

Operating Instructions
Bunker Feed System „BZS“



BZS 50/55
BZS 70/55

FB.-No.: _____
Customer: _____
Date: _____

Contents

	Page
1. Safety Instructions	
1.1 General	1
1.2 Danger from the machine	2
1.3 Noise emission	2
1.4 Authorized applications	2
1.5 Take special care	2
2. Transport	
2.1 Transport	3
2.2 Storage	3
3. Installing and Starting up	
3.1 Installing the BZS with VZ and aluminium base plate	4
3.2 Installing the BZS without a VZ	4-5
3.3 Starting up	5
4. Technical Data	
4.1 Motor	6
4.2 Dimensions, weights	6
4.3 Dimensions of additional bunker (accessory)	6
5. Description of Machine	
6.1 Construction	7
6.2 Side view	7
6.3 Operating method	7
6. Maintenance	
8.1 Container	8
8.2 Conveyor belt	8
8.3 Conveyor band motor	8
8.4 Frame	8
7. Accessibility to the Vibration Rotary Conveyor	9
8. Replacing a Belt	10-11
9. Malfunctions	12-13
10. Accessories	
10.1 Mechanical accessories	14
10.2 Electronic accessories	14
11. Spare parts	15
Declaration of incorporation	16

1. Safety Instructions

1.1 General

This description contains the necessary information for the intended use of the products described therein. This description is directed to technically qualified personnel.

Qualified personnel are persons who are authorized by the one responsible for the safety of the system to carry out their respectively necessary jobs on the system based on their education, experience and training, as well as their knowledge of the standards, regulations, accident prevention regulations and operating conditions, and who can detect and avoid any possible hazards thereby (definition for qualified personnel according to IEC 364).

Hazard information

The following information serves for the personal safety of the operating personnel as well as the safety of the described products and the devices connected to them.



ATTENTION!

Non-observance can lead to personal injury or damage to the device.



WARNING!

Danger - High voltage.

Non-observance can lead to death or serious bodily injury.



NOTE:

Application tips and important information for using the device are given here.

Disconnect the power supply before installation or deinstallation.

Observe the valid accident prevention and safety regulations specific to the application.

Before commissioning, check whether the nominal voltage of the device agrees with the local mains voltage.

Emergency shut-down equipment must remain in effect in all operating modes. Unlocking the emergency shut-down equipment must not result in an uncontrolled restart.

Any existing protective equipment must not be removed.

1. Safety Instructions

1.2 Danger from the machine

Mechanics:

Because the conveyor belt rotates, parts of the body or parts of clothing can be drawn in.

Electronics:

If the electrical equipment is in good working order, no danger may be expected.

1.3 Noise emission

The bunker feed system noise level is mainly determined by the vibration feed equipment used and the workpieces being processed. For this reason, valid details of the noise level according to the EU Guideline 'Machines' cannot be given. These can only be ascertained when the machine is in use at its place of operation.

Because of the BZS's integral noise protection cover, noise from the conveyor belt and the vibration feed unit is greatly reduced.

If however, the noise level exceeds the permitted level, suitable noise prevention measures must be taken.

1.4 Authorized applications

The bunker feed system must not be used in explosive areas!

The BZS is designed to bunker dry bulk material and to pass it automatically to a vibration feed unit located underneath, as and when required.



ATTENTION!

Improper use can lead to damage to the unit.

1.5 Take special care

The bunker feed system is adjusted for a maximum loading of 100 kg (BZS 50/55) or 150 kg (BZS 70/75). These weight limits are also valid when the BZS is fitted with an auxiliary bunker (available as an accessory). On no account should the BZS be allowed to run overloaded.



ATTENTION!

If the figures for maximum loading are exceeded, damage could be caused to the unit.

2. Transport and Storage

2.1 Transport

The bunker feed system is available not only as complete item with a VZ vibration feed unit but also without a VZ for addition to an existing machine.

The bunker feed system with a vibration feed unit comes mounted on an aluminium base plate which is equipped with ring bolts for easy handling. When attaching ropes for transporting, ensure that these do not lie against the bunker feed system so as to damage it. Use a crane with a transporting arm.

The bunker feed system without a vibration feed unit is mounted on two wooden spars. For transport, pull the container (see chapter 7) off in an upwards direction. The rope for transporting can now be attached to the exposed support ring (see chapter 7).



ATTENTION!

- ensure that the crane and the ropes used are suitable for the weight of the bunker feed system (see chapter 4 and if necessary the vibration feed unit Technical Data).
 - ensure that all ropes are in first class condition.
 - do not stand underneath the load that is being lifted.
- Ignoring this warning can lead to injury to persons or damage to the unit.

2.2 Storage

If the bunker feed system unit is stored for a long period of time it must be protected from damp and aggressive agents.

Excessive variations in temperature should be avoided.

3. Installing an Starting up

The bunker feed system must be mounted on a stabile and vibration resistant foundation (for example, standing column, frame). The permissible ambient temperature (0° C to 40° C) and relative humidity (15% to 95%) must be observed. Strong magnetic fields in the proximity of the machine can lead to malfunctioning.

3.1 Installing the BZS with VZ and aluminium base plate

Proceed as follows:

1. Attach the transporting rope to the ring screws on the base plate.
Take care that the rope does not rest against the BZS (see chapter 2.1).
2. Lift the BZS with a crane onto the proposed foundation and adjust its positioning.
3. Screw the BZS base plate to the foundation.
Screws have to be inserted from underneath, after the necessary boreholes and threads have been made. The position of screwing is freely selectable but care must be taken when drilling and tapping that the vibration feed unit or electricity cables are not damaged.
If it is not possible to screw from below, dismantle the bunker feed system (see chapter 7) in order to be able to make the boreholes and threads.

3.2 Installing the BZS without a VZ

Proceed as follows:

1. Set the completely assembled vibration feed unit on the proposed foundation and secure it in accordance with its operating instructions.
2. Dismantle the bunker feed system (see chapter 7).
3. Unscrew the detachable metal panel from the noise protection cover.
4. Set the base and the bunker feed system noise protection cover over the vibration feed unit so that it stands freely and presents the vibration bowl mouth to the noise protection cover opening.
5. When working with the detachable part of the noise protection cover ensure that it does not rest against the vibration feed unit outflow.
6. Remove the noise protection cover and screw the base to the proposed foundation.
7. Pull the noise protection cover over the base and replace the metal panel.
8. Mount the sliding doors and the support and replace the container.
9. Turn the container so that the bulk material falls onto the desired place in the vibration feed unit. If necessary, move the conveyor belt after first having loosened the four cylinder screws on the holder (see chapter 8). Afterwards, re-tighten the screws.

3. Installing and Starting up

10. Move the sliding doors to their lowest position.
11. A free M8 threaded borehole is located on the support ring. Mark this position on the container, drill a Ø8.5 borehole there and screw in the supplied flat mushroom head screw.
12. Underneath the container are four reception points for fixing the level detector. Screw the supplied threaded liner into the most suitable borehole and then secure the level detector.
13. Re-connect the electricity plug to the hopper control. Ensure that the number and arrangement of poles for the plug are correct.

3.3 Starting up

After the bunker feed system has been set up at the place where it is to be operated, it can be supplied with electrical power.

Proceed as follows:

1. Check the bunker feed system connecting values against the supply voltage available.
2. Connect it to the mains supply with a lead and earthed plug.

Connecting values for BZS bunker feed system (without vibration feed unit):

voltage:	230 V
frequency:	50 Hz
consumption:	0.3 A

(if required the bunker feed system can also be supplied for 150 V / 60 Hz)

3. The vibration feed unit is connected to the power supply via a suitable control unit. When doing this follow the unit's operating instructions.
4. Fill the container with bulk material to be conveyed.
5. Switch the hopper control to ON and start up the vibration feed unit.
6. Adjust the amount of the material which is to be conveyed by moving the dosing slide on the front of the container. To do this the knurled screw located there must be loosened.
7. Adjust the amount of bulk material in the vibration feed unit by moving the level detector.

4. Technical Data

4.1 Motor

voltage *	[V]	230
frequency *	[Hz]	50

* if required, the bunker feed system can also be supplied for 115 V / 60 Hz

4.2 Dimensions, weights

Model	Overall dimension [mm]	Total height [mm]	Height of noise protection cover [mm]	Weight (without vibration feed unit) [kg]	Capacity [kg]	Volume [lt.]	Max. diameter for vibration feed unit [mm]	Max. height for vibration feed unit [mm]
BZS 50	Ø655	780	460	ca. 45	100	37	530	360
BZS 70	Ø920	860	460	ca. 75	150	100	750	415
BZS 55	705x705	850	--	ca. 55	100	37	600	405
BZS 75	955x955	1000	--	ca. 75	150	100	850	420

4.3 Dimensions of additional bunker (accessory)

Model	Outer diameter [mm]	Height [mm]	Additional capacity [lt.]	Total capacity [lt.]	Fits models
ZB 50-1	515 -2	110	23	60	BZS 50
ZB 50-2	515 -2	160	33	70	BZS 50
ZB 70-1	765 -2	110	50	150	BZS 70
ZB 70-2	765 -2	175	80	180	BZS 70

5. Description of Machine

5.1 Construction

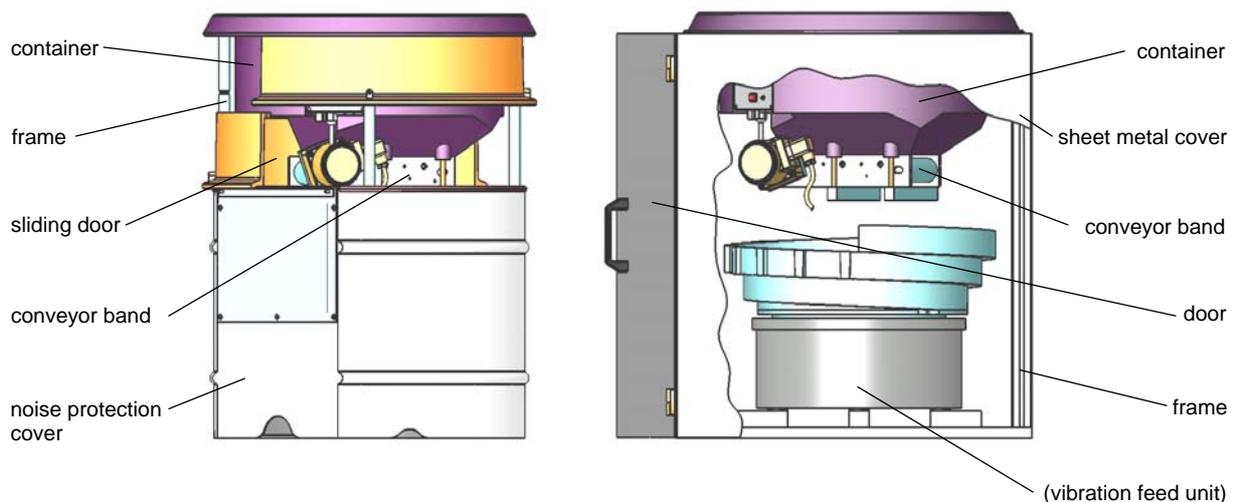
The bunker feed system **BZS 50/70** consists of the following components:

- upper component - consists of container with asymmetrically formed bunker and conveyor band
- bottom section - consists of frame (comprising base, supports and support ring), noise protection cover and vertically sliding doors
- hopper control
- (vibration feed unit)

The bunker feed system **BZS 55/75** differs from type BZS 50/70 in another bottom section:

It consists of a aluminium profile frame with sound absorbing sheet metal cover. One or more doors allows you to work at the vibration feed unit. If necessary, the dimension of the bottom section can be modulated.

5.2 Side view



5.3 Operating method

A level detector mounted at the container (swinging initiator) constantly scans the loading in the vibration feed unit below. This sorts the bulk material out and leads it in the correct position to a connected conveyor device (for example, a small conveyor band, a linear conveyor). If the level detector recognises a lack of parts, the conveyor band located below the container transports material to the vibration feed unit. The conveyor band stops when the amount of material to be conveyed, as pre-set when the machine was installed, is registered as having been reached.

If the store of material in the container falls below a certain mark, the fact will be registered by a light barrier installed in the funnel (see chapter 10: Accessories for bunker level control) and optically or acoustically registered by a signal lamp.

6. Maintenance

In order to ensure that your BSZ bunker feed system operates smoothly and reliably, we recommend that you follow the maintenance instructions given.



ATTENTION!

The unit must be disconnected from the power supply before commencing maintenance work.

6.1 Container

Before the bunker feed system is filled each time, the two transparent panels located inside the container below and to the side, should be checked and if necessary cleaned (only when bunker level control accessory is fitted).

Any parts which have become wedged must be freed.

The container may be cleaned with a domestic glass cleaning agent and a lint-free cloth.

6.2 Conveyor belt

The conveyor's transport belt should be checked before a shift begins to ensure that it is not damaged and has the correct tension. The procedure for changing a damaged belt and setting the correct tension is given in chapter 8.

If the conveyor belt becomes dirty it may be cleaned with a lint-free cloth.

6.3 Conveyor band motor

The motor and gears are maintenance free. The housing for the motor and gears should be cleaned as and when necessary to avoid over-heating.

6.4 Frame

The frame supports should be cleaned weekly with a dilution and then lightly smeared with Vaseline.



ATTENTION!

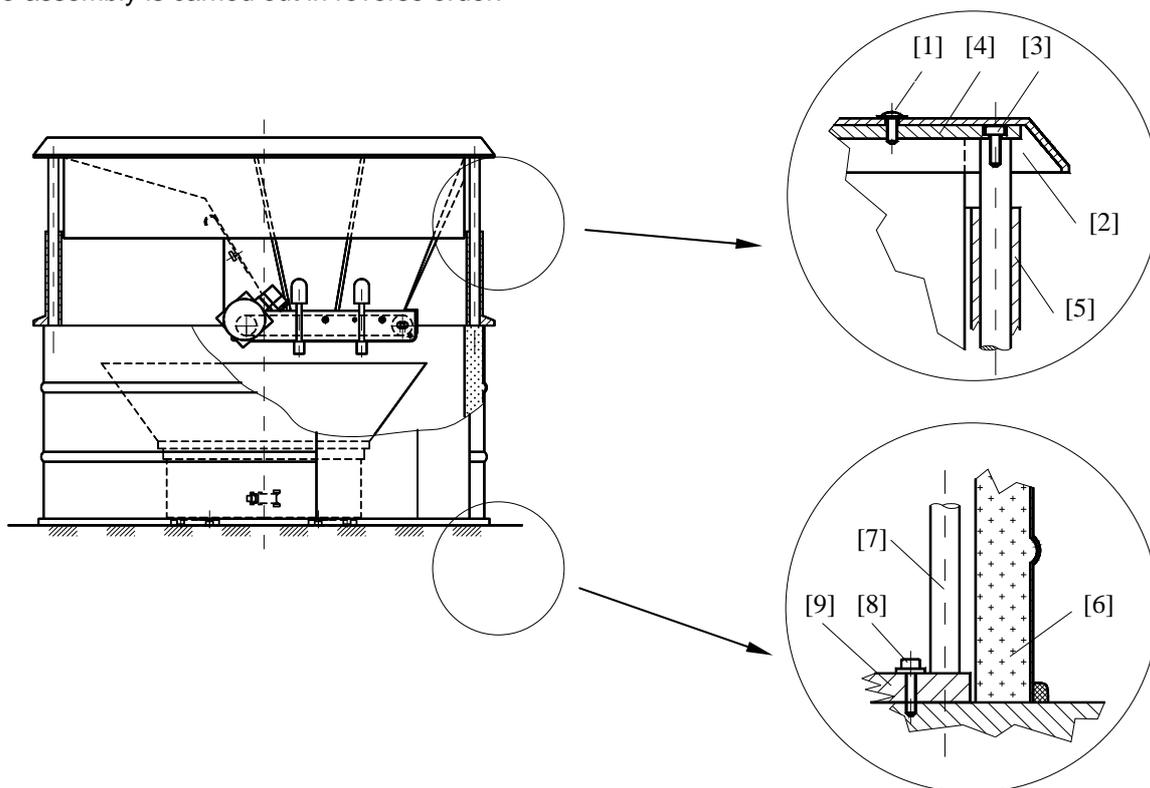
Always ensure a plentiful supply of fresh air when cleaning with solvents.

7. Accessibility to the Vibration Rotary Conveyor

In order to free the vibration feed unit at Type BZS 50/70, for example for carrying out maintenance work, proceed as follows:

1. switch the hopper control power supply switch to OFF and pull the mains plug out.
2. remove all material from the container.
3. withdraw the outgoing rail lock mains cable and the plug from the hopper control.
4. remove the flat mushroom head screw [1] at the top of the container [2].
5. pull in an upwards direction the container with the conveyor band and level detector.
6. loosen and remove the four cylinder screws [3] above on the support ring [4].
7. pull off the two sliding doors [5] upwards, one after the other.
8. if the mouth of the vibration feed unit projects out from the noise protection cover [6], the vibration feed unit oscillating bowl must be moved so far after loosening the central fixing screw that the cover can be lifted off.
9. If the bunker feed system supports [7] prevent access to the vibration feed unit, they can be removed with the base [9] after loosening the four cylinder screws [8].

Re-assembly is carried out in reverse order.

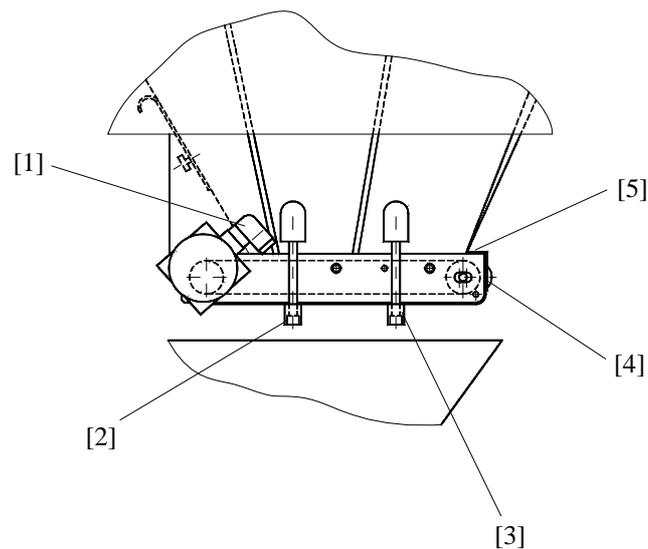


At type BZS 55/75 you can reach the vibration feed unit by opening the doors or by dismantling the sheet metal covers.

8. Replacing a belt

In order to change a belt, it is necessary to disconnect the conveyor band. Proceed as follows:

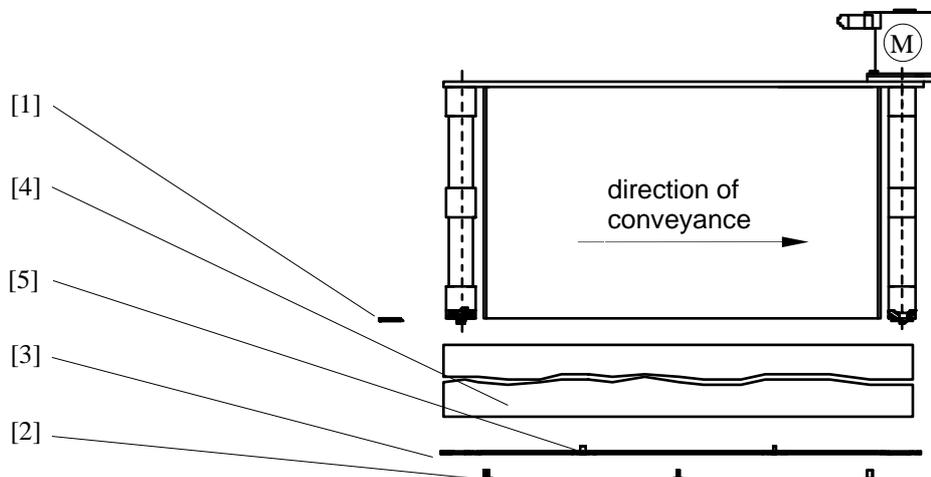
1. switch the hopper control power supply switch to OFF and remove the mains plug.
2. remove all material from the container.
3. withdraw the mains plug [1] from the conveyor belt motor.
4. loosen the four cylinder screws [2] below on the two mountings [3].
5. pull out the conveyor band forwards (in direction of running).
6. loosen the two flat mushroom head screws [4] behind the conveyor band and remove the safety panels [5] located there.



8. Replacing a belt

After the conveyor band has been freed, proceed as follows:

1. release the tension from the belt by loosening the two set screws at the rear of the conveyor belt.
2. remove set screw [1] on the carrier side (opposite the motor side).
3. remove the three cylinder screws [2] in the carrier [3] and carefully remove it.
4. now replace the belt [4].
5. ensure that after changing the belt the adjusting washers are correctly located (between the bearing and the serrated shaft on the driving axis, and between the bearing and carrier on the return axis).
6. replace the carrier and position it correctly with the aid of the two half length taper-grooved dowel pins [5].
7. screw the three cylinder screws into the carrier.
8. replace the carrier side set screw.
9. tension the belt by drawing the return axis to the rear by screwing in the two set screws.
10. the belt has the correct tension when the return axis is nearly in the centre of the carrier or drive carrier elongated hole and doesn't slide.
11. ensure that the belt is evenly tense on both sides and correct this if necessary.



Re-assemble the bunker feed system in reverse order.



NOTE:

Before re-starting the bunker feed system, check the motion of the belt. If it runs away from the centre, turn the set screw to the side against which the belt runs so far until an even run is set. Take care when doing this not to over-tighten the belt. If this is the case, correct the running by unscrewing the opposite set screw.

9. Malfunctions



WARNING!

Only a skilled electrician may open the bunker control.
Before opening the unit must be disconnected from the power supply.

Malfunction	Possible cause	Remedy
bunker feed system conveyor band does not start despite lack of parts in the vibration feed unit	no voltage supply BZS control is turned OFF connecting cable damaged no voltage supply to the motor conveyor band motor defective level detector not connected level detector not correctly set level detector defective container empty, lock activated	plug in mains plug set BZS control to ON replace connecting cable check that motor mains plug is correctly inserted replace motor connect level detector adjust level detector replace level detector fill container, activate control reset key
bulk material in container is not being transported	insufficient tension in belt drive pins defective	adjust tension replace drive pins
lack of parts in container is not displayed	panes of light barrier in container are dirty light barrier soiled voltage supply (24 V) interrupted light barrier defective signal lamp defective	carefully clean pane clean light barrier check that plugs to light barrier and signal lamp are correctly inserted check transmitter and receiver and replace if necessary check bulb in signal lamp and replace if necessary

9. Malfunctions

Malfunction	Possible cause	Remedy
too many workpieces are being conveyed to the vibration feed unit	doser slide set too high	set slide lower
too few workpieces are being conveyed to the vibration feed unit	workpieces wedged in container conveyor belt fluting defective or torn away doser slide set too low	replace belt with fluted belt replace belt set slide higher
workpieces deposited at wrong place in vibration feed unit	container wrongly set conveyor belt badly positioned	adjust container and secure against it moving move conveyor belt lengthways mount parts deflector
high level of noise	sliding doors not closed opening at the mouth of the vibration bowl too great noise protection cover does not sit properly on the base plate	close doors change cover move cover so that it fits properly
sliding doors can only be opened by force	sliding doors jammed in the area of the groove and spring the sprung pressure pieces for the sliding doors are too stiff or defective	smear sliding door groove and spring regularly with Vaseline or similar grease adjust pressure pieces or replace
sliding doors do not hold in the upper position	the sliding doors sprung pressure pieces are too weakly set or are defective	adjust pressure pieces or replace

10. Accessories

12.1 Mechanical accessories

If workpieces are not being deposited in the desired position in the vibration feed unit oscillation bowl despite the container and/or conveyor belt having been adjusted, a **deflector** can be mounted in front of the container opening.

As an alternative to the standard conveyor band, a **fluted conveyor band** is available for the bunker feed system.

In order to increase the capacity of the bunker feed system we can offer various **additional bunkers** which can be fixed to the container.

The bulk material which is present in the container can be protected from dirt with a two-piece folding **transparent cover**.

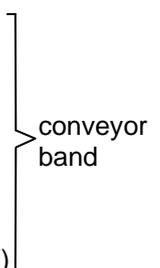
The transparent cover can be fixed with two **cover fastenings**.

12.2 Electronic accessories

In order to prevent the bunker feed system running empty, it can be fitted with a **bunker level control**. This consists of a light barrier which is mounted on the side under the container and a signal lamp which gives the operator in good time an optical and/or acoustic signal that there is a lack of pieces in the container.

11. Spare Parts

For the models described in this operating instruction, the following components are available:

- * container
 - * dosing slide
 - * sliding doors (pair)
 - * light barrier type LS-05 transmitter: FFM 90.1125.25
 receiver: FFM 90.1125.26
 - * level detector NF-02
 - * drive pin
 - * deep groove ball bearing 6001.2 RSR ($\varnothing 12 \times \varnothing 28 \times 8$)
 - * deep groove ball bearing 61805-2 RS 1 ($\varnothing 25 \times \varnothing 37 \times 7$)
 - * conveyor belt (flat or fluted)
 - * standard spur wheel back-geared motor FFM 90.1000.06 (230 V) / FFM 90.1000.07 (115 V)
(special models available)
- 

In order to guarantee a quick and correct processing of your order, please always indicate the type of unit (see type plate) and the year of production of your bunker feed system, the necessary number of pieces and the exact designation of the spare part.



declaration of incorporation

The Bunker Feed System

Designation: Bunker Feed System BZS 50/55 BZS 70/75

Year of construction: starting from 10 / 2014

Has been developed, designed and manufactured in accordance with the above mentioned EU guidelines by:

Manufacturer: Person responsible for documentation:

fimotec - fischer GmbH & Co. KG Edgar Nagel
Friedhofstraße 13
78588 Denkingen
Tel.: 0 74 24 / 884-0

Hereby we declare, that the incomplete machine comply with the requirements of the machine guidelines (2006/42/EG) attachment II 1 B.

The following harmonized norms have been adopted:

- DIN EN ISO 12100: 2011-03 (D) Safety of machinery- General principles for design - Risk-assessment and risk reduction (ISO 12100: 2010)
- EN 60204-1: 2006 Safety of machinery- Electrical equipment of machines - Part 1: General requirements

The specified technical documents of the product according attachment VII part B were compiled. The manufacturer obligates himself, to offer those special technical documents to state departments on demand.

This machine may not be brought into operation until it has been ensured that the equipment into which it is to be incorporated accords with the conditions of the EU guidelines.

Denkingen 12.01.2015 Ralf Fischer, Chief executive

Place Date Signatory and description Signature