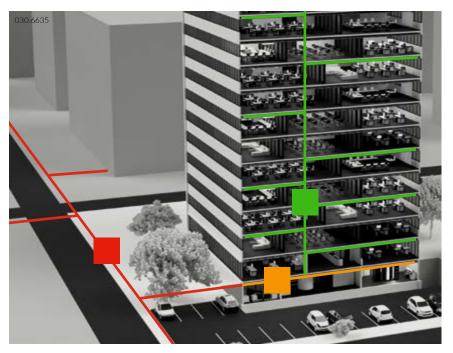


Rodent protection

Introduction

Most rodent damaged cables are found in underground shafts or supply ducts where animals can move freely. Other critical locations for rodent infestation are the transitions of the installation cables into buildings or the transitions from room to room (usually in the basement).

Cables on cable routes, climbing zones or internal cable ducts are exposed to less rodent infestation.



Cable distribution in the building

Recommendation:

• Standard cable or Rodent protected cable

Cable distribution in the cellar Recommendation:

• Rodent protectet cable



• Rodent safe Kabel

The drive for the rodents to gnaw cables is, besides dental care and play instinct, where the cables are mostly damaged only superficially, overcoming barriers caused by the cable to important places (e.g. to the nest, source of food, source of water).

Rodent protection

Rodent protection measures

R&M distinguishes between:







Rodent protected cables

Rodent-protected cables prevent damage to the cable core with the fiber-bearing elements in the case of moderate rodent infestation (play instinct, dental care).

Rodent protected cables do not guarantee that the protection will last. Repeated gnawing (e.g. by other rodents) can sooner or later lead to damage of the cable core and fiber breaks.



Rodent-safe cables

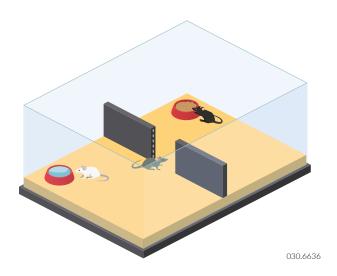
Cables are considered to be rodent safe if the cable core is protected for a long time even in the case of massive rodent infestation.

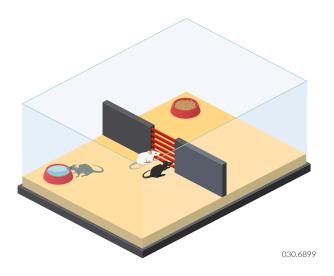
Rodent safe cables provide permanent protection through mechanical resistance.

Cables with steel armouring achieve the best results. Of the various steel armouring variants, steel tape armouring has the best properties.

Rodent protection

Testing procedure





Acclimatization phase

Testing phase

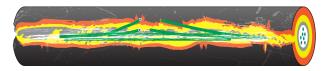
Three male rats (minimum weight specified) are placed in a two-piece cage. Water is in one part of the cage, food in the other. In the partition wall between the compartments there is a loop-through which allows changing.

Before the test, the animals are accustomed to the environment for a few days. The passage is then blocked with cables. In most cases the test is carried out with several cages at the same time. The animals are randomly moved to other cages.

After five days the cables are evaluated.







030.6637

Moderate rodent infestation

for glass roving armoured cables

Strong rodent infested with fiber damage

for glass roving armoured cables

Rodent protection

Effect of various protective measures

Glass roving reinforcement

Glass roving reinforcement is the most widespread protective measure. Glass roving splinters during mechanical processing. This causes tiny glass fiber fuzz to break out and drill into the skin. The resulting itching is unpleasant and prevents the animals from gnawing further.

Glass roving armoured cables are sufficient for installations with a moderate risk of biting.

The advantage of glass-roving armoured cables compared to other protective measures is their low weight, so that these cables can also be used in climbing zones and in in-house cable ducts without any problems.



030.6309



Steel wire armoring

Steel wire armor offers more protection against rodent infestation than glass roving armor cables. Tests have shown, however, that particularly stubborn rodents pull individual wires out of the composite, thus preventing the weaken the reinforcement.

As a result, even steel wire armored cables do not provide guaranteed protection against repeated attacks.

Steel wire armoring is recommended for underground ducts and shafts where only occasional rodent infestation is to be expected.

Steel tape armoring

Steel tape armored cables are rodent safe. The effect of taping is based on the fact that the teeth of the rodents cannot find a point of attack on the surface and cannot bite properly.

Steel tape armored cables are recommended for outdoor use in cable ducts and shafts where rodent infestation cannot be excluded.



030.6311



Additives

Other protective measures are cables with superficially applied additives such as chili (deterrence) or poisons (killing).

R&M does not use additives, as a risk to installation personnel cannot be ruled out.



Rodent protection

Comparison of protective measures

R&M offers two protective measures in its product range

RODENT PROTECTED

R&M recommends the use of glass-roving armoured cables of the type for applications in less rodent loaded environments:

J/A - DQ (BN)

R&M offers two variants that differ in the amount of glass roving.

RODENT SAFE

For use in rodent endangered environments R&M recommends steel-tape armored cables of this type

J/A - DQ (ZN) (SR) (one cable sheath)

or:

J/A - DQ (ZN) 2Y (SR) (two cable sheaths)



Cable with glass roving



Single sheathed cable with steel tape armoring



Cable with glass roving and increased tensile force



Double-jacketed cable with steel wire armoring