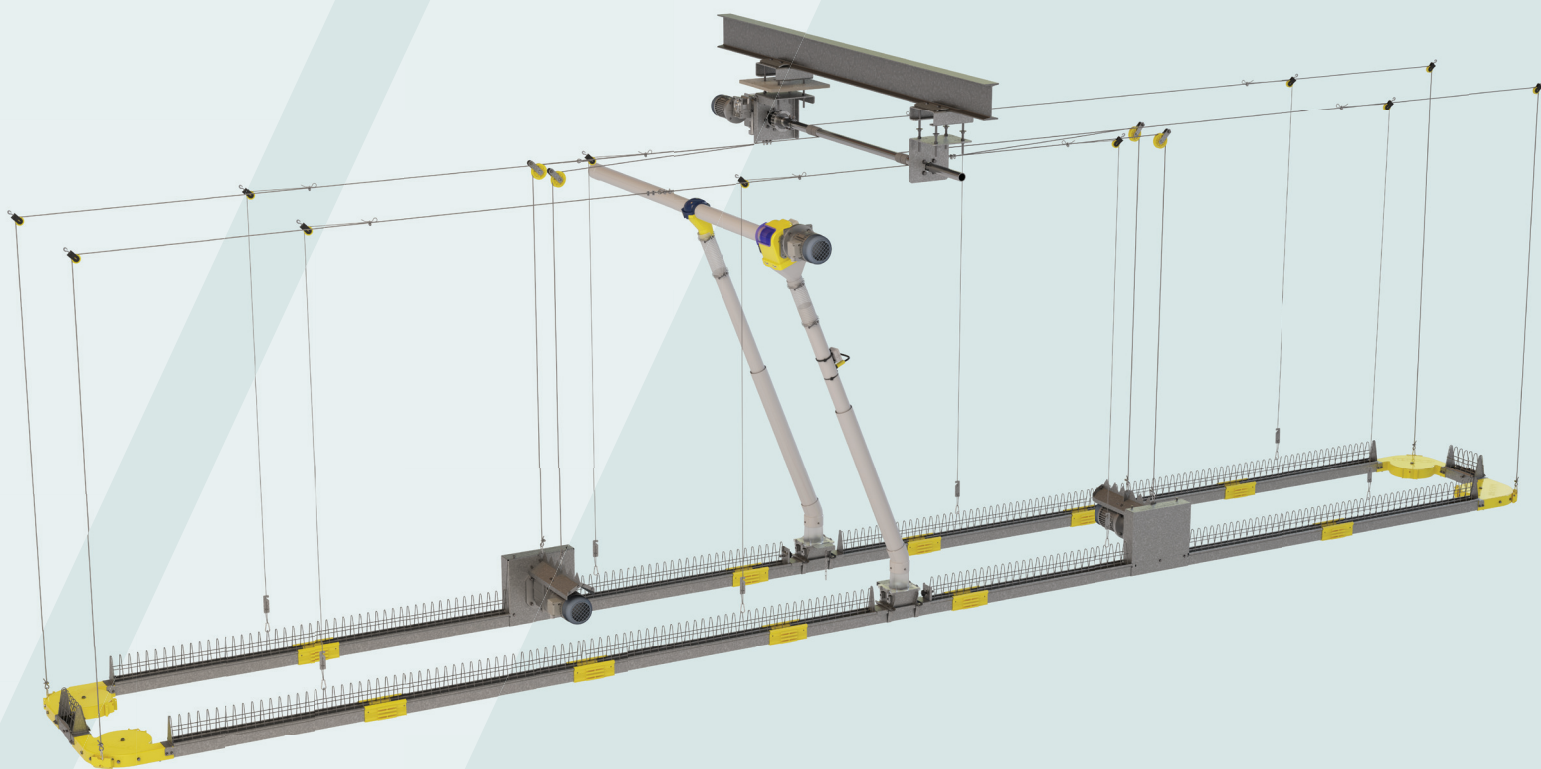




Fortena™

User Guide



Original User Guide



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Disclaimer

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General information

! **IMPORTANT:** These instructions must be read, understood and all points observed by the user, the responsible and operating personnel.

Obey the legal regulations and the applicable rules

This concerns, among other things, the European regulations and directives transposed into national legislation and/or the laws, safety and accident prevention regulations that apply in the user's country.

During assembly, operation and maintenance of the installation the legal regulations concerned and the applicable technical rules must be obeyed.

Intended use

The installation has been designed solely for intensive livestock use and has been developed according to the applicable rules of good workmanship. Extra loading of the product is therefore prohibited. Any other use is considered to be improper use. The manufacturer is not responsible for damage resulting therefrom. The user bears sole responsibility. The manufacturer can determine from the system data whether the product was used in accordance with the specified use.

Not-intended use

All use different than described in [Intended Use](#) is at the responsibility of the end user.

Liability

The (extended) warranty will not apply if any of the following has occurred: failure by the customer to inspect the delivered goods and report visible defects within 8 days of delivery with respect to the products, improper handling, transportation, modification or repair; accidents, defective or improper use; improper or defective assembly, installation, connection or maintenance (having regard to Roxell's most current assembly, installation, connection and maintenance manuals); improper modifications or manipulations of the operating system, hardware or any other software of the product by the customer; force majeure; negligence, lack of supervision or of maintenance on the part of customer; normal wear and tear; use of cleansing agents and disinfectants that are excluded in Roxell's most current use and maintenance manuals; use of cleansing agents and disinfectants in violation with the instructions received from the suppliers; or use of the products in an ATEX- surrounding.

The (extended) warranty shall not apply in the event of a defect caused either by materials or accessories supplied by or services rendered by the customer; or by an intervention by a person or entity which is not authorized or qualified for carrying out such intervention. Furthermore, the (extended) warranty will only apply if the products are used in livestock houses and if all parts or components of the products are supplied by Roxell.

Roxell will not be liable for any damages caused due to improper or defective use, assembly, installation, connection or maintenance of the products. In this respect, the customer expressly acknowledges that (i) all use, assembly, installation, connection or maintenance must be done in accordance with Roxell's most current assembly, installation, connection and maintenance manuals and (ii) the electrical installation on which the products must be connected must be done in accordance with applicable local legislation on electrical installations. Furthermore, the products must be tested both mechanically and electrically by the customer in accordance with state of the art techniques and applicable local legislation.

Personnel qualifications

User

The person who uses a function or operation of a product for their work or who works on the product. The user must be able to read the instructions for use and fully understand them. The user has knowledge of the functioning and construction of the installation.

Technically trained person

An expert who can assemble and maintain the installation (**mechanically/electrically**), and resolve malfunctions. On the basis of his/her technical training and experience, he/she has sufficient knowledge to be able to assess activities, recognize possible dangers and rectify dangerous situations.

Storage

Put all parts to be assembled in a room or at a location where the not yet assembled components are protected against weather influences.

Transport

Depending on the size of the parts and according to local circumstances and local legislation, the parts of the machine have to be transported with a forklift.

The forklift must be operated by a qualified person and in accordance with the rules of good workmanship. When lifting the load, always check if the center of gravity of the load is stable.

Dismantling

Dismantle the installation and its components in accordance with the environmental legislation of the country or the local authorities applicable at that time. All functioning products and exchange parts must be stored and disposed of in accordance with the applicable environmental regulations.

Environmental information for customers in the European Union



The European legislation requires that equipment marked with this symbol on the product or packaging must not be collected with unsorted household waste. This symbol indicates that the waste electrical and electronic equipment (WEEE) cannot be disposed of in the regular household waste. We highly recommend that you bring your product to an official collection point so that an expert can remove the waste electrical and electronic equipment. Inform yourself of local legislation on separate collection of waste electrical and electronic equipment. Respect the local regulations and never dispose of the product together with household waste.

Information about waste disposal - electrical/electronic material for companies

1. In the European Union

If you have used the product for commercial purposes and you want to dispose of it, contact Roxell, who will give you information about the return of the product. It is possible that you will have to pay a disposal charge for the return and recycling. Small products (and small quantities) can be processed by the local collection agencies.

2. In other countries outside the European Union

If you want to dispose of this product, contact the local authorities for information concerning the correct disposal procedure.

The level of noise emission

The noise level of the installation in operation does not exceed 70 dB(A).

LOTOTO = Lock Out - Tag Out - Try Out

Before you begin: Everyone needs his own lock and tag (label), which can't be removed by other persons. Inform all the persons who are influenced by the procedure.

- 1 To block
 - Localize all sources of energy (electric, hydraulic, pneumatic).
 - Switch off.
 - Take the relevant installation or process out of operation and lock it against reuse. You can do this by placing a padlock or other blocking mechanism (Lock Out).
- 2 To mark
 - Attach a sign, label or sticker to the padlock or blocking mechanism to reveal the nature and the expected duration of the work to other persons (Tag Out).
- 3 To check
 - Check if the source of energy is switched off.
 - Remove any remaining energy.
 - Check that the installation or process is actually safe (Try Out).

Use personal protective equipment

Ensure you use personal protective equipment (protective gloves, anti-slip safety shoes, safety glasses, dust mask...).

Illuminance - sufficient lighting

- **A minimum illuminance of 200 lux is necessary** during usage, maintenance and installation. Follow the local regulations for your country.
- Provide at the installation **(portable) emergency lighting in case of power failure**.

Electrical equipment, control panels, components and drive units








- To operate control panels, there must be **at least 70 cm of free space**.
- Control panels must **always remain closed**. The key of the control panel must be in possession of an authorized person. Only an electrically trained person (see above) shall carry out maintenance activities inside the control panels.
- The necessary measures must be taken by the user to keep out **rats, mice and other vermin from the control panels**.
- If electrical equipment, control panels, components and drive units are damaged, the system must be stopped **immediately!**
- Electrical equipment, control panels, components and drive units should **never be sprayed with water or other liquid!**
- Electrical equipment, control panels, components and drive units should **never be covered with any material**.

Information about the residual risks - used safety signs

There are three levels of danger, which you can recognize from the following signal words:

- **DANGER**
- **WARNING**
- **CAUTION**

The nature and source of the imminent danger and possible consequences of not obeying warnings is stated here!

Symbol	Meaning
	DANGER indicates a direct imminent danger that can result in a serious or even fatal accident if the safety measures are not respected.
	WARNING indicates a possible imminent danger that can result in a serious accident or damage to the product if the safety measures are not respected.
	CAUTION indicates possible, dangerous situations that can result in minor physical injury or material damage if the safety measures are not respected.
	This symbol refers to supporting information.
	Allowed
	Not allowed
	This symbol will be used to draw your attention to matters that are of great importance for your safety. It means: warning - follow the safety instructions. Disconnect the current and read the safety rules. In short: be alert. Ignoring these instructions can cause serious injuries or even death.

Instructions for the user

General safety rules

Fortena nr: 003

Automatic chain feeding system for poultry



DANGER: Carefully read the instructions before you use the system.

- Always turn off the electricity supply with the main switch, before you do any repair or maintenance work.
- Ensure you use personal protective equipment (protective gloves, anti-slip safety shoes, safety glasses, dust mask...).
- The system starts automatically. To have access to dangerous locations (for example automatic outlets, cables, feed intake boots, drive units, control units or outlet holes in the tubes):
 1. Completely turn off the transport system.
 2. Ensure that nobody can turn on the system without your knowledge.
- Never allow unauthorized persons to enter the house in your absence.
- Pay attention when you winch up or winch down the feeding, heating or nesting lines/circuits:
 - Stop the handling in case of any malfunctioning.
 - Never stand underneath the load when you winch up or winch down the feeding, heating or nesting lines/circuits.
- If the system stalls:
 1. Immediately turn off the system.
 2. Carefully read the troubleshooting guide and strictly follow the instructions.
 3. Contact a technically trained person. A chain under tension can cause very serious injuries when it breaks.
- Regularly check the cable, corner wheel, trough coupler and grille connections. Tighten if necessary.
- Regularly check for proper operation of the system, its components, mechanical protections and the use of approved safety switches.

	Carefully read the User's Guide and Use & Assembly Guide.
	Unauthorized persons are forbidden.
	<p>This symbol will be used to draw your attention to matters that are of great importance for your safety. It means: Warning.</p> <ol style="list-style-type: none"> 1. Follow the safety instructions. 2. Disconnect the current. 3. Reread the safety instructions. <p>In short: be alert. It can cause serious injuries or even death.</p>
	Wear protective gloves.

General safety rules – winching systems

Daily / motorised / hand-operated winch for feeding, heating and nesting systems



DANGER: Carefully read the instructions before you use the system.

- Pay attention when you winch up or winch down the feeding, heating or nesting lines/circuits:
 - Stop the handling in case of any malfunctioning.
 - Never stand underneath the load when you winch up or winch down the feeding, heating or nesting lines/circuits.
- Never allow unauthorized persons to enter the house during your absence.
- Don't wear loose clothing.
- Only adults may operate the winch.
- Only use the winch to suspend Roxell feeding, heating or nesting lines/circuits.
- Always check the condition of the winch and the cable before use.
 - Immediately replace a ravelled, kinked or damaged cable.
 - Immediately replace a loose or damaged winch.
- Always check the condition of the cable before use.
- Never touch the cable, the rotating parts of the winch and the switches of the switch assembly for automatic winch, while operating.
- Only use the winch when nobody is standing underneath the load.
- Always look at the load while using the winch in manual mode.
- Prevent that the load makes a shocking movement.
- Cover the winch during cleaning.



DANGER: Each of the winches has its intended use:

- The hand-operated winch is only suitable for height adjustment during the flock and for winching up for cleaning at the end of the flock.
- The motorised winch is suitable for height adjustment during the flock or daily winching for feeding/filling/cleaning controlled by an operator.



NOTE: Only end limit switches on the winch drive unit are available, connected to a separate CP on the winch drive.

- The motorised winch is suitable for height adjustment during the flock or automatic daily winching for feeding/filling controlled by the iQon computer.

	<p>Forbidden: Never use the winch to lift persons.</p>
	<p>Danger: If you get jammed, serious injuries may occur.</p>

General introduction

Fortena is an automatic chain feeding system for poultry. It is developed as a feeding system for female breeders in production.

The feed is distributed in an open feed trough that is installed in a circuit. The feed is pulled by a chain that is controlled by a drive unit.

The system is designed in such a way that it can be customised. Roxell offers various options:

- Circuit supported on legs, suspended, or a combination of both
- With or without daily winching
- Single or variable speed system
- Direct feed supply with feed intake boots or feed supply with hoppers
- Possibility of being controlled automatically by the Roxell iQon feed computer

Layout of the chain feeding system

General

For optimal use of the chain feeding system, it is essential that the overall plan and layout of the house is well thought out.

For example, it is important to know where the feed bins will be placed and where feed will enter the house. It is also necessary to know which options will be installed in order to be able to design an adequate feeding system.

The following topics should be considered:

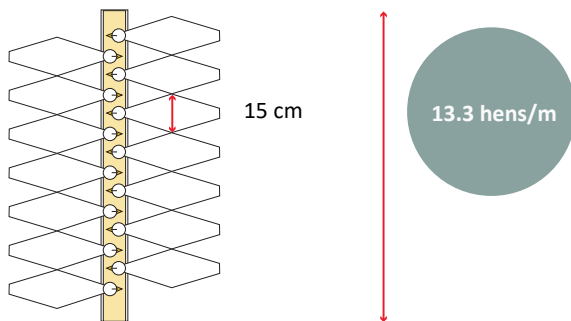
- Length and number of circuits
- Feed supply
- Speed
- Suspension
- Capacity

Length and number of circuits

Circuit length

The required circuit length to feed the birds depends on the number of birds in the house.

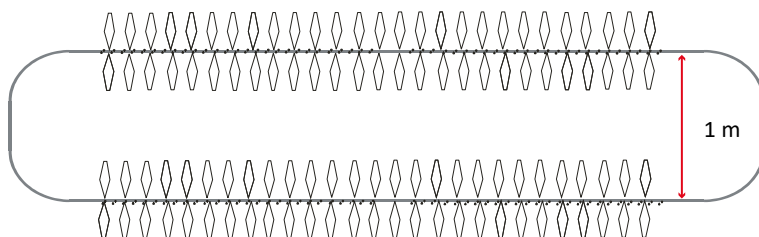
Minimum eating space/hen	15 cm The hens can eat from both sides of the feed trough, which means that 2 hens can eat per 15 cm.
Optimal number of hens/m circuit	13.3 hens Example: For 9900 hens, a total of $9900/13.3 = 744.36$ m circuit is required.



Number of circuits

The required number of circuits depends on the length and width of the house.

Recommended width between the feed troughs	1 m
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i NOTE: It is possible to install a circuit around the nests provided there is sufficient space to pass on both sides of the nest. Usually, 4 circuits are used in a house with EU layout: two on each side of the nest.

Type of feed supply

There are two ways of supplying feed to the system:

- From hoppers installed on the circuit
- Directly from the feed bin outside the house using feed intake boots

i NOTE: The type of feed supply will determine the type and capacity of the transport system.

Hoppers

Using hoppers allows the daily feed amount to be distributed to the hoppers already the day before. This ensures that the feed can be supplied by means of 1 low-capacity Flex-Auger.

The hoppers are designed to be modular and to limit shading to a minimum.

The number of hoppers per circuit depends on the length of the circuit and the amount of drive units (see [Number of drive units \(page I-6\)](#)).

Hopper capacity	
Base	75 kg
Extension	100 kg
Cover	25 kg

i NOTE: Standard hopper capacity: 200 kg

Feed intake boots

Supplying feed directly from the feed bin outside the house ensures that no additional shading will be created in the house.

i NOTE: Ensure that the transport system can keep up with the high-capacity demand of the feeding system.

Number of drive units

The number of drive units needed per circuit depends on the length of the circuit. The motor power depends on several factors.

Hoppers

! **IMPORTANT:** We recommend installing the same number of drive units and hoppers.

i **NOTE:** Customised configurations are available on request.

Speed	Total circuit length (m)	Chain speed (m/min)	Motor (kW)	Frequency (Hz)	# of motors/circuit	# of hoppers/circuit	Control
Single speed (1ph and 3ph)	0–300	20 (feeding and filling)	0.75	50	2	2	Softstarter per circuit
			0.9	60			
Variable speed (1ph)	0–300	20 (feeding) 36 (filling)	1.5	50	2	2	PWM inverter on each motor
			1.8	60			
Variable speed (3ph)	0–160	20 (feeding) 36 (filling)	1.5	50	1	1	Sinus inverter in CCP
			1.8	60			
Variable speed (3ph)	161–220	20 (feeding) 36 (filling)	1.1	50	2	2	Sinus inverter in CCP
			1.3	60			
Variable speed (3ph)	221–300	20 (feeding) 36 (filling)	1.5	50	2	2	Sinus inverter in CCP
			1.8	60			

Feed intake boots

! **IMPORTANT:** We recommend installing the same number of drive units and feed intake boots.

i **NOTE:** Customised configurations are available on request.

Speed	Total circuit length (m)	Chain speed (m/min)	Motor (kW)	Frequency (Hz)	# of motors/circuit	# of feed intake boots/circuit	Control
Single speed (1ph and 3ph)	0–300	20 (feeding and filling)	0.75	50	2	2	Softstarter per circuit
			0.9	60			
Variable speed (1ph)	0–300	20 (feeding) 36 (filling)	1.5	50	2	2	PWM inverter on each motor
			1.8	60			
Variable speed (3ph)	0–180	20 (feeding) 36 (filling)	1.5	50	1	1	Sinus inverter in CCP
			1.8	60			
Variable speed (3ph)	181–240	20 (feeding) 36 (filling)	1.1	50	2	2	Sinus inverter in CCP
			1.3	60			
Variable speed (3ph)	241–300	20 (feeding) 36 (filling)	1.5	50	2	2	Sinus inverter in CCP
			1.8	60			

Speed

It is possible to opt for variable speed. In that case, the speed regulator can be installed in two different places:

- On the motor in the house (only available for 1ph input voltage)
- In the service room



DANGER: Due to the long distance between CCP and motors, it is technically not possible to use a PWM inverter in combination with EMC filters and shielded cables. Please contact Roxell for support.

There are two speed ranges:

Speed range	Use	Time
High speed	To distribute feed into the system.	Circuit filling time = 28–36 m/min
Low speed	To continue distributing feed while allowing the birds to eat from the trough.	Refill time = 16–22 m/min



NOTE: You can set a feeding cycle with the iQon computer: See Software Guide iQon and House Chart.

Recommendation: To minimise bird migration and stress, it is necessary to distribute the first feed within 4 minutes. The optimal speed to achieve this is 36 m/min. This should be done in the dark.

In case of a daily winching system, this initial filling is done at high speed while the system is still winched up. The system is then winched down to eating height and the rest of the feed is distributed at a slow speed of 20 m/min.

Supported/suspended circuit


The chain feeding system can be:


- Supported on legs
- Suspended with motorised or hand-operated winch
- Suspended with daily winch

Supported on legs

The complete chain feeding system can be installed on legs. This implies that you will have to disassemble the system after each flock to clean the house thoroughly.


To prevent feed wastage and allow birds to eat comfortably, it is important to adjust the circuit height according to the birds' development. A correct circuit height also reduces the risk of floor eggs.


 **IMPORTANT:** Ensure that the circuit is level with the floor.

 **NOTE:** It is also possible to use the supported circuit on legs in combination with suspension. In this case, the legs give an extra security that the system is level all over the house.

Suspended with motorised or hand-operated winch


The chain feeding system can be suspended and winched up/down with a motorised or hand-operated winch. This allows you to winch up the system when cleaning the house between flocks.

 **IMPORTANT:** Ensure that the circuit hangs level with the floor.

 **DANGER:** Ensure that the supply tubes are empty when winching after feeding.

 **DANGER:** Each of the winches has its intended use:

- The hand-operated winch is only suitable for height adjustment during the flock and for winching up for cleaning at the end of the flock.
- The motorised winch is suitable for height adjustment during the flock or daily winching for feeding/filling/cleaning controlled by an operator.

 **NOTE:** Only end limit switches on the winch drive unit are available, connected to a separate CP on the winch drive.

- The motorised winch is suitable for height adjustment during the flock or automatic daily winching for feeding/filling controlled by the iQon computer.

Capacity

There are 6 levels to set the feed capacity opening. We recommend that you check the opening daily to ensure it remains correctly set.

Feed capacity of feed intake boot and hopper*:

Level (position)	Feed in trough kg/m	Feed/bird g	Capacity 20 m/min** kg/h	Capacity 36 m/min** kg/h
1	0.65	49	780	1365
2***	0.85	64	1020	1785
3***	1.05	79	1260	2205
4	1.3	98	1560	2730
5	1.6	120	1920	3360
6	1.9	143	2280	3990

* Condition: 13.3 birds/m

** Capacity calculated on feed density of 0.7 kg/dm³

*** Highly recommended to use level 2 and 3

Directions for operating the system

First use of the system

i **NOTE:** The oil on the new chain and troughs slows up the feed transport at the beginning.

1. At first startup, fill the new system with doses of 5 kg feed until there is about 25 kg feed in the system.

⚠ **DANGER:** Never put your hands into the feed intake boot while filling the system.

2. Run the system until the feed is distributed.
3. Repeat steps 1 and 2 until the whole circuit is filled. This way you:
 - Test the system and ensure that the circuit has been properly installed.
 - Become used to the system.
 - Test if the chain tension is correct. If not, see [Tensioning and replacement of the chain \(page I-15\)](#).

i **NOTE:**

- Too high tension: Chain runs in shocking or discontinuous way.
- Too low tension: Chain bounces up after the drive units.

i **NOTE:** If you find small traces of rust either on the inside of the troughs or on the chain, we recommend mixing the first 5 kg of feed with $\pm \frac{1}{4}$ l corn oil. This will prevent noise and trembling when starting up.

i **NOTE:** Bring the house with the litter to the right temperature at least 24 hours before placing the birds.

Practical data for using the system in the production period

The grille on top of the trough allows separate feeding of cockerels and hens.

Before the birds enter the house

- Run the system and check for problems. In case of problems, it is important to address them before the birds arrive.
- Ensure that the circuits hang securely and level.
- Ensure that the feed intake boots and hoppers are set in the correct position.
- Ensure that no bolts have come loose.
- Check the supply system for leaks or blockages.
- Check the chain tension.
- Ensure that there is nothing left in the trough that could block the system.
- In case of hoppers, ensure that they are clean and dry.
- Calibrate the weigher. Accurate weighing of feed is crucial to prevent over- or underfeeding of the flock.
- Set the capacity regulator correctly.

During production

- Observe the birds' eating behaviour on a daily basis to ensure that cockerels and hens are not eating from each other's feed and that the feeding systems are hanging at the right height.
- Gradually increase the position of the troughs to the appropriate eating height.
- Ensure that feed distribution is done properly and that the capacity is set correctly.
- Check daily for damages or anomalies.

Operation of the system

Keep the following in mind when setting the times:

Time needed for the circuit to complete one complete round = circuit length : speed (m/s)

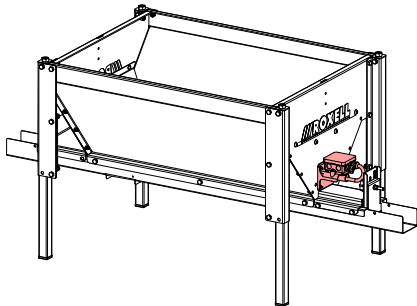
This time is to be determined upon installation:

- Option 1: Determine a circuit filling time that is long enough to distribute all the feed. This is only possible at the start of a flock.
- Option 2: Determine a refill time/pause time cycle (recommended).

Hoppers

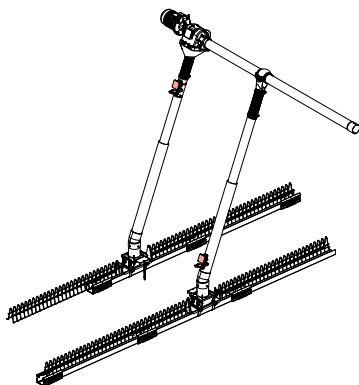
All hoppers have a minimum sensor that determines when the circuits stop running. Both hoppers must be empty before the circuits stop within the time set in iQon.

i NOTE: If the sensor is covered with feed, the hopper will not be filled.





Feed intake boot


- **With motorised or hand-operated winch:** Every last drop tube of the supply Flex-Auger has a maximum sensor that determines when feed should be supplied from the weigher/bin.
- **With automatic daily winch:** Every last drop tube of the supply Flex-Auger has a minimum sensor that determines when the circuits stop running and a maximum sensor that determines when feed should be supplied from the weigher/bin.



Cleaning


 **DANGER:** Use protective gloves.

 **DANGER:** Beware of rotating parts while cleaning the system. Never put your hands in the corner wheels.


 **DANGER:** Keep the grille on the feed trough for extra safety.

Before you start cleaning:

1. Open the cleaning slide.

 **DANGER:** Opening the cleaning slide while the chain is running may result in your fingers being cut off if you enter the opening from below. Use protective gloves.

2. Remove residual feed by running the system.
3. Remove the corner wheel cover and gear wheel box cover.
4. Remove the drop tubes from the system.
5. In case of hoppers: remove the cover and all hopper extensions.
6. Cover the motors with a plastic sheet.

 **CAUTION:** Motors and switches are rated IP55. This means that they can resist splashing water, but **not** a high-pressure cleaner.


Clean the trough with a high-pressure cleaner:

1. Soak.
2. Foam.
3. Clean while the system is running.
4. In case of hoppers: remove cover and all extensions.

 **CAUTION:** If you want to use an aggressive agent*, please contact your supplier first.

*Gaseous formaldehyde (formalin), liquid caustic soda or solution of caustic soda, hypochlorite or chlorine water and cresols are very corrosive and will quickly damage the installation.

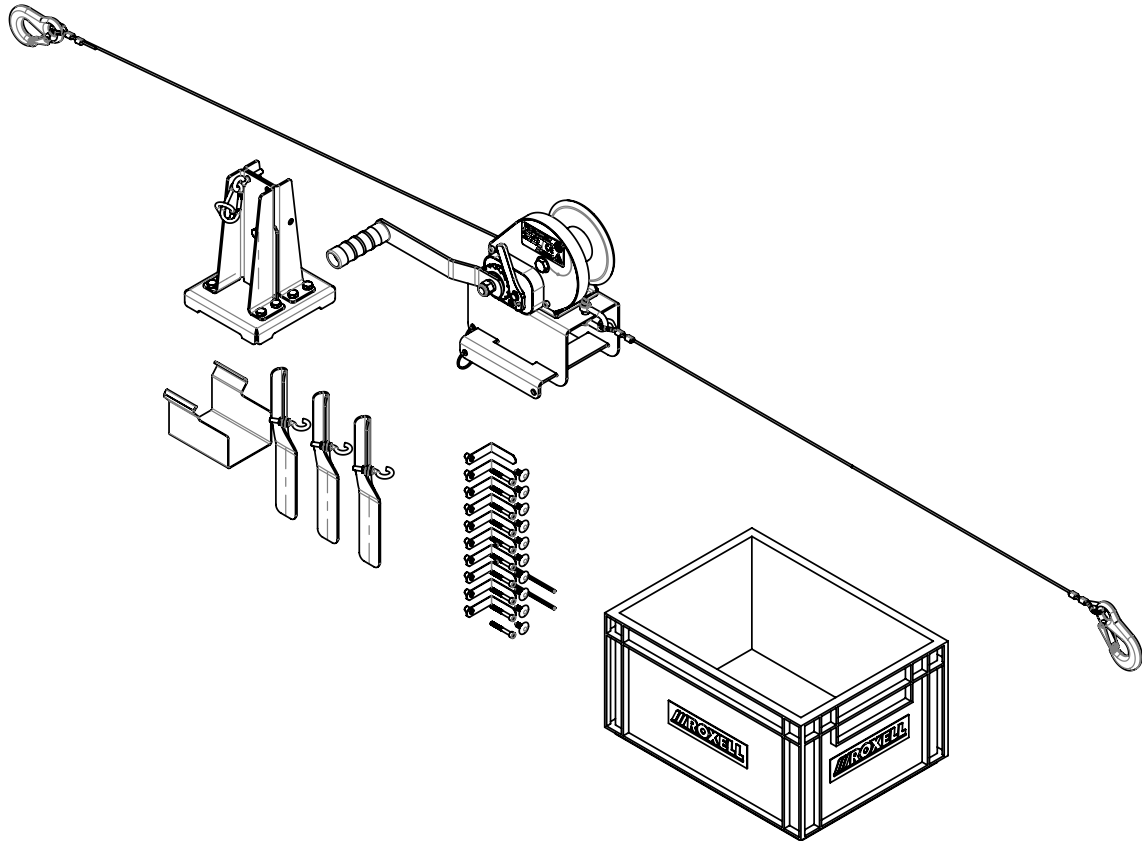
1. Check which combination of products is approved.
2. Check the specifications of the supplier(s).
3. Follow the instructions of the supplier(s).

 **TIP:** Hang the **House Chart** at a spot inside the house where it catches the eye.

Installation kit

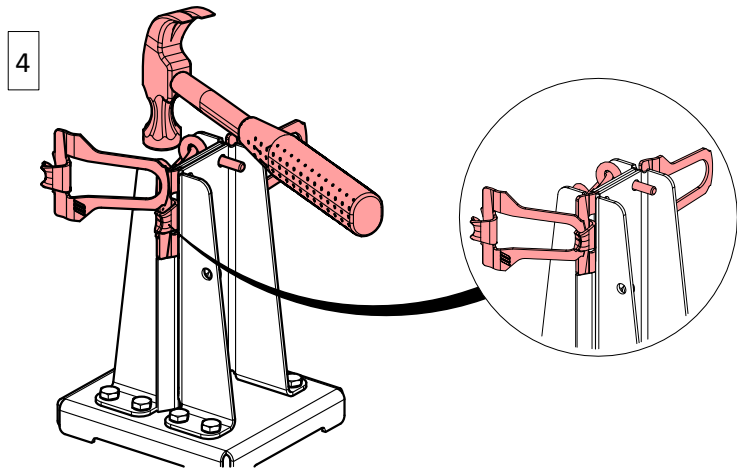
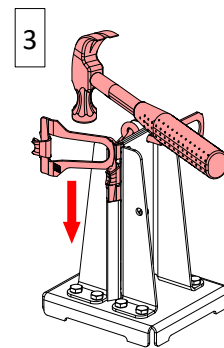
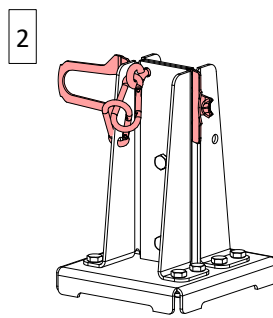
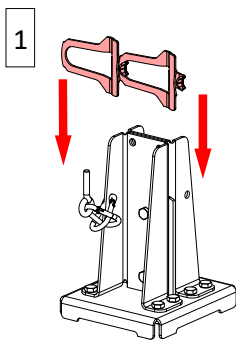
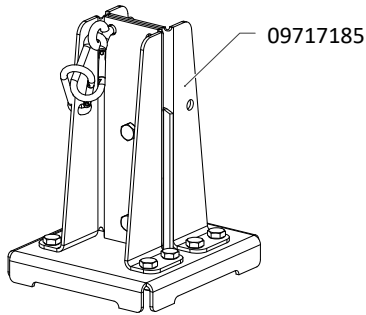
You will need the installation kit (09717209) to:

- connect and disconnect the chain links (chain mounting tool)
- tension the chain (chain tensioner tool)
- cut the trough (trough cutting tool)
- place and remove the grille (grille mounting tool set)
- replace the shear pin (shear pin repair set)



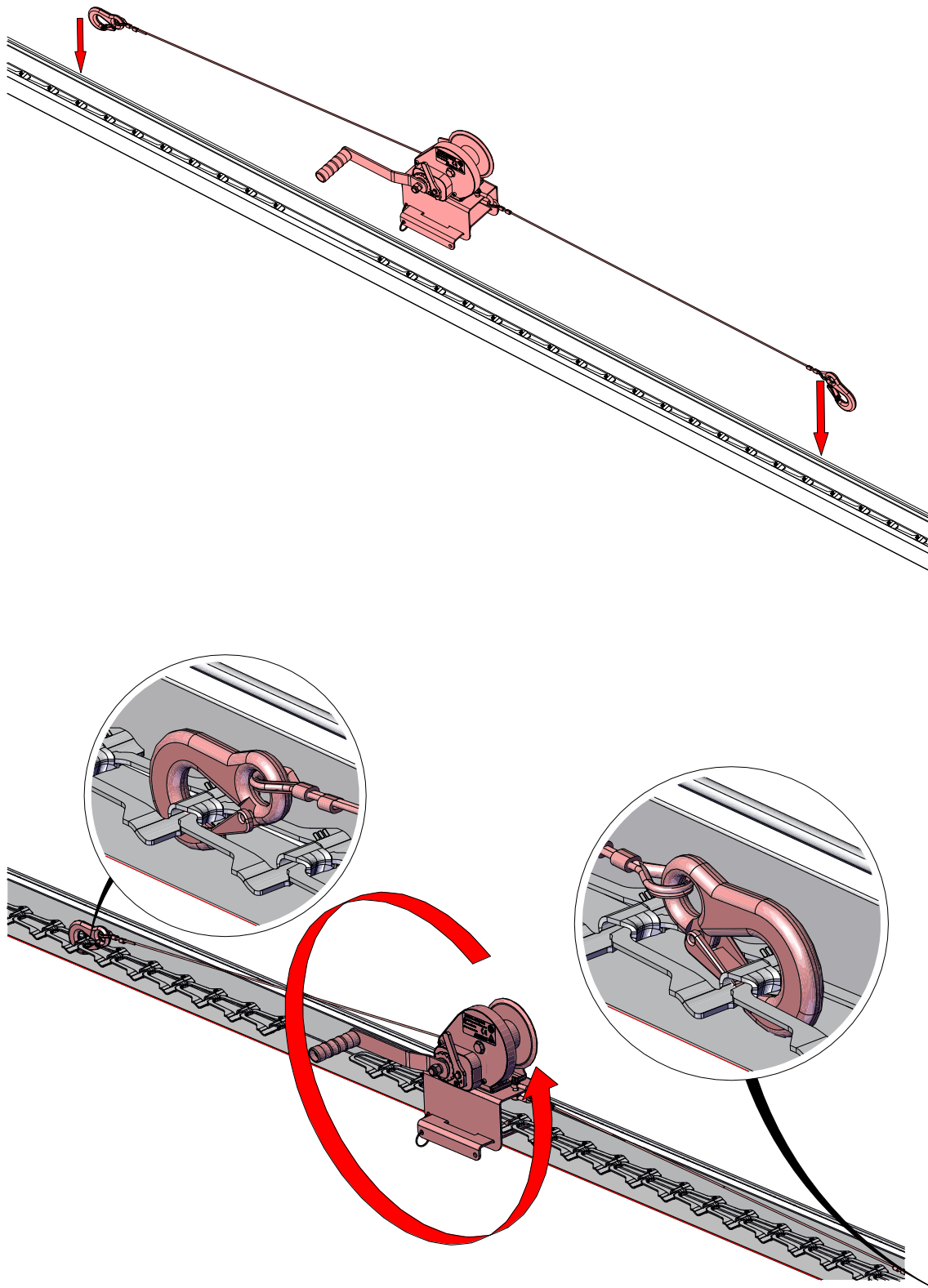
Connection or disconnection of the chain links

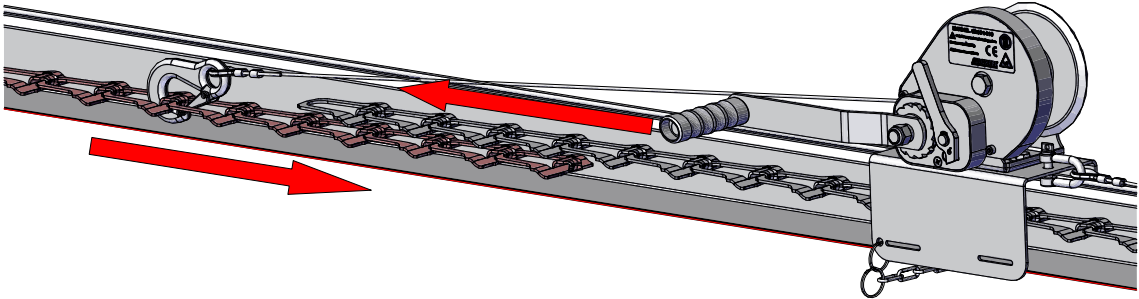
i **NOTE:** Use the chain mounting tool included in the installation kit (see [Installation kit \(page I-13\)](#)).



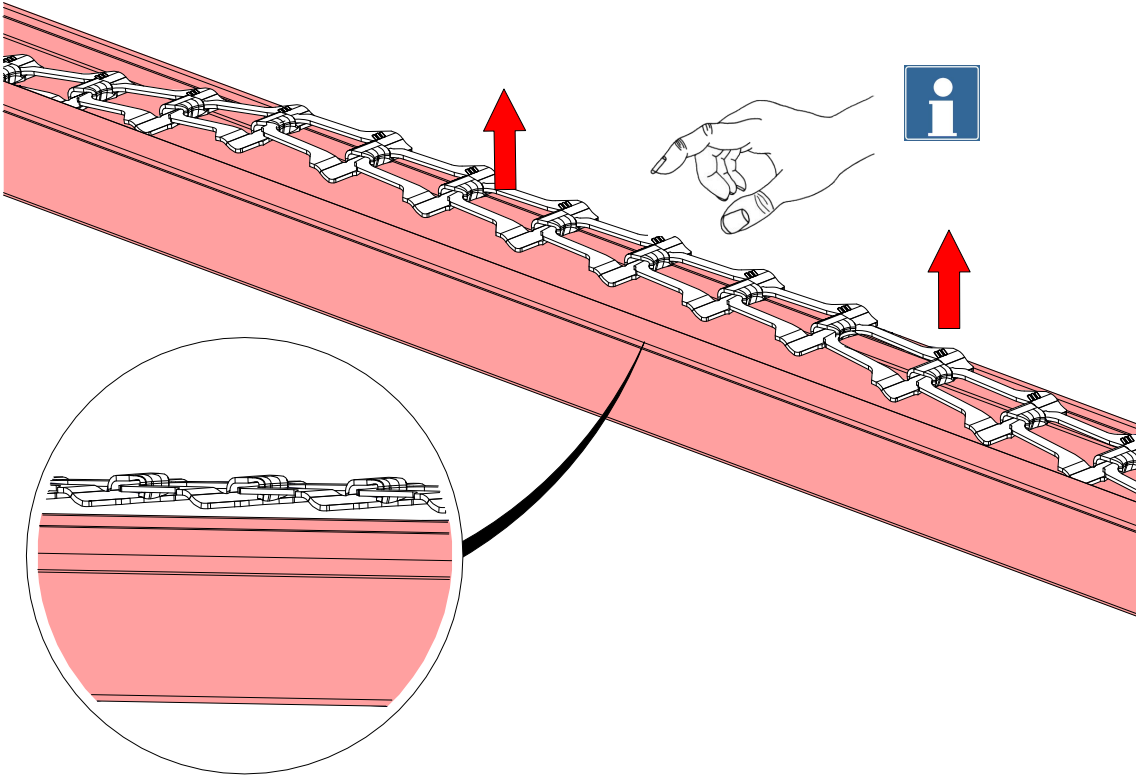
Tensioning and replacement of the chain

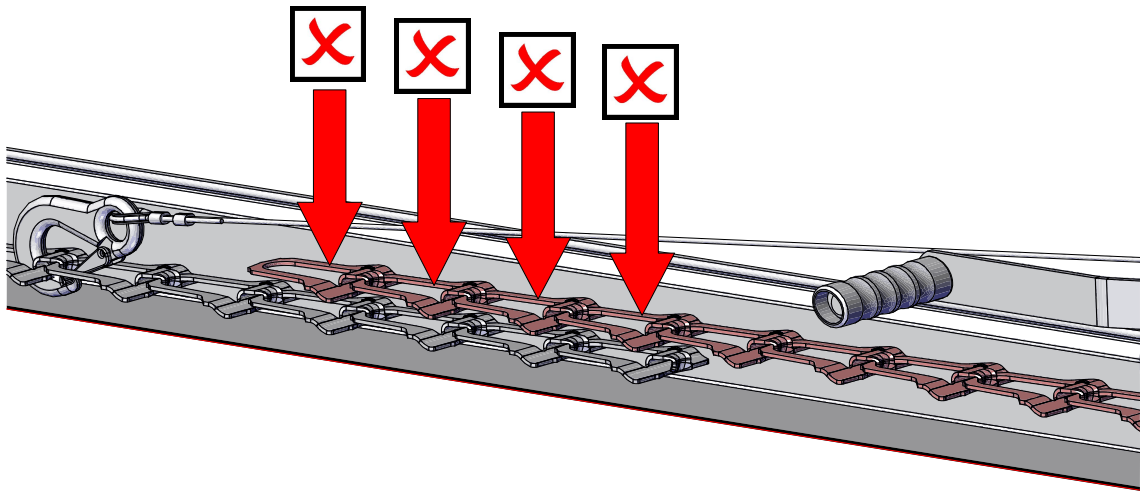
i **NOTE:** To tension the chain, use the chain tensioner tool included in the installation kit (see [Installation kit \(page I-13\)](#)).



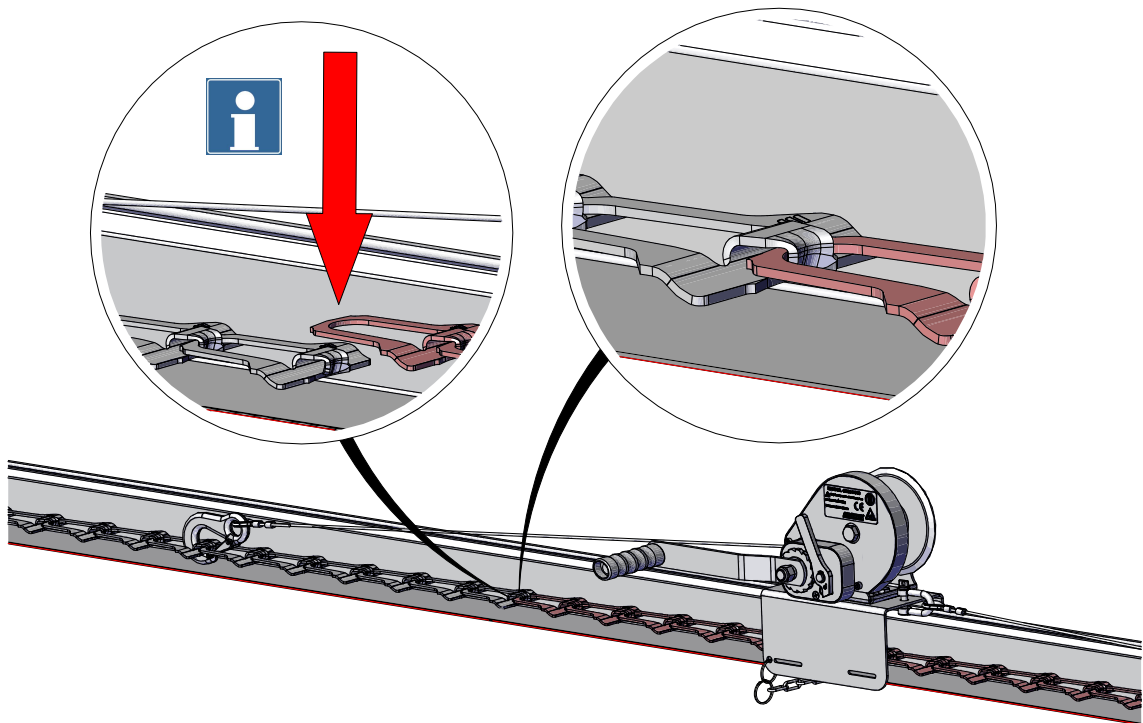


i **ATTENTION:** Check weekly the chain tension.



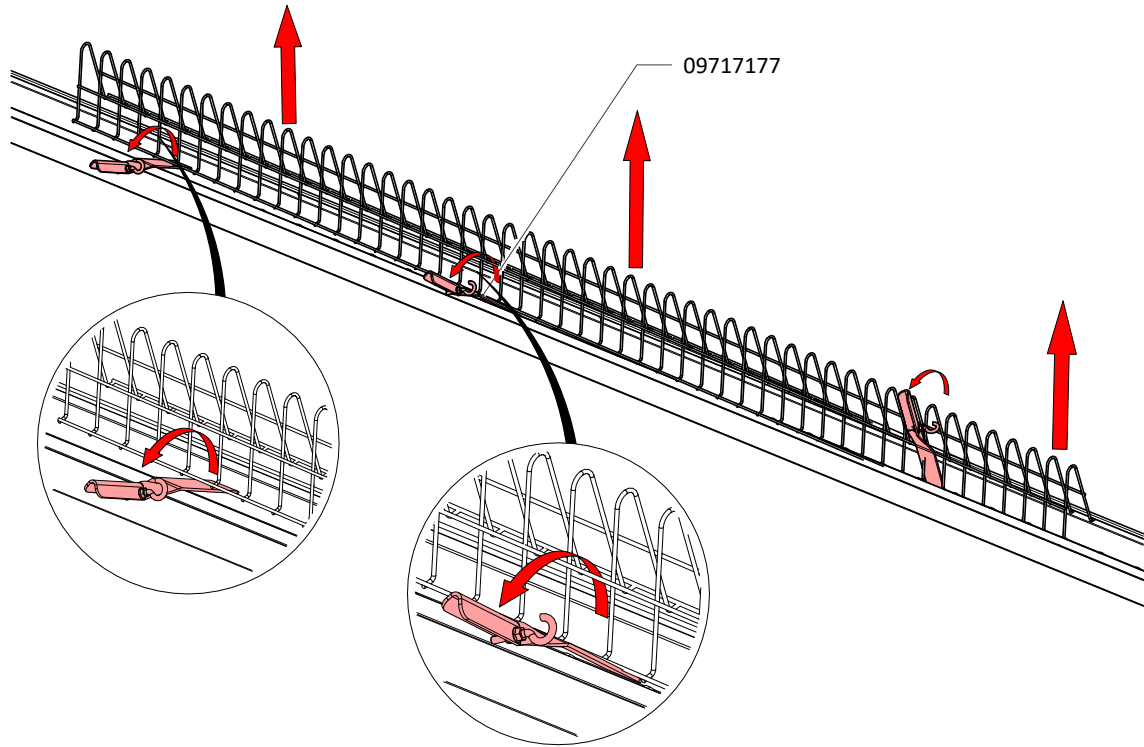


i **NOTE:** To connect or disconnect the chain links, use the chain mounting tool included in the installation kit (see Connection or disconnection of the chain links (page I-14)).



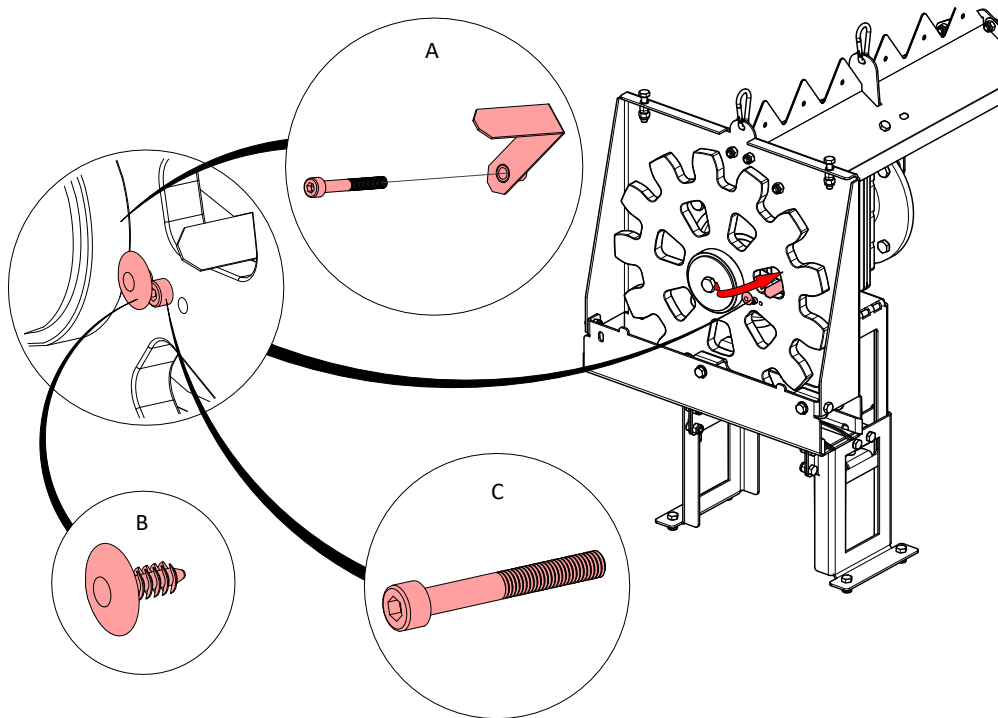
Removal of the grille

i **NOTE:** Use the grille mounting tool set included in the installation kit (see [Installation kit \(page I-13\)](#)).



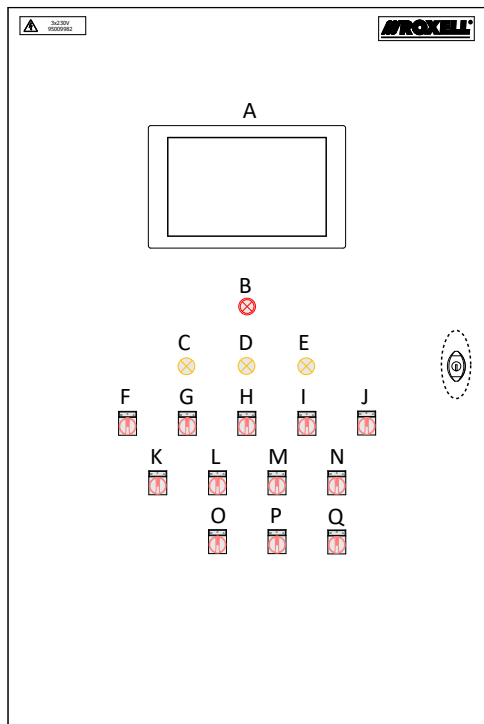
Replacement of the shear pin

i **NOTE:** Use the shear pin repair set included in the installation kit (see [Installation kit \(page I-13\)](#)).




Reference	Description
A	Attachment with nut
B	Safety cap
C	Shear pin

Door components on CCP



Reference	Description
A	Touchscreen
B	Safety alarm
C	Day buffer empty
D	Male buffer 1 empty
E	Male buffer 2 empty
F	FA female main bin to weigher
G	FA male main bin to weigher
H	FA weigher to day buffer
I	FA weigher to male buffers
J	FA day buffer to feed system females
K	Male feeding system 1
L	Male feeding system 2
M	Male feeding system 3
N	Male feeding system 4
O	Light clock 1
P	Water clock 1
Q	Automatic outlet male buffer 1

Maintenance instructions

 **DANGER:** Turn off the main switch first. Ensure you use personal protective equipment (protective gloves, anti-slip safety shoes, safety glasses, dust mask...).

 **ATTENTION:** Actions on a grey background must be done by a technically trained person.

Concerned part	Maintenance work	Every flock	Weekly	3-monthly	Yearly
Drive unit					
	Make the fan dust-free.			X	
	Check for possible damage to the electrical wiring.				X
	Clean the gear housing.				X
	Check for possible wear or damage to the drive gear and guidings.	X			
Feed intake boot					
	Clean.	X			
	Check the sensor, if applicable.	X			
	Check if the feed return plate is not blocked.				X
Hopper					
	Clean.	X			
	Check the sensor, if applicable.	X			
	Check if the feed return wheel is turning properly.				X
Corner wheels					
	Check for possible wear of the wheels.				X
	Check for possible wear of the guidings.				X
	Check if the bearings are not blocked.				X
Chain					
	Check the chain tension on running and filled circuit. See Tensioning and replacement of the chain (page I-15) .		X		
Suspension (hand-operated, motorised and daily winch)					
	Check the operation of the winch. See Maintenance instructions – winching systems (page I-22) .	X			
	Check the connection of the cables.			X	
	Check the connection of the pulleys.			X	
	Check the suspension of the troughs and motors.			X	
	Check manually the minimum and maximum position.				X
	Check if the troughs are level.				X

Maintenance instructions – winching systems




DANGER: Turn off the main switch first. Ensure you use personal protective equipment (protective gloves, anti-slip safety shoes, safety glasses, dust mask...).




ATTENTION: Actions on a **grey background** must be done by a technically trained person.



- Remove all dirt and dust after each flock or at least every 6 months.
- Do not use water to clean the motorised winch.
- Use grease to lubricate moving parts.
- Lubricate all rotating winch components after cleaning (chain coupling, couplings, bearings...).
- Lubricate the switch assembly and sliding plate.
- Ensure that the winch turns smoothly on the thread of the main shaft.
- Ensure that the winch cable winds properly (cables next to each other) on the main shaft.
- Check the suspension cable at each flock or every 6 months.
- Check the feeding/filling/cleaning switches of the switch assembly.
- Remove dust and dirt from the switch assembly for motorised winching.

Troubleshooting guide

 **DANGER:** Turn off the main switch first. Ensure you use personal protective equipment (protective gloves, anti-slip safety shoes, safety glasses, dust mask...).

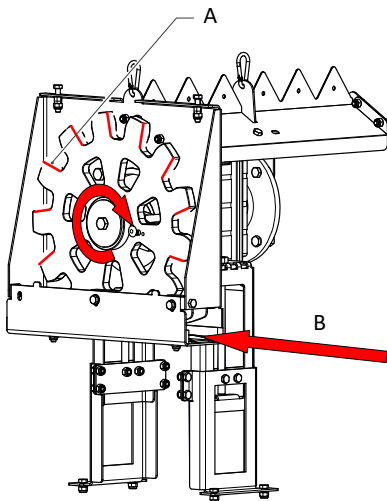
 **DANGER:** If the chain of the circuit is blocked as a result of one of the issues mentioned in the table below, it will be under tension. Be extremely careful and proceed as described under [Tensioning and replacement of the chain \(page I-15\)](#).

 **ATTENTION:** Actions on a grey background must be done by a technically trained person.

Issue	Possible cause	Corrective action
Circuit does not run.	<ul style="list-style-type: none"> Panel with <u>time clock and preset counter</u>: wrong programming of time clock or preset counter or no programming at all. Panel with <u>computer</u>: wrong programming of computer or no programming at all. 	Check the programming.
	Broken shear pin.	Replace the shear pin (see Replacement of the shear pin (page I-19)).
	Operation button of circuit in position "0".	 NOTE: This is not a breakdown, but it prevents automatic operation. Put in position "I".
	Turned off motor without being overloaded.	<ol style="list-style-type: none"> Check the fuses. Check the adjustment of the motor protection. Reload the motor protection and check its proper operation.
	Overloaded motor:	
	<ul style="list-style-type: none"> Too much feed in the troughs 	Let the birds empty the troughs and adjust the feeding program.
	<ul style="list-style-type: none"> Not properly tightened connector at the feed intake boot or trough. 	Firmly tighten the connector.
	<ul style="list-style-type: none"> Blocked corner wheel inside the feed intake boot. 	Disconnect the corner wheel or replace, if necessary.
	<ul style="list-style-type: none"> Foreign object blocks the trough. 	<ol style="list-style-type: none"> Check for objects in the trough. Remove the object.
	Operation button of one or more circuits in position "0".	 NOTE: This is not a breakdown, but it prevents automatic operation. Put in position "I".
Circuit stops prematurely/does not stop in time.	Wrong programming of the time clock.	Adapt the time clock programming.
	Wrong programming of the timer.	Adapt the timer programming.
Circuit restarts as soon as a cycle is finished.	Wrong programming of the repeat timer or no programming at all.	Adapt the repeat timer.

Issue	Possible cause	Corrective action
Chain runs erratically.	<ul style="list-style-type: none"> When using the system for the first time. 	This is not a breakdown and will improve after a few days.
	<ul style="list-style-type: none"> Too short chain. 	Adjust the chain length.
	<ul style="list-style-type: none"> Too long circuit. 	Check the maximum length and install an additional drive unit, if necessary.
	<ul style="list-style-type: none"> Wrong suspension of the circuit. 	<ol style="list-style-type: none"> 1. Realign the circuit. 2. Check all the suspensions and readjust where needed.
Chain runs in shocking or discontinuous way.	Too high chain tension.	Adjust the chain tension (see Tensioning and replacement of the chain (page I-15)).
Chain piles up after the drive units.	Too low chain tension.	Adjust the chain tension (see Tensioning and replacement of the chain (page I-15)).
Chain moves up with the gear wheel instead of sliding through.	Wearing of the gear wheel on the grip sides (see Wearing of the gear wheel (page I-24)).	Turn the gear wheel.
Shear pin breaks too frequently.	<ul style="list-style-type: none"> Circuit over-spec. 	Check the circuit length.
	<ul style="list-style-type: none"> Foreign object blocks the corner wheel. 	<ol style="list-style-type: none"> 1. Check for objects in the corner wheel. 2. Remove the object.
The sensor doesn't work.	Malfunctioning sensor.	Adjust the sensor. See Sensor adjustment instructions (page I-25) .

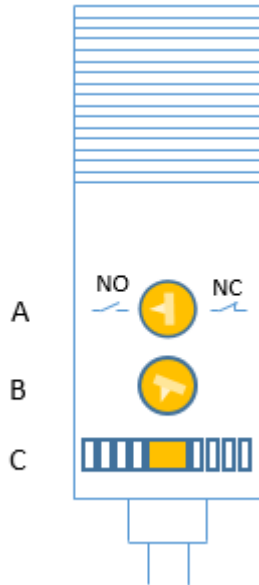
Wearing of the gear wheel



Reference	Description
A	Grip side
B	Running direction of the feed chain

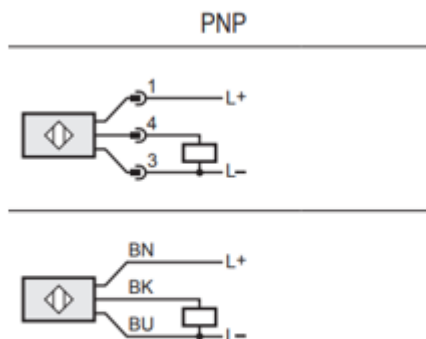
Sensor adjustment instructions

Sensor setup



Reference	Description
A	Switching between Normal Open (NO) or Normal Closed (NC)
B	Tuning of the sensitivity: <ul style="list-style-type: none"> • Clockwise: to reduce the sensitivity • Counterclockwise: to increase the sensitivity <p>i ATTENTION: Always rotate slowly.</p>
C	Visualisation of the ledbar: <ul style="list-style-type: none"> • Sensor value: 8 green led lights (4 left and 4 right) • Output contact: 1 orange led light

Sensor connection



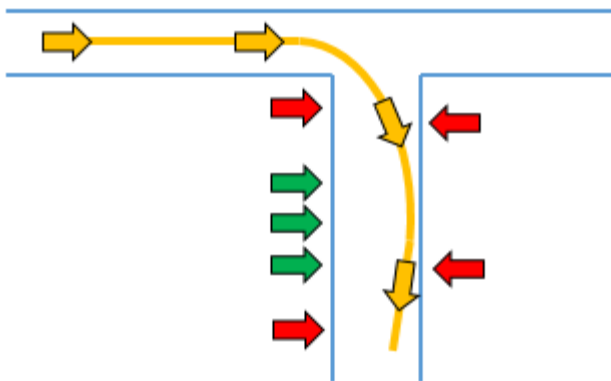
BN = brown, BK = black, BU = blue
 PIN 4 / BK: OUT / IO-Link

Sensor location

If the sensor is installed on a drop tube, ensure that the sensor is placed on the same side as where the feed arrives (orange) and as far as possible from the feed flow.

i **NOTE:** You can change the position of the sensor by loosening the tie-wrap(s) and rotating or moving up/down the tube.

i **NOTE:** You can make the feed flow more visible by placing a lamp behind the tube during the sensor tuning.



Colour	Sensor location
Red	Not OK
Green	OK

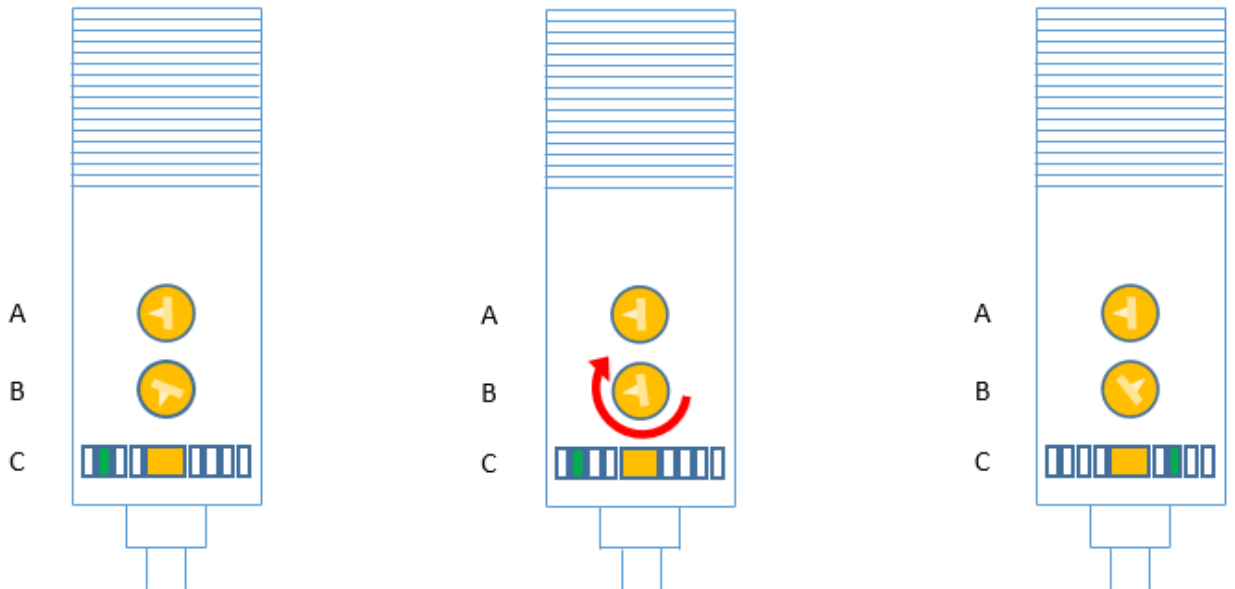
Sensor tuning

i NOTE: Sensor tuning is factory set. In case of malfunctioning, follow the steps described below.

1. Ensure that the sensor is properly installed and that there is no feed in front of the sensor.
2. Slowly rotate button B with a small screwdriver until the 6th green led lights up.

i NOTE: Always work in increasing order: 1>2>3>4>5>6, not 8>7>6.


i NOTE: The orange led light visualises the output signal. Depending on the sensor type, this behaviour can have a delay (0 - 5 - 30 - 45 s).




3. Ensure that the sensor is tuned in such a way that the two states are symmetrical around the output status (orange) led light.

NOK	NOK	OK	OK
1:	1:	1:	1:
2:	2:	2:	2:

Troubleshooting guide – winching systems

 **DANGER:** Turn off the main switch first. Ensure you use personal protective equipment (protective gloves, anti-slip safety shoes, safety glasses, dust mask...).

 **DANGER:** Ensure that you first remove any element that may obstruct the safe operation of the system.

 **DANGER:** Not respecting the instructions can cause physical injury or material damage.

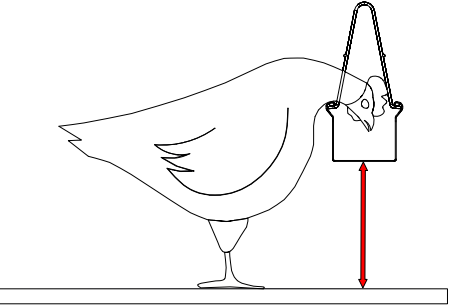
 **ATTENTION:** Actions on a **grey background** must be done by a technically trained person.

Issue	Possible cause	Corrective action
Limit switch does not work.	Defective limit switch.	Replace the limit switch.
	No power supply to limit switch.	Restore the power supply. If the limit switch still does not work, please ask a technically trained person.
	Dirty housing.	Clean the motorised winch dryly. If the limit switch still does not work, please ask a technically trained person.
Winching up does not work.	Too heavy load.	Limit the load to max. 300 kg.
	Blocked cable.	Release the cable.
	Broken motor.	Replace the motor.
	Limit switch for cleaning is touched.	Winch can only go down.
Winching down does not work.	Full drop tubes.	Empty the drop tubes manually.
	Blocked cable.	Release the cable.
Motor does not work.	Limit switch for feeding is touched.	Winch can only go up.
	Overloaded motor.	Check the CCP or motor.
Cable is damaged.	Too hot motor.	Check the motor.
	Cable touches material.	Replace the cable and prevent wearing over hard material.
	Suspension should be done with single/double diversion.	Change the suspension.



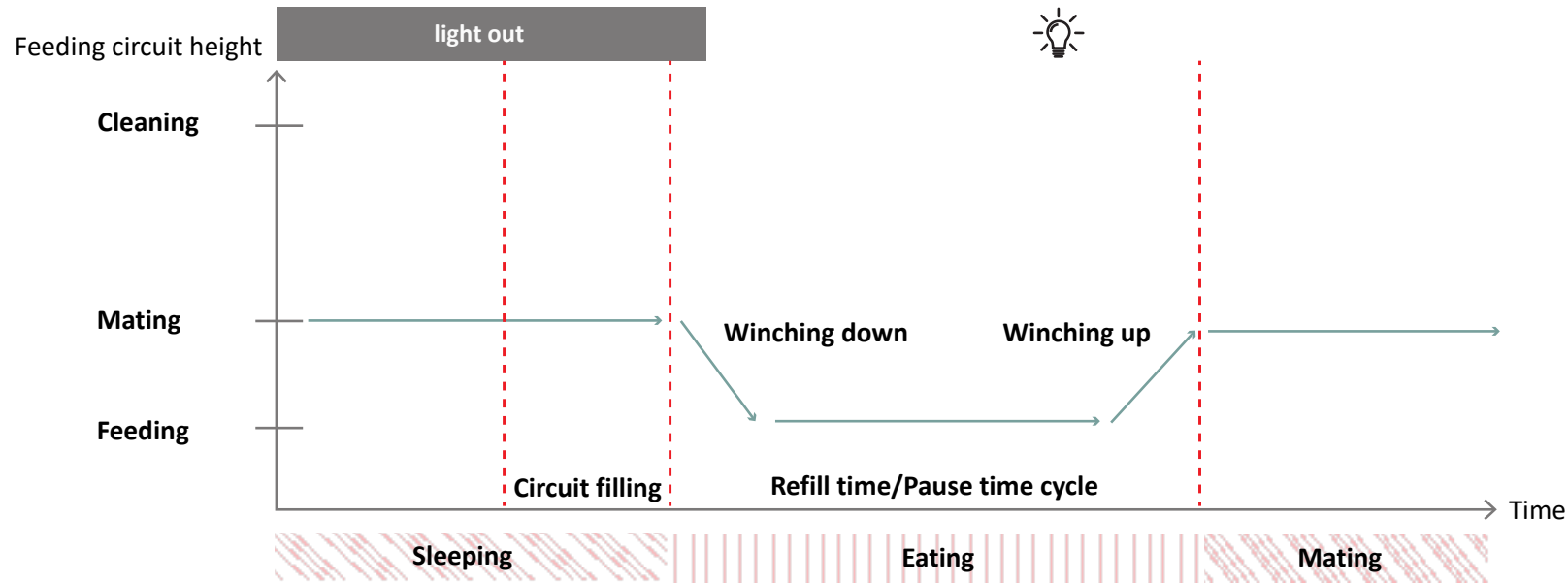
House Chart

Directions for operating the system

Before the birds enter the house	Settings for automatic feeding
<ul style="list-style-type: none"> • Run the system and check for problems. In case of problems, it is important to address them before the birds arrive. • Ensure that the circuits hang securely and parallel. • Ensure that the feed intake boots are set in the correct position. • Check the chain tension. • Ensure that there is nothing left in the trough that could block the system. • Set the capacity regulator correctly. 	<p>See Software Guide iQon.</p>
Production period	Cleaning
<ul style="list-style-type: none"> • Observe the birds' eating behaviour on a daily basis to ensure that cockerels and hens are not eating from each other's feed and that the feeding systems are hanging at the right height. • Gradually increase the position of the troughs to the appropriate eating height. • Ensure that feed distribution is done properly and that the capacity is set correctly. • Check the chain tension. • Check daily for damages or anomalies. <p>Circuit height:</p> 	<ol style="list-style-type: none"> 1. Open the cleaning slide. 2. Remove residual feed by running the system. 3. Remove the corner wheel cover and gear wheel box cover. 4. Cover motors with a plastic sheet. <p>⚠ CAUTION: Motors and switches are rated IP55. This means that they can resist splashing water, but not a high-pressure cleaner.</p> <p>⚠ CAUTION: If you want to use an aggressive agent*, please contact your supplier first.</p> <p>*Gaseous formaldehyde (formalin), liquid caustic soda or solution of caustic soda, hypochlorite or chlorine water and cresols are very corrosive and will quickly damage the installation.</p> <ol style="list-style-type: none"> 1. Check which combination of products is approved. 2. Check the specifications of the supplier(s). 3. Follow the instructions of the supplier(s).



Daily winching of the chain feeding system



Activity	Description
Winching down	The feeding system is winched down from mating position to feeding position.
Circuit filling	The feed is distributed at high speed (36 m/min). The duration of the circuit filling can be set in iQon and depends on the circuit length. The circuit filling time is equal to the time needed for the circuit to complete one complete round. i NOTE: To be set once for each house.
Refill time	The feed is distributed at low speed (20 m/min). The birds are able to eat in the meantime. The refill time can be set in iQon.
Pause time	The period in which the system is not running and the birds can eat from the trough. The pause time can be set in iQon.
Refill time/Pause time cycle	The duration of the refill time and pause time depends on the age and eating speed of the birds. The cycle will be repeated until the daily amount of feed is completely distributed among the circuits.
Winching up	The feeding system is winched up to mating position.



Inbouwverklaring betreffende niet voltooide machines (Richtlijn 2006/42/EG, Bijlage II.1.B)
Declaration of incorporation of partly completed machinery (Directive 2006/42/EC, Annex II.1.B)

Fabrikant/Manufacturer:
Roxell BV, Industrielaan 13, 9990 Maldegem
Tel: +32 50 72 91 72
Fax: +32 50 71 67 21

Verklaart geheel onder eigen verantwoordelijkheid dat het product:
Declares on its own responsibility that the product:

Fortena / Bridomat Nr: 003... / 007...
Automatisch trog voedersysteem voor vleeskuikenouderdieren.
Automatic trough feeding system for Broiler breeders.

Waarop deze verklaring betrekking heeft, in overeenstemming is met:

- de volgende richtlijnen: 2006/42/EG (Machinerichtlijn); 2014/30/EU (Elektromagnetische Compatibiliteit);
- de geharmoniseerde Europese Normen: EN ISO 12100:2010; EN ISO 13854:2019; EN ISO 13857:2019; EN IEC 60204-1:2018; EN IEC 61439-1:2011; EN IEC 61439-2:2011.

Het is verboden bovengenoemd product in gebruik te stellen voordat de machine waarin het wordt ingebouwd in overeenstemming met de bepalingen van de Machinerichtlijn is verklaard.

Tevens verbindt de fabrikant (of zijn gemachtigde) zich om op met redenen omkleed verzoek van de nationale autoriteiten de relevante informatie over deze niet voltooide machine door te geven. De wijze van doorgifte is digitaal. De wijze van informatieverzorging laat de intellectueel-eigendomsrechten van de fabrikant van de niet voltooide machine onverlet.

(NL)

Relating to this declaration, is in accordance with

- The following directives 2006/42/EC (Machinery Directive); 2014/30/EU (Electromagnetic Compatibility).
- The harmonised European standards: EN ISO 12100:2010; EN ISO 13854:2019; EN ISO 13857:2019; EN IEC 60204-1:2018; EN IEC 61439-1:2011; EN IEC 61439-2:2011.

This product must not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the provisions of the Machinery Directive.

The manufacturer (or its agent) also undertakes, at the duly reasoned request of the national authorities, to provide the relevant information concerning this partly completed machinery. The method of transmission will be digital. The manner in which the information is provided does not prejudice the manufacturer's intellectual property rights concerning the partly completed machinery.

(EN)

00706200

Plaats, Datum / Place, Date: Maldegem, 01/12/2022

.....
Dhr. Gino Van Landuyt
Managing Director

"This part may only be filled out if all built-in subparts are delivered by Roxell"

EG-verklaring van overeenstemming (Richtlijn 2006/42/EG, Bijlage II.1.A)
EC declaration of conformity (Directive 2006/42/EC, Annex II.1.A)

Wij/We _____
(naam installateur/name fitter)

(volledig adres en land/complete address)

Verklaren geheel onder eigen verantwoording de
Declare completely on own justification that

(naam machine/name machinery) (nummer CE-label/number CE-label)

In een installatie te hebben ingebouwd geheel volgens de Roxell-voorschriften en in overeenstemming met de bepalingen van de Machinerichtlijn.
Has been incorporated in conformity with the provisions of the Machinery Directive and the prescriptions of Roxell BV.

(plaats, datum/place, date) (naam, handtekening/name, signature)

De EG-verklaring van overeenstemming/ inbouwverklaring betreft uitsluitend de machine of niet voltooide machine in de toestand waarin zij op de markt is gebracht, met uitsluiting van de later bijvoorbeeld door de verdeler en/of installateur en/of eindgebruiker toegevoegde componenten en/of verrichte bewerkingen.

The EC-declaration of conformity / declaration of incorporation relates exclusively to the machinery or partly completed machine in the state in which it was placed on the market and excludes components which are added and/or operations carried out thereafter for instance by the distributor and/or the installer and/or the final user.



EG-verklaring van overeenstemming (*Richtlijn 2006/42/EG, Bijlage II.1.A*)
EC-declaration of conformity (*Directive 2006/42/EC, Annex II.1.A*)

Fabrikant/Manufacturer:
Roxell BV, Industrielaan 13, 9990 Maldegem
Tel: +32 50 72 91 72
Fax: +32 50 71 67 21

Verklaart geheel onder eigen verantwoordelijkheid dat het product:
Declares on its own responsibility that the product:

Winching system Nr: 00102368 / 00102087

Liersysteem voor voer- en drinklijnen; manueel en gemotoriseerd

Winching system for feed- and drink lines; manual and motorised

Nummer CE-label/number CE-label : _____

Waarop deze verklaring betrekking heeft, in overeenstemming is met:

- de volgende richtlijnen: 2006/42/EG (Machinerichtlijn); 2014/30/EU (Elektromagnetische Compatibiliteit);
- de geharmoniseerde Europese Normen: EN ISO 12100:2010; EN ISO 13854:2019; EN ISO 13857:2019; gemotoriseerd: EN IEC 60204-1:2018; EN IEC 61439-1:2011; EN IEC 61439-2:2011.

De EG-verklaring van overeenstemming / inbouwverklaring betreft uitsluitend de machine of niet voltooide machine in de toestand waarin zij op de markt is gebracht, met uitsluiting van de later door bijvoorbeeld de verdeler en/of installateur en/of eindgebruiker toegevoegde componenten en/of verrichte bewerkingen.

(NL)

Relating to this declaration is in accordance with

- The following directives 2006/42/EC (Machinery Directive); 2014/30/EU (Electromagnetic Compatibility).
- The harmonised European standards: EN ISO 12100:2010; EN ISO 13854:2019; EN ISO 13857:2019; motorised: EN IEC 60204-1:2018; EN IEC 61439-1:2011; EN IEC 61439-2:2011.

The EC-declaration of conformity / declaration of incorporation relates exclusively to the machinery or partly completed machine in the state in which it was placed on the market and excludes components which are added and/or operations carried out thereafter for instance by the distributor and/or the installer and/or the final user.

(EN)

Plaats, Datum / Place, Date: Maldegem, 01/01/2022

A handwritten signature in blue ink, appearing to read "G. Van Landuyt".

.....
Dhr. Gino Van Landuyt
Managing Director



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