

GUIDELINES FOR INSTALLING CABLE TRACK CABLES

- **The laying of cables in cable tracks has to be done carefully. In general the following points have to be considered:**
1. It is recommended to lay the cables separately side by side. In case that cables with different diameters are laid on top of each other or side by side, we recommend the use of separators. For the cable choice it is recommended not to use cables with multi layer construction (for example > 25 conductors), but to distribute the required number of conductors between several cables. For big and heavy cables (for example 4 x 35 mm²) multi conductor cables are not suitable for many applications and single conductors are recommended.
 2. Cables with an outer diameter < 0.394 inches (10 mm) which cannot be installed with separators, should be loosely placed in a guide hose in the cable track. The section of the hose has to be considerably bigger than the sum of all cable sections.
 3. The cables should be movable in the separator. There must be at least 10% of the cable diameter as free space between the cables and the internal dimensions of the cable track for safety reasons.
 4. Please observe that the cables pass the bend radius without being forced. In case of several cable layers, the cables need a corresponding clearance among each other in the bend so that relative movements of the cables among each other and in the chain are possible. In principle the cables must be able at any time to move freely lengthwise and there is no tensile force on the cable in the radius. After a short operating time it is recommended to control in regular intervals the position of the cable - particular with long travel paths (control must be executed in push and pull direction). Furthermore, it has to be paid attention to an efficient installation and aspects of wear.
 5. A torsion-free laying of the cables in the cable track has to be observed (non-rotational). Therefore, the cables have to be unwound from reels before being installed. (Do not lift off the cables in loops). The ideal case is to take the cable directly from the drum. The cable imprint can't be used for a torsion free adjustment of the cable, as the imprint runs slightly helical around the cable due to production reasons.
 6. The weight arrangement in the cable track or in the links has to be done symmetrically. Heavy cables have to be laid towards the outside of the cable track and the smaller ones in the middle. After the rupture of the chain, all cables have to be exchanged due to excessive elongation.
 7. All cables have to be strain-relieved at the fixed point and at the driver, at least at the movable end of the chain. In long chains the connection of the cable is only done at the driver's end. It has to be observed that there is only large-surface pressure on the outer jacket. Careful clamping avoids any squeezing of the conductors and at the same time any displacement of the cable. It has to be avoided to move the cable up to the fixing point. The distance between the final point of the flexion to the fixing point should be as large as possible.
 8. In general only cable track cables should be used. The allowed bending radius of SAB cables has to be strictly observed. The information to the minimum bending radius for the cables are based on the application at normal temperatures. Under circumstances other bending radius can be recommendable. The choice of a bigger radius as the minimum radius will have a positive effect on the service life.
 9. The following standards have to be considered for the installation and grouping of cables in cable tracks:
 - ▶ DIN VDE 0100
 - ▶ DIN VDE 0113