



# **Assembly Instructions**

**for Elevator**

**STF 60-250  
STF120-250  
STF 30-120**

**MA**

Rhein-Nadel Automation GmbH

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### Declaration of Incorporation in terms of the Machine Directive 2006/42/EC

We herewith declare that the product is provided for incorporation in a machine or to be assembled with other machines to constitute a machine as defined by the above-mentioned Directive (or parts of it), and that it is not allowed to be put into operation until the machine into which the above is to be incorporated is in conformity with the provisions of the EC Machine Directive.

Applied harmonised standards:     DIN EN 60204 T1, EN ISO 12100-1, EN ISO 12100-2, DIN EN 619, DIN EN 620  
  DIN EN ISO 14121-1

Comments:

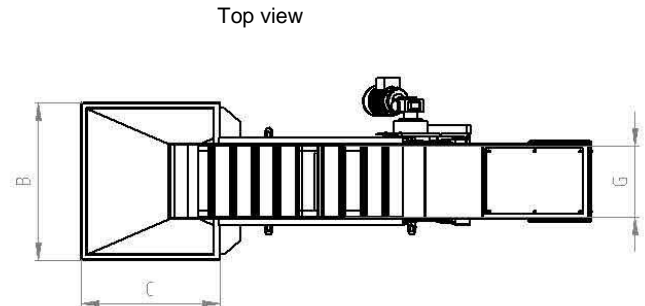
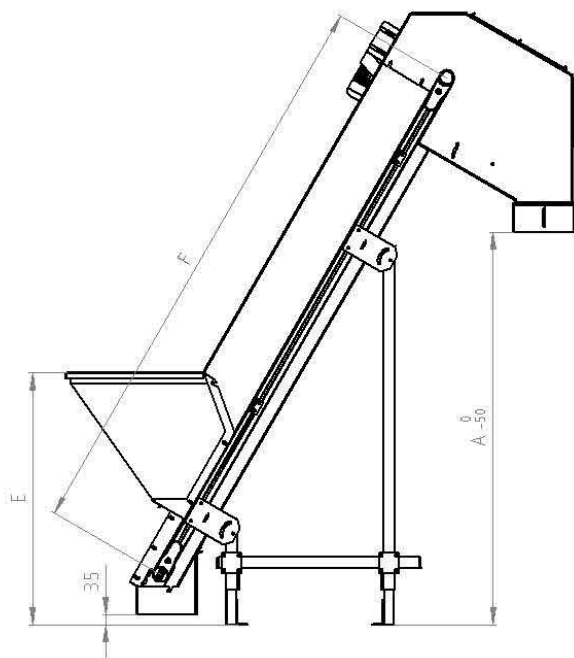
The product has been manufactured according to the Low Voltage Directive 2014/35/EU.

We assume that our product will be integrated in a stationary machine. The user is to follow the regulations of the EMC Directive 2004/108/EC.

Rhein-Nadel-Automation  
-Managing Director-  
Jack Grevenstein

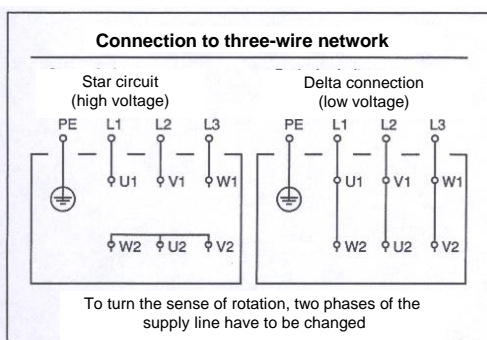
# 1 Technical Data

## 1.1 Table

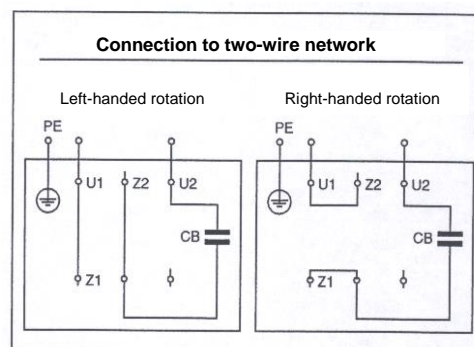


		STF30-120	STF60-250	STF120-250
Filling volume	in litres	30	60	120
Max. filling weight	in kg	50	75	75
Discharge height	in mm (A)	1,200-1,500	1,200-1,700	1,200-1,700
Hopper width	in mm (B)	490	550	950
Hopper length	in mm (C)	343	483	613
Min. filling height	in mm (E)	approx. 850	approx. 900	approx. 900
Distance between centres (F)	in mm	1,200-1,800	1,700-2,500	1,700-2,500
Belt width in mm	(G)	120	250	250
Type of belt	Workpiece-dependent cleat belt with cleats type T20 and K10 (quantity depends on workpiece)			
Belt speed m/min	1 m/min			
Motor	3-phase or AC motors			
Motor position	End of belt (tractive)			
Accessories	Shaft cover, hinged hopper lid, variable belt speed			

## Connecting data for motor



Connecting plan 3-phase motor



Connecting plan capacitor motor

## 2 Safety Instructions

We have taken great care in the planning and production of our elevators to guarantee trouble-free and safe operation. You too can make an important contribution towards job safety by reading through these short operating instructions completely before putting into operation. Always follow the safety instructions!



### Attention

This warning indicates safety instructions. Non-observance of these warnings can result in serious injuries or death!

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### Caution

This warning indicates safety instructions. Non-observance of this warning can result in serious personal injuries or damage to property.

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### Note

This hand shows that there are Notes to give you helpful hints for operating the conveyor belts.

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Make sure that all persons working with or at this machine also read the following safety instructions attentively and observe them!

These operating instructions only apply to the machine types mentioned on the title sheet.

The instructions must always be available there where the elevator is operated.

When using the elevator in moist or wet surroundings (humid area), one must make sure that the required type of protection is met.



### Note

For full information about the entire range of control boxes, please refer to "Control Boxes" in the operating instructions.

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Putting into operation, conversion, maintenance and repair work may only be carried out by qualified and authorised staff (see also "Requirements for the User" in this chapter).

During assembly, maintenance and repair work, the elevator has to be all-pole disconnected from the mains in accordance with the Association of German Electrotechnical Engineers (VDE).

Work on electrical equipment may only be carried out by a specialist electrician or by a person instructed in electro-technics under the supervision of a specialist electrician according to the electrotechnical regulations.



### Attention

There is the risk of injury and danger through electric shock!

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- Users and operators are to make sure that only authorised staff works at the elevator.
- Changes that restrict safety must be reported to the operator immediately.
- The elevator may only be operated when it is in perfect condition.
- The elevator may only be operated in the sense of its intended use.
- Please observe the safety regulations BGR 500, Chapter 2.9 for continuous conveyors, and BGV A3 for electrical installations and operating material.
- Make sure that the protective earthing of the power supply is in perfect condition.
- It is absolutely forbidden to operate the elevator without its casing and protective covers (chain drive).

## Intended use

The elevators' intended use is the storage and transport of the material to be conveyed.

This material must have a smallest side length of at least 5 mm.



### Caution

Smaller parts may get caught under the belt, causing damage or failure to the conveyor belt.

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With standard belts, the material to be conveyed must be dry, clean and not have sharp edges. For the transport of sharp-edged, oily, wet or hot (> 70°C) material, special belts have to be used.

The material to be conveyed must not fall onto the conveyor belt from a greater height. The maximum permissible impact energy is 0.1 J.

In case of doubt, please ask the manufacturer.

The elevators are designed for inclined transport with maximum loading. Please ask the manufacturer what is possible in your particular case.

Please refer to Technical Data (Chapter 1) for the permissible belt loading.

## Noise emission

The continuous sound level is maximum 70 dB(A). The transport of material or the quality of the belt can produce a higher level of noise. For these exceptions, you can ask your manufacturer about noise abatement measures.

## Requirements for the User

Putting into operation, conversion work as well as maintenance and repair work may only be carried out by qualified and authorised staff.

We differentiate between four levels of qualification:

### Qualified staff

are persons acquainted with the installation, assembly, setting up and operation of the conveyor belt. They have an adequate qualification for their job.

### Authorised staff

is qualified staff that has been made familiar with a clearly defined duty by the operator of the conveyor belt.

### Specialist electricians

(according to IEC 364 and DIN VDE 0105 Part 1) are persons who, thanks to their training in the subject, specialist knowledge and technical experience of the relevant norms, are able to assess the tasks they have been entrusted with and recognise any possible hazards.

### Electrotechnically instructed person

(according to IEC 364 and DIN VDE 0105 Part 1) is someone who has been instructed by a specialist electrician in the tasks entrusted to him/her. This person has also been informed about the possible dangers that can occur through inappropriate behaviour and about the necessary protective gear and precautionary measures.

## 2.1 Applicable Directives and Standards

The elevator has been built in accordance with the following directives:

- EC Directive "Machinery" 2006/42/EC
- EC Low Voltage Directive 2014/35/EU
- EMC Directive 2014/30/EU

We assume that our product will be integrated in a stationary machine. The User is to follow the regulations of the EMC Directive.

Please refer to the Declaration of Incorporation for the applicable standards.

## 3 Construction and Function of the Elevators

Basis of the elevators is the RNA conveyor belt FP120, the body of which consists of a special aluminium groove profile. For the drive, one can choose motors of the 3-phase or AC type which are mounted at the end of the belt.



### Note

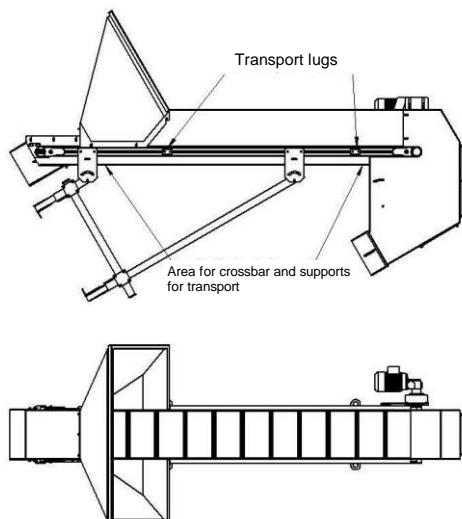
For information about the control units, please refer to "Control Units" in the separate Operating Instructions.

## 4. Transport and Assembly

### 4.1 Transport

#### Transport ex works

The elevators are delivered ex works packed in a lying position in boxes or on pallets. The elevator can be lifted and installed by the transport lugs mounted on the same.



#### Internal transport

The weight of the elevator depends on the measurements and motor rating. You will find the weight of your special model in the transport documents.



### Attention

When unpacking, check all the safety devices. Replace damaged parts before putting into operation.



### Caution

One-piece conveyor belts can be brought to their place of use on a sufficiently stable haulage car.

## 4.2 Assembly

The delivered elevator is ready-mounted on a pedestal.

Please make sure that the measurement of 35 mm (see drawing Chapter 1, Technical Data) is not exceeded.



### Attention

The pedestal used must by all means be fastened by dowels in the foundation. Operation without fastening is not permissible!

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### 4.2.1 Belts



### Note

The standard belts are connected endlessly with a mechanical link. The moving sense of these belts can be any way.

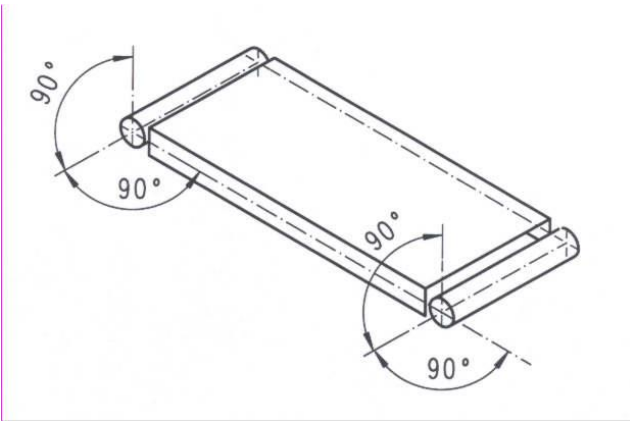
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The mechanical link provides the possibility to change the conveyor belt quickly without dismounting components of the installation.

After changing the conveyor belt, it is necessary to adjust the belt at any rate. (see Chapter 5.1, Adjusting the Belt Run).

### 4.2.2 Aligning the axes

Align the axes of the driving rollers and deflection pulleys towards each other and to the body of the conveyor (Fig. 3).



III. Aligning the axes

### 4.2.3 Drive (elevator without RNA control units)

Have the motor connected by a specialist electrician according to the wiring diagram (see Chapter 1). Then check the sense of rotation.



### Attention

Make sure the drive has an adapted overload protection. The ratings are indicated on the rating plate of the motor.

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### Caution

The protective motor switches included in the delivery may not be operated overhead, otherwise the protective function is no longer given. In this case, mount the protective switch in such a way to ensure that the prescribed fitting position is correct.

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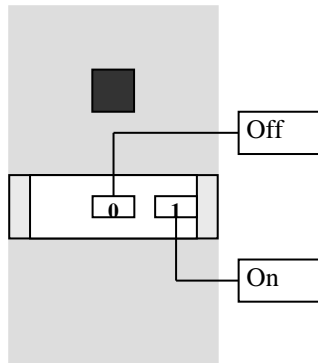
## 5 Putting into Operation



### Attention

Electric connection of the elevator may only be carried out by trained staff (specialist electricians). When making changes on the electrical connection, please follow the Operating Instructions for the protective motor switch or control unit.

The elevator is switched on and off with the protective motor switch that is mounted next to the motor.



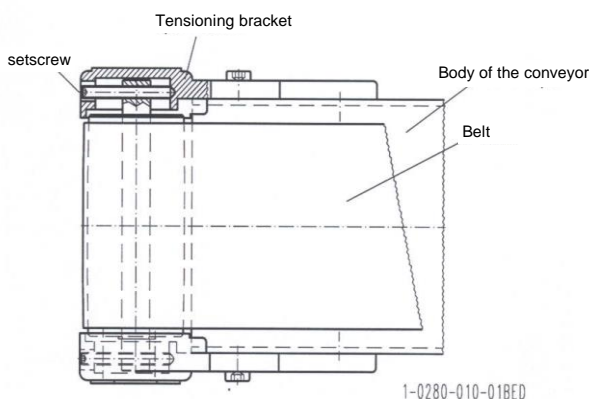
### III. 5: Protective motor switch

To operate elevators that are equipped with other control units, please refer to the separately supplied Operating Instructions of the control unit.

### Adjusting the belt run

The motor and belt hopper went through a trial run at the manufacturer's and have been subject to final inspection. Owing to the reassembly of the elevator and running in of the belt, an adjustment of the belt run may be necessary. This fine adjustment is done with the headless setscrews that are integrated in the deflection station.

The following figure shows details of the deflection station.



### III. 11: Deflection station

If the belt runs off-centre after starting the motor, carry out the adjustment in the deflection station first. If this is not sufficient, carry out the adjustment in the driving station.

### 5.2 Adjusting the deflection station

- Tighten the GS headless setscrew on the side towards which the belt runs (tension belt) or
- loosen the GS headless setscrew on the opposite side (slacken belt).



### Caution

Tensioning the belt too strongly can overstrain both the belt and drive. After having carried out the fine



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adjustment, measure the current consumption of the motor. If it exceeds the nominal data on the rating plate, the GS headless setscrews have to be loosened evenly.

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After finishing the adjustment, it is indispensable to perform a trial run for several hours. During the first running hours, the belt has to be checked at shorter intervals (about 2-3 times a day) for its centred run.

## 6 Maintenance



### Attention

During assembly, maintenance and repairs, the belt hopper has to be all-pole disconnected from the mains in accordance with the VDE. Work on the belt hopper's electrical equipment may only be carried out by a specialist electrician or by an instructed person (see Chapter 2) under the directions and supervision of a specialist electrician according to the electrotechnical regulations.

### 6.1 Belt

When the belt is soiled, clean it with spirit and a clean cloth that does not make fluff. To clean belt hoppers used for foodstuffs, use an authorised spirit substitute.



### Attention

Make sure to let in plenty of fresh air! Wear protective clothing.

### 6.2 Motor

With DC motors, the carbon brushes have to be replaced after 2,000 operating hours. Afterwards, thoroughly clean their surroundings.

Geared motors on the other hand are maintenance-free for 10,000 operating hours.

Depending on the ratio of dust, clean the ventilator cowl of the motor, the motor itself and the gear body. This ensures that the drive is always sufficiently cooled.

### 6.3 Gears

The gears are ready for operation upon delivery and filled with gear grease and oil. This ensures long-time lubrication of all movable parts.

Disassembly, cleaning and oil change are not necessary.

### 6.4 Chain drive

Depending on the strain, the tension of the chain drive has to be checked and greased at regular intervals. Commercially available chain grease can be used for lubrication.



### Note

Check the chain tension at regular intervals.

To do so, remove the chain protection hood and clean off the dirt and remains of old lubricant from the pinion and chain. Then mount the chain protection hood again.



### Caution

Before putting into operation again, check that the chain protection hood is properly in place.

### 6.5 Deflection pulleys, driving and supporting rollers

If the rollers are soiled, clean them with spirit and a clean lint-free cloth. To clean conveyor belts used for foodstuffs, use an authorised spirit substitute.



### Caution

Make sure there is proper ventilation! Wear protective clothing!

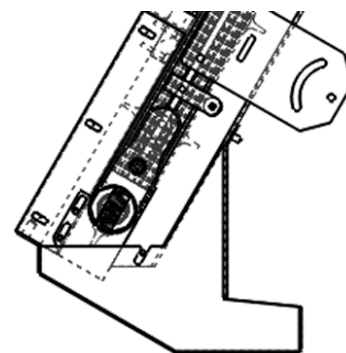
## 6.6 Environmental influences

When installing the conveyor belts, take care that the belts are not exposed to strong heat radiation. Please observe the permissible temperatures for the belts (see brochure), otherwise, the belts could expand and slip on the driving rollers.

Keep oil, shavings, etc. away from the conveyor belts.

## 6.7 Collecting funnel

During production, parts can get into the returning run. These fall onto the floor or are collected in a collecting funnel, from where they have to be removed regularly. If the pieces are not removed, they can cause trouble and damage.



## 7 Stockkeeping of Spare Parts and Customer Service

For an overview of the available spare parts, please refer to the separate spare parts sheet.

In order to guarantee that your order is carried out quickly and correctly, please always indicate the machine type (see type plate), required number of pieces as well as name and number of the spare part.

You can find a list of service addresses on the back cover.

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