

Mat top Conveyor



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BELT CONVEYOR SYSTEMS
TABLE TOP CONVEYOR SYSTEMS
MAT TOP CONVEYOR SYSTEMS
CONVEYOR COMPONENTS

A division of **Flex** group b.v.

EMS(T) - serie

Order - Clientspecifications

Contents

Project- ordercode

Date: _____ Ordercode: _____

Clientspecifications

Name company: _____ Projectcode: _____

Name client: _____

Street: _____

City: _____

State: _____ Zip code: _____

Country: _____

Telephone: _____

Fax: _____

E-mail: _____

Stamp supplier

Name supplier: _____

Name contact person: _____

Street: _____

City: _____

State: _____ Zip code: _____

Country: _____

Telephone: _____

Fax: _____

E-mail: _____

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Introduction

Safety instructions

This section contains basic information on the document itself and the subsequent description of the equipment.

Mortal danger!

Immediate danger to life!

In order to achieve the maximum degree of safety the safety instructions must be read before any work is carried out or the equipment installed.

Document information

User manual

The aim of these user instructions is to provide the user with information on how to handle and use the equipment before, during and after production. It is important that this document is available for the user during the whole of the lifetime of the equipment.

Changes in the drawings

The instructions in this document are in accordance with the construction and the drawings for the equipment at the time of delivery of the equipment.

Document producer

Easy Conveyors b.v.
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The Netherlands

Service

Look at: www.easy-conveyors.com for your local dealer



WARNING

The safety alert symbol, black triangle with white exclamation, is used to alert you to potential personal injury hazards.



DANGER



Climbing, sitting, walking or riding on conveyor will cause severe injury.
KEEP OFF CONVEYORS.



DANGER



DO NOT OPERATE CONVEYORS IN AN EXPLOSIVE ENVIRONMENT.



WARNING



Exposed moving parts can cause severe injury. **LOCK OUT POWER** before removing guards or performing maintenance.



WARNING



Gearmotors may be **HOT**. **DO NOT TOUCH** Gearmotors.



WARNING



Easy conveyors cannot control the physical installation and application of conveyors. Taking protective measures is the responsibility of the user. When conveyors are used in conjunction with other equipment or as part of a multiple conveyor system, **CHECK FOR POTENTIAL PINCH POINTS** and other mechanical hazards before system start-up.



WARNING



Loosening stand height or angle adjustment screws may cause conveyor sections to drop down, causing severe injury. **SUPPORT CONVEYOR SECTIONS PRIOR TO LOOSENING STAND HEIGHT OR ANGLE ADJUSTMENT SCREWS.**

IMPORTANT: Some illustrations may show guards removed. Do NOT operate equipment without guards.
Upon receipt of shipment: • Compare shipment with packing slip. Contact factory regarding discrepancies.
• Inspect packages for shipping damage. Contact carrier regarding damage.
• Accessories may be shipped loose. See accessory instructions for installation.
Easy Conveyors reserves the right to make changes at any time without notice or obligation.

Maintenance

Maintenance

Introduction

When they are properly maintained, Easy conveyor systems will have an almost trouble-free life. As with all mechanical equipment, some maintenance will be required. This section provides support for drawing up your own maintenance schedule.



BEWARE

Maintenance on Easy Conveyor systems must only be carried out by authorized personnel who are familiar with the Easy Conveyors material.



BEWARE

In Case of any doubt regarding the most suitable maintenance procedure, it is recommended that contact be made with the supplier.

Tools required

For the maintenance of the iX-line conveyor system, the following tools will be required:

- ring/open-ended spanners, sizes 10, 13, 15 and 17
- set of hexagonal keys
- screwdriver
- chain tool

Chain

The chains are manufactured from polyacetal or polyprop, which combines the characteristics of good wear resistance, chemical stability, good impact resistance and suitability over a wide range of temperatures.

The chain must not be pre-tensioned when it is being fitted. Pre-tensioning can result in increased wear of both the chain and the slide strip.

The chain has a good impact resistance and breaking strength.

In order to function properly, each link in the chain must be secured correctly.

Safety rules for maintenance

- Remove all products from the conveyor.
- It is always advisable to warn all personnel in the vicinity of the conveyor that maintenance activities will be carried out. Whenever possible, place warning notices on the conveyor and all associated operating equipment to reduce the risk of accidental starting.
- During the performance of maintenance activities, always ensure that the power supply to the drive unit(s) concerned is switched off. When activities will be performed in an area that is not in the immediate vicinity of the drive unit, it is necessary to make this absolutely clear.
- Ensure that all the equipment and replacement parts necessary to complete the maintenance activity are available.

Easy Conveyors components

- Remove all products from the conveyor.

Drive units

- Slipping clutch (if present)



BEWARE

The slipping clutch on the drive unit is a safety provision for the conveyor belt and thus not for persons.

- Safety

The slipping clutch on the drive unit is a protective device that stops the transport chain if it becomes overloaded. It has three purposes:

- the prevention of personal injury
- the prevention of damage to the conveyor.
- the prevention of damage to the products

- Precautionary measures

1. Stop the system
2. Remove all products from the conveyor
3. Ensure that the conveyor cannot be accidentally started
4. Disconnect the power supply

Maintenance

Maintenance



BEWARE

If an attempt is made to adjust the slipping clutch while there are still products on the conveyor, the tension present in the transport chain can result in injury when the slipping clutch is released.

Before adjustments can be started, the tensile force for the transport chain must be calculated.



BEWARE

The plates of the slipping clutch must remain dry

• Checking the tooth belt

The tooth belt must be tensioned after 40, 200 and 600 operating hours and thereafter at intervals of 1,000 operating hours. (See also Table 2, Maintenance schedule on page 12).

• Checking the gearboxes

In general, visual inspection is sufficient. Check for oil leakage around the gearbox and the sealing ring for the output shaft. Some motor gearboxes are supplied with pressure release plugs for the gearbox. It is not possible for these to be fitted during transportation in connection with the possibility of leakage. If pressure release plugs are delivered with the system these must always be fitted to prevent premature collapse of the output shaft sealing ring. The motor gearbox must also be inspected in accordance with the motor manufacturer's instructions.

The gearbox for the drive unit is lubricated for life, so that in normal operating conditions the lubricant need not be replaced. If circumstances require the oil in the gearbox to be renewed, select a type of oil from the following table. (Table 1)

• Check the bearings in the Easy Conveyors drive unit and the idler unit

The bearings in the Easy Conveyor drive units and idler units must be inspected at intervals of 1000 operating hours.

Inspection must be carried out as follows:

1. Remove the transport chain
2. Rotate the drive shaft and/or the circulation wheel manually and check to see if any play can be felt in the bearings. If play is excessive, disassemble the drive unit or the circulation unit and replace the bearings.
3. Carry out a visual inspection of the plastic drive wheel and the circulation wheel.
4. Re-fit all components and the chain.

• Drive unit chain guides

In the drive unit, the transport chain is guided by the flanges of the plastic side plates.

During each inspection of the drive units, these guides must also be visually inspected. If any damage to these guides is detected, they must be replaced immediately.

The failure of these guides can result in serious damage to the drive unit and the chain.

Type	Temperatur in °C	ARAL	BP	ESSO	MOBIL	SHELL	DEA
	0 to +40	Degol G680	Energol GR-XP680	Spartan EP680	Mobilgear 636	Omala 680	Falcon CLP680
	-15 to +25	Degol BG220	Energol GR-XP220	Spartan EP200	Mobilgear 630	Omala 220	Falcon CLP220
	-20 to +10	Degol BG100	Energol GR-XP100	Spartan EP150	D.T.E. 18	Omala 100	-
	-45 to -20	-	Energol LPT 22	Univis J13	D.T.E. 11	Tellus T16	Aircraft Hydr. Oil 15
Grease	-15 to +40	Aralub FDP 00	Energrease HT-EP 00	Vibrax EP370	Mobilplex 44	Grease S3655 FG	Orona EPO

Table 1
Types of
lubricant

Maintenance

Maintenance

Curves

There are two types of curve - horizontal and vertical.

• Horizontal curves

This type of curve has a radius depending on the width of the chain, with its centre at the heart of the conveyor. Inspection must be carried out visually at intervals of 1,000 operating hours. For this, the chain must be removed. If wear is detected, these sliding strips must be replaced in order to guarantee continuity in the conveyors.

• Vertical curves

This type of curve has a standard radius. The chain is drawn through the curve and thus has a greater coefficient of friction. As a result of this, these curves must receive special attention. Visual inspection must be carried out at intervals of 500 operating hours. Excessive wear can easily be detected when the curve is inspected with the chain in position. When the transport chain extends upward by more than 3 mm at the internal radius of the curve, a thorough inspection of the chain and the slide strip is necessary. For this purpose, the chain must be removed and replaced if it appears that it has been subjected to excessive wear.

If it appears that the slide strip has become worn, it must be replaced. If this is not done, this can have an influence on the total functioning of the system.

Transport chain

The tension in the transport chain must be checked after 40, 200 and 600 operating hours and thereafter at intervals of 1000 operating hours and must be tensioned if necessary. (See also table 2, page 12.

The chain is manufactured from an elastic material. In addition to elastic stretching, material creep results in additional stretching. The degree to which stretching occurs depends on the length of the chain and the tensile loading in the chain.



BEWARE

Too large length in the chain can result in wear at the point where it enters the drive unit.

• Procedures for adjusting the length of the transport chain

1. The length of the chain must be adjusted at the driving head of the conveyor.
2. Ensure that the conveyor cannot be accidentally started.
3. Disconnect the power supply
4. Remove all products from the conveyor.
5. If necessary, remove the black protective cover from the transmission chain. Loosen the slipping clutch or remove the transmission chain. The transport chain can now be moved manually.
6. The transport chain must be tensioned in the conveyor by separating the chain with removing a pin, than pull on both sides.
7. Now remove the surplus links and the re-join the ends of the chain.
8. Ensure that there is a good mechanical connection to obtain an optimum conveyor movement.
9. If necessary, re-fit the black protective cover over the transmission chain. The conveyor will now be ready to be restarted. Always start up the conveyor using a slow start.

Cleaning

When the use of the conveyor has resulted in severe contamination, it is recommended that the conveyor, including the drive unit and the return wheel including the motor be cleaned with warm water and a mild soap.

Proceed as follows:

1. Ensure that the conveyor cannot be started accidentally.
2. Disconnect the power supply.

3. If necessary, remove the black protective cover from the transmission chain and loosen the slipping clutch.
4. Clean the conveyor and the transport chain.



BEWARE

Only warm water (max. 50 °C) may be used to clean the transport chain. a light soap solution using a mild soap may be used to remove stubborn contamination from the chain.

5. Wait until everything is completely dry.
6. Adjust the slipping clutch and re-fit the black protective cover over the drive unit.

The construction of the conveyor includes complete drainage.

Slide strip

The slide strip is a selflubricating material (TCP). Coating the slide strip with silicone spray reduces the coefficient of friction and lengthens its life. But is not in every application a good solution, contact Easy Conveyors to check if this suits your application. The slide strip must be visually inspected every 500 operating hours. The inspection must always be carried out on a stationary conveyor with the chain in place. The purpose of the inspection is primarily to check that the slide strip has not become separated from the fixing to the profile.

During the visual inspection, attention must be paid to the following points:

1. Check the fixing on the profile
2. Check the mutual joints
3. Check that no cracks have occurred

At least once per year, or after 2,000 operating hours, the transport chain must be removed from the chain profile so that the slide strip can be thoroughly inspected for wear and fixing (see also Table 2 page 12).

• Slide profile

The slide profile is attached to the stainless steel side profile by means of a snap fixing and, where necessary, by means of an additional self-tapping screw at the side.

Side guides

In general, it should not be necessary to include the side guides in a planned maintenance programme. However, during the inspection that is carried out after every 2,000 operating hours, it is advisable to check for damage resulting from wear caused by scouring by the product or from distortion caused by overloading of the side guides.

The side guide fixing pins can become loosened of the side guides are overloaded. If they must be replaced, new pins must be used. Never employ used parts unless this is absolutely necessary.

Safety provisions

Easy conveyor components and systems are provided with safety devices that are designed to prevent injury to personnel. They have been designed in accordance with the Machine Directive 89/37/ EC. Easy conveyors may not be started up if these safety devices are not correctly fitted.

Protective covers may only be removed for maintenance purposes and once maintenance activities have been completed, they must be re-fitted.

If the system is dismantled, moved and re-installed by persons other than those who are familiar with Easy conveyor products, then before the system is again taken into use it must be checked for safety in accordance with Machine Directive 89/37/EC.

Always check:

1. That the protective cover for the drive unit transmission tooth belt is correctly fitted
2. That the chain has the correct direction of movement

Maintenance

Wiring diagram

Guarantee

Easy conveyors are guaranteed against manufacturing and/or material faults for a period of one year from the date of delivery for a usage of eight operating hours per day.

In case of doubt, contact your supplier.

Spares and replacement parts

Spare parts are available for most Easy conveyor components. It is often less expensive to purchase fully assembled components.

However, for drive units an extensive range of components is available.

Contact your supplier when you need components.

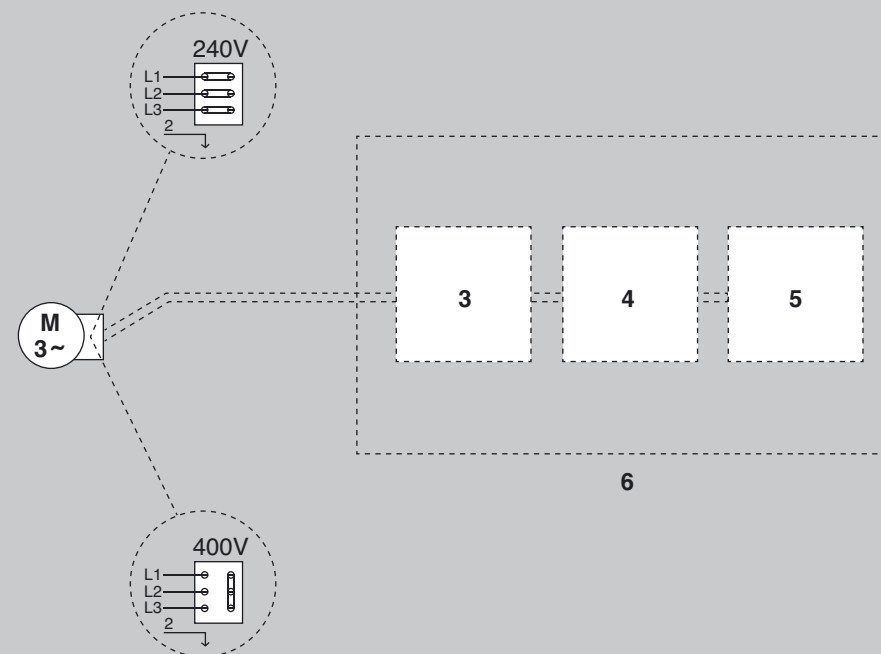
Maintenance schedule *Table 2*

Components/hours	40	200	400	500	600	1.000	1.500	1.600	2.000	every
Drive unit										
Transmission tooth belt	■	■			■			■		1000 hrs
Bearings						■			■	1000 hrs
Transmission chain	■	■	■		■			■		1000 hrs
Side guides									■	2000 hrs
Side strip										
Visual inspection				■		■	■		■	500 hrs
Main inspection									■	2000 hrs

Maintenance of other components

If you purchased the conveyor complete with the motors, the connection and maintenance details will be found in Appendix B.

Recommended connecting up.



M	3-phase motor 240/400V	3	Work switch
	Connecting up	4	Contactor emergency stop
2	Green/yellow earth wire	5	Motor Protector
L1	Brown conductor	6	Pos 3-5 not as std.
L2	Black conductor		
L3	Blue conductor		

Faults

Faults

A broken link indicates that there is something wrong with the conveyor. Common faults are broken links as a result of the chain becoming jammed at the transition between the conveyor and machines coupled with it. It is essential that broken links be replaced. Broken links can damage the slide strip and the drive unit entry guides. Refer to the following table for an extensive symptom and fault description.

FAULTS AND POSSIBLE SOLUTIONS

SYMPTON	CAUSE	CORRECTIVE MEASURE
JUDDERING MOVEMENT.	DAMAGED OR BADLY MOUNTED SLIDE STRIP.	CHECK THAT THE TRANSPORT CHAIN MOVES FREELY. REPLACE IF NECESSARY.
	INCORRECTLY ADJUSTED, SLIPPING CLUTCH.	CHECK AND ADJUST THE SLIPPING CLUTCH.
	WORN DRIVE COMPONENTS.	CHECK/REPLACE THE TRANSMISSION CHAIN WHEEL.
	TRANSPORT CHAIN TENSION TOO HIGH/LOW.	LENGTHEN/SHORTEN THE TRANSPORT CHAIN.
	DIRTY CONVEYOR.	CLEAN THE TRANSPORT CHAIN/SLIDE STRIP.
DRIVE UNIT RUNS BUT THE DRIVE CHAIN DOES NOT.	SLIPPING CLUTCH INCORRECTLY ADJUSTED.	CHECK THE ADJUSTMENT OF THE SLIPPING CLUTCH.
	SLIPPING CLUTCH PLATES WORN OR DIRTY.	CHECK AND REPLACE IF NECESSARY.
	DAMAGED/INCORRECTLY FITTED SLIDE STRIP.	CHECK THAT THE TRANSPORT CHAIN CAN MOVE FREELY. REPLACE IF NECESSARY.
	TRANSMISSION COMPONENTS ARE NOT FITTED.	CHECK AND REPLACE IF NECESSARY.
DRIVE UNIT MOTOR OVERHEATING.	CONVEYOR IS OVERLOADED.	REMOVE PRODUCTS FROM CONVEYOR AND TEST OPERATION. CHECK THE CURRENT LOADING AGAINST THE RECOMMENDED LOADING.
	GEARBOX LEAKING OIL.	CHECK THE SEALING RING FOR THE OUTPUT SHAFT AND THE PACKING BETWEEN THE MOTOR AND THE GEARBOX.
	DIRTY CONVEYOR.	CLEAN THE TRANSPORT CHAIN.
NOISY.	WORN OR DAMAGED BEARINGS IN THE DRIVE UNIT OR THE CURVE.	CHECK/REPLACE THE DRIVE UNIT/CURVE.
	DAMAGED/BADLY MOUNTED SLIDE STRIP.	CHECK THAT THE TRANSPORT CHAIN IS FREE TO MOVE.
	TRANSPORT SPEED TOO HIGH.	REDUCE THE SPEED. COMPARE THE SPEED WITH THE SPECIFICATIONS.
	TRANSPORT CHAIN TENSION TOO HIGH/TOO LOW.	LENGTHEN/SHORTEN THE TRANSPORT CHAIN.
ABNORMAL WEAR ON THE PLASTIC COMPONENTS.	CONVEYOR OVERLOADED.	REMOVE PRODUCTS FROM CONVEYOR AND TEST THE OPERATION. CHECK THAT THE TRANSPORT CHAIN CAN MOVE FREELY. CHECK THE CURRENT LOADING AGAINST THE RECOMMENDED LOADING.
	ENVIRONMENT TEMPERATURE TOO HIGH.	COMPARE THE ENVIRONMENTAL TEMPERATURE WITH THE SPECIFICATION.
	CHEMICALS IN THE AREA ATTACK THE PLASTIC COMPONENTS.	CONSULT THE EASY CONVEYORS FOR CHEMICALS THAT MAY NOT BE USED.
	DAMAGE CAUSED BY THE INGRESS OF CONTAMINATED PARTICLES LOOSE DIRT, ETC.	CLEAN THE CONVEYOR SYSTEM. REMOVE THE SOURCE OF CONTAMINATION.

Dismantling and disposal

Appendices

1. In order to dismantle the Easy conveyor system the following tools are required:
 - Open-ended spanners 10, 13, 15 en 17
 - Set of hexagon keys
 - Hammer
 - Work gloves
 - Screwdriver
2. Switch off the conveyor.
3. Ensure that the power supply is completely disconnected.
4. Disconnect the power supply cable and remove the Maintenance switch.
5. Remove the bolts from the black drive unit protective cover and remove it.
6. Remove the transmission chain.
7. Loosen the slipping clutch.
8. Disconnect the chain.
9. Remove the transport chain.
10. Remove the side guides and the side guide brackets.
11. Remove the slide strip.
12. Unscrew the hexagon-head bolts from the drive unit coupling strips and remove the unit.
13. Unscrew the hexagon-head bolts from the return wheel coupling strips and remove the unit.
14. Loosen the hexagon-head bolts of the prolongation set of the curves.
15. Remove the components from the supports. Make sure that the conveyor support cannot fall over.
16. Remove the support.
17. Sort the material for the purposes of disposal or re-use.
18. If the drive unit will no longer be used, drain the oil out of the gearbox and collect it in a container intended for the purpose.

Appendix A	Manufacturers declaration
Appendix B	Motors
Appendix C	Assembly drawings

