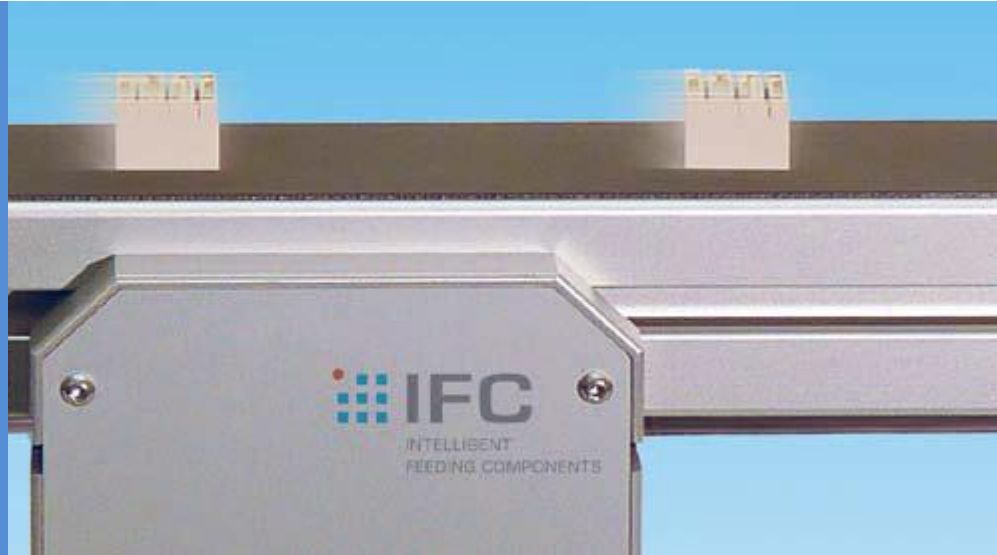


IFC

Conveyors

with centre drive

FBM



Operating Manual



Original version:
German

Target group: This operating manual is intended for trained and qualified personnel.

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Conveyor type: -----

Serial number: SN ____ - ____

Year of manufacture: ____

Project: PR ____ . ____

Dim. Conveyor belt: __ x ____ mm

Conveyor belt type: -----

IFC-Art.-No.: Conveyor belt: -----

The conveyor is an *interchangeable item of equipment* and can be attached in a modular way to various components.

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1. Important Notices

1.1. General information on the documentation

Due to the modular structure of the documentation, the design of your machine may differ from the images shown.

The documentation is of a general nature and may describe features which are not included in your package. The images serve as examples and may have no direct relation with the scope of the delivery.

1.2. Explanation of symbols and instructions

Danger signs These symbols can be found with all the safety information in this manual, which are pointing out dangers to persons, property or the environment.

Follow this information and act particularly cautiously in these instances.

Pass on all safety information to other users as well.



General danger



Voltage / Current



Crushing of hands



Explosive atmosphere



Laser radiation




Danger of being pulled in


1.3. Signal words in the safety information and their meaning

- Danger** Immediate danger with high risk, will result in death or serious injury if ignored.
- Warning** Possible danger with moderate risk, may result in death or serious injury if ignored.
- Caution** Danger with low risk. May result in moderate injury or damage to property if ignored.
- Attention** Minor danger, but important for function and service life of the system, as well as a reference to the source of the error.

1.4. Structure of the safety information

	Type and source of danger
	Consequences if this warning is ignored
Signal word!	<ul style="list-style-type: none">• Measures to avoid the danger

1.5. Structure of information

	Information Information text:
---	--------------------------------------

2. Basic Safety Information

2.1. Intended use



Danger!

Danger of explosion

Explosion of flammable substances

- The use of the conveyor in hazardous areas is forbidden!
-

The conveyors are intended for transporting solid, clean and dry objects. A minimum size must be observed. The conveyor belts are, for example, not suitable for the transport of sand, wood chips and the like.

2.2. Improper use

Any other use or use beyond what is specified is considered to be improper use. IFC GmbH is not liable for any resulting damages. The risk is solely borne by the operator.

2.3. Danger of the machine



Caution!

Rotating parts

Body parts and clothing being pulled in

- Wear personal protective equipment (hairnet)!
 - Remove body jewellery (chains, hair circlets, etc.)!
 - Wear tight-fitting clothing!
 - Operate equipment only with functioning protection devices!
 - Panels, covers must be installed and intact during operation! May only be opened by authorized personnel for maintenance and repair work!
-



Caution!

Machine environment

Injury caused by electric shock and moving parts

- Generally keep panels, cabinets, etc. closed!
 - May only be opened by authorized personnel during installation/initial operation!
-



Attention!

Emergency stop

Stopping of the conveyor in a dangerous situation

- It is recommended to integrate the conveyor into the emergency stop circuit of the entire machine.
-

If the conveyor is handled carelessly, there's a danger of clothing or body parts (including hair) being pulled along by the conveyor. For this reason, it is recommended that the customer installs an equipment-specific protective housing.

3. Description of the machine

3.1. Technical data

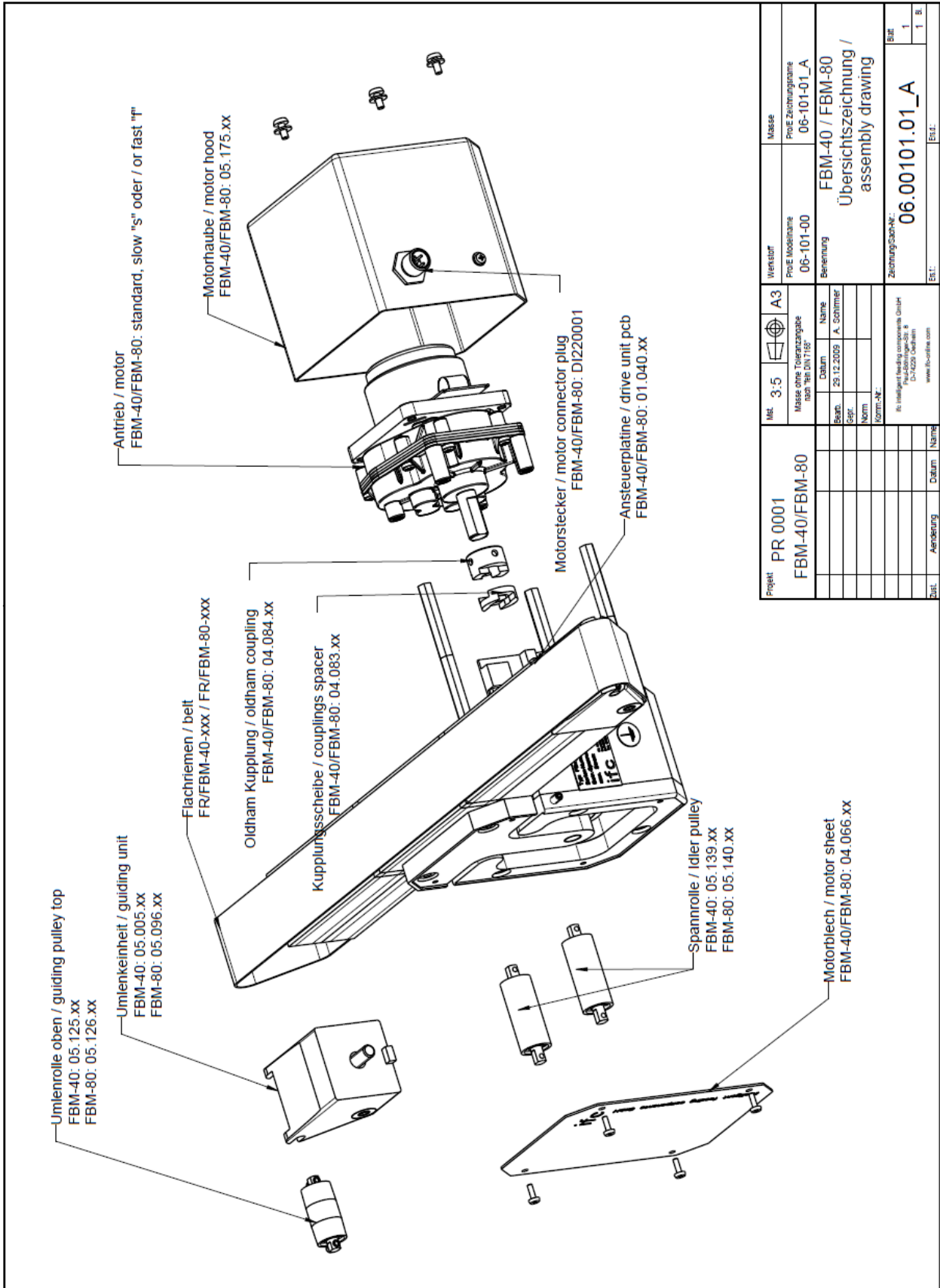
The technical data presented in the table refers to the conveyor FBM40 or FBM80 (project specific).

		FBM40	FBM80
General:	Length (project spec.) [mm]:	min. 300mm, max. 3,000mm	
	Width of belt body [mm]:	40	80
	Width of conveyor belt [mm]:	36	76
	Speed [m/min]:	4 to 36 ("Standard") From 1.2 to 10 ("Slow") 12 to 72 ("Fast")	
	Temperature range [°C]:	0 to +40	
	Protection class:	IP 54	
	Bearings:	Stainless steel, sealed on both sides	
	Max. Load capacity [kg]:	5	
Motor:	Design:	3-phase electronically commutated external rotor DC motor with integrated electronics	
	Rated Voltage [V]:	24 DC	
	Operating voltage [V]:	24 DC ± 10%	
	No-load current [A]:	0.14	
	max. Current [A]:	2 (with anti-blocking protection)	
	Rated torque [Nm]:	0.4 ("Standard") 1.4 ("Slow") 0.4 ("Fast")	
	Running direction:	can be selected via slide switch	
	Speed adjustment:	integrated Potentiometer or analogue set-point value setting 0-10V DC	
Transmission:	Design:	Multi-stage spur gear transmission	
	Lubrication:	grease filling for service life	
Weight:	Length 300mm [kg]:	3.0	5.35
	per additional 100 mm [kg]:	0.15	0.25
Electrical Connection:	Connection cable:	Supplied as IFC Original part	
	Cross section [mm²]:	5 x 0.34	
	Length [m]:	5	
	Hedge [A]:	3.15 / medium delay	

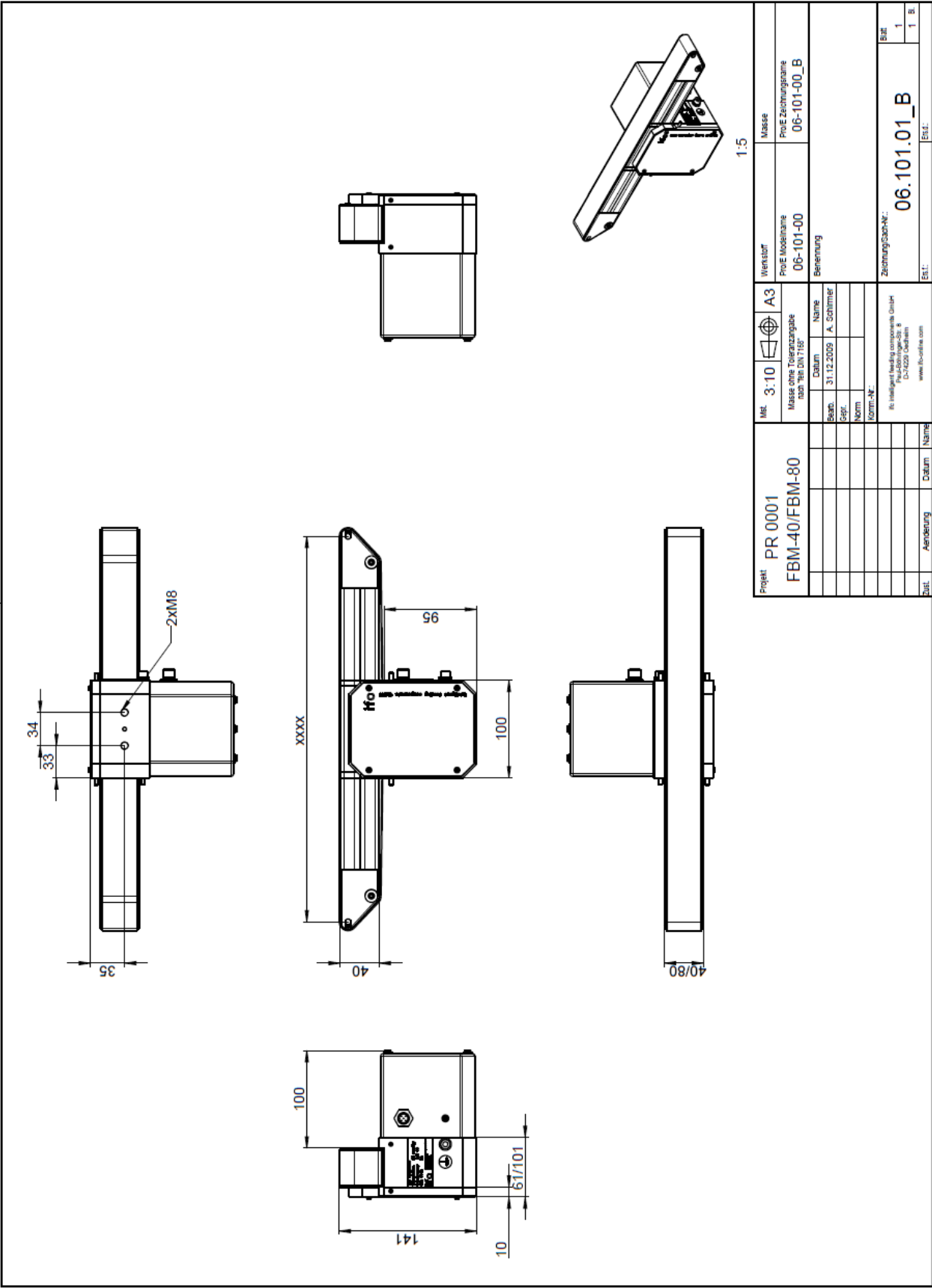


Nameplate and CE mark are mounted on the drive block.

3.2. Overview drawing



Projekt PR 0001 FBM-40/FBM-80	Met.	3.5	A3	Werkstoff	ProE Zeichnungsname	06-101-00	Masse	ProE Zeichnungsname	06-101-01_A
	Masse ohne Toleranzangabe nach "Bil. DIN 7185"			Benennung		FBM-40 / FBM-80 Übersichtszeichnung / assembly drawing			
	Bearb.	29.12.2009	A.	Schimmel	Zeichnungsdatei: 06.00101.01_A				
	Sprr.								
	Norm								
ifc An intelligent leading components GmbH Industriestraße 1 D-74299 Oeffenheim www.ifc-online.com									
Änderung	Datum	Name							
Blatt			Blatt						
			1						
			T. B.						



Projekt: PR 0001 FBM-40/FBM-80		Met: 3:10	A3	Werkstoff: Masse	
		Masse ohne Teilerzeugung nach "Bst. 06.101"		ProjE Modelname: 06-101-00	
		Date: 31.12.2009		ProjE Zeichnungsname: 06-101-00_B	
		A. Schimmer		Benennung:	
		Norm-Nr:		Zeichnungs-Nr: 06.101.01_B	
		www.ifc-online.com		Bst.:	
		IFC Intelligent Reading Components GmbH D-42699 Solingen		1	
				1 B	

4. Transport, Installation and Connection

4.1. Transport



Damaged parts

Impaired function of the conveyor

- When unpacking, check the conveyor for damaged parts and replace them before initial operation!
 - Any damage must immediately be reported to the forwarding agent.
-

Delivery takes place in cardboard boxes or wooden crates. The weight of the individual conveyor belts is dependent upon the width and length of the selected configuration. Accordingly, a suitable means of transport must be selected for in-house transport.

4.2. Assembly



Mounting

Failure of system function

- The fixtures must be designed for the weight and load on the system.
 - The system must be mounted in such a way that it is protected against vibrations and shocks.
-

Mounting options: **Option 1:** Mounting via screw threads on the underside of the drive unit (screw thread 2x M8; 8mm deep)

Option 2: Mounting via the profile slot of the body of the belt by means of holders suitable for this purpose.

The total weight of the conveyor depends on the width and the length, therefore a sufficiently robust mounting method must be chosen.

4.3. Moving the drive unit



Attention!

Danger of injury!

Crushing of fingers, pulling in of hair or clothing

- Switch off the machine before starting work and disconnect it from the power supply.
 - Safeguard power supply from unauthorized restart
-

The drive unit can be moved along the conveyor's profile. The position of the drive block depends on the customer's mounting situation and can be adjusted accordingly.

Instructions



1. Turn off conveyor
2. Safeguard from unauthorized restart
3. Evenly unscrew the four screws from the motor plate
4. Remove motor plate



5. Slightly unscrew the mounting screws that connect the drive unit to the conveyor profile



6. Move the drive unit along the conveyor profile
7. Tighten the fixing screws
8. Install motor plate and tighten screws evenly.

4.4. Electrical connection



Danger!

Voltage!

Personal injury and system damage by electric shock

- The electrical connection of the system may only be performed by trained and qualified electricians.
- Never disconnect electrical connections while voltage is connected



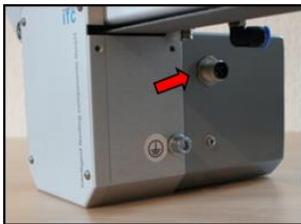
Attention!

Voltage!

Damage or malfunction of the system

- The electrical connection of the system may only be carried out by trained electricians.
- Supply voltages, which differ from the specifications, may damage the system.

Power supply



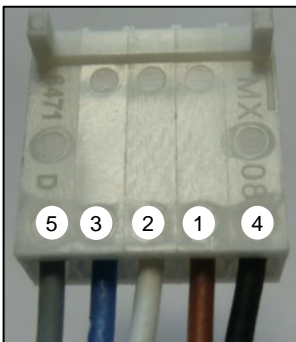
The motor connector of the conveyor is located on the side of the covering hood of the drive block.

The supplied motor cable is used to connect the motor to a power supply or to a superordinate control system.

Pin assignment



The drive unit must be connected according to the following assignment:



Pin	Colour	Function
1	brown	24V DC "Motor-enable"
2	white	GND "Motor-enable"
3	blue	GND "Supply"
4	black	24V DC "supply" (max. 2A)
5	grey	0-10V DC "external set-point value setting", optional



Attention!

Emergency stop

Stopping of the conveyor in a dangerous situation

- It is recommended to integrate the conveyor into the emergency stop circuit of the entire machine.

4.5. Ground connection

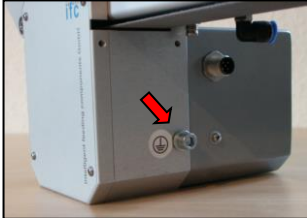


Warning!

Static charge!

Damage to the control electronics, functional impairment and voiding of the warranty

- Attach proper grounding
-



To connect the grounding, a grounding cable with a minimum cross-section of 4 mm² must be used. The ground wire must receive a corresponding ground connection from the customer.

5. Operation

5.1. Adjustment of the belt speed



Attention!

Configuration while belt is running

Damage to the system

- Maintenance and adjustment work may only be performed by trained and qualified personnel.
-

The adjustment of the belt speed must be carried out while the belt is running. Therefore, particular attention must be paid to the safety of personnel and machines.

The adjustment of the belt speed can be carried out continuously by changing the control voltage. This can be done manually by a built-in potentiometer or via the external input control voltage (PIN 5 of the motor connector) between 0 - 10 V DC (direct current).



Attention!

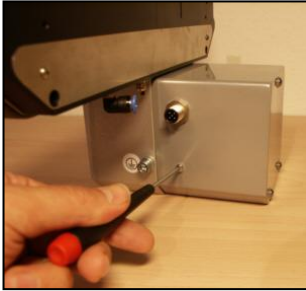
Belt speed too low

Belt stops

- Do not turn potentiometer too far to the left
-

Operation

Manually via internal potentiometer



The internal potentiometer is located on the side of the conveyor drive unit.

1. Remove the screw on the motor hood
2. The hole in the hood allows for adjustment of the potentiometer by use of a small screwdriver.
3. Adjust the belt speed by adjusting the potentiometer.
4. Fix the screw on the hood.



Instruction

Turn to the right: Belt runs faster

Turn to the left: Belt runs slower



Attention!

Incorrect control voltage

Damage to the control electronics of the motor

- The control voltage must not exceed 10V DC (DC)
-

Automatically via analogue set-point value setting 0-10V DC

Pin 5 of the motor connector allows control of the motor speed via an analogue set-point value setting of 0-10V, the motor switches off at below 10% of maximum voltage (10V) and the belt stops.

In case of operation with set-point value setting, make sure that the potentiometer is **completely turned to the left**, otherwise the remaining outstanding voltage from the potentiometer can change the set-point value, or the set-point value can only be adjusted down from the potentiometer voltage.

5.2. Adjustment of running direction

The running direction of the conveyor can be freely selected. From the factory, the running direction has been preset to the customer's request. If a change in running direction becomes necessary in the further use of the conveyor, it can be achieved by means of a slide switch under the motor hood of the drive unit.



Caution!

Voltage

Risk of injury

- Conveyor must be switched off and disconnected from power supply before starting work
 - Safeguard power supply from unauthorized restart
-



Caution!

Danger of crushing

Crushing of fingers

- Safeguard system from unauthorized start up
-

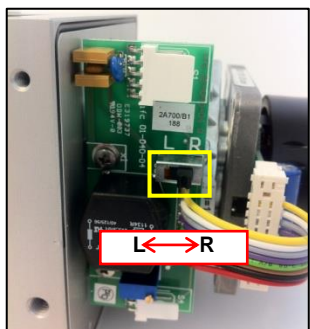
Instructions



1. Remove the three screws securing the motor hood.

2. Remove the motor hood

3. Adjust the running direction using the slide switch



4. Attach and affix the motor hood. It must be ensured that the cables inside do not come into contact with the rotating part of the motor.



Information

Switch position above ("L") Running direction "left"

Switch position below ("R") Running direction "right"

6. Behaviour in case of failure



Attention!

Rectifying problems

Personal injury and damage to the system

- Elimination of problems must be carried out by trained and qualified personnel.
-

6.1. Troubleshooting

Conveyor does not start

1. Can the belt turn freely?
 - Is a foreign body or an attachment part blocking the belt?
YES ⇨ *Remove blockage*
 - Is the tension of the conveyor belt too high?
YES ⇨ *Reduce tension of the conveyor belt*
2. Supply voltage is on?
 - NO ⇨ *Connect the supply voltage (PIN 3 + 4)*
3. Is the enable signal on?
 - NO ⇨ *Switch on enable signal (PIN 1 2)*
4. In case of manual set-point value setting: Is the set-point value setting too low?
 - YES ⇨ *Turn internal potentiometer to the right*
5. In case of automatic set-point value setting:
 - *Is the external analogue voltage on?*
 - YES ⇨ *The internal potentiometer must be turned completely to the left.*
6. Motor-gearbox unit is defective?
 - YES ⇨ *Install spare part*

7. Maintenance and servicing

7.1. Maintenance and service intervals

The necessary maintenance work and service intervals depend on the individual operating conditions, the degree of soiling and the use on the system components.



Attention!

Soiling of the conveyor belt

Damage by foreign body and oil

- Avoid contact of the belt with oil and objects that could damage it.
 - Clean the belt regularly.
-

The conveyor has been designed with the aim of keeping maintenance as low as possible. However, to ensure a long-lasting and problem-free operation, regular checks are to be carried out.

- Daily**
- ✓ General visual inspection. Check for damage.
 - ✓ Control of the belt:
 - Does the band run completely freely?
 - Does the conveyor belt run centrally on the deflection rollers?

→ *Readjust via the adjusting screws on the drive block (refer to 7.4)*
 - ✓ Control of the conveyor belt for wear

→ *replace conveyor belt, if necessary (refer to 7.3)*
- Monthly**
- ✓ Test the belt tension in order to ensure a slip-free transportation. For this matter, block the belt by hand and consider whether an appropriate pull is applied by the engine.

→ *In case of insufficient belt tension, tighten the conveyor belt (refer to 7.4)*
 - ✓ Check screw connections for tightness

→ *Tighten screws.*
 - ✓ Check ball bearings for noise emission



Attention!

Tension of the conveyor belt

Too intense tightening may damage the band

- Only apply so much tension to the conveyor belt, that a spinning of the drive roller is reliably prevented.
-

7.2. Cleaning



Attention!

Cleaning agent

Damage caused by incorrect cleaning agents

- Do not use acid, alkaline or abrasive cleaning agents or dilution.
-

The necessary cleaning work and its intervals depend on the conditions at the place of installation and the type and degree of soiling of components.

Soiling of the conveyor belt should be removed with a dry or slightly damp cloth. In case of oil or grease stains, a soap solution can be used.

7.3. Replacing the conveyor belt



Danger!

Danger of injury!

Crushing of fingers, pulling in of hair or clothing

- Switch off the machine prior to starting work and disconnect it from the power supply.
 - Safeguard power supply from unauthorized restart
-

Instructions

The operator must hire trained and qualified personnel for replacement of the conveyor belt.

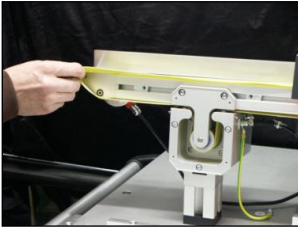


1. Switch off the conveyor before beginning work and make sure that the power supply is safeguarded from unauthorized restart.

2. Unscrew the four screws on the engine plate and remove the motor plate



3. Loosen the conveyor belt: Unscrew the adjustment screws of the tensioning rollers on both sides of the engine block.



4. Remove the conveyor belt by pulling to one side, beginning at the deflection roller.



5. Install the new conveyor belt in reverse order and get it on its track by repeatedly pulling on the top of the belt.



6. Tension the belt by evenly tightening the respective locking screw pairs on the drive unit.
7. **Short conveyors:** Now switch on the conveyor and block the conveyor belts by hand. The belt should have just enough tension that the motor will also be blocked and the drive roller does not slip.
8. **Long conveyors:** Now switch on the conveyor and block the conveyor belts by hand. Due to the length of the conveyor belt, it is possible that the motor cannot be blocked despite a sufficient tension. The tension is sufficient, when the motor transmits a correspondingly large torque to the belt.
9. Fix the motor plate with the four screws.
10. Check the belt after 3-4 hours of run time.



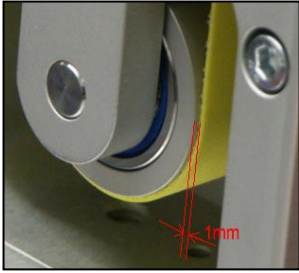
Attention!

Tension of the conveyor belt

Too intense tightening may damage the conveyor belt

- Only apply so much tension to the conveyor belt, that a spinning of the drive roller is reliably prevented.
-

7.4. Adjusting the belt motion



A newly delivered conveyor was set at the factory and tested for several hours. This ensures that the conveyor belt and all components are properly seated and no readjustment is necessary until further notice.

Nevertheless, it is not excluded that after some time, or specifically after a belt change, the conveyor does not run optimally, i.e. not in the centre of the deflection, tensioning and drive rollers. The belt motion must be corrected.

Adjustment via the inlet side adjustment screws

The belt motion can be optimally achieved on both sides of the drive unit via the inlet-side adjustment screws of the tensioning rollers.



Information The distance between the belt and the outer edge of the deflection rollers and the drive roll should be approximately 1 mm.

Fine adjustment via deflection rollers

If needed, a fine adjustment via the adjustment screws of the deflection rollers can take place at both ends of the conveyor.



8. Disposal

If no return and disposal agreement has been reached, the components which are no longer used should be disassembled into their component parts and recycled according to the type of material.

9. Wear and spare parts list



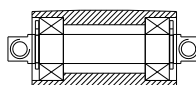
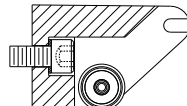
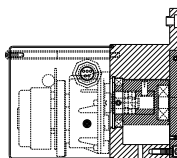

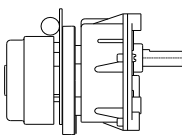
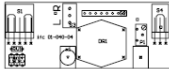




Attention!

Loss of warranty

Use of non-original parts

- Only use IFC-original spare parts

!! When ordering, please be sure to indicate serial number and conveyor type!!

Item number	Item name	Illustration	Comment
Via indication of serial number and conveyor code	Conveyor belt		refer to assembly instructions
Via indication of serial number and conveyor code	Conveyor profile		refer to assembly instructions
05.00125 05.00126	FBM40 deflection roller above FBM80 deflection roller above		
05.00005 05.00096	FBM40 deflection unit FBM80 deflection unit		Frontal deflection unit with lower deflection roller
05.00124 05.00194 05.00195 05.00127 05.00196 05.00197	FBM40 drive unit "Standard" FBM40 drive unit "Fast" FBM40 drive unit "Slow" FBM80 drive unit "Standard" FBM80 drive unit "Fast" FBM80 drive unit "Slow"		Complete drive block with the motor, transmission, wheels and lid
05.00139 05.00140	FBM40 tensioning roller FBM80 tensioning roller		Installation in drive block
20.00156	FB motor-gear unit "Standard" (4 to 36 m/min)		Installation in FBM40/80 drive unit
20.00157	FB motor-gear unit "Slow" (1.2 to 10 m/min)		
20.00155	FB motor-gear unit "Fast" (12 to 72 m/min)		
05.00038	FB control electronics		Installation in FBM40/80 drive unit
05.00215	FB drive unit connection cable		24V connection cable with connector
04.00084	FBM clutch motor		
04.00083	FBM clutch plate		
04.00066	FBM motor plate		Cover plate for drive unit
05.00175	FBM motor hood		Hood for motor in drive unit

10. Declaration of conformity

EG-Konformitätserklärung	
im Sinne der EG-Richtlinie	
<input checked="" type="checkbox"/> Maschinen 2006/42/EG, Anhang II 1A	
Die Bauart der Maschine	
Fabrikat:	Förderbänder (auswechselbare Ausrüstung)
Serien-Nr.:	SN _____ - _____ Baujahr: _____
ist entwickelt, konstruiert und gefertigt in Übereinstimmung mit den oben genannten Richtlinien, in alleiniger Verantwortung von	
Firma:	IFC Intelligent Feeding Components GmbH Paul-Böhringer-Str. 8 D - 74229 Oedheim Tel.: +49 7136 96395-0 Fax: +49 7136 96395-9
Folgende harmonisierte Normen sind angewandt:	
<input checked="" type="checkbox"/> DIN EN ISO 12100:2011-03, Sicherheit von Maschinen	
<input checked="" type="checkbox"/> DIN EN ISO 13857:2008-06, Sicherheitsabstände gegen das Erreichen von Gefährdungsbereichen mit den oberen und unteren Gliedmaßen	
<input checked="" type="checkbox"/> DIN EN 619:2011-02, Stetigförderer und Systeme	
<input checked="" type="checkbox"/> DIN EN 60204-1:2011-01, Sicherheit von Maschinen; Elektrische Ausrüstungen von Maschinen; Allgemeine Anforderungen	
Name und Anschrift des Dokumentationsverantwortlichen:	
Name:	<i>IFC Intelligent Feeding Components GmbH Andreas Schirmer</i>
Straße:	<i>Paul-Böhringer-Str. 8</i>
Ort:	<i>D-74229 Oedheim</i>
Telefon:	<i>+49 7136 96395-0</i>
Die zur Maschine gehörende Betriebsanleitung liegt vor.	
<input checked="" type="checkbox"/> in der Originalfassung (deutsch)	
Ort, Datum	Oedheim, _____
Unterschrift Andreas Schirmer Geschäftsführer

IFC Intelligent Feeding
Components GmbH

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