



Cable reels and cord extension sets on construction sites

Specification of suitable cable types for temporary use on construction sites | Cable reels and cord extension sets on construction sites are subject to exceptional mechanical and thermal stresses, and also to the influence of weather conditions. These electrical products must comply with the recognised rules of engineering and must be constructed, maintained and used in the intended manner so that they can be operated safely.

In Switzerland, low-voltage electrical products must meet the basic requirements as per Art. 5 of the Swiss Ordinance on Electrical Low Voltage Equipment (NEV; SR 734.26) so as to allow them to be made available on the market. Insofar as possible, internationally harmonised technical standards are designated for this purpose, which state the basic requirements in specific terms.

For the manufacture of cable reels, standard EN 61242¹⁾ is applied for household use and EN 61316²⁾ is valid for industrial applications.

Standards IEC 60884-2-7³⁾ and SEV 1011⁴⁾ are applicable to the manufacture of cord extension sets.

Due to the type of use and/or location of use involved, however, cable reels and cord extension sets for use on construction sites must meet additional requirements so that they can be oper-

ated safely. Moreover, the connection of power tools with fixed adapters⁵⁾ has to be avoided on construction sites.

Specification of suitable cable types

Flexible cables on cable reels are suitable for use on construction sites, as are cord extension sets of types HO7RN-F <rubber>, HO7BQ-F <PUR>, CH-No7V3V3-F <heavy, cold-resistant PVC cable> or equivalents. If used correctly, these cable types are suitable in order to deal with the expected abrasion- and water-related stresses. The manufacturers' product datasheets provide users with more detailed information on the choice of suitable cable reels and cord extension sets as appropriate to the type of deployment and the location of use.

Normal PVC cables of type HO5VV-F or HO3VV-F are unsuitable for use on construction sites. They can primarily be used in households and offices.

Requirements for cable reels and cord extension sets on construction sites

Suitable cable reels and cord extension sets for construction sites exhibit the following characteristics:

- Increased mechanical strength
- Version with degree of protection of at least IP44
- Cable types used: HO7RN-F, HO7BQ-F or CH-No7V3V3-F
- For cable reels: integrated protective device, i.e. thermal cutout switch and/or overcurrent trip

Where high power is involved, cables must be completely unrolled from cable reels and the relevant information from the manufacturer must be noted



Figure 1 Cable reel with rubber cable HO7RN-F.



Figure 2 Cable reel 400V with PUR cable HO7BQ-F.



Figure 3 Cord extension set with PUR cable HO7BQ-F.

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| Cable type | H07RN-F (EN 50525-2-21) | H07BQ-F (EN 50525-2-21) | CH-NO7V3V3-F National type (CH, AT) | H05VV-F, H03VV-F, H05RR-F (EN 50525-2-11) |
|----------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| Conductor insulation (HD 361) | Natural rubber (NR) or styrene butadiene rubber (SBR) | Ethylene propylene rubber (EPR) | Cold-resistant polyvinyl chloride (PVC) | Polyvinyl chloride (PVC) |
| Sheath insulation (HD 361) | Chloroprene rubber (or equivalent synthetic material) | Polyurethane (PUR) | Exceptionally cold-resistant polyvinyl chloride (PVC) | Polyvinyl chloride (PVC) |
| Temperature range, flexing (EN 50565-2) | -25 ... +60 °C | -40 ... +90 °C | -25 ... +70 °C | -5 ... +70 °C |
| Weatherability | Good, UV-resistant | Very good, UV-resistant | Good, UV-resistant | Limited |
| Chemical resistance | Good for oil, acids, bases | Very good for oil, acids, bases | Good for oil, acids, bases | Limited for oil, acids, bases |
| Cable structure (EN 50565-2) | Flexible cable with cross-linked or equivalent synthetic elastomer insulation; hose lines for heavy stress | Flexible cable with cross-linked elastomer insulation; heat-resistant hose lines with polyurethane sheathing for heavy loads | Heavy, cold-resistant PVC cable. Also suitable for cable reels operated on a temporary basis on construction sites. In dry and damp rooms and in the open air. | |
| Use (EN 50565-2) | In dry, damp and wet rooms and in the open air | In dry, damp and wet rooms and in the open air | In dry and damp rooms and in the open air | Moderate/average mechanical stresses in the household, kitchens and offices |

Comparison of cable types.


(nameplate). Further information on dealing with electricity on construction sites can be found in the Suva (Swiss National Accident Insurance Fund)⁶⁾ checklist.


Maintenance

As a general rule, all electrical equipment must be kept operationally safe on the basis of maintenance planning, and this must be documented. Essentially, this aspect is governed by Art. 3 NEV in conjunction with Art. 32b para. 1 VUV (Accident Prevention Ordinance)⁷⁾. In the absence of a relevant harmonised IEC or EN standard (draft standard EN 62638), reference may also be made in Switzerland to VDE 0701-0702, which is applicable as appropriate. In this

case, the maintenance interval depends on the condition of the equipment, the intensity of use and the type of use for the individual items of equipment. Information from the manufacturer must also be noted.

The Swiss safety mark

Certification with the safety mark  is also possible for cable reels and cord extension sets. The safety mark as specified by the NEV documents that the electrotechnical product has been tested for compliance by ESTI. For manufacturers, distributors and users, this means proven safety.

Visit www.esti.admin.ch to view the public directory of valid authorizations for the Swiss safety mark .

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¹⁾ EN 61242 Electrical accessories - Cable reels for household and similar purposes

²⁾ EN 61316 Industrial cable reels

³⁾ IEC 60884-2-7 Amendment 1 - Plugs and socket-outlets for household and similar purposes - Part 2-7: Particular requirements for cord extension sets

⁴⁾ SEV 1011 Plugs and socket outlets for household and similar purposes - A1: Multiway and intermediate adaptors, cord sets, cord extension sets, travel adaptors and fixed adaptors

⁵⁾ Fixed adaptor: Adaptor with a Swiss plug compliant with SEV 1011 that can be pressed onto the foreign plug (e.g. Schuko) to connect it once only and which can no longer be removed

⁶⁾ Electricity on construction sites, checklist 67081d, Suva, Health Protection, 6002 Lucerne

⁷⁾ Accident Prevention Ordinance (VUV; SR 832.30)