

User Manual

Augermatic - Gladiator

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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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Place

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Signature

Overview of changes / updates in the manual

Chapter name	Type of change / update	Product information / Editor's initials	Issue date	Page
all chapters	Contents updated	SSa	02/ 2018	misc.
	Complete revision and addition	RSi	04/2014	
All chapters	Complete revision and addition	MRe	10/2013	

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1 Checklist key points summary1

1 Basic instructions

	<p>Important:</p> <p>Please take care of these documents and keep them close to the system at all times for quick reference.</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 Big Dutchman.</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 Designated use

The **Big Dutchman** Augermatic Gladiator is designed for feeding turkeys in all weight classes. The feed must be dry (TS > 84%) and free flowing.

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.

1.3 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!


1.4 Explanation of the symbols and structure of these instructions

1.4.1 Structure of the safety instructions in this manual

Basic structure:


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


Meaning of the signal words:


Pictograph	Signal word	Meaning	Consequences of non-compliance
Possible personal injuries:			
possible safety symbols: see chapter 1.4.3	DANGER	directly dangerous situation	Will lead to death or severe injuries.
	WARNING	possibly dangerous situation	May lead to death or severe injuries.
	CAUTION	possibly dangerous situation	May lead to minor injuries.
Possible damage to property:			
	CAUTION		May lead to damage to property


1.4.2 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 1.4.1) and on the system.


	Safety symbols and instructions on the system must always be easily visible and undamaged.
CAUTION	<ul style="list-style-type: none"> • If they are soiled by dust, manure, feed remains, oil or grease, clean them with a water-detergent mixture. • Damaged, lost, or unreadable safety symbols have to be replaced immediately. • If a safety symbol or instruction is fixed to a part to be replaced, ensure that it will be fixed to the new part as well.

	Warning: general danger
---	-------------------------

	Warning: dangerous electric tension
--	-------------------------------------


	Warning: danger of entanglement due to auger
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1.4.3 Structure of the general instructions in the manual

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

1.5.1 Employing external personnel

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

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

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

1.5.2 Operation of the system

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

1.5.3 Maintenance and repairs


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

1.5.4 Electrical installation

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

1.6 Ordering 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.

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

Indicate the following when ordering spare parts:

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

1.7 Obligations

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

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

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

1.8 Warranty and liability

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

- non-designated use of the system;
- improper operation of the system;

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

1.9 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).

1.10 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!

1.11 Pollution abatement regulations

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

Special care has to be taken when carrying out installation, repair and maintenance works, as water pollutants like lubricating grease and oils, as well as solvent-containing cleaning solutions 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!

1.12 Waste disposal

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

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

1.13 Notes for use

In the 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.)

1.14 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.

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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

	Risk of injury
	<p>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.</p> <ul style="list-style-type: none"> • 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.
WARNING	

The respective safety precautions and other generally accepted regulations regarding safety and operational health have to be observed.

Please check safety and function control devices to ensure safe and accurate operation

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

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

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


2.3 Personal safety instructions

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


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

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

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



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

2.4 Personal protective equipment and measures


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

2.5 Use of electrical appliances

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

 	Risk of injury and danger to life
	<p>Dangerous electric tension may be bare in the case of open control units and may cause severe injuries or lead to death!</p> <ul style="list-style-type: none"> • Be aware of the danger and keep workers of other professions away from the danger zone. • Installations and works on electric components/building units may only be carried out by qualified persons according to electro-technical regulations (e.g. EN 60204, DIN VDE 0100/0113/0160).
WARNING	

- 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.


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

- 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.

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

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


 CAUTION	Safety symbols and instructions on the system must always be easily visible and undamaged.
	<ul style="list-style-type: none"> • If they are soiled by dust, manure, feed remains, oil or grease, clean them with a water-detergent mixture. • Damaged, lost, or unreadable safety symbols have to be replaced immediately. • If a safety symbol or instruction is fixed to a part to be replaced, ensure that it will be fixed to the new part as well.

2.6.2 Entire system

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


Ensure that the system is switched off before performing any 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.


	Risk of injury
	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.
WARNING	<p>Lack of knowledge about the structural design of the system can lead to injury.</p> <p>Party lying about in or on the components can lead to serious damage of the system.</p> <ul style="list-style-type: none"> • Never deposit objects (e.g. spare parts, replaced parts, tools, cleaning tools etc.) in the accessible areas of the system or in the surrounding areas have having carried out works on the system! • Make yourself familiar with the design and construction of the system under sufficient lighting! If this is not possible, inform yourself about any remaining dangers in connection with this system! • Before restarting the system, assure yourself that all loose or replaced parts have been removed from the system components! • The device may only be put into operation after all protective systems have been put into place again and are functioning.

2.6.3 Individual components



2.6.3.1 Auger

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

2.6.3.2 Electrical components

	Risk of electric shocks and short circuits
	<p>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.</p> <ul style="list-style-type: none"> • Before performing any repair or maintenance work, turn the main switch to "OFF" and display a sign warning that repair or maintenance work is in progress! • Never touch bare electrical components. Equipment with bare electrical components must not be used by the farm staff.
WARNING	

2.7 Safety contrivances


 	Risk of injury and danger of life
	<p>Defective or disassembled safety contrivances may cause severe injuries or lead to death!</p> <ul style="list-style-type: none"> • It is strictly forbidden to remove or put out of operation any safety contrivance. • Should the safety contrivances be damaged, the system has to be put out of operation immediately. The main switch must be locked in neutral position and any damage must be eliminated. • Before putting the system into operation again, make sure that all safety contrivances are assembled correctly and are functioning after works on the system have been carried out.
WARNING	

2.8 Dangers resulting from non-compliance with the safety instructions

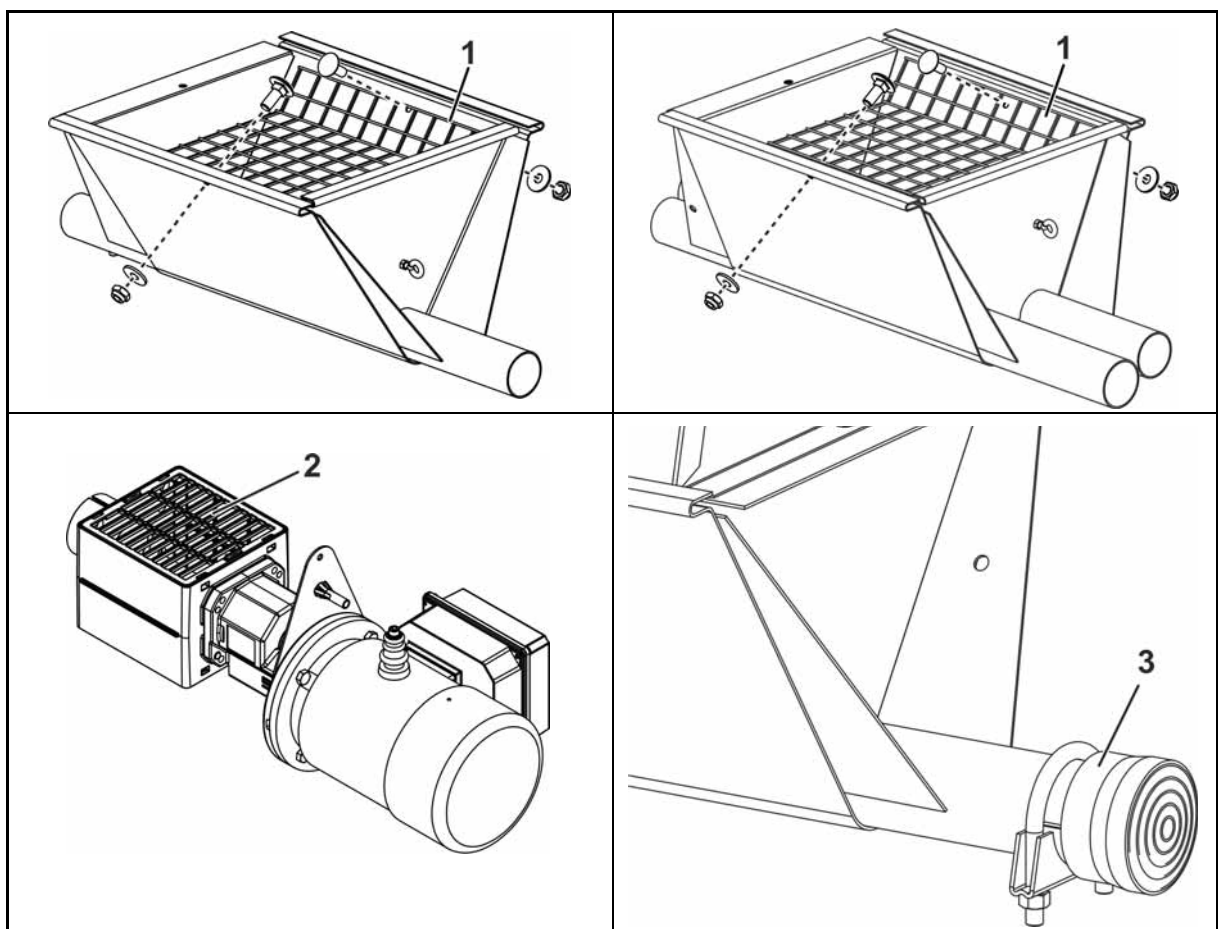
Non-observance of these instructions can cause severe danger for personal life and health or can lead to material or environmental damages and to the forfeiture of any claim for damages. The non-observance of these instructions can specifically lead to:

- 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

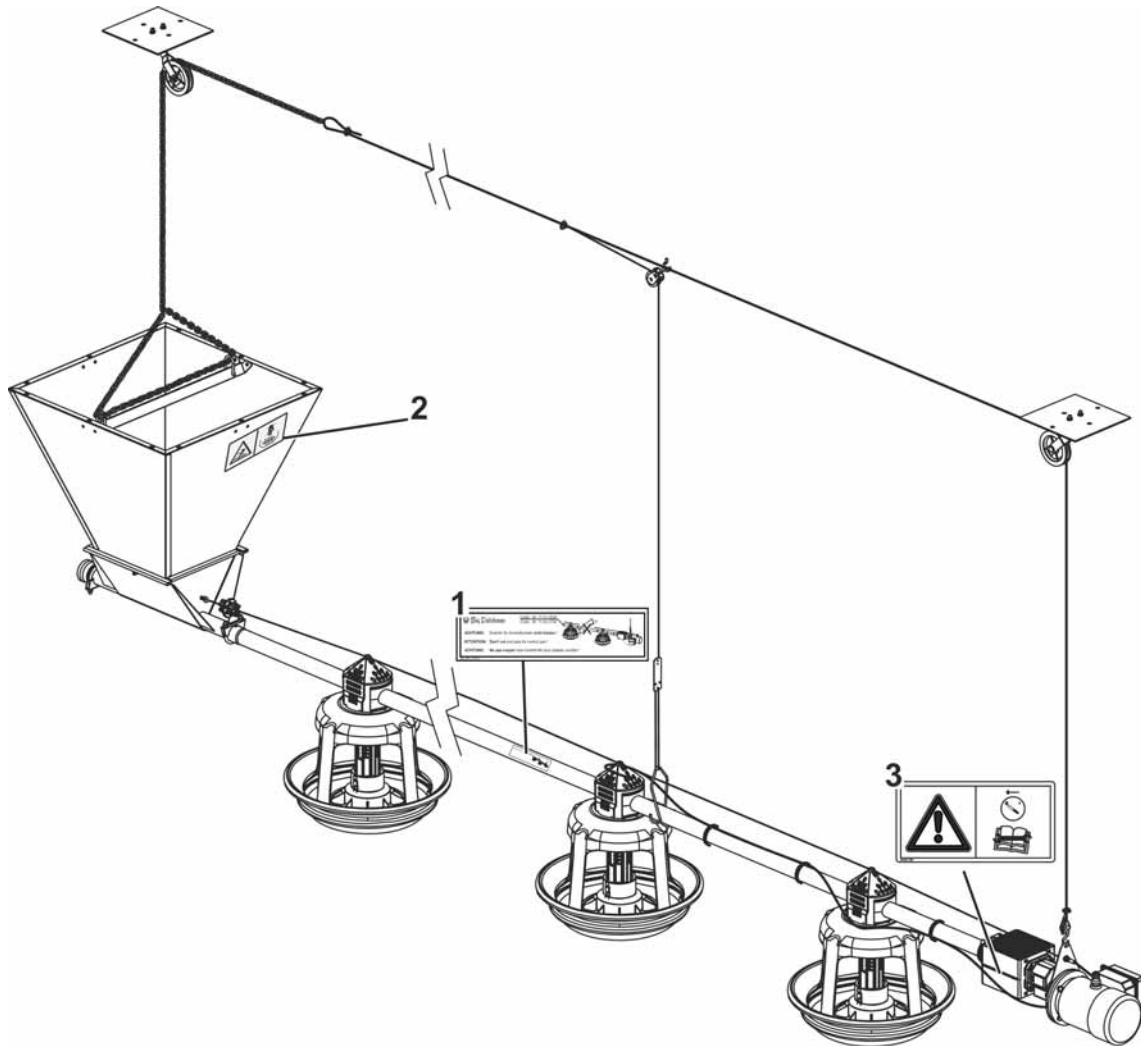
	<p>The system described in this manual may only be operated if the listed safety component parts have been mounted and installed correctly and have been checked for correct functioning!</p> <p>If safety component parts are missing or defective, the original part must be ordered from Big Dutchman and replaced immediately!</p>
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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



Big Dutchman.

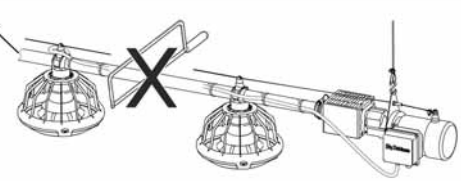
ACHTUNG: Endrohr für Kontrollschale **nicht kürzen!**

ATTENTION: Don't cut end pipe for control pan!

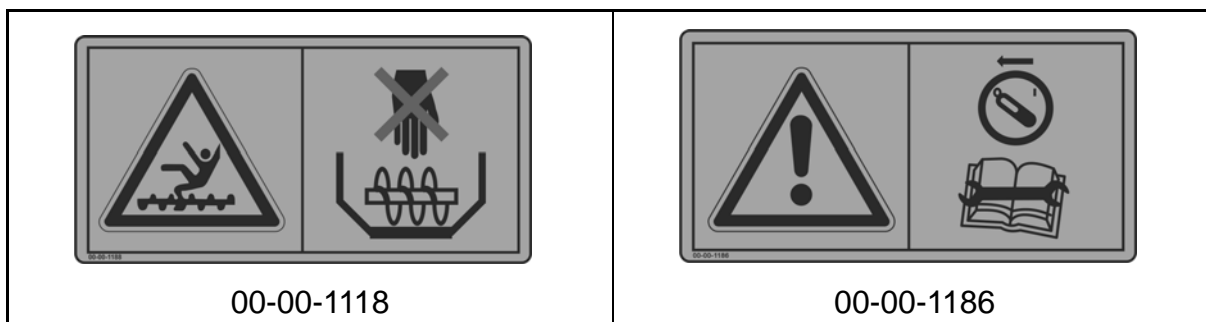
ATTENTION: Ne pas couper tube d'extrémité pour plateau contrôle!

00-00-1119

Code - Nr. 11-31-3529
Code - Nr. 11-03-3729



00-00-1119

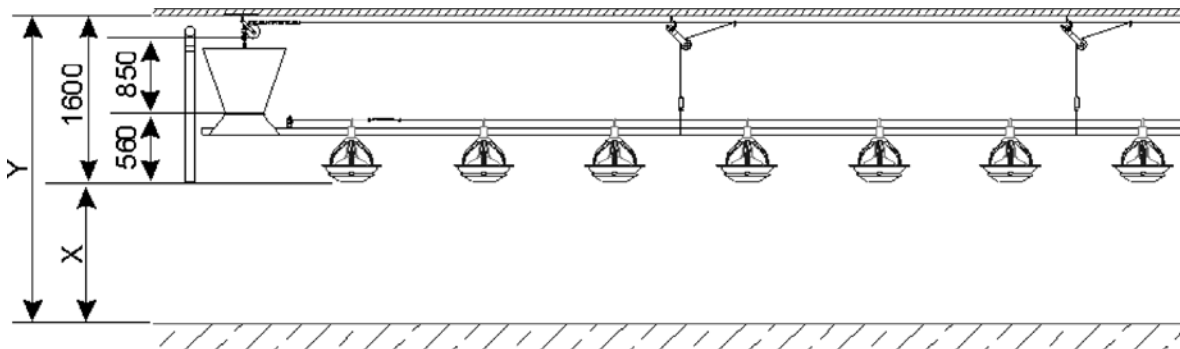


Pos.	Code no.	Description
1	00-00-1119	Sticker D/GB/F: End pipe for control pan
2	00-00-1188	Pictograph: Risk of injury / hopper
3	00-00-1186	Pictograph: Before maintenance work main switch "OFF"

3 System description

The **Big Dutchman Augermatic Gladiator** with its different feed pans is a special pan feeding system meeting the requirements of day-old chicks as well as grown poultry as e.g. turkeys and perhaps broilers.

3.1 Passage height with raised feeding system



All dimensions in mm

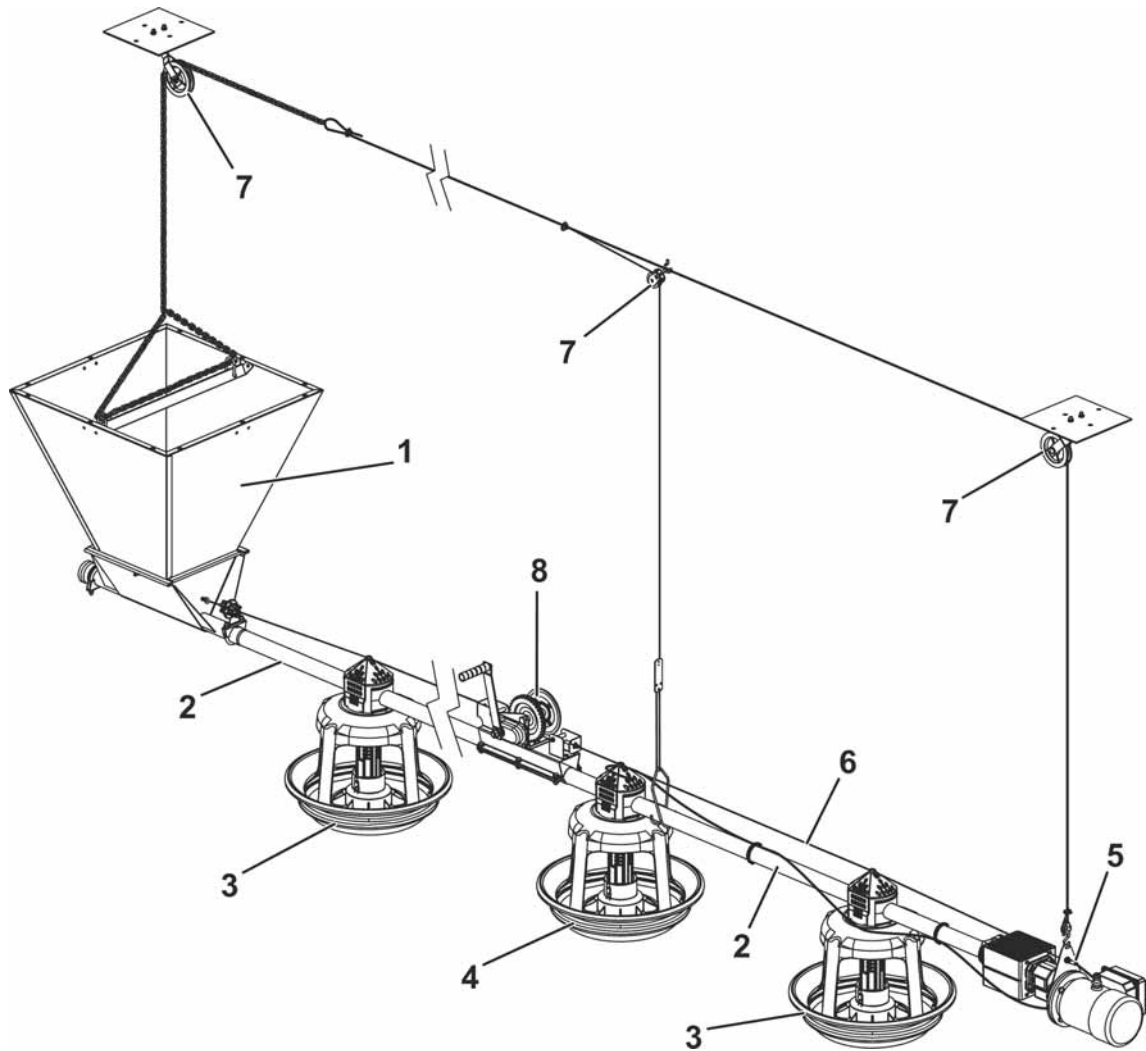
The dimension 1600 is an approximate value and depends on the hook length.

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)!

3.2 Overview



Pos.	Description	Pos.	Description
1	Feed hopper	5	AM drive
2	AM pipe	6	Anti-perching wire
3	Feed bowl	7	Mounting
4	Feed bowl with sensor	8	Flood device (option)

3.3 Technical data

3.3.1 Technical data of the conveying system

Feed machine with feed hopper	content approx. 115 l / 75 kg
Extension for feed hopper	content approx. 48 l / 30 kg
Drive unit with gear motor	0.55kW, 230/400V, 50 Hz, 3 phases, 325 rpm
Feed tube with 1, 2, 3 holes	diam. 45 mm, 50.8 mm or 60 mm
Conveying capacity	approx.. 450 kg/h or 600 kg/h
Size of pellets	up to 4 mm

Bowl type:	for rearing with cone	for rearing	for fattening
Material	polypropylene, recyclable		
Rim height	82 mm	90 mm	134 mm
Bowl diameter	395 mm	395 mm	470 mm

During feeding, the **Big Dutchman** AUGERMATIC Gladiator system creates a sound level <70dB (A).


3.3.1.1 Drives for Augermatic Gladiator

Code no.	Description	maximum length [m]	Operating voltage
11-31-5020	Drive 0.55kW 230/400V 50Hz AM6 w/ o sensor with control box	145	400
11-31-5021	Drive 0.55kW 220/380V 60Hz AM6 w/ o sensor with switch box	145	380
11-31-5022	Drive 0.55kW 200V 3PH 50Hz AM6 w/ o sensor with switch box	145	200
11-31-5023	Drive 0.55kW 200V 3PH 60Hz AM6 w/ o sensor with switch box	145	200
11-31-5024	Drive 0.55kW 230V 1PH 50Hz AM6 w/ o sensor with switch box	145	230

3.3.1.2 Description of drive unit AM6

Terminal box:

This contains a micro-fuse for the sensor as well as an overheating protection for the motor.


	This does NOT replace the protective motor switch which has to be installed either externally on the gable wall or in a central control box.
---	---

Direct intervention well in the console:

It is closed with a plastic grid, which can easily be opened by releasing the snap fasteners with a screw driver.

Motor with integrated thermostat relay:

The motor windings have thermostat relays for the overheating protection. These relays protect the motor against too high temperatures and thus prevent a "jamming" and "burning out" of the motor.

	Warning: This protective device does NOT replace the protective motor switch.
---	--

Pipe adapter for 45 mm and 50.8 mm pipes

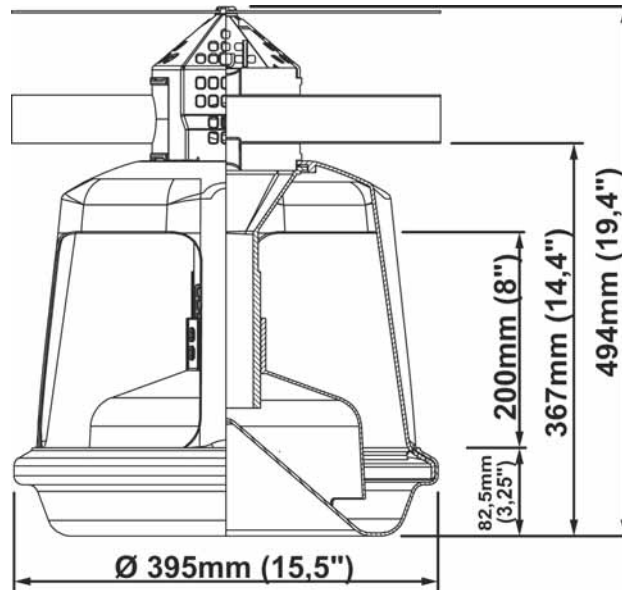
The AM6 drive can be directly attached to the 60mm pipes. For use with 50.8mm or 45mm pipes, reducing sleeves are inserted.

Suspension lug:

The AM6 drive can be simply and rapidly attached to the feed line hanging cables via the suspension lug bolted onto the motor casing.

3.3.2 Dimensions of feed pans

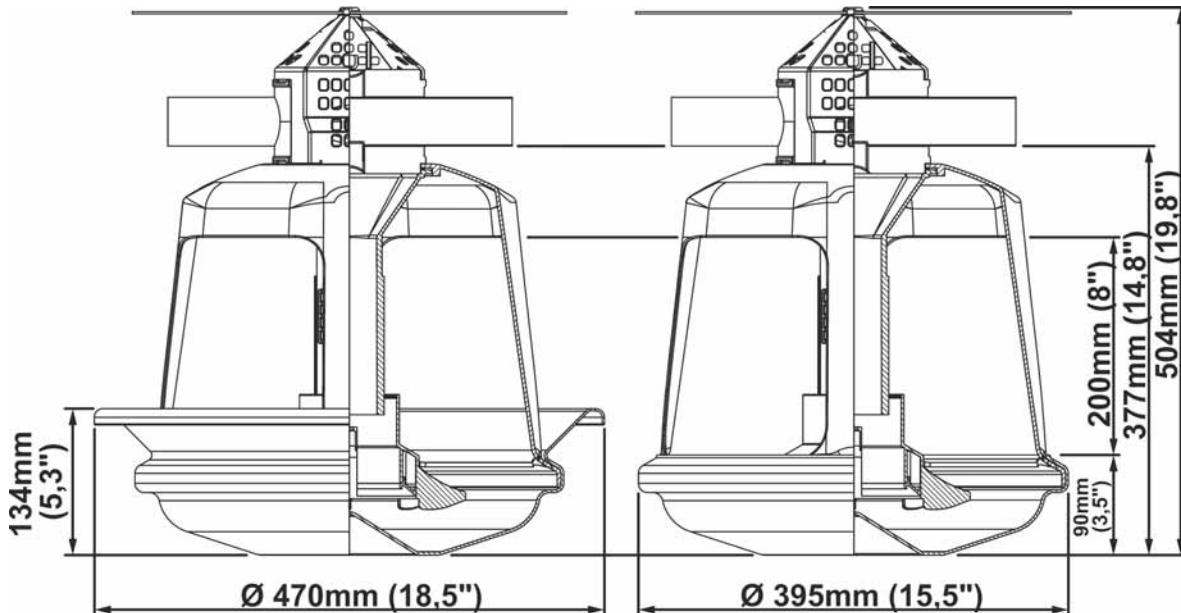
3.3.2.1 Rearing bowl with cone



3.3.2.2 Feed bowl without cone

Fattening bowl

Rearing bowl



3.4 Notes for layout and calculation

3.4.1 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.

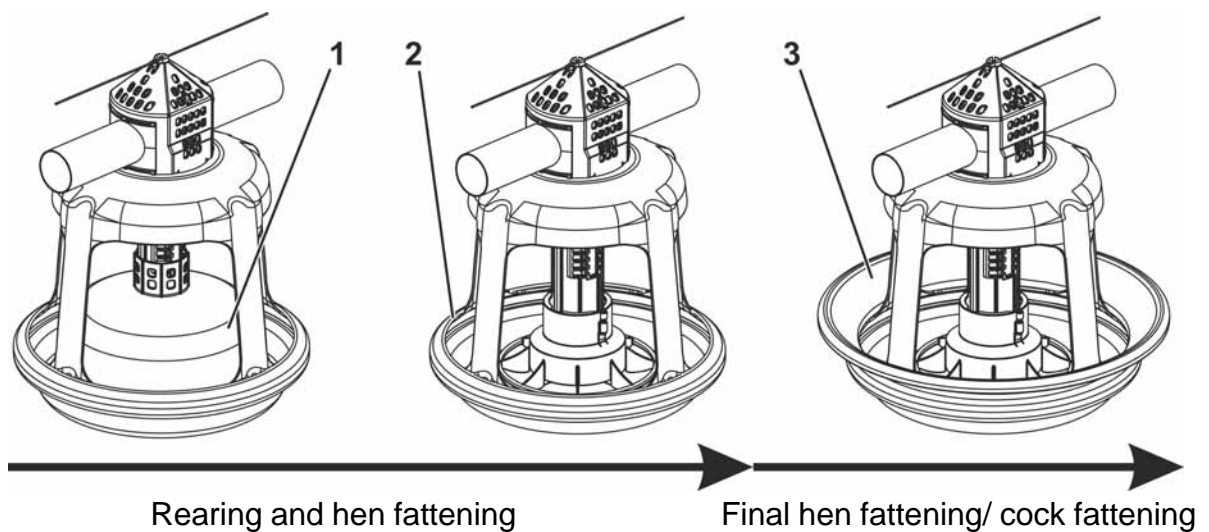
- The maximum length of a feed line depends on the type of installation.
- The distance between two feed lines is max. 6 metres.

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.

3.4.2 Area of use of Gladiator turkey feed pan



Pos.	Description
1	Rearing bowl with poult cone
2	Rearing bowl with anti-scraping ring
3	Fattening bowl

3.4.3 Planning instructions for AUGERMATIC Gladiator for turkeys

3.4.3.1 Feed supply with the Augermatic conveying tubes

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.

The AM-45 (Ø 45 mm (1.77")) and AM-50 (Ø 50.8 mm (2")) with its **450 kg/h throughput** ensures rapid and constant filling of all bowls.

The AM-60 (Ø 60 mm (2.36")) with its **600 kg/h throughput** offers even more rapid filling of bowls.

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.

3.4.3.2 Planning aid for evaluating the number of lines and pans

- Pans for ad-libitum feeding of turkey hens

Weight range: 0 - 2.0 kg

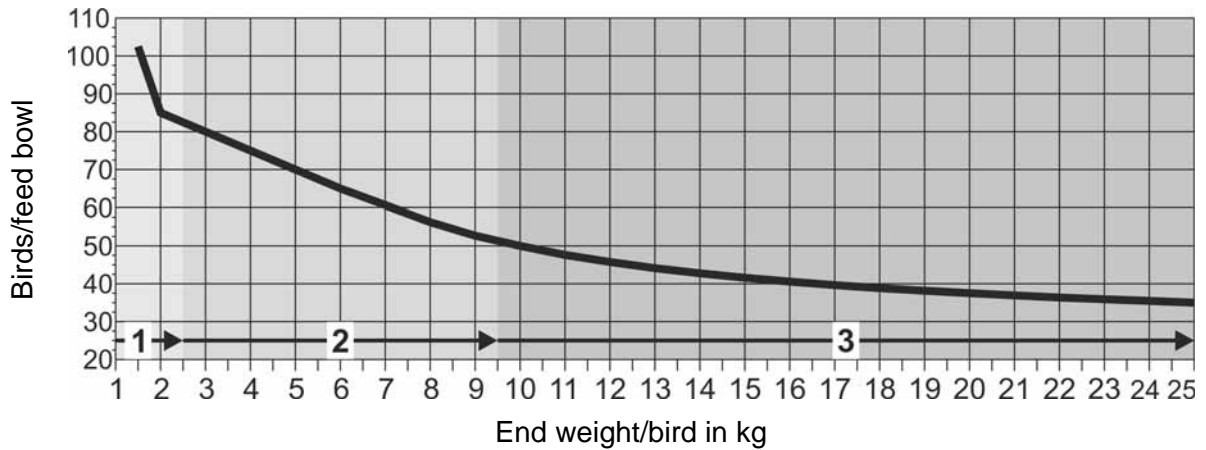
Number of birds per pan: $(125 / \text{desired final fattening weight}) + 20$

Weight range: 2.0 - 7.0 kg

Number of birds per pan: $95 - (5 \times \text{desired final fattening weight})$

Weight range: 7.0 - 23.0 kg

Number of birds per pan: $(250 / \text{desired final fattening weight}) + 25$



Pos.	Description
1	Turkey rearing weeks 5 to 6
2	Hen fattening up to week 16
3	Cock fattening up to week 23

The bird numbers stated here are approximate and may vary according to breed, stocking rate and ambient conditions. Please obtain advice on this from your stock supplier. Differing provisions, e.g. national regulations must also be taken into account.

Number of feed lines = 1 line per 4 - 6 m house width

Number of feed pans = $\frac{\text{number of birds / house}}{\text{birds / pan}}$

(with 1 pan / row as control pan)

Number of tubes = $\frac{\text{feed pans / house}}{\text{feed pans / tube}}$

(minus 1 piece / end tube)

Number of end tubes = 1 end tube / row
(always 2 pans / end tube)

3.4.3.3 Weights

Pipe type	Diameter		
	45mm	50.8mm	60mm
Base unit pipe 1-hole with F-bowls + feed:	13 kg	14 kg	17 kg
Base unit pipe 2-holes with F-bowls + feed:	19 kg	20 kg	23 kg

Pipe type	Diameter		
	45mm	50.8mm	60mm
Base unit pipe 3-holes with F-bowls + feed:	25 kg	26 kg	29 kg
Feed hopper + feed:	90 kg/line		
Drive:	20 kg/line		


If halving of loads is applied, only half of the calculated total weight has to be considered for selecting the cable winch.

3.4.4 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>
---	---

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.

3.4.5 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>
---	---

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.

3.4.6 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

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

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>
---	---

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 CO₂ 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



- Check the daily bird weight to achieve the desired weight for day seven by adjusting humidity and temperature, if necessary.
- Monitor the birds' behaviour to be able to judge the climate conditions.
- Use the temperature and the minimum ventilation to stimulate the birds' activity and appetite.
- 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.
- If necessary, reduce the temperature if the humidity exceeds 70 percent and monitor the birds' behaviour.

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

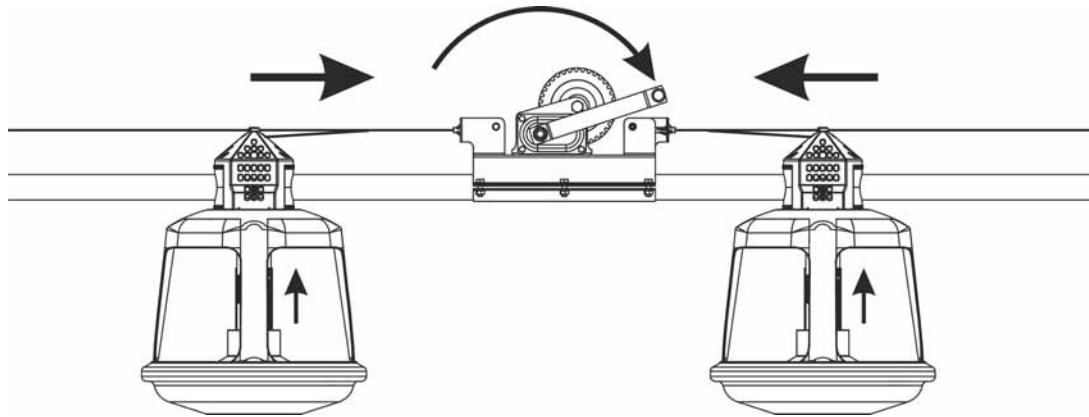
Before the feed lines can be filled with feed, they must be moved to the lowest position.

There are two possibilities to fill the pan with feed before the birds arrive:

With automatic flooding device:

If a line with Augermatic Gladiator is mounted with an automatic flooding mechanism, a manual cable winch is installed in the middle of this line. With the actuation of this cable winch, the anti-roost wire is pulled. The flooding units of all feed pans are fixed to this wire via plastic cords.

When the anti-roost wire is pulled, all flooding units in the upper area of the Gladiator feed pan are moving. Thus the feed level is considerably increased in each pan and the pan is flooded.



Manual flooding:

If no automatic flooding device is installed, the feed level in each pan must be set to the top position. In addition, the line can be filled in lifted position before the birds are moved in. In this case, each feed pan is turned very quickly at the filling and the feed is distributed in the pan via centrifugal force.



Attention:

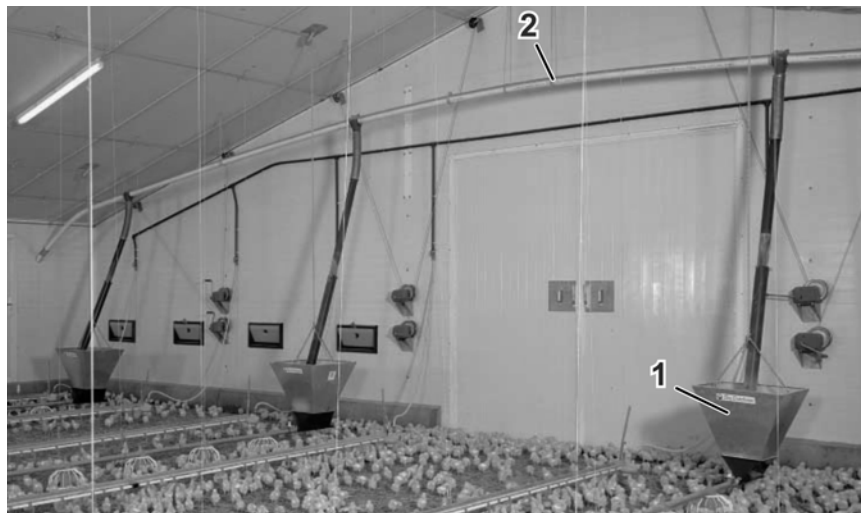
During the first days after moving-in of the birds, the feed line must not be lifted and put down to the floor again!

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.

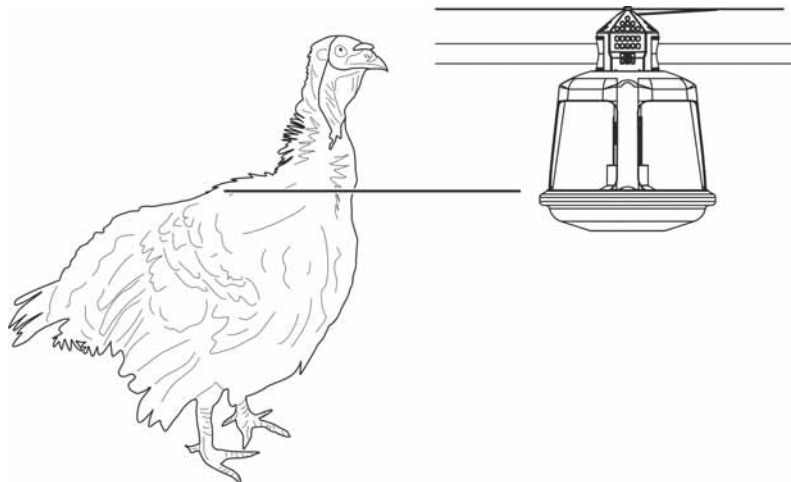
A too low adjustment of the feed pans leads to increased feed losses and feed soiling.

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:



Caution! Risk of suffocating or heat stroke!

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

	<ul style="list-style-type: none">• Shorten the dark phase 3 days before moving the birds out.• Turn off the feed supply 10 - 12 hours before moving the birds out.
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4.2.5 After the moving-out procedure

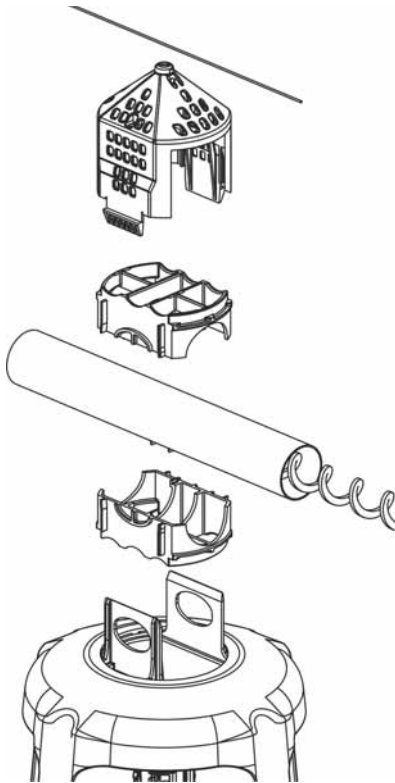
Big Dutchman would like to remind you that all proceedings on your farm, including the moving-out procedure, should be carried out very carefully regarding safety and health of the staff. Please ensure appropriate clothing and anything else the staff might need to carry out their tasks. Please instruct 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

	<ul style="list-style-type: none">• Pay attention to movable parts in the installation: prevent corrosion damages through lubricating, if necessary.
---	--

4.3 Gladiator feed bowl

4.3.1 Tube adapter

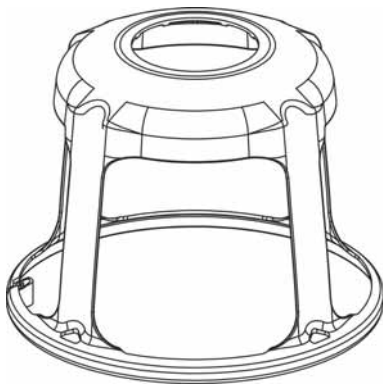


The free swinging suspension of the feed pan at the conveying tube prevents chest bruising of the birds.

Rotating feed pan: The entire feed pan is pivoted at the tube adapter so that it can move to any direction and that the birds are effectively protected from injuries.

Separate tube adapter: It allows to assemble and disassemble the feed pans at any time, without separating the conveyor tubes from the auger.

Mounting for the anti-perching wire: This protects the bowl feed system from excessive loading by perching birds.

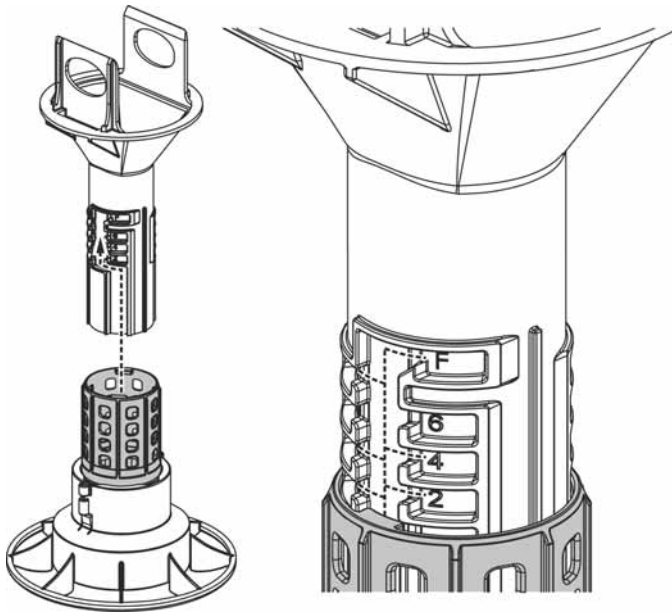


4.3.2 Grill

Large openings between the four grille rods mean that the feed is very well illuminated. This means that the birds can easily find the feed and have optimum access.

The feed bowl pan is securely mounted on the grille by a **snap-on lock**.

4.3.3 Inner and outer cylinder

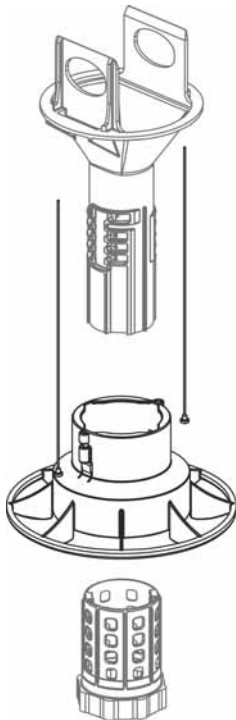


Precisely adjustable feed level:

Due to the combination of an external and internal cylinder, the feed level in the feed bowl can be precisely adjusted. The feed level is directly **adjusted** on the outer cylinder.

Optimum cleaning conditions are assured by numerous openings. This means that the inside of the bowl can be cleaned without requiring its removal.

4.3.4 Flooding unit

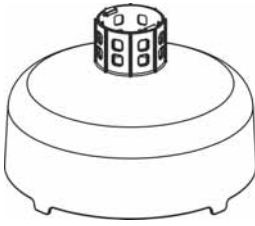


The flood unit contains weights so that it cannot be raised by the pecking birds. It is open on the outer cylinder side.

When in the central flood setting, the flood unit is raised with cables.

The **anti-scraping ring** on the lower feed outlet effectively prevents the feed being scattered out of the feed bowl.

4.3.5 Cone-shape rearing insert



No birds in the feed: The cone-shape rearing insert prevents poults from climbing into the feed. This minimises feed soiling.

All birds can reach the feed: Close access to the feed is nevertheless easily possible.

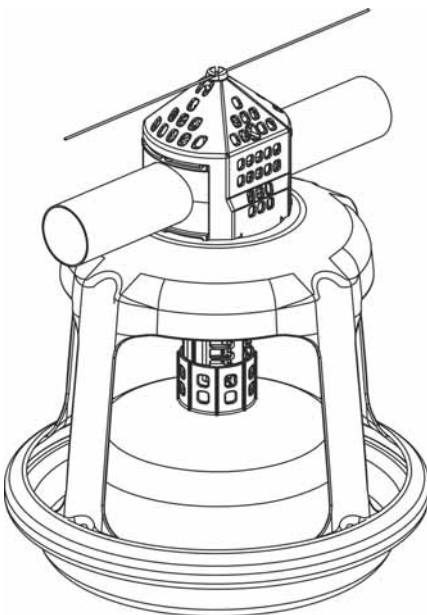
Optimum possible illumination of the feed without shadows help day-old poults to find the feed.

Labour saving: Addition of a conical rearing insert to individual feed bowls in the feed line creates optimum conditions for supply feed in the poult ring up to a poult age of 4-5 weeks. The work outlay is considerable less than with manually filled automatic feeders.

The **feed level** is also adjusted with the cone that replaces the external cylinder.

4.3.6 Feed pan

4.3.6.1 Rearing bowl with cone



The **low bowl rim** is ideal for rearing day-old poults in the poult ring. The poults are always able to easily reach the feed.

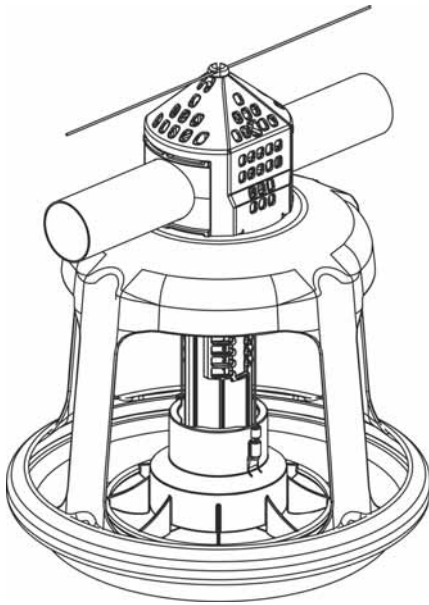
For use of the poult cone, a bowl with a high cone is inserted. Like the rearing bowl, this also has a very low rim height.

The high cone ensures a very small amount of the feed in the bowl, while at the same time a high feed level in the feeding area.

The **conical rearing insert** prevents the birds climbing into the feed. This minimizes feed contamination.

The rearing bowl with high cone only works in combination with the conical rearing insert; adjustment of the feed level by the inner cylinder is deactivated.

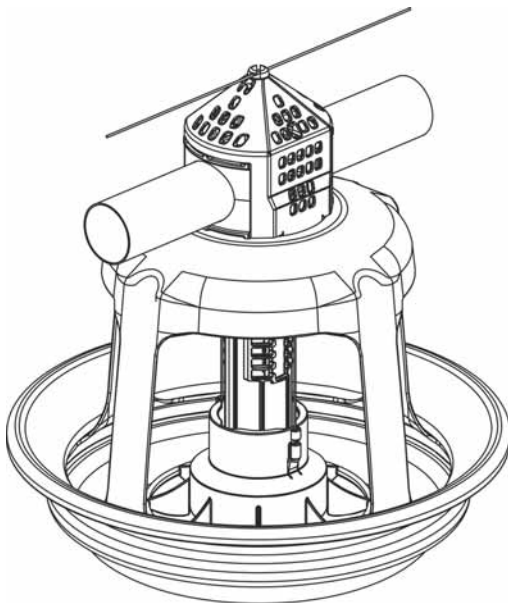
4.3.6.2 Rearing bowl without cone



The **large-surface** feed saving collar **curved over the inside** prevents feed losses.

The **anti-scratch ring** particularly prevents larger turkeys from throwing feed out at the sides.

4.3.6.3 Fattening bowl




The rearing bowl can be easily replaced with the fattening bowl with **feed saving collar** and is thus ideal for fattening birds with a live weight of up to 23 kg.

The **bowl rim that is rounded outwards and downwards** prevents the birds from bruising their breasts.

The fattening bowl also provides the birds with **optimum access** to the feed.

4.4 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)

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

4.4.1 Technical data

Nominal capacity	based on the first layer of the coiled cable on the winch:	544 kg (1200 lbs)
	based on the outermost 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

4.4.2 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.

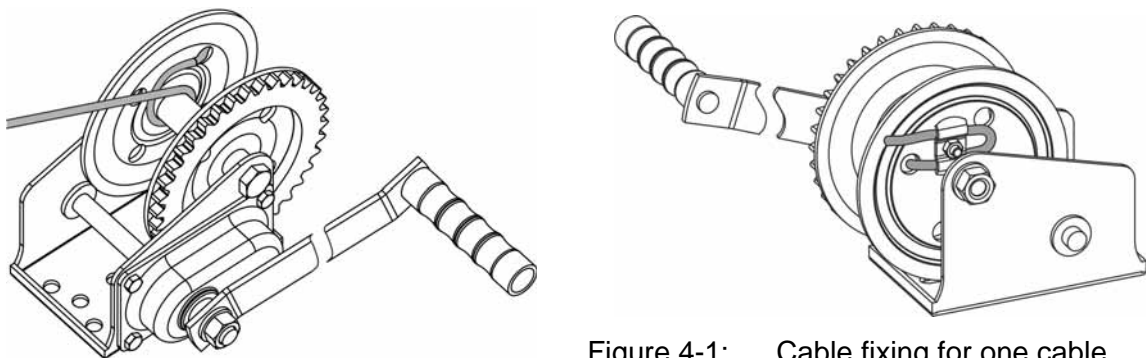
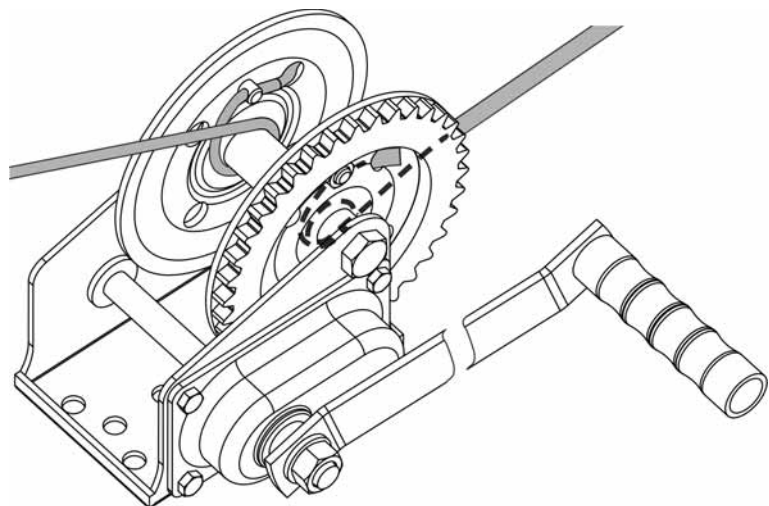


Figure 4-1: Cable fixing for one cable


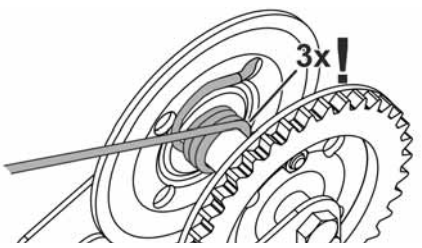
4. Guide the cable straight to the winch. If it is guided e. g. over an angle, the cable can become severely worn:

„Danger of accidents!“.



4.4.3 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.

	Risk of injury
	<p>Improper use the cable winch may result in serious injuries.</p> <ul style="list-style-type: none"> • 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. • Do not load the winch when the cable is fully unwound. Keep at least three full turns of cable on the winch! • 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. <div data-bbox="925 1243 1348 1489" style="text-align: right;">  </div>
Danger	

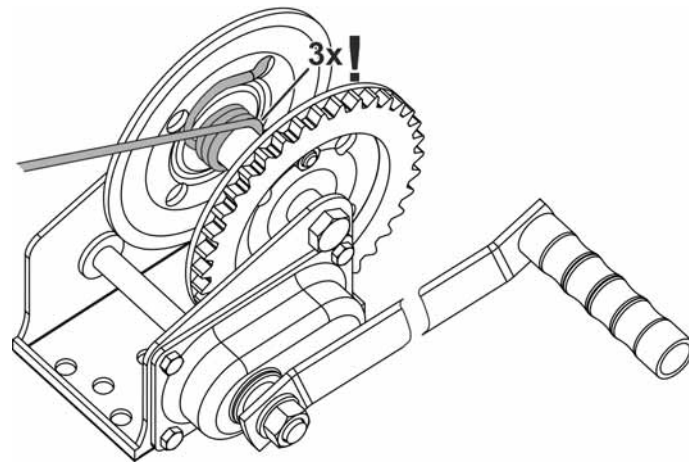


Figure 4-2: Always leave at 3 three full turns of cable on the winch.

4.5 Sensor AFS-03

The sensors AFS-02 are available in two variants. The first variant has got an adjustable sensitivity, and the other one additionally has got an adjustable delay apart from the adjustable sensitivity.

The sensor AFS-03 ST is a capacitive sensor at which the sensitivity and delay can be adjusted.

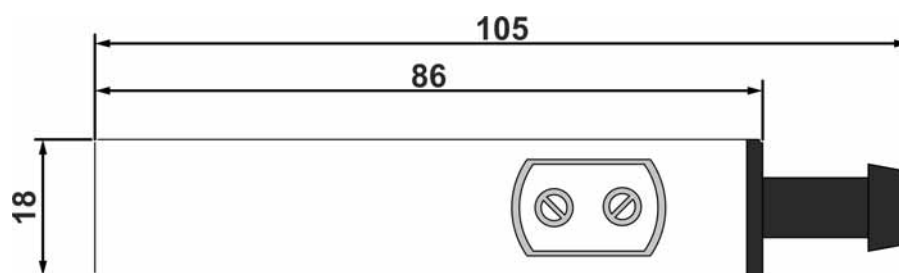
When the control pan equipped with the sensor has been emptied, the feed supply will be activated after a waiting time of 60 seconds (preset). As soon as the control pan has been filled up, the feed supply is switched off.

State:	Feed supply:	Display LED:
Sensor indicates: Feed in control pan	off	off
Sensor signalises: control pan empty	off (waiting time 60 seconds)	flashes
	after that	
	on	on

Technical data

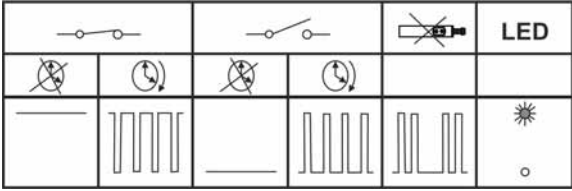
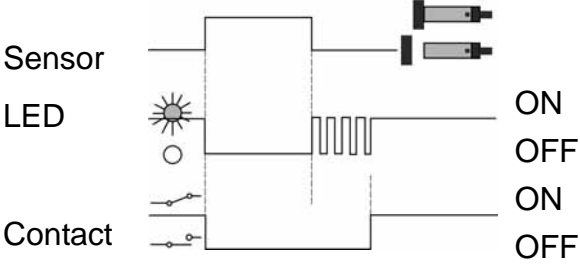
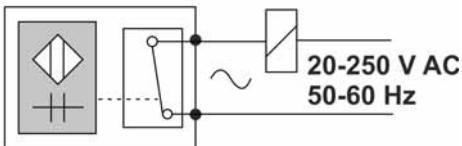
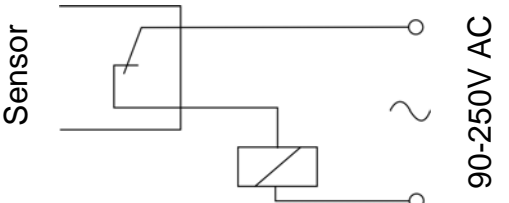
	Value	Unit
Power supply	90-250	VAC
Frequency	50-60	Hz
Cable length 4x0.25 mm ² (AWG 22)	2000	mm
Ambient temperature	-20 to +70 (-4 to +158)	°C (°F)
Storage temperature	-30 to +80 (-22 to +176)	°C (°F)
Protection class	IP67	
Certifications	CE and C-UL	
Rated operational current (I _e)	300	mA
Max. line voltage drop (U _d)	< 10	VAC RMS*
Turn-on time	< 100	ms
Min. operational current (I _r)	< 5	VAC RMS*
Time delay adjustable	5 to 60	seconds
Connecting distance adjustable	5 to 12	mm
Switching hysteresis	< 1.2	mm

=>

* Root Mean Square = effective value**Dimensions [in mm]****Function:**

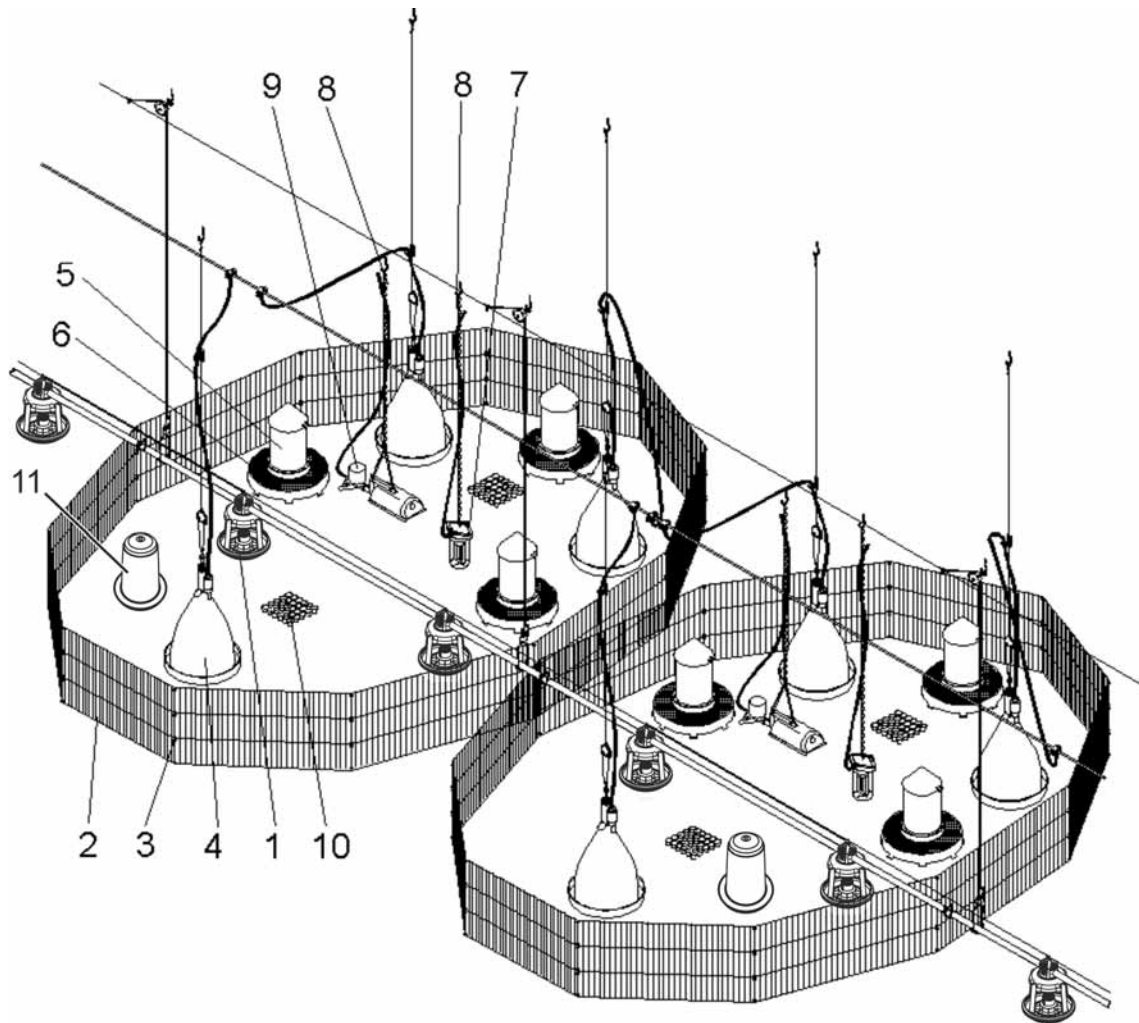
- adjustable sensitivity and adjustable time delay
- active temperature compensation: the temperature sensor constantly monitors the surrounding influences and compensates currently so that the sensitivity is kept continuously constant.

- Dual Sensing is a new method for treatment of the signals in the sensor so that external influences are balanced.
- The switch capacitor is a new principle for the feed detection itself, which makes the sensor extremely immune to high frequency irradiation. This "defence system" is much better than required by the EMC directive.

AFS-02	AFS-03
<p>Status Indicator:</p> <p>A light emitting diode (LED) shows the current status of the sensor.</p> <p>The LED shows the output status and not if the sensor is influenced. Sensor defects and active current limiter are shown as short flashes.</p>	
	
<p>Electrical connection:</p>	
	

5 Use of brooding rings

5.1 Brooding ring for 350 birds



Pos.	Code no.	Description
1		Gladiator rearing feed bowl
2	39-00-3198	Grid 350x1000 (ZnAl) for poult ring
3	38-90-3809	Cable strap 185mm plt2s-c
4	30-03-3100	Jumbo-B poultry drinking trough
5	11-31-3080	Picorett 12 ltr automatic feeder
6	11-31-3084	515 diam. poult platform for Picorett automatic feeder
7	99-30-3750	Light with energy saving lamp 1200lm 20W detached for poult ring
8	99-50-0012	Hanging chain no. 30
9	40-13-3810	Gas jet pump D M8 5000-500W Germany/propane 20-1400mbar
	40-13-3860	Gas jet pump D M8 5000V natural gas 20-50mbar
	40-13-3800	Gas jet pump E M8 5000-500W export/propane 20-1400mbar
10		Feed plate - brooder
11	30-68-1500	Poult drinking trough plastic 2.5ltr
	30-68-1510	Poult drinking trough plastic 5.0ltr

5.2 Assembling the brooding ring

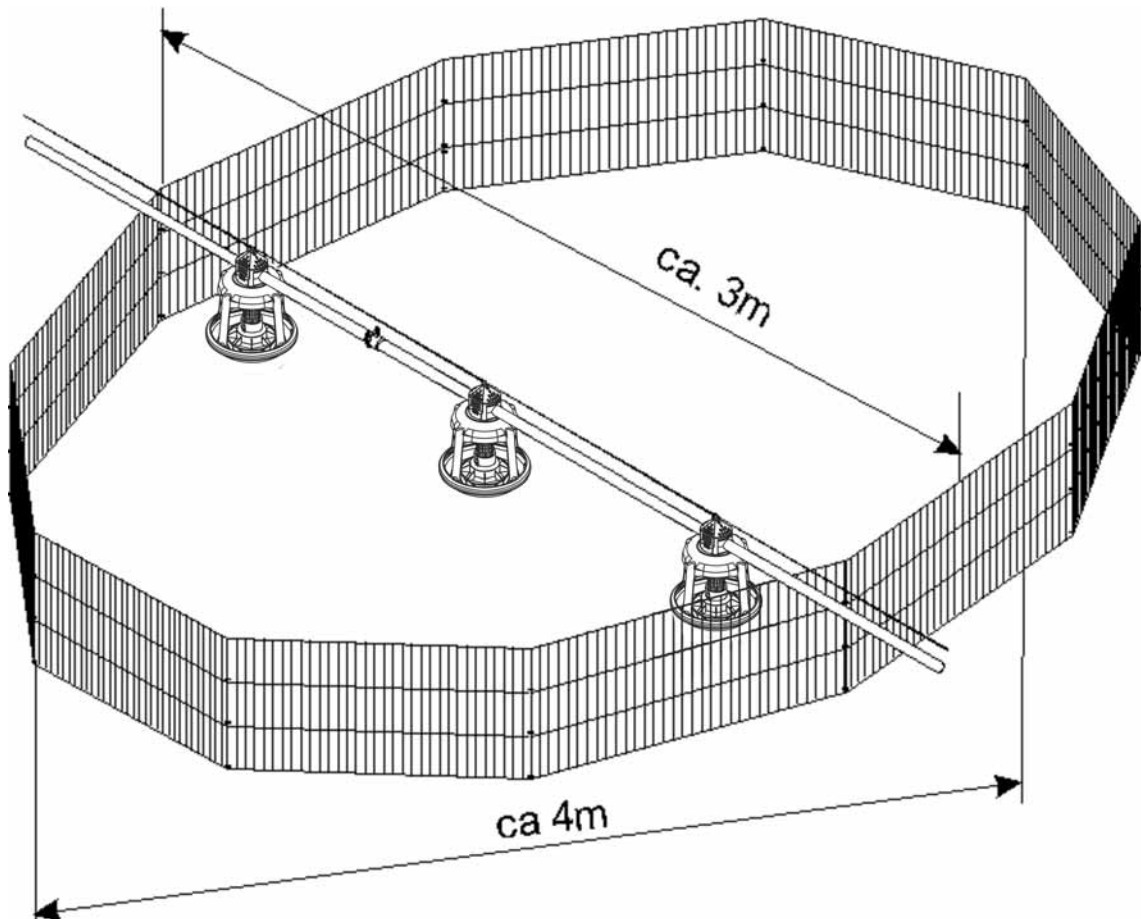


Each brooding ring consists of 11 wire grilles 350x1000 (ZnAl) for brooding ring. The wire grilles 350x1000 (ZnAl) for brooding ring are connected at all joints by means of 3 straps. Cut off the protruding ends of the straps.

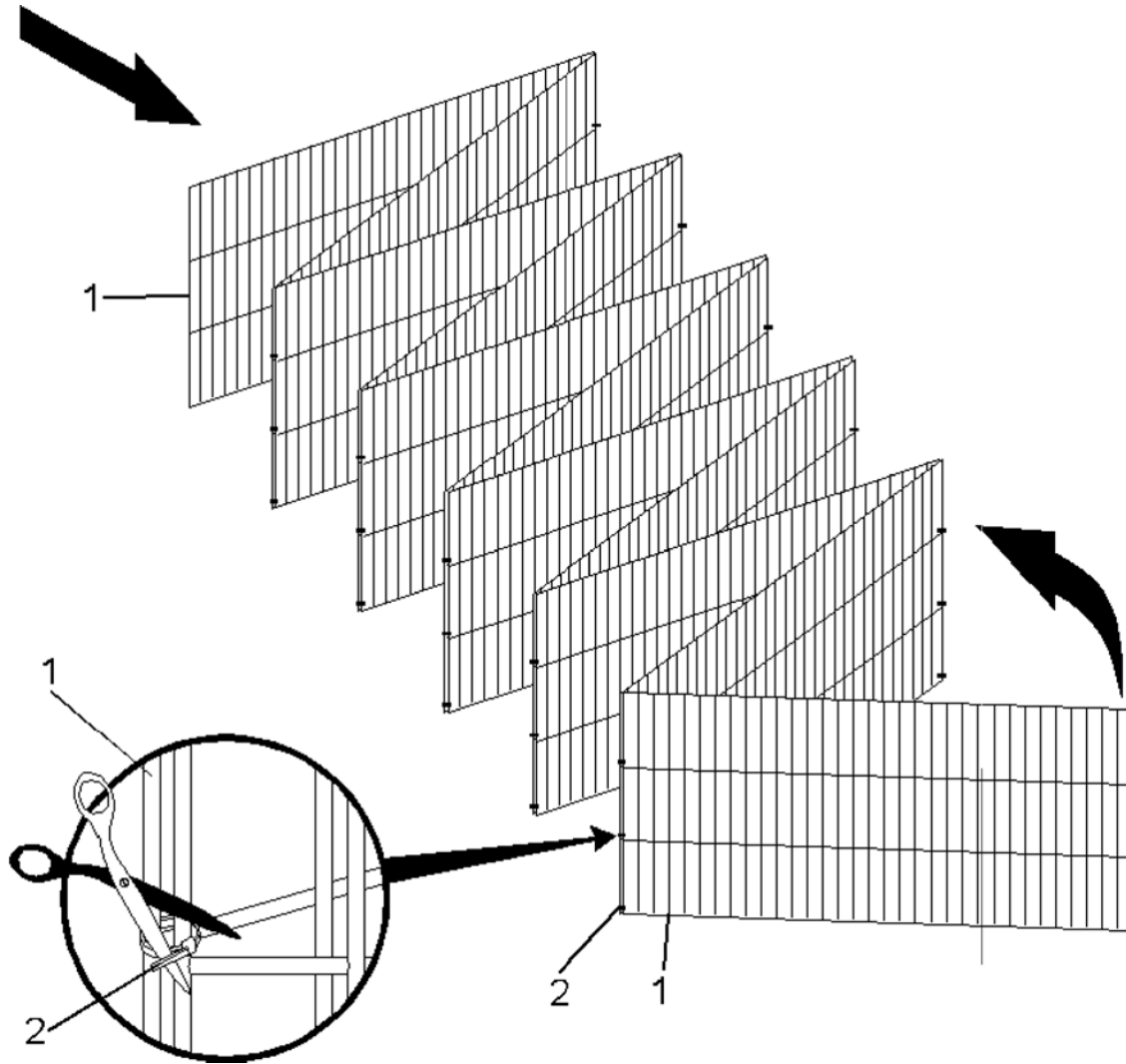
Remove the brooding rings 5-6 days after housing the birds. Separate the wire grilles 350x1000 (ZnAl) at a coupling point and put them together in a fan-shape.

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

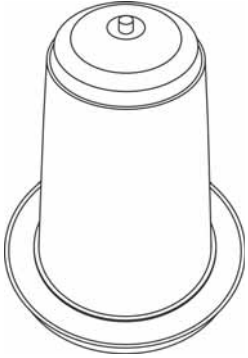
Each brooding ring should be approx. 3m wide (Augermatic tube length) and approx. 4m long.



Pos.	Code no.	Description
1	39-00-3198	Grid 350x1000 (ZnAl) for poult ring
2	38-90-3810	Cable strap 200mm x 4.5mm black (UV-stabilised)



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



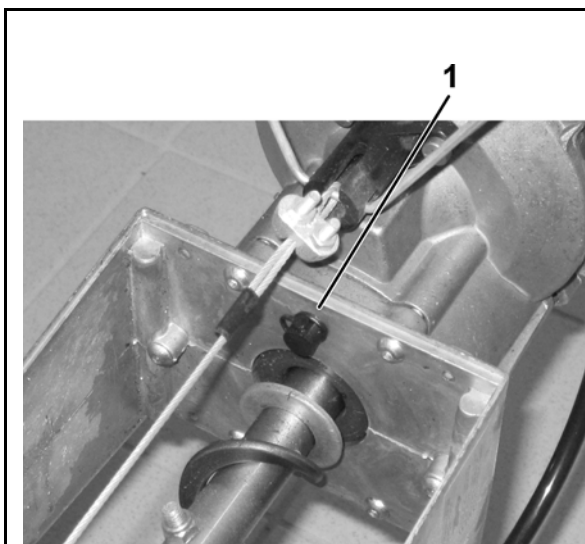
The drive AM 6 is maintenance-free.

6.1.2 Oil level control AM5

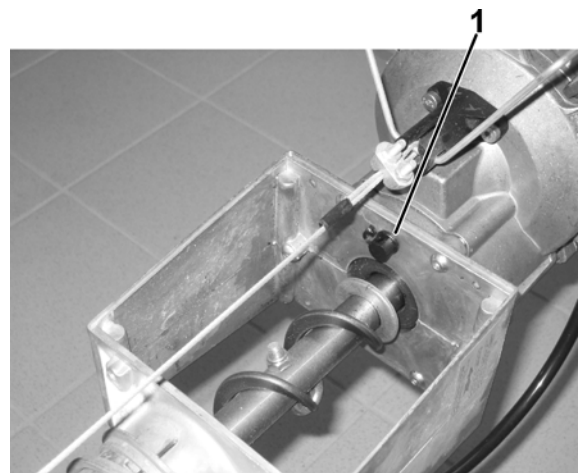
All AM5 Augermatic drives have a ventilation opening on the gear unit. This ensures that hot air can escape from the inside of the gear unit during operation.

The ventilation opening is located in the access shaft on the front side of the gear unit and is closed during transport (Picture 1, Pos. 1).

Before putting the drive into operation, open the gear ventilation by pulling out the plug (Picture 2, Pos. 1).



Picture 1: Ventilation closed



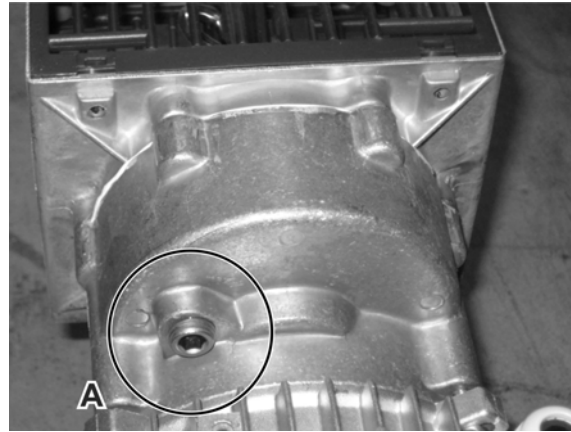
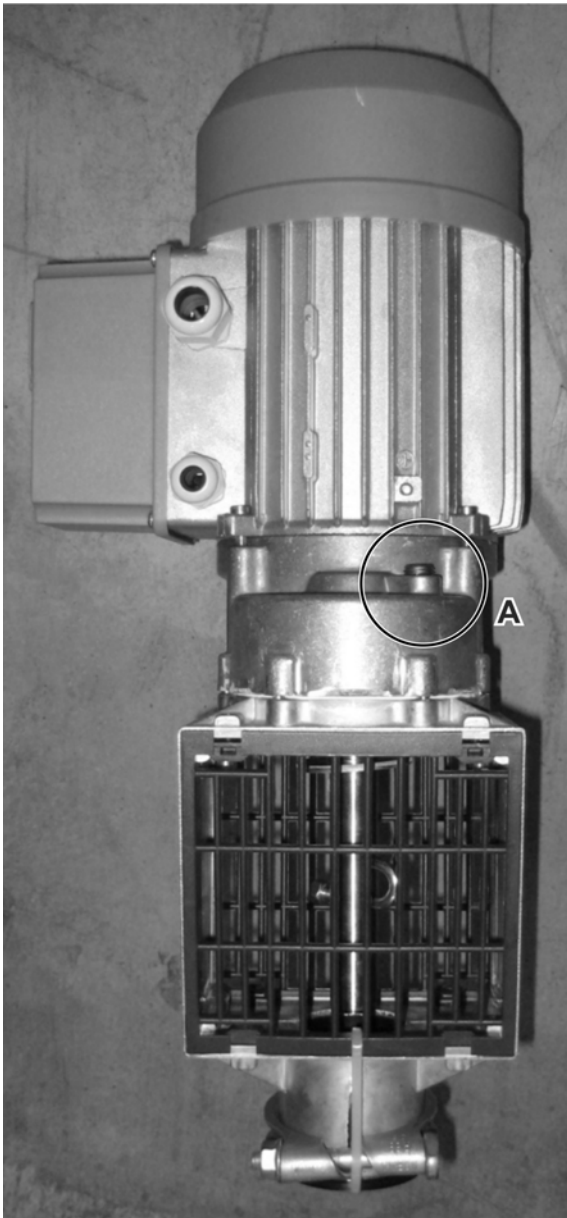
Picture 2: Ventilation open



If the ventilation remains closed, leakage from the gear unit is likely.

Leaks may occur on the drive AM5 as a result of bleed plugs not being opened or of spraying directly with high-pressure cleaner.


To prevent damage, a visual check of the Augermatic drive must thus be performed regularly after each batch, however, every 6 weeks at the latest. If a leak is detected, the drives' gearbox oil level must be checked.




On the gearbox, there is a monitor screw (detail A) which must be opened for checking the oil level.

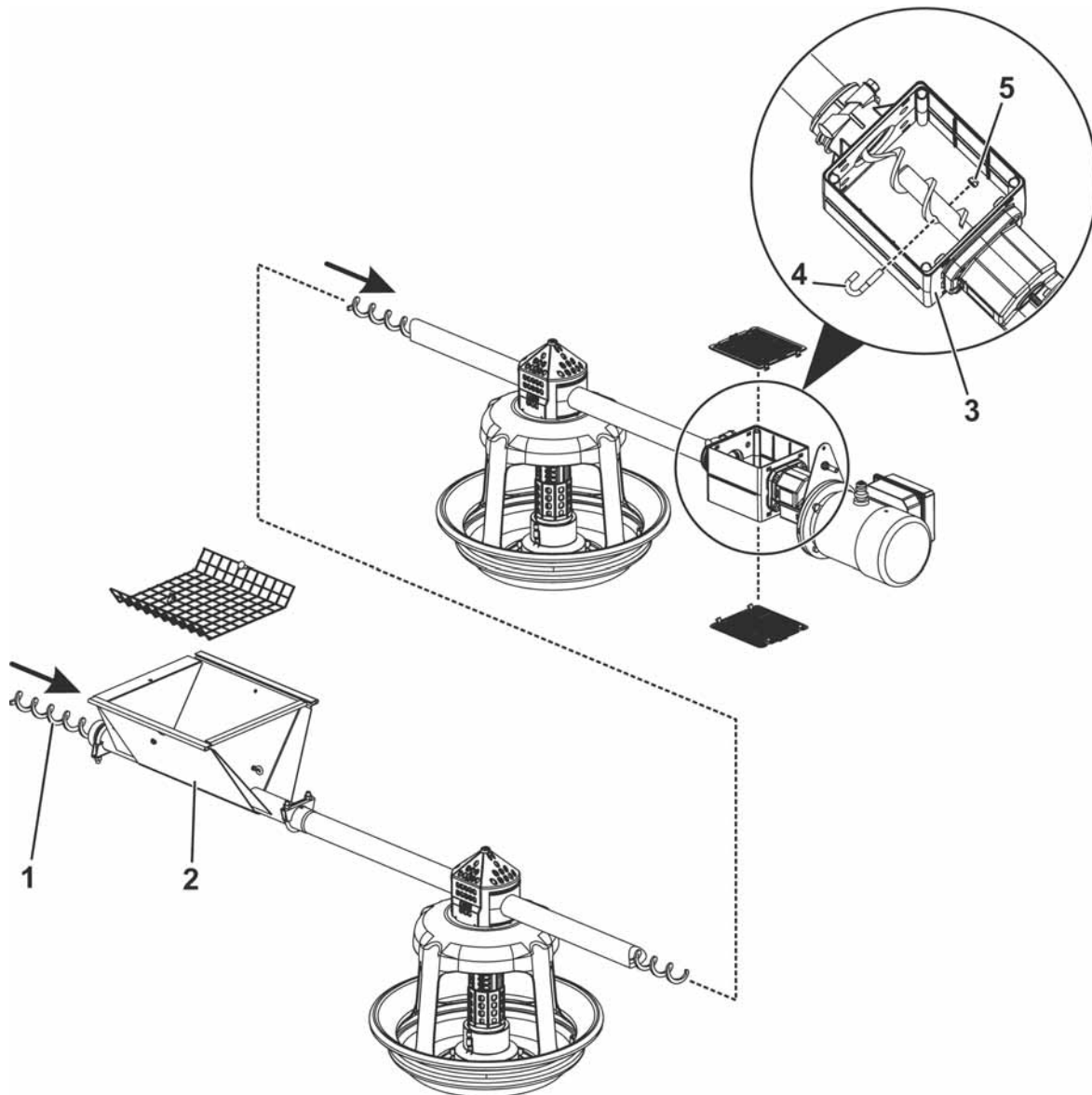
If the gearbox leaks oil or if the oil is right beneath the lower edge of the hole, then oil level is correct. Otherwise use **oil of specification SAE 85W-90** until it comes out of the monitor hole.

6.2 Auger HD AM

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

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

6.2.1 Drawing-in the HD AM auger



Pos.	Code no.	Description
1	11-31-3248	Spiral 35.4x45x19.6x4.3 clockwise AM/SA running m.
	25-63-1712	Spiral 45x45x25x3.3 clockwise Flex-Vey 60
2		Feed hopper lower section
3	83-07-9237	Console front drive AM6
4	99-10-3947	Hook bolt galv. M6 x 35 Augermatic
5	99-20-1043	Self-locking nut M6 DIN 985-6 galv.

6.2.2 Fastening of auger at the drive unit



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



Figure 6-1: Mount the auger on the drive

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

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 6-2: Loosen U-bolt



Figure 6-3: 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 6-4: Fix the auger by means of a vis-grip wrench

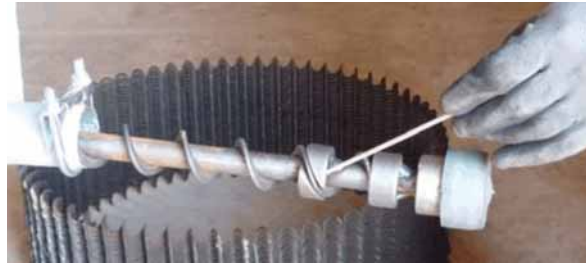


Figure 6-5: Loosen the auger from the tension shaft

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 6-7).



Figure 6-6: Auger to tension shaft



Figure 6-7: 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 6-8: Hold the tension shaft



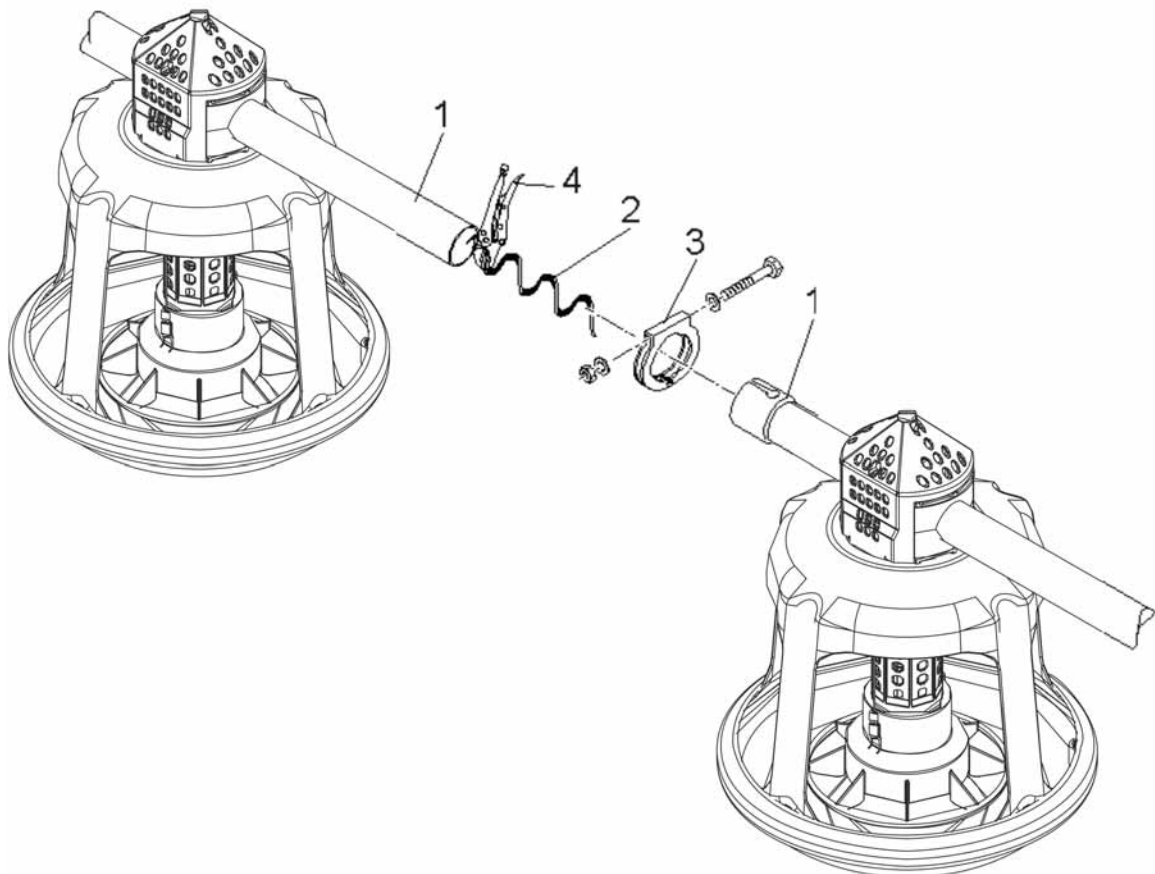
Figure 6-9: Fasten the tension shaft

6.2.4 Repair auger




Check the functioning of the conveying augers every day!


- If the auger must be repaired at the **drive AM**, the tube clamp between the last and one but last tube (side of drive unit) is loosened and both tubes are pulled apart.
- The auger is now fixed between both tubes by using a vise-grip wrench.
- Loosen the auger at drive and carry out the repair.
- If the auger at the **feed hopper must be repaired**, please proceed in the same way.



Pos.	Code no.	Description
1		Tube
2		Auger HD AM
3		Tube clamp
4		Vise-grip wrench

6.2.5 Weld the auger HD AM

	<p>Avoid a too hot welding of the auger</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>The welding seam must not be cooled down abruptly with water or other liquids.</p>
---	---

	<p>Let the auger slowly cool down at the air. 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

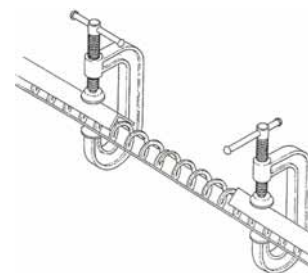
– Procedure

• 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.

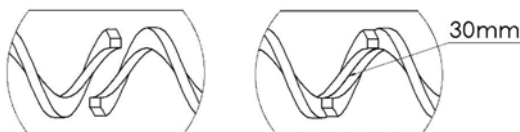


The longer the profiles for the alignment, the more accurate the alignment of the conveying augers to each other.

- 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.

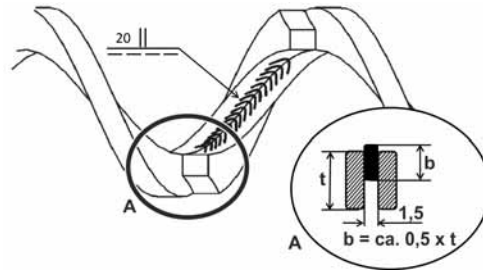


- b) Both ends of the augers must overlap 30mm. It is important that they are pushed in front of each other and do not twist them together.



• Step 3: Preparation of a welding seam

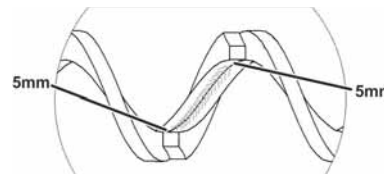
- a) Join both auger ends with an internal welding seam with a length of 20mm.



t= Height of the auger (in section)

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

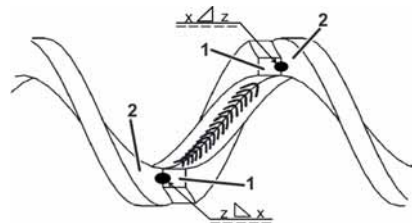
The distance of the welding seam must be 5 mm from both ends of the auger.



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:



x =	Material thickness e.g. Augermatic auger 3.85mm
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 spiral out of the lower section of the feed hopper until it becomes stretched.

Let the spiral slide back into the relaxed state.

Mark the spiral at the outlet of the lower section of the feed hopper.

To tighten the spiral, pull 10cm + 0.6 % of the entire spiral length out of the lower section of the feed hopper (1).

e.g.: 80 m spiral length, spiral length to be pulled out = 10 cm + (8000cm x 0.6 %) = 58 cm.



Mark the spiral again at the outlet of the lower section of the feed hopper.

Hold the spiral firmly with pliers at the lower section of the feed hopper.

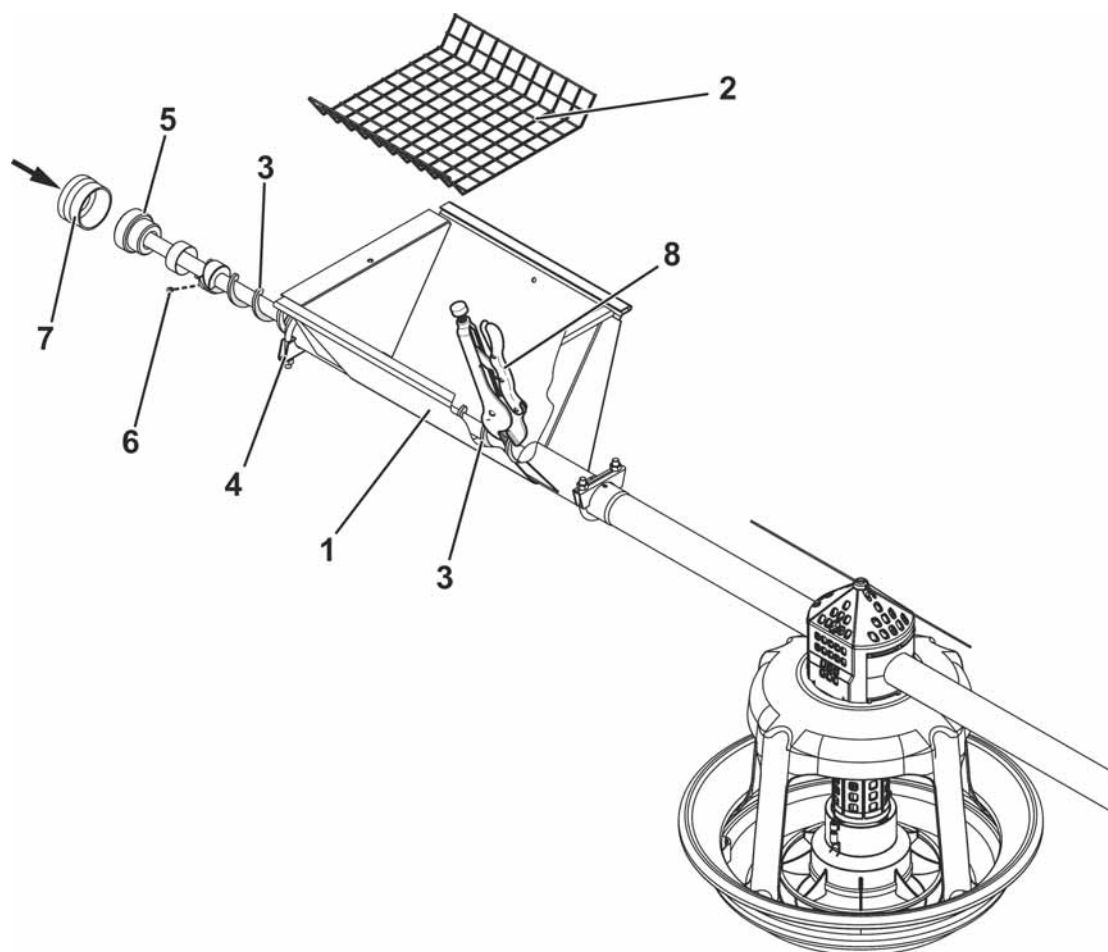
Cut through the spiral at the 2nd marking and round off the ends.

Slide the shaft axle into the spiral until the end of the spiral is approx. 5mm away from the clamping shaft bearing.

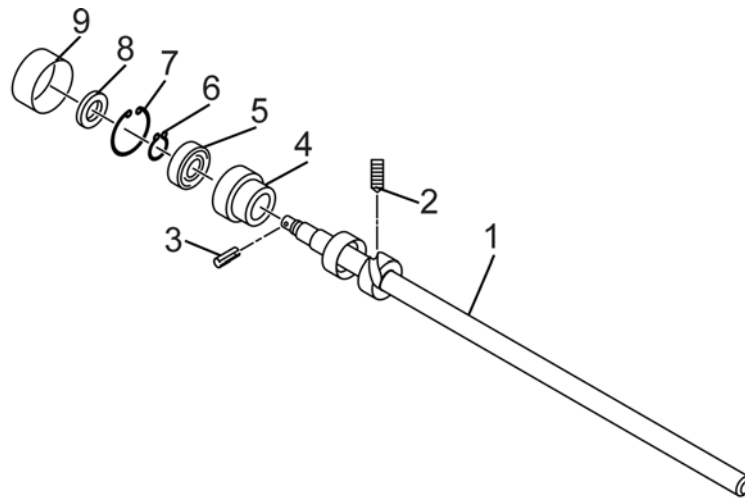
Fix the spiral with the threaded pin M6 x 6 or with the hook screw to the clamping shaft.

Carefully remove the grippers so that the clamping shaft can slide back into the lower section of the feed hopper.

6.3.1 Pipe Ø 45 and 50.8

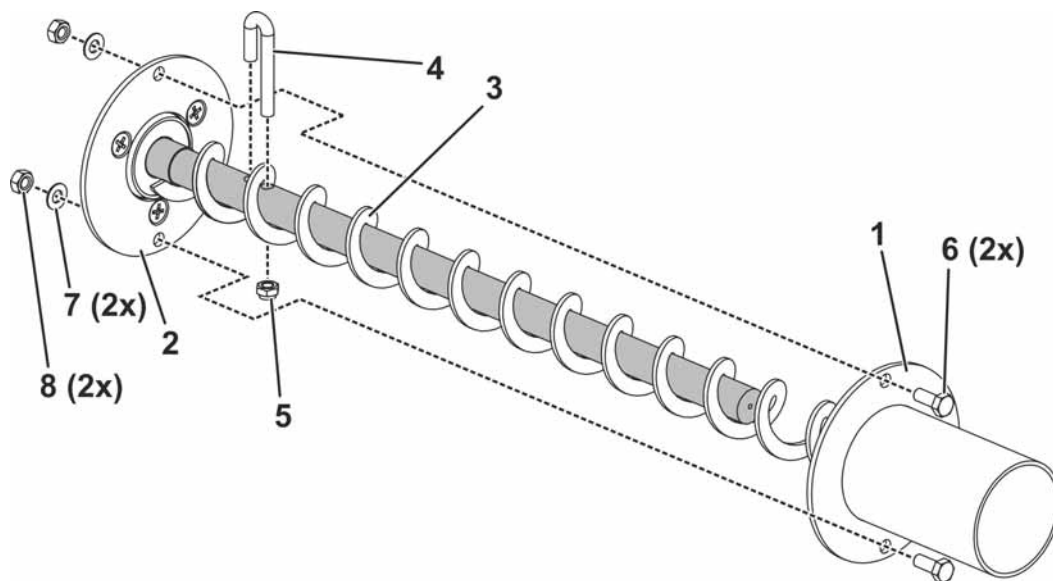


Pos.	Code no.	Description
1		Lower part for feed hopper
2	11-31-1314	Wire mesh guard for lower part of hopper BP/AM
3		Auger AM
4	99-50-1422	U-bolt hot-dip galv cpl 8x25/W52/H68.5 Pipe 2"
5	11-05-1082	Tension shaft cpl 19mm AM w/Seeger ring+bearing housing
6	99-10-1190	Hex socket set screw 6x 6 DIN 916-45H
7	11-31-3546	Cap plastic for lower part for hopper BP - GPN 275/54
8		Vise-grip wrench



Pos.	Code no.	Description
	11-05-1082	Tension shaft cpl 19mm AM w/Seeger ring+bearing hous.
1	11-31-3019	Shaft 19mm f/drive AM355
2	99-10-1190	Hex socket set screw 6x 6 DIN 916-45H
3	99-50-1286	Spring type straight pin 5x30 DIN 1481
4	11-31-1108	Bearing housing f/end piece Feed Hopper AM355
5	11-00-1052	Ball bearing S6203-RS
6	99-50-1300	Retaining ring DIN471 17x1
7	99-50-1301	Retaining ring DIN472 40x1,75
8	99-20-1125	Washer A 17 DIN 125 galv
9	11-31-3546	Cap plastic for lower part for hopper BP - GPN 275/54

6.3.2 Pipe Ø 60



Pos.	Code no.	Description
1	83-07-8805	Feed hopper lower section BP/AM for pipe diam. 60
2		Bearing plate / clamping shaft
3	25-63-1712	Spiral 45x45x25x3.3 clockwise Flex-Vey 60
4	99-10-3924	Hook bolt galv. M8 x 63 8.8 Flex-Vey 60/75
5	99-20-1064	Self-locking nut M8 DIN 985-6 galv.
6	99-10-1038	Hex. bolt M8 x 20 galv. DIN 933 8.8
7	99-20-1026	U-washer A 8.4 DIN 125 galv.
8	99-10-1040	Hex. nut M8 galv. DIN 934-8

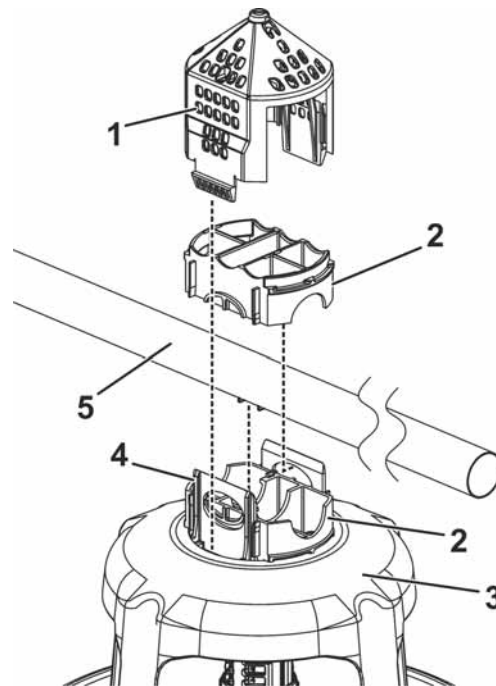
6.4 Replace conveying tubes

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	83-06-9309	Tube adapter for Gladiator
2	83-06-9447	Tube adapter half 45mm Gladiator
	83-06-9446	Half tube adapter 50.8mm Gladiator
	83-06-9308	Tube adapter half 60mm Gladiator
3	83-06-9311	Grille for Gladiator
4	83-06-9307	Cylinder inner for Gladiator
5		Tube Augermatic Ø 45mm, Ø 50.8mm or Ø 60mm

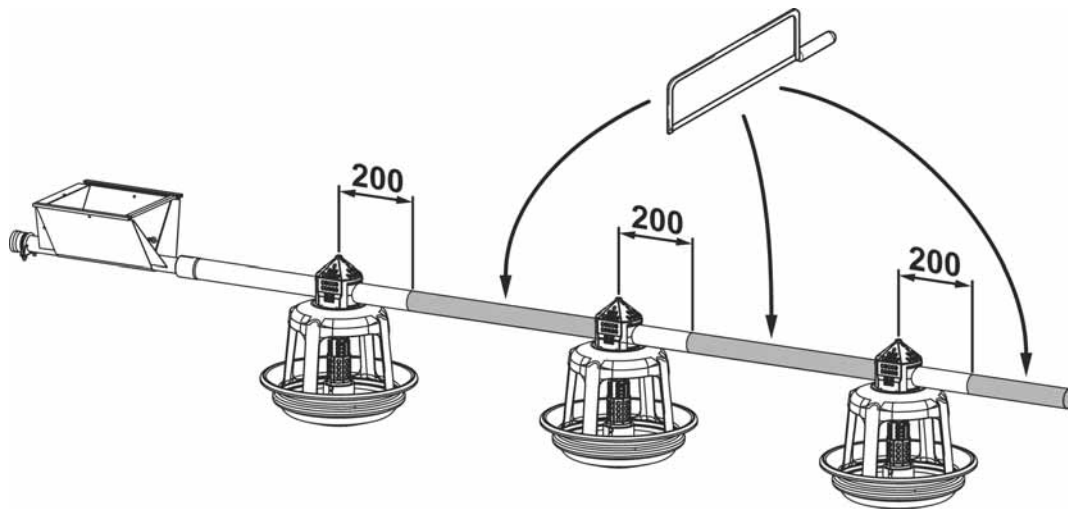


6.4.1 Shorten the feed line



The feed line may only be shortened at the **final conveying tube** in front of the feed hopper, if necessary.

- The tube may only be shortened at the straight end, the sleeve and the final feed pan must always remain.
- Only shorten the conveying tube in one of the marked areas!
- Ensure a minimum distance of **200 mm from the remaining feed pan.**
- There may be no feed outlet at the end of the remaining tube. Remove the feed outlets completely when shortening the tube.

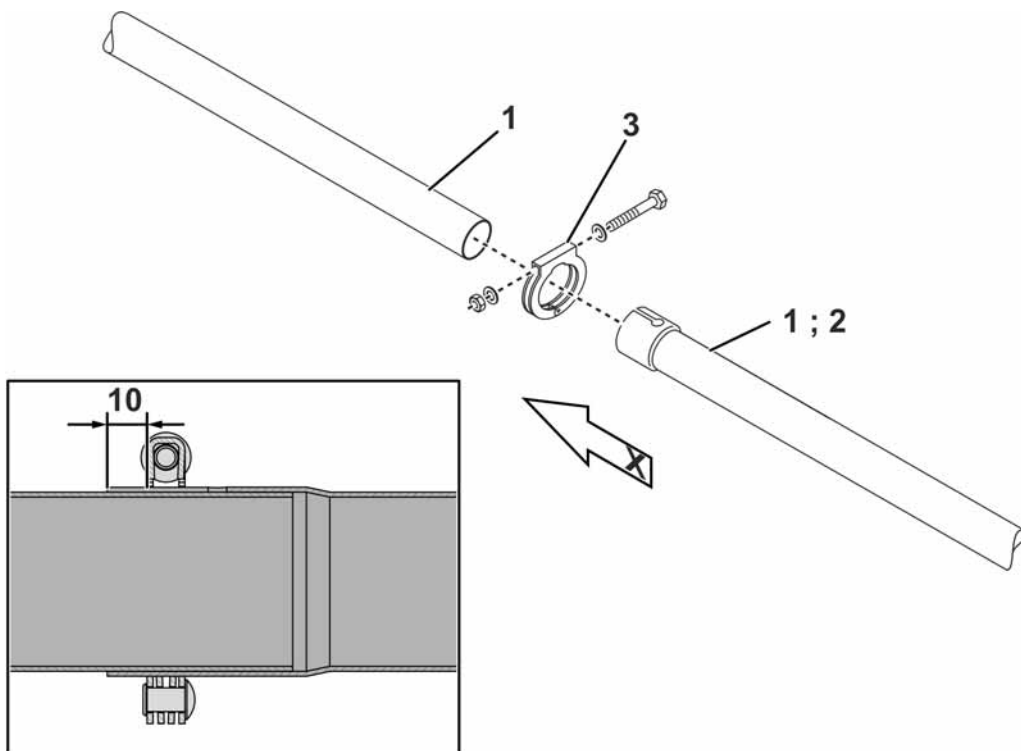


6.4.2 Connecting the tubes



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 clamp riveted cpl. for tube d 45.0
	83-00-7104	Tube clamp riveted cpl. for tube d 50.8 automatic flooding device
	99-50-0474	Clamp for pipe Flex-Vey 60
X		Towards the feed hopper

6.4.3 Position of the control pan at the end tube

The control pan with the sensor is always installed as the last but one pan in front of the drive.

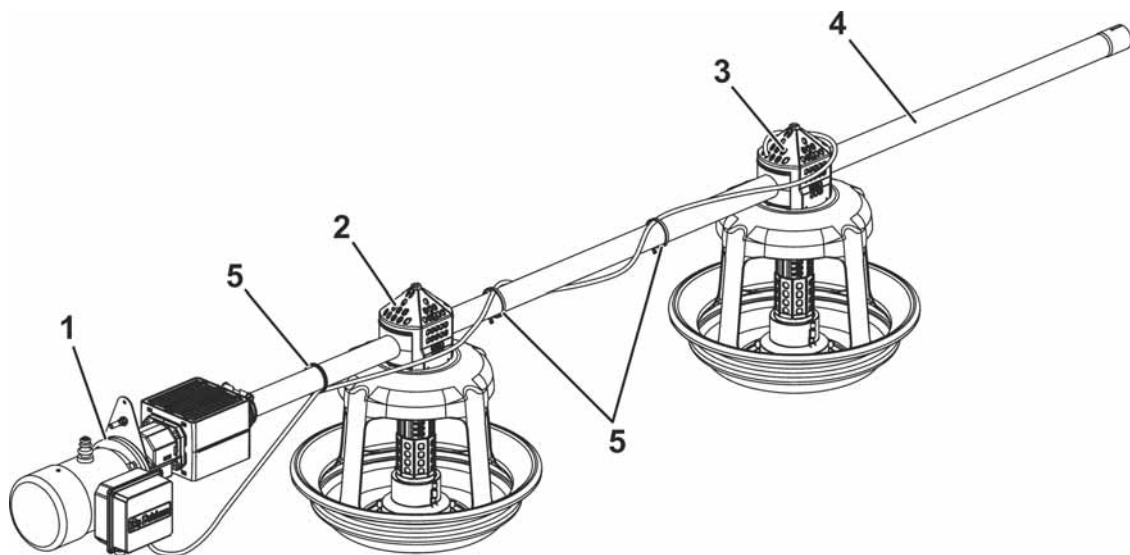
Check all tubes for dents and deformations. Do not install damaged tubes.

Do not shorten end tubes.

Fix feed pans and a control pan to the end tube.





Install the sensor in the control pan before fixing the pan to the tube.




Pos.	Code no.	Description
1		AM drive
2		Feed pan
3		Control pan
4	83-00-3589	End-tube 2775mm 2hole Ø 45.0 TRU PAN
	83-00-4615	End-tube 2775mm 2hole Ø 50.8 TRU PAN
	83-08-8539	End-tube 2795mm 2hole Ø 60.0 Gladiator
5	99-50-3777	Strap 360mm x 4.5mm black (UV-stabilised)

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

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

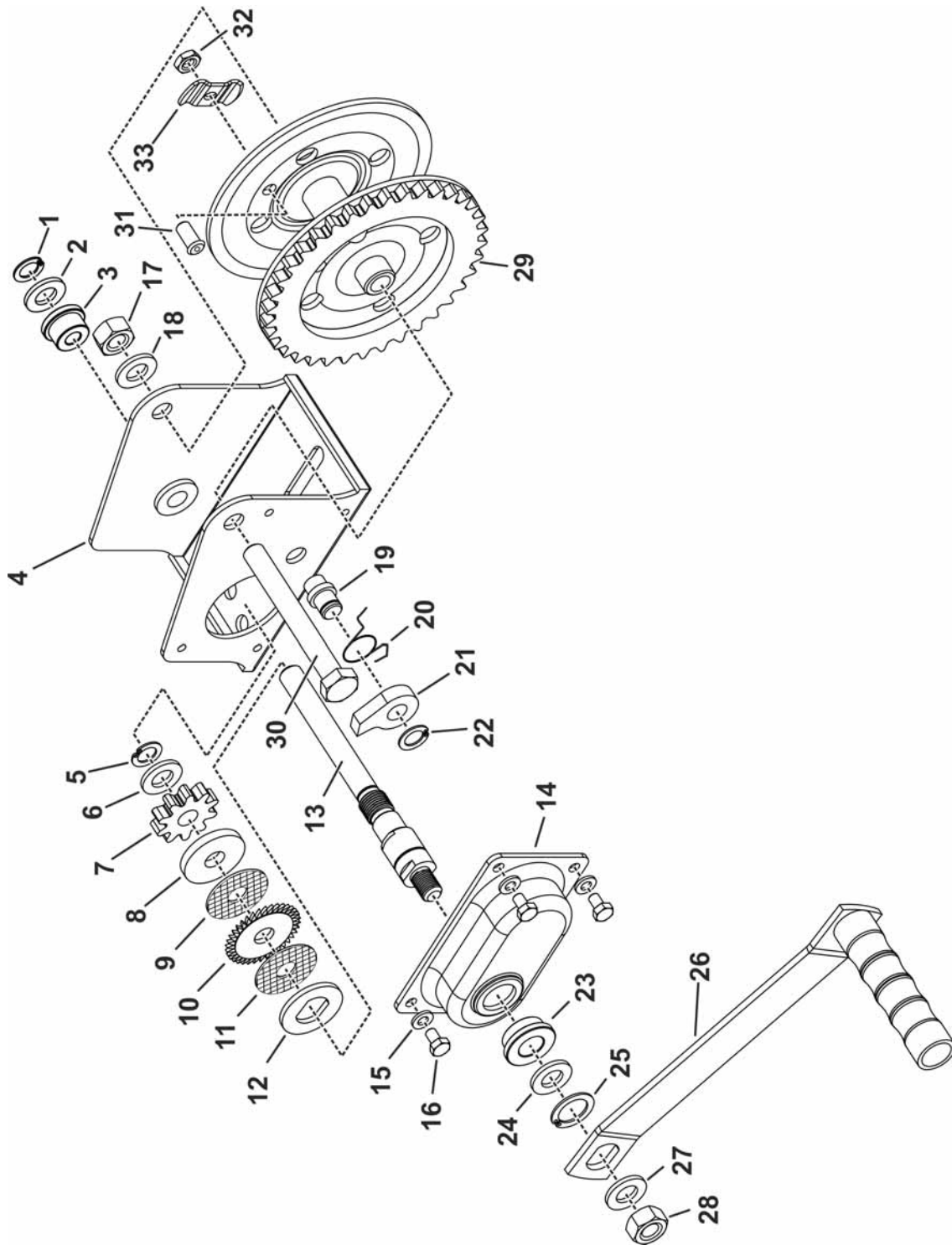
	Risk of injury
	<p>Fingers, loose clothing and body parts may be drawn into the winch by gear wheels, etc.</p> <ul style="list-style-type: none"> • Keep a suitable distance from the winch's moving parts. • Wear close-fitting protective work clothing. • Never work with long hair that has not been tied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

	Risk of injury
Danger	<p>In the event of improper use the cable winch may cause serious injury.</p> <ul style="list-style-type: none"> • 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. • Never oil the winch brake discs! • Always avoid overloading the winch! • Do not exceed the maximum tractive force specified for the cable. • Do not intentionally knot the cable. • Ensure that the winch is only operated by competent individuals. Keep children and individuals unfamiliar with the operation of the winch away from it. • Ensure that the load to be hoisted by the winch is secured safely and evenly. • Always keep the winch in good condition. • Never use the winch if it is damaged.

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 wet cleaning 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

	<p>Important</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. In particular, there is a risk that the plastic parts deform.</p>
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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**

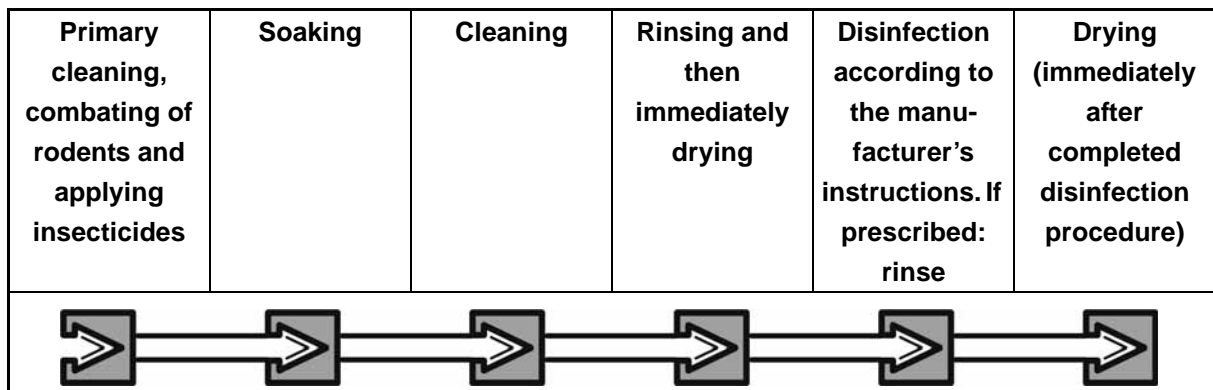
When choosing the disinfectant, you must pay attention to the corrosion resistance.

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

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>Important:</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>Thorough soaking can reduce the duration of the following cleaning period considerably.</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>Important</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. In particular, there is a risk that the plastic parts deform.</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>Important</p> <p>The feeding and drinker systems however must always be rinsed thoroughly after the disinfection.</p> <p>Drinker lines must always be rinsed on the inside 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 / cm² 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

	Risk of injury 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.
Warning	<ul style="list-style-type: none"> Only operate the auger when the protective grating is duly fixed to the lower part of the feed hopper.

- 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).
- 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).
- Auger bent at wear point
=> Replace respective piece of tube and of auger (see chapter).
- Auger "climbs up" at the drive AM.
=> Auger too long. Shorten the auger (see chapter).
=> Auger bent. Check the auger regarding deformations and repair it (see chapter).

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.
- Delicacy of sensor is too high.
 - => Reduce the delicacy (see also chapter)

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).

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

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).

9.7 Tube kink in the tube outlet holes

- Outlet holes not correctly made.
Replace tube (see chapter).

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)
- Delicacy of sensor is not sufficient.
=> Enlarge delicacy of sensor (see chapter).

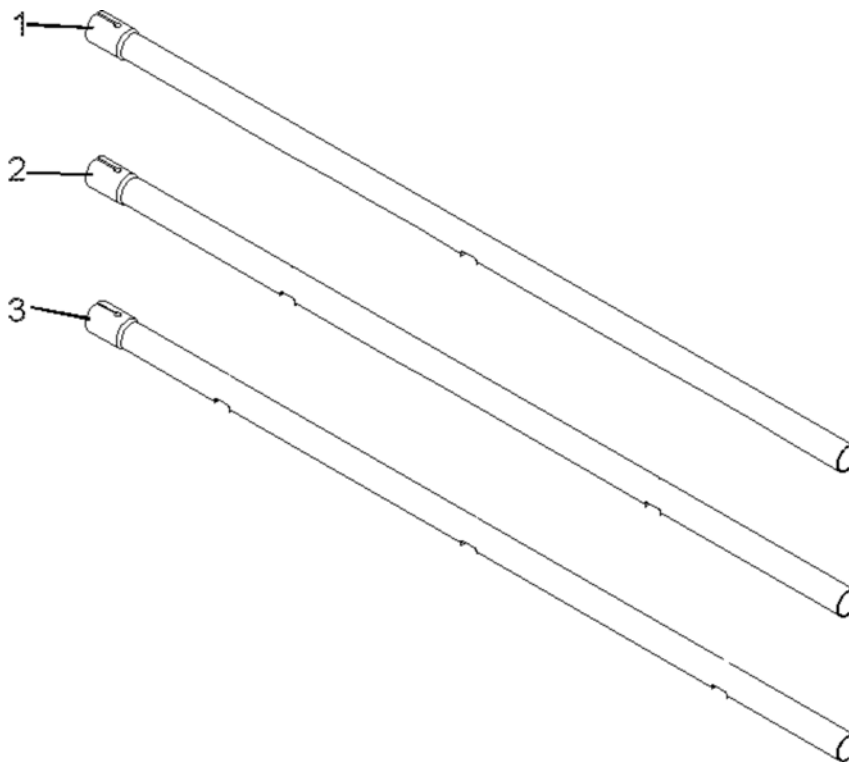
9.9 Auger causes an excessive noise

- 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



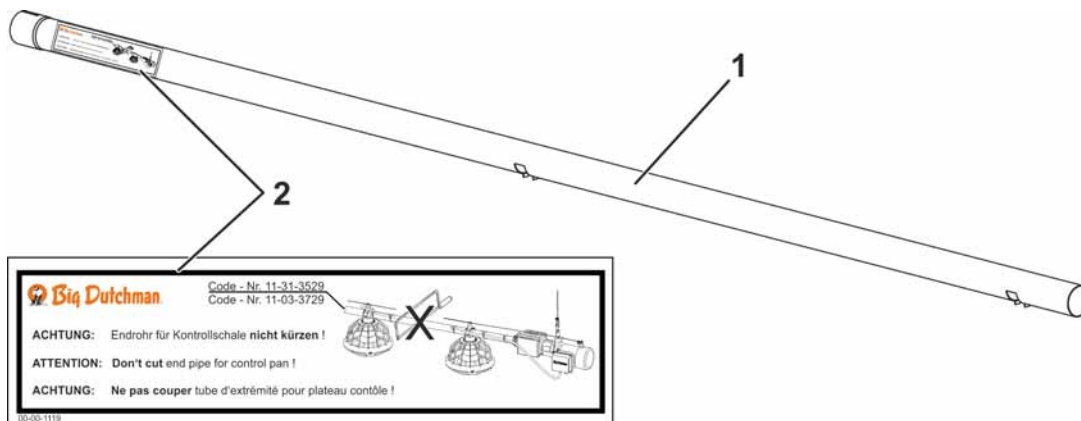
Pos.	Code no.	Description
1	83-00-4619	Tube 45x1.25-3050 1hole TRU PAN
	83-07-5013	Tube 50.8x1.25-3050 1hole Gladiator
	83-07-0686	Tube 60x1.25-3060 1hole Gladiator
2	11-31-3522	Tube 45x1.25-3050 2hole BP330
	83-07-5014	Tube 50.8x1.25-3050 2hole Gladiator
	83-07-0688	Tube 60x1.25-3060 2hole Gladiator
3	11-31-3523	Tube 45x1.25-3050 3hole BP330
	83-07-5015	Tube 50.8x1.25-3050 3hole Gladiator
	83-07-0689	Tube 60x1.25-3060 3hole Gladiator

10.1.2 End tubes



The end tubes must not be shortened.

Make sure that the sticker (00-00-1119) is applied on each end tube.



Pos.	Code no.	Description
1	83-00-3589	End tube 2775 mm 2hole Ø 45.0 TRU PAN
	83-00-4615	End tube 2775 mm 2hole Ø 50.8 TRU PAN
	83-08-8539	End tube 2795 mm 2hole Ø 60.0 Gladiator
2	00-00-1119	Sticker D/GB/F: End tube for control pan

10.2 Feed pans

10.2.1 Feed bowls for rearing with cone

Pos.	Code no.	Description	
	11-31-1490	Feed bowl cplt Gladiator diam. 45 manu. AZ with cone	
	11-31-1500	Feed bowl cplt Gladiator diam. 50.8 manu. AZ with cone	
	11-31-1510	Feed bowl cplt Gladiator diam. 60 manu. AZ with cone	
1	83-06-9309	Pipe adapter for Gladiator	
2	83-06-9447	Inlay half for 45mm pipe for Gladiator	
	83-06-9446	Inlay half for 50.8mm pipe for Gladiator	
	83-06-9308	Inlay half for 60mm pipe for Gladiator	
3	83-06-9311	Grille for Gladiator	
4	83-06-9313	Locking clip for Gladiator grille	
5	83-06-9307	Internal cylinder for Gladiator	
6	83-08-5948	Poult cone for Gladiator	
7	83-08-5954	Rearing bowl with large cone for Gladiator	

10.2.2 Feed bowls for rearing without cone

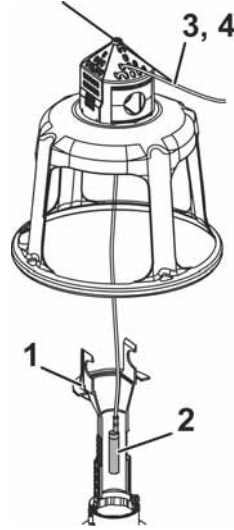
Pos.	Code no.	Description	
	11-31-1491	Feed pan complete Gladiator dia 45 manual rearing pan without cone	
	11-31-1501	Feed pan complete Gladiator dia 50.8 manual rearing pan without cone	
	11-31-1511	Feed pan complete Gladiator dia 60 manual rearing pan without cone	
	11-31-1493	Feed pan complete Gladiator dia 45 automatic rearing pan without cone	
	11-31-1503	Feed pan complete Gladiator dia 50.8 automatic rearing pan without cone	
	11-31-1513	Feed pan complete Gladiator dia 60 automatic rearing pan without cone	
1	83-06-9309	Tube adapter for Gladiator	
2	83-06-9447	Half tube adapter half 45mm Gladiator	
	83-06-9446	Half tube adapter half 50.8mm Gladiator	
	83-06-9308	Half tube adapter half 60mm Gladiator	
3	83-06-9311	Grille for Gladiator	
4	83-06-9313	Lock grille for Gladiator	
5	83-06-9307	Cylinder inner for Gladiator	
6	83-07-1538	Flooding unit complete Gladiator	
7	83-06-9306	Cylinder outer for Gladiator	
8	83-06-8988	Dish rearing blue Gladiator	
additionally only for automatic flooding:			
9	83-08-3864	Traction rope 1150lg PA (<i>polyamide</i>) Monofil flooding mechanism Gladiator	
10	86-01-4876	Wing nut & bolt black 1/8"	

10.2.3 Feed bowls for fattening

Pos.	Code no.	Description	
	11-31-1492	Feed pan complete Gladiator dia 45 manual finishing pan with collar	
	11-31-1502	Feed pan complete Gladiator dia 50.8 manual finishing pan with collar	
	11-31-1512	Feed pan complete Gladiator dia 60 manual finishing pan with collar	
	11-31-1494	Feed pan complete Gladiator dia 45 automatic finishing pan with collar	
	11-31-1504	Feed pan complete Gladiator dia 50.8 automatic finishing pan with collar	
	11-31-1514	Feed pan complete Gladiator dia 60 automatic finishing pan with collar	
1	83-06-9309	Tube adapter for Gladiator	
2	83-06-9447	Half tube adapter half 45mm Gladiator	
	83-06-9446	Half tube adapter half 50.8mm Gladiator	
	83-06-9308	Half tube adapter half 60mm Gladiator	
3	83-06-9311	Grille for Gladiator	
4	83-06-9313	Lock grille for Gladiator	
5	83-06-9307	Cylinder inner for Gladiator	
6	83-07-1538	Flooding unit complete Gladiator	
7	83-06-9306	Cylinder outer for Gladiator	
8	83-06-8989	Dish finishing blue Gladiator	
additionally only for automatic flooding:			
9	83-08-3864	Traction rope 1150lg PA (<i>polyamide</i>) Monofil flooding mechanism Gladiator	
10	86-01-4876	Wing nut & bolt black 1/8"	

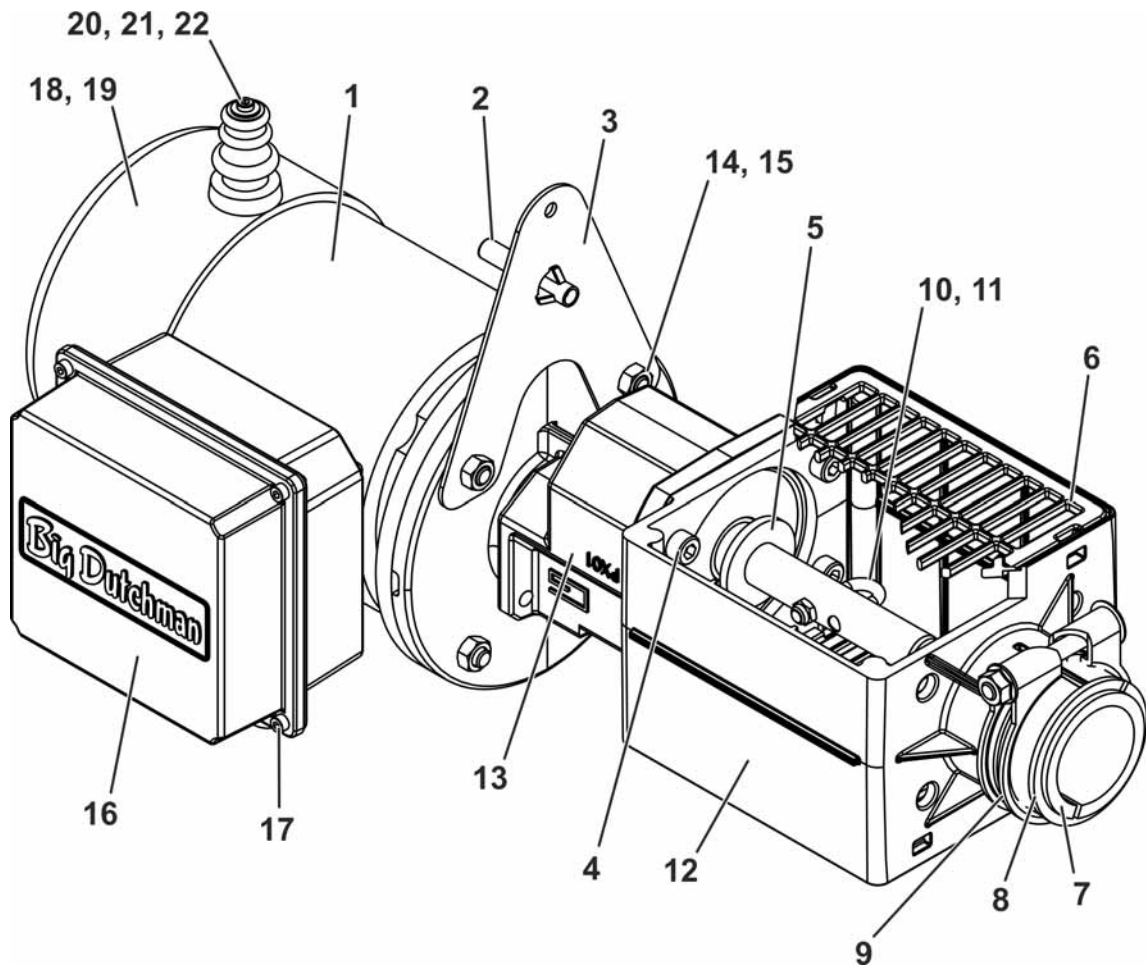
10.2.4 Control pans

All above types are also available with fill level sensor:

Pos.	Code no.	Description	
	11-31-1497	Control bowl cplt Gladiator d45 auto AZ AFS w/o cone	
	11-31-1498	Control bowl cplt Gladiator d45 autom. fattening with collar AFS	
	11-31-1499	Control bowl cplt Gladiator d45 manu. AZ AFS with cone	
	11-31-1495	Control bowl cplt Gladiator d45 manu. AZ AFS w/o cone	
	11-31-1496	Control bowl cplt Gladiator d45 manu. fattening with collar AFS	
	11-31-1507	Control bowl cplt Gladiator d50.8 autom. AZ with AFS w/o cone	
	11-31-1508	Control bowl cplt Gladiator d50.8 autom. fattening with collar AFS	
	11-31-1509	Control bowl cplt Gladiator d50.8 manu. AZ with AFS with cone	
	11-31-1505	Control bowl cplt Gladiator d50.8 manu. AZ with AFS w/o cone	
	11-31-1506	Control bowl cplt Gladiator d50.8 manu. fattening with collar AFS	
	11-31-1517	Control bowl cplt Gladiator d60 autom. AZ with AFS w/o cone	
	11-31-1518	Control bowl cplt Gladiator d60 autom. fattening with collar AFS	
	11-31-1519	Control bowl cplt Gladiator d60 manu. AZ with AFS with cone	
	11-31-1515	Control bowl cplt Gladiator d60 manu. AZ with AFS w/o cone	
	11-31-1516	Control bowl cplt Gladiator d60 manu. fattening with collar AFS	
1	83-06-9307	Internal cylinder for Gladiator	
2	60-40-2919	Sensor AFS-03 ST 90-250VAC sensitivity/delay adjustable	
3	99-50-3777	Cable strap 360mm x 4.5mm black (UV-stabilised)	
4	11-31-4106	Protective tube 1500mm for sensor AFS-03	
<p>The other components correspond to the bowls in chapters 10.2.1 to 10.2.3.</p>			

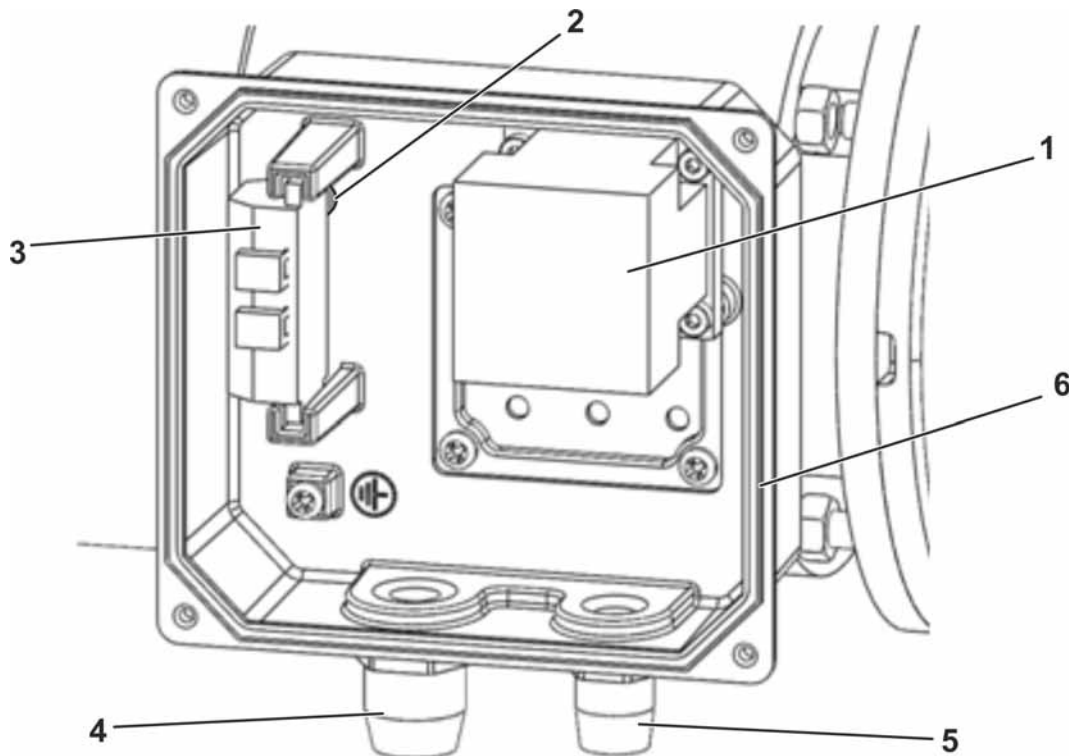
10.3 Drive unit AM

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 Replacement motors and gear boxes

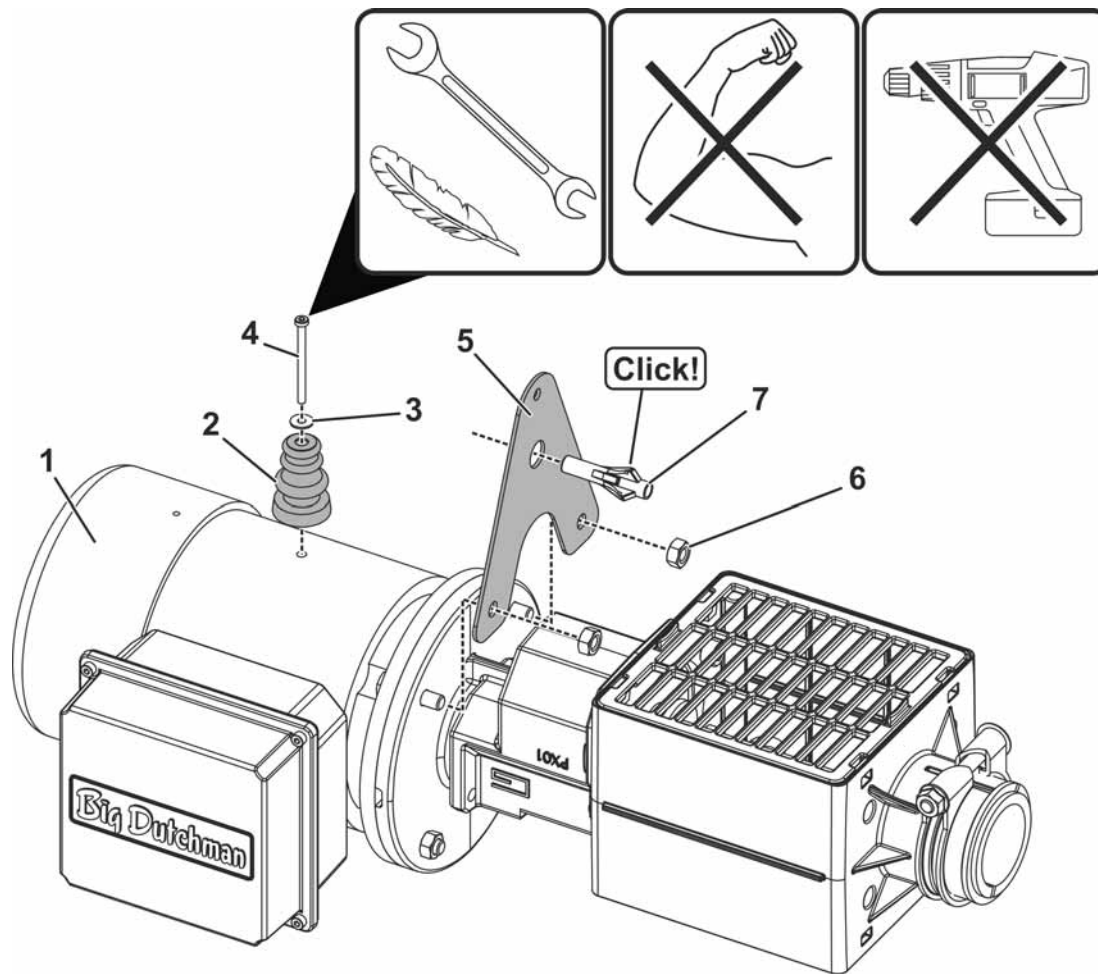
The replacement motors and gear boxes are connected with a standardized flange type B5.

The replacement motors comprise the terminal box.

Code no.	Description	for these drive units:
11-31-5050	Motor 0.55kW 230/400V 50Hz 3Ph B5 cpl for drive AM6	11-31-5020 11-03-3753
11-31-5046	Motor 0.55kW 220/380V 3Ph 60Hz cpl B5 f/driver AM6	11-31-5021
11-31-5047	Motor 0.55kW 200/346V 3Ph 50-60Hz cpl B5 f/driver AM6	11-31-5022 11-31-5023
11-31-5048	Motor 0.55kW 230V 1Ph 50Hz cpl B5 f/driver AM6	11-31-5024
11-31-5049	Motor 0.75kW 230V 1Ph 50Hz S3 cpl B5 f/driver AM6	11-03-3705

Code no.	Description	for these drive units:
11-31-5042	Gearbox 4.31R for motor 50Hz B5 AM6	11-31-5020 11-31-5022 11-31-5024
11-31-5045	Gearbox 5.70R for motor 60Hz B5 AM6	11-31-5021 11-31-5023
11-31-5044	Gearbox 1.91R for motor 50Hz B5 AM6 Rapid-Rooster	11-03-3753

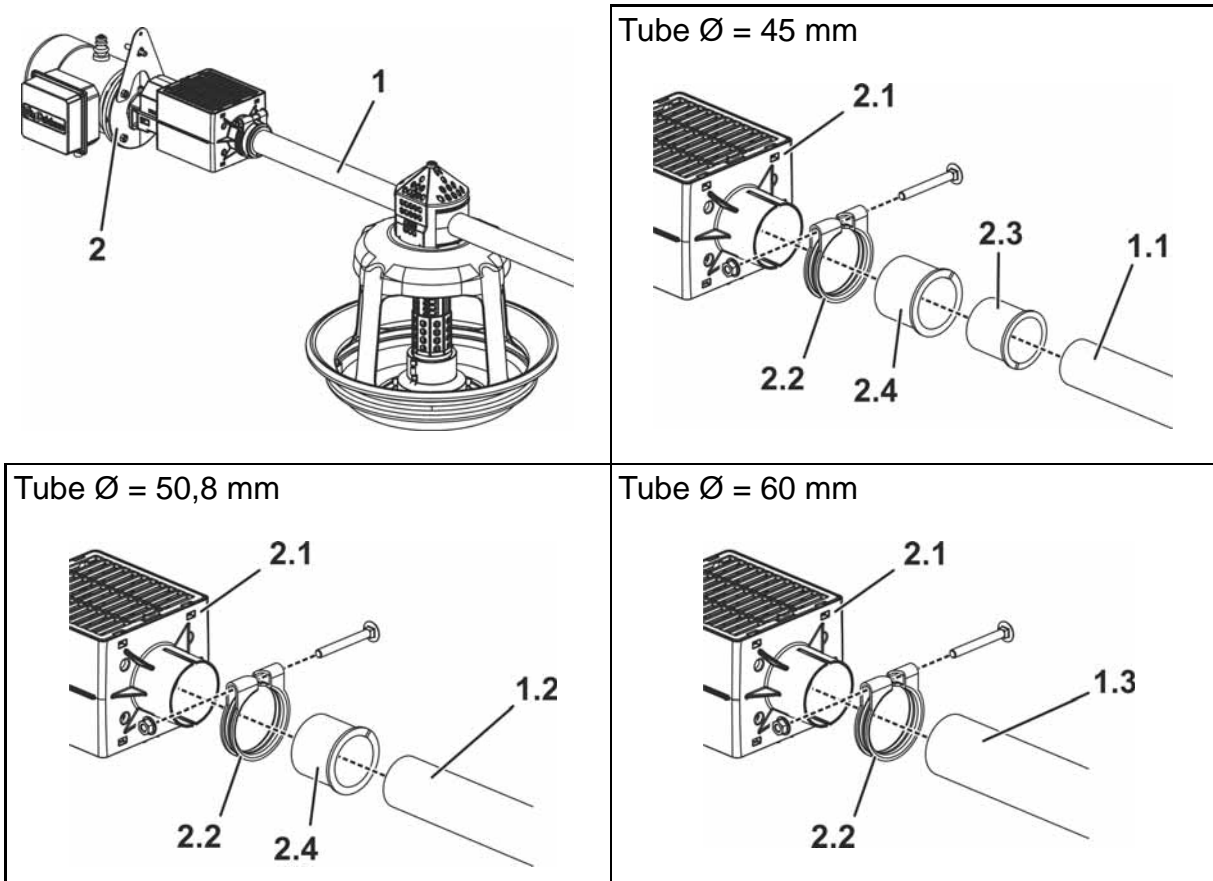
10.3.1.2 Pre-assembly



Pos.	Code no.	Description
1	11-31-5040	Ventilator cowl PP orange AM6
2	11-31-3744	Insulator conical (for corner RPM/Challenger)
3	11-31-5034	Washer galv. 4.3x16x1.5 / Isolator AM6
4	11-31-5035	Hexagon socket screw M 4x50 galv. DIN 912 AM6
5	83-08-6881	Suspension sheet for drive AM6
6	99-10-1040	Hexagonal nut M 8 galv. DIN 934-8
7	39-00-3279	Insulator EV/UV

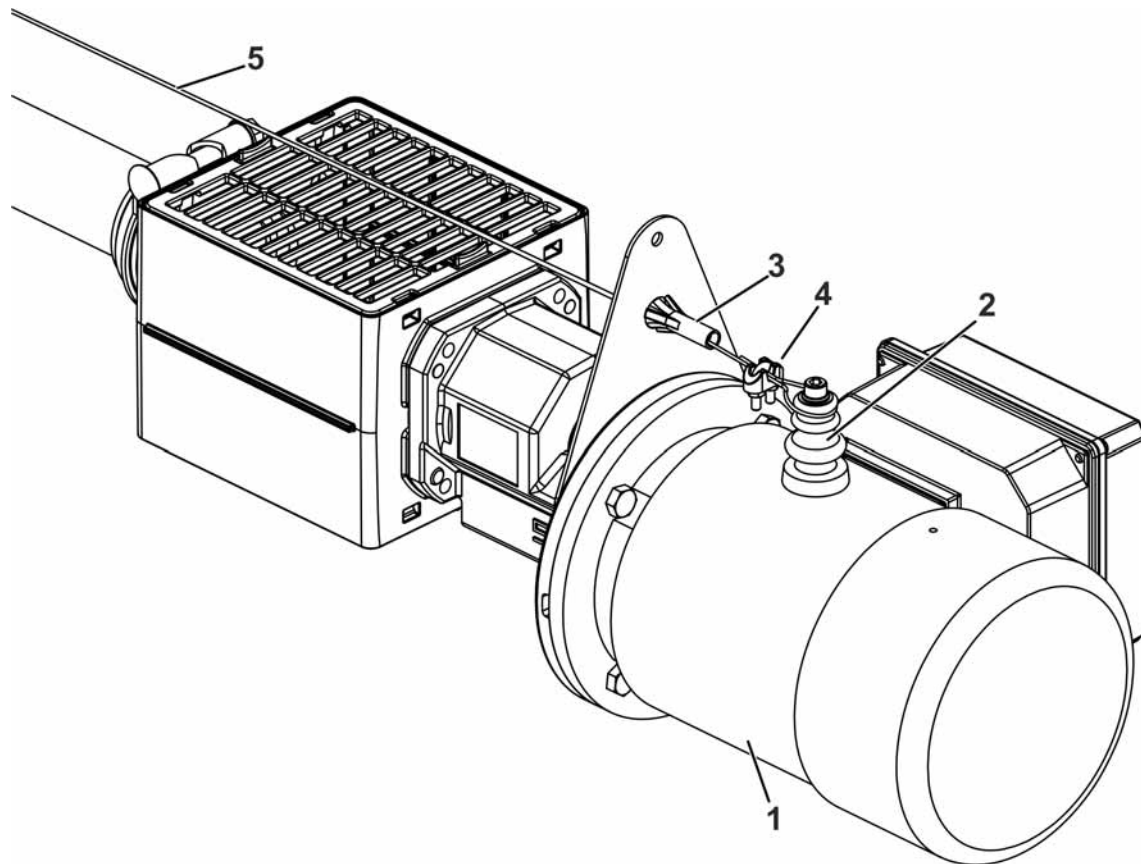
10.3.1.3 Assembly AM drive

- Insert the sleeves matching the tube diameter.
- Push the drive AM **as far as possible** onto the end of the end-tube.



Pos.	Code no.	Description
1		End-tube AM
1.1	83-00-3589	End-tube 2775mm 2hole Ø 45.0 TRU PAN
1.2	83-00-4615	End-tube 2775mm 2hole Ø 50.8 TRU PAN
1.3	83-08-8539	End-tube 2795mm 2hole Ø 60.0 Gladiator
2		Drive AM6
2.1	83-07-9237	Front bracket drive AM6
2.2	11-31-5043	Tube clip Norma Ø 64 AM6
2.3	83-08-6654	Sleeve 50.8 x 2.9 - 50mm lg for tube Ø 45mm / AM 6
2.4	83-08-6655	Sleeve 60 x 4.6 - 50mm lg for tube Ø 50mm / AM 6

10.3.1.4 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

10.3.2 Drive unit AM5

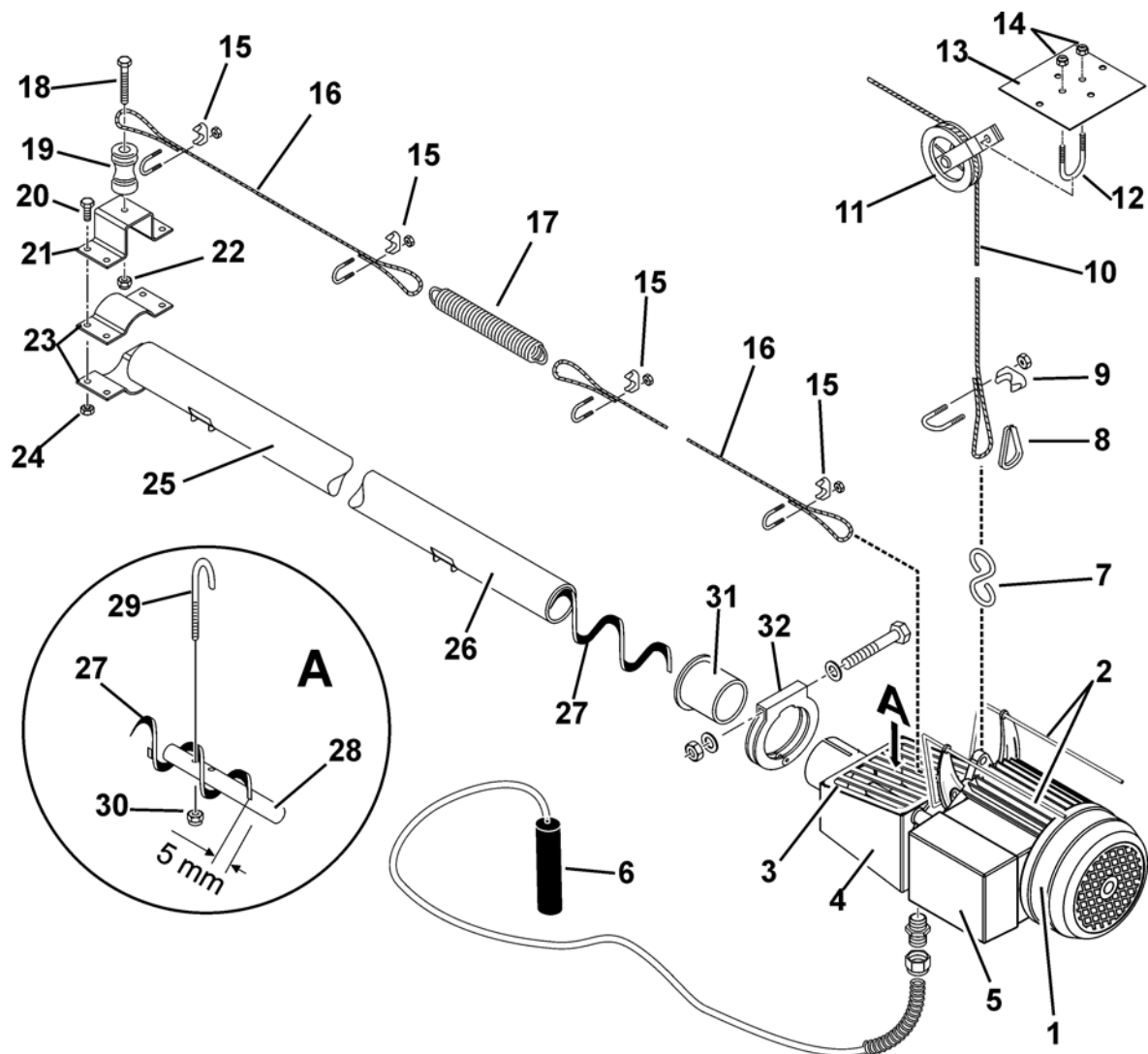
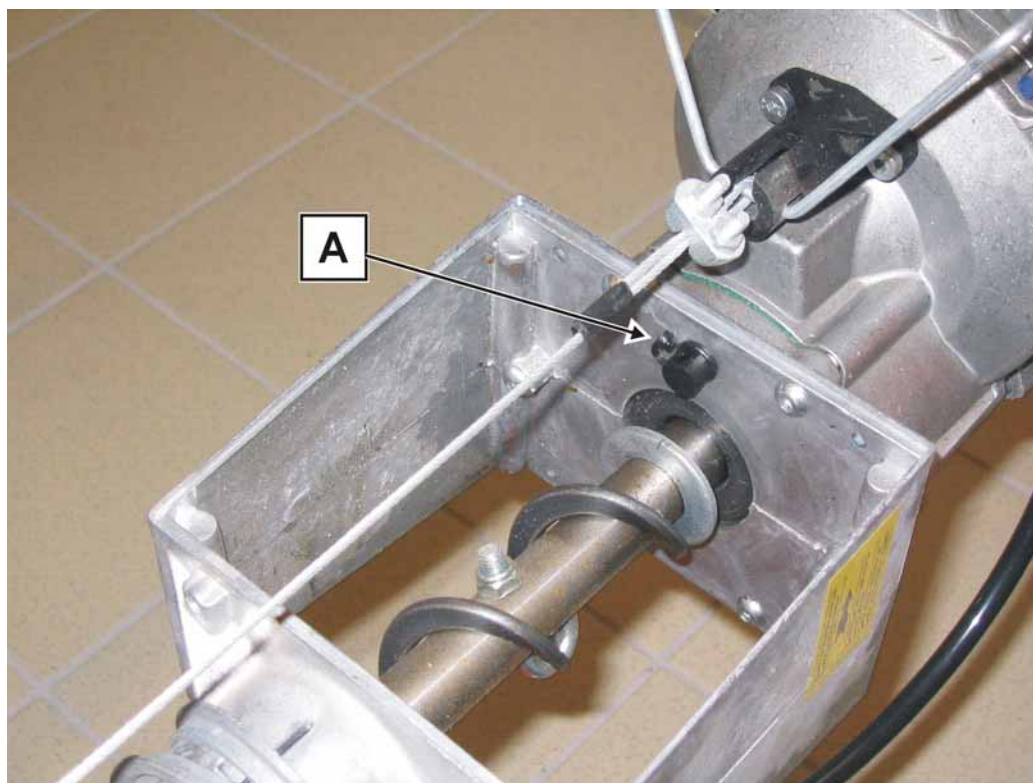


Figure 10-1: Drive unit AM5

Pos.	Code no.	Description
1	11-31-4502	Drive 0.37 kW 230V 1PH 50Hz AM5 without sensor with switch box
	11-31-4512	Drive 0.37 kW 230/400V 60Hz AM5 without sensor with switch box
	11-31-4552	Drive 0.37 kW 230/400V 50 Hz AM5 without sensor with switch box
	11-31-4602	Drive 0.55 kW 230V 50 Hz AM5 without sensor with switch box
	11-31-4612	Drive 0.55 kW 230/400V 60Hz AM5 without sensor with switch box
	11-31-4613	Drive 0.55 kW 200V 3PH 60Hz AM5 without sensor with switch box
	11-31-4652	Drive 0.55 kW 230/400V 50 Hz AM5 without sensor with switch box
	11-31-4653	Drive 0.55 kW 200V 3PH 50 Hz AM5 without sensor with switch box
2		Anti-roost wire for drive AM5
3		Wire mesh guard for bracket of drive AM5
4		Bracket of drive AM5
5		Terminal box with integrated On- / Off switch
6	91-00-3905	Sensor AFS-01-60 seconds 90-250V
	60-40-0654	Sensor MS-45R 220V without thread
7	99-50-0005	S-hook 2" no. 60 / 6x55
8	99-50-1077	Thimble 6 mm for cable 5 mm DIN 6899 NG 6 RW7 (=>)
9	99-50-0120	Safety cable clamp 5mm 3/16" DIN EN 13411-5 galv. NG5
10	99-50-3700	Wire rope 5 mm galv.
11	00-00-3006	Pulley 4 1/8" 105 mm with split strap
12	99-50-3003	U-bolt galvanized 8x25/W34/H50
13	11-31-3581	Bracket for cable winch 340 kg and hopper suspended AM/BP
14	99-20-1064	Self-locking counter nut M 8 DIN 985-6 galv.
15	99-50-0014	Cable clamp 3 mm 1/8" galv. DIN 741
16	99-50-1260	Wire rope 2 mm galv.
17	39-00-3096	Tension spring 2.0x14x134 C DIN 17223 galvanized
18	99-10-1152	Hexagon head screw M 5 x 50 galv. DIN 933 8.8
19	00-00-0032	Insulator porcelain anti-roost cable
20	99-10-1067	Hexagon head screw M 6 x 16 galv. DIN 933 8.8
21	11-31-1158	Bracket for insulator AM355
22	99-20-1033	Self-locking counter nut M 5 galv. DIN 985-6
23	11-31-1157	Clamp half for end anchor AM 355
24	99-10-1045	Hexagon nut M 6 galv. DIN 934
25		Tube AM / BP
26		End tube BP 330
27	11-31-3248	Auger open core 35.4 x 45 x 19.6 x 4.3 right AM/SA rmg.mtr.
28		Shaft drive AM
29	99-10-3947	Hooked bolt M 6x35 Augermatic
30	99-20-1043	Self-locking counter nut M 6 DIN 985
31	83-00-4914	Sleeve 50x2.5-40 for tube dia 45/50.8
32	11-31-3211	Tube clip riveted complete
33		End anchor (Pos. 18 to 24)



A= Plug for gear aeration is open

Motor with integrated thermostat relay:

The motor windings have thermostat relays for the overheating protection. These relays protect the motor against too high temperatures and thus prevent a "jamming" and "burning out" of the motor.



Warning:

This protective device does NOT replace the protective motor switch.

Anti-perch fixture (2):

The AM drive 5 already comes with an anti-perch fixture, so that additional installation works are not necessary.

Direct intervention well in the console:

The direct intervention well is dimensioned spaciouly to allow for easy mounting of the Augermatic spiral. It is closed with a plastic grid, which can easily be opened by releasing the snap fasteners with a screw driver.

Terminal box (5):

Integrated in the terminal box is a control relais and an On/Off switch for the drive. The drive is protected by means of a flap against unintentional operation by the animals. Also included in the terminal box are a micro-fuse for the sensor and an overheating protection for the motor. **This protective device does NOT replace the protective motor switch, which has to be installed either externally on the gable wall or in a central control box, as hitherto.**

Tube adapter for 45 mm and 50,8 mm tubes

The AM drive 5 can be used with 50.8 mm or 45 mm tubes. When using a 45 mm tube, a reducing bush (31) for the tube adaptor has to be installed at the drive.

Suspension eye:

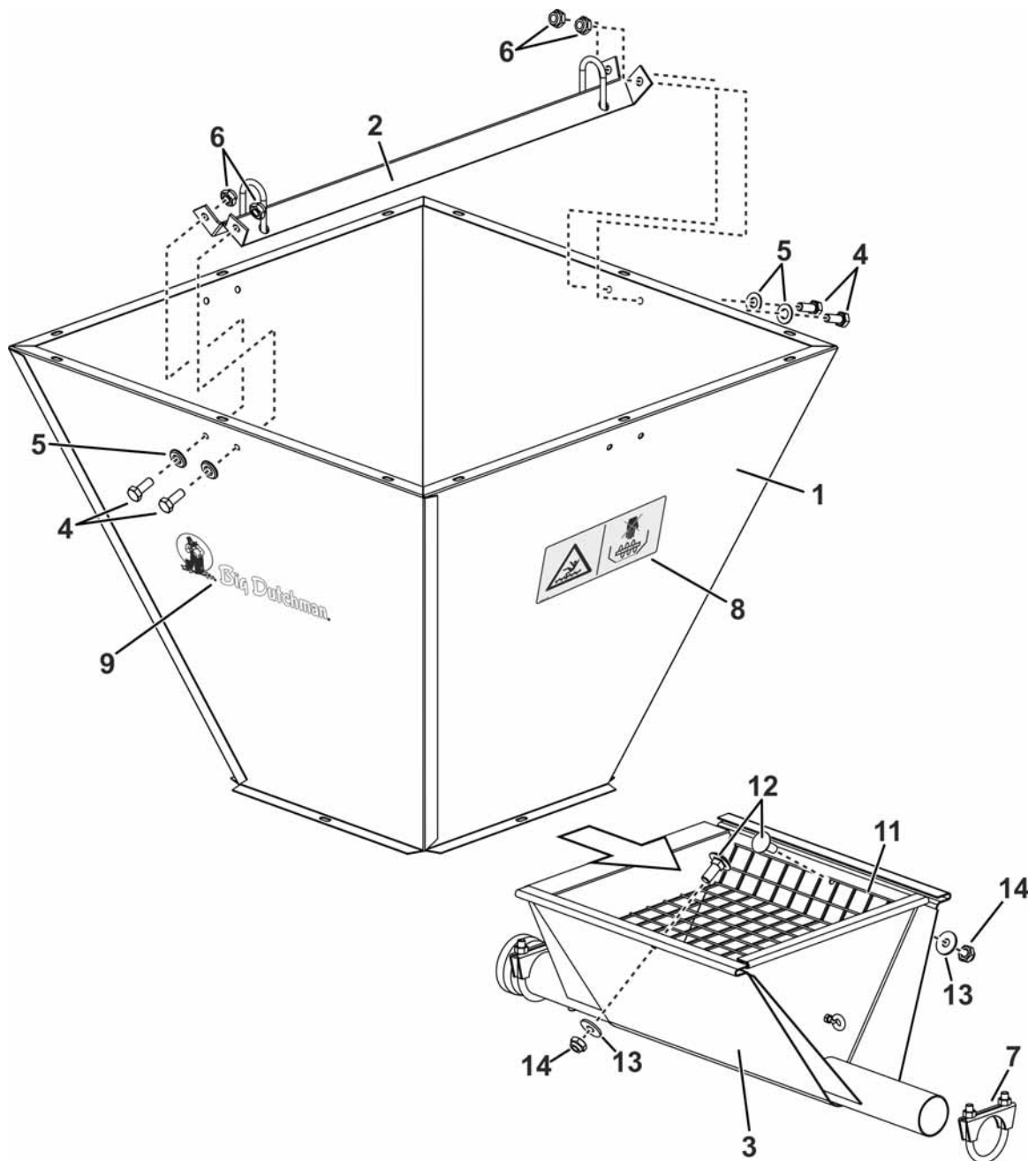
By means of the suspension eye that is integrated in the motor housing the AM drive5 can easily be secured at the suspension cords of the feed circuit.

Gear aeration:

The vent of the gear - directly above the drive shaft - has to be opened **before initiation of the drive** by pulling off the plug.

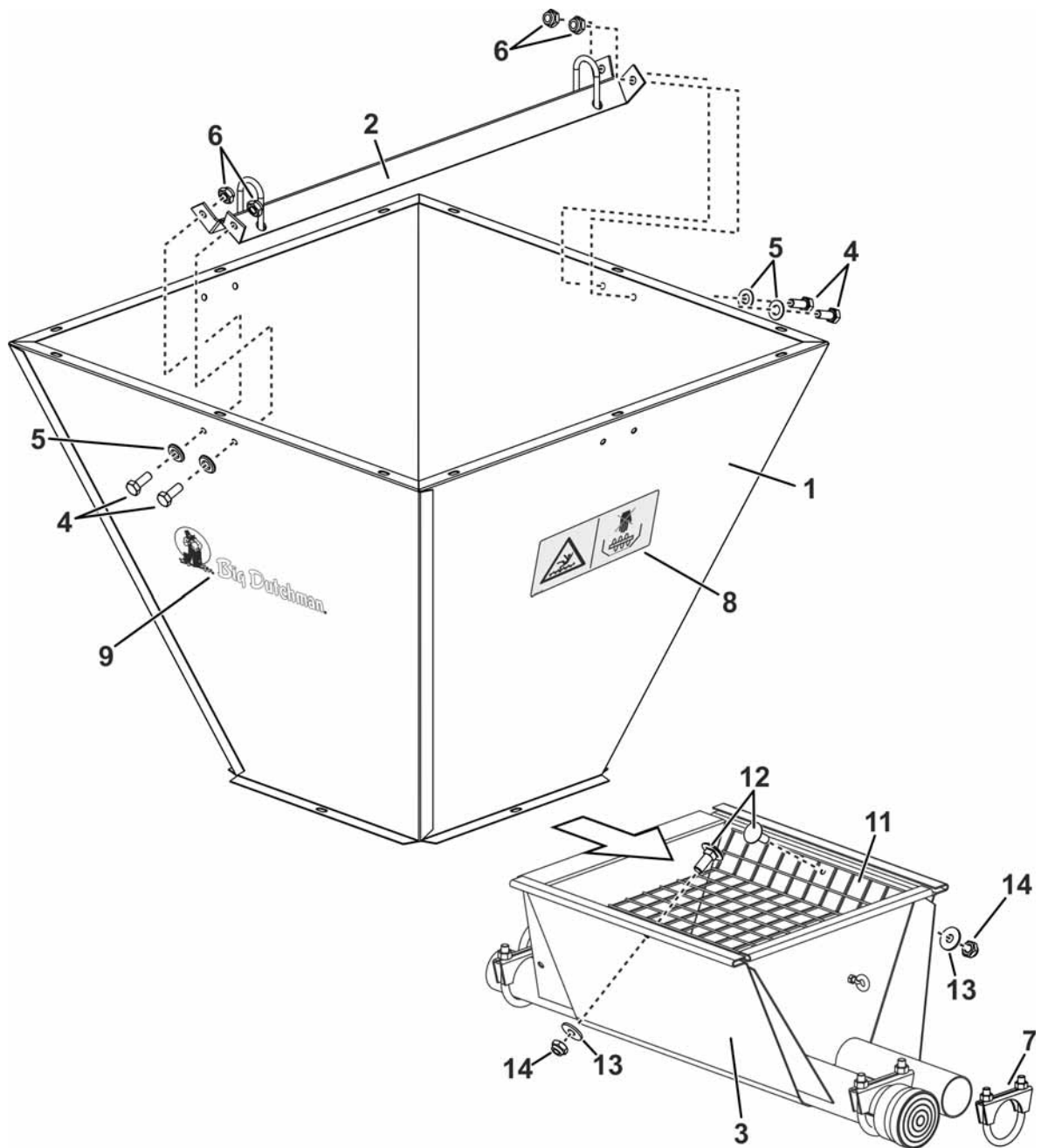
10.4 Hopper

Feed hopper cpl 115l 1 line



Pos.	Code no.	Description
	11-31-3540	Hopper 115l 1line cpl BP/AM for tube Ø 45 and 47.6
1	11-31-1316	Upper part for hopper 115l AM ZnAl
2	11-31-1304	Traverse f/suspension hopper AM+BP
3	11-31-3545	Lower part for hopper BP/AM for tube dia 45 and 50.8
4	99-10-1067	Hexagon head screw M 6x 16 DIN 933 8.8 galv
5	99-50-1147	Washer B 6.4 DIN 125 galv
6	99-20-1043	Self-locking counter nut M 6 galv DIN985-6
7	99-50-1422	U-bolt hot-dip galv cpl 8x25/W52/H68.5 Pipe 2"
8	00-00-1188	Pictograph: Risk of injury / hopper
9	00-00-1173	Type plate: Big Dutchman 265mm x 80mm
10	11-31-1315	Wire mesh guard cpl for lower part of hopper BP/AM
	consisting of:	
11	11-31-1314	Wire mesh guard for lower part of hopper BP/AM
12	99-10-1602	Mushroom head square neck bolt M 6x 16 DIN 603 4.6 galv
13	99-10-3953	Washer 6.4x30x1.5 galv
14	99-20-1043	Self-locking counter nut M 6 galv DIN985-6

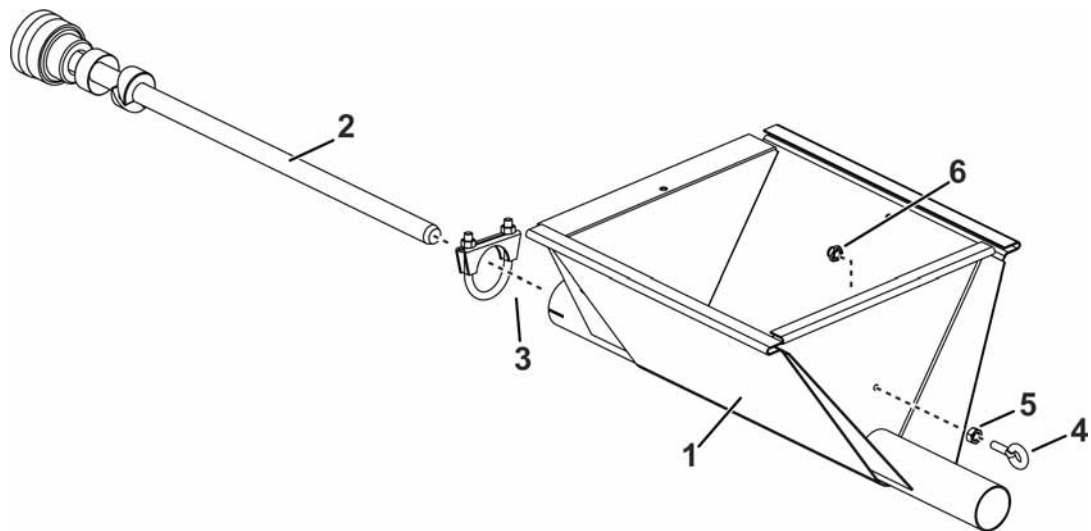
Feed hopper cpl 115l 2 lines



Pos.	Code no.	Description
	11-03-3540	Hopper 115l 2lines centric BP/AM for tube Dia 45 and 47.6
1	11-31-1316	Upper part for hopper 115l AM ZnAl
2	11-31-1304	Traverse f/suspension hopper AM+BP
3	11-03-3541	Lower part for hopper 115L 2way central AM-Rapid-Rooster
4	99-10-1067	Hexagon head screw M 6x 16 DIN 933 8.8 galv
5	99-50-1147	Washer B 6.4 DIN 125 galv
6	99-20-1043	Self-locking counter nut M 6 galv DIN985-6
7	99-50-1422	U-bolt hot-dip galv cpl 8x25/W52/H68.5 Pipe 2"
8	00-00-1188	Pictograph: Risk of injury / hopper
9	00-00-1173	Type plate: Big Dutchman 265mm x 80mm
10	11-31-1315	Wire mesh guard cpl for lower part of hopper BP/AM
	consisting of:	
11	11-31-1314	Wire mesh guard for lower part of hopper BP/AM
12	99-10-1602	Mushroom head square neck bolt M 6x 16 DIN 603 4.6 galv
13	99-10-3953	Washer 6.4x30x1.5 galv
14	99-20-1043	Self-locking counter nut M 6 galv DIN985-6

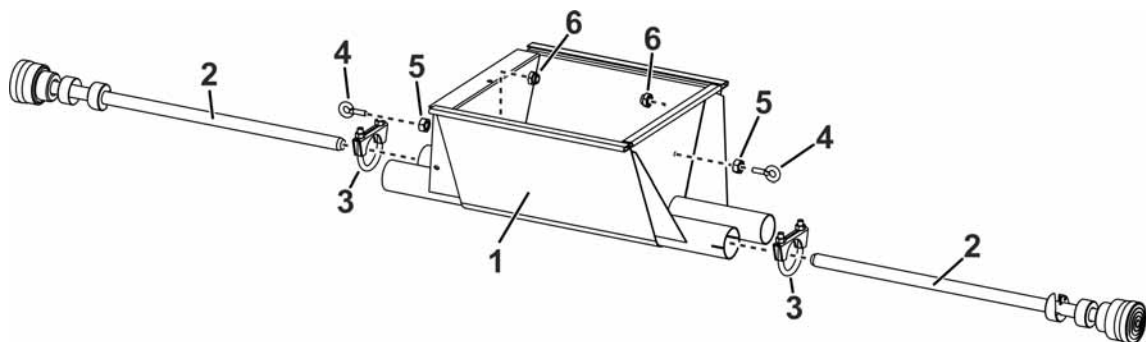
10.4.1 Lower part for feed hopper

Lower part for feed hopper 1 line



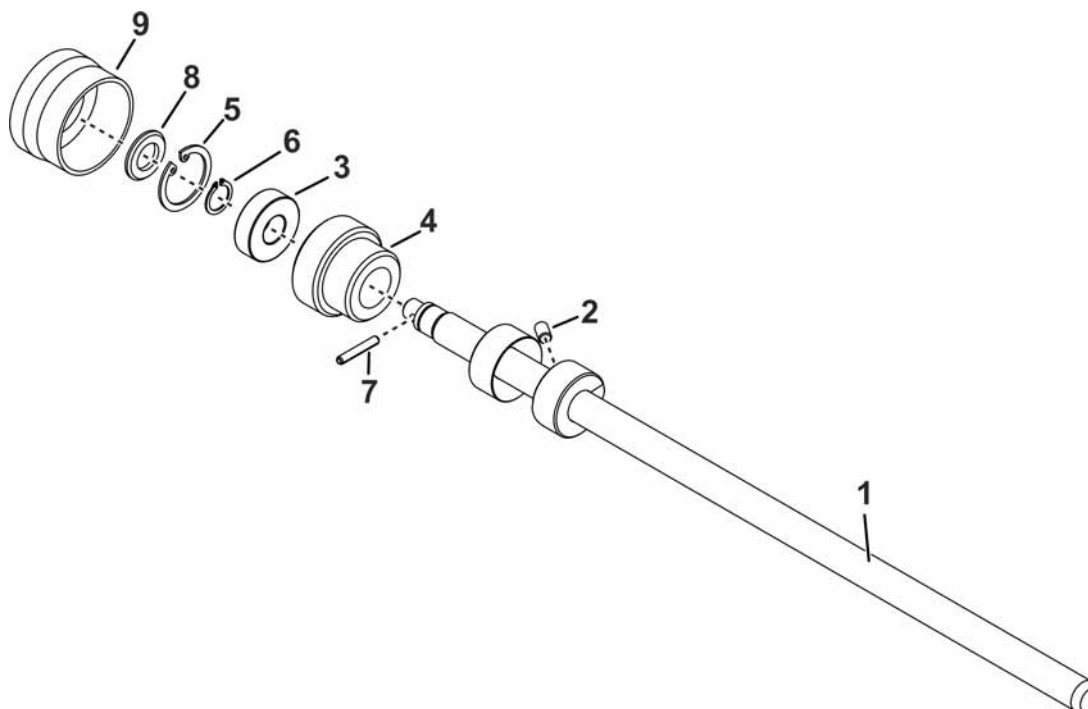
Pos.	Code no.	Description
	11-31-3545	Lower part for hopper BP/AM for tube dia 45 and 50.8
1	11-31-1104	Lower part for hopper AM (casing)
2	11-05-1082	Tension shaft cpl 19mm AM with Seeger ring+bearing housing
3	99-50-1422	U-bolt hot-dip galvanized cpl. 8x25/W52/H68.5 pipe 2"
4	35-00-1303	Lifting eye bolt M 5x 15
5	35-00-1023	Hexagon nut M 5 galv. DIN 934-8
6	99-20-1033	Self-locking counter nut M 5 galv. DIN 985-6

Lower part for feed hopper 2 lines



Pos.	Code no.	Description
1	11-31-1104	Boot f/hopper AM
2	11-05-1082	Tension shaft cpl 19mm AM w/Seeger ring+bearing hous.
3	99-50-1422	U-bolt hot-dip galv cpl 8x25/W52/H68.5 Pipe 2"
4	99-10-1303	Lifting eye bolt M 5x 15
5	99-10-1023	Hexagon nut M 5 galv DIN934-8
6	99-20-1033	Self-locking counter nut M 5 galv DIN985-6

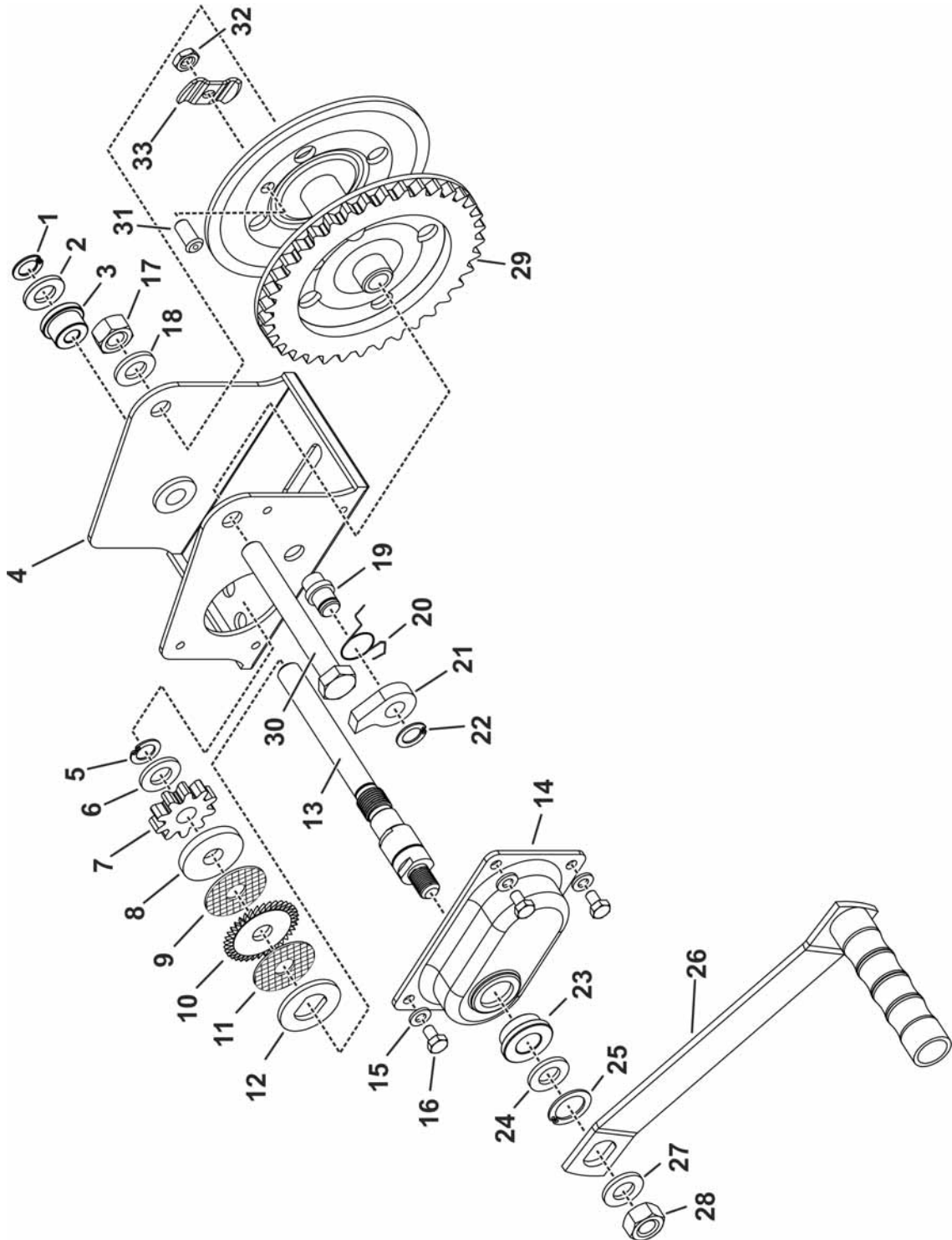
10.4.2 Tension shaft complete



Pos.	Code no.	Description
1		Shaft 539mm for tension shaft with fastener round and guiding cone
2		Hex socket set screw M 5x8 DIN 913 hexagon socket / flat point
3	11-00-1052	Ball bearing S6203-RS
4		Bearing housing f/tension shaft cpl 19mm AM
5	99-50-1301	Retaining ring DIN472 40x1.75
6	99-50-1300	Retaining ring DIN471 17x1
7	99-50-1286	Spring type straight pin 5x30 DIN 1481
8	99-20-1081	Washer B 17 DIN 125 galv
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

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)

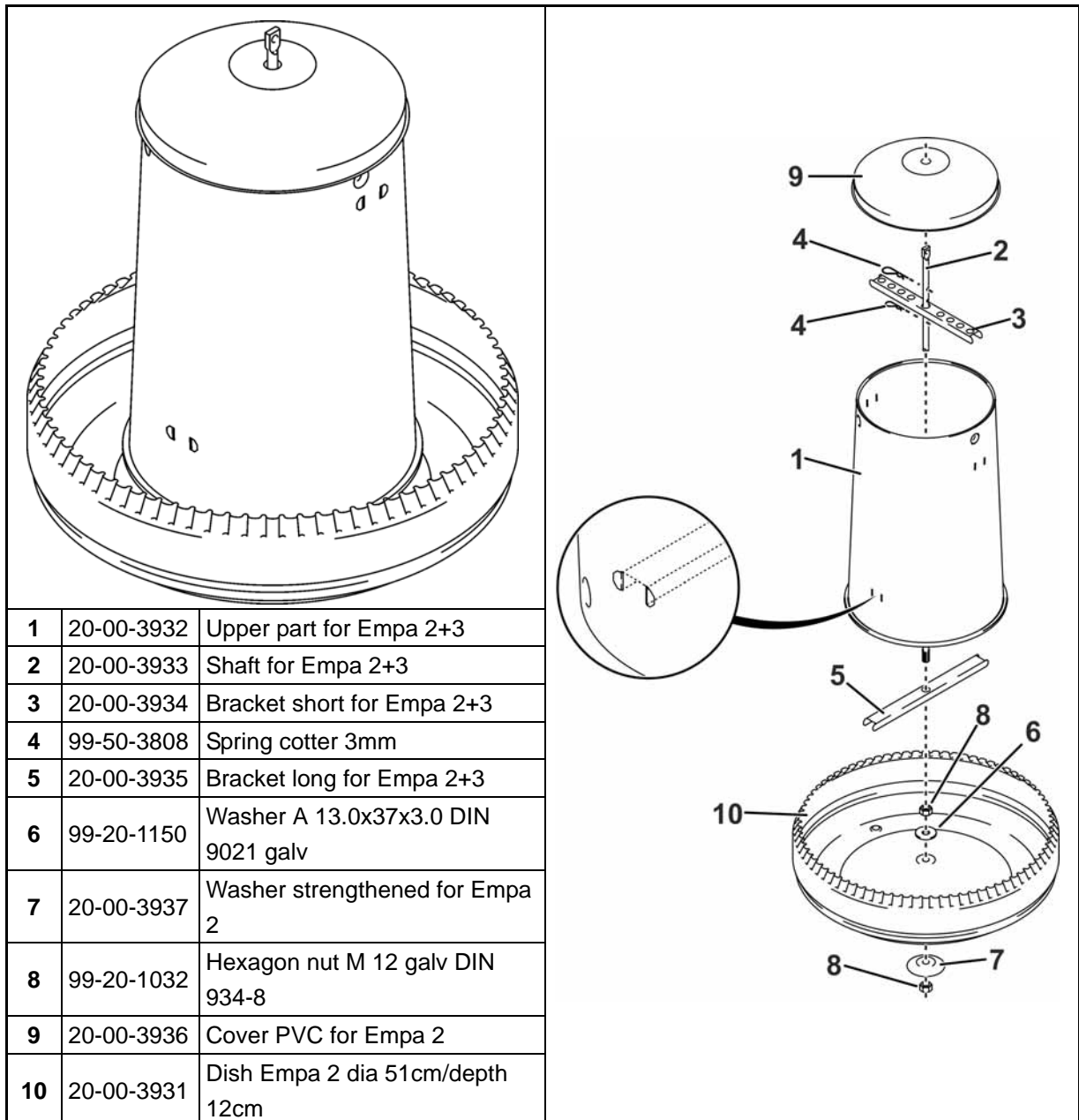


Figure 10-2: Feeder 30ltr Empa 2 (20-00-3930)

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

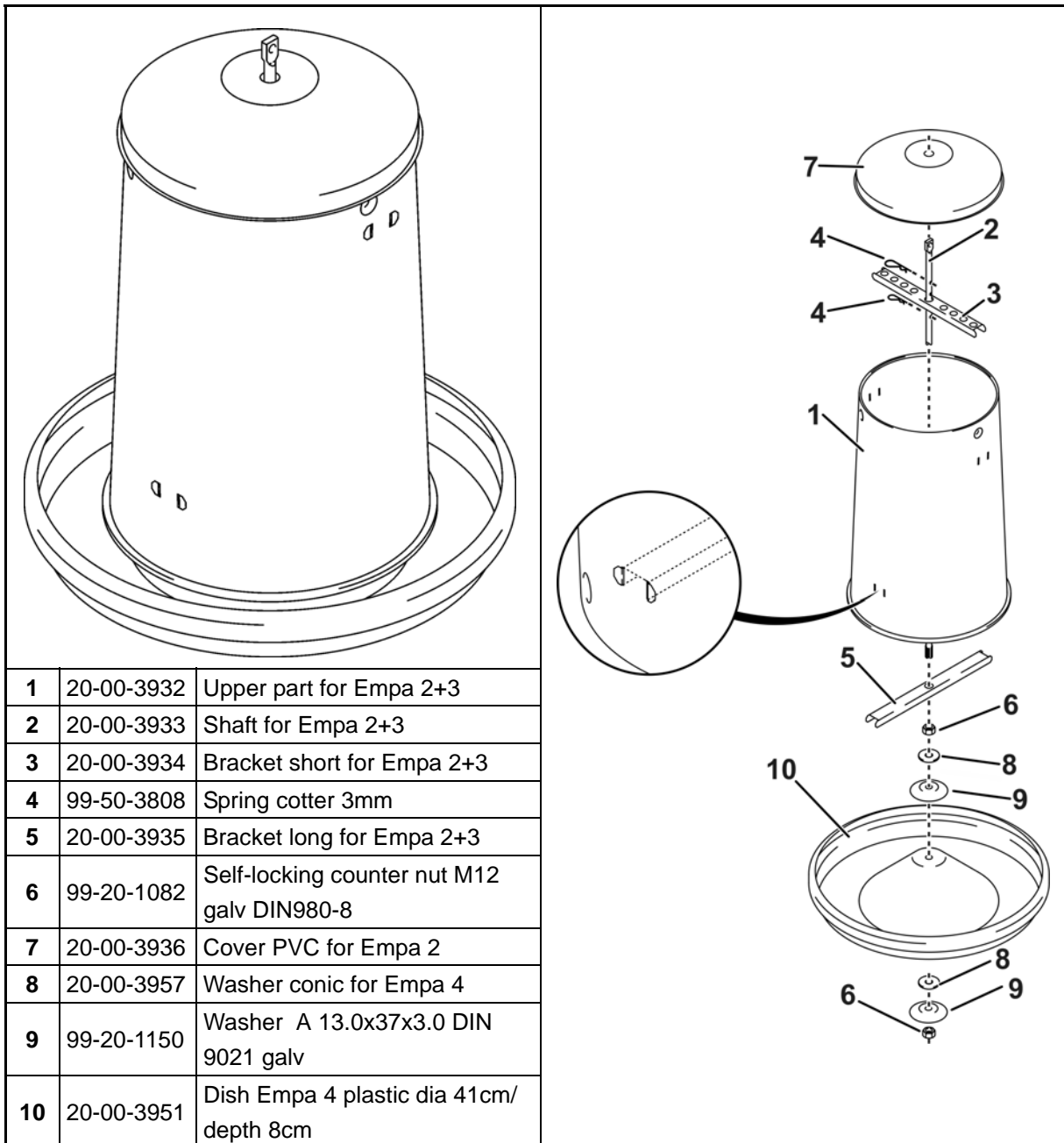


Figure 10-3: Feeder 30 ltr Empa 4 (20-00-3950)

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

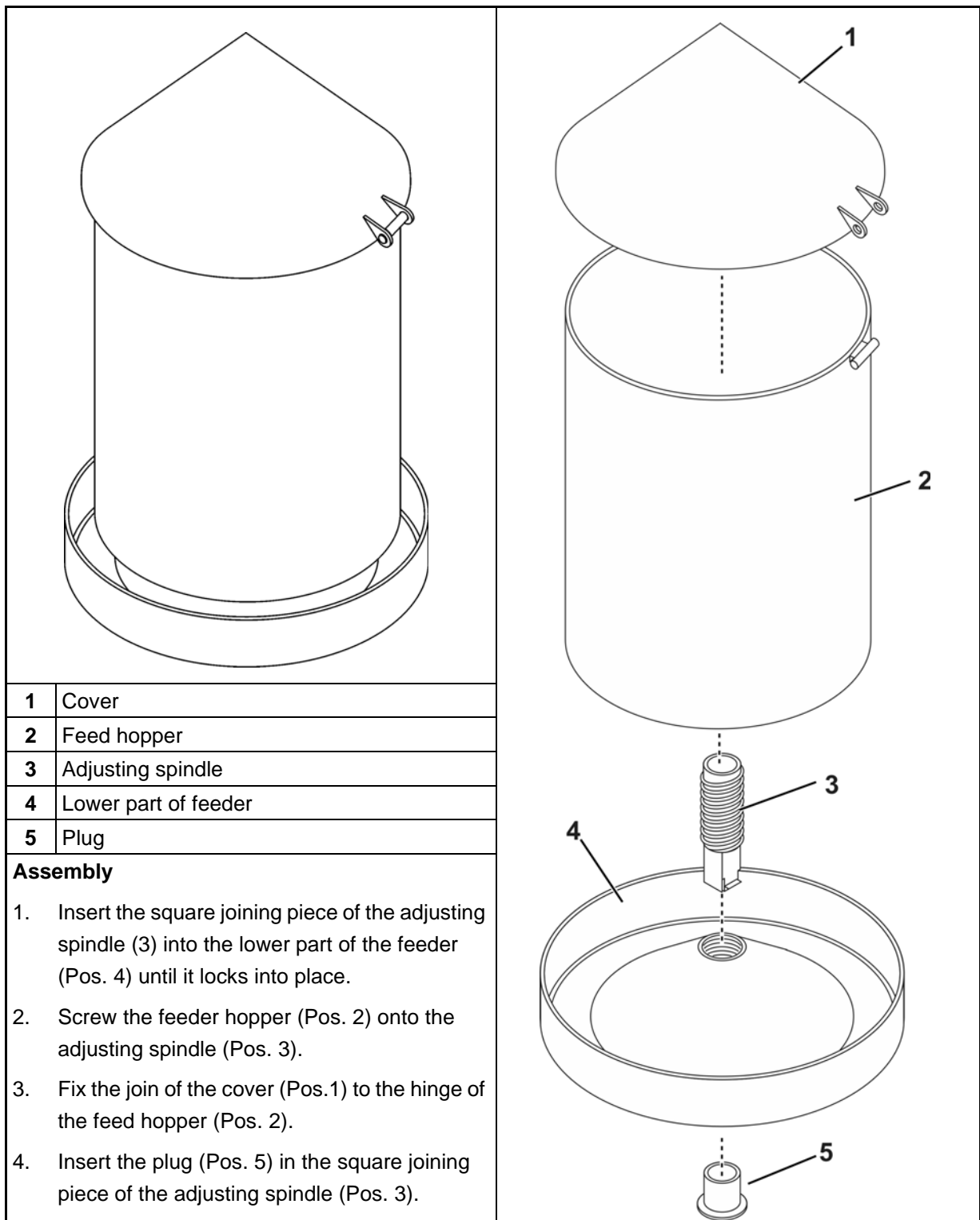


Figure 10-4: Feeder 12 ltr Picorett (11-31-3080)

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.



1 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 => exact monitoring of water and feed consumption can provide valuable information for bird management		
<input type="checkbox"/> house climate=> ventilation, house temperature		
<input type="checkbox"/> physique and behaviour of the birds=> select the birds and document the your daily 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 **at each batch**:



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		