

User manual

## **Univent-Starter (UV-S)**

Code No. 99-97-3083 GB

Edition: 12/20



# EC Declaration of Conformity



## Big Dutchman.

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In accordance with the EC directive:

- Machinery Directive 2006/42/EC, annex II, part 1, section A



The product named below was developed, designed and manufactured in accordance with the above mentioned EC / EU Directive and under the sole responsibility of Big Dutchman.

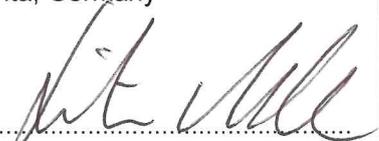
Description	Univent-Starter (UV-S)
Serial number and year of construction	According to the customer order no.

The following harmonised standards were applied:

- DIN EN ISO 12100:2011-03 Safety of machinery – General principles for design – Risk assessment and risk reduction
- EN 60204-1:2018 Safety of machinery – Electrical equipment of machines – Part 1: General requirements
- DIN EN ISO 13850:2016-05 Safety of machinery – Emergency stop function – Principles for design

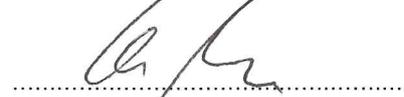
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## 1 About this manual

Observe the instructions in this manual to ensure correct and safe use of the system.

Keep this manual safe for future use.

All persons assembling, operating, cleaning and servicing this system must be familiar with the contents of this manual.

These persons must always have access to the manual. Keep this manual in the immediate vicinity of the system for this reason.

Observe the comprised safety instructions!

If this manual is damaged or lost, request a new copy from **Big Dutchman**.

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

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

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## 1.1 Structure of the safety instructions

### **DANGER!**

This indicates risks that will lead to personal injury resulting in death or to serious injuries.

---

### **WARNING!**

This indicates risks that could lead to personal injury resulting in death or to serious injuries.

---

### **CAUTION!**

This indicates risks or insecure procedures that could lead to moderate or minor injuries.

---

### **NOTICE!**

This indicates notes preventing property damage and leading to an effective, economic and environmentally-conscious handling of the system.

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## 1.2 Supplier's documentation

The supplier's documentation includes all instructions for components that are supplied by **Big Dutchman** but not manufactured by **Big Dutchman**, for example motors. These instructions are usually supplied with the respective component. If this is not the case or if the language of the corresponding country is not included, please request this documentation from **Big Dutchman** .

It is essential to observe the instructions in the supplier's documentation!

## 2 Safety

### 2.1 General safety regulations

Only work with suitable tools and observe the local accident prevention regulations.

 **WARNING!**

Live parts may be bare when performing different types of tasks. Touching live parts can lead to injuries caused by electric shock and short circuits.

- ▶ Set the main switch to "Off" before starting any repair or maintenance tasks.
- ▶ Secure the system against reactivation.
- ▶ Attach a fixed sign to indicate that maintenance and repair tasks are in process!
- ▶ Never touch bare electrical components.
- ▶ Equipment with bare electrical components must not be used by the operating staff.

Check safety and function control devices to ensure safe and accurate operation after carrying out any tasks.

Observe the regulations of local water distribution and power supply companies.

 **WARNING!**

Defective or disassembled safety devices can lead to serious injuries or to death!

- ▶ It is strictly forbidden to remove or put out of operation any safety device.
- ▶ If safety devices are damaged, immediately put the system out of operation. Lock the main switch in zero position and eliminate any damage.
- ▶ Make sure that all safety devices are properly mounted and function after work on the system has been completed and before putting the system into operation (again).

**⚠ WARNING!**

- ▶ Parts lying about on the system and in its vicinity can cause persons to stumble and / or fall and thus risk injuring themselves by contact with system components.
- ▶ Parts lying about in or on the components can lead to serious damage of the system.
- ▶ Never deposit objects (e.g. spare parts, replaced parts, tools, cleaning tools etc.) in the accessible areas of the system or in the surrounding areas after having worked on the system!
- ▶ **Before** putting the system into operation again, assure yourself that all loose or replaced parts have been removed from the system components!

**⚠ DANGER!**

Persons may be electrocuted or suffer serious electrical injuries if water from leaking hoses, seals and pipes reaches live parts.

- ▶ Disconnect the main power supply.
- ▶ Interrupt the main water supply.
- ▶ Only now may you enter the part of the house where large quantities of water have escaped.

**i NOTICE!**

Leaking hoses, seals and pipes can cause structural damage or destroy electrical systems by short circuits.

- ▶ Check regularly whether large quantities of water are escaping and eliminate the leaks as soon as possible.

**⚠ WARNING!**

Children must not access the system. The safety distances for the system are not designed for children. A risk of injury cannot be excluded, even for supervised children.

## 2.2 Operator's responsibility

The operator is subject to the legal obligations regarding occupational safety and is responsible for the staff's safety. All safety, accident prevention and environmental protection regulations applicable for the area of use of the system must be observed. The following is especially important:

The operator must clearly specify responsibilities for operation, maintenance and cleaning.

The operator must provide the staff with the necessary personal protective equipment.

The operator is responsible for

- using the system in compliance with the designated use;
- ensuring that the system is only operated in an excellent state from the technical point of view and that maintenance intervals are observed;
- ensuring that his staff is trained to use the system;
- ensuring that operation instructions are prepared for the system.

## 2.3 Staff qualifications

Staff must consist of qualified persons who can be expected to perform their tasks reliably. Persons whose ability to respond is impaired, e.g. by alcohol, drugs or medication, must not work on the system. The operator is responsible for which persons he employs. **Big Dutchman** does not assume any liability for personal injury and property damage caused by insufficiently qualified staff.

## 2.4 Personal protective equipment

### **WARNING!**

The following instructions apply to any task carried out on the system.

- ▶ Wear **close-fitting protective clothing** and **protective footwear**.
- ▶ Use **protective gloves** where there is a risk of hand injuries and **safety goggles** where there is a risk of eye injuries.
- ▶ Do not wear **any rings, necklaces, watches, scarves, ties or other items** which could get caught in parts of the system.
- ▶ Make sure that **long hair is always tied back**. Hair can get caught in driven or rotating working units or parts of the system, resulting in serious injuries.
- ▶ When working underneath the system **always** wear a **hard hat!**

## 2.5 Safety instructions when operating electrical appliances

### **NOTICE!**

Only qualified electricians may install and work on electric parts / assembly groups in accordance with electro-technical regulations (e.g. EN 60204, DIN VDE 0100/0113/0160).

### **WARNING!**

If an electric part is open, dangerous electric tensions are bare. Be aware of the danger and keep staff of other professions away from the danger zone.

### **NOTICE!**

Do not install control devices directly in the house but in the service room to prevent corrosion caused by e.g. ammonia gas.

### 2.5.1 Protective-equipotential bonding (earthing) of the system

The system must be earthed professionally by the operator or a company commissioned by him at suitable points and according to the valid local guidelines and standards (e.g. IEC 60364-7-705 mod. 2006 / DIN VDE 0100-705: Low-voltage electrical installations – part 7-705: Requirements for special installations or locations – Agricultural and horticultural premises) for protective-equipotential bonding.

The earthing points must be connected with the foundation earth electrode.

**Recommended earthing points:**

1 x per system row near the foundation earth electrode.

**The material required for earthing is not included in the Big Dutchman delivery.**

## 2.5.2 Positioning of electrical drives and protected cable guiding

**The following item is decisive for a smooth and long-term safe operation:**

- the correct positioning within the system according to the assembly instructions.
- preferred assembly outside the direct bird area if no clear specification was made or cannot be made.
- a correctly installed and protected electrical cabling.

**If carried out carefully, the above mentioned items contribute significantly to the work safety and animal welfare as well as to the preventive fire protection.**

Notes regarding the assembly positions for the drives can also be found in the planning documents. The assembly positions described there must be observed.

	<b>Consequences:</b>
	<p>Bare live cables can cause electric shocks to humans and animals or short circuits in the electrical installation.</p> <p>Bent cables can lead to cable breaks. These can cause a fire due to a possible overheating of the cable.</p>

### NOTICE!

The drives which must be positioned and wired in the bird area due to their function, have to be installed and connected with greatest care.

**The following points must be observed for the drive units and their cable guiding in the animal area:**

**1. Protected cable guiding:**

Lay the cables with protection so that the animals cannot reach the cables or their live wires!

**2. Minimum permissible bending radius of the cables and wires:**

Observe the minimum permissible bending radius depending on the mechanical structure of the cable/wire!

	<b>Consequences:</b>
	The electrical properties of the cables can be affected and cable breaks can occur. Cable breaks can cause short circuits or overheating of the cable and can therefore lead to fire.

### 3. Tension-protected cable laying:

Fasten the cables/wires by means of clamps, straps, strain relief, etc. so that the electrical properties of the cables and wires are maintained for the loads to be expected (including overload and short circuits) during operation.

### 4. Cable entry in devices, junction boxes, drives etc. from below:

Always guide the cables and wires from below into the devices, junction boxes, drives, etc., if possible!

However, if this type of cable guiding is not possible, lay the cable with a water drip bow in front of the cable entry of a component. The water can drip off this bow before entering the component.

### 5. Observe the protection rating (splash protection):

Splash protection must be ensured when laying cables into a housing.

- The cable entries must not be too large since otherwise splash water will penetrate the housing and can thus cause a short circuit. The figure shows a junction box inappropriate for wet cleaning.

**Points 4 and 5 are very important aspects which are decisive for a later wet cleaning of the system. Short circuits can be avoided.**

### 6. Cable guiding through sharp-edged components (e.g. metal ceilings):

Protect cables and wires which are guided through sharp-edged drill holes!

- Provide this protection by using cable glands or other mechanical protection components (as e.g. tubes) at the corresponding places.

	<b>Consequences:</b>
	Bare cables can cause an electric shock when touching and can result in a short circuit.

For all works, the following points regarding assembly and cabling must be observed, among other things for work protection and animal welfare as well as preventive fire protection:

- The installation, connection and put into operation of electrical components may only be carried out by skilled electricians.

<p><b>Definition</b> <b>skilled electrician:</b> (according to DIN VDE 1000-10)</p>	<p>A skilled electrician is a person who can evaluate the works assigned to him and recognise possible dangers due to his technical training, knowledge and experiences as well as knowledge of the relevant regulations.</p>
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- Notes and specifications of the connection diagrams and documentations belonging to the system.
- The rules, regulations and norms valid in the respective country, which relate to a professional construction of an electrical system.

## 2.6 Ordering of spare parts



### CAUTION!

For your own safety, use original **Big Dutchman** spare parts only. For third-party products that have not been released or recommended and for modifications (e.g. software, control units), judging whether there is a safety risk in connection with **Big Dutchman** systems is not possible.



### NOTICE!

The exact description of the spare parts to be ordered can be found by means of the position number in the spare parts list.

#### Indicate the following when ordering spare parts:

- the code number and description of the spare part;
- the customer number or order number;
- the current supply, e.g. 230 / 400 V – 3 Ph – 50 / 60 Hz.



## 2.7 Designated use

This system has been designed to keep and rear pullets of the species "Gallus Gallus" in an animal-friendly way for egg production.

The **Big Dutchman** system may only be used for the purpose for which it is designated. Any deviating use is considered non-designated use. The manufacturer shall not be liable for any damage resulting from such non-designated use. The user alone bears the risk. The designated use also includes the exact compliance with operating, maintenance and assembly requirements of the manufacturer.

## 2.8 Avoidance of foreseeable misuse

The following uses of this **Big Dutchman** system are not permitted and are therefore deemed a misuse:

- Keeping species other than pullets of the species "Gallus Gallus" for egg production;
- Watering of animals with other liquids than drinking water.  
**Exception:** feed additives and medicines which are usually administered via the drinking system.
- Feeding the animals with feed which is not suitable for the chain feeder.
- Overpopulating with more animals than is permissible for the system.
- Loading the system mechanically in a way that exceeds the normal loads planned for the keeping of pullets in this system;
- Using the system where the temperature inside the house is below 0°C.
- Unattended manure removal.
- Starting the linear manure removal before the start of the cross manure removal.
- Using improper detergents and disinfectants.
- Too long residence time of detergents and disinfectants.
- Utilising the system with aggressive and/or corrosive materials in quantities that do not constitute good professional practise.

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!**

## 2.9 System-specific safety regulations

The system is designed according to the state of technology and meets current safety requirements. Nevertheless, there are residual risks, which can be prevented as follows.

### **WARNING!**

Danger of drawing-in due to rollers, chains, gear wheels and belts!

- ▶ Disconnect the system from the power supply before starting any work on the system, because the system may turn on unexpectedly when operated automatically.
- ▶ Secure the system against reactivation.
- ▶ Prevent contact with rotating and driven system parts in general!
- ▶ Assure yourself that all safety devices have been attached correctly.

### 2.9.1 Safety symbols on the system

#### **NOTICE!**

**Safety symbols and instructions on the system must always be easily visible and undamaged.**

- ▶ Clean safety symbols in case they are dirty, e.g. due to dust, animal excrement, feed remains, oil or grease.
- ▶ Immediately replace damaged, lost or illegible safety symbols.
- ▶ 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.

## 2.9.2 Important notes on the use of Tangit adhesive and Tangit cleaner

### **WARNING!**

Tangit adhesive is flammable! Therefore:

- ▶ No open fires nor hot air blowers, gas brooders and open light bulbs in the work area!
- ▶ Do not smoke, weld or grind in the work room!
- ▶ Solvent vapours are heavier than air. Such vapours may cause unconsciousness and / or form explosive mixtures. Use and dry in well-ventilated areas only. Make sure that the area stays well-ventilated after gluing work is finished!
- ▶ Remove possible solvent vapour clouds before starting to weld or grind!
- ▶ Observe the general instructions and the instructions for use of the manufacturer.

### **WARNING!**

Tangit adhesive and Tangit cleaner are dangerous to the health! When working with Tangit adhesive or Tangit cleaner, always

- ▶ Wear gloves!
- ▶ Wear eye protection!
- ▶ Wear breathing protection!
- ▶ Ventilate rooms!

### **Notes on the glueing of components:**

- The adhesive is ready-for-use and must not be diluted. The adhesive must be thin and fluid. If it is viscous and does not flow off of a dipped spatula, then the content is too old and must not be used any more. Do not continue to use already open containers.
- Bevel cut edges and remove any burrs!
- The glue areas must be completely clean, dry and oil-free before coming into contact with the adhesive.
- Apply the adhesive evenly with strong brush strokes.
- Move the parts to be glued into their final position immediately after applying the adhesive and hold on to the parts for a few seconds until the Tangit adhesive has hardened. The entire glueing process must be completed within a period of 4 minutes.
- Do not rotate the parts during bonding, but push them straight together.

- Do not move the parts for a period of 5 minutes after glueing. For temperatures below 15°C this time has to be extended to 15 minutes.

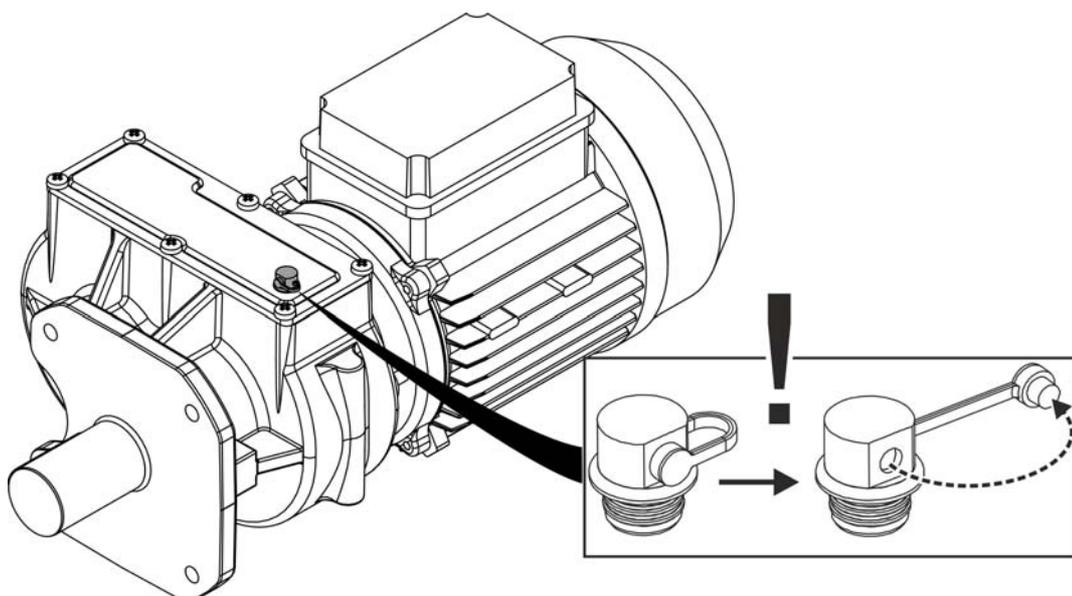
**⚠ CAUTION!**

Before starting to use the Tangit cleaner and Tangit PVC-U, read and observe the corresponding technical data sheets! The data sheets provide instructions regarding pretreatment, handling, storing and product safety.

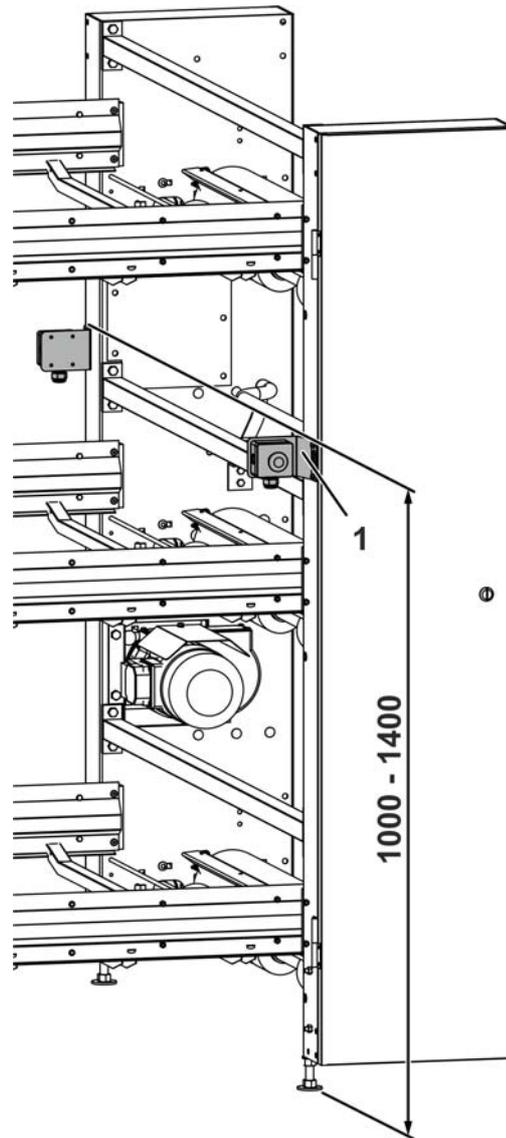
### 2.9.3 Important notes on putting gear motors into operation (aeration)

**i NOTICE!**

Before putting the gear motors into operation, open the vent plugs of the gear motors if there is no automatic aeration included.



## 2.9.4 Overview of emergency shutdown switches at the system



Switch for emergency shutdown at manure belt drive:

Pos.	Code no.	Description
1	83-09-3597	Emergency stop button cpl. for elevator/drive MB

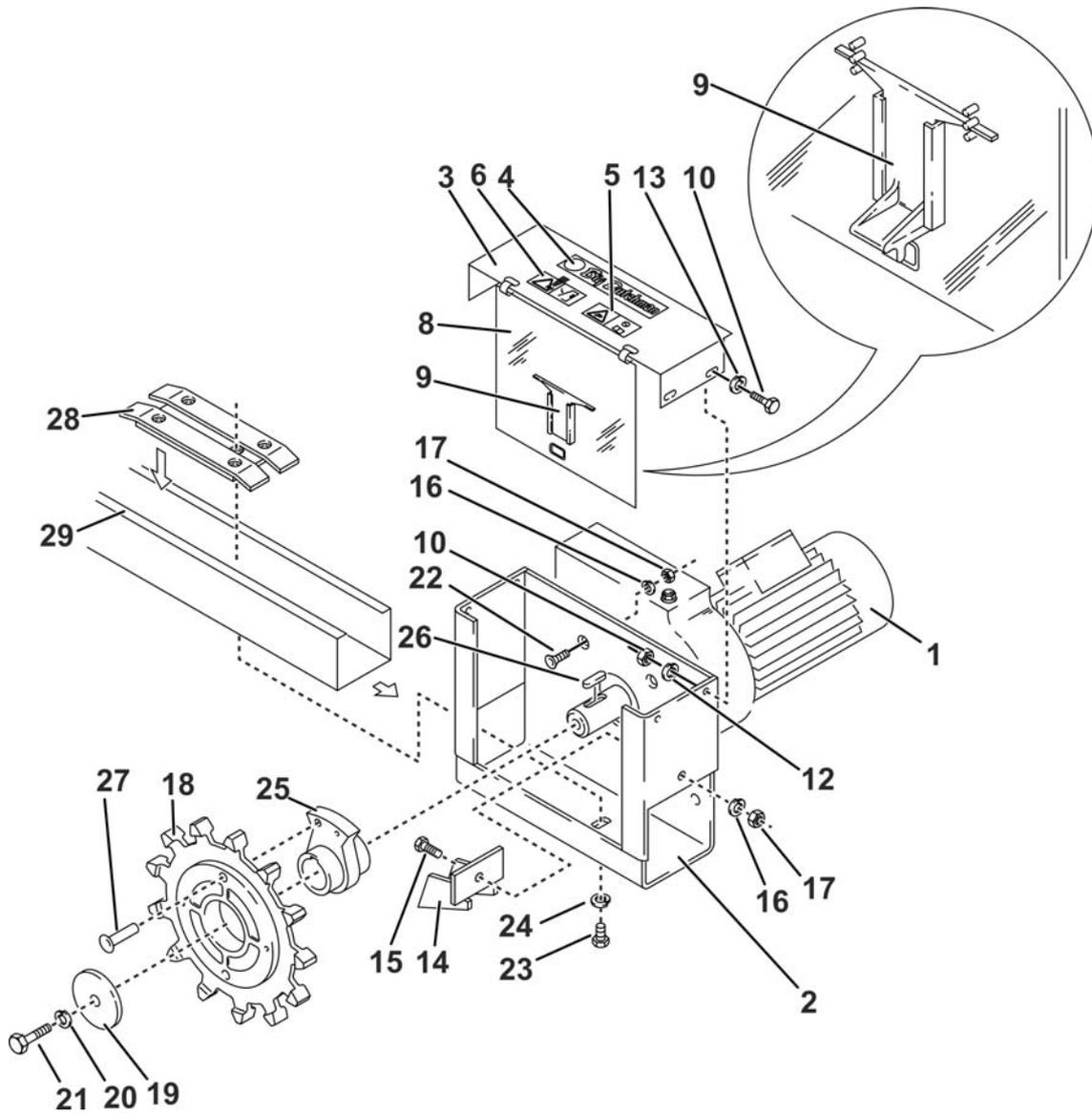
## 2.9.5 Overview of safety components of the system

### Shear pin at the drive wheel of the feed chain:

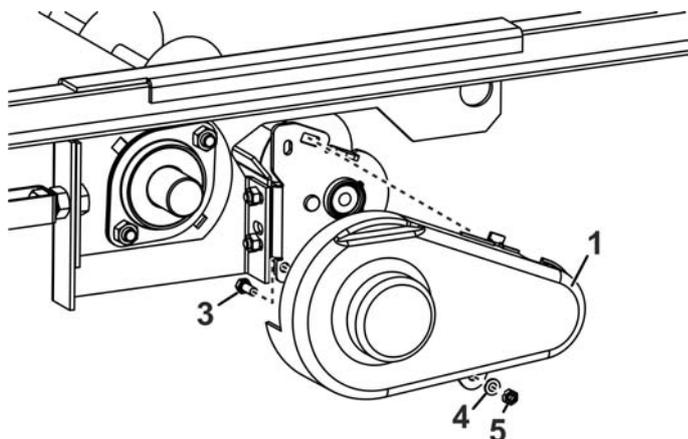
The pusher fixed to the drive shaft moves the drive wheel of the feed chain via the shear pin (pos. 27). If the feed chain jams, the shear pin breaks, thus causing the feed chain wheel to stop. This prevents further damage. Use the shear pin 8x1.5x30 steel tubular rivet B DIN7340 (99-50-3913) for this purpose.

Only use the original shear pins!

Pos.	Code no.	Description
	10-93-5000	Drive MPF 1-L 12m 0.37kW ccw 400V 3PH 50Hz
<b>1</b>		gear motor
<b>2</b>	83-00-4647	Console MPF ccw
<b>3</b>	10-93-3192	Cover for drive gear MPF
<b>4</b>	00-00-1172	Type plate: Big Dutchman 135 mm x 25 mm
<b>5</b>	00-00-1186	Pictograph: Before maintenance work main switch "OFF"
<b>6</b>	00-00-1187	Pictograph: Crushing danger / protection device
<b>7</b>	10-93-3173	Protective cover MPF 1 line cpl. collapsible (pos. 8+9)
<b>8</b>	10-93-3154	Protective cover MPF 1 line collapsible
<b>9</b>	10-93-3174	Snap cover MPF 1 line PA6
<b>10</b>	99-10-1067	Hexagon head screw M 6x 16 galv. DIN 933 8.8
<b>11</b>	99-10-1045	Hexagon nut M 6 galv. DIN 934-8
<b>12</b>	99-20-1070	Spring washer A6 DIN 127 galv.
<b>13</b>	99-50-1147	Washer B 6.4 DIN 125 galv.
<b>14</b>	10-93-3153	Blank holder for chain 0498 MPF
<b>15</b>	99-10-1038	Hexagon head screw M 8 x 20 galv. DIN 933 8.8
<b>16</b>	99-50-1063	Spring washer A 8 DIN 127 galv.
<b>17</b>	99-10-1040	Hexagon nut M 8 galv. DIN 934-8
<b>18</b>	10-00-9543	Drive-gear reversible for MPF-drive
<b>19</b>	10-93-1109	Washer 14x58-6 DIN 1052 galv.
<b>20</b>	99-50-1205	Spring washer A 12 DIN 127 galv.
<b>21</b>	99-10-1274	Hexagon head screw M 12 x 30 galv. DIN 933 8.8
<b>22</b>	99-10-3877	Hexagon socket countersunk head screw M 8 x 25 DIN 7991 galv.
<b>23</b>	99-10-1068	Hexagon head screw M 10 x 20 galv. DIN 933 8.8
<b>24</b>	99-20-1055	Spring washer A 10 DIN 127 galv.
<b>25</b>	10-93-3104	Pusher Bo 35x57 MPF/CH
<b>26</b>	99-50-1149	Key 10x8x50 DIN 6885
<b>27</b>	99-50-3913	Shear pin 8x1.5x30 steel tubular rivet DIN 7340
<b>28</b>	38-91-3014	Guide plates with base plate for guide shoe SF/MPF
<b>29</b>	15-20-1001	Feed trough 3000 Zn MCZ regular 1.2 mm (blank)

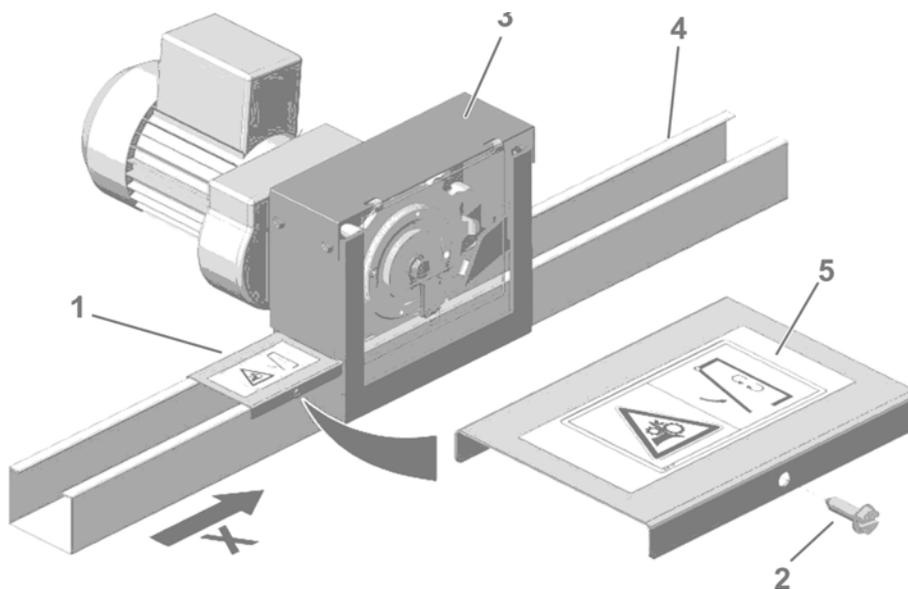


**At the manure belt idler unit:**



Pos.	Code no.	Description
1	83-04-9031	Guard cap right for chain drive XHD idler unit
2	83-04-6359	Guard cap left for chain drive XHD idler unit
3	99-10-1241	Hexagon head screw M 5x 12 galv. DIN 933 8.8 galv.
4	99-50-1146	Washer 5.3 DIN 433 galv.
5	99-10-1023	Hexagon nut M 5 galv. DIN 934-8

**Safety guard for MPF drive:**



Pos.	Code no.	Description
1	83-06-2300	Safety guard 120 mm for drive MPF
2	99-10-3882	Drilling screw 4.8 x 16 DIN 7504-K
3		MPF drive
4		Feed trough regular
5	00-00-1187	Pictograph: Danger of being crushed / protective equipment
X		Feed chain running direction

## 2.9.6 Overview of safety symbols and danger signs at the system

At the doors of the manure belt drive (inside and outside):

### **i** NOTICE!

The doors of the manure belt drive are safety components!

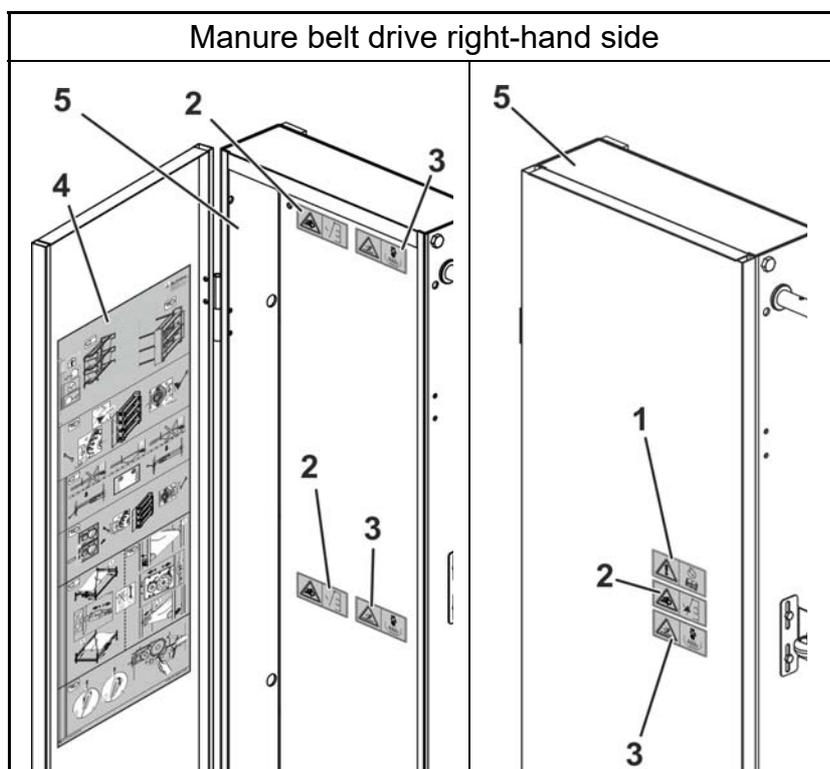
To order the doors, make sure to consult the **spare parts list "Manure belt removal system [HD / HD2-plus from 2012]"**.

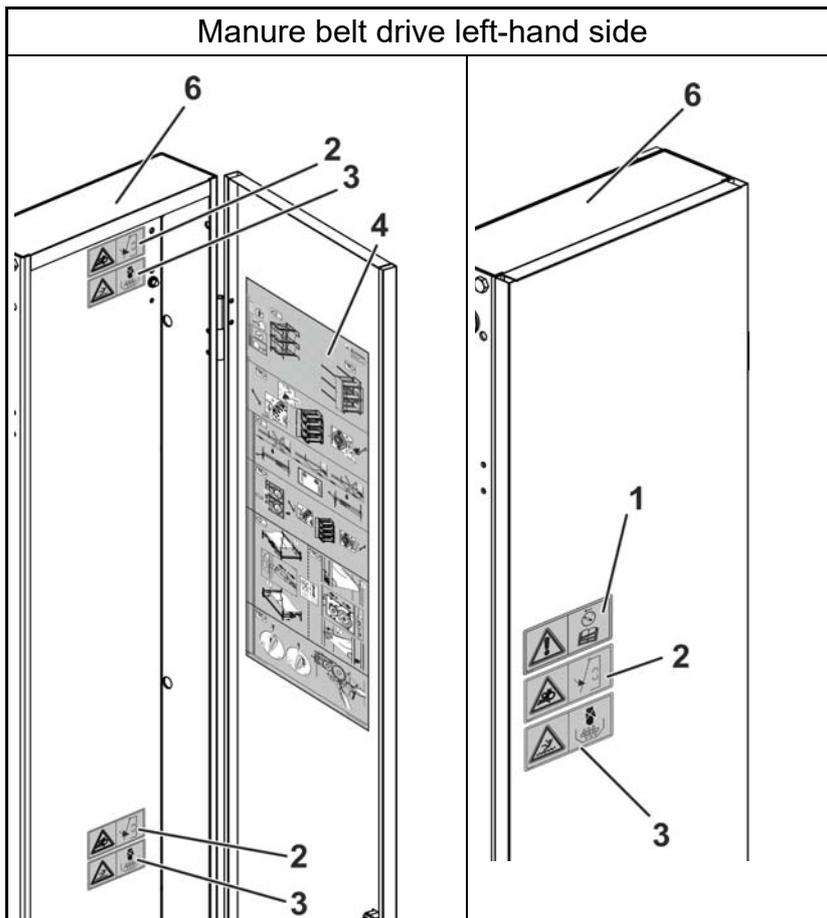
The manual can be ordered under the following code number, if necessary:

99-94-0452.

(Please also refer to the information under 1 "About this manual"

Pos.	Code no.	Description
1	00-00-1186	Pictograph: Before maintenance work main switch "OFF"
2	00-00-1187	Pictograph: Crushing danger / protection device
3	00-00-1188	Pictograph: Risk of injury / hopper
4	00-00-1330	Sticker INT: Adjustment end set manure removal
5		Side piece manure belt drive - right-hand side
6		Side piece manure belt drive - left-hand side





## 2.10 Initial operation

### NOTICE!

The following must be strictly observed for initial operation:

- ▶ Initial operation must be carried out by a qualified technician with the respective proof of knowledge (service technician).
- ▶ The following protocols and minutes required by **Big Dutchman** must be filled out during initial operation and made available to the operator: confirmation minutes and, if necessary, the corresponding inspection minutes.

### 3 System description

The **Big Dutchman** UNIVENT-Starter installation is a multi-tier cage system for rearing laying hens through to their point of lay.

Supporting elements of the cage system are manufactured from galvanized sheet steel. All wire elements are GALFAN® coated (Zinc-alu-coating).

Feeding is done by means of the **Big Dutchman** feed chain. The feeding periods can be controlled either by hand or automatically with the help of a timer.

During feeding, the **Big Dutchman** UNIVENT-Starter installation causes a noise level of <70 dB (A).

Due to the special arrangement of water supply, there is no water leakage or loss.

To meet the varied requirements of optimum rearing of chicks or pullets, we offer UNIVENT Starter with or without ventilation.

UNIVENT-Starter can be delivered with additional separating wire meshes to allow for keeping of smaller groups.

To satisfy the different needs of day-olds and pullets, Big Dutchman UNIVENT-Starter consists of two different areas:

- the start tier and
- the grow tier.

- **The start tier:**

Two thirds of each of the two large sliding doors per cage compartment can be opened. This is an important advantage when the birds have to be moved in, out, or to other cages.

Bottoms have a mesh size of 1" x 1½" (25x38 mm; both start and grow tiers) which, with an insert mat, ensures a secure foothold for the chicks (especially during their first days of life). Cleaning is fast and easy.

- ***Feed supply:***

The chicks can easily reach the feed in the trough positioned outside of the cage from day one. The most important advantage of this is that the chicks do not soil the feed with their manure.

By means of the adjustable rail, access to the feed is easily controlled centrally and continuously according to the birds' age. The inner rim of the trough prevents feed waste. The Big Dutchman CHAMPION feed chain distributes feed rapidly, reliably and uniformly to each tier. The feed level in the trough can easily be adjusted with the slide adjustment at the feed column CAS-S ccw.

- **Water supply:**

The nipple drinker line in the start tier can be adjusted in height centrally according to the size of the birds. Thus, an adequate water supply is provided from day one. The drinker line is suspended every 60 cm (23.63 inches) ensuring good stability. In the standard version, there are 3 nipples with drip-water cup in each cage. Upon request, the number of nipples/cage can also be increased.

The central cup can be detached and replaced by an open round cup. This makes drinking easier for the chicks during their first days of life.

- **The grow tier:**

After approx. 6 weeks, the pullets are distributed evenly to all tiers of the UNIVENTStarter.

UNIVENTStarter is also available with start only on all tiers. As an option, Big Dutchman offers a step system that is built into the feed troughs and which can also be operated with an inspection cart.

- **Feed supply:**

The birds eat directly from the feed trough. The adjustable rail in the start tier should be at the very bottom, so that pullets eat over the rail until they are moved out during their 18th week of life.

The speed of the feed chain can either be 12, 18 or 36 m/min (39.3, 59.1 or 118.1 ft/min).

- **Water supply:**

In grow tiers the nipple drinker is installed at the back wall of the cage where each bird can easily reach four stainless steel nipples. We also recommend using a rinsing system with a ball tank.

- **Manure removal on start and grow tiers:**

The manure drops on continuous PP belts underneath the cages. In case of systems with ventilation, air reaches the manure via air ducts, which are located above the manure belts, to assist with manure drying.

A very important advantage of manure drying is that ammonia emissions in the house are significantly reduced.

## 4 Preparing to move the chicks in

### 4.1 Before the chicks arrive

- Remove all old feed rests from the feeding system, transport systems and feed silos.
- Clean the house and the equipment thoroughly. Cover all switch boxes, thermostats etc. with plastic bags to protect them from water damage.
- Make sure that all parasites and rodents have been eliminated.
- Check the ventilation system. All fans, shutters, baffle plates, wall inlets, inlet regulators and thermostats must be clean and function correctly.
- Carry out all necessary repairs at the building and the equipment.
- Disinfect the water supply system. Rinse the drip cups thoroughly to remove any remaining cleaning and disinfection agents.
- Prevent any draughts in the house.
- Lay insert mats in the starter cages if available.

### 4.2 Before the chicks are moved in

The start tiers were designed especially for day-old chicks. The cage front was specifically developed for the requirements of the day-olds.

Lay paper into the cages and distribute feed on it, depending on the vitality of the chicks. The paper should have a weight of 80 - 100 g/m<sup>2</sup>.

### 4.3 Heating

- Heat the house to a temperature of 34 - 36°C (93 - 97°F) 24 hours before the chicks arrive and maintain this temperature.
- All system parts as well as the inner walls of the house must be heated as well since the radiative cooling has negative effects on the well-being of the chicks.
- The relative air humidity must be between 60 - 80 %.

**i NOTICE!**

If the house temperature falls below 30°C (86°F), an alarm system should switch on. When the house temperature is reduced after the 7th day of life, the alarm system must be adjusted correspondingly.

Always observe the heating program created by the chicks' supplier.

---

**i NOTICE!**

Temperature fluctuations of more than 2°C are just as harmful to the chicks as temperatures below or above the required ambient temperature.

---

- After the 7th day of life of the chicks, the house temperature should be lowered gradually. This should be done very carefully with approx. 2 - 3°C (3 - 5°F) per week until a house temperature of 21°C (70°F) is reached.
- If fan heaters are used, check the air flow. It should not be directed towards the chicks.

#### 4.4 Lighting

- The lighting system in the house should be designed in a way that all tiers are illuminated evenly. It is necessary to adjust the intensity of the lighting.

**i NOTICE!**

Always observe the lighting programme provided by the chicks' supplier.

---

#### 4.5 Drinking system

- Let fresh water enter and check whether the drinkers function.

**i NOTICE!**

The supply and breather tubes must not have any kinks and must not sag.

The water level in the water tank should be 15 - 20 cm above the height of the nipple line.

The height of the water supply with water tanks must be adjusted to the height of the nipple lines.

---

- The primary pressure (normal pressure) has to be between 1.5 and 6 bar on site.

- The standard equipment of a connecting unit should contain water filter, water meter, pressure reducer and bracket.
- The water filter must be connected ahead of all other assembly units to protect them from dirt.
- The water for preparing the medicine solution must be filtered. The device for water withdrawal (outlet tap) should therefore be placed behind the water filter.
- If **poorly soluble medicines** are used, it is recommended to install an additional filter **behind** the medicator to protect the nipple drinker. A pressure reducer/filter combination can be used for this. For retrofitting, a filter can also be installed between bypass and pressure reducer.
- The pressure reducer must be positioned in front of the pressure regulators of the drinker line as last assembly unit of the water connection unit to realise a constant primary pressure independent of the flow rate.
- In case of float tanks and ball tanks which function completely independent of the primary pressure, the pressure reducer has the task to limit the water pressure to maximally 3 bar.
- If nipple lines with drip cups are installed, the nipple lines must be lowered so that the nipples are at the chicks' head level above the cage floor.

Actuate the nipples with a finger just before the birds are moved in so that the nipples form a drop at the nipple tappet.

- In case of nipple lines with drip cups and round drinkers, the nipple lines must be lowered so that the nipples are at the chicks' head level above the cage floor. The round drinkers must hang freely and must not touch the cage floor when filled.

Actuate the round drinkers before the birds are moved in so that every round drinker is filled with water.

Actuate the nipples with drip cups with a finger so that the nipples form a drop at the nipple tappet.

### 4.5.1 Notes and requirements for the water quality

Recommendations for the water quality for poultry:

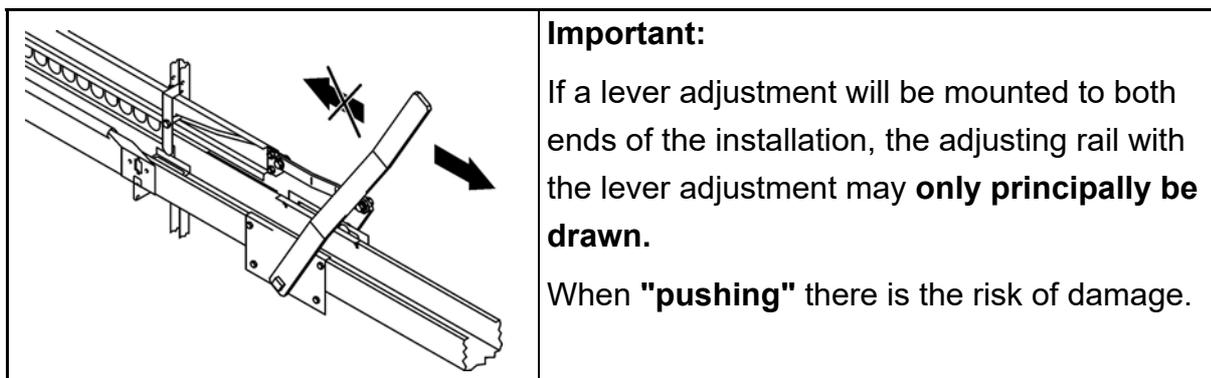
Parameter	Unit	Recommended limit value	Remarks
Germs total	Quantity/ ml	100	-
Coliform bacteria	Quantity/ ml	0	-
Nitrate	mg/l	25	Values between 3 and 20 mg/l can already stunt the development.
Nitrite	mg/l	4	-
Chloride	mg/l	250	Values of approximately 14 mg/l can already be harmful if the sodium value is higher than 50 mg/l.
Copper	mg/l	0.6	Higher values cause a bitter taste.
Lead	mg/l	0.02	Higher values are toxic.
Sodium	mg/l	50	Values higher than 50 mg/l stunt the development when chloride and sulphate values are also high.
Sulphate	mg/l	250	Higher values cause indigestion. If chloride and magnesium values are high, development is stunted at more than 50 mg sulphate per litre.
Zinc	mg/l	1.5	Higher values are toxic.

Limit values for the connection unit and drinking system

Parameter	Unit	Recommended limit value	Remarks
Grain size for insoluble particles and suspended matter	µm	< 60	In addition, a filter is necessary.
pH value		6.5 - 8.5	
Total hardness	mg/l	< 20	
Calcium	mg/l	< 100	
Magnesium	mg/l	< 50	
Iron	mg/l	< 0.2	
Manganese	mg/l	< 0.05	

## 4.6 Feed supply

- Bring the adjusting rails with lever adjustment into the bottom position.
- Fill the feed trough in the start tiers to the maximum feed level using the chain feeding system.
- Depending on the chicks' health, fill the feed troughs manually up to the lower border of the adjusting rail or lay paper or egg trays into the cage and distribute feed on it.
- Open at least one front grid in each cage in the start tiers.



In the start tier, the height of the adjusting rail at the feed trough is adjusted to the growth of the birds by means of the adjustment per lever.

### For installation lengths up to 50 m:

The adjustment per lever is only installed at one end so that the adjusting rail is raised when pulling (see dark arrows) and lowered when pushing (light arrows).

### For installation lengths exceeding 50 m:

The adjusting rail is equipped with an adjustment per lever on both sides of the installation so that it can always be **pulled** for raising and lowering. The pushing movement could lead to bending of the adjusting rail with this installation length.

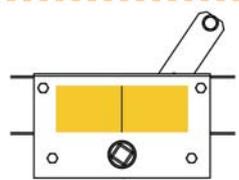
### Assembly:

Place the premounted adjustment per lever cpl. at the determined row end on the "feedtrough 2500 in the end-set" of the start tier. There it has to be screwed.

The "fixing plate for adjustment per lever" can then be screwed to the adjusting rails.

D	Verstellbereich Futtertrog (UV-Starter)	 <b>Big Dutchman.</b>
GB	Adjustable range in the feed trough (UV-Starter)	
F	Domaine d'ajustage mangeoire (UV-Starter)	
RUS	Узел регулирования подачи корма в кормушку (UV-Starter)	
BG	Обхват на регулиране на хранилката (UV-Starter)	
CN	送料槽可调节范围 (UV-Starter)	
DK	Indstillingsområde fodertrug (UV-Starter)	
ESP	Ajuste del comedero de cría (UV-Starter)	
HINDI	चारा गर्त में एडजस्टेबल रेंज (यूवी स्टार्टर)	
INDO	Kisaran penyesuaian pada palung pakan (UV-Starter)	
KOR	사료 라인에서 조정 범위 (UV-Starter)	
NL	Instelbereik voerbak (UV-Starter)	  <b>00-00-1102</b>
PL	Zakres przestawienia korytka paszowego (UV-Starter)	  <b>00-00-1446</b>
ROM	Reglarea nivelului de furaj in troc (UV-Starter)	
SRB	Regulisanje valova (UV-Starter)	
VIET	Giới hạn điều chỉnh trong máng ăn (UV-Starter)	

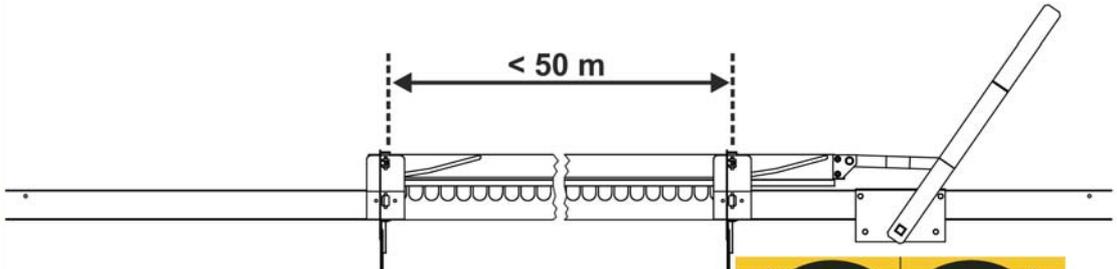
  



**00-00-1102**      **00-00-1446**

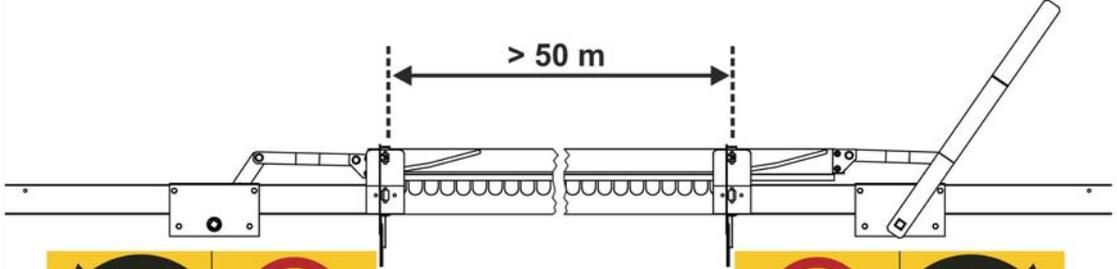
< 50 m





> 50 m







## 5 Moving the chicks in

- Adjust the lighting to the highest level.
- Adjust the adjusting rails with lever adjustment to the lower position, => figure 5-1.

### NOTICE!

The young chicks may not remain too long in the chick transport vehicle since they could possibly be exposed to wrong temperatures.

Bring all required transport boxes with the chicks into the house where temperatures are comfortable.

- Put the chicks very carefully through the open front grids into the cages. Close the front grids in each cage immediately after having placed the chicks.

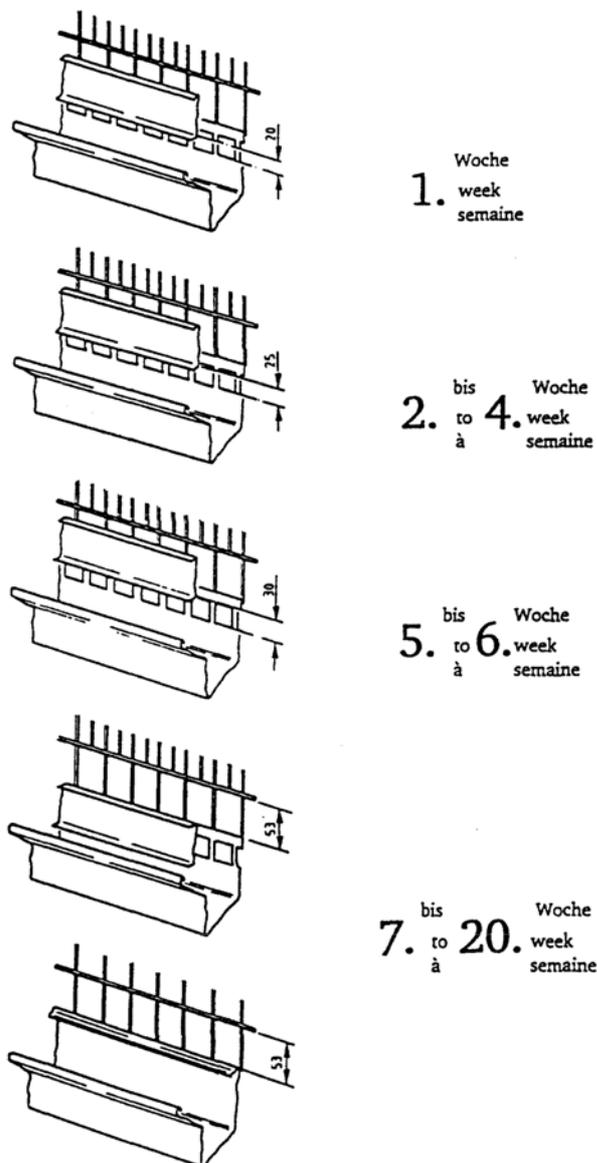


Figure 5-1: Adjustment of eating window

## 6 After moving the chicks in

### NOTICE!

The first days, even the first hours after moving the chicks in can have a decisive influence on the rearing success.

During this phase it is very important that the birds find feed and water very quickly.

Temperature and ventilation must be continuously monitored to ensure the best possible comfort and health of the chicks.

### 6.1 Temperature

- Adjust the house temperature to the well-being of the birds. The temperature should be between 34 - 36°C (93 - 97°F) on the birds' level.

If the chicks are too cold, they will crowd together and chirp.

If the chicks are too warm, they will become lazy, start to pant and get very quiet.

Therefore you should monitor the behaviour of the chicks. If the chicks are active and relatively quiet, they are doing well and the house temperature is correct.

### 6.2 Lighting

- During the first 3 days, the light should be on 24 hours/day. Afterwards, you should act in accordance with the lighting programme of the chicks' supplier.

At the beginning, the light intensity should be so high that the small chicks can get to know their environment and find water and feed.

### 6.3 Drinking system

- Observe whether all chicks find water. If necessary, adjust the height of the nipple line. Check whether the cage illumination is optimal.

The chicks should find the water within 3 - 4 hours and start to drink.

- Check the water consumption every day and write it down. A reduced water consumption indicates a problem.

### NOTICE!

Flush the nipples drinkers repeatedly during the first 8 days after moving in. There should thus always be enough fresh water for the chicks.

## 6.4 Feed supply

- Observe whether all birds can reach the feed. Correct the opening of the eating window, if necessary.

If there are paper or egg trays with feed in the cage, feed will be eaten there first.

- If the chicks eat directly through the eating window, feed will be supplied with the feed chain the next day.

### NOTICE!

Start feeding with feed chain manually during the first weeks.

During the first 2 weeks of the batch, the feed chain should not be controlled automatically via a time clock. Someone should always be present in the house when the feed chain runs.

After 2 weeks, the feed chain should be controlled automatically by a time clock.

- Remove dead chicks from the cages every day before each feeding.
- At the beginning of the first feedings, switch the feed chain on and off for a moment 3 or 4 times.

As a result, the chicks will pull their head out of the feed trough.

Let the feed chain run 10 - 15 m so that the feed can be evenly distributed.

- Adjust the feed level slide at the feed column a little lower for each feeding, until the required height has been reached in the feed trough.

## 6.5 Ventilation system

For the ventilation of a chick house, two aims should be achieved:

- Supply the chicks with sufficient clean odourless fresh air so that their health is improved.
- Control the house temperature to ensure the chicks' well-being and health and a reasonable feed consumption. The ventilation control should be adjusted in a way that max. 3.6 - 4.0 m<sup>3</sup> air per kg live weight are emitted. Minimum ventilation must therefore be adjusted every week according to the weight gain of the chicks. In case of an automatic ventilation control, the heat sources must be adjusted manually according to the instructions of the chicks' supplier.

## 7 Tasks during the later rearing period

- Remove dead chicks from the cages several times per day.
- Remove the paper and egg trays from the cages no later than after 7 days.
- Remove the insert mats from the cages after 3 - 4 weeks and clean them.

### 7.1 Moving chicks and moving out pullets

#### NOTICE!

After approx. 6 weeks the chicks are moved to the grow tiers. The start and grow tiers must contain the same number of birds.

Avoid unusually stressful situations and injured birds!

The birds must be **moved into** the individual cage rows per tier **from the bottom to the top**.

The birds must be **moved out** of the individual cage rows per tier **from the top to the bottom**.

If this is not the case, the system may become top-heavy or stressed on one side and can thus be damaged.

- Drain the stale water in the nipple drinkers, flush the nipple pipes and refill with new, fresh water.
- Switch off the feed supply to the feed columns. Distribute the feed of the feed columns in the start tiers. Open the feed columns and remove remaining feed from the lower tiers.
- Clean the feed troughs in the grow tiers.
- Close the feed columns and adjust the feed level slides to the lowest position in all tiers.
- Adjust the feed chain speed to 12 m/min and fill all feed troughs.

## 7.2 Adjusting the feeding duration

- Start the feed chain by manually switching on the MPF drive.
- Switch off the feed chain after one circuit to prevent the feed from overflowing.
- Automatic feeding by means of a **Big Dutchman** time clock.
  - Determine how long the feed chain runs to complete one circuit. Adjust the runtime/circuit and the number of desired number of feedings per day at the **Big Dutchman** time clock.
  - Synchronize the **Big Dutchman** time clock with the light time clock.
  - Adjust the feed level slide at the outlet of the feed column as low as possible. This prevents feed wastage.

## 7.3 Manure removal

### Manure removal interval

The manure removal interval depends on the system type, whether it is operated with or without ventilation, the chicks' age and row length.

If these regulations are not observed there is the danger that the manure belts are no longer moved by the driving rollers.

The maximum manure removal interval is 4 days and only applies to systems with ventilation in which the manure is pre-dried to approx. 45 % dry matter. If this is not observed, fly problems can occur.

### Control before manure removal

- The driving and idler rollers must be clean, the scrapers must fit closely.
- The manure belts must be positioned centrally on the rollers. Deviated belts must be re-adjusted. See maintenance instructions (chapter 9 "Maintenance").
- Make sure that there are no foreign objects on and between the manure belts.

### Removing manure from the manure belts

- Switch on drives **manually** and monitor them during the entire operation time.
- Deviated belts must be adjusted immediately to a central position.
- Clean the manure scrapers after every manure removal.

### Cleaning after manure removal

 **NOTICE!**

Do not use sharp-edged objects for cleaning!

This could damage the manure belts.

---

- Clean the manure belt scrapers at the idler roller after every manure removal.
- Remove manure and feathers between the manure belts in the area of the drive and idler rollers after every manure removal.

## 7.4 Water supply

- Adjust the drinkers to the chicks' head level according to their growth.
- Check the water consumption every day and write it down. A reduced water consumption indicates a problem.

 **CAUTION!**

Overflowed water mixed with dust can lead to slipping.

Immediately eliminate any leaks!

---

### 7.4.1 Supply to the nipple drinkers

At the end of the system, a float tank is installed for each tier. The float tanks are connected by a main pipe.

Plastic hoses lead from the float tanks to the nipple lines.

- Check **the water level in the float tanks at least 3 times per day** and also check the connections for leaks.
- Adjust the water level as shown on the sticker at the float tank.

### 7.4.2 Nipple drinker outlet

The nipple pipe breathers and the plastic hoses are positioned at the end of the nipple lines. The plastic hoses are suspended on S-hooks in such a way that they protrude above the float tanks.

The plastic hoses may not sag (no forming of traps) so that air bubbles can escape.

- Check the following points **at least 3 times per day** :
  - the water level in the nipple pipe breathers
  - the water level in the transparent plastic pipes
  - the tightness of the connections.

### 7.4.3 Ball tank

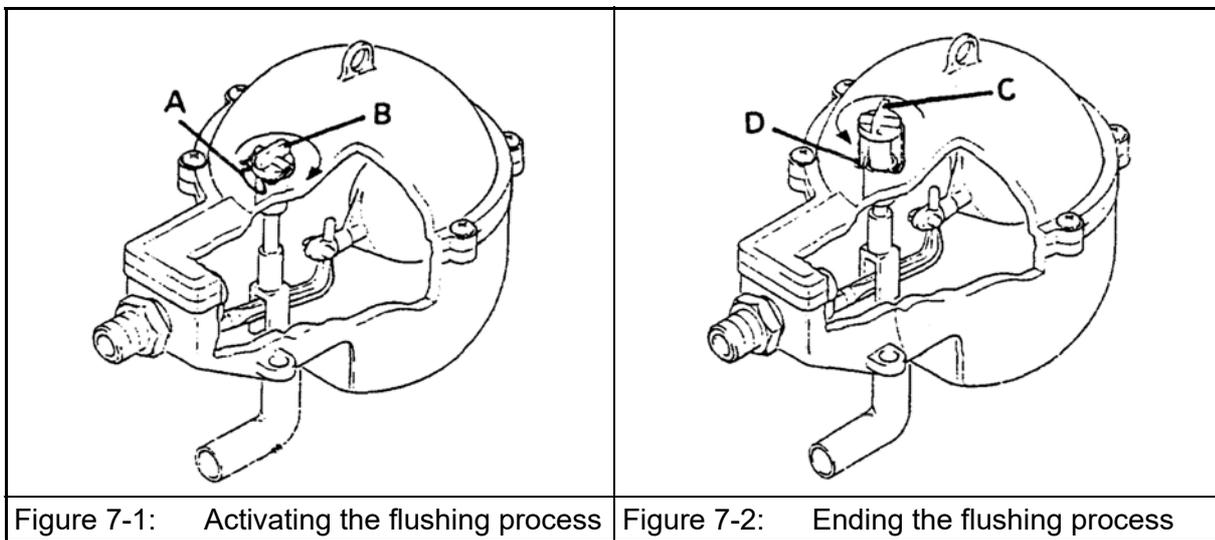
#### NOTICE!

The float-ball tank may be operated at a maximum input pressure of 3 bar!  
Excess pressure can also result in damage to couplings and nipple pipes.

- Check the water supply and the cleanliness of the water. Clean the central water filter, if necessary.
- Check the water pressure of the supply line. The maximum admissible supply pressure for the ball tank is **3 bars**.
- For the flushing process, always set the breathing to flushing first.
- Make sure that the admissible supply pressure of **3 bars** is not exceeded.

#### Flushing process

The ball tank can easily be set to flushing without interrupting the water supply.



**Activating the flushing process** (figure 7-1):

- Unlatch the safety retainer (A) at the ball tank.
- Press the red sealing part (B) down and turn it clockwise by 90° up to the limit stop.

The flushing process is activated.

**Ending the flushing process** (figure 7-2):

- Turn the red sealing part (C) counter-clockwise by 90° up to the limit stop and pull it upward.

The flushing process is completed. The sealing part is in "parking position". In this position, the pressure in the ball tank decreases, which takes takes approx. 30 seconds.

- Turn the seal clockwise by 30° to the limit stop and pull it up.
- Lock the safety bolt (D).

Ball tank is in normal operation.

## 8 Administering medicines via the water in the nipple lines

### NOTICE!

Fatty and sticky medicines may not be administered via the water in the nipple lines.

---

Any medicine administered must be completely soluble in water.

Meter and prepare the medicines outside of the system by mixing it with water and stirring it in a container.

The medicines must dissolve completely in water. This solution can then be given into the float tanks as drinking water readily dosed and mixed according to regulations.

The medicines are automatically dispensed by means of the **Big Dutchman** DOSATRON metering system.

Fatty medicines must be administered via the feed. It is generally better to dispense and administer the medicines via the feed. The dosing is more exact and the allocation for each bird is more reliable.

## 9 Maintenance

### 9.1 Maintenance intervals

Daily
<b>Feeding</b>
Check the <b>MPF drives</b> for possible dust deposits. Make sure to remove these to prevent overheating of the drives!
Check the <b>feed chain circuits</b> for foreign objects or dirt and remove them immediately, if necessary!
Check whether the <b>feed chain corners</b> function correctly. Remove dirt such as feathers, feed clumps and foreign objects immediately.
Check whether all <b>feed chains</b> work.
Check whether the supply of the <b>feed column</b> is blocked by foreign objects or dirt. Remove all foreign objects and dirt as they might block the feed from entering the trough, thus straining the feed chain.
<b>Drinkers</b>
Check at least once per day whether all connections, couplings and nipples of the <b>nipple drinker line</b> are tight.
Check the tightness of the entire <b>drinking system</b> .
Check the water column height at the <b>pressure regulator</b> and at the <b>breather hose</b> . Clean the breather hoses of the nipple drinker lines to read the water level, if necessary.
Check the system pressure of the <b>water connection unit</b> .
<b>Lighting</b>
Check all <b>lamps</b> and replace defective ones.
<b>Ventilation</b>
Check whether the <b>fan</b> and the <b>air flaps</b> function correctly.
Weekly
<b>Feeding</b>
Check the <b>feed chain tension</b> . If the feed chain buckles during feeding, immediately switch off the drive! Search for causes of the buckling. If the feed chain gets stuck, remove obstructions or foreign objects in the feed circuit, if applicable.
Check the <b>feed chain</b> for straight running. Align the drive, if necessary. Replace the guide shoe in case of wear and tear. If the feed troughs have moved, re-align them.

Check whether the <b>feed chain corners</b> are parallel with the feed troughs. Align them, if necessary.
Check the <b>feed chain corners</b> for wear of the plastic plain bearings, guide rails, guide brackets, bearing bushes.
Check the feed level at the <b>feed level slide</b> of the feed column. Remove foreign objects such as feathers or other dirt.
<b>Drinkers</b>
Check the <b>filter</b> at the filter combination and clean it, if necessary. If it needs to be replaced, only use water filters with sufficient mesh width and flow rate.
<b>Manure removal</b>
Check the <b>drives</b> for possible dust deposits. Make sure to remove these to prevent overheating of the drives!
Check whether the chain wheels and roller chains need lubrication and lubricate them, if necessary.
Check the shear pin and the tension of the roller chains.
<b>Ventilation</b>
Check the filter mats for dust deposits and clean them with pressurised air or a vacuum cleaner, if necessary.

<b>Monthly</b>
<b>Feeding</b>
Determine the runtime of the <b>feed chain</b> . During one feeding, the feed chain must cover the entire length of the circuit plus 10 additional meters. Make sure that the time for the circuit is not set too long. A circuit time that is too long can cause the feed to overflow when it returns to the feed column, that pellets are ground or that more energy than necessary is used.
<b>Drinkers</b>
Clean the <b>drip cups</b> of the nipple drinker line.
Take <b>water samples</b> and have a laboratory check them, also for iron and limescale content.
<b>Ventilation</b>
Check the ventilation system for worn V-belts.

#### 4 to 6 weeks after initial operation

##### Feeding

Correct the feed chain tension. Colour abrasion can cause changes to the length of the chain.

#### Quarterly

##### Feeding

Check the **reversible drive gear** and the guide shoe SF/MO for wear and correct functioning. If the drive gear is heavily worn at the teeth and the contact surface of the guide shoe, reverse it or replace it.

#### During/after the service period

##### Feeding

After cleaning, the **feed chains** and **feed troughs** must be completely dry.

Lubricate the **corner shafts** after wet cleaning to prevent rusting of the bearing seat.

##### Manure removal

Check the **chains**, **wheels** and **chain tensioner** for wear and tear. Lubricate the chain drives after wet cleaning.

#### NOTICE!

Slacken the manure belts completely, if the temperature in the house drops below 15° C. Because the belts shrink greatly as the temperatures drop, system parts may otherwise be damaged. The next time the birds are put into the house, the manure belts must only be retensioned when the normal house operating temperature has been reached.

#### Ventilation

Check the **hoses** of the breather system for leakage.

<b>As needed</b>
<b>Drinkers</b>
Clean the <b>water filter</b> at a pressure difference of $\geq 0.5$ bar.
Flush the <b>nipple pipes</b> every 14 days or monthly, depending on the water quality. Flush more often in case of high temperatures to prevent heat stress.
<b>Manure removal</b>
Clean the <b>scrapers</b> after every manure removal. Manure must be removed <b>daily</b> in systems <b>without manure belt ventilation!</b> Manure must be removed at least every 4 days in systems with manure belt ventilation.

## 9.2 Feeding technology

Check the entire feeding system at least once per day.



### **WARNING!**

Risk of crushing and entanglement due to running feed chain and rotation parts on the MPF drives.

- ▶ Before working on the feed supply, it is essential to shut off the power supply as the feed supply can otherwise switch on automatically!
- ▶ Protective covers over the MPF drive may only be opened when the feed supply has been shut down!
- ▶ **Never** touch the rotating parts of the MPF drives and **never** reach into them!
- ▶ **Never** reach into the feed trough when the feed chain is running!



### **NOTICE!**

- ▶ Remove all small parts such as screws, nuts, wire brackets etc. from the feed and end set troughs.
- ▶ Do not install the Champion feed chain before thoroughly examining the feed troughs.



## 9.2.1 Feed chain



- Check the tension of a new feed chain every week. Carry out this weekly check until the length no longer changes. Afterwards, checking the chain tension once per month is sufficient.
- Do not step onto the feed troughs. This should be observed particularly when selecting or moving the birds in or out and when cleaning the system.
- Bent feed troughs displaced at the coupling lead to failures and wear of the feed chains.
- After cleaning, the feed chains and feed troughs must be completely dry. Only then may the feed chain be re-started.

### 9.2.1.1 Checking and correcting the tension of the feed chain

#### **i** NOTICE!

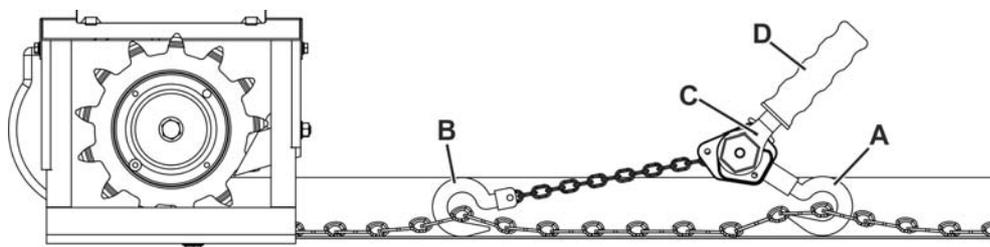
Check the tension of the feed chain regularly. It is affected by factors such as humidity, texture and fat content of the feed.

Directly after installation, the tension of the feed chain may change. Colour abrasion of the chain links can lengthen the chain. Re-tension the feed chain after 4 to 6 weeks.

The feed chain is correctly tensioned if the links of the feed chain slide slightly on top of each other at the exit of the MPF drive but do not lift more than 10 mm while the system is running. Remove or add chain links to change the chain tension.

#### **i** NOTICE!

Observe the instruction manual that is supplied with the feed chain tensioner and **pay special attention to the safety and handling instructions!**



1. Fix the hook **(A)** of the feed chain tensioner behind the MPF drive at the feed chain.
2. Put the lever **(C)** into the central position "FREE" and pull the hook **(B)** from the lever tensioner in order to hook it in at the other side of the feed chain.

3. Move the lever **(C)** to the "UP" position. Tighten the feed chain by using the manual lever **(D)** until the chain links between the hooks are lying on the floor of the feed trough.

 **WARNING!**

You can be injured by parts flying around when fitting the feed chain.

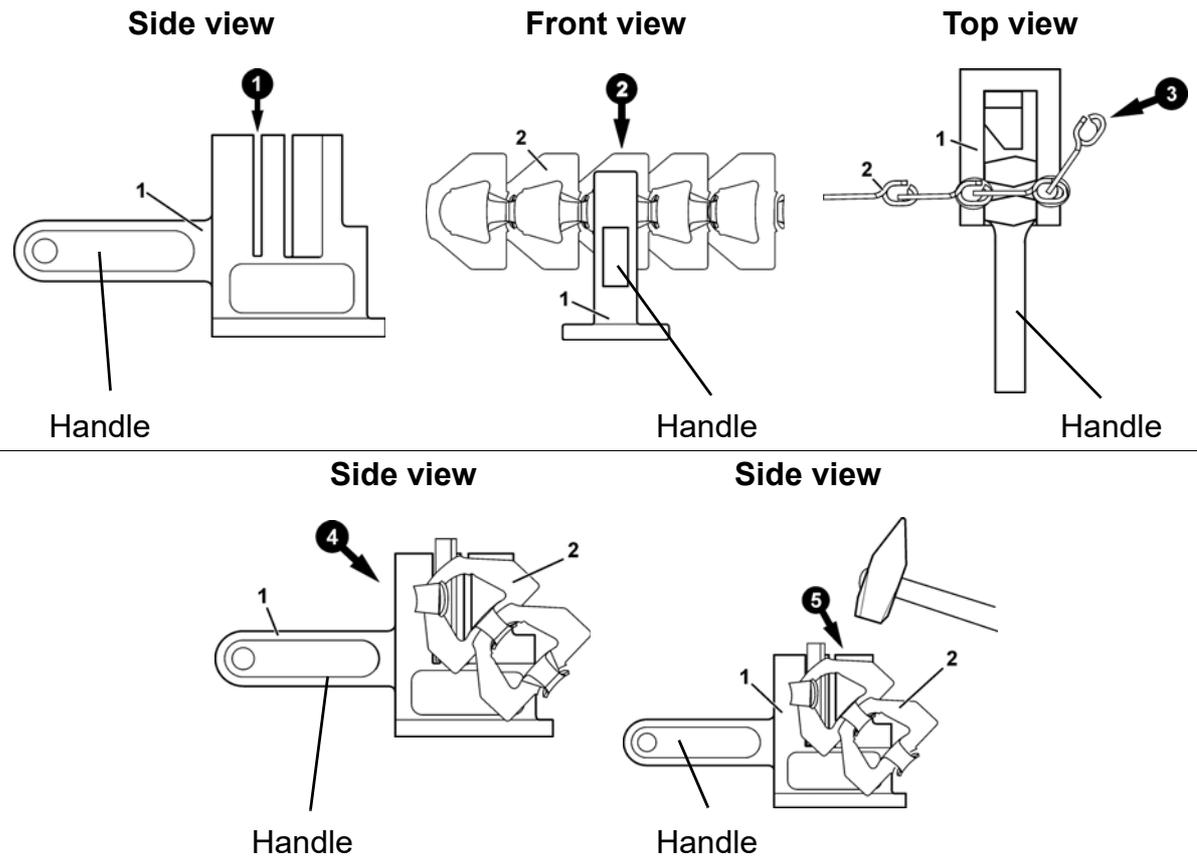
- ▶ Always wear protective goggles when fitting the chain!

 **NOTICE!**

- ▶ Always use the feed chain breaker (10-00-0025) to separate and join feed chain links.
- ▶ Never try to bend up the hook of the Champion feed chain or to close it by means of a hammer. This causes the material to become brittle so that the hooks break when the feed chain is taken into operation!

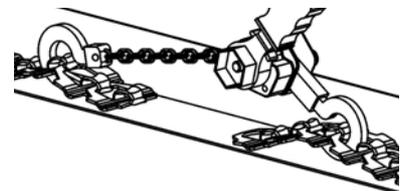
4. Separating chain links:

- Use the slot directly next to the handle.
- Guide the feed chain (pos. 2) into the slot of the feed chain breaker (pos. 1).
- Bend the feed chain backwards (away from the handle).
- Turn the feed chain downwards to be able to remove the closed end of one chain link from the opening of the next link's curved part.
- Hammer directly onto the chain link until the links separate.



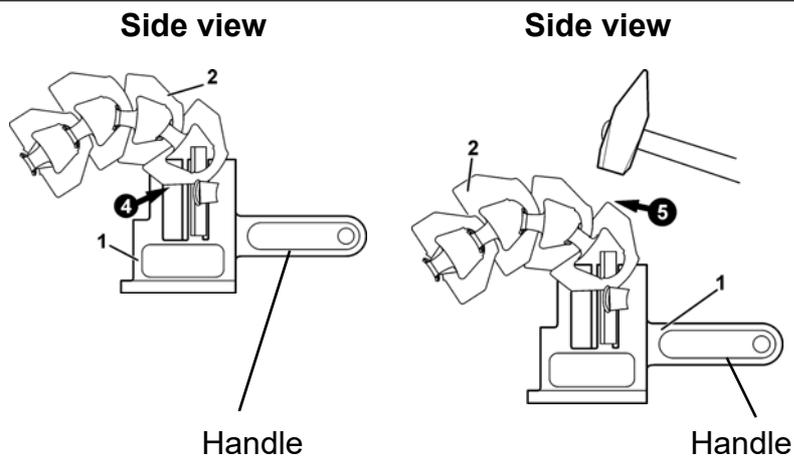
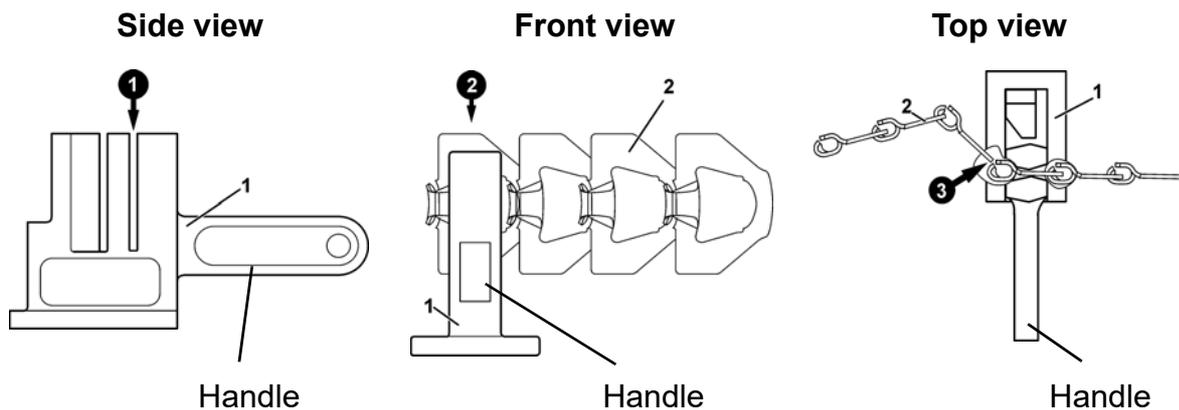
5. Change the length of the chain by removing or adding chain links until it has the correct length.

6. Pump the manual lever (**D**) evenly and pre-tighten the feed chain until ends of the feed chain can be connected.



7. Joining chain links:

- Use the slot directly next to the handle.
- Guide the last chain link into the slot of the chain breaker.
- Position the closed end of the first chain link above the opening of the last link's curved part.
- Turn the first chain link upwards diagonally until the closed end fits into the opening of the last link's curved end.
- Hammer directly onto the first chain link until the two links are joined.



8. Move the lever (**C**) to the position “DN” (=down) and release the lever tensioner.
9. Release the two load hooks (**A+B**) from the feed chain and remove the feed chain tensioner.

### 9.2.1.2 Chain circuit

- Check at regular intervals whether the feed troughs are running in a straight line and have not displaced, e.g. in the couplings and corners.
- The feed chain must always lie flat in the feed trough.

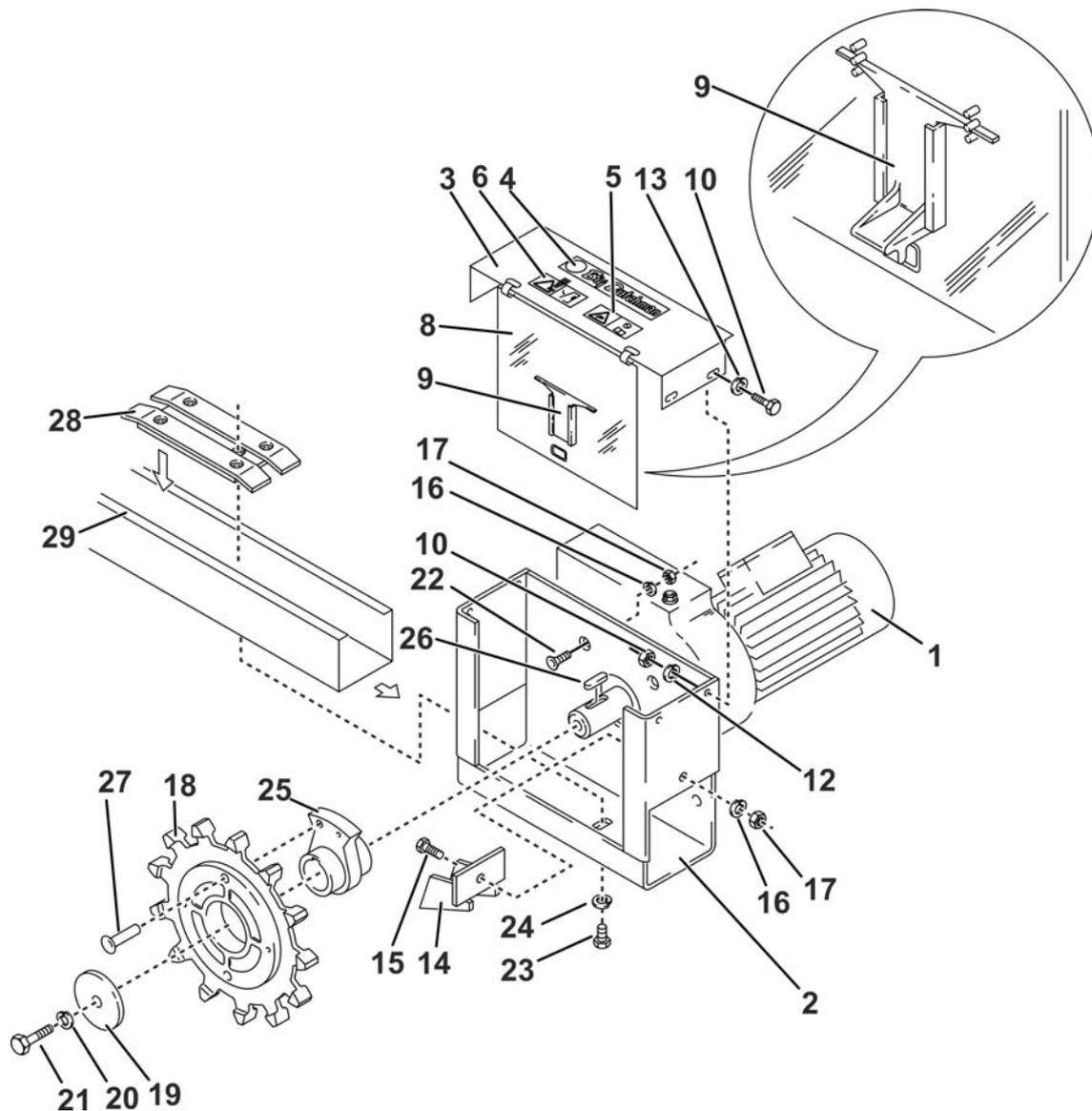
## 9.2.2 MPF drive

### NOTICE!

Never replace a broken shear pin (pos. 27) without eliminating the cause for the fracture!

Make sure to close the protective cover after maintenance/repair works. Opening the cover must require tools.

Pos.	Code no.	Description
	10-93-5000	Drive MPF 1-L 12m 0.37kW ccw 400V 3PH 50Hz
<b>1</b>		gear motor
<b>2</b>	83-00-4647	Console MPF ccw
<b>3</b>	10-93-3192	Cover for drive gear MPF
<b>4</b>	00-00-1172	Type plate: Big Dutchman 135 mm x 25 mm
<b>5</b>	00-00-1186	Pictograph: Before maintenance work main switch "OFF"
<b>6</b>	00-00-1187	Pictograph: Crushing danger / protection device
<b>7</b>	10-93-3173	Protective cover MPF 1 line cpl. collapsible (pos. 8+9)
<b>8</b>	10-93-3154	Protective cover MPF 1 line collapsible
<b>9</b>	10-93-3174	Snap cover MPF 1 line PA6
<b>10</b>	99-10-1067	Hexagon head screw M 6x 16 galv. DIN 933 8.8
<b>11</b>	99-10-1045	Hexagon nut M 6 galv. DIN 934-8
<b>12</b>	99-20-1070	Spring washer A6 DIN 127 galv.
<b>13</b>	99-50-1147	Washer B 6.4 DIN 125 galv.
<b>14</b>	10-93-3153	Blank holder for chain 0498 MPF
<b>15</b>	99-10-1038	Hexagon head screw M 8 x 20 galv. DIN 933 8.8
<b>16</b>	99-50-1063	Spring washer A 8 DIN 127 galv.
<b>17</b>	99-10-1040	Hexagon nut M 8 galv. DIN 934-8
<b>18</b>	10-00-9543	Drive-gear reversible for MPF-drive
<b>19</b>	10-93-1109	Washer 14x58-6 DIN 1052 galv.
<b>20</b>	99-50-1205	Spring washer A 12 DIN 127 galv.
<b>21</b>	99-10-1274	Hexagon head screw M 12 x 30 galv. DIN 933 8.8
<b>22</b>	99-10-3877	Hexagon socket countersunk head screw M 8 x 25 DIN 7991 galv.
<b>23</b>	99-10-1068	Hexagon head screw M 10 x 20 galv. DIN 933 8.8
<b>24</b>	99-20-1055	Spring washer A 10 DIN 127 galv.
<b>25</b>	10-93-3104	Pusher Bo 35x57 MPF/CH
<b>26</b>	99-50-1149	Key 10x8x50 DIN 6885
<b>27</b>	99-50-3913	Shear pin 8x1.5x30 steel tubular rivet DIN 7340
<b>28</b>	38-91-3014	Guide plates with base plate for guide shoe SF/MPF
<b>29</b>	15-20-1001	Feed trough 3000 Zn MCZ regular 1.2 mm (blank)



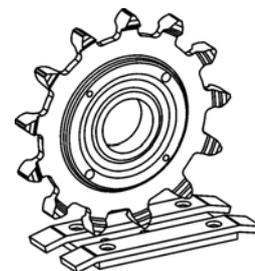
**i NOTICE!**

Grease the contact surfaces between the pusher and the drive gear (pos. 18) when changing or reversing the drive gear. It is essential that there is always sufficient grease between the contact surfaces of the pusher and the drive gear.

Under normal conditions, there is no need for oil or grease changes at the gear motor. If an oil change is indeed required (e.g. after leakages), strictly observe the instructions of the gear motor's manufacturer. Please find more information on this on the sticker at the gear motor. A quantity of 90 g of grease is required for motors type ESTA with 0.37 kW, and 280 g for the 0.75 kW version.

### 9.2.2.1 Drive gear reversible and guide shoe SF/MP

Inspect these components quarterly for wear and correct functionality. In the case of wear to the teeth on the "reversible toothed drive wheel" and the SF/MP guide shoe's running surface, these can be reversed, effectively doubling their useful life.



#### **i NOTICE!**

While replacing or reversing a "reversible toothed drive wheel", care must be taken to ensure that there is enough grease between the catch's contact surfaces and the "reversible toothed drive wheel".

Grease the contact surfaces between driver and toothed drive wheel regularly.

We recommend the following types of grease:

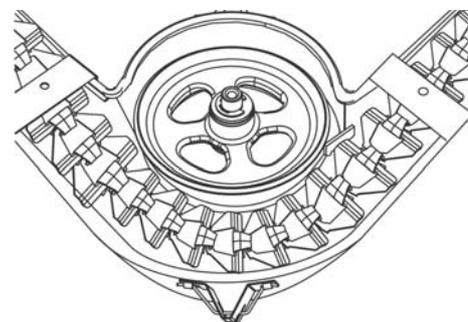
- Chevron Dura-Lith Grease EP 2
- Shell Retinex-A
- Shell Alvania EP 2
- Esso Beacon EP 2
- Texaco Multi Purpose Grease H

### 9.2.3 Checking the feed chain corner

The feed chain corners are equipped with a maintenance-free plastic sliding bearing in the corner wheel, a chain guide rail and an additional guide link plate in the corner bottom.

#### **Check the feed chain corners as follows:**

1. Relieve the tension of the feed chain.
2. Remove the wing screw, plain washer, cover, retaining ring and distance washer.
3. Check whether the corner wheel chafes along the bottom of the feed chain corner, whether the play of the bearing is too large and whether the corner wheel can swing on the shaft.
4. Remove the corner wheel from the shaft, including the bush.



5. Remove encrusted feed remains etc., replace the bearing, if necessary.
6. The corner wheel has to turn easily on the shaft.
7. Re-assemble the feed chain wheel in reverse order.

### 9.2.4 Timer, switch box, motor

- Always keep these devices clean and protect them from dust.
- Prevent condensation water from penetrating the inside of these devices.
- Protect the motor from getting wet by drip and splash water.
- These devices need no lubrication.

### 9.2.5 Gear motor

- Remove the plug from the vent screw of the gear motor before starting the motor.
- Under normal operating conditions, there is no need for oil or grease change.
- If an oil change is necessary, carry out the change in accordance with the directions of the gear motor manufacturer (see sticker at the gear motor).
- In exceptional cases, e.g. after leakages, we recommend the following greases:

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

The lubricant quantity for gear motors type ESTA is approx. 90 grammes for 0.37 kW and 280 grammes for 0.75 kW motors.

### 9.2.6 Feed level slide

- Check the feed level at the feed level slide every day. Remove feathers, meal clumps and other foreign objects.
- Adjust the feed level to the correct height.

### 9.2.7 Duration of feed dosing

- Program the duration of the feeding time at the time clock. Let the feed chain only run until the circuit of the feed chain is filled.

This prevents that

- feed overflows when it is returned into the feed column or corner hopper
- feed is ground into pellets
- an unnecessarily large amount of power is used.

## 9.3 Maintaining the manure removal system

### NOTICE!

Please find instructions on mounting the manure belts in the manual “**Manure belt**”, universal code no. 99-94-0416.

Information on servicing and adjusting the manure belts can be found in the manual “**Adjustment of the manure belt**”, universal code no. 99-94-0431.

It is essential to follow the instructions in these manuals!

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## 9.4 Winch 350 kg for wall mounting incl. crank

1. Test the winch statically. Load the winch for 10 minutes with a load 1.5 times higher than the nominal load.
2. Turning the hand crank clockwise raises the load. Turning it anti-clockwise lowers it.
3. 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.
4. 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.

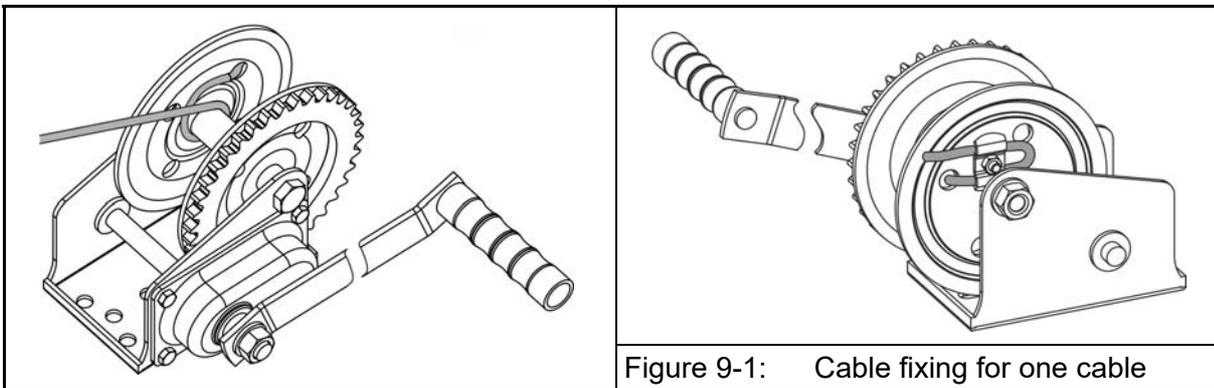
**NOTICE!**

Replace the cable if it is damaged!

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.

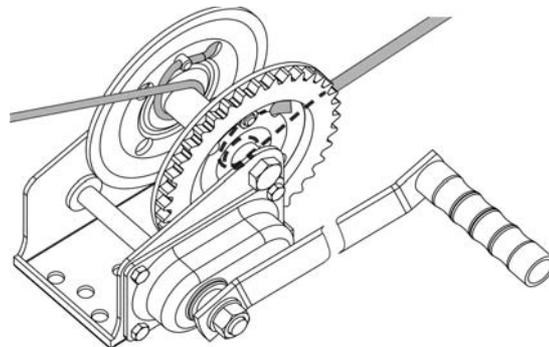
**If two cables are used:** Fix the cable by threading the end through the cable screw and tightening the nut.



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

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!“**



## 9.5 Water supply

### **DANGER!**

Persons may be electrocuted or suffer serious electrical injuries if water from leaking hoses, seals and pipes reaches live parts.

- ▶ Disconnect the main power supply.
- ▶ Interrupt the main water supply.
- ▶ Only now may you enter the part of the house where large quantities of water have escaped.

### **NOTICE!**

Leaking hoses, seals and pipes can cause structural damage or destroy electrical systems by short circuits.

- ▶ Check regularly whether large quantities of water are escaping and eliminate the leaks as soon as possible.

### **CAUTION!**

Overflowed water mixed with dust and feed remains can cause a potentially slippery floor. Eliminate any leaks.

### 9.5.1 Float tanks

- Check the floats in the float tank for tight seat and correct adjustment once a week.
- The float tanks should be at least half filled with water.
- The water pressure in front of the float valve should not exceed 3 - 4 bars, otherwise the float valve will become leaky. The float tanks overflow since the birds hardly drink during the night.
- Immediately stop any leakages in the water pipes.
- Remove deposits from the float tanks. Close the supply line to the nipple pipes by means of a blind plug. Only now can you open the drain plug underneath the float tank and clean the float tank.
- Make sure that no dirt gets into the nipple pipes. This can cause leaky nipples or clog the nipple pipes.

### 9.5.2 Ball tank

- Check the ball tank for tight seat and correct adjustment once per week.
- During the flushing process, check whether the outlet hose is correctly fastened to the flushing outlet.

### 9.5.3 Cleaning the nipple pipes

- Depending on the contamination degree of the drinking water, the nipple pipes must be cleaned every 14 days or once per month.

Lower the plastic hose end piece at the end of the nipple pipe line so that the outlet is approx. 50 mm above the nipple pipe. This is necessary for letting the rinsing water escape and for preventing air from entering the nipple pipe.

- Insert the water hose into the float tank's outlet pipe connection and thoroughly rinse the nipple pipe using mains water supply pressure. Depending on the length of the system, the flushing process takes 2 - 4 minutes.
- When the flushing process has been completed and the pressure line has been removed from the float tank's outlet pipe, water is supplied from the float tank.
- The water level in the hose end piece should be approx. 100 - 150 mm above the water level in the float tank.
- The water tank in the float tank must be in the appropriate state after cleaning and there must be no air pockets in the pipeline system.

### 9.5.4 Maintaining empty cage systems with nipple drinkers in case of freezing risk

#### NOTICE!

If house systems with nipple drinkers remain empty for a certain time and temperatures below 0° C can be expected during this period, there is a risk that the nipple pipes burst when they freeze.

Remove all water from the nipple pipes.

---

## 9.6 Alarm device

- Check the alarm for too high and too low temperatures (light and sound) every week.
- Check the water level in the batteries every month.
- Check the function of the red control lights every month.

## 9.7 Ventilation system

- Check whether all fans are rotating every day.
- Check the controlling devices for functioning every day.
- In case of a longer standstill of the fans (winter period, empty house) the fans must be put into operation briefly once per week.

## 9.8 Heating – warm air

- Put the heater and the fans into operation for 10 minutes every day.
- Clean the fuel filters and photo cells every month.
- Check the draught regulator every month.
- Check the outdoor chimney every month.
- Check the tension of the fan V-belts every month.

Before each moving in:

- Check the electrodes.
- Oil the burner motor with SAE 10.
- Remove soot emissions from the burner chamber.
- Observe the special maintenance instructions for the heating system.

## 9.9 Emergency power supply

- Check the function of the emergency generator every week.
- Observe the maintenance instructions for the emergency power generator.

## 10 Cleaning and disinfection during the service period

### 10.1 Notes for manure belt cleaning

**i NOTICE!**

Shut off the power when cleaning live parts.

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**i NOTICE!**

Water in combination with dust and feed rests can lead to a slippery floor.

---

**i NOTICE!**

Observe the instructions for the handling of disinfectants and solvents.

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The systems can be cleaned both wet and dry.

The advantage of wet cleaning is that the systems can be disinfected more effectively.

The systems should be wet cleaned no earlier than 1 week before the birds are moved in. Otherwise, the systems remain moist for a very long time and begin to rust.

1. Reduce or eliminate contamination.
2. Prevent disease.
3. Create ideal conditions for high animal performance.

Since circumstances differ from farm to farm, **Big Dutchman** recommends the following measures to guarantee farm hygiene:

**All measures have the following goals:**

Different cleaning and disinfection measures can guarantee ideal hygiene on a farm.

## 10.2 Hygiene measures for maintaining a high hygiene level

To guarantee farm hygiene, **Big Dutchman** recommends taking the below measures:

- The farm staff is not allowed to have contact to birds or other poultry outside of the farm!
- All vehicles should be disinfected before entering the farm. Install sprinkler hoses and wheel baths for the tyres at a place outside the farm!
- The farm should be fenced in! Only open the gate 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 elimination and ensure that this plan is observed!
- Eliminate weed on the farm premises!
- No feed should be left open anywhere on the farm! Store feed in a dry place to which the animals have no access!
- The service room of every house should be equipped with hand sanitizer and disinfectant mats!
- All hygiene requirements should be complied with not only during the batch, but also during the entire service period!
- Keep the number of unnecessary visitors to the farm as low as possible. Upon entering the farm / the buildings, all visitors should put on protective clothing and write down their name in the visitors' log!

The farm should be equipped with a showering facility to change clothes and to prevent the introduction of germs!

### 10.3 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.

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

## 10.4 Cleaning and disinfection

### 10.4.1 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.

### 10.4.2 Service life of equipment

#### NOTICE!

If you use thermal disinfection, ensure that the temperature does not exceed 60°C.

Temperatures above 60°C can damage the equipment in the house. **Specifically, plastics may deform.**

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

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

- (a) wet cleaning of the components if they are not immediately dried afterwards;
- (b) high-pressure cleaning which may be more aggressive than normal cleaning, depending on the equipment and the duration of the cleaning process;

(c) use of disinfectants which can damage steel or plastics and shorten the service life if they are used in high concentrations or longer than necessary.

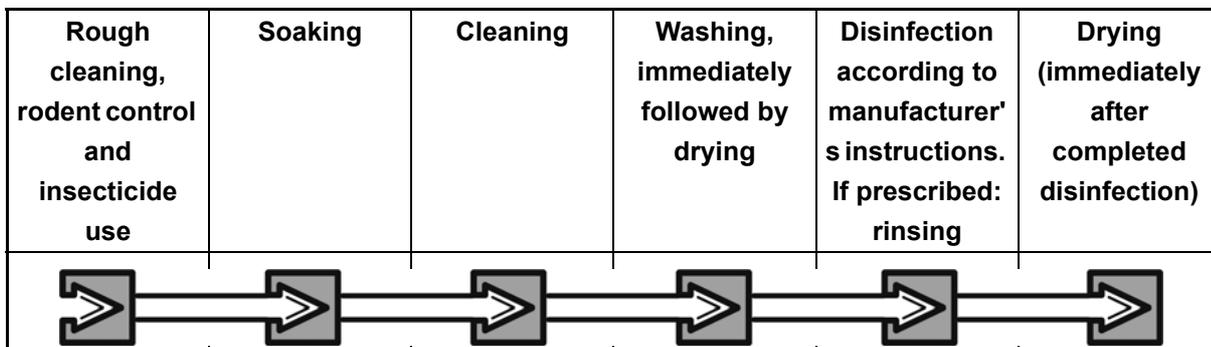
These notes also refer to the building if this is made of coated steel.

### **i NOTICE!**

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.

### 10.4.3 General cleaning and disinfection process

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



### 10.4.4 Cleaning

- Let the silo run empty.
- Let the feed augers run empty.
- Allow the birds to empty the feed troughs.
- Open the emptying shutter and let the feed troughs run empty.
- Open the feed columns and remove remaining feed.
- Remove dust and loose dirt from the systems by blowing or sweeping it off.
- Clean the house floor with a broom, including the area below the systems.
- Fold down the manure belt scrapers.
- Relieve the tension of the manure belts. They shrink when temperatures are low.
- Take down the breathing tubes of the drinkers and clean them with a bottle brush, if necessary.

Clean the water tank. Remove the drain plug for this.

- Shut off the power when cleaning live parts with water.
- Spray the entire system with a high-pressure cleaner with approx. 100 bars. Let the manure belts and feed chains run.
- Let the system soak for at least 10 hours. Then rinse the system with a high-pressure cleaner with 140 - 160 bars. Let the manure belts and feed chains run.
- Clean the house floor with a rubber broom. Pump cleaning water out of the manure cross channel.
- After cleaning, switch on the ventilation system to dry the house.
- Sequence for disinfection: First disinfect, then gasify.

Example:

Disinfect floor and walls with a disinfectant which kills coccidia and worm eggs (e.g. Lomasept). Disinfect the entire house, all equipment and the silo system (also inside) with a 1.5 % Lorasol V solution or a 2 % formalin solution.

- Heat the house to 25°C for 24 hours, if possible, after having applied the formalin solution.
- Fill the water lines and drinking facilities in the empty house with the Des L 14 solution to kill algae, bacteria and fungi.
- Spray house and equipment against mites, poultry parasites, lice, fleas and other ectoparasites, e.g. with CBM 8 (available only in pharmacies in Germany) or Gesektin K.
- Let the disinfecting solution soak for at least one day, then ventilate the house.
- Rinse the water tank and drinkers before the birds are moved in so that disinfection residues are removed. Make sure that no dirt gets into the drinkers.
- Lubricate all chain wheels, roller chains and parts susceptible to rust with a spray gun.

#### 10.4.5 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.

**i NOTICE!**

**Thorough soaking can reduce the duration of the following cleaning period considerably.**

---

### 10.4.6 Wet cleaning

**i NOTICE!**

During wet cleaning with a heavy-duty high-pressure cleaner, large amounts of water may flow onto the manure belt within a very short time period. The water may not be able to drain off the belts and will then accumulate in the cavities between the manure belt supports. Such water accumulations put a high load on the supports. The manure belt supports may bend or be torn from the side rails, thus damaging the manure belt drives.

---

1. Perforate the manure belts in the centre (if necessary).

**Please also observe the notes in the manual "Assembly of the manure belt"!**

2. Use high-pressure cleaners to clean the house, starting at the ceiling and continuing towards the floor. Pay special attention to air inlets, piping, edges and the upper side of beams.
3. Ensure good lighting so that dirt can be easily spotted.
4. Sweep the wash water towards the manure cross channel using a broom.
5. Clean the breathing hoses with a bottle brush.
6. Clean all parts of the feed supply system and the feed silo thoroughly. It is essential that feed remains are removed from the concrete areas below the silos. These feed remains would attract rodents and wild animals otherwise.
7. Clean the equipment brought outside as well as the building envelope and any additional concrete areas.
8. Note that some components of the system and the building should not be wet cleaned, e.g. electric motors, electric user panels and other parts which may be damaged by water.

**i NOTICE!**

Protect the drives from penetrating wash water!

---

9. **Big Dutchman** motors can be cleaned gently, but not with high-pressure cleaners.

**i NOTICE!**

Let the manure belts and the feed chains run permanently in all tiers during wet cleaning!

10. Check the manure belts permanently to be able to react immediately at the manure belt idler unit or at the manure belt drive in case of drifting manure belts.

**i NOTICE!**

Drinkers and water containers not cleaned thoroughly are potentially dangerous. They should therefore always be thoroughly cleaned and disinfected (refer to chapter 10.4.8 "Disinfection").

**i NOTICE!**

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

#### 10.4.7 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. Pump cleaning water out of the manure cross channel.
5. Oil all the chain wheels, roller chains and rust-sensitive parts again.
6. After cleaning, carry out necessary repair and maintenance works.
7. Only start the feed chain again when the feed chain and the feed channel are completely dry.
8. Check the holes in the air ducts for clogging after cleaning.

**i NOTICE!**

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

### 10.4.8 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 agent** can be combated with the disinfectant?
  - No one disinfectant has the same effect on all germs.
  - Change the agents regularly to prevent resistance.If you have questions, please consult 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.

#### NOTICE!

**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:**

** NOTICE!**

If you use thermal disinfection, ensure that the temperature does not exceed 60°C. Temperatures above 60°C can damage the equipment in the house. **Specifically, plastics may deform.**

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**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. Never mix several disinfectants! This may render individual disinfectants ineffective.

** WARNING!**

Mixing different disinfectant can cause explosive reactions.

- ▶ Never mix different disinfectants if mixing is not explicitly permitted.
- 

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. Make sure that the disinfectant is spread over all surfaces!
  - The working solution should be spread with a pressure of max. 10 to 12 bars and at a reduced flow rate. Otherwise, aerosols will easily form and change the wetting characteristics.
7. Fill the water lines and drinking systems in the empty house with a disinfecting solution to kill algae, bacteria and fungi. Let the disinfecting solution soak for at least one day.
8. 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.**
9. The disinfected surfaces and objects should be rinsed thoroughly if the specifications of the disinfectant manufacturer demand this.
- Lubricate all chain wheels, roller chains and parts susceptible to rust with a spray gun.

** NOTICE!**

The feeding and drinker systems however must **always** be rinsed thoroughly after the disinfection.

**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.

All residues of the disinfectant should therefore be removed.

**Checking the disinfection results:**

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

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

** NOTICE!**

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.

**10.4.9 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.

## 10.5 Vaccination

A good vaccination programme is absolutely necessary for the health of the chicks and growing pullets. Observe the instructions of the chicks' supplier or your responsible veterinarian.

## 10.6 Preventive disease control

Only healthy and properly reared pullets can provide top performances as laying hens.

Promote the health of the pullets by observing the following points:

- Rear the chicks isolated (all-in/all-out principle per house)
- Do not rear chicks from different origins or ages in the same house.
- One supervisor should be responsible for one age group of chicks or pullets. If this is not possible, change clothes and shoes for the care of each age group.

First look after the youngest age group of chicks or pullets.

Laying hens and pullets should not be supervised by the same person.

- Close the poultry houses at all times.
- Do not let visitors enter the poultry house.
- If the health of the chicks or pullets is questionable, try to find a precise diagnosis immediately or let the diagnosis be established by a qualified person.
- Never let wild birds enter your poultry house.
- Eliminate all rats and mice in your poultry house.
- Collect and remove all dead birds every day.
- Write down water and feed consumption, temperatures, mortality of the chicks or pullets as well as their body weight.

## 11 Re-starting the system

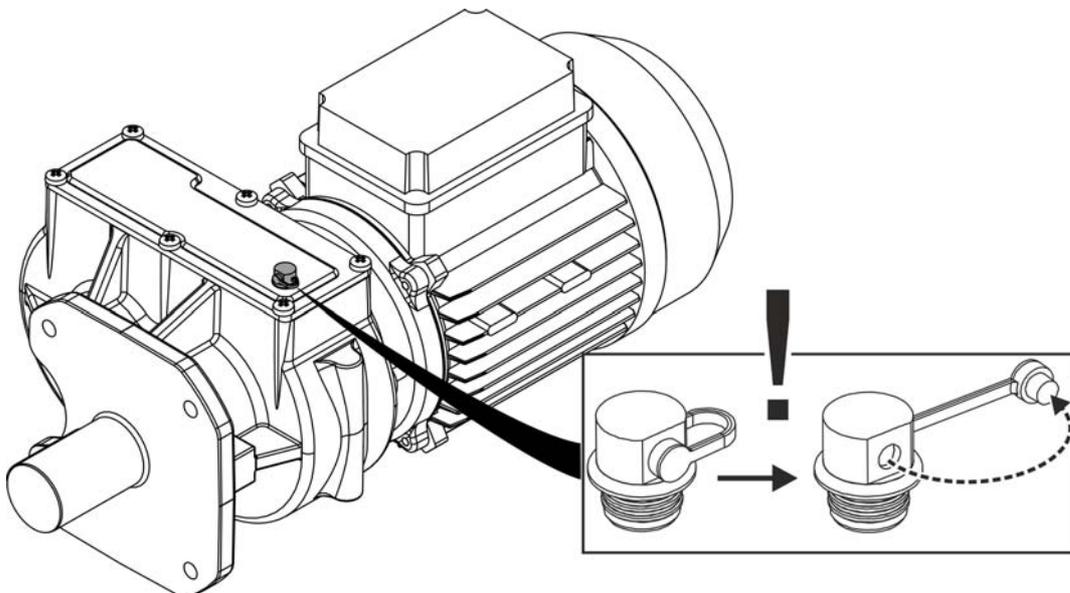
Check the entire system for functionality before starting the next rearing batch when restarting the system after cleaning and disinfection.

- Lubricate all chain wheels, roller chains and parts susceptible to rust with a spray gun.
- Check whether the entire feeding system works.  
No water may remain in the feed trough.
- Check whether the drinkers work.  
No substances originating from cleaning and disinfection may remain in the drinkers. Thoroughly flush the entire drinker line.
- Check whether the motors work.
- Check all manually movable system parts for functionality.

### 11.1 IMPORTANT: prior to putting into operation

#### NOTICE!

**Before putting the gear motors into operation, open the vent plugs of the gear motors if there is no automatic aeration included. (see chapter 2.9.3)**



## 12 Troubleshooting

The faults listed here are examples. A fault must not necessarily be caused by one of the reasons stated here.

Please contact **Big Dutchman** whenever necessary.

### 12.1 Feeding system

#### 12.1.1 Feed chain

Fault	Cause	Remedy
Feed chain cracked.	Foreign object in the feed trough.	Remove the foreign object(s).
	Feed got wet, swelled up/hardened and accumulated in the corners.	Remove the hardened feed. Make sure that feed does not get wet!

#### 12.1.2 Gear motor

Fault	Cause	Remedy
Gear motor gets too hot.	The plug was not removed from the gear motor's bleeder screw before putting it into operation.	Remove the plug.
	Dust deposits on the housing lead to insufficient cooling of the motor.	Remove the dust and keep the housing clean.
	The protective motor switch was not set to the correct current.	Correct the set value.
	Oil level in the gearing incorrect or too low.	Check the quantity and type of gear oil. Change the oil, if necessary.
	Overloading of the motor because feed chain tension is too high or too low.	Adjust the chain tension (=> 9.2.1.1 "Checking and correcting the tension of the feed chain").

### 12.1.3 Shear pin at the MPF drive

#### NOTICE!

Only use the original **Big Dutchman** shear pins!

Never replace shear pins with nails, screws or other bolts!

Fault	Cause	Remedy
Shear pins tend to break.	A machine part (feed chain, corner, corner wheel) is blocked by a foreign object.	Remove the foreign object.
	Feed chain buckles the feed trough, the chain tension might be too low.	Correct the chain tension. => chapter 9.2.1.1 "Checking and correcting the tension of the feed chain"
	Tensile load on the feed chain is too high, the chain tension might be too high.	Correct the chain tension. => chapter 9.2.1.1 "Checking and correcting the tension of the feed chain"
	Feed chain gets stuck.	Align the respective feed chain corner or coupling for feed trough or replace them.
	Drive guide shoe is rough in some places, feed chain gets stuck.	Polish the drive guide shoe or replace it.
	Drive wheel of the feed chain is worn.	Reverse the drive wheel of the feed chain or replace it.
	Drive wheel of the feed chain and guide shoe are not aligned correctly.	Correct the play by 0.5 to 1.0 mm.
	Feed circuit takes too long.	Adjust the feed circuit times. Consider two feedings directly after one another, but with shorter circuit times, if necessary.
Feed chain corners move.	Tighten all feed chain corners and install them in a way that they cannot move during operation.	

### 12.1.4 Feed chain wheels

Fault	Cause	Remedy
Feed chain wheels are not running.	Feed chain tension too high or too low.	Check and correct the tension of the feed chain. => chapter 9.2.1.1 "Checking and correcting the tension of the feed chain"
	Foreign objects are stuck in the corner wheel.	Remove the foreign object.
	Plastic bearing bush was knocked out.	Remove the corner and replace the plastic bearing bush. => chapter 9.2.3 "Checking the feed chain corner".
	Shaft for corner wheel is not installed correctly in the housing.	Remove the corner and assemble the components again in the correct order. => chapter 9.2.3 "Checking the feed chain corner".

### 12.2 Water supply

Fault	Cause	Remedy
Nipple pipes and nipple drinkers are clogged.	The cross section is constricted due to water deposits or formation of a so-called "biofilm" in the pipes or due to fatty medicines administered via the drinking water.	Flush the nipple pipes thoroughly. Remove the nipples and clean them, if necessary.
	Foreign objects accumulated in the nipple pipe.	Flush the nipple pipes thoroughly. Remove the nipples and clean them, if necessary.
	Coupling of the pipes has displaced.	Replace the coupling.
	Air bubbles in the supply.	Install the plastic hoses without forming traps.
	Air bubbles in the nipple pipe.	Flush the nipple pipes thoroughly. Actuate the nipples to aerate them.

## 12.3 Manure removal

### NOTICE!

Always refer to the **user manual "Adjustment of the manure belt"** to remedy faults and their causes.

The manual can be ordered under the following code number, if necessary: 99-94-0431 (adjustment of the manure belt).

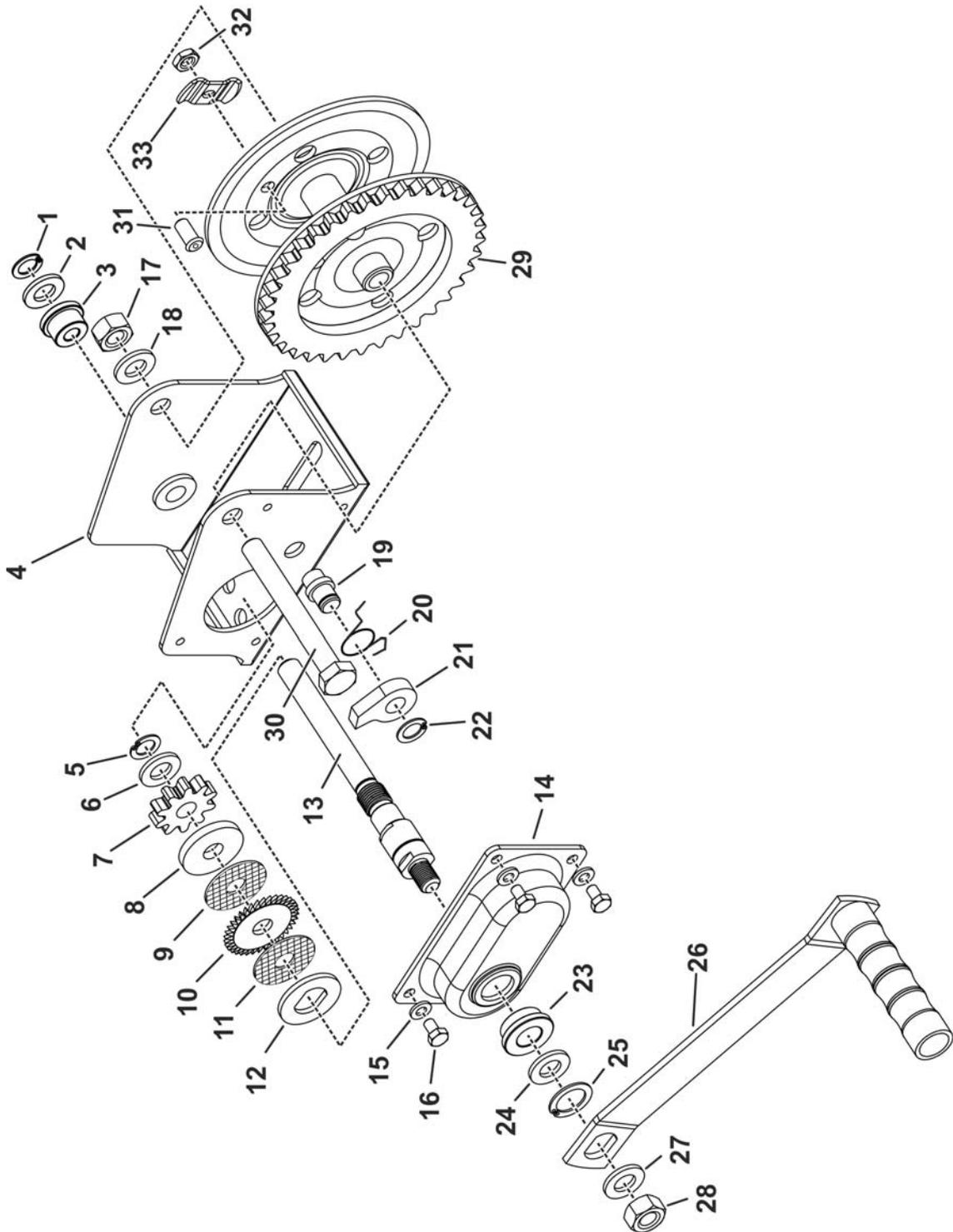
(Please also refer to the information in chapter 1 "About this manual").

Fault	Cause	Remedy
Manure belt slips.	Tension of the manure belt is too low.	Adjust the pressure roller at the manure belt drive.
Drive roller slips.	Too much manure on the manure belt.	Pull at both sides of the manure belt at the manure belt drive until it starts running independently. Increase the number of manure removals, if necessary.
	Pressure roller has not contact.	Re-tighten the pressure roller.
	Pressure roller is wet.	Keep the pressure roller and the manure belt dry.
Idler roller is stuck.	Manure and dust at the idler roller.	Clean the idler roller and the idler scraper.
	Idler roller and scraper are stuck.	Find out why the idler roller and the scraper are stuck and eliminate the cause.
Manure belt drive is not running.	Power supply interrupted.	Replace the fuse.
	Roller chain at the manure belt drive too loose.	Re-tighten the roller chain.

## 13 Spare parts

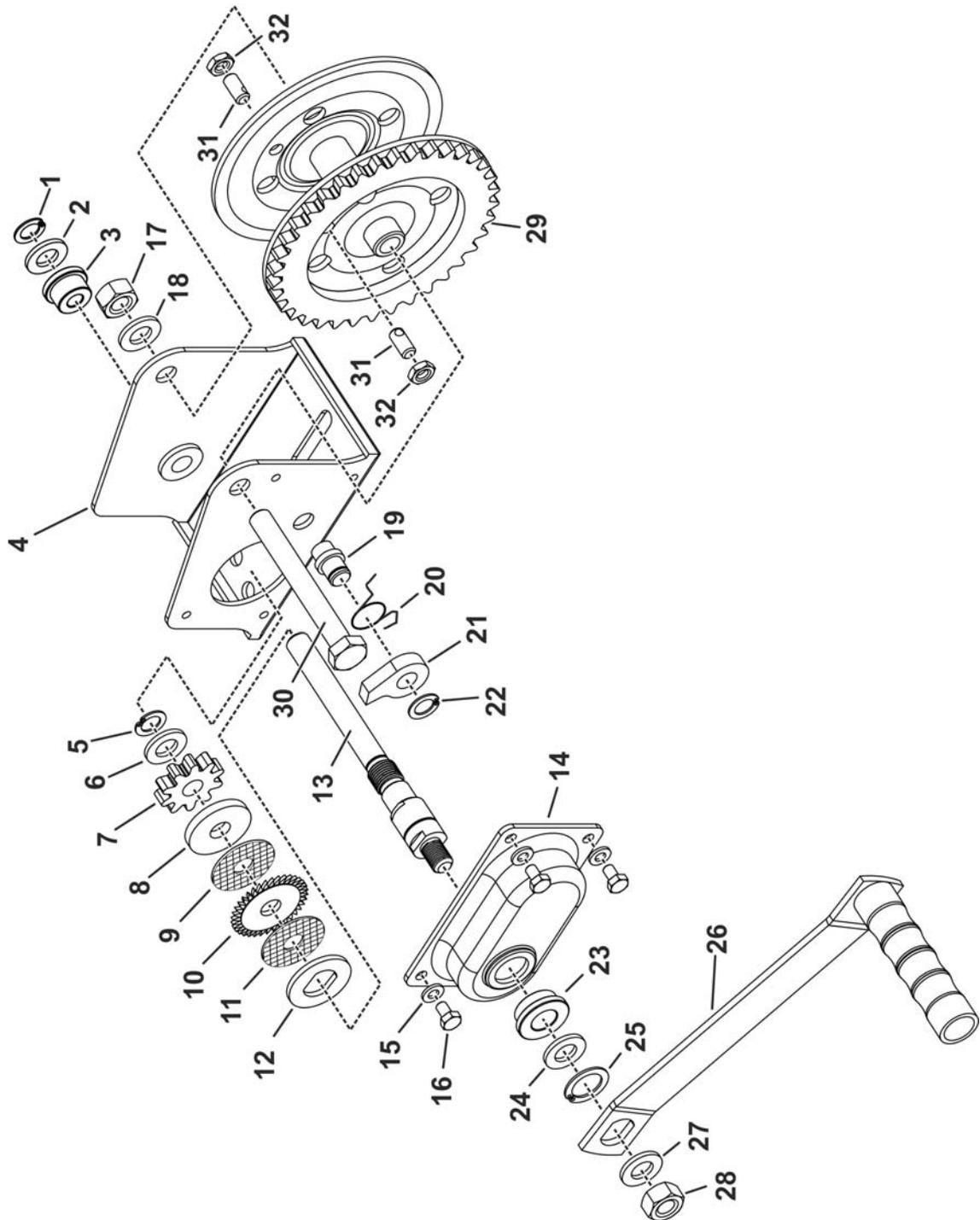
### 13.1 Winch 350 kg for wall mounting incl. crank

If one cable is used:



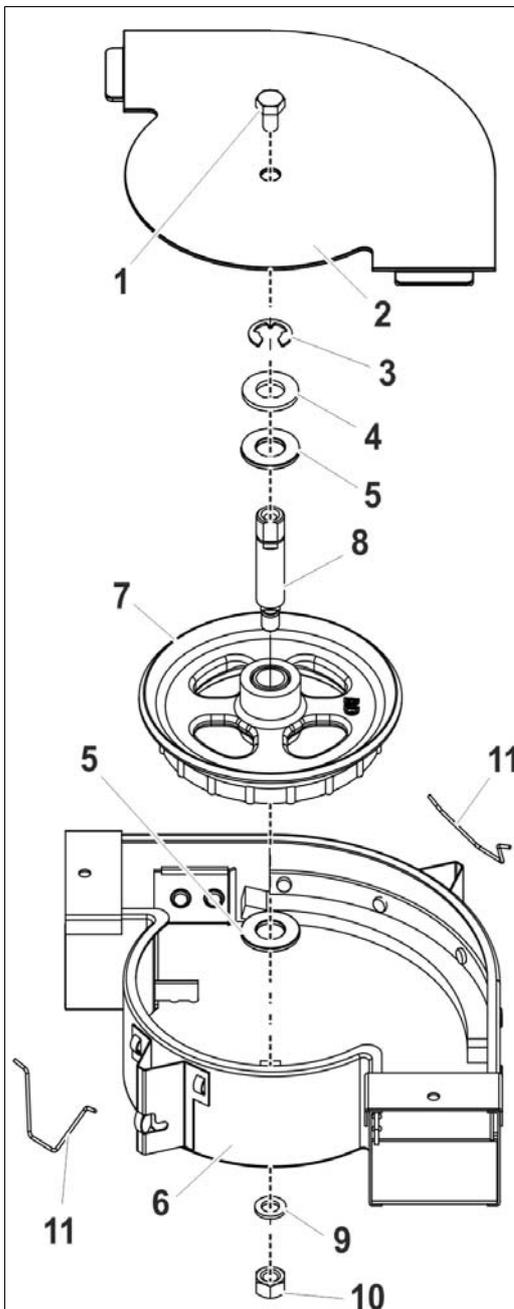
Pos.	Description
1	Retaining ring
2	Washer
3	Bearing bush
4	Bracket
5	Retaining ring
6	Washer
7	Drive toothed wheel
8	Spacer
9	Brake disc
10	Ratchet wheel
11	Brake disc
12	Spacer
13	Shaft
14	Protective cover
15	Lock washer
16	Hex screw
17	Hex bolt
18	Washer
19	Plain bearing bush
20	Spring for locking pawl
21	Locking pawl
22	Retaining ring
23	Bearing bush
24	Washer
25	Retaining ring
26	Hand crank
27	Washer
28	Nut
29	Cable reel
30	Hex screw
31	Allen key screw
32	Nut
33	Cable clamp

If two cables are used:



Pos.	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

## 13.2 Individual parts of the 90° corner BD 2000



### 83-00-5966 corner 90° BD2000

consisting of:

1	99-10-1287	Hexagon head screw M 10x 16 DIN 933 8.8 galv.
2	83-00-4430	Cover for corner 90degree BD2000
3	15-00-9004	Retaining washer 15mm DIN 6799
4	15-10-9073	Distance washer for corner axle
5	99-20-1012	Distance washer 40x19.5-3 PA6
6	83-00-6017	Body for corner BD2000 incl. chain guide rail
7	15-00-1001	Corner wheel with bush POM for corner BD88
8	15-10-9070	Axle for corner BD88 dia 19mm with thread M 12
9	99-50-1205	Spring washer A 12 DIN 127 galv.
10	99-20-1032	Hexagon nut M 12 galv. DIN 934
11	15-00-0040	Spring for corner 90deg

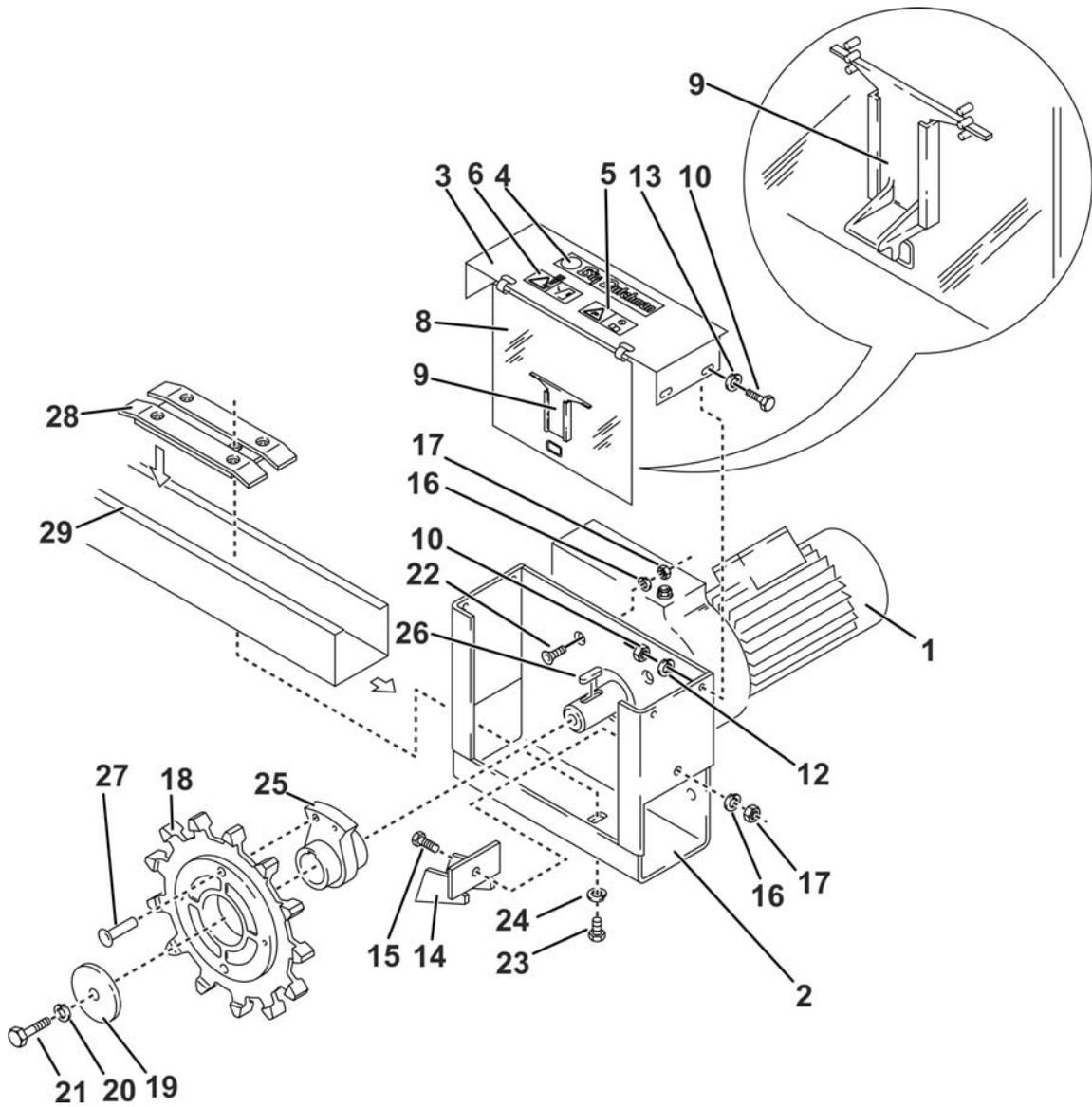
### 13.3 MPF drive

#### NOTICE!

Never replace a broken shear pin (pos. 27) without eliminating the cause for the fracture!

Make sure to close the protective cover after maintenance/repair works. Opening the cover must require tools.

Pos.	Code no.	Description
	10-93-5000	Drive MPF 1-L 12m 0.37kW ccw 400V 3PH 50Hz
<b>1</b>		gear motor
<b>2</b>	83-00-4647	Console MPF ccw
<b>3</b>	10-93-3192	Cover for drive gear MPF
<b>4</b>	00-00-1172	Type plate: Big Dutchman 135 mm x 25 mm
<b>5</b>	00-00-1186	Pictograph: Before maintenance work main switch "OFF"
<b>6</b>	00-00-1187	Pictograph: Crushing danger / protection device
<b>7</b>	10-93-3173	Protective cover MPF 1 line cpl. collapsible (pos. 8+9)
<b>8</b>	10-93-3154	Protective cover MPF 1 line collapsible
<b>9</b>	10-93-3174	Snap cover MPF 1 line PA6
<b>10</b>	99-10-1067	Hexagon head screw M 6x 16 galv. DIN 933 8.8
<b>11</b>	99-10-1045	Hexagon nut M 6 galv. DIN 934-8
<b>12</b>	99-20-1070	Spring washer A6 DIN 127 galv.
<b>13</b>	99-50-1147	Washer B 6.4 DIN 125 galv.
<b>14</b>	10-93-3153	Blank holder for chain 0498 MPF
<b>15</b>	99-10-1038	Hexagon head screw M 8 x 20 galv. DIN 933 8.8
<b>16</b>	99-50-1063	Spring washer A 8 DIN 127 galv.
<b>17</b>	99-10-1040	Hexagon nut M 8 galv. DIN 934-8
<b>18</b>	10-00-9543	Drive-gear reversible for MPF-drive
<b>19</b>	10-93-1109	Washer 14x58-6 DIN 1052 galv.
<b>20</b>	99-50-1205	Spring washer A 12 DIN 127 galv.
<b>21</b>	99-10-1274	Hexagon head screw M 12 x 30 galv. DIN 933 8.8
<b>22</b>	99-10-3877	Hexagon socket countersunk head screw M 8 x 25 DIN 7991 galv.
<b>23</b>	99-10-1068	Hexagon head screw M 10 x 20 galv. DIN 933 8.8
<b>24</b>	99-20-1055	Spring washer A 10 DIN 127 galv.
<b>25</b>	10-93-3104	Pusher Bo 35x57 MPF/CH
<b>26</b>	99-50-1149	Key 10x8x50 DIN 6885
<b>27</b>	99-50-3913	Shear pin 8x1.5x30 steel tubular rivet DIN 7340
<b>28</b>	38-91-3014	Guide plates with base plate for guide shoe SF/MPF
<b>29</b>	15-20-1001	Feed trough 3000 Zn MCZ regular 1.2 mm (blank)



### 13.4 Ball tank

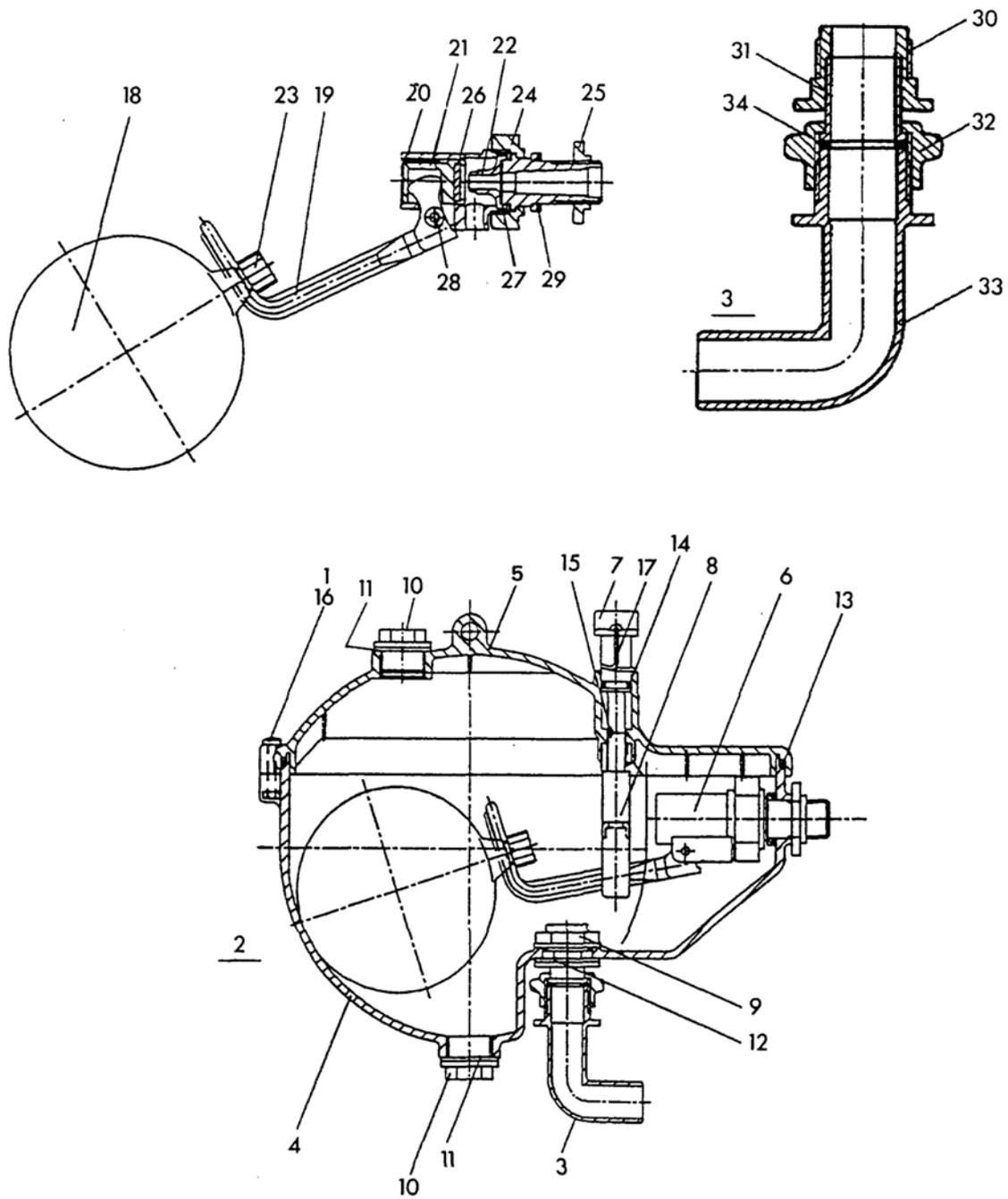


Figure 13-1: Ball tank

Pos.	Code no.	Description
1	99-10-1023	Hexagon nut M 5 galv. DIN 934-8
2	39-00-4202	Ball tank with flush system 2 outlets (4207)
3		Outlet angular with swivel nut 001 300 41 00
4		Tank 001 380 03 01
5		Cover 001 380 04 00
6		Float valve complete 4254
7		Seal 001 380 11 00

Pos.	Code no.	Description
8		Guide piece 001 380 12 00
9		Flat nut 001 380 16 01
10		Plug 3/4" 001 370 29 01
11		Sealing ring 3/4" 001 370 18 00
12		Sealing 3/4" male 4212
13		Form O-ring 001 380 20 00
14		O-ring 12 x 3 30 02 480
15		Cylinder pin Ø 3 M 6x16 DIN 7
16		Cross recessed cheese head screw M 5 x 30 galv. DIN 7985
17		Safety retainer 001 390 23 00
18		Float 001 390 09 02
19		Lever 001 390 01 00
20		Seat 001 390 02 00
21		Piston 001 390 04 01
22		Nozzle 001 390 22 00
23		Clamping nut 001 390 15 00
24		Nozzle seat 001 300 07 00
25		Flat nut 001 390 12 01
26		Piston seal 001 390 10 00
27		Valve seal 001 390 11 00
28		Bolt 001 390 03 00
29		Sealing ring 001 370 10 00
30		Outlet 001 380 08 00
31		Fitting 001 270 05 00
32		Swivel nut 3/4" 001 370 40 01
33		Outlet angular 001 380 10 04
34		Sealing ring 3/4" inner 001 550 11 01