



Multi belt conveyor

Straight multi belt conveyor system for light transport

FS-SBT-40

USER MANUAL

EN VERSION



USER MANUAL

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1. GENERAL INFORMATION

This User manual;

- are an integral part of the product and was included by the manufacturer with the product to provide the owner and operator of the machine with the fundamental knowledge required for safe and proper operation,
- complies with the EC Machinery Directive 2006/42/EC and NEN 5509,
- was written for all employees who assemble, install, start-up, and service this product and should have read through this manual carefully and understood them. The manufacturer accepts no liability for damage and malfunctions resulting from any failure to observe this manual,
- must always be kept near the machine and must be easily accessible and legible for anyone operating or working with the machine in any way.

Consult FS Solutions if you have any questions or if you require further information.

1.1 DISCLAIMER

We reserve the right to make technical modifications diverging from the illustrations and information provided in this manual if such help to improve the machine or manual. The assembly instructions may only be duplicated for internal use. They must not be passed on to third parties.

Adhering to the operating instructions is a prerequisite for fault-free operations and the fulfilment of any right to claim under warranty. Read the operating instructions before you start working with the unit.

You must comply with the information contained in these operating instructions to ensure safe operation of the FS-SBT conveyor system and to achieve the specified product characteristics and performance requirements. While every precaution has been taken in the preparation of this manual, the publisher assumes no responsibility for errors or omissions. Neither does FS Solutions assume liability for injury to persons or damage to equipment or property resulting from non-observance of these operating instructions. In such cases, any liability for defects is excluded.

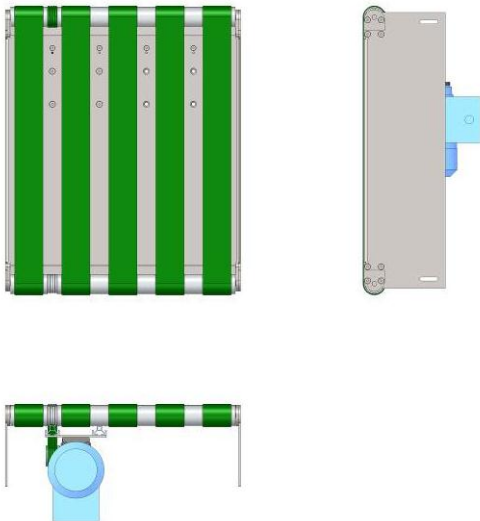
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1.2 PRODUCT INFORMATION

A conveyor is a widely used form of mechanical internal transport, which transports material from one location to another. FS-SBT is well suited for compact, fast and efficient transport for a wide variety of materials, making them popular for any company that have internal material handling in small spaces. A conveyor system can be produced as a modular chain, belt or rail system with or without side and/or upper support and can give substance to the many different needs of different industries. FS Solutions develops and manufactures conveyor systems from proven conveyor components. This unit is a belt conveyor for moving unit loads and in which a straight going belt is guided over a support plate. The drives have the purpose of transferring motor power to the conveyor chain, they are used at the end of the track for establishing pulling force. The vertical idlers are used for returning the belt to the start of the track.

The dimensions (width, length, height) of the conveyor are governed by;

- Application
- Product type, dimensions, weight and capacity
- Specification of the customer
- Gravitational centre
- Layout of the company
- Layout of the machine in which it is incorporated (if it is a part machine)
- Etc.



1.3 INTENDED USE

All individual components are meant to be working as one machine and as a whole only they comply to CE guidelines. The machine is a belt conveyor system for transporting products and/or packed products only. The conveyor system is designed for transporting products of specific measurements and weight at a predetermined speed. The conveyor system must only be installed indoors where it is protected from the elements. Intended use also includes reading this manual thoroughly, especially the safety notes.

If the conveyor system is not used for its intended purpose, safe and reliable operation will not be guaranteed.

The operator of the conveyor system, not the manufacturer, is responsible for any injury and property damage resulting from improper use.

The FS-SBT can be ordered both as a partly completed machine as a fully completed machine. The difference is that a partly completed machine is intended to be incorporated into another machine. This states that the machinery is incomplete and must be made to fully conform with the requirements of the directive before it is brought into service and is not designed to be put to service individually. The fully completed machine can be put to service individually and does meet European guidelines when doing this. For knowing which version you have, you could check the included EG Certification.

1.4 SAFETY SYMBOLS

The warning symbols with text (as seen below) are intended to draw attention to unavoidable residual risks involved in handling and using the machine. These residual risks relate to persons, the machine, other property and objects as well as to the environment. The following safety symbol is used in these assembly instructions. This symbol is intended to draw the reader's attention.



CAUTION! Example text

This symbol is meant to draw attention to danger posing a particular threat to life or health, in addition to this, risks may also exist for machine, property or the environment.

2. SAFETY NOTES

2.1 INTRODUCTION

This chapter covers all safety aspects of the conveyor system. The conveyor system has been designed and manufactured in allowance of a risk assessment and after carefully selecting the applicable harmonised standards as well as other technical specifications. As a result, they reflect the state of the art and guarantee the maximum of safety. The main safety risks that came up after running the risk assessment are listed in §2.2. Based on the risk assessment, the conveyor is equipped with a number of safety features that are discussed in §2.3 of this manual. However, this safety can only be achieved in working practice if all of the measures necessary to do so are taken. Planning these measures and monitoring their implementation falls within the machine owner's obligation to exercise due care. Therefore, observe the "safety measures" listed in §2.4 thoroughly. proper use also includes reading this manual as well as understanding all of the information contained in them – in particular the safety chapter and individual warnings, marked with the exclamation sign. This also includes carrying out all servicing and maintenance work at the prescribed intervals.

The conveyor, made of various machine components is a transportation system consisting of moving parts. Before starting up a conveyor system, it is imperative to ensure that the overall system containing components supplied by FS Solutions conforms to the provisions of the EC Machine Directive 2006/42/EC (29/06/2006) and the statutory provisions translated into national law. The following safety notes are primarily concerned with the use of FS-SBT conveyor units, please also read safety instructions of the corresponding overall machine of which the FS-SBT is a part of.



CAUTION! Never work in any manner posing a safety hazard!

2.2 GENERAL SAFETY RISKS

The conveyor system, assembled from machine components, is a machine with moving parts. Rotation of the belt presents potential mechanical hazards. All areas of the conveyor system presenting a hazard to persons must be secured by means of suitable guards. Applicable international standards as well as national regulations on safety and accident prevention must be met.

- Potential hazard zones must be separated off by guards and made inaccessible to persons. Protective fences can be installed around the system or protective enclosures can be fitted directly at the point of danger.
- If hazard zones cannot be separated off by guards, points of danger must be marked with warning signs.

The main risks in the use of the conveyor are as follows:

- Conveyor belts with catch plates and/or bordoflex, as well as belts fitted with client-specific components:
 - Small crushing hazard between support plate and belt in the upper run. These hazards should be shielded before putting the overall machine in service.
 - Crushing hazard between leg and belt fitted components. These hazards should be shielded before putting the overall machine in service.
- Line transitions (if fitted): Risk of being pulled in and crushing hazard at transition to downstream line. These hazards should be shielded before putting the overall machine in service.

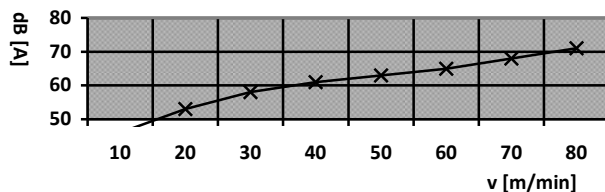
2.3 NOISE EMISSION

Under applicable regulations on health and work safety as well as environmental protection, the noise emitted from a conveyor system must not exceed a maximum level of 75dB(A) in accordance with Directive 2003/10/EC on noise. To prevent unnecessary noise, make sure you fasten all bolts and nuts firmly by hand, don't have too much clearance in the belt and you have all sprockets lines out properly and have made sure the adjustable feet are equally sharing the weight of the conveyor.

Because of the smoothness of the belt, the noise emitted from rotating the belt over profiles will be low compared to modular belts. If it for any reason does make exceeding noise (after applying all above), contact FS Solutions.

The reference line is set up at a height of 1.0m above the floor. The measuring points for the drive, curve and idler are positioned at:

- 0.5m above and
- 1.0m to the side of the line



2.4 OVERHEAD INSTALLATION

If conveyor(s) are installed above a headroom height of approximately 1.6m (overhead installation), the danger zone below the conveyor must be marked and, if necessary, segregated by means of suitable guards. Loads could fall from the conveyor. If traffic routes cross the danger zone, safe passages must be created on site by the owner. While an overhead conveyor is in operation, keep obstacles out of the area below the conveyor so as to avoid collisions.



CAUTION! While in service, persons must keep out of the unprotected hazard zone below the conveyor. Safety helmets must be worn by operating, service and cleaning personnel entering the danger zone for servicing, repair, cleaning and operational work.

2.5 APPLIED SAFETY MEASURES

The conveyor is standard equipped with a support plate on the topside of the which guides the belt without any clearance.

Clearances between moving and static parts were decreased to a minimum where possible to minimize the chance of getting caught between them.

The belts used for FS-SBT conveyors have been carefully selected and have a smooth surface to prevent getting caught in between belt and frame. Exception on this is if the belt is equipped with upstanding components such as catch material.

The emergency stop function is (in case your conveyor is not meant to be build in) located at an easy reachable position. The most common position is on one of the Legs near the electromotor. If the FS-SBT conveyor is to be build into another machine, the supplier of the overall machine has the obligation of ensuring emergency stop functions over the overall system in which this conveyor is a part of, this emergency stop system has to be conform currently applicable machine guideline and national regulations and standards..

2.6 PRECAUTIONS

The user/operator of the conveyor, has to take the following safety precautions:

- This manual, in particular the safety instructions are read. Pay extra attention on the text written at the warning signs in this manual.
- Only to use the conveyor properly as it is intended. (see §1.1).
- This manual should always be available at the location where the conveyor is used.
- Operation, service and maintenance of the conveyor should be done by qualified and authorized personnel only.
- While operating the conveyor, watch out for other people near the conveyor.
- Before doing maintenance or repairs, make sure you have the power cable unplugged.
- Perform all operations controlled, thoughtfully and slowly.
- Don't put your hands and/or fingers on or near the conveyor when it's running.
- Any identified defects with the potential to impair safe operation are reported to the owner for the owner to take care of rectifying them.
- The system's power switch is switched off and protected from being switched back on again without authorisation before conducting cleaning, service or maintenance related duties.

The owner must ensure that:

- The system is only used for its intended purpose (see section 2 for details).
- The system is only operated if it is in proper working order and, in particular, that the safety devices are regularly inspected for effective operation.
- Requisite personal protective equipment is provided for and used by operating, servicing and repair personnel.
- The assembly instructions are kept in a legible state and are available in full at the place of machine use.
- The system is only operated, serviced and repaired by adequately qualified and authorised personnel.
- These persons receive regular instruction on all matters concerning work safety and environmental protection and are familiar with the assembly instructions and, in particular, with the safety warnings they contain.
- The system's main switch is switched off and protected from being switched back on again without authorisation before conducting servicing, repair and cleaning work.

3. TRANSPORT AND STORAGE

During loading and/or transportation, please note that;

- The belt does not get stuck
- It is protected from the elements
- The conveyor system isn't pushed or pulled, because the rubber feet aren't designed for sliding
- It's free from excessive vibration
- Low air humidity
- Low dust accumulation

When lifting the conveyor, keep the centre point of gravity in mind. Careless transport may result in damage that could interfere with the operation of the conveyor system.

Make sure the conveyor system is installed or stored in a clean and dry environment. The best operating temperature is room temperature (ca 20°C), the permissible temperature is in range between -15 °C and +75 °C.



CAUTION! Always unplug the power cable and lay the cable and plug on the conveyor when you move it.

4. ASSEMBLY AND INSTALLATION

The conveyor is pre-assembled at FS Solutions.

Assembly steps:

- Place the conveyor.
- The conveyor system can be heightened by the adjustable feet using a wrench.
- Connect the conveyor electrically, and make sure that it is running in the right direction, otherwise switch 2 of the poles in the junction box.
- Connect any in- and output systems or machines.



CAUTION! Risk of electric shock! The conveyor may only apply the electric mains, after all assembly and installation tasks have ended. Ensure that the cables are away from walking paths.

5. OPERATION

After completing final assembly, check the following points before starting up for the first time:

- Check all mechanical joints and connections, such as screws, pins or rivets, for tight fit, tightening them if necessary.
- All protective covers (e.g. vertical-drive belt guard) are in place.
- All danger zones are guarded as written in chapter "safety notes"

The operation of the conveyor is very simple. The operation is mainly determined by the type of switch that is connected to the motor. The operation of the service switch with motor protection is discussed in §5.1.

Make sure you only use the conveyor system for its intended use which is noted in this manual at §1.1.

Normal operation

It is important to ensure that the servicing intervals for normal operation (see Section 10 "Cleaning, servicing and maintenance") are observed. The "Safety precautions" described in Section 6 must also be followed.



- Never work in any manner posing a safety hazard!
- Only operate the system if all guards and safety equipment are in place and in proper working order!
- Check the system for externally visible damage or deficiencies at least once every shift!
- Immediately report any changes that have occurred (including operating behaviour) to the department / person responsible!
- In the event of malfunctions, immediately shut down and immobilise the System and take steps to rectify faults!
- Before switching the system on/setting the system in motion, make sure that nobody is exposed to any danger when the system starts running!

5.1 ON/OFF SWITCH

The service switch with motor protection is available in two versions. When the conveyor is connected to the control of a complete system, the rotary switch is executed in black. When the conveyor is used as a stand-alone unit used the rotary switch is executed in red. In the last case there is a plug mounted on the output power cable. On customer wishes we also offer entire control units with a variety of different possible options and control functions.

The motor protection consists of the possibility of locking the switch in off position. This will prevent the switch from accidentally being turned on while performing maintenance, cleaning or any other actions at which you don't want the conveyor to start running. For this safety feature you do require a padlock.

Operation:

- Insert the plug into the socket.
- Turn the switch to the "on" position.
- The conveyor belt will start to rotate at a constant speed.
- Returning the switch to the "off" position will stop the conveyor immediately.



6. MAINTENANCE

The conveyor should periodically be checked for proper running. Depending on the length of the conveyor and the weight of the product it is wise to maintain a minimum of 500 to a maximum of 1000 hours to perform maintenance.

Maintenance of the conveyor is valuable because it allows the life of the conveyor to be extended and the potential of interference is significantly reduced.

The followings needs to be performed during maintenance:

- The entire conveyor is to be cleaned. However, pay attention that you don't wet the electrical components.
- Only use cleaners with a pH between 5.0 and 8.0.
- Check the belts and snares for damage and tightness, if not functioning properly replacing is advised. In chapter "Spare Parts" materials are stated. All materials and components can be ordered at FS Solutions.
- Check all moving parts properly, especially bearings for unusual noise production.

Cleaning the conveyor belt:

Especially when the belt is new it can produce some dust from wear, this is normal for a belt that is still finding it's path, and very stiff mainly along when going round and idler, it should be better in a couple of weeks of operation. Don't be alarmed and clean it up. You don't have to get the belt of in order to do this.

Once every 2 years the conveyor system needs to be cleaned thoroughly. This means the belt has to be taken from the profiles and be cleaned by hand. When you mount the belt back in make sure you have a dry belt and frame.

6.1 CHANGING OIL MOTOR REDUCTOR

Most of the time FS Solutions uses WA* housings from SEW, with this motor it is not necessary to refill oil. The oil added on construction has been added for a lifetime.

If you have a different motor you should regularly check the oil level of the motor reductor(s) and if necessary fill with the appropriate lubricant. Change the oil every 10.000 operating hours or every two years. In case the application runs on synthetic oil you'll only need to change the oil every 20.000 operating hours or every four years.

7. TROUBLESHOOTING

It's a user friendly system which basically has very little interference. If an error does occur you should always read the FAQ below first. If your error is not mentioned in the FAQ please contact FS Solutions and try to explain your problem as accurate as possible.



CAUTION! Only start fixing the error after you have thoroughly read the safety instruction on chapter 2 of this manual thoroughly and have disconnected the conveyor from the power supply.

PROBLEM	SOLUTION
The conveyor does not start	<ul style="list-style-type: none"> - Check if your plug is in the socket. - Check the motor connections.
The conveyor does not rotate	<ul style="list-style-type: none"> - Check the belt tension (see § 6.1)
Motor does not run	<ul style="list-style-type: none"> - The motor is probably defect, contact FS Solutions.
The conveyor does not or does not work properly.	<ul style="list-style-type: none"> - You have exceeded the maximum loading limit. - The speed of the conveyor is set to low. - The conveyor needs to be aligned properly. - The belt got stuck. - The belt is running against an insert which has not been tightened enough. - The motor is not connected properly. - One or more bearings are broken, and need to be replaced.



8. TECHNICAL SPECIFICATIONS

Type	:	FS-SBT
Max capacity	:	± 50 m/min
Guide profile material	:	RVS 304 2B
Plate material	:	RVS 304 2B
Shaft material	:	RVS 303
Gear motor:	:	Please see specifications plate on the drive



9. SPARE PARTS

Spare parts can be requested and/or ordered at FS Solutions.
Most common to be replaced are the bearings and snares and belts.

Used bearings: SKF/INA FAG 6203 17x40x12

Used belt material: UU 20U B=80mm, zwart-groen

Used snare material: Rondsnaar 85shA, rond 5, groen



ANNEX

ANNEX I	EC DECLARATION OF CONFORMITY
ANNEX II	DRAWING (HAS BEEN ADDED AS AN INDEPENDENT FILE)



FS Solutions