to also consider cabling. Power and Secondary cabling emerging out of ducts with sharp edges may be exposed to significant incisions that over time may lead to a break down of the insulation and cause the cable to fail.

The majority of cable outer sheath damage occurs during installation when the cable is being pulled and rubs against sharp objects such as rocks or the edge of ducts. The deep cuts and tears on the outer sheath can expose the Steel Wired Armour (SWA) or copper wire screen and cause poor outer sheath insulation resistance test results. If the outer sheath damage is left unattended, this allows water ingress into the cable insulation and can cause the insulation to deteriorate and eventually lead to a premature failure.

Damage has also been witnessed on secondary cabling resting on a edge of conduits or ducts after a prolonged period of time. Protection in these circumstances also need to be considered.



Kable Protection Insert (KPI)



Cable without KPI



Cable with KPI



Without KPI – Damage to Sheath



With KPI – No damage to Sheath

CONTIBUTING FACTORS:

- Inadequate protection during and after installation
- Ducting and Conduit placement causing cables to rest on edges as they bend out of ducts
- Debris such as stones being pulled through ducting during cable installation
- Sharp edges on conduits and ducts

ACTIONS REQUIRED TO PREVENT REOCCURENCE:

- Installation of Ducts should be in compliance with **TP.DP 01.34**, and in compliance with **TP.CL 01.02** for power cables. **TP.CL 01.02** (extract) states: *The entry of a cable into a duct shall be arranged so that no damage is caused either during or after installation by the cable scraping or resting on the lip of the duct.*
- Notes on standard design drawings shall be complied with to ensure quality installation and to minimize the risk of damage to cables.
- All uPVC ducting are to be fitted with a KPI (Kable Protection Insert) or conduit bell mouth to protect cables from damage at the rim of the duct.

LEARNINGS FROM THIS

- Design Consultants and Project managers to ensure these requirements are being meet.
- Service Providers and Installation Contractors are reminded of the importance of applying effective quality assurance checks during installation.
- Reinforced requirement to ensure the message is distributed nationally.



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