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Fire resistant cables – state of the art technology

History

In former times the cable industry had only limited options for fire resistant cables with fulfilment of e.g. tests according to IEC 60331 or BS 6387. The most popular method was the use of so-called MICA-tapes as wrapping around the copper conductor under the thermoplastic insulation. Cable constructions with MICA-wrapped conductors are sensitive to the way they are treated during transportation and installation. The handling of the cable was impacting the fire properties since MICA-tapes wound on the conductor might "move" slightly during bending of the cable. For this reason additional wrappings of glass-silk tapes (to some extent with MICA-covering) above the twisting elements of the cable had been necessary to guarantee the fire resistant properties.

Today's state-of-the-art situation

Since several years we have now an approved and reliable method in the market for fire resistant cables; the use of cores with an insulation of a special silicone rubber. The silicone rubber of the first generation had some "teething problems" such as low impact resistance, but these "teething problems" are nowadays solved and the new generation of the fire resistant cables are proven in reams of applications and tests. The silicone-rubber does not melt and forms a ceramic layer around the conductors during fire. The non-conductive ceramic provides insulation between the adjacent conductors to assure the circuit integrity and avoids the short circuit during the fire test. By this, the additional glass silk tapes have become obsolete and are no longer necessary.

Advantages of this state-of-the-art insulating material are

- additional wrappings are needless due to the excellent insulation properties of silicone-rubber. Simple handling during installation.
- cost savings
- reduced smoke emission in case of fire
- halogen free flame retardant
- suitable for high temperatures
- no corrosive gases

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