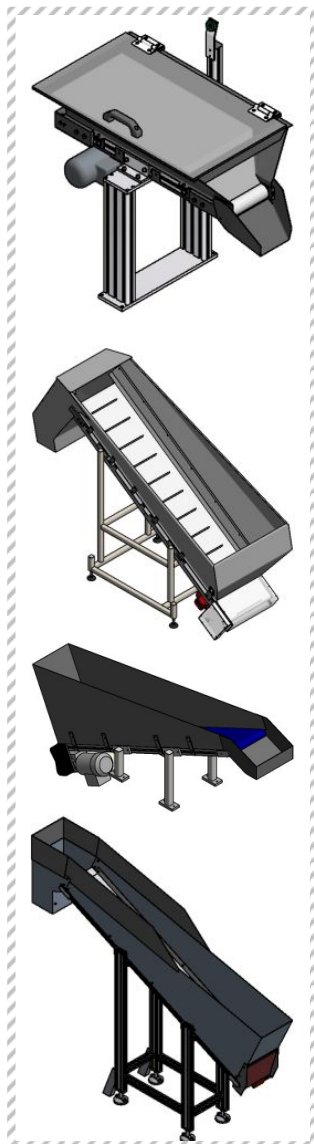


## Operating instructions Belt Hopper / Inclined Belt Hopper



Types

:

BB-5  
BB-50  
BB-100  
SBB-150  
SBB-200  
SBB-300

## Table of contents

| Chapter .....  | Seite                           |
|--|---------------------------------|
| <b>I. General Information.....</b>                                   | <b>3</b>                        |
| <b>II. Structure and function description .....</b>                  | <b>4</b>                        |
| a) Transport & mounting .....  | 5                               |
| b) Starting.....   | 6-7                             |
| c) Troubleshooting.....  | 8                               |
| <b>III. Maintenance and cleaning .....</b>                           | <b>9</b>                        |
| <b>IV. Maintenance.....</b>  | <b>10</b>                       |
| d) Tension / adjust the belt.....                                    | 11-12                           |
| e) Change belt .....   | 13                              |
| f) Change gearmotor.....   | 14                              |
| <b>V. Safety instructions .....</b>                                  | <b>15</b>                       |
| g) Safety guidelines .....   | 15-16                           |
| h) Residual risks relating to the machine.....                       | 17                              |
| <b>VI. Technical data.....</b>                                       | <b>see project BOMs</b>         |
| <b>VII. Manufacturer.....</b>  | <b>18</b>                       |
| <b>VIII. Appendix .....</b>  | <b>(Only included on CD) 19</b> |
| i) Documentation Conveyor manufacturer (if additional purchase)..... | Appendix 01                     |
| j) Operating instructions of the drive motor.....                    | Appendix 02                     |
| k) Operating Instructions Frequency converter (if supplied).....     | Appendix 03                     |
| l) Other Accessories (if supplied).....                              | Appendix 04                     |

## General Information

### Symbols

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#### **Notice**

This icon marks notes, which contain information for proper operation.

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#### **Attention**

This symbol is found in all safety instructions in this manual, where there is danger to life and limb in front of people. These notes and behave in such cases special care. Pass on all occupational safety tips to other users. In addition to these instructions, the general safety and accident prevention rules are considered.

---

### Introduction

This information should be read by those understood and complied with in all respects responsible for the machine.

This manual should always be kept near the machine.

A careful reading of this manual is particularly important, as the producer for damage or disruption, which result from the failure to observe the operation, no liability.

This manual, technical changes designed to improve or technical progress is reserved.

### Application and use

The device is designed only to be described in this document functions and services. Any other use is considered improper. Shall not be liable for damages resulting from the manufacturer. The risk is on the user.

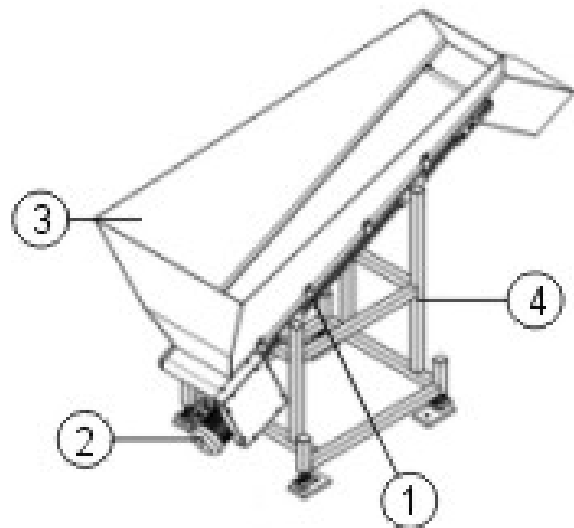
### **Non-observance of the warranty!**

## Structure and function description

A Belt Hopper is a device to store solid conveyed goods (piece goods) in automation technology.

The basic structure of a conveyor belt consists of the following elements:

- Pos. 1 = Conveyor belt body
- Pos. 2 = Drive motor
- Pos. 3 = Hopper tray
- Pos. 4 = Underframe



The material to be conveyed is filled into the bunker trough of the belt bunker by an operator, transported further lying on a conveyor belt, and discharged by gravity into the outlet of the belt bunker into a downstream device.

The belt body of the conveyor belt consists of an extruded aluminum profile, each with a drive roller and a deflection roller. A conveyor belt tensioned parallel between the drive roller and the deflection roller serves as the conveyor element of the conveyor belt. The drive roller is driven by a worm gear motor.

The conveyor belt is mounted on a base frame so that it either conveys horizontally or diagonally upwards. Differences in height can thus be bridged. Depending on the material being conveyed and the gradient, either smooth, nubbed or conveyor belts with drivers are used. Different belt widths and bunker trays allow different filling volumes.

Different filling volumes can be achieved through different belt widths, belt lengths and bunker trays.

## Transport & Mounting

### Transport

Any transport of the device must be carried with the necessary caution to prevent damage from rough or careless loading and unloading. Depending on the type of transport corresponding transport Fuses must be provided.

If the unit is stored, so care must be taken to carefully cover against moisture, dirt and dust. Bare metal parts shall be preserved against rust. This conservation must be checked from time to time and to replace if necessary.



### Attention

**Do not throw, do not drop! Any fall can result in damage and / or malfunction.**

### Mounting

#### Installation conditions:

The conveyor belt is delivered fully assembled, and can be equipped with different strap stands depending on the application:

- Devices with individual stand feet can be screwed directly onto a base plate of the feeder.
- Freestanding units with height-adjustable underframe can be placed on the floor at the point of use and adjusted in height to the requirements. If the undercarriage is equipped with wheels, always operate the wheel parking brakes after positioning at the installation site in order to prevent uncontrolled rolling away of the device.



### Notice

When installing the conveyor belt, make sure that a sufficiently large clearance to other, especially vibrating equipment is maintained.

During the subsequent dosing for vibrating conveyors, it must be ensured that the parts fed in by the conveyor belt do not fall onto the conveyor spiral or the sorting area, thereby impairing the device function.

When installing the unit, make sure that the load capacity of the undercarriage and floor is sufficient.

The environment of the device should provide sufficient space for maintenance, operation and repair.

**Starting****Notice**

**Before starting, ensure that the above points being >>Transport & Mounting<< complied with and monitored.**

**Connection:****Attention**

**Incorrect connection of the motor is a danger to life.**

This work may only be carried out by qualified personnel in compliance with all safety and local regulations. It is essential to check that there are no unauthorized persons in the danger area of the machine.

- Connecting cables must be protected.
- Plugs and cables may only be connected by trained electricians.
- The plug and terminal board of the motor may only be opened by qualified electricians.
- Cables may only be shortened or extended by qualified electricians.
- Only use flawless material according to the rules of technology.
- Connection voltages and directions of rotation must be checked.
- When connecting the device, comply with the regulations, instructions and circuit diagrams of the motor manufacturer.
- When using a frequency converter, comply with the instructions, instructions, and wiring diagrams of the drive manufacturer.
- Check whether the available supply voltage complies with the information on the nameplate of the motor.
- After connection to the electrical network, the running direction of the conveyor belt must be checked and, if necessary, corrected by interchanging two outer conductors.

## Starting



### Notice

**Before starting, ensure that the above points being >>Transport & Mounting<< complied with and monitored.**

### Function control:

Check the straight run of the conveyor belt. The procedure for a correction can be found in Chapter IV >> Tightening / adjusting the belt <<.

Observe the function under load as intended and specified over a period of 15 minutes. Defects caused by transport damage or improper handling can be identified and corrected before the device is handed over to production.

### Belt tension

The conveyor belt is factory pre-adjusted in terms of tension and straight running. Under load, the conveyor belt may lengthen over time, which must be corrected by readjustment (see Chapter IV >> Tightening / adjusting the belt <<).

### Control of the belt tension

After a period of 2 days, check the belt tension and the straight runout (see chapter IV >> Tightening / adjusting the belt <<).



### Notice

**Before Starting are additionally perform the following checks and actions:**

| No. | Module      | Action   |
|-----|-------------|--|
| 1   | Belt Hopper | Check for safe standing                                  |
| 2   | Belt Hopper | Check for damage   |
| 3   | Belt Hopper | Check conveying direction, belt tension & straight-ahead |
|     |             |  |

## Troubleshooting

The following faults can occur during operation:

| No. | Location      | Description                    | Cause   | Rectification  |
|-----|---------------|--------------------------------|---|--|
| 1   | Motor         | Drive motor is not running     | Fuse defective<br>Mains connection missing<br>Connection cable damaged    | Replace fuse<br>Make mains connection<br>Replace connecting cable                                |
| 2   | Motor         | Drive motor gets hot           | Ventilation grid clogged  | Clean the ventilation grille   |
| 3   | Conveyor belt | Conveyor belt does not support | Torn conveyor belt<br>Conveyor belt slips through<br>Conveyor belt jammed | Replace conveyor belt<br>Clean conveyor belt<br>Tension the conveyor belt<br>Eliminate deadlocks |
| 4   | Conveyor belt | Conveyor belt runs off-center  | Drive and / or pulleys not aligned  | Set the straight-line runout of the conveyor belt  |
|     |               |                                |   |  |



## Maintenance and Cleaning



### Notice

The conveyor belts are virtually maintenance-free. However, the following checks and maintenance should be carried out at regular intervals:

- The bearings are low maintenance. If necessary, follow the instructions of the bearing manufacturer.
- The engine is maintenance free.
- The conveyor belt must be cleaned regularly and checked for damage.



### Attention

**For all maintenance and inspection work the chapter >>Safety instructions<< is to be noted.**

Malfunctions are caused by inadequate or improper maintenance can result in very high cost. Regular maintenance is essential.

Due to the different operating conditions, a general definition of the maintenance and inspection intervals is not possible. Taking into account the operating conditions of an appropriate routine is set.

### Cleaning:

It is recommended that the unit regularly, for example, after each end of the shift to clean thoroughly of dirt, debris and possibly falling down. Coatings, such as made of polyurethane, conveyor brush or other product specific surface coatings must be cleaned with non rückfettendem cold cleaner. Coatings in pharmaceutical goat right equipment should be cleaned with pharmaceutically acceptable cleaning agents.

### Wear control:

Wear parts, that is all parts that move against each other or come into contact with are conveyed to check from time to time for wear and, if necessary readjust or replace.

**Maintenance****Wear parts procurement:**

The wearing parts are marked with a **V** in the assembly parts lists in the appendix.  
All wearing parts can be requested and ordered from us.

**Procurement of spare parts:**

The spare parts are marked with an **E** in the assembly parts lists in the appendix.

Only original spare parts may be used. DIN parts can be ordered from specialist retailers.

**Tighten / adjust the belt****Notice**

A correctly tensioned belt lies flat on the sliding plate during the run, does not build up on the inlet side, and can be easily moved by hand. A slight bump near the endless connection of the belt is normal.

**Requirement:**

- Machine is out of service.
- Machine is secured against reconnection

**Attention**

**Danger of injury due to exposed machine parts!**  
**Rotating machine parts can draw in body parts, hair and clothing and cause bruising.**

- Wear snug clothing.
- For long hair wear hairnet.
- Have a second person supervised.

**Notice**

Depending on the design of the conveyor belt different methods for belt tension are used. The following versions are possible:

**■ Conveyor belt with mounted shaft journals:**

In this embodiment, pulley and journals form a unit and are rotatably mounted with the journals in the pendulum ball bearings of the lateral cheeks. The belt tension is adjusted by adjusting the cheeks with a pressure screw.

**■ Conveyor belt with mounted deflection roller:**

In this embodiment, the guide roller with ball bearings is rotatably mounted on the axle and the axis is guided adjustably within guide grooves of the lateral cheeks. The belt tension is achieved by a screw spindle inside the cheeks.

## Tighten / adjust the belt

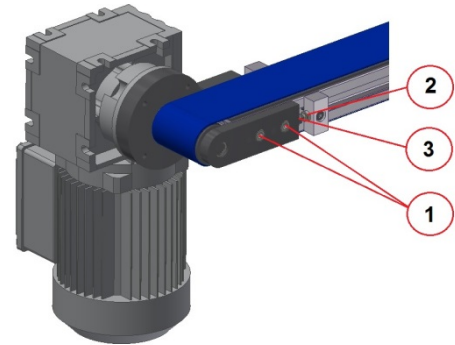


### Notice

Please check the execution of your conveyor belt before starting work and carry out the belt tension according to the following instructions:

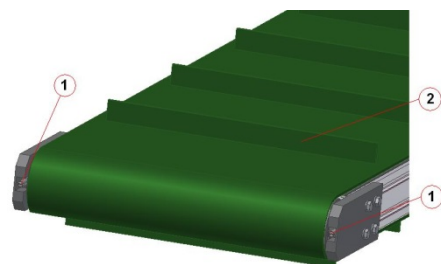
#### Conveyor belt with mounted shaft journals:

- 1.) Release the connecting elements (1) on both sides.
- 2.) Release the locknuts (2) on both sides.
- 3.) By turning the hexagonal screws (3) evenly on both sides, tighten the belt.
- 4.) Tighten the locknuts (2) and the connecting elements (1) on both sides.
- 5.) Turn on the machine.
- 6.) Check for correct running behavior.
- 7.) Turn off the machine.
- 8.) Repeat steps 1 to 4, if necessary, until the belt shows a correct running behavior.



#### Conveyor belt with mounted deflection pulley:

- 1.) Tighten the belt (2) by turning the setscrews (1) uniformly on both sides.
- 2.) Turn on the machine.
- 3.) Check for correct running behavior.
- 4.) Turn off the machine.
- 5.) Repeat steps 2 to 5 until the belt shows a correct running behavior.



## Change conveyor belt

### Requirement:

- Machine is out of service.
- Machine is secured against reconnection



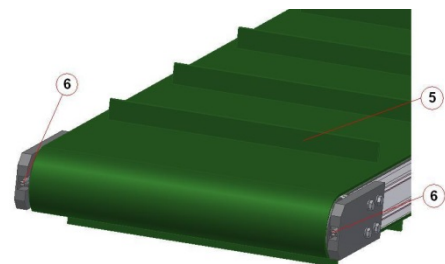
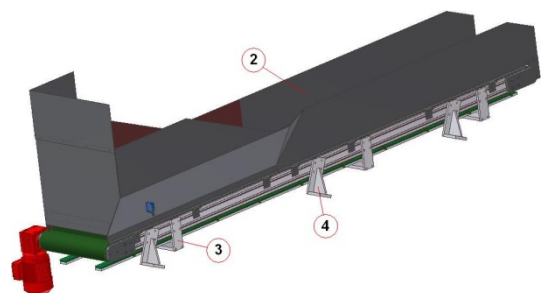
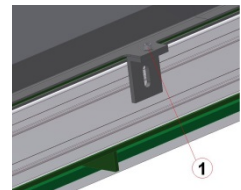
### Attention

**Danger of injury due to exposed machine parts!**  
**Rotating machine parts can draw in body parts, hair and clothing and cause bruising.**

- Wear snug clothing.
- For long hair wear hairnet.
- Have a second person supervised.

### Perform the following steps:

- 1) Remove all belt assemblies (1) such as side guides or bunker tray (2).
- 2) Completely remove closed lower runner cover or remove holder (3) for lower belt guide on one side.
- 3) Relax the belt, see previous page in the chapter "Tensioning / adjusting the belt"
- 4) Remove conveyor belt feet (4) on one side.
- 5) Remove damaged strap (5) and replace replacement strap.
- 6) Reassemble the belt feet, lower belt cover and side guides.
- 7) Tighten the new belt, see previous page in chapter "Tensioning / adjusting the belt"
- 8) Turn on the machine.
- 9) Check for correct running behavior.
- 10) Turn off the machine.
- 11) Repeat steps 7 to 10 until the belt shows a correct running behavior.



## Change gearmotor



### Notice

Deviating from the illustrations, the engine position can vary. Depending on whether a modified torque arm may be present.

Shown is the motor position M2 and the motor type WA (SEW Eurodrive GmbH).

### Requirement:

- Machine is out of service.
- Machine is secured against reconnection
- Gearmotor has cooled



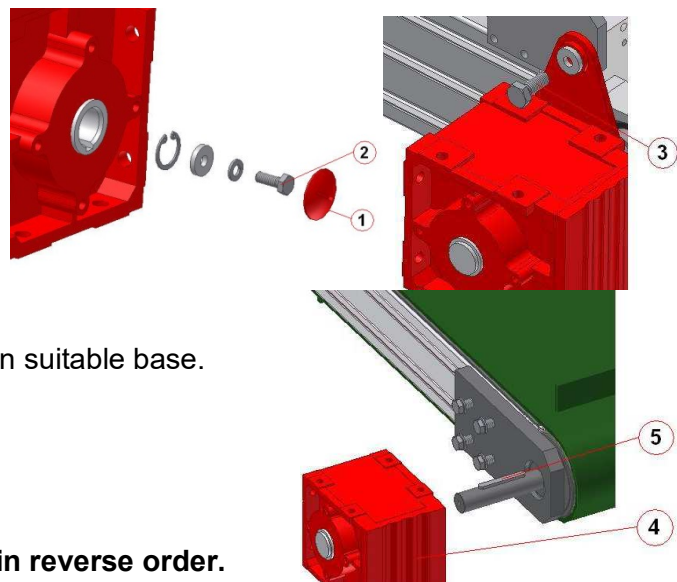
### Attention

**Increased risk of accidents! Motor can tip over and squeeze body parts.**

- Secure the gearmotor against falling down.
- Remove gearmotor with hoist and put on.

### Perform the following steps:

- 1) Remove all electrical connection lines on the gearmotor.
- 2) Remove cap (1).
- 3) Remove connecting elements (2).
- 4) Remove connecting elements (3).
- 5) Pull gearmotor (4) off pin and place on suitable base.
- 6) If necessary, remove feather key (5).



**The replacement gearmotor is installed in reverse order.**

**Safety instructions****Attention**

**The following work safety instructions must be observed especially:**

- *The device is designed according to state of the art and reliable. This equipment may constitute a hazard if it is used improperly or by untrained personnel to improper use.*
- *Any person who is involved in the installation, dismantling, operation and maintenance of the unit must have read and understood the entire manual.*
- *Users are recommended to have this confirmed in writing.*
- *The unit is designed exclusively for the functions and operations described in this operating manual. Any use deviating is considered improper. The manufacturer is not liable for any resulting damage. The risk is borne solely by the user.*
- *Intended use also includes the observance of imposed by manufacturers and component suppliers for installation, commissioning, operation, tool change and maintenance conditions.*
- *The device may be operated, serviced and repaired only by authorized, trained and instructed personnel. These personnel must have received special about possible dangers.*
- *The responsibilities for the installation, commissioning, operation, tool change and maintenance must be clearly defined and adhered to so ambiguous competencies in terms of security.*
- *It is to refrain from any operation that affects the safety of the device.*
- *The operator has to make sure that unauthorized people do not work on the device.*
- *The operator is obliged to report any changes that occur to the equipment that may affect the security immediately.*
- *The user company must ensure that the device is only operated in sound condition.*
- *The user company must ensure, through the orders and checks for cleanliness and clarity of the jobs on and around the unit.*

**Safety instructions****Attention**

- *It must never be disassembled safety equipment or inoperative.*

**Failure to comply with this notice may be fatal!**

- *If dismantling of safety equipment during repair and maintenance work required, must be made immediately after completion of the work the reassembly of the safety devices.*
- *The proper installation and functioning of the safety devices must be checked before using the equipment.*
- *Unauthorized modifications and changes which affect the safety of the appliance are not permitted.*
- *All work on the unit must always be carried out only at a halt.*
- *Before starting any work on the unit with drives and ancillary equipment must be secured against accidental operation.*
- *After proper electrical installation or repair the protective measures are used to test (eg grounding resistance).*
- *To operate the device, the local safety and accident prevention regulations apply in every case.*
- *The vibratory bowl feeder may not be employed in the Ex area or water area.*

**Attention****Elektromagnetic Field**

For persons with heart pacemakers the influence of the electromagnetic field is possible. It is therefore recommended that individuals maintain a minimum distance of 25 cm.



## Residual risks relating to the machine



### Attention

From the following areas goes to the extent described in all operating and maintenance a possible threat from:

| No. | Designation   | Possible hazards   | Comment  |
|-----|---------------|--|--|
| 1   | Conveyor belt | Electric shock   | Open control unit only with switched off power supply.   |
| 2   | Conveyor belt | Clamping / crushing  | Disconnect the control unit from the drive before engaging in the drive.                             |
| 3   | Conveyor belt | Influencing heart pacemakers by electromagnetic field  | Safety distance of min. 25 cm.   |
| 4   | Conveyor belt | Malaise / discomfort / headache by:<br>- noise<br>- vibration  | - Use hearing protection<br>- Use sound insulation hood<br>- Increase distance to the running device |
| 5   | Conveyor belt | Risk of injury to the eyes and / or other parts of the body by:<br>- Airflow or spewing particles (only on devices with air support) | - Put on protective goggles<br>- Wear personal protective equipment                                  |
|     |               |  |  |

**Manufacturer****Manufacturer of the belt hopper (complete unit incl. Superstructures):**

Third-party conveyor belts see Annex 01, Operating Instructions of the belt manufacturer.

**FMB GmbH**

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**Declaration of conformity**

as defined by Low voltage directive 2014/35/EU

Herewith we declare, that the product complies with the following provisions:

- Low voltage directive 2014/35/EU

Applied harmonized standards:

- DIN EN 60204 T1

**Remarks:**

We assume that our product is to be integrated in a fixed machine. The provisions of the EMC directive 2014/30/EU has to be considered by the user.

**FMB GmbH**

Manager: Hartmut Striepe, Edwin Neue



Operating instructions Belt Hopper / Inclined Belt Hopper

Date: 12/2019

Technical changes and misprints excepted.

**Appendix**