

SOBY.COM
TRUSTED SINCE 1961



User manual

ST152-254

Thank you for choosing SØBY
In order for the machine to function
optimally, it is important to forllow the
instructions in this manual.

Enjoy.



Introduction

Thank you for choosing SØBY.

It is very important that you read this user manual to obtain the necessary knowledge regarding installation, operation, service, maintenance, and dismantling. It is important to keep the user manual in a safe location for future use.

At SØBY we always work to improve our machines therefore we reserve the right to improve and update our products continually. This mean that some machine parts will be removed from the product selection, but it will always be possible to get a corresponding machine part for our machines. SØBY will always be ready to help and guide regarding our products.

Enjoy.

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General instructions



Please read the entire User Instructions before assembling and operating the installation.

If the buyer makes technical modifications to the machine, any warranty from SØBY is cancelled. The declaration then loses its validity.

The guarantee is only granted if the following conditions are met:

- The unit may only be used as described in this manual. Replacing parts or changing the construction of the unit may require the equipment to be recertified.
- Assembly, commissioning and operation only by using this User Manual.
- Documentable compliance with maintenance intervals according to instructions.
- Operation of the trough auger only with motor protection or star Delta connection with motor protection.
- The area where the equipment is installed must be selected or arranged so that the unit is not unnecessarily exposed to mechanical influences from the surroundings which cause damage to the equipment.
- Only use the original spare parts of the manufacturer.
- All joints must be sealed by silicone to avoid dust emissions.
- Emergency stop must be installed according to current standard EN 60204-1.
- By normal operation of the machine, see pictogram devices and read user / assembly instructions.
- When working in areas where there is a risk of explosion, the safety of persons and equipment is subject to compliance with relevant safety regulations. Performing installation and maintenance work in such areas entails a special responsibility for the persons performing the work. The work in question requires that assembly and maintenance personnel have a thorough knowledge of the laws, rules and standards within the area. This construction provides a brief overview of the key safety issues associated with the installation, maintenance and use of the equipment. Attention is drawn to the fact that it is the end user's responsibility to identify any potentially hazardous areas in accordance with applicable regulations, with the following requirements for zone classification and any reporting to local authorities.
- Repair, service and maintenance must be done in strict accordance with the instructions of Søby and must be carried out by personnel who possesses the necessary qualifications in relation to the performance of the equipment's explosion safety. Inspection and maintenance concerning the electrical equipment should be based on the instructions in EN60079-17.

- For the mechanical parts, during the life time of the auger and in connection with use, please pay special attention to the following:
 - Lifetimes (see diagram)
 - Damages to tubes and screens
 - Corrosion
 - After tensioning of bolts and screws
 - Check of belts, including tensioning

- Modifications or alterations to the equipment that affect the equipment's explosion safety are not permitted. Before using the equipment, please check that it is undamaged, assembled and installed as directed by Søby.

Special attention is paid to the following:

- National security rules
- National requirements for safety and health at work
- National installation rules for the type of equipment in question
- Recognized standards
- The safety information in this manual
- Data and information about permitted installation- and operation conditions on rating plate of the equipment.
- Instructions for any type certificates for equipment mounted

on the unit. The manufacturer reserves the right to make technical changes.

The machine can be used for the transport of feedstuff, which causes an internal ATEX-zone zone 22. In case the machine is installed in an Atex zone, suitable gear and motor must be selected for this.

The machine can be used to transport the following materials, with data as shown below. Materials other than this may not be used in this machine:

- Grain, mixed dust
- Flour
- Minerals
- Soya bean meal
- Rape/beans

	Particle size [μm]	Ignition temperature Dust cloud [$^{\circ}\text{C}$]	Ignition temperature 5mm dust layer [$^{\circ}\text{C}$]	LEL [g/m^3]	MIE [mJ]	Kst [bar m/s]	Reference
Limit values	12	400	280	30	50	131	-

If the medium being conveyed, contains stones or metal parts, the explosion safety of the equipment cannot be guaranteed.

Must comply with EN 60079-10-2:2015 concerning explosive atmosphere/dust atmosphere.

Safety instructions



The instructions, and especially the safety information, must be read carefully prior to assembly, commissioning, operation and maintenance.

All installations and components must be installed in accordance with the applicable accident prevention regulations.

The machine must be shielded correctly in relation to the current Machine Directive, and as such make it impossible to get in touch with moving parts. The shielding may only be removed by using tools. These must be mounted before the machine is put into operation.

The motor must be properly protected with overload protection equipment, and the auger must be properly secured appropriate potential equalization.

During any repair or maintenance, disconnect the power source from the drive motor.

When the trough auger is running you should not be able to insert your hand into the drive device, in- and outlet as well as into the shutter.

Shields such as belt guard and inlet covers to prevent or remove risks must be maintained on a regular basis.

The machine must be installed so that there are ergonomic good conditions for servicing the machine.

The safety equipment, which has been removed during repair, cleaning or maintenance, must be re-established before using the installation again.

All screws, bolts and attachments must be properly tightened.

If the machine is stuck/clogged, the transmission might be overheated.

The trough auger may only be put into operation when it is assured that it is not defective. The operator is obliged to only operating the installation when it is in perfect condition.

If the trough auger is placed in areas classified as potentially explosive, specially approved motor and gear box must be used for the one in question. If you have any questions, please contact Søby for further information. It must be ensured that the ambient temperature in the area in which the equipment is installed, remains within the allowed limit values of the equipment $-20^{\circ}\text{C} \leq T_a \leq 40^{\circ}\text{C}$. Therefore, when installing the unit, it is necessary to consider any possible external heat sources that might affect the ambient temperature in the area where the equipment is installed.

During any work with the auger, there must be adequate work lighting.

Respiratory masks, safety shoes, hearing protection and other required safety precautions that might be required by the local workplace assessment, must be used during any kind of work with the machine, where the auger is installed. Furthermore, a helmet must be used during service and assembly/disassembly.

When assembling machines, heavy lifting might occur. Persons setting up the machine must read the assembly/user manual first. Suitable lifting equipment must be used in connection with installation and assembly.

Gloves must be used while handling the machine as there might be a risk of sharp edges.

The equipment must not be exposed to more dust loads (dust layers) than permitted in EN60079-14.

Please note that if the trough auger is expected to run empty for more than 30 seconds, it is necessary to install a dry-running sensor to ensure that the machine stops. Likewise, it is also ensured that the machine outlet is not clogged, for instance by using an overflow sensor. If there are noises from the machine during operation, the cause of the noise must be found and defective parts replaced.

Use of the machine

The trough auger is designed for horizontal conveying of grain and almost all seed and flour products within agriculture (see material specifications in general references).
The trough auger may not be used for tasks beyond these.

The trough auger is powered by a gearmotor. It moves the conveying material from an inlet to an outlet.

The complete installation must be observed in accordance with applicable regulations in this manual, and in accordance with the applicable Machine Directive 2006/42/EC.

The trough auger can have a speed of 280 – 400 rpm at the auger.
Maximum length is 29 m.

Explanation of the Pictograms



Prior to repair, maintenance and cleaning, turn off the motor and unplug the power cord. Hearing protection is mandatory. Moving machine parts can be dangerous. They are only to be touched when they are completely at ease. All shields must be installed before the machine is started.



Grease press



Seal for belt guard, can be turned and rotated according to the position of the motor, in connection with the belt guard. (see sealing part name)

Specifications

Conveying capacities (0,75 t/m³ dry and cleaned grain)
ST152 = 20-25 t/hour
ST205 = 35-40 t/hour
ST254 = 60 t/hour

Construction of module

Trough augers ST152-254 are constructed in modules, so that the desired lengths always can be achieved.

In/outlet sections

Inlet sections are placed on top of the extension, where you want your inlet to be placed. Outlet section is usually located at the end where the gearmotor is, and if more outlets are required, additional outlet boxes are used, which are cut to make space for in the trough and then mounted. Also available for the trough auger is a rack and pinion shutter with wire or motor operated function. Operation of shutter with wire takes place from an accessible place.

Pipework

The trough auger can be supplied in various kinds of piping to inlet and from outlet.
ST152 in- and outlet is Q16/Ø150/OK160
ST205 in- and outlet is Q20/Ø200
ST254 in- and outlet is Q24/Ø250

Pipes require 45° fall in order to enable grain and the like to slide. When working with seeds and other hard flowing products, the angle of the sliding is somewhat larger.

The trough auger is exclusively for horizontal conveying.

Technical data

Noise level: Operation with grain 79,8
dB(A) Without grain
80,7 dB(A)

Motor capacity: ST152 1,5-
5,5kW
ST205 1,5-
5,5kW
ST254 3,0-
11kW

See motor nameplate for more information.

Gear: Varvel RT/RS
Synthetic gear oil ISO VG 320 "long-
life" oil

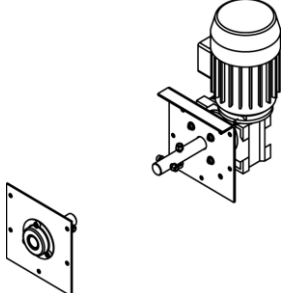
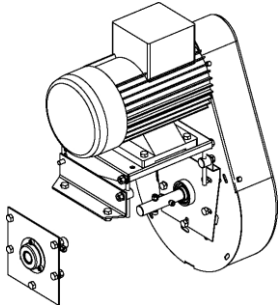
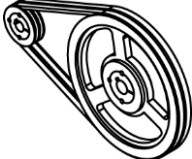
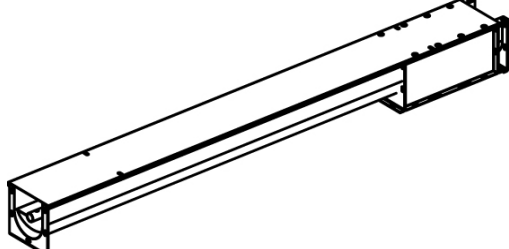
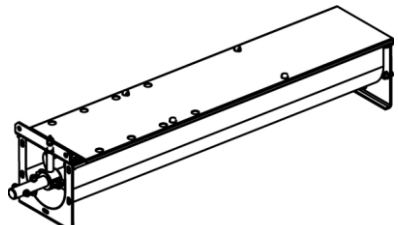
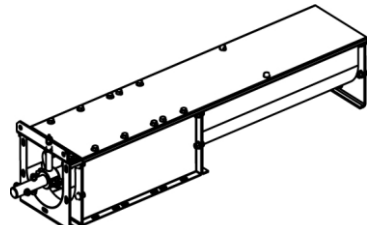
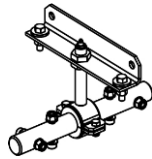
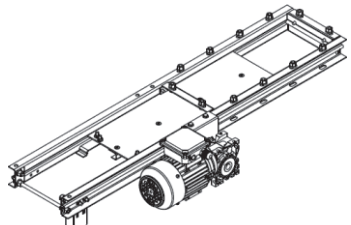
Conveying capacity:

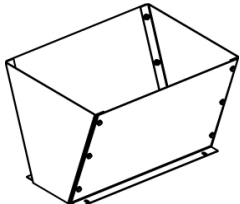
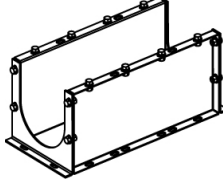
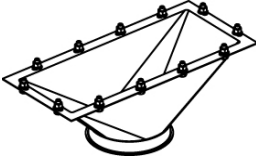
ST152 up to 25 t/h

ST205 up to 40 t/h

ST254 up to 60 t/h

Description of components

<p>Motor mounting plate with gear and end bearing cover</p> 	<p>Motor mounting plate with end bearing cover for belt drive</p> 
<p>Set of pulleys</p> 	<p>Trough auger extension with outlet 2 m</p> 
<p>Trough auger extension with intermediate bearing 2 m, 1,5 m, 1 m, 0,5 m</p> 	<p>Trough auger extension with outlet and Intermediate bearing 2 m, 1 m</p> 
<p>Divided bearing</p> 	<p>Rack and pinion shutter</p> 

<p>Inlet hopper</p>  <p>A 3D perspective drawing of a rectangular hopper with a vertical divider on the right side. The hopper is shown from a slightly elevated angle, highlighting its depth and the divider's position.</p>	<p>Extra outlet</p>  <p>A 3D perspective drawing of a rectangular frame structure with a curved bottom edge. It features several small circular components along the top and side rails, likely representing connection points or sensors.</p>
<p>Transition (outlet/inlet)</p>  <p>A 3D perspective drawing of a transition component. It consists of a rectangular frame with a circular base and a central vertical support. Small circular components are distributed along the top and side rails.</p>	

Installation of ST152-254

The installation of trough auger, as referred to in this section, is a guideline from SØBY. If this is followed, a safe and uniform assembly of the trough auger is ensured.

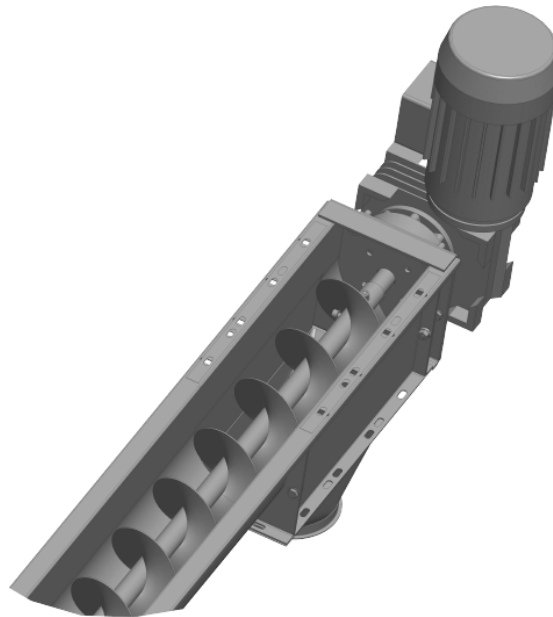
The machine can also be assembled in other ways.

Installation of the trough auger may only be carried out by specially instructed staff.

The trough auger comes in modules. Before starting the installation, make sure that all parts are complete and delivered according to the order.

Remove the lid on trough auger extension (basic unit). Mount bearing plate for motor bracket at the outlet and mount the auger on drive shaft. (see figure 1). Additional troughs are screwed on this the same way (first, all bolts must be screwed in manually only). Once all troughs are mounted and aligned, tighten the bolts.

Figure 1



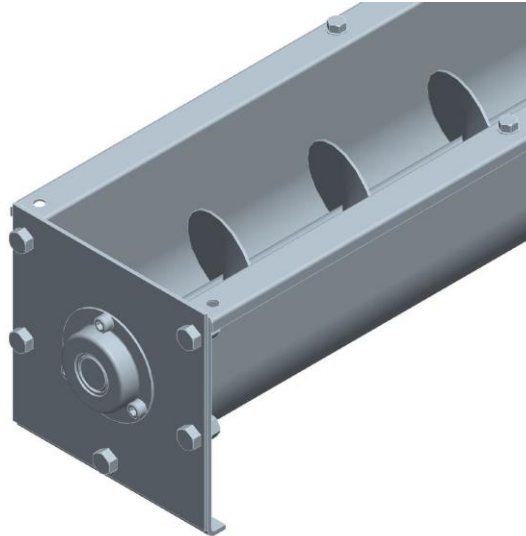
Screw the assembly pin into the inner auger. Mount the intermediate bearing. (see figure 2). Additional inner augers are mounted in the same way. The height of the intermediate bearing is adjusted so that the inner augers do not touch the trough. (Distance from trough approx. 3 mm).

Figure 2



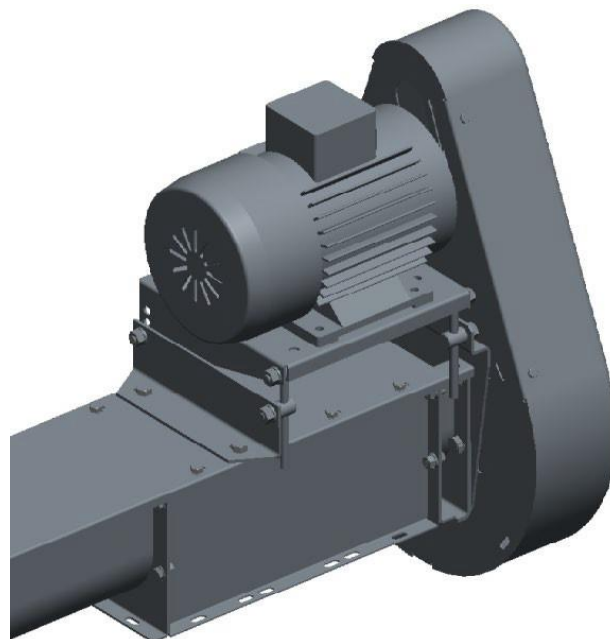
Mount the end bearing cover (see figure 3)
When all inner augers are mounted and positioned, tighten all screws.

Figure 3



Attach lid and angle bracket to the trough, attach the motor bracket to angle and bearing plate. Mount the tension screws to the motor bracket (Figure 4). Install the motor on the motor bracket. Turn the V-belt tensioning device completely down. Join the V-belt pulleys and taperlock bushes loosely. The large V-belt pulley is pushed onto the drive shaft and fastened with two threaded pins. Push the small V-belt pulley into the motor shaft. Make sure that the two V-belt pulleys are aligned.

Figure 4

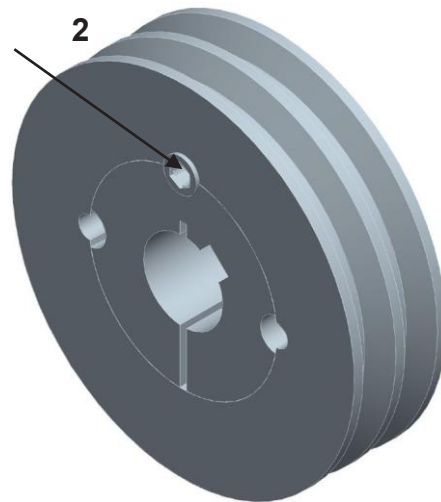
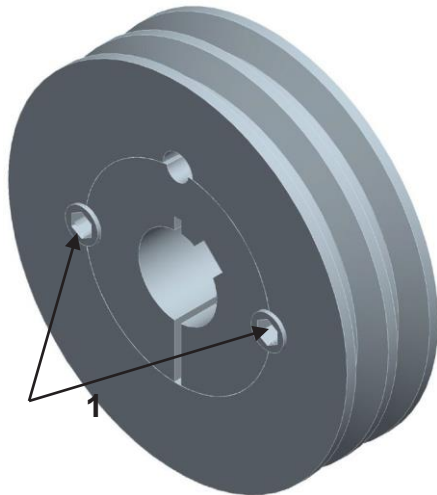


Taperlock

Figure 5

In order to tighten the pulley on the shaft, tighten the threaded pins in the 2 holes facing each other position 1

In order to loosen the taperlock bushes, unscrew the threaded pins; turn one of these threaded pins into the third hole position 2 again and tighten it.



Sealing of flange between gear and motor

The assembly must be jointed at the upper side in order to avoid entering of water.

Figure 6

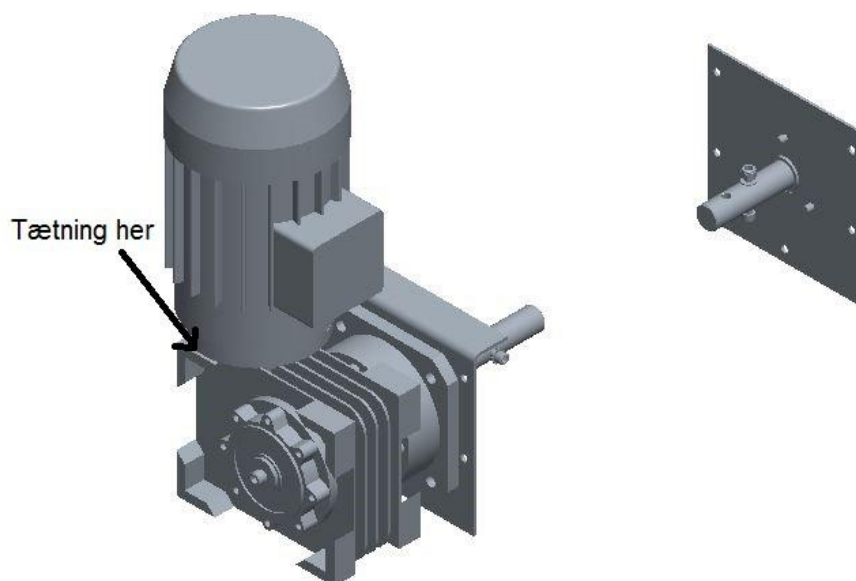


Figure 7

Finally, extra outlet, inlet and possibly slide are mounted. In order to install slide, extra outlet must be mounted first.

When installing extra outlets, cut holes in bottom of trough with angle grinder before mounting.



Supports

The machine must have supports for every 4 m, and joints between parts must be properly made.



Electrical equipment

The electrical connection to the machinery delivered by Søby may only be performed by specially trained staff.

During installation, please be aware of the voltage and data indicated on the data plate. Connect the motor terminals according to the instructions on the motor nameplate. The motor is secured with a thermal protection and a lockable circuit breaker, as otherwise the warranty from the motor manufacturer will be cancelled. (This equipment is not included in the delivery).

Installation and connection of the unit must take place in accordance with national rules of installation, supplemented by the demands stated in the heavy current regulations, EN60204-1 and EN60079-14. Commissioning of the electrical parts and subsequent maintenance must be in accordance with the instructions in EN60079-17.

When connecting the trough auger, make sure that the direction of rotation of the trough auger matches the requested direction of conveying.

Potential equalization:

The connection must be carried out in accordance with the instructions in EN60079-14.

Operating and commissioning

During operation of the trough auger, the applicable regulations for prevention of accidents must be observed.

Add conveying material to the auger and check if this can run freely.

Avoid as far as possible operating with an empty auger as this causes considerable wear of bearings/intermediate bearings, and this will generate significantly more noise from the trough auger.

During normal operation, the trough auger will only be filled to approx. the middle of the auger. The filling height will, however, depend of the crop.

Maintenance

During maintenance work, the safety regulations, which are described in the section Safety Instructions, must be observed.

If the auger is operated with a V-belt, the tension must be checked every 3 months. In case of frequent use of the trough auger, the V-belt tension is checked every month. When tightening the belt, check it for abrasion. If this is the case, replace it immediately. If it is no longer possible to tighten, the V-belt must be replaced.

The trough auger is worn, depending on amount of dirt in the material conveyed, and must be checked once a year for abrasion or damages. Foreign objects, such as pieces of wood, stone or iron, may cause damages.

If foreign objects are stuck in the auger, these can be removed by using appropriate tools, but under no circumstances by your own hands. If necessary, disassemble the auger.

Parts that might be worn are replaced at the same time. However, foreign objects must always be avoided.

Please note that the safety of motors, gear and bearings is subject to compliance with maintenance intervals/replacement.

The electrical motors are dimensioned in a way that they cannot be overloaded during normal operation, if they have been correctly mounted and installed. The motor circuit breaker will disconnect the power supply, if the motor is overloaded or in case of power supply fault. Fuses and motor safety switch must be controlled and replaced by specially instructed staff if necessary.

The following equipment on the unit is maintained with the following intervals:

Equipment	Manufacturer	Intervals of maintenance:
End bearing	PTI	Must be replaced for every 10.000 operating hours
Intermediate bearing	SØBY	Must be replaced for every 1000 operating hours Lubricate every 300 hours
Belt	PTI	Must be replaced for every 1.000 operating hours. The V-belt tension must be checked every 3 months. By frequent use of the trough auger, check the V-belt tension every month. When tightening the belt, check for abrasion if this is the case, replace it immediately. If it is no longer possible to tighten, the V-belt must be replaced. The V-belt must be antistatic and fire retardant.
V-belt pulleys	PTI	Must be replaced for every 10.000 operating hours
Motor	Cantoni /techtop	Must be replaced for every 20.000 hours
Gear box	Varvel	It is important to emphasize that the explosion safety is subject to the maintenance required below: Dust layer more than 5 mm must be removed by a vacuum cleaner. For every 500 operating hours seals are examined for leakages. For every 3000 hours or every 6 months a visual inspection of oil seals must be carried out, and in case of signs of abrasion the seal must be replaced.
Auger trough	SØBY	Must be check for sign of corrosion for every 1.000 hours.

Cleaning

The trough auger should be cleaned regularly in order to avoid product mixtures, formation of bacteria and damages of the product.

In order to avoid overheating, dust layers at motor and gear must be removed regularly.

At least once a year the whole trough auger should be cleaned and inspected for faults and abrasion.

Cleaning is necessary when changing crops in order not to mix these.

When conveying highly adhesive products, such as rape, corn, soya bean meals and the like, all inlets and outlets must be controlled for free passage.

Check that the inner auger is in good condition and that the bearings and other parts are not defect, otherwise they should be replaced. Also, it must be checked that the chain is not stuck.

During cleaning, the precautions described under safety instructions are carried out.

Troubleshooting

Defect	Possible cause	Remedy
The trough auger does not start	The power supply is disconnected	Check electric power cable and replace it if necessary
	The motor fuses are defective	Replace fuses
	The safety switch of the motor is defective	Replace the safety switch of the motor
	The motor is defective	Replace the motor
	A foreign object blocks the trough auger	Remove the foreign object by suitable means
The motor stops / is overloaded	A foreign object blocks the trough auger	Remove the foreign object by suitable means
	The outlet is blocked	Clean the outlet
	Too much conveying material in the trough	Adjust admission to smaller quantities of conveying material
	The power supply is disconnected	Check electric power cable and replace if necessary
	The motor fuses are defective	Replace fuses
The trough auger does not convey / conveys irregularly	The drive shaft is broken	Replace the drive shaft
	The inner auger is too worn	Renew the inner auger
	The inner auger has been bent due to a foreign object	Remove the foreign object by suitable means, straighten the auger or replace it if necessary
	The V-belt tension is too weak	Tighten the V-belt, replace if necessary
	The conveying material is too polluted	Clean the conveying material
	The conveying material is too moist	Dry the conveying material
	Insufficient conveying material available	Add conveying material

Residual Risk

The trough auger is produced in accordance with the health and safety requirements, which are set out in the ATEX and in the Machinery Directive, and in accordance with the consequently harmonized standards. If these regulations are disregarded, the trough auger might be a danger to the operator or to the life and limb of a third party. See Declaration of Conformity.

Supplier Instructions

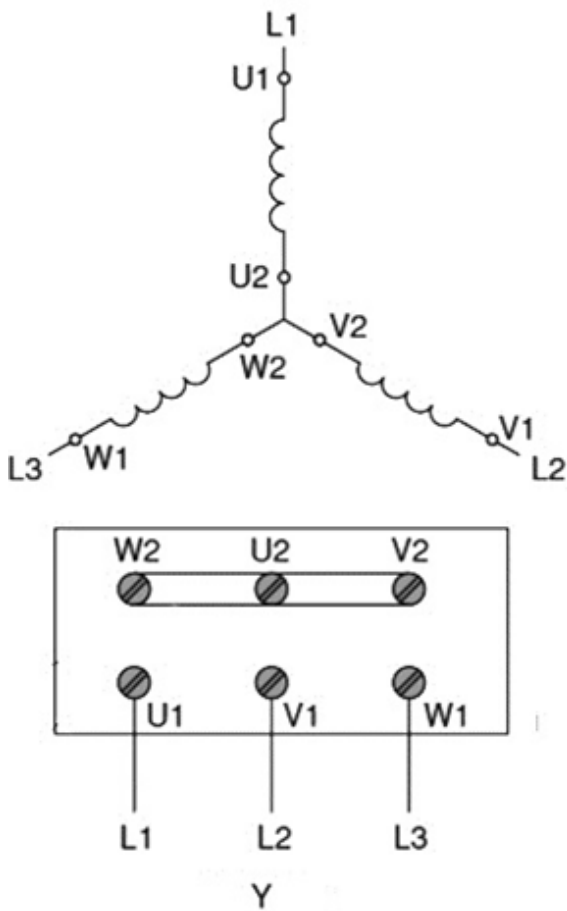
Potential equalization:

There is a terminal for connecting the equalization connection in the terminal box of the motor. The connection must be carried out in accordance with the instructions in EN60079- 14.

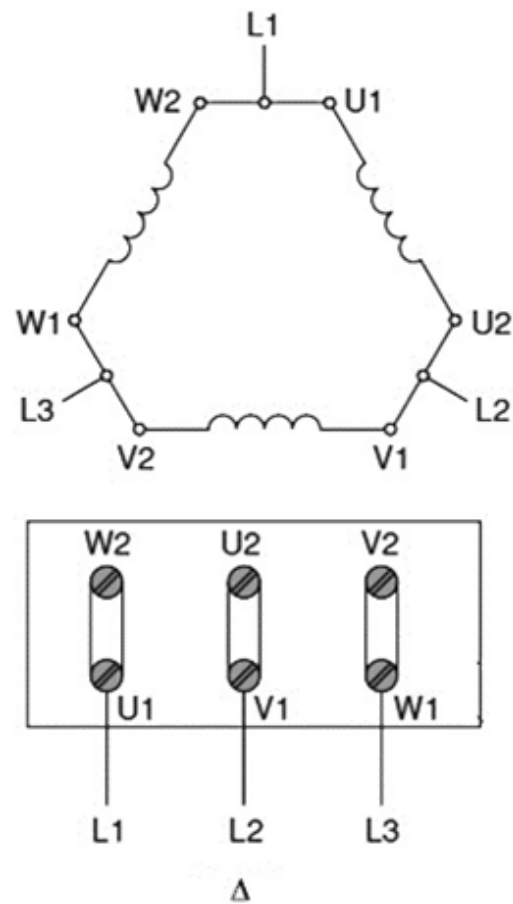
Connection diagram for Cantoni motors for either star or triangle connection. Standard motor terminal connection diagrams

3-phase single-speed motors:

Connection in a Y



Connection in a Δ



OMRON

Model D4D - □IN

Small Safety Limit Switch

Instruction Sheet

Please read all instructions before using to ensure proper use and application of the switch. Save this instruction sheet for future reference.



098595-81E

OMRON Corporation

NOTICE

- Do not disassemble or touch leads under power-on.
- When operating limit switch as part of a safety circuit or an emergency stop circuit to prevent injury, select positive opening approved type and operate the NC contacts that have positive opening function in positive mode. For safety, tighten the switch body with assembly screws or nuts. ② Install a safety lock which prevents turning back the safety to prevent easy removal of the switch.
- Connect the fuse to the switch in series to prevent short-circuit damage. The value of the fusing current of the fuse must be calculated by multiplying rated current by 150 to 200%. When using the switch with EN contacts, use IFA fuse. Type of fuse that complies with IEC60361.
- Do not put the electric power when wiring.
- When wiring, use shielded twisted pair cable for signal and other shielded cables may be present.
- Keep the electrical lead below the rated value.
- Be sure to evaluate the switch under actual working conditions after installation.
- Do not drop the switch. Sensitive shock will vibration can cause deterioration or other damage to switch components. Do not disassemble the internal switch, there are no user-replaceable parts inside.
- Do not use the switch as a stopper.
- Operating limit switch suddenly causes early deterioration or faulty returning. Check and replace limit switch occasionally.
- Environment.
 - This switch is intended for indoor use only.
 - Do not use the switch under any of the conditions mentioned below:
 - Frequent temperature change.
 - High humidity or where dew condensation may be generated.
 - Where the switch is subject to water vibrations.
 - Where the metal dust, oil or abrasion is sprayed.

Level	16.1 to 170N-cm	
Body starting screw	6.8 to 0.68N-cm	M3 screw
Coil spring	1.7 to 2.18N-cm	G1/2, PG13.5
Coil spring	1.07 to 1.27N-cm	1/2"-14NPT
Cap screw	3.27 to 18.7N-cm	

- Adjusting lever position:
 - The position of the lever can be set at any point of 360° with the lever stopper. The stopper on the shaft prevents it from slipping. The length of the adjustable roller lever can also be changed by loosening the lever clamping screw.
 - When installing the lever in the opposite direction, disassemble the lever clamping screw and set the lever so as to finish the travel in the range of the horizontal length 18°.
 - Changing direction of switch travel:
 - The direction of the switch travel may be adjusted to any of the four corners of the head and no foreign material will enter causing a change in direction.

- Wiring:
 - Connect the wire to the terminals not directly, but using spade or ring connectors with insulation tabs. Adequate connector size is AMG-20 to 14 (2.0 to 2.5mm).
 - From the ring terminals extend the wire to the lower portion so that it will not come up along the case or cover.

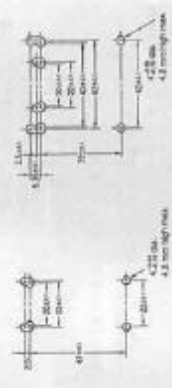


- Coil spring:
 - Tighten the connector with specified torque in item 14.
 - An excessive torque will bring a coil linkage.
 - This switch is not for use with rigid conduct.
 - Driver and coil spring applications require IFRG protection.
 - Apply sealing tape between connector and conduct opening so that the enclosure will conform to IP65.
 - Use a tube with a suitable diameter for the connector.
 - For wired conduct opening of 2 conduct opening type, apply a conduct cap provided and tighten 4 to specified torque in item 14.

Size	Manufacturer	Type	Minimum wire diameter
G1/2	Driver	SC-8	7.5 to 8.0mm
	LAPP	ST-PPF, B800-1002	8.0 to 12.0mm
	Omron Densit	DA-W4668	7.0 to 9.0mm
PG13.5	LAPP	ST13.5, S301-920	9.0 to 12.0mm
	HEYCO	321E	4.3 to 11.5mm
1/2"-14NPT	LAPP	ST-14NPT, H91-923	6.0 to 12.0mm
	HEYCO	321F	6.3 to 11.5mm

LAPP is a German manufacturer.
Omron Densit is a Japanese manufacturer.
HEYCO is an American manufacturer.

- Mounting screw/Tightening Torque:
 - Loose mounting may result in malfunction. Exert the screws to the specified torque.



Terminal screw	6.8 to 0.68N-cm	M3 screw
Coil spring screw <th>1.7 to 2.18N-cm</th> <th></th>	1.7 to 2.18N-cm	
Head clamping screw <th>0.75 to 0.81N-cm</th> <th></th>	0.75 to 0.81N-cm	

CAUTION

Not following a procedure gives as a "Caution" can result in injury or property damage to the product or others.

CAUTION

Do not use metal conductor or conduct with this switch. Rigid conductor and conduct may damage the switch. This broken conduct hook may cause electrical shock hazard.

26. Technical specifications

The specifications below apply to positive opening type switches only (Type D4D-COMIN or D4D-COMIN).

UL/CSA listed rating	UL/CSA listed rating, IACS	UL/CSA listed rating, IACS
EN 60361	UL/CSA listed rating, IACS	UL/CSA listed rating, IACS
Rated voltage: AC 115V	Rated voltage: AC 115V	Rated voltage: AC 115V
Rated current: 1A	Rated current: 1A	Rated current: 1A

UL/CSA listed rating	UL/CSA listed rating, IACS	UL/CSA listed rating, IACS
EN 60361	UL/CSA listed rating, IACS	UL/CSA listed rating, IACS
Rated voltage: AC 115V	Rated voltage: AC 115V	Rated voltage: AC 115V
Rated current: 1A	Rated current: 1A	Rated current: 1A

UL/CSA listed rating	UL/CSA listed rating, IACS	UL/CSA listed rating, IACS
EN 60361	UL/CSA listed rating, IACS	UL/CSA listed rating, IACS
Rated voltage: AC 115V	Rated voltage: AC 115V	Rated voltage: AC 115V
Rated current: 1A	Rated current: 1A	Rated current: 1A

Precautions In Using the Product

Always use this product within its rating and specifications and apply appropriate safety measures. For assistance with any of the applications listed below, please contact an OMRON distributor.

- Conditions and circumstances which are not mentioned in this instruction sheet.
- Control of motor power, tanks, airplanes, automobiles, excavators, medical devices, parts machines, or safety devices used in safety applications to prevent injury or property damage.

Contact the following sales offices about product information:

North America	USA	Canada	Europe	Headquarters	Asia and Pacific
OMRON ELECTRONICS INC.	OMRON ELECTRONICS INC.	OMRON CANADA INC.	OMRON EUROPE LTD.	OMRON LTD.	OMRON (SHANGHAI) ELECTRONICS CO., LTD.
Phone: 1-800-541-7888	Phone: 1-800-541-7888	Phone: 1-416-366-6162	Phone: 1-418-366-6162	Phone: 81-52-861-5100	Phone: 86-21-6349-8198
OMRON ELECTRONICS (CANADA) LTD.	OMRON ELECTRONICS (CANADA) LTD.	OMRON ELECTRONICS (CANADA) LTD.	OMRON ELECTRONICS (CANADA) LTD.	OMRON ELECTRONICS (CANADA) LTD.	OMRON ELECTRONICS (CANADA) LTD.
Phone: 1-416-366-6162	Phone: 1-416-366-6162	Phone: 1-416-366-6162	Phone: 1-418-366-6162	Phone: 81-52-861-5100	Phone: 86-21-6349-8198
					Phone: 86-21-6349-8198
					Phone: 86-21-6349-8198
					Phone: 86-21-6349-8198
					Phone: 86-21-6349-8198

Working Instructions & Maintenance

Lubricants

LUBRICANTS

Recommended Types

All the units are delivered already filled with synthetic long-life oil.

The safe operation of the units with ISO VG 320 grade lubricant is recommended in the ambient temperature range
-20 to +55 °C (-4 to 131 °F)

Other temperatures require specific recommendations for low or high temperatures to ask the Customer Service.

Temperature range	ISO VG								
	* 320	Degol GS 320	Energyn SG-XP320	Alphasyn PG 320	Glycolube 320	Glygoyle HE 320	Synlube CLP 320	Carter SY 320	Tivela SC 320
	** 320	Eural Gear 320	---	Vitalube GS 320	Gear Oil FM 320	Mobil DTE FM 320	---	Nevastane EP 320	Cassida Fluid GL 320

* - Synthetic oil

** - Food Industry Approved Oil

Quantity [litres]

RC	2c			3c			4c				
	l ₁	l ₂	l ₃	l ₁	l ₂	l ₃	l ₁	l ₂	l ₃		
RC205	0.13	0.15	0.15	RC305	0.17	0.30	0.30	RC305	0.21	0.40	0.40
RC210	0.17	0.25	0.17	RC310	0.25	0.50	0.35	RC310	0.35	0.70	0.50
RC220	0.50	0.60	0.50	RC320	0.60	0.80	0.60	RC320	0.85	1.10	0.85
RC230	0.70	1.15	0.80	RC330	1.15	1.50	1.15	RC330	1.25	1.60	1.25
RC240	1.15	2.25	2.00	RC340	1.50	3.00	2.25	RC340	2.75	5.00	3.50
RC250	2.25	4.40	4.00	RC350	3.75	6.00	5.00	RC350	6.50	10.0	8.00
RC260	6.00	8.80	8.00	RC360	8.00	10.0	8.80	RC360	12.0	15.0	13.5
2c - Two stages			3c - Three stages			4c - Four stages					

l₁ = B3, B6, B7, B8, B5

l₂ = V1, V5

l₃ = V3, V6

RD	2c		3c		
	H	V	H	V	
RD02	0.20	0.28	RD03	0.30	0.38
RD12	0.50	0.70	RD13	0.50	0.70
RD22	0.80	1.00	RD23	0.80	1.00
RD32	1.30	1.80	RD33	1.60	2.10
RD42	2.20	3.00	RD43	2.20	3.40
RD52	4.50	5.50	RD53	4.50	6.50
RD62	7.00	9.00	RD63	7.00	11.00
2c - Two stages		3c - Three stages			

H = H1, H2, H3, H4

V = V5, V6



Declaration of Conformity



The Company

Søby Maskinaktieselskab
Viborgvej 306
DK-7840 Højslev
Denmark

Herewith declares that under the provisions of EC directives
2014/34/EU, potentially explosive atmospheres
2006/42/EC, machine directive
2004/108/EC, EMC directive
In its current form.

The model supplied by Søby Maskinaktieselskab of the following product type

type: ST152-ST254

As referred to in this declaration
Complies with the following standards and normative documents
In their currently valid form:

EN 60079-0:2012	Explosive atmospheres - Part 0: Equipment - General requirements
EN 60079-14:2014	Explosive atmospheres - Part 14: Electrical installations design, selection and erection
EN 60079-31:2014	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
EN 1127-1:2011	Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology
EN ISO 80079-36:2016	Non-electrical equipment for use in potentially explosive atmospheres Part 1: Basic method and requirements
EN ISO 80079-37:2016	Non-electrical equipment for use in potentially explosive atmospheres Part 5: Protection by constructional safety 'c'
EN ISO 12100:2011	Safety of machinery - Risk assessment - Part 1: Principles
EN 60034-1:2010	Rotating electrical machines - Part 1: Rating and performance
EN 60034-5:2007	Rotating electrical machines - Part 5: Classification of degrees of protection provided by enclosure for rotating machinery
EN ISO 12100:2011	Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology
EN ISO 12100:2011	Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles
EN 13857:2008	Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs
EN 60034-30-1:2014	Rotating electrical machines - Part 30: Efficiency classes of single-speed, three-phase induction motors (IE-code)
EN 61000-6-2:2005	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments
EN 61000-6-3:2011	Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
BGR 132	Avoiding ignition dangers due to electrostatic charges

The product are marked additionally with the following characteristic:



II 2 D Ex h IIIB T85°C Db

If the unit is to be installed in potentially explosive atmospheres, the outside mounted equipment must be selected according to 2014/34/EU. This unit is only intended for handling materials which gives an internal explosive atmosphere.

Højslev, Feb, 2017

Director
Frants Frantsen



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