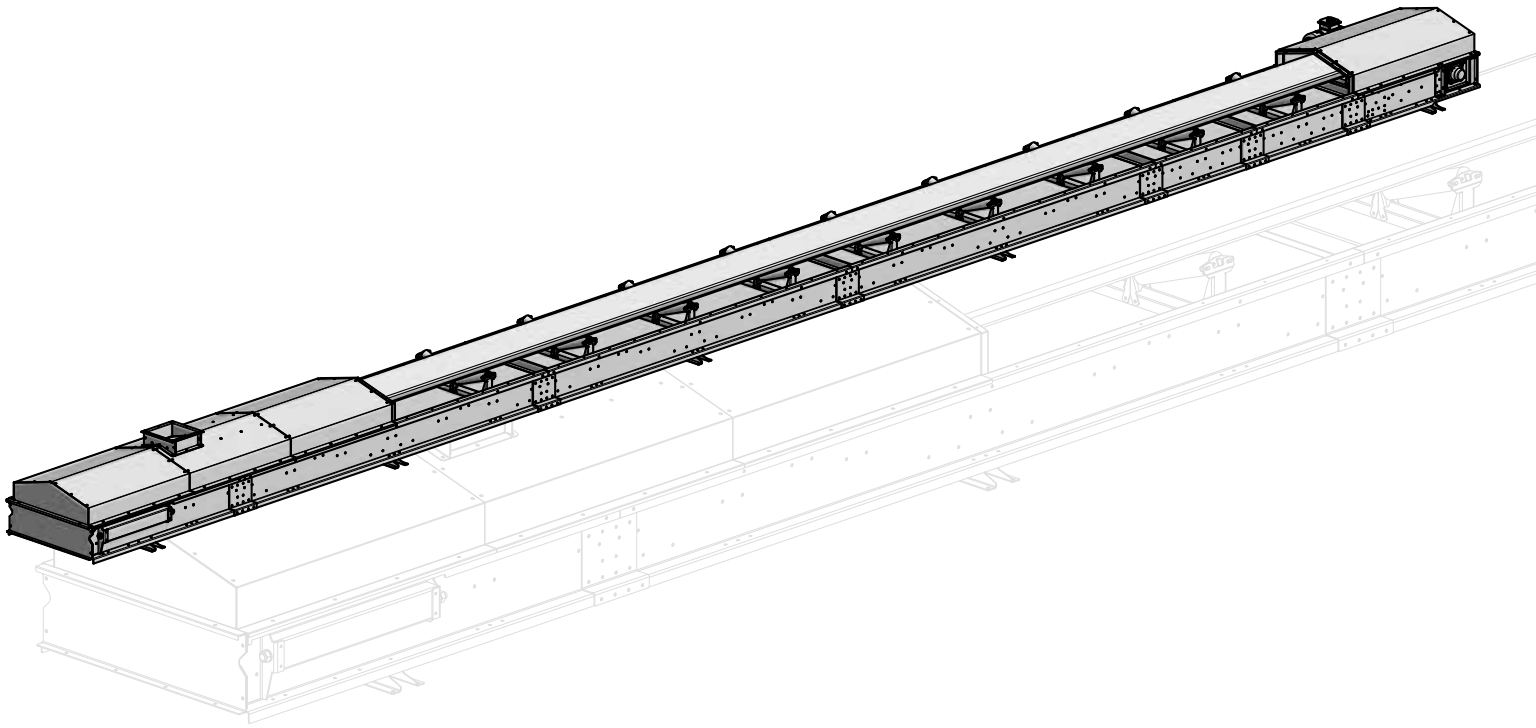
SKANDIA
ELEVATOR

ASSEMBLY INSTRUCTIONS
I-LINE

BTI



ZMA0720EN 2023-07-01

Goods inspection

Check that the number of packages agrees with the delivery note and that the packing and goods are not damaged. Make a note of any damage and missing materials on the consignment note and report it to the carrier and to us. Make sure the delivery is complete after unpacking the goods. Any materials that are found to be incorrect must not be assembled.

Warranty

A 2-year factory warranty from the day of delivery applies to all models of Skandia Elevator AB machinery. A condition of the warranty and any subsequent compensation is that Skandia Elevator AB is contacted and an agreement reached between the customer and Skandia Elevator AB on how any faults should be rectified. The warranty covers all parts that are damaged or break due to faulty design or manufacture. Faults and damage caused by faulty assembly, incorrect use or lack of maintenance will not be covered by the warranty.

CE mark

A CE mark is located on the transmission side of the drive and is proof that the machine has been manufactured in accordance with EU machine directives and complies with safety requirements. The CE mark contains information concerning year of manufacture, model designation and order number. Always specify the order number in the event of a claim and on orders for spare parts.

EC Declaration

Skandia Elevator AB
Arentorp
S-53494 Vara
SWEDEN

declare under our sole responsibility that the product:

BTI

order number:

.....

to which this declaration relates is in conformity with Council Directive of 29 December 2009 on the harmonisation of the member States relating to machinery, 2006/42/EC.

Unless otherwise specified on the CE mark, the product is manufactured in accordance with EU Machinery Directive and is classified as Category II 0D/0D.

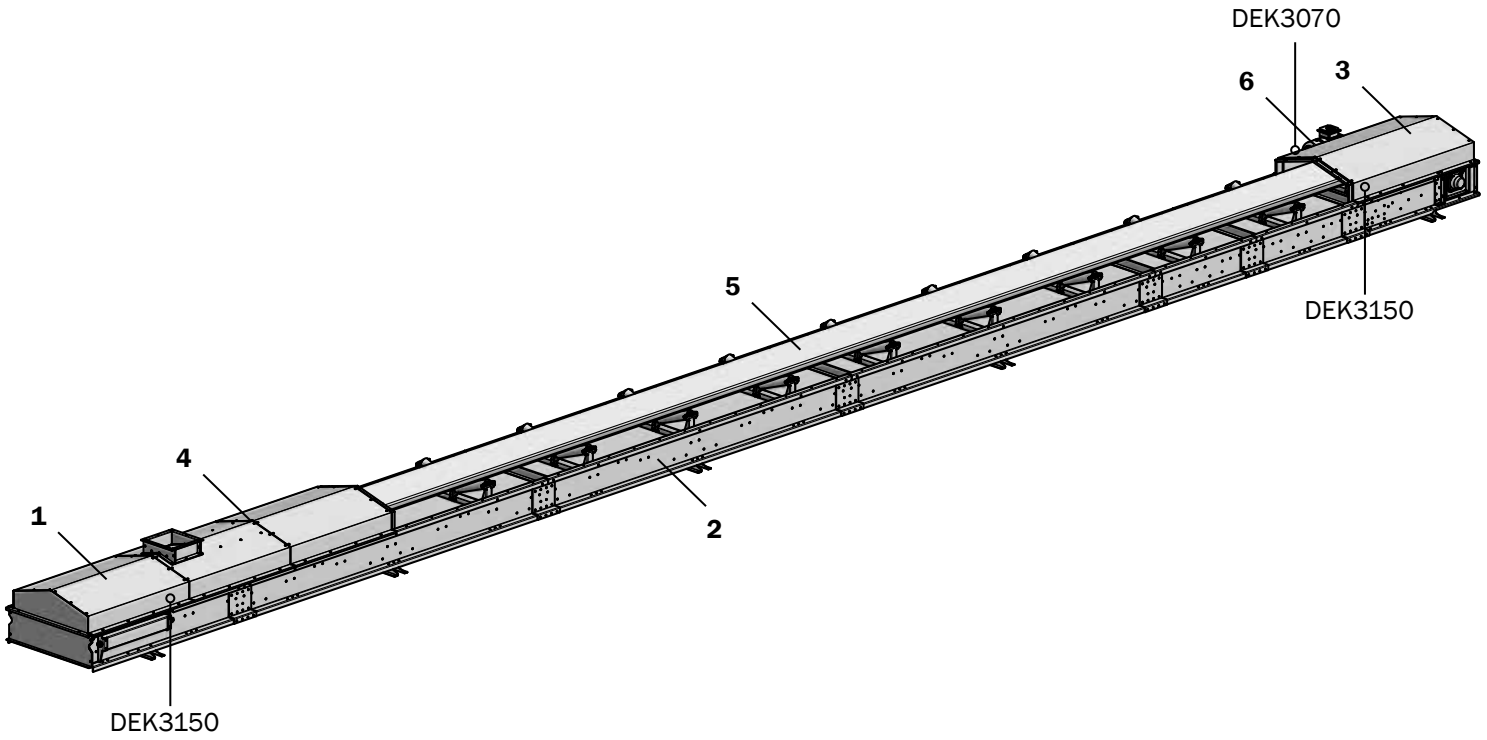
Vara 29/12 2009

Joakim Larsson, CEO

Thank you for choosing Skandia Elevator!

Your conveyor system must be assembled correctly and maintained thoroughly if it is to operate satisfactorily. These assembly instructions and the separate maintenance instructions must be followed for the warranty to apply.

We hope you will be pleased with your Skandia conveyor equipment for a long time.



Parts	Pos.
Tail end	1
Intermediate section	2
Drive end	3
Loading unit	4
Conveyor belt	5
Angle gear motor	6
Safety decals	DEK *x x x x*

The owner of the transport equipment is responsible for these assembly instructions always being available to the fitters, electricians, maintenance technicians and engineering technicians concerned.

Incorrect assembly and/or operation may lead to personal injury or damage to the conveyor equipment and/or other equipment. It can also cause malfunctions or a reduction in capacity.

Read the assembly instructions carefully before assembly, electrical connection, maintenance or operation commences. If any part of these instructions should be difficult to comprehend, please get in touch with your reseller for assistance.

The safety information is presented and interpreted as follows:

⚠ **WARNING!**
Disregarding instructions given in warnings can cause serious personal injury or death.

⚠ **IMPORTANT!**
Ignoring the instructions given in important texts may cause damage to the conveyor equipment and/or other equipment. It can also cause malfunctions or a reduction in capacity.

NB! indicates that the text contains information that will simplify the assembly process.

General

⚠ **WARNING!**

- Ensure that everyone responsible for assembly, electrical connection, maintenance and operation of the conveyor equipment has read and understood the instructions and safety information.
- Use protective gloves, helmet, steel-toed boots, ear defenders, protective goggles and high-vis vest when carrying out assembly, electrical connection, maintenance and operation of conveyor equipment.

⚠ WARNING!

- Stop the machinery and turn off electric power before attempting any type of assembly, electrical connection or maintenance work.
- Do not start the machinery without the lid, hatches, covers, guards and connections fitted in such a way they can only be opened with tools.
- Connections to, from and between machinery must be permanently mounted and fully enclosed.

⚠ IMPORTANT!

- If the machine is being assembled outdoors, the motors and transmissions must be fitted with a weather cover.
- If a short circuit should occur, ensure that the electrical equipment is in working order before continuing operation.
- Ensure that the electrical equipment is kept free from dirt, dust, moisture and electrostatic charge.
- The machine is not designed to stand or walk on.

Electrical connection

Incorrect electrical connection may lead to personal injury or damage to the conveyor equipment and/or other equipment. It can also cause malfunctions or a reduction in capacity.

⚠ WARNING!

- All electrical equipment is to be connected by a qualified electrician. See separate connecting directions for electronics.
- The power switch must be permanently mounted and located to allow easy access when carrying out maintenance work.
- Fit inlet cable-operated emergency stop according to the manufacturer's instructions. Cable-operated emergency stop is a requirement for CE certification of the machine if it is accessible during operation.
- Ensure the speed monitor is engaged during operation.

⚠ IMPORTANT!

- Ensure the motor protection is set to the correct ampere setting for the motor.

Maintenance

Inadequate maintenance may lead to personal injury or damage to the conveyor equipment and/or other equipment. It can also cause malfunctions or a reduction in capacity.

⚠ WARNING!

Connections to, from and between machinery must be permanently mounted and fully enclosed. If the design of the installation does not allow this at an outlet, finish off with a 1 m pipe.

Safety decals

⚠ WARNING!

The machine is supplied with safety decals on delivery. They must not be removed or defaced. If a safety decal becomes damaged, you can order a new one free of charge from Skandia Elevator AB. Specify the part number of the decal. See the section below and the previous chapter Machine Overview.

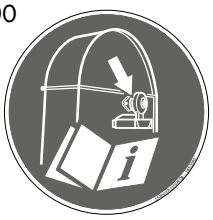
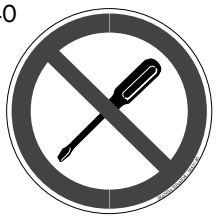
There are safety decals for:

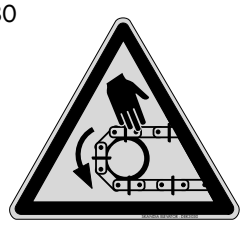
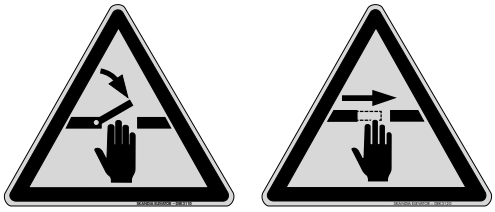
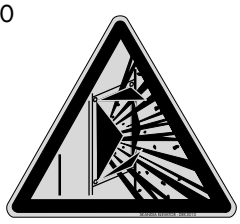
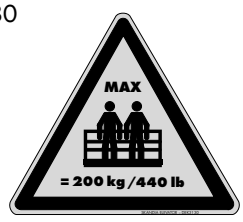
- Mandatory (white symbol on round blue background).
- Forbidden (black strike-through symbol on round white background with red surround).
- Warning (black symbol on triangular yellow background with black surround).

⚠ WARNING!

The mandatory instruction, forbiddance or warning given on all safety decals must be considered or serious injury or death may follow.

Skandia Elevator machines have the following safety decals:

Part number/Safety decal Refer to the "Machine Overview" chapter for placement.	**Written definition**
DEK3090 	Read the "Back stop" section in the elevator's assembly instructions before test starting the motor for the first time.
DEK3100 	Do not place the valve with the motor side face down.
DEK3140 	Changing settings and equipment is prohibited.
DEK3150 	Warning for conveyor belt and idler!
DEK3060 	Warning for bucket belt!

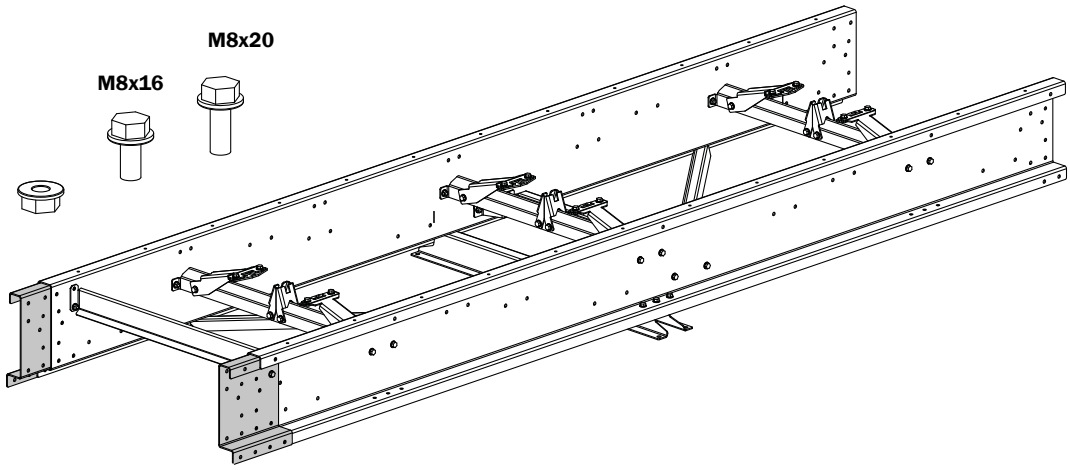
DEK3030 	Warning for conveyor chain!
DEK3040 	Warning for chain drive!
DEK3070 	Warning for rotating conveyor drive shaft!
DEK3080 	Warning for rotating elevator drive shaft!
DEK3160 	Warning for moving machinery!
DEK3110/DEK3120 	Warning for moving machinery!
DEK3010 	Warning for dust explosion!
DEK3130 	Warning, a maximum of 2 people = 200 kg/440 lbs may be on the platform and ladders simultaneously!

The conveyor can be assembled directly in place in the installation or separately and then lifted in place. The design and space requirements of the installation and the length of the conveyor will determine which method is most suitable.

⚠ IMPORTANT!

- Ensure the machine is situated correctly in relation to the planned connections.
- The conveyor length must not exceed 14 metres if being lifted after assembly. Its weight must be distributed over several lifting points. The distance between the lifting points must be a maximum of 12 metres.
- The maximum span between supports for a standard conveyor is 6 metres.

1.
NB! Bolts for assembly are included in a bag attached to a joint plate for each intermediate section and for the drive end.

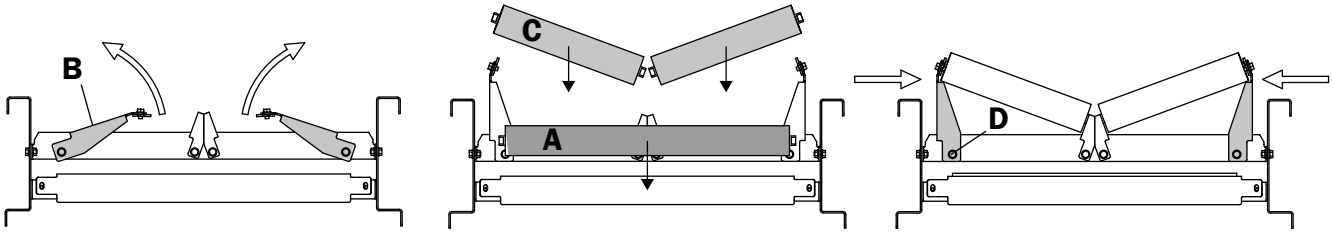


2.

⚠ IMPORTANT!

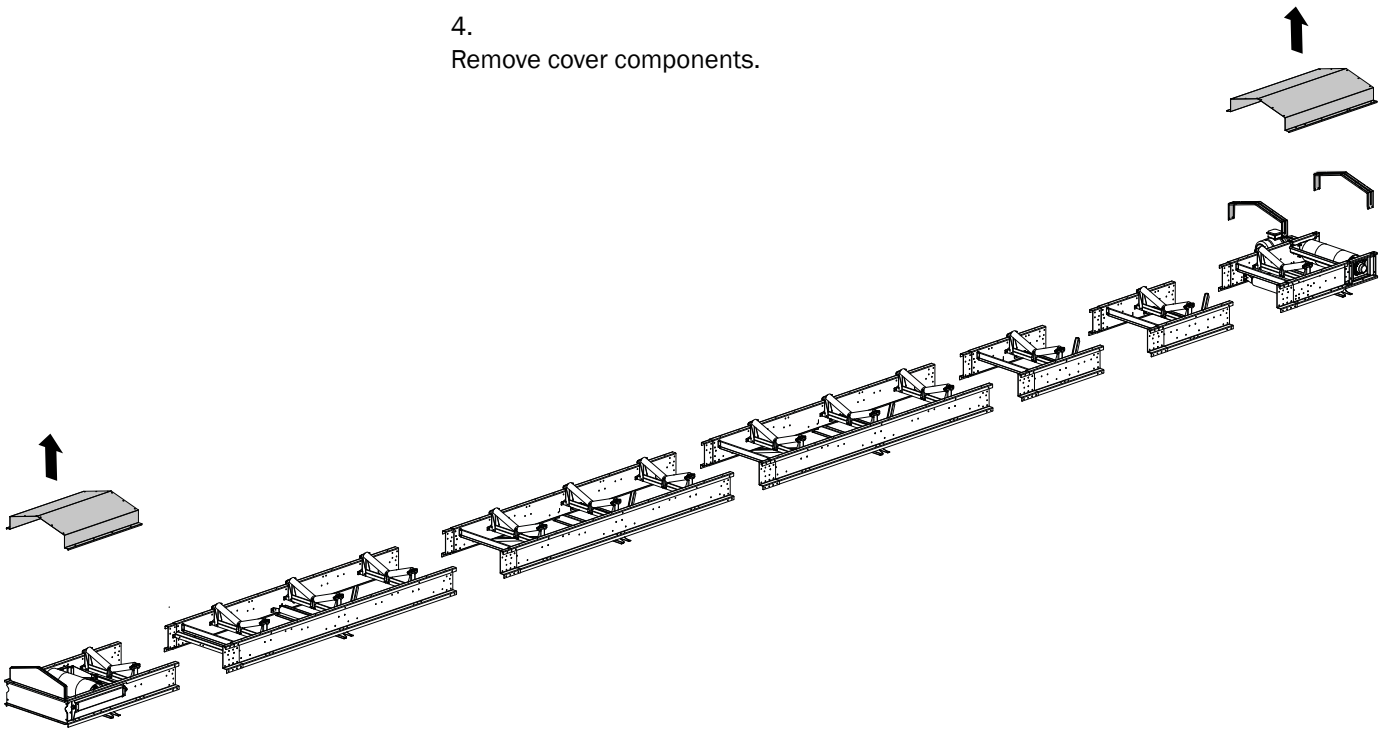
On delivery, carrying idlers and plough scraper in tail end and carrying idler and snub idler in drive end are secured with straps. Make sure that the straps are removed.

Assemble return idlers and carrying idlers in the intermediate sections. Insert return idlers (A). Fold out the holders (B) and insert carrying idlers (C). Push back the holders so that they do not fit loosely. Tighten the bolts (D).



3.
Lay out the machine parts in the order they are to be assembled.

4.
Remove cover components.



⚠ WARNING!

Connections to, from and between machinery must be permanently mounted and fully enclosed.

Assemble the loading unit in accordance with the instructions in the section "Assemble the machine". Assemble more loading units, the discharge tripper, and outlet enclosure (protective equipment) in accordance with their respective assembly instructions, but not until stated in the assembly order in these assembly instructions.

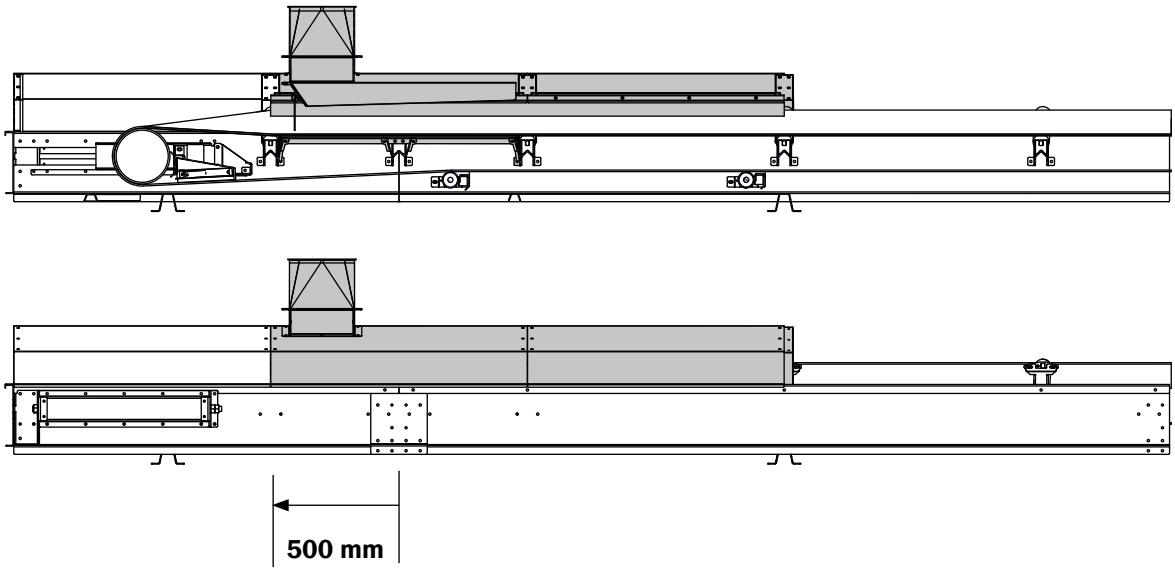
⚠ IMPORTANT!

- Use only recommended inlet, outlet and connecting components.
- Ensure the ducting is dimensioned sufficiently and that its angle of inclination is at least 45°.

Inlet

A loading unit is used when feeding from a machine with matched capacity.

A loading unit in tail end is positioned according to illustration. For several loading units (accessory), position the units according to the separate assembly instructions.



Connection to subsequent machine

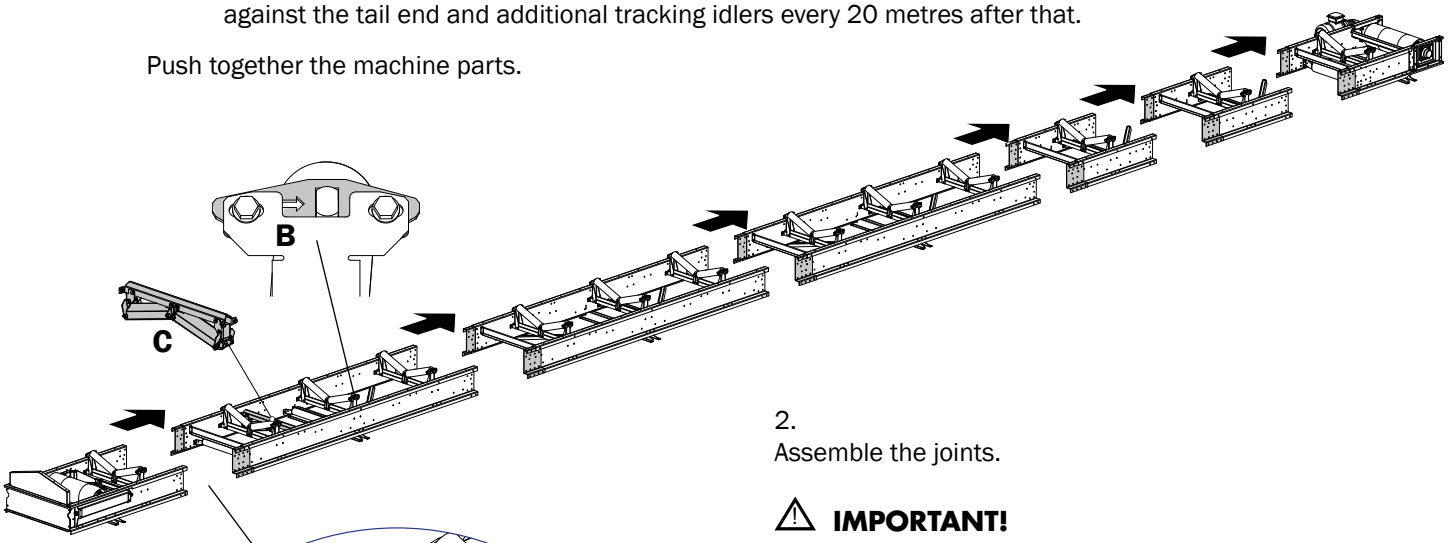
Connect the conveyor to the subsequent machine according to its assembly instructions.

1.

⚠ IMPORTANT!

- Make sure that the intermediate sections are aligned so that the arrows on the holders for the carrying idlers (B) are aligned in the direction of travel of the conveyor.
- Ensure the machine parts are assembled in a straight line and are not twisted.
- Ensure that if the machine is long enough to need tracking idlers (C), 20 metres or longer, the first section with tracking idlers must be fitted directly against the tail end and additional tracking idlers every 20 metres after that.

Push together the machine parts.

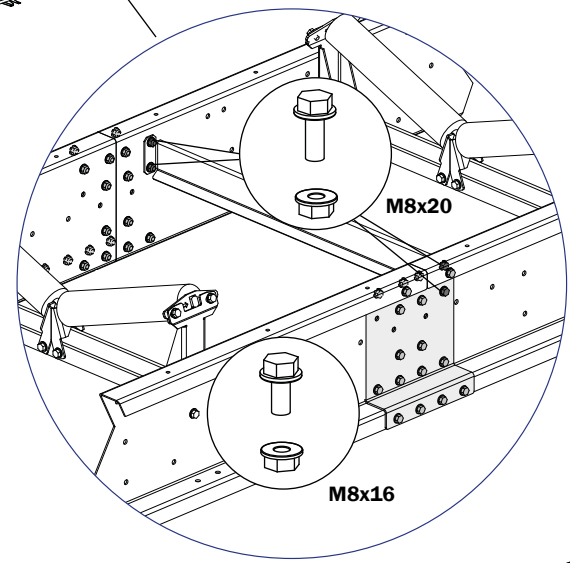


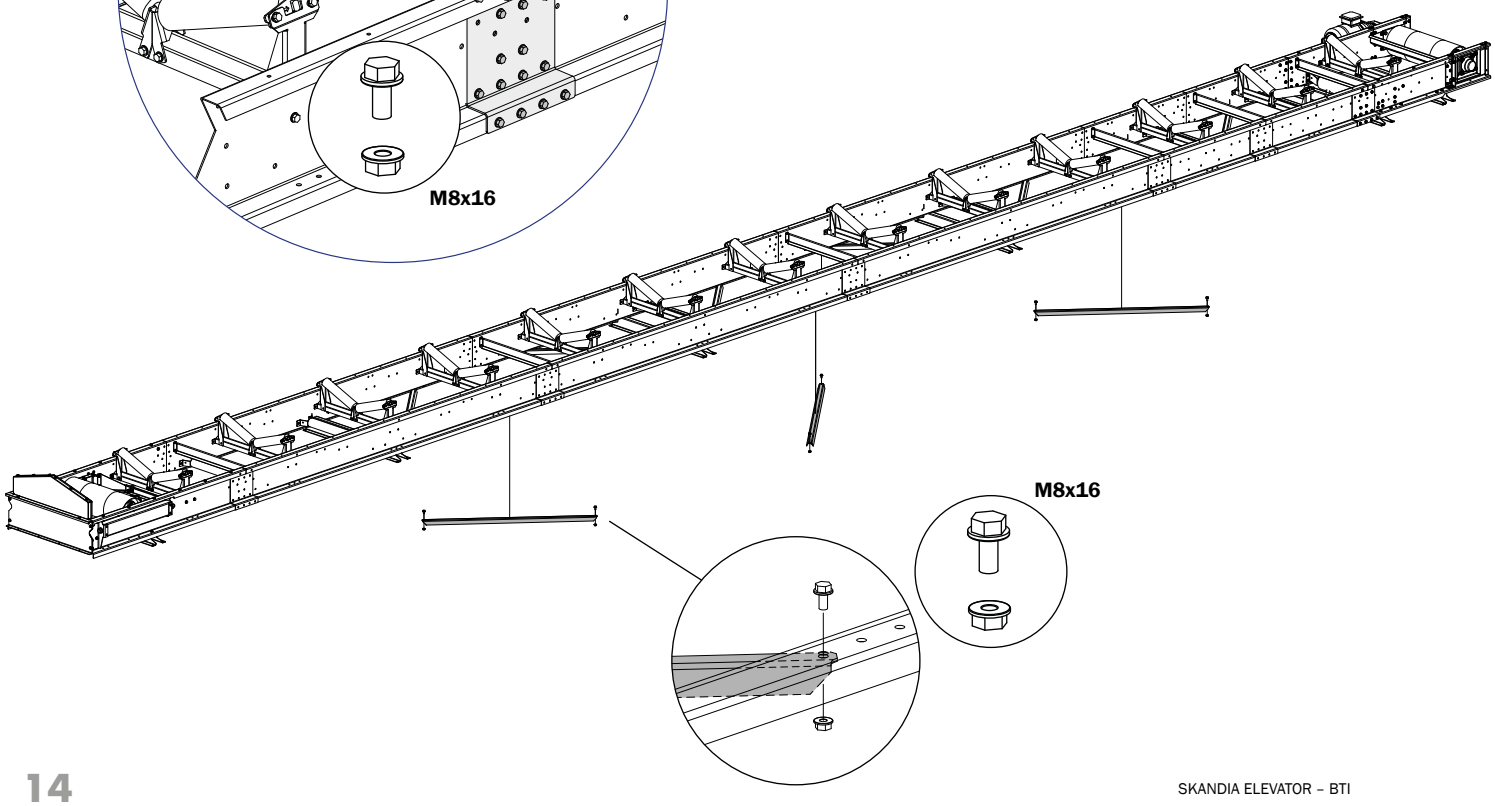
2.

Assemble the joints.

⚠ IMPORTANT!

For outdoor installation, extra diagonal bracing must be mounted over the joints so that the diagonal bracing continues alongside the entire machine.

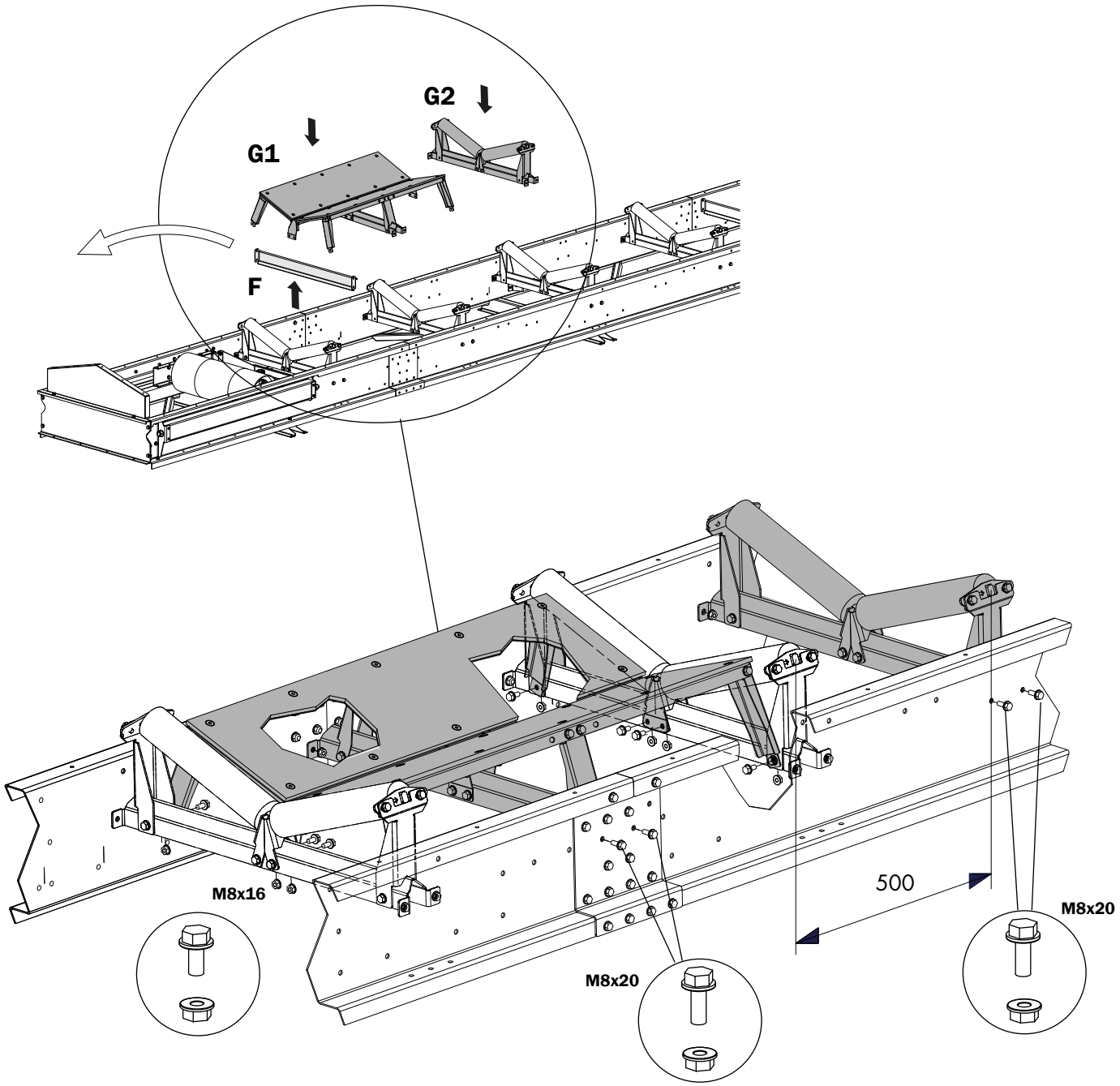




3.
Remove brace (F).

4.
Fit the slider bed (G1) and the additional idler set (G2) according to the dimensions in the illustration.

NB! Assemble any intermediate loading units (fixings) in accordance with the separate assembly instructions. Then return to these assembly instructions for the remaining instructions.



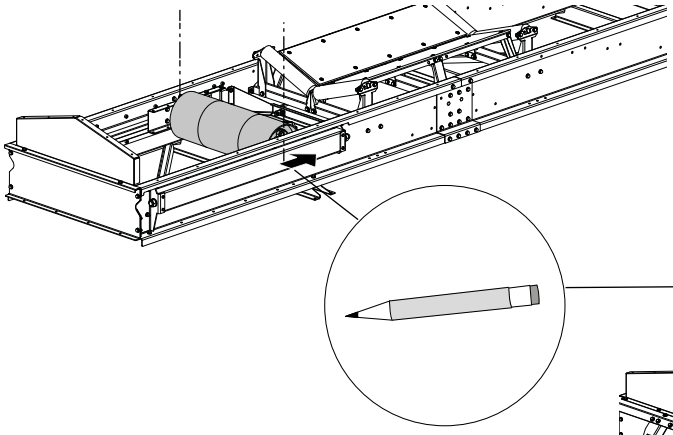
5.

⚠ IMPORTANT!

Push the tail pulley in the direction of the drive end before the conveyor belt ends are vulcanized together. On delivery, the tail pulley is placed in nominal position and this should be the tail pulley position to aim for when the correct tension of the conveyor belt is achieved for the first time. Make sure that the tail pulley nominal position is marked before the tail pulley is moved.

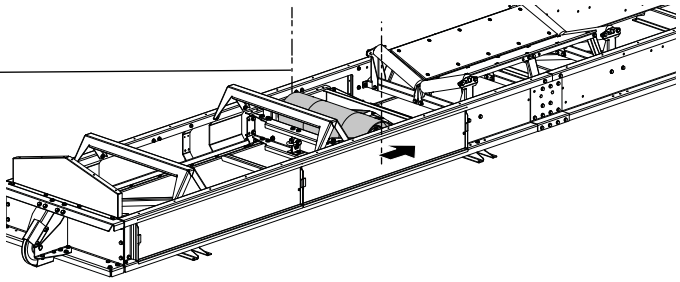
NB! Assemble the discharge tripper (fixings) before the conveyor belt is assembled. See the separate assembly instructions for the discharge tripper. Then return to these assembly instructions for the remaining instructions.

Tail end with tension bolts



Tail end for counterweight tension

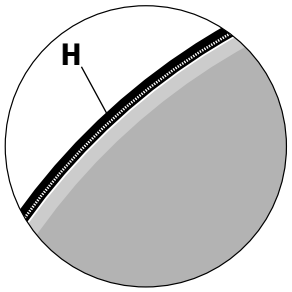
Assemble the counterweight tower for counterweight tension according to the separate assembly instructions.



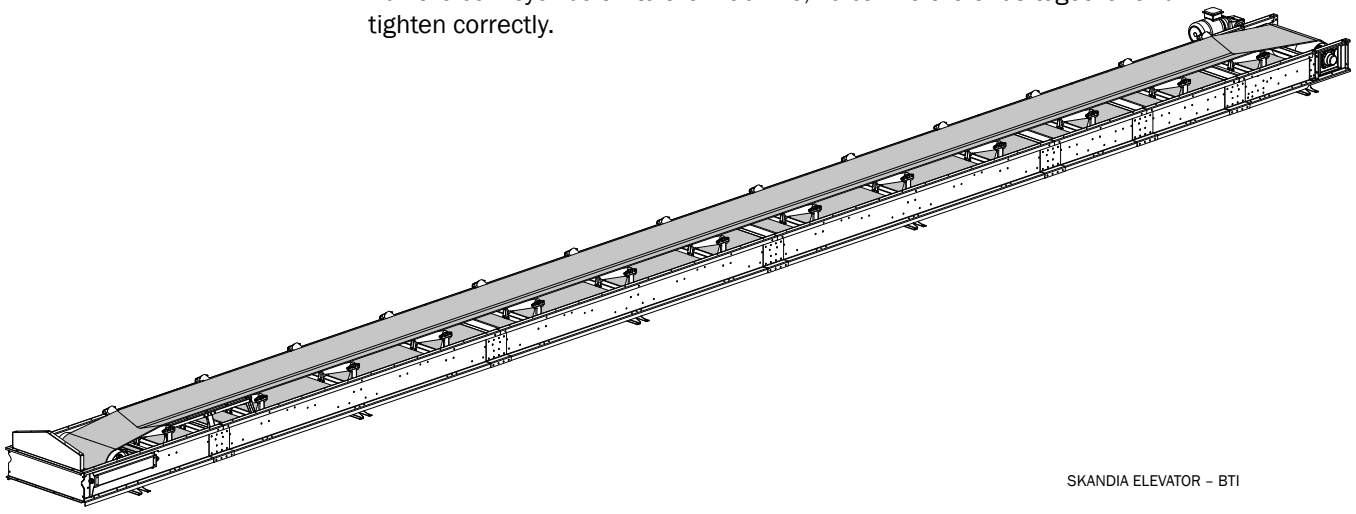
6.

⚠ IMPORTANT!

- Make sure that the side of the conveyor belt with thickest cover plates (H) is facing outward.
- Make sure that the conveyor belt is properly tensioned after the conveyor belt ends have been vulcanized together and the tail pulley is backed up in its nominal position; see picture/table for the respective tail end types.
- Make sure that the tail pulley shaft is perpendicular to the conveyor belt.
- Vulcanization of conveyor belts should be done by a professional vulcanizer.

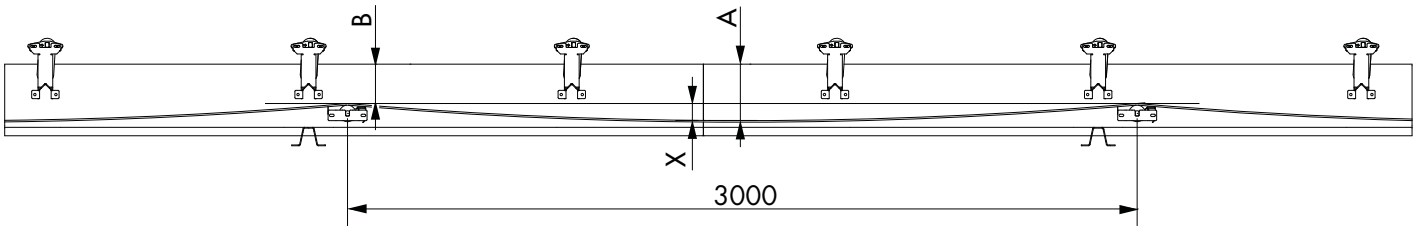


Pull the conveyor belt into the machine, vulcanize the ends together and tighten correctly.



Correct tension - Tail end with tension bolts

Measure how much the conveyor belt slackens (X) between 2 return idler sets that are 3 metres apart, X = A - B.



Motor output (kW)	BTI-xxx (mm)	Sag X (mm)
1,5 kW	400	39 mm
	500	44 mm
	650	30 mm
2,2 kW	400	26 mm
	500	40 mm
	650	30 mm
3,0 kW	400	19 mm
	500	34 mm
	650	30 mm
4,0 kW	400	22 mm
	500	37 mm
	650	30 mm
5,5 kW	400	18 mm
	500	30 mm
	650	28 mm
7,5 kW	400	14 mm
	500	23 mm
	650	21 mm

Correct tension - Tail end for counterweight tension

Use the correct counterweight.

Motor output (kW)	BTI-xxx (mm)	Counter weight (kg)
1,5 kW	400	170 kg
	500	200 kg
	650	380 kg
2,2 kW	400	260 kg
	500	220 kg
	650	380 kg
3,0 kW	400	340 kg
	500	260 kg
	650	380 kg
4,0 kW	400	300 kg
	500	240 kg
	650	380 kg
5,5 kW	400	380 kg
	500	300 kg
	650	400 kg
7,5 kW	400	500 kg
	500	380 kg
	650	520 kg

7.

⚠ IMPORTANT!/WARNING!

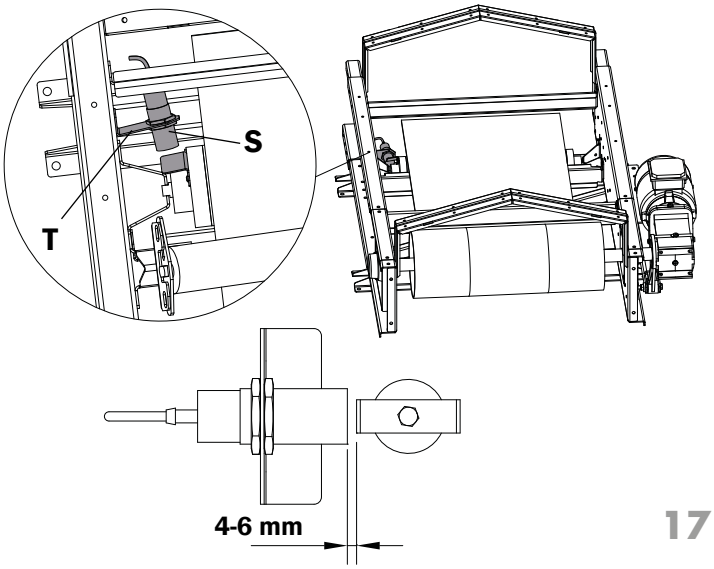
- Test run the machine to check the belt steering. If misalignment is detected, switch off immediately and make adjustments. See the Belt steering chapter in the assembly instructions.
- Make sure that no one touches the machine during test operation.

8.

Fit the speed monitor (S) in the holder (T) in the drive end.

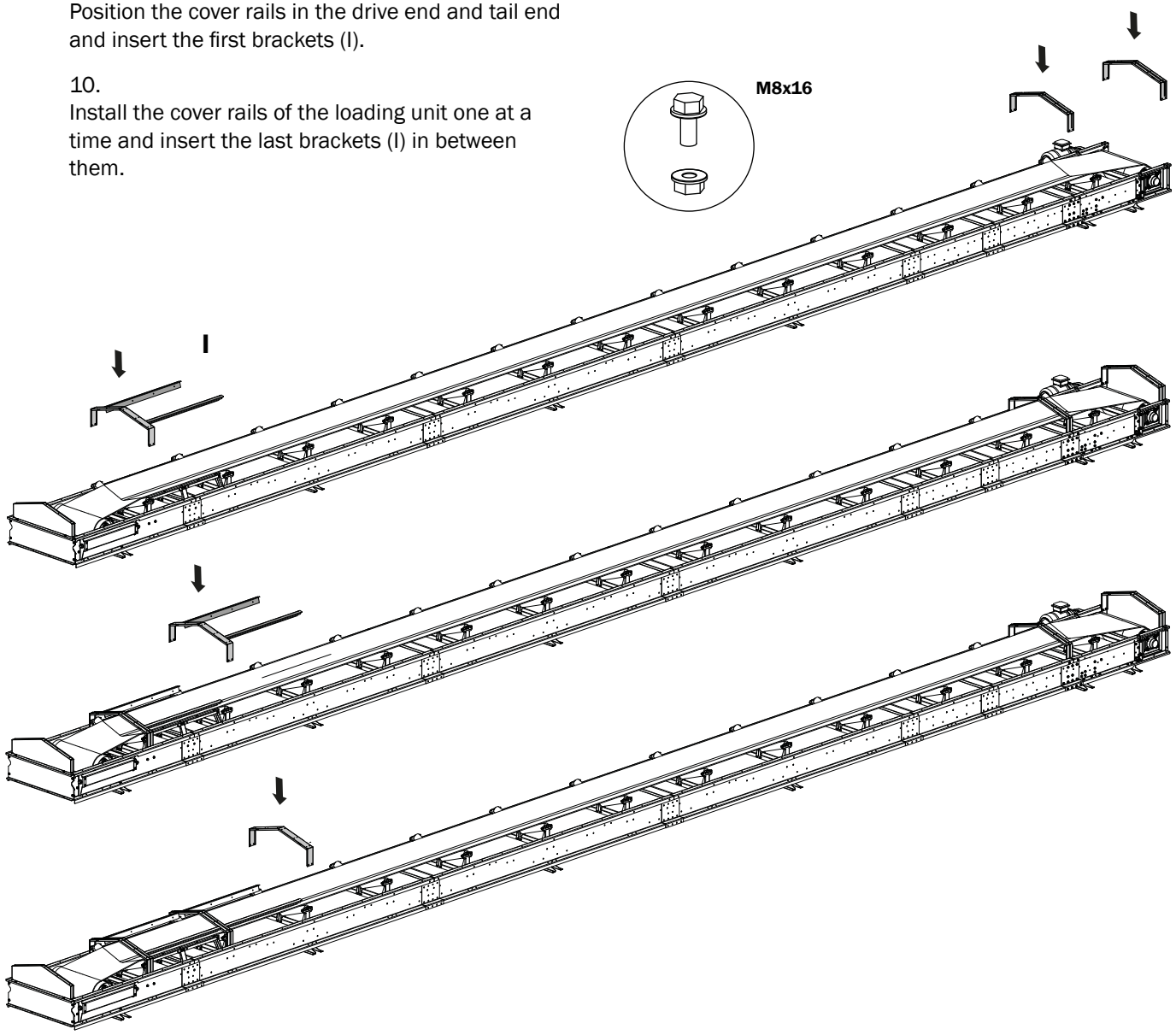
⚠ WARNING!

- Ensure the speed monitor is engaged during operation.
- All electrical equipment is to be connected by a qualified electrician. See separate connecting directions for electronics.



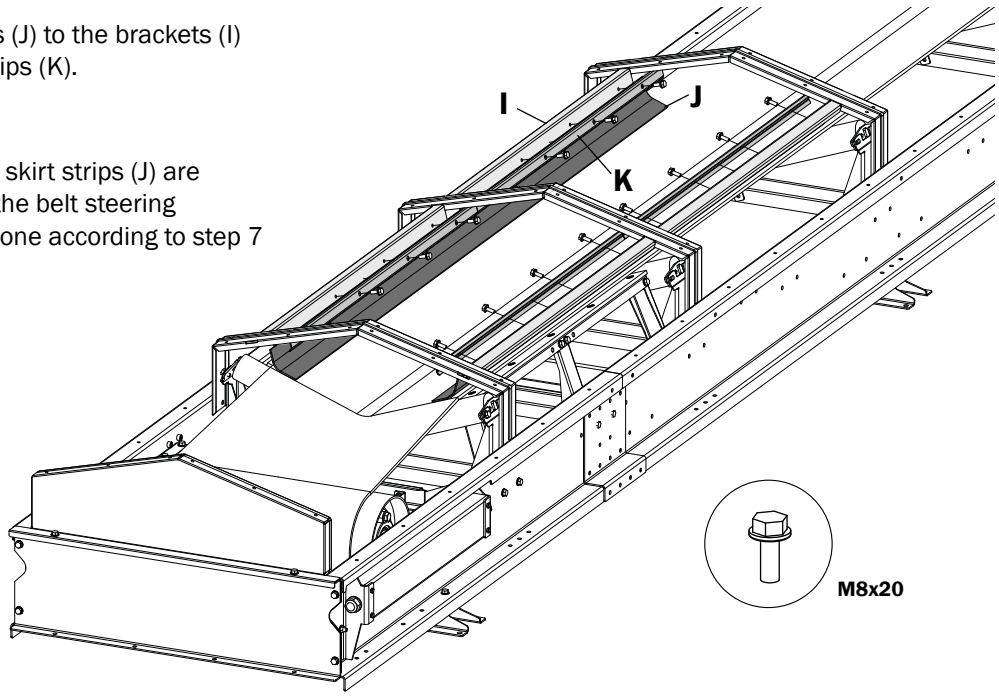
9.
Position the cover rails in the drive end and tail end and insert the first brackets (I).

10.
Install the cover rails of the loading unit one at a time and insert the last brackets (I) in between them.



11.
Attach the skirt strips (J) to the brackets (I) with the clamping strips (K).

⚠ **IMPORTANT!**
Ensure that the skirt strips (J) are mounted after the belt steering adjustment is done according to step 7 in this chapter.



12.

⚠ IMPORTANT!

Fit the rubber strip centred on the holders (I) and the cover rails.

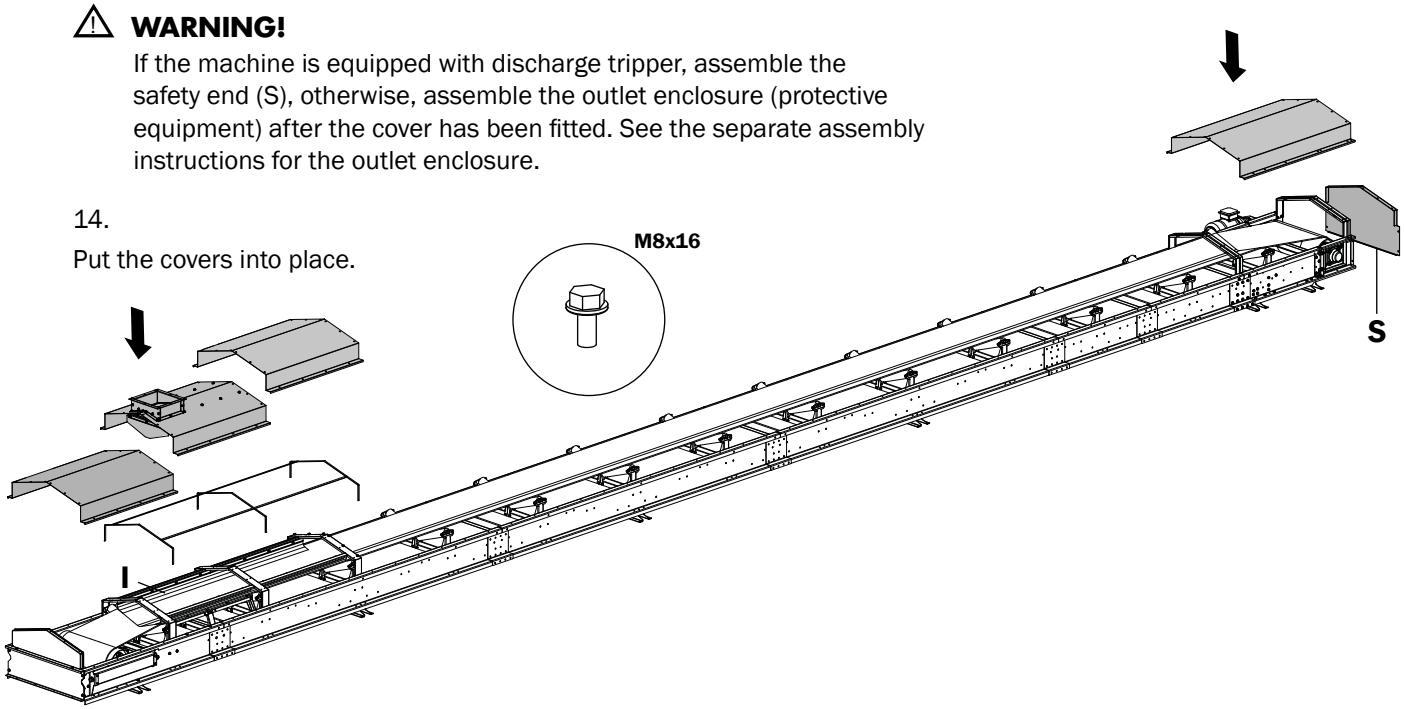
13.

⚠ WARNING!

If the machine is equipped with discharge tripper, assemble the safety end (S), otherwise, assemble the outlet enclosure (protective equipment) after the cover has been fitted. See the separate assembly instructions for the outlet enclosure.

14.

Put the covers into place.



15.

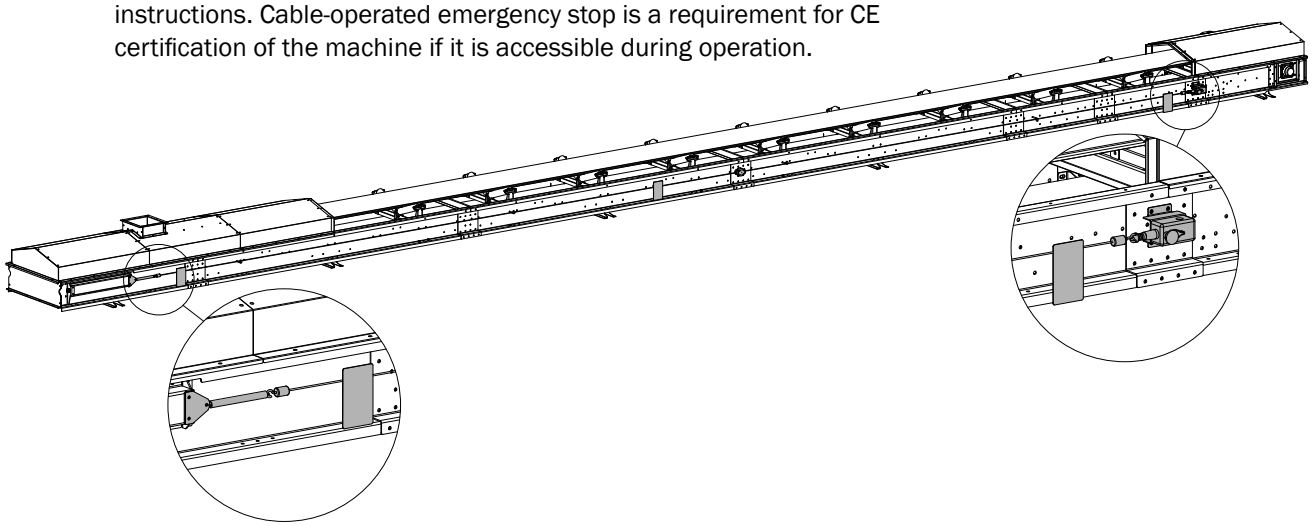
⚠ WARNING!

The rotating drive shaft is partially exposed between the angle gear motor and the drive if the weather cover is not used.

16.

⚠ WARNING!

Fit inlet cable-operated emergency stop according to the manufacturer's instructions. Cable-operated emergency stop is a requirement for CE certification of the machine if it is accessible during operation.



⚠ IMPORTANT!

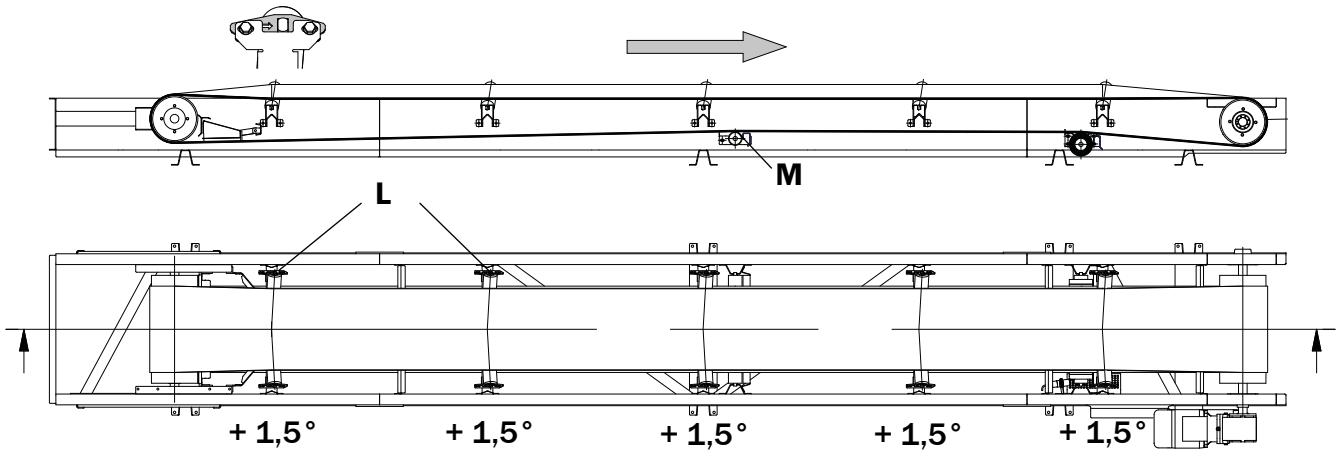
- On delivery, the carrying idlers (L) have a basic setting for conveying in one direction. Read more about the basic setting in the section: "Basic setting for carrying idlers and return idlers".
- Check and adjust the belt guide during assembly and again when putting the machine into operation. Start the machine and carefully monitor the belt guide along the full length of the machine on both the upper carrying part and the lower return part so that the machine can be quickly shut down in the event of any lateral movement.
- Rectify any lateral movement in accordance with the "Track guide adjustments" section on the following page.

Basic setting for carrying idlers and return idlers

On delivery, the carrying idlers (L) are forward-angled "knocked" about 1.5 degrees in the conveying direction to center the conveyor belt on the carrying idlers during operation. The idlers can be angled less and more for further fine tuning. NB! The angle can be a maximum of 3 degrees.

On delivery, the nominal position of the return idler (M) brackets are marked with a scribe line; see illustration on the following page.

See instructions for adjusting carrying idlers and return idlers on the following page.



Belt steering adjustments

⚠ IMPORTANT!

Ensure that belt guide adjustments are made in accordance with the instructions in this section. Initially, misalignment is corrected by adjusting return idlers (M) or carrying idlers (L) depending on where misalignment has occurred. As a last resort, the tensioning pulley (Q) or drive pulley (R) can be adjusted but only to correct any external deviations in the set-up of the machine.

Adjust misalignment as follows:

1.
Identify the precise location of the misalignment, usually on the return.

2.
Start to adjust the idler that is closest or second closest ahead of where the belt starts to become misaligned, depending on the length of the machine.

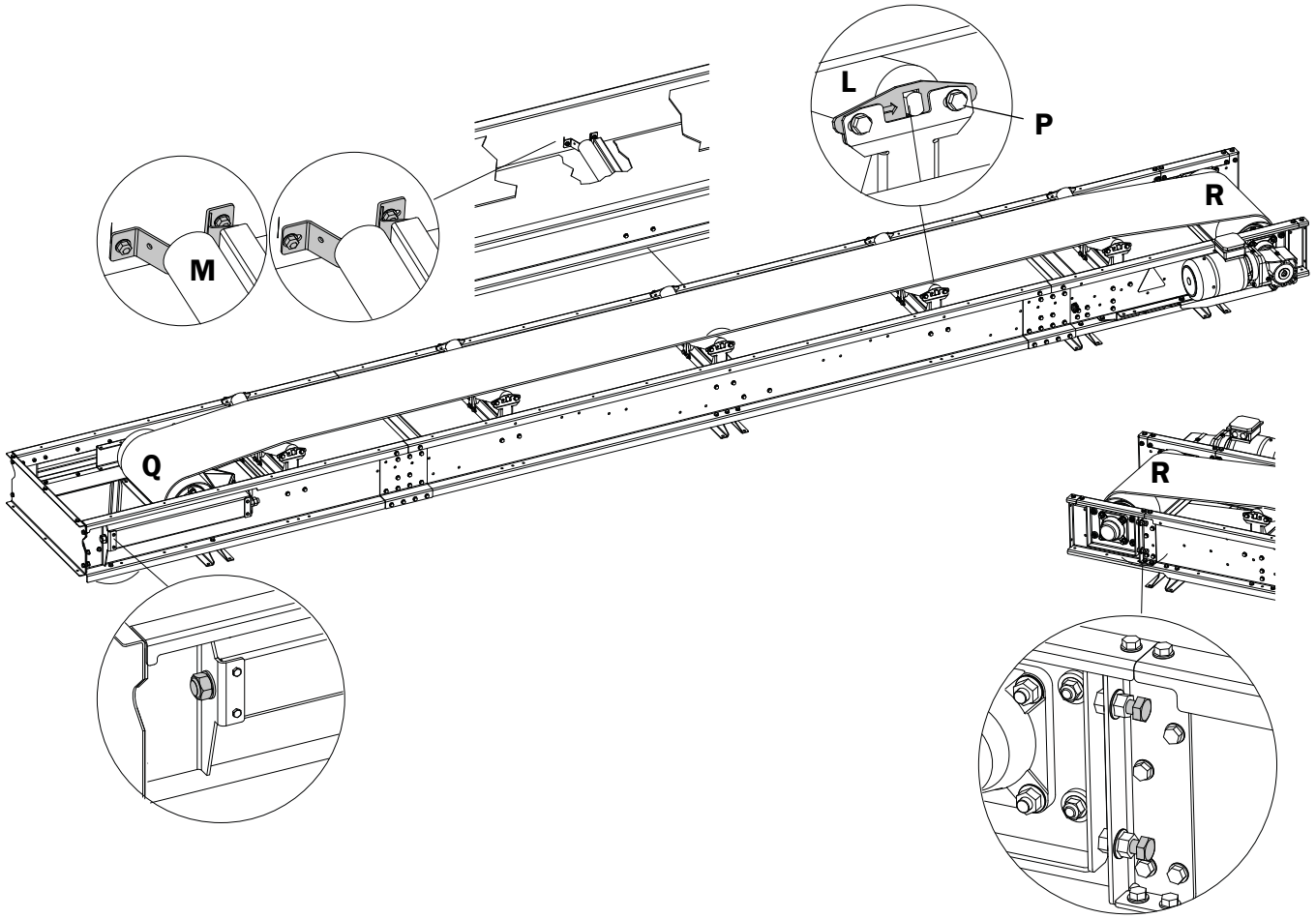
Adjustment for return idler
Adjust the position of one return idler (M) by tapping on the bracket at one end and adjust by a maximum of 2 mm.
NB! The original position of the bracket is marked by a groove. Make sure that you also mark what adjustment has been made and always make all adjustments on the same side of the machine.

Adjustment for carrying idler
Adjust the forward-angled position of one carrying idler (L) by loosening the screws (P), adjusting and retightening the screws.
NB! The more of the arrow that is visible the greater the angle. Start with a minor adjustment to a maximum of 2 mm. The adjustment can be made in both directions, there is an arrow on each side. See the information on basic settings for carrying idlers on the previous page

4.
Allow the belt to run at least two full revolutions and note the effect.

5.
If further adjustment is needed, continue by adjusting the next idler in sequence in the belt's direction of travel, one by one, in accordance with the instructions above, until the misalignment is corrected. NB! It is a better strategy to make minor adjustments on several subsequent idlers than to make one large adjustment on one idler.

6.
In exceptional cases, and as a final measure to correct any external deviations in the machine's set-up, the tensioning pulley (Q) or drive pulley (R) can be adjusted using the tensioning screw(s) on one side of the machine.


L
P
R
M
Q
R

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