



Cable knowledge

Cable for the last mile

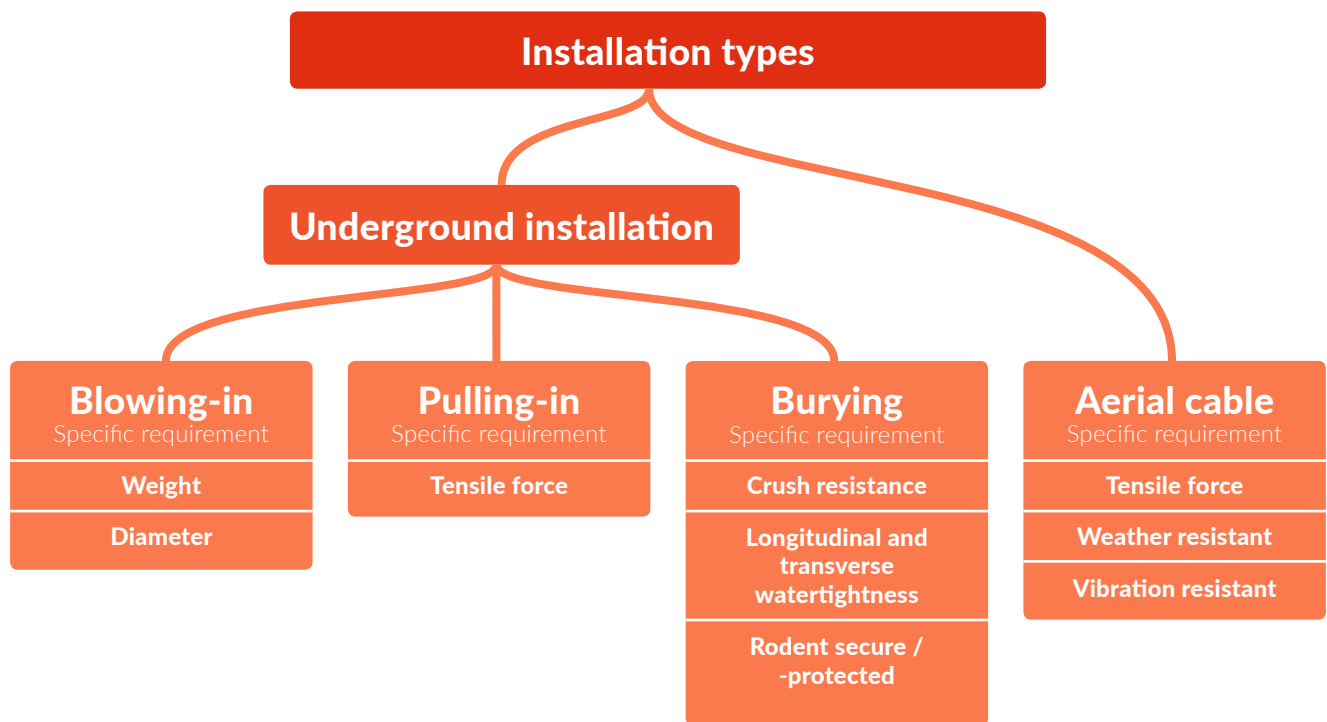
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Statement / Goal

Fiber optics has definitely conquered the last mile and outstripped copper-based transmission technologies.

The installation methods for laying the last transmission link to the house / building remain unchanged:



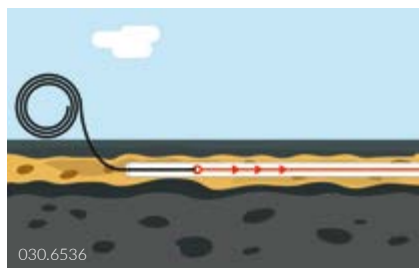
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Underground installation

As a rule, the cables of the last mile run in a conduit in which, under certain circumstances, cables for other services have already been laid to the building.

The cables are blown or pulled into existing ducts.

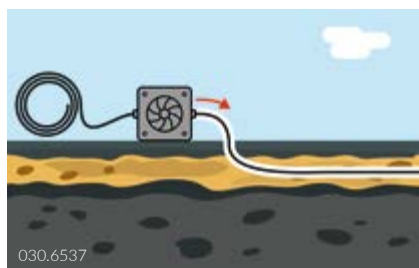


Pulling-in

The most important mechanical properties for cables which are pulled into conduits are tensile strength and dead weight (if necessary, additional cable diameter if the conduit is occupied several times).

Rodent protection is not necessary. Basically, all cables of type U-DQ(ZN) or U-DQ(BN) are suitable for pulling into ducts.

R&M recommends PE-sheathed cables because PE has excellent surface properties and sliding properties (low frictional resistance).



Blowing-in

Blowing cables into pre-laid ducts is the most economical installation method for buried cables.

Blow-in-optimised cables are lightweight, have a certain stiffness and good sliding properties of the outer sheath.

High tensile forces or rodent resistance are not necessary.

Micro cables from the R&M range are specially optimized for blow-in properties.



Direct burying

Cables laid directly into the ground must be rodent secure and have a high crush resistance. Longitudinal watertightness is a prerequisite.

PE sheathing (HDPE) is indicated because PE is sufficiently resistant to all chemical influences conceivable with directly buried cables.

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Aerial cable

Aerial cable installation is the most economical installation method for the last mile. However, the requirements for aerial cables are significantly higher than for buried cables.

In addition to the necessary high tensile force, other influences must also be taken into account:

- ice load
- vibration
- UV resistance
- temperature cycling behaviour
- cable weight
- cable diameter (wind load)
- sag



R&M air cables do not contain any glass roving that is unsuitable for air cables.

The cables are encased in UV-stable HD-PE outer sheathing and designed for a temperature range of -25 °C to +70 °C (70 °C is quickly reached on black surfaces under direct sunlight).

R&M recommendations

Pulling into conduits

Rodent protection for cables in conduits is not mandatory, as rodent infestation is rather unlikely. R&M nevertheless recommends glass-roving-armored cables of the type: U-DQ (BN) 2Y with a 2.3 mm loose tube and PE outer sheath.

Blowing-in into micro ducts

Pre-laid ducts into which cables are blown have smaller inner diameters than the conduits into which the cables are pulled. This eliminates the need for strain relief and rodent protection.

The cable family of micro cables type A - D2Y with a loose tube of 1.2 mm (4 fibers) / 2.0 mm (12 fibers) / 3.0 mm (24 fibers) is optimized for the blowing process. The micro cables excel through their low weight, optimum stiffness and minimal outer diameter.

Directly buried cables

Due to the increased probability of wetness, transverse pressure load and rodent infestation, R&M recommends sheet steel armoured cables of type A - DQ (ZN) (SR) 2Y or A - DQ (ZN) 2Y (SE) 2Y.

The robust design of these cables meets the high requirements for directly buried cables.

Aerial cable

Minimum weight and outside diameter characterize the UAF250 and UAF1000 cable family type: A - (ZN) 2Y. The simple cable construction overcomes span lengths of up to 100 m.