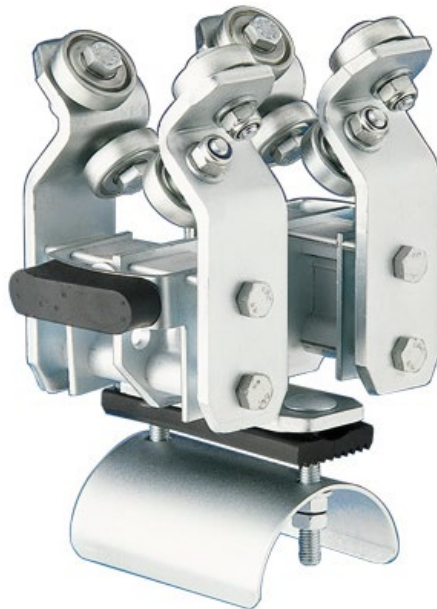


Festoon Systems for Square Bar Track  
Program 0270/0280

---



### Contents

1	General Notes.....	5
1.1	Information about this Installation Manual.....	5
1.2	Limitation of Liability.....	5
1.3	Copyright.....	6
1.4	Spare Parts.....	6
1.5	Material Defects.....	6
1.6	Technical Support.....	6
2	Safety Instructions.....	7
2.1	Explanation of Symbols.....	7
2.2	Personnel Requirements.....	8
2.2.1	Qualifications.....	8
2.2.2	Unauthorized Personnel.....	8
2.2.3	Training.....	8
2.2.4	Personal Protective Equipment.....	9
2.3	Intended Use.....	10
2.4	Protective Measures to be taken by the Operator / User.....	11
2.5	Specific Hazards.....	12
2.6	Safety Devices.....	14
2.7	Conduct in the Event of Accidents and Malfunctions.....	14
3	Technical Specifications.....	15
3.1	General Information.....	15
3.2	Interfaces.....	15
3.3	Operating Conditions.....	15
4	Product description and Method of Functioning.....	16
4.1	Overview.....	16
4.2	Brief Description.....	17
4.3	Description of Assemblies.....	17
4.4	Working and Danger Areas.....	21
4.5	Modes of Operation.....	22

## Festoon Systems for Square Bar Track Program 0270/0280

---

4.5.1	Automatic Operation .....	22
4.5.2	Manual Operation .....	22
5	Transport, Packaging and Storage .....	23
5.1	Shipment .....	23
5.1.1	Safety Instructions for Transport .....	23
5.1.2	Transport Inspection .....	24
5.2	Packaging .....	24
5.3	Storage of Packed Parts .....	25
6	Installation and Commissioning .....	26
6.1	Safety .....	26
6.2	Preparations .....	28
6.3	Installation .....	28
6.4	Installing the Track Rails .....	29
6.4.2	End clamp and end stop .....	32
6.4.3	Cable festoon .....	33
6.4.4	Towing trolley .....	33
6.4.5	Fitting round cables .....	34
6.4.6	Laying flat cables .....	35
6.4.7	Cable Trolleys with Plastic Cover and Split Nuts .....	37
6.4.8	Mounting the Strain Relief Cable .....	38
6.4.9	Installing flat cable clamps .....	39
6.4.10	Mounting the strain relief cable .....	40
6.5	Testing and Commissioning .....	42
6.5.1	Test list for initial commissioning .....	44
7	Operation .....	53
7.1	Safety .....	53
7.2	Function .....	56
8	Maintenance and Servicing .....	57
8.1	Safety .....	57
8.2	Maintenance/Inspection Plan .....	59
8.2.1	Inspection with the System at a Standstill .....	60

## Festoon Systems for Square Bar Track

### Program 0270/0280

---

8.2.2	Inspection with the System Moving .....	62
8.2.3	Logging.....	63
8.2.4	Maintenance of the Festoon System .....	63
8.2.5	Wearing Parts .....	64
8.2.6	Wear Limits.....	65
8.2.7	Repeat Inspections .....	66
8.2.8	Repair .....	66
9	Troubleshooting .....	67
10	Dismantling and Disposal .....	68
10.1	Safety .....	68
10.2	Dismantling.....	70
10.3	Disposal.....	70
11	Additional Documents .....	71
11.1	Documentation for Electrical Equipment .....	71
11.2	Spare Parts List .....	71
11.3	Product Observations .....	72
11.4	Final handover document .....	75
12	Index .....	76

### 1 General Notes

---

#### 1.1 Information about this Installation Manual

This installation manual makes it possible for you to work with the device safely and efficiently.

The Installation manual is a part of the device, and must be kept accessible to personnel at all times in its immediate vicinity. Personnel must read these instructions carefully and understand them before starting any work. The basic prerequisite for safe work is compliance with all safety and operating guidelines in this installation manual.

Local accident protection regulations and general safety guidelines for the area of use of the device also apply.

Illustrations in this documentation are provided for basic understanding and may deviate from the actual implementation of the unit.

In addition to this installation manual, the instructions located in the appendices for the individual assembled components also apply.

#### 1.2 Limitation of Liability

All data and information in this installation manual has been compiled while taking the valid standards and regulations as well as the state-of-the art and our long years of experience and knowledge into consideration.

The manufacturer is in no way liable for damage resulting from:

- Failure to comply with the installation manual
- Improper use
- Use by untrained personnel
- Unauthorized modifications
- Technical changes
- Use of unauthorized replacement parts and accessories

The actual scope of delivery may differ from the explanations and descriptions provided here if the model in question is a special one, if additional equipped has been ordered or due to recent technical changes, .

The obligations agreed upon in the delivery agreement and our General Terms of Business apply, as do the delivery conditions of the manufacturer and all legal regulations applicable at the time the contract was concluded.

All products are subject to technical modifications in the context of improvement of function and further development.

## Festoon Systems for Square Bar Track Program 0270/0280

---

### 1.3 Copyright

This installation manual is subject to copyright, and is exclusively intended for internal use by the customer.

Provision of the installation manual to third parties, duplications in any form – even in part – as well as the reuse and/or disclosure of their content are not permitted without the written approval of the manufacturer, except for the customer's internal use.

Breach or infringement will result in liability for damages. This shall not affect our right to assert claims for further loss or damage.

### 1.4 Spare Parts



**WARNING!**

**Wrong spare parts are a safety hazard!**

Wrong or faulty spare parts can result in damage, malfunctions, complete failure and affect safety.

→ Always use original spare parts from the manufacturer!

Replacement parts can be ordered from your contracted dealer or directly from the manufacturer.

### 1.5 Material Defects

The terms governing material defects can be found in the General Terms of Business of the manufacturer.

### 1.6 Technical Support

Our staff is available for technical support.

We are also always interested in new information, experiences and feedback from the field that can help us improve our products.

## 2 Safety Instructions

---

### 2.1 Explanation of Symbols

Safety and hazard information is identified in this installation manual by symbols. Safety instructions are introduced by signal words that signal the scale of the hazard. Always observe safety and hazard instructions, and work carefully to avoid accidents, bodily injury and damage to property!



**DANGER!**

... indicates an immediately hazardous situation, which, if not avoided, may result in death or serious injury.



**DANGER!**

... indicates an immediately hazardous situation due to electricity, which, if not avoided, may result in death or serious injury.



**WARNING!**

... indicates a possibly hazardous situation, which, if not avoided, may result in death or serious injury.



**WARNING!**

... indicates a possibly hazardous situation due to electricity, which, if not avoided, may result in death or serious injury.



**CAUTION!**

... indicates a possibly hazardous situation, which, if not avoided, may result in minor or moderate injury.



**Tips and recommendations:**

... provide useful tips and recommendations as well as information for efficient and trouble-free operation.



**ATTENTION!**

... indicates actions that will help you prevent property damage.

## Festoon Systems for Square Bar Track Program 0270/0280

---

### 2.2 Personnel Requirements

#### 2.2.1 Qualifications



**WARNING!**

**Persons who are not adequately trained are at risk of injury!**

Improper use can result in serious injury to persons and property.

→ All activities may only be performed by qualified personnel

The following qualifications have been mentioned in this installation manual for different areas of operation:

- **Trained personnel/operators**

have been instructed in an instruction session by the Operator with respect to the tasks assigned to them and the potential dangers arising from improper actions.

- **Qualified specialists**

are, due to their specialized training, knowledge, experience and knowledge of applicable regulations, capable of carrying out work assigned to them, while independently recognizing and avoiding possible risk.

- **Only those persons are authorized as personnel who can be expected to perform their work reliably. People whose capacity for reaction is influenced e.g. by drugs, alcohol, or medications are not authorized.**

- **When selecting personnel, all age- and occupation-specific guidelines applicable at the deployment site must be observed.**

#### 2.2.2 Unauthorized Personnel



**WARNING!**

**Danger due to unauthorized personnel!**

Unauthorized persons who do not meet the requirements described here are not acquainted with the dangers in the working area.

→ Keep unauthorized persons away from the working area.

→ In case of doubt, address the person and direct them away from the working area.

→ Stop working as long as unauthorized persons are in the working area.

#### 2.2.3 Training

Before commissioning the equipment, personnel must be trained by the operator. For better tracking, log the instruction as follows:

Date	Name	Type of training	Training given by	Signature
11/5/2009	John Doe	First safety training for personnel	Horst Müller	

Fig. 1: Example of instruction log



## Festoon Systems for Square Bar Track Program 0270/0280

---

### 2.2.4 Personal Protective Equipment

To minimize health hazards when working on and with the products, the following personal protective equipment must be worn:



#### **Protective working clothes**

are tightly fitting working clothes with low resistance to tearing, close-fitting sleeves and no protruding parts. They serve primarily as protection against entrapment by moving machine parts. Rings, neck chains or other items of jewelry must not be worn.



#### **Protective footwear**

provides protection from impact by heavy parts if these fall, as well as from loss of footing on a slippery surface.



#### **Protective headgear**

protects against impact from parts and materials if these fall or are carried through the air.



#### **Protective gloves**

protect the skin from contact with hazardous substances.



#### **Safety goggles**

for eye protection.

## Festoon Systems for Square Bar Track Program 0270/0280

---

### 2.3 Intended Use

The machines are designed and constructed for the intended use only. The **festoon systems for square bar track** are only used for project-specific requirements.



#### **WARNING!**

#### **Danger from improper use!**

Any application that deviates from or goes beyond the intended use of the devices can result in hazardous situations.

The device may only be used as intended.

- Follow all information in this installation manual strictly.
- The following uses of the device are forbidden. Non-intended use particularly includes the following:
  - Using the device with unapproved accessories not authorized by the manufacturer.
  - Operation of the device by untrained personnel.
  - Operation of the device outdoors.
  - Operation of the device when installed on an improper foundation / base.
  - Exceeding the rated load-bearing capacities
  - Exceeding projected speeds
  - Excessive braking deceleration
  - Use of unsuitable cables
  - Change in ambient conditions (spatial change to the planned installation site)
  - Bridging and/or disconnection of electrical sensors or switches

We do not accept any liability for damage arising from improper use.

The operator bears sole liability for all damage that result from improper use.

## Festoon Systems for Square Bar Track Program 0270/0280

---

### 2.4 Protective Measures to be taken by the Operator / User

The equipment is used in an industrial setting. The operator of the device is therefore subject to compliance with the relevant legal obligations concerning workplace safety. In addition to the safety instructions in this installation manual, all safety, accident protection, and environmental regulations valid in the place of operation of the device must also be observed. This particularly includes:

- The operator has to inform himself of applicable workplace safety guidelines and identify any additional hazards that may arise under special working conditions at the deployment location of the device. This knowledge has to be expressed in the form of operating instructions for the operation of the device.
- During the entire time the device is in use, the operator must check that these operating instructions still correspond to the current state of regulations and adapt these as necessary.
- The operator must clearly manage and define responsibilities for installation, operation, troubleshooting and maintenance.
- The operator must ensure that all employees involved with the device have read and understood this installation manual. The operator must also train the personnel at regular intervals and inform them of hazards.
- The operator must provide personnel with all required protective gear.

The operator is furthermore responsible for ensuring that the device is always in perfect working order. The following thus applies:

- The operator must ensure that the service intervals described in this installation manual are observed.
- The operator must have all safety systems regularly inspected for functionality and completeness.

## Festoon Systems for Square Bar Track Program 0270/0280

---

### 2.5 Specific Hazards

The following section lists residual risks, which were determined on the basis of a risk assessment.

- Follow the safety instructions listed here and the warnings in other sections of this installation manual in order to reduce health hazards and avoid dangerous situations.
- All faults must first be analyzed and the cause of the fault must then be rectified.
- Work on electrical systems or production equipment may only be performed by specialized electricians or persons under the supervision and direction of an electrician in accordance with electrical rules (qualified personnel).



**WARNING!**

#### **Risk of death due to suspended loads!**

When lifting loads, there is a risk of death due to parts falling or swinging out of control.

- Never step under hanging loads
- Only move loads under supervision.
- Follow the specifications provided for the attachment points
- Do not attach to projecting machine parts or to eyelets on installed components. Ensure that lashing components are properly seated
- Use only authorized lifting accessories and lashing elements with sufficient load capacity
- Do not use torn or worn ropes or straps
- Do not attach ropes or straps at sharp corners and edges, and do not knot or twist them
- Set loads down when leaving the workplace



**WARNING!**

#### **Danger of injury from moving components!**

Incautious handling of the festoon system can lead to severe injury or damage to the festoon system.

- Be sure that the festoon system does not start by itself.
- While it is moving, do not reach into moving parts, particularly the interface between the buffer and buffer plate.
- Block off the hazard area under the system

## Festoon Systems for Square Bar Track

Program 0270/0280

---



**DANGER!**

### **Danger of injury due to electrocution!**

Danger of severe injury or death due to electric current.

- The system engineer/operator must ensure that no projecting contours near the cable-festoon system are able to damage the cables
- Regularly check cables for wear
- Before working on the festoon system, the system must be disconnected from power using the main switch, and secured against unauthorized, unintentional, and/or erroneous activation. In special cases where there is no main switch, the power disconnection must be carried out according to the specifications of the system manufacturer. Check that parts disconnected from power are voltage free, then ground and short-circuit them. Insulate adjacent live parts!
- Before each commissioning, the crane manufacturer must perform an insulation test, in accordance with the local technical standards, regulations and laws, for the complete system in which the cable-festoon system is installed
- Provide electrical protection measures in accordance with the regulations for the system



**WARNING!**

### **Risk of fire!**

Risk of fire if undersized cables are used!

- Do not overload cables
- The required cable cross-sections must be adhered to.
- System engineers must design the dimensioning and protective electrical devices in accordance with the permissible load capacity of the cables
- Connections may only be made by specialist electricians



**CAUTION!**

### **Danger of tripping on projecting parts!**

When working on the festoon system, there is a risk of tripping.

- When walking in the work and danger area, be careful of projections and depressions in the floor. Loose objects must not be left on the floor



**CAUTION!**

### **Danger of crushing!**

On complete installation of the cable-festoon system, there is a risk of crushing extremities between load carriers and track profiles.

When moving the cable-festoon system, there is a danger of crushing extremities between the buffer and buffer plate, as well as between the carriage and track profiles.

- Do not enter the danger area of the cable-festoon system when the system is moving or during assembly



**DANGER!**

### **Danger of being trapped!**

There is a danger of being trapped when the cable-festoon system is moving.

- Do not enter the danger area of the cable-festoon system when the system is moving

## Festoon Systems for Square Bar Track Program 0270/0280

---

### 2.6 Safety Devices



**WARNING!**

**Potentially fatal injuries due to inoperative safety devices!**

Safety is only guaranteed provided safety devices are intact.

- Prior to commencing work, check that the safety systems are serviceable and properly installed.
- Never disable or deactivate safety systems.

### 2.7 Conduct in the Event of Accidents and Malfunctions

#### Measures to take in the event of accidents:

- Take first-aid measures.
- Remove persons from the danger zone.
- Inform responsible parties at the place of operation.
- Alarm the rescue services.
- Make access ready for rescue vehicles.

#### Measures to take in the event of malfunctions:

- Secure the work area against entry.
- Involve qualified personnel for fault analysis.
- Involve authorized personnel for maintenance and repair.
- Shut down the system and secure it against unauthorized, unintentional, and/or erroneous activation.
- If injury to person or property occurs during a breakdown then Conductix-Wampfler must be informed immediately.

## 3 Technical Specifications

### 3.1 General Information

Designation	Value	Notes
Max. load capacity	16 to 36 kg	According to DIN EN ISO 80079-36, sections 6.4.2 and 6.4.3
Max. travel speed	80 – 120 m/min	Depending on the festoon product line selected

### 3.2 Interfaces

- **Mechanical:**  
Track installation (Conductix-Wampfler) with supporting framework (Operator)  
Ideal control trolley (Conductix-Wampfler) for control box (operator)
- **Electrical:**  
Cables (Conductix-Wampfler) to cable connector on end clamp side (operator)  
Cables (Conductix-Wampfler) to cable connector on drive link side (operator)
- **Delineation of responsibilities for assemblies/components:**  
The main modules and components are manufactured and supplied by Conductix-Wampfler.  
Outsourced parts such as cable glands, terminal boxes and cables of other suppliers are used, and installation of some of these is the responsibility of the Operator. Suitable selection is the responsibility of the system integrator / operator.
- **Demarcation of responsibilities for operations involved in erection, installation, and commissioning**  
Unless otherwise agreed, erection, final installation and commissioning are the responsibility of the system engineer/Operator.

### 3.3 Operating Conditions

#### Environment:

Designation	Value	Notes
Temperature range	-20° to +80°C	Depending on the festoon product line selected
Relative humidity, maximum	20% to 80%	

**Festoon Systems for Square Bar Track**  
 Program 0270/0280

**4 Product description and Method of Functioning**



The following image is a model illustration. There may be variation depending on the version in question. Please observe the project-specific documentation.

**4.1 Overview**

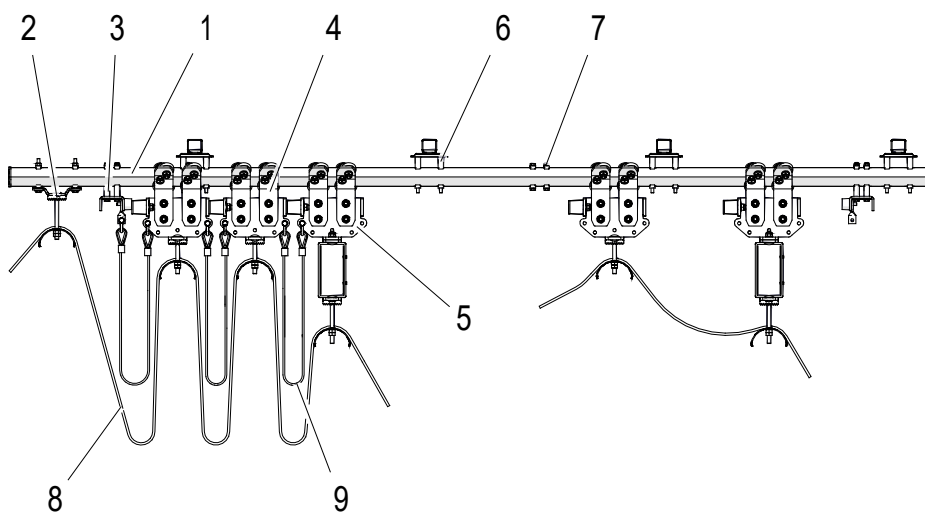
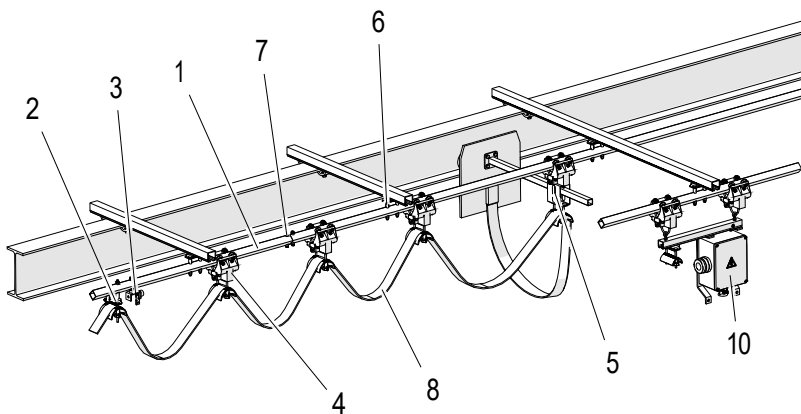


Fig. 2: Overview of festoon system with towing trolley



Item	Name
1	Square bar track
2	End clamp
3	End stop
4	Cable festoon
5	Towing trolley
6	Hanger clamp
7	Rail connector
8	Cables
9	Stress-relieving cable
10	Ideal control trolley

Fig. 3: Overview of festoon system with moving controllers



## Festoon Systems for Square Bar Track

Program 0270/0280

---



**ATTENTION!**

**Use only cables suitable for cable-festoon systems!**

- Double insulation
- Flexible design for frequent alternating bending stress
- Robust outer sheaths
- Use cables suitable for the application and ambient conditions

### 4.2 Brief Description

A festoon system consists of square bar track, rail fastening material, end clamps, festoons, towing trolleys, and cables. A towing arm couples the towing trolley to the mobile consumer. The towing trolley pulls and/or pushes the following cable trolley.

The variant with moving controllers also has a separate track parallel to the hosting device track. The system is controlled using a control button (not included in delivery) coupled to the control trolley.

### 4.3 Description of Assemblies

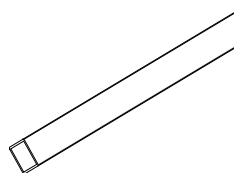


Fig. 4: Square bar track

- Square bar track



Fig. 5: Curved track

- Curved track

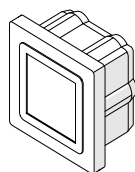


Fig. 6: End cap

- End cap

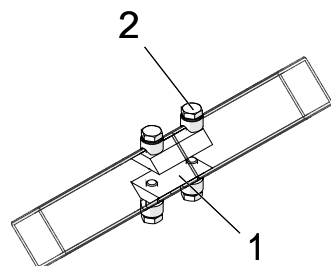


Fig. 7: Rail connector

- Rail connector, consisting of:
  - 1) Rail connector
  - 2) Locking screw

## Festoon Systems for Square Bar Track Program 0270/0280

---

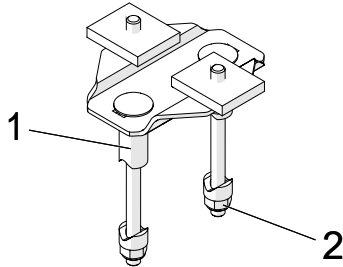


Fig. 8: Hanger clamp

- Hanger clamp, consisting of:
  - 1) Hanger clamp
  - 2) Locking screw

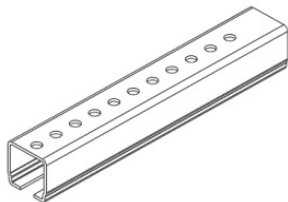


Fig. 9: Cross arm

- Cross arm

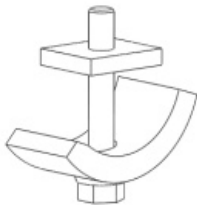


Fig. 10: Clamping bracket

- Clamping bracket  
For fastening the cross arms to the supporting structure

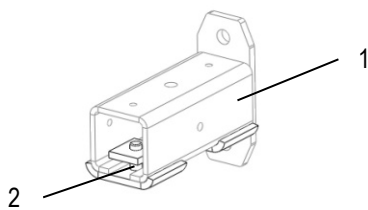


Fig. 11: Bracket for cross arms

- Bracket for cross arms, consisting of:
  - 1) Bracket
  - 2) Clamping part

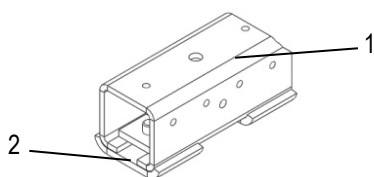


Fig. 12: Weld-on bracket for cross arms

- Weld bracket for cross arms, consisting of:
  - 1) Bracket
  - 2) Clamping part

## Festoon Systems for Square Bar Track Program 0270/0280

---

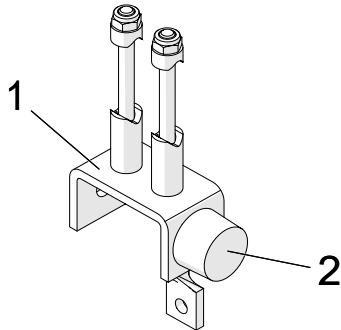


Fig. 13: End stop

- End stop, consisting of:
  - 1) End stop
  - 2) Rubber buffer

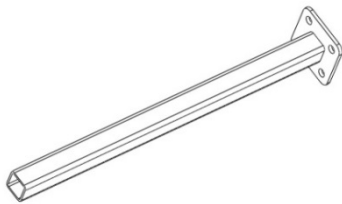


Fig. 14: Towing arm

- Towing arm

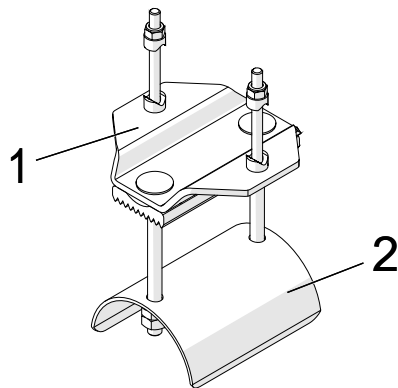


Fig. 15: End clamp

- End clamp consisting of:
  - 1) End clamp, top part
  - 2) Support assembly

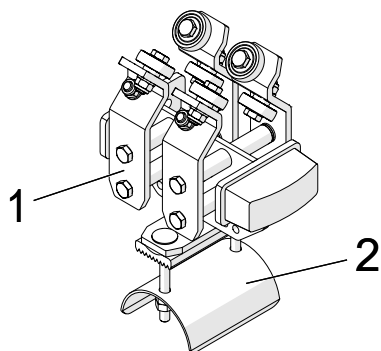


Fig. 16: Cable festoon

- Cable festoon, consisting of:
  - 1) Cable festoon, upper part
  - 2) Support assembly

## Festoon Systems for Square Bar Track Program 0270/0280

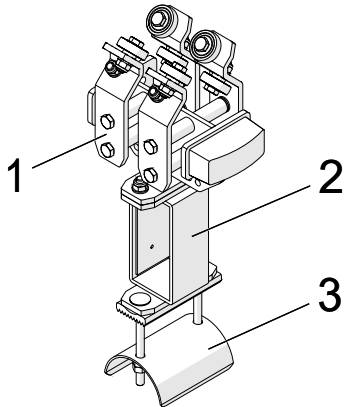


Fig. 17: Towing trolley

- Towing trolley, consisting of:
  - 1) Cable festoon, upper part
  - 2) Towing pipe
  - 3) Support assembly

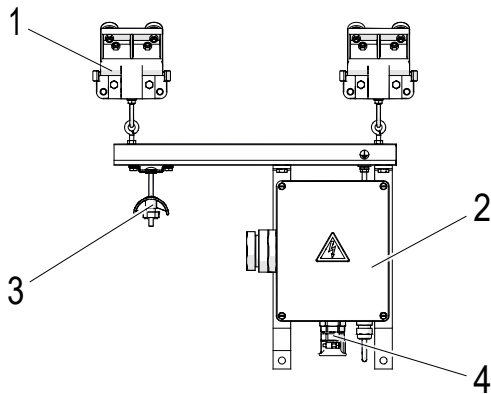


Fig. 18: Ideal control trolley with terminal box

- Ideal control trolley with terminal box, consisting of:
  - 1) Control trolley, upper part
  - 2) Terminal box
  - 3) End clamp for stress relief
  - 4) Cable screw connection

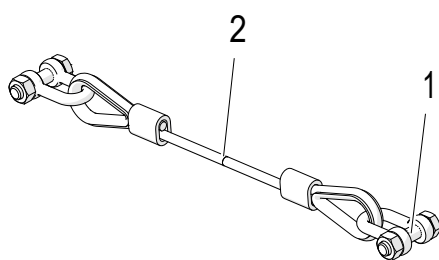


Fig. 19: Stress-relieving cable

- Stress-relieving cable, consisting of:
  - 1) Shackle
  - 2) Steel cable

#### 4.4 Working and Danger Areas

The following illustration shows the working area of the festoon system. There is a danger of injury from moving parts in this area.

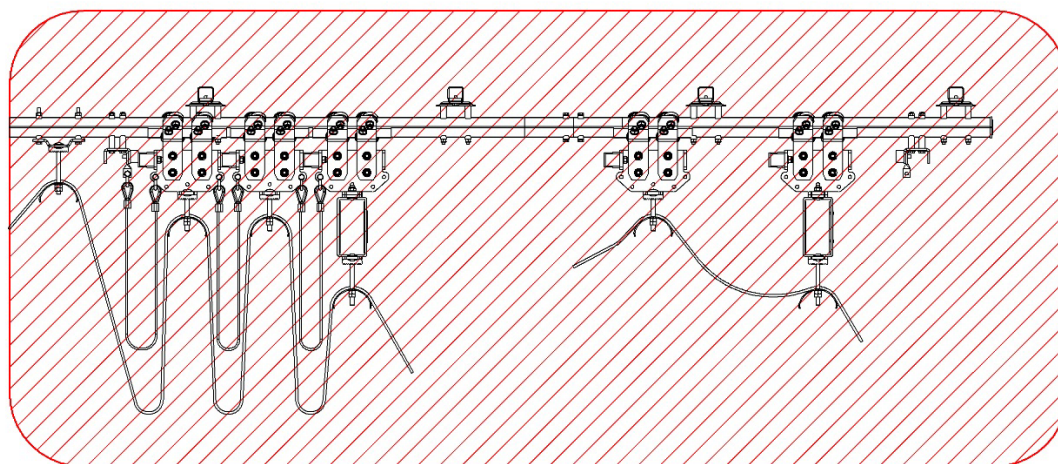


Fig. 20: Working and danger areas

##### Working and danger areas:

- In the area under the festoon system
- Between cable trolleys
- Between cable trolleys and track rails
- Between load carriers and track rails
- In the vicinity of the cables



**WARNING!**

##### **Danger of injury from moving components!**

Contact with the festoon system during operation can lead to severe injuries and damage to the festoon system.

- During automatic operation, no-one may be located in or under the working area of the festoon system.
- During manual operation, no-one may be located in or under the working area of the festoon system.
- Block off the danger zone under the system.

## Festoon Systems for Square Bar Track Program 0270/0280

---

### 4.5 Modes of Operation

The festoon system can be operated in one of two modes:

- Automatic operation
- Manual operation

#### 4.5.1 Automatic Operation

The standard operating mode is automatic operation, in which the festoon system is operated via the consumer's controller. In this mode, no person may be in or under the working area of the festoon system. The customer must block off the working area.

#### 4.5.2 Manual Operation

Manual operation is used for commissioning, maintenance, and repair. It may be necessary to make adjustments directly at the festoon system and to monitor them.

## 5 Transport, Packaging and Storage

---

### 5.1 Shipment

#### 5.1.1 Safety Instructions for Transport



**WARNING!**

#### **Risk of death due to suspended loads!**

When lifting loads, there is a risk of death due to parts falling or swinging out of control.

- Never step under hanging loads
- Block off the hazard area under the system
- Follow the specifications for the attachment points provided
- Do not attach to projecting machine parts or to eyelets on installed components. Ensure that lashing components are properly seated
- Use only authorized lifting accessories and lashing elements with sufficient load capacity
- Do not use torn or worn ropes or straps
- Do not attach ropes or straps at sharp corners and edges, and do not knot or twist them



**CAUTION!**

#### **Possible damage from improper transport!**

Improper transport can result in substantial property damage.

- Act with care when unloading packaged parts upon delivery as well as during internal transport, and observe the symbols and the hazard information on the packaging
- Use only the provided attachment points.
- Only remove packaging just before installation.



**CAUTION!**

#### **Possible damage from unauthorized transport!**

Transports performed by untrained personnel can result in substantial property damage.

- Unloading the delivery as well as internal transport may only be performed by trained personnel under the supervision of the manufacturer's employees.



**CAUTION!**

#### **Danger of crushing!**

There is a risk of crushing hands and feet when handling components during transport.

- Secure the load during transport
- Use appropriate means of transport (lifting gear)
- Use personal protective equipment (protective gloves, safety helmet, safety shoes)

## Festoon Systems for Square Bar Track

Program 0270/0280

---



**DANGER!**

### **Risk of injury due to falling objects!**

There is a risk due to falling objects in case of improper use (incorrect assembly, misuse, lack of maintenance).

- Secure the load adequately during transport
- Check the integrity of the packaging before transport
- Use appropriate means of transport (lifting gear)
- When packing, ensure that the packaging has the appropriate load-bearing capacity
- Use personal protective equipment (protective gloves, safety helmet, safety shoes)

### **5.1.2 Transport Inspection**

Check the delivery for completeness and transport damage immediately on receipt.

If transport damage is externally visible, proceed as follows:

- Do not accept delivery, or accept it only with reservations.
- Note the scope of damage on the transport documents, or on the transporter's delivery note.
- File a complaint



**ATTENTION!**

File a complaint on every defect, as soon as it is detected. Damage compensation claims may only be made within the applicable claim periods.

## **5.2 Packaging**

The individually packaged parts have been packed in accordance with the anticipated transport conditions. Only environmentally friendly materials have been used for packaging.

The packaging is designed to protect the individual components from transport damage, corrosion and other damage until installation. As a result, do not destroy the packaging and remove it only shortly before installation.

### **Handling packaging materials:**

Dispose of packaging material according to valid legal regulations and local guidelines.



**CAUTION!**

### **Environmental damage due to improper disposal!**

Packaging materials are valuable resources and can be reused or usefully processed or recycled in many cases.

- Dispose of packaging materials in an environmentally appropriate manner.
- Comply with locally applicable disposal guidelines; if necessary, engage a specialist to handle disposal.



## Festoon Systems for Square Bar Track Program 0270/0280

---

### 5.3 Storage of Packed Parts

Store packed parts under the following conditions:

- Do not store outdoors.
- Store in a dry, dust-free place.
- Do not expose to aggressive media.
- Protect from direct sunlight.
- Avoid mechanical vibrations.
- Storage temperature: 5 to 50°C.
- Relative humidity max. 50 %
- When storing for more than 3 months, check the general condition of all parts and the packaging at regular intervals.  
If necessary, refresh or replace the preservative



In some cases, there may be instructions for storage on the packed parts that go beyond the requirements listed here. These must be correspondingly observed.

#### **ATTENTION!**

## 6 Installation and Commissioning

---

### 6.1 Safety

#### Personnel:

- Installation and commissioning may only be carried out by specially trained technicians.

#### Wear the following protective gear during all installation and initial commissioning works:

- Protective clothing
- Protective headgear
- Protective footwear
- Protective gloves



#### WARNING!

#### Risk of death due to suspended loads!

When lifting loads, there is a risk of death due to parts falling or swinging out of control.

- Never step under hanging loads
- Block off the hazard area under the system
- Only move loads under supervision
- Follow the specifications for the attachment points provided
- Do not attach to projecting machine parts or to eyelets on installed components. Ensure that lashing components are properly seated
- Use only authorized lifting accessories and lashing elements with sufficient load capacity
- Do not use torn or worn ropes or straps
- Do not attach ropes or straps at sharp corners and edges, and do not knot or twist them
- Set loads down when leaving the workplace



#### WARNING!

#### Risk of injury due to improper installation and commissioning!

Improper installation and commissioning can result in serious injury to person and property.

- Before starting work, make sure there is sufficient space for assembly.
- Handle open, sharp-edged components carefully
- Make sure the installation area is tidy and clean! Loosely stacked or scattered components and tools can cause accidents
- Install components properly. Comply with the specified screw tightening torques
- Secure components so they cannot fall or topple

## Festoon Systems for Square Bar Track

Program 0270/0280

---



**DANGER!**

### **Risk of injury due to sharp edges!**

The ends of the track-beam profiles can have sharp edges, especially if they were cut to size at the construction site and not deburred.

- Use personal protective equipment (protective gloves, safety helmet, safety shoes)



**DANGER!**

### **Danger of injury due to electrocution!**

Danger of severe injury or death due to electric current.

- The system engineer/operator must ensure that no projecting contours near the cable-festoon system are able to damage the cables
- Regularly check cables for wear
- Before working on the festoon system, the system must be disconnected from power using the main switch, and secured against unauthorized, unintentional, and/or erroneous activation. In special cases where there is no main switch, the power disconnection must be carried out according to the specifications of the system manufacturer. Check that parts disconnected from power are voltage free, then ground and short-circuit them. Insulate adjacent live parts!
- Before each commissioning, the crane manufacturer must perform an insulation test, in accordance with the local technical standards, regulations and laws, for the complete system in which the cable-festoon system is installed
- Provide electrical protection measures in accordance with the regulations for the system



**DANGER!**

### **Danger of being trapped!**

There is a danger of being trapped when the cable-festoon system is moving.

- Do not enter the danger area of the cable-festoon system when the system is moving
- The customer must block off the danger area of the system
- Before starting work, shut down the system and secure it against accidental start



**DANGER!**

### **Risk of injury due to falling objects!**

There is a risk due to falling objects in case of improper use (incorrect assembly, lack of attention).

- Block off a generous area underneath the system!
- Keep the time specialist fitters spend in the danger area to a minimum
- Wear a safety helmet!



**CAUTION!**

### **Risk of injury due to slipping and falling!**

There is a risk of injury due to a dangerous environment or difficult installation conditions. For example, near cranes, in difficult-to-access locations, etc.

- Use personal protective equipment (protective gloves, safety helmet, safety shoes)
- Keep the location tidy
- Use only secure scaffolding
- Take appropriate safety measures

## Festoon Systems for Square Bar Track Program 0270/0280

---



### WARNING!

#### Unsafe operation of the system!

System components fail due to installation errors!

- Do not stay in the danger zone under the system
- Comply with the maximum load and speed limits
- After completing the installation, perform a test run of the system only at very low speed
- Check the system in accordance with the maintenance plan and perform regular maintenance

## 6.2 Preparations

### Required tools:

- Power drill
- Drilling jig
- Metal drill
- Crescent wrench
- Torque wrench
- Corrosion protection
- Lubricant
- Calipers (accuracy  $\pm 0.1$  mm)

## 6.3 Installation

### Personnel:

- May only be carried out by trained technicians
- At least 2 people



### CAUTION!

#### Danger of tripping on projecting parts!

When working on the festoon system, there is a risk of tripping.

- When walking in the work and danger area, be careful of projections and depressions in the floor.  
Loose objects must not be left on the floor

## Festoon Systems for Square Bar Track

Program 0270/0280

---



**CAUTION!**

### **Danger of crushing!**

On complete installation of the cable-festoon system, there is a risk of crushing extremities between load carriers and track profiles.

When moving the cable-festoon system, there is a danger of crushing extremities between the buffer and buffer plate, as well as between the carriage and track profiles.

- Do not enter the danger area of the cable-festoon system when the system is moving or during assembly

## 6.4 Installing the Track Rails

### 6.4.1.1 General Notes



**ATTENTION!**

- Before installing the square bar tracks, the track pieces and any curved track must be dimensioned to fit the track bed. There is a rail connector at each butt joint in the rail.
- Comply with the suspension interval in the specifications of the product catalog for each system. On bends the interval is reduced to 2/3 of the interval on straight track lengths. Please see the system documentation for the recommended suspension interval

### 6.4.1.2 Drilling of the Tracks for Connectors, Holders, End Clamp, End Stop and Earth Termination:



**ATTENTION!**

- A drilling jig is used to drill holes for track connectors, track holders, end clamp, end stop and earth termination to the track.
- For Program 0270Ex; 6.5 mm drill bit
- For Program 0280Ex; 8.5 mm drill bit

#### **Holes for track connectors:**

To drill the holes for the track connector, the track is inserted in the drilling jig so that the track end and the outer edge of the drilling jig are aligned. Then drill the first hole away from the outer edge.

#### **Holes for hanger clamps, end clamps, end stop, and terminal box:**

After the middle of the first hole has been marked on the track and drilled using the drill jig, the jig must be offset by the center spacing to the second hole.

### 6.4.1.3 Rail installation in ceiling and wall structures



**ATTENTION!**

- When installing a square bar track on ceiling and wall structures at the customer's site, suitable track support brackets must be used.
- The direct fastening of a square bar track by drilling and screwing the tracks, without the use of track support brackets, should be avoided in every case. The restriction of the gap profile of the square bar track by screw heads, etc. would mean that the operability of the cable trolleys could no longer be assured.

## Festoon Systems for Square Bar Track

Program 0270/0280

### 6.4.1.4 Rail Installation on I-Beams using Clamping Arms

The cross arm is first attached to a steel frame using clamping jaws, and then the track holders are pushed into the cross arms and bolted tight.



- The distance between the outer edge of the cross arm and that of the steel support must be a minimum of 60 mm.
- The distance between the outer edge of the cross arm and the middle of the track must be at least 60 mm.

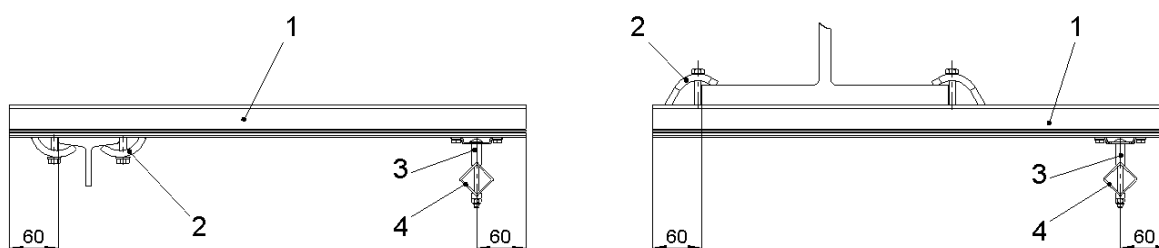


Fig. 21: Rail installation using clamping arms on the upper or lower side of an I beam

Item	Name
1	Cross arm
2	Clamping bracket
3	Hanger clamp
4	Square bar track

### 6.4.1.5 Rail installation on steel beams using welding brackets

The weld-on holders are welded tight to the steel frame. The cross arms are then bolted tight with the weld-on holders, followed by the track holders with the cross arms. The welding process and implementation – to be done in a manner suitable in local conditions – are the responsibility of the operator!



- The distance between the outer edge of the cross arm and the middle of the track must be at least 60 mm.

**Festoon Systems for Square Bar Track**  
 Program 0270/0280

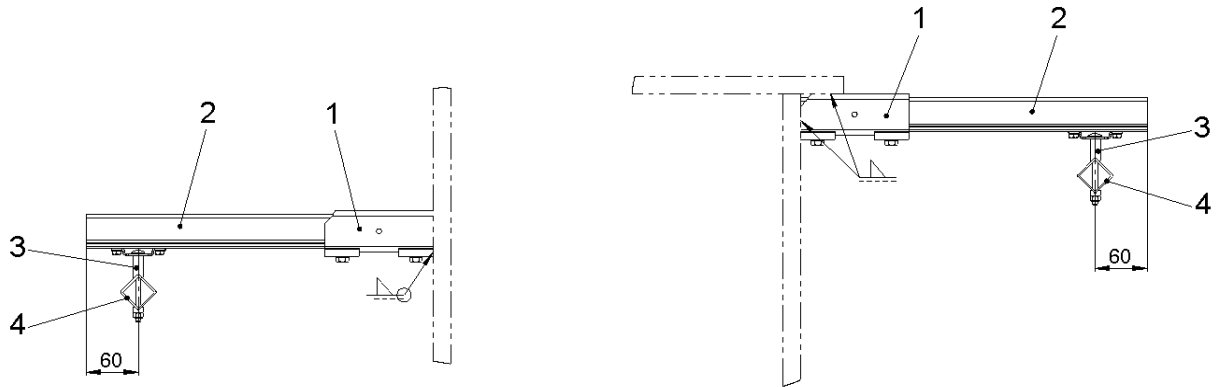


Fig. 22: Rail installation using welding brackets on beam structure.

Item	Name
1	Weld-on bracket
2	Cross arm
3	Hanger clamp
4	Square bar track

**6.4.1.6 Hanger Clamp**

The track holders are attached to the track, and then attached to the frame structure along with the track. Alternatively, the track holders can first be attached to the frame structure, and the track pieces can then be attached to the track holders.

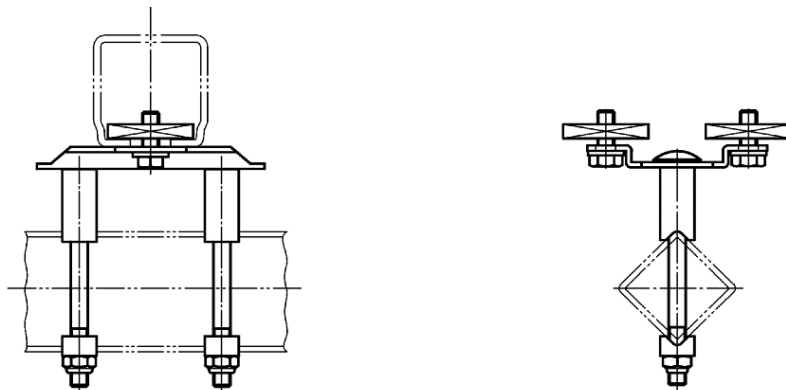


Fig. 23: Hanger clamp

**6.4.1.7 Track Connector**

The track connector is attached to the ends of the two track pieces. It is important to ensure the track does not move out of position during installation and that both tracks are fully abutted and aligned.

## Festoon Systems for Square Bar Track Program 0270/0280



→ The square bar tracks must be square and free of burrs.

### ATTENTION!

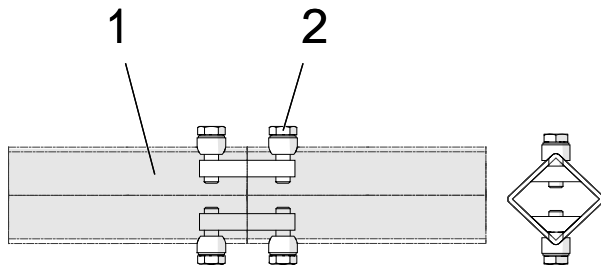


Fig. 24: Track connector

Item	Name
1	Square bar track
2	Rail connector

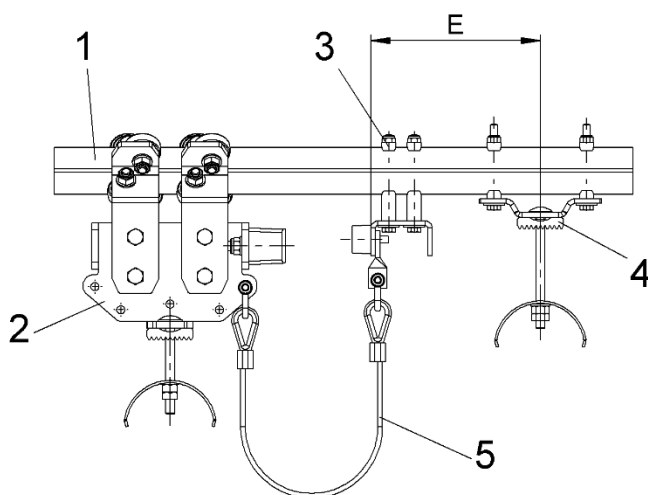
### 6.4.2 End clamp and end stop

The end stop is fitted to the track to limit the range of travel. Space is left at the end of the track for the end clamp. The end clamp is attached behind the end stop.



The distance E between the middle of the end clamp and the end stop must be at least one cable trolley length.

### ATTENTION!



Item	Name
1	Square bar track
2	Cable festoon
3	End stop
4	End clamp
5	Stress-relieving cable

Fig. 25: End clamp and end stop



## Festoon Systems for Square Bar Track Program 0270/0280

### 6.4.3 Cable festoon

Cable trolleys are pushed into the front of the track rail.



**NOTE!**

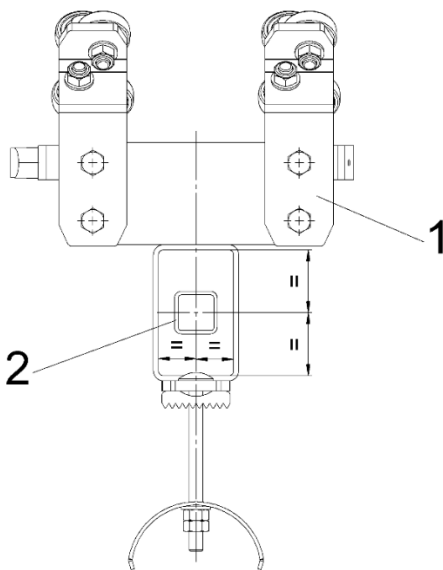
- The festoon system is adjusted at the factory for the corresponding track beam profile. Subsequent adjustment is not necessary.
- Fit the cable festoons with buffer on one side such that there is at least one rubber buffer between two adjacent festoons

### 6.4.4 Towing trolley



**ATTENTION!**

- The tow bar must have sufficient play in all directions within the towing box
- The towing arm should be aligned such that it is in the center of the towing box



Item	Name
1	Towing trolley
2	Towing arm

Fig. 26: Towing trolley

**Festoon Systems for Square Bar Track**  
 Program 0270/0280

**6.4.5 Fitting round cables**



**ATTENTION!**

**Use only suitable cables!**

The cables must meet the specified criteria set (see Section 4.1)



**WARNING!**

**Risk of fire!**

Risk of fire if undersized cables are used!

→ The required cable cross-sections must be adhered to.



**WARNING!**

**Danger due to improper cable installation!**

Incorrect arrangement of the cables in the cable bundles and the loop may result in cable damage and electric shocks.

→ Use only specialist electricians to connect cables

→ Check the cables regularly for signs of wear or damage

The cable configuration designed for the festoon system must be adhered to. The following rules are recommended:

- Equilibrium of moment of the cable bundles with regard to the line of travel.
- Cables of large copper cross-section must be arranged symmetrically to the center of the trolley.
- Where cable clamps for round cables are used, cables suitable for attachment of the cable clamps must be arranged to the outside of the saddles. Non-shielded power cables of larger copper cross-section are preferred.
- The bolts of the clamping bars must be tightened by hand. The cables must be adequately clamped, but without suffering damage as a result. The clamping force must be subjected to an inspection during commissioning, and regularly checked thereafter.



**ATTENTION!**

**Diameter differences:**

Where possible, there should not be too great a variation in diameter of round cables, as secure clamping to the cable saddles may otherwise be impaired.



Fig. 27: Variations in diameter

**Festoon Systems for Square Bar Track**  
 Program 0270/0280



**ATTENTION!**

**Shims:**

For differences in diameter of neighboring cables by more than 15 mm, shims must be used for tight clamping.

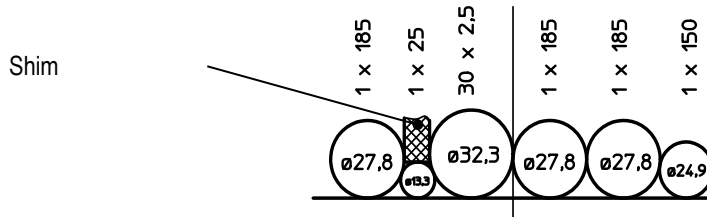


Fig. 28: Using shims



**ATTENTION!**

**Cable balance:**

When positioning the cables, it important to ensure that torque is balanced. Place the thicker, heavier cables in the middle.

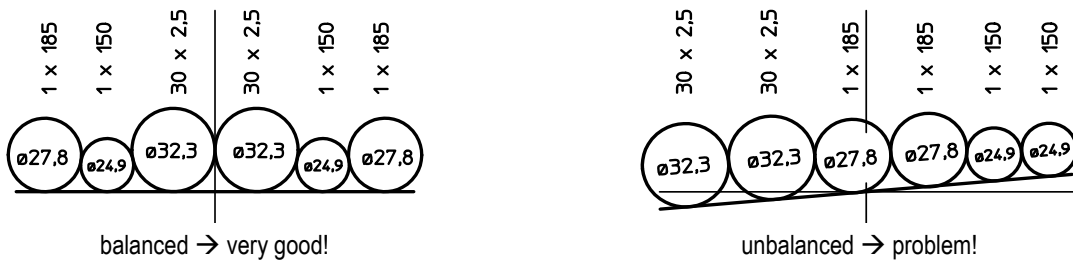


Fig. 29: Balancing torque for the cables

**6.4.6 Laying flat cables**



**ATTENTION!**

**Use only suitable cables!**

The cables must meet the specified criteria set (see Section 4.1)



**WARNING!**

**Risk of fire!**

Risk of fire if undersized cables are used!

→ The required cable cross-sections must be adhered to.



**WARNING!**

**Danger due to improper cable installation!**

Incorrect arrangement of the cables in the cable bundles and the loop may result in cable damage and electric shocks.

- Use only specialist electricians to connect cables.
- Check the cables regularly for signs of wear or damage

**Festoon Systems for Square Bar Track**  
 Program 0270/0280

The cable configuration designed for the festoon system must be adhered to. The following rules apply:

- Equilibrium of moment of the cable bundles with regard to the track center.
- Where flat cables are laid in layers, each higher layer of cables should be laid with slightly less slack in terms of length than those below.
- Cables with a large copper diameter are to be placed symmetrically to the center of the trolley and at the top of the cable packet.
- Where clamps for flat cables are used, only the upper cables are clamped in the cable clamp. The other cables must be freely movable in the flat cable clamp window.
- The bolts of the clamping bars must be tightened by hand. The cables must be adequately clamped, but without suffering damage as a result. The clamping force must be subjected to an inspection during commissioning, and regularly checked thereafter.

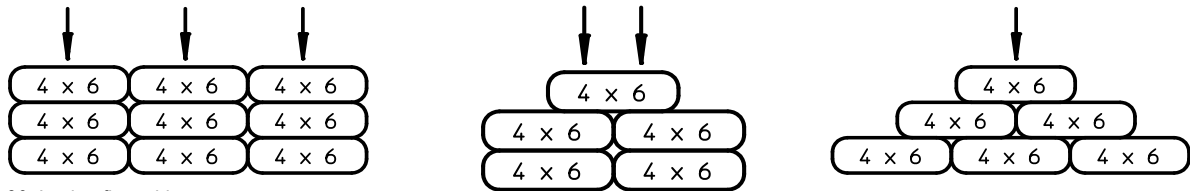


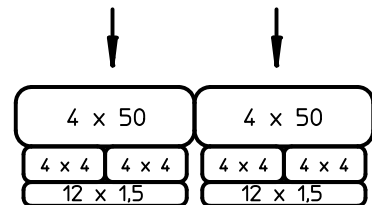
Fig. 30: Laying flat cables

Very good  
100 % clamping

Good  
50 % clamping

Poor

Thicker cables (such as 4x50) are to be placed at the top of the cable package. This allows for good heat dissipation and tight clamping of smaller cables. Traction forces that occur during movement can be taken up by these cables.



## Festoon Systems for Square Bar Track Program 0270/0280

---

### 6.4.7 Cable Trolleys with Plastic Cover and Split Nuts



**CAUTION!**

**Damage due to improper assembly of the festoon system!**

→ Nominal tightening torque for plastic half nuts: 1.5 Nm

→ Max. permissible tightening torque: 2 Nm

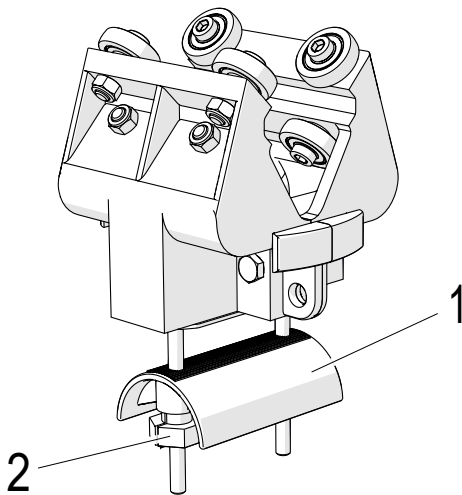


Fig. 31: Cable trolleys with plastic cover and split nuts

Item	Name
1	Plastic cover
2	Half nut

**Festoon Systems for Square Bar Track**  
 Program 0270/0280

**6.4.8 Mounting the Strain Relief Cable**



**CAUTION!**

**Damage to the cables and the cable-festoon equipment!**

Improper positioning of the round cable clamps can lead to damage of the cables and festoon system. Improper mounting and arrangement of cables in the round cable clamp can damage the cables and the cable trolley system.

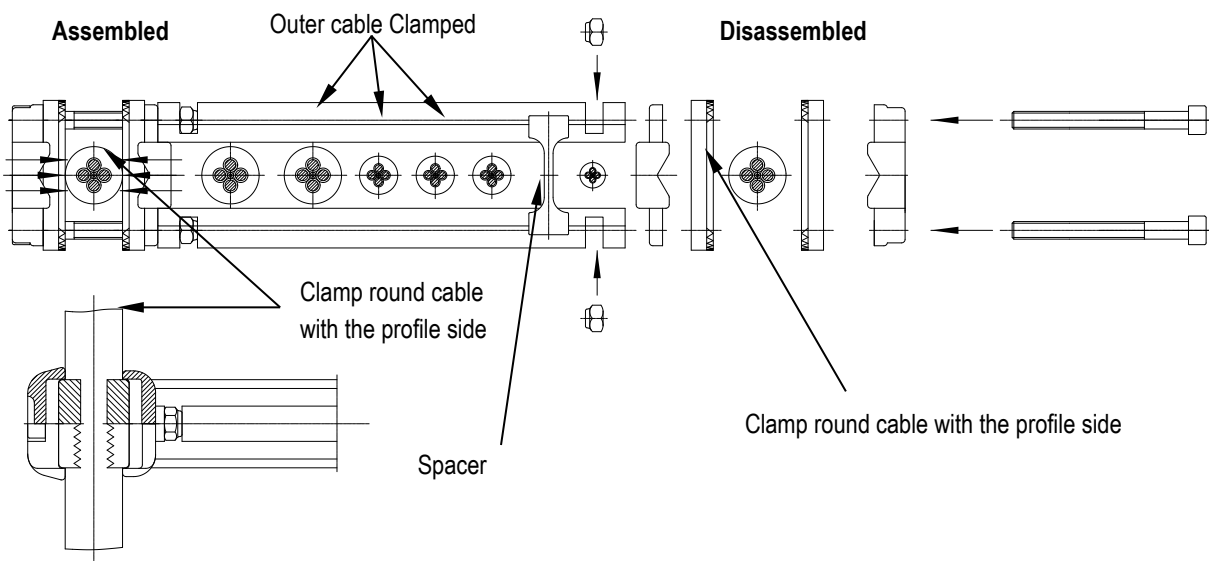


Fig. 32: Mounting round cable clamps



**ATTENTION!**

It is recommended that the round cable clamps be preassembled as shown in this diagram in order to maintain two identical halves.

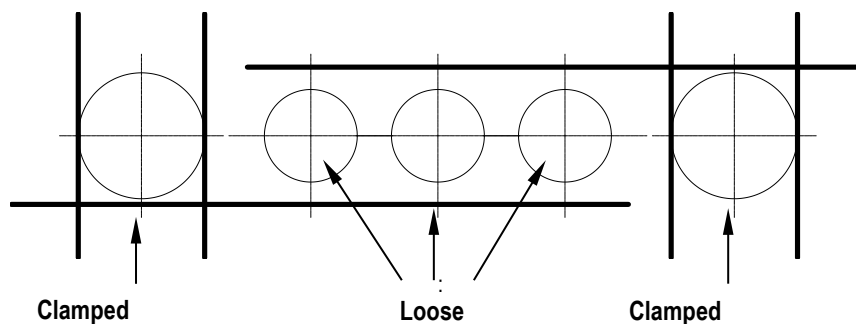


Fig. 33: Schematic diagram of preparation for installation of round cable clamps

## Festoon Systems for Square Bar Track Program 0270/0280

The outer left and right cables are firmly wedged between the rubber profiles.  
Ensure that the inner cables can move freely in the round cable clamp window.  
If spacers need to be used (in order to prevent turning and superimposition of cables), insert them before closing the cable clamp.  
The use of spacers depends on the diameter of the cables. The cable clamp screws must be lubricated (grease: Klüber MR-401 or similar). Screws must be tightened crosswise.



### ATTENTION!

#### Spacers:

Improper positioning or removal of spacers in round cable clamps can cause damage to the cables or the cable trolley system.

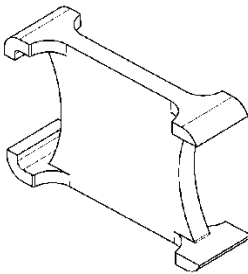


Fig. 34: Spacer

### 6.4.9 Installing flat cable clamps



### ATTENTION!

Clamp the uppermost cables in the flat cable clamp. The other cables must be freely movable in the flat cable clamp window.



### CAUTION!

#### Damage to the cables and the cable-festoon equipment!

Improper positioning of the flat cable clamps can lead to damage of the cables and festoon system.

Improper mounting and arrangement of cables in the flat cable clamp can damage the cables and the festoon system.

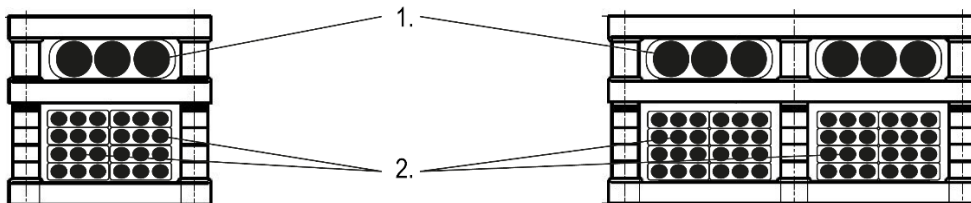


Fig. 35: Installing flat cable clamps

- 1. = Main electrical line clamped
- 2. = Control line with play in window

## Festoon Systems for Square Bar Track Program 0270/0280

---

The arrangement of the spacers allows for the height of the flat cable clamp to be adapted to the cable package.

The window for the control cable is to be adjusted so that the cables of the block have enough play (> 5 mm) in the window. The cable clamp screws must be lubricated.

### 6.4.10 Mounting the strain relief cable

The strain relief cable is installed between two cable trolleys, end clamps, and cable trolley, or between a towing trolley and a cable trolley. Ensure that the clevises can be easily moved after tightening the retaining nut. The shackles must be serviced at regular intervals (see Section 8).



#### ATTENTION!

- It is important to ensure that the shackles and thimbles can move freely once assembled.
- The shackles must be serviced at regular intervals

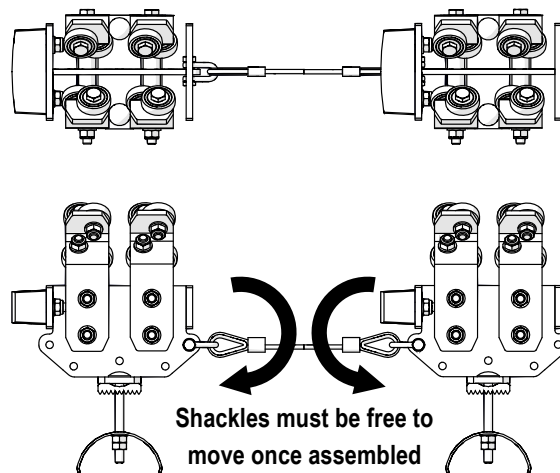


Fig. 36: Mounting of the strain relief cable onto the cable trolley



Festoon Systems for Square Bar Track  
 Program 0270/0280

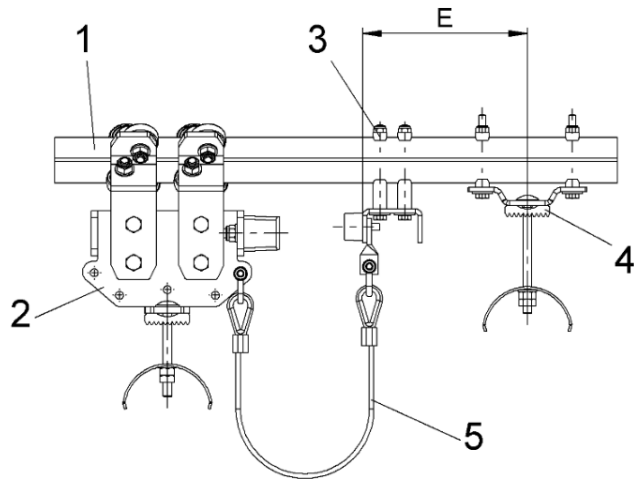


Fig. 37: End clamp and end stop

Item	Name
1	Square bar track
2	Cable festoon
3	End stop
4	End clamp
5	Stress-relieving cable

## Festoon Systems for Square Bar Track

Program 0270/0280

---

### 6.5 Testing and Commissioning



**WARNING!**

#### **Risk of injury due to improper commissioning!**

Improperly performed commissioning can lead to dangerous situations for personnel.

- Before commissioning, carry out the tests in the test list of the manufacturer.
- Never start the festoon system without testing according to the manufacturer's test list.
- Before commissioning, perform a visual check and carry out the prescribed tests.
- Any procedures that could threaten safety are to be avoided.
- Notify the responsible person immediately of any damage to the festoon system.
- The festoon system should only be operated with functional protective gear and safety devices.
- It is forbidden to enter the operating area of the festoon system.



**CAUTION!**

#### **Danger of tripping on projecting parts!**

When working on the festoon system, there is a risk of tripping.

- When walking in the work and danger area, be careful of projections and depressions in the floor. Loose objects must not be left on the floor



**CAUTION!**

#### **Danger of crushing!**

When moving the festoon system, there is a danger of crushing limbs between the buffer and buffer plate, as well as between the carriage and the track carrier.

- Do not enter the danger area of the cable-festoon system when the system is moving



**CAUTION!**

#### **Danger of being trapped!**

There is a danger of being trapped when the cable-festoon system is moving.

- Do not enter the danger area of the cable-festoon system when the system is moving



**DANGER!**

#### **Danger of injury due to electrocution!**

Danger of severe injury or death due to electric current.

- Before working on the festoon system, the system must be disconnected from power using the main switch, and secured against unauthorized, unintentional, and/or erroneous activation. In special cases where there is no main switch, the power disconnection must be carried out according to the specifications of the system manufacturer. Check that parts disconnected from power are voltage free, then ground and short-circuit them. Insulate adjacent live parts!
- Before each commissioning, the crane manufacturer must perform an insulation test, in accordance with the local technical standards, regulations and laws, for the complete system in which the cable-festoon system is installed

## Festoon Systems for Square Bar Track

Program 0270/0280

---



**CAUTION!**

### **Risk of injury due to slipping and falling!**

There is a risk of injury due to a dangerous environment or difficult installation conditions. For example, near cranes, in difficult-to-access locations, etc.

- Use personal protective equipment (protective gloves, safety helmet, safety shoes)
- Keep the location tidy
- Use only secure scaffolding
- Take appropriate safety measures

The festoon system is commissioned together with the system operator and is documented. All necessary personnel for commissioning, such as operators, electricians and installation technicians, must be provided by the system operator for the duration of the commissioning. Free access to the system must be provided. After commissioning is complete, Conductix-Wampfler will receive an authorized final acceptance protocol from the operator, in which it is logged that the system corresponds to the requirements.

## Festoon Systems for Square Bar Track

### Program 0270/0280

#### 6.5.1 Test list for initial commissioning



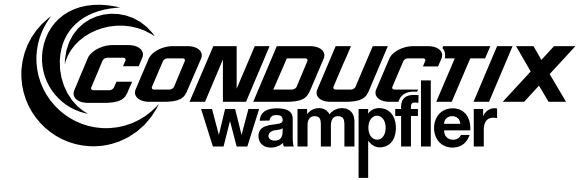
**CAUTION!**

This checklist should be used as a guideline to ensure the safety operation of the festoon system. The checklist is intended for qualified specialists who install the festoon systems, operate them and who are familiar with the requirements regarding work safety and accident prevention.

**If Conductix-Wampfler performed the commissioning, the final acceptance protocol on the last page should be filled out.**

<b>Customer:</b>		<b>Customer no.:</b>	
		<b>Order no.:</b>	
<b>Customer:</b>		<b>Order No.:</b>	
<b>Commissioning location:</b>		<b>Postal code:</b>	
<b>Address:</b>		<b>Country:</b>	
<b>Name of system:</b>			
<b>Start of commissioning:</b>		<b>Commissioner</b>	
<b>Ending of commissioning:</b>		<b>Name:</b>	
		<b>Date:</b>	
		<b>Signature:</b>	

# Installation Manual

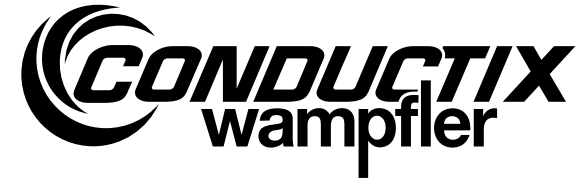


## Festoon Systems for Square Bar Track Program 0270/0280

Checks with the system at a standstill		OK	Not OK						
A01	The track of the consumer corresponds to the project-specific technical documentation.	<input type="checkbox"/>	<input type="checkbox"/>						
A02	The storage length of the festoon system corresponds to the project-specific technical documentation.	<input type="checkbox"/>	<input type="checkbox"/>						
A03	All bolts used are of sufficient length and are protected. The projecting ends of the screws are visible (at least 2 thread projection).	<input type="checkbox"/>	<input type="checkbox"/>						
A04	The towing arm is mounted in the middle of the window of the towing trolley and has play in all dimensions.	<input type="checkbox"/>	<input type="checkbox"/>						
A05	The tracks of the festoon system are installed in line with the Installation Manual.	<input type="checkbox"/>	<input type="checkbox"/>						
A06	End clamp, end stop, and ground connection clamp are mounted in a functionally correct manner.	<input type="checkbox"/>	<input type="checkbox"/>						
A07	All track holders and track connectors are secure.	<input type="checkbox"/>	<input type="checkbox"/>						
A08	Cables are to be arranged according to specifications in the cable arrangement recommendation (see project-specific technical documentation).	<input type="checkbox"/>	<input type="checkbox"/>						
A09	Loop lengths of the cables correspond to the specifications of the project-specific technical documentation. The permissible length deviation is $\pm 50$ mm.	<table border="1"> <tr> <td><b>Actual</b></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>_____</td> <td></td> <td></td> </tr> </table>	<b>Actual</b>	<input type="checkbox"/>	<input type="checkbox"/>	_____			<input type="checkbox"/>
<b>Actual</b>	<input type="checkbox"/>	<input type="checkbox"/>							
_____									
A10	Cables are arranged free of twists	<input type="checkbox"/>	<input type="checkbox"/>						

## Festoon Systems for Square Bar Track Program 0270/0280

A11	Cables show <b>no</b> damage caused by transport or assembly.	<input type="checkbox"/>	<input type="checkbox"/>
A12	The cables are mounted on the supports in such a way that the cable trolleys run horizontally on the track profile (balance of the cables on the right and left supports). Cable clamps firmly tightened so that cables cannot be pulled out manually, but still with enough play that the cables are also not crushed.	<input type="checkbox"/>	<input type="checkbox"/>
A13	Cable ends (installation lengths) are arranged with sufficient strain relief and the right length to the end or towing side.	<input type="checkbox"/>	<input type="checkbox"/>
A14	Unused conductors are either connected to earth at the end or adequately insulated by means of suitable termination.	<input type="checkbox"/>	<input type="checkbox"/>
A15	Special component parts such as spacers, additional clamp pieces and guide rings are to be mounted according to the project-specific technical documentation.	<input type="checkbox"/>	<input type="checkbox"/>
A16	The strain relief cables are firmly bolted to the cable trolley, the towing part, and the end stop.	<input type="checkbox"/>	<input type="checkbox"/>
A17	The length of the installed towing ropes for each cable loop corresponds to the project-specific technical documentation. The permissible length deviation is $\pm 50$ mm.	<input type="checkbox"/>	<input type="checkbox"/>
A18	Ensure that the clevises for fastening the towing rope can be freely moved after installation and lubrication.	<input type="checkbox"/>	<input type="checkbox"/>
A19	Cables show <b>no</b> damage caused by transport or assembly.	<input type="checkbox"/>	<input type="checkbox"/>
A20	The shock-absorbing tow cables are not twisted.	<input type="checkbox"/>	<input type="checkbox"/>
A21	Check steel structure for collision-free travel of the festoon system. No catching, intertwining of the cables and strain relief cables.	<input type="checkbox"/>	<input type="checkbox"/>
A22	The track profile for the festoon system in alignment to the crane carrier is mounted straight according to the tolerance requirements.	<input type="checkbox"/>	<input type="checkbox"/>



## Festoon Systems for Square Bar Track Program 0270/0280

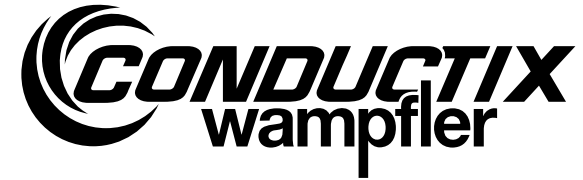
---

A23	Joints of the track carrier have no height and side offset.	<input type="checkbox"/>	<input type="checkbox"/>
A24	The corrosion protection is undamaged and intact.	<input type="checkbox"/>	<input type="checkbox"/>
A25	Rubber buffers are present on the end stops/cable trolleys. The cable trolleys are so aligned that there is at least one rubber buffer between 2 adjacent trolleys.	<input type="checkbox"/>	<input type="checkbox"/>
A26	All buffers strike one another or the impact plate in the center - none are offset too high.	<input type="checkbox"/>	<input type="checkbox"/>
A27	The buffer of the final cable trolley strikes the end stop in the center.	<input type="checkbox"/>	<input type="checkbox"/>
A28	There is a rubber shock absorber in the tow tube of the tow trolley.	<input type="checkbox"/>	<input type="checkbox"/>

**Festoon Systems for Square Bar Track**  
 Program 0270/0280

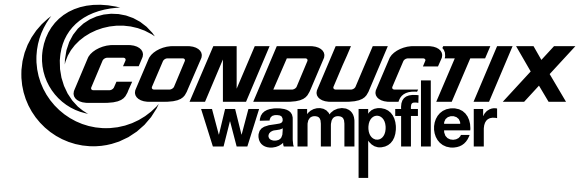
<b>Inspections on running systems</b> at 10% consumer running speed: Movement forwards from cable trolley storage/termination fitting end in direction of towing end until the cable train is fully extended. Movement backwards from towing end in the direction of cable trolley storage/termination fitting end until end position is reached.		OK	Not OK
B01	Horizontal alignment gap between the cable trolley and the crane construction is wide enough that no collision can take place with cable trolleys or their components.	<input type="checkbox"/>	<input type="checkbox"/>
B02	Check of the loop lengths at the maximum pulled out festoon system corresponds to the project-specific technical documentation.	<input type="checkbox"/>	<input type="checkbox"/>
B03	All rollers are running easily without blocking.	<input type="checkbox"/>	<input type="checkbox"/>
B04	No catching, intertwining of the cables or strain relief cables.	<input type="checkbox"/>	<input type="checkbox"/>





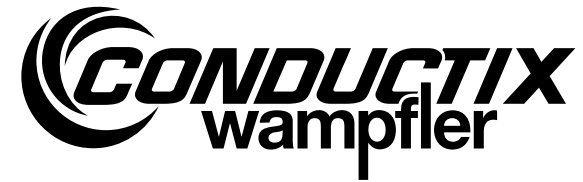
**Festoon Systems for Square Bar Track**  
 Program 0270/0280

<b>Inspections on running systems at 50% consumer running speed:</b>		<b>OK</b>	<b>Not OK</b>
<b>Movement forwards from cable trolley storage/termination fitting end in direction of towing end until the cable train is fully extended.</b>			
<b>Movement backwards from towing end in the direction of cable trolley storage/termination fitting end until end position is reached.</b>			
C01	Horizontal alignment gap between the cable trolley and the crane construction is wide enough that no collision can take place with cable trolleys or their components.	<input type="checkbox"/>	<input type="checkbox"/>
C02	Check of the loop lengths at the maximum pulled out festoon system corresponds to the project-specific technical documentation.	<input type="checkbox"/>	<input type="checkbox"/>
C03	All rollers are running easily without blocking.	<input type="checkbox"/>	<input type="checkbox"/>
C04	No catching, intertwining of the cables or strain relief cables.	<input type="checkbox"/>	<input type="checkbox"/>



**Festoon Systems for Square Bar Track**  
 Program 0270/0280

<b>Inspections on running systems at 100% consumer running speed:</b>		OK	Not OK
<b>Movement forwards from cable trolley storage/termination fitting end in direction of towing end until the cable train is fully extended.</b>			
<b>Movement backwards from towing end in the direction of cable trolley storage/termination fitting end until end position is reached.</b>			
D01	Horizontal alignment gap between the cable trolley and the crane construction is wide enough that no collision can take place with cable trolleys or their components.	<input type="checkbox"/>	<input type="checkbox"/>
D02	Check of the loop lengths at the maximum pulled out festoon system corresponds to the project-specific technical documentation.	<input type="checkbox"/>	<input type="checkbox"/>
D03	All rollers are running easily without blocking.	<input type="checkbox"/>	<input type="checkbox"/>
D04	No catching, intertwining of the cables or strain relief cables.	<input type="checkbox"/>	<input type="checkbox"/>

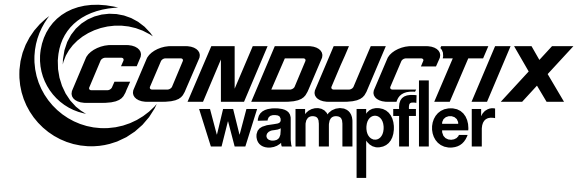


## Festoon Systems for Square Bar Track

Program 0270/0280

<b>Inspections on running systems in operating mode over 30 minutes.</b>		<b>OK</b>	<b>Not OK</b>
E01	Horizontal alignment gap between the cable trolley and the crane construction is wide enough that no collision can take place with cable trolleys or their components.	<input type="checkbox"/>	<input type="checkbox"/>
E02	Check of the loop lengths at the maximum pulled out festoon system corresponds to the project-specific technical documentation.	<input type="checkbox"/>	<input type="checkbox"/>
E03	All rollers are running easily without blocking.	<input type="checkbox"/>	<input type="checkbox"/>
E04	No catching, intertwining of the cables or strain relief cables.	<input type="checkbox"/>	<input type="checkbox"/>
<b>Documentation</b>		<b>OK</b>	<b>Not OK</b>
F01	Project-specific documentation is available and complete at the customer's facility, along with technical data, system diagrams, and recommended cable layout.	<input type="checkbox"/>	<input type="checkbox"/>

Installation Manual



Festoon Systems for Square Bar Track  
Program 0270/0280

---

Remarks/Other

## 7 Operation

---

### 7.1 Safety



#### WARNING!

#### Risk of death due to suspended loads!

When lifting loads, there is a risk of death due to parts falling or swinging out of control.

- Never step under hanging loads
- Block off the hazard area under the system
- Only move loads under supervision
- Follow the specifications for the attachment points provided
- Do not attach to projecting machine parts or to eyelets on installed components. Ensure that lashing components are properly seated
- Use only authorized lifting accessories and lashing elements with sufficient load capacity
- Do not use torn or worn ropes or straps
- Do not attach ropes or straps at sharp corners and edges, and do not knot or twist them
- Set loads down when leaving the workplace



#### WARNING!

#### Danger of injury due to improper operation!

Improper operations can result in serious injury to persons and property.

- Perform all operating steps according to the specifications of this installation manual
- Before starting work, be sure that all covers and safety systems are installed and working properly.
- Never disable the safety systems during operation
- Maintain order and cleanliness in the working area! Loosely stacked or scattered components and tools can cause accidents



#### WARNING!

#### Danger for unauthorized personnel!

Unauthorized persons who do not meet the requirements described here are not acquainted with the dangers in the working area.

- Keep unauthorized personnel out of the working area
- In case of doubt, address such persons and direct them away from the working area
- Stop work as long as unauthorized persons are in the working area



#### CAUTION!

#### Danger of tripping on projecting parts!

When working on the festoon system, there is a risk of tripping.

- When walking in the work and danger area, be careful of projections and depressions in the floor. Loose objects must not be left on the floor

## Festoon Systems for Square Bar Track

Program 0270/0280

---



**CAUTION!**

### **Danger of crushing!**

When the cable trolleys move, there is a risk of crushing hands between two trolleys or between a trolley and an end stop.

- The customer must block off the danger area of the system or have it installed in an inaccessible area
- Use personal protective equipment (protective gloves, safety helmet, safety shoes)



**DANGER!**

### **Danger of being trapped!**

There is a danger of being trapped when the cable-festoon system is moving.

- When the system is moving, do not enter the traveling area of the festoon system.
- The customer must block off the danger area of the system



**DANGER!**

### **Risk of injury due to falling objects!**

There is a risk due to falling parts in case of improper use (incorrect assembly, misuse, lack of maintenance).

- Perform maintenance on a regular basis!



**DANGER!**

### **Danger of injury due to electrocution!**

Danger of severe injury or death due to electric current.

- The system engineer/operator must ensure that no projecting contours near the cable-festoon system are able to damage the cables
- Regularly check cables for wear
- Before working on the festoon system, the system must be disconnected from power using the main switch, and secured against unauthorized, unintentional, and/or erroneous activation. In special cases where there is no main switch, the power disconnection must be carried out according to the specifications of the system manufacturer. Check that parts disconnected from power are voltage free, then ground and short-circuit them. Insulate adjacent live parts!
- Before each commissioning, the crane manufacturer must perform an insulation test, in accordance with the local technical standards, regulations and laws, for the complete system in which the cable-festoon system is installed
- Provide electrical protection measures in accordance with the regulations for the system

## Festoon Systems for Square Bar Track

Program 0270/0280

---



**DANGER!**

### **Risk of burns!**

Burns can be caused by:

- Live components
- Overload
- Components that have become live due to a fault
- Short circuits

Remedial measures:

- Do not overload cables!
- System engineers must design the dimensioning and protective electrical devices in accordance with the permissible load capacity of the cables
- Connections may only be made by specialist electricians



**WARNING!**

### **Risk of fire!**

Risk of fire if undersized cables are used!

- Do not overload cables
- The required cable cross-sections must be adhered to.
- System engineers must design the dimensioning and protective electrical devices in accordance with the permissible load capacity of the cables
- Connections may only be made by specialist electricians



**WARNING!**

### **Unsafe operation of the system!**

Falling system components due to installation errors!

- Do not stay in the danger zone under the system
- Comply with the maximum load and speed limits
- After completing the installation, perform a test run of the system only at very low speed
- Check the system in accordance with the maintenance plan and perform regular maintenance



**WARNING!**

### **Breakage during operation due to an installation error!**

Breakage of a load bearing, roller axle, and other cable-festoon components or the track suspension, can be caused by installation errors!

- Do not stay in the danger zone under the system
- Comply with the maximum load and speed limits
- Check the system in accordance with the maintenance plan and perform regular maintenance

### **Personnel:**

- The system may only be operated by trained personnel.

## Festoon Systems for Square Bar Track Program 0270/0280

---

### 7.2 Function

A towing arm couples the towing trolley to the mobile consumer. The towing trolley pulls and/or pushes the following cable trolley. The cables are held on the supports with clamping strips. For improved shock absorption when trolleys meet, buffers are placed on the festoon system.

The dimensions of the festoon system can be found in the project-specific dimension sheet.

During operation, the system should be monitored for any changes in operating noise and irregularities.

If irregularities are identified during operation, the system must be shut down immediately. The cause of the fault is to be determined using the fault table (see Section 9).

The fault table includes the causes for the disturbance as well as the recommendations for their remedy. If the cause cannot be identified, or a repair cannot be affected using the Operator's own resources, we recommend that a customer service engineer be called from one of our customer service points.



### 8 Maintenance and Servicing

---

#### 8.1 Safety



**WARNING!**

##### **Danger of injury due to improperly executed maintenance tasks!**

- Improper maintenance can result in serious injury to person and property.
- Before starting work, make sure there is sufficient space for assembly.
- Make sure the installation area is tidy and clean! Loosely stacked or scattered components and tools can cause accidents
- If components have been removed, be careful to reinstall them properly, replace all fastening elements and comply with screw tightening torques.



**WARNING!**

##### **Danger of injury from moving components!**

Incautious handling of the festoon system can lead to severe injury or damage to the festoon system.

- Be sure that the festoon system does not start by itself.
- While it is moving, do not reach into moving parts, particularly the interface between the buffer and buffer plate.
- Block off the hazard area under the system



**CAUTION!**

##### **Danger of tripping on projecting parts!**

When working on the festoon system, there is a risk of tripping.

- When walking in the work and danger area, be careful of projections and depressions in the floor. No loose objects may be left on the floor.



**CAUTION!**

##### **Danger of crushing!**

On complete installation of the cable-festoon system, there is a risk of crushing extremities between load carriers and track profiles.

When moving the cable-festoon system, there is a danger of crushing extremities between the buffer and buffer plate, as well as between the carriage and track profiles.

- Do not enter the danger area of the cable-festoon system when the system is moving or during assembly



**DANGER!**

##### **Danger of being trapped!**

There is a danger of being trapped when the cable-festoon system is moving.

- Do not enter the danger area of the cable-festoon system when the system is moving
- The customer must block off the danger area of the system
- Before starting work, shut down the system and secure it against accidental start

## Festoon Systems for Square Bar Track

Program 0270/0280

---



**DANGER!**

### **Risk of injury due to falling parts!**

There is a risk due to falling parts in case of improper use (incorrect assembly, lack of attention).

- Block off a generous area underneath the system!
- Keep the time specialist fitters spend in the danger area to a minimum
- Wear a safety helmet!



**DANGER!**

### **Risk of burns!**

Burns can be caused by:

- Live components
- Overload
- Components that have become live due to a fault
- Short circuits

Remedial measures:

- Do not overload cables!
- System engineers must design the dimensioning and protective electrical devices in accordance with the permissible load capacity of the cables
- Connections may only be made by specialist electricians



**DANGER!**

### **Danger of injury due to electrocution!**

Danger of severe injury or death due to electric current.

- The system engineer/operator must ensure that no projecting contours near the cable-festoon system are able to damage the cables
- Regularly check cables for wear
- Before working on the festoon system, the system must be disconnected from power using the main switch, and secured against unauthorized, unintentional, and/or erroneous activation. In special cases where there is no main switch, the power disconnection must be carried out according to the specifications of the system manufacturer. Check that parts disconnected from power are voltage free, then ground and short-circuit them. Insulate adjacent live parts!
- Before each commissioning, the crane manufacturer must perform an insulation test, in accordance with the local technical standards, regulations and laws, for the complete system in which the cable-festoon system is installed
- Provide electrical protection measures in accordance with the regulations for the system



**WARNING!**

### **Risk of fire!**

Risk of fire if undersized cables are used!

- Do not overload cables
- The required cable cross-sections must be adhered to.
- System engineers must design the dimensioning and protective electrical devices in accordance with the permissible load capacity of the cables
- Connections may only be made by specialist electricians

## Festoon Systems for Square Bar Track Program 0270/0280

---



### CAUTION!

#### Risk of injury due to slipping and falling!

There is a risk of injury due to a dangerous environment or difficult installation conditions. For example, near cranes, in difficult-to-access locations, etc.

- Use personal protective equipment (protective gloves, safety helmet, safety shoes)
- Keep the location tidy
- Use only secure scaffolding
- Take appropriate safety measures

## 8.2 Maintenance/Inspection Plan

The next sections describe the maintenance tasks required for optimal and trouble-free operation. If regular inspections reveal increased wear, the corresponding maintenance intervals should be shortened in accordance with the actual signs of wear. Contact the manufacturer with any questions about maintenance tasks or intervals.

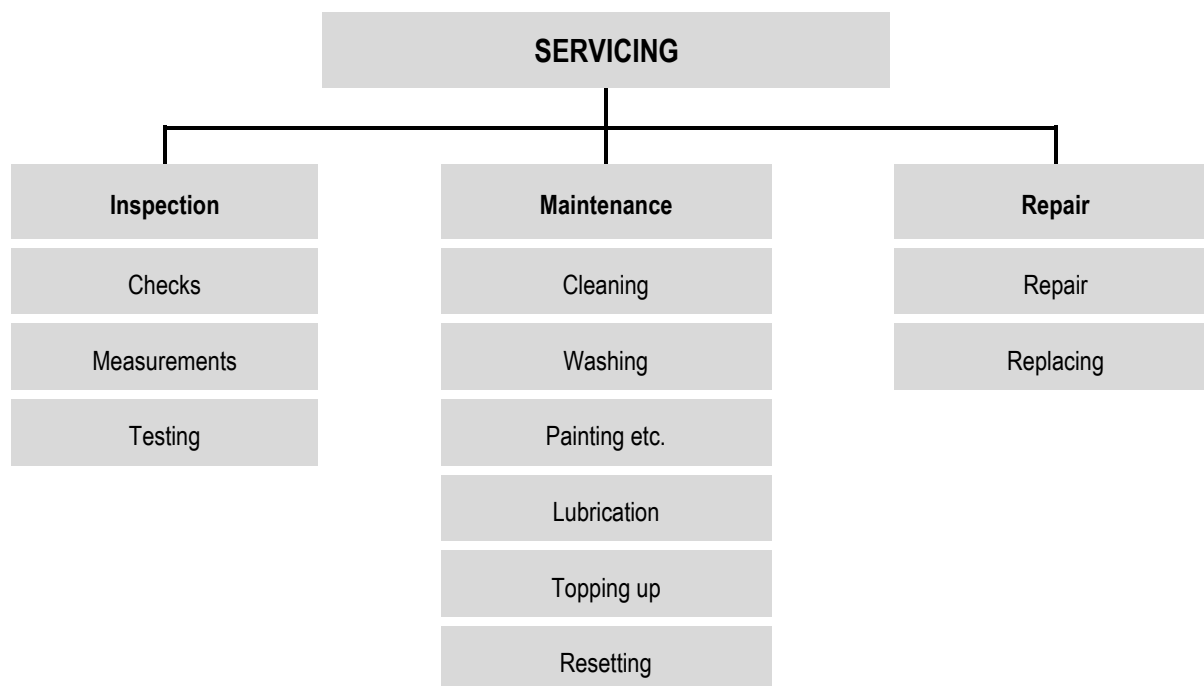
In order to retain the warranty rights and to avoid damage, the system operator is responsible for performing the following maintenance tasks. Inspection, service and repair are to be performed and documented by trained and qualified specialists.



### ATTENTION!

The intervals indicated for maintenance are dependent for the most part on operational conditions of the festoon system. Therefore only mean values can be indicated here.

The following tasks fall under the category "Servicing":



### 8.2.1 Inspection with the System at a Standstill



**CAUTION!**

- Protect the festoon system from inadvertent activation
- Any safety devices that have been removed during inspection of the system when at a standstill must be refitted immediately on completion of the work and tested
- Check measuring tools used after clean up/ collection and inventory

#### Inspection measures

Interval	Components	Action	Description
<b>Every 14 days:</b> 3 and 4 shift operation at the latest after 300 operational hours  <b>Every 30 days:</b> 2 shift operation at the latest after 300 operational hours	Rollers	Visual inspection	■ for good condition
	Buffer		■ for proper functioning
	Center plate		■ for proper movement
	Cable saddles		■ for tight attachment
	Fasteners		■ for deformation
	Cables		■ for wear
	Cable clamps		■ for damage
	Fixed cabling		■ for degree of contamination
	Connections with the installation		■ for corrosion
	Stress relief cables		
	Towing devices		
	End stops		
	Track profile		



#### ATTENTION!

- Stress relief cables must be inspected at regular intervals
- The inspections must be performed at least every 12 months



#### CAUTION!

In case of defect, stress relief cables must be removed from use immediately. They must be replaced.

A stress-relieving cable must be taken out of service (replaced) if one or more of the following criteria is met:

1. Wire break
2. Structural changes
3. Corrosion
4. Abrasion

## Festoon Systems for Square Bar Track Program 0270/0280

The following cable deformations are retirement criteria:

- Corkscrew-like deformation: A stress relief cable must be replaced if it has corkscrew deformations with waves that measure more than a third of the cable diameter.
- Fraying: Replace the cable if it starts to fray.
- Loop formation: Replace the cable if loop formation has led to significant changes in the cable structure.
- Loosening: Replace if wires are loosened due to rust or abrasion.
- Node formation: Replace if nodes- points where the cable is widened- form in the steel cable.
- Constrictions: Replace in case of severe constrictions in the cable.
- Curling: Replace the towing rope if permanent deformations are present such as those caused by being pulled over a corner.
- Kinks: Replace if kinks form after tension is applied to cable loops.
- Bends: Replace the towing rope if it has been bent by an external force.

### 8.2.2 Inspection with the System Moving



**CAUTION!**

- Any procedures that could threaten safety are to be avoided.
- The system should only be commissioned with functional protective gear and safety devices.
- It is forbidden to enter the operating area of the festoon system.

#### Inspection measures

Interval	Components	Action	Description
<b>Every 14 days:</b> 3 and 4 shift operation at the latest after 300 operational hours  <b>Every 30 days:</b> 2 shift operation at the latest after 300 operational hours	Rollers	Functional check	Easy, non-tilted rolling of the main roller and horizontal guide rollers Visible wear, damage.
	Cable festoon		for proper entry and exit of the cable trolleys in the storage area
	Towing device		for reliable operation of the towing device based on the required horizontal and vertical balancing movements.
	Buffer unit for cable trolley/towing part - end clamp		for functionality of the damping device, especially when the system is in the storage.
	Stress relief cables		for effectiveness of the shock-absorbing tow cables, particularly when the system is fully extended.
	Track profile and system		of the track beam and the entire system, for dirt and corrosion that influence functionality.

If problems are identified during the inspection, service work must be carried out urgently.

## Festoon Systems for Square Bar Track Program 0270/0280

---

### 8.2.3 Logging

The results of inspections as well as the repairs performed are to be documented in written reports. Conductix-Wampfler must be informed immediately of defects and malfunctions during the test phase and the warranty period.

### 8.2.4 Maintenance of the Festoon System



**CAUTION!**

#### **Be careful when servicing the cable-festoon system!**

- Turn off power supply and ensure that no unauthorized activation is possible.
- When installation tasks are carried out above eye level, use proper climbing aids and working platforms.
- Do not climb on machine components.
- Ensure that exhaust, collection and disposal of process materials is done in a safe and environmentally-friendly manner
- Safety devices that were removed for installation, service or repair must be immediately remounted and inspected after work is completed
- Observe the inspection and maintenance intervals described in the maintenance instructions
- Ensure that sufficient space for maintenance work (danger area) is available
- Ensure that the festoon system is not inadvertently activated during maintenance work
- Ensure that detached parts do not fall
- Screw joints that are disconnected during maintenance work are to be reattached (with suitable torque) and secured as instructed
- Fasteners and seals that cannot be reused are to be replaced (such as self-locking nuts, disks, splints, O-rings, glued or microencapsulated screws)
- Lubrication points that are cleaned or wiped during maintenance and repair work must be re-lubricated as instructed
- After finishing work, collect all tools and materials and check that all are present.
- Disassembled parts and components that were exchanged are to be collected, stored in a safe place, recycled or sent back

#### Service measures

Interval	Components	Action	Description
<b>Every 14 days:</b> 3 and 4 shift operation at the latest after 300 operational hours <b>Every 30 days:</b> 2 shift operation at the latest after 300 operational hours	Roller mounting	Maintenance measure	Tighten all fasteners.
	Cable attachment		Tighten all fasteners on clamping bars and cable clamps.
	Towing device		Exchange worn parts if necessary.
<b>Every 3 months</b>	Stress relief cables		Tighten mounting screws.
	Buffer unit for towing or end clamp		Tighten all fasteners. Exchange worn parts if necessary.
<b>Annually</b> (depends on external influences)	Surface/ corrosion protection Corrosion coating		repair / replace

### 8.2.5 Wearing Parts

Wearing parts are excluded from the warranty. This includes:

- All trolley rollers including main rollers, horizontal guide rollers, counter-pressure rollers
- Special damping systems in the tappet cart window
- Rubber or cellular buffers
- Other definitions require written documentation



## Festoon Systems for Square Bar Track Program 0270/0280

---

### 8.2.6 Wear Limits

Components	Wear limit has been reached if
Rollers	<ul style="list-style-type: none"> <li>→ The diameter of the roller has been reduced from the nominal diameter by 2 mm</li> <li>→ sharp impressions can be seen</li> <li>→ Cracks, broken-off pieces, or embrittlements have formed on Vulkollan or Adiprene rollers, or if initial signs that the outer section is disengaging from the core appear</li> <li>→ increased bearing play occurs due to worn ball bearings</li> <li>→ significant lubrication leakage is seen</li> <li>→ The rollers do not run smoothly</li> </ul>
Buffer	→ cracks, breaks or embrittlements are seen
Center sheets and side plates	→ corrosion protection has failed
Cable saddles	<ul style="list-style-type: none"> <li>→ corrosion protection has failed</li> <li>→ initial signs of cracks in the supports are seen</li> </ul>
Fasteners	<ul style="list-style-type: none"> <li>→ corrosion protection has failed</li> <li>→ connection integrity (screw joints, clamp connections, glued connections) is no longer ensured</li> </ul>
Cables	<ul style="list-style-type: none"> <li>→ wire, shielding or jacket breakage is seen</li> <li>→ corkscrews have formed</li> </ul>
Cable clamps	<ul style="list-style-type: none"> <li>→ corrosion protection has failed</li> <li>→ cracks and embrittlements are seen in the clamp rubber</li> <li>→ the clamp does not hold cables sufficiently</li> </ul>
Stress relief cables	→ wires break, structural changes occur, corrosion and abrasion
Towing devices	<ul style="list-style-type: none"> <li>→ corrosion protection has failed</li> <li>→ the tappet window in the tappet cart is deformed</li> <li>→ cracks appear in the welding joints</li> </ul>
End clamp	<ul style="list-style-type: none"> <li>→ corrosion protection has failed</li> <li>→ attachment to the track profile is no longer secure</li> </ul>
Track profile	<ul style="list-style-type: none"> <li>→ corrosion protection has failed</li> <li>→ significant tracks from the rollers of the festoon system appear</li> </ul>

### 8.2.7 Repeat Inspections



#### **ATTENTION!**

Devices and systems must be periodically inspected by an expert. In general, visual and functional checks are to be performed. The condition of components with regard to damage, wear, corrosion or other damage is to be determined. Generally speaking, the completeness and functionality of the safety equipment is evaluated. To better evaluate the wear and tear of parts, disassembly may be required. All regular inspections are to be performed by the operator.

Every operator is to record all inspection, service and maintenance tasks in a machine book in an orderly manner. This is to be confirmed by a technical expert. In case of inaccurate or missing entries, the warranty is rendered null and void.

### 8.2.8 Repair

You should always call in a Conductix-Wampfler customer service engineer for any repairs.

If the operator's qualified specialist personnel carry out repairs themselves, they must follow the instructions in this installation manual **to the letter**.

Conductix-Wampfler accepts no liability and provides no warranty for damages and production faults resulting from failure to comply with this installation manual.

#### **For maintenance and repair, only use**

- Suitable tools in good working order
- only original replacement parts from Conductix-Wampfler or replacement parts explicitly authorized by Conductix-Wampfler.

## 9 Troubleshooting



### WARNING!

#### Danger of injury due to improper troubleshooting!

Improper troubleshooting can result in serious injury to person and property.

- Contact the manufacturer in case of malfunction
- Allow troubleshooting to be carried out only by personnel from or authorized by the manufacturer



### CAUTION!

#### Improper use can result in serious injury to persons and damage to property.

- Malfunctions must be corrected only by qualified personnel!

Malfunctions	Cause	Remedy
Cracks in stress relief cable	Excessive load Wear <sup>1)</sup>	Replace stress relief cable
Steel cable cracked or slipped out (from the pressure clamp)	Excessive load Wear <sup>1)</sup>	Replace stress relief cable
Buffer defective	Excessive load Wear <sup>1)</sup>	Replace buffer
Reduced function of rollers	Excessive load Wear <sup>1)</sup>	Exchange roller
Evident mechanical overload on components (deformation, cracks, abrasion)	Malfunction <sup>2)</sup>	Replace the relevant components

<sup>1)</sup> The cause of overstress must be identified and corrected.

<sup>2)</sup> If injury to person and property can occur during breakdowns then Conductix-Wampfler must be informed immediately.

## 10 Dismantling and Disposal

---

### 10.1 Safety



**DANGER!**

#### **Danger of injury due to electrocution!**

Danger of severe injury or death due to electric current.

- The system engineer/operator must ensure that no projecting contours near the cable-festoon system are able to damage the cables
- Regularly check cables for wear
- Before working on the festoon system, the system must be disconnected from power using the main switch, and secured against unauthorized, unintentional, and/or erroneous activation. In special cases where there is no main switch, the power disconnection must be carried out according to the specifications of the system manufacturer. Check that parts disconnected from power are voltage free, then ground and short-circuit them. Insulate adjacent live parts!
- Before each commissioning, the crane manufacturer must perform an insulation test, in accordance with the local technical standards, regulations and laws, for the complete system in which the cable-festoon system is installed
- Provide electrical protection measures in accordance with the regulations for the system



**WARNING!**

#### **Danger of injury due to improper disassembly!**

Stored energy, sharp components, points, and edges on and in the festoon system, and required tools, can cause injury.

- Make sure there is sufficient space before starting work
- Handle open, sharp-edged components carefully
- Make sure the work area is tidy and clean! Loosely stacked or scattered components and tools can cause accidents
- Dismount components properly. Take the high net weight of some components into account. If necessary, use lifting gear.
- Secure components so they cannot fall or topple
- Consult the manufacturer in case of doubt.



**WARNING!**

#### **Danger of injury from moving components!**

Incautious handling of the festoon system can lead to severe injury or damage to the festoon system.

- Be sure that the festoon system does not start by itself.
- While it is moving, do not reach into moving parts, particularly the interface between the buffer and buffer plate.
- Block off the danger zone under the system.



**CAUTION!**

#### **Danger of tripping on projecting parts!**

When working on the festoon system, there is a risk of tripping.

- When walking in the work and danger area, be careful of projections and depressions in the floor. Loose objects must not be left on the floor

## Festoon Systems for Square Bar Track

Program 0270/0280

---



**CAUTION!**

### **Danger of crushing!**

On complete installation of the cable-festoon system, there is a risk of crushing extremities between load carriers and track profiles.

When moving the cable-festoon system, there is a danger of crushing extremities between the buffer and buffer plate, as well as between the carriage and track profiles.

- Do not enter the danger area of the cable-festoon system when the system is moving or during assembly



**DANGER!**

### **Danger of being trapped!**

There is a danger of being trapped when the cable-festoon system is moving.

- Do not enter the danger area of the cable-festoon system when the system is moving
- Customer must block off the danger zone of the system
- Before starting work, shut down the system and secure it against accidental start



**DANGER!**

### **Risk of injury due to falling parts!**

There is a risk due to falling parts in case of improper use (incorrect assembly, lack of attention).

- Block off a generous area underneath the system!
- Keep the time specialist fitters spend in the danger area to a minimum
- Wear a safety helmet!



**CAUTION!**

### **Risk of injury due to slipping and falling!**

There is a risk of injury due to a dangerous environment or difficult installation conditions. For example, near cranes, in difficult-to-access locations, etc.

- Use personal protective equipment (protective gloves, safety helmet, safety shoes)
- Keep the location tidy
- Use only secure scaffolding
- Take appropriate safety measures

## Festoon Systems for Square Bar Track Program 0270/0280

---

### 10.2 Dismantling

After the system is no longer in use, the festoon system must be disassembled and environmentally friendly disposal carried out.

#### Before starting disassembly:

- Remove operating and auxiliary materials as well as residual processing material, and dispose of them in an environmentally appropriate manner.

Then clean the assemblies and components properly and disassemble them as required by applicable local workplace safety and environmental protection regulations.

#### Personnel:

- May only be carried out by trained technicians
- At least 2 people

#### Required tools:

- Crescent wrench
- Tools for securing



**DANGER!**

#### Risk of injury due to lack of care when securing loads!

→ Loads are to be carefully fastened onto suitable hoists or load-carrying devices that are technically intact and have sufficient load capacity.

### 10.3 Disposal

In the absence of a return or disposal agreement, disassembled components must be recycled as follows:

- Scrap metals.
- Take plastic elements for recycling.
- The other components are to be disposed of according to their material composition.



**CAUTION!**

#### Environmental damage due to improper disposal!

Electrical waste, electronic components, lubricants, and other auxiliary materials are subject to hazardous waste disposal regulations and may only be disposed of by authorized specialists.

Local community officials or special disposal companies can provide information about environmentally appropriate disposal.

## 11 Additional Documents

### 11.1 Documentation for Electrical Equipment

See separate electrical documentation.

### 11.2 Spare Parts List



#### ATTENTION!

Keeping a stock of the most essential spare and wear parts at the place of installation ensures constant operational readiness of the system.



#### WARNING!

**Wrong spare parts are a safety hazard!**

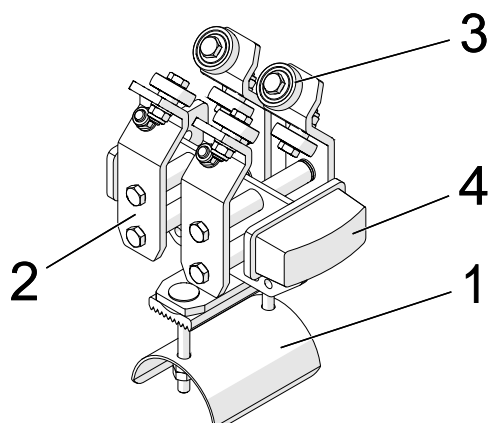
Wrong or faulty spare parts can result in damage, malfunctions, complete failure and affect safety.

→ Always use original spare parts from the manufacturer!

No liability is accepted or warranty given for damages that occur from the use of unauthorized spare parts and accessories.

For spare part orders, please indicate the following data:

- Order number
- Part number
- Description
- Unit count
- Desired mode of shipping (postal, freight, sea, air, express)
- Shipping address



#### ■ Replacement parts available:

- 1) support, complete with clamping strip and mounting elements
- 2) Cable trolley upper part, complete with rollers and buffers
- 3) Roller pair
- 4) Buffer

Fig. 38: Cable festoon

The exact replacement part name can be found in the project-specific replacement parts list.

## Festoon Systems for Square Bar Track Program 0270/0280

---

### 11.3 Product Observations

We strive to observe our products after delivery in order to further improve them and better meet your needs.

Please use the form on the following pages to communicate your experiences and issues with us that could be of interest for our improvement process.

Thank you very much for your help.

**Please fax the filled out form to: +49 7621 662 284**

**For example:**

- changed configuration data
- experiences with the festoon system
- recurrent errors
- difficulties with documentation







### 11.4 Final handover document

#### Customer:

<b>Construction location:</b>	Project name:	
	Address	
	Postal code:	City:
	Contact person / tel. no.:	Meeting place:
Start of installation (on site)		End of installation (on site)
Installation time required (in hours):		Travel time required (in hours):
<b>Installation of the above project was concluded today by Conductix-Wampfler GmbH, Germany. Risk is transferred to the customer today.</b>		
The acceptance was confirmed in the customer-specific "Handover" protocol:	yes	<input type="checkbox"/>
The maintenance instructions were handed out:	yes	<input type="checkbox"/>
CE label was attached:	yes	<input type="checkbox"/>
Customer remarks:		
Supplier remarks:		
The following tasks included in the order could <b>not</b> be carried out:		
<b>Contact for installation (Conductix-Wampfler GmbH)</b>		<b>Contact for construction (customer)</b>
Name:		Name:
Date:	Signature:	Date:



## 12 Index

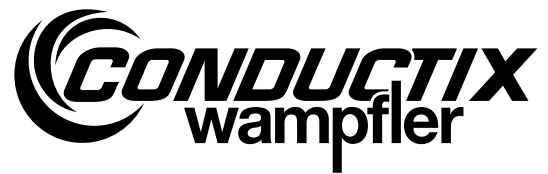
---

Accidents.....	14	Operating Conditions .....	15
Commissioning.....	42	Operator .....	11
Copyright.....	6	Personnel Requirements.....	8
Description of Assemblies.....	17	Product Description.....	16
Dismantling.....	70	Product Observations.....	72
Disposal.....	70	Protective Measures .....	11
Explanation of Symbols.....	7	Safety.....	26, 53, 57, 68
Function.....	16	Safety Devices .....	14
Hazards .....	12	Shipment.....	23
Installation and Commissioning.....	26	Spare Parts .....	6
Intended Use .....	10	Technical specifications .....	15
Limitation of Liability .....	5	Technical Support .....	6
Maintenance and Servicing .....	57	Training .....	8
Maintenance/Inspection Plan .....	59	Troubleshooting .....	67
Malfunctions .....	14	Unauthorized Personnel.....	8
Material Defects .....	6	Working and Danger Areas.....	21
Modes of Operation.....	22		

# Installation Manual

## Festoon Systems for Square Bar Track Program 0270/0280

---



**Conductix-Wampfler GmbH**  
Rheinstraße 27 + 33  
79576 Weil am Rhein - Märkt  
Germany

Phone: +49 (0) 7621 662-0  
Fax: +49 (0) 7621 662-144  
[info.de@conductix.com](mailto:info.de@conductix.com)  
[www.conductix.com](http://www.conductix.com)



Importer for the United Kingdom:  
**Conductix-Wampfler Ltd.**  
1, Michigan Avenue  
Salford  
M50 2GY  
United Kingdom

Phone: +44 161 8480161  
Fax: +44 161 8737017  
[info.uk@conductix.com](mailto:info.uk@conductix.com)  
[www.conductix.com](http://www.conductix.com)