



## Operating instructions Combination feeding block



Types : KZB-10  
KZB-25  
KZB-60  
KZB-100  
KZB-150

with electromagnetically driven discharging chute

<b>Table of contents</b>
--------------------------

<b>Chapter</b>	<b>Page</b>
<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
c) Adjustment	7
d) Installation instructions for oscillating springs	8
e) Installation instructions for oscillating magnetic	9
f) Troubleshooting	10
<b>III. Maintenance and cleaning</b>	<b>11</b>
<b>IV. Safety instructions</b>	<b>12</b>
g) Safety guidelines	12
h) Residual risks relating to the machine	14
<b>V. Technical data</b>	<b>15</b>
<b>VI. Manufacturer</b>	<b>16</b>
<b>VII. Appendix</b>	<b>17</b>
i) Data delivery	Appendix 01
j) Operating instructions Control unit (if included)	Appendix 02
k) Operating instructions bowl feeder (if included)	Appendix 03
l) Operating instructions linear buffer sections (if included)	Appendix 04
m) Other accessories	Appendix 05

## General Information

### Symbols

---



#### **Notice**

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

---



#### **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!**

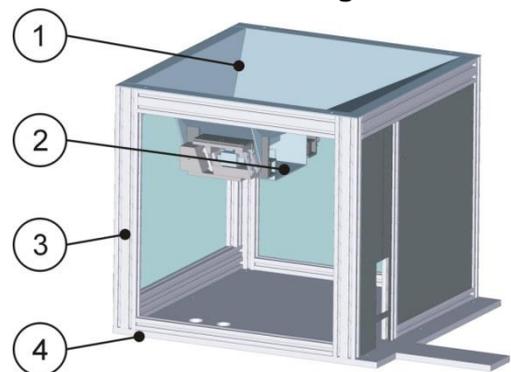
## Structure and function description

The Combination feeding block is a compact feeder unit for industrial mass parts, and is used to store the supplied workpieces to save space and dosed fed to a sorter.

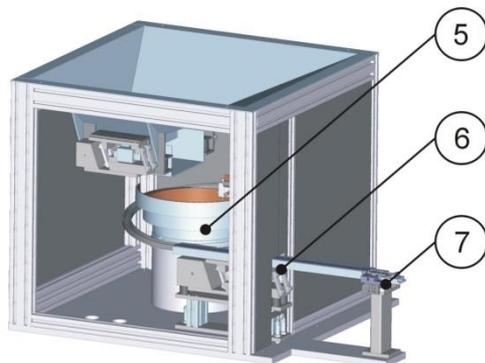
The emptying process of the static storage bunker integrated in the KZB takes place by means of a below-arranged electromagnetically driven discharging chute according to the micro-throw principle. The spring-mounted discharging chute is set into mechanical vibration by means of a vibrating magnet and thus used to empty the storage bin.

**The basic structure of a Combination feeding block consists of the following elements:**

- Pos. 1 = Static storage bunker
- Pos. 2 = Electromagnetically driven discharging chute
- Pos. 3 = Basic frame with sound enclosure
- Pos. 4 = Baseplate



**Depending on the equipment, additional supply components may be installed in a combination feed block:**



- Pos. 5 = Sorter  
(e.g. Vibratory bowl feeder or turntable conveyor)
- Pos. 6 = Buffer zone  
(e.g. Linear vibratory conveyor or conveyor belt)
- Pos. 7 = Singulation



### Notice

**These operating instructions refer in the following exclusively to the function of the integrated storage bunker and the electromagnetically driven discharging chute.**

Depending on the equipment and scope of the ordered system, further operating instructions of the integrated individual components are required (see appendices).

## 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

The combi feeding block must not be lifted and / or transported on the silencer hood.

### Mounting

#### Installation conditions:

When installing the unit, make sure that the load-bearing capacity of the frame used and the soil is sufficient.

The combi feeding block is bolted to a base frame with appropriate mounting screws.

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



### Notice

When installing, make sure that the integrated electromagnetic discharge chute can swing freely.

That means, there must be a sufficiently large air gap between the oscillating discharge chute and the static environment.

## Starting



### Notice

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

### Connection:



### Attention

This work may only be performed by qualified personnel in compliance with all safety and local regulations. The control over that no unauthorized persons are in the danger zone of the machine are located is important faults. Connection lines must be protected. Terminal voltages and directions of rotation must be checked.

The connection of the device must be installed according to the information under >>Technical Data<<, or the data plate.

Check if the available supply voltage matches the specifications on the nameplate of the unit.

Make sure that the upstream control or regulating device has been switched to the correct output frequency.  
(See also >>Technical Data<< bzw. Appendix 01 >>Delivery Data<<)



### Notice

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

Nr.	Pos.	Module	Action
1	1	Storage hoppers	Sufficient number of the transported material refill. Check for foreign objects and jammed material.
2	2	Discharging chute	Check for free movement. Check for foreign objects and jammed material.

## Adjustment

A proper tuning of the vibration system is essential for optimal operation of the device. This note is recorded as vibrating conveyors of series BSR-2 by the number of springs.



### Notice

**When tuning the vibration system with vibration drive BSR-2, proceed as follows:**

- a) Please first check whether the correct control unit is connected.
- b) Screw off the side cover plates (if present) Tighten all spring fastening screws and bowl fastening screws (100 Nm).
- c) Check the type and frequency of the magnets on accuracy.
- d) Check magnet spacing and adjust if necessary.
- e) Switch vibratory feeders and adjust regulator to 90%
- f) Loosen the lower fastening screw at one of the spring assemblies (approx.  $\frac{1}{4}$  -  $\frac{1}{2}$  rotation). While the spring fastening screw is loosened, you can see a change in the conveying speed; it follows:
  - g) Running speed is lower: Install Additional springs. First, a spring in a spring assembly; should not suffice this, installing additional packages at the individual spring gradually ever a spring with intermediate plate.
  - h) Running speed is greater: Remove feathers. Functioning in the same order as in the installation of the springs.

If the conveying speed at the periphery of the conveyor pot is not uniform, it must:

    - i) a spring needs to be taken out of the slow site.
    - j) a spring has to be installed in the quick site.

If the rough running between two sets of springs, so must be seen in the direction, be installed or removed behind the rough running either a spring.

## Installation instructions for oscillating springs



### Notice

**If springs are broken due to fatigue or overuse, it is advisable to replace all the springs.**

### Leaf springs

The number of springs is determined by the spring constant, the frequency, the conveying speed and the weight ratio.

There are as many springs to install as were available in the delivery state.  
(See Appendix 01 >>*Delivery Data*<<)

For plastic springs (GfK) occur abrasion phenomena. With steel springs is to pay attention to hairline cracks. Only flawless springs can be used again.

With additional installation of leaf springs, sufficiently long screws should be used.

When replacing the mounting bolts are initially just as hard to pull that off, the springs can not move.

The linearity of the upper spring bracket for lower spring bracket must be guaranteed. Then tighten all bolts with the appropriate torque.  
(See >> *Adjustment*<<).

### Rubber springs

In some vibrating drives spring elements made of rubber (vibration metal buffer) are installed to couple the vibrating masses together.

Vibration metal buffers can age over time and then become hard and brittle. Here the material fatigue is shown by visible cracks in the rubber element.

When exchanging vibration metal buffers, it is important to install only those with the same Shore hardness as were available in the delivery state.  
(See Appendix 01 >>*Delivery Data*<<)

## Installation instructions for oscillating magnetic

1. First pour a few conveyor parts in the discharging chute.
2. Setting the magnets at the same distance as in the delivery state.  
(See Appendix 01 >>Delivery Data<<)



### Notice

**It is important that the surfaces of the magnet and armature are parallel.**

**Then all screws (including springs) must be tightened.  
The screws should not be stretched.**

3. Knob to "max." , and switch device. Magnets and armature must not touch during the run. (Sample: on an inserted between the magnet and anchor strip of paper no pressure points may begin to emerge.) Where appropriate distance between magnet and armature gradually enlarge.
4. Now the device is loaded with the usual capacity and the control set at about 2/3 of the scale range. Will cause it to more parts being promoted as needed or it is found that the parts jump on the spiral, the conveyor speed by increasing the distance between magnet and armature must be reduced. It is important to ensure that the max. Spacing is not exceeded.

## Troubleshooting

The following faults can occur during operation:

Nr.	Location	Description	Cause	Rectification
1	Discharging chute	Flow rate is insufficient:	too little material to be conveyed in the buffer	Conveyed refill and check conveyor line
2	Discharging chute	Conveyor is not running when you turn on:	<p>Plug not in socket</p> <p>Connection cable between vibratory feeders and control unit not in the control section housing</p> <p>Fuse defect</p> <p>Level detection of vibrating bowl feeder (if any) occupied or out of adjustment</p>	<p>Insert the plug</p> <p>Insert the plug, regulate power</p> <p>Replace the fuse</p> <p>Check level query and adjust if necessary</p>
3	Discharging chute	Vibrating conveyor no longer brings after a certain term of the required performance:	<p>Loose screws on the spring packs</p> <p>Less mounting screws for the vibrating system</p> <p>Adjusted magnetic gap</p> <p>Broken springs</p>	<p>Tighten the screws</p> <p>Tighten the screws</p> <p>Set the magnetic gap correctly</p> <p>Replace broken springs</p> <p>Re adjust the suspension</p>
4	Discharging chute	Conveyor developed strong noises:	<p>Lateral cover plates (if present) loose</p> <p>Foreign body in the magnetic gap (chips, conveyed, dust)</p>	<p>Tighten cover plates</p> <p>Shutdown and remove foreign body</p> <p>Check the magnet gap adjustment</p>
5	Discharging chute	Vibrating conveyor does not run in areas of Scale slider:	Potentiometer defect	Replace control unit

<b>Maintenance and Cleaning</b>
---------------------------------



## Notice

The oscillating drive of the discharging chute is virtually maintenance free. The following inspections and maintenance should also be carried out at the indicated time intervals:

No.	Module	Action	Frequency
1	Discharging chute Feeder -Drive	- Check for unusual noises	daily
2	Discharging chute	- Control of the conveying behavior	daily
3	Discharging chute	- Control for contamination - Cleaning the treads of the transported material - Eliminating foreign parts	daily



## 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.

## 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:

Nr.	Designation	Possible hazards	Comment
1	<i>Oscillating drive</i>	<i>Electric shock</i>	<i>Open Control unit only when the power is off.</i>
2	<i>Discharging chute</i>	<i>Clamping / crushing</i>	<i>Disconnect the control unit from the drive before engaging in the drive.</i>
3	<i>Oscillating drive</i>	<i>Influencing heart pacemakers by electromagnetic field</i>	<i>Safety distance of min. 25 cm.</i>
4	<i>Oscillating drive / Discharging chute</i>	<i>Malaise / discomfort / headache by:</i> <i>- noise</i> <i>- vibration</i>	<i>- Use hearing protection</i> <i>- Use sound insulation hood</i> <i>- Increase distance to the running device</i>

## Technical Data

Combination feeding block Type:	KZB-10	KZB-25	KZB-60	KZB-100	KZB-150
<b>Storage buffer:</b>					
Filling volume max.:	10 Liter	25 Liter	60 Liter	100 Liter	150 Liter
Filling weight max.:	20 Kg	50 Kg	80 Kg	100 Kg	120 Kg
Coating:	See Appendix 01 >>Delivery data<<				
<b>Discharging chute</b>					
Coating:	See Appendix 01 >>Delivery data<<				
<b>Oscillating drive</b>					
Type:	See Appendix 01 >>Delivery data<<				
Pieces:	See Appendix 01 >>Delivery data<<				
<b>Electrical connection:</b>					
See Appendix 01 >>Delivery data<<					
<b>Mechanical adjustment:</b>					
See Appendix 01 >>Delivery data<<					



### Notice

Due to individual designs and the various drive types, please refer to the exact version of the vibration drive and the other technical data in the corresponding annexes to these operating instructions.

**Manufacturer**

**Manufacturer of oscillating drive:**

**FMB GmbH**

Arndtstraße 18

D-38120 Braunschweig

Tel.: +49 531 88505-0

Fax: +49 531 85 263

E-Mail: [info@fmb.de](mailto:info@fmb.de)

Internet: [www.fmb.de](http://www.fmb.de)



**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



**Manufacturer of oscillating construction (only in complete units from the factory FMB):**

**FMB GmbH**

Arndtstraße 18

D-38120 Braunschweig

Tel.: +49 531 88505-0

Fax: +49 531 85 263

E-Mail: [info@fmb.de](mailto:info@fmb.de)

Internet: [www.fmb.de](http://www.fmb.de)

Operating instructions Combination feeding block KZB

Date: 03/2018

Technical changes and misprints excepted.

Appendix