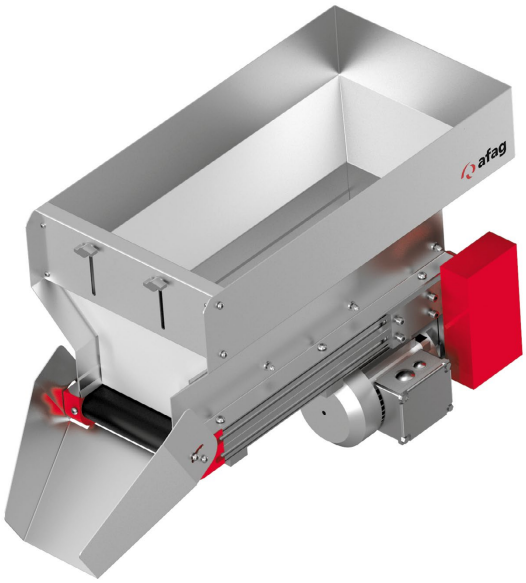
Operating & Installation Instructions

Conveyor belt hopper

IBB3.5 / IBB6 / IBB12 / IBB25 / IBB50



Translation of the Original Assembly Instructions EN

■ Conveyor belt hopper IBB3.5 (24VDC)	⇨ Order no: 50494738
■ Conveyor belt hopper IBB6 (24VDC)	⇨ Order no: 50494739
■ Conveyor belt hopper IBB12 (230 V/50 Hz)	⇨ Order no: 50494740
■ Conveyor belt hopper IBB25 (230 V/50 Hz)	⇨ Order no: 50494741
■ Conveyor belt hopper IBB50 (230 V/50 Hz)	⇨ Order no: 50494742
■ Conveyor belt hopper IBB3.5 - without (24VDC)	⇨ Order no: 50503689
■ Conveyor belt hopper IBB6 - without (24VDC)	⇨ Order no: 50503690
■ Conveyor belt hopper IBB12 - without (230 V/50 Hz)	⇨ Order no: 50503691
■ Conveyor belt hopper IBB25 - without (230 V/50 Hz)	⇨ Order no: 50503692
■ Conveyor belt hopper IBB50 - without (230 V/50 Hz)	⇨ Order no: 50503693
■ Hinged spout IBB3.5	⇨ Order no: 50503695
■ Hinged spout IBB6	⇨ Order no: 50503696
■ Hinged spout IBB12	⇨ Order no: 50503697
■ Hinged spout IBB25	⇨ Order no: 50503698
■ Hinged spout IBB50	⇨ Order no: 50503699

Dear Customer

Thank you for choosing our products and placing your trust and confidence in our company!

These operating and installation instructions contain all essential information you need about your product. Our aim is to provide the required information as concisely and clearly as possible. If, however, you still have any questions on the contents or suggestions, please do not hesitate to contact us. We are always grateful for any feedback.

Our team will also be glad to answer any further question you may have regarding the stroke module or other options.

We wish you every success with our products!

With kind regards

Your Afag team

© Subject to modifications

The modules have been designed by Afag Automation AG according to the state of the art. Due to the constant technical development and improvement of our products, we reserve the right to make technical changes at any time.

Updates of our documentations

Unlike the printed documents, our digital instructions manuals, product data sheets and catalogues are being continuously updated on our website.

Please keep in mind that the digital documents on our website are always the latest versions.

Afag Automation AG
Wernher-von-Braun Street 1
D-92224 Amberg (Germany)
Tel.: +49 (0) 9621 65 027-0
e-mail: sales@afag.com
Internet: www.afag.com

Afag Automation AG
Luzernstrasse 32
CH-6144 Zell (Switzerland)
Tel.: +41 62 959 86 86
e-mail: sales@afag.com
Internet: www.afag.com

Table of contents

1 General

1.1 Contents and purpose of this manual

These operating and installation instructions contain valuable information on assembly, commissioning, functioning and maintenance of the conveyor belt hopper IBB to ensure safe and efficient handling and operation.

Consistent compliance with these operating instructions will ensure:

- permanent operational reliability of the module,
- optimal functioning of the module,
- timely detection and elimination of defects (thereby reducing maintenance and repair costs),
- prolongation of the module service life.

The illustrations in this manual shall provide you with a basic understanding of the module and may vary from the actual design of your module.

1.2 Explanation of symbols

The safety notes are marked by a pictogram and a signal word. The safety notes describe the extent of the hazard.

DANGER

Danger!

This safety note indicates an imminently hazardous situation which, if not avoided, will result in death or severe injury.

WARNING

Warning!

This safety note points out a potentially hazardous situation which, if not avoided, could result in death or severe injury.

CAUTION

Caution!

This safety note points out a potentially dangerous situation which, if not avoided, can result in minor or slight injuries.

NOTICE

This safety note points out a potentially dangerous situation which, if not avoided, can cause substantial damage to property and the environment.

This note contains important additional information as well as useful tips for safe, efficient and trouble-free operation of the module.

Further warning signs:

Where applicable, the following standardised symbols are used in this manual to point out the various potential health risks.

	Warning - Dangerous electrical voltage.
	Warning - Risk of hand and finger injury due to uncontrolled movements of components.
	Warning - Magnetic field

1.3 Additional symbols

In these assembly instructions the following symbols are used to highlight instructions, results, references, etc..

Symbol	Description
1.	Instructions (steps ...)
⇨	Results of actions
➲	References to sections
■	Enumerations not ordered

1.4 Warranty

The warranty terms for Afag handling components and handling systems are the following:

- 24 months from initial operation and up to a maximum of 27 months from delivery.
- Wear parts are excluded from the warranty (The customer is entitled to a product free of defects. *This does also apply to defective accessories and wear parts. Normal wear and tear are excluded from the warranty.*

The warranty covers the replacement or repair of defective Afag parts. Further claims are excluded.

The warranty shall expire in the following cases:

- Improper use of the module.
- Non-observance of the instructions regarding installation, commissioning, operation and maintenance.
- Improper assembly, commissioning, operation and maintenance.
- Repairs and design changes carried out without prior technical instructions of Afag Automation AG.
- Removing the serial number from the product.
- Non-observance of the EC Machinery Directive, the Accident Prevention Regulations, the Standards of the German Electrotechnology Association (VDE) and these safety and assembly instructions.

1.5 Liability

No changes shall be made to the modules unless described in this manual or approved in writing by Afag.

Afag accepts no liability for unauthorized changes or improper assembly, installation, commissioning, operation, maintenance or repair work.

2 Safety instructions

2.1 General

This chapter provides an overview of all important safety aspects to ensure safe and proper use of the gripper and optimal protection of personnel.

Safe handling and trouble-free operation of the module requires knowledge of the basic safety regulations.

Every person carrying out installation, commissioning, maintenance work or operating the module must have read and understood the complete user manual, especially the chapter on safety instructions.

Beyond this, there are rules and regulations regarding accident prevention that are applicable to the place of installation which must be observed.

Failure to follow the directions and safety instructions given in this instructions manual may result in serious hazards.

2.2 Intended use

The conveyor belt hopper is used exclusively for storing, refilling or conveying specific product parts. These product parts must have a side length of at least 2 mm. Smaller product parts can get under the belt and lead to damage or failure of the conveyor belt hopper.

The following uses of the modules are considered as **improper use** :

- Fitting the belt hopper with differently shaped product parts than intended for the belt hopper.
- Equipping the belt hopper with parts that are covered with oil, grease or any other coating.

The intended use of the module also includes:

- observance of all instructions given in this manual.
- compliance with the inspection and maintenance work and the specifications in the data sheets,
- using only original spare parts.

2.3 Foreseeable misuse

Any use other than or beyond the intended use described above is considered a misuse of the module.

WARNING

Risk of injury if the module is not used for its intended purpose or if it is foreseeable used incorrectly!

The improper use of the module poses a potential hazard to the personnel.

- The modules may only be used in a technically perfect condition in accordance with its intended use and the instructions in this manual as well as in compliance with the safety requirements!

2.4 Obligations of the operator and the personnel

2.4.1 Follow these instructions

A basic prerequisite for safe and proper handling of modules is a good knowledge of the basic safety instructions.

This manual, in particular the safety instructions contained therein, must be observed by all persons working with the module.

2.4.2 Obligations of the operating company

In addition to the safety instructions given in this manual, the operating company must comply with the safety, accident prevention and environmental protection regulations valid for the field of application of the module.

The operating company is required to use only personnel who :

- have the necessary professional qualifications and experience,
- are familiar with the basic rules regarding occupational safety and accident prevention,
- have been instructed in the correct handling of the modules,
- the operator of the module must draw up work instructions for handling the product parts.
- have read and understood these operating instructions.

The operating company is also required to:

- monitor on an ongoing basis that the personnel work safely considering any potential hazard involved and the assembly instructions are observed,
- ensure that the assembly instructions are always kept at hand at the installation in which the modules are mounted,
- observe and communicate universally applicable laws and regulations regarding accident prevention and environmental protection,
- provide the necessary personal protective equipment (e.g., protective gloves) and instruct the personnel to wear it.

2.4.3 Obligations of the personnel

All personnel working with the modules are required to:

- read and observe these assembly instructions, especially the chapter on safety,
- observe the occupational safety and accident prevention regulations,
- observe all safety and warning signs on the modules,
- refrain from any activity that might compromise safety and health.

In addition, the personnel must wear the personal protective equipment required for carrying out their work (➲chap. 2.6).

2.5 Personnel requirements

2.5.1 Personnel qualification

The activities described in the assembly instructions require specific requisites at the level of professional qualifications of the personnel.

Personnel not having the required qualification will not be able to asses the risks that may arise from the use of the module thus exposing himself and others to the risk of severe injury. Therefore, only qualified personnel may be permitted to carry out the described activities on the modules.

These operating instructions are intended for skilled personnel (installers, system integrators, maintenance personnel, technicians), electricians and operating personnel.

The following is a description of the professional skills (qualifications) required for carrying out the different activities:

Qualified personnel:
Qualified personnel with appropriate training who are qualified due to their special knowledge and fully familiar with the machine and who have been given instructions on how to carry out the task entrusted to them safely.

Qualified electrician:
Persons who have obtained their electrical qualifications through appropriate professional training and complementary courses that enables them to identify risks and prevent hazards resulting from electricity.

Operator (trained personnel):
Authorized persons who due to their specialized professional training, expertise and experience can identify risks and preventing hazards arising from the use of the machine.

2.6 Personal protective equipment (PPE)

The personal protective equipment serves to protect the personnel from hazards affecting their safety and health at work.

When working on/with the module, the personnel must use the protective equipment assigned by the safety officer of the operating company or as required by safety regulations. In addition, the personnel are required to:

- wear the personal protective equipment provided by the operating company (employer),
- check the personal protective equipment for proper condition, and
- immediately notify the person responsible on site of any defects found on the personal protective equipment.

2.7 Changes and modifications

No changes may be made to the module which have not been described in these operating instructions or approved in writing Afag Automation AG.

Exceptions to this are the processes described in ➲chap. 6.2 "Assembly" and ➲chap. 7.3 "Settings".

Afag Automation AG accepts no liability for unauthorised changes or improper assembly, installation, commissioning, maintenance or repair work.

The modules may not be changed or modified in any way, except with the prior written consent of Afag.

2.8 General hazards / residual risks

Despite the safe design of the machine and the technical protective measures taken, there remain residual risks that cannot be avoided, and which present a non-obvious residual risk when operating the rotary modules.

Observe the safety instructions in this chapter and in the other sections of this manual to avoid damage to property and dangerous situations for the personnel.

2.8.1 General hazards at the workplace

The modules have been built according to the state-of-the-art and the applicable health and safety requirements. However, improper use of the module may cause the following hazards to the personnel:

- danger to life and limb of the operator or third parties,
- on the modules themselves,
- property damage.

Always keep the operating instructions ready at hand at the workplace! Please, also observe:

- the general and local regulations on accident prevention and environmental protection,
- the safety information sheet for the module.

WARNING

Danger due to missing or illegible safety instructions on the module!

Missing or illegible safety instructions can lead to dangerous situations.

- The information and labelling attached to the module must be kept in a legible condition.
- Notices and labelling must not be dismounted.
- After replacing cables, lines and components, all labelling on these components must be reapplied.

WARNING

Danger due to removed or bypassed safety devices!

If safety devices are missing or bypassed, there is a risk of personal injury or damage to property!

- The safety devices on the module must not be removed or bypassed!

WARNING

Danger - Do not use in unsuitable environment !

The modules are designed for use in **non**-explosive atmospheres.

- Do **not** use the modules in potentially explosive atmospheres!

CAUTION

Risk of injuries due to uncontrolled parts movements!

When operating the module uncontrolled movements may occur which can cause personal injury or property damage.

- Only qualified personnel may work with or on the module.
- Read this manual carefully before carrying out any work on or with the module.

2.8.2 Danger due to electricity

WARNING

Danger! Risk of electric shock!

If work on electrical components is required, ensure that the work is carried out properly, failure to do so will cause serious or fatal injuries.

- Work on the machine's electrical equipment may only be performed by skilled electrician or trained personnel under the supervision of a skilled electrician in accordance with all relevant electrical regulations.

2.8.3 Mechanical hazards

CAUTION

Danger of body parts and clothing being pulled in!

Despite the low belt speed, the use of the appliance may pose a risk to operating personnel due to body parts being drawn in at the points listed below: Fastening strip conveyor belt, tilting conveyor belt, shaft conveyor belt.

- Maintain a sufficient safety distance!
- Never reach into the system during normal operation!

2.8.4 Noise hazards

CAUTION

Noise hazards!

In certain cases, an impermissible noise level may result (e.g., when opening the lid of the noise protection hood for filling or refilling the parts).

- Wear hearing protection during noise-critical activities!

3 Technical data

3.1 Dimensional drawing IBB3.5 / IBB6

Type	IBB3.5	IBB6
A	377 mm	457 mm
B	292 mm	357 mm
C	302 mm	362 mm
D	150 mm	180 mm
E	70 mm	90 mm
F	146 mm	166 mm
G	177 mm	197 mm
H	117 mm	137 mm
K	40 mm	40 mm
L	160 mm	160 mm
M	92.5 mm	92.5 mm
N	80 mm	80 mm

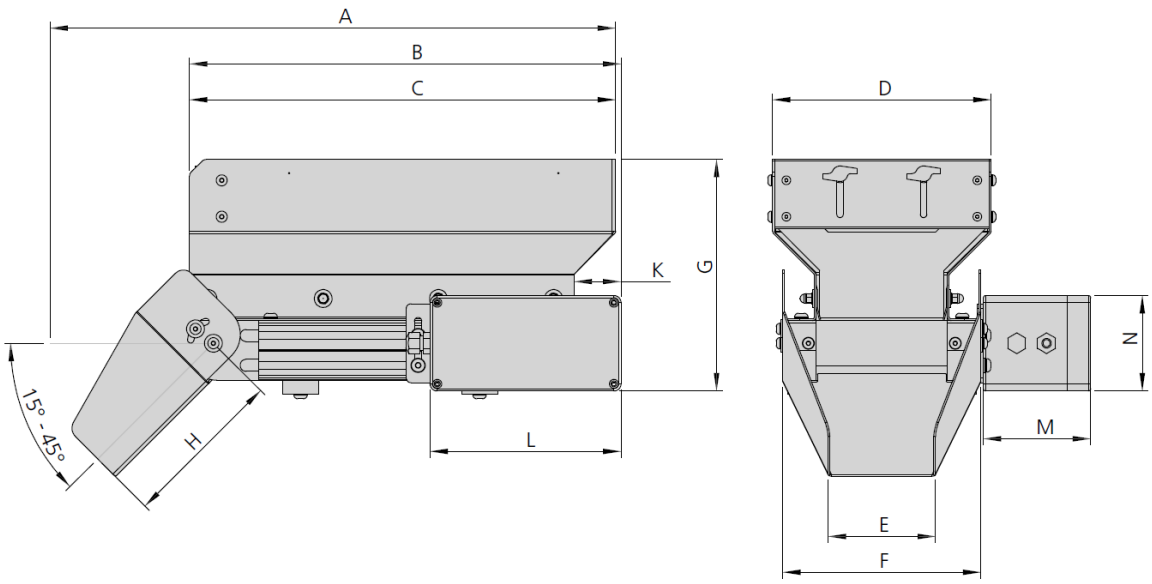


Fig. 1 Dimensional drawing IBB3.5 / IBB 6

3.2 Technical data IBB3.5 / IBB6

IBB	
Operating temperature	-5 - 60 °C

Type	IBB3.5	IBB6
Order number	**50494738**	**50494739**
Nominal voltage	24 V	24 V
Power output	10 W	10 W
Max. power consumption	9.6 VA	9.6 VA
Net weight	7 kg	10 kg
Load volume	3.5 l	6 l
Maximum filling weight	30 kg	35 kg
Belt speed	0.1 m/min	0.1 m/min
Conveyor belt	PU-coated black (ESD-compatible)	PU-coated black (ESD-compatible)
Protection type	IP54	IP54

3.3 Dimensional drawing IBB12 / IBB25 / IBB50

Type	IBB12	IBB25	IBB50
A	552 mm	662 mm	787 mm
B	427 mm	547 mm	662 mm
C	412 mm	412 mm	613 mm
D	230 mm	280 mm	350 mm
E	110 mm	120 mm	150 mm
F	196 mm	206 mm	246 mm
G	232 mm	297 mm	367 mm
H	346.5 mm	411.5 mm	476.5 mm
K	172 mm	182 mm	207 mm
L	256 mm	256 mm	256 mm
M	31 mm	31 mm	31 mm
N	49 mm	49 mm	49 mm

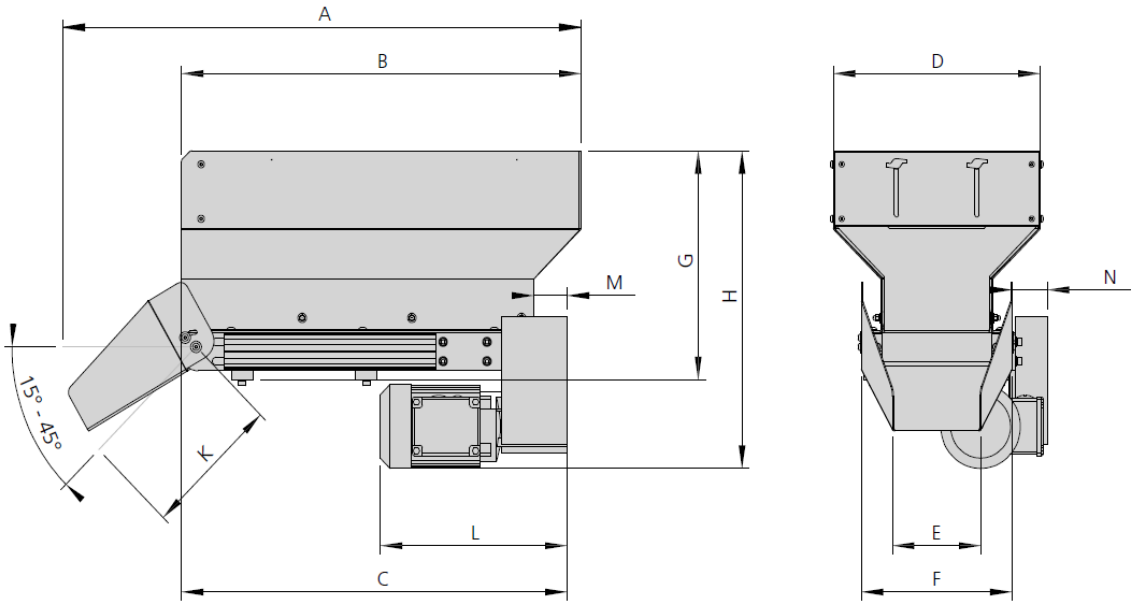


Fig. 2 Dimensional drawing - IBB 12/ IBB 12 / IBB 25

3.4 Technical data IBB12 / IBB25 / IBB50

IBB	
Operating temperature	-5 - 60 °C

Type	IBB12	IBB25	IBB50
Order number	**50494740**	**50494741**	**50494742**
Mains connection (mains voltage/mains frequency)	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz
Power output	90 W	90 W	90 W
Max. power consumption	195.5 VA	195.5 VA	195.5 VA
Net weight	15 kg	18 kg	23 kg
Load volume	12 l	25 l	50 l
Maximum filling weight	50 kg	60 kg	70 kg
Belt speed	0.85 m/min	0.85 m/min	0.85 m/min
Conveyor belt	PU-coated black (ESD-compatible)	PU-coated black (ESD-compatible)	PU-coated black (ESD-compatible)
Protection type	IP54	IP54	IP54

3.5 Accessories

3.5.1 Mounting parts

We do not currently offer any special peripherals for the IBB series belt hoppers. However, you will find a wide selection of accessories for our product range in our feeding technology components catalogue.

3.5.2 Controller

Type	Power supply	Order Number	Note
IRG1-MS	230V/50Hz	50391018	Control with timer function via sensors

The modules are operated in combination with an IRG1-MS control unit. Third-party control units can also be used, provided they meet the technical conditions.

For more information on the controller, see ➲ chap. 6.3.1 and the controller manufacturer's instructions.

4 Transport, packaging and storage

4.1 Safety instructions

CAUTION

Danger of injury due to improper transport equipment!

Improper use of transport equipment can lead to injuries!

- Observe transport and mounting instructions!
- Use the means of transport properly!

The Afag modules are packed in the original packaging (cardboard box). Carefully remove the module from the original packaging.

4.2 Scope of supply

The corresponding documentation is supplied with each module (e.g., operating and installation instructions, etc.).

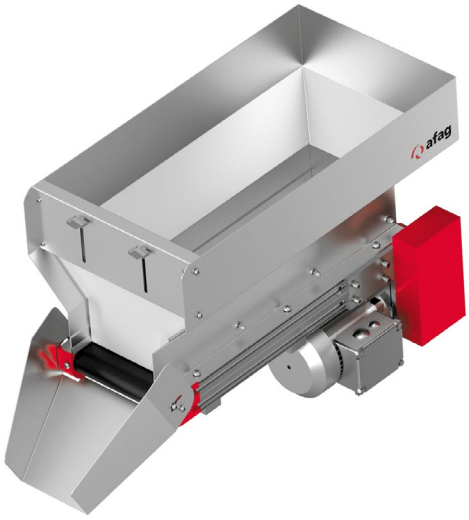


Fig. 3 Scope of delivery IBB

[Unt]	Designation
1 x	Conveyor belt hopper IBB
1 x	Operating & Installation Instructions

4.3 Transport

No liability can be assumed for damages caused by improper installation on the part of the operating company.

Please note the following for transportation:

- The focus is on the middle of the module.
- Pallet transport using stable transport trolleys.

The weight of the mode depends on the respective version and can be taken from the transport documents.

4.4 Packaging

The module is transported packed on a pallet. If Afag packaging is not used, the module must be packed in shock and dust-proof packaging.

NOTICE

Risk to the environment due to incorrect disposal of the packaging material

Environmental damage can be caused by incorrect disposal of the packaging material.

- Dispose of the packaging material in an environmentally sensitive way in accordance with the local environmental regulations.

4.5 Storage

If the module is stored for an extended period, observe the following:

- Store the module in the transport packaging.
- Do not store the telescope spindle axes outdoors or expose them to weather conditions.
- The storage space must be dry and dust free.
- Room temperature of the storage space: 0-50 °C.
- Relative air humidity: < 90% non condensing.
- Protect the module from dirt and dust.

5 Design and description

5.1 Structure of the conveyor belt hopper IBB

The belt hopper is used exclusively for storing, refilling or conveying specific product parts.

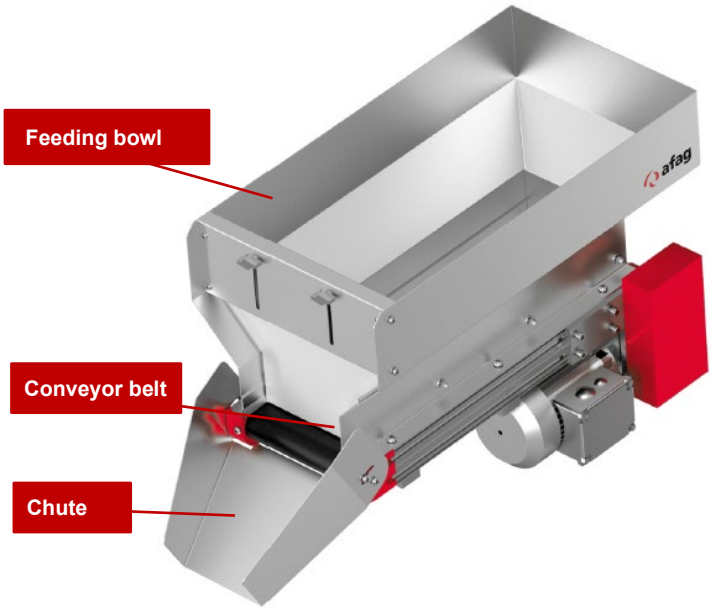


Fig. 4 Structure of the conveyor belt hopper IBB

Areas of application:

- Parts storage for sorting and feeding devices,
- Feeding of packaging systems,
- Feeding of scales and counting equipment,
- metered parts supply, even at manual workstations,
- can be used in the food and pharmaceutical industries.

5.2 Functional description

The basis of the IBB belt hopper is a conveyor belt that transports the parts on it onto an inclined chute.

To achieve a certain filling volume, a specific parts storage hopper is attached to this conveyor belt.

In all sizes, the conveyor belt is driven by a DC geared motor. A three-phase motor is used as an option.

As the DC geared motor has a preferred direction of rotation, reversing operation of the conveyor belt by reversing the polarity of the drive voltage is detrimental to motor service life.

However, this reversing operation is not necessary if the belt hopper is used as intended.

6 Installation, assembly & setting

For safe operation, the module must be integrated into the safety concept of the system in which it is installed.

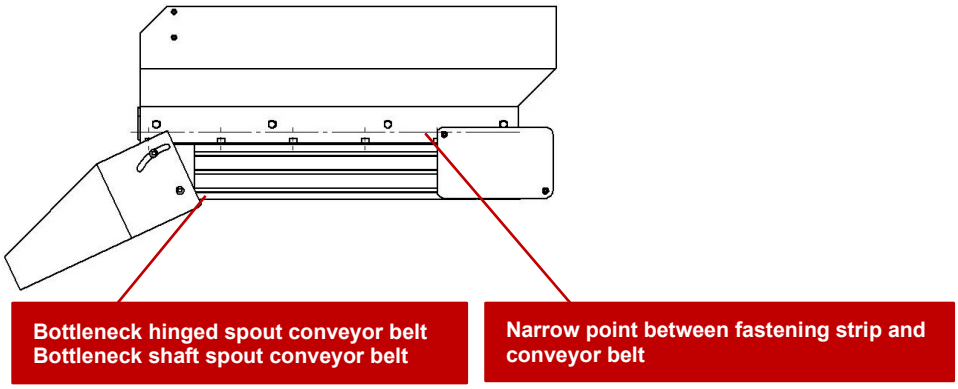
During normal operation, it must be ensured that the user cannot interfere with the working area of the module. This can be achieved through suitable protective measures (e.g., enclosure, light grid).

6.1 Safety instructions

CAUTION

Danger of body parts being drawn in!

Despite the low belt speed, there is a danger to the operating personnel due to drawn in at the following points:



- Always disconnect the supply voltage during assembly, disassembly, fuse replacement or assembly changes.
- No handling at the above-mentioned narrow points when the supply voltage is connected.
- If a hazard persists despite these measures, the operator must ensure that the hazard points are suitably covered.

WARNING

Danger! Risk of electric shock!

If work on electrical components is required, ensure that the work is carried out properly, failure to do so will cause serious or fatal injuries.

- Work on the machine's electrical equipment may only be performed by skilled electrician or trained personnel under the supervision of a skilled electrician in accordance with all relevant electrical regulations.
- Disconnect the supply voltage before starting work!
- Ensure that the protective earthing of the power supply is in perfect condition.

CAUTION

Danger of injury by moving components!

The module must not be started up by unauthorised persons during installation and adjustment work. Limbs can be crushed by moving parts and cause serious injuries.

- Attach clearly visible signs before starting work!

No liability for damages can be assumed for damages caused by improper installation on the part of the operator.

Observe the safety instructions in ➲ chap. 2 "Safety instructions" of this manual as well as the instructions in ➲ chap. 6.3.

6.2 Assembly

6.2.1 Tightening torques

Tightening torques M_{Sp} in [Nm] for shaft bolts with metric ISO standard threads and head rests according to DIN 912 or DIN 931.

Screw	Tightening torques M_{Sp} in [Nm]		
	Strength class 8.8	Strength class 10.9	Strength class 12.9
M4	2.8	4.1	4.8
M5	5.5	8.1	9.5
M6	9.5	14.0	16.5
(M7)	15.5	23.0	27.0
M8	23.0	34.0	40.0
M10	46.0	68.0	79.0
M12	79.0	117.0	135.0
M14	125.0	185.0	215.0
M16	195.0	280.0	330.0
M18	280.0	390.0	460.0
M20	390.0	560.0	650.0
M22	530.0	750.0	880.0
M24	670.0	960.0	1120.0
M27	1000.0	1400.0	1650.0
M30	1350.0	1900.0	2250.0

6.3 Electrical connection

WARNING

Danger! Risk of electric shock!

Improperly performed work can result in serious or fatal injuries.

- Work on the machine's electrical equipment may only be performed by skilled electrician or trained personnel under the supervision of a skilled electrician in accordance with all relevant electrical regulations.
- The module may only be connected by authorised personnel!

6.3.1 Connection of the module (control unit)

The drive unit (24 V) may only be operated with 24 V direct current. Ensure that the polarity of the connections is correct.

Attention must also be paid to the attachment of the protective conductor. The drive unit (230 V) may only be operated with 230 V alternating current.

Notes on the connection

- All connections for the motor, control board etc. are connected to terminals at the factory. The device is also earthed.
- There is a screw connection on the front of the housing for the cable feed-through into the motor housing.
- Ensure a sufficient supply cable cross-section. The connection cable must have a properly connected protective earth conductor.
- The aim is **not** to have the belt hopper running continuously, but to have a delayed switch-on/switch-off of the belt hopper by means of a min./max. control of the conveyor to be filled.
- The wiring diagram on the inside of the motor housing cover must be observed.

Controller

The module is connected to the AC mains 230 V/50 Hz via a control unit type IRG1-MS. Third-party control units can also be used, provided they meet the technical conditions.

The belt hopper does not have its own control system and must therefore be controlled by the system in which the belt hopper is integrated.

6.3.2 Concluding activities

After connecting the module, the following points must be observed:

- Refit dismantled protective devices before recommissioning for the first time.
- Carry out a test drive. Check whether there are any hand tools, screws, aids or other objects in the effective range of the belt whopper.
- When setting up, ensure that the belt run is not obstructed.
- All electrical connections must be covered.
- Protective conductor connections must be checked for proper function after installation.
- Emergency-STOP devices must remain effective in all operating modes. Unlocking the Emergency-STOP devices must not cause an uncontrolled restart.

7 Operation

7.1 Safety instructions

Observe the safety instructions in ➲ chap 2 „Safety instructions“ of these instructions

WARNING

Danger due to removed or bypassed safety devices!

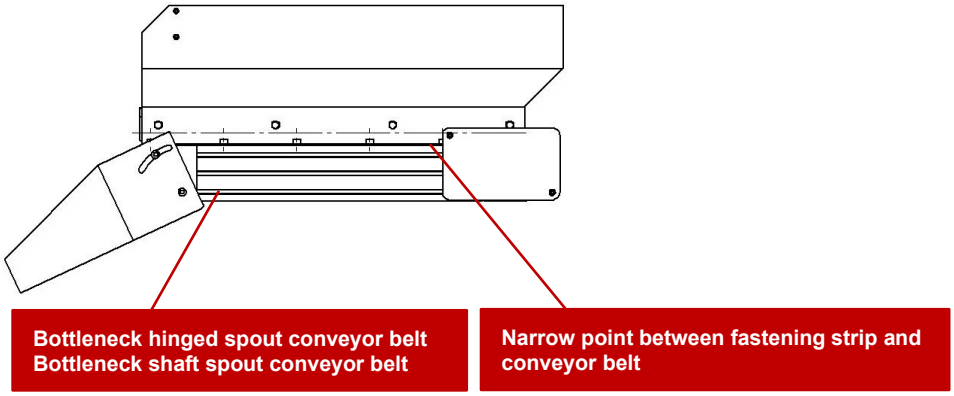
If safety devices are missing or bypassed, there is a risk of personal injury or damage to property!

- The safety devices on the module must not be removed or bypassed!

CAUTION

Danger of body parts being drawn in!

Despite the low belt speed, there is a danger to the operating personnel due to drawn in at the following points:



- Always disconnect the supply voltage during assembly, disassembly, fuse replacement or assembly changes!
- no handling at the above-mentioned narrow points when the supply voltage is connected or during operation.
- Do not reach into the conveyor belt or the transported goods during operation!
- If a hazard persists despite these measures, the operator must ensure that the hazard points are suitably covered.

7.2 Commissioning

7.2.1 Test operation control unit

The belt hopper is connected to the AC mains 230 V/50 Hz via a control unit type IRG1-MS. Third-party control units can also be used, provided they meet the technical conditions.

The operation of the AFAG controllers is described in the separate installation manual for the respective controllers.

Perform a test run in preparation for commissioning. To turn connectors, proceed as follows:

1. Connect the controller to the computer (operating software must be installed).
   - The use of the operating software is described in the installation instructions for the controllers used.
2. If the module is supplied with an Afag controller, no further action is required (operating parameters already stored in the controller).
3. When using a different controller, special cables must be made, and the operating parameters determined.

   ⇨ The test operation can now be carried out.

7.2.2 Preparatory activities

Check before commissioning:

- Is the belt hopper set up correctly (➲chap. 7.3) and are all protective devices present and functional?
- Does the rated voltage of the appliance match the local mains voltage?

The following settings must be checked before commissioning:

- **Belt run**: The belt run must be checked for centred running during initial commissioning and readjusted if necessary (➲chap. 7.3.4 and ➲chap. 9.3.3).
- **Lateral guides**: The lateral guides of the hopper trough must be adjusted so that there is no gap between the hopper belt and the lateral guides. If necessary, these must be readjusted (➲ chap. 7.3.1).
- **Filling volume**: For the maximum filling volume and maximum filling weight, the permissible limit values of the belt hopper must be observed (➲chap. 3).
- **Emergency-STOP** devices must remain effective in all operating modes. Unlocking the Emergency-STOP devices must not cause an uncontrolled restart.

7.2.3 First commissioning

Proceed carefully and follow the instructions step by step when commissioning the modules for the first time:

1. Observe the permissible technical values (➲ chap 3).
   - Payload, frequency, moment load.
2. First, make sure that there are no persons or tools in the working area.
3. Perform test run:
   - Start with slow movements.
   - Then continue under normal operating conditions.

   ⇨ Commissioning is completed.

When using the belt for the first time, check that it is centred several times a day!

7.3 Settings

7.3.1 Side guides

The parts storage hopper contains V2A rails that can be closed on both sides. These strips prevent small conveyor parts from getting under the belt.

The feed plates must not obstruct the belt run! Check belt tracking and readjust side guides if necessary.

To adjust the lateral guides, proceed as follows:

1. Loosen the cap nuts.
2. Adjust the lateral guides so that the feed plates do not obstruct the belt run.
3. Tighten the cap nut again.

   ⇨ The process is complete.

7.3.2 Parts chute

To adjust the parts chute, proceed as follows:

1. Loosen the semi-circular screws.
2. Adjust the parts chute.
3. Tighten the semi-circular screws again.

   ⇨ The process is complete.

When storing parts for vibrating belt hoppers, ensure that the parts falling from the chute do not fall onto baffles and impair the function of the device.

The parts must be inserted in the centre of the device.

7.3.3 Front panel

There is an adjustable front panel at the outlet of the conveyor belt.

The optimum replenishment of the parts depends on the passage height between the upper edge of the conveyor belt and the lower edge of the front panel. If the flow height is not optimised, it must be readjusted.

To adjust the passage height, proceed as follows:

1. Loosen both wing screws on the front panel.
2. Move the stainless-steel slide downwards or upwards to adjust the passage height to the parts.
3. Tighten the wing screws again.

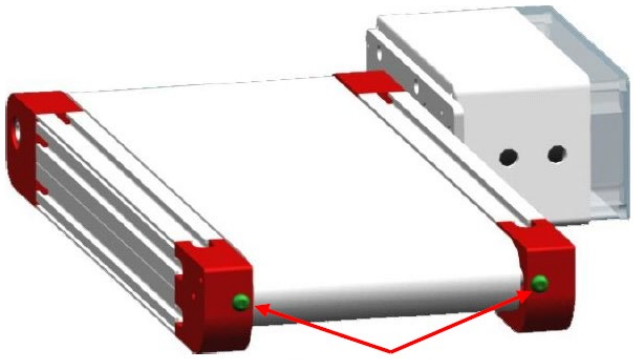
   ⇨ The process is complete.

7.3.4 Belt tension

The belt is adjusted at the factory in terms of tension and centred running on the drive and guide roller.

The belt tension must be set so that the conveyor belt does not slip even when the parts hopper is full. Observe the maximum belt load of your belt hopper type!

To adjust the belt tension, proceed as follows:



Clamping screws at
tensioning deflection head

1. Turn the semi-circular screws on the clamping swivel heads.

   - Turn clockwise: Belt tension is increased.
2. Check the centre run of the belt at the same time:

   - The conveyor belt must be centred between the head pieces.
3. If the belt rests heavily on one side of one of the head pieces, correct the centre run as follows to avoid increased belt wear:
4. Tighten the semi-circular screw on the tensioning deflection head to which the belt runs or loosen the screw on the opposite tensioning deflection head. Note the belt tension!

   ⇨ The process is complete.

Procedure after setting the belt tension:

Excessive tensioning of the belt can overload the belt, the bearings and the drive!

1. After fine adjustment, measure the current consumption of the motor.
2. If the nominal data on the rating plate is exceeded, the semi-circular screws must be loosened evenly.
3. After setting, it is essential to carry out a test run over several hours!
4. When using the belt for the first time, check that it is centred several times a day.

7.4 Operation

Checks before the start of the shift:

- The instructed and trained operating personnel must check that the protective and safety equipment is in proper condition before starting the shift.
- If defects are found that impair the safety of the belt hopper, the belt hopper must be shut down until these defects have been rectified.

Notes on operation:

- For standard belts, the product parts must be dry, clean and without sharp edges.
- Special belts must be used for other product parts (oily, wet, hot >70°C).

The product parts must not fall onto the conveyor belt from a great height.
If in doubt, ask the manufacturer.

No cleaning work may be carried out on the belt hopper after switching on!

WARNING

Risk of injury in the event of malfunctions!

In the event of a fault, there is a risk of personal injury or damage to property!

- In the event of faults, the module must be disconnected from the power supply immediately!

Position of the belt hopper

The belt hopper is designed for horizontal transport at maximum load. If the belt hopper is to be operated at a slight incline, ask the manufacturer whether this is possible in your case and which utilisation values must be observed.

8 Fault elimination

8.1 Safety instructions

WARNING

Danger! Risk of electric shock!

If work on electrical components is required, ensure that the work is carried out properly, failure to do so will cause serious or fatal injuries.

- Work on the machine's electrical equipment may only be performed by skilled electrician or trained personnel under the supervision of a skilled electrician in accordance with all relevant electrical regulations.
- Disconnect the supply voltage before starting work!
- Ensure that the protective earthing of the power supply is in perfect condition.

Observe the safety instructions in ➲ chap. 2 "Safety instructions" of these installation instructions as well as the safety instructions of the controller manufacturer.

8.2 Fault causes and remedy

Faults caused by defective components may only be remedied by replacing these components.

Only Afag original spare and wear parts may be used!

Fault	Possible cause	Remedy:
Belt hopper does not run after switching on	▪ Plug not connected to mains ▪ Connection cable not plugged in ▪ Set the controller on the controller to "0" ▪ Fuse in controller defective	▪ Plug in the connector. ▪ Plug in the connector. ▪ Turn the controller to position. ▪ Replace fuse.

9 Maintenance and repair

9.1 General notes

The conveyor belt hopper requires minimal maintenance. Subsequent maintenance activities ensure that the modules are in optimum operating condition.

9.2 Safety instructions

DANGER

Risk of injury due to electric shock!

If work on electrical components is required, ensure that the work is carried out properly, failure to do so will cause serious or fatal injuries.

- Work on the machine's electrical equipment may only be performed by skilled electrician or trained personnel under the supervision of a skilled electrician in accordance with all relevant electrical regulations.

WARNING

Danger of injury due to improper maintenance!

Improperly carried out maintenance activities can cause considerable damage to property and serious injury.

- Only use trained specialist personnel to carry out the activities.
- Always wear personal protective equipment when carrying out maintenance and repair work!

WARNING

Risk of injuries due to uncontrolled parts movements!

Signals from the controller can trigger unintentional movements of the modules, which can cause injury.

- Before starting any work on the module, switch off the controller and secure to prevent it from being switched on.
- Observe the operating instructions of the controller used!

Also observe the safety instructions in ➲ chap. 2 „Safety instructions“ in this manual.

9.3 Maintenance activities and maintenance intervals

The maintenance intervals must be strictly observed. The intervals refer to a normal operating environment.

9.3.1 Overview of the maintenance points

Fig. 5 Maintenance of conveyor belt hopper IBB

No.	Maintenance point	Maintenance work	Interval	System [On/Off]	Remarks
1	Conveyor belt and tension deflection	Cleaning	As required	[Off]	-
			▪ Clean with spirit and a clean, lint-free cloth. ▪ Use an approved spirit substitute for use in the food industry!		
2	Transport belt:	Check and correct	After 2 weeks running-in period/1xmonth	[Off]	-
			▪ Check the conveyor belt for: - Tension and centering. - After running-in period every 4 weeks!		
3	Transport belt	Check for damage and replace if	As required	[Off]	-
			▪ Check the conveyor belt for damage. ▪ Replace if necessary ➲ observe chap. 9.3.3!		
4	Drive	Cleaning	after 2000 Oper. hours	[Off]	Gear motor is maintenance-free for 10,000 operating
			▪ if necessary, replace carbon brushes and clean the surrounding area thoroughly. ▪ If necessary, remove dust from the motor area to ensure cooling.		

9.3.2 Notes on cleaning

NOTICE

Risk of material damage if the following instructions are not observed!

If cleaning agents or cleaning methods other than those listed are used, there is a risk of permanent damage to components and the function of the module can no longer be guaranteed.

- Only use the specified cleaning agents!
- It is essential to observe the cleaning methods!

WARNING

Risk of injury from volatile substances!

The cleaning agents to be used contain volatile substances that can cause irritation or injury to the eyes or respiratory tract.

- Wear safety glasses.
- Ensure sufficient ventilation!

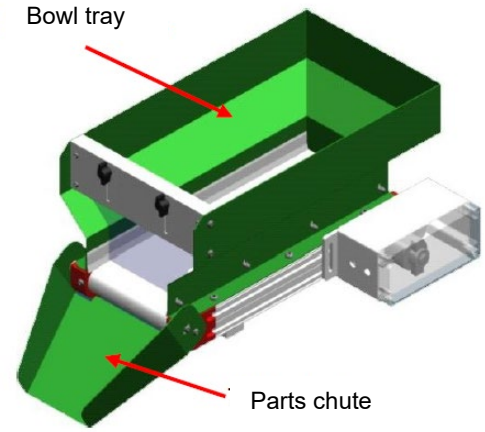
Cleaning the feeding bowl (according to its coating):

Bowl coating:	Cleaning agent:	Cleaning method:
Hard anodised / Inox raw or polished	Benzine or spirit	Ultrasonic bath
Metaline	Soapy water	Wash off with a damp cloth, allow to dry
Habasite light green TS10	Hoover	Vacuum cleaning
Polyamide pot raw, Habasit white, dark green Polyurathan red, yellow, grooved Nextel coating	Benzine or spirit	Wipe out with a damp cloth and dry again, cleaning agent must not be poured into the feeding bowl. Feeding bowl must not be immersed in cleaning bath.
Teniferated, blue chromated	Nitro thinner	Dampen a rag with nitro thinner and rub with it
Colour sprayed / painted / powder coated	Soapy water / universal cleaner	Wipe with a damp cloth
PET / Makrolon / Plexi	Hoover and anti-static spray	Vacuum clean before rubbing down, then spray with an anti-static spray and rub off

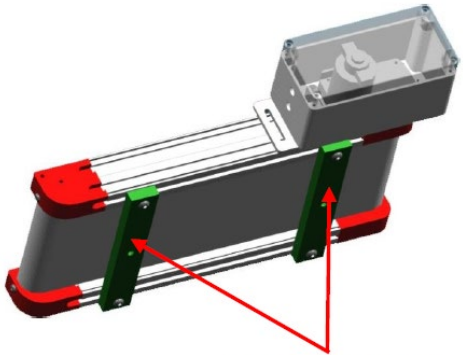
9.3.3 Replace the conveyor belt

To remove the conveyor belt, please proceed as follows:

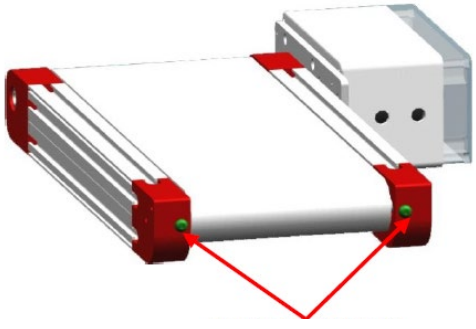
1. Dismantle the bowl tray and parts chute.



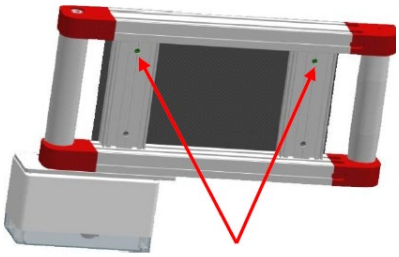
2. Dismantle the mounting struts.



3. Loosen and remove the clamping screws on the clamping deflection head.

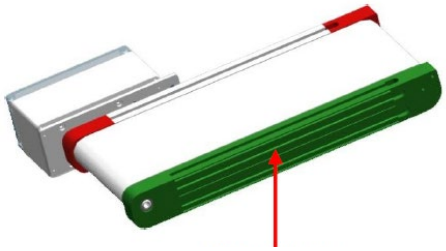


4. Push the belt on the underside of the transport body to the side and loosen the grub screws on one side of the cross struts.



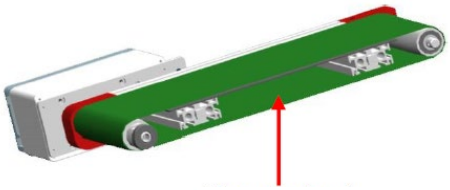
Grub screws

5. Pull down the longitudinal strut and deflection heads together.



Longitudinal strut

6. Pull down the conveyor belt.



Conveyor belt

7. Dismantle the mounting struts.
8. Slide the new belt onto the conveyor body and refit the bowl in reverse order, observing the following points.
   - Ensure that the two longitudinal struts are perpendicular.
   - Tension when tightening the grub screws (cross struts - see point d).
   - Tension the conveyor belt evenly and ensure that it is centred.
   - Do not "overtension" the belt.
   - Check the setting of the feed plates and readjust if necessary.
   - Ensure that the conveyor belt does not rub against the hopper tray.

   ⇨ The process is completed.

9.4 Further maintenance

Further maintenance is not required, if the ambient conditions listed below are complied with:

- Clean working area.
- No use of splash water.
- No abrasion or process dusts.
- Environmental conditions as specified in the technical data.

9.5 Spare parts, repairs

Afag Automation AG offers a reliable repair service. Defective modules can be sent to AFAG for warranty repair within the warranty period.

After expiry of the warranty period, the customer may replace or repair defective modules, wear parts himself, or send them to the Afag repair service.

Please note that Afag does not assume any warranty for modules that have not been replaced or repaired by Afag!

Spare parts

Spare parts for the conveyor belt hopper are available on request.

10 Decommissioning and disposal

The modules must be properly dismounted after use and disposed of in an environmentally friendly manner.

10.1 Safety instructions

WARNING

Risk of injury due to improper decommissioning and disposal!

Improperly carried out activities can result in considerable material damage and serious injury.

- Only use trained specialist personnel to carry out the activities.
- Disconnect the media supply before dismounting the module.
- Only remove module when the controller is switched off and secured!

10.2 Decommissioning

If the modules are not used for a longer period, they must be properly commissioned and stored as described in ➲ chap. 4.5.

10.3 Disposal

The module must be disposed of properly at the end of their service life and the raw materials used must be recycled. Observe the legal regulations and company requirements.

The modules must not be disposed of as a complete unit. Dismantle the modules and separate the various components according to type of material and dispose of them properly:

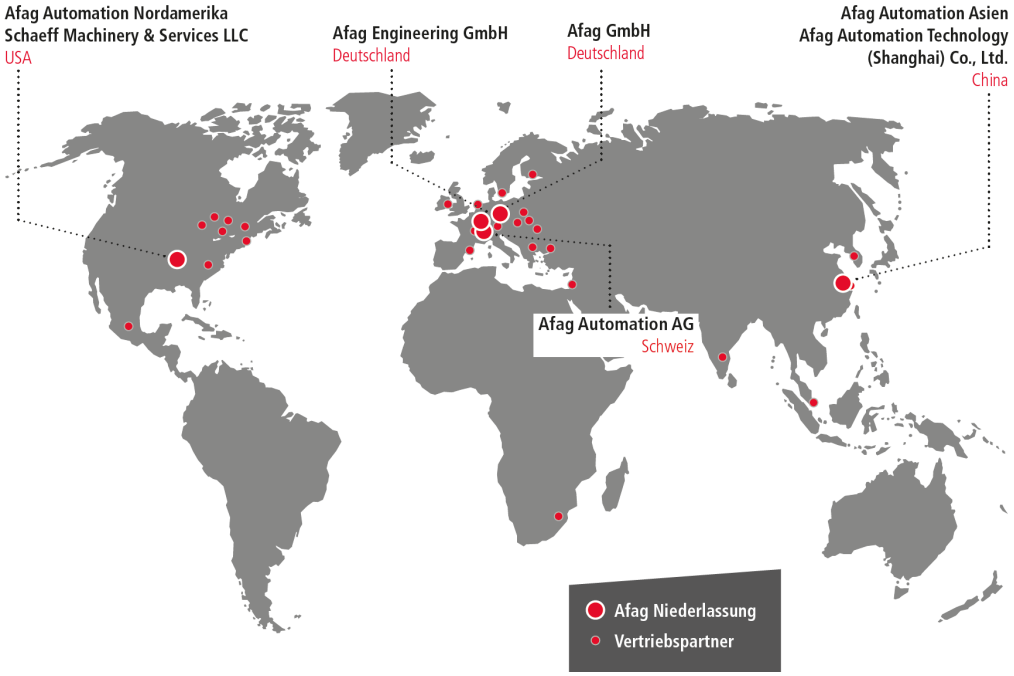
- Scrap the metallic materials.
- Hand over plastic parts for recycling.
- Sort the rest of the components by their material properties and dispose of them accordingly.

NOTICE

Risk to the environment due to incorrect disposal of the modules!

Environmental damage can be caused by improper disposal.

- Electronic parts, electrical scrap, auxiliary and operating materials must be disposed of by approved specialist companies.
- Information on proper disposal can be obtained from the responsible local authorities.


Afag Automation Nordamerika
Schaeff Machinery & Services LLC
USA
Afag Engineering GmbH
Deutschland
Afag GmbH
Deutschland
Afag Automation Asien
Afag Automation Technology
(Shanghai) Co., Ltd.
China
Afag Automation AG
Schweiz
Afag Niederlassung
Vertriebspartner