

User Manual

Augermatic MP395

Code No. 99-97-7351

Edition: 11/2017 GB

Invalid!
Replaced by 99-94-0705

EC Declaration of conformity



Big Dutchman.

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

In accordance with EC Directives:

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

Further applicable EC directives:

- Electromagnetic compatibility 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

Authorised person for technical documents: Productmanager "Poultry meat production"
Auf der Lage 2; 49377 Vechta

Head of BU

Vechta

13.10.16

Chief Engineer BU

i.A.

Place

Date

Signer and information regarding signer

Signature

1	Basic instructions	1
1.1	EC declaration of conformity	1
1.2	Purpose of the BD manuals	1
1.3	Basics	2
1.4	Explanation of the symbols and structure of these instructions	3
1.4.1	Structure of the safety instructions in this manual	3
1.4.2	Structure of the general instructions in the manual	3
1.4.3	Special safety symbols in the manual and on the system	4
1.5	Necessary qualifications of the persons working with the system.	5
1.5.1	Employing external personnel	5
1.5.2	Assembly	5
1.5.3	Electrical installation	5
1.6	Obligations	6
1.7	Warranty and liability	6
1.8	First aid	6
1.9	Transport	7
1.10	Storage	7
1.11	Pollution abatement regulations	8
1.12	Waste disposal	8
1.13	Notes for use	8
1.14	Copyright	9
2	Safety instructions	10
2.1	Instructions on accident prevention	10
2.2	General safety instructions	10
2.3	Personal safety instructions	11
2.4	Personal protective equipment and measures	12
2.5	Use of electrical appliances	12
2.6	Special safety instructions	13
2.6.1	Danger zone	13
2.6.2	Entire system	14
2.7	Individual parts	15
2.7.1	Auger	15
2.7.2	Electrical components	16
2.8	Safety contrivances	16
2.9	Dangers resulting from non-compliance with the safety instructions	16
2.10	Safety component parts	17
2.11	Safety symbols at this system	18
3	System description	21
3.1	Designated use	22
3.2	Avoidance of foreseeable misuse	22

3.3	Overview	23
3.4	Technical data	24
3.4.1	Technical data of the conveying system	24
3.5	Dimensions of feed pans	25
3.6	Accessories (option)	26
3.7	Control pans MP395	27
3.8	Augermatic MP 395 [layout instructions]	28
3.8.1	Area of use of feed pan and control pan	28
3.8.2	Determine number of lines and pans	29
3.8.3	Recommended numbers of birds	29
3.9	Calculation of lifting load for suspended lines	29
4	Operating Instructions	30
4.1	Important information	30
4.2	Management recommendations for the housing and production	31
4.2.1	Preparations for the moving-in procedure	31
4.2.1.1	Airing / ventilation	31
4.2.1.2	Heating / heat requirements	33
4.2.1.3	Feed supply	33
4.2.1.4	Feeding system	35
4.2.1.5	Water supply	36
4.2.2	Place birds	37
4.2.3	Daily tasks	39
4.2.3.1	House temperature	40
4.2.3.2	Feeding	43
4.2.4	Preparation of the moving-out procedure	45
4.2.4.1	Climate before and after moving the birds out	45
4.2.4.2	Light	45
4.2.4.3	Shutting off the feed supply	45
4.2.5	After the moving-out procedure	47
4.3	The feed pans	48
4.3.1	General features of the feed pan	48
4.3.2	MP395	48
4.3.2.1	Features:	48
4.4	Cable winch 350 kg GS for wall mounting incl. hand crank (99-50-3099) ..	49
4.4.1	Technical data	49
4.4.2	Selecting and fastening the cable	50
4.4.3	Operation of the system	51
4.5	Sensor	52
4.5.1	Sensor DOL 26	52
4.5.1.1	Electrical connection of DOL 26	52
4.5.1.2	Technical data DOL 26	53
4.5.1.3	Functioning of the sensor DOL 26	54
4.5.1.4	Setting the time delay and sensitivity at the sensor DOL 26	54
4.5.2	Sensor DOL 44RG	55

4.5.2.1	Electrical connection of the DOL 44RG sensor	56
4.5.2.2	Technical data DOL 44RG	57
4.5.2.3	Functioning of the sensor DOL 44RG	58
4.5.2.4	Setting the time delay and sensitivity at the sensor DOL 44RG	59
4.6	Dial-type crane scale	60
5	Maintenance	62
5.1	Drive units	62
5.1.1	Maintenance of the drive unit AM6	62
5.1.2	Oil level control AM5	63
5.2	Auger HD AM	65
5.2.1	Fastening of auger at the drive unit	65
5.2.2	Replace bearing at the tension shaft	66
5.2.3	Repair auger	68
5.2.4	Weld the auger HD AM	69
5.3	Replace conveying tubes	72
5.3.1	Join the conveying tubes	72
5.3.2	Shorten the feed line	74
5.3.3	Position of the control pan at the end tube	75
5.4	Cable winch 350 kg GS for wall mounting incl. hand crank (99-50-3099) . .	76
6	Hygiene, health and safety, cleaning and disinfection.	78
6.1	Hygiene measures for maintaining a high hygiene level	78
6.2	Staff health and safety	80
6.3	Cleaning and disinfection	81
6.3.1	Comparison between wet and dry cleaning	81
6.3.2	Service life of equipment	81
6.3.3	Carrying out cleaning and disinfection.	83
6.3.3.1	Basic procedure	83
6.3.3.2	Before cleaning.	83
6.3.3.3	Primary cleaning, combating of rodents and applying insecticides	84
6.3.3.4	Soaking.	84
6.3.3.5	Wet cleaning.	84
6.3.3.6	Rinsing and drying	86
6.3.3.7	Disinfection	87
6.3.3.8	Drying after a complete and successful wet disinfection procedure.	89
7	Troubles and their remedies.	90
7.1	Hooked bolt M 6x35 broken.	90
7.2	Warm place in the tube or hole picked in the tube	90
7.3	The entire feed line does not start	91
7.4	Protective motor switch regularly switches off the motor	91
7.5	Auger operates irregularly	91
7.6	Bearing of tension shaft is stuck or damaged.	92

7.7	Tube kink in the tube outlet holes	92
7.8	Augermatic does not switch off	93
7.9	Auger causes an excessive noise	93
8	Spare parts	94
8.1	Conveying tubes	95
8.1.1	Tube 45x1.25-3050 2-4 hole	95
8.1.2	Tube 45x1,25x3050 MalePan (for MalePan and FLUXX Breeder 360)	96
8.1.3	End tubes	97
8.2	MP395 Single components	98
8.3	Drive unit	103
8.3.1	Drive unit AM6	103
8.3.2	Drive unit AM5	105
8.3.3	AM4 drive unit	109
8.3.4	AM3 drive unit	111
8.4	Anti-roost unit	113
8.4.1	Anti-roost wire for drive AM6	113
8.4.2	Anti-roost device for AM5 drive	114
8.4.3	Anti-roost device for AM4 drive	115
8.4.4	Anti-roost wire for drive AM3	116
8.5	Hopper	119
8.5.1	Lower part for feed hopper	123
8.5.2	Tension shaft complete	124
8.6	Cable winch 350 kg GS for wall mounting incl. hand crank (99-50-3099) ..	125
8.7	Feeders [single parts]	129
8.7.1	Feeder 30 ltr Empa 2 (20-00-3930)	129
8.7.2	Feeder 30ltr Empa 3 (20-00-3940)	130
8.7.3	Feeder 30ltr Empa 4 (20-00-3950)	131
8.7.4	Feeder 12 ltr Picorett (11-31-3080)	132
9	Glossary	133
1	Checklist key points summary	1

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>Manuals can be reordered from Big Dutchman when necessary.</p>
---	---

One of the following information is required to reorder a manual:

- the 8-digit code number of your language version [99-97-xxxx] as stated on your manual's cover;
- the complete title of the manual including information on the type of instruction;
- if stated, the 8-digit universal code number [99-94-xxxx] including information on the required language version.

1.1 EC declaration of conformity

We hereby declare that the system described in this manual corresponds to the relevant health and safety requirements according to the EC directive because of its design and construction as introduced to the market by us.

The declaration of conformity can be found at the beginning of the manual.

1.2 Purpose of the BD manuals

Depending on the intended use, **Big Dutchman** provides the following documentation:

1. Assembly manual
2. User manual
3. Operation manual (assembly and use of the system)
4. Spare parts lists
5. "Local add-on manuals": (for products which differ from those of the original manual in specific countries).

The type of instruction of your manual can be found on the cover above the title.

1.3 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 installed, used, serviced and repaired under the following conditions:

- in accordance with its designated use
- in an excellent state from the safety and technical point of view
- by trained, safety-conscious personnel familiar with the hazards associated with the machine's use.

In the event of special problems which are not described in detail in this manual, we recommend to contact us for your own safety.

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:

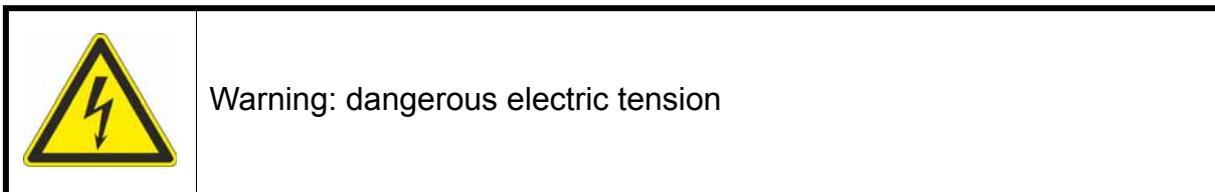
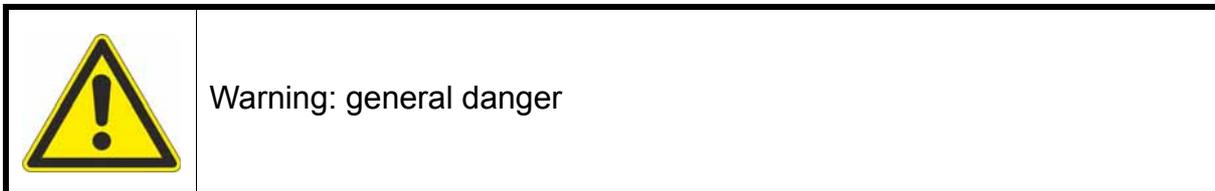
Pictograph	Signal word	Meaning	Consequences of non-compliance
Possible personal injuries:			
possible safety symbols: see chapter 1.4.3	DANGER	directly dangerous situation	Will lead to death or severe injuries.
	WARNING	possibly dangerous situation	May lead to death or severe injuries.
	CAUTION	possibly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

1.4.2 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>
---	---

1.4.3 Special safety symbols in the manual and on the system

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



	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.

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>
---	---

Mounting 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 Assembly

Assembly of the system can be carried out by the farmer himself or by a person authorized by him. We assume that the operator or the authorized person either have received technical training or have the necessary knowledge or practical experience that are necessary for a proper assembly of the system.

1.5.3 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 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**.

1.7 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:

- inappropriate assembling of the system;
- non-compliance with the instructions in this manual regarding transport, storage and assembly;
- unauthorized modifications to the system;
- disasters caused by foreign matter or force majeure.

1.8 First aid

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

If you need help, describe the accident as follows:

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

1.9 Transport

Due to the high number of possible building units and parts, we can only supply general information in this manual. This information should be sufficient for experienced technicians and transport experts. If you have questions, please contact **Big Dutchman**.

The system is supplied in pre-assembled building units and packaging units. They have to be secured adequately against shifting and tilting during transport. The transport has to be carried out by experts.

The building and packaging units are transported to the construction site with appropriate means of transport. To avoid any possible damage, make sure that the units are loaded and unloaded carefully. If the goods are transported by hand, please keep in mind the reasonable human lifting and carrying abilities.

See that the transport is carried out safely. Avoid bumps and impacts and see to a secure standing at every stage of the transport.

The scope of the delivery is listed in the shipping documents. Please check for completeness upon receipt. Possible transport damage and / or missing parts have to be reported immediately in writing.

1.10 Storage

 CAUTION	Thermal expansion causes by temperature changes
	<ul style="list-style-type: none"> • Store the building parts where they will be needed so that their temperature can adjust to the environment.

The storage area should be dry and roofed. If this is not possible, the parts should be covered with PE-foil and stored with enough ground clearance. Make sure that, when stored, the parts are protected against dust and moisture.

 CAUTION	Storage of electrical parts
	<ul style="list-style-type: none"> • Store all electrical parts in a dry and closed space.

Open-air storage is acceptable only for a short time. If stored outside for a longer time, the parts have to be protected against harmful environmental influences. They also have to be protected against mechanical damage.

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.

Water pollutants like lubricating grease and oils as well as solvent-containing cleaning solutions may not pollute the soil or reach the canalisation! These materials have to be kept, transported, collected and disposed of in appropriate containers!

1.12 Waste disposal

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

1.13 Notes for use

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

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

Inform yourself about adjusting, operating and maintenance requirements before putting the system into operation.

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

1.14 Copyright

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

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

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

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

© copyright 2011 by **Big Dutchman**

For further information please contact:

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

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

2 Safety instructions

2.1 Instructions on accident prevention

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

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

The basis for these are:

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

2.2 General safety instructions

	Risk of injury
	<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>
WARNING	<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.

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.

  WARNING	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).

- 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.

	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.
WARNING	

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.

	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.

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.

2.7 Individual parts

2.7.1 Auger

	Risk of injury
	Rotating parts of the feeding system can lead to injuries.
WARNING	<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.

2.7.2 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>
WARNING	<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.

2.8 Safety contrivances

 	Risk of injury and danger to life
	<p>Defective or disassembled safety contrivances can lead to severe injuries or to death!</p>
WARNING	<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 has to be locked in zero position and damages have to be eliminated. • Make sure that all safety contrivances are properly mounted and functioning after all works on the system and before putting the system into operation again

2.9 Dangers resulting from non-compliance with the safety instructions

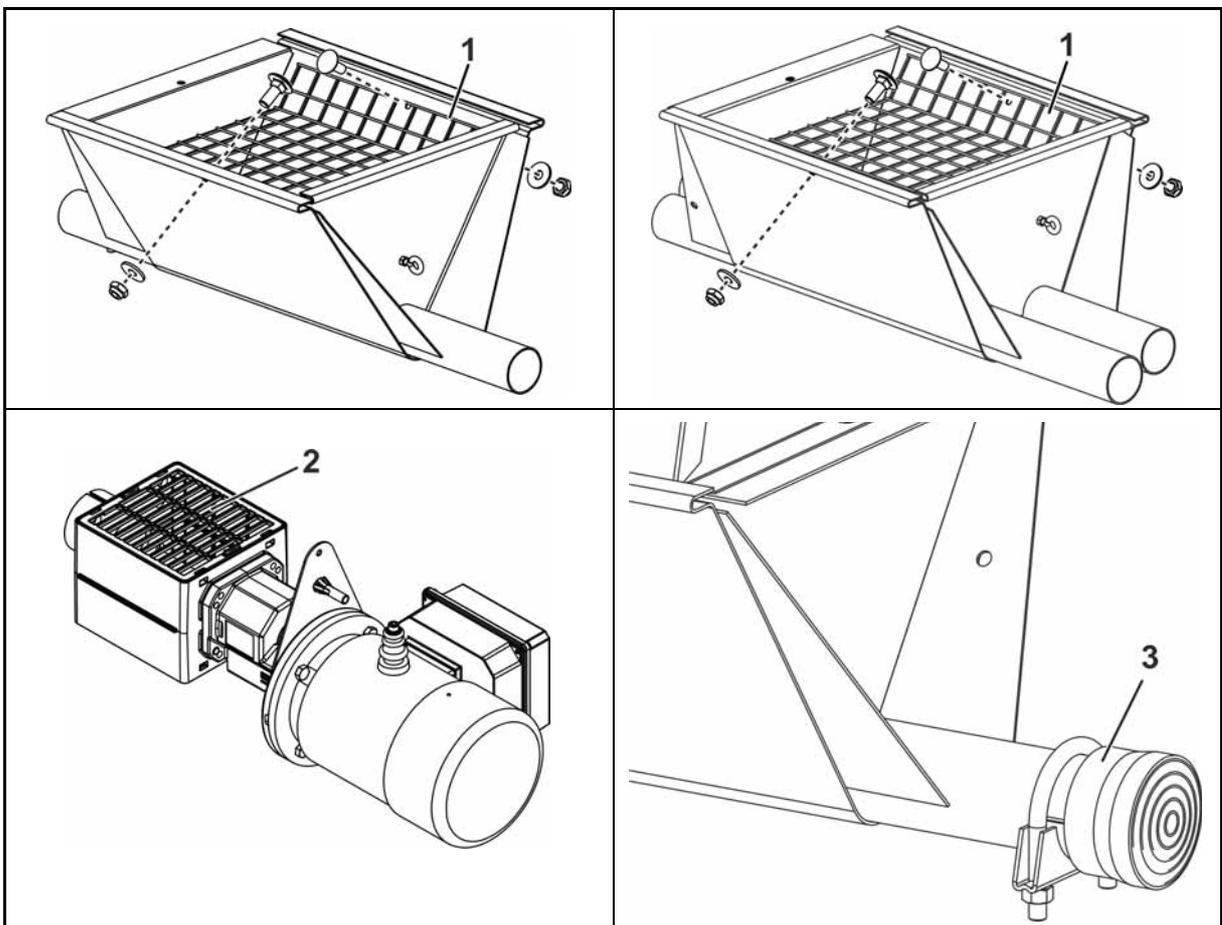
Non-observance of these instructions can cause severe danger for life and health of people or can lead to material or environmental damages and to the forfeiture of any claim for damages. To be precise, the non-observance of these instructions can lead to:

- Failure of vital functions of the installation
- Failure of prescribed maintenance methods
- Dangers for people owing to electrical and mechanical influences.

2.10 Safety component parts

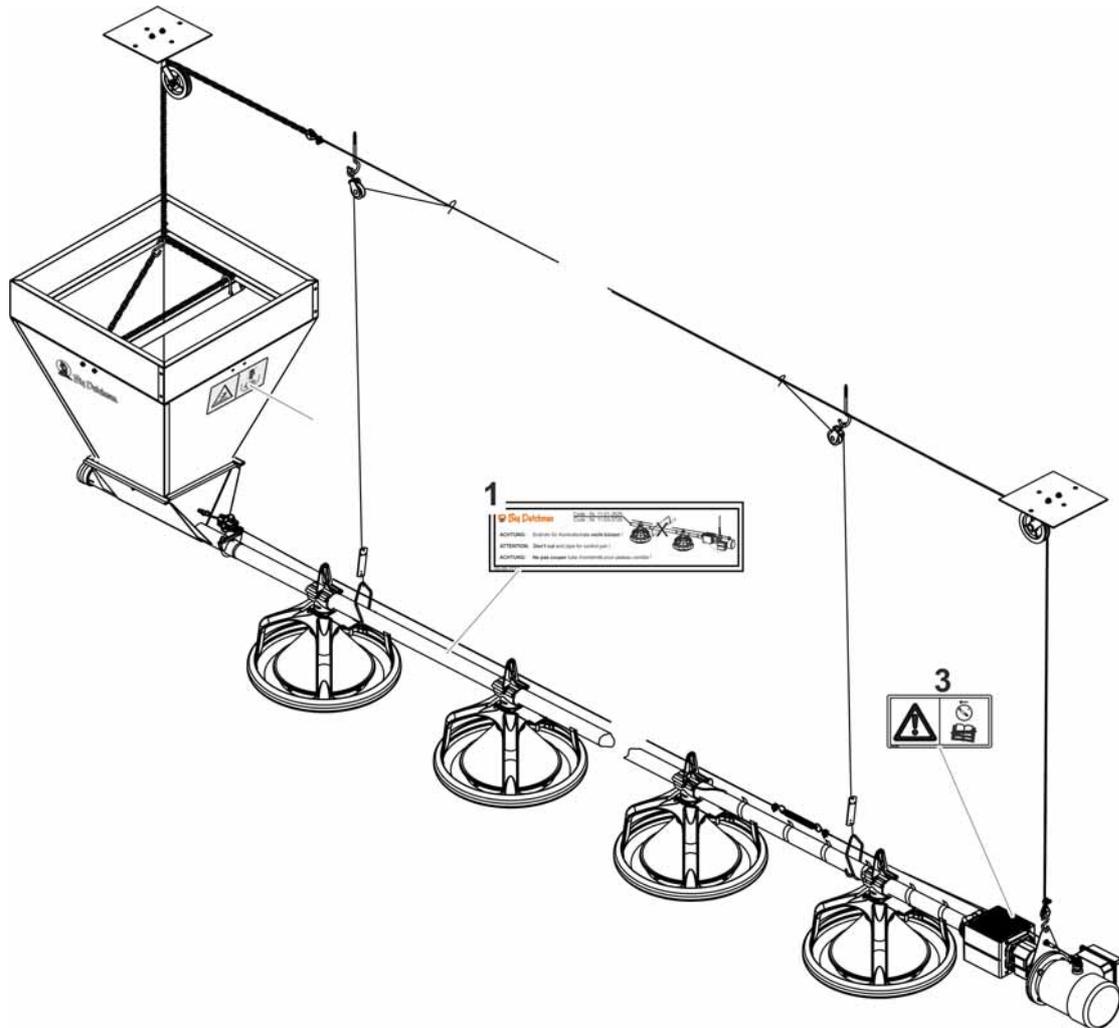
	<p>The system described in this manual may only be operated if the listed safety component parts have been mounted and installed correctly and have been checked for correct functioning!</p> <p>If safety component parts are missing or defective, the original part must be ordered from Big Dutchman and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

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

2.11 Safety symbols at this system





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

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

00-00-1119



00-00-1118



00-00-1186

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"

For your notes:

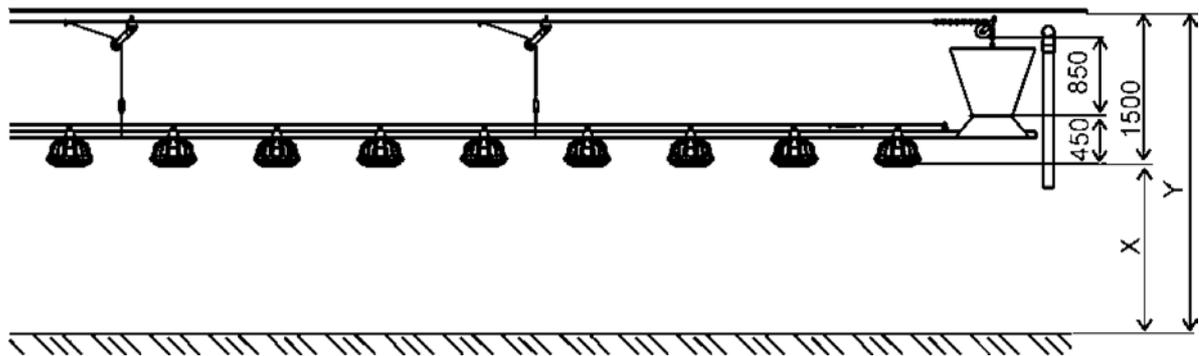
3 System description

The **Big Dutchman Augermatic** MP395 is a special pan feeding system. It meets the requirements of turkeys or ducks.

A restricted feeding, for example of broiler breeders is also possible.

The birds have the genetic predisposition to realise enormous weight gains. However, the production of brooder eggs is the most important factor and therefore special demands are made regarding the feeding system.

Passage height at a lifted system



All dimensions in mm

The dimension 1500 is an approximate dimension and depends on the hook length

X = passage height (ceiling height - 1500mm)

Y = ceiling height

3.1 Designated use

The **Big Dutchman** Augermatic may only be used for the transport of pourable animal feed with a grain size of 4 mm max.

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

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

3.2 Avoidance of foreseeable misuse

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

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

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

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

3.3 Overview

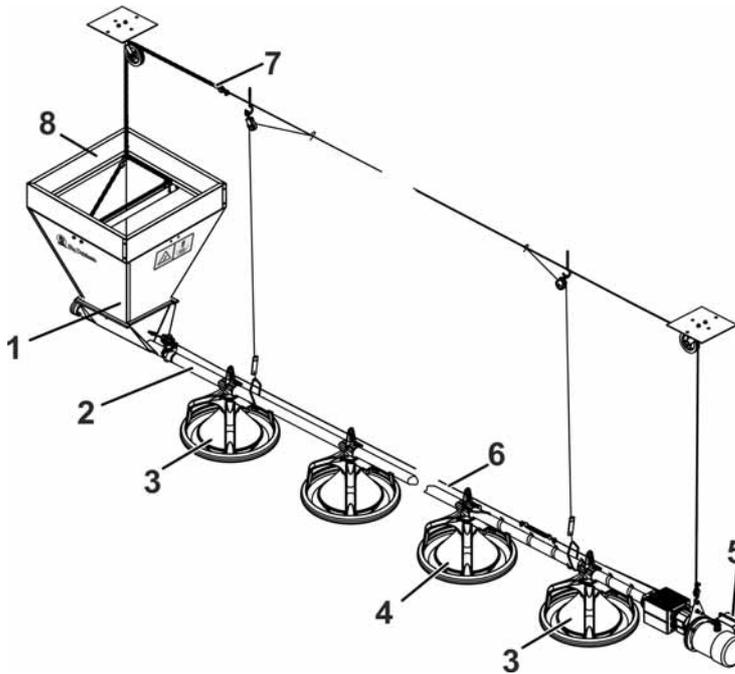


Figure 3-1: Feed line with feed hopper 1-line

Pos.	Description
1	Feed hopper
2	Conveying pipe with auger
3	Feed pan
4	Control pan with sensor
5	Drive AM
6	Anti-roost wire
7	Suspension
8	Extension for feed hopper

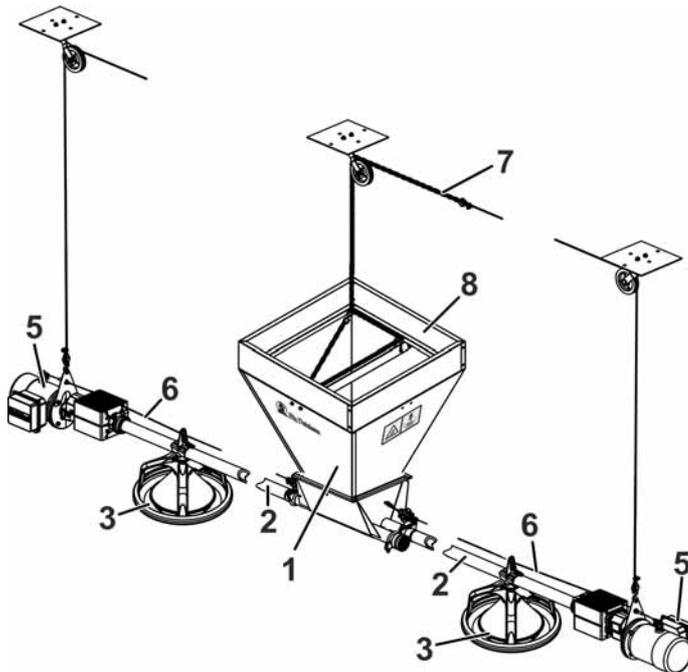


Figure 3-2: Feed line with feed hopper 2-lines central

Pos.	Description
1	Feed hopper
2	Conveying pipe with auger
3	Feed pan
4	Control pan with sensor
5	Drive AM
6	Anti-roost wire
7	Suspension
8	Extension for feed hopper

3.4 Technical data

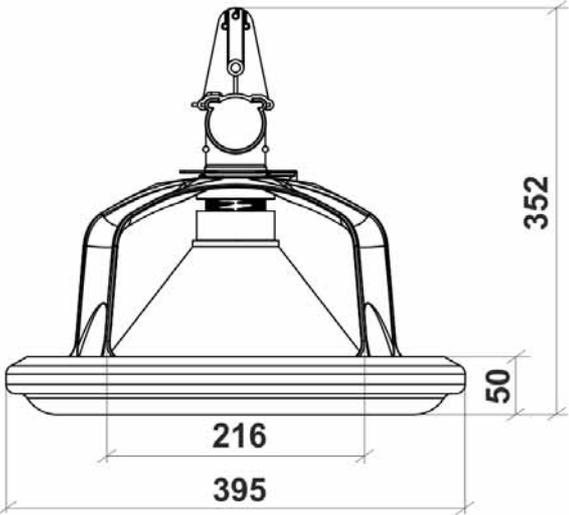
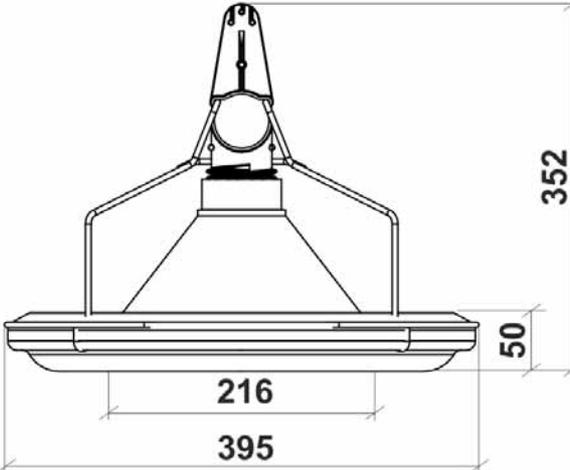
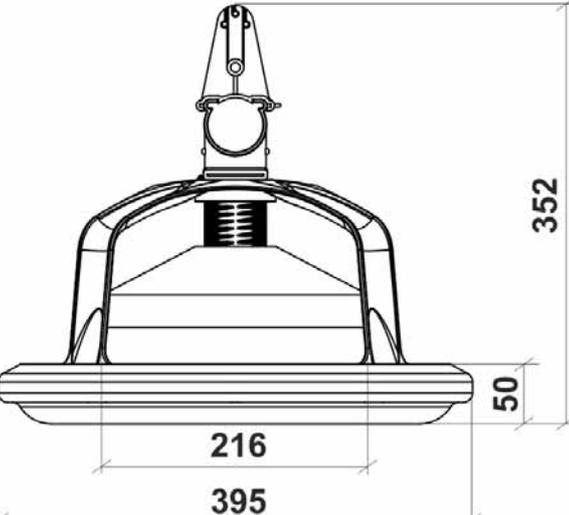
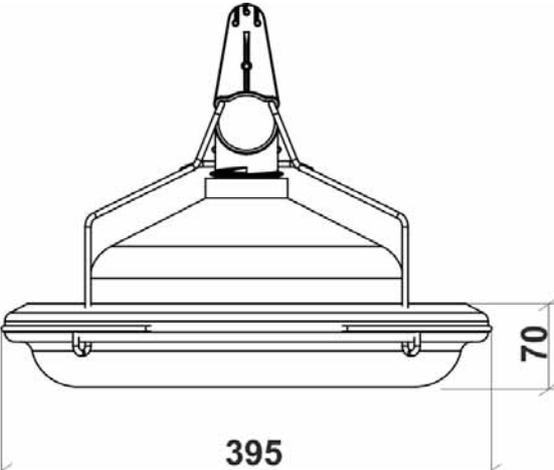
3.4.1 Technical data of the conveying system

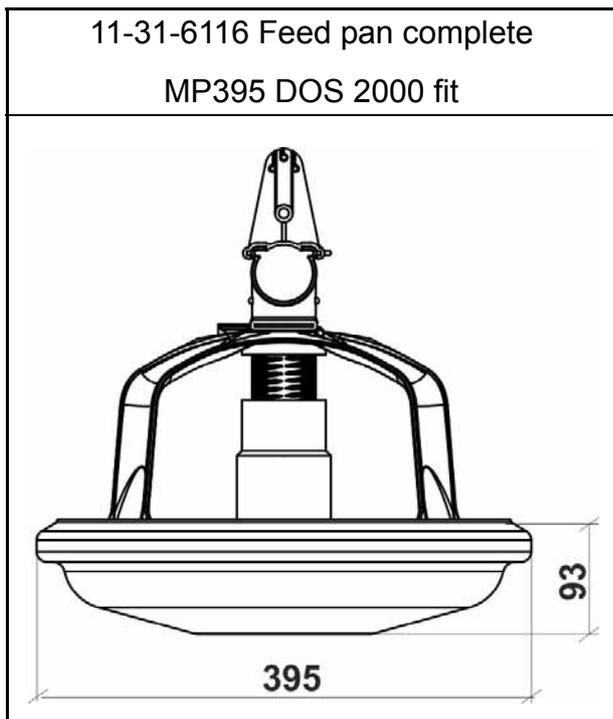
Hopper with feed hopper:	Contents approx. 115 l / 75 kg
Extension for feed hopper:	Content approx. 38 l / 25 kg
Drive unit with gear motor:	0.55/ 0.75 kW, 230/400V 50 Hz, 3 phases, 320 rpm (rotations per minute) (=>)
Conveying capacity:	approx. 450 kg/h (kilogram per hour)
Pellet size:	up to 4 mm
Material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

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

Code no.	Description	Maximum line lengths (m)	Operating voltage (V)
11-31-5020	Drive 0.55KW 230/400V 50Hz AM6 wo/ sensor with switch box	145	400
11-31-5021	Drive 0.55kW 220/380V 60Hz AM6 wo/ sensor w/switch box	145	380
11-31-5022	Drive 0.55kW 200V 3PH 50Hz AM6 wo/ sensor w/switch box	145	200
11-31-5023	Drive 0.55kW 200V 3PH 60Hz AM6 wo/ sensor w/switch box	145	200
11-31-5024	Drive 0.55kW 230V 1PH 50Hz AM6 wo/ sensor w/switch box	145	230
37-96-9528	Drive 0.55kW 230/400V 50Hz AM6 wo/ sensor w/switch box AMX	145	400
37-96-9531	Drive 0.55kW 220/380V 60Hz AM6 wo/ sensor w/switch box AMX	145	380

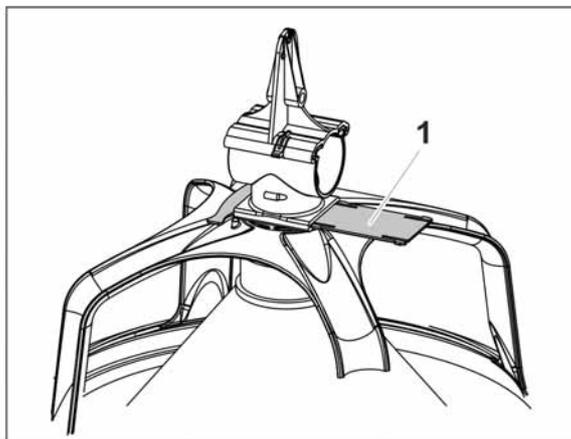
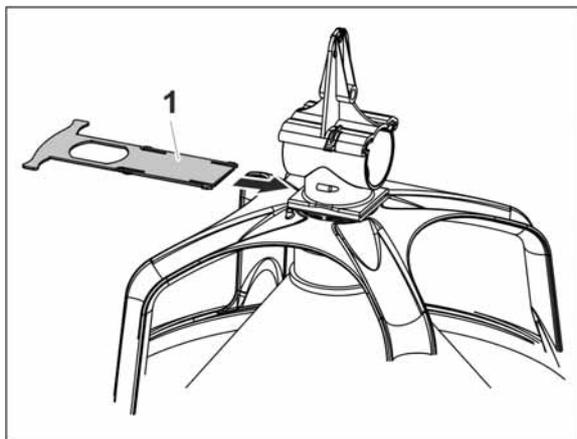
3.5 Dimensions of feed pans

<p>11-31-6107 Feed pan complete MP395 classic fit low</p>	<p>11-31-6109 Feed pan complete MP395 classic low</p>
 <p>352 216 395 50</p>	 <p>352 216 395 50</p>
<p>11-31-6112 Feed pan complete MP395 HY fit low</p>	<p>11-31-6115 Feed pan complete MP395 HY high</p>
 <p>352 216 395 50</p>	 <p>70 395</p>



3.6 Accessories (option)

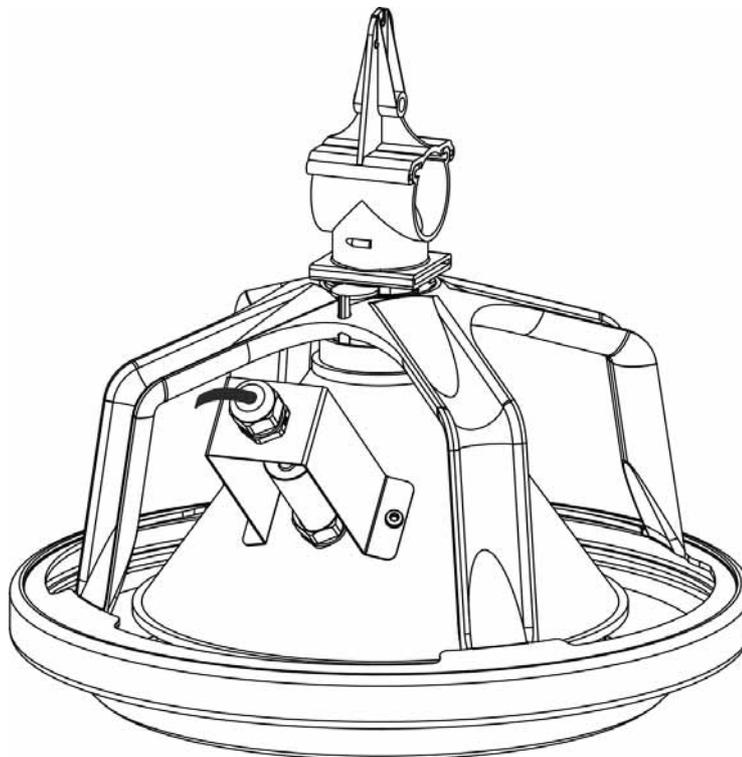
In the standard version, the feed pans of the “MP395” family are supplied without sliding shut-off.



Pos.	Code no.	Description
1	11-31-6010	Sliding shut-off orange MP395

3.7 Control pans MP395

The sensor cannot be mounted to the cone hygiene, but only to the cone transparent.
The control pans are delivered pre-assembled.



Available control pans

Pos.	Code no.	Description
1	11-31-6157	Control pan complete MP395 classic/HY fit low
	11-31-6165	Control pan complete MP395 classic/HY low
	11-31-6164	Control pan complete MP395 classic/HY fit high
	11-31-6158	Control pan complete MP395 DOS 2000 fit

3.8 Augermatic MP 395 [layout instructions]

3.8.1 Area of use of feed pan and control pan

		Area of use										Feeding type						
												Broiler growing*	Turkey rearing*	Turkey growing stage and finishing stage*	Duck rearing*	Duck growing stage and finishing stage*	Pullet rearing*	Laying hens*
11-31-6107	Feed pan complete MP395 classic fit low		√		√													
11-31-6109	Feed pan complete MP395 classic low		√		√													
11-31-6112	Feed pan complete MP395 HY fit low		√		√													
11-31-6115	Feed pan complete MP395 HY high		√		√													
11-31-6116	Feed pan complete MP395 HY DOS 2000 fit				√													
11-31-6157	Control pan complete MP395 classic/HY fit low		√		√													
11-31-6165	Control pan complete MP395 classic/HY low		√		√													
11-31-6164	Control pan complete MP395 classic/HY fit high		√		√													
11-31-6158	Control pan complete MP395 DOS 2000 fit				√													

√ adequate

3.8.2 Determine number of lines and pans

In general:

number of feed lines:	1 line per 4-6m house width
-----------------------	-----------------------------

3.8.3 Recommended numbers of birds

for the feeding of turkeys and ducks:	
Rearing:	
Number of birds per pan:	$(125 / \text{desired final fattening weight kg/bird}) + 20$ an example: $(125 : 1.4 \text{ kg/bird}) + 20 = 110 \text{ birds / pan}$
Finishing:	
Number of birds per pan:	$(125 / (0.4 \times \text{final fattening weight kg/bird}))$ an example: $(125 / (0.4 \times 3.5 \text{ kg/bird})) = 89 \text{ birds / pan}$

3.9 Calculation of lifting load for suspended lines

Description	maximum weight
Basic unit tube Ø 45.0 1 hole with feed pan + feed	13.3 kg / piece
Basic unit tube Ø 45.0 2 holes with feed pan + feed	16.6 kg / piece
Basic unit tube Ø 45.0 3 holes with feed pan + feed	19.9 kg / piece
Basic unit tube Ø 45.0 4 holes with feed pan + feed	23.2 kg / piece
Feed hopper + feed	90.0 kg / line
Drive unit	20.0 kg / line

4 Operating Instructions

	<p>The following aspects should be considered before operating the installation!</p>
<p>Caution</p>	<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>
---	---

	<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>
---	---

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.

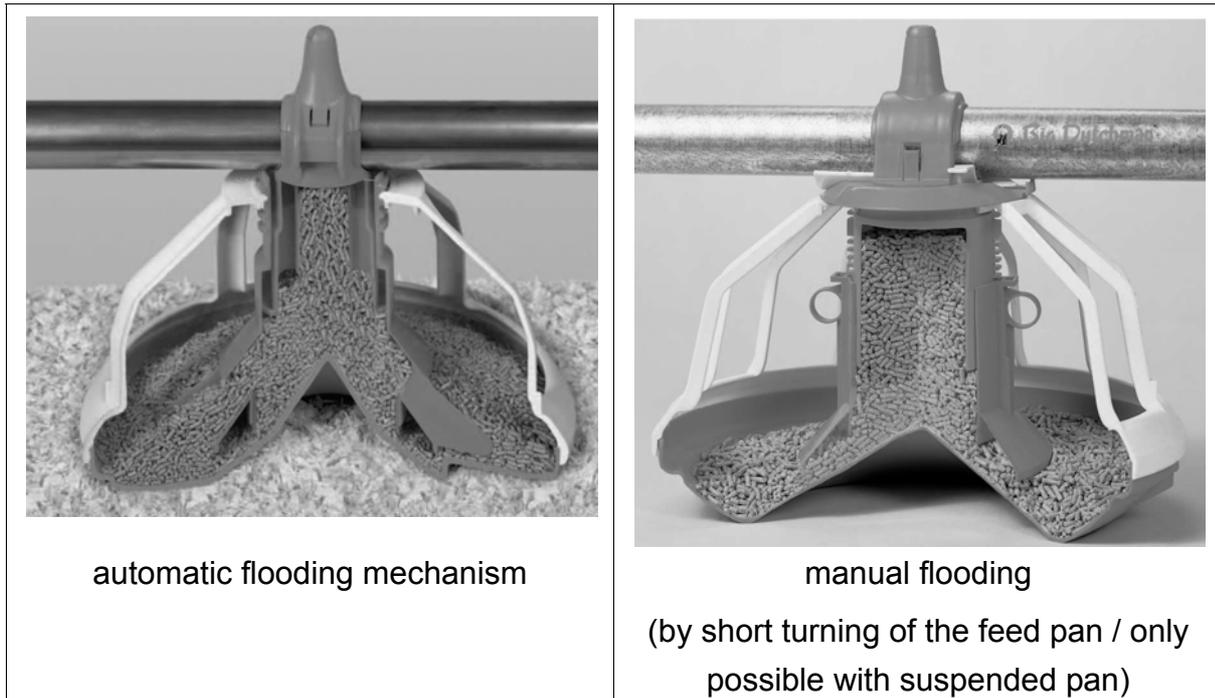
In case of too high temperatures, the birds will lie in the litter with splayed wings and open beaks. An equal distribution of the birds shows that the temperature is optimal.

4.2.1.3 Feed supply

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

In order to activate the flooding mechanism (e.g. at FLUXX) the feed pans must stand in the litter and the Augermatic tube has to be lowered to the outer cylinder of the feed pans ().

In order to flood the pan manually (e.g. at BigPan), the pan must be turned shortly. If this pan stands on the floor, it cannot be flooded.



The flooding mechanism causes a higher feed level (see figure: flooded pan). The pans remain in this position during the first three days, thus facilitating the chicks' access to feed.



Figure 4-1: Feed pan in the litter

The feed lines can now be supplied with feed one after the other. After all feed lines have been supplied, you should check if all pans are filled sufficiently.

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 (3) 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 grille (if available) are closed tightly!
- From the third day of life, the automatic flooding mechanism is deactivated by lifting the Augermatic line. The pans must remain on the floor. The feed in the pan remains on the level adjusted at the pan. ().

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).

For further information regarding the feed level adjustment see chapter 4.3 "The feed pans".

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.
- The flooding mechanism should be turned off starting with the third day. To achieve this, the Augermatic line is lifted while the feed pans remain on the floor ().

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. Compared to floor management, cage systems develop more heat, which requires faster action.

4.2.3.2 Feeding

During the first week of life until approximately day ten, the feed pans should stand on the floor. This facilitates the chicks' access to feed. As feed is the largest expense factor for broiler production, the feed pans should be lifted from day eleven so that the pan rim is level with the back of the birds. Feed wastages can be prevented by the regularly adjusting the feed pan height to the bird age.



Check the optimum height adjustment of the feed pans.

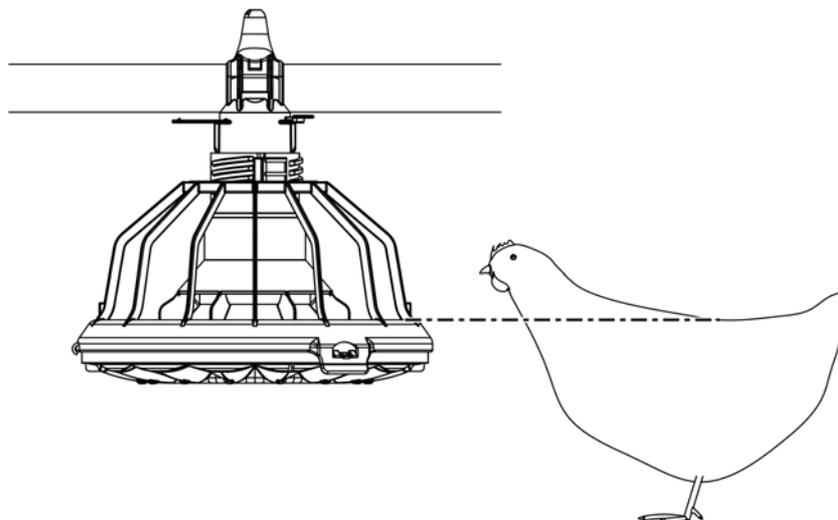
A too low adjustment of the feed pans leads to increased feed losses and feed soiling.

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



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

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



Key points for the daily inspection of birds

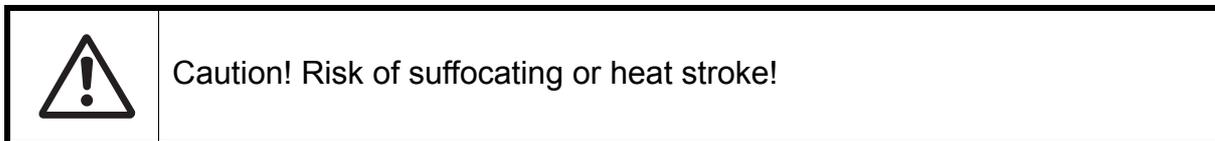
Check and document the following every day after the lights are switched on in your house:

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

4.2.4 Preparation of the moving-out procedure

4.2.4.1 Climate before and after moving the birds out

Before moving the birds out:



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

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

After moving the birds out:

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

4.2.4.2 Light

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

4.2.4.3 Shutting off the feed supply

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

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

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

Key points for the preparation of the moving-out procedure



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

4.2.5 After the moving-out procedure

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

Key points after the moving-out procedure

	<ul style="list-style-type: none">• Pay attention to moving parts of the installation.
---	--

4.3 The feed pans

4.3.1 General features of the feed pan

- large, inwardly directed pan rim
= feed saving collar, feed losses are prevented
- pan can be mounted free swinging or rigidly at the tube
= always animal-friendly
- softly shaped pan rim
= no chest bruising during the final fattening.

4.3.2 MP395

4.3.2.1 Features:

- Manual flooding: if the pan is swinging freely, the pan can easily be flooded for the day-old chicks by simply spin it slightly
= no extra work for adjusting the feed level
- Can be used with or without feed saving collar.
- Engraving for precise adjustment of feed level in the pan.
- These feed pans were specially designed for alternative growing of turkeys and ducks up to a live weight of 12 kg.
- The pan is optionally equipped with a slide shut-off.
- For rearing turkeys and ducks up to approx. 2.5 kg live weight, the pans are used without feed saving collar.
- From a live weight of approx. 2.5 kg upwards, the collar can be installed to minimize feed losses.
- For controlled feeding, place a volume reducing insert into the MP395 reducing the feed volume by approx. 2/3 in combination with the sectional dish. This ensures rapid and uniform filling of all pans in one line directly at the beginning of feeding.
- The sectional dish is ideally suited for ducks since they can feed easily due to the shape of their beak.

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.

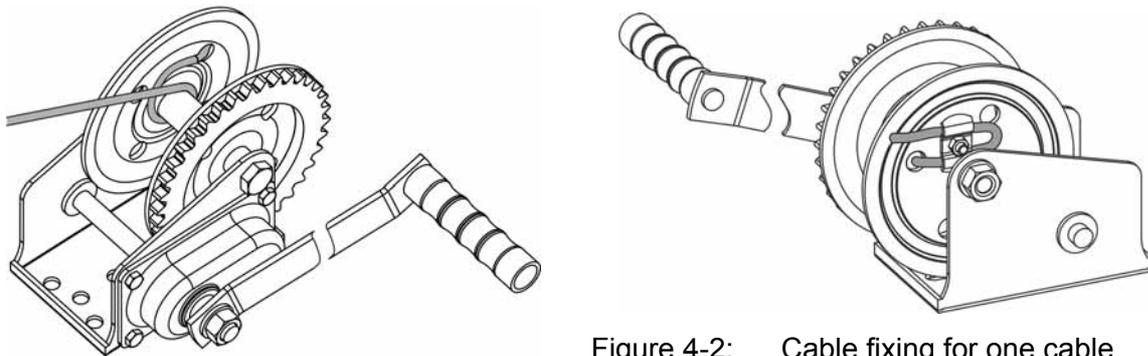
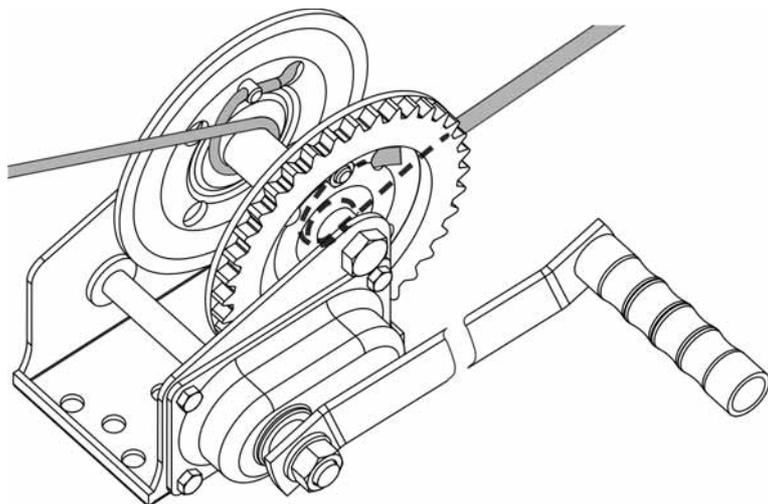


Figure 4-2: Cable fixing for one cable

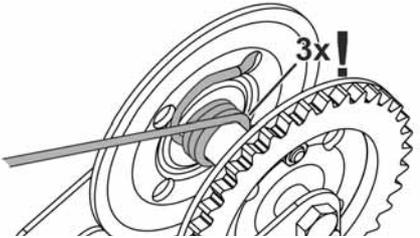
4. Guide the cable straight to the winch. If it is guided e. g. over an angle, the cable can become severely worn:

„**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. 
Danger	

4.5 Sensor

4.5.1 Sensor DOL 26

DOL 26 is a capacitive sensor for detection of loose and solid materials. Start delay and sensitivity are set by small potentiometers.

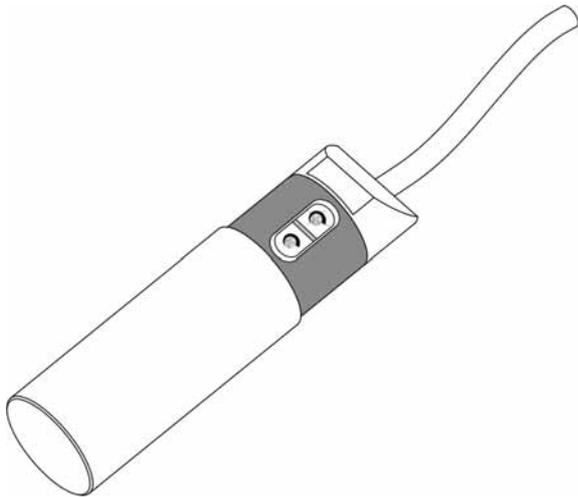


Figure 4-3: Sensor DOL 26

The sensor is available in following design:

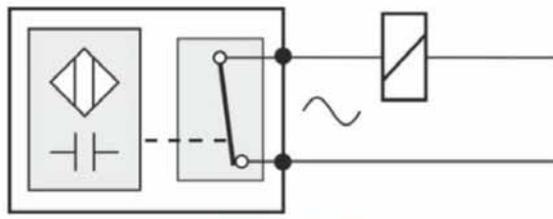
- Code No. 60-40-5107 Sensor DOL 26 capacitive 20-280V AC/DC 2-wire sensitivity and delay adjustable

The feed sensor DOL 26 has the following features:

- Protection class IP 69K can resist short contacts with high-pressure cleaners
- Time delay infinitely variable
- Adjustable sensitivity

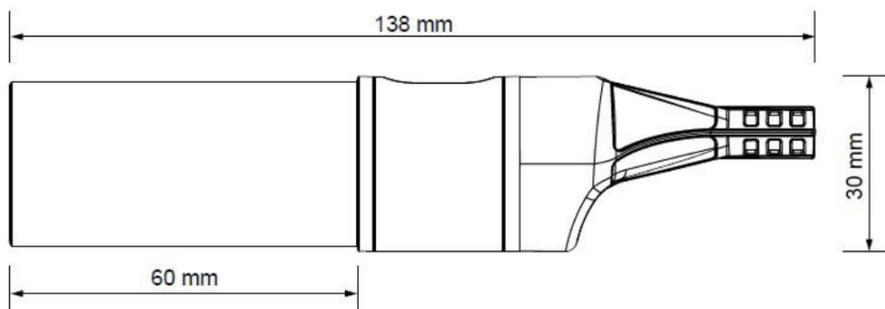
4.5.1.1 Electrical connection of DOL 26

The sensor is connected in series with the load. The polarity is not important.



4.5.1.2 Technical data DOL 26

	Value
Code number	60-40-5107
Power supply	20-280 V AC/DC
Frequency	47 to 63 Hz
Min. inrush current (Im)	< 10 (Ue = 20-90)mA RMS / mA DC
	< 6 (Ue = 90-280)mA RMS / mA DC
Breaking current (Ir)	< 3 (Ue = 20-90)mA RMS / mA DC
	< 1 (Ue = 90-280)mA RMS / mA DC
Related operating current (Ie)	500 mA
Voltage drop/Ud)	<6 V RMS
Detection speed	<15 Hz
Start delay adjustable	5 - 60 seconds
Switching distance adjustable	0 - 12 mm
Switching hysteresis	<1.2 mm
Ambient temperature in operation	-20 to +70°C
Storage temperature	-40 to +80°C
Cable length	200 cm
Line	2 x 0.5 (2 x AWG20) mm
Weight	+ 170 g
Protection class	IP 69K; NEMA 1,3,4,6,12,13
Certification	CE, UL and C-UL



4.5.1.3 Functioning of the sensor DOL 26

The light diode (LED) shows the current status of the sensor:

LED status	Function
LED off	Relay switched off
Led flashes slowly red	Set delay time has nearly elapsed
LED flashes briefly red 2 x	Sensor error (overload protection activate)
LED on	Relay switched on

4.5.1.4 Setting the time delay and sensitivity at the sensor DOL 26

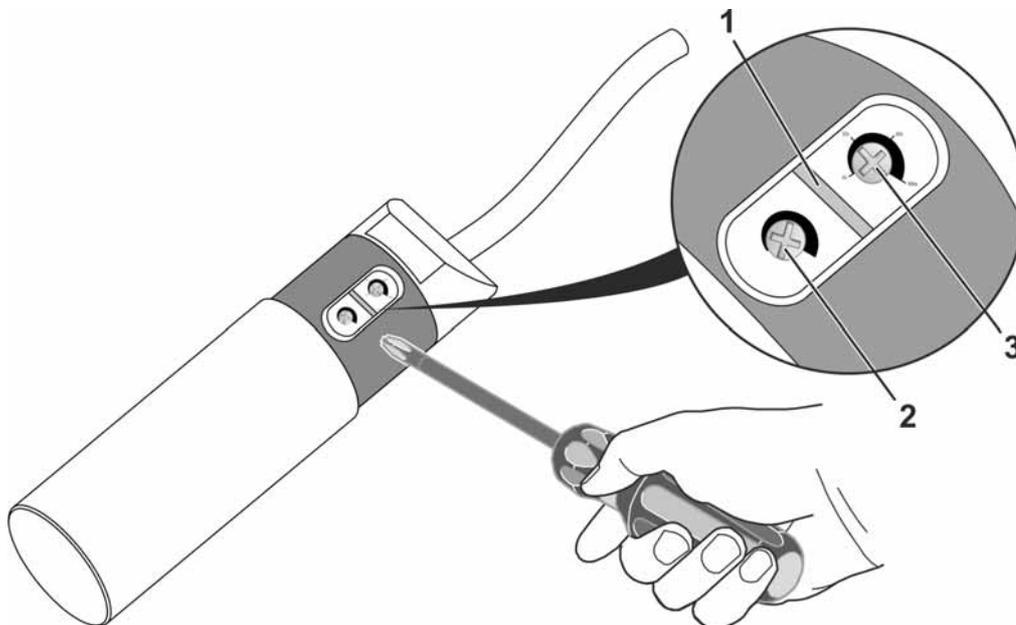


Figure 4-4: Configuring settings at the sensor DOL 26

Pos.	Description
1	Light-emitting diode (LED)
2	Potentiometer for the adjustment of the sensitivity (0 mm to 12 mm)
3	Potentiometer for the adjustment of the delay time (5 s to 60 s)

4.5.2 Sensor DOL 44RG

The capacitive sensor is used as full/empty or filling level indicator. Start delay and sensitivity are adjusted via small potentiometers. DOL 44RG is equipped with a variable start delay of 0-300 seconds and an adjustable sensitivity.

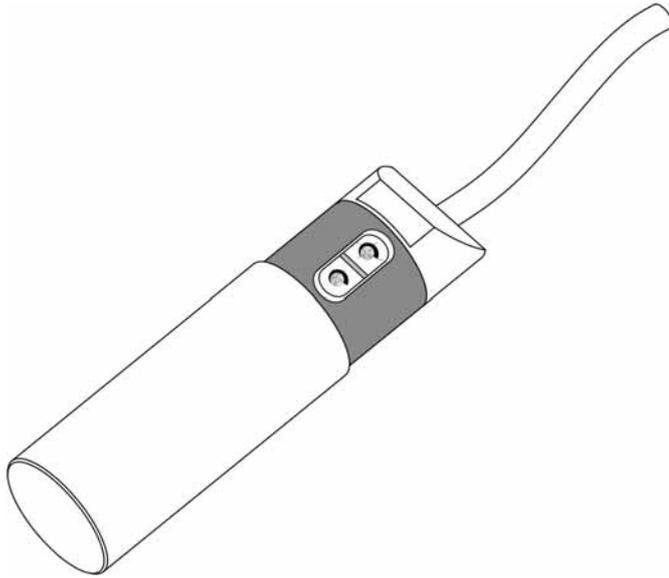


Figure 4-5: Sensor DOL 44RG

The sensor is available in two versions for different voltages:

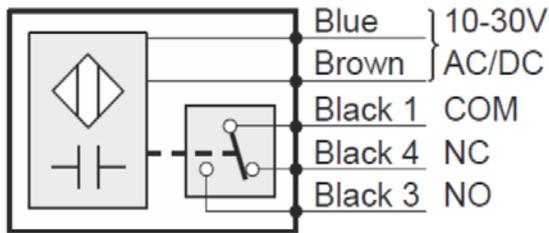
- Code no. 60-40-0625 Sensor DOL 44RG 10-30V AC/DC threaded, sensitivity & start delay adjustable
- Code no. 60-40-0626 Sensor DOL 44RG 90-265V AC/DC threaded, sensitivity & start delay adjustable

The DOL 44RG feed sensor has the following features:

- Protection class IP 69K can resist short contacts with high-pressure cleaners.
- No programming required = very easy handling
- Improved electronic compatibility due to improved immunity from disturbances in power supply.
- Sensitive only at the sensor head and not in the area of the thread, thus no unintended reaction due to feed on the thread.

4.5.2.1 Electrical connection of the DOL 44RG sensor

The relay switches are galvanically isolated from the supply voltage.



Supply voltage 24 V AC/DC

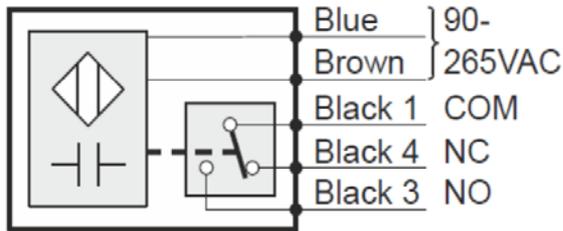
Blue = - (0V)

Brown = + (24V)

Black 1 = COM

Black 2 = NC

Black 3 = NO



Supply voltage 230 V AC

Blue = - N

Brown = L (230 V)

Black 1 = COM

Black 2 = NC

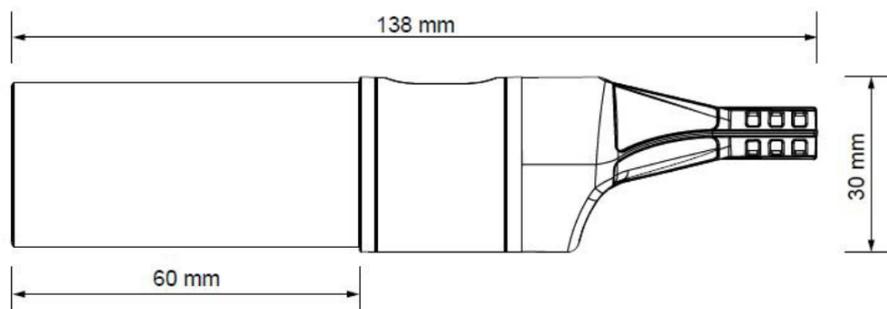
Black 3 = NO

Important!

When mains voltage is available and the relays are activated, the internal relay switches to COM - NC (1-4).

4.5.2.2 Technical data DOL 44RG

	Value (230 V)	Value (24 V)
Code number	60-40-0626	60-40-0625
Power supply	90-265 V AC	10-30 V (AC/DC)
Frequency	47 to 63 Hz	47 to 67 Hz
Ambient temperature in operation	-20 to +64 °C (-4 to +158 °F)	
Storage temperature	-30 to +80 °C (-22 to +176 °F)	
Protection class	IP 69K; NEMA 1,3,4,6,12,13	
Certified standards	UL; C-UL;CE	
Length	110 mm	
Diameter / Thread	30 mm	
Weight	290 g	
Start delay adjustable	0 - 300 seconds	
Min. relay current 12VDC	100 mA	
Switching distance adjustable	1 - 12 mm	
Max. switching voltage relay	250 V AC	
Max. inductive relay load	2 A	
Max. ohmic relay load	5 A	
Cable length	3000 mm	
Wire dimensions	5 x 0.5 mm ² / 5 x AWG20	



4.5.2.3 Functioning of the sensor DOL 44RG

The motor of the AM drive is controlled by the sensor DOL 44RG with an adjustable time delay of 0-300 seconds.

When the feed reaches the head of the sensor DOL 44RG in the control pan, the motor of AM drive is turned off automatically.

When the feed level drops and the sensor DOL 44RG is no longer touched by the feed, the motor of the AM drive is turned on again, after a certain time-delay. As the feed level constantly changes because of the feed consumption of the animals, the spiral would have to be turned on and off frequently. To avoid this, the sensor DOL 44RG is equipped with a time-delay mechanism.

The light diode (LED) shows the current status of the sensor:

LED status	Function
LED off	Relay switched off
LED flashes	Relay switched off, adjusted time delay elapses
LED on	Relay switched on

4.5.2.4 Setting the time delay and sensitivity at the sensor DOL 44RG

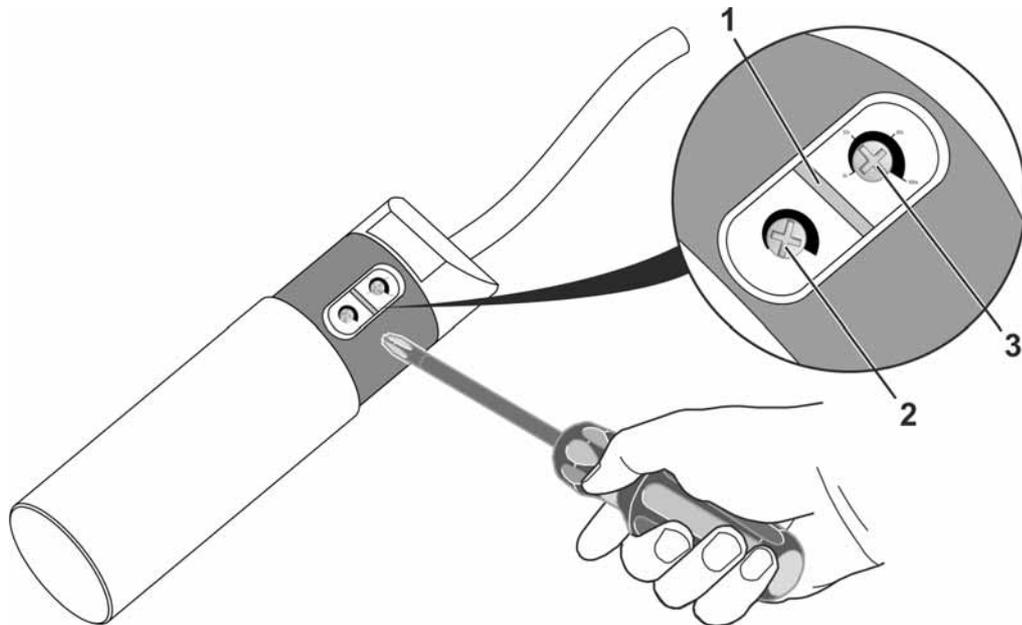


Figure 4-6: Configuring settings at the sensor DOL 44RG

Pos.	Description
1	Light-emitting diode (LED)
2	Potentiometer for the adjustment of the sensitivity (1 mm of 12 mm)
3	Potentiometer for the adjustment of the delay time (0 s to 300 s)

	<p>The capacity of reaction of the sensor DOL 44RG is so great that the varying moistness of the feed changes the switch time. For the adjustment, the feed should be as dry as possible. The drier the feed, the more secure the switching function of the sensor DOL 44RG.</p>
---	--

If sensor DOL 44RG in the control pan does not interrupt the power supply of the AM drive, the sensitivity has to be increased. If the sensor DOL 44RG in the control pan does not react and the motor of the AM drive is not started, the sensitivity has to be **decreased**.

4.6 Dial-type crane scale

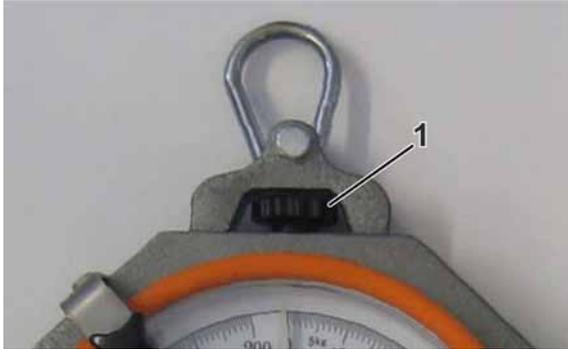


Mode of operation

The scale shuts the automatic outlet or stops the Flex-Vey drive as soon as the adjusted feed amount has been filled into the suspended feed hopper.

(Please see also the manual „Flex-Vey“) The filling process is started manually or by means of a timer.

1. Calibration of the scale



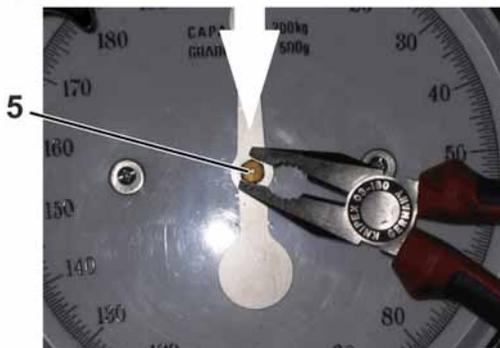
a) Fine calibration

- Set the needle of the scale to „0“ by means of the set screw (Pos. 1).



b) Coarse calibration

- Loosen the sight glass locking (Pos. 2).
- Dismount the fastening ring (Pos. 3).
- Remove the sight glass (Pos. 4).
- Loosen the retaining screw for the needle (Pos. 5). Set the needle to „0“ and tighten the retaining screw.
- Assemble the retaining ring together with the sight glass.
- If necessary, carry out a fine calibration (see subitem a).



2. Adjusting the desired feed quantity



- Loosen the sight glass locking (Pos. 2).
- Turn the sight glass (Pos. 4) until the arrow points at the desired feed amount.
- Fix the sight glass locking.

5 Maintenance

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.

5.1 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 5-1: Overview lubricants

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

5.1.1 Maintenance of the drive unit AM6

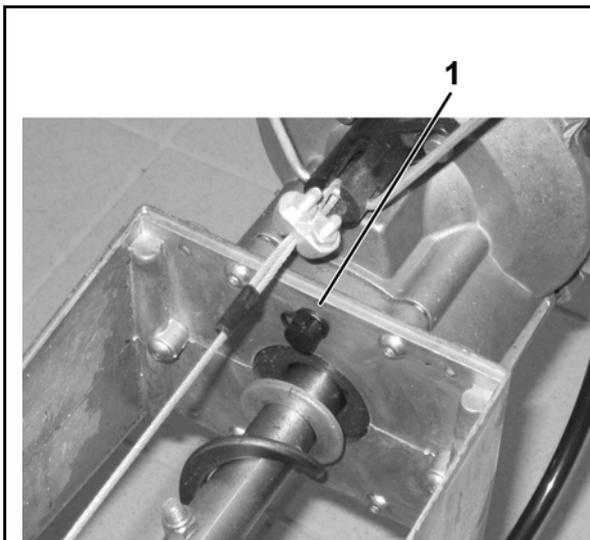
	The drive AM 6 is maintenance-free.
---	-------------------------------------

5.1.2 Oil level control AM5

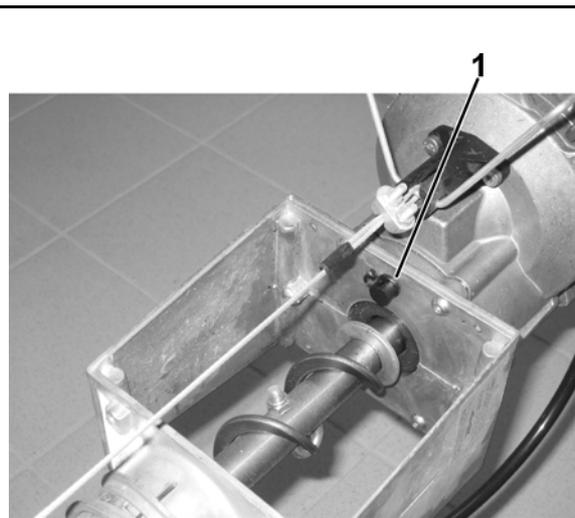
All AM5 Augermatic drives have a ventilation opening on the gear unit. This ensures that hot air can escape from the inside of the gear unit during operation.

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



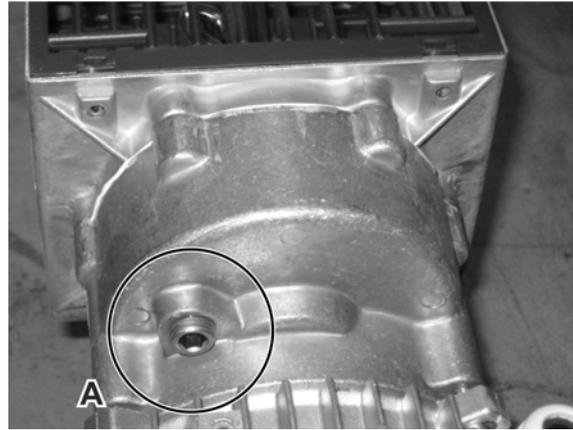
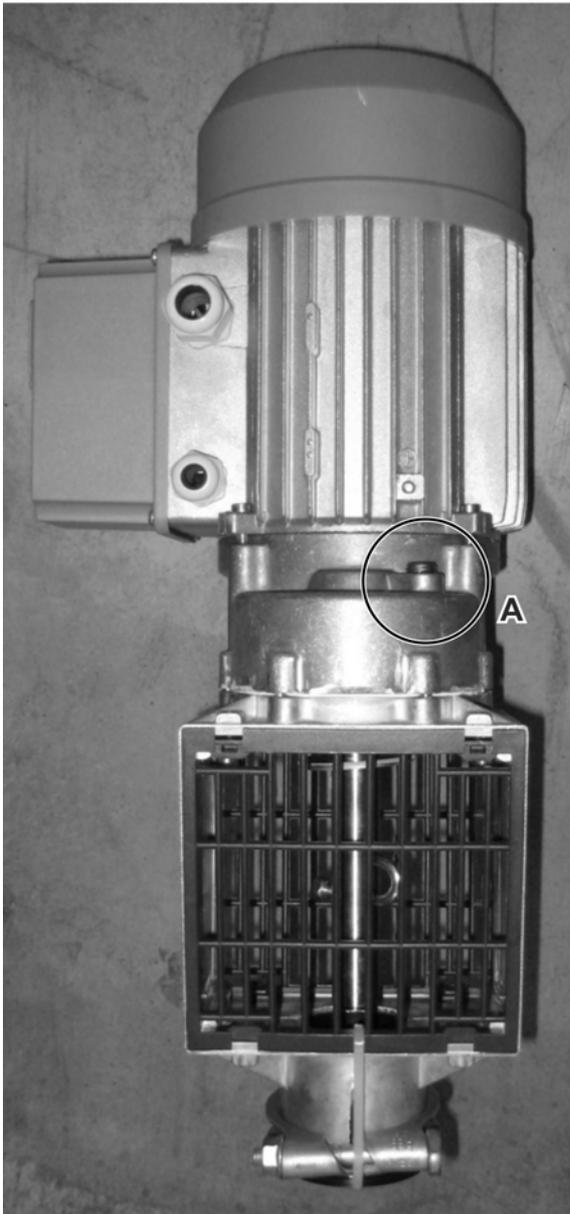
Picture 2: Ventilation open



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.

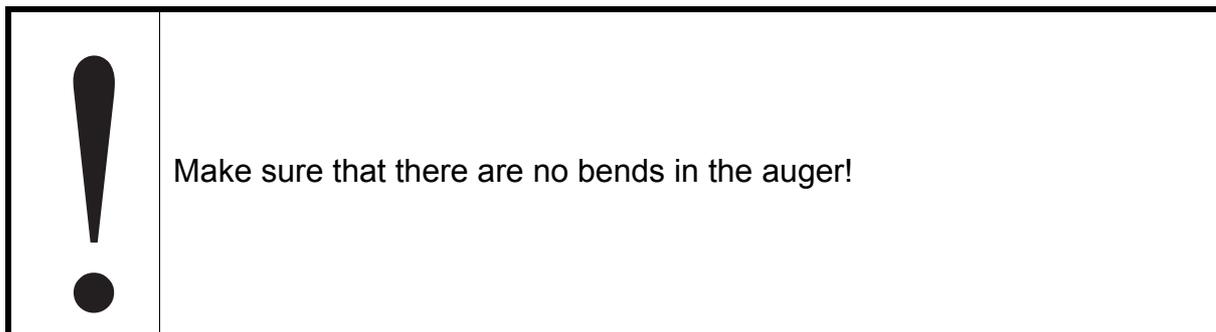
To prevent damage, a visual check of the Augermatic drive must thus be performed regularly after each batch, however, every 6 weeks at the latest. If a leak is detected, the drives' gearbox oil level must be checked.



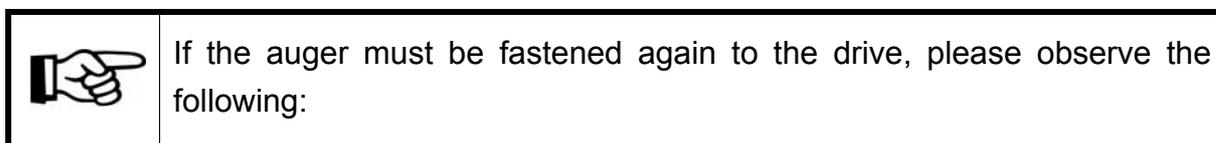
On the gearbox, there is a monitor screw (detail A) which must be opened for checking the oil level.

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.

5.2 Auger HD AM



5.2.1 Fastening of auger at the drive unit



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

Figure 5-1: Mount the auger on the drive

5.2.2 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 5-2: Loosen U-bolt



Figure 5-3: 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 5-4: Fix the auger by means of a vis-grip wrench



Figure 5-5: 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 5-7).



Figure 5-6: Auger to tension shaft



Figure 5-7: Fix auger

5. Step:

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

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



Figure 5-8: Keep the tension shaft



Figure 5-9: Fasten the tension shaft

5.2.3 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.

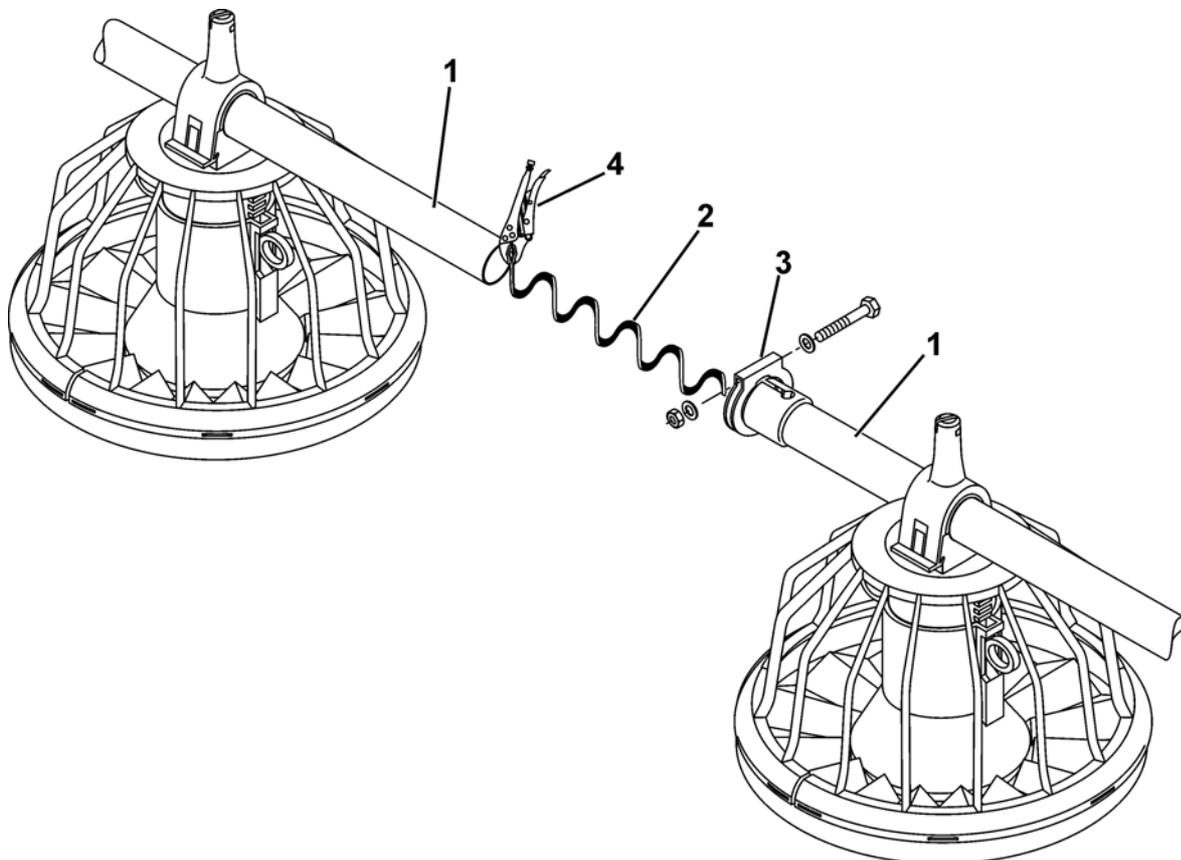


Figure 5-10: Repairing the auger

Pos.	Qty.	Code no.	Description
1			Tube
2		11-31-3238	Auger HD AM
3			Tube clamp
4			Vise-grip wrench

5.2.4 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

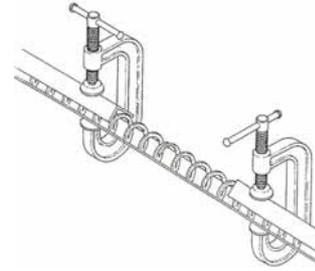
– **Procedure**

• **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.



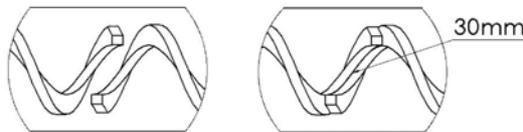


The longer the profiles for the alignment, the more accurate the alignment of the conveying augers to each other.

- 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.

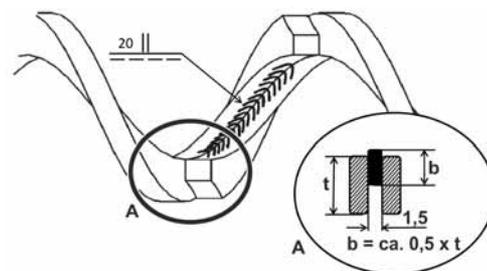


- b) Both ends of the augers must overlap 30mm. It is important that they are pushed in front of each other and do not twist them together.



- Step 3: Preparation of a welding seam

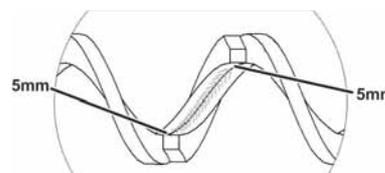
- a) Join both auger ends with an internal welding seam with a length of 20mm.



t= Height of the auger (in section)

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

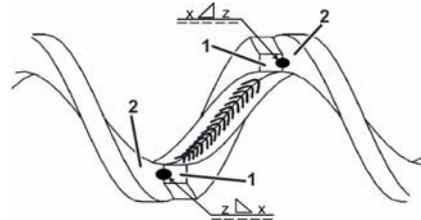
The distance of the welding seam must be 5 mm from both ends of the auger.



	<p>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 <u>not</u> allowed!</p>
---	---

- 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]

	<p>When the welder prepares the welding seam he has to start at point 1 and move the welding device towards point 2.</p> <p>It must be observed that point 2 is not heated for too long as this spot will soften and consequently break during operation.</p>
--	---

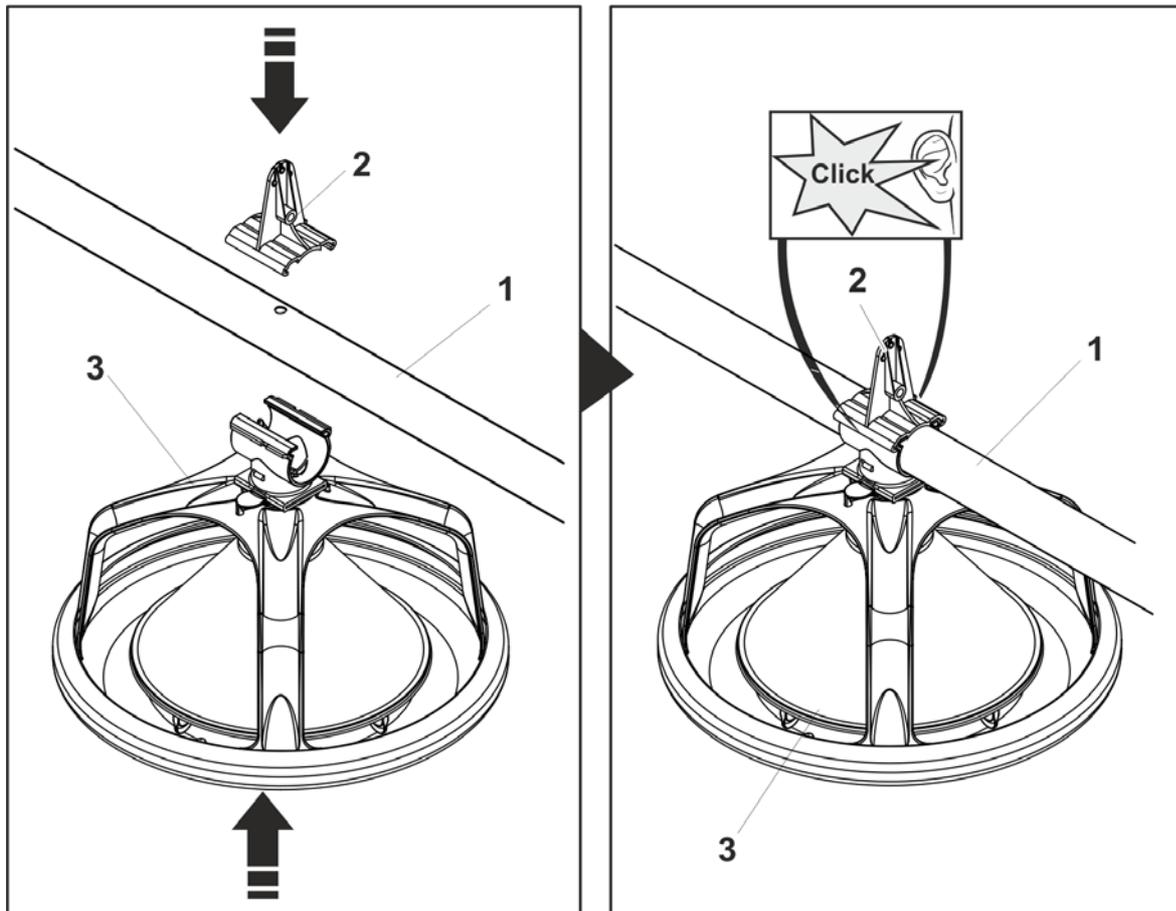
- c) After both welding processes are carried out, there is no need for any rework e.g. with an angle grinder. An edge which might have developed during the welding process does not disturb the feed transport!
- If the manual arc-welding procedure was applied, just remove the dross by tapping.

5.3 Replace conveying tubes

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



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



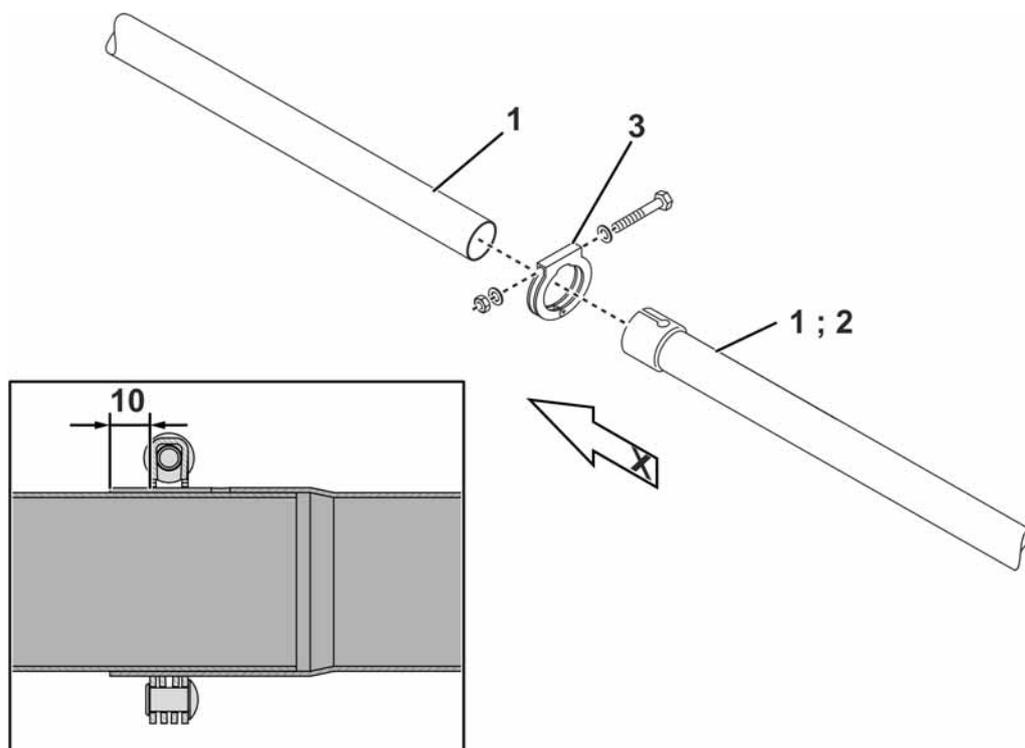
Pos.	Code no.	Description
1		Conveying tube
2		Tube adapter
3		Grille

5.3.1 Join the conveying tubes



The connecting sleeves are always directed towards the feed hopper!

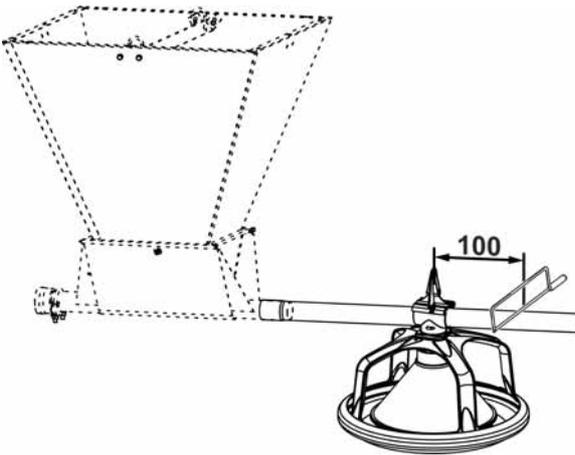
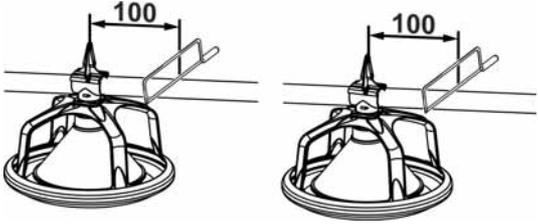
- Push a conveying tube with the smooth end to the limit stop of the connecting sleeve of the following conveying pipe. The slot of the connecting sleeve must show upwards.
- Mount the tube clamps that way that a distance of approx. 10mm is left to the end of the tube.



Pos.	Qty.	Code no.	Description
1			Conveying pipe
2			End tube
3		11-31-3211	Tube clamp riveted cpl for tube d45.0
X			Direction of feed hopper

5.3.2 Shorten the feed line

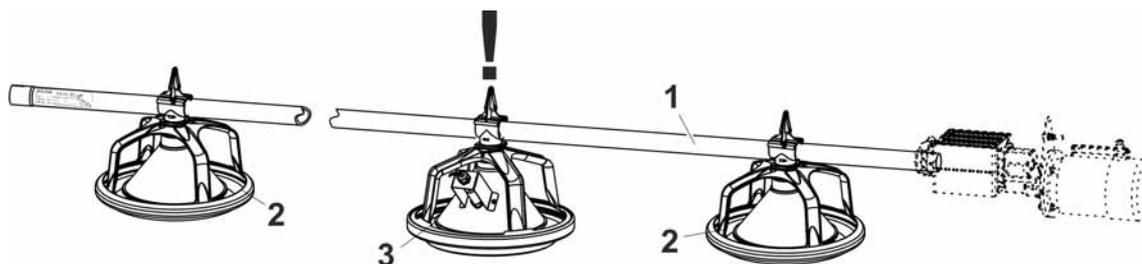
	<p>If the feed line has to be shortened, this may only be carried out at the last conveying tube in front of the feed hopper.</p> <p>Please observe the following:</p> <ul style="list-style-type: none"> • The tube may only be shortened at the straight end, the sleeve must remain. • The conveying tube may be shortened maximally 100mm in front of the last feed pan. • Keep a minimum distance of 100mm to each feed pan.
---	---

Minimum length of conveying pipe (after shortening)	Distance between cut and feed pans
	

5.3.3 Position of the control pan at the end tube



Always mount the control pan as last but one pan in front of the drive.
End tubes must not be shortened!
Initially, the control pans are mounted to the end tubes without sensor.



Pos.	Qty.	Code no.	Description
1			End tube
2			Feed pan
3			Control pan

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

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.

	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>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.
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	

6 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.

6.1 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!

6.2 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>

6.3 Cleaning and disinfection

6.3.1 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.

Young birds with low immune systems are exposed to germs which originate from the last herd and which were not eliminated during the cleaning process. **Big Dutchman** recommends discussing the details with your veterinarian.

6.3.2 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>
---	---

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**

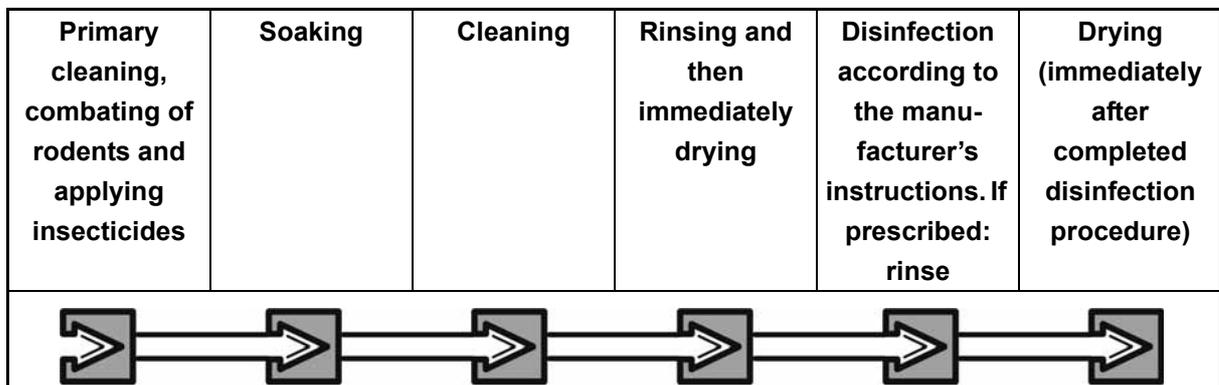
When choosing the disinfectant, you must pay attention to the corrosion resistance.

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

6.3.3 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.

6.3.3.1 Basic procedure



6.3.3.2 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.

6.3.3.3 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>
---	--

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.

6.3.3.4 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>
---	---

6.3.3.5 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 6.3.3.7 "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.

6.3.3.6 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!

6.3.3.7 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>
---	---

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>
---	---

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>
---	---

6.3.3.8 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.

7 Troubles and their remedies

7.1 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.

7.2 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 incorrectly welded.
=> If necessary, cut the auger at this point and weld it again.
- Auger bent at the wear point.
=> Replace the piece of pipe as well as the auger end piece.
- Auger “climbs” up the AM drive.
=> Auger is too long. Shorten the auger.
=> Auger bent. Check the auger for deformations and repair it.

7.3 The entire feed line does not start

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

7.4 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.

7.5 Auger operates irregularly

- Bearing or tension shaft jammed or damaged.
 - => Replace the bearing.

- Tension on the auger not sufficient.
=> Shorten the auger.
- Foreign matter in auger
=> Remove foreign matter.
- Auger tensioned too strongly.
=> Extend auger at the feed hopper.
- Auger has loosened from the tension shaft.
=> Check whether the tension shaft is fastened correctly.

7.6 Bearing of tension shaft is stuck or damaged.

- Cleaning water in the *lower part for feed hopper*.
=> Remove the water.
=> Replace the bearing, if necessary.

7.7 Tube kink in the tube outlet holes

- Drain holes not correctly drilled.
Replace the tube.

7.8 Augermatic does not switch off

- No feed in feed hopper.
=> Check supply systems and remove possible mistakes.
- Auger is broken.
=> Repair the auger.
- Sensitivity of the sensor is not sufficiently adjusted.
=> Increase sensitivity of the sensor.

7.9 Auger causes an excessive noise

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

8 Spare parts



Operational safety is the prime necessity!

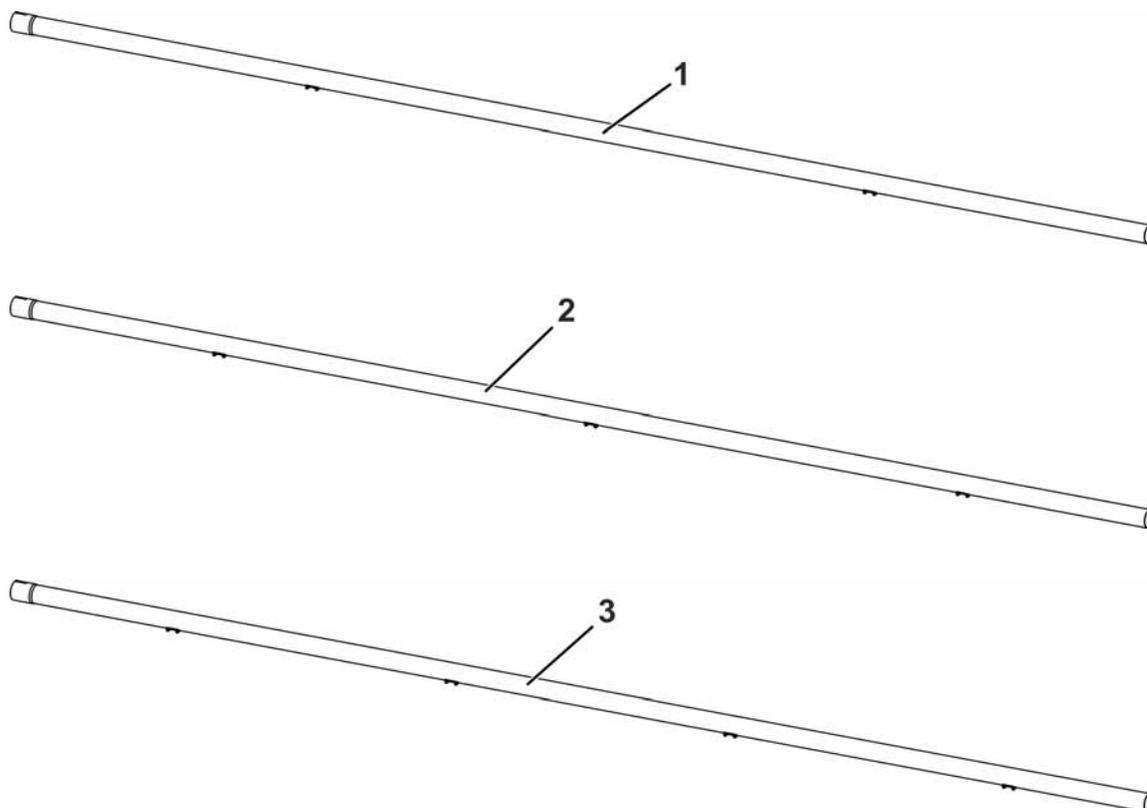
For your own safety only use original **Big Dutchman** spare parts. For foreign products that have not been released or recommended or for modifications carried out (e.g. software, control units) we cannot judge whether there is a safety risk in connection with the **Big Dutchman** systems.

Indicate the following for ordering spare parts:

- Code no. and description of the spare part or
- Invoice no. of original invoice
- Current supply, e.g. 230/380 V 50/60 Hz

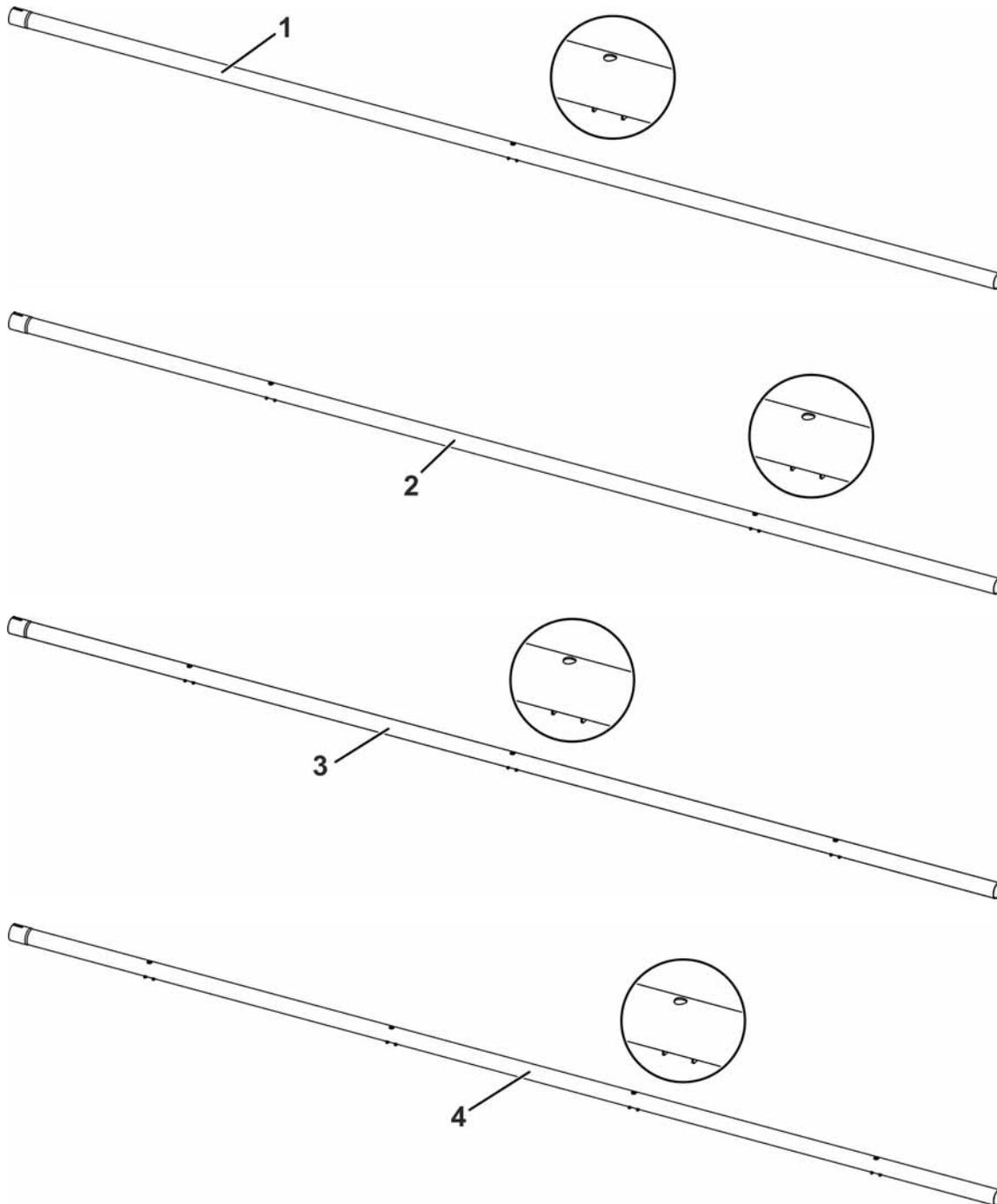
8.1 Conveying tubes

8.1.1 Tube 45x1.25-3050 2-4 hole



Pos.	Code no.	Description
1	11-31-3522	Tube 45x1.25-3050 2hole BP330
2	11-31-3523	Tube 45x1.25-3050 3hole BP330
3	11-31-3524	Tube 45x1.25-3050 4hole BP330

8.1.2 Tube 45x1,25x3050 MalePan (for MalePan and FLUXX Breeder 360)

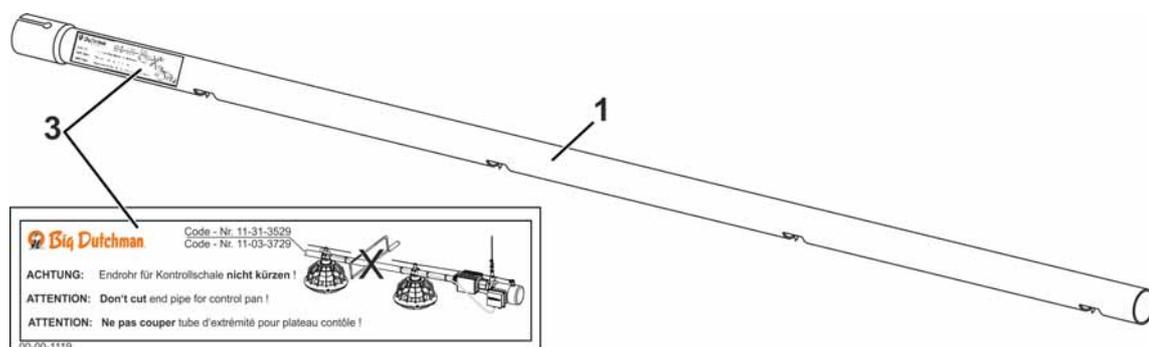


Pos.	Code no.	Description
1	11-03-3721	Tube 45x1.25-3050 1hole Male-Pan
2	11-03-3722	Tube 45x1.25-3050 2hole Male-Pan
3	11-03-3723	Tube 45x1.25-3050 3hole Male-Pan
4	11-03-3724	Tube 45x1.25-3050 4hole Male-Pan

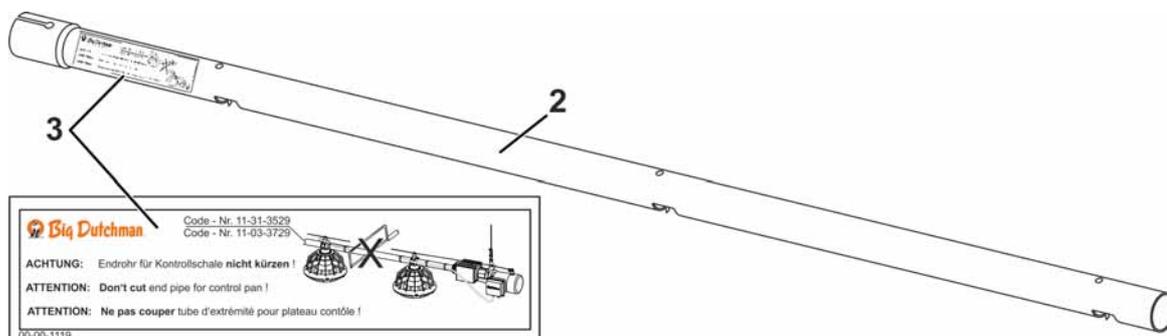
8.1.3 End tubes



If the conveying tubes are used: 8.1.1 "Tube 45x1.25-3050 2-4 hole"



If the following conveying tubes are used: 8.1.2 "Tube 45x1,25x3050 MalePan (for MalePan and FLUXX Breeder 360)"



Pos.	Code no.	Description
1	11-31-3529	End tube 2775mm 4hole dia45 BP330
2	11-03-3729	End tube 2775mm 3hole dia45.0 Male-Pan
3	00-00-1119	Sticker D/GB/F: End pipe for control pan

8.2 MP395 Single components

[11-31-6107] Feed pan complete MP395 classic fit low

Pos.	Code no.	Description	Graphics
1	11-31-6000	Tube adapter orange for cylinder inner square MP395	
2	11-31-6001	Cylinder inner orange square MP395	
3	11-31-6003	Anti-rotation device orange for grille 4-arm MP395	
4	11-31-6002	Grille 4-arm orange MP395	
5	11-31-6006	Cone transparent MP395/Imperator	
6	11-31-6008	Spacer orange + 6 mm for cylinder outer MP395/Imperator	
7	11-31-6005	Dish low orange with cone for MP395/Imperator	

[11-31-6109] Feed pan complete MP395 classic low

	Code no.	Description	Graphics
1	11-31-6014	Cylinder inner orange MP395	
2	21-04-0035	Grille wire 4-arm for feed pan PAL fit	
3	11-31-6006	Cone transparent MP395/Imperator	
4	11-31-6008	Spacer orange + 6 mm for cylinder outer MP395/Imperator	
5	11-31-6005	Dish low orange with cone for MP395/Imperator	

[11-31-6112] Feed pan complete MP395 HY fit low

Pos.	Code no.	Description	Graphics
1	11-31-6000	Tube adapter orange for cylinder inner square MP395	
2	11-31-6001	Cylinder inner orange square MP395	
3	11-31-6003	Anti-rotation device orange for grille 4-arm MP395	
4	11-31-6002	Grille 4-arm orange MP395	
5	11-31-6004	Cone hygiene transparent MP395/Imperator	
6	11-31-6008	Spacer orange + 6 mm for cylinder outer MP395/Imperator	
7	11-31-6005	Dish low orange with cone for MP395/Imperator	

[11-31-6115] Feed pan complete MP395 HY low

	Code no.	Description	Graphics
1	11-31-6014	Cylinder inner orange MP395	
2	21-04-0035	Grille wire 4-arm for feed pan PAL fit	
3	11-31-6004	Cone hygiene transparent MP395/Imperator	
4	11-31-6008	Spacer orange + 6 mm for cylinder outer MP395/Imperator	
5	11-31-6005	Dish low orange with cone for MP395/Imperator	

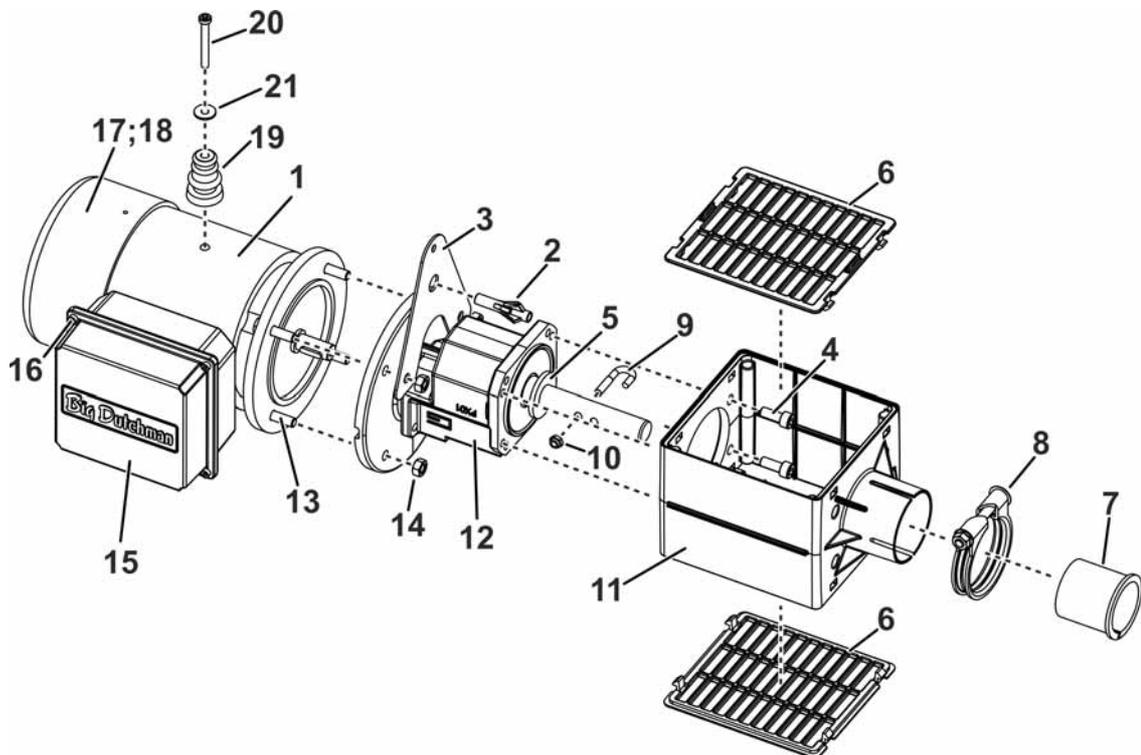
[11-31-6116] Feed pan complete DOS 2000 fit

Pos.	Code no.	Description	Graphics
1	11-31-6000	Tube adapter orange for cylinder inner square MP395	
2	11-31-6001	Cylinder inner orange square MP395	
3	11-31-6003	Anti-rotation device orange for grille 4-arm MP395	
4	11-31-6002	Grille 4-arm orange MP395	
5	11-31-6009	Cylinder outer transparent MP395/Imperator	
6	11-31-6008	Spacer orange + 6 mm for cylinder outer MP395/Imperator	
7	11-31-6009	Dish DOS 2000 orange MP395/Imperator	

8.3 Drive unit

	<p>Important for ventilating the geared motor</p> <p>The breather hole of the gear has to be opened before starting the drive unit. This can be done by removing the sealing plug.</p>
---	--

8.3.1 Drive unit AM6



(see also chapter)

Pos.	Code no.	Description
		For drives: 11-31-5020; 11-03-3753:
1	11-31-5050	Motor 0.55kW 230/400V 50Hz 3Ph B5 cpl for drive AM6
		For drive: 11-31-5021:
	11-31-5046	Motor 0.55kW 220/380V 3Ph 60Hz cpl B5 f/drive AM6
		For drives: 11-31-5022; 11-31-5023:
	11-31-5047	Motor 0.55kW 200/346V 3Ph 50-60Hz cpl B5 f/drive AM6
		For drive: 11-31-5024:
	11-31-5048	Motor 0.55kW 230V 1Ph 50Hz cpl B5 f/drive AM6
		For drive: 11-03-3705:
	11-31-5049	Motor 0.75kW 230V 1Ph 50Hz S3 cpl B5 f/drive AM6
2	39-00-3279	Insulator EV/UV
3	83-08-6881	Suspension sheet for drive AM6
4	99-10-1292	Hexagon socket head cap screw M 8x20 DIN 912 galv
5	83-08-4122	Protection washer for output driveshaft 19,1x40x4 galv AM6
6	83-07-9239	Wire mesh guard for bracket of drive AM6
7	83-08-6654	Sleeve 50.8x2.9 - 50mm lg for tube dia 45mm / AM6
8	11-31-5043	Tube clip Norma dia 64 AM6
9	99-10-3947	Hooked bolt galv M 6x35 Augermatic
10	99-20-1043	Self-locking counter nut M 6 galv DIN985-6
11	83-07-9237	Front bracket drive AM6
		For drives: 11-31-5020; 11-31-5022; 11-31-5024:
12	11-31-5042	Gearbox 4.31R for motor 50Hz B5 AM6
		For drives: 11-31-5021; 11-31-5023:
	11-31-5045	Gearbox 5.70R for motor 60Hz B5 AM6
		For drive: 11-03-3753:
	11-31-5044	Drive 0.55kW 230/400V 50Hz AM6 Rapid-Rooster wo/sensor w/switch box
13	99-10-1058	Hexagon head screw M 8x 30 DIN 933 8.8 galv
14	99-10-1040	Hexagon nut M 8 galv DIN934-8
15	11-31-5041	Cover for switch box AM6
16	11-31-5036	Screw M 4x12 DIN 7500 galv switch-box AM6
17	11-31-5040	Ventilator cowl PP orange AM6
18	11-31-5038	Fan wheel for motor AM6
19	11-31-3744	Insulator conical (for corner RPM/Challenger)
20	99-10-4127	Hexagon socket head cap screw M 6x50 DIN 912-8.8 galv AM6
21	99-50-1147	Washer B 6.4 DIN 125 galv

8.3.2 Drive unit AM5

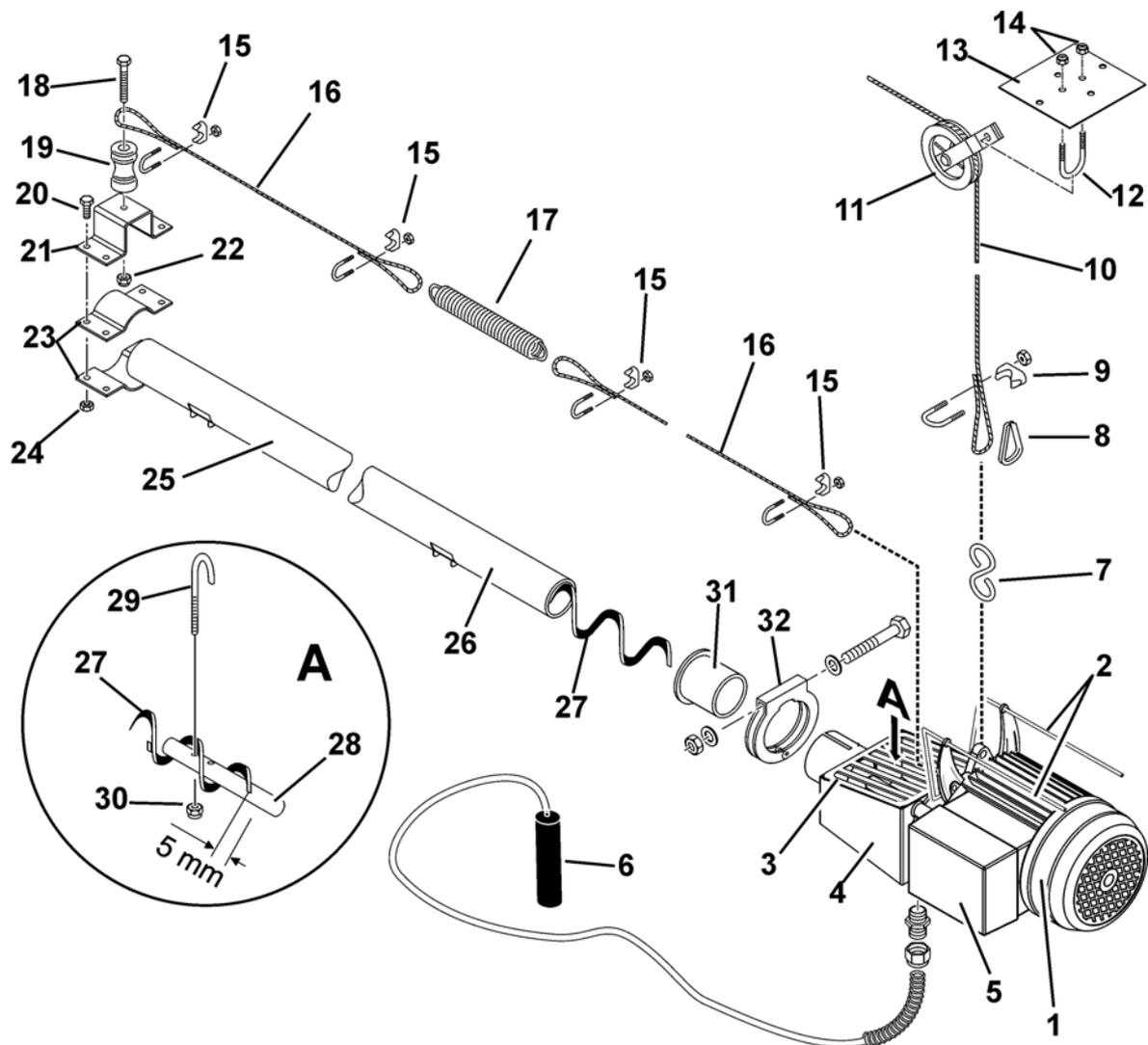
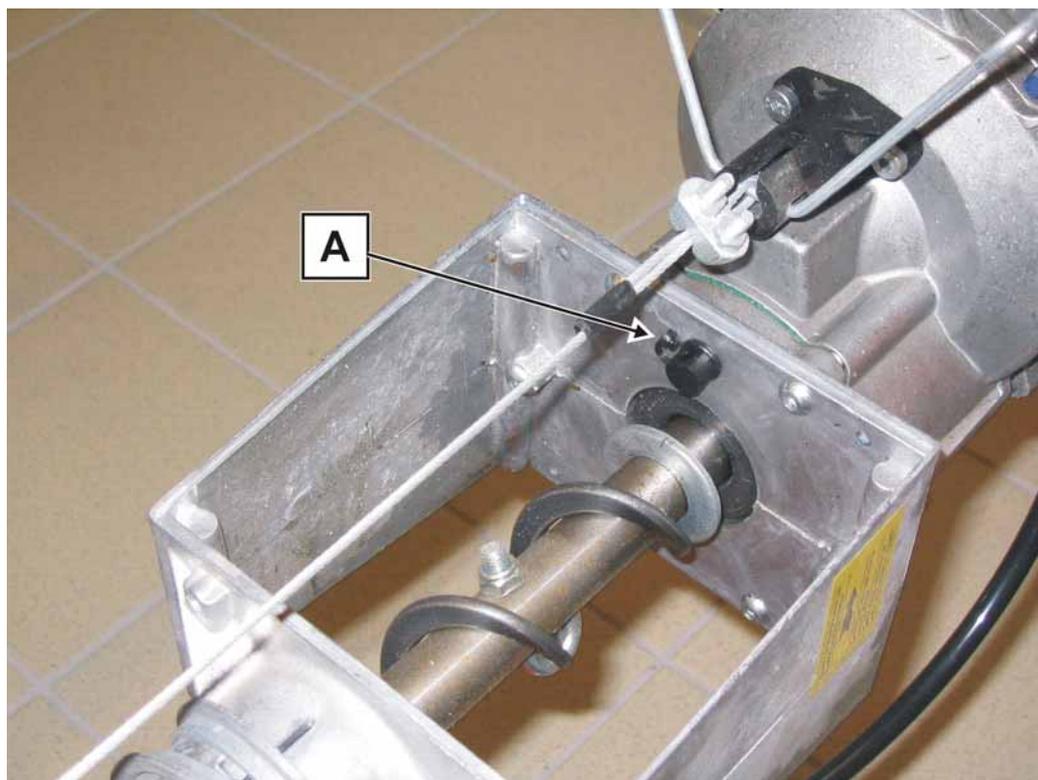


Figure 8-1: Drive unit AM5

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.

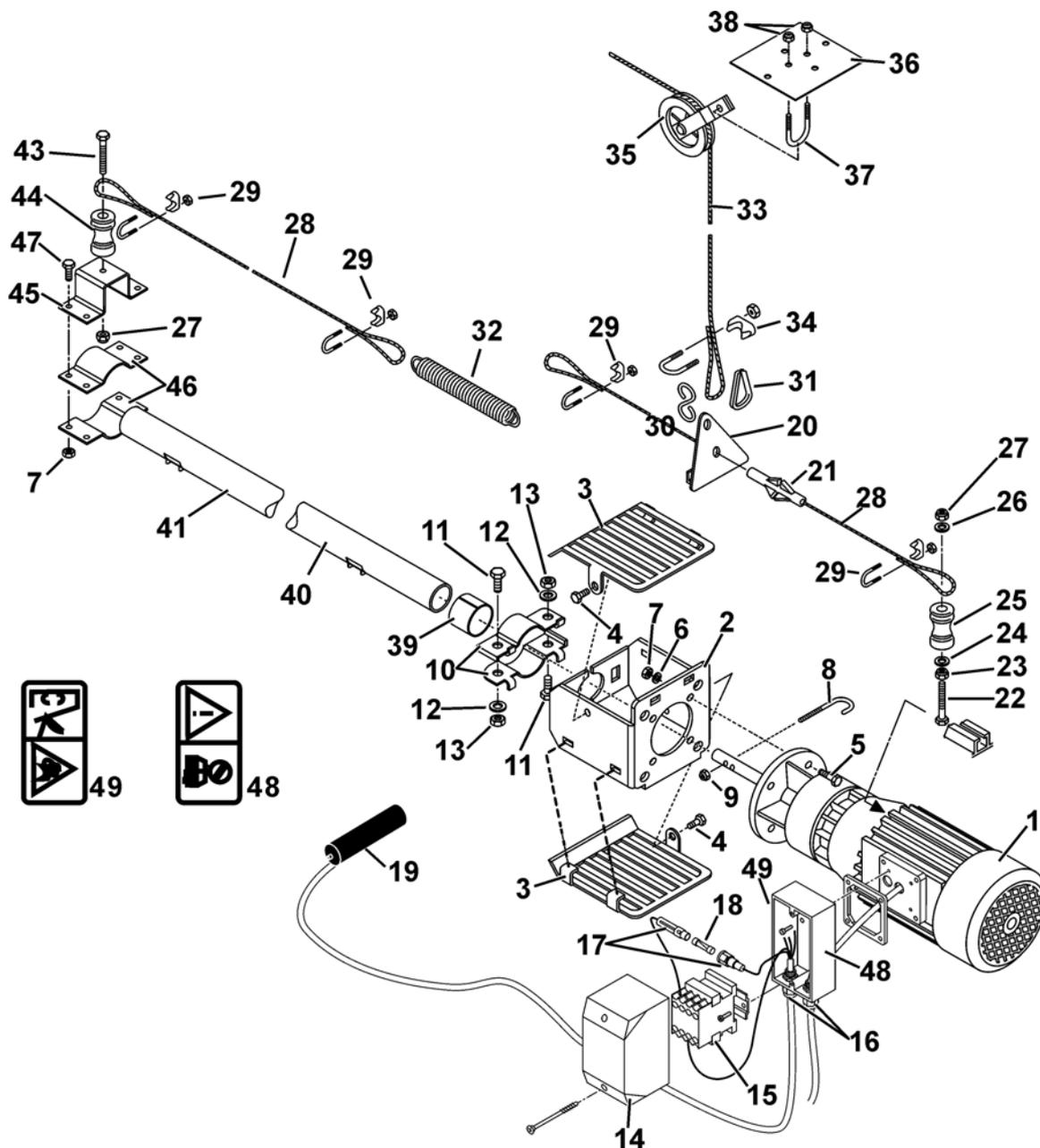
Suspension eye:

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.

8.3.3 AM4 drive unit



Pos.	Code no.	Description
	11-31-3950	Drive 0.37 kW 230/400V 50Hz AM4 with sensor
	11-31-3910	Drive 0.37 kW 230/400V 60 Hz AM4 with sensor
	11-31-3900	Drive 0.37 kW 230V 1PH 50Hz AM4 with sensor
1	90-00-4055	Gear motor 0,37 kW 230/400V 50/60Hz 320r shaft 19 x 122 AM4
	90-00-4065	Gear motor 0,37 kW 230V 50Hz 320r shaft 19 x 122 AM4
2		Bracket of drive AM4
3		Wire mesh guard
4	99-10-1241	Hexagon head screw M 5 x 12 galv. DIN 933 8.8
5	99-10-1088	Hexagon head screw M 6 x 20 galv. DIN 933 8.8
6	99-50-1147	Washer B 6.4 DIN 125
7	99-10-1045	Hexagon nut M 6 galv DIN 934

Pos.	Code no.	Description
8	99-10-3947	Hooked bolt M 6 x 35 Augermatic
9	99-20-1043	Self-locking counter nut M 6 DIN 985
10		Retaining bracket for tube clip AM4
11	99-10-1248	Hexagon head screw M 8 x 35 galv. DIN 933 8.8
12	99-20-1026	Washer A 8.4 DIN 125 galv.
13	99-10-1040	Hexagon nut M 8 galv DIN 934-8
14		Housing CI-K-1 95 TS complete
15		Performance protection 4 kW DOLOOM
16		Cable gland V-M20
17		Fuse holder
18		Fuse 5 x 20 G2A
19	60-40-0654	Sensor MS-45R 220V without thread
20		Suspension bracket AM4
21	39-00-3279	Insulator EV/UV
22	99-10-1152	Hexagon head screw M 5 x 50 galv. DIN 933 8.8
23	99-20-3706	Washer 5.3 x 25 x 1.25 galv.
24	99-10-1023	Hexagon nut M 5 galv DIN 934
25	11-31-3744	Insulator conical (for corner RPM/Challenger)
26	99-20-1003	Washer A 5.3 x 15 x 1.5 DIN 9021 stainless steel
27	99-20-1033	Self-locking counter nut M 5 galv. DIN 985-6
28	99-50-1260	Wire rope 2 mm galv.
29	99-50-0014	Cable clamp 3 mm 1/8" galv. DIN 741
30	99-50-0005	S-hook 2" no. 60 / 6x55
31	99-50-1077	Thimble 6 mm for cable 5 mm DIN 6899 NG 6 RW7 (=>)
32	39-00-3096	Tension spring 2.0 x 14 x 134 C DIN 17223 galv.
33	99-50-3700	Wire rope 5 mm
34	99-50-0120	Safety cable clamp 5 mm 3/16" DIN EN 13411-5 galv. NG5
35	00-00-3006	Pulley 4 1/8" 105 mm plastic
36	11-31-3581	Bracket for cable winch 340kg
37	99-50-3003	U-bolt galvanized 8x25/W34/H50
38	99-20-1064	Self-locking counter nut M 8 DIN 985-6 galv.
39	11-31-3547	Sleeve 48x1.5-40 for tube dia 45/47.6
40		End tube BP330
41		Tube AM/BP
42	11-31-1155	End anchor cpl anti-roost AM (Pos. 7, 27, 43-47)
43	99-10-1152	Hexagon head screw M 5 x 50 galv. DIN 933 8.8
44	00-00-0032	Insulator porcelain anti-roost cable
45	11-31-1158	Bracket for insulator AM355
46	11-31-1157	Clamp half for end anchor AM355
47	99-10-1067	Hexagon head screw M 6 x 16 galv. DIN 933 8.8
48	00-00-1186	Pictograph: Before maintenance work main switch "OFF"
49	00-00-1187	Pictograph: Protective devices

8.3.4 AM3 drive unit

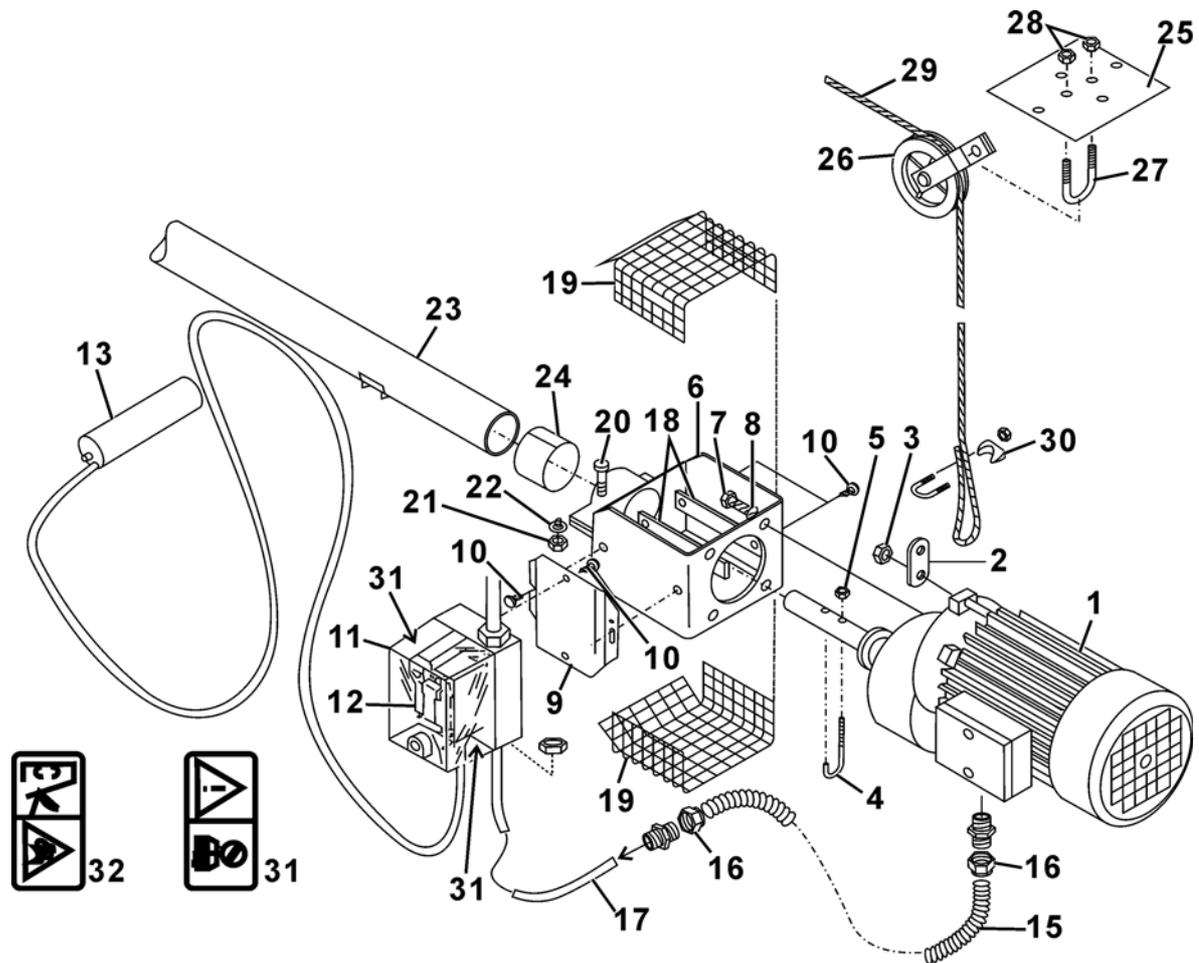


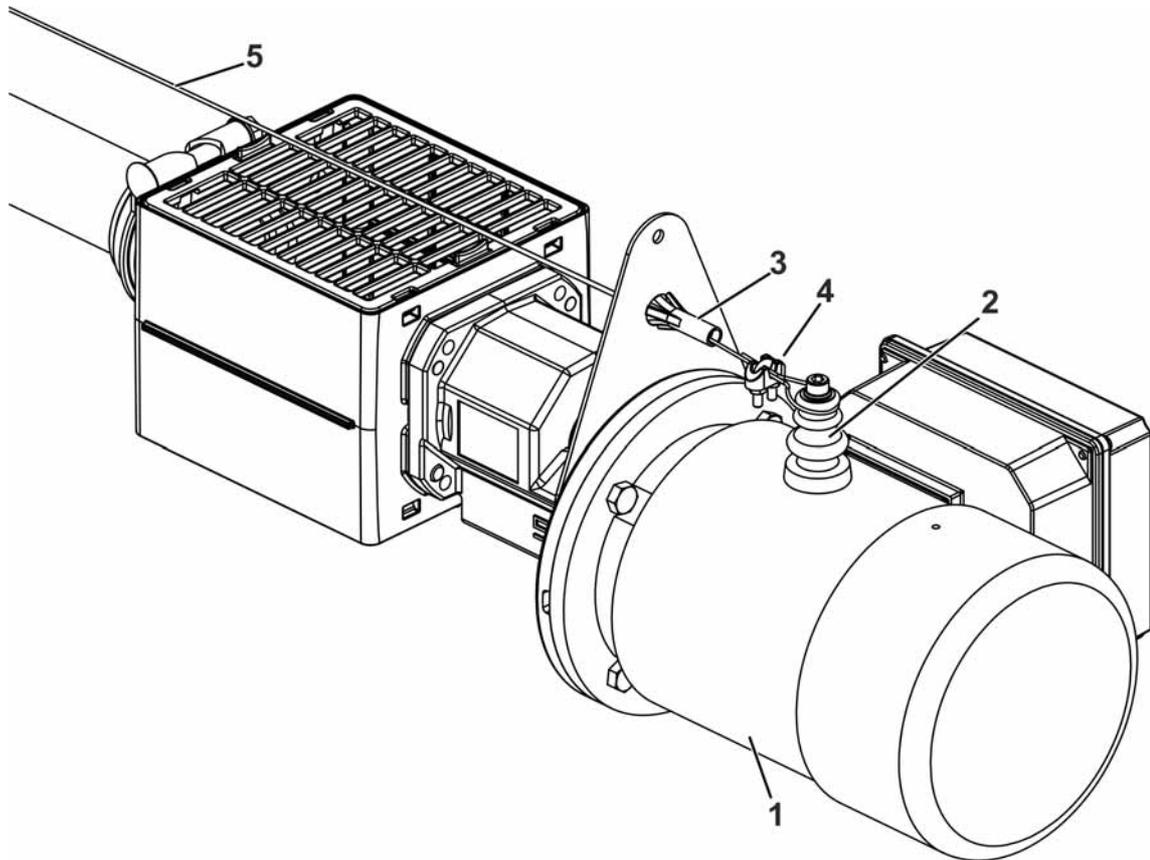
Figure 8-2: drive unit AM3

Pos.	Code no.	Description
	11-31-3650	Drive 0.55 kW 230/400V 50Hz AM3 with sensor
	11-31-3660	Drive 0.55 KW 230/400V 60Hz AM3 with sensor
	11-31-3600	Drive 0.55 kW 240V 1Ph 50Hz AM3 with sensor
1	90-00-3955	Gear motor 0.55 230/400 50Hz 326r shaft 19x122 AM3
	90-00-3965	Gear motor 0.55 215/240 50 326r shaft 19x122 AM3
	90-00-3975	Gear motor 0.55 230/400 50Hz AM3 257r shaft 19x122/F (=326r/60Hz)
2		Suspension eye 2-hole for drive AM3
3	99-10-1023	Hexagon nut M5 galv DIN 934-8
4	99-10-3947	Hooked bolt galv. M 6x35 Augermatic
5	99-20-1043	Self-locking counter nut M 6 DIN 985
6	11-31-3601	Bracket cpl with fastening for switch-box AM3
7	99-10-1046	Hexagon head screw M 8 x 16 galv. DIN 933 8.8
8	99-50-1063	Spring washer A 8 DIN 127-A2E
9	11-31-3603	Mounting plate for switch box at bracket AM3

Pos.	Code no.	Description
10	99-10-3892	Tapping screw C 4.8 x 19 DIN 7981
11	11-31-1054	Switch box 230/400 50/60Hz for sensor
12	91-00-3312	Contacteur LC1 DO910 P7 230V 50/60Hz
13	60-40-0654	Sensor MS-45R 220V without thread
14	11-31-3613	Protective covering of cables for drive 230/400V 3PH AM3 (Pos. 15-17)
	11-31-3614	Protective covering of cables for drive 240V 1PH AM3 (Pos. 15-17)
15	11-31-3615	Protective hose UW-PA6-10, 0.4m
16	99-30-1023	Screw union PG 16
17	11-31-3617	Cable Öflex 4 x 1.5, 0.4 m for 11-31-3613
	11-31-3616	Cable Öflex 3 x 1.5, 0.4 m for 11-31-3614
18	11-31-3602	Fastening plate for wire mesh guard at bracket AM3
19	11-31-3604	Guard plate single for drive bracket AM5
20	99-10-1248	Hexagon head screw M 8 x 35 galv. DIN 933 8.8
21	99-10-1040	Hexagon nut M 8 galv DIN 934-8
22	99-20-1083	Serrated lock washer A 8.4 DIN 6798
23	11-31-3529	End tube 2775 mm 4 hole dia 45 BP330
24	11-31-3547	Sleeve 48x1,5-40 for tube dia 45/47,6
25	11-31-3581	Bracket for cable winch 340 kg and hopper suspended AM/BP
26	00-00-3006	Pulley 4 1/8" 105 mm plastic AMX150transit
27	99-50-3003	U-bolt galvanized 8x25/W34/H50
28	99-20-1064	Self-locking counter nut M 8 DIN 985-6 galv.
29	99-50-3700	Wire rope 5 mm
30	99-50-0120	Safety cable clamp 5mm 3/16" DIN EN 13411-5 galv. NG5
31	00-00-1186	Pictograph: Before maintenance work main switch "OFF"
32	00-00-1187	Pictograph: Protective devices

8.4 Anti-roost unit

8.4.1 Anti-roost wire for drive AM6



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

8.4.2 Anti-roost device for AM5 drive

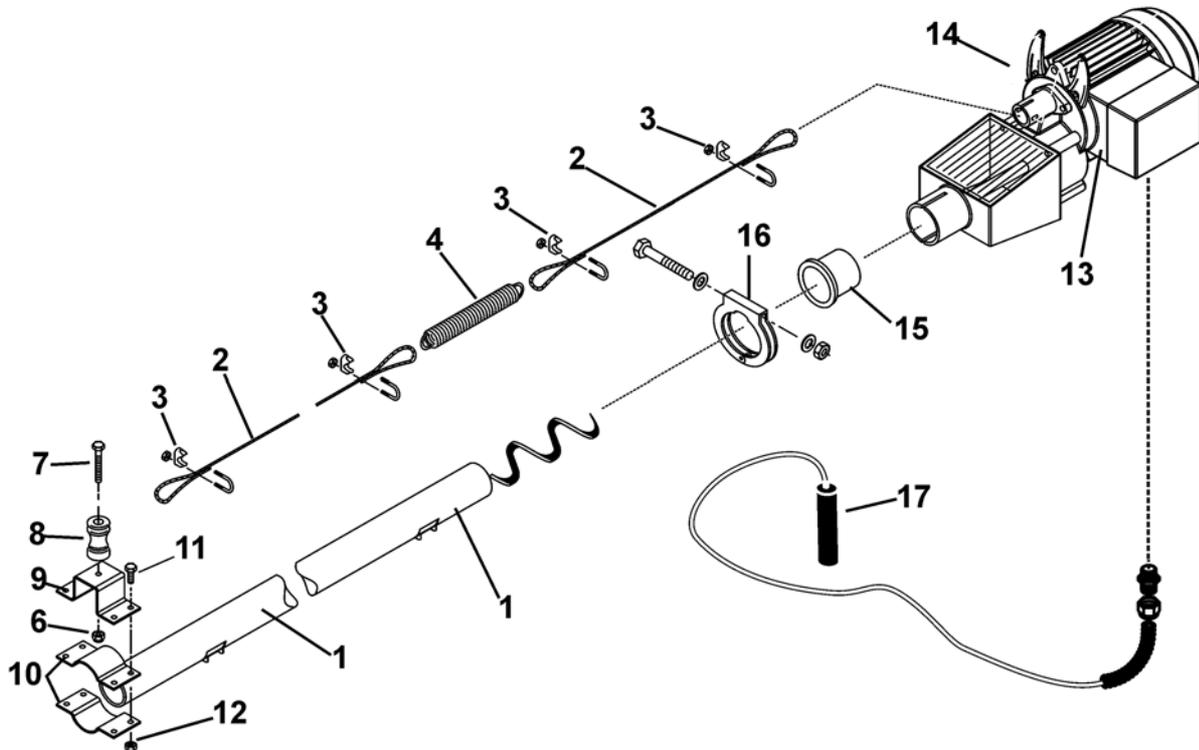


Figure 8-3: Anti-roost device for AM5 drive

Pos.	Code no.	Description
1		Tube AM
2	99-50-1260	Wire rope 2 mm galv.
3	99-50-0014	Cable clamp 3 mm 1/8" galv. DIN 741
4	39-00-3096	Tension spring 2.0x14x134 C DIN 17223 galvanized
5	11-31-1155	End anchor cpl anti-roost AM (Pos. 6-12)
6	99-20-1033	Self-locking counter nut M 5 galv. DIN 985-6
7	99-10-1152	Hexagon head screw M 5 x 50 galv. DIN 933 8.8
8	00-00-0032	Insulator porcelain anti-roost cable
9	11-31-1158	Bracket for insulator AM355
10	11-31-1157	Clamp half for end anchor AM355
11	99-10-1067	Hexagon head screw M 6 x 16 galv. DIN 933 8.8
12	99-10-1045	Hexagon nut M 6 galv DIN 934
13		Drive AM5
14		Anti-roost wire for drive AM5
15		Reducing bush (for tubes 50.8 mm to 45 mm)
16	11-31-3211	Tube clip riveted complete
17	91-00-3905	Sensor AFS-01-60 seconds 90-250 V
	60-40-0654	Sensor MS-45R 220V without thread

8.4.3 Anti-roost device for AM4 drive

For mounting the anti-roost device for AM4 drive, see chapter 8.3.3 "AM4 drive unit".

8.4.4 Anti-roost wire for drive AM3



The AM3 drive can be installed including an anti-roost device. The anti-roost wire above the AM3 drive is connected to the wire above the Augermatic tube and supplied with current if an electric fencer is used. Replace the hexagon head screw M 5x50 of the end anchor cpl. anti-roost AM and the insulator for anti-roost cable by a hexagon head screw m 5x35 and an insulator at the AM3 drive. The suspension eye 2-hole for AM3 drive has to be replaced by a suspension eye for AM3 drive.

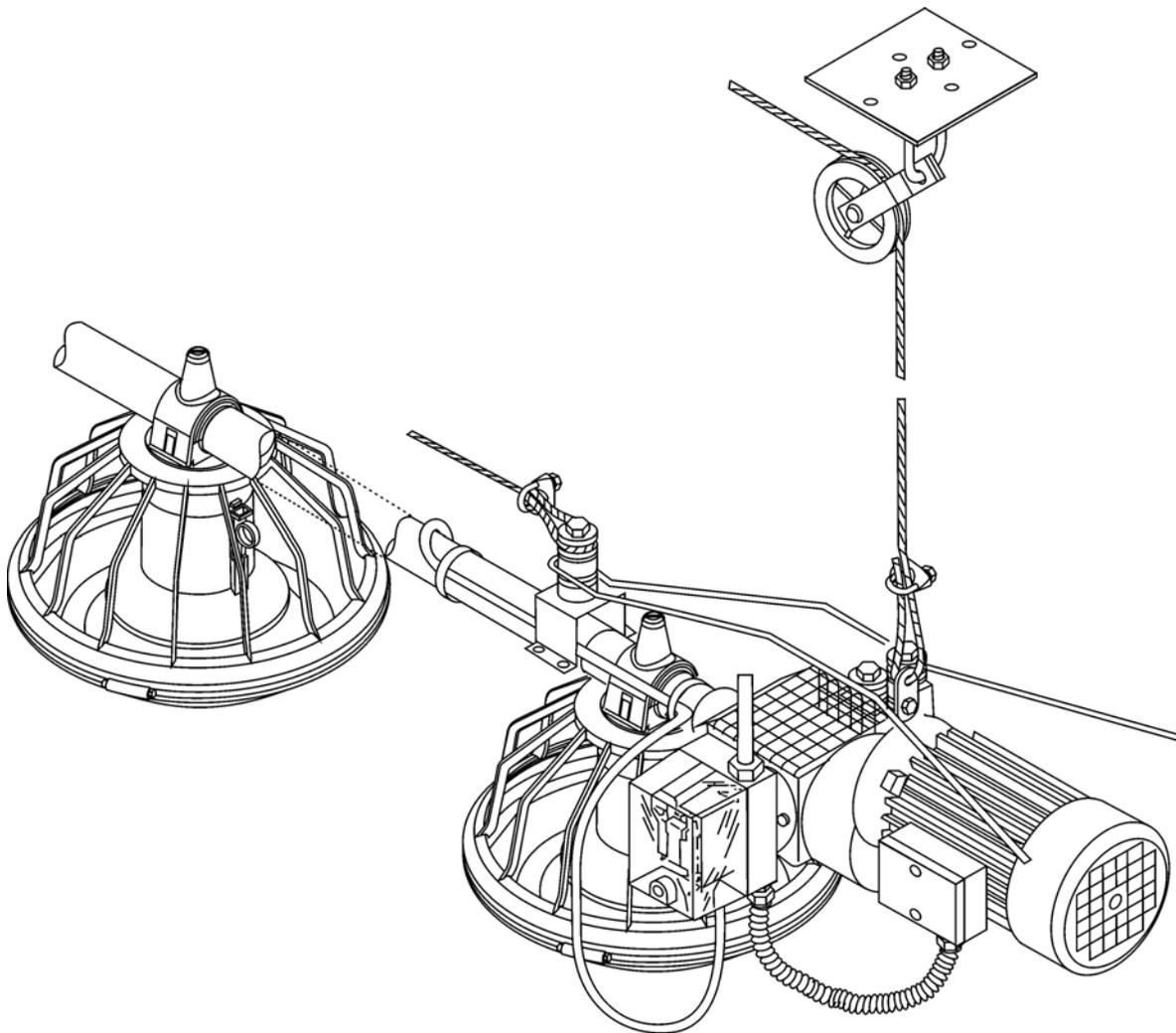


Figure 8-4: Anti-roost device for AM3 drive

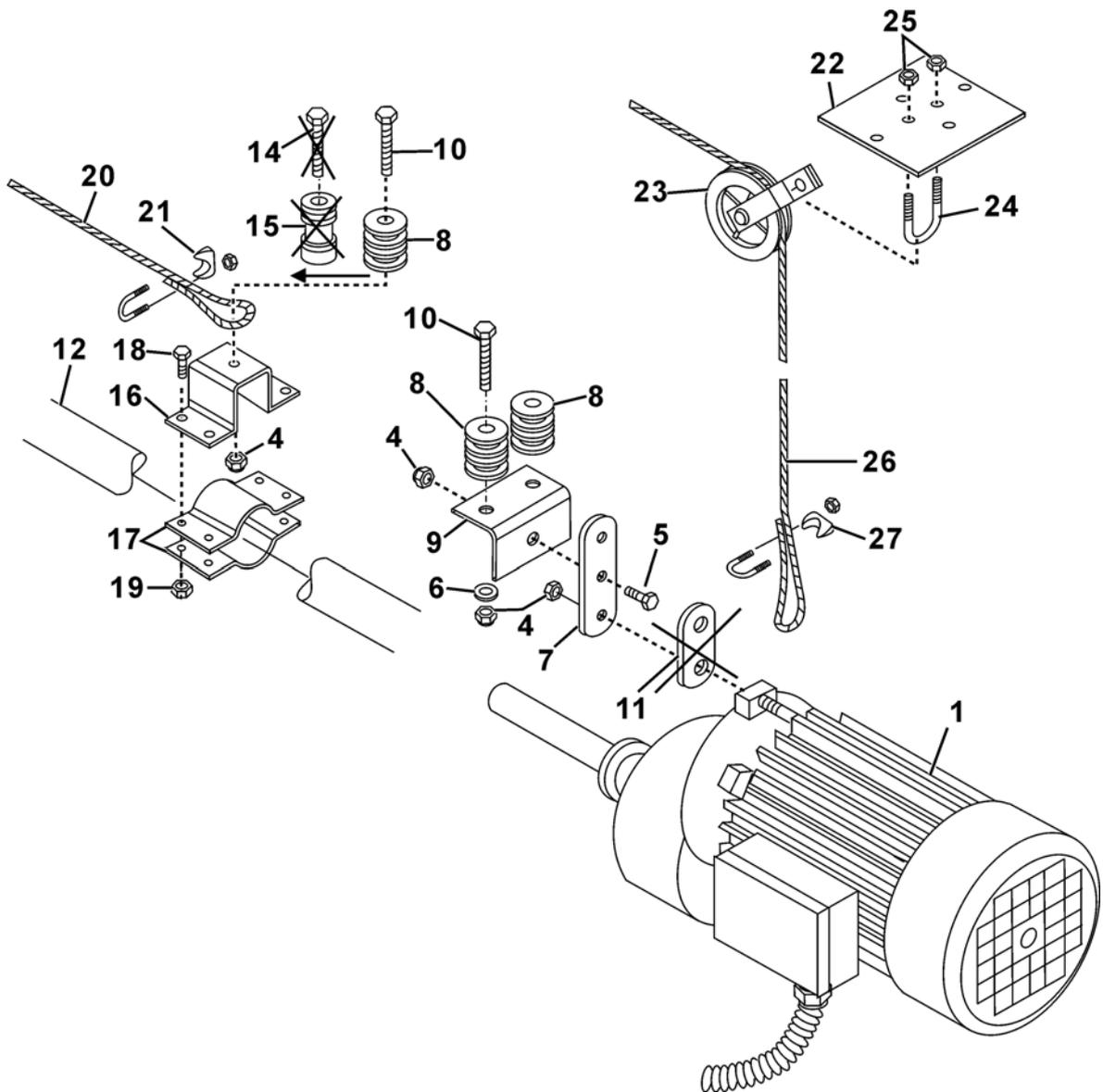


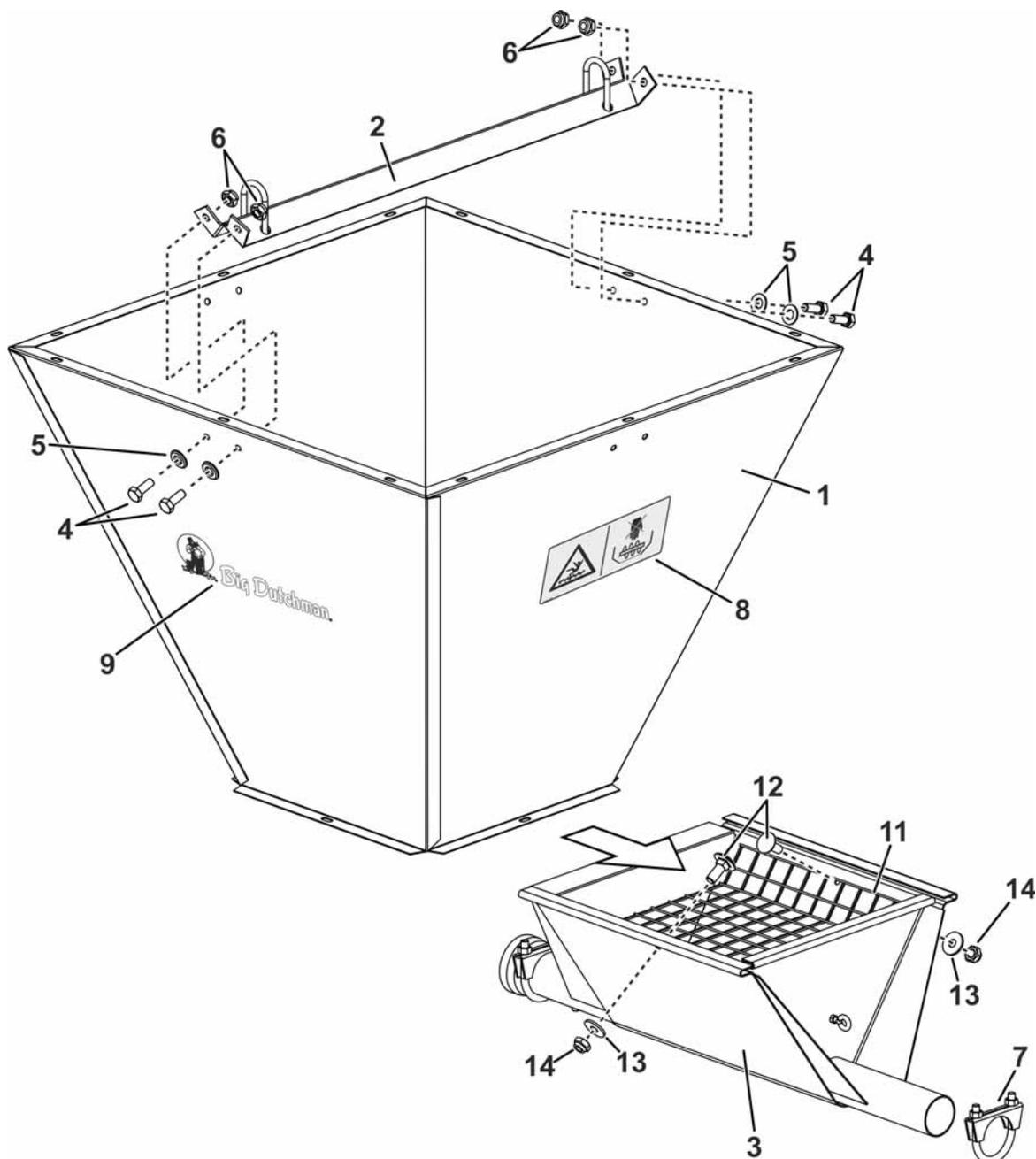
Figure 8-5: Explo Anti-roost device for AM3 drive

Anti-roost for AM3 drive

Pos.	Qty.	Code no.	Description
1			Gear motor for Augermatic drive
2		11-31-3655	Anti roost for drive AM3 consisting of pos. 1-8
3		11-31-3606	Anti roost wire f/drive AM3
4		99-20-1033	Self locking counter nut M 5 galv. DIN 985
5		99-10-1097	Hexagon head screw M 5x16 galv. DIN 558
6		99-50-1146	Washer flat 5.3 DIN 433-ST
7		11-31-3608	Suspension eye for AM drive3
8		11-00-0307	Insulator at AM drive3
9		11-31-3611	Bracket for 2 insulators at AM drive
10		99-10-1420	Hexagon head screw M 5x35 galv. DIN 558
11			Suspension eye 2-hole for drive AM3
12			End tube BP330
13		11-31-1155	End anchor cpl. anti roost AM (pos. 12-18)
14		99-10-1152	Hexagon head screw M 5x50 galv. DIN 558
15		00-00-0032	Insulator porcelain anti-roost cable
16		11-31-1158	Bracket for insulator AM355
17		11-31-1157	Clamp half for end anchor AM 355
18		99-10-1067	Hexagon head screw M 6x16 galv. DIN 558
19		99-10-1045	Hexagon nut M 6 galv. DIN 934
20		99-50-1260	Wire rope 2mm galv.
21		99-50-0014	Cable clamp 3mm 1/8" galv. DIN 741
22		11-31-3581	Bracket for cable winch 340 kg and hopper suspended AM/ BP
23		00-00-3006	Pulley 4 1/8" 105mm plastic
24		99-50-3003	U-bolt galv. 8x25/W34/H48
25		99-20-1064	Self locking counter nut M 8 DIN 985-6 galv.
26		99-50-3700	Wire rope 5mm galv.
27		99-50-0120	Cable clamp 5mm 3/16" galv.

8.5 Hopper

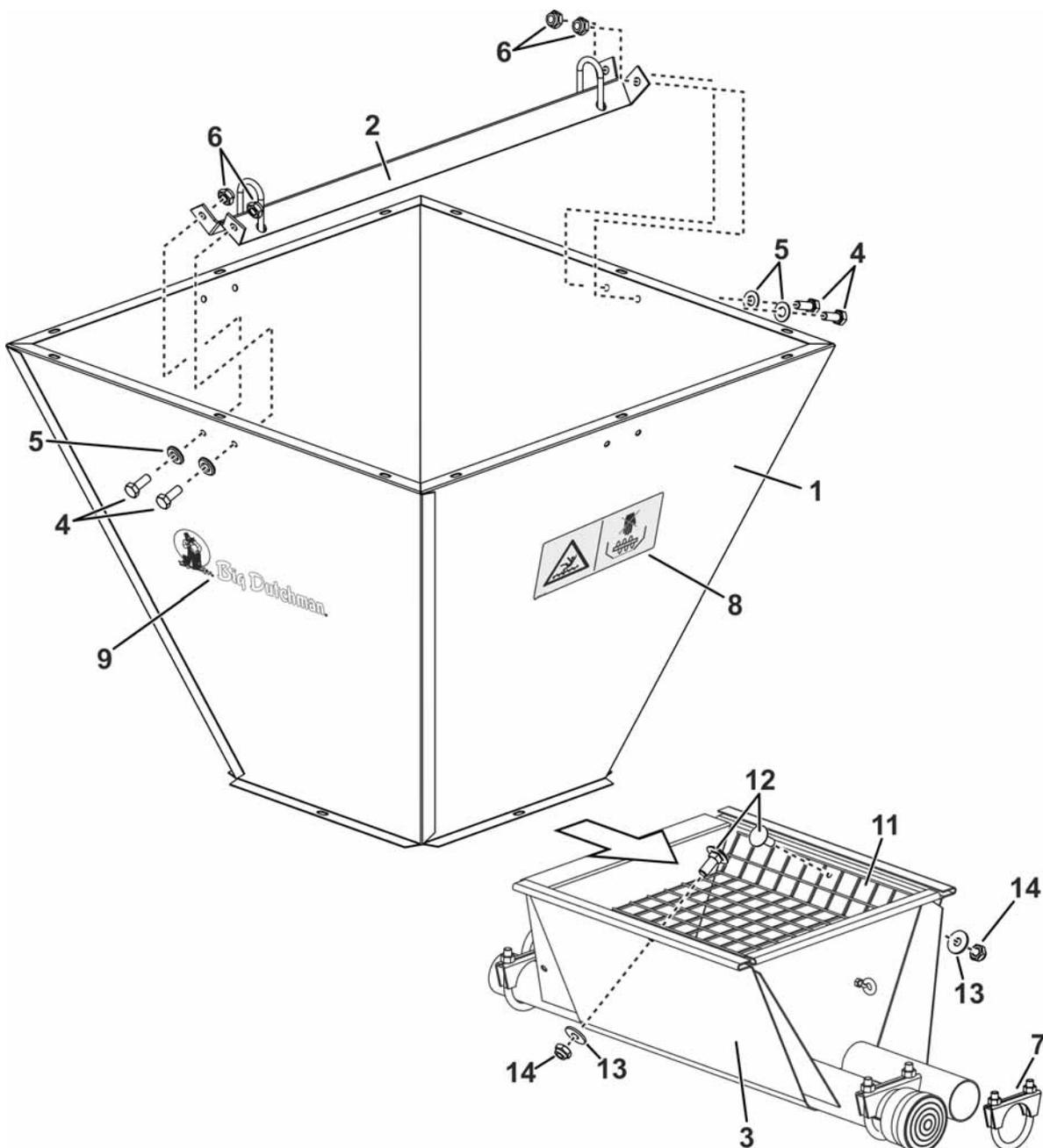
Feed hopper cpl 115l 1 line



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

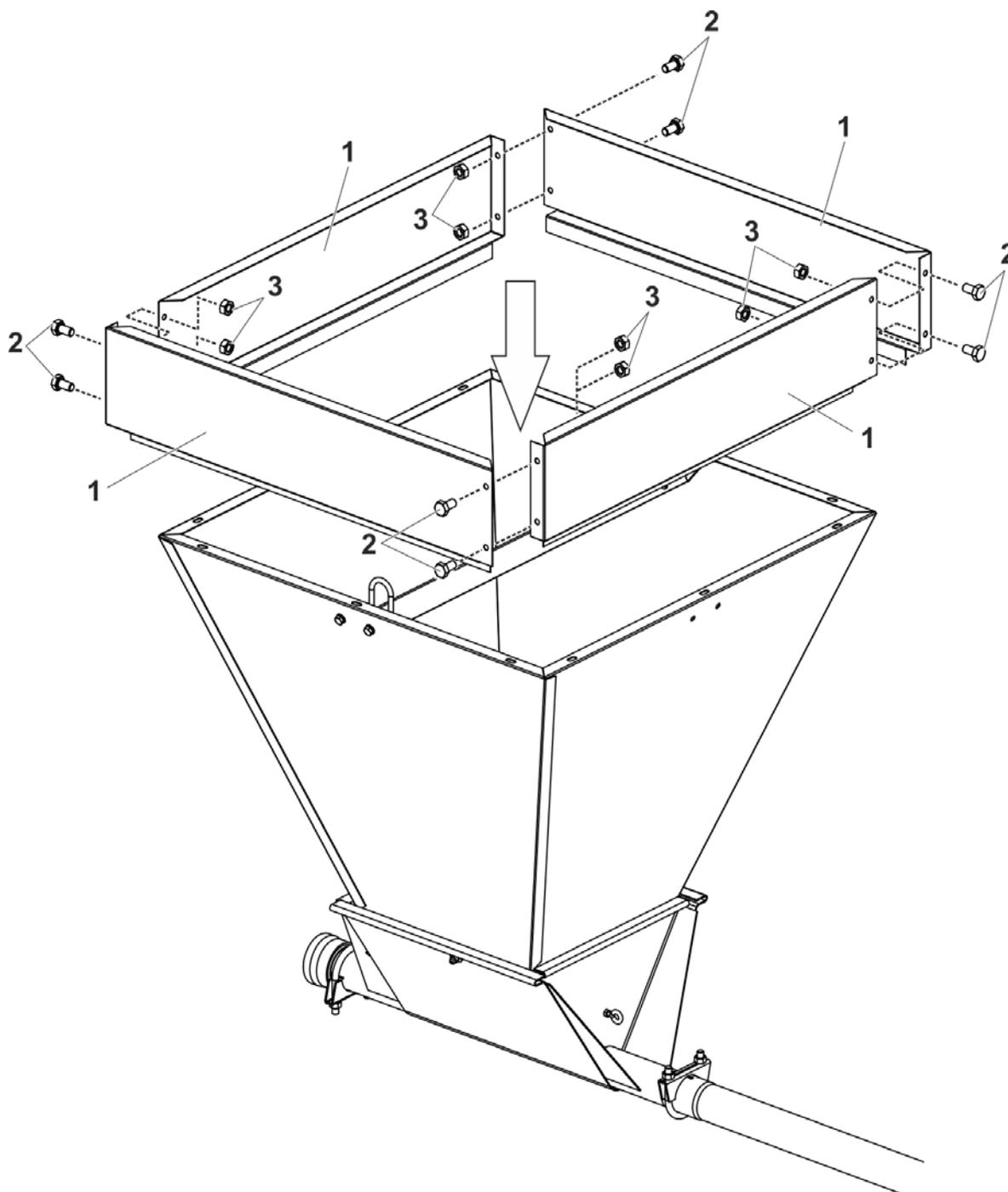
Pos.	Code no.	Description
7	99-50-1422	U-bolt hot-dip galv cpl 8x25/W52/H68.5 Pipe 2"
8	00-00-1188	Pictograph: Risk of injury / hopper
9	00-00-1173	Type plate: Big Dutchman 265mm x 80mm
10	11-31-1315	Wire mesh guard cpl for lower part of hopper BP/AM
	consisting of:	
11	11-31-1314	Wire mesh guard for 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

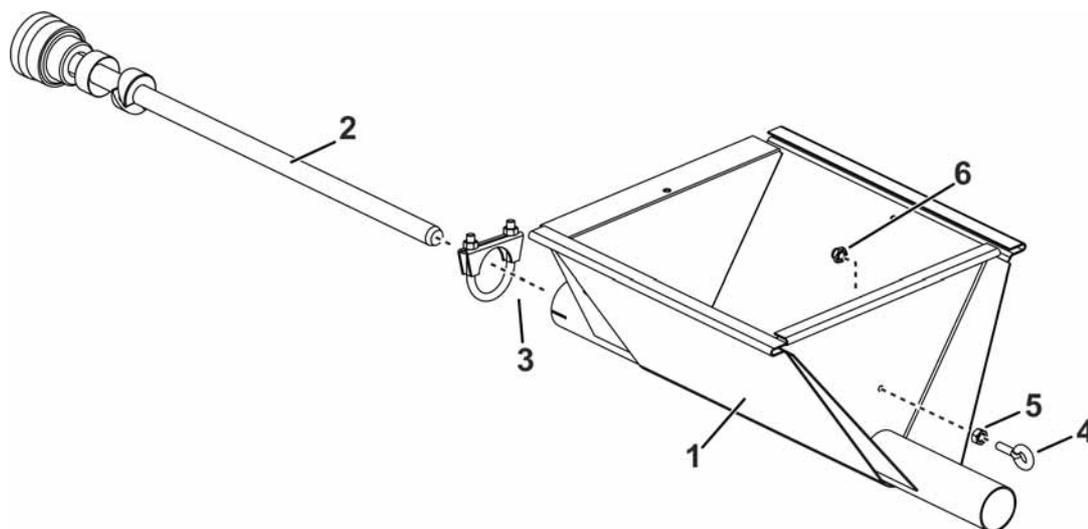
Extension for feed hopper



Pos.	Code no.	Description
	11-31-3521	Extension 48l for hopper 115l suspended AM Zn with screws
1	83-03-3277	Upper part for hopper 115 L AM ZnAl (zinc aluminium)
2	99-10-1100	Hexagon head screw M 6 x 12 galv. DIN 933 8.8
3	99-10-1045	Hexagon nut M 6 galv. DIN 934-8

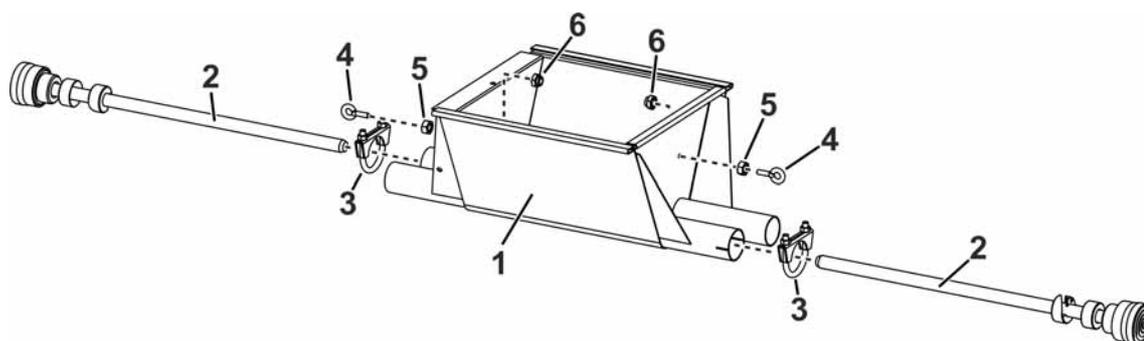
8.5.1 Lower part for feed hopper

Lower part for feed hopper 1 line



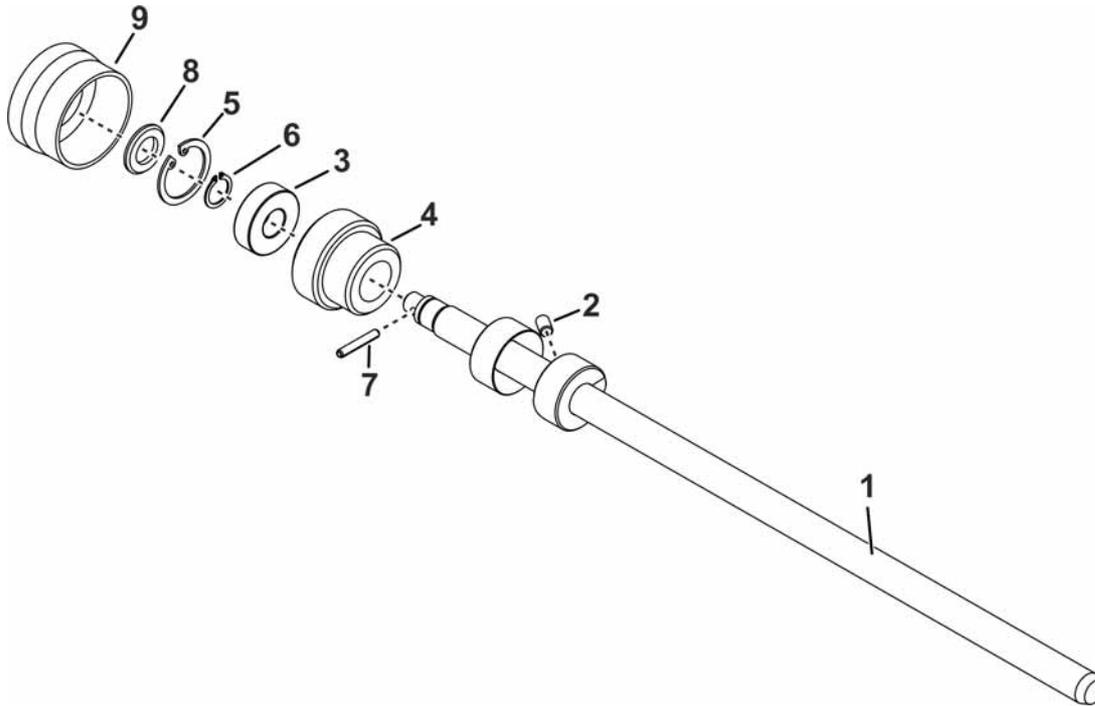
Pos.	Code no.	Description
	11-31-3545	Lower part for hopper BP/AM for tube dia 45 and 50.8
1	11-31-1104	Lower part for hopper AM (casing)
2	11-05-1082	Tension shaft cpl 19mm AM with Seeger ring+bearing housing
3	99-50-1422	U-bolt hot-dip galvanized cpl. 8x25/W52/H68.5 pipe 2"
4	35-00-1303	Lifting eye 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

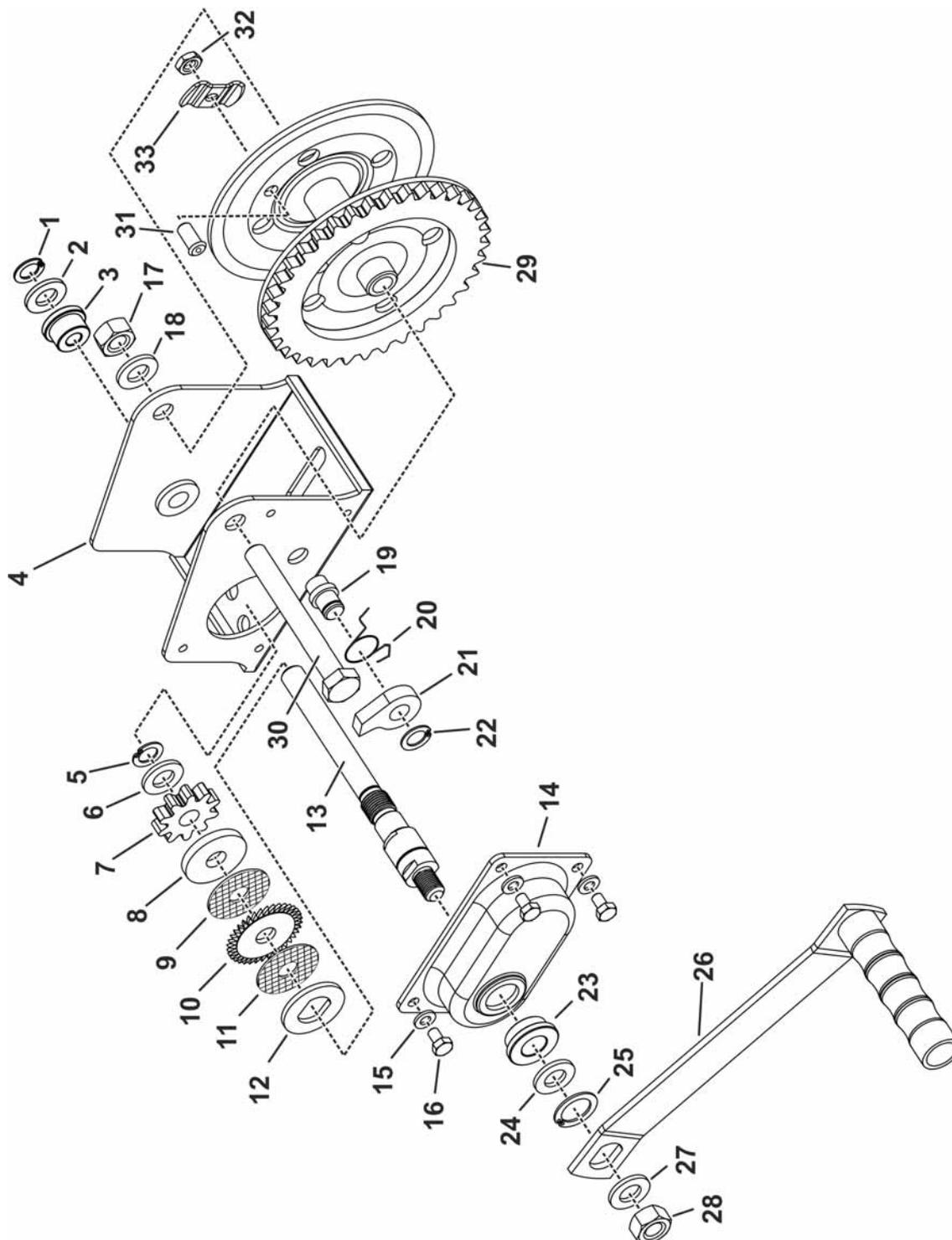
8.5.2 Tension shaft complete



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

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

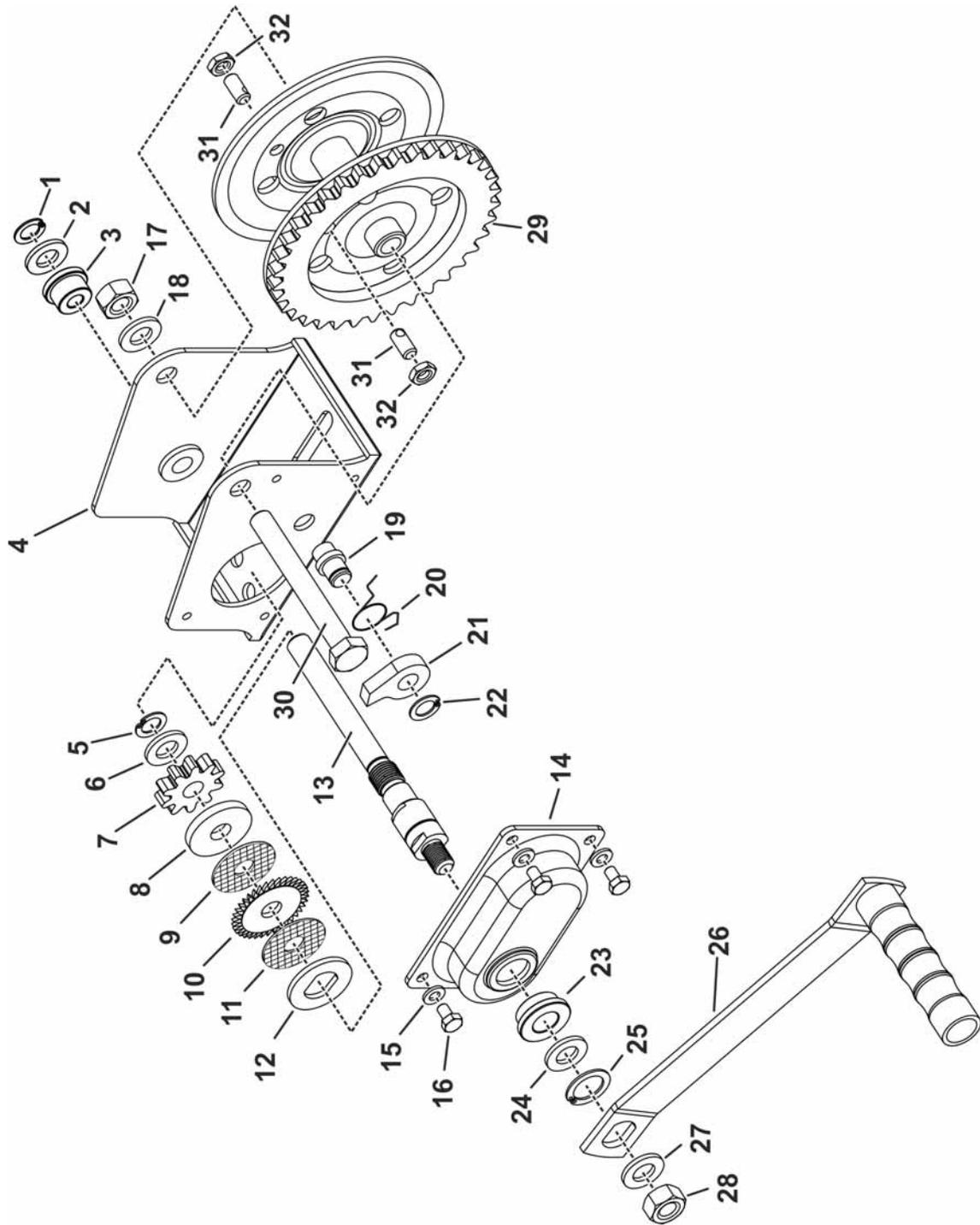
If one cable is used:



Pos.	Qty.	Code no.	Description
1			Retaining ring
2			Washer

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

If two cables are used:



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

8.7 Feeders [single parts]

8.7.1 Feeder 30 ltr Empa 2 (20-00-3930)

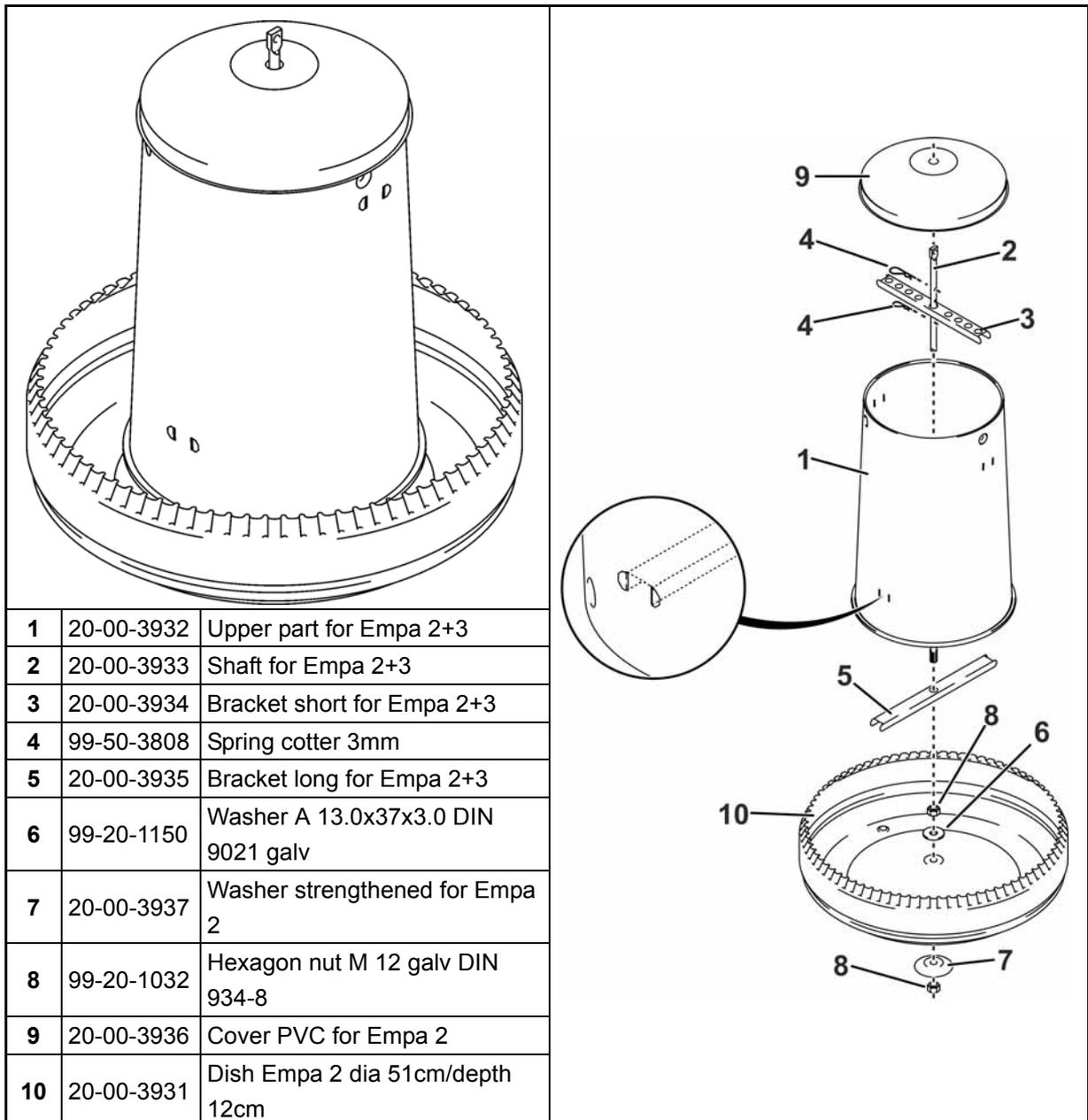


Figure 8-6: Feeder 30ltr Empa 2 (20-00-3930)

8.7.2 Feeder 30ltr Empa 3 (20-00-3940)

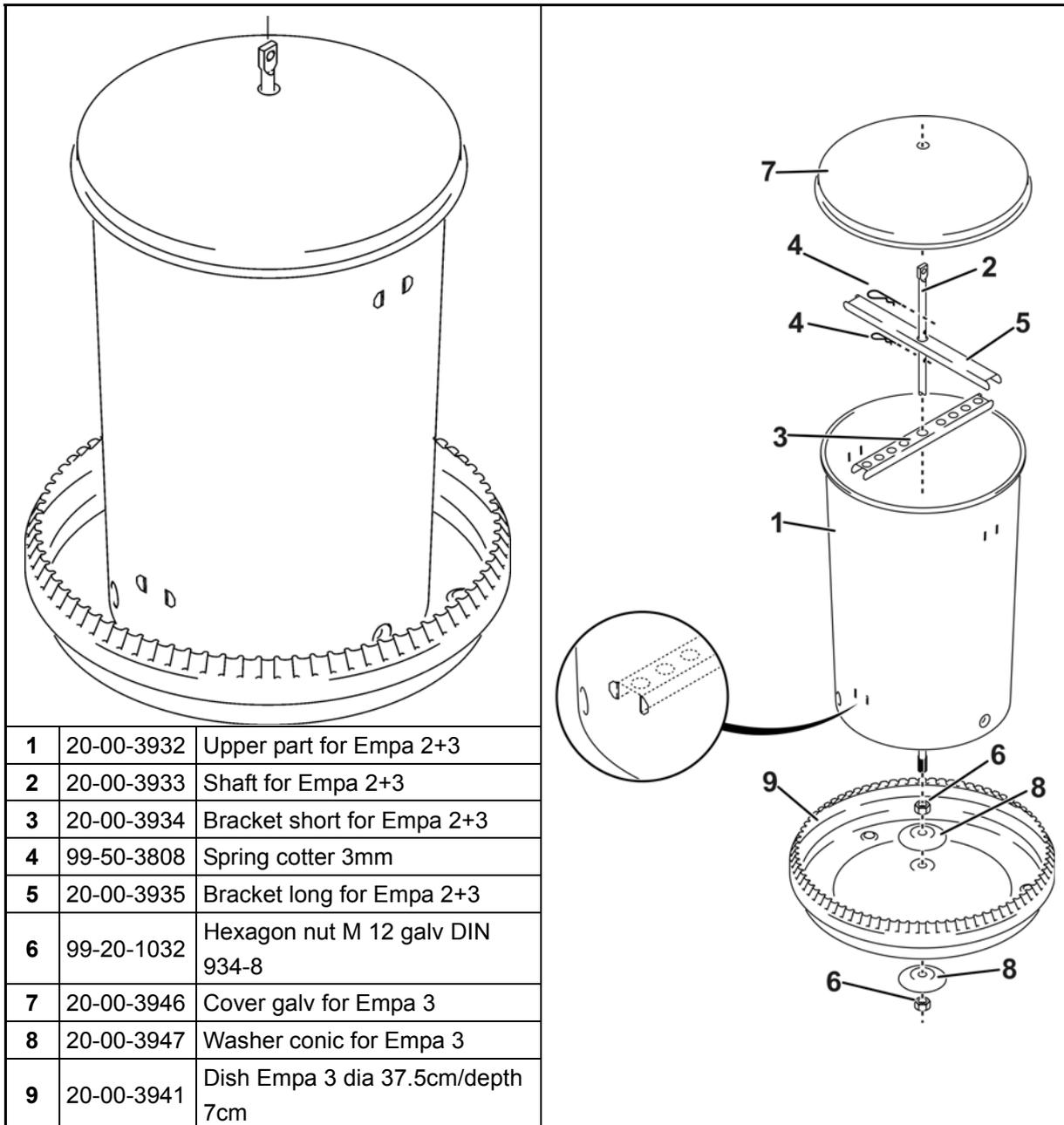


Figure 8-7: Feeder 30ltr Empa 3 (20-00-3940)

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

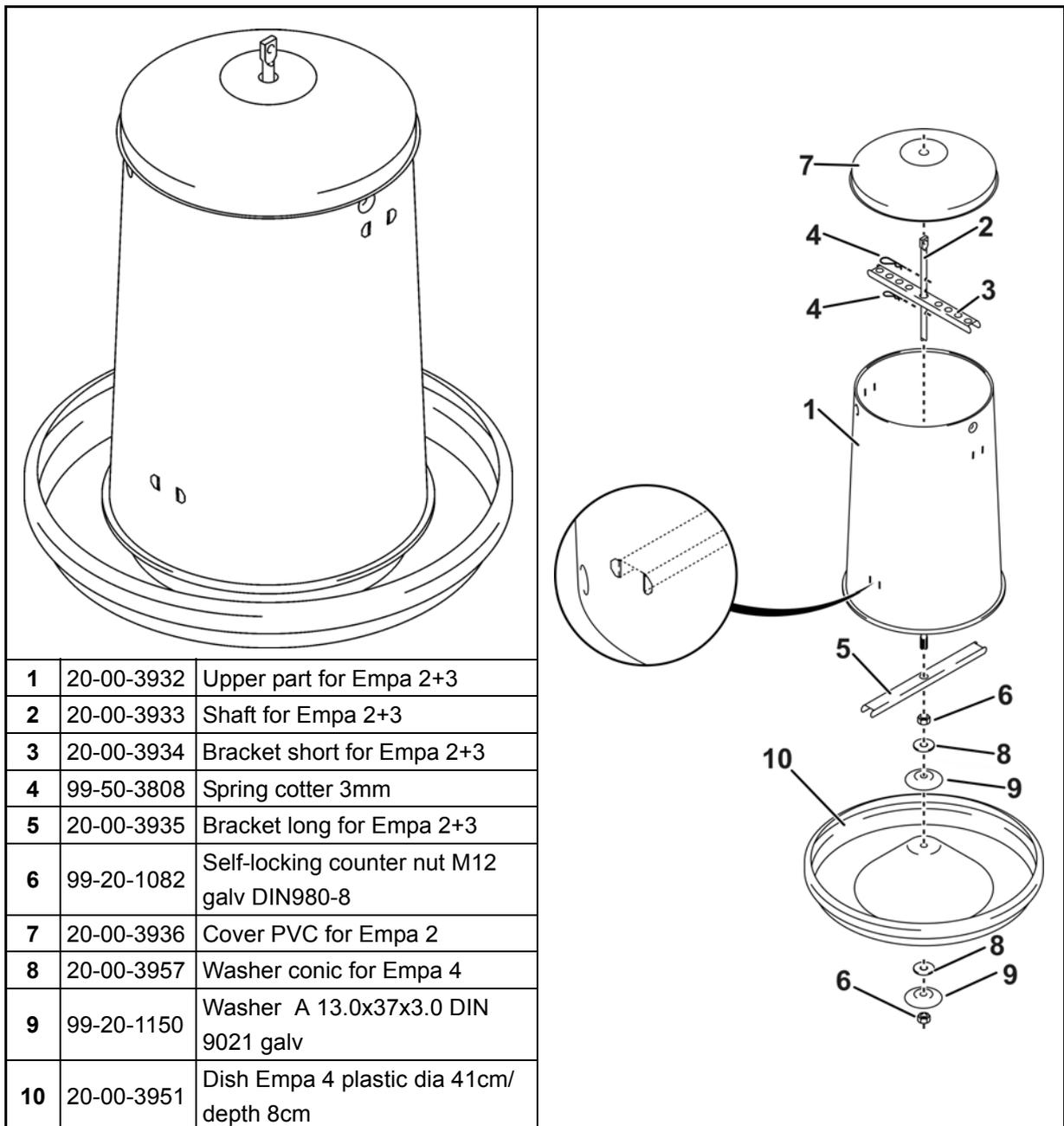


Figure 8-8: Feeder 30 ltr Empa 4 (20-00-3950)

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

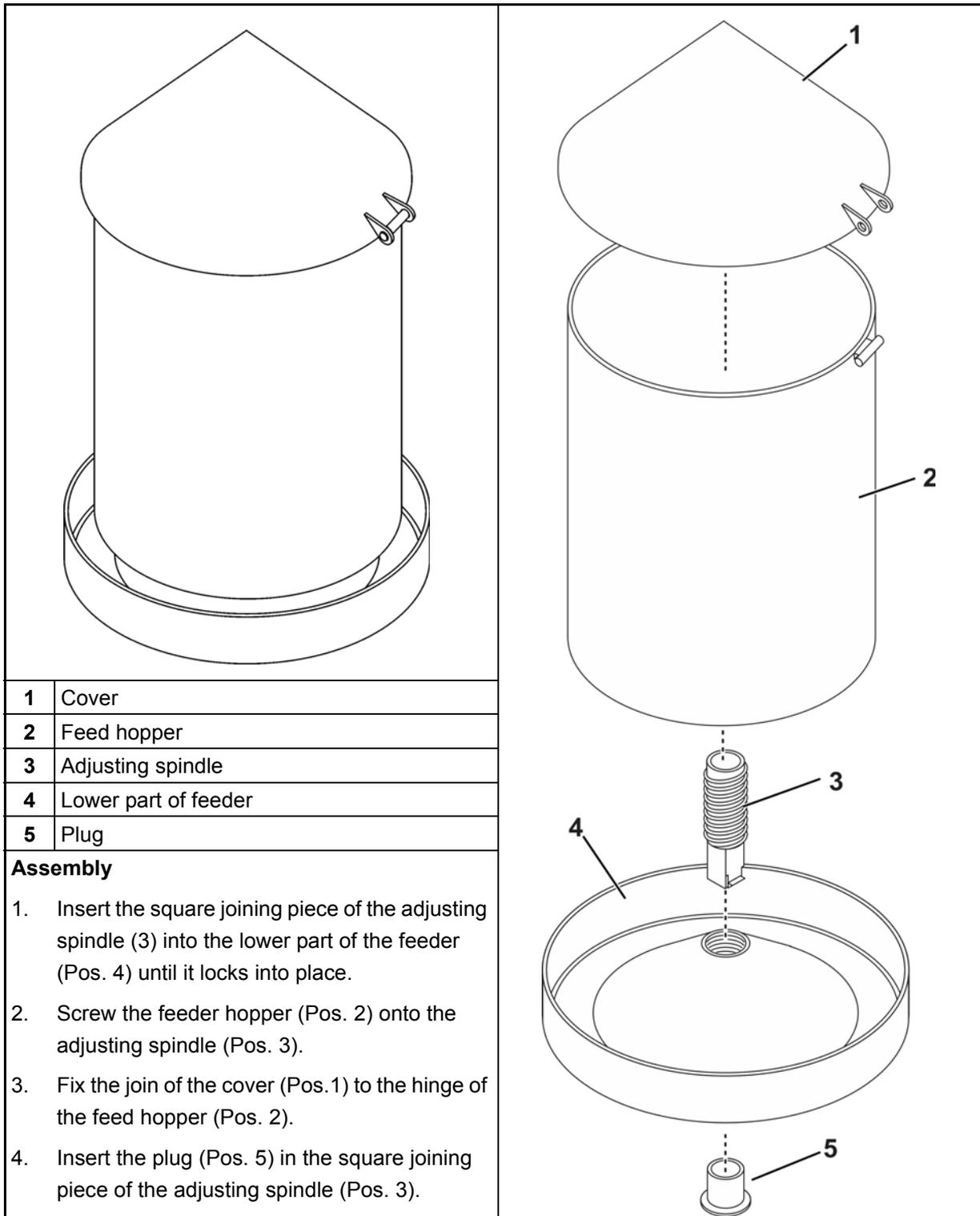


Figure 8-9: Feeder 12 ltr Picorett (11-31-3080)

9 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

<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

<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

<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

<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

<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"/>	the flooding mechanism should be turned off starting with the third day => to prevent feed wastage.		
<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

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