User manual

Elevator EggCellent

Code No. 99-97-7075

Edition: 04/2014 GB

These instructions are a translation of the original instructions!

EC Declaration of conformity

Big Dutchman International GmbH
P.O. Box 1163; D-49360 Vechta, Germany
Tel. +49 (0) 4447 / 801-0
Fax +49 (0) 4447 / 801-237
E-Mail: big@bigdutchman.de

In accordance with EC Directives:

- **Machines 2006/42/EG, Annex II / Part 1 / Chapter A**

Further applicable EC directives:

- Electromagnetic compatibility 2004/108/EC
- Low voltage 2006/95/EC

CE

The product mentioned below was developed, constructed and produced in accordance with the above mentioned EC Directives and under sole responsibility of Big Dutchman.

Description:	System for collecting eggs
Type:	EggCellent
System no. and year of construction:	see customer order no.

The following harmonised standards apply:

- EN ISO 12100:2010 Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)
- EN 60204-1:2006/AC:2010: Safety of machinery - Electrical equipment of machines Part 1: General requirements
- DIN EN ISO 13850 (2008-09): Safety of machinery - Emergency stop - Principles for design

Authorised person for technical documents: Productmanager "Drive systems"
Auf der Lage 2; 49377 Vechta

Vechta	16.01.2010.	Managing Director	.....
Place	Date	Signer and information regarding signer	Signature

Product information

Big Dutchman International GmbH
Big Dutchman Pig Equipment GmbH
P.O. Box 11 63 · 49360 Vechta · Germany
Tel. +49 (0) 44 47-801-0 · Fax 801-237
big@bigdutchman.de · www.bigdutchman.de

No. 1554 October 1, 2014

Silicon dioxide for combating mites

Attention: not in the area of the drive!

In order to prevent damages at the drives because of the incorrect use of silicon dioxide in future, we would like to explain this subject briefly:

Amorphous silicon dioxide is a biocide for combating insect pests like e.g. red mites in poultry management. It is also distributed under the trade name **M-Ex Profi 80**.

Mode of action: Silicon dioxide destroys the layer of wax which surrounds the mites. Thus, the mites dry out.

This white powdery substance is mixed to a suspension with 1:6 water and can be sprayed easily onto the house area and equipment by means of conventional air brush technique.

The substance is easy to apply, very effective and relatively reasonable.

However, practice shows that the rough surface of the applied suspension causes extreme wear of moving parts made of plastic and metal. Lubricants like oils and fats are destroyed by silicon dioxide.

Therefore, our **urgent advice**:

	Silicon dioxide must **not** be applied **in the area of drives** (on bearings, chain drives and gears). Therefore, cover the respective areas of the drives during the spraying with silicon dioxide.

Please make sure to circulate this information if you are talking to a customer and find out that it is about hygiene and combating mites and that silicon dioxide is used. Thus, you can preventively spare the customer trouble and costs.

August Wienken
- Product Manager -
Product Quality & Specification

Product information

Big Dutchman International GmbH
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P.O. Box 11 63 · 49360 Vechta · Germany
Tel. +49 (0) 44 47-801-0 · Fax 801-237
big@bigdutchman.de · www.bigdutchman.de

No. 1552 October 1, 2014

Idler roller for egg belt conic

In order to meet the demand for a more competitive egg production, systems with a length of up to 160m are not uncommon today.

To cope with the resulting increasing loads, inter alia, the design of the idler roller for egg belt had to be aligned.

The new idler roller for egg belt can be seen on the figures below.

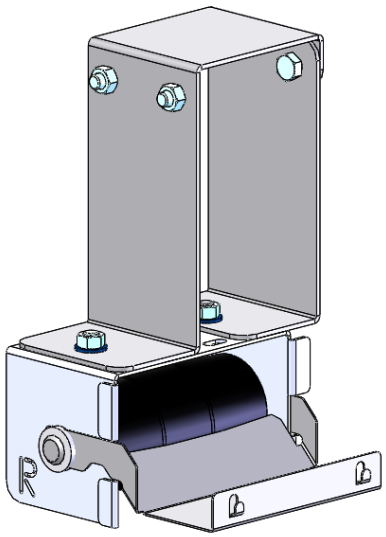


Fig. 1: *Idler roller for egg belt/fixation at regular trough*

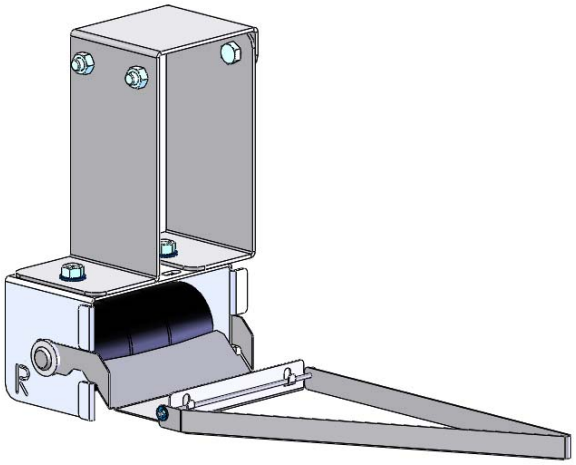


Fig. 2: *Idler roller for egg belt with additonal scraper*

Characteristics

- a co-rotating conical idler roller made of plastic improves the directional stability and entails lower frictional forces
- scraper keeps the roller and the belt clean
- optional: additional scraper at a high quantity of feathers and dust

The idler rollers for egg belt with the egg belt width E150 are already adapted in the parts lists. Now also the remaining widths E95 (or E75) and E115 will be adapted.

Example

Code no. OLD	Code no. NEW	Description
00-00-4911	00-00-5805	Idler for egg belt conic E 95 per tier / fix. at reg trough

The parts lists "Idler for egg belt per tier/2150" and "Idler for egg belt per tier/3000" etc. will be changed automatically (e.g "Idler for egg belt per tier /3000 E115 for elevator *ST EV-EU“ [Code no. 00-00-3232]*).

New idlers

Code no,	Description
	E75
00-00-5870	Idler for egg belt conic E75 per row Step/Colony
	E95
00-00-5800	Idler for egg belt conic E 95 per tier
00-00-5805	Idler for egg belt conic E 95 per tier / fix. at reg trough
00-00-5850	Idler for egg belt conic E 95 per tier FC
00-00-5871	Idler for egg belt conic E95 with bracket Nat 70 rh per row
00-00-5872	Idler for egg belt conic E95 with bracket Nat 70 lh per row
00-00-5874	Idler for egg belt conic E95 per tier PT
00-00-5875	Idler for egg belt conic E95 p/tier Stairstep/SDD/TD
	E115
00-00-5810	Idler for egg belt conic E115 per tier
00-00-5860	Idler for egg belt conic E115 per tier FC
	E150
00-00-5820	Idler for egg belt conic E150 per tier

Additional scraper

Code no.	Description
00-00-5880	Retrofit kit add. scraper f/egg belt idler E95/E115 per tier
00-00-5881	Retrofit kit add. scraper f/egg belt idler E150 per tier

Abandoned articles

Code no.	Description
	E75
37-97-6646	Idler for egg belt E75 cpl Step 24-18
83-12-0593	Mounting set f/idler units egg belt E75/E95 Step 24-18
	E95
00-00-3550	Idler roller for egg belt E 95 for trough fitting
00-00-4950	Idler roller egg belt rigid
00-00-3650	Idler roller egg belt rigid AP
00-00-4911	Idler roller rigid EC/ES for egg belt per tier UV
00-00-4910	Idler roller rigid for egg belt per tier UV
00-00-4920	Idler roller rigid for egg belt per tier UV/regul. trough
00-00-3900	Idler roller egg belt per tier f/regular trough - E 95
00-00-4931	Idler roller rigid EC/ES for egg belt per tier UV-FC-S
00-00-4930	Idler roller rigid for egg belt per tier UV-FC-S
83-11-9715	Idler roller for egg belt per tier SDD

83-03-2678	Idler roller rigid for egg belt per tier PT320B/420B-plus
83-03-2675	Idler roller rigid for egg belt PT320B/420B-plus
37-95-5422	Idler fixed per tier Stairstep314
E115	
83-04-5503	Idler roller f/egg belt w/round roller p/tier f/regular trough E115
00-00-4961	Idler roller EC for egg belt E115 for trough fitting
00-00-4900	Idler roller EC for egg belt E115 for trough fitting
00-00-3560	Idler roller for egg belt E115 for trough fitting
00-00-5501	Idler roller EC/ES for egg belt per tier f/regular trough-E115
00-00-5500	Idler roller egg belt per tier for regular trough - E115
E150	
83-09-6425	Idler roller egg belt/single E150 EV2240

The respective successor of the abandoned articles can be found in the Enterprise.

The idler rollers for egg belt have already been adapted step by step to the new solution since September.

Ludger Themann
- Product Manager -
Drive Systems

Sandra Humberg
- Product Development -
Drive Systems

1 Basic instructions

!	**Important:** Please take care of these documents and keep them close to the system **at all times for quick reference**. All persons operating, maintaining and cleaning this system have to be familiar with the contents of these instructions. Observe these security instructions whenever any work is carried out on this system! If this manual is damaged or lost, request a new copy from **Big Dutchman**.

1.1 Basics

The **Big Dutchman** system has been built with state-of-the-art technology and meets the recognized technical safety requirements. The system is reliable. Upon operation, however, dangers to life and limb of the user or third persons or impairments of the system or other material property are still possible.

The system may only be operated, maintained and repaired

- in accordance with its designated use;
- in an excellent state from the safety and technical point of view;
- by persons who are familiar with the safety regulations.

Should specific problems occur which are not described in detail in these documents, we recommend you contact us for your own safety.

1.2 Designated use

The **Big Dutchman** elevator EggCellent is used to collect eggs from management systems for laying hens.

The **Big Dutchman** system may only be used according to its designated use.

Every other use is considered as non-designated use. The manufacturer does not accept liability for damages resulting from other uses, the user alone has to bear the risk. The designated use also includes the exact following of the operation, maintenance and repair conditions as prescribed by the manufacturer.

1.3 Prevention of reasonably predictable incorrect uses

The following uses of the **Big Dutchman** elevator EggCellent are not permitted and are considered improper use:

- Unattended operation.
- Conveyance of all objects except eggs.
- The use outdoor, especially in areas that are susceptible to frost.
- The use of the system where the temperature inside the house is below 0°C.
- Utilising the system with aggressive and/or corrosive materials in quantities that do not constitute good professional practise.
- Mechanical loading of the system in excess of normal loads intended for the system with the housing of laying birds.

A non-designated use will lead to a liability exclusion by **Big Dutchman**.

The operator of the system exclusively bears the risk resulting from misuse!

1.4 Explanation of the symbols and structure of these instructions

1.4.1 Structure of the safety instructions in this manual

Basic structure:

Pictograph	**Type of danger**
	Possible consequence(s) of non-compliance
Signal word	• Measure(s) against the danger

Meaning of the signal words:

Pictograph	**Signal word**	**Meaning**	**Consequences of non-compliance**
Possible personal injuries:			
possible safety symbols: see chapter 1.4.2	**DANGER**	**directly** dangerous situation	**Will** lead to death or severe injuries.
	WARNING	**possibly** dangerous situation	**May** lead to death or severe injuries.
	CAUTION	**possibly** dangerous situation	**May** lead to minor injuries.
Possible damage to property:			
	**CAUTION**		**May** lead to damage to property

1.4.1.1 Special safety symbols in the manual and on the system

These safety symbols (pictographs) illustrate remaining dangers when handling the system. They are used in the safety instructions of this manual (also refer to chapter 1.4.1) and on the system.

CAUTION	**Safety symbols and instructions on the system must always be easily visible and undamaged.** • If they are soiled by dust, manure, feed remains, oil or grease, clean them with a water-detergent mixture. • Damaged, lost, or unreadable safety symbols have to be replaced immediately. • If a safety symbol or instruction is fixed to a part to be replaced, ensure that it will be fixed to the new part as well.

	Warning against general dangers

	Warning against dangerous electric tension

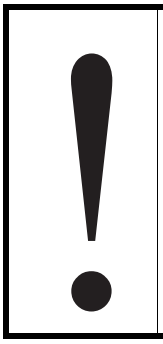
	Warning against entanglement due to gear wheels

1.4.2 Structure of the general instructions in the manual

	IMPORTANT! This symbol indicates important information. There is no risk of personal injuries or damage to property.

1.5 Necessary qualifications of the persons working with the system

1.5.1 Employing external personnel



IMPORTANT:

The supervisor is responsible for the safety of external personnel.

Maintenance and repair works are frequently carried out by external personnel not familiar with the circumstances specific for the system and the inherent dangers.

You as operator are to survey the personnel and to define responsibilities and powers. Inform these people in detail on the dangers of their area of work. Check their method of working and intervene as soon as possible.

1.5.2 Operation of the system

The system may only be operated by persons who are competent and can guarantee proper handling due to special training or knowledge and practical experience with the system. The system operator or owner has the sole power of decision.

1.5.3 Maintenance and repairs

Maintenance and repair works may only be carried out by persons who are competent and can guarantee proper handling due to special training or knowledge and practical experience with the system. The system operator or owner has the sole power of decision.

1.5.4 Electrical installation

Work on the electric components may only be carried out by technically skilled personnel and according to German Industry Standards, VDE regulations, safety instructions and electro-technical regulations of the power supply industry (EVU) and the applicable national regulations.

1.6 Ordering of spare parts

The exact description of the spare parts to be ordered can be found by means of the position no. in the spare parts list.

 **WARNING**	**Risk of injury and danger to life** **Operational safety is of paramount importance!** Spare parts not released or recommended by **Big Dutchman** can cause severe injuries as their suitability for **Big Dutchman** systems cannot be assessed beforehand. • Only use spare parts released or recommended by **Big Dutchman** for your own safety.

Indicate the following when ordering spare parts:

- Code no. and description of the spare part; or

  Position no. including description and manual number in case of parts that are not encoded;
- Invoice number of the original delivery;
- Current supply, e.g. 230/400 V – 3 Ph – 50/60 Hz.

1.7 Obligations

Closely adhere to the instructions in this manual.

A basic condition for safe operation and trouble-free handling of this system is the knowledge of the basic safety instructions and regulations.

This manual, particularly the safety instructions, must be observed by all persons working on this system. Moreover, the regulations and instructions for the prevention of accidents valid at the respective place of use have to be observed.

The manufacturer is not responsible for any damage to the system resulting from changes not authorized by **Big Dutchman**.

1.8 Warranty and liability

Warranty and liability claims regarding personal injury or property damage are excluded if they result from one or several of the following causes:

- non-designated use of the system;
- improper operation of the system;
- operating the system with defective safety equipment or not duly fixed or not functioning safety and protective devices;
- non-compliance with the instructions in this manual regarding maintenance and upgrading of the system;
- unauthorized modifications to the system;
- improper repairs;
- disasters caused by foreign matter or force majeure.

1.9 Faults and power failures

We recommend the installation of alarm systems for a better control of your production units or the use of an automatic emergency battery system for supplying the system with power in case of a power failure. This will protect your animals and thus your own economic health.

To ensure that the control unit completes all started process steps correctly and shuts down properly in case of a power failure, we recommend the use of a UPS (uninterruptible power supply).

1.10 First aid

In the case of an accident, a first-aid kit must always be available at the place of work, unless otherwise specified. Material taken out and used is to be replaced immediately.

If you need help, describe the accident as follows:

- where it happened
- what happened
- the number of persons injured
- what type of injury
- who is reporting the accident.

1.11 Pollution abatement regulations

All works on and with the installation have to be carried out in compliance with the legal requirements concerning waste prevention and proper recycling / disposal of waste.

Special care has to be taken when carrying out installation, repair and maintenance works, as water pollutants like lubricating grease and oils as well as solvent-containing cleaning solutions may not pollute the soil or reach the canalisation! These materials have to be kept, transported, collected and disposed of in appropriate containers!

1.12 Waste disposal

After repairing the system, dispose of the packing material and remains which cannot be used further according to the legal provisions for recycling.

The same applies to the component parts after putting the installation out of service.

1.13 Notes for use

In the interest of further development, we reserve the right to modify the design and technical data.

No claims can therefore be derived from any information, illustration or drawing and description contained herein. Errors and omissions excepted!

Apart from the safety information in this manual and the obligatory accident prevention regulations applicable in the user's country, please heed the accepted technical rules (safe and expert working in accordance with UVV, VBG, VDE etc.).

1.14 Copyright

This manual is copyrighted. The information and drawings included in this manual shall not be copied without the manufacturer's consent, nor shall they be misused or be disclosed to third parties.

The contents of this manual can be altered without prior notice.

If you find mistakes or unclear information in this manual, please do not hesitate to let us know.

All trademarks mentioned or shown in the text are trademarks of their respective owners and deemed patented.

For further information please contact:

Big Dutchman International GmbH, P.O. Box 1163, D-49360 Vechta, Germany,
Phone +49 (0)4447/801-0, Fax +49 (0)4447/801-237

E-Mail: big@bigdutchman.de, Internet: www.bigdutchman.de

2 Safety instructions

2.1 Instructions on accident prevention

Before operating, cleaning, maintaining or disassembling this system, the operator or person authorized by him is obliged to instruct any person carrying out any of these works on

- the remaining dangers when carrying out these tasks
- the applicable rules and regulations regarding accident prevention and to ensure they are complied with!

The basis for these are:

- the installation's technical documentation, specifically the included safety instructions,
- the applicable safety and health regulations applicable at the place of work.

2.2 General safety instructions

	**Risk of injury**
	Children in the area of the installation are at risk of injury as they can often not be supervised sufficiently and are not able to recognize hazards.
WARNING	• Ensure that children do not use the installation as a playground and are not left unsupervised in the vicinity of the installation. Explain remaining dangers fully to the children.

The respective safety precautions and other generally accepted regulations regarding safety and operational health have to be observed.
Please check safety and function control devices to ensure safe and accurate operation

- before putting the system into operation again
- in adequate intervals (confer maintenance intervals)
- after modifications or repairs.

Check the proper functioning of the system after any kind of repair works. You may only put the device into operation when all protective system have been put into place again.

Also observe the regulations of local water distribution and power supply companies.

2.3 Personal safety instructions

These safety instructions are intended to make you familiar with important information on the handling of the system. They are important for your safety and for the safety of the system.

The farm staff has to familiarize itself with the function and arrangement of the safety devices, in particular of the emergency stop button.

The farm staff has to regularly participate in health and safety briefings (according to the provisions e.g. by trade associations).

Maintenance works may only be carried out by specially trained personnel.

 **WARNING**	**Risk of injury**
	Lack of knowledge about the structural design of the system can lead to injury. • Make yourself familiar with the design and construction of the system under sufficient lighting! • Inform yourself as responsible person for the system and your employees about the remaining dangers in connection with this system!

2.4 Personal protective equipment and measures

 **WARNING**	**Risk of injury**
	The following instructions apply to all works carried out on the system. • Wear **close-fitting protective clothing** and **protective footwear**. • Use **protective gloves** where there is a risk of hand injuries and **safety goggles** where there is a risk of eye injuries. • Do not wear **any rings, necklaces, watches, scarves, ties or other items** which could get caught in parts of the installation. • Make sure that **long hair is always tied back**. Hair can get caught in powered or rotating working units or parts of the installation, resulting in severe injuries. • When working underneath the installation **always** wear a **hard hat**!

2.5 Use of electrical appliances

You as the person responsible for the system or his agent have to ensure that the system with its electrical appliances is operated and maintained according to the local electro-technical regulations.

  **WARNING**	**Risk of injury and danger to life** **Dangerous electric tension may be bare in the case of open control units and may cause severe injuries or lead to death!** • Be aware of the danger and keep workers of other professions away from the danger zone. • Installations and works on electric components/building units may only be carried out by qualified persons according to electro-technical regulations (e.g. EN 60204, DIN VDE 0100/0113/0160).

- Immediately switch off the system in the event of malfunctions of the power supply units. Check that the electrical equipment is not alive.
- Check the electrical wiring and cables for recognisable damage before putting the system into operation. Replace damaged wiring and cables before taking the system into operation.
- Only use the fuses indicated in the circuit diagram.

 **WARNING**	**Danger of short circuits** Never repair or shut defective fuses. • Defective fuses should be replaced by new ones immediately.

- Never cover an electrical motor. This can cause high temperatures resulting in fires and the destruction of the equipment.
- Always keep the control cabinet and all terminal and connection boxes of the system locked.
- Damaged or broken plugs should be immediately replaced by an electrician.
- Do not pull the plug from the socket at the flexible cable.
- For the respective connections please see the enclosed connecting plan of the system parts delivered.

2.6 Special safety instructions

2.6.1 Danger zones

The individual zones of the **Big Dutchman**system are constructed differently.There are several ejecting, rotating or sliding parts that might be a risk if you are not familiar with their type of construction.

 **WARNING**	**Risk of injury** **Lack of knowledge regarding the system's type of construction increases the risk of injury.** • Never reach into the running system. First stop the system and secure it against an inadvertent restart. • Assure yourself **before reaching into the system** that the main switch is in the OFF position and cannot be put in the ON position without your knowledge.

The system has been equipped with all mechanisms that guarantee a safe operation. In places where the danger zone could not be safeguarded totally, in consideration of the operational reliability, safety signs have been placed. They indicate remaining technical dangers when handling the system and give information on how to avoid these dangers.

For your safety, the following safety symbols have been fixed to the system. Please make yourself familiar with the meaning of these systems. The following explanatory notes will provide you with detailed information.

	**GENERAL DANGER!** System starts working automatically. Before starting any repair, maintenance or cleaning works, put main switch to "OFF"!

	**DANGER OF CRUSHING due to rotating machine parts!** Always lock and secure the safety devices before starting up the system. Protective devices may only be opened by authorized persons, when the system is idle.

	**GENERAL DANGER!** Read the manual.

 **CAUTION**	**Safety symbols and instructions on the system must always be easily visible and undamaged.** • If they are soiled by dust, manure, feed remains, oil or grease, clean them with a water-detergent mixture. • Damaged, lost, or unreadable safety symbols have to be replaced immediately. • If a safety symbol or instruction is fixed to a part to be replaced, ensure that it will be fixed to the new part as well.

2.6.2 Entire system

Only use suitable tools and observe the local accident prevention regulations.

Ensure that the system is switched off before performing any service, repair or cleaning work or rectification of functional defects. Disconnect the system from the power supply and secure it against reactivation.

Protect the system by means of a sign fixed to the main switch reading "Do not put into operation!". Refer to maintenance works if necessary.

After any maintenance and repair works, check the proper functioning of the system.

	**Risk of injury**
WARNING	**Parts lying about on the system and in its vicinity can cause persons to stumble and/or fall and thus risk injuring themselves by contact with system components.** **Lack of knowledge about the structural design of the system can lead to injury.** **Party lying about in or on the components can lead to serious damage of the system.** • Never deposit objects (e.g. spare parts, replaced parts, tools, cleaning tools etc.) in the accessible areas of the system or in the surrounding areas have having carried out works on the system! • Make yourself familiar with the design and construction of the system under sufficient lighting! If this is not possible, inform yourself about any remaining dangers in connection with this system! • **Before** restarting the system, assure yourself that all loose or replaced parts have been removed from the system components! • The device may only be put into operation after all protective systems have been put into place again and are functioning.

2.6.3 Individual parts

 **WARNING**	**Risk of entanglement** **Touching rollers, chains, gear wheels and egg belts can cause injuries due to entanglement!** • **Always** disconnect the power supply before carrying out any works at the egg collection, as the egg collection can switch on unexpectedly when controlled automatically. • Never touch or reach into rotating or driven parts of the system! • Make sure that all guard caps and protecting coverings are duly closed and secured.

 **WARNING**	**Risk of electric shocks and short circuits** **Live parts may be bare while different kinds of work are carried out. Touching live parts might lead to injuries caused by electric shock and short circuits.** • Before performing any repair or maintenance work, turn the main switch to "OFF and display a sign warning that repair or maintenance work is in progress! • Never touch bare electrical components. Equipment with bare electrical components must not be used by the farm staff.

2.7 Safety contrivances

  **WARNING**	**Risk of injury and danger of life** **Defective or disassembled safety contrivances may cause severe injuries or lead to death!** • It is strictly forbidden to remove or put out of operation any safety contrivance. • Should the safety contrivances be damaged, the system has to be put out of operation immediately. The main switch must be locked in neutral position and any damage must be eliminated. • Before putting the system into operation again, make sure that all safety contrivances are assembled correctly and are functioning after works on the system have been carried out.

2.8 Dangers resulting from non-compliance with the safety instructions

Lack of compliance with these instructions can cause severe danger to personal life and limb and damage the environment or the installation and may lead to the forfeiture of any damage claims. The non-compliance with these instructions can specifically lead to:

- failure of vital functions of the installation,
- failure of prescribed maintenance methods,
- risk of injury due to electrical, mechanical and chemical influences.

2.9 Safety component parts

The system described in this manual may only be operated if the listed safety component parts have been mounted and installed correctly and have been checked for correct functioning!

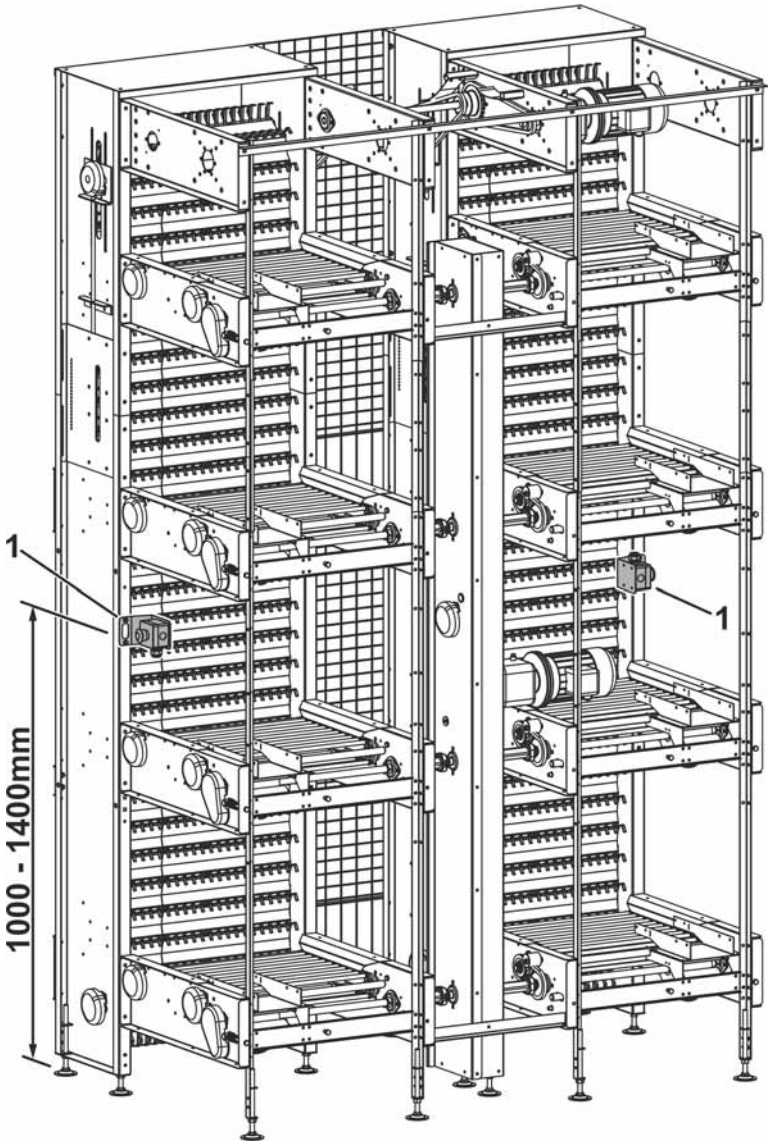
If safety component parts are missing or defective, the original part must be ordered from **Big Dutchman** and replaced immediately!

The EggCellent elevator contains the following safety components:

2.9.1 Emergency stop button

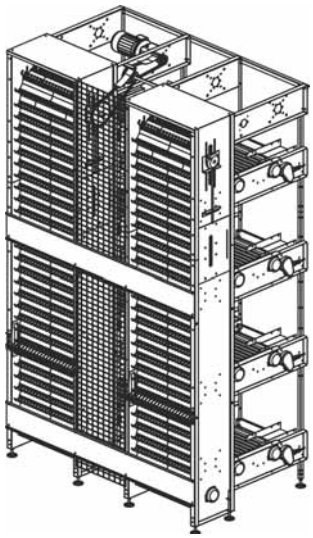
The EggCellent elevator may only be operated if the emergency stop buttons have been mounted correctly and have been checked for correct functioning!

If emergency stop buttons are missing or defective, the original part must be ordered from **Big Dutchman** and replaced immediately!



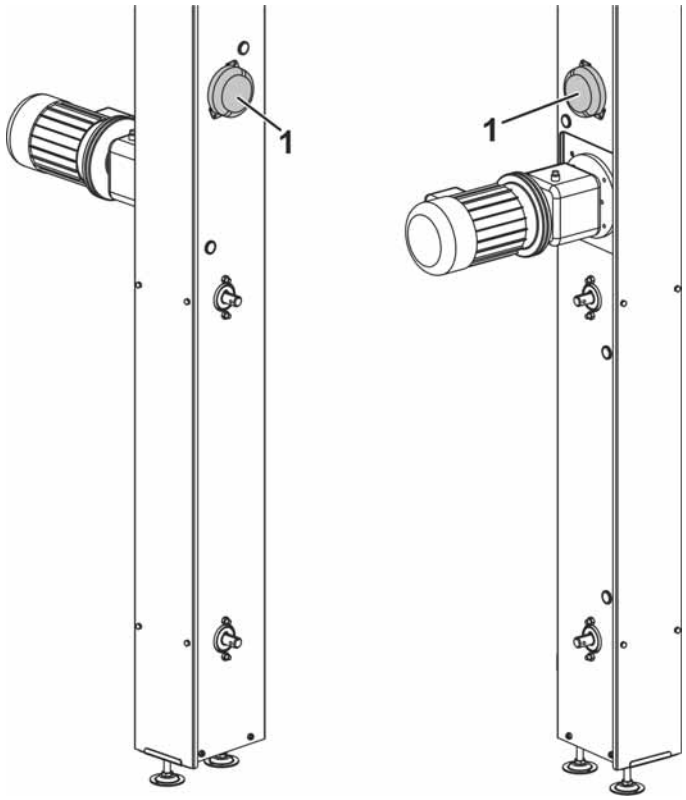
Pos.	Code no.	Description
1	83-09-3597	Switch for emergency shutdown cpl. with bracket

2.9.2 Wire mesh guards (retrofit kit)



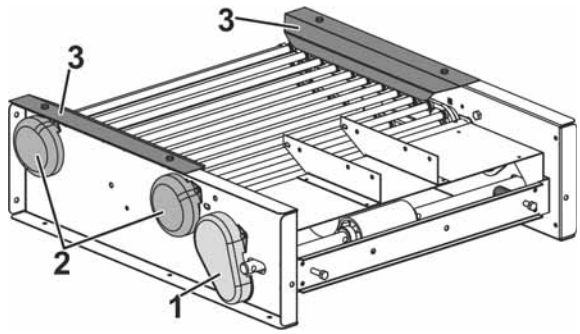
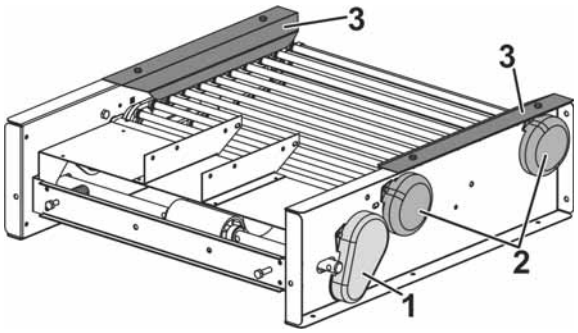
Pos.	Code no.	Description
1	38-94-3101	Retrofit kit wire mesh guard elevator EggCellent AVECH up to 4 tiers
	38-94-3102	Retrofit kit wire mesh guard elevator EggCellent AVECH from 5 tiers
	38-94-3103	Retrofit kit wire mesh guard elevator EggCellent AVECH II up to 4 tiers
	38-94-3104	Retrofit kit wire mesh guard elevator EggCellent AVECH II from 5 tiers
	38-94-3105	Retrofit kit wire mesh guard elevator EggCellent C-L639
	38-94-3106	Retrofit kit wire mesh guard elevator EggCellent EV1500 up to 4 tiers
	38-94-3107	Retrofit kit wire mesh guard elevator EggCellent EV1500 from 5 tiers
	38-94-3108	Retrofit kit wire mesh guard elevator EggCellent EV-P
	38-94-3109	Retrofit kit wire mesh guard elevator EggCellent EV2240 up to 4 tiers
	38-94-3110	Retrofit kit wire mesh guard elevator EggCellent EV2240 from 5 tiers
	38-94-3111	Retrofit kit wire mesh guard elevator EggCellent EV625/a/1250 up to 4 tiers
	38-94-3112	Retrofit kit wire mesh guard elevator EggCellent EV625/a/1250 from 5 tiers
	38-94-3113	Retrofit kit wire mesh guard elevator EggCellent EV625A up to 4 tiers
	38-94-3114	Retrofit kit wire mesh guard elevator EggCellent EV625A from 5 tiers
	38-94-3115	Retrofit kit wire mesh guard elevator EggCellent KV1500 up to 4 tiers
	38-94-3116	Retrofit kit wire mesh guard elevator EggCellent KV1500 from 5 tiers
	38-94-3117	Retrofit kit wire mesh guard elevator EggCellent UV/EV2-500 up to 4 tiers
	38-94-3118	Retrofit kit wire mesh guard elevator EggCellent UV/EV2-500 from 5 tiers
	38-94-3119	Retrofit kit wire mesh guard elevator EggCellent UV/EV2-550 up to 4 tiers
	38-94-3120	Retrofit kit wire mesh guard elevator EggCellent UV/EV2-550 from 5 tiers
	38-94-3121	Retrofit kit wire mesh guard elevator EggCellent UV568-US up to 4 tiers
	38-94-3122	Retrofit kit wire mesh guard elevator EggCellent UV568-US from 5 tiers
	38-94-3123	Retrofit kit wire mesh guard elevator EggCellent UV568A-US up to 4 tiers
	38-94-3124	Retrofit kit wire mesh guard elevator EggCellent UV568A-US from 5 tiers
	38-94-3125	Retrofit kit wire mesh guard elevator EggCellent UV639-US up to 4 tiers
	38-94-3126	Retrofit kit wire mesh guard elevator EggCellent UV639-US from 5 tiers
	38-94-3127	Retrofit kit wire mesh guard elevator EggCellent UV/EV2-600 up to 4 tiers
	38-94-3128	Retrofit kit wire mesh guard elevator EggCellent UV/EV2-600 from 5 tiers
	38-94-3129	Retrofit kit wire mesh guard elevator EggCellent PT320B-plus
	38-94-3130	Retrofit kit wire mesh guard elevator EggCellent PT323B-plus
	38-94-3131	Retrofit kit wire mesh guard elevator EggCellent PT420B-plus
	38-94-3132	Retrofit kit wire mesh guard elevator EggCellent PT423B-plus

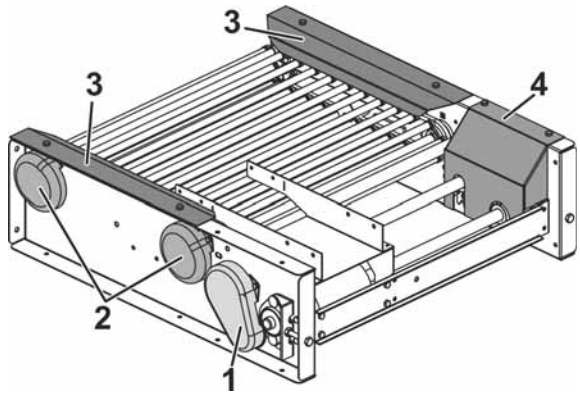
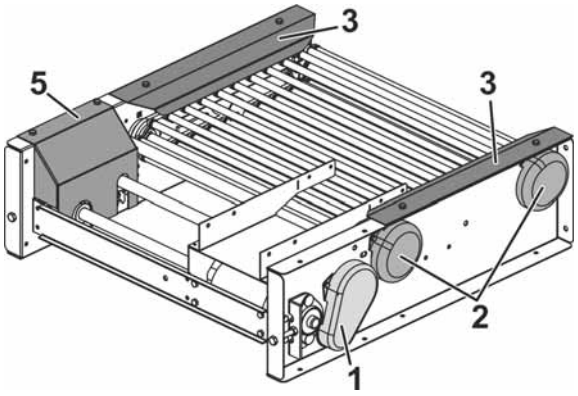
2.9.3 Guard caps for drive column



Pos.	Code no.	Description
1	38-94-3582	Guard cap for flange bearing of elevator half outer

2.9.4 Guard caps and protective covers for rod conveyors

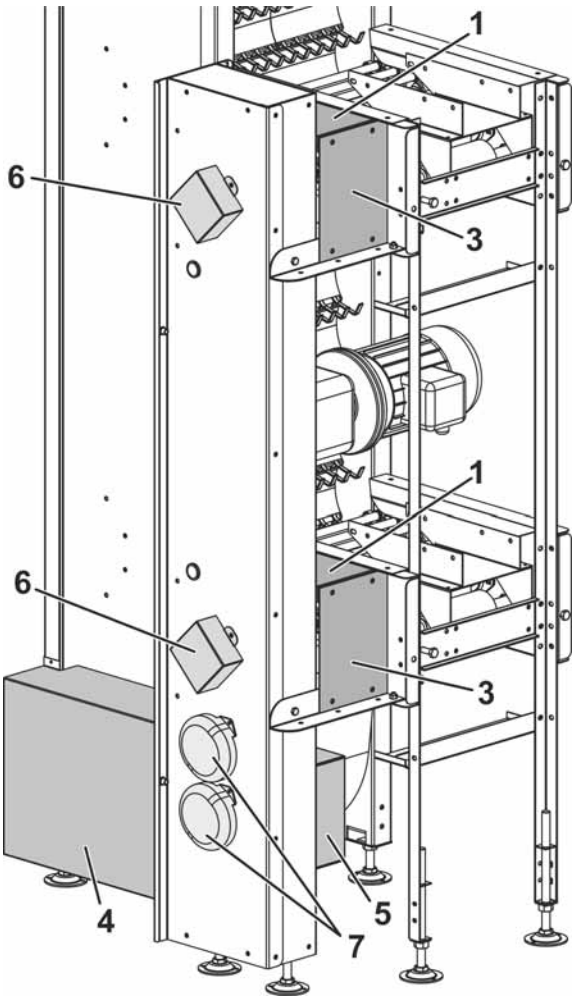
Rod conveyor left	Rod conveyor right
	

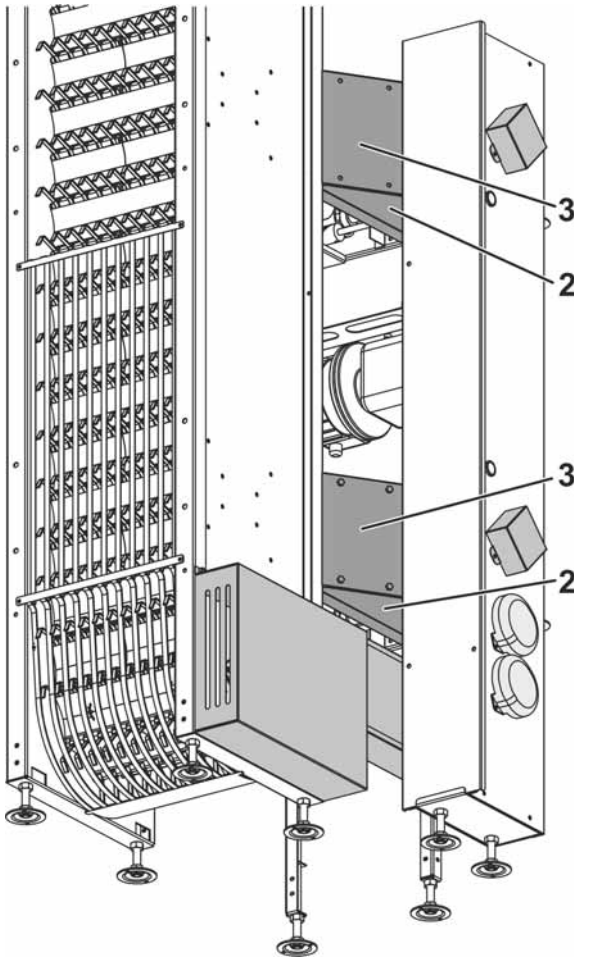
with driven pressure roller	
Rod conveyor left	Rod conveyor right
	

Pos.	Code no.	Description
1	00-00-5051	Guard cap for chain drive of egg belt cleaner
2	38-94-3582	Guard cap for flange bearing of elevator half outer
3	83-05-7977	Chain protection for rod conveyor elevator EggCellent
4	83-06-3344	Gear wheel cover lh for rod conveyor with driven pressure roller
5	83-06-3345	Gear wheel cover rh for rod conveyor with driven pressure roller

2.9.5 Protective covers for elevator NAT 60/70

Front view, from above

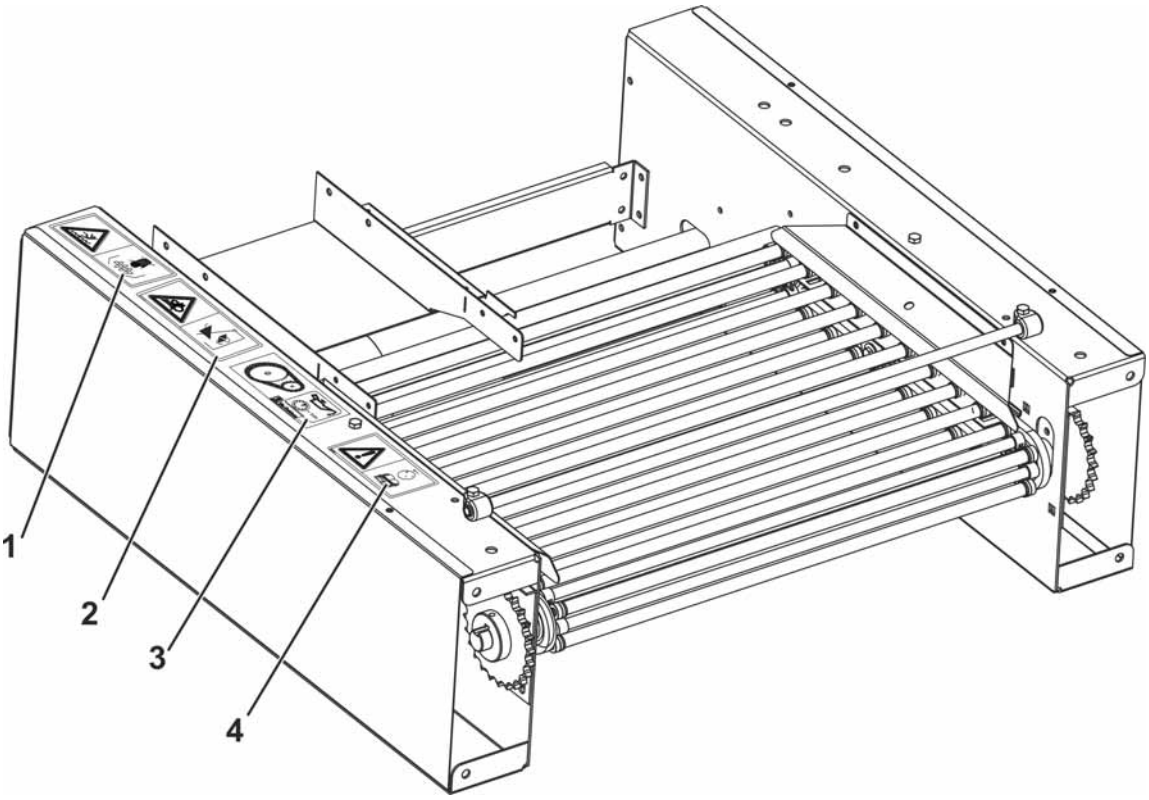


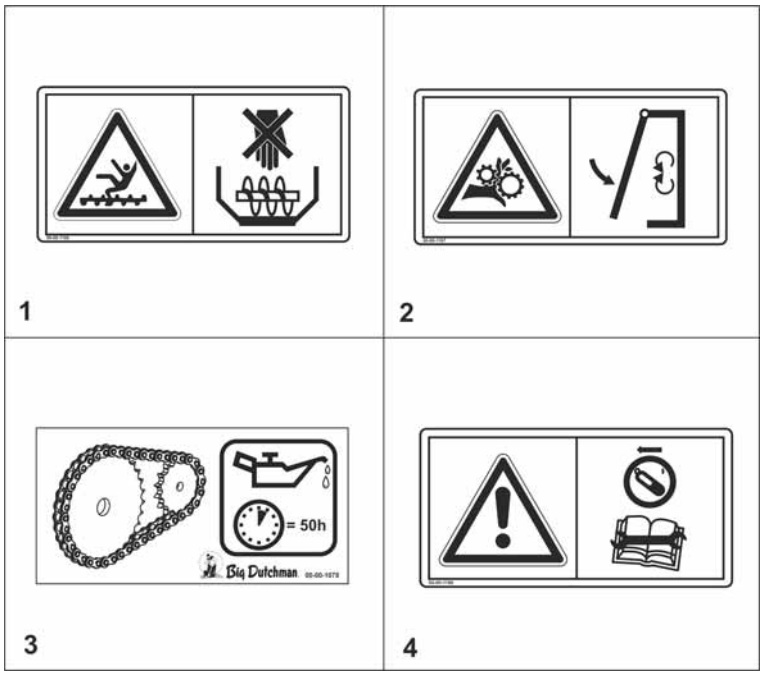


Rear view, from below

Pos.	Code no.	Description
1	83-08-2059	Protective cover upper, chain for rod conveyor elevator EggCellent NAT70
2	83-08-2054	Protective cover, chain for rod conveyor elevator EggCellent NAT70
3	83-08-2067	Cover elevator EggCellent NAT70
4	83-07-9479	Chain guard right vertical unit elevator EggCellent NAT70
5	83-07-9475	Chain guard drive column elevator EggCellent NAT70
6	83-08-2178	Guard plate for shaft, drive column elevator EggCellent
7	38-94-3582	Guard cap for flange bearing of elevator half outer

2.10 Safety symbols at this system





Pos.	Code no.	Description
1	00-00-1188	Pictograph: Risk of injury / hopper
2	00-00-1187	Pictograph: Danger of being crushed / protective equipment
3		Pictograph: Chain greasing interval 50 hours
4	00-00-1186	Pictograph: Before maintenance work main switch "OFF"

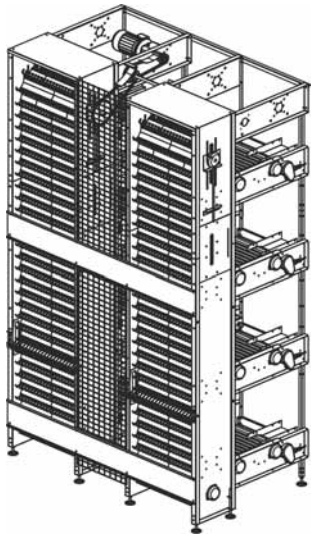
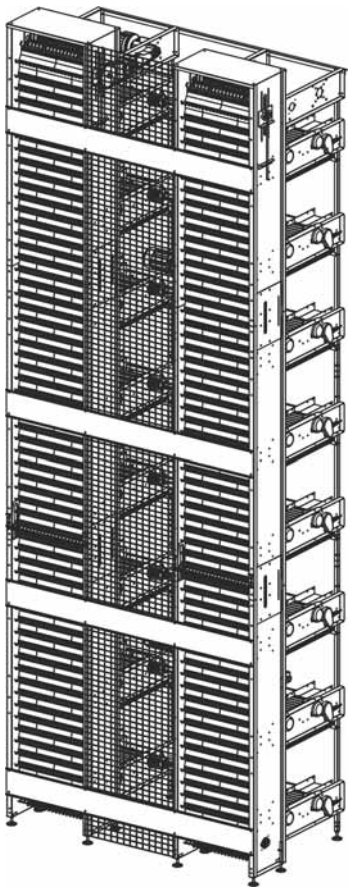
3 Product description

The **Big Dutchman** elevator EggCellent is characterised by its large collection capacity and minimum requirements for system adjustments as well as a safe egg transport.

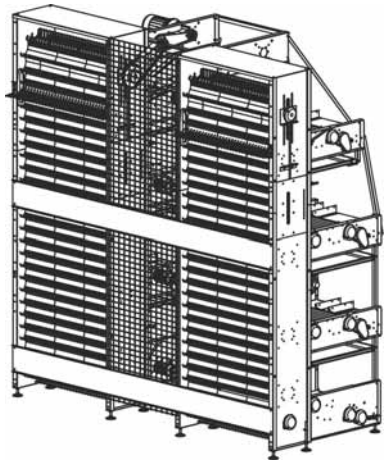
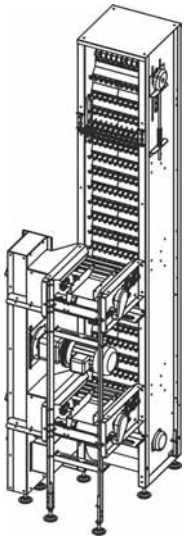
Coming from the management system, the eggs are transferred from the longitudinal egg belt to the rod conveyor and then distributed onto the entire width of the module chain by means of a deflector without the need for an extra dosing unit, e.g. a dosing wheel. In order to ideally adapt the conveying performance to the laying performance, we recommend actuating egg belts and module chains separately.

Every tier conveys the eggs onto an individual section of the rod conveyor and elevator chain; deflectors ensure an optimum egg distribution on the module chain. Safe transfer from the elevator chain to the cross belt. Eggs can be collected simultaneously from up to eight tiers.

3.1 EggCellent [standard]

EggCellent [standard] 4 levels	EggCellent [standard] 8 levels
	

3.2 EggCellent [option]

EggCellent for Profit-Tier [option]	EggCellent for NAT 60/70 [option]
	

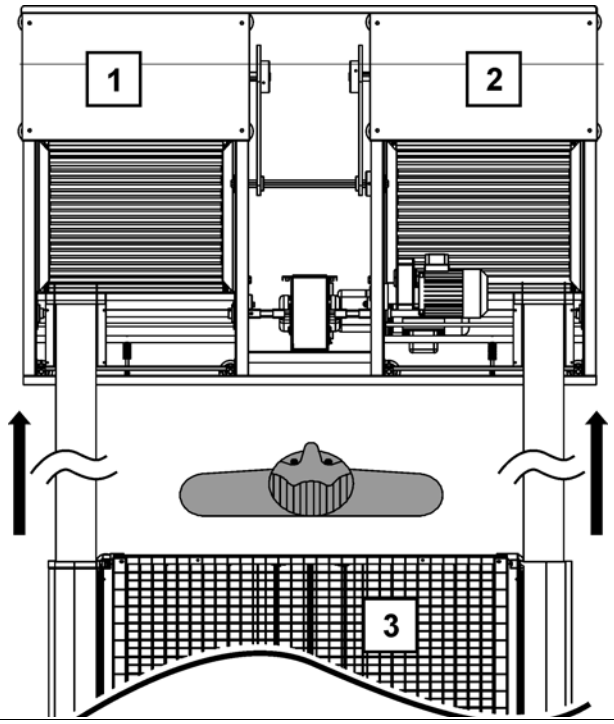
4 Operating the elevator

!	**Check whether the system and the elevator are aligned exactly horizontally and vertically!**

The elevator consists of a right half and a left half. It is supplied in partially pre-assembled units which are then pieced together.

4.1 Definition of the left / right half of the elevator

Viewpoint: Between the system and the elevator, looking towards the elevator.



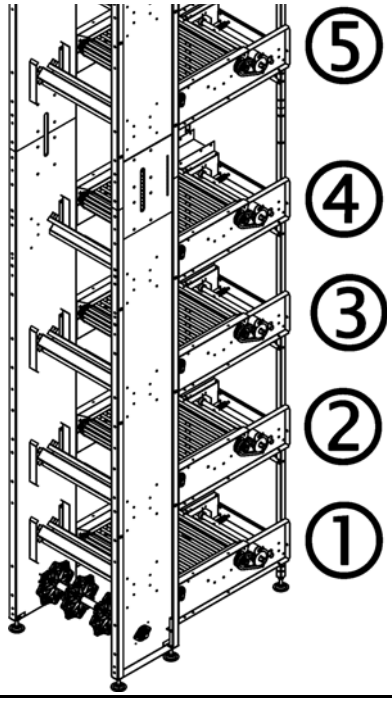
Viewpoint: Between the system and the elevator, looking towards the elevator.

=

Conveying direction of egg belts

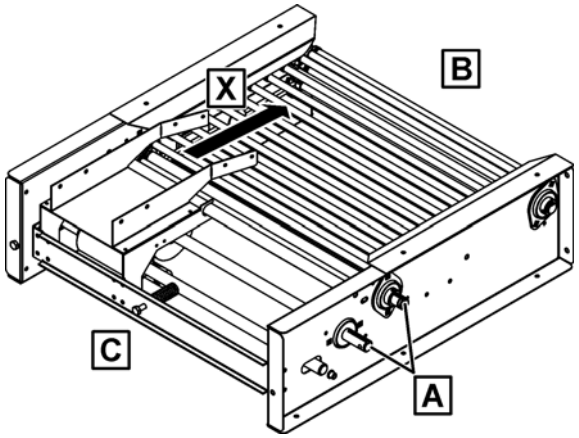
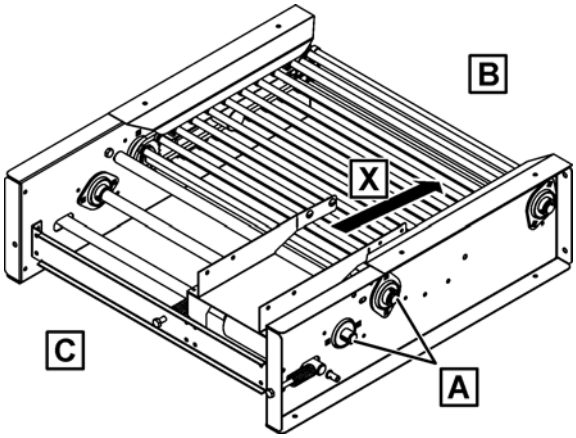
1 = Left elevator half with left rod conveyor units
2 = Right elevator half with right rod conveyor units
3 = System with birds

4.2 Definition of levels 1 to X

	The levels are numbered consecutively **from bottom to top** from 1 to X.

4.3 Definition of the left and right rod conveyors

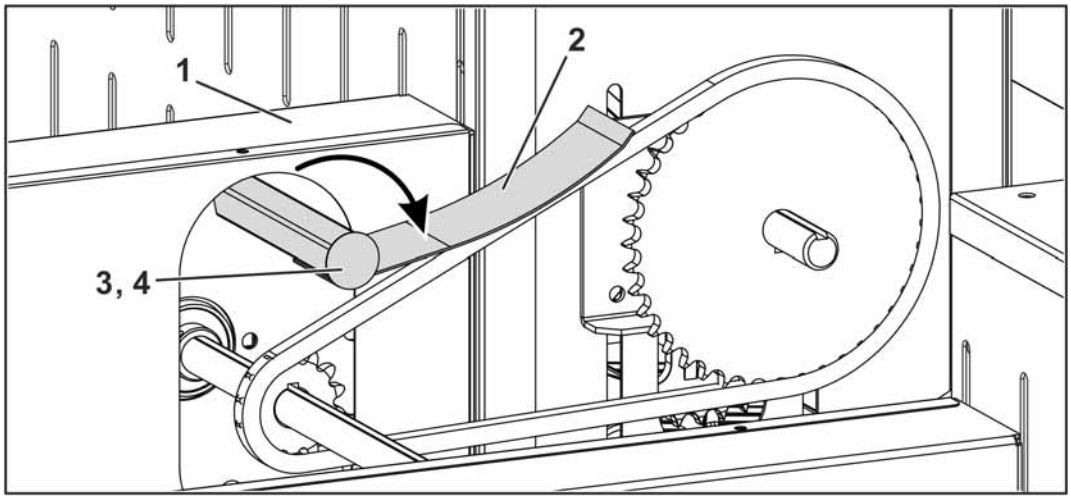
The rod conveyor is supplied as a right and a left version. It is important upon assembly that the drive shafts [A] of the longitudinal belt are directed towards **the centre between both elevator halves**.

Left version for left elevator half	**Right version for right elevator half**
	

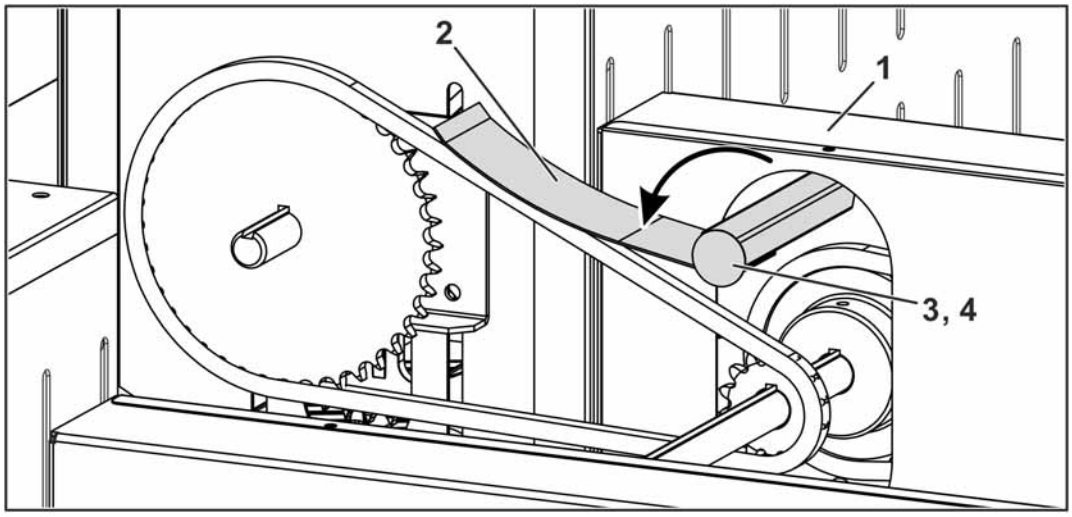
A =	Drive shafts of the rod conveyor / longitudinal belt
B =	Side positioned towards elevator conveyor chain
C =	Side positioned towards longitudinal egg belt in the system
X =	Direction of transportation

4.4 Tightening the chains

Tension the chains by turning the chain tensioner with spring plate against the chain and by then tightening the mushroom head screw at the chain tensioner.



Left elevator half



Right elevator half

Pos.	Code no.	Description
1		Motor plate right elevator
		Motor plate left elevator
2		Chain tensioner left 148 x 200
		Chain tensioner right 148 x 200
3		Mushroom head screw M12x160 DIN603 galv.
4	99-20-1032	Hexagonal nut M 12 galv. DIN 934-8

5 Maintenance and cleaning

The **Big Dutchman** elevator *EggCellent* requires only minimum maintenance. Observe the following key points for a reliable operation and very little wear and tear (please also refer to the master copy => 7 "Checklist key points summary").

Key points maintenance

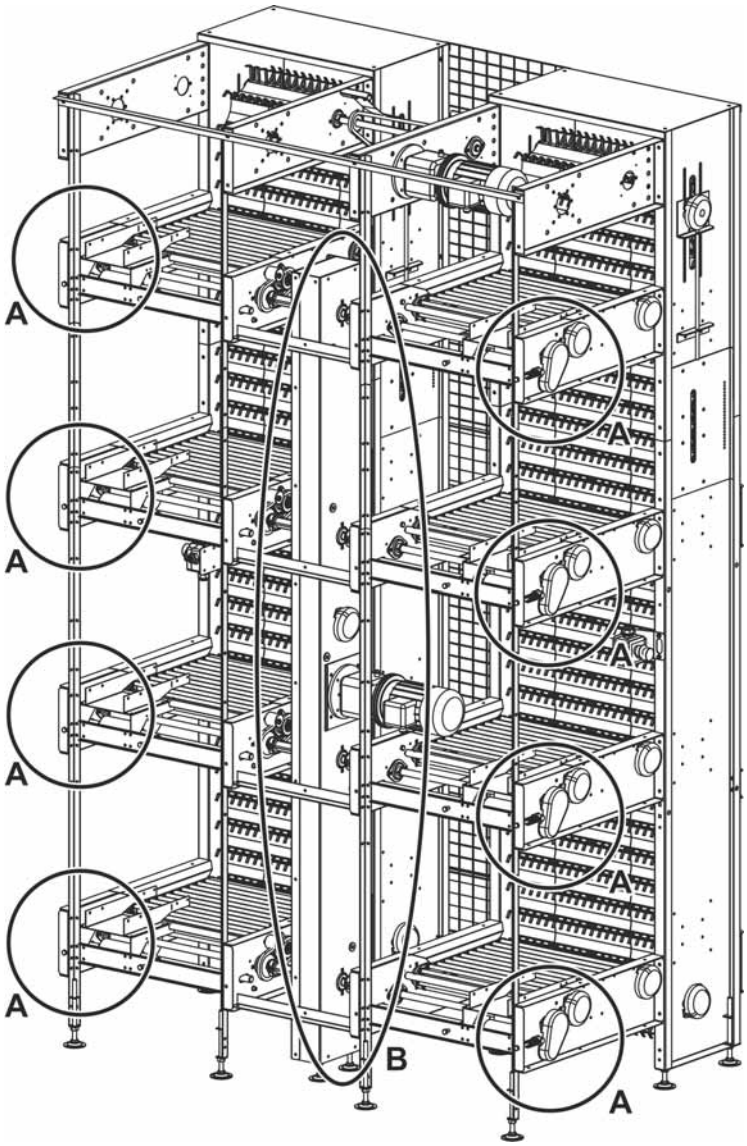
Maintenance interval	**Components to be checked**
Daily	• Check all transfer points (longitudinal belt to rod conveyor / rod conveyor to conveyor chain / conveyor chain to cross collection). • Immediately remove any foreign objects.
Weekly	• Check the drive column and the pressure roller. • Check the rods of the rod conveyor. • Check the module chain: Clean it and/or replace defective parts, if necessary. • **Check the elevator drives for possible dust deposits. These must be removed to prevent overheating of the drives!**

!	**The drives may not be cleaned directly with the high-pressure cleaner!**

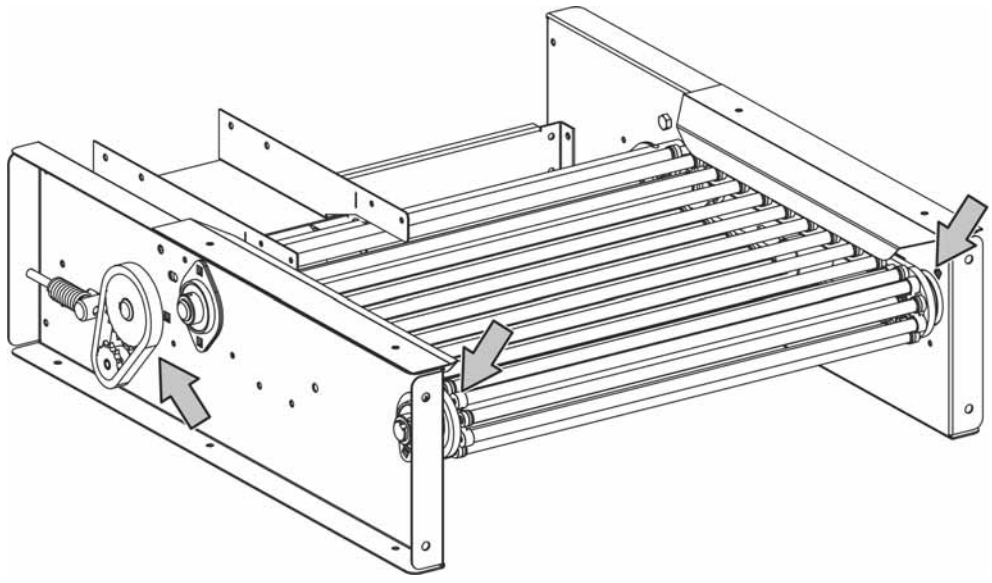
Monthly	• Check all drive chains at the elevator. Re-tension them, if necessary (=> chapter 4.4 "Tightening the chains"). • Check whether the elevator module chain is tensioned correctly. It should maximally be possible to pull 1 cm / 0.5" of the conveyor chain out of the vertical unit's housing. Re-tension at the elevator's tension unit, if necessary.

Once every three months	• Grease all drive chains and chain wheels at the elevator. (=> 5.1 "Overview of greasing points").

5.1 Overview of greasing points



Detail A



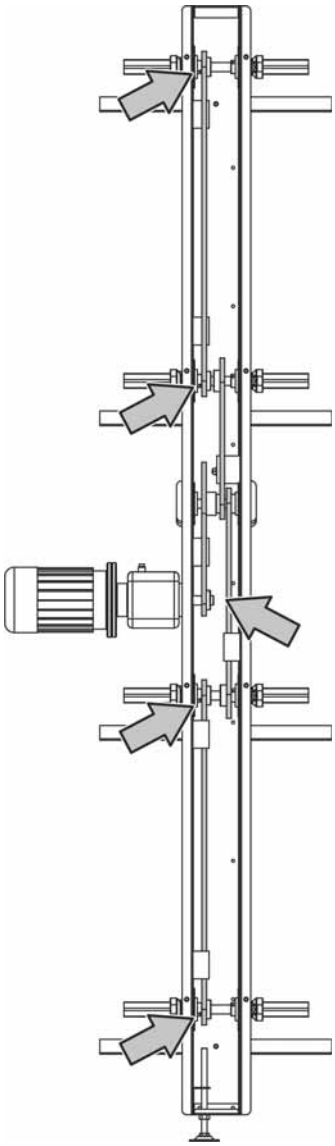
Greasing points at the rod conveyor

Remove the wire mesh guards and the back wall of the drive column.

Grease the roller chains at the indicated points.

Close the drive column and put the wire mesh guard back into place!

Detail B

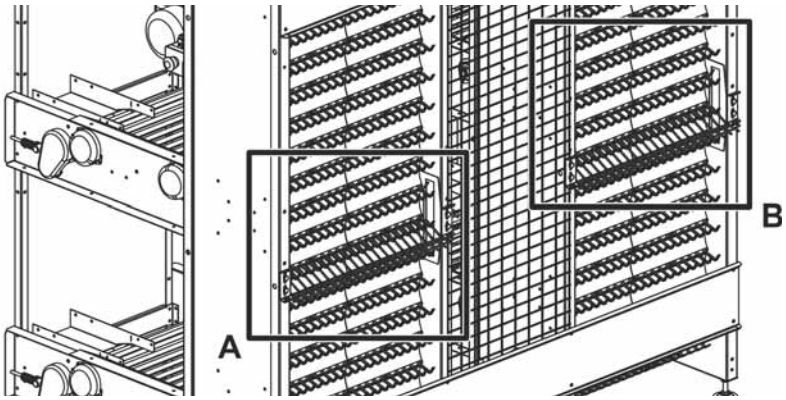


Greasing points at the drive column

5.2 Removing/inserting wire mesh guards

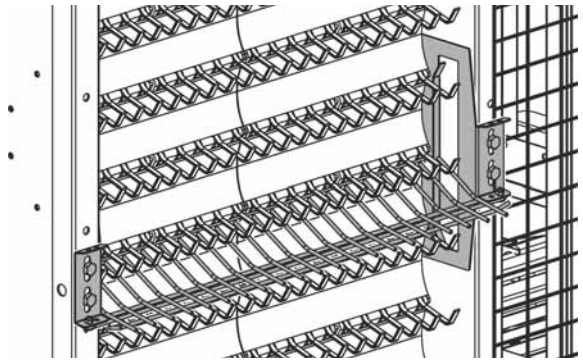
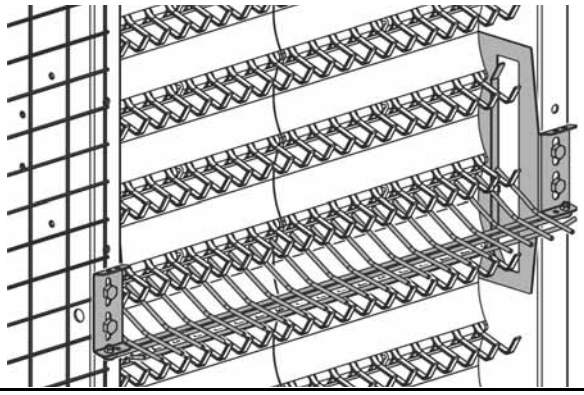
Removing wire mesh guards:

Loosen the screws of the egg transfer wire meshes at the guides so you can remove the wire mesh guards.



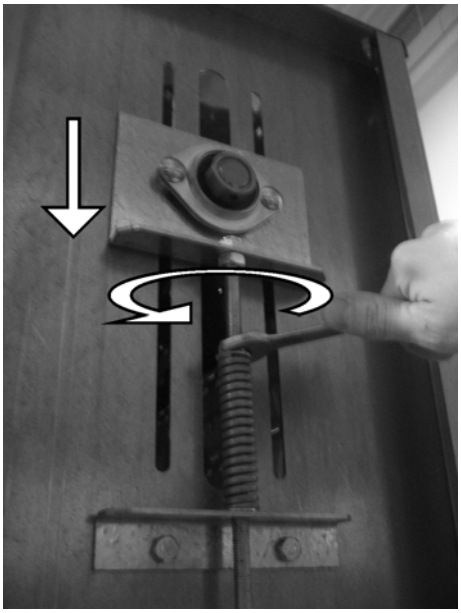
Inserting the wire mesh guards:

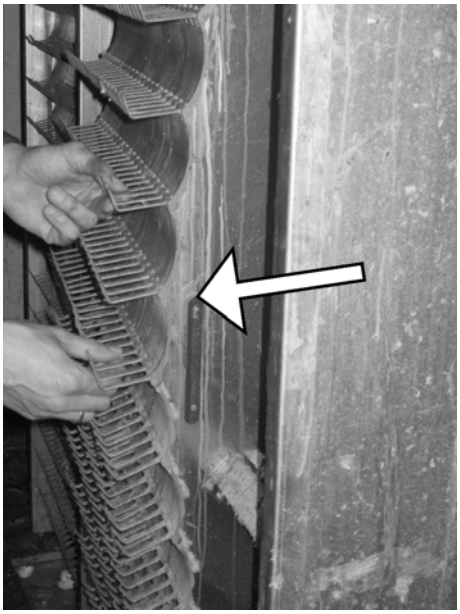
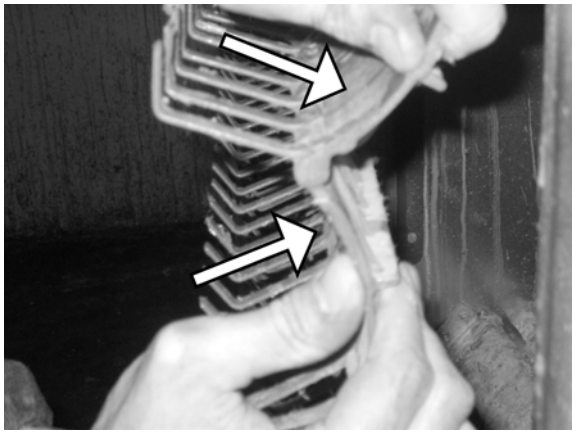
Use the front and rear guides to place the wire mesh guard between the elevator halves. Tighten the screws at the guides of the egg transfer wire meshes.

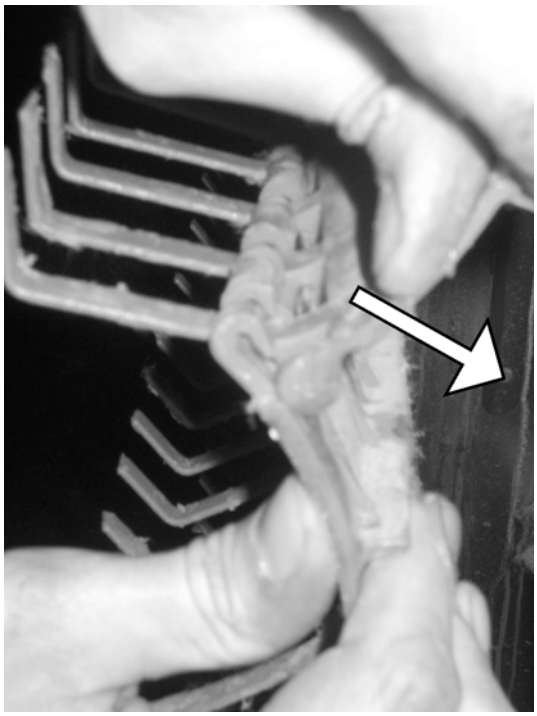
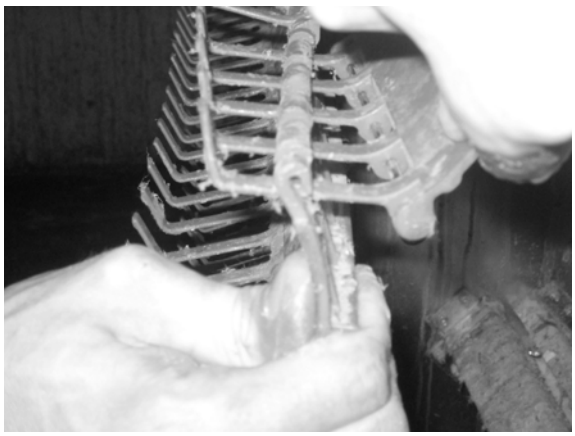
Detail A	Detail B
	

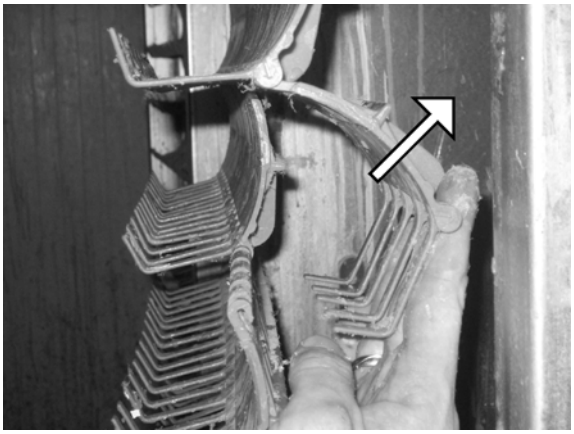
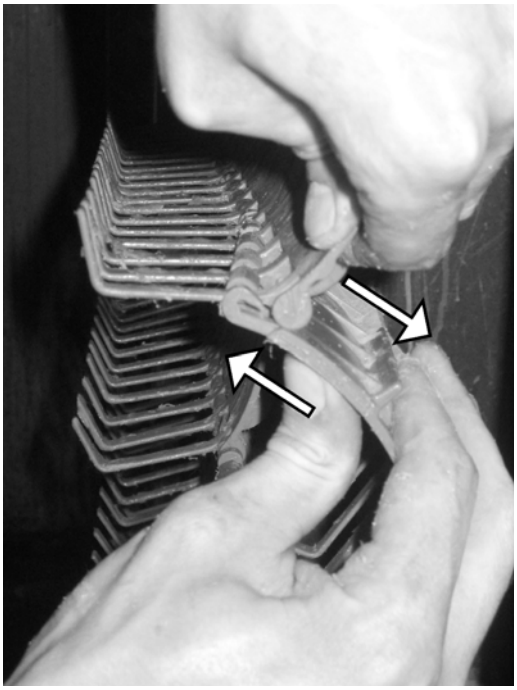
5.3 Replacing and connecting chain modules

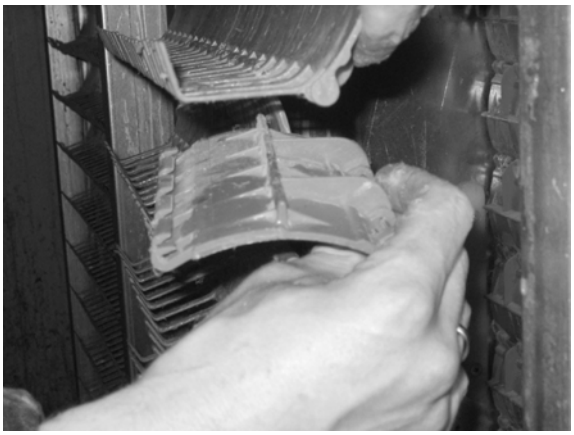
Code no.	Description
83-03-2207	Chain module 2K 139 mm elevator EggCellent
83-07-1989	Chain module 2K 139 mm black elevator EggCellent
83-03-2206	Chain module 2K 279 mm elevator EggCellent
83-07-1980	Chain module 2K 279 mm black elevator EggCellent

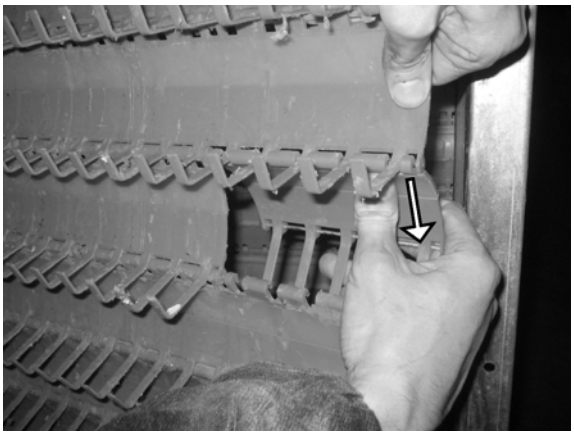
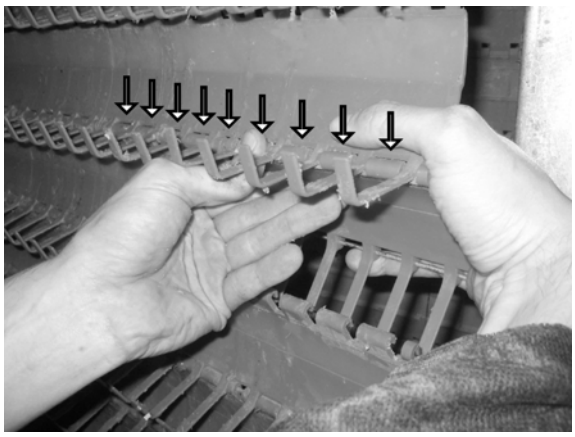
1. The replacement of plastic modules takes place above the bottom idler unit. The part to be exchanged is to be brought to a working level which can be easily reached.	**2.** Release the conveyor chain by approx. 5 cm / 2" at the top idler unit.
	

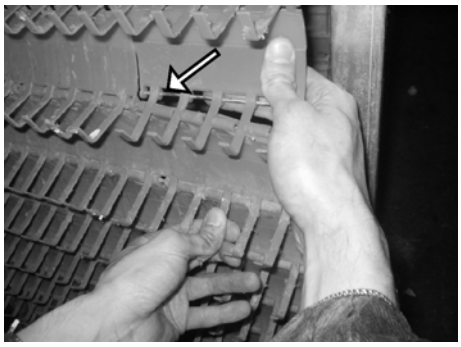
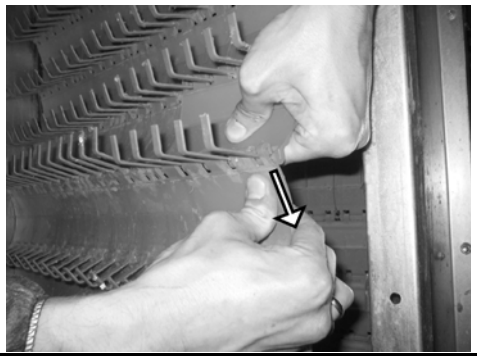
3. Pull the conveyor chain approx. 15-20 cm out of the elevator.	**4.** Fold the chain to an angle of approx. to an angle of approx. 45° beneath the part to be exchanged.
	

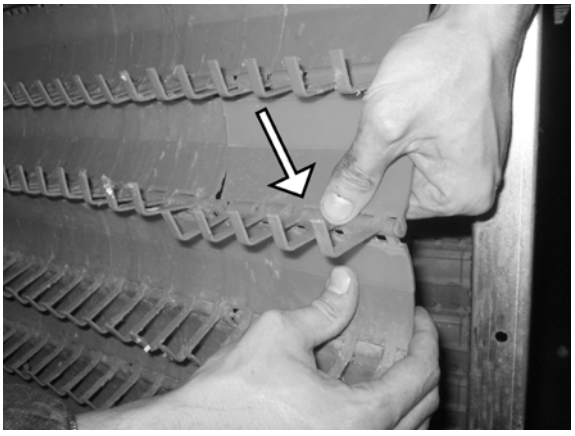
5. Press the plastic module to be exchanged out of the hinge hook of the component positioned beneath.	**6.** Release the chain module across the whole width from the hinge hook of the module below.
	

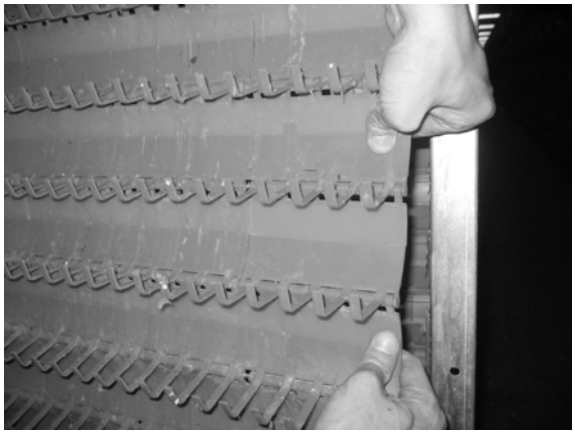
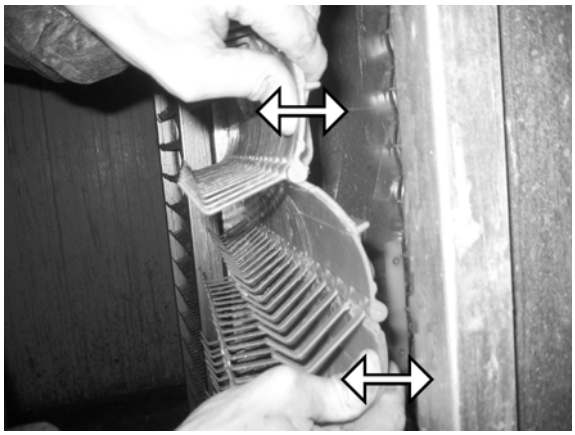
7. Fold down the chain module to be exchanged.	**8.** Press the hinge hook of the module to be exchanged out of the hinge wire of the component positioned above.
	

9. Remove component to be exchanged.	**10.** Installation of the new chain module.
	

11. Push new chain module folded backwards with the hook on the wire of the component positioned above.	**12.** Press hook completely onto the wire and snap in.
	

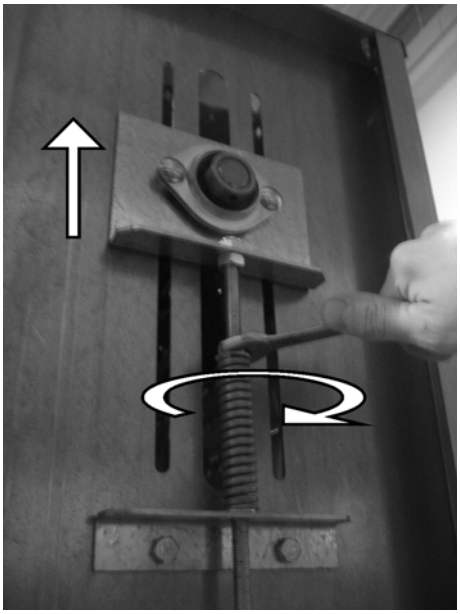
13. Fold new component forwards.	**14.** Position new module so that the hook of the component positioned below can be pushed onto the wire of the new component.
	

15. Push hook onto the wire.	**16.** Press hook completely onto the wire and snap in.
	

17. Carry out a visual control to ensure that all hooks have been pushed onto the wires and have snapped in properly.	**18.** Carry out a functional control of the new module by moving the components positioned below and above it.
	

Important:

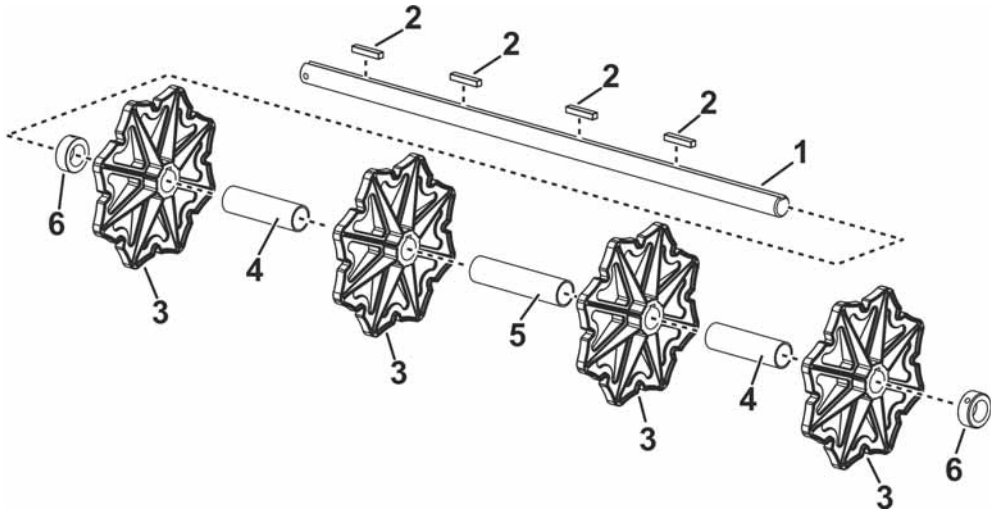
The module chain may **not be tightened too extremely** (see also following point 20).

19. Tighten the conveyor chain on top idler unit.	**20.**Tighten the conveyor chain so that the chain module can be pulled no more than approx. 1 cm / 0.5" out of the casing of the vertical unit.
	

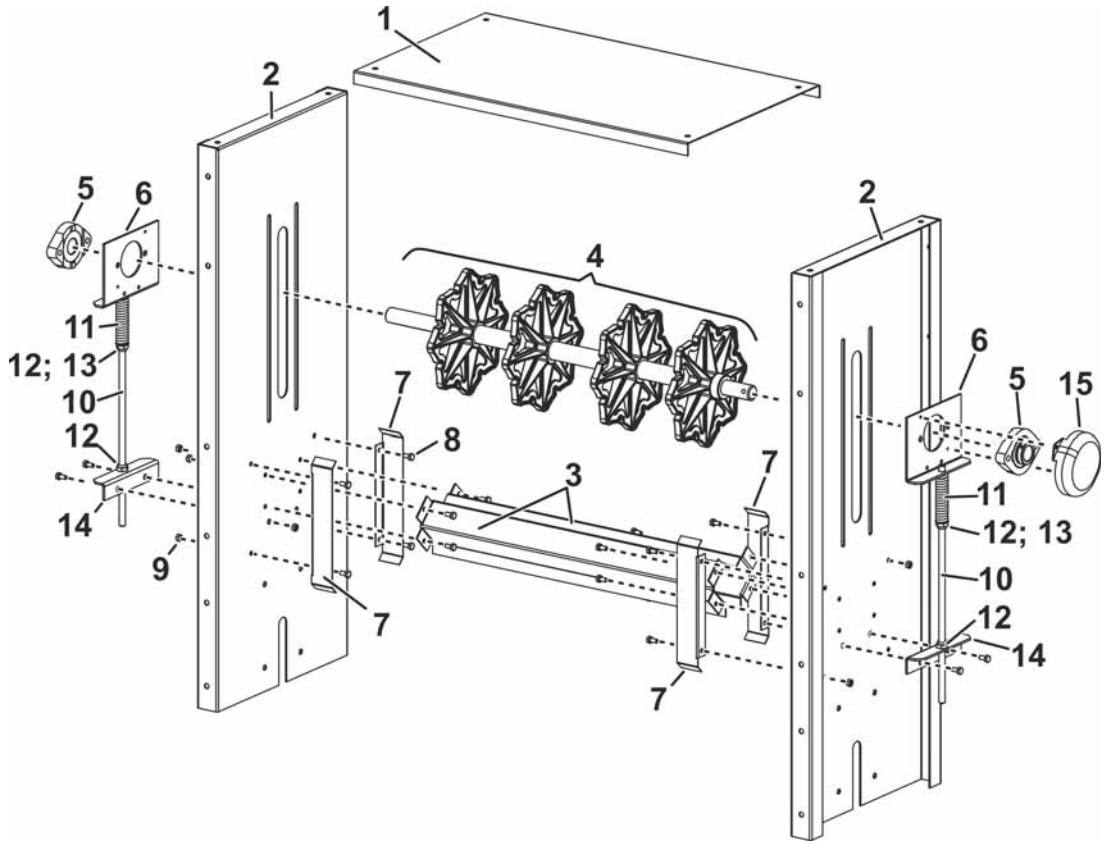
6 List of spare parts

6.1 Vertical unit upper

Upper idler unit:



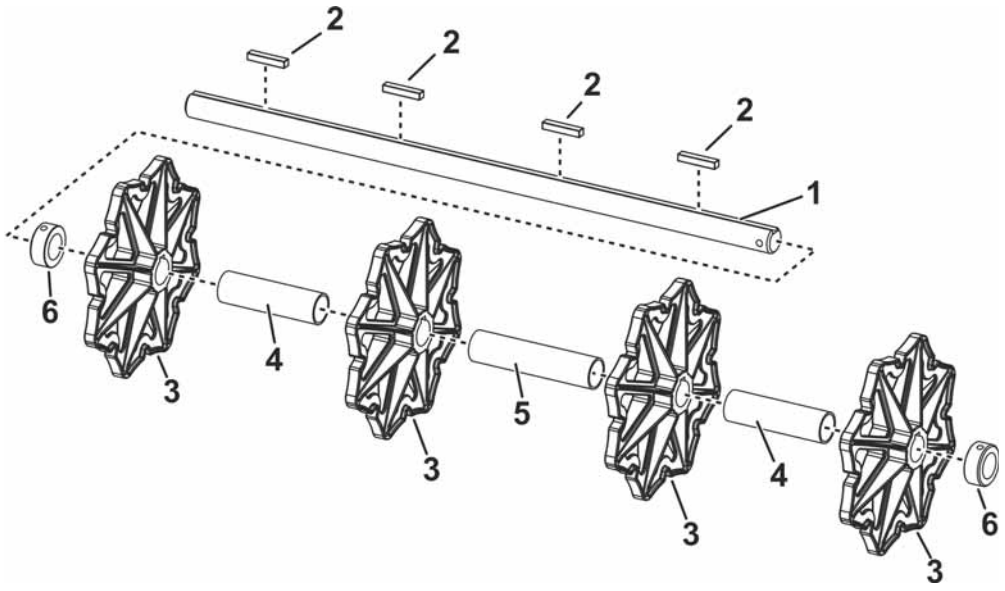
Pos.	Qty.	Code no.	Description
1	1	83-03-0293	Shaft upper for elevator chain of elevator EggCellent
2	4	99-50-1264	Key 8 x 7 x 40 DIN 6885
3	4	83-02-9745	Driving wheel PA6+GK30 for module chain of elevator EggCellent
4	2		Distance pipe 30x2x103 for idler unit elevator EggCellent
5	1		Distance pipe 30x2x129 for idler unit elevator EggCellent
6	2	37-80-2035	Adjusting ring A25 DIN 705 galv.



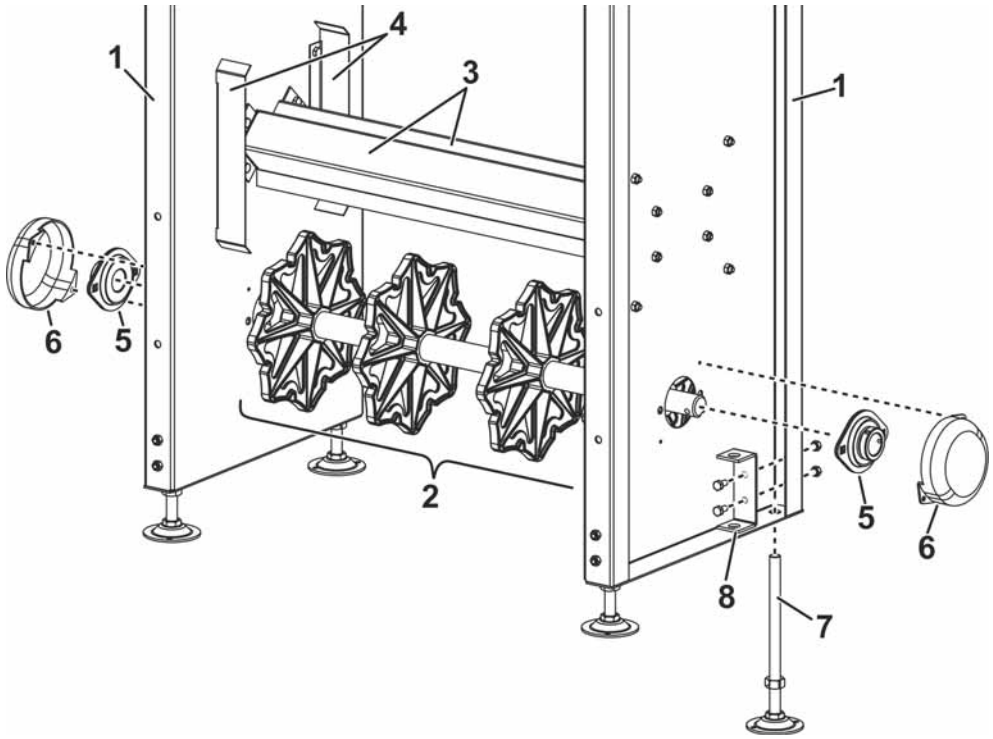
Pos.	Qty.	Code no.	Description
1	1		Cover for elevator EggCellent
2	2		Side plate upper elevator EggCellent
3	2		Cross brace galv. for top belt elevator
4	1		Idler unit upper
5	2	99-98-4701	Flange bearing cast iron Ø25 2hole
6	2		Slider plate idler unit elevator chain elevator EggCellent
7	4		Guide angle for elevator chain elevator EggCellent
8		99-10-1067	Hexagon head screw M 6 x 16 galv. DIN 933 8.8
9		99-10-1045	Hexagon nut M 6 galv. DIN 934-8
10	2		Threaded rod M 10 x 400 galv. elevator EggCellent
11	2	38-94-3640	Pressure spring for conveyor chain elevator SafetyTransfer/EggCellent 4x16x100
12	4	99-20-1065	Self-locking counter nut M 10 galv. DIN980-8
13	2	99-50-1090	Washer A 10.5 DIN 125 galv.
14	2		Angle for pressure spring idler unit elevator chain elevator EggCellent
15	1	38-94-3582	Guard cap for flange bearing of elevator half outer

6.2 Vertical unit lower

Lower idler unit:

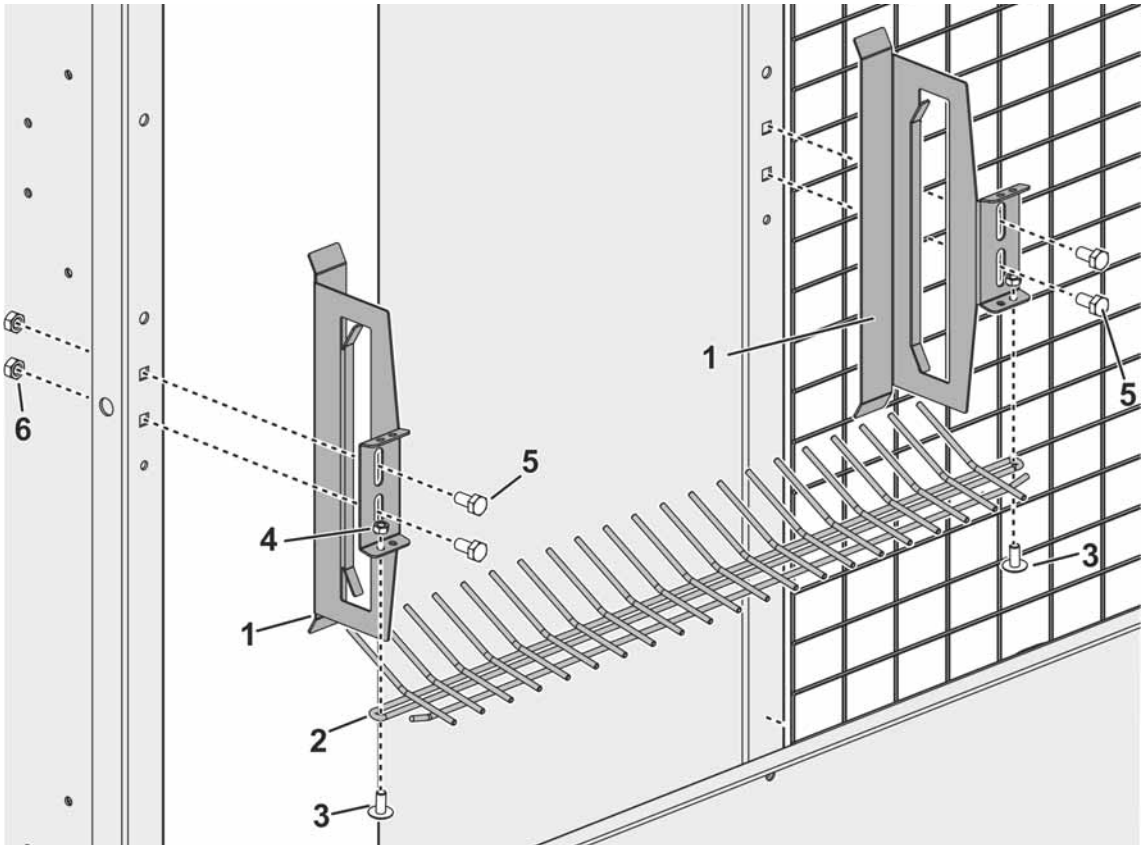


Pos.	Qty.	Code no.	Description
1	1	83-03-0295	Shaft lower for elevator chain of elevator EggCellent
2	4	99-50-1264	Key 8 x 7 x 40 DIN 6885
3	4	83-02-9745	Driving wheel PA6+GK30 for module chain of elevator EggCellent
4	2		Distance pipe 30x2x103 for idler unit elevator EggCellent
5	1		Distance pipe 30x2x129 for idler unit elevator EggCellent
6	2	37-80-2035	Adjusting ring A25 DIN 705 galv.



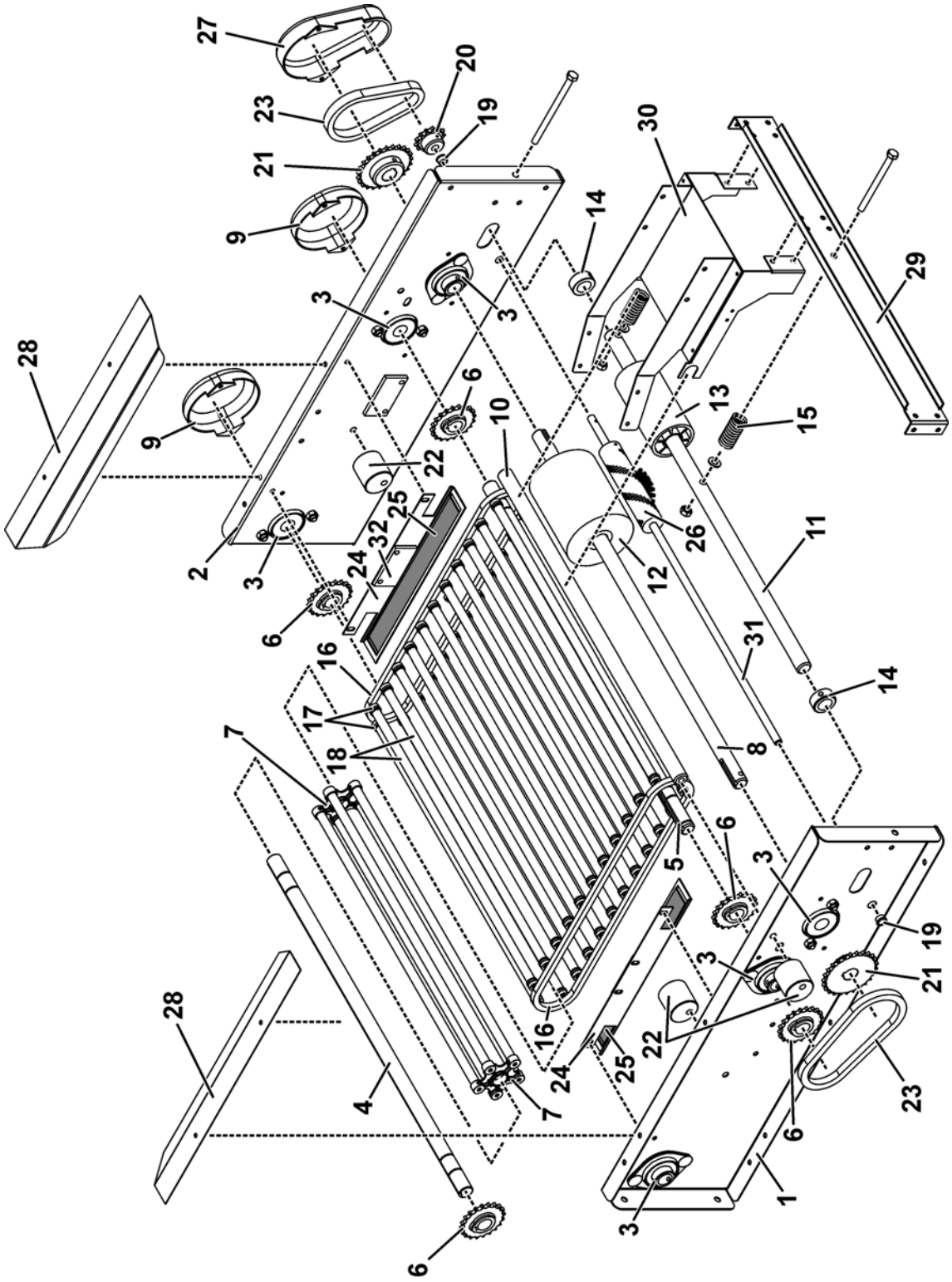
Pos.	Qty.	Code no.	Description
1	2		Side plate lower elevator EggCellent
2	1		Idler unit lower
3	2		Cross brace galv. for top belt elevator
4	4		Guide angle for elevator chain elevator EggCellent
5	2	99-98-4701	Flange bearing cast iron Ø25 2hole
6	2	38-94-3582	Guard cap for flange bearing of elevator half outer
7	4	38-52-3906	Foot fully threaded M 12 x 200 galv. cpl.
8	4		Reinforcing angle for foot elevator EggCellent

6.3 Egg transfer wire mesh



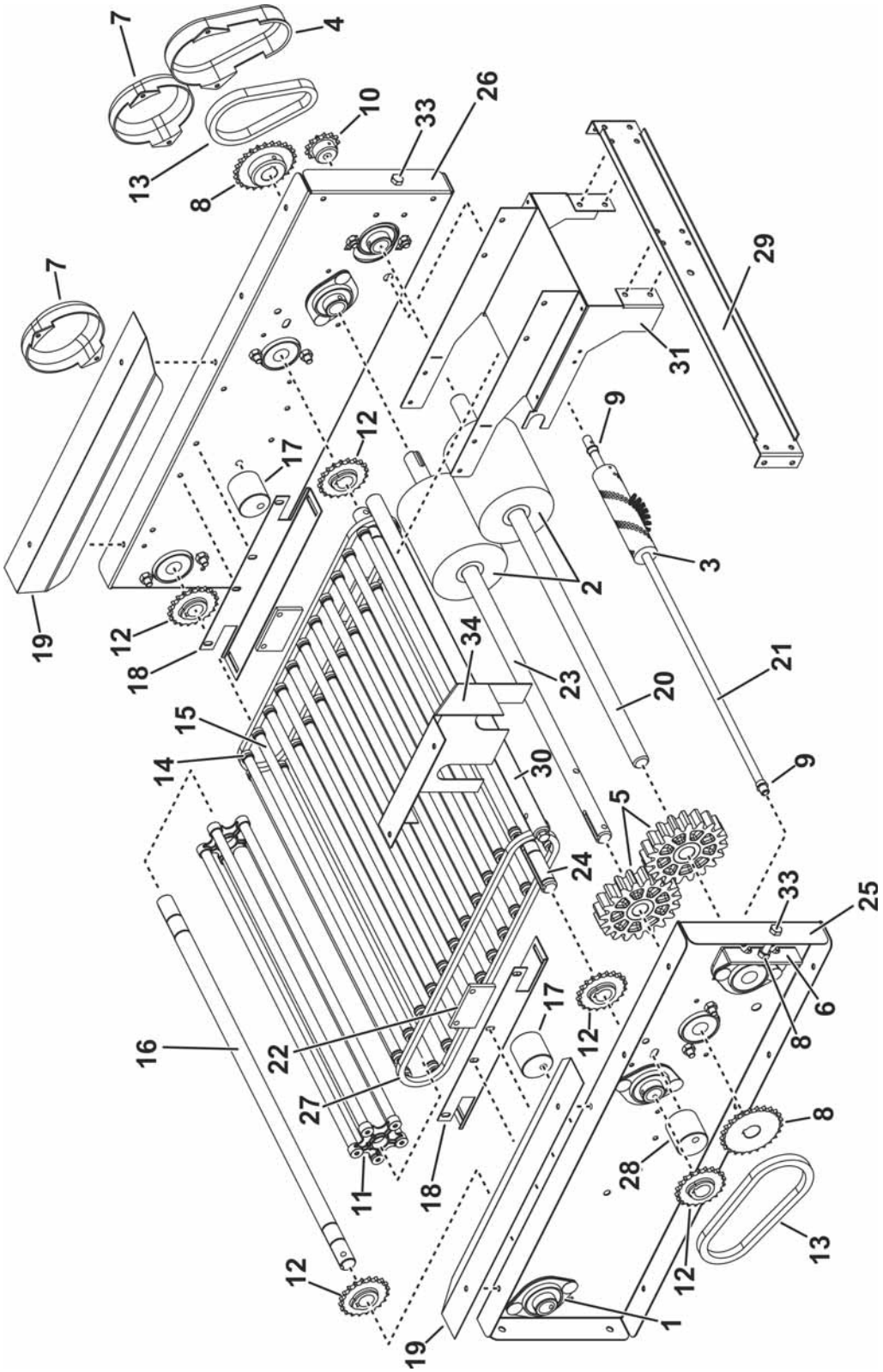
Pos.	Code no.	Description
1	83-07-4179	Support for transfer wire mesh with chain guide cpl. elevator EggCellent
2	83-05-9990	Transfer wire mesh 4 mm elevator EggCellent
3	99-10-3949	Mushroom head screw M 5 x 12 galv. slotted
4	99-10-1023	Hexagon nut M 5 galv. DIN 934-8
5	99-10-1046	Hexagon head screw M 8 x 16 galv. DIN 933 8.8
6	99-10-1040	Hexagon nut M 8 galv. DIN 934-8

6.4 Rod conveyor (example: right version)



Pos.	Qty.	Code no.	Description
1	1		Side plate for rod conveyor left
2	1		Side plate for rod conveyor right
3	6	38-94-3613	Flange bearing sheet metal dia 20 2hole cpl.
4	1		Reversing shaft
5	1		Drive shaft
6	5	83-03-0497	Chain wheel 3/8" 20t b20 PA (*polyamide*) elevator EggCellent
7	2	83-03-0339	Discharge wheel for rod conveyor elevator EggCellent
8	1	83-05-7975	Drive shaft for longitudinal belt rod conveyor E95 UV500 elevator EggCellent with drive column
9	2	38-94-3582	Guard cap for flange bearing of elevator half outer
10	1		Reversing shaft for egg belt
11	1		Pressure shaft for rod conveyor
12	1	83-03-2345	Drive roller 20x120 for elevator EggCellent including set screw
13	1	38-94-3565	Pressure roller PA (*polyamide*) D23xD57-119 for elevator + longitudinal belt drive E11.5
14	2	38-94-3578	Adjusting ring A 20 DIN 705
15	2	38-92-3509	Compression spring f for drive longitudinal belt
16	2	38-87-3009	Roller chain 3/8" 2x914 mm with lengthened bolts for elevator EggCellent
17	48	83-03-2605	Sleeve for rod conveyor elevator EggCellent
18	29	83-03-2643	Rod for rod conveyor PVC (*polyvinyl chloride*) elevator EggCellent
19	2	38-94-0002	Plain bearing B0 10/12-7 for shaft egg belt brush/elevator
20	1	83-01-1574	Chain wheel 3/8" 13t b10 PA (*polyamide*) elevator EggCellent/egg belt cleaner
21	1	38-94-3627	Chain wheel 3/8-16t-B20 single
22	3	83-05-9909	Chain tensioner cpl. for rod conveyor elevator EggCellent
23		99-98-8149	Roller chain 3/8"
24	2		Supporting plate for conveyor chain
25	1	36-00-3161	Stuffing strip 2000 mm for egg channel Natura
26	1	83-03-8316	Egg belt brush 140 mm for rod conveyor elevator EggCellent
27	1	00-00-5051	Guard cap for chain drive of egg belt cleaner
28	2	83-05-7977	Chain protection
29	1		Support for pressure roller
30	1		Supporting plate cpl. E95
31	1	83-04-3582	Shaft for egg belt brush elevator EggCellent
32	4		Chain glide for rod conveyor

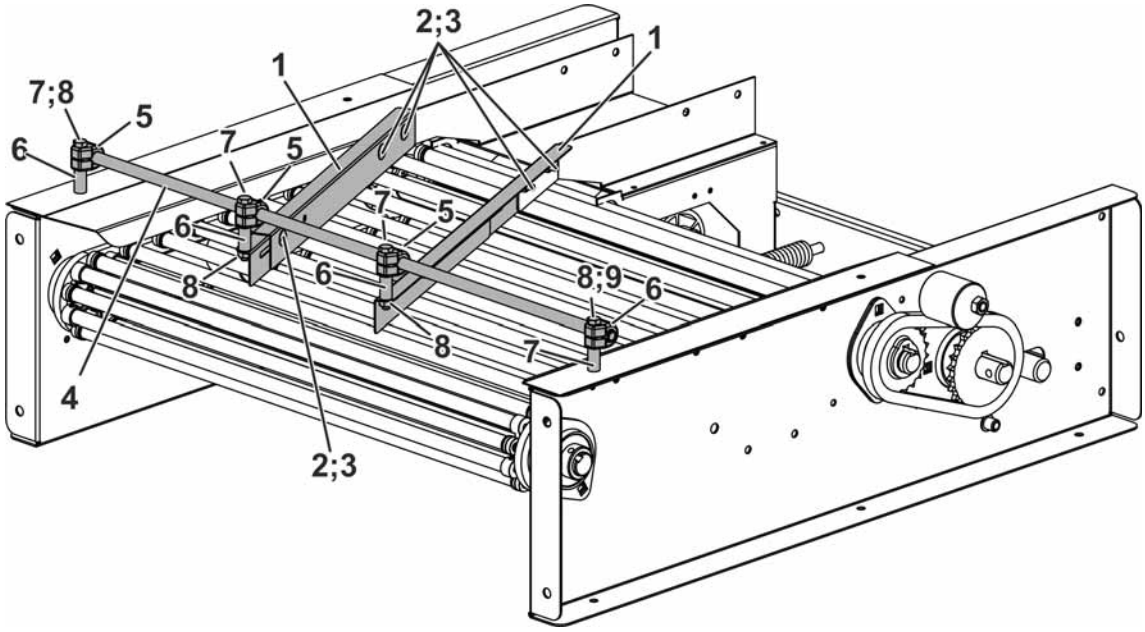
6.5 Rod conveyor with driven pressure roller (example: right version)



Pos.	Qty.	Code no.	Description
1	8	38-94-3613	Flange bearing sheet metal dia 20 2hole cpl.
2	2	83-03-2345	Drive roller d 20x96-120 egg belt 115 mm elevator EggCellent
3	1	83-03-8316	Egg belt brush 140 mm for rod conveyor elevator EggCellent

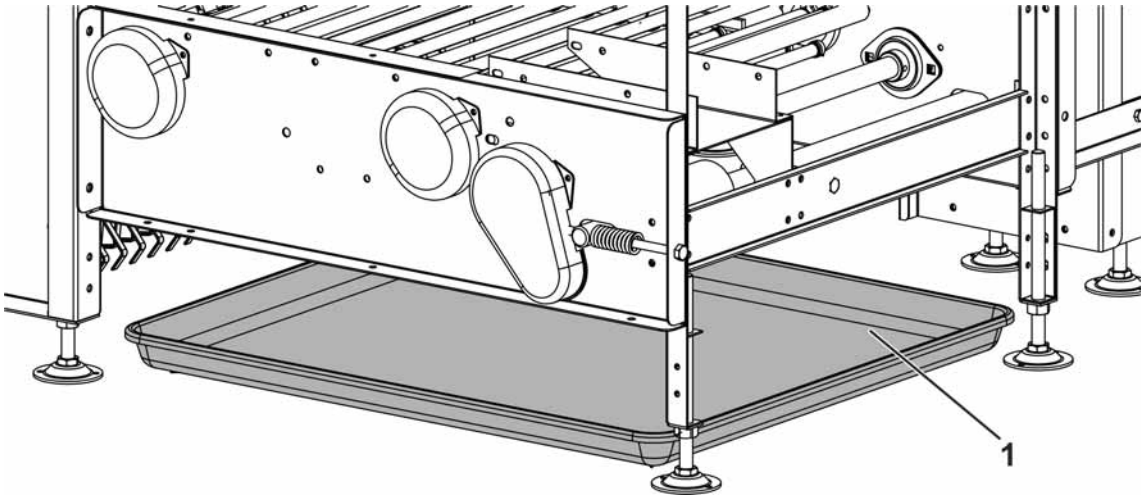
Pos.	Qty.	Code no.	Description
4	1	00-00-5051	Guard cap for chain drive of egg belt cleaner
5	2	83-09-8389	Gear 19t b20 M5 cpl. for elevator EggCellent
6	2		Slider plate for rod conveyor with driven pressure roller
7	2	38-94-3582	Guard cap for flange bearing of elevator half outer
8	2	38-94-3627	Chain wheel 3/8 25t b20 single for elevator EggCellent/EggStar
9	2	38-94-0002	Plain bearing B0 10/12-7 for shaft egg belt brush/elevator
10	1	83-01-1574	Chain wheel 3/8" 13t b10 PA (*polyamide*) EggCellent / egg belt cleaner
11	2	83-03-0339	Discharge wheel for rod conveyor elevator EggCellent
12	5	83-03-0497	Chain wheel 3/8" 20t b20 PA (*polyamide*) elevator EggCellent
13		99-98-8149	Roller chain 3/8" (running metre)
14	48	83-03-2605	Sleeve for rod conveyor elevator EggCellent
15	29	83-03-2643	Rod for rod conveyor PVC (*polyvinyl chloride*) elevator EggCellent
16	1		Reversing shaft rod conveyor E95 UV500 EggCellent with drive column
17	2	83-03-8314	Chain tensioner for rod conveyor elevator EggCellent
18	2		Supporting plate for conveyor chain for rod conveyor elevator EggCellent
19	2	83-05-7977	Chain protection for rod conveyor elevator EggCellent with drive column
20	1		Drive shaft for pressure roller rod conveyor with driven pressure roller
21	1	83-04-3582	Shaft for egg belt brush elevator EggCellent
22	4		Chain glide for rod conveyor elevator EggCellent
23	1		Drive shaft for longitudinal belt rod conveyor with driven pressure roller
24	1	83-05-7964	Drive shaft 640.0 mm rod conveyor elevator EggCellent with drive column
25	1		Side plate left for rod conveyor E95-EV/EU with driven pressure roller
26	1		Side plate right for rod conveyor E95-EV/EU with driven pressure roller
27	2	38-87-3009	Roller chain 3/8" 2x914 mm with lengthened bolts for EggCellent
28	1	83-05-9909	Chain tensioner cpl. for rod conveyor elevator EggCellent
29	1		Support for pressure roller elevator EggCellent
30	1		Reversing shaft for egg belt for rod conveyor
31	1		Supporting plate cpl. E115 left rod conveyor elevator EggCellent
32	4	99-10-1040	Hexagon nut M 8 galv. DIN 934-8
33	2	99-10-1265	Hexagon head screw M 8 x 55 galv. DIN 933 8.8
34	1	83-06-3344	Gear wheel cover lh for rod conveyor with driven pressure roller

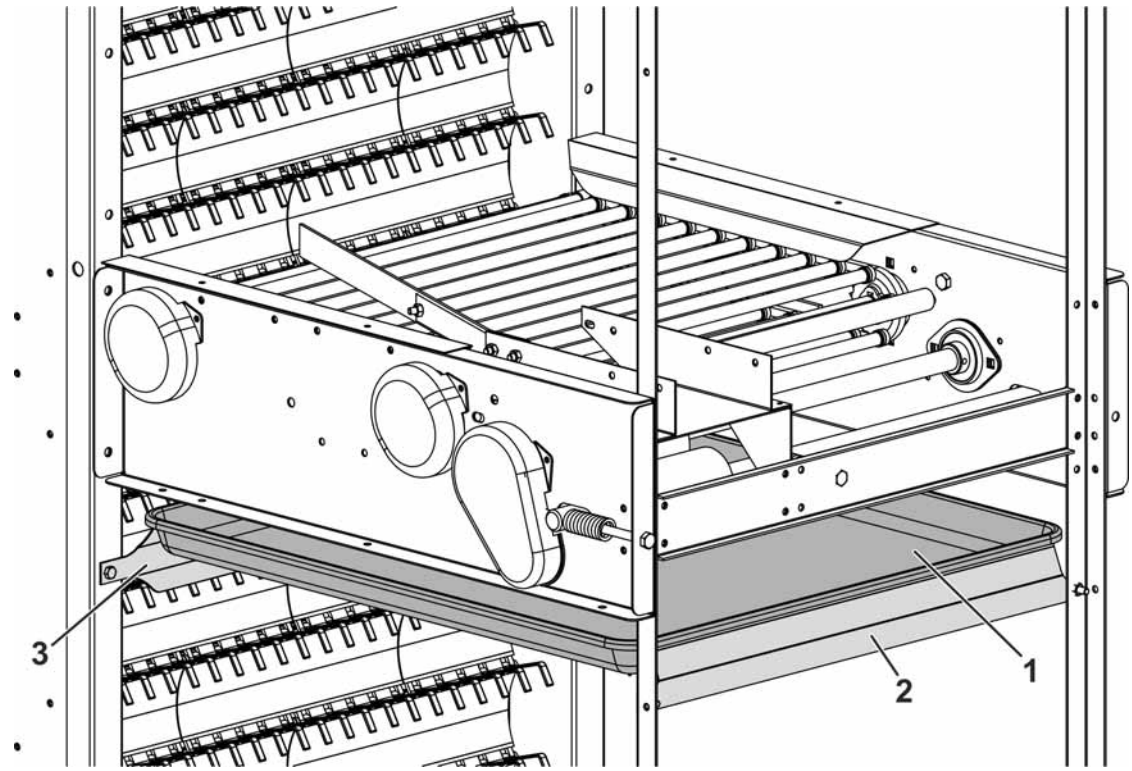
6.6 Egg guide strips



Pos.	Code no.	Description
1	81-30-5932	Egg guidance cpl. for rod conveyor elevator EggCellent
2	99-10-3949	Mushroom head screw M 5 x 12 galv. slotted
3	99-10-1023	Hexagon nut M 5 galv. DIN 934-8
4	83-06-3489	Cross tube egg guidance for rod conveyor elevator EggCellent
5	83-06-2757	Collar for rod conveyor elevator EggCellent
6	83-06-5818	Distance pipe egg guidance for rod conveyor elevator EggCellent
7	83-03-8551	Hexagon head screw M 6 x 50 galv. DIN 933 8.8
8	99-10-1045	Hexagon nut M 6 galv. DIN 934-8

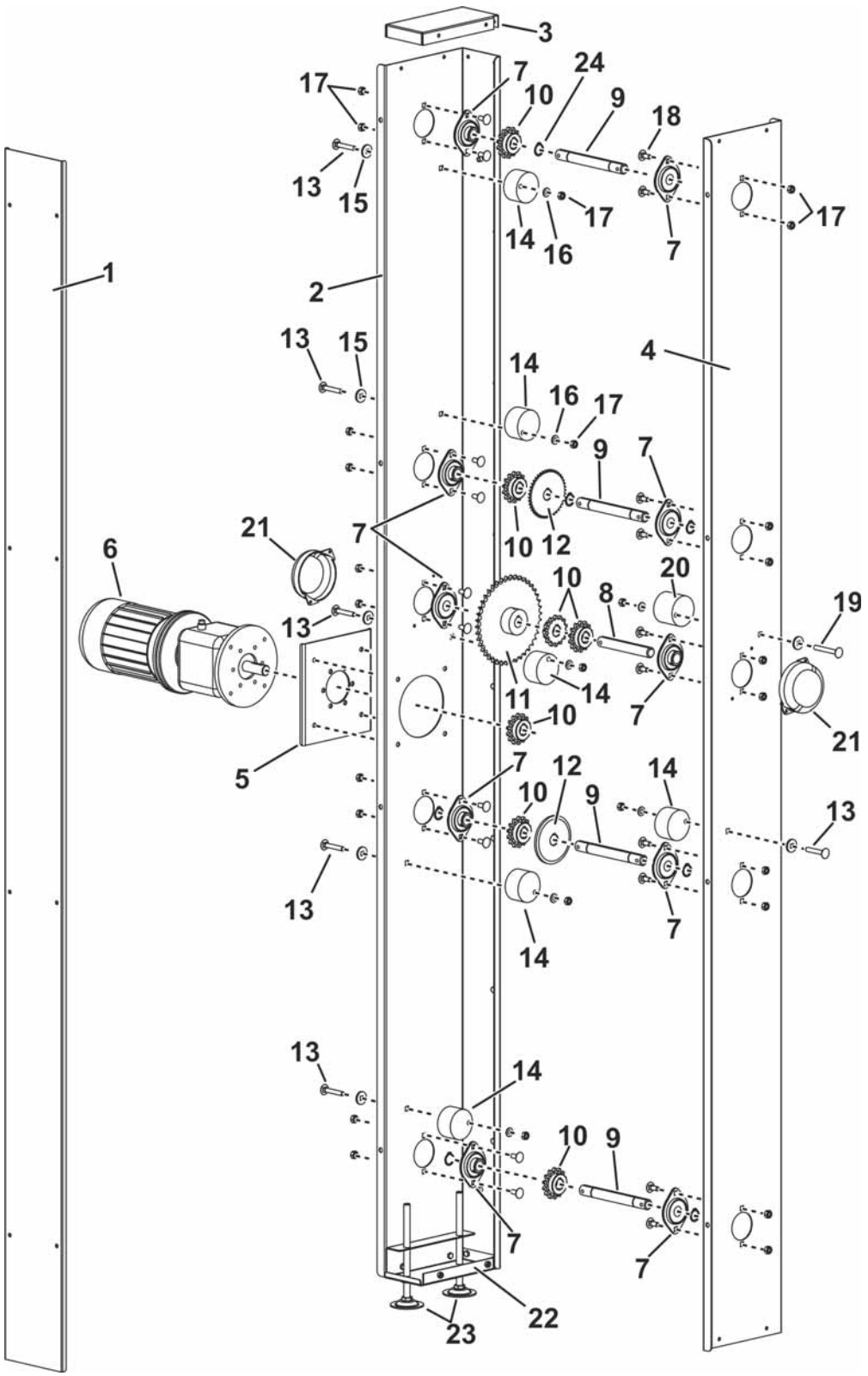
6.7 Collecting boxes for dirt





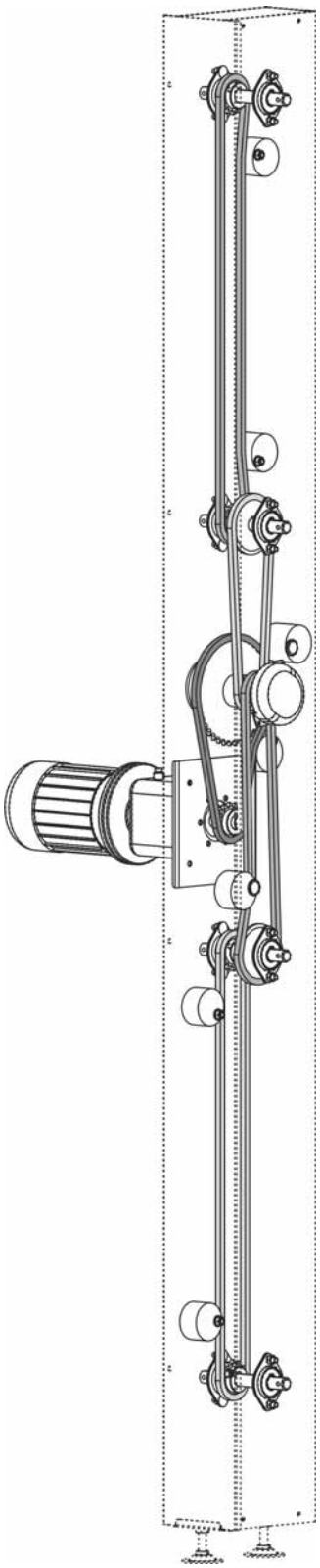
Pos.	Code no.	Description
1	83-05-2494	Collecting box for dirt for elevator EggCellent
2		Support plate for dirt collecting box
3		Support plate for dirt collecting box

6.8 Drive column



Pos.	Code no.	Description
1		Back wall drive column 4 levels 680 mm
2		Side wall left drive column 4 levels 680 mm
3		Cover drive column 4 levels 590 mm
4		Side wall right drive column 4 levels 680 mm
5		Motor plate drive column 4 levels 590 mm
6	90-00-3750	Gear motor 0.37 kW 230/400 V 3 ph 50 Hz 27 rpm for elevator EggCellent
7	38-94-3613	Flange bearing sheet metal dia 20 2hole cpl.
8		Intermediate shaft 138 mm drive column 4 levels 590 mm
9		Shaft 20x180 drive column 4 levels 590 mm
10	83-00-1660	Chain wheel 1/2 14t b20 single
11	83-00-6806	Chain wheel 1/2 42t b20 single
12	38-94-3628	Chain wheel 1/2 22t b20 single
13		Mushroom head square neck bolt M 8 x 50 DIN 603 galv.
14	83-05-9193	Chain tensioner D60x35 cpl. for drive column elevator EggCellent
15		Distance washer for chain tensioner drive column 4 levels 590 mm
16	99-20-1026	Washer A 8.4 DIN 125 galv.
17	99-10-1040	Hexagon nut M 8 galv. DIN 934-8
18	99-10-3862	Mushroom head square neck bolt M 8 x 20 DIN 603 galv.
19		Mushroom head square neck bolt M 8 x 65 DIN 603 galv.
20		Chain tensioner drive column 4 levels 590 mm
21	38-94-3582	Guard cap for flange bearing of elevator half outer
22		Reinforcing plate drive column 4 levels 590 mm
23	38-52-3906	Foot fully threaded M 12 x 200 galv. cpl.
24	99-50-3742	Retaining ring DIN 471 20x1.2

Course of the chain:



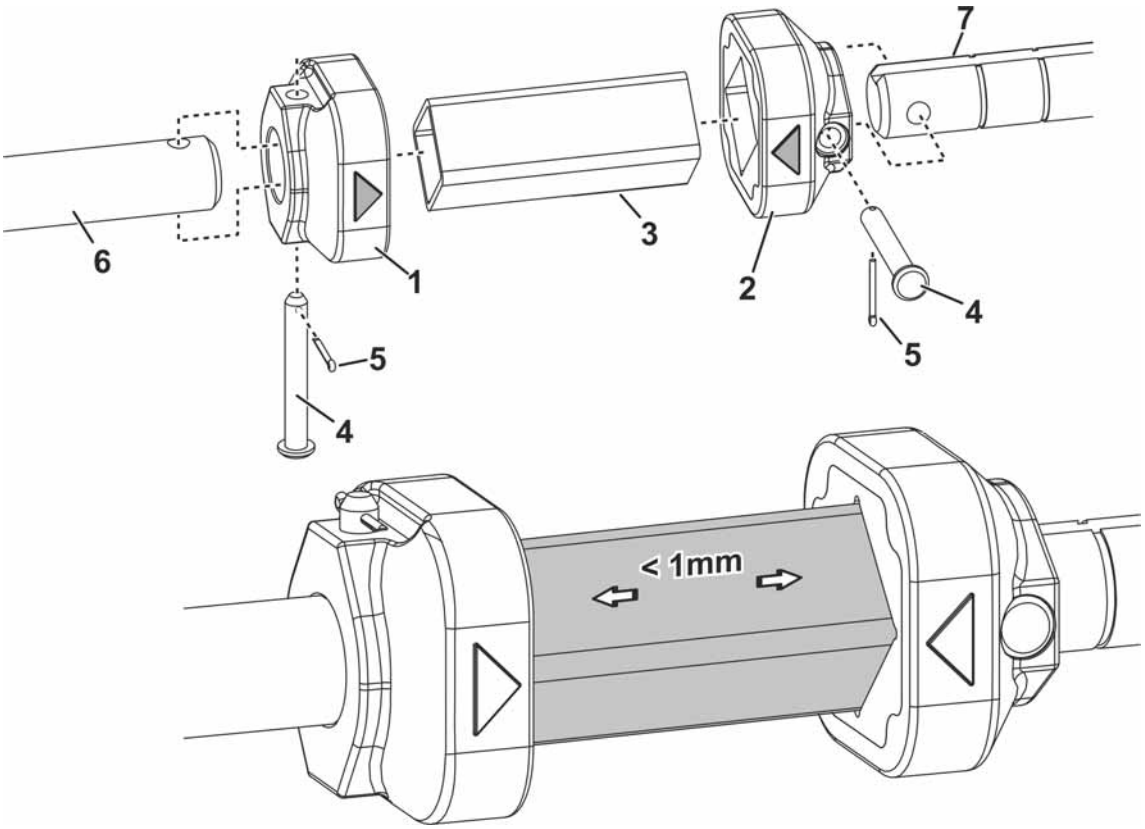
Pos.	Code no.	Description
1	99-98-8140	Roller chain 1/2" RE222
2	99-50-1241	Chain joint 1/2" x 5/16"
3	99-50-1324	Chain link cranked 1/2"

Coupling elements (between drive column and rod conveyor):

Cut the square tubes (pos. 3) as required and deburr them at the cutting points if coupling elements need to be exchanged.

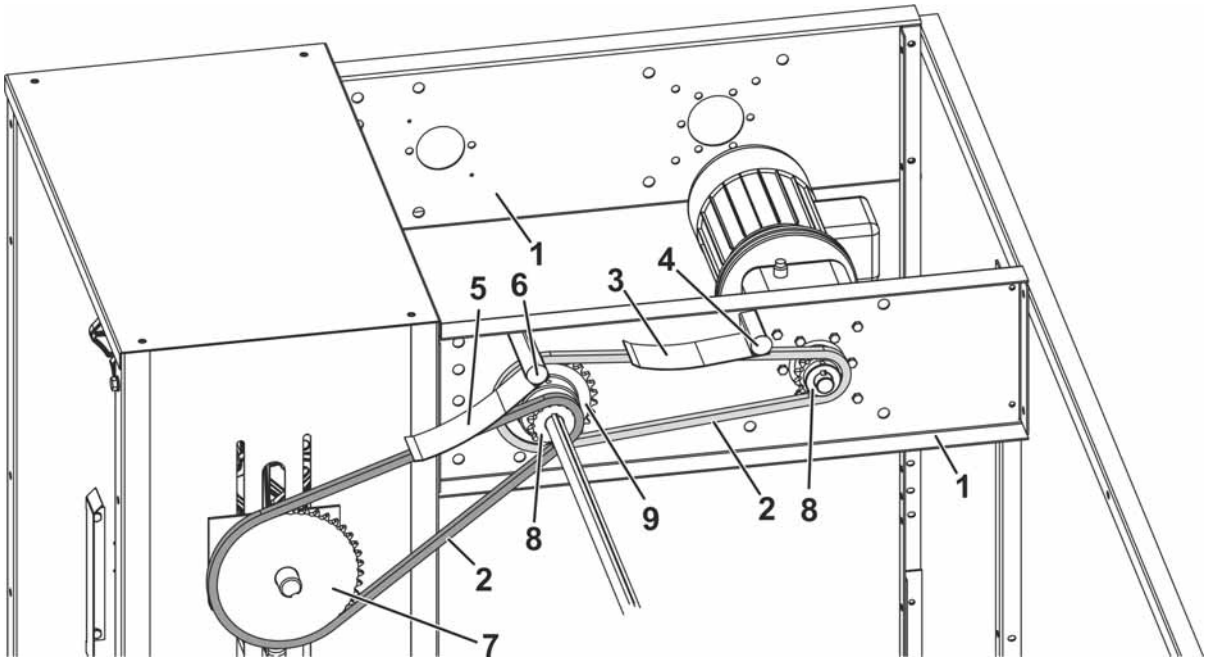
The arrows on the coupling elements must point towards each other!

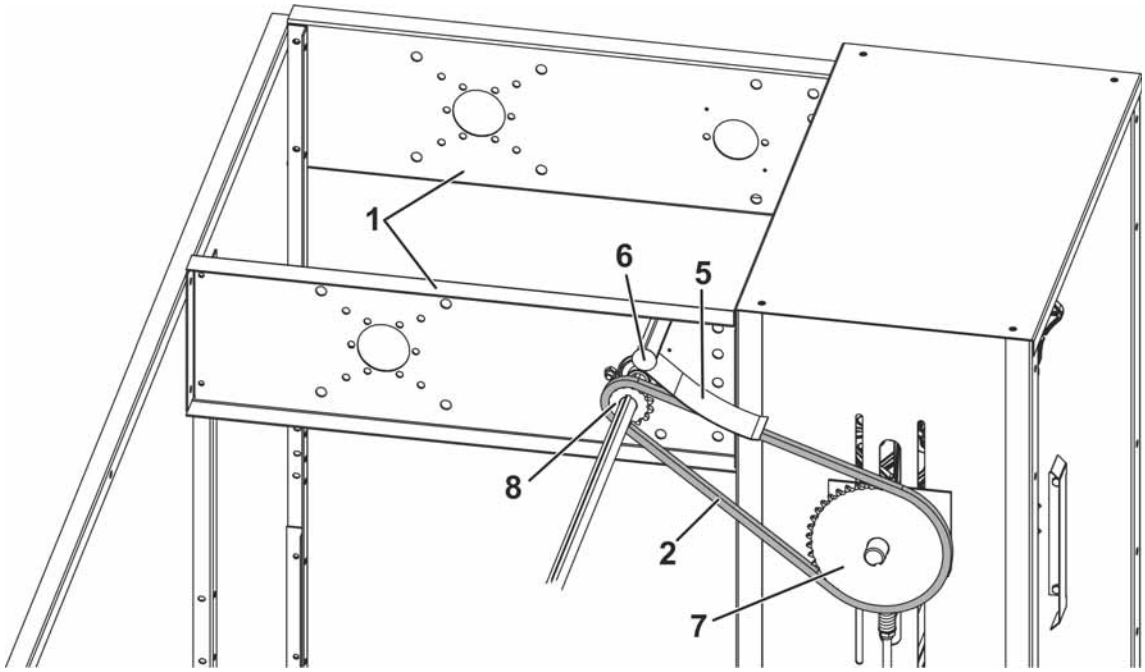
The square tube must not have more than 1 mm of play after mounting!



Pos.	Code no.	Description
1	83-09-1933	Element of coupling 2C lh for elevator drive column
2	83-09-1969	Element of coupling 2C rh for elevator drive column
3	81-34-4821	Square tube 25x25x2
4	83-09-1921	Clevis pin 6x45 ISO 2341-B 8.8 galv. with hole for splint
5	83-09-1399	Splint pin 1.6x14 DIN 94/ISO 1234 galv.
6		Shaft drive column
7		Shaft rod conveyor

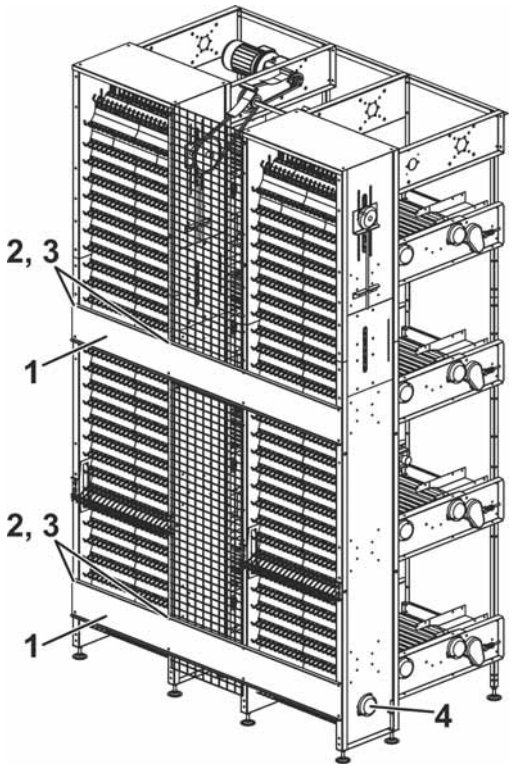
6.9 Elevator chain drive





Pos.	Code no.	Description
1		Motor plate elevator EggCellent 6-90 Hz
2	99-98-8140	Roller chain 1/2" RE 222
3	38-94-3202	Tightener for chain 65/160 for repair
4	99-10-1180	Mushroom head square neck bolt M 12 x 90 DIN 603 galv.
5	38-94-3206	Tightener for chain 98/200 for repair
6	99-10-1239	Mushroom head square neck bolt M 12 x 130 DIN 603 galv.
7	83-04-3434	Chain wheel 1/2 42t b25 single for elevator EggCellent
8	83-00-1660	Chain wheel 1/2 14t b20 single
9	83-03-0334	Chain wheel 1/2 28t b20 single for elevator EggCellent
10	99-20-1032	Hexagon nut M 12 galv. DIN 934-8

6.10 U-profiles



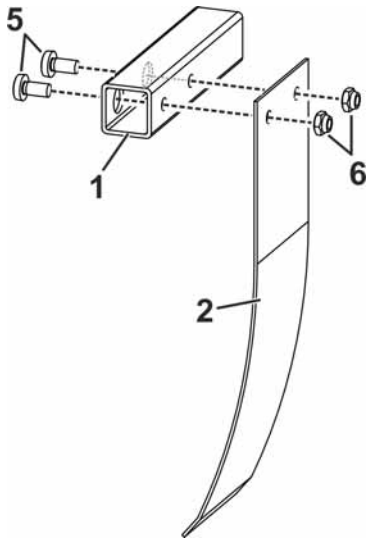
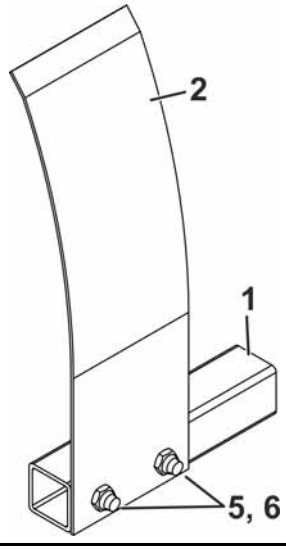
Pos.	Qty.	Code no.	Description
1	2	83-04-6782	U-profile for elevator EggCellent UV639
2	16	99-10-1046	Hexagon head screw M 8 x 16 galv. DIN 933 8.8
3	16	99-10-1040	Hexagon nut M 8 galv. DIN 934-8
4	1	38-94-3582	Guard cap for flange bearing of elevator half outer

6.11 Repair sets for chain tensioners

With these repair sets it is possible to make right and left chain tensioners on the spot. The spring plates are screwed into the pre-drilled square tubes.

Pos.	Qty.	Code no.	Description
		38-94-3202	**Tightener for chain 65/160 for repair**
consisting of:			
1	1	37-80-1074	Square tube 65 mm for spring plate
2	1	37-80-1062	Spring plate 160 mm for chain tightener
3	1	99-10-1180	Mushroom head square neck bolt M 12x90 DIN 603 galv.
4	1	99-20-1032	Hexagon nut M 12 SST galv. DIN 555
5	3	99-10-1140	Cross recessed raised cheese head screw M 5x10 galv. DIN 7985
6	3	99-20-1033	Self-locking counter nut M 5 DIN 985-6 galv.

Pos.	Qty.	Code no.	Description
		38-94-3206	Chain tightener **98x200 for repair**
consisting of:			
1	1	37-80-1076	Square tube 98 mm for spring plate
2	1	37-80-1063	Spring plate 200 mm for chain tightener
3	1	99-10-1239	Mushroom head square neck bolt M12x130 DIN 603 galv.
4	1	99-20-1032	Hexagon nut M 12 steel galv. DIN 555
5	3	99-10-1140	Cross recessed raised cheese head screw M 5x10 galv. DIN 7985
6	3	99-20-1033	Self-locking counter nut M5 DIN 985-6 galv.

Repair set: right version	**Repair set: left version**
The square tube of the repair set has 2 large drilled holes on one side through which all the cross recessed raised cheese head screws can be inserted into the smaller drilled holes on the other side.	By turning the spring plate 180°, you will get the left version of the chain tensioner.
	

7 Checklist key points summary

☞	**Important!** Please remember to cut this page and the following pages along the line from this manual and keep them save as ***blank*** master copies!

Date _____ Name _____

Key points – daily tasks		Result	Comments
☐	Check all transfer points (longitudinal belt to rod conveyor / rod conveyor to conveyor chain / conveyor chain to cross collection). Immediately remove any foreign objects.		

Key points – weekly tasks		Result	Comments
☐	Check the drive column and the pressure roller.		
☐	Check the rods of the rod conveyor.		
☐	Check the module chain: Clean it and/or replace defective parts, if necessary (=> 5.3 "Replacing and connecting chain modules")		
☐	**Check the elevator drives for possible dust deposits. These must be removed to prevent overheating of the drives!**		

Key points – monthly tasks		Result	Comments
☐	Check all drive chains at the elevator. Re-tension them, if necessary (=> chapter 4.4 "Tightening the chains").		
☐	Check whether the elevator module chain is tensioned correctly. It should maximally be possible to pull 1 cm / 0.5" of the conveyor chain out of the vertical unit's housing. Re-tension at the elevator's tension unit, if necessary.		

Key points – tasks every three months		Result	Comments
☐	Grease all drive chains and chain wheels at the elevator. (=> 5.1 "Overview of greasing points").		