

Wire rope and tensile structures

Maintenance and upkeep

Preamble

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Jakob stainless steel products are made exclusively with molybdenum-alloyed 1.4404 (AISI 316L) or 1.4401 (AISI 316) steels.

Even Jakob stainless steel products require a minimum of care to preserve their attractive appearance and corrosion resistance. Jakob guarantees professionalism in fabrication, but it is the responsibility of the structure planner to comply with applicable standards and guidelines for the intended application and of the operator to periodically inspect the products and identify any da-

mage that may have occurred.

After completion of the structure, it must be regularly inspected and cleaned. Foreign matter deposits may result in concentrations of corrosive substances that can damage the passive layer. Regular cleaning can prevent critical contaminant concentrations, for instance of sulfur dioxide or chlorides, as well as foreign iron contamination.

Cleaning

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A distinction is made between handover cleaning and upkeep cleaning. Ordinarily, handover cleaning is performed prior to the formal acceptance of the structure and is the responsibility of the principal contractor. After the acceptance of the structure, periodic upkeep cleaning is the responsibility of the operator..

2.1 Handover cleaning

Jakob stainless steel ropes, end connectors, and netting are delivered ex works free of residues such as greases or oils. Unless the products are contaminated during installation, handover cleaning is not necessary.

However, care must be taken that wrap films, adhesive tape or labels are completely removed without residues. Markings (for example those applied with felt pens) must be removed because solvents or other chemical residues can negatively affect the passive layer of the steel parts.

If the components are dirtied during assembly, they must be cleaned. They should be hosed down with water to remove loose particles. If necessary, they can be cleaned with (warm) water with a mild detergent and wiped with a cloth or a plastic brush. Then the components are rinsed with water and dried if applicable. The use of a pressure spray unit is recommended, because the water jet can reach hard-to-access places, especially between wires or strands. Heavily soiled surfaces should first be gently rinsed with a hose to prevent dirt particles from scratching the components and damaging the passive layer.

As far as cleaning chemicals are concerned, we recommend mild products (tensides, water, alcohols) but they should be first tested for compatibility with stainless steel. In particular, they must be free of hydrochloric acid. Also, we advise against using special stainless steel cleaning agents because their composition and their effect on the passive layer are often unknown. The use of mechanical cleaning utensils should be restricted to brushes with natural, polymer or stainless steel bristles. Textiles or polymer nonwovens can be used as well. In general, products containing ordinary steel wool or steel brushes should be avoided. It must also be assured that mechanical cleaning utensils are used only for stainless steel products. Wear and residues may damage the passive layer.

2.2 Upkeep cleaning

The nature and scope of upkeep cleaning basically depend on the application and the ambient conditions. In particular, a distinction is made between indoor and outdoor applications and the impact of the ambient atmosphere.

Outdoors, regularly occurring rainfall will wash away accumulated dirt. Precipitation reduces or may even eliminate the need for additional cleaning. It must be assured that the rain is free of residues and contaminants and that all components are uniformly wetted.

Components that are protected against rainfall or that are exposed to industrial or coastal atmospheres require particular attention. Regular cleaning is mandatory in such situations. A cleaning procedure as described in „Upkeep cleaning“ must be performed at least every 6 months. More frequent cleaning is needed when particularly heavy soiling occurs.

Exogenous iron contamination, for example as caused by welding, cutting, grinding and drilling or by contact with unalloyed steels must be prevented under all circumstances because such particles can break into the passive layer. ASTM standard A380 describes methods for identifying and removing exogenous iron. Since some of the measures are very elaborate and extensive and require detailed reviews in advance, such cases must be separately considered and assessed. For indoor applications, the removal of dust and fingerprints is sufficient.

Periodic inspections

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Jakob wire rope and tensile structures must be periodically checked for functional integrity and damage; this is the operator's responsibility. Trained technicians should perform these inspections at least once a year. The operator must define the nature and scope of these inspections.

3.1 Suspension and guy ropes with end connectors

Suspension and guy ropes must be visually checked for broken wires, compression points, kinks, and tension. End connectors must also be inspected for damage and corrosion. Particular attention must be paid to safety elements such as nuts or retaining rings; they must be present and correctly tightened.

3.2 Tensile structures

The tensile structure must be visually inspected for compression points and kinks as well as for broken ropes, strands, and individual wires. Connecting ropes between the tensile structure and the surrounding construction must also be checked for damage.

3.3 Other load-bearing components

General structural and accessory components with a loadbearing function must be visually checked for damage and corrosion. Welds and threaded connections must be inspected with particular care.

Literature

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Informationsstelle Edelstahl Rostfrei

Merkblatt 824 „Die Reinigung von Edelstahl Rostfrei“

Merkblatt 965 „Reinigung nichtrostender Stähle im Bauwesen“

ASTM International

Designation: A380/A380-M – 13 „Cleaning, Descaling, and Passivation of Stainless Steel Parts, Equipment, and Systems“