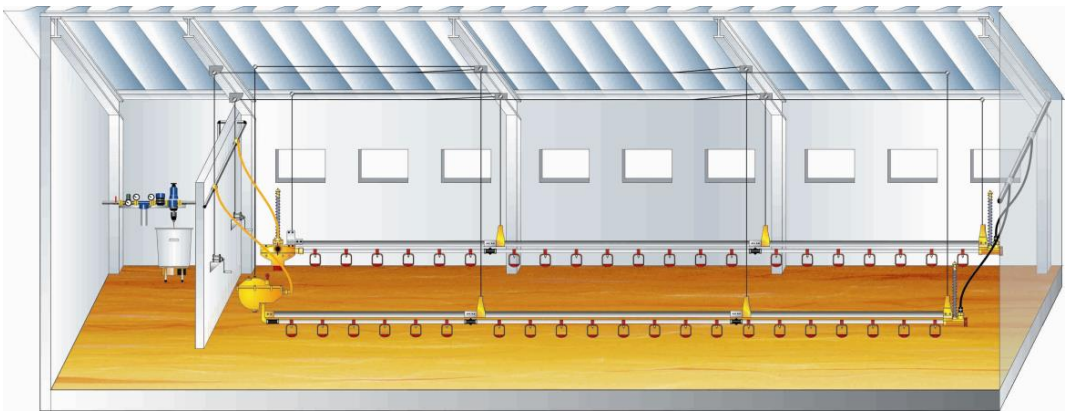
LUBING

Watering Systems



Assembly Instructions and Operators manual

Floor drinking systems

Issued: June 2012

Manufacturer data

Manufacturer / Service information

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Dealer stamp

Document data

Assembly and Operating Instructions file name:	**0940-1_M+B-PutentraenkeGB.doc**
Version:	**1.2**
First issued:	**07.04.2004**
Last modified:	**23.06.2012**

See last page for overview of modifications

Dear Reader,

Permanent development of our products and innovative new designs mean that our assembly and operating instructions as well as spare parts sheets are regularly updated. If you have any queries, please contact us or your LUBING dealer.
Current status online at: www.lubing.de

Contents

1. Introduction

1.1 Brief description of LUBING watering systems for floor watering

LUBING nipple watering systems for poultry* supply the animals with drinking water. This requires the availability of sufficient quantities of fresh and clean drinking water which must be free of contamination and easily accessible.

LUBING nipple watering systems comprise the following components:

- Pressure regulator unit
- Nipple pipe with nipples and possible cups
- Breather unit

Drinking accessories with:

- Main Water Supply
- Medicator
- Mounting Accessories

1.2 Designated use

LUBING nipple watering systems are exclusively intended for standard applications in supplying poultry* with water.

Any other use shall not be regarded as proper. The manufacturer will not be liable for any ensuing damage; this risk shall be borne by the user alone.

Designated use also includes:

- observing all of the information in the Operating Instructions and
- carrying out all service and maintenance work as required.

LUBING nipple watering systems may only be operated, maintained and serviced by personnel familiar with these measures and the potential dangers associated with the system.

* Definition Poultry: Broiler with or without Cups, Breeder rearing, Breeder, Pullets, Layer, duck rearing and duck finishing

2. General information

2.1 Warnings and symbols

You will come across the following symbols while reading this manual.

	Warns of general danger
	Warns of dangerous electrical current
	Warns of cold
	Warns of corrosive substances
	Warns of flammable substances
	Substances detrimental to health
	General mandatory sign
	Mandatory sign indicating protective gloves

2.2 General safety guidelines

The relevant guidelines for the prevention of accidents as well as other generally recognised technical safety and medical regulations for the workplace must be observed. Check that the safety and functional equipment works safely and correctly:

- prior start-up
- at the appropriate intervals
- following modifications or maintenance.

The specifications outlined by the water and energy utility companies must also be observed.
These Operating Instructions include the most important information for operating the drinking systems in a safe manner.

2.3 Obligations

	Observe information in the Operating Instructions

A basic prerequisite for safe handling and smooth operation of this watering system is knowledge of the basic safety information and safety guidelines. These Operating Instructions, and the safety instructions in particular, must be observed by all persons working on the watering system. Furthermore, all regulations and guidelines governing the prevention of accidents and applicable for the respective site must also be observed.

The watering system may only be used as designated when it is in a safe technical state. Any problems which may impair safety must be remedied without delay.

Organisational measures:

All safety equipment must be examined at regular intervals.

2.4 Warranty and liability:

As a general rule, our “General Terms and Conditions Governing Sale and Supply” shall apply.
Warranty and liability claims in the event of personal and material damage are excluded if they are attributable to one or more of the following causes:

- non-designated use of the watering system,
- improper fitting, commissioning, operation and service of the machine,
- operation of the machine despite defective safety equipment or safety and protective equipment which has been fitted incorrectly or is non-functional,
- non-observance of the information in the Operating Instructions as regards transport, storage, fitting, commissioning, operation, service and equipment of the system,
- independent structural modifications to the system,
- poor supervision of components subject to wear,
- repairs carried out incorrectly,
- catastrophes caused by foreign bodies and forces majeures.

2.5 Electrical system

	Always isolate the power supply before working on the electrical system.

All tasks extending beyond the framework of system maintenance may only be carried out by qualified personnel.

Always isolate the power supply when working on the device and secure against unauthorised reactivation by another person.

Examine electrical cables for visible damage prior to commissioning.

Replace any damaged lines before putting the device into operation.

Damaged or destroyed plug devices must be replaced by a qualified electrician.

Do not remove plugs from sockets by pulling the cable.

Covering electrical components can give rise to heat concentration with high temperatures which can in turn destroy the equipment and cause fires.

3. Assembly

3.1 Assembly information

Please read the following pages carefully. The instructions in this manual apply for various drinking systems. For this reason, we would ask you to select and apply the sections which concern you.

When using this manual for LUBING standard versions, please note all alterations to and/or deviations from the scope of your supply.

3.2 Assembly order

Use the Table of Contents to find the assembly section you require.

The assembly section describes the individual work steps in the assembly order.

Individual components are provided with position numbers in the drawings. These position numbers can also be found in the text.

3.3 Spare parts

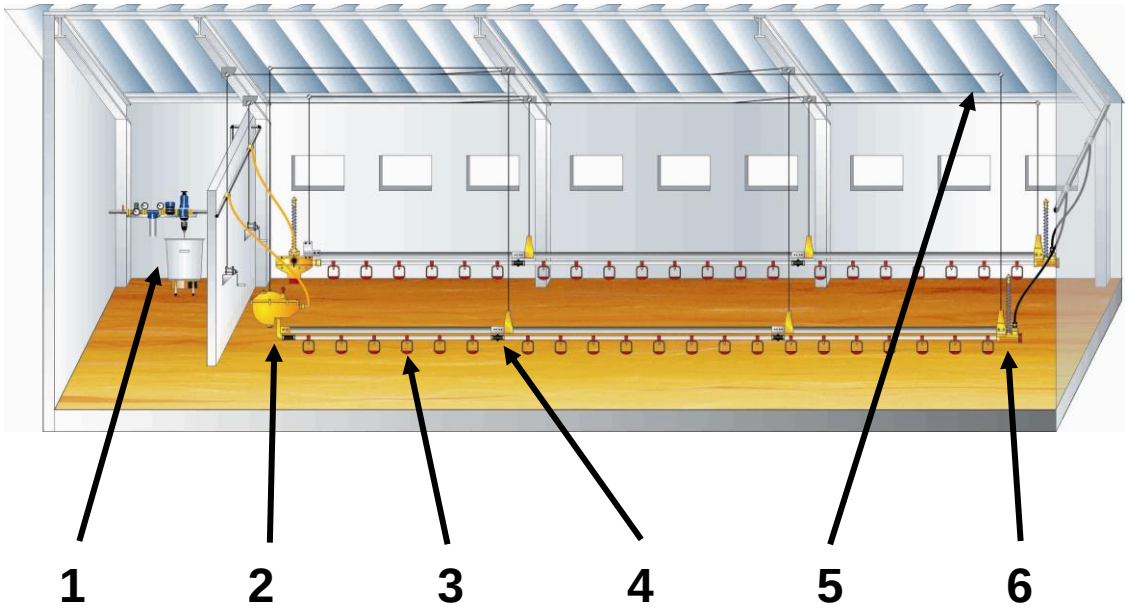
Spare parts for the nipple drinking system you will find in the "Spare parts list for floor watering systems" article no. 9903.

This contains the exact name of the respective part and its item number, which we require in the event of spare parts being ordered.
In order to procure electrical components, we require information on the power supply, e.g. 230/400 V – 3 Ph. 50 Hz.

A current version is appended to these Assembly and Operating Instructions.

Principal design of LUBING nipple watering systems:

1 Water supply
2 Pressure regulator / ball tank with flush system
3 Nipple pipe with nipple and cup
4 Couplings
5 Suspension
6 Breather units



3.5 Fitting the Main Water Supply

Overview on page 9, section 1

	Protect from frost. Frost can destroy the components!
	For versions with solenoid valve: Fit switching cabinet in such a way that it is protected from water!

The Main Water Supply should be attached in such a way that it is always protected from frost.

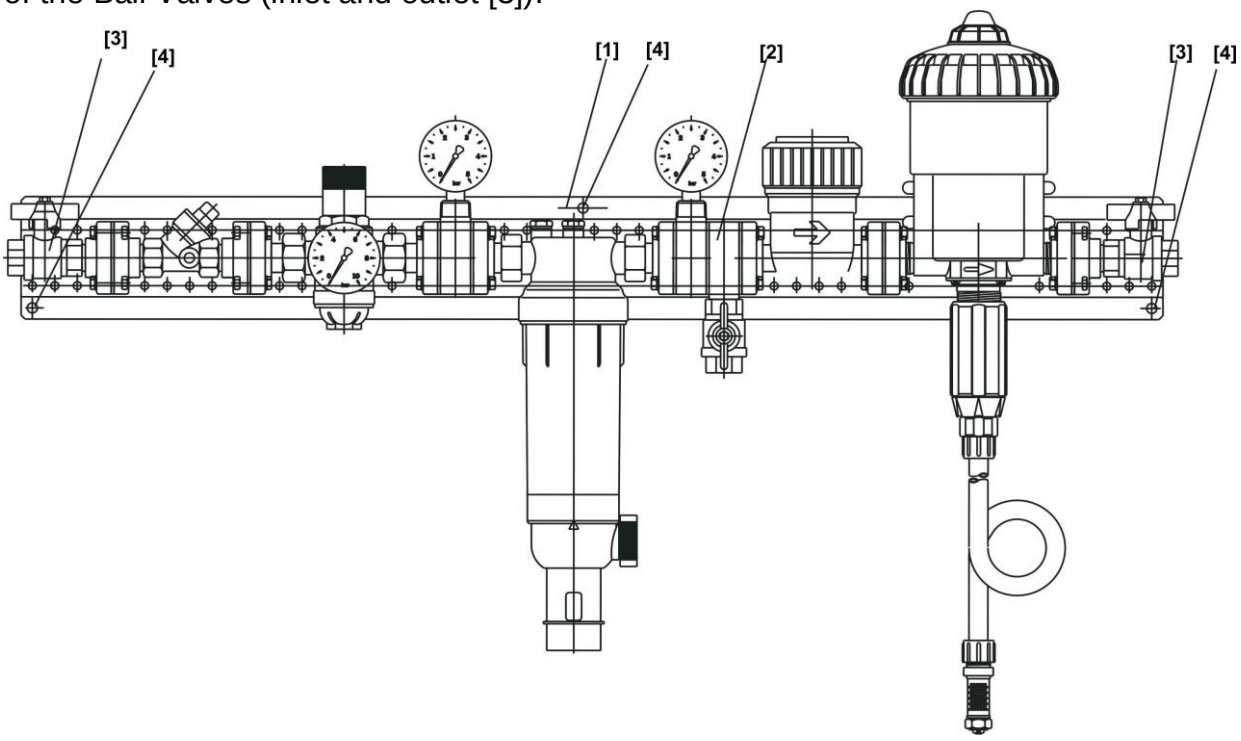
For versions with a solenoid valve, the standard version of the time relais must be connected to a mains voltage of 240 V 50 Hz via the mains plug.

Please note the information on mains voltage on the delivery note.

The components required for the Main Water Supply are supplied ready-assembled.

The attachment (a stable metal console [1]) guarantees a firm, secure and waterproof connection of the components. The Main Water Supply can therefore be installed on the wall, usually in the front part of the building. The 6 drill holes [4] in the metal console are 10 mm in diameter.

The flange connections [2] permit easy exchange of individual components. The connections to the Main Water Supply are provide d by the ¾" internal screw threads of the Ball Valves (inlet and outlet [3]).



4265-3

The Main Water Supply is secured horizontally to the point specified in the plans. Please observe the flow direction (arrow on theWater Meter) when connecting to the water supply!

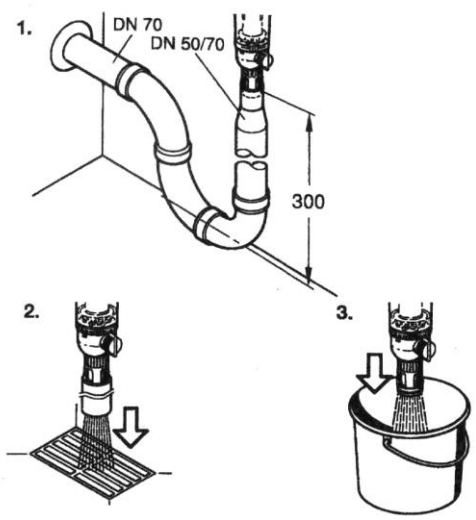
	For versions with Medicators: Observe overall height of Mixers!

Please ensure that there is sufficient space under the Main Water Supply for the Mixer, item no. 4248, for 60 litres (height: 73 cm) or Mixer, item no. 4258, for 180 litres (height: 97 cm) or another container for medication solutions.

	For versions with reversible flow filter: The backwash water must be directed towards the waste water channel in such a way that the possibility of backpressure is eliminated!

There are 3 ways of fitting the reversible flow filter:

1. Direct connection:
   Transition Piece DN 50/70 with required pipes and trap
   (three 90° bends) in DN 70
2. Draining off freely into floor outlet
3. Draining off into open



Filter size	Backwash volume*
½“ and ¾“	12 litres
1“ and 1 ¼“	15 litres
1 ½“ and 2“	18 litres

* at 3 bar supply pressure and backwash duration of 15 seconds

	The connection to a public supply line is made in accordance with the specifications of the responsible water utility company!

3.6 Mixer

Overview on page 10, section 1

The LUBING Mixer must stand on a level and even surface.
The water supply connection is achieved via ¾“ Gardena Seals. When using a Main Water Supply, a ¾“ hose can be laid from the Ball Valve in front of the Water Meter. This requires a Hose Connector.
The standard version must be connected to mains voltage of 240 V 60 Hz using a mains plug.
Please observe the information on mains voltage supplied on the delivery note.

3.7 Connection accessories

Overview on page 10, section 1

LUBING offers a variety of accessories for the water connection. We recommend using the LUBING range of plastic pipes for pipework into the housing unit. Apart from ∅ 25 mm and ¾“ pipes, this range also includes Couplings, Bends ,T-pieces, End Caps and Threaded Connection Pieces for both pipe diameters permitting all kinds of pipework layouts. These components must be glued to ensure leak-proof assembly.

Please refer to section 3.8 on Glued Connections.

The pipe system is secured to the wall or ceiling using Ceiling Clips, item no. 4349 for the 25 mm pipe and item no. 4329 for the ¾“ pipe. Mark the pipe layout and screw down the Holders, item no. 4329 / 4349. Then press the pipes into the Holders. Check the entire pipe system for leaks prior to commissioning.

LUBING recommends using the Water Connection Kit for connecting the drinking line Pressure Regulator to the water supply. Depending on the kit, the following parts are supplied:

Item no.	Components
4150	Clamp Ø ¾", Hose Connector, 3 m Tube ½“ and Clips
4151	Clamp Ø ¾", Hose Connector, 4 m Tube ½“ and Clips
4152	Clamp Ø ¾", Hose Connector, 5 m Tube ½“ and Clips
4153	Clamp Ø ¾", Hose Connector, 3 m Tube ½“, Ball Valve and Clips
4154	Clamp Ø ¾", Hose Connector, 4 m Tube ½“, Ball Valve and Clips
4155	Clamp Ø ¾", Hose Connector, 5 m Tube ½“, Ball Valve and Clips

Fitting the Water Connection Kit
Overview on page 10, section 1

The Clamp must be secured to the ¾“ **pipe**.
Do this by drilling a hole **10 mm in diameter** (2) in the water pipe.

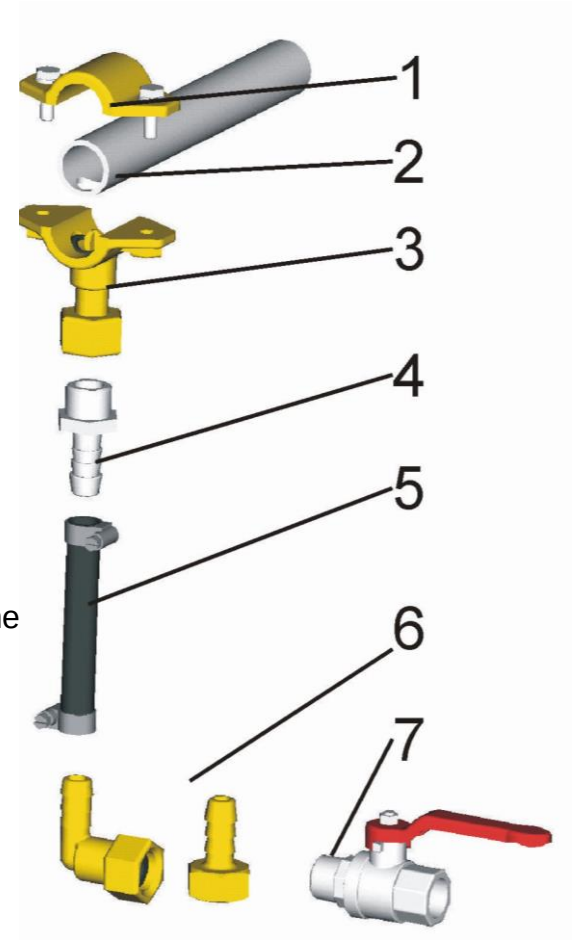
Ensure that there is no water in the pipe before drilling!

Burr the drill hole!

Rinse out any chips from the pipe!

Do not commence assembly of the Clamp until after rinsing first.

Securing the Clamp:
Insert the Clamp (3) and thorn in the drilled hole on the pipe. Make sure the O-ring seal is positioned correctly. Place the top part of the Clamp (1) on the pipe and secure using the two screws.



Secure one end (5) of the hose to the Hose Connector (4) using the clip. Screw the Hose Connector to the flat packing in the Clamp (3). Insert the other end of the hose into the Pressure Regulator (6) Hose Connector and secure with a clip.
This must be installed with flat packings in the case of Ball Valve (7) versions (see versions on page 12).
If required, the Ball Valve can be mounted between the Pressure Regulator and the Hose Connector (see graphic on right) if you wish to have the Ball Valve directly on the drinking line.
Or you can mount it between the Hose Connector (4) and the Clamp (3) in order to block the water supply directly at the supply point.

3.8 Glued connections

LUBING recommends "Tangit" adhesive, article no. 4405, for glued connections.

Many connection elements in the LUBING product range are designed as glued connections. Please observe the following manufacturer instructions in order to ensure secure connections.

The pipe must be cut at a right angle and burred. The areas to be glued must be clean and dry. Clean the ends of the pipe on the outside and the connecting elements on the inside using a cleaning agent (please check compatibility) and woven felt. Always use new woven felt. The areas to be glued must be fully dry before applying the adhesive.

Push the pipe and connecting element without twisting until the limit stop and hold tight for a few seconds until the glue has set. Immediately following joining, remove superfluous glue with the woven felt as otherwise the pipe will be etched too strongly. Owing to the fast setting features of the adhesive, the join parts must be pushed together within 4 minutes of applying the glue. The open period for Tangit depends on the ambient temperature and/or film thickness.

Ambient temperatue	Processing time	Film thickness
20 °C	approx. 4 min.	1 mm
25 °C	3 min.	1 mm
30 °C	2 min.	1 mm
40 °C	1 min.	1 mm
> 40 °C	< 1 min.	1 mm

Stress: Do not move the pipes for at least 5 minutes after gluing. At temperatures below 10°C, this period is extended to a minimum of 15 minutes.
Pressure test: The pipes should not be filled nor should a pressure test be carried out until 24 hours after the last gluing procedure. We recommend rinsing pipes and possibly even leaving them full of water if they are not put into operation immediately.

Please observe the protective measures described by the manufacturer.
Please also observe additional information in the data sheets and guidelines on the prevention of accidents supplied by the professional associations, e.g. VBG 15, VBG 81, M017 and the Safety Data Sheets.

	Tangit contains tetrahydrofurane and cyclohexanone. Xi = irritable Irritates the eyes and breathing apparatus
	“Tangit” adhesive is highly flammable. F = easily flammable!

Tangit is highly inflammable. Its solvent vapours are heavier than air and can form explosive mixtures. For this reason, always ensure sufficient ventilation when processing, drying or gluing using Tangit. In workrooms and adjoining rooms: No smoking! No welding! No naked flames and avoid generating sparks! Prior to welding work, accumulations of solvent vapours and explosive mixtures must be removed. Fill pipelines with water, rinse well and blow through. Do not seal pipes during the drying phase.

Longer inhalation of these solvent vapours can lead to impaired health. Store used woven felt in closed containers.

We recommend wearing protective gloves as a precaution for preventing contact with the skin. If the substance comes into contact with the eyes, rinse thoroughly with water and consult a doctor.

Safety advice:

- **Must be kept out of reach of children.**
- **Keep away from ignition sources – no smoking.**
- **Avoid contact with eyes.**
- **If ingested, consult a doctor and show packaging or label.**

3.9 Fitting the drinking line

Overview on page 10, section 2 - 6

LUBING drinking lines comprise ready-assembled individual elements 3 metres in length, the Pressure Regulator, Ball Tank and Breather Unit.

Suspension units, ropes with adjusting and retaining panels, ceiling pulleys and hooks are used for suspending the drinking line.

The drinking line is adjusted in height via traction ropes, guide pulleys and handwinches.

The handwinches are secured at the front in the case of short barn buildings.
In the case of long barn buildings (100 - 150 metres), ceiling winches are used in the centre of the barn.

If you have not installed a Main Water Supply line as described in 3.5, please observe the following:

A water filter must be fitted in any case!

The water supply line via the wall or ceiling should be at least ¾“ in diameter.

The individual supply line from the ceiling to the Ball Tanks or Pressure Regulators is laid as a ½“ pressure hose (fibrous; see 3.7 water connecting kit).
If using a proportioning unit, we recommend the LUBING Mixer.

Please assemble as follows:

Overview on page 10, section 5

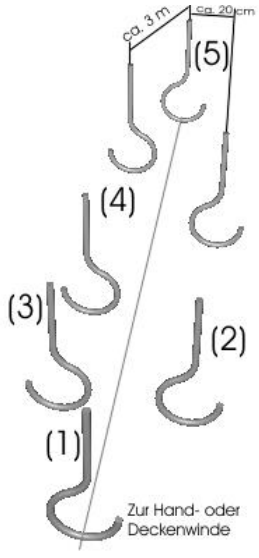
1. Measure the width of the barn, specify the position of the drinking line and sketch it on the front and back walls of the building. The number of drinking lines per building is specified in the design.

2. Calculate the length of the drinking line and determine the distance between it and the front and back walls.

3. Specify and screw in the first (1) and last (5) ceiling hook for each row.

4. Secure a string between the two ceiling hooks (1) and (5).

5. Screw in all of the ceiling hooks (4) approx. 3 metres apart and on alternating sides of the string. They should be approx. 20 cm away from the string. Position another ceiling hook 20 cm from the string and opposite the second ceiling hook (2).



Direction Hand- or ceiling winch

Go to 10. for suspension using Ceiling Winches.

3.9.1 Mounting the Hand Winches

6. Once the ceiling hooks have been inserted for each of the drinking lines, the traction rope is suspended. The traction rope is placed through the open eyelet of the ceiling hooks for each drinking line and secured to the end (ventilation side) of the last ceiling hook.

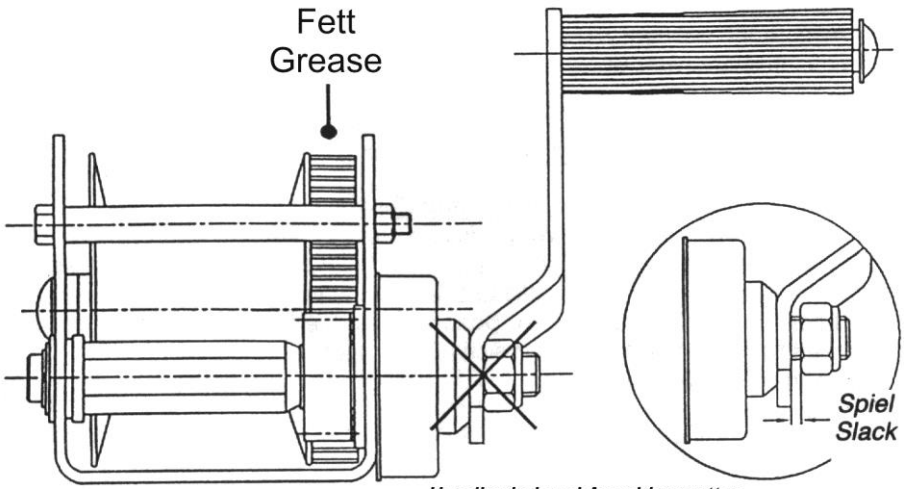
	Caution! In order to prevent the traction rope from twisting, it must be unwound. Kinks and knots can arise when unwinding the traction rope.

7. Screw on the deflection pulley and Hand Winch flush to the traction rope on the front wall.

	Caution! The wall must be load-bearing otherwise the entire tensile load will be borne by the deflection pulley. Please observe the information on the rating plate!

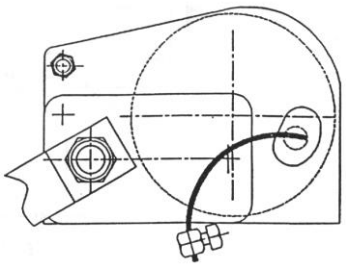
Please observe the enclosed assembly and operating instructions for Hand Winches.

Important! Check before putting into operation!

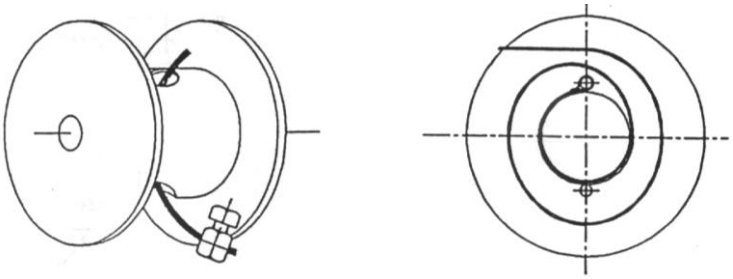


Handkurbel und Anschlagmutter
nie gegeneinander festdrehen.
Never tighten together handle and fixing nut.

8. Guide the front end of the traction rope through the guide pulley, pull taut, thread through the manual hoisting winch receiver, clamp using the attachment screw and regulate the tension using the winch.



Item no. 4416



Item no. 4417 / 4428

9. Remove the traction rope from the ceiling hooks with the exception of the last ceiling hook. Suspend the ceiling pulleys from each of the ceiling hooks.

Go to item 13.

3.9.2 Mounting the Ceiling Winches

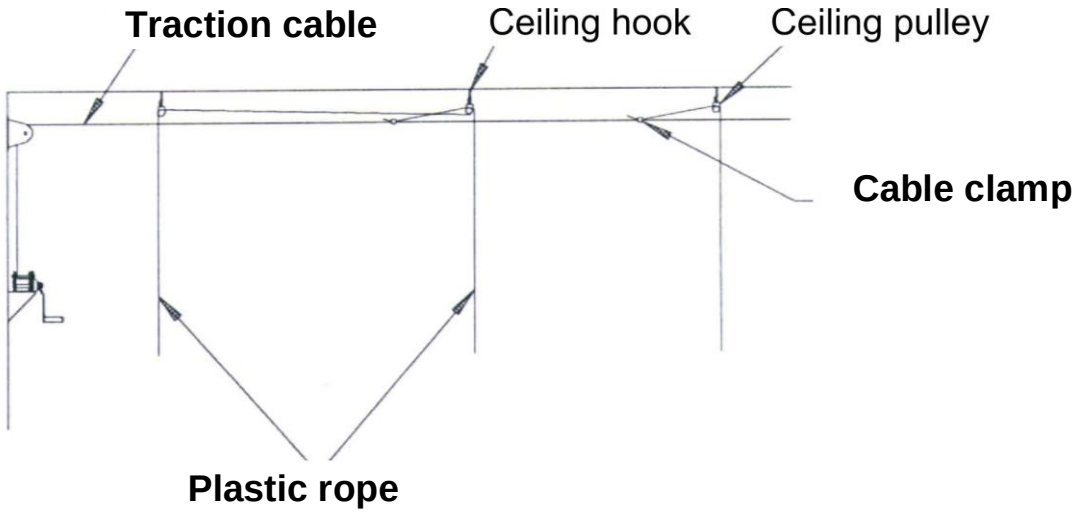
10. Secure the Ceiling Winch to a load-bearing element in the centre of the house!

11. Secure the traction rope at both ends and pull towards the middle.

	Caution! In order to prevent the traction rope from twisting, it must be unwound. Kinks and knots can arise when unwinding the traction rope.

12. Secure the traction rope to the Ceiling Winch.

13. Cut the plastic rope to length (length = ceiling height + 20 cm). The first plastic rope must be longer (length = ceiling height + 20 cm + distance between the first two ceiling pulleys). Guide the plastic rope through the ceiling pulleys and secure to the traction cable using cable clamps 10 cm in front of each pulley in the direction of traction.



CAUTION!
The first plastic rope for the Pressure Regulator or the Ball Tank is not secured on the traction cable in front of the first ceiling pulley. This plastic rope is guided across the first ceiling pulley to another ceiling pulley at the height of the second ceiling pulley, where it is deflected and linked to the traction cable in front of the second ceiling pulley.

Link the plastic rope with the traction cable at the last ceiling pulley.

Unwind the wire, taking care to avoid kinks.

3.10 Pressure regulating units

Overview on page 9, section 2

The floor watering system´s may be operated by using s Pressure Regulator or a Ball Tank. The Pressure Regulator reduces the water pressure to the correct operating pressure at the drinking line (please refer to the height chart on page 39). With the Ball Tank this value is firmly adjusted to 20 cm water column.

3.10.1 Pressure Regulator

All variants of the Pressure Regulator of the following series Art. 3201-00 and 3211-00 (one outlet) and Art. 3206-00 and 3216-00 (two outlets) are supplied pre assembled.

Assembly:

Please observe the enclosed Assembly and Operating Instructions for the Pressure Regulator. The breather tube at the 900 mm long breather unit has to be secured contrary to bow away from the side.

Note!
In order to avoid damages of the form seal, the following is to be considered before putting the nipple pipe into the transition piece:

1. The outside nipple pipe edge must be easily beveled!
2. Coat the form seal(s) (c) in the transition piece with lubricant (vaseline, acidless fat, detergent, etc.)!

Front connecting:
Pressure Regulator of the following series Art. 3201-00 and 3206-00 are used for front connecting.

Front connection:

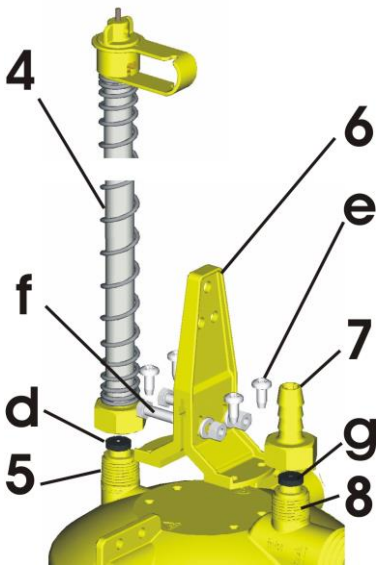


Bild 10

- Fasten the holder **(6)** with 4 screws BZ5,5x13 **(e)** to the pressure regulator.
- Nipple pipe must be shorten about 110 mm.
  Use for the separation of the nipple pipe the LUBING pliers art. 4441. Pay attention to cleanliness. Contamination and chips from the nipple pipe remove if necessary flush the drinking line.
- Twist and push the nipple pipe into the transition piece.
- Attach the pressure regulator **straight** with the holder onto the aluminum profile of the drinking element with 2 screws M 6x20, Disk and nut **(f)**.
- The plastic rope will be connected directly to the hanger (drill on top)
- The Clip between the aluminum profile and the nipple pipe should be placed nearly to the transition piece.

Middle connection:

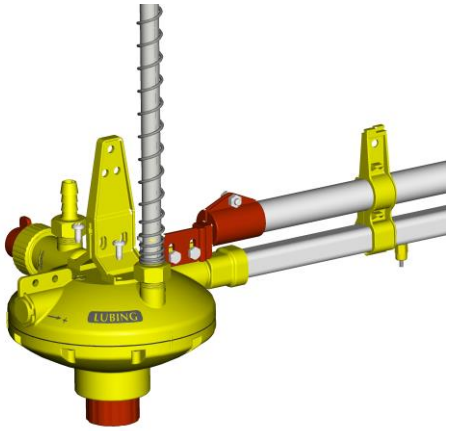
- Separate the nipple pipe at the planned place for the pressure regulator.

	Note! **Do not place the pressure regulator over the sheet metal couplings of the aluminum profiles!**

  Use for the separation of the nipple pipe the LUBING pliers art. 4441.
  Pay attention to cleanliness. Contamination and splinters from the nipple pipe remove if necessary flush the drinking line. The distance between the pipe ends must amount to 200 mm. Place the holder (6) in the center and mark holes for attachment (f). Bore aluminum profile with drill Ø 7 mm.
- Push nipple pipe apart around **50** mm (for each side approx. 25 mm).
- Fasten the pressure regulator with the holder (6) and the 4 provided screws BZ5,5x13 (e) to the aluminum profile.
- Push the nipple pipe on both sides into the transition piece (approx. on each side 25 mm).
- Attach the pressure regulator **straight** with the holder onto the aluminum profile of the drinking element with 2 screws M 6x20, Disk and nut **(f)**.

Round pipe support profile

If the support profile is a round pipe instat of the aluminum profile, there must be used the connector Art. 3309-00 for Ø26,7 mm or Art. 3310-00 for Ø25,4 mm between the nipple pipe and the Pressure Regulator.



3.10.2 Ball Tank

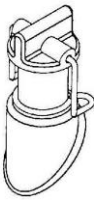
The Ball Tank Art. 4206-00 (one outlet) and the Ball Tank Art. 4207-00 (two outlets) are supplied ready assembled.

Note !

The delivery status of the sealing ring is immediately adjusted to “Flushing”. Before first start-up set to “Normal operation” or breather unit must be adjust to “Flushing”!

	When connecting the ball tank in the delivery status to the water pipeline, without setting the revolving breather unit on flushing, damages to the drinking line can result from too high pressure!

Flushing 

Normal mode 

Front connecting:
The Ball Tank Art. 4221-00 are used for front conneting.

The Ball Tank [1] with the coupling [2] has to be connected directly to the nipple pipe [4].
The Aluminum profile [3] has to be pushed into the holder at the outlet [5]. With 2 Screws M6 x 12 [6], 2 Sleeves [7] and 2 nuts [8] the Ball Tnak must be fixed to the aluminum profile.
The plastic rope must be fixed to the eyelet [9] on top.
Clip [10] for connecting between nipple pipe and aluminum profile should be placed near to the Ball Tank.

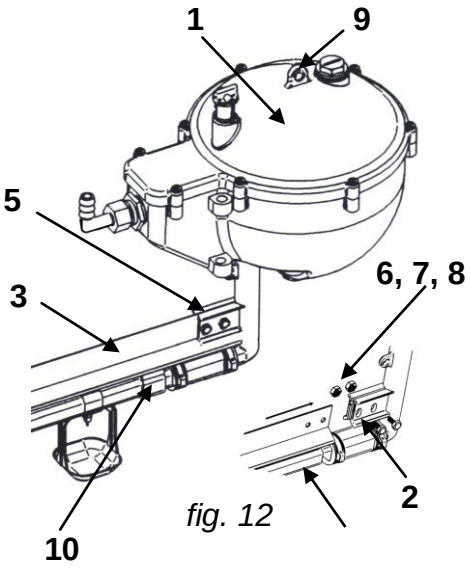
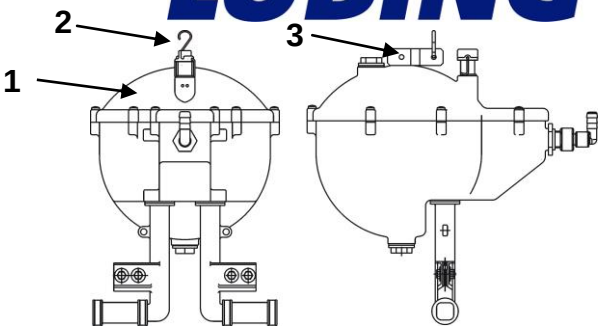


fig. 12

Middle connecting:



The Ball Tank Art. 4223-00 are used for middle connecting.

The middle connecting of the Ball Tank [1] is on both sides the same like the front connecting.

For the suspension the plastic rope has to connect to an S-hook [2] which is at a sheet metal hanger [3] and has to be fixed with the clamping screw (see fig. 13).

Round pipe support profile

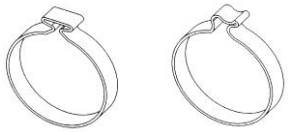
If the support profile is a round pipe instat of the aluminum profile, there must be used the connector Art. 3309-00 for Ø26,7 mm or Art. 3310-00 for Ø25,4 mm between the nipple pipe and the Ball Tank.

3.11 Connecting the drinking elements

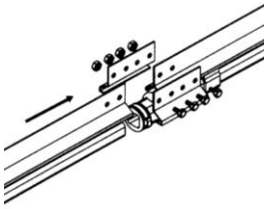
Overview on page 10, section 4

14. Lay the drinking elements flat on the ground beside each other.
    The Pressure Regulators are positioned at the front under the first ceiling pulley, and the Breather Units are at the back.

15. The drinking elements are then connected to each other.
    Slide the square pipe into the expansion connector on the following pipe until it locks into place. Press the clamps together on both sides of the expansion connector. (Please use original LUBING pliers, item no. 4414 for clamps.) Then screw the aluminium carrier profiles to the metal couplers.



Right! Wrong!



CAUTION! Aluminium carrier profiles must joint firmly to ensure good longitudinal flush along the profiles.

3.12 Breather Unit

Overview on page 10, section 6

16. Assembling of the flush breather unit or the breather revolving unit at the end of each drinking line.
    The breather tube at the 900 mm long breather unit has to be secured contrary to bow away from the side.

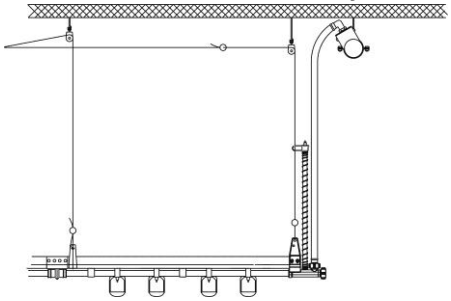


fig. 16 Flush breather unit

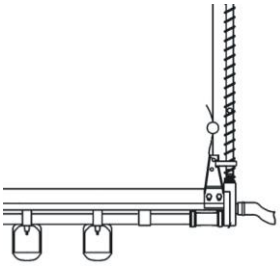


fig. 17 Breather revolving unit

17. Clip the hanger onto the aluminium carrier profile.
    The hangers are positioned beside the metal coupler.

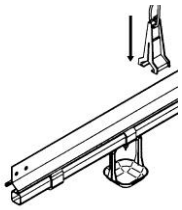


fig 18. Hanger

18. Fasten the first plastic rope at the Pressure Regulator or Ball Tank. Fix the plastic rope approx. 10 cm above the hanger with the clamping screw.

For adjusting the height adjustment the clamping screw is to loosened, so that the plastic rope is movable throeugh the clamping screw. Tighten the clamping screw firmly as soon as the adjustment has been completed.

19. Align the drinking line in such a way that the cups are on the ground (this facilitates aligning the drinking line). Secure all of the other suspension wires the same way. The traction rope is cut off approx. 10 cm before the last ceiling pulley and connected with the last suspension line.

20. Crank the floor watering system upwards to working height (approx. 1 metre) using the hoisting winch and realign. Align horizontally via the adjusting and retaining panels. Realign the aluminium carrier profiles to the metal couplers if necessary. Should there be a slope in the stall (not higher than 1.5%), a suitable adjustment has to be made with the LUBING Slope Regulator item no. 4274 / 4275 / 7276. In case of using the Slope Regulator, please adhere to the Assembly and Operating Instructions.

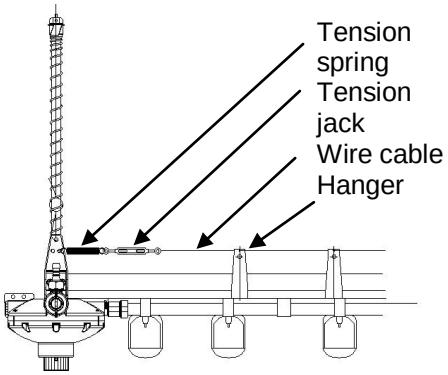
21. Connect the individual drinking lines to the central supply line using a ½“ pressure hose and dampen with water.

    The maximum water pressure for the Pressure Regulators is 3 bar. Minimum input pressure for the Pressure Regulators is 0.4 bar. Set the water level in the Pressure Regulator by turning the red adjusting wheel.

Check the entire system for tightness after completing assembly!

The LUBING floor watering system is operational.

3.13 Electrical roost wire



The Shockwire is supported by four additional hangers per 3 metres of drinking element. The shockwire is connected to an interior electric fence.

The shockwire protection unit comprises the following components:
1.5 mm vz wire cable, tension spring, tension jack, rope clamps, and four additional Hanger per drinking element.

Assembly order for the shockwire protection unit

1. Position the additional hanger (4 pieces per drinking element, 60 cm apart).
2. Connect the tension spring at the hanger from the pressure regulator and insert the tension jack.
3. Connect the wire cable with rope clamps at the breather unit.

	**CAUTION!** The wire cable may not have any connection to the aluminium profile or consoles.

4. Insert the wire cable into the slits in the hanger and pull tight as far as the tension jack on the Pressure Regulator.
5. Make another wire loop and suspend it from the empty eyelet of the tension jack fastend with the rope clamps. Turn the tension jack to tighten the wire cable until the tension spring extends by approx. 2 to 4 cm.

The tension spring has the correct initial tension when the shockwire protection can be pressed down as far as the aluminium carrier profile under pressure of approx. 1 kg.

Electrical connection

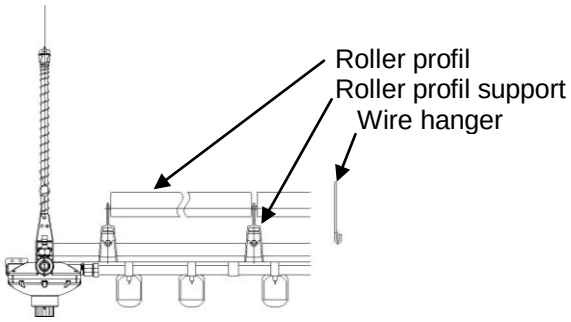
In order to prevent the birds from sitting on the LUBING floor watering system, the drinking lines are connected to an interior electric fence.
The safety requirements and installation instructions provided by the device manufacturer must be observed.
One device is required per building. It is installed inside along the front wall of the building or in a front room. Connection is via a power outlet. However, the device can also be connected via a fixed installation.
The interior electric fence has two connections marked (+) and (-). The (+) pole is connected to the shockwire protection unit (wire cable) and the (-) pole is connected to the aluminium carrier profile.

Assembly order

1. Install the interior electric fence to the front wall of the building or in a front room.
2. Lay the negative (-) line. Lay a high-voltage cable along the front wall from the device, secure to the ceiling at the front and position a branching box. Distribute from here to the drinking line's aluminium carrier profiles.
3. Drill 7 mm holes on the aluminium carrier profile and secure the high-voltage cable using cable lugs and brass screws.
4. Lay the positive (+) line along the front wall, secure to the ceiling at the front and position a branching box. Continue along to the shockwire protection unit wires and secure to the wire cable using lamp-wire connectors.
5. Put the interior electric fence into operation in accordance with the device operating instructions.

This completes installation of the shockwire protection unit.

3.14 Roller system



The roller system prevents that birds flying on the drinking line in a mechanical way.

The roller system consists of the following parts:
Five roller profil support, five roller profils, one wire hanger, screws, nuts and washer. (Cpl. Set for one 3m element)

Installation of the roller system

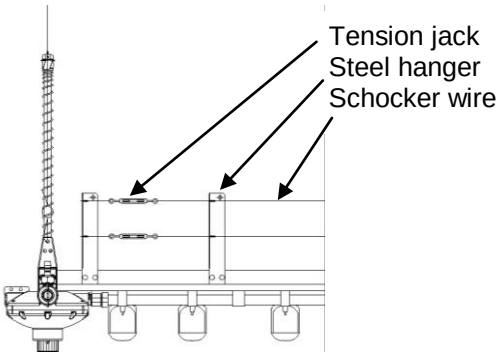
1. Follow the installation instructions of the floor watering system, but instead of using the plastic hanger, screw the wire hanger on the metal connector or on the aluminum section.

2. Clip the first roller profil support on the aluminum section and screw it up.
   (The first drill hole is 300 mm from the beginning of the aluminum section and then every 600 mm, the last drill is 300 mm from the end of the section.)
3. Put the roller profil with the bearing on the roller profil support and then put the second roller profil on the second roller profil support. Clip this holder on the aluminum profil and screw it on it.

If you want to install the roller system on an old floor watering system you first have to drill the holes for the roller profil supports. The drill holes should be Ø 8mm in diameter. The middle of the drill hole is 16 mm from the top of the aluminum section.

The roller system is now ready for operation!

3.15 Double wire mount protector



The double wire mount protector prevents the birds from flying on the drinking line and from balancing.

The double wire mount protector consits of the following parts:
Four steel holder for double wire, tension lock, cable clamp and shocker wire 1,5mm vz. (Cpl. set for one 3 m element)

Installation

1. Screw the first steel hanger on the front of the aluminum bar. Screw all the steel hanger to the intended holes.
2. The plastic rope is hooked on one steel hanger per section.
3. Tighten the wire with the tension lock and the cable clamp.

The double wire mount protection is now ready for operation!

4. Operating Instructions

This Operating Instruction describes the handling of the floor watering system. The general information are based on our current skills and experiences. Because of the amplitude of possible factors there can be variations in handling of ***your*** drinking system. Please observe your drinking system and check how you can optimise ***your*** results further more at which adjustments and activities.

LUBING suggests every nipple drinker operater to use the drinkers with the quality of drinking water.

Definition of drinking water:

Therefore the following limit values are defined in Germany:

Name	Unit	Limit value
PH-value		6,5 - 9,5
Calcium	mg/l	400
Sulfate	mg/l	240
Nitrate	mg/l	50
Chloride	mg/l	250
Iron	mg/l	0,2

These values are only chosen parts of the Drinking Water Regulation.

With these values you reach a long lifetime of your drinking system.

The methode of cleaning depends on the water quality and the added medicaments, vitamins a.s.o.

The drinking line should be well flushed between at least every cycle. Additives for cleaning see “Cleaning of the drinking line”.

Please always keep in mind the big influence that the drinking water has on the production results.

4.1 Arrangement of the nipple drinking lines

The number and the distance of drinking lines to each other must be adapted to the number of animals and to the structural conditions. If you have any questions do not hesitate to contact us.

We provide you also gladly a layout for your individual needs. Pay attention to the maximum number of animals per nipple!

Radiant heater:

The jet direction should run parallel to the drinking line. The drinking line should not be illuminated directly.

In principle it applies to keep a large distance between heaters and drinking line to avoid unnecessary warming up of the drinking water.

4.2 Before hutching

The following points are especially to be observed before start-up and even during the operation:

Before start-up the drinking lines have to be well flushed. It must be shure that all lines and cups are completely free from cleanings and desinfections.

It must be controlled that there is a sufficient water flow and clean water. The water pressure and the supply line have to be checked. The maximum water pressure that is permitted for the Pressure Regulator / Ball Tank is 3 bar.

Pay attention to the uniformed spreading of the litter! Non-uniformed litter complicates the correct height adjustment.

ATTENTION at the additions to the drinking water:

- **Only liquid or water soluble admixtures have to be given to the water.**
- **After admixture the drinking lines have to be well flushed with clean water.**

4.3 Cleaning

Before using cleaners, that are not listed in the following cleaning instructions and acids of other aggressive subjects, the stability list has to be checked. Should the product you want to use not be listed, please ask the manufacturer for any incompatibility!

	Non suitable cleanings, acids or other aggressive subjects can destroy the drinking system!

4.3.1 Cleaning the nipple drinking system of dirt and lime accumulation

LUBING suggests EVC 12 for the application according to the following manufacturing information.

This instruction for cleaning the nipple drinking systems are via Medicator. Should this instruction not be identical to the available system or not realizable, even this instruction is generally for all nipple drinking systems, the application has to be adjusted to the certain circumstances.

EVC 12 is available in 5 kg containers.

Proprietary statement
Dr. Vahldiek, Processing-Service

At designated application of EVC 12 (maximum resolution of 10% in water T_{max} = 50°C) the following plastics are consistent:

- plexiglass
- polyvinyl chloride (PVC)
- polyethylene (PE)
- polypropylene (PP)
- fluor caoutchouk (viton A and B)

The product datas
■ Composition
Chemical characterisation:
Preperation with powdery acids, dispersing agents and organic inhibitores.
CAS-no.: 5329-14-6 77-92-9
EINECS-no: 226-218-8 201-069-1
Identification according to the EG principle:

	Sulf amino acid	citric acid
Concentration (%)	>20 %	>20 %

Instructions

Instructions by the Employer´s Liability & Insurance Association: please adhere to the leaflet M004 „Acid Materials“.

The unused product has to apply to a special handling according to the magisterial instructions.

Identification according to dangerous goods
(valid for the concentrate)
Xi irritating
R36/38: Irritates eyes and skin
S26: Wash out the eyes immediately after getting in touch with them and consult a doctor
S28: Wash the skin immediately with plenty of water after getting in touch with it

General cleaning of the drinking systems via Medicator:

The material requirements for the general cleaning (cleaning and desinfection) depend on the following factors:

1. the water quantity in the drinking system,
   (each 2 metres drinking line approx. 1 litre)
2. the supply pipe (diameter and lenght)
3. a reserve of 30% for the leakage at the nipples. (sum from 1st and 2nd *1.3)

First the parent solution gets prepared.
5% of the acquired water quantity has to be filled into a tank. This water gets prepared with EVC 12 as parent solution, i. e. the total quantity of EVC12 gets agitated into the solution.

Example:
For round about 200 metres of the turkey drinker you require
approx. 140 litre of the solution.
Therefore you need at first
7 litres water, 35°C (according to 5% of the total solution) to stir with
2.8 kg EVC 12 (according to the required quantity to the total water quantity)
The parent solution only has a concentration of approx. 40%! By adding this *solution via Medicator with 5% to the water quantity, a solution of 2% accures.*

The Temperature in the hutch should be at least 25°C!

For every single drinking line you should operate as follows:

Switch on the Medicator at 5%. Let the cleaning solution operate over night if necessary.
Increase the pressure in the drinking line until the nipples drip and let the pump of the Medicator work for two or three hours. Should the nipples not drip, let the pump work for approx. three hours and activate the Pendulum.
Afterwards the whole system must be flushed through sufficiently. In the event that the nipples do not drip after a high pressure cleaning, they should be activated at least one time to make sure a rinse of the solution in the area of the nipples.

4.3.2 Cleaning the nipple drinking system of algaes and accumulations of medicaments

A regular hygienic maintenance of the whole drinking system prevents infections and detractions of the nipples.

LUBING recommends **MeproAquades** for the application at the following manufacturer information. **Available in 1 litre bottles.**

The product

MeproAquades is based on a combination of quarternary ammonium compounds.

- Improves sprouted drinking systems
- Prevents algae formation and ablosishes blockage in the drinking lines
- Prevents microble disease of the intestinal

For the increasing of the production activity in the fattening livestock husbandry the hygienic measures are of high importance. With directed desinfection and cleaning arrangements dangerous diseases at the animals can be prevented.

MeproAquades improves prouted drinking systems in poultry, pig and cattle houses as well as cages for small animals.
MeproAquades eliminates and prevents algae formation and prevents blockages in the drinking system.

MeproAquades operates reliably against:

- bacterias
- fungi
- algaes

The product datas

Base of agent: 1 kg MeproAquades contains 100 g benzalconiumchloride.

Anwendungskonzentration Concentration for use	MeproAquades	+	Wasser Water
0.1 %	10 ml	+	10 Liter / Litre
1.0 %	100 ml	+	10 Liter / Litre

Methodes in application and concentration

Concentration for use and tips

- sproude recucting effect in water:
  already at 0.1% (10 ml at 10 litres water).

- improve of drinking systems:
  prepare a solution of 1% (100 ml at 10 litres water), completely fill the system and let it operate.

During the cycle – with animals

One to two times a week you have to give as much MeproAquades via Medicator, that a using solution of 0.1% is reached.
(At broilers one time a week up to the 4th week)

Example: breeding of laying hens:

Alter der Tiere	Wasserverbrauch pro 1000 Tiere [Liter]	Erforderliche Menge MeproAquades pro 1000 Tiere und Tag [ml]
Age of the birds	Water consumption per 1000 birds [Litre]	Required quantity of MeproAquades per 1000 birds and day [ml]
1. - 3. Tag / Day	71	+ 7
1. Woche / Week	151	+ 15
2. Woche / Week	251	+ 25
3. Woche / Week	401	+ 40
4. Woche / Week	551	+ 55
5. Woche / Week	681	+ 68
6. Woche / Week	801	+ 80
7. Woche / Week	901	+ 90
8. Woche / Week	1001	+ 100

The water quantity can vary depending on the seasen. The inflow has to occur via Medicator, for that a decreasing of the concentration can take place the next days. Don´t administer vaccinations in connection with the desifection medium, so that you can´t impact the effect to the living vaccine.

After finishing the cycle – without animals
Desinfect an clean the pipes with a solution of 1%.

Identiffication according to EG instructions
(valid for the concentrate; contains benzalconiumchloride)
C: acidliy
R34: Causes corrosion
R36/38: Irritates eyes and skin
S1/2: Keep locked and away from children
S24/25: Prevent touching with eyes and skin
S26: Wash out the eyes immediately after getting in touch with them and consult a doctor
S28: Wash the skin immediately with much water after getting in touch with it
S36/37/39: At work you hav to wear adequate protective clothing, protective gloves and protective googles / protective mask
S45: In case of an accident or illness cusult a doctor immediately (show the label if possible)

National intructions
Water pollution class: 2

4.3.3 Cleaning of the dosing system

Dosing unit (if available):

A solution with EVC 12 is to recommended for cleaning (200 g per 10 litre 35°C warm water), that can be used depending on the degree of pollution.
The prepared solution gets added for a few minutes just like the dosing medium via Medicator. Let the cleaning solution work over night. Afterwards it must be well flushed.

4.3.4 Cleaning of the water filter

A solulution with EVC 12 is recommended for cleaning (200 g per 10 litres 35°C warm water), that can be used depending on the degree of pollution.

The filter cartridge gets accessible by turning off the filter cover. The cartridge has to be taken out and flushed. The filter cartridge has to be dived from time to time. A contaminated filter cartridge causes a higher decrease of pressure.

Resistance to chemicals of the drinker components

Material / material	ABS	POM	PVC	PP
Stand / issue 10.2003	Breather Unit Pressure Regulator Water Tank	Nipplehousing Tube Clip Clamping Screw	Nipple body Expansion - Connector Breather Unit	Turkey Finishing Cup Turkey Rearing Cup Pendulum Holder
Alkohole / alcohol	2	3	4	4
Aldehyde / aldehyde	2	3	3	4
Amine / aliphatisch / amine - alipatic	1	3	2	3
Amine / aromatisch / amine - aromatic	1	2	1	2
Basen / bases	3	3	4	4
Benzin / petrol	2	4	2	2
Ester / ester	1	3	1	1
Glykole / glycol	3	3	4	4
Ketone / ketone	1	3	1	4
Kochendes Wasser / cooking water	2	3	2	2
Kohlenwasserstoff / aliphatisch	3	3	4	2
Kohlenwasserstoff / aromatisch hydrocarbon - aromatic	1	3	1	2
Kohlenwasserstoff / chloriert hydrocarbon - chlorinated	1	2	1	2
Lösungsmittel / solvent	2	3	3	
Mineralsäuren / konzentriert / mineral acids - concentrated	1	2	4	3
Mineralsäuren / verdünnt mineral acids - diluted	3	3	4	4
Motoröl / engine oil	3	4	4	4
Organische Säuren / konzentriert organic acids - concentrated	1	2	4	3
Organische Säuren / verdünnt organic acids - diluted	3	3	4	4
Oxidierende Mineralsäuren / konzentriert oxydating mineral acids - concentrated	3	1	3	4

For the chemical resistance there are 4 categories:
1 = little resistant
2 = less rsistant
3 = often resistant
4 = resistant

Do not use chemicals of categories 1 and 2 in or on the drinking line!

The data in this information are based on our present knowledge and experiences. They do not free the user because of the abundance of possible influences with application of our products from own examinations and attempts. A legally obligatory warranty of certain characteristics or the suitability for a concrete targeted application can not be derived from our data. Any patent rights as well as existing laws and regulations are to be considered by the receiver of our products within own responsibility.

4.4 Vaccinating via drinking water

We recommend the following order for vaccination via drinking system:

1. Lock the water supply to the LUBING turkey drinker EasyLine.
2. Let the drinking line drink up.
3. Lift the drinking line.
4. Start up the drinking system again with water and vaccines.
5. Adjuct the hight of the drinking line.
6. After vaccination the drinking system has to be well flushed.

4.5 Hutching in

In principle fresh and cool water should be offered to the animals. The water must be easily visibly offered and well accessible for the animals.
Check the adjustment of the height. If necessary the drinking line has to be adjusted to the height of the animals. An adjusting by setting of the litter in the initial phase can be necessary!

4.6 While rearing

The height adjustment has to be observed! A too low adjusted drinking line is easyer to pollute and drinking water can be wasted.

4.7 While finishing

The height adjustement is ideal when the animals can stand upright and drink easily with a slight angled head.

4.8 Between the circles

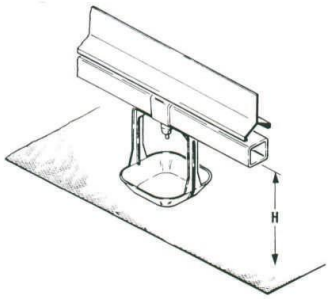
At the end of each circle the LUBING drinking line has to be well cleaned and flushed.

4.9 Height table

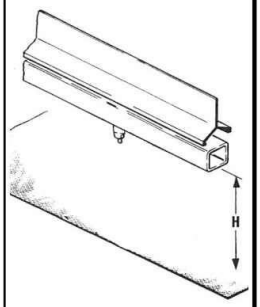
Height Table

LUBINGdrinking systems are appropriate for a water pressure of 20 cm water column! With the Balltank this value is firmly adjusted. In the case of use of the pressureregulator the water column can be varied. Please consider the data to the water column in this table!

with Drip Cup



without Drip Cup



Turkeydrinker

Use only with LUBING Pressure regulator item 4281-9 or item 4282-9

Age		Breeder rearing Pullets	Broilers	Ducks	Broilers*	Turkey-hens	Turkey-Tom	Water column
		Height [cm]						
Day	1	11	11	14	14	21		25
	4	11	14	16	18	22		25
	6	11	17	19	22	23		25
	8	12	19	21	25	24		25
	12	12	22	25	27	26		30
	14	12	23	28	28	27		30
	16	12	25	30	30	28		30
	18	13	26	32	31	30		30
	20	13	27	34	33	32		30
	22	14	28	35	34	34		35
	24	16	30	36	36	36		35
	28	16	34	40	38	40		35
	30	17	35	41	39	42		35
	32	17	36	43	40	44		35
	36	18	37	45	43	48		36
	42	20	39	50	46	50		37
	45	22	40	-	47	53		38
	50	24	41	-	49	58		39
	52	26	42	-	50	60	61	40
Week	9	28	These data are only guide values, after which you have to check and adjust the drinker lines!			63	67	41
	10	30				66	72	43
	11	32				70	75	45
	14	34				73	89	48
	16	36				-	93	51
	18	38				-	95	54
	20	40				-	95	57
	22	42				-	95	60
	24	44				Use for the first 3 to 5 days the Starter ball!		
	25	45						

* Drinking line must always used with LUBING Pressure regulator! Adjust the water level as follows:
First week: 10 cm height. Increase 2 cm per day.
Is the litter wet, reduce the height 2 cm. Is the litter dry again, increase again as before. Maximum water level = 25 cm.

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4.10 Timer for magnetic valve

In the switching box for the magnetic velve in the Main Water Supply the timer is mounted shower water protected with power reserve. The power reserve accounts 60 hours after 150 hours loading time with a 1.2 V storage battery. The temperature range of the timer is between –10°C and +50°C.

Adjusting the times:

The intervals between switching are at least 30 minutes. For adjusting the times (turn the inner panel), the program panel has to be turned clockwise until the arrow next to the hand switcher shows the current time. By pressing down the control or switching segment to the limit stop, the power activates at the appropriate time.

Manual control switch:

The manual control switch has got two positons:

1. Switcher in upper position 0: Program pre-elected as with the control or switching segment.
2. Switcher in lower position I: Power is always activated.

	At electrical power outage the magnetic velve is open!

4.11 Attendance and maintenance, fault clearance

Attendance and maintenance

Check the filter for contamination regularly. The interval depends on the water quality.

Attention! The filter cartridges can be blocked! In extreme case the water can not flow anymore!

Inspect the whole drinking system of leakages between the circles. Also inspect the nipples. Should there be more than two drops within five minutes, the drinking line should be cleaned. We suggest EVC 12 for the cleaning between the passages. EVC 12 is available from us.

At using the automatical flush system you have to check the correct position of the connection to the magnetic valve. Check the cables in the hutch of damaged isulation.

Trouble shooting

Trouble	reason / corrective
Flooding of the cup	Contamination of the valve seat in the nipple. Clean the valve seat and change the nipple if necessary!
Cup is empty	Accumulation at the nipple. Clean the nipple!
Insufficient water absorbtion of the animals	The drinking line is adjusted too high. Check the height adjustment according to the hight table (page 40).
Insufficient water pressure at the Breather Unit	The water pressure is too low. Check the water supply! Look after the water filter because of accumulation!
Wet litter	The drinking lines are to low. Check the height adjustment according to the hight table (page 40).

5. Modification notes

Page	Modification
25	Connecting electrical mount protection