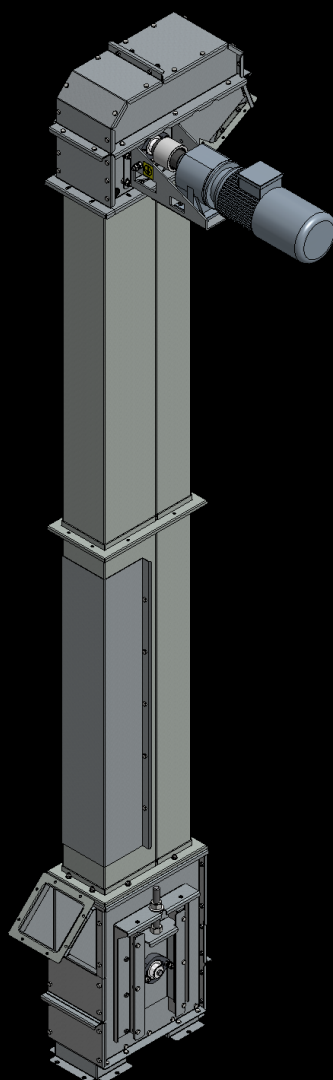


Manual Bucket elevator E11

Version 70519.1



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Introduction

JEMA AGRO A/S is a modern factory, which specializes in producing and delivering equipment for transport systems for grain, seeds and granulates.

Our current product range is the result of more than 60 years experience in machine development especially for the agriculture in close collaboration with our customers – and our company is highly regarded in the industry due to the quality and versatility of our products.

JEMA AGRO A/S conveyors and transport systems are compatible with ALL types of dryer- and silage systems.

IMPORTANT!

Please read these instructions carefully before assembly and use.

EU Declaration of conformity



The manufacturer: JEMA AGRO A/S
Kløservejen 2, Sahl
DK-8850 Bjerringbro
Tlf. +45 86 68 16 55

Hereby declares that:

Product: Bucket elevator
Type: E11
Year of production: 2013

- Conforms to the Machine directive 2006/42/EF with special reference to the directive appendix 1 regarding major health- and safety regulations regarding construction and production of the machines

The following standards have been applied:

EN ISO 12100-1:2005 Basic terminology and methodology
EN ISO 12100-2:2005 Technical principles
EN 1050:1997 Principles for risk assessment

- is in accordance with EMC-directive 04/108/EF of 15th December 2004 regarding electromagnetic compatibility.

Director Jens-Peter Pedersen

Title Name

17-05-2013

Date

Signature

A handwritten signature in black ink, appearing to be "Jens-Peter Pedersen", written over a horizontal line.

Conditions of use

JEMA AGRO A/S bucket elevators T53/T54/T55 have been constructed for transport of grain, granular materials and seed mix.

- Bucket elevators E11 can only be used for the product(s) specified in the contract.
- The electrical connections must be done by a qualified electrician.
- The bucket elevators E11 must be potential adjusted in accordance with the current local regulations
- The bucket elevator has been thoroughly controlled regarding maintenance, and a checklist has been drawn up containing regular cleaning- and maintenance intervals. If these intervals are not observed, the JEMA AGRO conditions for a trouble-free operation cease to exist and the warranty will be invalid.
- During installation, maintenance or repair the electric supply to the bucket elevator must be disconnected and secured against accidental reconnection.
- The user manual must be kept / be available in close proximity to the bucket elevators E11.

General information

Delivery

The bucket elevator is disassembled for shipment. Standard packing (pallet/wooden boxes, grid boxes, etc.) Regarding the actual transport there are no specific requirements apart from normal consideration.

The shipment includes the parts stated in the order confirmation.

Before installation and use, this manual must be read carefully.

Storage

There are no precautions regarding long-time storage.

After delivery the components must be kept in a suitable, dry storage area before installation.

Noise level

A noise level test was conducted for the bucket elevator. The level has been measured in a distance of 1 m from the elevator surface and at a height of 1.6 m from the floor level. During the test the bucket elevator was without any load, which is the operational state of maximum noise level.

The measured noise level is below 70 dB

Type Plate

The type plated is fitted on the drive station.



Konstruktion

The bucket elevator type E11 is built of standard elements that combined will easily fit into any grain conveyor system.

The bucket elevator is made of galvanized steel.

The bucket elevator consists of:

- Elevator head
- Elevator boot with spindles for belt tensioning
- 1.0 m extension with inspection door
- Cleaning door in both sides
- Inlet piece
- Elevator belt with buckets
- Extensions from 0.125 m to 2.5 m
- Gear motor

Extra inlet piece is available

Capacity

The table below shows the various density capacities:

Density	E11
	(7 m ³ /h)
650 kg. pr. m ³	4,55 t/h
700 kg. pr. m ³	4,90 t/h
750 kg. pr. m ³ (wheat)	5,25 t/h

*Measured in cleaned, storable material at a power supply of 50 Hz
The capacity varies according to the nature of the material.*

Technical specifications – power consumption

Bucket elevator E11 power consumption in kW:

	E11
	(7 m ³ /h)
1,1 kW	0 - 10 m.

Elevator head

The elevator head is delivered as a complete unit. The engine is delivered separately.

Elevator extension

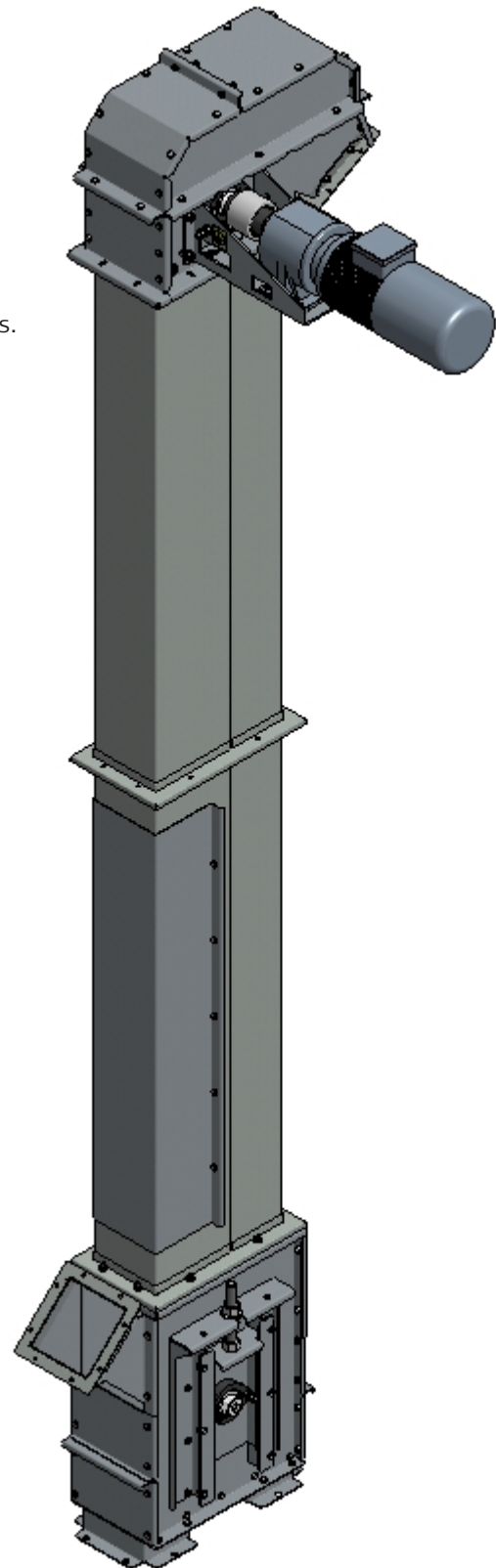
The extension is available in different lengths:

2,5 m. - 2,0 m. - 1,0 m. - 0,5 m. - 0,25 m. - 0,125m.

The elements can be combined for various heights with 0.125 m intervals.
Max height 10 m.

Elevator boot

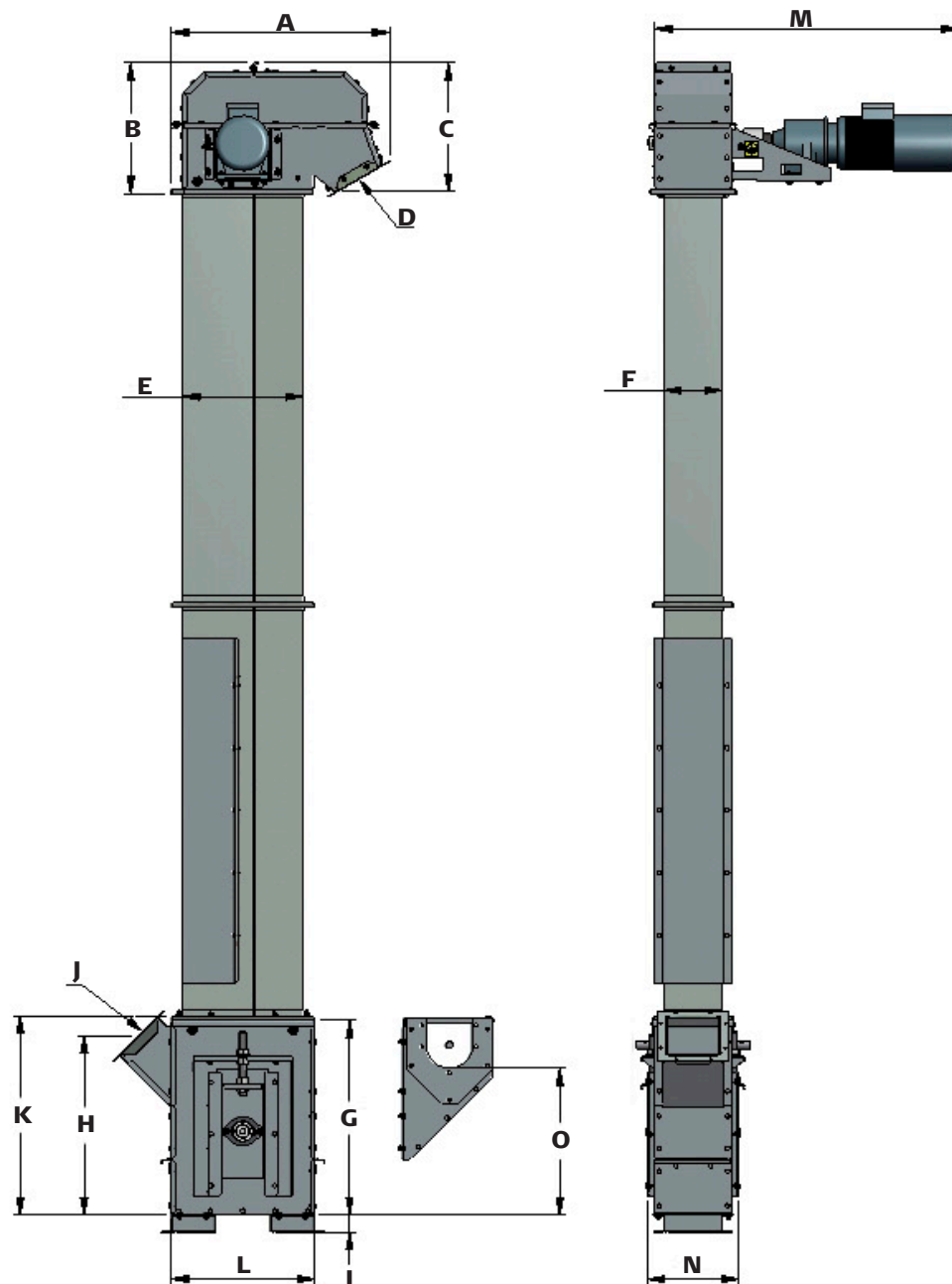
The elevator boot is delivered with spindles for belt tensioning in both sides and an inlet piece on the optional side.



Scale drawing E11

	A	B	C	D	E	F	G	H	I	J
E11	510	305	300	125x125	278	135	450	420	40	125x125

	K	L	M	N	O
E11	460	335	705	215	340



Upon receipt

Please check that all parts and components are included and check for possible transport damages.

NB: Check that the relevant supplier documentation is attached.

In case of missing documentation, please contact JEMA AGRO A/S – remember to state the order no.

Remember all necessary safety equipment before installation.

Please read this manual carefully before assembly or installation work begins.

Warning labels

The bucket elevator is fitted with warning labels.

Warning!

The inspection door and shields must not be opened or removed, when the machine is working.



Foundation

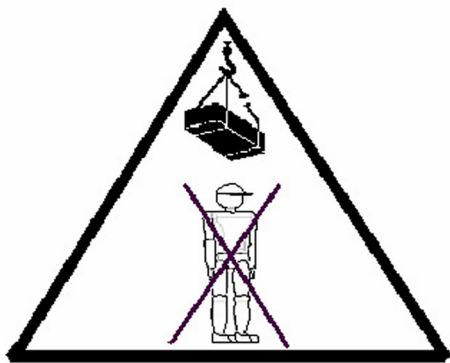
The bucket elevator should be placed on a sufficiently hard, level surface.

Lifting equipment

Make sure to have the required SWL-approved lifting equipment/crane, required for the actual job.

The lifting equipment must be approved to carry the load in question. The load on the individual components can be seen under "Parts list E11" in this manual.

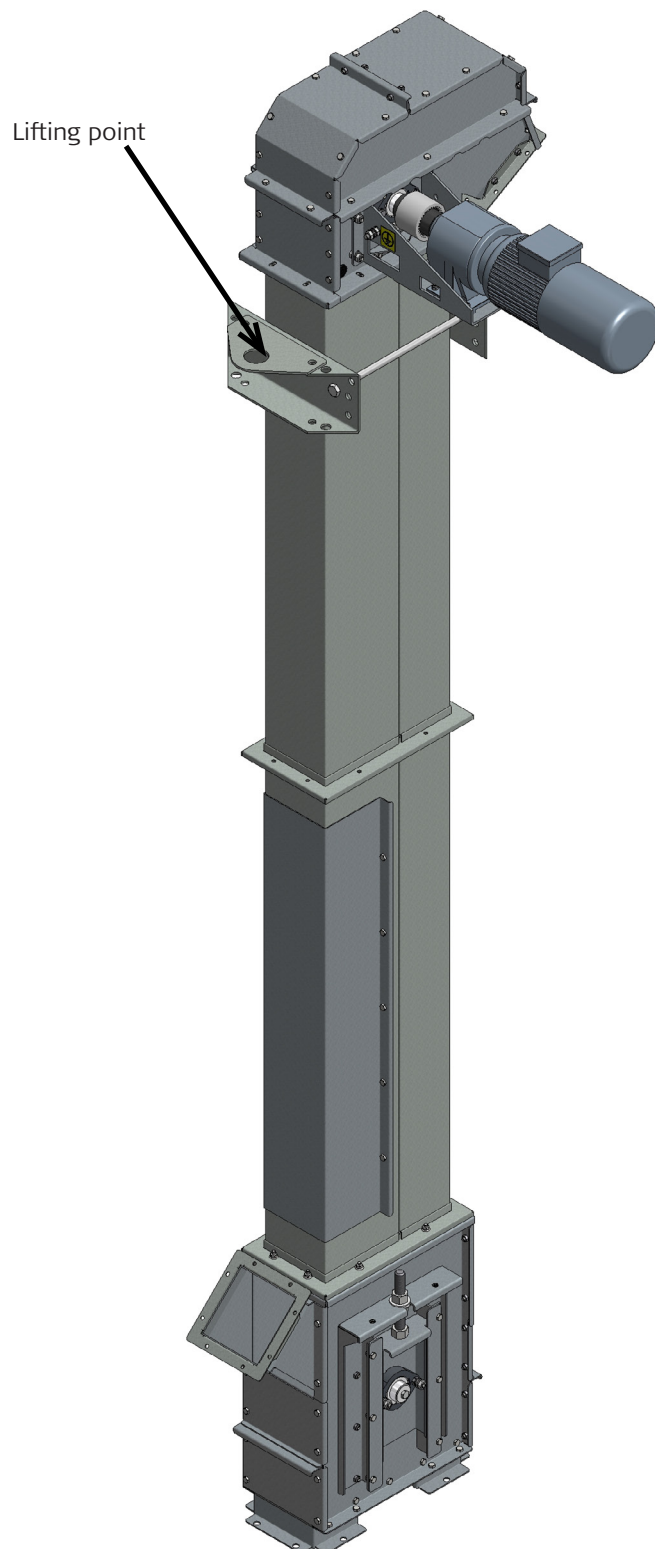
The total weight of the machine is stated in the section "Weight table bucket elevator E11".



NB: Always make sure that nobody is standing under any suspended loads.

Lifting instructions

The drawings below show how to lift the elevator head in the fitted brackets.



Weight table – individual components E11

	Description	E11 Part no.	Weight kg
	Bucket elevator head Right	74065	18,1
	Bucket elevator head Left	74066	18,1
	Bucket elevator boot	74015	22,30
	Extension 1m / w. inspection door	74062	14,58
	Extension 2,5m	51021	35
	Extension 2,0m	51022	28
	Extension 1,0m	51024	14
	Extension 0,5m	51025	7
	Extension 0,25m	51026	3
	Extension 0,125m	51027	2
	Inlet piece 45°	74016	1,50
	Elevator bucket steel	74067	0,18
	Elevator bucket nylon	74023	0,07
	Bucket bolt with washer and nut	74026	
	Elevator belt 100 mm, oil resistant 10 buckets rm	74028	0,60

	Description	E11 Part no.	Weight kg
	Inlet regulation	74050	2,50
	Inlet piece 45° for regulation	74049	1,50
	Distance plate for belt	74035	1,00
	Legs (set).	74018	1,00
	Connecting piece	74027	0,20
	Transition piece square 125x125 - OK160	74036	0,80
	Aspiration socket Ø50	74037	0,30
	Inlet for auger	74040	5,00
	Speed control monitor for relay-control (2 poles)	74030	2,1
	Speed control monitor for PLC-control (3 poles)	74031	2,1

Weight table – bucket elevator E11

Complete with elevator head, elevator boot, inlet piece, extensions, shaft geared motor, elevator belt with buckets

Height in metres	E11	
	Part no.	Kg
1,97	74102	93,00
2,97	74103	108,50
3,97	74104	124,00
4,93	74105	139,50
5,93	74106	155,00
6,89	74107	170,50
7,89	74108	186,00
8,97	74109	201,50
9,97	74110	217,00

Assembly

Make sure that the surface is sufficiently strong and check the transport direction (location of in- and outlet), before assembly.

Please read the complete instructions carefully before assembly.

Check that the work area is safe.

Remember!

To use the necessary safety equipment during the assembly, such as work gloves, safety footwear, helmet, safety glasses and a life line, if necessary. These parts are not included.

The elevator is assembled in two parts, a top part and a bottom part.

- The bottom part consists of the elevator boot and elevator extensions that correspond to half of the elevator height and 1 off. 1m elevator extension with inspection door, through which the belt lacing and bucket fitting are carried out (se separate section).
- The elevator extensions with the inspection door must be fitted at a suitable height to make room for future lacing of belts and bucket fitting.
- The top part consists of elevator head and the remaining number of elevator extensions and must be connected to the belt (se separate section).

After partial assembly of the bottom- and top part, the parts must be assembled.

For safety reasons the outlet and inlet in the elevator top and bottom part must be blocked during assembly.

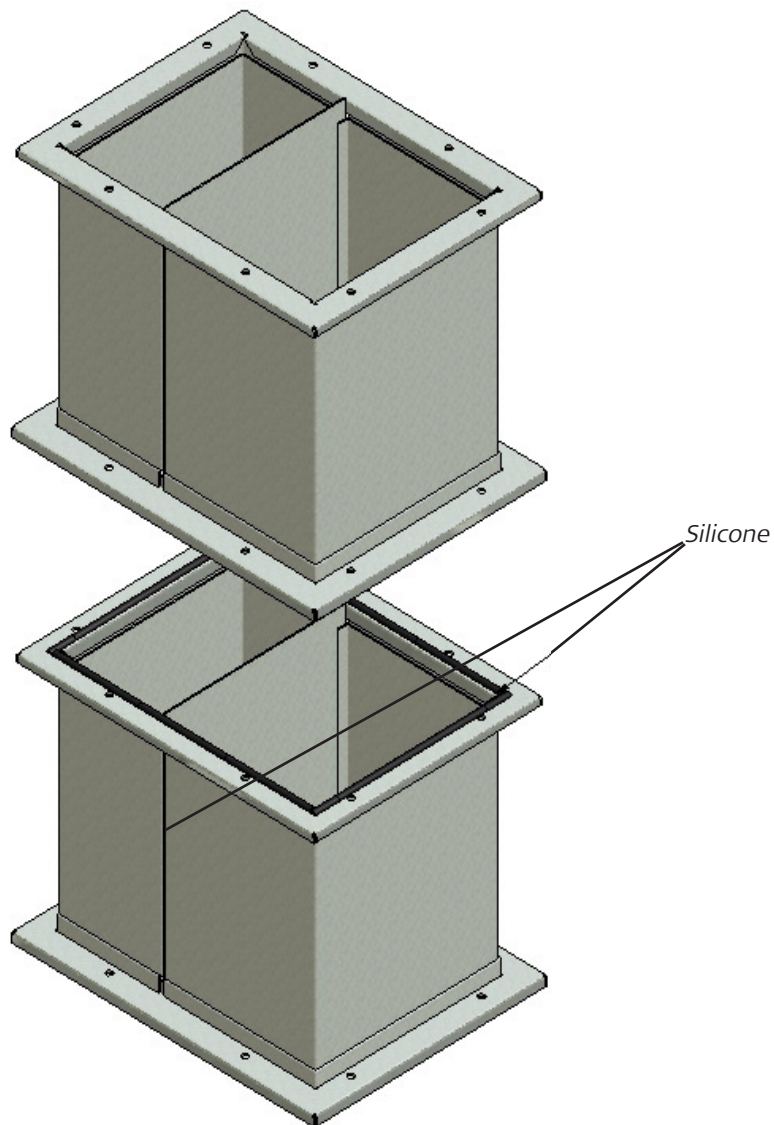
The blockage must only be removed immediately before the mechanical assembly, and the bucket elevator must not be started prior to this.

Sealing

To prevent dust and moisture from entering, it is important that all joints are completely sealed lengthwise with an appropriate sealing compound.

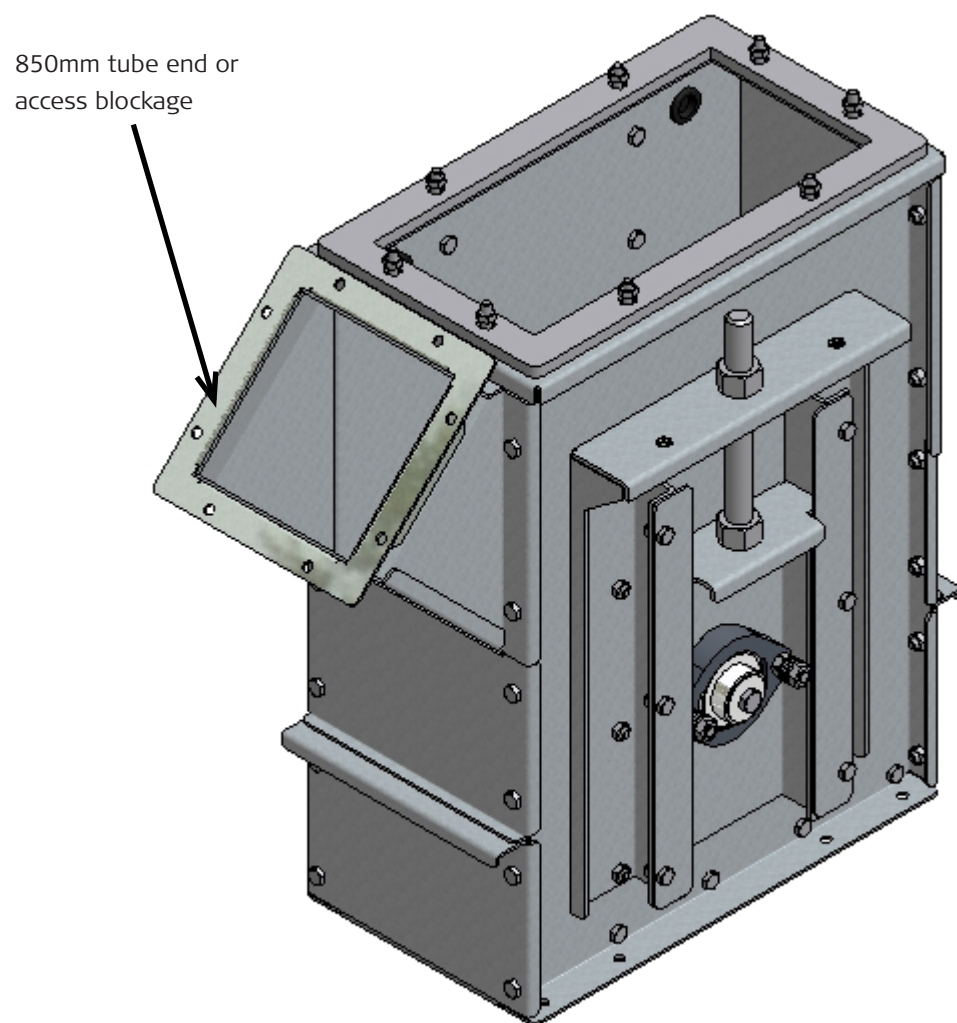
The sealer must be applied at the flanges inside the holes.

After sealing the joints must be bolted together.



Important!

When the blockage is removed, it is important to fit a tube of min. 850mm or another type of blocking device to avoid the possibility of somebody sticking a hand into the machine.

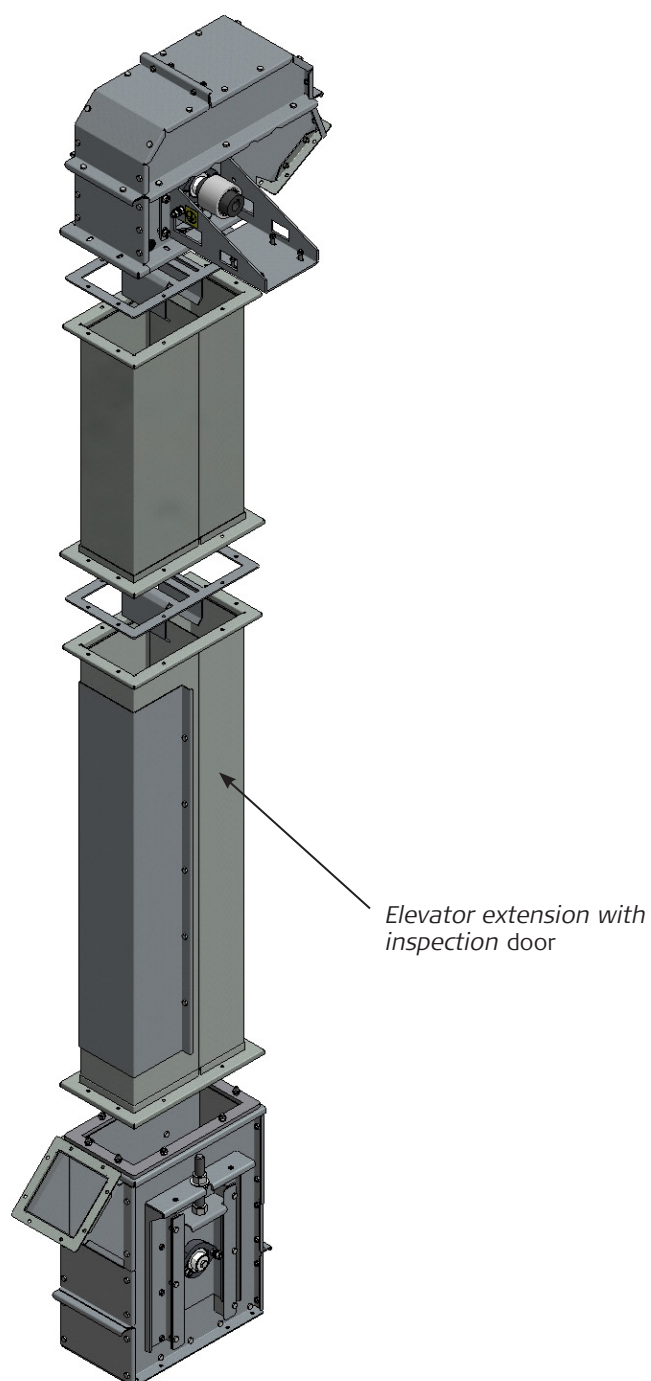


Elevator extensions

The elevator extension with inspection glass must be fitted at a height that facilitates the belt connecting and bucket fitting, as this has to be done through the door.

Fit the extension as shown on the drawing.

The elevator must constantly be secured during the fitting.

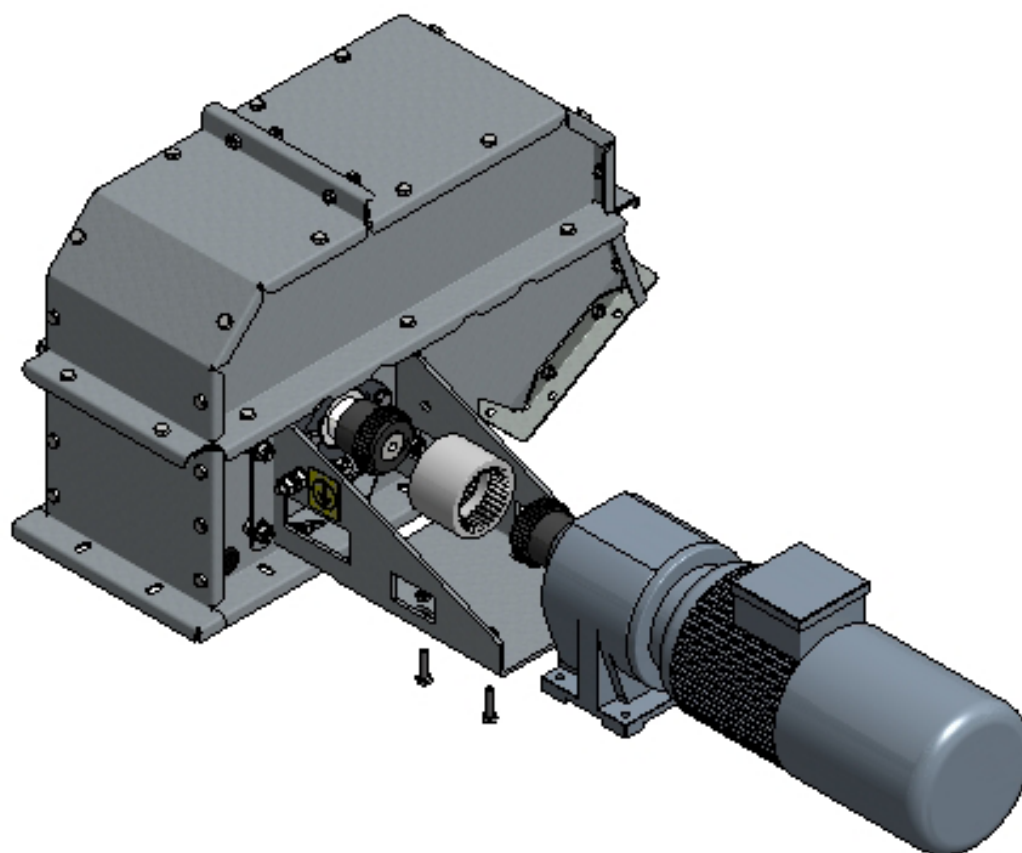


Motor

The motor and gear are fitted on the drive shaft (see below drawing).

Important!

The bleed screw on the gear must always be fitted in the top position.



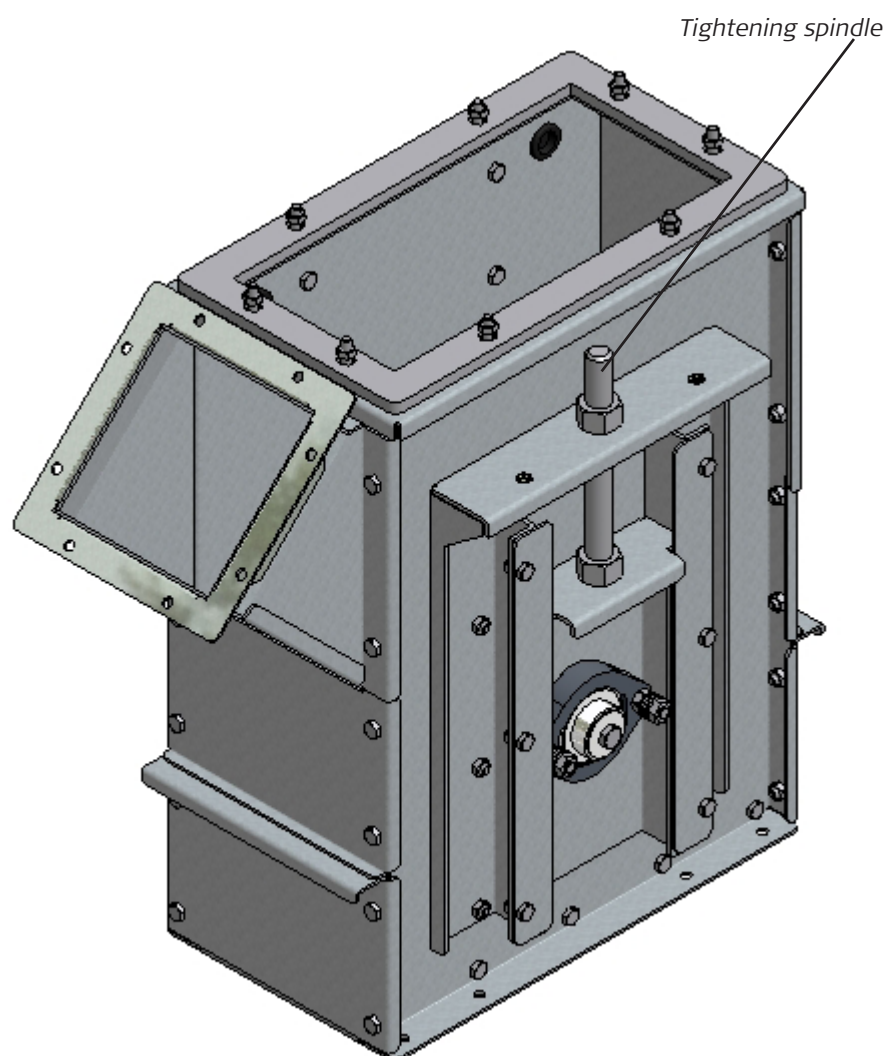
See the attached supplier documentation regarding maintenance of motor and gear.

Non return device

The non return device is fitted as standard in the motor.

Elevator belt

Before fitting the belt, please check that the tightening spindles on the elevator boot are in their top position. Otherwise it will not be possible to adjust the belt, when the buckets have been fitted.



Elevator assembly

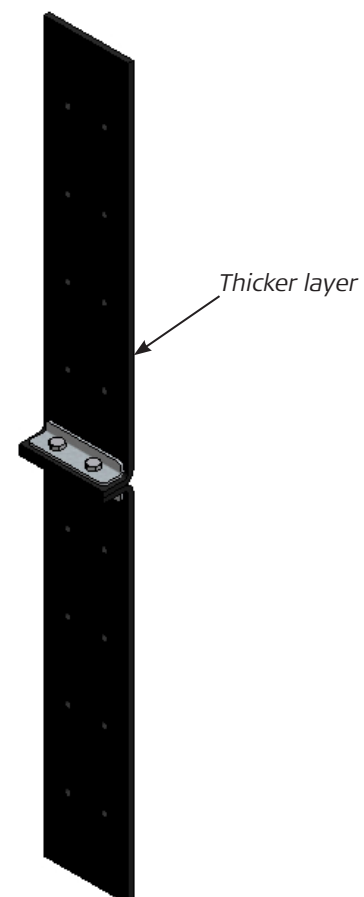
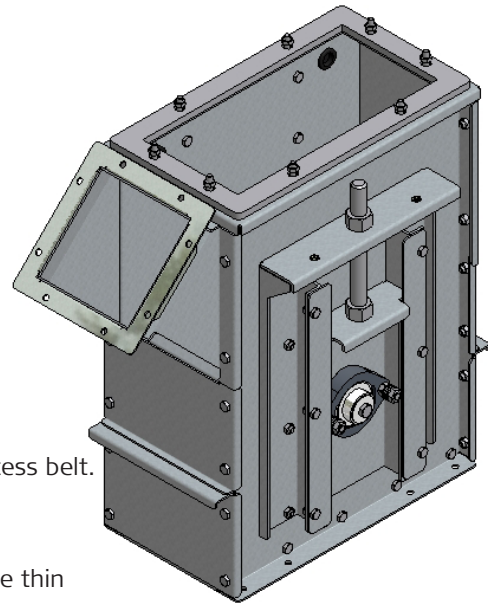
The elevator must be assembled by means of correct and approved SWL lifting equipment. Also read the section "Upon receipt", before assembly of the elevator.

Assembling of elevator belt

1. A side cover in the elevator bottom must be detached.
The belt is drawn through the opening, around the drum and further up through the elevator extension with inspection door.
3. Assemble the belt with the connecting device.
 1. Assemble the belt through the inspection door.
 2. Drill holes in the belt for the connecting device.
 3. Bolt the connecting device together and cut off any excess belt.

Important:

The thick layer of the 2 outer layers must face the drive roller, and the thin layer must face the buckets.

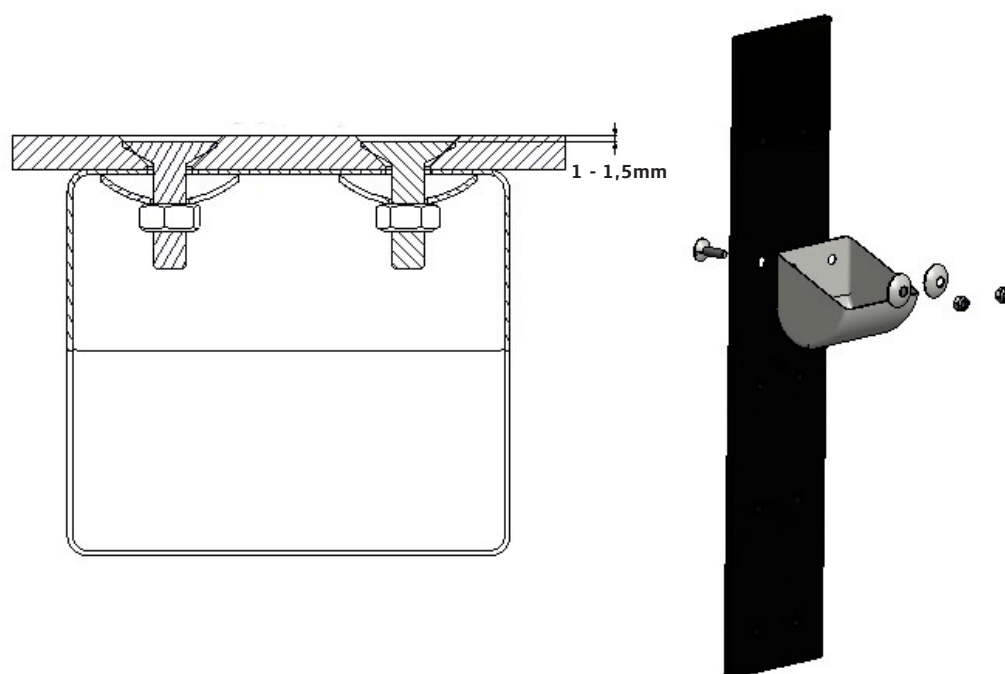


Fitting the buckets

When the buckets have been fitted, the belt must be tightened and adjusted, so it runs evenly on the cylinders, which is done by adjusting the tensioners on the elevator boot.

Important!

Remember to refit all inspection doors after the final assembly.

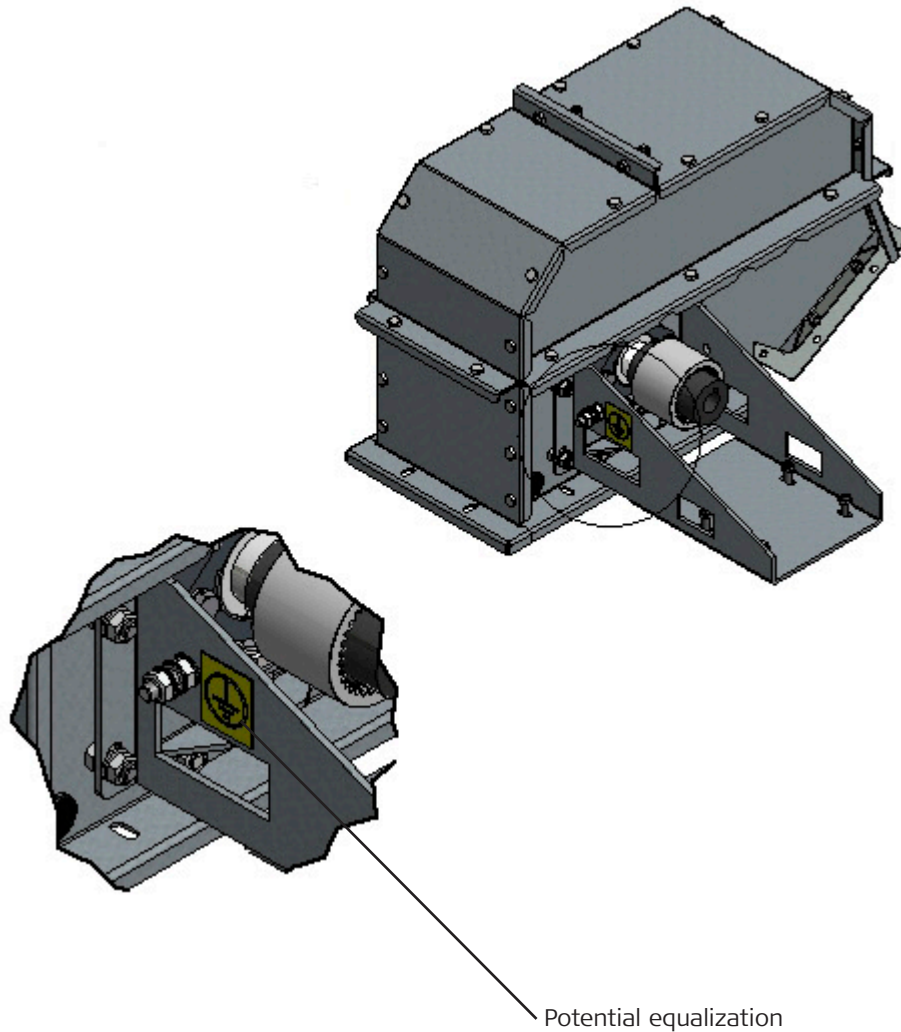


Potential equalization

The potential equalization must be carried out according to current regulations.

A label on the elevator head indicates the point of elevator potential equalization. This equalization of the machine is important to make sure that it is connected metalically.

The label indicates the potential equalization point of the bucket elevator.



Starting up

Before starting up the bucket elevator, check that:

- All inspection doors are fitted
- No work must be carried out on/near the machine.
- The motor rotation direction is correct.
- All elevator bolts are correctly fitted and tightened.
- All bucket bolts are correctly fitted and tightened.
- The belt is fitted and correctly adjusted.
- The attachment and stability of the bucket elevator is correct.
- All joints are sealed

Elevator stops – faultfinding

In case of elevator stops, check first whether the elevator will start again, after the relay has gone cold. If yes, the fault is caused by low adjustment of the relay.

If the elevator is still not able to start without being drained of material, it must be checked whether the return tube on the elevator (where the belt is running downwards) is filled with material in the bottom part (open the inspection door). In this case the fault is due to blockage of the elevator drain (drain tubes too small or with insufficient slope) or stops in other parts of the transport system.

Maintenance

It is very important to observe the indicated cleaning- and maintenance instructions in order to secure a trouble-free operation of the machine.

Please see the maintenance summary and the attached supplier documentation for cleaning- and maintenance intervals.

Warning!

- During cleaning and maintenance work, the electric supply for the bucket elevator must be disconnected and secured against accidental reconnection.
- After repair and maintenance the inspection doors and shielding must be refitted before the work is continued.

Always use original parts only

In case that original parts are not used, the warranty becomes void, and JEMA AGRO A/S can no longer be held liable for the EU Declaration of conformity.

Gearmotor

Control the gear in accordance with the attached supplier documentation.

Important!

Check that the bleed screw is fitted in the top position on the gear.

Motor

Bearing noise from the motor: please see the attached supplier documentation.

Motor inspection: please see the attached supplier documentation.

Retorque the motor as indicated in the maintenance summary. Please see the assembly guidance regarding the process.

Elevator belts

Check the belts for correct tensioning. This is done by checking that the belt starts immediately at full speed.

When the buckets are fitted, the belt must be tightened and adjusted in order to run evenly on the cylinders. This is done by adjusting the turnbuckles at the elevator boot.

Please see the maintenance survey for service intervals.

Elevator buckets

The elevator buckets must be retightened after approx. 200 operating hours.

Metallic sounds indicate that the belt is not adjusted correctly or that one or more buckets have gone loose. Immediately stop the machine and retighten or change the loose/damaged buckets.

Bearings

Check the bearings for wear/looseness and lubricate in accordance to the maintenance summary.

Lift up the shaft to check for any damages/looseness.

Lubrication of bearings

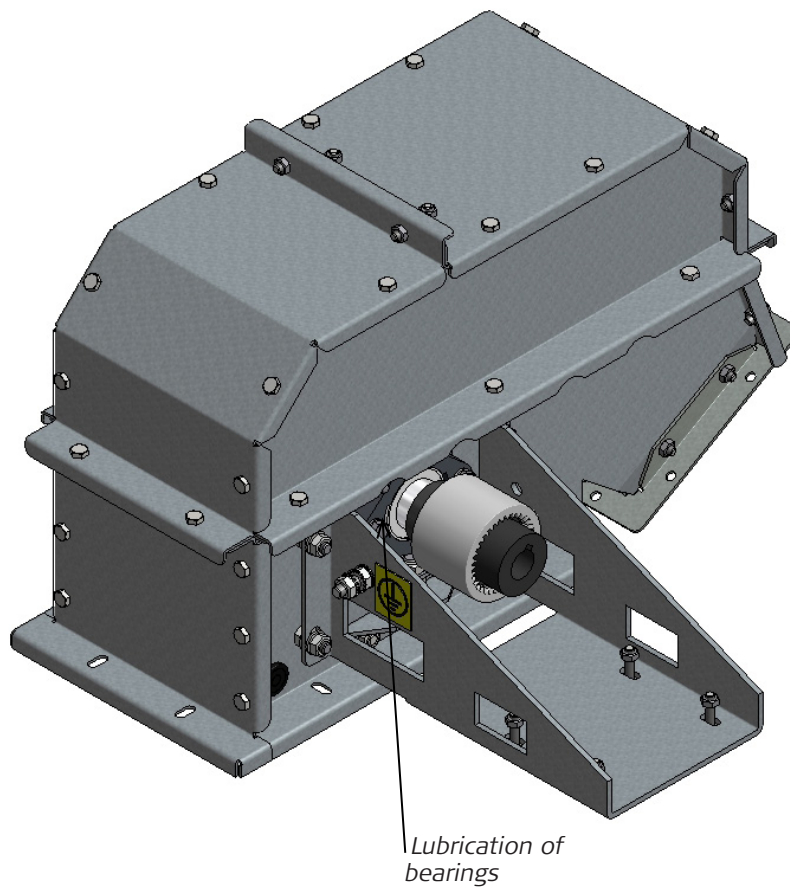
Important!

Lubrication with the correct amount of grease is very important, as an excessive amount of grease may damage the sealing of the bearing, which may result in overheating.

Check the amount of grease that the grease gun delivers per pressure.

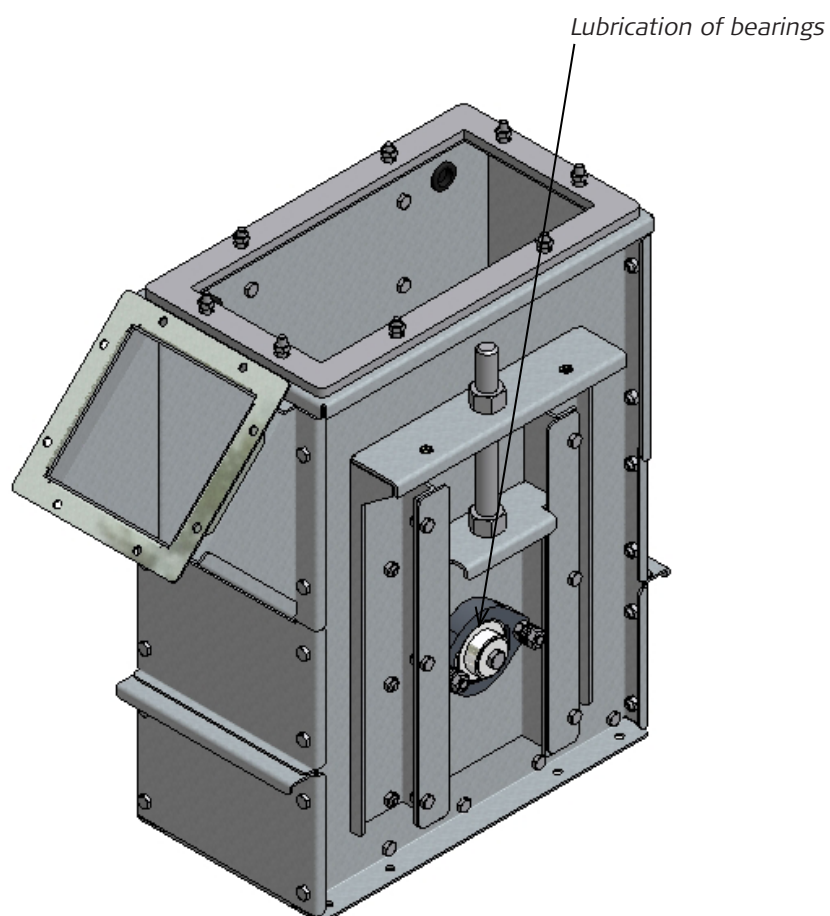
Elevator head

The 2 bearings in the elevator head must be lubricated with 2,5 g. of grease as indicated in the maintenance summary.



Elevator boot

The two bearings in the elevator boot must be lubricated with 2.5 g. of grease as indicated in the maintenance summary.



Non return device and speed monitor

Check the non return device and speed monitor as stated in the maintenance summary.

Leaks

Any leaks must be repaired immediately.

Noise and vibrations

Stop the bucket elevator immediately to determine what is causing the problem.

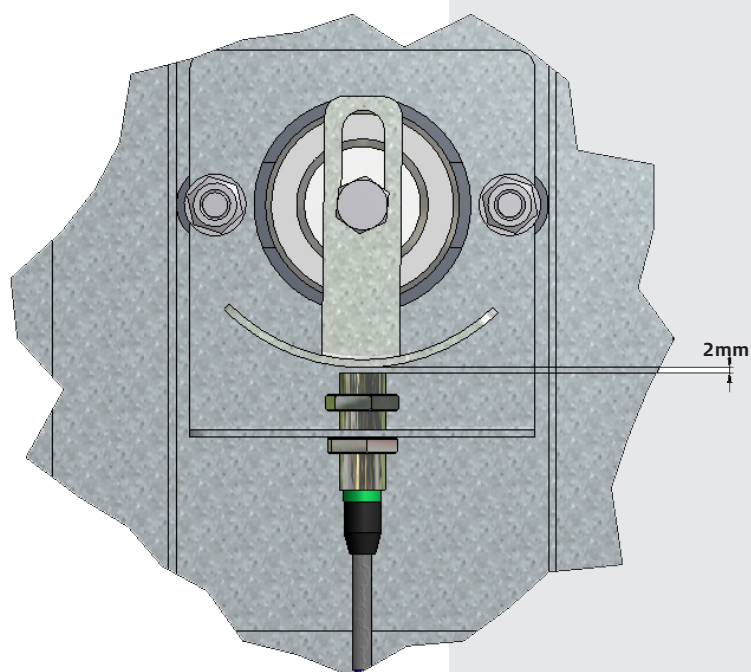
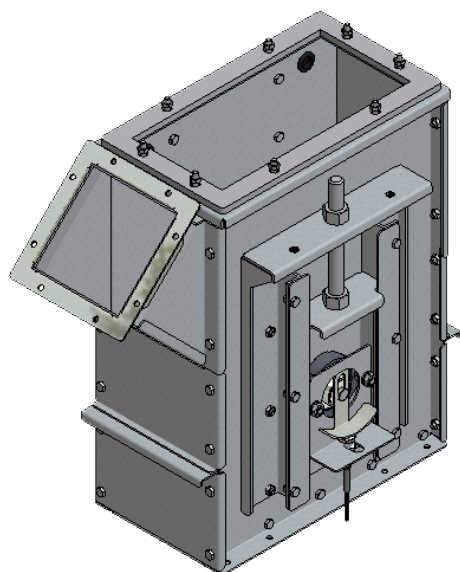
Options/accessories



According to the individual requirements, various components for the bucket elevator are available as accessories.

Speed monitor

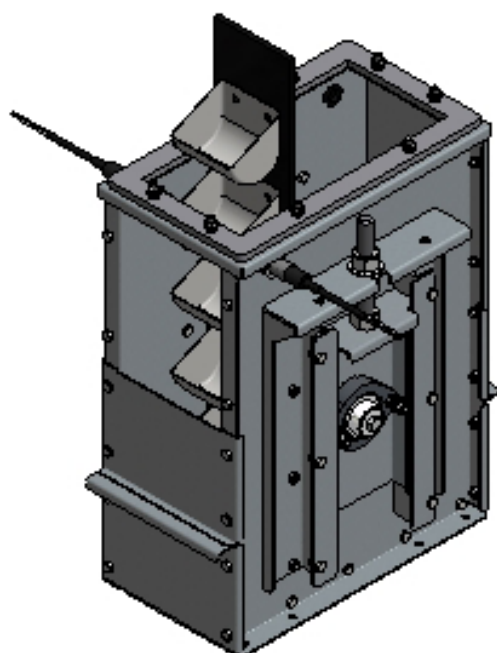
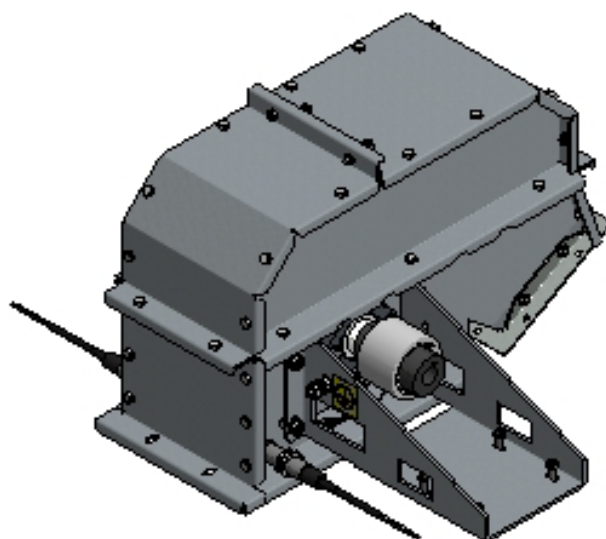
After fitting, adjust the monitor according to the below drawing.



Misalignment sensor

The belt guide control registers whether the belt is correctly aligned, and stops the machine if necessary. The sensor is fitted at the top and bottom of the elevator.

For maintenance please see the supplier documentation.

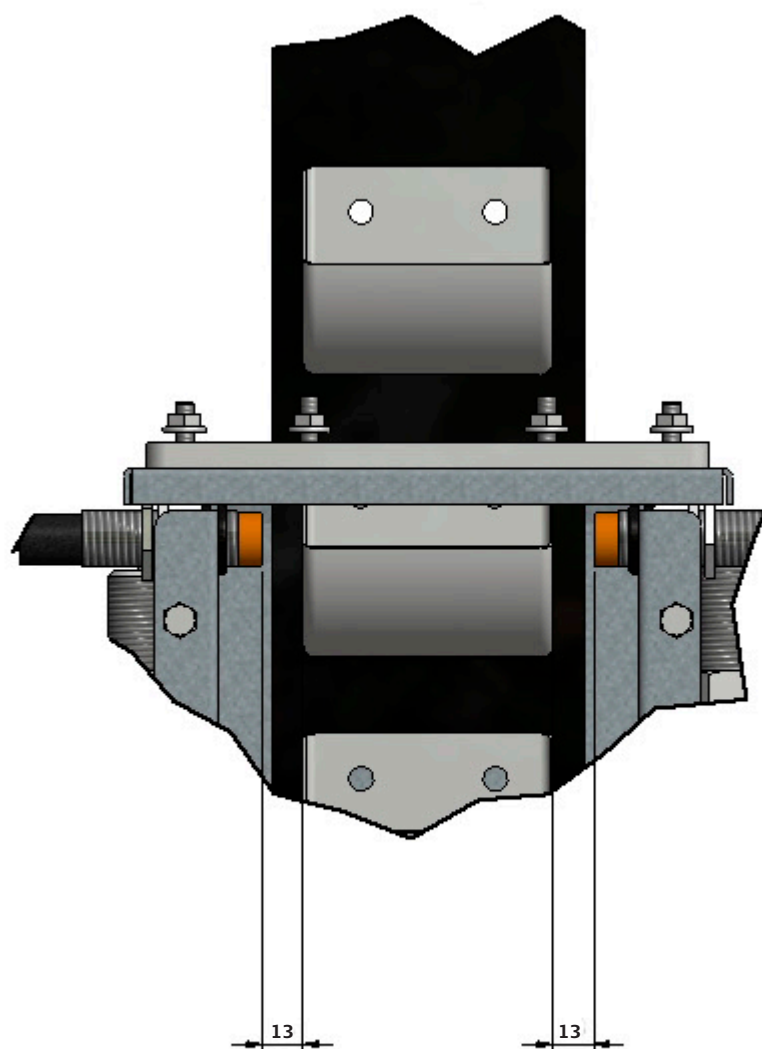


Misalignment sensor adjustment

The misalignment sensor is factory fitted, if it is ordered together with the elevator.

Important!

It is important that the sensor is adjusted at a distance of 13 mm with a tolerance of ± 1 . Measure the distance between the sensor and the bucket.



Disposal

The methods of disposal must comply with the relevant local regulations

Warning!

The electric supply to the motor must be disconnected during the disassembly.

Disassemble the elevator on the floor, if there is sufficient space, and use the reverse order of the assembly procedure.

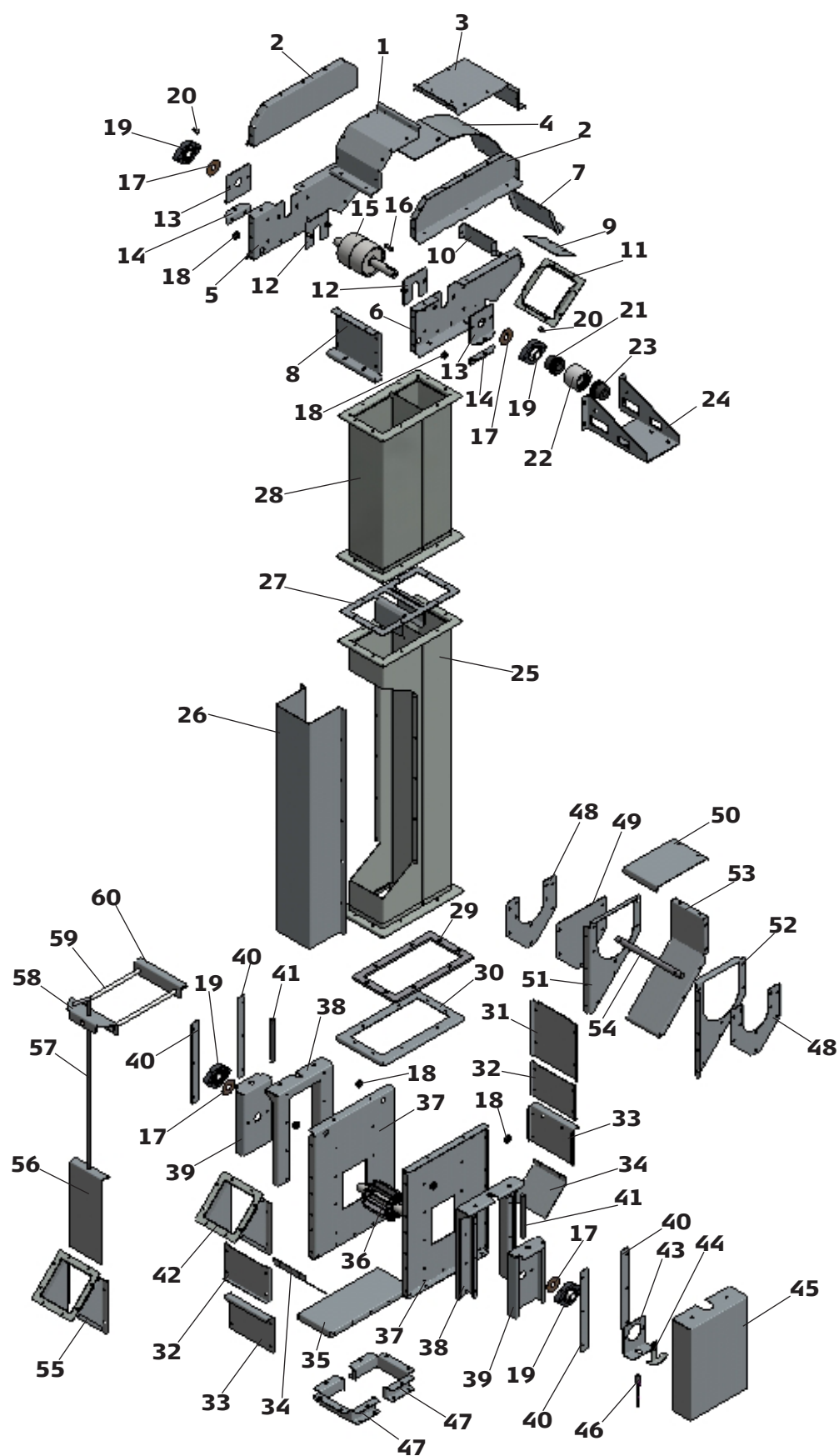
If the elevator is disassembled at the premises, start by detaching the gear motor.

First screw off the inspection door in the downward flow side, then dismantle the buckets similar to the fitting procedure. Now detach the belt lacer and attach a long rope to the end facing downwards. Slowly pull the end of the rope that turns upwards out, while slackening at the same time, then proceed with a new piece, etc. until the complete rope is out.

Then remove the elevator head, and finally all the extension.

The elevator consists partly of material that can be reused. All metal parts should be delivered to a recycle industry.

Parts E11



Parts list E11

Pos.	Description	Part no.	Kg
1	Cover plate for elevator head small	74060-8	0,95
2	Side plate for top	74010-6	1,18
3	Cover plate for elevator head large	74060-7	1,20
4	Wearing plate for elevator head	74065-6	1,48
5	Side plate left for elevator head	74065-1	1,34
6	Side plate right for elevator head	74065-2	1,34
7	Front plate for elevator head	74065-4	0,40
8	Rear plate for elevator head.	74060-4	0,63
9	Distance plate for elevator head	74065-5	0,17
10	Middle plate for elevator head	74065-3	0,17
11	Flange for elevator head.	74065-7	0,32
12	Cover plate kpl. for Ball bearing	74060-15	0,12
13	Adjust plate for ball bearing	74060-6	0,24
14	Bracket for adjust plate	74060-14	0,09
15	Drive drum	74001	2,21
16	Key 8x7x30mm	87079	0,02
17	Felt seal.	74015-16	
18	Rubber plugs	86560	
19	Ball bearing OWFK 25 U SB 205	85105	
20	Grease nipple M6x1, 90°	85159	
21	Steel part for syntex coupling B28 dia.25	87182	0,35
22	Plastic part for syntex coupling B28	87181	0,08
23	Steel part for syntex coupling B28 dia.20	87167	
24	Motor bracket	74060-16	1,80
25	Extension 1,0m with inspection cover without parts	74062-4	6,88
26	Inspection cover for Extension 1,0m. with inspection cover	74062-2	3,73
27	Distance plate for belt	74035	1,00
28	Extension 2,5 m	51021	35,00
	Extension 2,0 m	51022	28,00
	Extension 1,0 m	51024	14,00
	Extension 0,5 m	51025	7,00
	Extension 0,25 m	51026	3,00
	Extension 0,125 m	51027	2,00
29	Connecting flange	74003	1,36
30	Top plate for elevator boot	74015-10	0,60

Parts list E11

Pos.	Description	Part no.	Kg
31	Cover large for elevator boot	74015-3	0,57
32	Cover small for elevator boot	74015-2	0,39
33	Cleaning door for elevator boot	74015-7	0,46
34	Inclined plate for elevator boot	74015-8	0,29
35	Bottom plate for elevator boot	74015-9	0,94
36	Drum for elevator boot	74002	1,49
37	Side plate for elevator boot	74015-1	2,58
38	Bearing plate holder for elevator boot	74015-14	2,04
39	Bearing plate for elevator boot	74015-12	1,09
40	Guideway for elevator boot	74015-15	0,13
41	Tightening spindle for elevator boot	74015-13	0,24
42	Inlet piece 45°	74016	1,50
43	Fitting for speed control monitor	74017-1	0,22
44	Signal fitting for speed control monitor	54092	0,05
45	Cover for speed control monitor	74017-3	0,49
46	Inductive sensor 2 poles	88075	0,10
	Inductive sensor 3 poles	88079	0,15
47	Leg	74018-1	0,50
48	Transition-flange for inlet	74040-9	0,34
49	Blanking plate for inlet	74040-5	0,52
50	Cover for inlet	74040-4	0,51
51	Side plate right for inlet	74040-1	0,55
52	Side plate left for inlet	74040-2	0,55
53	Rear plate for inlet	74040-3	1,10
54	Intermediate shaft for inlet	74040-10	0,52
55	Inlet 45° for inlet regulation	74049	1,50
56	Shutter for inlet regulation	74050-1	0,71
57	Adjusting lever for inlet regulation	74050-5	0,41
58	Fitting kpl. for inlet regulation	74050-2	0,45
59	Steel bolt 8.8 M12x300 FZB	86332	
60	Fitting for inlet regulation	74050-4	0,27

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