

User Manual

# **Augermatic Imperator**

Code No. 99-97-2994

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# EC Declaration of conformity



## Big Dutchman.

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### In accordance with EC Directives:

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

### Further applicable EC directives:

- Electromagnetic compatibility 2014/30/EU
- Low voltage 2014/35/EU



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:	Feeding system for floor management
Type:	Augermatic
System no. and year of construction:	see customer order no.

### The following harmonised standards apply:

- DIN EN ISO 12100:2011-03 Safety of machinery - General principles for design - Risk assessment and risk reduction
- EN 60204-1:2006/AC:2010 Safety of machinery - Electrical equipment of machines Part 1: General requirements
- DIN EN ISO 13850:2016-05 Safety of machinery - Emergency stop - Principles for design

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# 1 Basic instructions

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

The **Big Dutchman** system has been built with state-of-the-art technology and fulfils the recognized technical safety requirements. It is safe to operate. However, danger to the life and limb of third parties or impairments to the system or other property can occur if it is used in an incorrect manner.

### **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 Explanation of the symbols and structure of these instructions

### 1.2.1 Structure of the safety instructions in this manual

Basic structure:

<b>Pictograph</b>	<b>Type of danger</b>
	Possible consequence(s) of non-compliance
<b>Signal word</b>	• Measure(s) against the danger

Meaning of the signal words:

Pictograph	Signal word	Meaning	Consequences of non-compliance
<b>Possible personal injuries:</b>			
possible safety symbols: see chapter 1.2.3	<b>DANGER</b>	<b>directly</b> dangerous situation	<b>Will</b> lead to death or severe injuries.
	<b>WARNING</b>	<b>possibly</b> dangerous situation	<b>May</b> lead to death or severe injuries.
	<b>CAUTION</b>	<b>possibly</b> dangerous situation	<b>May</b> lead to minor injuries.
<b>Possible damage to property:</b>			
	<b>CAUTION</b>		<b>May</b> lead to damage to property

### 1.2.2 Safety symbols in the manual and on the installation

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 1.2.1) and on the system.

 <b>CAUTION</b>	<p><b>Safety symbols and instructions on the system must always be easily visible and undamaged.</b></p> <ul style="list-style-type: none"> <li>• If they are soiled by dust, manure, feed remains, oil or grease, clean them with a water-detergent mixture.</li> <li>• Damaged, lost, or unreadable safety symbols have to be replaced immediately.</li> <li>• 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.</li> </ul>
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	Warning: general danger
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	Warning: dangerous electric tension
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	Warning: danger of entanglement due to auger
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### 1.2.3 Structure of the general instructions in the manual

	<p><b>IMPORTANT!</b></p> <p>This symbol indicates important information. There is no risk of personal injuries or damage to property.</p>
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## 1.3 Necessary qualifications of the persons working with the system

### 1.3.1 Employing external personnel

	<p><b>IMPORTANT:</b> The supervisor is responsible for the safety of external personnel.</p>
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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.

### 1.3.2 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.

### 1.3.3 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.

### 1.3.4 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.

## 1.4 Ordering 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.

	<b>Risk of injury and danger to life</b>
	<p><b>Operational safety is of paramount importance!</b></p> <p>Spare parts not released or recommended by <b>Big Dutchman</b> can cause severe injuries as their suitability for <b>Big Dutchman</b> systems cannot be assessed beforehand.</p> <ul style="list-style-type: none"> <li>• Only use spare parts released or recommended by <b>Big Dutchman</b> for your own safety.</li> </ul>
<b>WARNING</b>	

### 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.

## 1.5 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**.

## 1.6 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.

## **1.7 Disorders due to power failure**

We recommend the installation of warning systems for a better monitoring of your production units and the installation of an emergency power-generating set for adequate supply with power in case of power failure. By this, you protect the animals and thus your own economical health. For further information please contact your property insurance.

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).

## 1.8 First aid

In the case of an accident, a first-aid kit must always be available at the place of work, unless specified otherwise. 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!

## 1.9 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 are not to pollute the soil or get into the canalisation! These materials have to be kept, transported, collected and disposed of in appropriate containers!

## 1.10 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.

## 1.11 Notes for use

In the interests of development, modifications to the design and the technical data are reserved.

No claims may, therefore, be based on the information, illustrations or drawings and descriptions contained therein. No responsibility is accepted for errors!

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.)

## 1.12 Copyright

This manual is subject to copyright. The information and drawings included in this manual shall not be copied without the manufacturer's consent, nor shall they be used for anything other than the designated use. Neither shall they be given to third parties.

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

All trade marks mentioned or shown in the text are trade marks of their respective owners and are recognised as patented.

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## 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

	<b>Risk of injury</b>
	<p><b>Children in the area of the system are at risk of injury as they can often not be supervised sufficiently and are not able to recognize hazards.</b></p> <ul style="list-style-type: none"> <li>• Ensure that children do not use the system as a playground and are not left unsupervised in the vicinity of the system. Explain remaining dangers fully to the children.</li> </ul>
<b>WARNING</b>	

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.

 <b>WARNING</b>	<b>Risk of injury</b>
	<p><b>Lack of knowledge about the structural design of the system can lead to injury.</b></p> <ul style="list-style-type: none"> <li>• Make yourself familiar with the design and construction of the system under sufficient lighting!</li> <li>• Inform yourself as responsible person for the system and your employees about the remaining dangers in connection with this system!</li> </ul>

## 2.4 Personal protective equipment and measures

 <b>WARNING</b>	<b>Risk of injury</b>
	<p><b>The following instructions apply to all works carried out on the system.</b></p> <ul style="list-style-type: none"> <li>• Wear <b>close-fitting protective clothing</b> and <b>protective footwear</b>.</li> <li>• Use <b>protective gloves</b> where there is a risk of hand injuries and <b>safety goggles</b> where there is a risk of eye injuries.</li> <li>• Do not wear <b>any rings, necklaces, watches, scarves, ties or other items</b> which could get caught in parts of the system.</li> <li>• Make sure that <b>long hair is always tied back</b>. Hair can get caught in powered or rotating working units or parts of the installation, resulting in severe injuries.</li> <li>• When working underneath the installation <b>always</b> wear a <b>hard hat!</b></li> </ul>

## 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.

 	<b>Risk of injury and danger to life</b>
	<p><b>Dangerous electric tension may be bare in the case of open control units and may cause severe injuries or lead to death!</b></p> <ul style="list-style-type: none"> <li>• Be aware of the danger and keep workers of other professions away from the danger zone.</li> <li>• 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).</li> </ul>
<b>WARNING</b>	

- 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 again. Replace damaged wiring and cables before taking the system into operation.

	<b>Danger of short circuits</b>
	<p>Never repair or shut defective fuses.</p> <ul style="list-style-type: none"> <li>• Defective fuses should be replaced by new ones immediately.</li> </ul>
<b>WARNING</b>	

- Never cover an electrical motor. This can cause high temperatures resulting in fires and the destruction of the equipment.
- Always keep the switch cabinet and all terminal and connection boxes closed.
- 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 zone

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.

 <b>WARNING</b>	<b>Risk of injury</b>
	<p><b>Lack of knowledge regarding the system's type of construction increases the risk of injury.</b></p> <ul style="list-style-type: none"> <li>• Never reach into the running system. First stop the system and secure it against an inadvertent restart.</li> <li>• Assure yourself <b>before reaching into the system</b> that the main switch is in the OFF position and cannot be put in the ON position without your knowledge.</li> </ul>

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.

 <b>CAUTION</b>	<b>Safety symbols and instructions on the system must always be easily visible and undamaged.</b>
	<ul style="list-style-type: none"> <li>• If they are soiled by dust, manure, feed remains, oil or grease, clean them with a water-detergent mixture.</li> <li>• Damaged, lost, or unreadable safety symbols have to be replaced immediately.</li> <li>• 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.</li> </ul>

## 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 repair or maintenance work or cleaning, or rectifying any functional defects. Disconnect the system from the power supply and secure it against being switched back on.

Secure the system by placing a “Do not use” sign on the master switch and include a notice about maintenance being performed, if required.

	<b>Risk of injury</b>
	<b>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.</b>
<b>WARNING</b>	<p><b>Lack of knowledge about the structural design of the system can lead to injury.</b></p> <p><b>Party lying about in or on the components can lead to serious damage of the system.</b></p> <ul style="list-style-type: none"> <li>• 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!</li> <li>• 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!</li> <li>• <b>Before</b> restarting the system, assure yourself that all loose or replaced parts have been removed from the system components!</li> <li>• The device may only be put into operation after all protective systems have been put into place again and are functioning.</li> </ul>

## 2.6.3 Individual components

### 2.6.3.1 Auger

 <b>WARNING</b>	<b>Risk of injury</b>
	<p><b>Rotating parts of the feeding system can lead to injuries.</b></p> <ul style="list-style-type: none"> <li>• The power supply must <b>always</b> be disconnected before working on the feeding system since this can start unexpectedly if the system is operated via an automatic control system.</li> <li>• Never grasp into the auger running in the feed hopper.</li> <li>• Never grasp into the auger rotating in the tubes.</li> </ul>

### 2.6.3.2 Electrical components

 <b>WARNING</b>	<b>Risk of electric shocks and short circuits</b>
	<p><b>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.</b></p> <ul style="list-style-type: none"> <li>• 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!</li> <li>• Never touch bare electrical components. Equipment with bare electrical components must not be used by the farm staff.</li> </ul>

## 2.7 Safety contrivances

  <b>WARNING</b>	<b>Risk of injury and danger of life</b>
	<p><b>Defective or disassembled safety contrivances may cause severe injuries or lead to death!</b></p> <ul style="list-style-type: none"> <li>• It is strictly forbidden to remove or put out of operation any safety contrivance.</li> <li>• 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.</li> <li>• 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.</li> </ul>

## **2.8 Dangers resulting from non-compliance with the safety instructions**

Non-observance of these instructions can cause severe danger for personal life and health or can lead to material or environmental damages and to the forfeiture of any claim for damages. The non-observance of these instructions can specifically lead to:

- Failure of vital functions of the installation
- Failure of prescribed maintenance methods
- Risk of injuries due to electrical and mechanical influences.

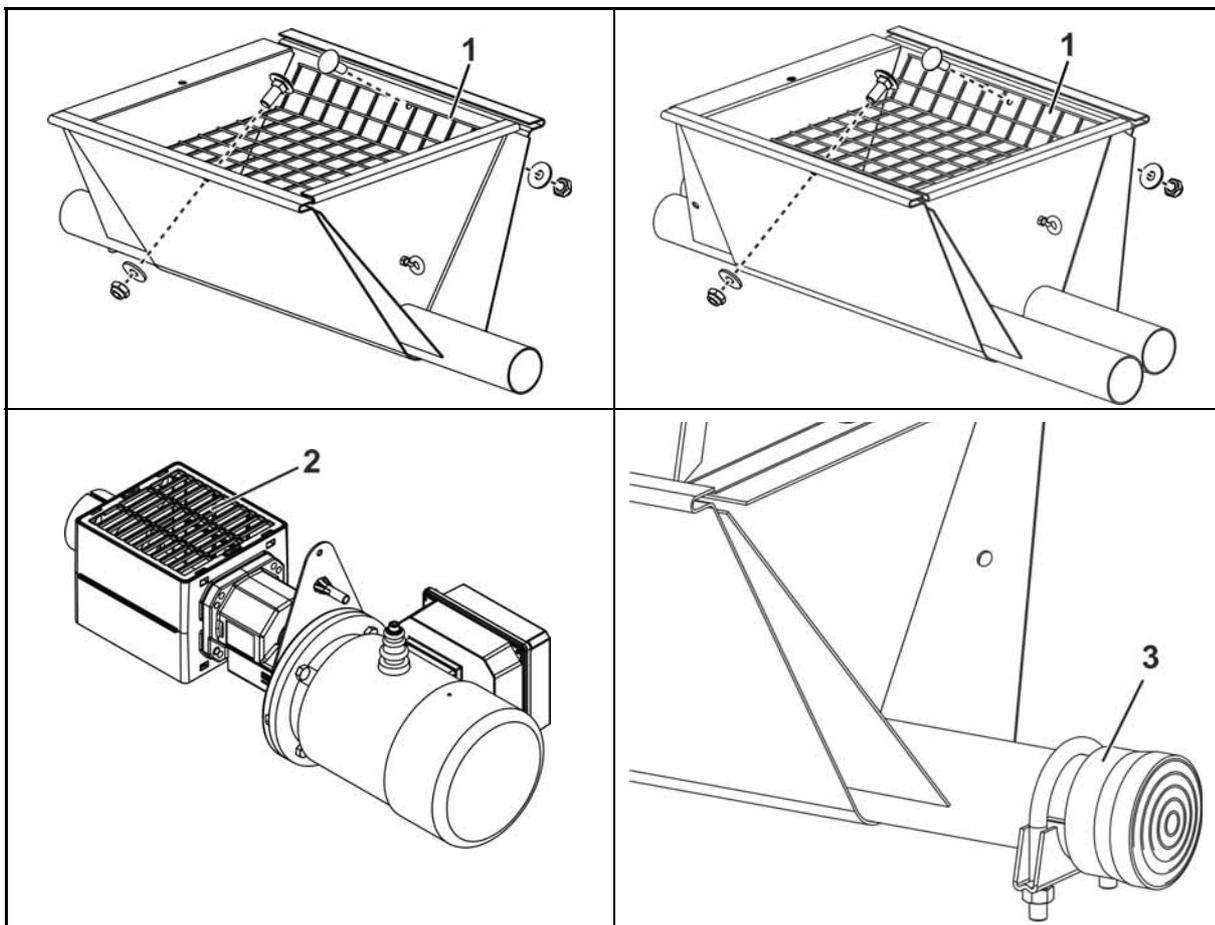
## 2.9 Safety component parts



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!

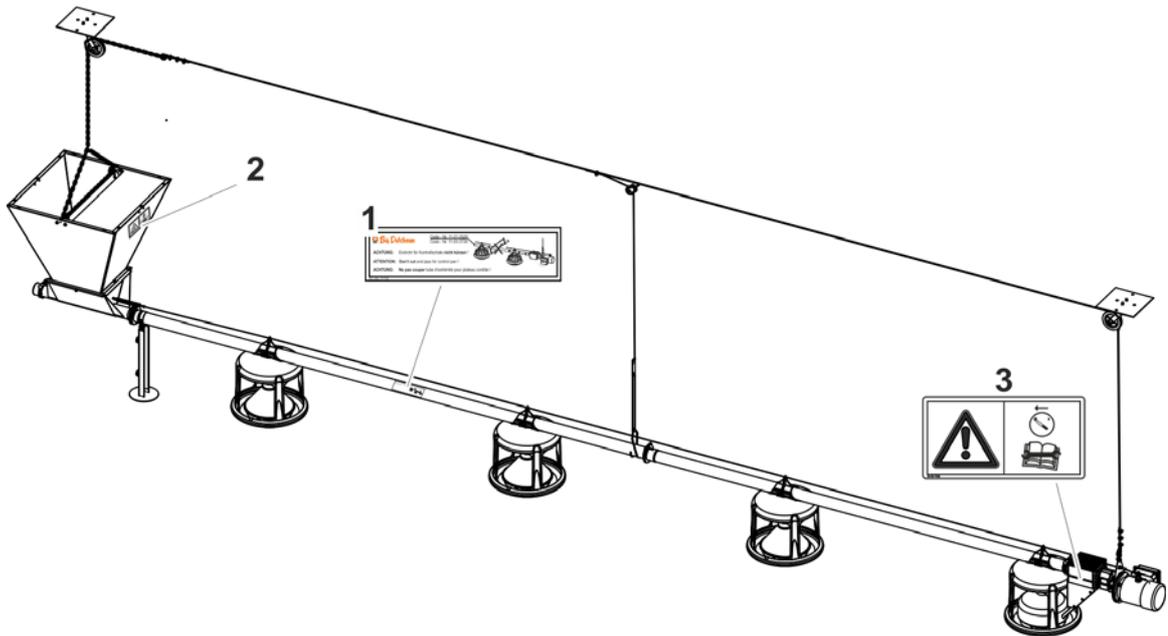
If safety component parts are missing or defective, the original part must be ordered from **Big Dutchman** and replaced immediately!

The Augermatic feed line comprises the following safety components:



Pos.	Code no.	Description
1	11-31-1315	Wire mesh guard cpl for lower part of hopper BP/AM
		consisting of:
	11-31-1314	Wire mesh guard for lower part of hopper BP/AM
	99-10-1602	Mushroom head square neck bolt M 6x 16 DIN 603 4.6 galv
	99-10-3953	Washer 6.4x30x1.5 galv
	99-20-1043	Self-locking counter nut M 6 galv DIN985-6
2	83-07-9239	Wire mesh guard for bracket of drive AM6
3	83-09-2274	Cap rubber for Augermatic AM tension shaft

## 2.10 Safety symbols at this system



<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: right;"> <p>Code - Nr. 11-31-3529 Code - Nr. 11-03-3729</p> </div> </div> <div style="text-align: center; margin-top: 10px;"> </div>	
<p>00-00-1119</p>	
<p style="margin-top: 5px;">00-00-1118</p>	<p style="margin-top: 5px;">00-00-1186</p>

<b>Pos.</b>	<b>Code no.</b>	<b>Description</b>
1	00-00-1119	Sticker D/GB/F: End pipe for control pan
2	00-00-1188	Pictograph: Risk of injury / hopper
3	00-00-1186	Pictograph: Before maintenance work main switch "OFF"

### 3 System description

The **Big Dutchman Augermatic Imperator** with its different feed pans is a special pan feeding system meeting the requirements of day-old chicks as well as grown turkeys.

The Augermatic conveying tube is located relatively high in contrast to the pan bottom. This allows trouble-free lowering of the rearing pan into the brooding ring **from the first day onwards** and for the following 8 days without having to open the ring.

**Freedom to move:** Moreover, it is particularly this elevated position of the conveying tube that allows trouble-free cross passage within the entire house even for grown-up turkeys.

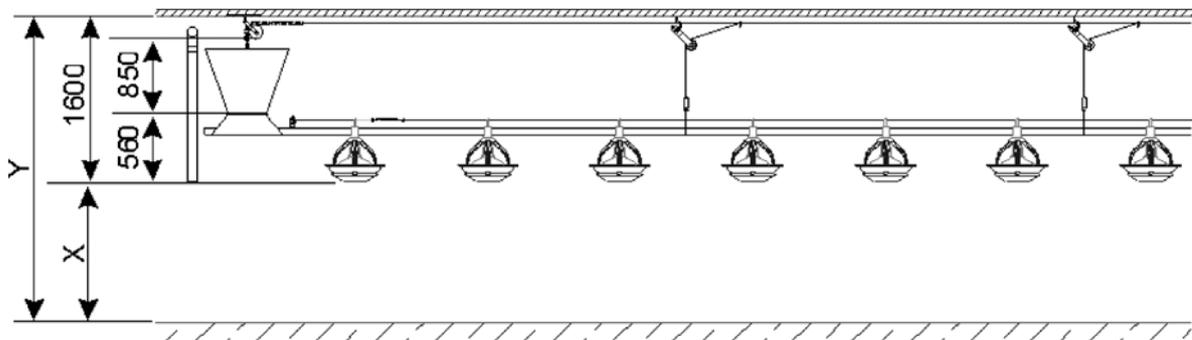
Thanks to a **conveying capacity of 450 kg/h** the AM-45 ( $\varnothing$  45 mm (1.77")) allows a quick and permanent filling of all pans.

The AM-60 ( $\varnothing$  60 mm (2,36")) allows an even faster filling of the pans with a **conveying capacity of 600 kg/h**.

The integrity of the **feed structure** (pellets) is maintained in particular by the larger conveyor spirals. The degree of crumbling is low.

The system provides **operational reliability** for rearing and especially for the final growing period thanks to the tensile strength of the auger and the conveying tube, which withstands the load of the heavy males.

#### Passage height with raised feeding system



All dimensions in mm

The dimension 1600 is an approximate value and depends on the hook length.

X = passage height (ceiling height - 1600 mm)

Y = ceiling height

- The clearance height can be increased if the upper section of the feed hopper is removed (for maintenance work)!

### 3.1 Designated use

The **Big Dutchman** Augermatic Imperator is used for the feeding of turkeys with individual weights. The feed must be dry (DM > 84%) and flowable.

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

Every other use is considered non-designated. 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.

### 3.2 Avoidance of foreseeable misuse

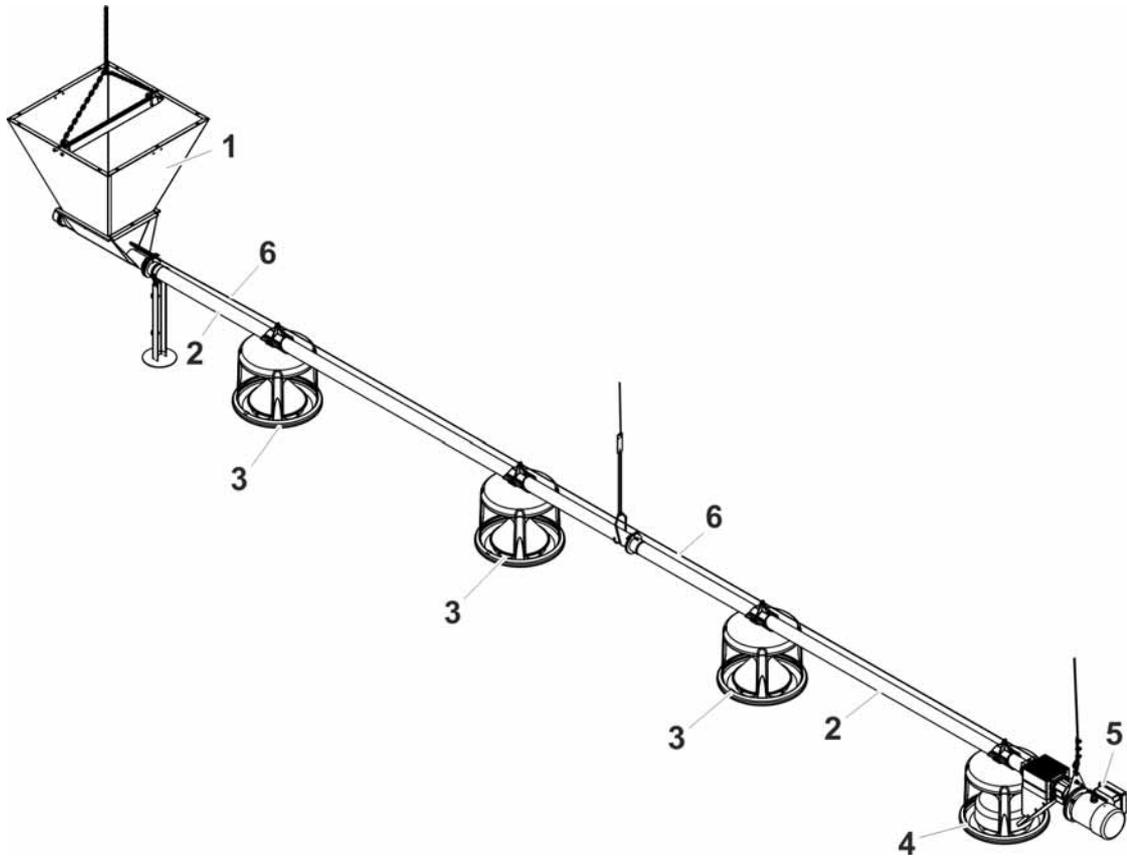
The following uses of the **Big Dutchman** system are not permitted and qualify as misuse:

- Filling the feed screw with feed, which has a too low dry substance content (< 84%) or a too high fat content and which is not sufficiently free-flowing
- Operation of the system with fully functional anti-perching wire
- Using improper detergents and disinfectants.
- Too long residence time of detergents and disinfectants.

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!**

### 3.3 Overview



1	Feed weighing
2	Tube Augermatic
3	Feed pan
4	Control pan
5	Drive AM
6	Anti-roost wire

### 3.4 Technical data

Hopper with feed hopper:	Contents approx. 115 l / 75 kg
Extension for feed hopper:	Content approx. 38 l / 25 kg
Drive unit with gear motor:	0.55/ 0.75 kW, 230/400V 50 Hz, 3 phases, 320 rpm (rotations per minute) (=> )
Conveying capacity:	approx. 450 kg/h (kilogram per hour)
Pellet size:	up to 4 mm
Material feed pans:	Polypropylene, to recycle

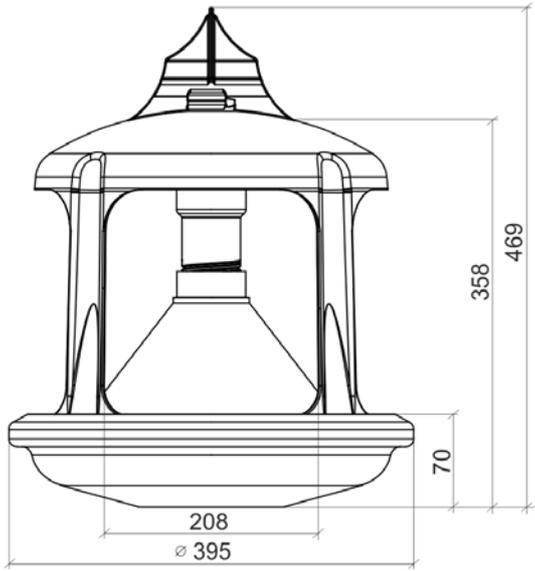
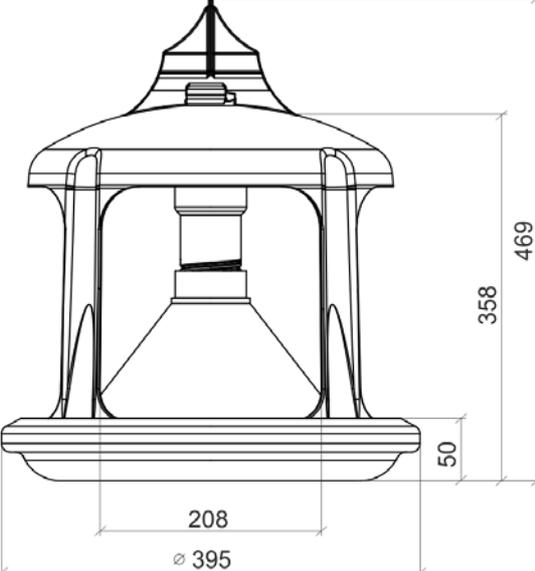
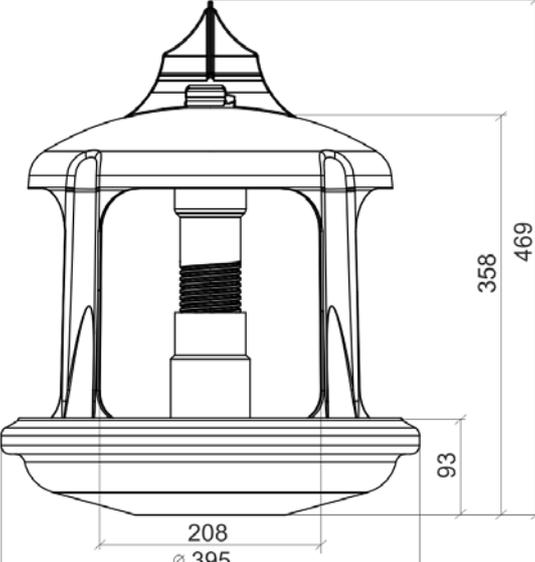
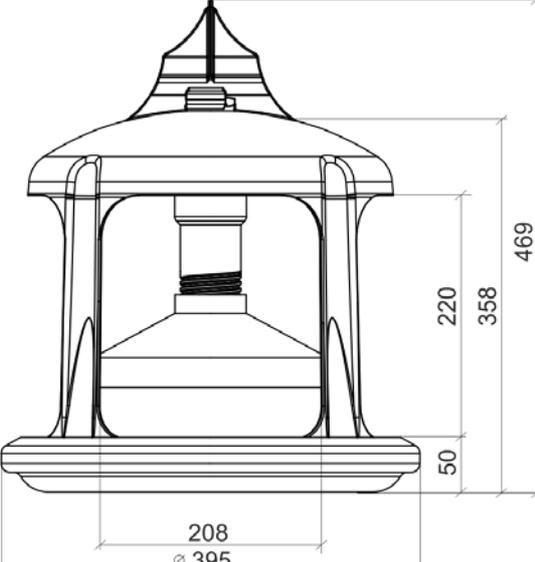
During feeding, the **Big Dutchman Augermatic** systems creates a sound level < 70 dB (A).

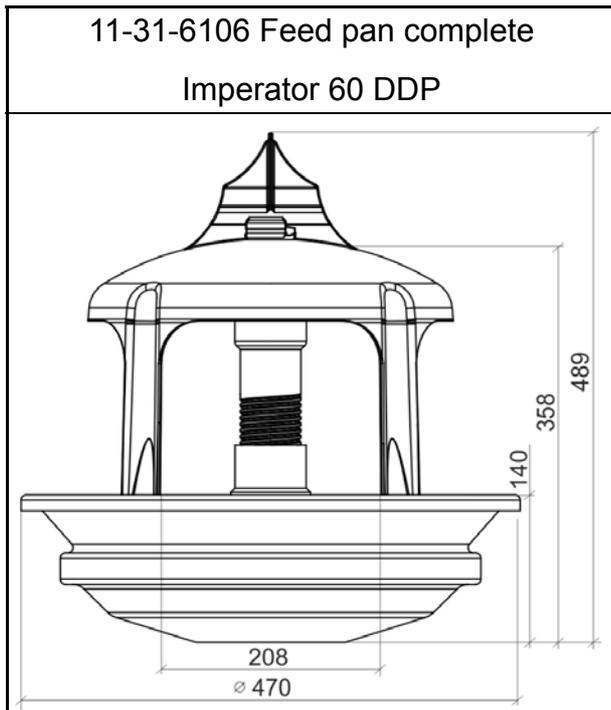
#### 3.4.1 Drive unit

	<p>The admissible operating voltages must be observed!</p> <p>If voltage fluctuations or too low voltages are expected, please contact <b>Big Dutchman</b>.</p>
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Code no.	Description	Maximum line length (m)	Operating voltage (V)
83-17-0981	Drive 0.55 kW 230/400V 3 Ph 50 Hz shaft 28.5 dia 60 AM6 without sensor with switch box	145	230

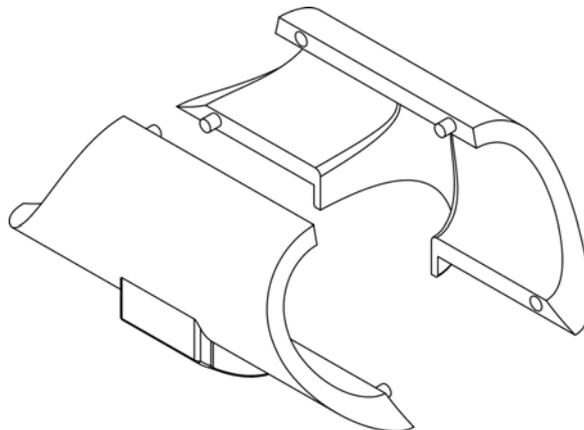
### 3.4.2 Dimensions of feed pans

<p>11-31-6104 Feed pan complete Imperator 60 classic high</p>	<p>11-31-6103 Feed pan complete Imperator 60 classic low</p>
	
<p>11-31-6105 Feed pan complete Imperator 60 DOS 2000</p>	<p>11-31-6101 Feed pan complete Imperator 60 HY low</p>
	



### 3.4.3 Accessories (option)

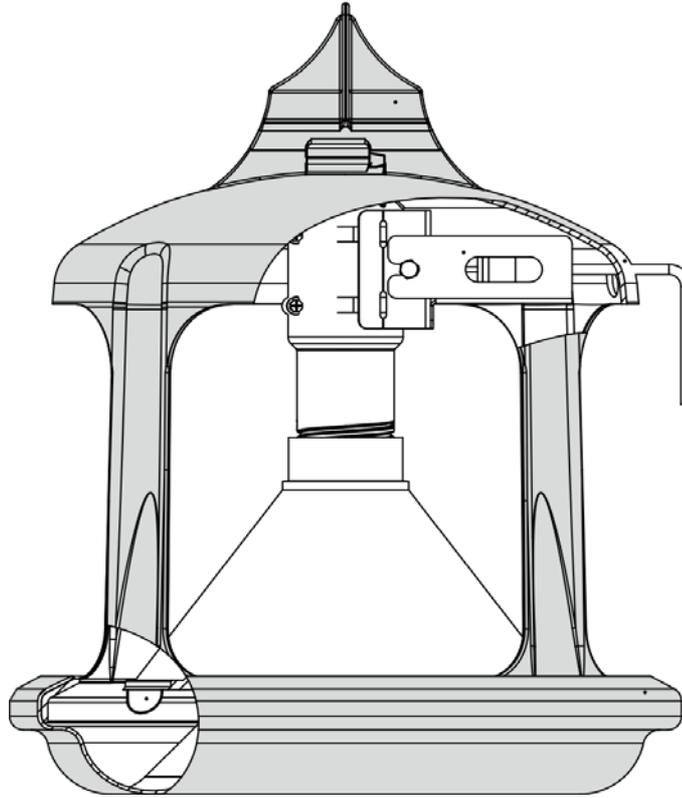
If the pan is used with a tube with a diameter of 45 mm, two tube adapter halves are necessary.



Pos.	Code no.	Description
1	11-31-6018	Tube adapter half orange V14 tube 45 mm for grille Imperator

### 3.4.4 Control pans

The sensors are fastened to the cylindrical part of the control pan grille in a pecking-safe metal housing by means of clamps. This metal housing has a hole designed for the sensor. The control pans are delivered pre-assembled.



Available control pans

Pos.	Code no.	Description
1	11-31-6154	Control pan complete Imperator 60 classic high
	11-31-6153	Control pan complete Imperator 60 classic low
	11-31-6155	Control pan complete Imperator 60 DOS 2000
	11-31-6151	Control pan complete Imperator 60 HY low
	11-31-6156	Control pan complete Imperator 60 DDP

## 3.5 Notes for layout and calculation

### 3.5.1 System layout

Keeping to and taking into consideration of the layout parameters ensures optimum adaptation of the feeding system to the respective building. This will avoid to the biggest possible extent a short supply of feed to certain areas of the house.

- The maximum length of a feed line depends on the type of installation.
- The distance between two feed lines is max. 6 metres.

The optimum range for the birds is approximately 2,5 m on each side of the feed line.

- Number of birds per feed pan

The number of birds per feed pan depends on the management system and on the birds' final weight.

### 3.5.2 Area of use of feed pan and control pan

Area of use	Turkey rearing	Turkey growing stage and finishing stage	Male production	Female production	Pullet rearing	Layers	Others	(geese, pheasants, guinea fowls, etc.)	Feeding type				Weight range		
									ad libitum	controlled	rationed	restricted	0 - 2.5 kg	2 - 7 kg	7.0 - 12 kg

11-31-6104	Feed pan complete Imperator 60 classic high	√	√		√				√							
11-31-6103	Feed pan complete Imperator 60 classic low	√							√							
11-31-6105	Feed pan complete Imperator 60 DOS 2000				√				√							
11-31-6101	Feed pan complete Imperator 60 HY low	√							√							
11-31-6106	Feed pan complete Imperator 60 DDP			√					√							

11-31-6154	Control pan complete Imperator 60 classic high	√	√		√				√							
11-31-6153	Control pan complete Imperator 60 classic low	√							√							
11-31-6155	Control pan complete Imperator 60 DOS 2000				√				√							
11-31-6151	Control pan complete Imperator 60 HY low	√							√							
11-31-6156	Control pan complete Imperator 60 DDP			√					√							

√ adequate

### 3.5.3 Determine number of lines and pans

In general:

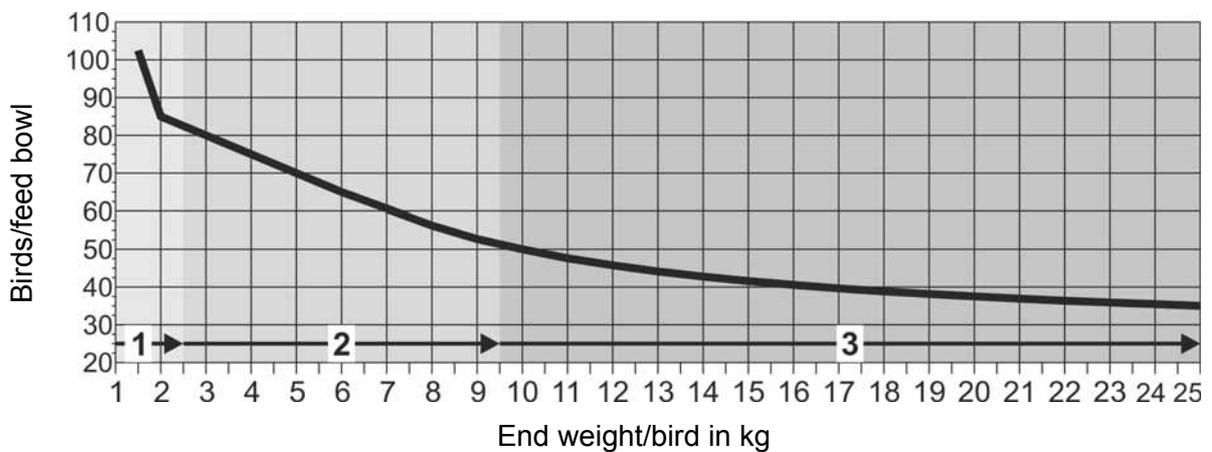
number of feed lines:	1 line per 4-6m house width
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### 3.5.4 Determine complete lifting capacity for suspended feed lines

Description	maximum weight
Basic unit tube Ø 45.0 1 hole with feed pan + feed	13.8 kg / piece
Basic unit tube Ø 45.0 2 holes with feed pan + feed	18.6 kg / piece
Basic unit tube Ø 45.0 3 holes with feed pan + feed	23.4 kg / piece
Basic unit tube Ø 60.0 - 3060 1 hole with feed pan + feed	14.8 kg / piece
Basic unit tube Ø 60.0 - 3060 2 holes with feed pan + feed	19.6 kg / piece
Basic unit tube Ø 60.0 - 3060 3 holes with feed pan + feed	24.4 kg / piece
Feed hopper + feed	90.0 kg / line
Drive unit	20.0 kg / line

### 3.5.5 Recommended numbers of birds

for ad libitum feeding of turkeys:	
Weight range:	0 - 23.0 kg
Sample calculation	$(125 : \text{desired final fattening weight kg/bird}) + 20$ <b>For example</b> $(125 : 1.25 \text{ kg/bird}) + 20 = 120 \text{ birds/pan}$
Number of birds per pan:	up to 2.0 kg final weight = 82 birds
	up to 7.0 kg final weight = 60 birds
	up to 25.0 kg final weight = 35 birds



- 1 Turkey rearing week 5 - 6
- 2 Growing turkey hens up to week 16
- 3 Growing tom turkeys up to week 23

### 3.5.6 Feeder 30 ltr Empa 2 (20-00-3930)

#### Technical data:

Contents approx:	30 l
Pan diameter:	510 mm
Height of pan rim:	120 mm

This feeder is designed for the feeding of turkeys from an age of 5 - 6 weeks. This means that the feed pan is designed for turkeys with a live weight of 2 - 2.5 kg to the maximum final fattening weight.

	<p>The number of birds stated here are approximate and may vary according to breed, stocking rate and ambient conditions. Please obtain advice on this from your stock supplier. Different provisions, e.g. national regulations must also be taken into account.</p>
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Recommended number of birds per feeder Empa 2:

	Birds / Feeder	Feeding method
Turkeys with a live weight of up to 12 kg	51	ad libitum
Turkeys with a live weight of up to 20 kg	33	ad libitum

In case of higher bird weights for growing/production, the number of birds per feeder has to be reduced.

### 3.5.7 Feeder 30ltr Empa 4 (20-00-3950)

#### Technical data:

Contents approx.	30 l
Pan diameter:	410 mm
Height of pan rim:	80 mm

This feeder is designed for the feeding of turkeys from an age of 5 - 6 weeks. This means that the feed pan is designed for turkeys with a live weight of 2 - 2.5 kg to the maximum final fattening weight.

	<p>The number of birds stated here are approximate and may vary according to breed, stocking rate and ambient conditions. Please obtain advice on this from your stock supplier. Different provisions, e.g. national regulations must also be taken into account.</p>
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Recommended number of birds per feeder Empa 4:

	Birds / Feeder	Feeding method
Turkeys with a live weight of up to 12 kg	51	ad libitum
Turkeys with a live weight of up to 20 kg	33	ad libitum

In case of higher bird weights for growing/production, the number of birds per feeder has to be reduced.

### 3.5.8 Feeder 12 ltr Picorett (11-31-3080)

#### Technical data:

Contents approx.:	12 l
Pan diameter:	360 mm
Height of pan rim:	45 mm
Total height without cover:	280 mm
Total height with cover	370 mm

This feeder is particularly suitable for the chick rearing, especially for turkey chicks in brooding rings.

After the rearing in a brooding ring, the feeder 12 ltr Picorett can be connected to the Augermatic system instead of a feed pan and can thus be filled automatically.

The feeder 12 ltr Picorett offers the following advantages:

- Less chick losses  
The low pan rim even allows day-old chicks easy access to the feed.
- Less feed losses  
The feed level can be adapted to the birds' age and the flowability of the feed.
- Increased feed conversion  
The chicks cannot stand nor sleep in the pans. The feed does not get soiled. A cover protects the feed against dust, preventing the birds from entering the feed hopper.

## 4 Operating Instructions

 <p><b>Caution</b></p>	<p><b>The following aspects should be considered before operating the installation!</b></p> <ul style="list-style-type: none"> <li>• Initial operation must have been carried out by a qualified technician with the respective proof of knowledge (service technician).</li> <li>• The installation's operator must have received all minutes required by <b>Big Dutchman</b> and completely filled out: confirmation minutes and the additional inspection protocols, if applicable.</li> </ul>
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### 4.1 Important information

	<p>Carry out any work in the house quietly. The birds should not be scared or startled.</p> <p>Avoid unusually stressful situations in the house.</p>
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### 4.2 Management recommendations for the housing and production

Correct and efficient management before and during the whole grow-out can significantly increase and improve the productive capacity.

The first days of the chicks' lives are most important as these are highly influential on the further development of the birds. This is why the preparations for the moving-in procedure should be understood as an important part of successful production. The following factors should be considered:

## 4.2.1 Preparations for the moving-in procedure

### 4.2.1.1 Airing / ventilation

The house should be aired well before heating so that no harmful gases from the disinfection remain in the house.

The CO<sub>2</sub> level in the house should not amount to more than 3,000 ppm when the birds are moved in as a higher level could negatively influence the fattening performance. A good air quality and an even air temperature are the best conditions for an optimal development of the birds.

The birds can only be supplied with fresh air if the house is sealed and insulated well. Unplanned air entrances in the walls should be closed as soon as possible.

Part of the climate is also the air humidity, not just the temperature. These two should always be considered together. In the following, please find a table which illustrates that you can lower the house temperature if the humidity is constantly high.

Table 4-1: Temperature and humidity as a function of bird age

Age (Days)	Normal set value		Temperature and humidity				
	Temp. °C	Humidity	40%	50%	Ideal		80%
					60%	70%	
0	30.0	60-70	36.0	33.2	30.8	29.2	27.0
3	28.0	60-70	33.7	32.1	28.9	27.3	26.0
6	27.0	60-70	32.5	29.9	27.7	26.0	24.0
9	26.0	60-70	31.3	28.6	26.7	25.0	23.0
12	25.0	60-70	30.2	27.8	25.7	24.0	23.0
15	24.0	60-70	29.0	26.8	24.8	23.0	22.0
18	23.0	60-70	27.7	25.5	23.6	21.9	21.0
21	22.0	60-70	26.9	24.7	22.7	21.3	20.0
24	21.0	60-70	25.7	23.5	21.7	20.2	19.0
27	20.0	60-70	24.8	22.7	20.7	19.3	18.0

Table 4-1 illustrates the relation between air humidity and effective temperature. If the relative air humidity is not within the desired range, the temperature should be adjusted, as shown in the table. This means that the house temperature should be raised if the air humidity is lower than 60 percent.

Constantly check the birds' behaviour to ensure a good start of the fattening period and a good daily weight gain.

### Key points airing / ventilation

	<ul style="list-style-type: none"> <li>• Check the daily bird weight to achieve the desired weight for day seven by adjusting humidity and temperature, if necessary.</li> <li>• Monitor the birds' behaviour to be able to judge the climate conditions.</li> <li>• Use the temperature and the minimum ventilation to stimulate the birds' activity and appetite.</li> <li>• If possible, try to maintain an air humidity of 60 to 70 percent during the first three days and later a humidity of more than 50 percent.</li> <li>• If necessary, reduce the temperature if the humidity exceeds 70 percent and monitor the birds' behaviour.</li> </ul>
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#### 4.2.1.2 Heating / heat requirements

Chicks cannot regulate their body temperature on their own during the first week of their life, which is why the ambient temperature in the house plays an important role when they are moved in. If the house temperature is not at an optimum, this means a lot of stress for the chicks, which in turn influences their feed and water consumption and their development negatively.

Before the birds are housed in, the house should be heated up to an appropriate temperature. This should be done in time so that the brickwork can take the temperature as well. If the floor is cold when the litter is deposited, this may lead to moist litter. It is important that the heat is distributed evenly in the entire house.

30°C are a good moving-in temperature. However, you should ask your breeder for the temperature ideal for your birds.

The house temperature should be checked regularly during the heating phase and adjusted where necessary.



The best indicator for the temperature is the behaviour of the birds.

If the temperature is too low, the birds will crowd together and groups are formed.

In case of too high temperatures, the birds will lie in the litter with splayed wings and open beaks. An equal distribution of the birds shows that the temperature is optimal.

#### 4.2.1.3 Feed supply

The feed level of each pan must be adjusted to the highest position. Additionally, the line can be filled in raised position before the birds are moved in. During filling, each feed pan is quickly rotated and the feed is distributed in the dish via centrifugal force.

**Attention:**

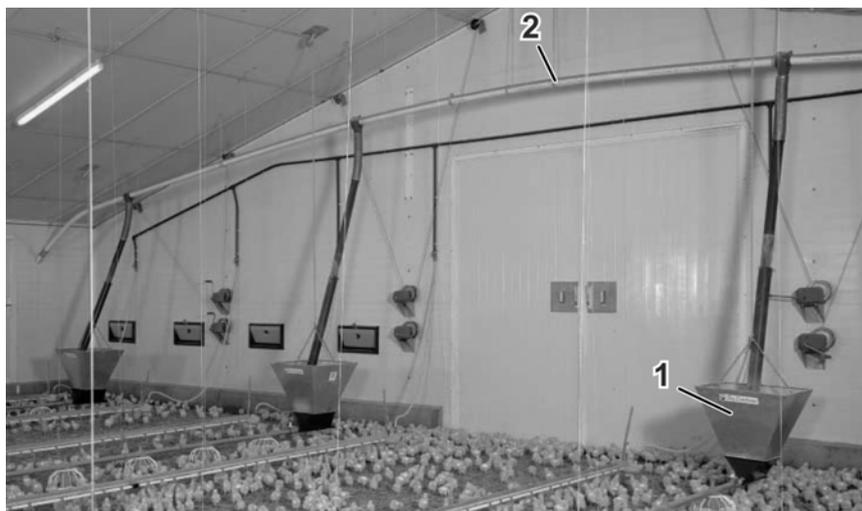
During the first days after moving-in of the birds, the feed line must not be lifted and put down to the floor again!

If a feed line is only lifted slightly, the chicks try to use the feed pan as cover.

#### 4.2.1.4 Feeding system

The feed line Augermatic is supplied with feed from one or more silos by means of a feed circuit (1). The Flex-Vey line (2) transports the feed from the silo into the house.

The feed is transported to the feed pans via the *auger HD AM*. The feed line is controlled via sensors in the control pans. This is always mounted as one last pan in front of the drive.



- Make sure that all feed pans with grill (if available) are closed tightly!
- The feed level in the pan is regulated by an adjustment mechanism. When adjusting the feed level, remember to consider the feed type and texture. The feed level in the pan depends on the feed composition (meal/pellets).

#### 4.2.1.5 Water supply

Before moving the birds in, all drinker lines should be cleaned thoroughly with clean water to remove cleaning agents and disinfectants. The drinker lines should be moved to the lowest position so that the chicks can easily and quickly find the water. The lines should only be filled with fresh and clean water shortly before moving the birds in. Make sure that all nipples are functioning correctly. A water drop should be visible at each nipple so that the chicks can easily find the water.



Follow the manual „Drinking systems / User Manual“.

#### Key points preparations for the moving-in procedure



- Heat the house before moving the birds in until a temperature of 30°C is reached at the bird level. Make sure that the brickwork is also heated sufficiently in order to avoid moist litter.  
The correct moving-in temperature is the most important factor and significantly influences the fattening process.
- Fill the feed line shortly before moving the birds in so that they can immediately start eating.
- The feed pans should be flooded for the first days to facilitate feed intake.

### 4.2.2 Place birds

All chicks should be moved into one house at once (ideally within one or two days).

Experience shows that the feed composition should be adapted to the fattening age. If there are birds with different ages in one house, the feed cannot be exactly adapted to the bird age. This would mean that the different developmental stages of the birds could not be optimally supported and the birds would not reach their full production performance. There would also be disadvantages regarding hygiene and health.

To avoid germs inside the house, the hygiene management should be considered very important. Vehicles, equipment and staff should be disinfected before entering the farm area.

The chicks should be distributed in the litter quickly and carefully as soon as they are delivered. The longer the chicks stay in the boxes, the larger the risk of dehydration. Possible consequences include increased mortality during the first days and slow weight gain.



Follow the manual „Drinking systems / User Manual“.



The chicks should be left alone for approximately one hour after moving-in so they can relax and familiarise themselves with the new environment. After this hour, check if all chicks can easily access water and feed. The equipment and the temperature should be adjusted if required.

**Key points for the first days after moving the birds in**

- During the first days after moving the birds in, make sure that all birds have found feed and water.
- The light should be turned on at 100 percent during the first seven days.
- On the first morning after moving the birds in, check if their crops are filled with feed and water. The crops of birds which have taken in water and feed are full, soft and rounded. If the crop is filled and hard, the bird ate but did not drink.
  - 95 to 100 percent of crops should be filled 24 hours after moving-in.

### 4.2.3 Daily tasks

Check the following every day after the lights are switched on in your house:

- functioning of the feeding systems (exact monitoring of the feed consumption can provide valuable information for bird management),
- house climate (ventilation, house temperature),
- lighting
- physique and behaviour of the birds,
  - bird distribution.
  - birds' health,
  - mortality,
  - manure composition.

### 4.2.3.1 House temperature

#### Temperature

The ideal house temperature depends on the birds' age. Day-old chicks need a warm climate to have a good start.

Apart from the sealing of the building, it is important to distribute fresh air evenly in the house. Depending on the installed system, fresh air chimneys suck air into the building without using a high negative pressure and distribute air by means of spreader discs.

The negative pressure is later increased continuously and may amount to 25 pascal - if the ceiling chimneys are completely opened - before the fresh air is supplied by side wall inlets.

If these fresh air chimneys used in colder climate zones are not installed, air is taken in cyclically during the first days by opening the inlets at both side walls. To move warmed air into the middle of the building in a house with a width of 18 meters, a negative pressure of approximately 25 pascal is required.

It is important to set the spoilers above the inlets in a way that the airflow is not deflected by obstacles at the ceiling.

Apart from the temperature and the humidity, the computer also calculates the correct air speed in accordance with the birds' age. The values which the computer tries to reach or to not exceed depend on the system similar to the following table:

#### Airing / ventilation

Again, the birds' behaviour must be monitored closely.

Birds lie flat on the floor and are hiding from the air flow = increase the temperature to reduce ventilation and air speed.

Birds are panting = increase the air speed by reducing the temperature and thus increasing the ventilation level.

Birds are panting in spite of an adequate air speed = start cooling earlier.

The most efficient method to distribute air correctly in the house is minimum ventilation, which is connected with the negative pressure procedure. With this system, fresh air coming in through the air flaps will move to the top of the house and mix with the warm air. The lateral air flaps at the opening shall be opened at least five centimetres wide to ensure a good mixing of air in the house. The house should be insulated well to guarantee optimal functioning of the ventilation system. The perfect air speed at bird level is very important throughout the whole grow-out and especially during the beginning of the batch.

Table 4-2: Air speed as a function of the bird's age and airing system

Day	System	
	Combi-Tunnel	Combi-Cross-Tunnel
1	0.2 m/s	0.2 m/s
7	0.3 m/s	0.3 m/s
14	0.4 m/s	0.4 m/s
21	0.6 m/s	0.6 m/s
28	1.5 m/s	1.0 m/s
35	2.5m/s	1.6 m/s
42	3.5 m/s	1.6 m/s
49	3.5 m/s	1.6 m/s

**Caution!**

Never turn off components of the exhaust air or fresh air systems. The air speed is essential after a certain age.

Never turn the cooling system on or off uncontrolled or manually. Excessive air humidity in combination with too high temperatures can cause the birds' death.

**Alarm system:**

Always make sure that the alarm system is active and tested regularly as prescribed.

**Power supply:**

Ensure that power is supplied at any time and plan for the case of emergencies. Train your farm staff according to these plans.



### 4.2.3.2 Feeding



Check the optimum height adjustment of the feed pans.

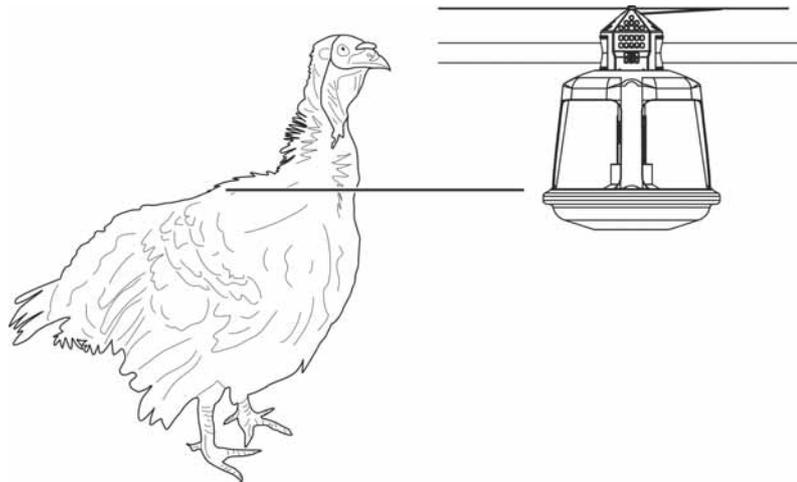
A too low adjustment of the feed pans leads to increased feed losses and feed soiling.

If feed pans are adjusted too high, birds are impeded during feed consumption which can lead to deformations of the skeleton.



For the height of the feed pans, the following rule-of-thumb generally applies:

Height of the birds' back = height of the pan rim!



**Key points for the daily inspection of birds**

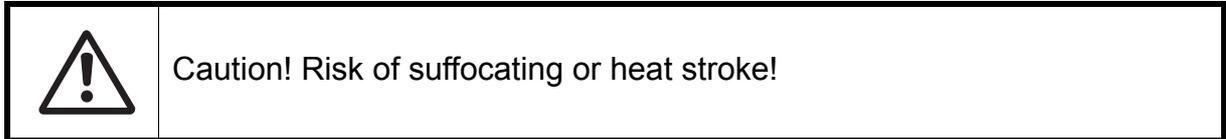
Check and document the following every day after the lights are switched on in your house:

- functioning of drinker and feed lines (exact monitoring of water and feed consumption can provide valuable information for bird management),
- careful selection of birds and daily documentation,
- house climate (ventilation, house temperature),
- health and behaviour of the birds,
- manure composition.

## 4.2.4 Preparation of the moving-out procedure

### 4.2.4.1 Climate before and after moving the birds out

#### Before moving the birds out:



The risk lies in the fact that the house gets too cold so that the ventilation system automatically lowers the ventilation level. This means that neither fresh air nor heat are transported into the house.

Prevent this from happening by specifically adjusting the minimum ventilation so that the computer cannot lower the ventilation to a dangerous level. Checking the house climate after long moving-out procedures is essential.

#### After moving the birds out:

If the moving-out procedure is paused at the end of the day, set all values back and reset all settings carried out manually at the control cabinet and the alarm system.

### 4.2.4.2 Light

To ensure that the herd is calm during the moving-out procedure, the dark phases have to be shortened. This should take place three days before moving the birds out.

### 4.2.4.3 Shutting off the feed supply

The feed supply has to be shut off approx. 10-12 hours before the birds are moved out to ensure that no feed remains in the line, thus facilitating the cleaning process later.

As soon as the remaining feed has been transported into the feed pans, all drive units of the feed line have to be turned off. This prevents unnecessary wear of the feed line.

The birds should have access to water as long as possible and only be blocked from it if absolutely required.

### Key points for the preparation of the moving-out procedure



- Shorten the dark phase 3 days before moving the birds out.
- Turn off the feed supply 10 - 12 hours before moving the birds out.

### 4.2.5 After the moving-out procedure

**Big Dutchman** would like to remind you that all proceedings on your farm, including the moving-out procedure, should be carried out very carefully regarding safety and health of the staff. Please ensure appropriate clothing and anything else the staff might need to carry out their tasks. Please instruct your staff to keep away from moving parts of the installation which could lead to injuries; also refer to the notes on the installation and the information in the manuals.

### Key points after the moving-out procedure



- Pay attention to movable parts in the installation: prevent corrosion damages through lubricating, if necessary.

### 4.3 Cable winch 350 kg GS for wall mounting incl. hand crank (99-50-3099)

This type of winch has been tested in accordance with the requirements of the following regulations: VBG 8 DA (winches, hoisting and hauling devices) and DIN EN 13157 (Cranes - Safety - Hand powered cranes)

	<b>Risk of injury</b>
	<p>In the event of improper use the cable winch may cause serious injury.</p> <ul style="list-style-type: none"> <li>You must read the following instructions carefully.</li> <li><b>Never</b> use a motor to operate the winch. It is designed exclusively for manual operation.</li> </ul>
<b>Danger</b>	

#### 4.3.1 Technical data

Nominal capacity	based on the <b>first</b> layer of the coiled cable on the winch:	544 kg (1200 lbs)
	based on the <b>outermost</b> layer of the coiled cable on the winch:	172 kg (379 lbs)
Gear ratio:		4.1 : 1
Reel diameter:		Ø 33 mm
Holding capacity of the reel: Cable diameter x cable length:		Ø 4.76 mm x 1600 mm (3/16" x 55 ft)
Dimensions (L x W x H):		183 mm x 272 mm x 150 mm
Handle	Length:	206 mm
	Required manual force:	13.5 kg
Net weight:		3.5 kg

### 4.3.2 Selecting and fastening the cable

1. Select a cable which can absorb 5 times as much as tractive force as admissible at the cable winch (safety factor = 5).
2. Observe norm ISO 4308 when selecting the cable (cranes and lifting appliances; selection of wire ropes)
3. Fix the cable(s) to the cable winch.

The following graphics show how to fix the cable(s) depending on the mounting position of the winch.

**If one cable is used:** Guide the cable from the inside through a large hole and then through the ends of the cable clamps. Lock the cable clamp by tightening the nuts.

**If two cables are used:** Fix the cable by threading the end through the cable screw and tightening the nut.

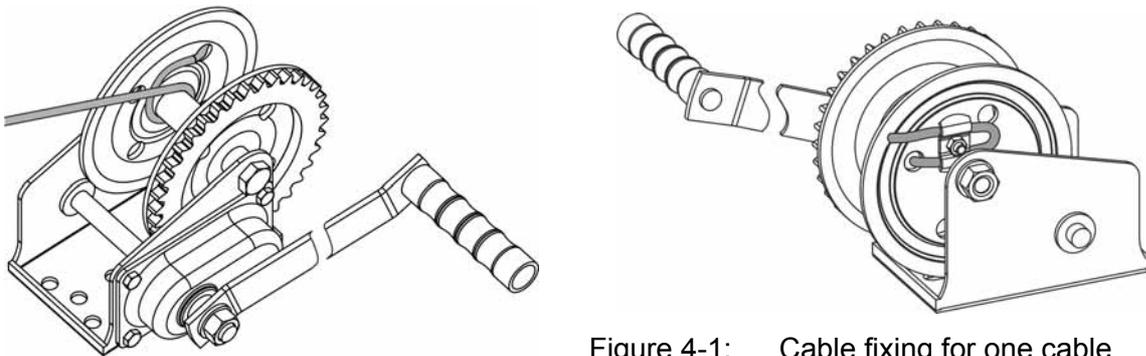
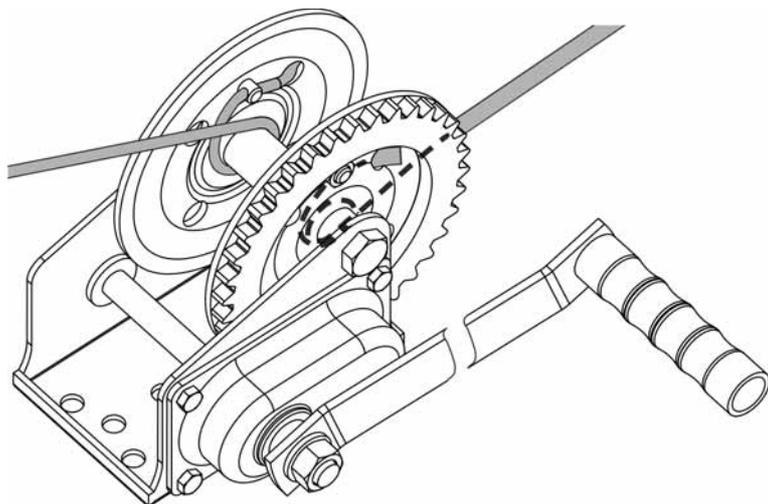


Figure 4-1: Cable fixing for one cable

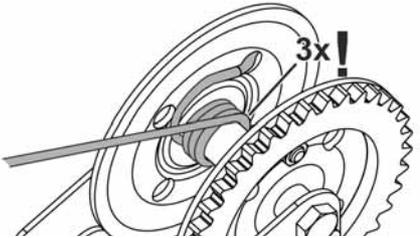
4. Guide the cable straight to the winch. If it is guided e. g. over an angle, the cable can become severely worn:

„Danger of accidents!“.



### 4.3.3 Operation of the system

1. Tighten all nuts before using the winch.
2. Oil all shafts and gear wheels before operating it for the first time.
3. Carry out a static test on the winch. Load the winch for 10 minutes with a load 1.5x greater than the nominal load.
4. Turning the hand crank clockwise raises the load. Turning it anti-clockwise lowers it.
5. Turning the hand crank clockwise and thereby raising the load causes the ratchet to make a clicking noise as it engages. It does not make a clicking noise when lowering.
6. To lock the load in position on the winch, turn the hand crank slowly clockwise until you hear two “clicks”. Then slowly release the crank. You can lock the load in any position you want.

	<b>Risk of injury</b>
	<p>Improper use the cable winch may result in serious injuries.</p> <ul style="list-style-type: none"> <li>• Never exceed the nominal capacity of the winch. This is based on the first layer of the coiled cable on the winch (chapter ) and decreases with the increasing number of layers on the winch. The nominal capacity of the outermost layer is less than 172 kg.</li> <li>• Do not load the winch when the cable is fully unwound. Keep at least <b>three full turns</b> of cable on the winch!</li> <li>• Only ever operate the winch by hand! This winch should not be operated with a motor of any kind. If the winch cannot be operated easily by hand, it has probably been overloaded.</li> </ul> 
<b>Danger</b>	

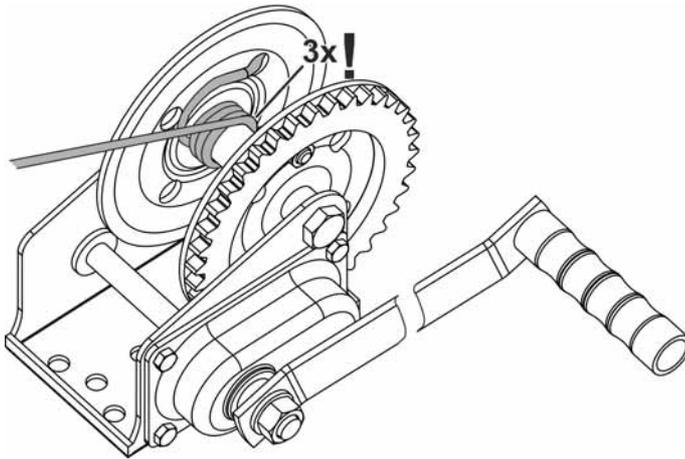
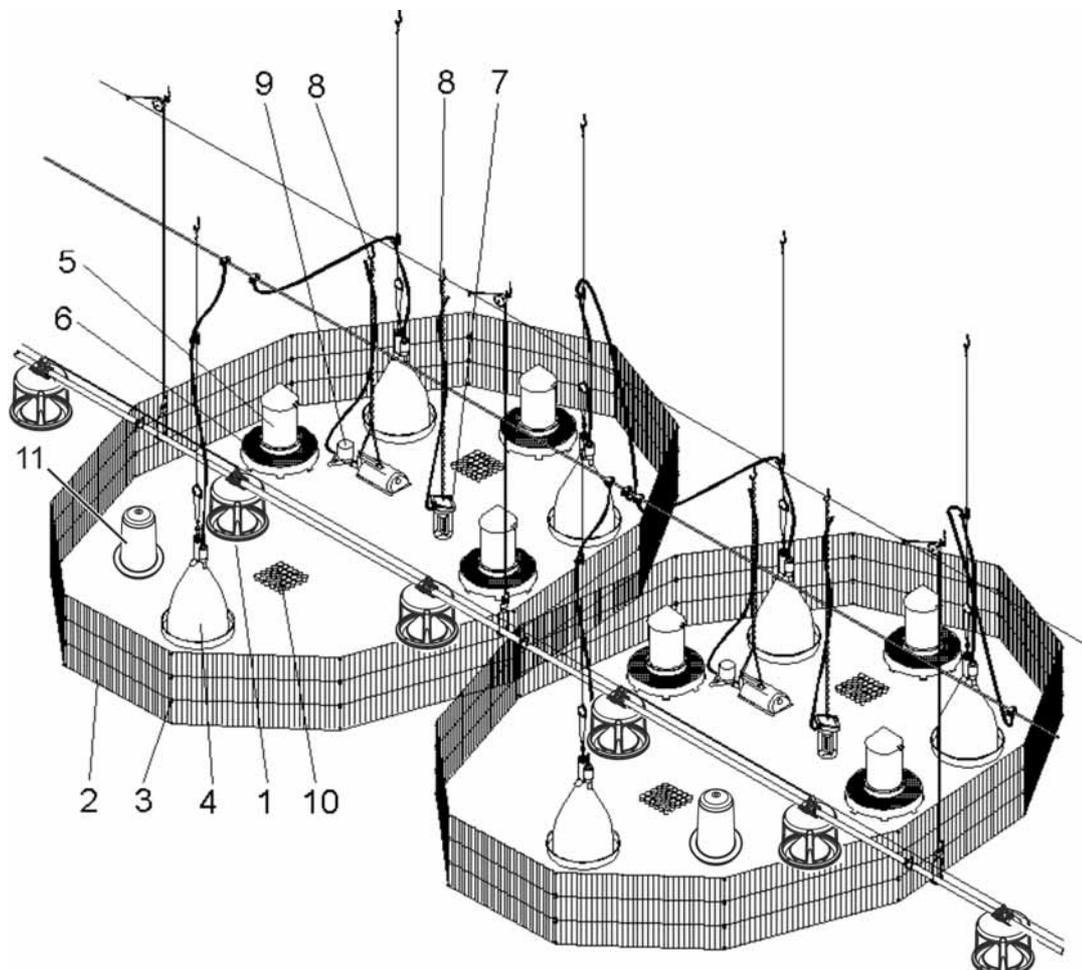


Figure 4-2: Always leave at 3 three full turns of cable on the winch.

## 5 Use of brooding rings

### 5.1 Brooding ring for 350 birds



Pos.	Code no.	Description
1		Feed pan Imperator
2	39-00-3198	Wire grille 350 x 1000 ZnAl ( <i>Zinc aluminium</i> ) for brooding ring
3	38-90-3809	Strap 200 mm x 4.5 mm
4	30-03-3100	Round drinker Jumbo-B
5	11-31-3080	Feeder 12 l Picorett FRC dia 310 mm
6	11-31-3084	Chick stand dia 515 for feeder Picorett
7	99-30-3750	Light with energy saving lamp 1200lm 20W suspended for brooding ring
8	99-50-0012	Suspension chain no. 30
9	40-13-3810	Infra-red heater E M8 5000-500W Germany/propane (LPG) 20-1400mbar
	40-13-3860	Gas brooder D M8 5000W natural gas 20-50mbar
	40-13-3800	Gas brooder M8 5000-500W propane (LPG) 20-1400mbar
10		Feed plate - egg tray
11	30-68-1500	Chick fount plastic 2.5 l
	30-68-1510	Chick fount plastic 5.0 l

## 5.2 Assembling the brooding ring

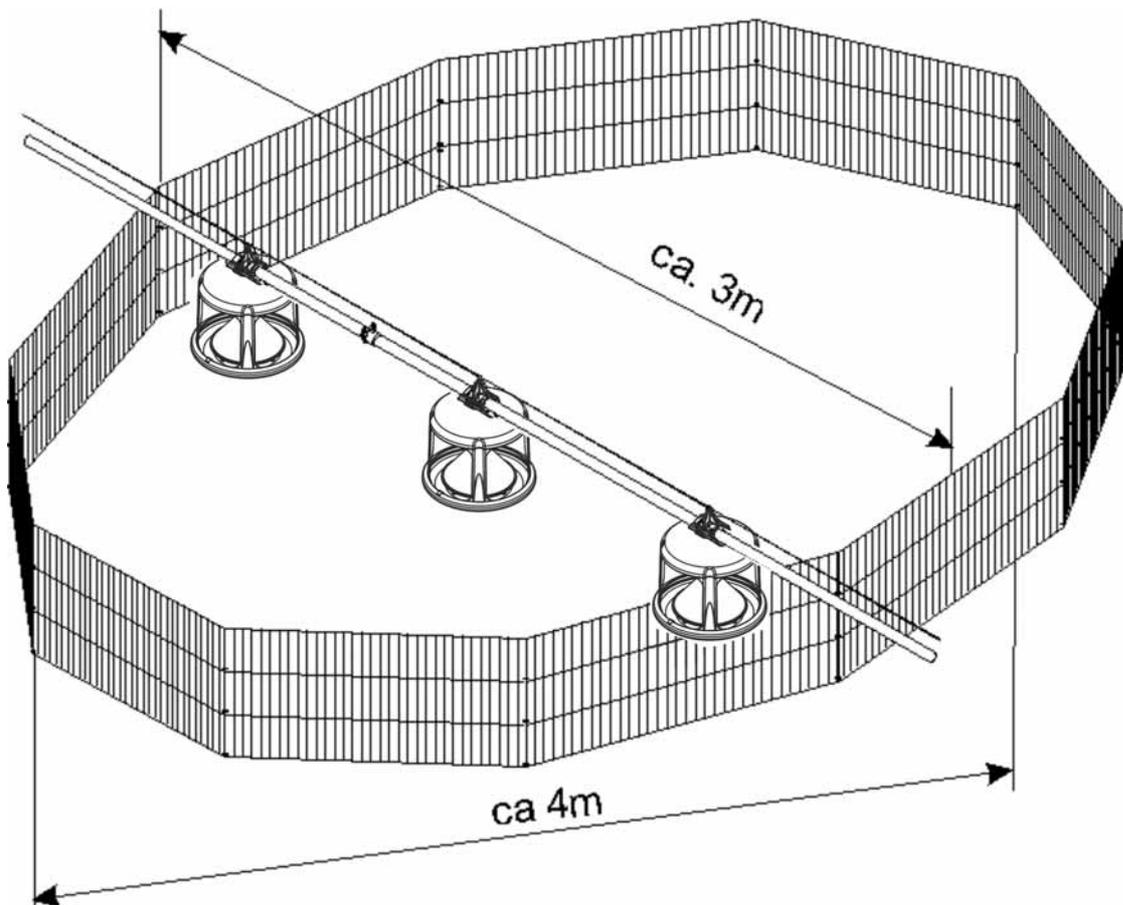


Each brooding ring consists of 11 wire grilles 350x1000 (ZnAl) for brooding ring. The wire grilles 350x1000 (ZnAl) for brooding ring are connected at all joints by means of 3 straps. Cut off the protruding ends of the straps.

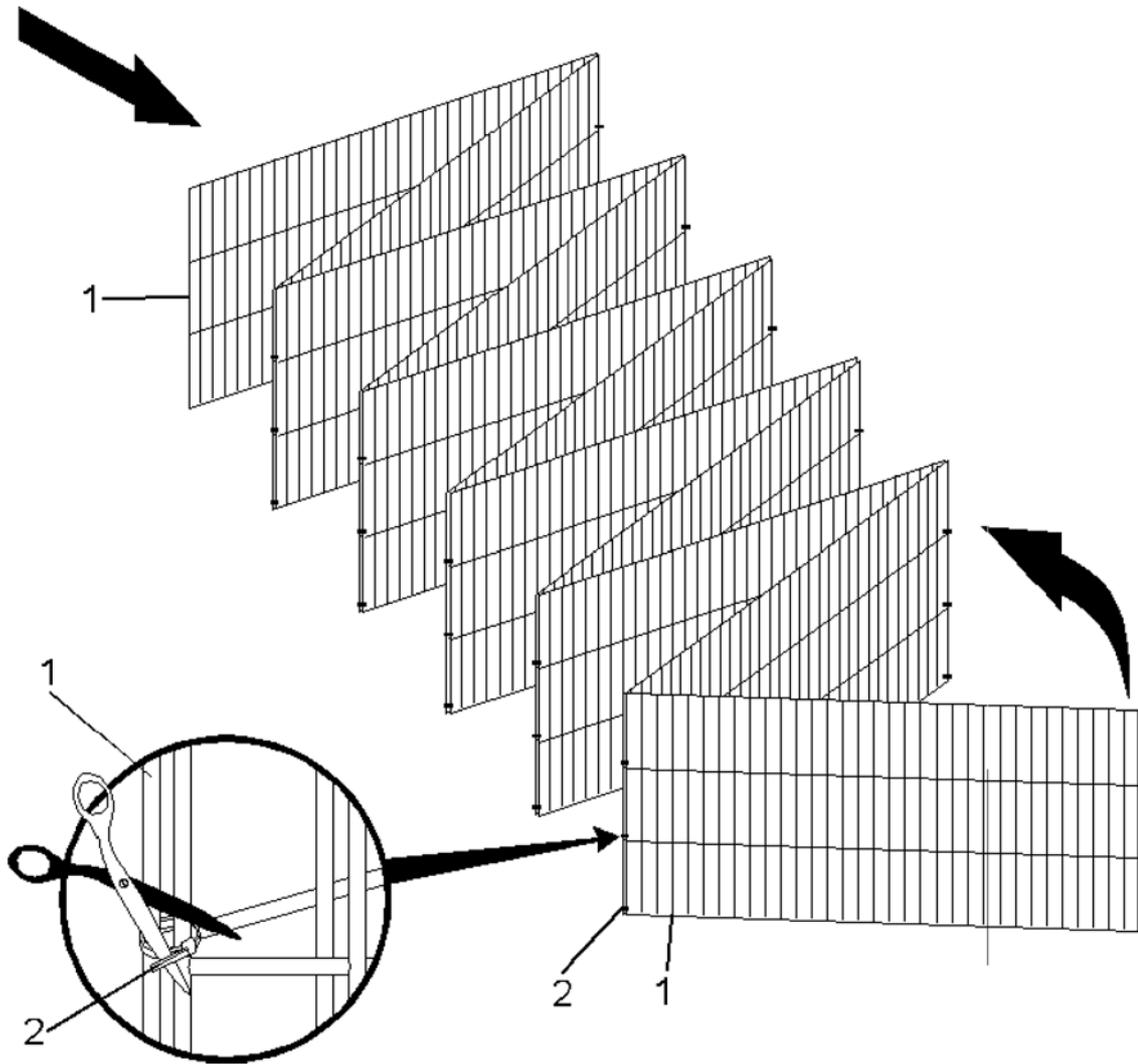
Remove the brooding rings 5-6 days after housing the birds. Separate the wire grilles 350x1000 (ZnAl) at a coupling point and put them together in a fan-shape.

For the next batch, connect the wire grilles 350x1000 (ZnAl) for brooding ring again by means of three new straps.

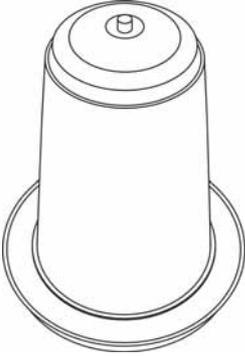
Each brooding ring should be approx. 3m wide (Augermatic tube length) and approx. 4m long.



Pos.	Code no.	Description
1	39-00-3198	Wire grille 350 x 1000 for ZnAl-B brooding ring
2	38-90-3810	Strap 200 mm x 4.5 mm black (UV-resistant)



### 5.3 Poult drinking trough for brooding rings

Code no.	Description	
30-68-1500	Poult drinking trough plastic 2.5ltr	
30-68-1510	Poult drinking trough plastic 5.0ltr	

- The poult drinking trough is suitable for rearing poults in the brooding ring as a supplement to the standard drinking trough.
- The poult drinking trough means poult don't have to go as far to drink and thus improves the start of their rearing.
- The poult drinking trough is manually filled and after the initial phase the brooding rings are removed.

## 6 Maintenance and repair of the components

Ideally, the feed delivery date should be close to the moving-out date so that the silo, the Flex Vey system, the Augermatic line and the feed pans are empty when you want to stop the feeding.

If this is not possible, try to shut off the feed supply from the silo so early that the goal described above is achieved by all parts of the silo's outlet system. Where this option is not possible either, it may be necessary to remove the remaining feed by letting the line run dry as soon as the feed supply is switched off.

### 6.1 Drive units

- Under normal conditions, there is no need for oil or grease change.
- Carry out the change of oil in accordance with the directions of the gear motor manufacturer (see sticker at the gear motor). The lubricating grease for gear motors type ESTA amounts to 90 grams for 0,37 kW or 280 grams for 0,75 kW motors.
- In exceptional cases, e.g. after leakages, we recommend the following lubricants:

ARAL	aral grease FDO
BP	BP energrease HT-EP-00
CALYPSOL	calyptol D 8024
ESSO	esso fibrax EP 370
MOBILOIL	mobilflex 46
SHELL	shell special reductor grease H
	shell grease S 3655
	shell semnia grease-O
TEXACO	glissando GF 1464

Table 6-1: Overview lubricants

- Prevent condensation and cleaning water from penetrating the inside of these devices.
- Regularly clean the motors' cooling fins to prevent overheating.

#### 6.1.1 Maintenance of the drive unit AM6

	The drive AM 6 is maintenance-free.
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## 6.2 Auger HD AM

	<b>Risk of injury</b>
	<p><b>Rotating parts of the feeding system can lead to injuries.</b></p> <ul style="list-style-type: none"> <li>• The power supply must <b>always</b> be disconnected before working on the feeding system since this can start unexpectedly if the system is operated via an automatic control system.</li> <li>• Never grasp into the auger running in the feed hopper.</li> <li>• Never grasp into the auger rotating in the tubes.</li> </ul>
<b>WARNING</b>	

	<p>Make sure that there are no bends in the auger!</p>
---	--

## 6.2.1 Drawing-in the auger HD AM

### 1. Step:

Before the assembly, remove all pieces of wire, strings and other foreign matters from the auger (Figure figure 6-2).



Figure 6-1: Auger



Figure 6-2: Before the assembly

### 2. Step:

Uncoil the auger with at least 2 (optimally 3) persons.

Fix the end of the auger (Figure figure 6-3) and uncoil the auger carefully to avoid damages.



Figure 6-3: Fix the end of the auger



Figure 6-4: Uncoil the auger



Make sure that there are no bends in the auger!

### 3. Step:



The auger should be checked once again after the uncoiling concerning possible bends and damages. Remove damaged auger pieces and weld the auger once again at this spot (6.2.5 "Weld the auger HD AM").

Figure 6-5: Check the auger

### 4. Step:



After the inspection for damages, the ends of the auger have to be smoothed off. This is done to make it easier to push the auger into the Augermatic tube.

Figure 6-6: Smooth off auger ends

### 5. Step:

In order to prevent the auger from damages, it should be inserted by at least 3 fitters (Figure figure 6-7).

Procedure:

- One fitter fixes the *lower part for feed hopper* (Figure figure 6-8) so that this does not swing when the auger is inserted as this might damage the auger.
- Another fitter pushes the auger into the tubes in steps of max. 200 mm until the drive unit at the end of the feed line is reached.
- While the fitter is pushing the auger through the tube, another fitter draws in the auger and keeps it at working height.



Figure 6-7: Fix lower part



Figure 6-8: Insert the auger

**6. Step:**

When the auger has reached the drive unit, it is fixed by means of a j-bolt (Figure figure 6-9).



Figure 6-9: Fix the auger to the drive

**7. Step:**

Now the auger has to be pulled out of the *lower part for feed hopper* several times and be released so that it achieves its natural tension and position over the entire length.

Figure 6-10: Natural tension and position of the auger

### 8. Step:



As soon as the auger has its natural tension, it is marked at the outlet of the *lower part for feed hopper* (for example by means of a cable strap Figure figure 6-11).

Figure 6-11: Mark auger

### 9. Step:

Afterwards, the auger has to be pulled out of the *lower part for feed hopper* by 100 mm + 0.5% of the entire auger length and has to be fixed inside the lower part by using a vise-grip wrench (Figure figure 6-12).

Example for the calculation:

for an auger length of 90 000 mm (90 m):

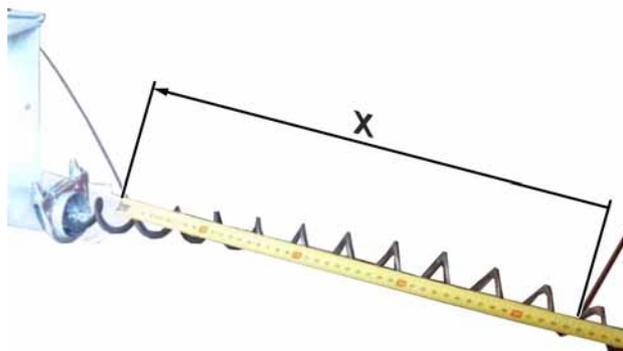
$$100 \text{ mm} + (90\,000 \text{ mm} \times 0.005) = \mathbf{550 \text{ mm}}$$



Figure 6-12: Fix the auger



Figure 6-13: Auger fixed

**10. Step**

Measure the dimension „X“ back from the previously marked position (Figure figure 6-14).

**X:** optimal auger tension  
= 0.5% of the entire auger length.

Example for the calculation:  
for 90 000 mm (90 m) auger length:  
 $90\ 000\ \text{mm} \times 0.005 = 450\ \text{mm}$

Figure 6-14: Measure and mark

**11. Step:**

Cut off the auger at the previously marked position (Figure figure 6-15).

Smooth off the end (Figure figure 6-16).



Figure 6-15: Cut off auger



Figure 6-16: Smooth off end

**12. Step**

Twist or push the tension shaft into the auger and fix it by means of a threaded pin (Figure figure 6-27).



Figure 6-17: Auger to tension shaft



Figure 6-18: Fix auger

**13. Step:**

Remove the vise-grip wrench carefully while a fitter keeps the tension shaft.

Push the tension shaft into the lower part and fix it by means of an U-bolt.



Figure 6-19: Keep the tension shaft



Figure 6-20: Fasten the tension shaft

## 6.2.2 Fastening of auger at the drive unit



If the auger must be fastened again to the drive, please observe the following:



Turn the auger up to the guard plate for drive shaft and clamp the auger by means of the hooked bolt.

Figure 6-21: Mount the auger on the drive

### 6.2.3 Replace bearing at the tension shaft

#### 1. Proceeding:

Loosen the U-bolt and pull the tension shaft carefully out of the lower part for feed hopper.



Figure 6-22: Loosen U-bolt



Figure 6-23: Pull out tension shaft

#### 2. Proceeding:

Fix the auger in the lower part by means of a vise-grip wrench. Loosen the set screw at the tension shaft and turn respectively pull the tension shaft out of the auger.



Figure 6-24: Fix the auger by means of a vis-grip wrench



Figure 6-25: Loosen the auger from the tension shaft

#### 3. Proceeding:

Replace the bearing at the tension shaft or replace the complete tension shaft.

#### 4. Step

Twist or push the tension shaft into the auger and fix it by means of a threaded pin (Figure figure 6-27).



Figure 6-26: Auger to tension shaft



Figure 6-27: Fix auger

### 5. Proceeding:

Carefully remove the vise-grip wrench while the tension shaft is hold.

Push the tension shaft into the lower part and fix it by means of an U-bolt.



Figure 6-28: Hold the tension shaft



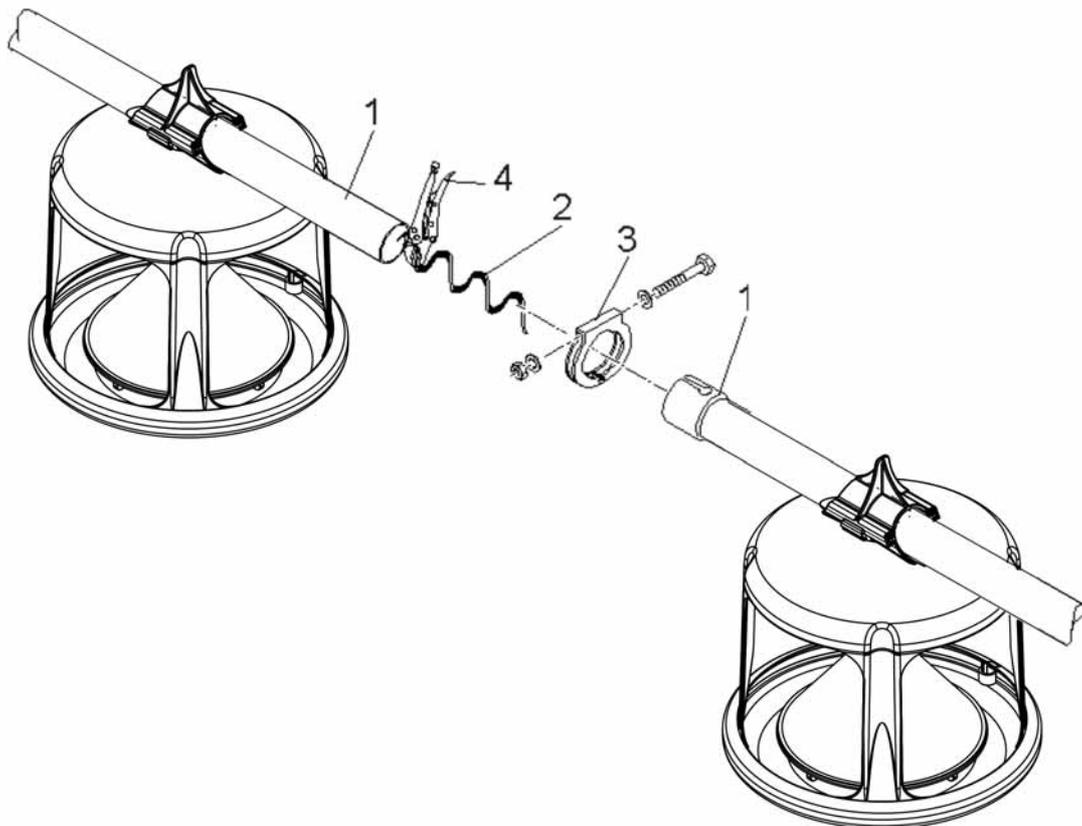
Figure 6-29: Fasten the tension shaft

## 6.2.4 Repair auger



Check the functioning of the conveying augers every day!

- Loosen the tube clip (1) between the last and last but one tube and pull both tubes apart.
- Insert the auger (2) between both tubes by means of a vise-grip wrench (3).
- Release the auger (2) at the drive or feed hopper (depending on which side the repair is required) and carry out the repair.



### 6.2.5 Weld the auger HD AM

	<p><b>Avoid a too hot welding of the auger</b></p> <p>Make sure that the welding device is correctly adjusted. Too hot welding will change the material properties of the auger and thus increases the risk for rupture.</p> <p><b>The welding seam must not be cooled down abruptly with water or other liquids.</b></p>
---	---

	<p>Let the auger <b>slowly cool down at the air</b>. A cooling with any liquids makes the material of the auger brittle and thus increases the risk of fracture!</p>
--	--

– **Selection of the welding filler metal**

a) Gas metal arc welding

Welding wire: SG 2 Ø 0.8mm

Description according to EN ISO 14341-A: G 42 3 M G3Si1

b) Manual arc welding

Stick electrode 2.5 x 350 [mm]

Description according to EN ISO 2560-A: E 38 2 RB 12

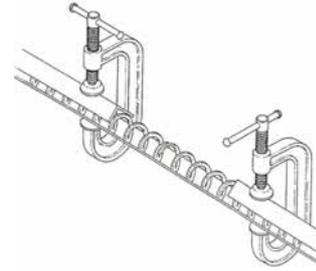
– **Procedure**

• **Step 1: Cleaning and degreasing of conveying auger**

The ends of the auger must be thoroughly cleaned and degreased before the welding process. For this purpose it is possible to use for example customary wash dilution.

• Step 2: Alignment of the conveying augers to be welded

Both ends of the auger must be aligned and fixed to each other as an L- or U-profile. The fixation of the conveying augers can be done by means of normal screw clamps.

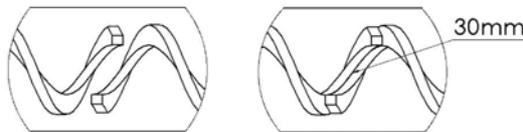


	<p>The longer the profiles for the alignment, the more accurate the alignment of the conveying augers to each other.</p>
--	--

- a) In order to prevent damage to the tubes due to sharp edges, the ends of the auger have to be furnished with amply 45° bevels and edges have to be removed.

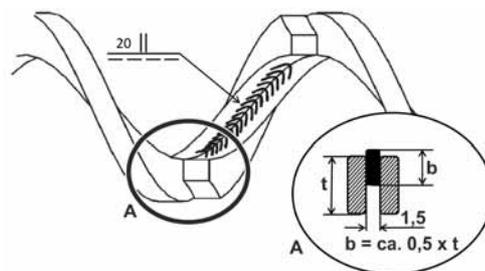


- b) Both ends of the augers must overlap 30mm. It is important that they are pushed in front of each other and do not twist them together.



• Step 3: Preparation of a welding seam

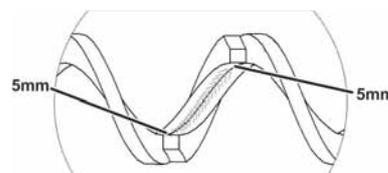
- a) Join both auger ends with an internal welding seam with a length of 20mm.



**t**= Height of the auger (in section)

**b**= Maximum depth of the welding seam (approx. 0.5 x t)

The distance of the welding seam must be 5 mm from both ends of the auger.

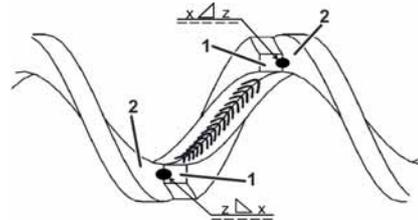




The welding seam has to cool down for approx. 30 seconds after the welding. An acceleration of the cooling-down process for example by means of water is not allowed!

- b) After the 20 mm welding seam has cooled down, the ends of the auger have to be welded to the respectively other auger by means of an additional welding seam.

**Explanation of symbols of the welding seam:**



<b>x=</b>	Material thickness e.g. Augermatic auger 3.85mm
<b>b=</b>	0.5 x height of the auger e.g. Augermatic auger 0.5 x 8 = 4[mm]



When the welder prepares the welding seam he has to start at point 1 and move the welding device towards point 2.

It must be observed that point 2 is not heated for too long as this spot will soften and consequently break during operation.

- c) After both welding processes are carried out, there is no need for any rework e.g. with an angle grinder. An edge which might have developed during the welding process does not disturb the feed transport!

If the manual arc-welding procedure was applied, just remove the dross by tapping.

### 6.3 Tensioning the HD AM auger

- Pull the auger out of the lower part for feed hopper until it is tensioned.
- Let the auger slide back into the released state.
- Mark the auger at the outlet of the lower part for feed hopper.
- To tension the auger, pull this out of the lower part for feed hopper (1) by 10cm + 0.6 % of the total auger length.

**For example: 80 m auger length, auger length to be pulled out = 10 cm + (8000 cm x 0.6 %) = 58 cm.**

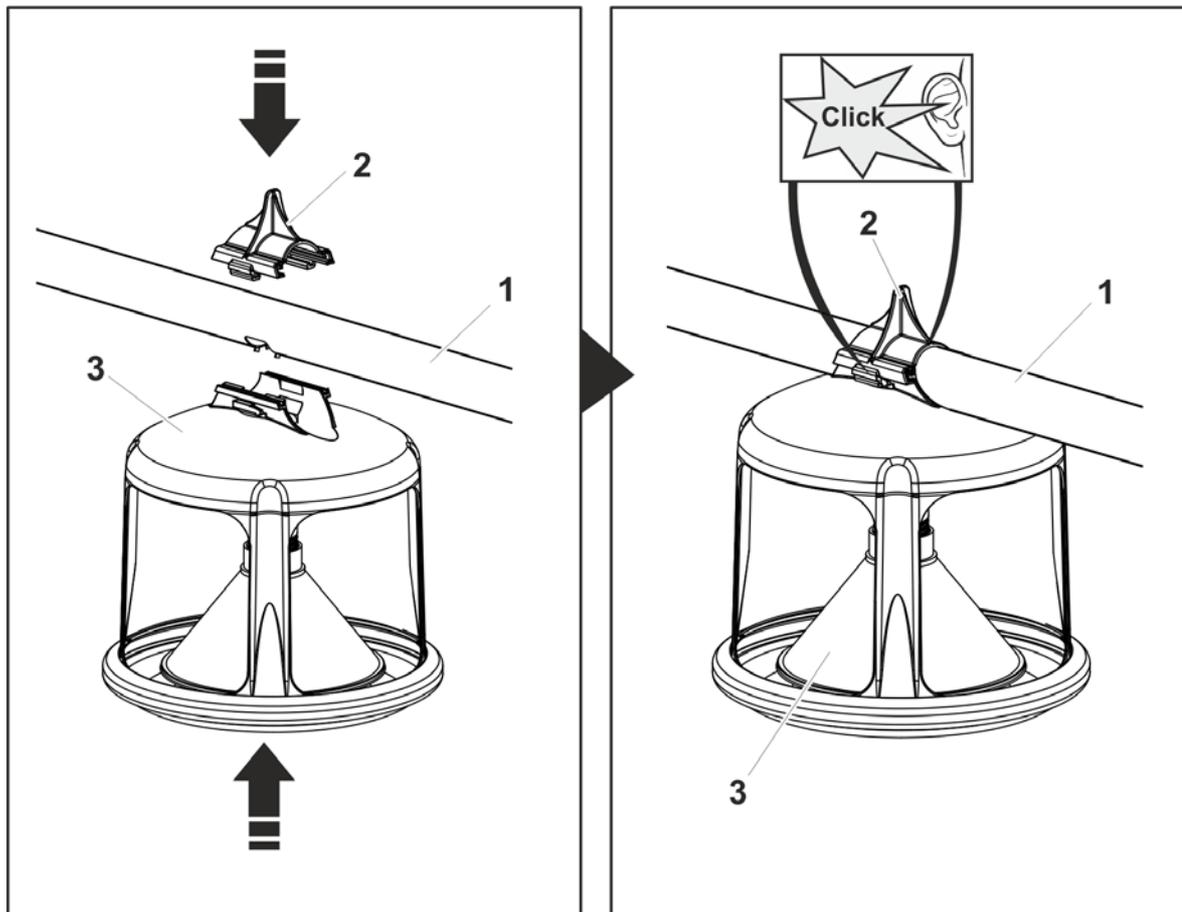
- Mark the auger again at the outlet of the lower part for feed hopper.
- Fix the auger at the lower part for feed hopper by means of a vise-grip wrench.
- Cut off the auger at the 2nd marking and round the ends.
- Push the tension shaft into the auger so that the end of the auger has a distance of approx. 5 mm from the bearing of the tension shaft.
- Fasten the auger on the tension shaft with the hex socket set screw M 6 x 6 or with the hook bolt.
- Carefully remove the vise-grip wrench so that the tension shaft slides back into the lower part for feed hopper.

## 6.4 Replace conveying tubes

Check all conveying tubes regarding bulges and deformations. Damaged conveying tubes must not be mounted!



If you replace a conveying tube or an end tube, remove the feed pans and, if necessary, the control pan as well. Fix them at the replaced tube. Make sure that the pans are fastened in the same way.



Pos.	Code no.	Description
1		Conveying tube
2		Tube adapter
3		Grille

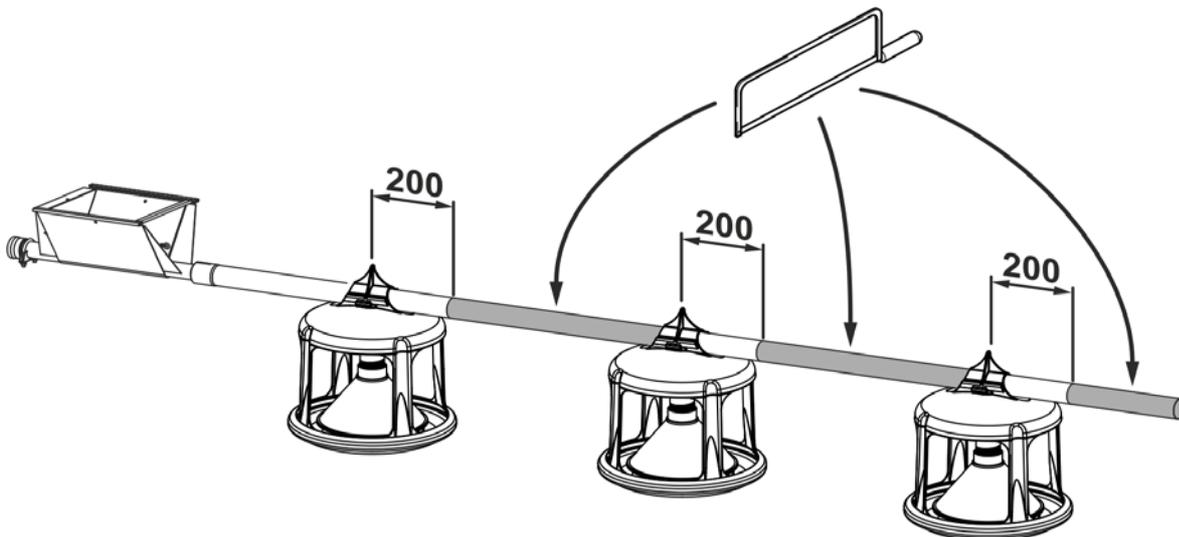
### 6.4.1 Shorten the feed line



If the feed line has to be shortened, this may only be carried out at the **last conveying tube** in front of the feed hopper.

Please observe the following:

- The tube may only be shortened at the straight end, the sleeve must remain.
- The conveying tube may be shortened maximally **100mm in front of the last feed pan.**
- Keep a minimum distance of **100mm to each feed pan.**

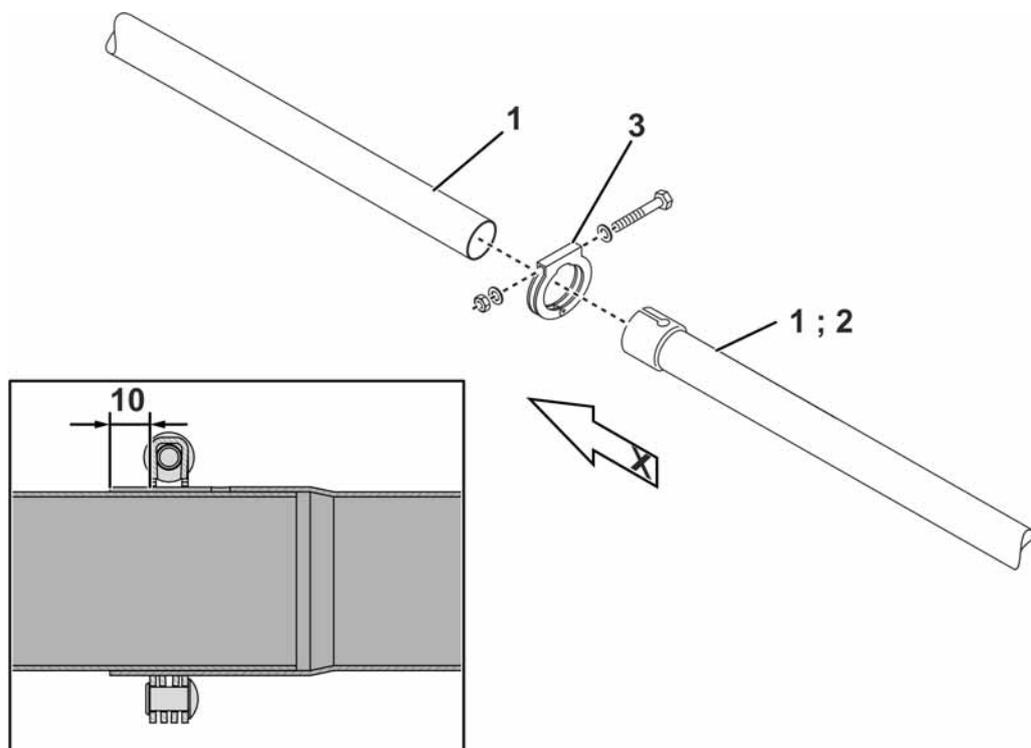


### 6.4.2 Connecting the tubes



**The connecting sleeves are always directed towards the feed hopper!**

- Push a conveying tube with the smooth end to the limit stop of the connecting sleeve of the following conveying pipe. The slot of the connecting sleeve must show upwards.
- Mount the tube clamps that way that a distance of approx. 10mm is left to the end of the tube.

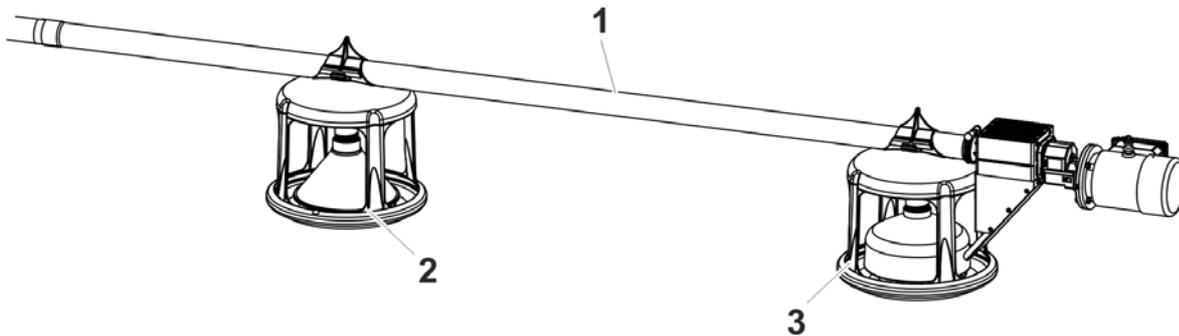


Pos.	Code no.	Description
1		Conveying tube
2		End tube
3	11-31-3211	Tube clip riveted complete for tube d45.0
	99-50-0474	Tube clip FlexVey 60
X		Towards the feed hopper

### 6.4.3 Position of the control pan at the end tube



The control pan must **always** be installed as final pan in front of the drive. End tubes must not be shortened!



Pos.	Code no.	Description
1	11-31-4499	Basic unit end tube 60.0-1740 1 hole
	11-31-4599	Basic unit end tube 60.0-2490 2 holes
	11-31-4799	Basic unit end tube 60.0-2740 3 holes
2	11-31-6104	Feed pan complete Imperator 60 classic high
	11-31-6103	Feed pan complete Imperator 60 classic low
	11-31-6105	Feed pan complete Imperator 60 DOS 2000
	11-31-6101	Feed pan complete Imperator 60 HY low
	11-31-6106	Feed pan complete Imperator 60 DDP
3	11-31-6154	Control pan complete Imperator 60 classic high
	11-31-6153	Control pan complete Imperator 60 classic low
	11-31-6155	Control pan complete Imperator 60 DOS 2000
	11-31-6151	Control pan complete Imperator 60 HY low
	11-31-6156	Control pan complete Imperator 60 DDP

## 6.5 Cable winch 350 kg GS for wall mounting incl. hand crank (99-50-3099)

 <b>Danger</b>	<b>Risk of injury</b>
	<p>In the event of improper use the cable winch may cause serious injury.</p> <ul style="list-style-type: none"> <li>• <b>Never</b> operate the winch if the cable is knotted or twisted, or if it is not properly secured!</li> <li>• Ensure that no-one is located in the vicinity of the winch when it is under load and/or is being operated.</li> <li>• Only maintain and clean the winch when it is not under load.</li> <li>• When replacing faulty parts, ensure they are positioned and assembled correctly.</li> <li>• Inspect the winch for corrosion and replace any faulty parts before operating the winch.</li> </ul>

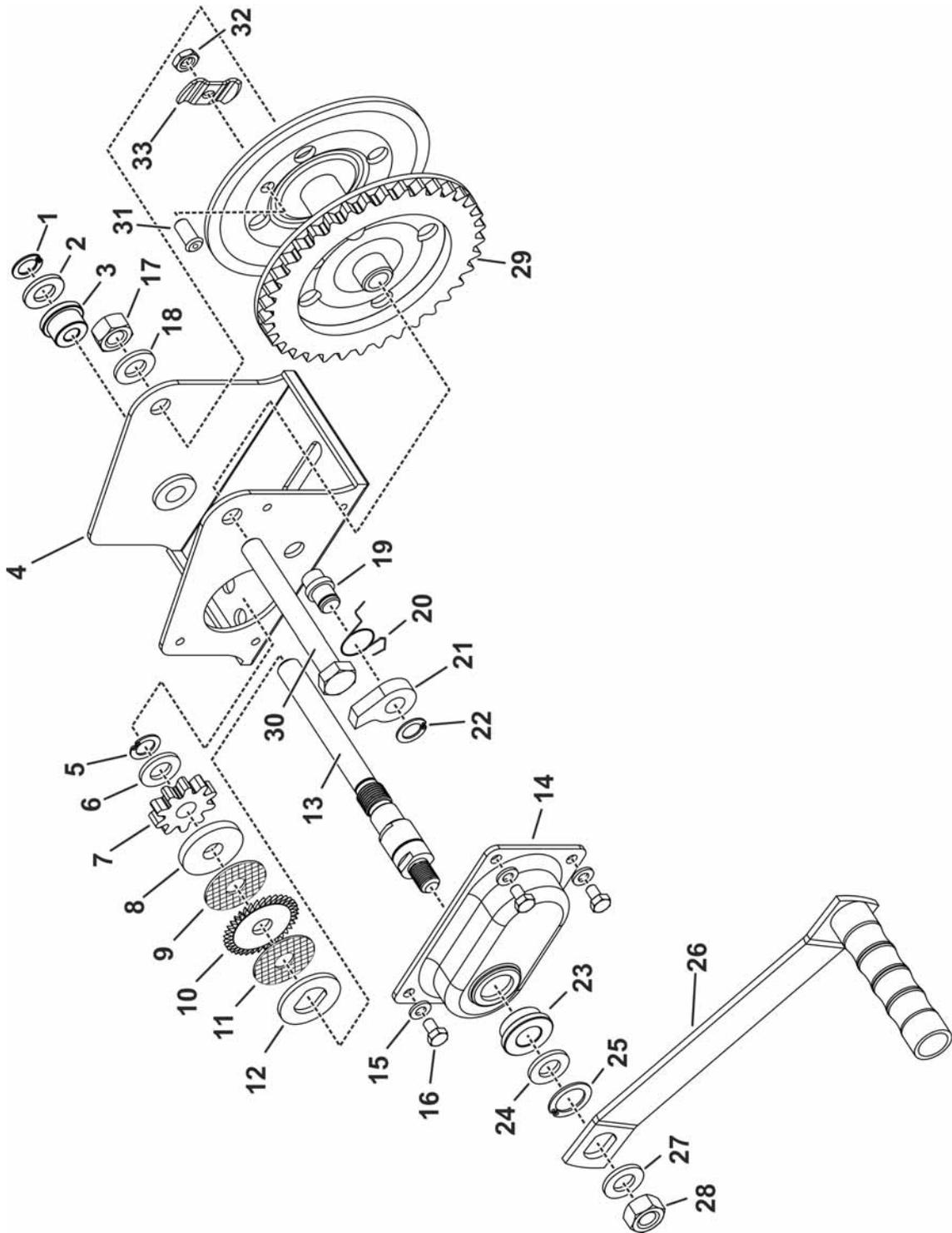
 <b>Danger</b>	<b>Risk of injury</b>
	<p>Fingers, loose clothing and body parts may be drawn into the winch by gear wheels, etc.</p> <ul style="list-style-type: none"> <li>• Keep a suitable distance from the winch's moving parts.</li> <li>• Wear <b>close-fitting protective work clothing</b>.</li> <li>• <b>Never</b> work with <b>long hair that has not been tied up</b>.</li> <li>• <b>Never</b> wear any <b>rings, necklaces, watches, scarves, ties or other such items</b>.</li> <li>• Keep a suitable distance and wear protective gloves if necessary.</li> </ul>

	<b>Risk of injury</b>
	<p>In the event of improper use the cable winch may cause serious injury.</p> <ul style="list-style-type: none"> <li>• The winch is only intended to be used for conveying and hoisting operations. Do not lift, secure or transport people or convey loads over operational areas where people are located.</li> <li>• Never oil the winch brake discs!</li> <li>• Always avoid overloading the winch!</li> <li>• Do not exceed the maximum tractive force specified for the cable.</li> <li>• Do not intentionally knot the cable.</li> <li>• Ensure that the winch is only operated by competent individuals. Keep children and individuals unfamiliar with the operation of the winch away from it.</li> <li>• Ensure that the load to be hoisted by the winch is secured safely and evenly.</li> <li>• Always keep the winch in good condition.</li> <li>• Never use the winch if it is damaged.</li> </ul>
<b>Danger</b>	

1. Lubricate the gear wheels, roller shaft and handle thread regularly to ensure they function smoothly and guarantee the long service life of the winch.
2. Lubricate the winch as described above if it has been stood idle for a long period.
3. Keep all moving parts of the winch (gear wheels, ratchet mechanism, drive shafts etc.) clean and lubricate them regularly to ensure the safe and reliable operation of the winch.
4. Check the winch regularly for wear. To be able to see the brake disks (9 and 11) and the ratchet (10 / 21), etc., remove the hand crank (26) and the protective cover (14).

The brake discs must be replaced if they have been worn down by approx. 1.5 mm. If the discs show any signs of cracks, they must be replaced immediately.

**regarding the position numbers: see following pages**



Pos.	Qty.	Code no.	Description
1			Retaining ring
2			Washer
3			Bearing bush
4			Bracket
5			Retaining ring
6			Washer
7			Drive toothed wheel
8			Spacer
9			Brake disc
10			Ratchet wheel
11			Brake disc
12			Spacer
13			Shaft
14			Protective cover
15			Lock washer
16			Hex screw
17			Hex bolt
18			Washer
19			Plain bearing bush
20			Spring for locking pawl
21			Locking pawl
22			Retaining ring
23			Bearing bush
24			Washer
25			Retaining ring
26			Hand crank
27			Washer
28			Nut
29			Cable reel
30			Hex screw
31			Allen key screw
32			Nut
33			Cable clamp

## 7 Hygiene, health and safety, cleaning and disinfection

There are different measures for cleaning and disinfection which guarantee optimum hygiene on the farm.

**All these measures have the following objective:**

1. Reduction and removal of contaminations
2. Prevention of diseases
3. Creation of optimum performance conditions for the birds

Since the conditions are very different on each farm, the following explanations serve as guideline for the above mentioned objectives.

### 7.1 Hygiene measures for maintaining a high hygiene level

Maintaining a high hygiene level on the farm is an important factor in poultry management. Remember that poultry houses cannot be sterile. It is therefore important to reduce the number of pathogenic germs and to prevent their multiplication. In order to guarantee a hygienic farm, **Big Dutchman** recommends observing the following measures:

- The farm staff is not allowed to have contact to birds or other poultry outside of the farm!
- All vehicles must be disinfected before entering the farm. Install sprinkler hoses as well as disinfection tubs for tyres at a place outside of the farm!
- The farm should be fenced! The gate should only be opened when required.
- No other poultry and birds may be on the farm!

Farms should always be safeguarded against invasion of wild birds, if possible! The buildings themselves must be protected against the invasion of birds of any kind (even the smallest oscine birds). This can be realised e.g. by installing bird screens in front of the ventilation openings.

- There should be no rodents on the farm! Draw up a plan for pest control and implement it!
- Eliminate weed on the farm premises!
- No feed should left open anywhere on the farm! Store feed in a dry place and keep it out of reach of animals!
- Hand disinfectants as well as disinfecting mats have to be available in every service room!

- All hygiene provisions should be complied with not only during the batch but also during the entire service period!
- Keep the number of unnecessary visitors on the farm as low as possible. When entering the farm / building, all visitors should wear protective clothing and enter their name into the visitor book!

The farm should have a hygiene sluice for changing clothes and prevent a spreading of germs! This sluice must be constructed according to the black/white principle.

The "black" outdoor area which is regarded as potentially contaminated with pathogenic germs shall be separated from the "white" inside area of the house which is less contaminated so that a transmission of germs is hindered or prevented.

Persons must take all their clothes off in a "black" dressing room in front of the passage to the building; after having passed a shower, they will then reach another "white" room where they can put on their work clothes / protective clothes. When leaving the house, all these actions have to be taken in reverse order. All persons entering or leaving the house have to pass through this hygiene sluice!

## 7.2 Staff health and safety

**Big Dutchman** would like to remind you that for all methods used on the farm, including the hygiene program, the safety and well-being of your staff should always be carefully considered. For most countries, there are laws and or/provisions which should be complied with.

Do not forget to provide your staff with protective equipment required for the correct carrying out of their tasks.

### The protective equipment includes:

- protective clothing
- safety shoes
- protective mask, if necessary
- eye protection
- nose and mouth mask
- gloves

Be very careful when using disinfectants, especially gaseous agents, since many agents available on the market may be harmful for the staff.

	<p>Shut off the power when cleaning live parts!</p> <p>Protect moisture-sensitive components like control cabinets and motors from splash water during <b>wet cleaning</b> by covering them!</p>
	<p>Water in combination with dust and feed remains can lead to slippery floors!</p>
	<p>Cleaning agents and disinfectants can cause corrosion! Observe the manufacturer's instructions!</p>

## 7.3 Cleaning and disinfection

### 7.3.1 Comparison between wet and dry cleaning

The system may either be wet-cleaned or dry-cleaned. Wet cleaning allows for a more effective disinfecting process.

The system must be ventilated dry **immediately** after a wet cleaning. If the system is not dried and is damp for a very long time, rust may form and can damage the components.

Dry cleaning is the best option regarding a long service life of your system, but it may not be the right method for you. We learned from different customers worldwide that dry cleaning alone is not able to sufficiently reduce the number of germs, thus causing more diseases in the birds and in turn reducing the animal performance.

Wet cleaning removes biological substances and germs more efficiently from the system than dry cleaning.

If your program includes the use of disinfectants, you should also consider that biological substances might protect the germs.

The above mentioned points are caused by shorter and more frequent batches in broiler breeder rearing. Young birds with low immune systems are exposed to germs with originate from the last herd and which were not eliminated during the cleaning process. **Big Dutchman** recommends talking about the details with your veterinarian.

### 7.3.2 Service life of equipment



#### Important

If the house is disinfected thermally, please consider that the temperature must not exceed 60°C.

Temperatures above 60°C can cause damage to the house equipment. **In particular, there is a risk that the plastic parts deform.**

**Big Dutchman** uses the best corrosion-free steel grades available on the market. In some models, specific parts, especially in critical areas of the system, are made of Galfan steel which provides the highest protection possible.

Still, it is common knowledge that some methods influence the product's service life negatively, independent of the quality of the corrosion protection and the supplier of the equipment. These unfavourable methods include:

- (a) wet cleaning of the components if they are not immediately dried afterwards;
- (b) high-pressure cleaning which may be more aggressive than normal cleaning, depending on the equipment and the duration of the cleaning process;
- (c) use of disinfectants which can damage steel or plastics and shorten the service life if they are used in high concentrations or longer than necessary.

These notes also refer to the building if this is made of coated steel.



**Important**

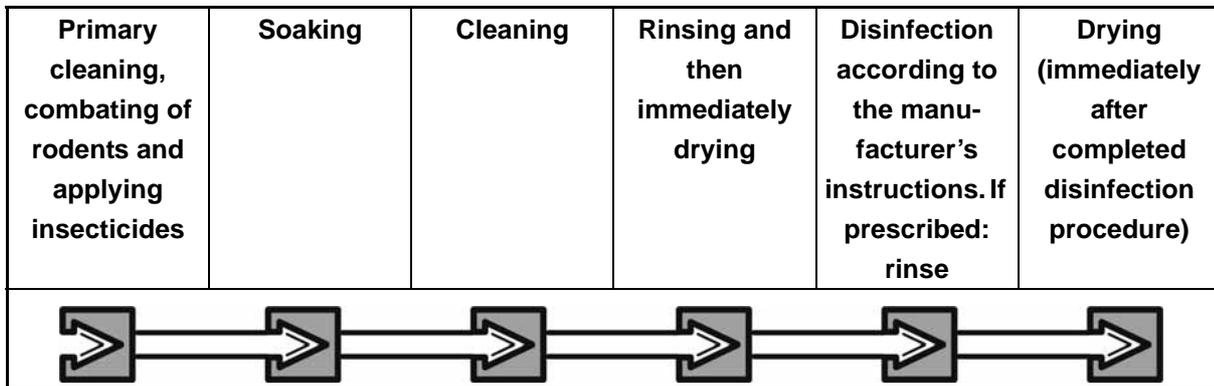
When choosing the disinfectant, you must pay attention to the corrosion resistance.

Especially the disinfectants on acid basis tend to dissolve the zinc coat of galvanized components.

### 7.3.3 Carrying out cleaning and disinfection

Cleaning must be carried out in a way that the surface structure, colour and original condition are clearly visible in every case.

#### 7.3.3.1 Basic procedure



#### 7.3.3.2 Before cleaning

- In order to guarantee a quick and thorough cleaning by means of a high-pressure cleaner, the feeding system must be brought to an optimal working height with a winch system.

The feed pans as well as the entire feeding system are so stable that a cleaning with a high-pressure cleaner is possible without causing any damages.



Regarding the height adjustment of the feed line see also chapter 4.3 "Cable winch 350 kg GS for wall mounting incl. hand crank (99-50-3099)"

### 7.3.3.3 Primary cleaning, combating of rodents and applying insecticides

1. Remove all remaining feed as well as litter rests and manure from the system!

	<p><b>Important:</b></p> <p>The feed conveying tubes must be completely empty before cleaning the house with water!</p> <p>Rests can harden through the moisture. They are also a hygienic risk.</p>
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2. Remove the dust from all equipment pieces and all places below the coverings!
3. Treat walls and ceilings with insecticides while the house is still warm.
  - A thorough cleaning and disinfection does not have any success if germs are distributed by flies over the freshly disinfected surfaces.
4. Kill off rodents (mice, rats) and arthropodes which can transmit and distribute germs of animal diseases!
5. All equipment which can be removed from the house should be taken outside.

### 7.3.3.4 Soaking

1. **Only if possible:** To make sure that the surfaces do not dry early during the following soaking procedure, both ventilation and heating should be switched off before starting with the soaking.
2. Soak the interior of the building, walls, ceilings and the residual equipment approx. 10 hours before the **wet cleaning**. Use fat- and protein-dissolving products.
  - **During soaking make sure that** sufficient liquid arrives on the dirt in order to dissolve the dried dirt layer.
3. Avoid a re-drying of the dirt until the wet cleaning is started.

	<p><b>Thorough soaking can reduce the duration of the following cleaning period considerably.</b></p>
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### 7.3.3.5 Wet cleaning

For the wet cleaning, the pans should remain closed during the cleaning process so that they can swing under the pressure of the water jet. After the high-pressure cleaning, the pans should be opened so that the water can drain off.

1. Clean the house with pressure washers, starting with the ceiling and working down to the floor, paying particular attention to ventilation elements, pipelines, edges and top surfaces of beams.

2. Make sure the house is well lit during the cleaning operation so that dirt is clearly visible.
3. Dirty drinkers and water tanks are potential hazards and should therefore be cleaned and disinfected (see also chapter 7.3.3.7 "Disinfection").
4. Any furniture taken outside and the exterior of the building, including outdoor concreted areas, should also be washed down.
5. Keep in mind that some parts of the system and building must not be cleaned with water, as e.g. electrical motors, electrical control panels as well as everything that could be damaged by water.
6. The **Big Dutchman** motors are designed for gentle cleaning, however not for high-pressure cleaning.



**The cleaning process has been successfully finished when all cleaned parts are visually clean and the drained off water is free from dirt particles.**

### 7.3.3.6 Rinsing and drying

1. After washing it is advisable to rinse the surfaces and equipment with clean water to remove residues of cleaning agents.
2. Rinse the house starting with the ceiling and working down to the floor.
3. Ventilate the house thoroughly after having completed the cleaning so that it can dry quickly.
  - **Remove water accumulations which cannot dry fast enough by hand!**
4. Oil all the chain wheels, roller chains and rust-sensitive parts again.
5. After cleaning, carry out necessary repair and maintenance works.



**A thorough and careful house cleaning is an imperative precondition for a successful house disinfection!**

### 7.3.3.7 Disinfection

Many hygiene programs all over the world demand the use of disinfectants after the cleaning process. You should however keep in mind that many disinfectants may reduce the service life of your installation.

**For the choice of the correct disinfectant, please observe the following:**

- Could the disinfectant endanger the **health** of persons?
  - Take all necessary measures (e.g. protective clothing, gloves and respiratory equipment, etc.) to exclude any dangers for the persons handling the disinfectants!
- Which **infectious agents** can be combated with it?
  - In case of doubt please contact your veterinarian.
- For which **temperature range** is the disinfectant provided?
  - If the disinfectant is used at temperatures other than those specified, the efficacy of the agent will be reduced.
- Is the disinfectant appropriate for the treatment of **galvanized steel**?
  - Unsuitable disinfectants can lead to corrosion of the steel and destroy it!
- Is the disinfectant appropriate for the treatment of **plastics**?
  - Unsuitable disinfectants can destroy plastics!
- Is the disinfectant appropriate for the treatment **of other materials existing in your house**?
  - Unsuitable disinfectants can destroy these materials.



**The instruction leaflet and/or packing or the safety data sheet of the manufacturer will provide you with information regarding the protection of persons handling the disinfectant and regarding the resistance of various materials to the disinfectant.**

In any case, you should weigh up the advantages and disadvantages for each single component of your system when you decide to use a disinfectant.

Please also consider its involvement in the entire process of your hygiene program.

**Disinfection procedure:**

	<p><b>Important</b></p> <p>If the house is disinfected thermally, please consider that the temperature must not exceed 60°C.</p> <p>Temperatures above 60°C can cause damage to the house equipment. <b>In particular, there is a risk that the plastic parts deform.</b></p>
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An equipment like the Augermatic feed line is normally installed in a nearly airtight building. This allows the use of gaseous substances which eliminate germs. This is a method quite common in some parts of the world.

**Below you will find a description of a wet disinfection:**

1. Please consider and observe the usage recommendations of the manufacturer regarding concentration, soaking time, admissible ambient temperature, temperature of the components to be disinfected and quantity of the disinfectant solution!
2. Take all measures (e.g. protective clothing, gloves and respiratory equipment, etc.) to exclude any dangers for the persons handling the disinfectants!
3. **Important:** Never mix several disinfectants since the single active agents can cancel each other and moreover new explosive connections could form.
4. The surfaces and objects to be disinfected must be clean and dry!
  - Residual moisture or puddles in the house can lead to a dilution of the disinfectant and thus to a reduction of the efficacy. Consequently, more disinfectants must be applied in order to achieve an optimal result.
5. The disinfectant is applied starting in the back of the house and working to the front respectively starting with the ceiling and working down to the floor.
6. When applying the disinfectant make sure that the surfaces are completely moistened.
  - This working solution should be applied with max. 10 to 12 bar working pressure and reduced conveying capacity since otherwise aerosols will develop and the wetting properties change.

7. During the soaking time, the ventilation system should be switched off if possible in order to avoid that the surfaces dry up too fast.
  - **The treated houses may only be entered with a respirator mask for a certain time, depending on the method of applying, soaking time and active agent.**
8. The disinfected surfaces and objects should be rinsed thoroughly if the specifications of the disinfectant manufacturer demand this.

	<p><b>Important</b></p> <p>The feeding and drinker systems however must <b>always</b> be rinsed thoroughly after the disinfection.</p> <p><b>Drinker lines</b> must <b>always</b> be rinsed on the <b>inside</b> after completed disinfection. In case the soaking time is too long, the drinking nipples may become leaky. Chlorous disinfectants are to be regarded as especially critically in this connection.</p> <p>All residues of the disinfectant should therefore be removed.</p>
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#### Checking the disinfection results:

Appropriate steps should be taken to check the efficiency of the disinfection.

1. Take adhesive film tests and swab samples of housing equipment and surfaces!
  - The total number of germs / cm<sup>2</sup> is determined with these tests. It should be below 1000 CFU (= colony forming units).

	<p>If the germ presence is determined to be too high following cleaning and disinfection, the above measures are to be repeated and the moving a new batch in is to be postponed.</p>
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#### 7.3.3.8 Drying after a complete and successful wet disinfection procedure

The system must be ventilated dry **immediately** after a complete and successful wet disinfection procedure.

If the system is not dried and is damp for a very long time, rust can form and thus damage the components.

## 8 Taking the Augermatic line into operation again

	<b>Risk of injury</b> at the auger running in the feed trough through drawing-in.
	Do not grasp into the feed hopper when the auger is running; otherwise this may cause severe injuries due to the rotating auger.
<b>Warning</b>	<ul style="list-style-type: none"> <li>• Only operate the auger when the protective grating is duly fixed to the lower part of the feed hopper.</li> </ul>

- Check whether the conveying tubes AM are running exactly horizontally and the drive unit is connected correctly to the power supply.
- Let the auger run approx. 15-20 minutes without feed so that burrs possibly occurring at the auger or the tube outlets are grinded off and the system can work properly.  
This may be very noisy.
- Remove all burrs and impurities from the tubes.
- Check the tubes concerning spots possibly run hot.
- Remove all impurities from the feed pans.
- First fill small amounts of feed into the feed hopper until the first feed pans are filled.
- Continue filling in small steps until the entire system has been filled.

## 9 Troubles and their remedies

### 9.1 Hooked bolt M 6x35 broken

- Foreign matter in the tube outlet  
=> Tap the tube until you find the place where it is empty. Look for foreign matter. Reduce auger tension. Turn back auger at the motor. Remove foreign matter.
- Congestion, obstruction in the auger  
=> Localize the place where the tube is empty. Dismount the tube at that place and remove the congestion.
- Auger broken  
=> Remove the auger and repair it.

### 9.2 Warm place in the tube or hole picked in the tube

- Kink in the auger  
=> Remove approx. 3m of auger and insert a new piece of auger by welding. (See chapter 6.2 "Auger HD AM").
- Jam in the auger  
=> Locate the place where the tube is empty or warm. Disassemble the tube and remove jamming.
- Auger wrongly welded  
=> If necessary, cut in two the auger, remove the deformed piece and weld again (see chapter 6.2 "Auger HD AM").
- Auger bent at wear point  
=> Replace respective piece of tube and of auger (see chapter 6.2 "Auger HD AM").
- Auger "climbs up" at the drive AM.  
=> Auger too long. Shorten the auger (see chapter 6.2.4 "Repair auger").  
=> Auger bent. Check the auger regarding deformations and repair it (see chapter 6.2.4 "Repair auger").

### 9.3 The entire feed line does not start

- No or too low supply voltage.
  - => Replace the defective fuse.
  - => Check whether thermal protection is correctly adjusted. Normally, the thermal protection switches off the motor in case of too high intensity of current.
  - => Check electric mains to the house for correct tension.
- Sensor does not switch.
  - => Control fuse in switch box faulty.
- Time switch or time switch motor faulty.
  - => Replace damaged time switch or motor of time switch.
- Sensitivity of sensor is too high.
  - => Reduce the sensitivity.

### 9.4 Protective motor switch regularly switches off the motor

- Oil film on auger and inside of tube causes increased charge on motor upon first putting into operation of Augermatic.
  - => Remove oil film. Fill the system with so much feed that all feed pans are filled.
- Insufficient power supply to motor.
  - => Check clamped tension at motor and compare with rating plate.
  - => Check whether the cross section of the connecting cable is too small.
  - => Check whether the motor 380V has to be connected to 3 phases, but is only supplied by 2 phases.
- Foreign matter in auger. Motor starts, then stands still and the auger moves in the opposite direction.
  - => Check the feed hopper, control pan and feed outlets for foreign matters. Remove them.

### 9.5 Auger operates irregularly

- Bearing or tension shaft is stuck or damaged.
  - => Replace the bearing (see chapter 6.2 "Auger HD AM").

- Insufficient auger tension.  
=> Shorten auger (see chapter 6.2 "Auger HD AM").
- Foreign matter in auger  
=> Remove foreign matter.
- Too strong tension on auger.  
=> Lengthen auger at feed hopper (see chapter 6.2 "Auger HD AM").
- Auger is detached from tension shaft.  
=> Check whether the tension shaft is fixed correctly (see chapter 6.2 "Auger HD AM").

### **9.6 Bearing of tension shaft is stuck or damaged.**

- Cleaning water in the *lower part for feed hopper*.  
=> Remove water.  
=> Replace the bearing, if necessary (see chapter 6.2.3 "Replace bearing at the tension shaft").

### **9.7 Tube kink in the tube outlet holes**

- Outlet holes not correctly made.  
Replace tube (see chapter 6.4 "Replace conveying tubes").

## 9.8 Augermatic does not switch off

- No feed in feed hopper.  
=> Check supply systems and remove possible mistakes.
- Auger broken.  
=> Repair auger (see chapter 6.2 "Auger HD AM")
- Sensitivity of sensor is too high.  
=> Reduce the sensitivity.

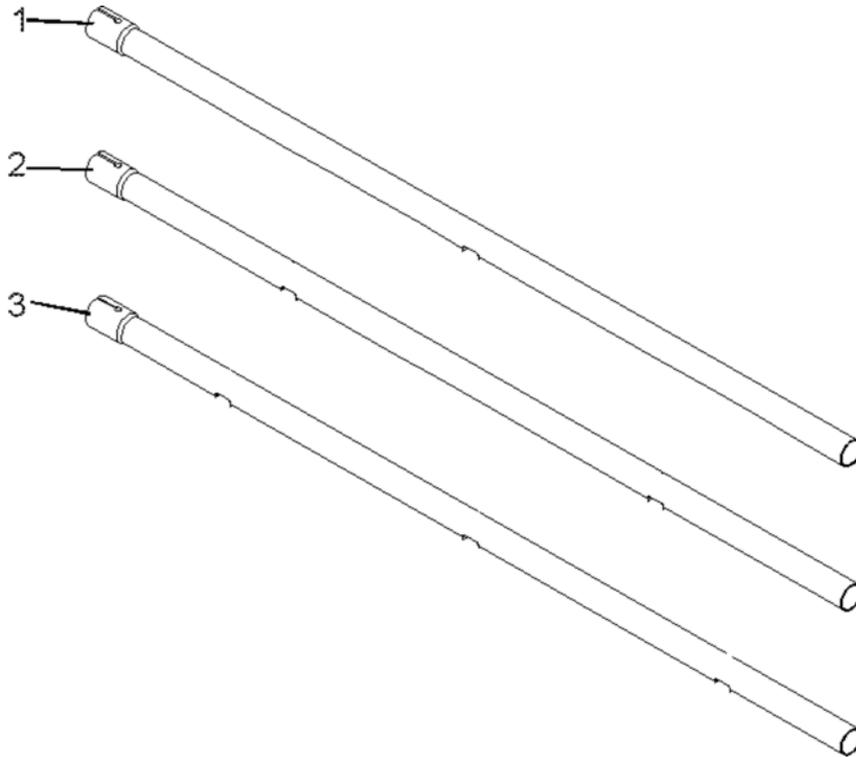
## 9.9 Auger causes an excessive noise

- No feed in feed hopper.  
=> Check silo filling. Repair supply systems, if necessary.

## 10 Spare parts

### 10.1 Conveying tubes

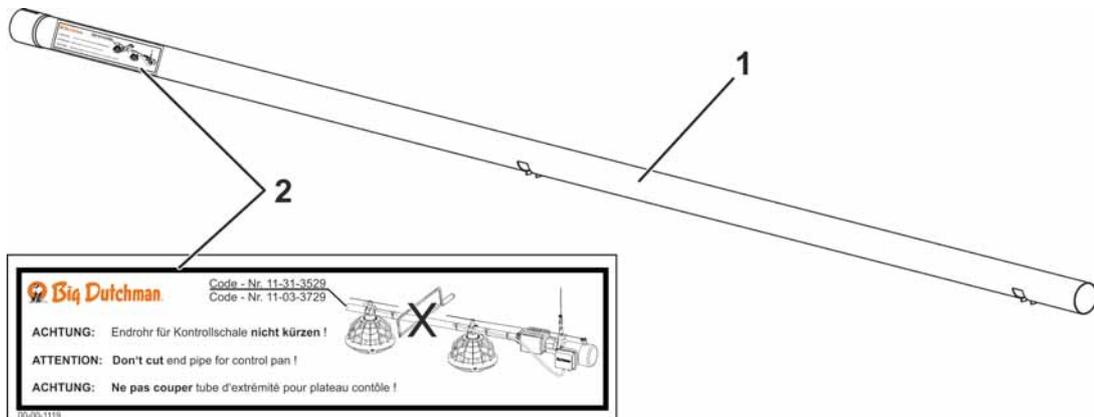
#### 10.1.1 Tubes for feed pans



Pos.	Code no.	Description
1	11-31-3641	Basic unit tube Ø 60.0-3060 1 hole
2	11-31-3642	Basic unit tube Ø 60.0-3060 2 hole
3	11-31-3643	Basic unit tube Ø 60.0-3060 3 hole
	11-31-3640	Basic unit tube Ø 60.0-3060 without hole

## 10.1.2 End tubes

Do not shorten end tubes. Apply the sticker 00-00-1119 to each end tube!



Pos.	Code no.	Description
1	11-31-4499	Basic unit end tube 60.0-1740 1 hole
	11-31-4599	Basic unit end tube 60.0-2490 2 holes
	11-31-4799	Basic unit end tube 60.0-2740 3 holes
2	00-00-1119	Sticker D/GB/F: End tube for control pan

## 10.2 Feed pans

### 10.2.1 Feed pan complete Imperator 60 classic high 11-31-6104 individual parts

Pos.	Code no.	Description	Graphics
1	11-31-6017	Tube adapter orange V14 Imperator	
2	11-31-6016	Grille 4-arm orange V14 Imperator	
3	11-31-6006	Cone transparent MP395/Imperator	
4	11-31-6011	Lock orange for grille Imperator	
5	11-31-6008	Spacer orange +6 mm for cylinder outer MP395/Imperator	
6	11-31-6013	Dish low orange with cone for MP395/Imperator	

## 10.2.2 Feed pan complete Imperator 60 classic low 11-31-6103 individual parts

Pos.	Code no.	Description	Graphics
1	11-31-6017	Tube adapter orange V14 Imperator	
2	11-31-6016	Grille 4-arm orange V14 Imperator	
3	11-31-6006	Cone transparent MP395/Imperator	
4	11-31-6011	Lock orange for grille Imperator	
5	11-31-6008	Spacer orange + 6 mm for cylinder outer MP395/Imperator	
6	11-31-6005	Dish low orange with cone for MP395/Imperator	

### 10.2.3 Feed pan complete Imperator 60 DOS 2000 11-31-6105 individual parts

Pos.	Code no.	Description	Graphics
1	11-31-6017	Tube adapter orange V14 Imperator	<p>The graphics section contains an exploded view diagram of the feed pan assembly. It shows the following components: 1. Tube adapter (orange V14 Imperator) at the top. 2. Grille (4-arm orange V14 Imperator) below the adapter. 3. Cylinder outer (transparent MP395/Imperator) below the grille. 4. Lock (orange for grille Imperator) on the side of the cylinder. 5. Spacer (orange + 6 mm for cylinder outer MP395/Imperator) between the cylinder and the dish. 6. Dish (DOS 2000 orange MP395/Imperator) at the bottom. A large assembled view of the entire unit is shown on the left side of the table.</p>
2	11-31-6016	Grille 4-arm orange V14 Imperator	
3	11-31-6009	Cylinder outer transparent MP395/Imperator	
4	11-31-6011	Lock orange for grille Imperator	
5	11-31-6008	Spacer orange + 6 mm for cylinder outer MP395/Imperator	
6	11-31-6007	Dish DOS 2000 orange MP395/Imperator	

### 10.2.4 Feed pan complete Imperator 60 HY low 11-31-6101 individual parts

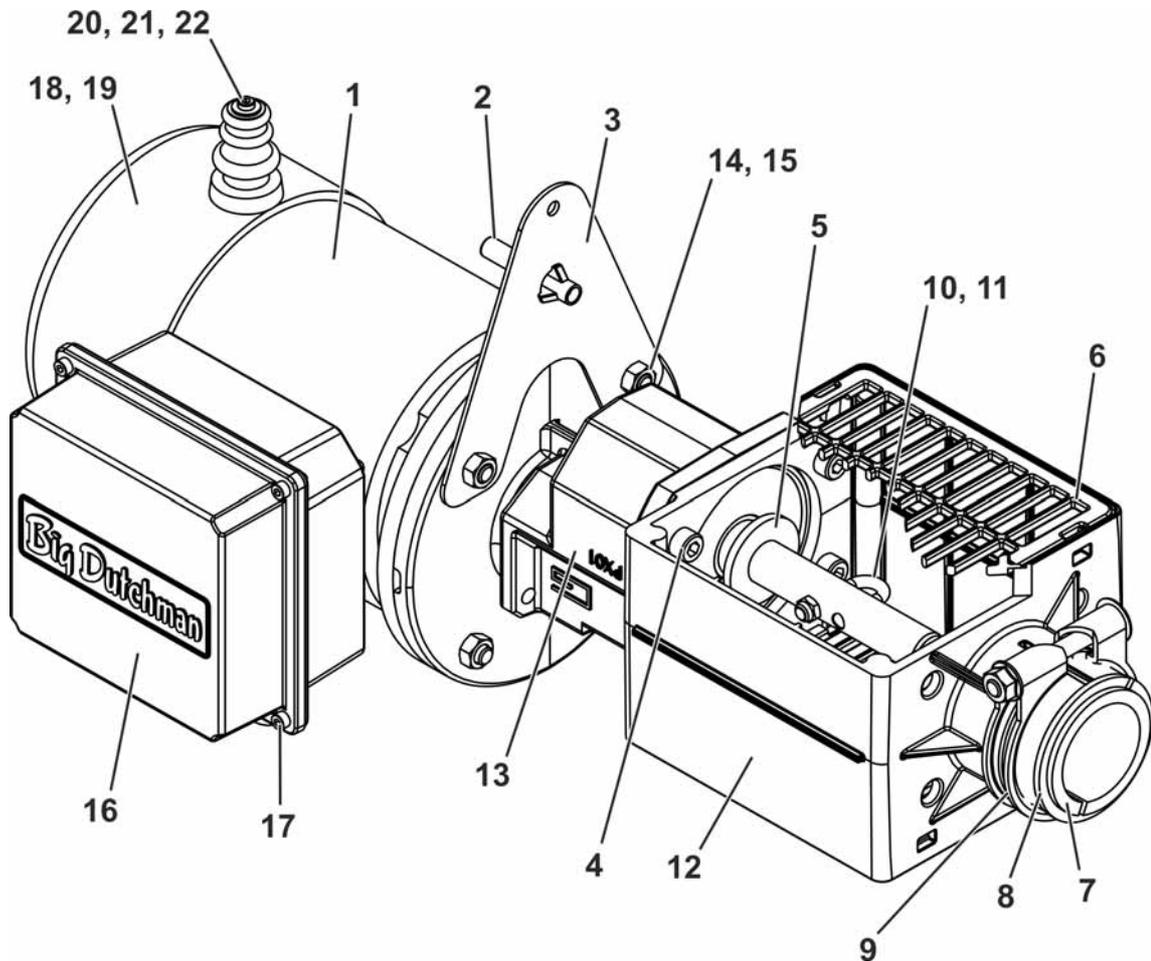
Pos.	Code no.	Description	Graphics
1	11-31-6017	Tube adapter orange V14 Imperator	
2	11-31-6016	Grille 4-arm orange V14 Imperator	
3	11-31-6004	Cone hygiene transparent MP395/Imperator	
4	11-31-6011	Lock orange for grille Imperator	
5	11-31-6008	Spacer orange + 6 mm for cylinder outer MP395/Imperator	
6	11-31-6005	Dish low orange with cone for MP395/Imperator	

**10.2.5 Feed pan complete Imperator 60 DDP 11-31-6106 individual parts**

Pos.	Code no.	Description	Graphics
1	11-31-6017	Tube adapter orange V14 Imperator	
2	11-31-6016	Grille 4-arm orange V14 Imperator	
3	11-31-6009	Cylinder outer transparent MP395/Imperator	
4	11-31-6011	Lock orange for grille Imperator	
5	11-31-6008	Spacer orange + 6 mm for cylinder outer MP395/Imperator	
6	11-31-6012	Dish DDP orange Imperator	

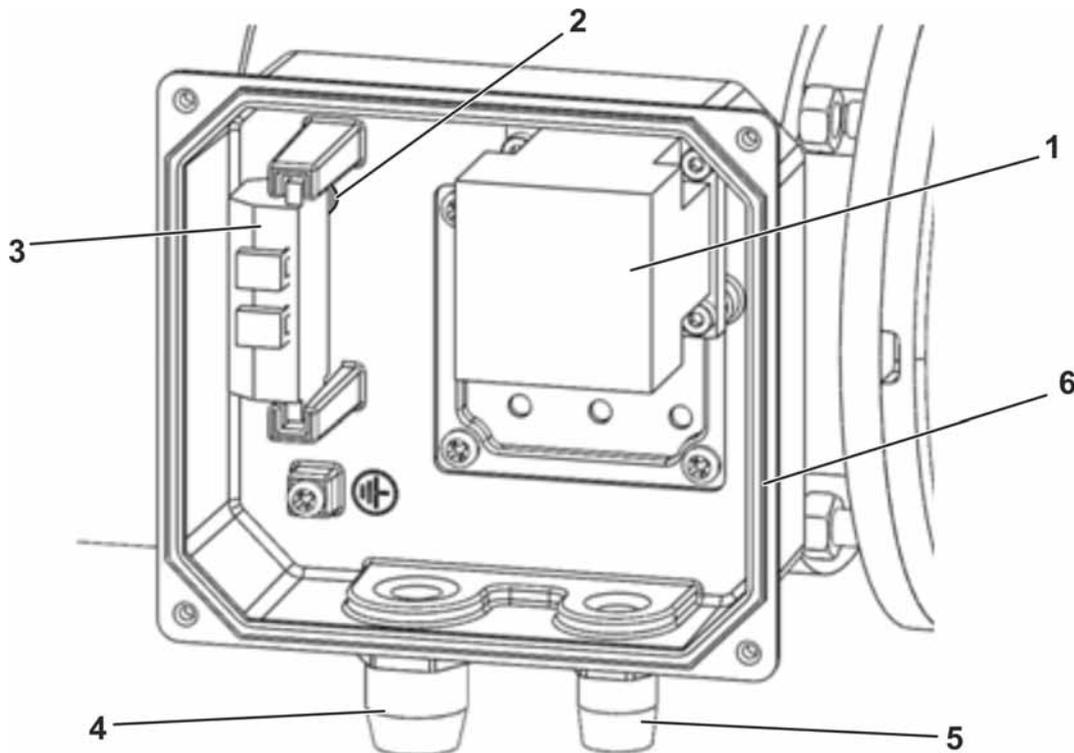
## 10.3 Drive unit AM

### 10.3.1 Drive unit AM6



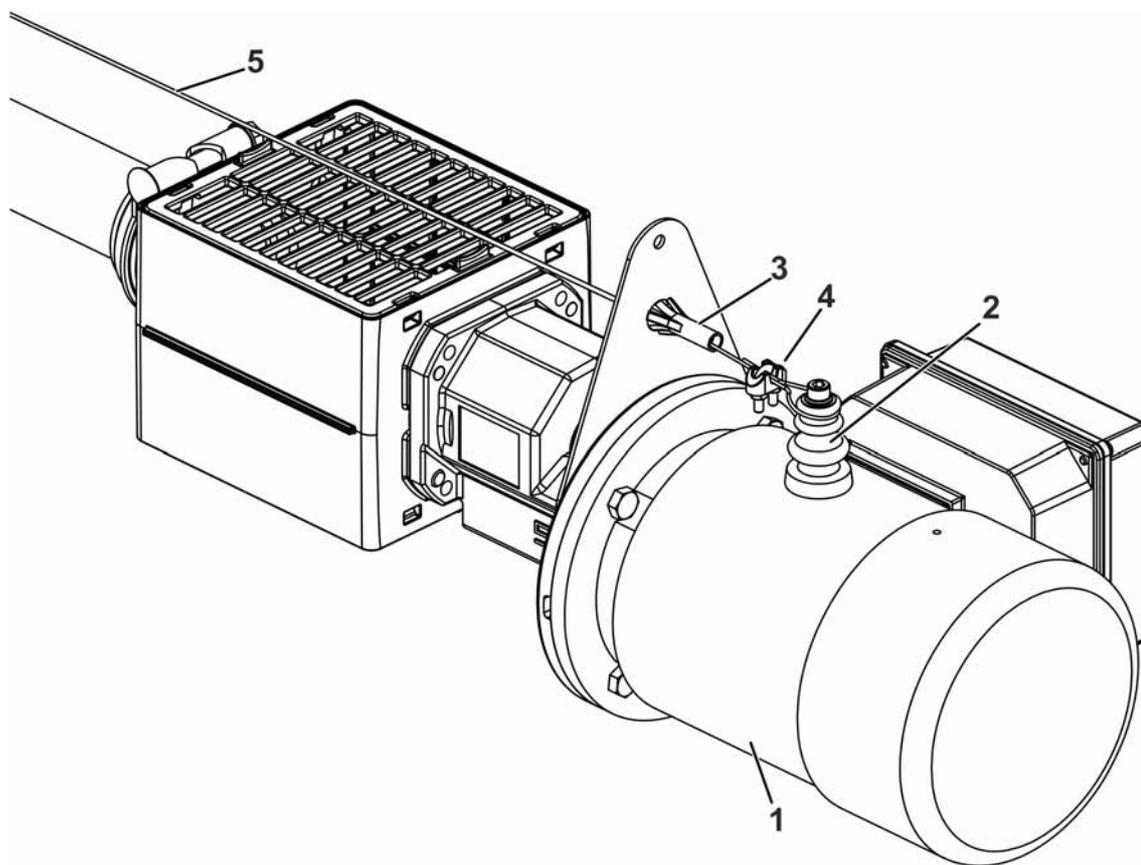
Pos.	Code no.	Description
1	11-31-5050	Motor 0.55kW 230/400V 50Hz 3Ph cplt for AM6 drive
2	39-00-3279	EV/UV insulator
3	83-08-6881	Suspension plate for AM6 drive
4	99-10-1292	Cylinder screw M8 x 20 hex. socket DIN 912-8.8 galv.
5	83-08-4122	Guard plate for drive shaft 19.1x40x4 galv. AM6
6	83-07-9239	Protective grid for console for AM 6 drive
7	83-08-6654	Sleeve 50.8 x 2.9 - 50mm lg for pipe diam. 45mm / AM 6
8	83-08-6655	Sleeve 60 x 4.6 - 50mm lg for pipe diam. 50mm / AM 6
9	11-31-5043	Pipe clamp Norma diam. 64 AM6
10	99-10-3947	Hook bolt galv. M6 x 35 Augermatic
11	99-20-1043	Self-locking nut M6 DIN 985-6 galv.
12	83-07-9237	Console front drive AM6
13	11-31-5042	Transmission 4.31U for motor 50Hz AM6
14	99-10-1058	Hex. bolt M8 x 30 galv. DIN 933 8.8
15	99-10-1040	Hex. nut M8 galv. DIN 934-8

Pos.	Code no.	Description
16	11-31-5041	Cover for terminal box AM6
17	11-31-5036	Bolt M4 x 12 DIN 7500 galv. terminal box AM6
18	11-31-5040	Fan hood PP orange AM6
19	11-31-5038	Fanwheel for motor AM6
20	11-31-3744	Insulator- conical w/o screw (for RPM/Challenger corner)
21	11-31-5035	Bolt hex. socket M4 x 50 galv. DIN 912 AM6
22	11-31-5034	U-washer galv. 4.3x16x1.5 / insulator AM6



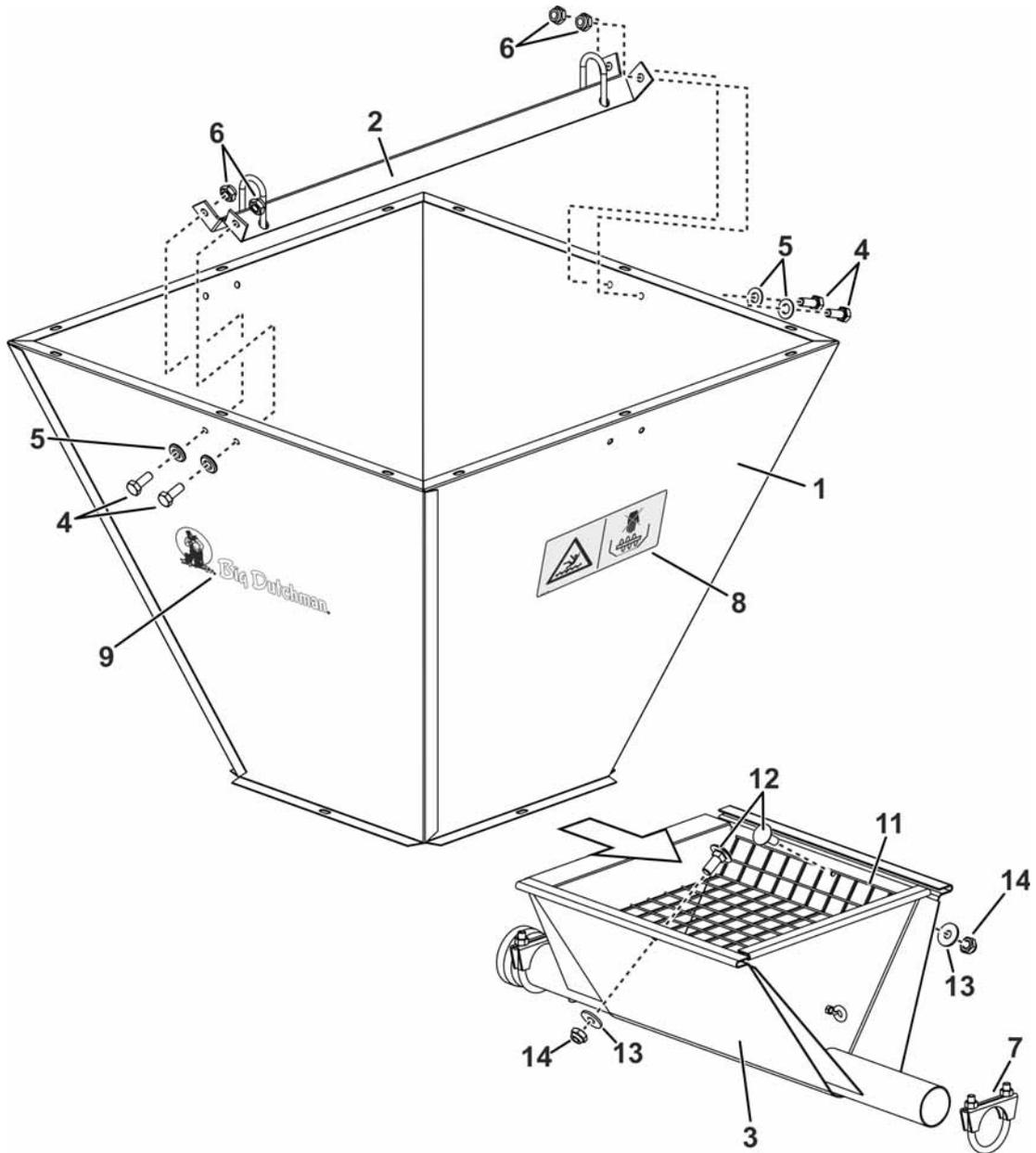
Pos.	Code no.	Description
1	11-31-5031	Mini contactor GE AM6
2	11-31-5039	Fuse PCB radial TRS 1A T for AM6
3	11-31-5030	Terminal rail Wago 260-108 AM6
4	91-00-2442	Threaded connection M20 plastic Schlemmer TEC 7-14mm
5	91-00-2441	Threaded connection M16 plastic Schlemmer TEC 3.5-10mm
6	11-31-5037	Seal ATP329 for terminal box AM6

## 10.3.1.1 Anti-roost wire for drive AM6



Pos.	Code no.	Description
1		Drive AM6
2	11-31-3744	Insulator conical (for corner RPM/Challenger)
3	39-00-3279	Insulator EV/UV
4	99-50-0014	Cable clamp 3mm 1/8" galv DIN 741
5	99-50-1260	Wire rope 2mm galv

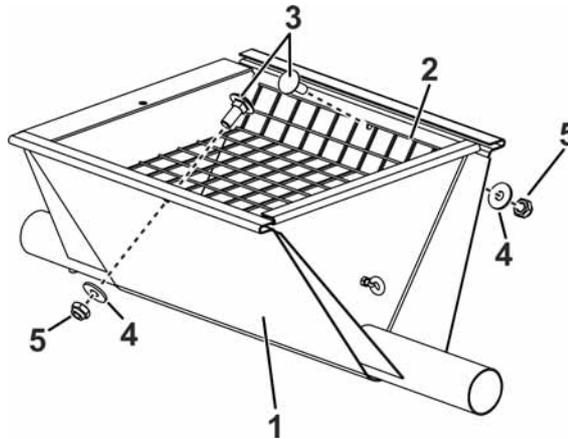
### 10.4 Feed hopper 115 L 1 line complete for tube dia 60



Pos.	Code no.	Description
	<b>83-17-1014</b>	Hopper 115 L 1 line complete for tube dia 60
<b>1</b>	11-31-1316	Upper part for hopper 115 L AM ZnAl (zinc aluminium)
<b>2</b>	11-31-1304	Traverse for suspension hopper AM+BP
<b>3</b>	83-17-1011	Lower part for hopper AM for tube dia 60 V17
<b>4</b>	99-10-1067	Hexagon head screw M 6 x 16 galvanized DIN 933 8.8
<b>5</b>	99-50-1147	Washer B 6.4 DIN 125 galvanized
<b>6</b>	99-20-1043	Self-locking counter nut M 6 DIN 985-6 galv.
<b>7</b>	99-50-1422	U-bolt hot-dip galvanized cpl. 8 x 25/W52/H68.5 pipe 2"
<b>8</b>	00-00-1188	Pictograph: Risk of injury / feed hopper
<b>9</b>	00-00-1173	Type plate: Big Dutchman 210 mm x 64 mm
<b>10</b>	11-31-1315	Wire mesh guard complete for lower part of hopper BP/AM
	consisting of:	
<b>11</b>	11-31-1314	Wire mesh guard for lower part of hopper BP/AM
<b>12</b>	99-10-1602	Mushroom head square neck bolt M 6 x 16 DIN 603 galv.
<b>13</b>	99-10-3953	Washer 6.4 x 30 x 1.5 galvanized
<b>14</b>	99-20-1043	Self-locking counter nut M 6 DIN 985-6 galv.

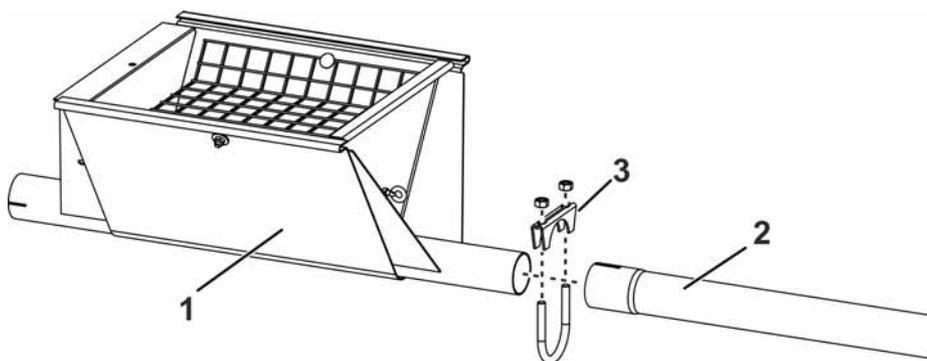
### 10.4.1 Lower part for feed hopper

#### Wire mesh at the lower part for feed hopper



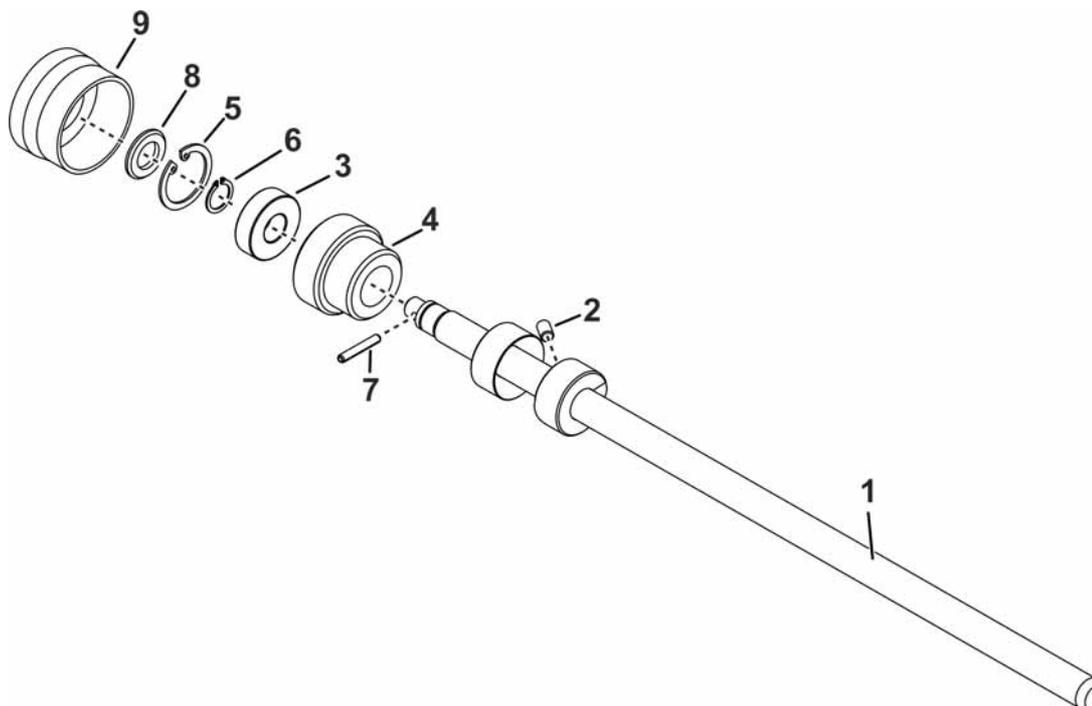
Pos.	Code no.	Description
1	83-17-1011	Lower part for hopper AM for tube dia 60 V17
2	11-31-1314	Wire mesh guard for lower part of hopper BP/AM
3	99-10-1602	Mushroom head square neck bolt M 6 x 16 DIN 603 galv.
4	99-10-3953	Washer 6.4 x 30 x 1.5 galvanized
5	99-20-1043	Self-locking counter nut M 6 DIN 985-6 galv.

#### Lower part for feed hopper at conveying tube



Pos.	Code no.	Description
1	83-17-1011	Lower part for hopper AM for tube dia 60 V17
2		Conveying tube
3	99-50-1422	U-bolt hot-dip galvanized cpl. 8 x 25/W52/H68.5 pipe 2"

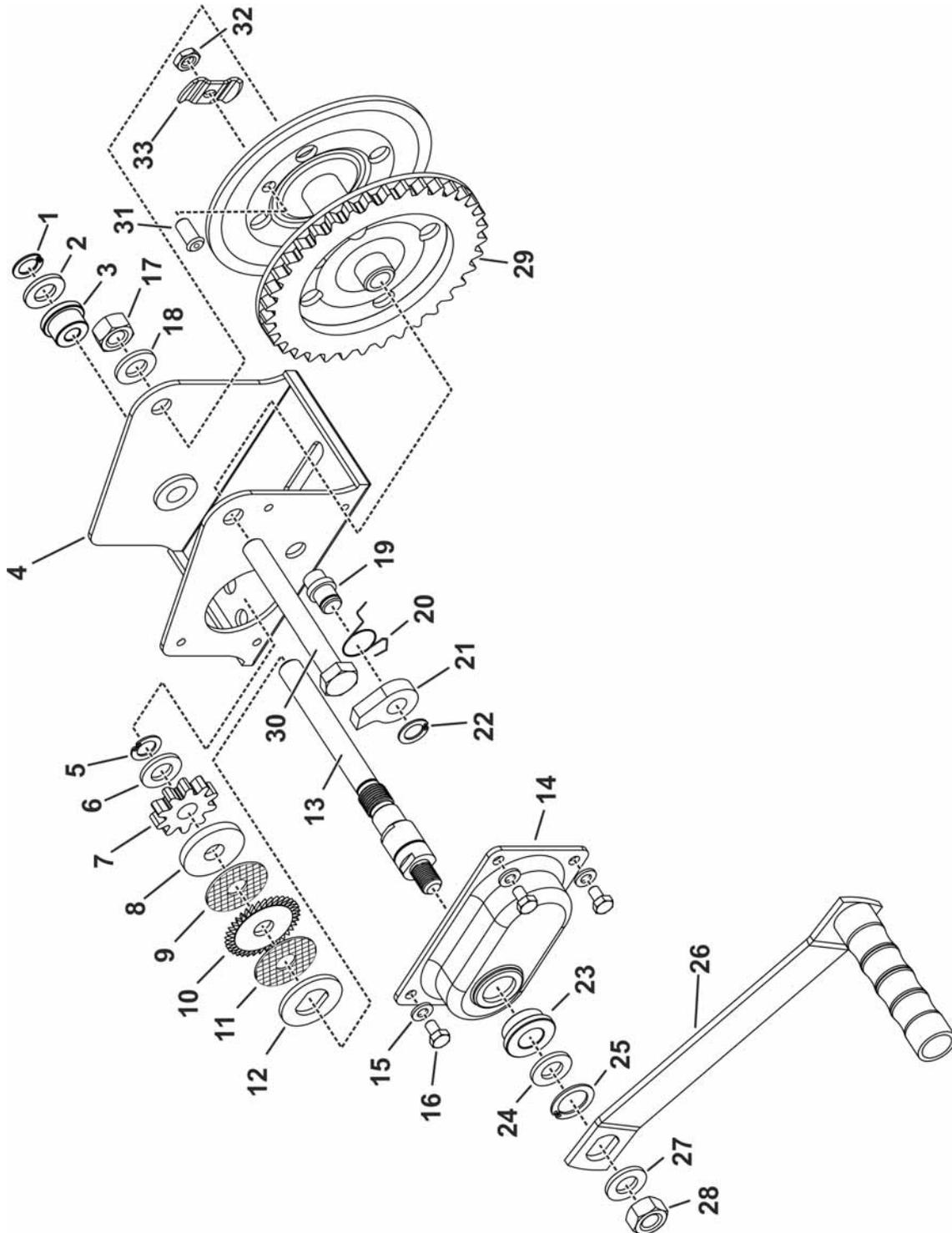
### 10.4.2 Tension shaft complete



Pos.	Code no.	Description
1		Shaft 539 mm for tension shaft with lock ring and guide cone
2		Hex socket set screw 5 x 8 DIN 913 hexagon socket / cup point
3	11-00-1052	Ball bearing S6203-RS
4		Bearing housing for tension shaft complete 19 mm AM
5	99-50-1301	Retaining ring DIN 472 40 x 1.75
6	99-50-1300	Retaining ring DIN 471 17 x 1.00
7	99-50-1286	Spring type straight pin DIN 1481 - 5 x 30
8	99-20-1081	Washer B 17 DIN 125 galvanized
9	83-09-2274	Cap rubber for Augermatic AM tension shaft

### 10.5 Cable winch 350 kg GS for wall mounting incl. hand crank (99-50-3099)

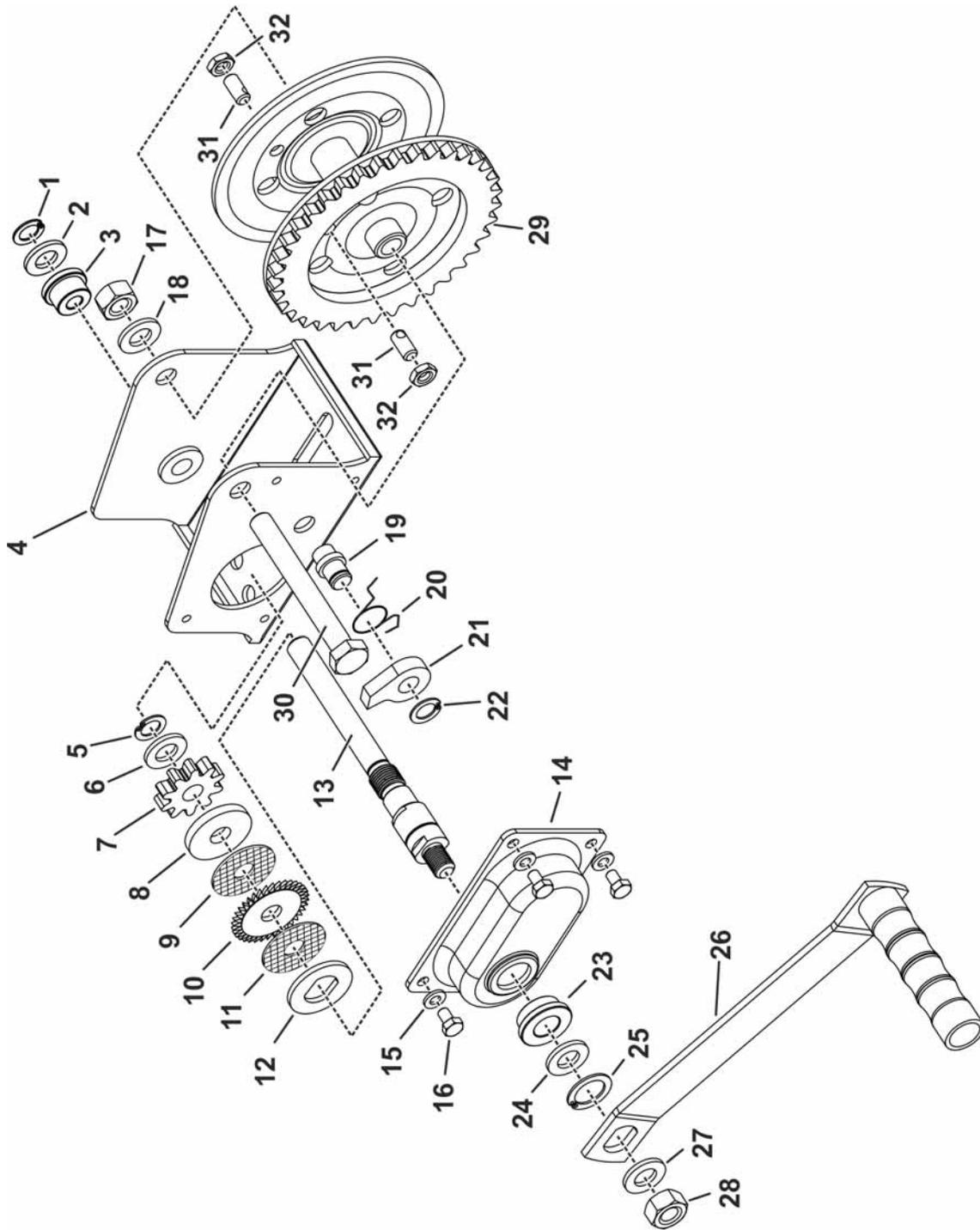
If one cable is used:



Position numbers: see following page

Pos.	Qty.	Code no.	Description
1			Retaining ring
2			Washer
3			Bearing bush
4			Bracket
5			Retaining ring
6			Washer
7			Drive toothed wheel
8			Spacer
9			Brake disc
10			Ratchet wheel
11			Brake disc
12			Spacer
13			Shaft
14			Protective cover
15			Lock washer
16			Hex screw
17			Hex bolt
18			Washer
19			Plain bearing bush
20			Spring for locking pawl
21			Locking pawl
22			Retaining ring
23			Bearing bush
24			Washer
25			Retaining ring
26			Hand crank
27			Washer
28			Nut
29			Cable reel
30			Hex screw
31			Allen key screw
32			Nut
33			Cable clamp

If two cables are used:



Position numbers: see following page

Pos.	Qty.	Code no.	Description
1			Retaining ring
2			Washer
3			Bearing bush
4			Bracket
5			Retaining ring
6			Washer
7			Drive toothed wheel
8			Spacer
9			Brake disc
10			Ratchet wheel
11			Brake disc
12			Spacer
13			Shaft
14			Protective cover
15			Lock washer
16			Hex screw
17			Hex bolt
18			Washer
19			Plain bearing bush
20			Spring for locking pawl
21			Locking pawl
22			Retaining ring
23			Bearing bush
24			Washer
25			Retaining ring
26			Hand crank
27			Washer
28			Nut
29			Cable reel
30			Hex screw
31			Cable screw
32			Thin nut

### 10.6 Feeders [single parts]

#### 10.6.1 Feeder 30 ltr Empa 2 (20-00-3930)

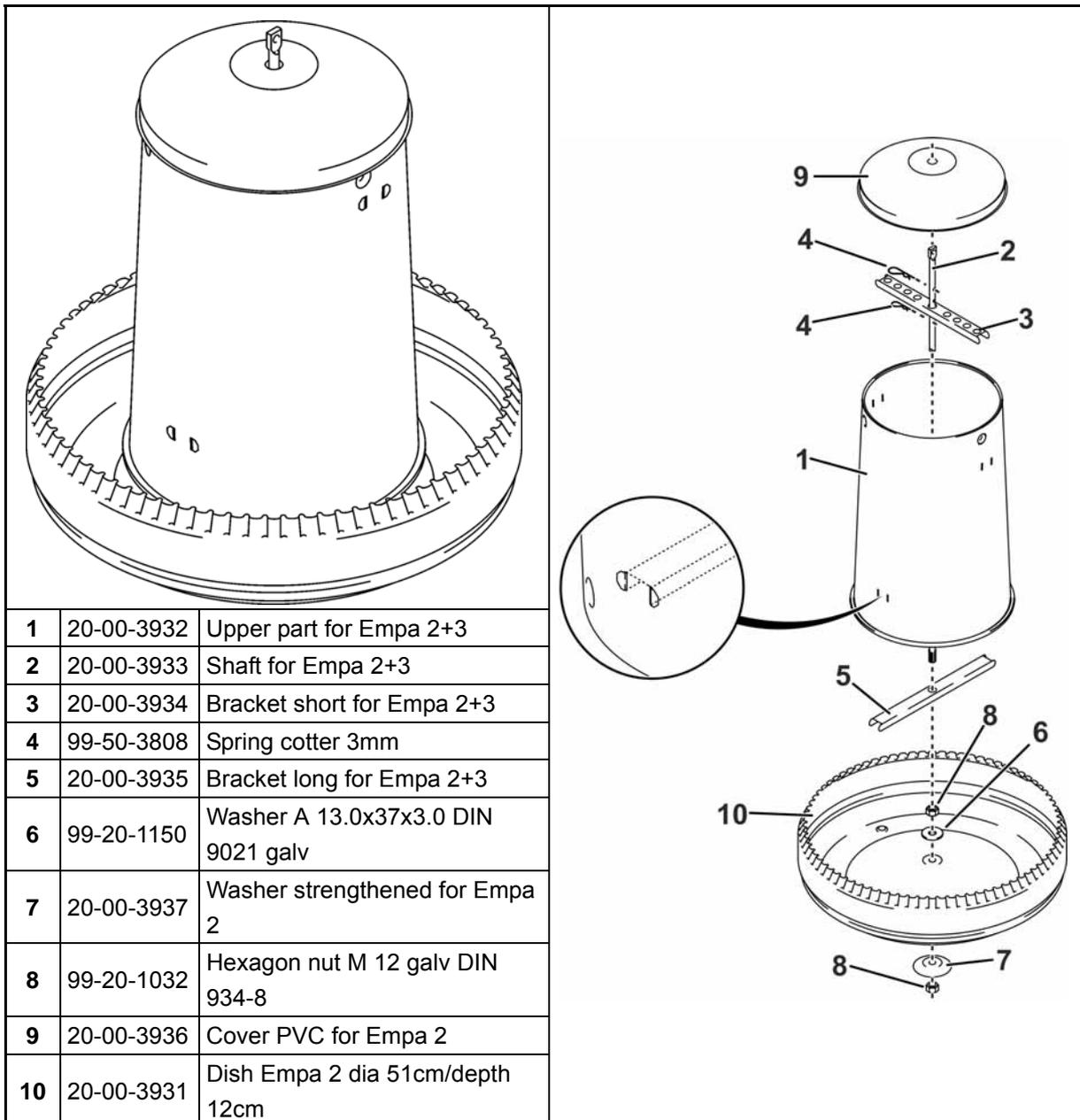


Figure 10-1: Feeder 30ltr Empa 2 (20-00-3930)

## 10.6.2 Feeder 30ltr Empa 4 (20-00-3950)

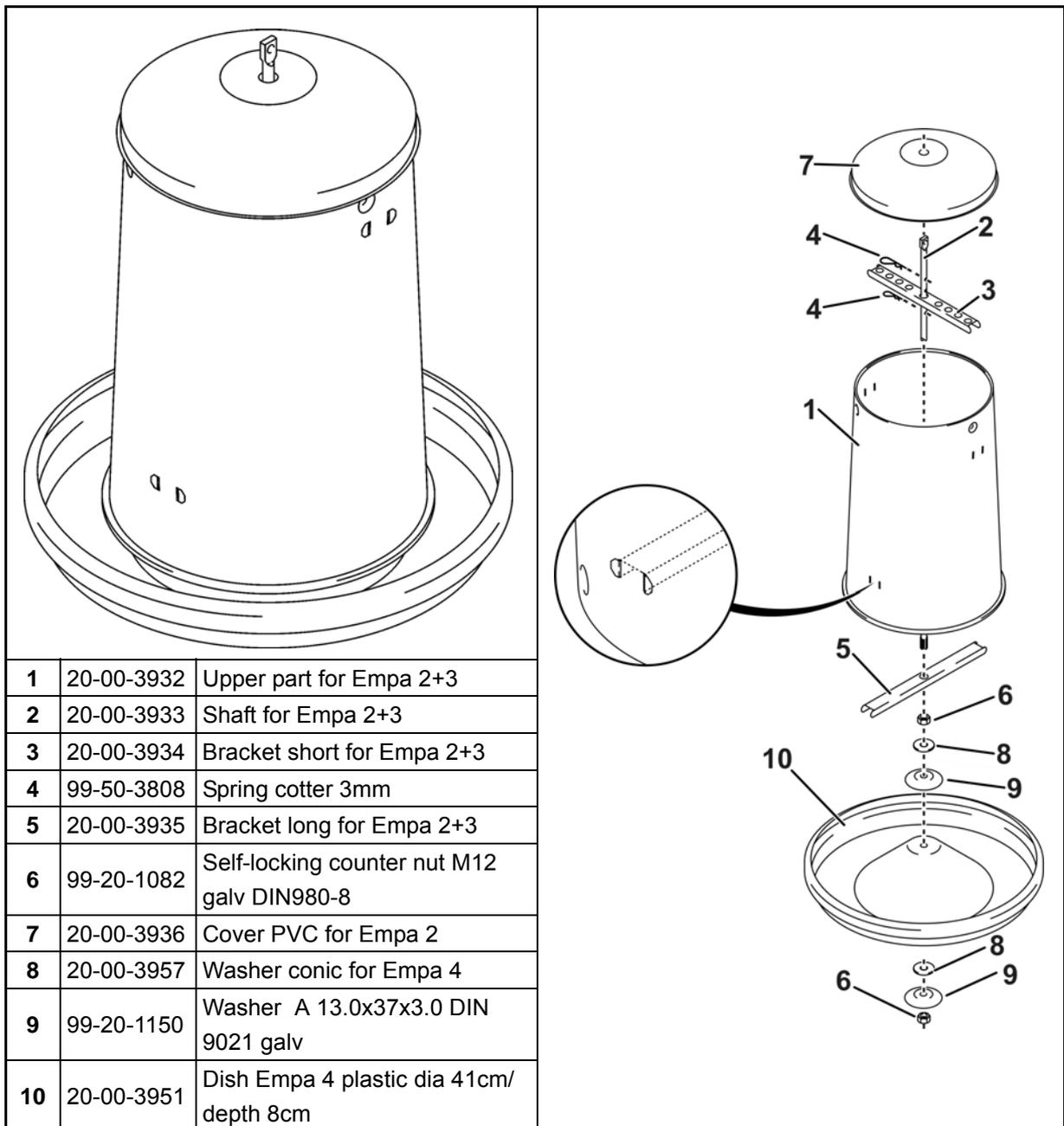


Figure 10-2: Feeder 30 ltr Empa 4 (20-00-3950)

### 10.6.3 Feeder 12 ltr Picorett (11-31-3080)

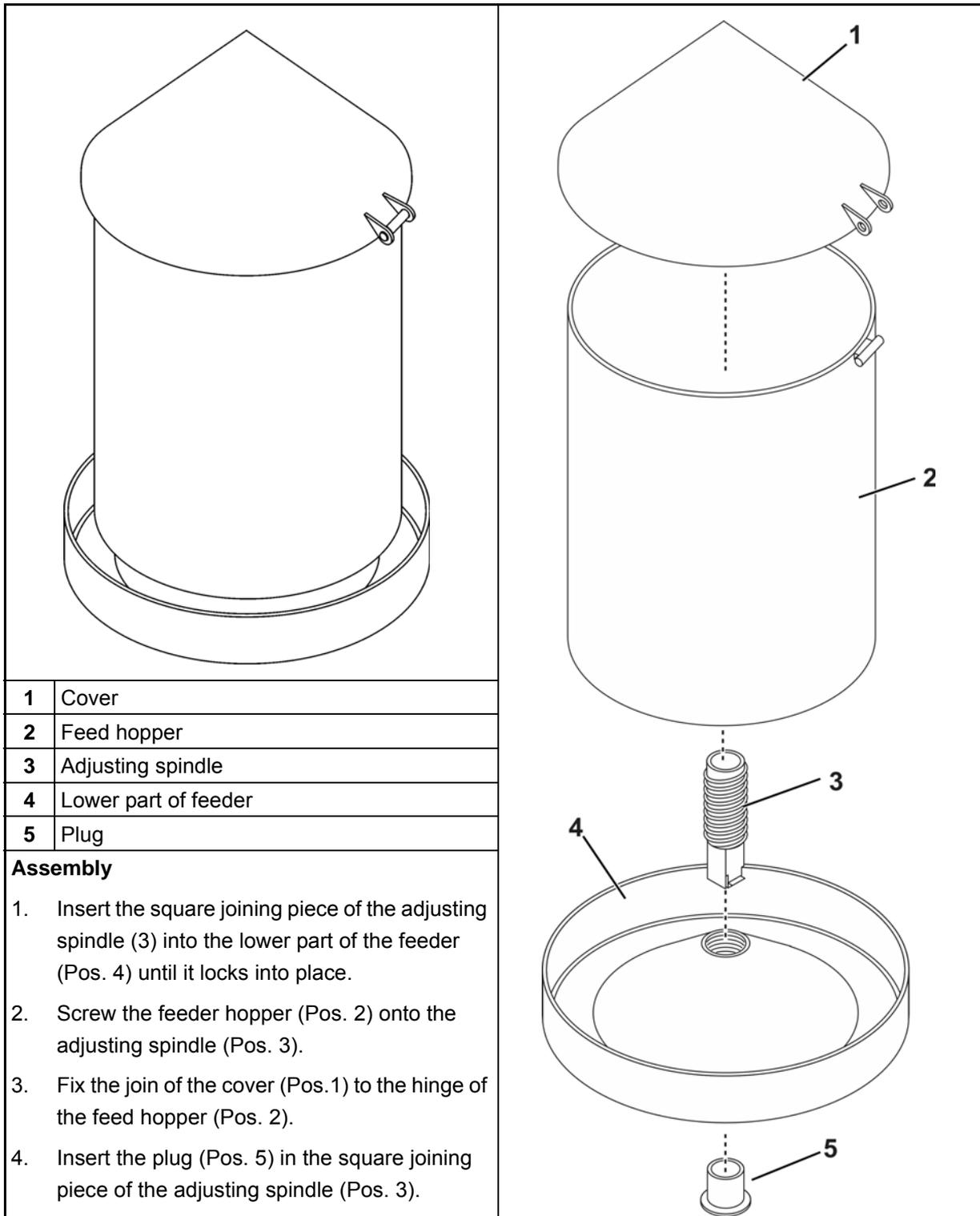


Figure 10-3: Feeder 12 ltr Picorett (11-31-3080)

## 11 Glossary

**Ad libitum feeding:**

describes a feeding at which the birds can dispose freely of the respective feed portions at any time, i.e. the feed is not portioned.

**American Wire Gauge:**

(abbreviation AWG) describes a coding for wire diameters and is mainly used in North America. It characterizes electric lines from cords and solid wire and is particularly used in the electrical engineering for the designation of the wire cross section.

**Designated use:**

is the correct use of product in accordance with its intended purpose.

**Rated current:**

designates the current of a protective switch specified by the manufacturer of an electric device for a given operating condition.

**Disinfection (hygiene):**

is the targeted partial reduction of the germ number, especially on surfaces (decrease in germ number).

**Final growing period:**

designates the last growing period during which the bird achieves the final (slaughter) weight due to targeted feeding.

**Incorrect use:**

is improper use of a product, not in accordance with its intended purpose.

**Rated quantity (for thimble DIN 6899):**

(abbreviation NG) designates the largest possible rope diameter which may be used for this thimble.

**Running meter:**

(abbreviation: r.m.) is a measuring unit which is used to measure goods which can be purchased as merchandise, yard goods or roll goods and which dispose of an even cross section, or length indications for invariant elements independent of their other measures.

**Live weight:**

(abbreviation l.w.) designates the weight of a living, not fed or watered production animal or animal for slaughter.

**Restrictive feeding:**

designates a feeding method with which only so much feed is given as can actually be eaten by the animals.

**Groove width (for thimble DIN 6899):**

(abbreviation g.w.) designates the width of the groove in which the rope runs on the thimble resp. in which it lies.

**Protection class:**

designates the suitability for different environmental conditions. The abbreviation IP is for *International Protection*. The first code digit of the IP-code is for the protection against foreign substances, the second digit stands for the protection against water. The higher the number, the higher the existing protection.

**State of the art:**

represents the technical possibilities at a certain point in time, based on validated scientific and technical knowledge.

**Thermic:**

(from Greek "thermos" = warm) designates figures, procedures, materials, processes, theories, etc. which are connected with the noticeable exchange of heat or its effect influence or which significantly influence temperature differences, isolation, hot gases and the corresponding calculations or modelling.

**Preparatory fattening:**

designates a weight section during the phase feeding, from the time when the birds are housed in until they have achieved a certain weight. During this time, the birds grow quickly and do not become fat so soon since they get certain feed during this fattening period.



## 12 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 \_\_\_\_\_



Check the following **every day** before the lights are switched on in your house:

Key points	Result	Remarks
<input type="checkbox"/> functioning of the feed lines => monitoring of feed consumption can provide valuable information for bird management		
<input type="checkbox"/> house climate => ventilation, house temperature		
physique and behaviour of the birds: => selection of birds and daily documentation of your selection and losses		
<input type="checkbox"/> bird distribution		
<input type="checkbox"/> birds' health		
<input type="checkbox"/> mortality		
<input type="checkbox"/> manure composition		





The following should be controlled and documented **daily during operation**:

Key points	Result	Remarks
<input type="checkbox"/> optimum height adjustment of the feed pans => rule-of-thumb: Height of the birds' backs = height of pan rim / Make sure that the cable winch is used correctly		
<input type="checkbox"/> proper and safe functioning of the cable winch		
<input type="checkbox"/> functioning of the conveying auger => e.g. noise development or warm places at the conveying tube		
<input type="checkbox"/> bird weight => achieve the desired bird weight for day seven by adjusting humidity and temperature, if necessary		
<input type="checkbox"/> birds' behaviour => in order to judge the climate conditions		
<input type="checkbox"/> air humidity during the first three days => try to maintain this at 60 - 70% and later at more than 50%		
<input type="checkbox"/> temperature, if this exceeds 70% => if necessary, reduce the temperature and monitor the birds' behaviour		
<input type="checkbox"/> temperature and minimum ventilation => to stimulate the birds' activity and appetite		





The following should be controlled and documented **daily during operation**:



Key points	Result	Remarks
<input type="checkbox"/> correct feed level adjustment of the feed pans		
<input type="checkbox"/> whether the protective grille is correctly fixed in the feed hopper		

Control and document **at each batch**:



Key points	Result	Remarks
<input type="checkbox"/> heat the house before moving the birds in until a temperature of 30°C is reached at the bird level => The correct moving-in temperature is the most important factor and significantly influences the fattening process!		
<input type="checkbox"/> make sure that the walls are sufficiently heated before bringing the litter in		
<input type="checkbox"/> are the conveying tubes aligned exactly horizontally		
<input type="checkbox"/> is the sensor correctly placed in the control pan and does it function properly?		
<input type="checkbox"/> are the feed pans tightly closed?		





Control and document **at each batch**:

Key points	Result	Remarks
<input type="checkbox"/> start the production computer 2 - 3 days before moving the birds in		
<input type="checkbox"/> fill feed line shortly before moving birds in => so that the birds can immediately start eating		
<input type="checkbox"/> the feed pans should be flooded for the first days to facilitate feed intake (manual or automatic flooding device)		
<input type="checkbox"/> during the first hours and days after moving the birds in, make sure that all birds have found feed and water		
<input type="checkbox"/> on the first morning after moving the birds in, check if their crops are filled with feed and water => The crops of birds which have taken in feed and water are full, soft and rounded. If the crop is filled and hard, the bird ate but did not drink. 95 to 100 % of crops should be filled 24 hours after moving-in.		
<input type="checkbox"/> shorten the dark phases 3 days before the birds are moved out		
<input type="checkbox"/> shut off the feed supply 10 to 12 hours before the birds are moved out		





	Control and document <b>at each batch</b> :
---	---

Key points	Result	Remarks
<input type="checkbox"/> clean the house and the equipment thoroughly after the moving-out procedure		
<input type="checkbox"/> in case of thermal disinfection, a temperature 60°C must not be exceeded		
<input type="checkbox"/> make sure that the system is refilled only one week after a wet cleaning => to prevent residual moisture in the conveying tubes		
<input type="checkbox"/> make sure that the cleaning water is drained off completely of the feed hopper		