

User Manual

SD-600

Dough Divider



MACHINE TYPE					
SERIAL NO					
POWER		kW	CURRENT		A
VOLTAGE		V	FREQUENCY		Hz
YEAR OF MANUFACTURE					



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SDG



Sveba Dahlen Group

**SVEBA
DAHLEN**



Glimek
baking
system



Scandinavian know-how – worldwide

Foreword

We congratulate you on your purchase of a first class dough divider, made by Sveba-Dahlen AB. This machine has been controlled and test operated to make sure that its function, equipment, and finish are satisfactory.

The dough divider measures different dough types of the same volume. The machine is made to have a high level of precision in weighing and to be careful with the dough. An important factor to get a high level of weighing precision is that the rising procedure in the dough preparation must be carried out under controlled conditions. During the rising, which will start directly

after the dough has been mixed, the volume and the gases in the dough will increase, which means that the volumetric weight will decrease. This must be regarded for the use of the machine.

The operator must know how to use a baking machine. The machine is safe and easy to use, keep and service. To get the maximum performance from the machine, it is important that it is used correctly and that the instructions in the user manual are followed.

Keep this user manual near for use when necessary.

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Receiving inspection

The machine is carefully packed, but can be damaged during transport. Thus, a receiving inspection is necessary:

1. Make an inspection of the packaging. If there is damage tell this immediately to the transport driver and make a note of the damage on the freight bill.
2. Unpack the machine and make an inspection of it for damage. Open up all covers and do a visual control of the machine, also in the hopper. Close the covers. If there is damage, tell the supplier.

If there is damage we recommend that you photograph it.

Included with the machine

1 user manual

This equipment can be found in the collecting drawer:

- 1 dough scraper with long handle
- 1 cleaning scraper
- 1 key to the covers



Included equipment in the collecting drawer.

Safety Instructions



Please read the safety instructions carefully before use.

The operator must understand the machine's functions and operations, and study the machine's warning signs. The owner must make sure that the warning signs on the machine are in position, can be read and are obeyed.

This machine is made so that operators can use the machine safely. Mechanisms and electrical equipments have, as far as possible, covers and safety devices, some of which also are together with safety switches. The owner must make sure that the covers and safety devices are in position and can be operated when the machine is in use. The machine

can only be used if these covers and safety devices are in position and can be operated.

The machine must be in cleaning mode and turned off during all cleaning and maintenance. SVEBA-DAHLEN original spare parts must be used in all repairs of this machine to ensure the quality of the machine's functions and operations.

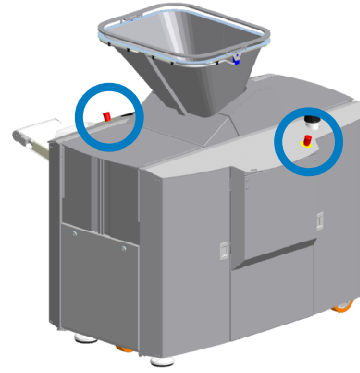
Sveba Dahlen AB and the supplier disclaim all liability for direct or indirect damages to persons or property, caused by these instructions not having been followed.

Emergency stop

The machine has two emergency stops, one on each side of the machine.

The operators must know that the emergency stop must only be used if an acute dangerous situation to person or property occurs. The emergency stop must not be used to stop the machine under ordinary circumstances.

When the emergency stop is used, the machine stops instantly and the pneumatic system is de-aired. To reset the emergency stop, after the underlying cause has been remedied, pull up the upper part of the button.



Two emergency stops on the machine.



Warning signs on the hopper and the electric cabinets.

Warning signs

The machine is supplied with warning signs to warn the operator of incorrect use and to make operation easier.

Always follow these warnings signs and make sure nearby persons do the same.



WARNING!

The owner must make sure that the warning signs on the machine are in position, can be read and are obeyed.

Primary power switch

The primary power switch is found on the outside, on the door to the electric cabinet. To turn on the power, turn the switch to the position identified 1.



WARNING!

Turning off the primary power switch does not mean that the entire system is dead. There is voltage in the supply cable and the primary power switch connections.

Electric cabinet

The electric cabinet on the rear can only be opened when the primary power switch is turned to 0. Make sure that the covers are closed again after work has been carried out in the electric cabinet.



WARNING!

Work inside the electric cabinets must only be done by qualified persons. The supply voltage to the electric cabinets is at least 220 Volts. Accordingly, an electric shock is dangerous for life.

If an accident occurs, immediately get an ambulance or medical aid.

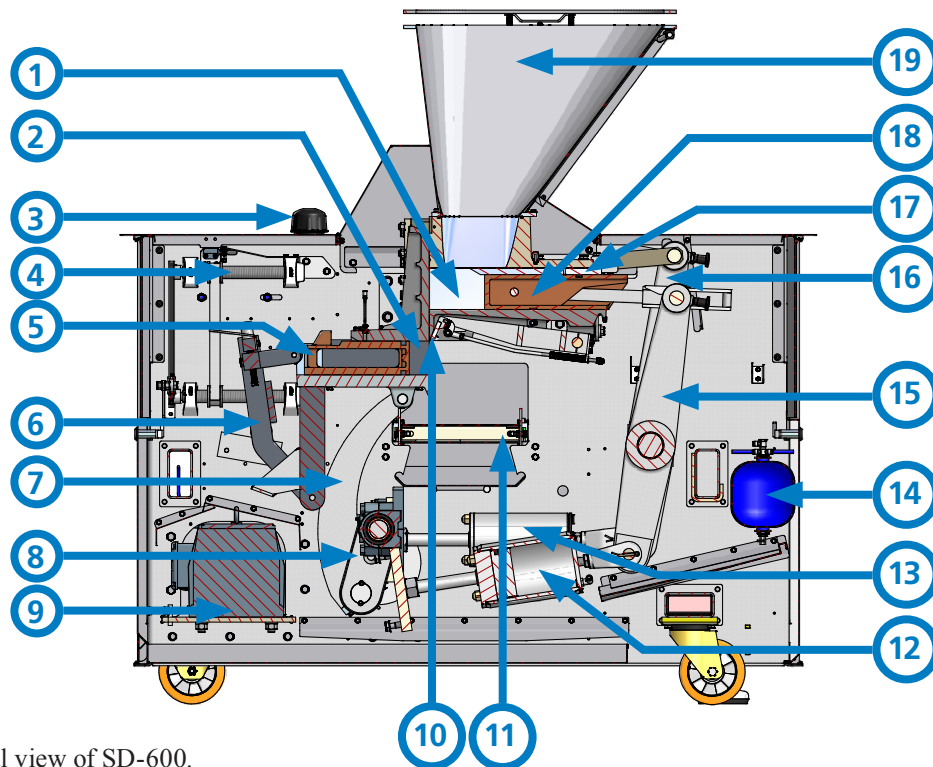
Magnet switch

Magnet switches are mounted on the front covers and on the external covers that can be opened manually.

If a cover is opened during operation, the machine stops immediately and the air is removed from the pneumatic system.

The operator display shows that a cover is open. To start, close the open cover and push the start button on the operator display.

Description of Operation



Cross sectional view of SD-600.

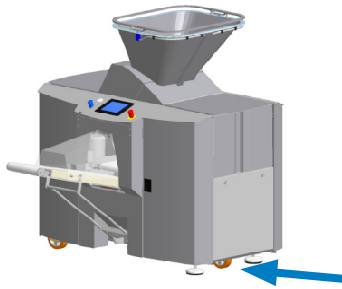
- | | |
|---------------------------------|---------------------------------|
| 1. Dough chamber | 11. Conveyor belt |
| 2. Measuring chamber | 12. Air cylinder suction piston |
| 3. Oil refill | 13. Air cylinder dough knife |
| 4. Weight adjustment | 14. Accumulator tank |
| 5. Measuring pistons | 15. Suction piston lever |
| 6. Pusher | 16. Dough knife lever |
| 7. Measuring chamber piston rod | 17. Dough knife |
| 8. Crankshaft | 18. Suction piston |
| 9. Motor | 19. Hopper |
| 10. Scraper | |

The suction piston (18) sucks the dough from the hopper (19) down into the dough chamber (1) on the outward stroke, "the suction stroke". The dough knife (17) is then fully pulled out, the opening between the hopper and the dough chamber is fully open. The quantity of dough that is sucked down agrees with the length of the outward movement of the suction piston, the length of the stroke, which can be set in four different lengths.

When the suction stroke is completed, the dough is cut off by the dough knife, which is above the suction piston, and the opening to the hopper then closes. On the inward stroke, the suction piston pushes the dough into the measuring chambers (2). The dough then pushes the measuring piston (5) which then stops against the dollies in the set location, for

the desired dough volume. The suction piston continues so that the measuring chambers are fully filled.

The measuring chamber now moves down and at the same time cuts off the dough against the dough chamber. When the measuring chamber is in its lowest location the measuring piston pushes out the measured quantity of dough. At the same time, the scraper (10) starts to move down and puts the dough on the output conveyor belt (11). The measuring chamber moves up, for a new cycle. During this time the suction piston has sucked in a new quantity of dough, and the procedure continues.



Adjust the machine feet.

Installation

Put the machine in the correct position and stabilize it with the feet. Adjust the feet so that the machine is level.

MACHINE TYPE			
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Examine the voltage on the machine plate.



Important!

Before connecting to the electrical supply examine the plate on the machine to make sure that the voltage is correct. Also examine the dimension of the fuse referring to the table.

Voltage	Fuse
3×220 V	25 A
3×400 V	16 A

Recommended fuse dimension.



Adjust the conveyor belt.

Conveyor belt

Pull down the conveyor belt. Loosen the two nuts on the bar and adjust the belt to the correct height. Tighten the two nuts.

Fit the plastic cover on the outfeed conveyor with the screws in the cover.



Refill oil.

Refill oil

The machine has been test operated with oil applicable for storing the machine. Important parts are thus protected.



Important!

Before operation, fill the machine's oil tank with an appropriate dough divider oil, Dovidol Naturalor equivalent. Use a funnel to avoid spillage.

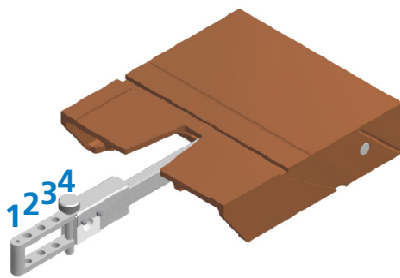


SLIP HAZARD!

Immediately clean up leakage.

A warning signal sounds when the oil level is low. The machine continues to operate and oil can be refilled during operation. When the oil tank is empty, the machine stops. Refill oil in the tank.

Some combinations of oil and dough can cause a coating in the machine. If so, a different type of oil must be used.



Adjust the stroke length of the suction piston.

Stroke length of the suction piston

The stroke length of the suction piston can be set in four different locations. Pull up the locking pin, pull out or push in the suction piston, and put the locking pin in the correct location.

The applicable stroke length agrees with the dough weight. A short stroke length is gentle on the dough.

Dough weight [g]	Locking pin position
150–450	1
350–650	2
550–850	3
750–1000	4

Approximate adjustment values.



Adjust the operating pressure of the suction piston.

Suction piston operating pressure

Adjust the suction piston operating pressure with the pressure regulator on the operator display. Read the pressure on the manometer above the regulator. The pressure can be adjusted up to a maximum of 6 bar (or the operating pressure of the pneumatic system).

A low dough weight usually has to have a lower operating pressure than a high dough weight to get the same weight precision. A low pressure is gentle on the dough and the machine and gives an airy structure to bread such as baguettes, ciabatta, etc. A high pressure gives a good weight precision and is applicable for bread that will have a dense and homogeneous structure. The operating pressure must not be higher than the one necessary to get sufficient weight precision.

Set a applicable operating pressure based on the above guidelines, the dough consistency in question, and the temperature conditions.

Bake and examine the result and make adjustments to the operating pressure if necessary.

Operator display



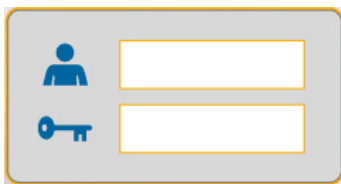
Important!

Do not use sharp objects on the operator display.



Menu bar.

The menu bar is shown at the bottom of each page. The icon of the active page is highlighted in a blue background colour.



Login page.

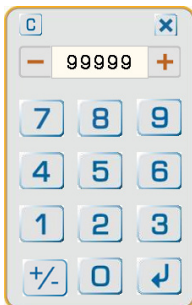


If a padlock is shown adjacent to the icon in the menu bar, the page is locked, and a Login page will show in front of the page.

Type user name 

Type password 

The page is automatically locked after two minutes of inactivity.



Edit a field.

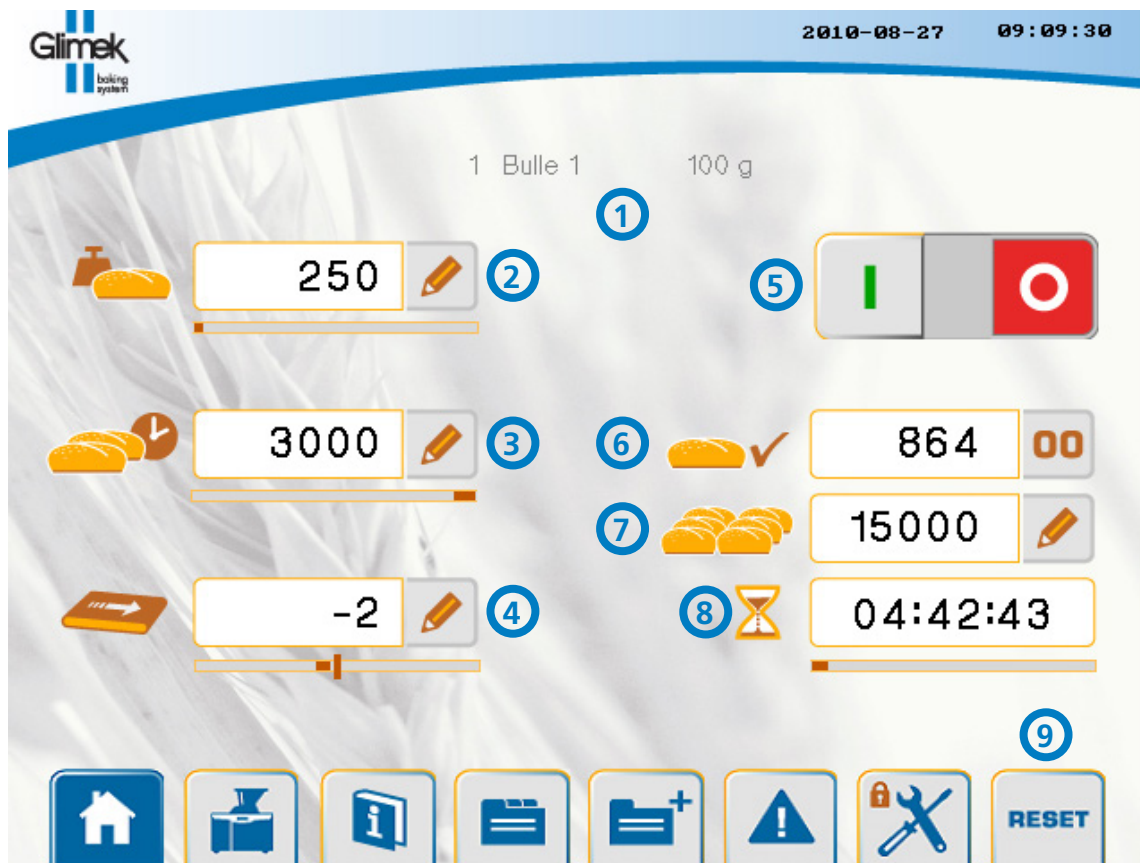


Touch the pen to edit a field. A number display shows in front of the page. Touch the numbers to type a value. The value can also be adjusted up and down by using the + and - buttons. Reset by touching C. Confirm the value with the return button. The original page will show.



The Manual page contains the operation and maintenance chapters from this user manual.

For recurring production of different types of dough and recipes, we recommend that the name of the recipe, the machine adjustments, etc. are written in the machine database.



Operation page



Adjustment page



Warning page



Service page



Operation page

1 – Product

This page shows the article name and article number of the active recipe, and the nominal weight for each piece of dough. The field is not shown when the machine is operated without a recipe.

2 – Measure piston stroke length

Adjust the weight of the dough pieces by touching the pen and change the value. The value can be set from 230 to 1885 in 2-pocket mode, from 140 to 1150 in 3-pocket mode, and from 96 to 780 in 4-pocket mode. This agrees with a stroke length from 14 to 115 mm. The weight received agrees with the type of dough. Examine the weight of the dough pieces and change the value if necessary.

3 – Speed (bread for each hour)

Adjust the speed of the divider by touching the pen and change the value. The value can be set from 1500 to 3000 in 2-pocket mode, to 4500 in 3-pocket mode, and to 6000 in 4-pocket mode.

4 – The speed of the conveyor belt

Adjust the speed of the conveyor belt by touching the pen and changing the value. -2 means that the conveyor belt moves 2% slower compared to the divider. The value can be set between -20 and 20.

5 – Start/Stop

Button to start and stop the divider. A red button with a white number zero means that the divider has been stopped. A green button with a white number one means that the divider has been started.

6 – Produced number (pieces)

The number of made pieces is shown here. Touch the clear button to remove the value.

7 – Number to produce (pieces)

Set the number of dough pieces to make by touching the pen and type in a value.

8 – Calculated production time (HOURS:MINUTES:SECONDS)

The calculated remaining production time is shown here. It is based on the number of dough pieces left to make and the speed of the divider.

9 – RESET

Touch reset to clear the fields. The measuring piston stroke length (2), the machine speed (3), and the conveyor belt speed (4) is then completed with the default values on the Service page. If there are no default values on the Service page, the fields will be completed with the minimum values, i.e. 150 in field 2 and 1500 in field 3. The speed of the conveyor belt is set to 0.



Adjustment page

10 – Lubrication (cycles)

Adjust the number of cycles between lubrication by touching the pen and change the value. The value must be an integer number between 1 and 5.

11 – Delayed scraping (ms)

Adjust the time during which the divider's scraper stays in its lowest position before rising again, by touching the pen and change the value. The value can be set between 0 and 500ms. (Here: 300ms = 0.3s.)

12 – Manual operation

Symbol for manual operation of the motor, the conveyor belts, and the oil pump.

13 – Motor

Keep touching the button to operate the divider at low speed.

14 – Conveyor belts

Keep touching the button to operate the conveyor belts at low speed.

15 – Oil pump

Keep touching the button to operate the oil pump.

16 – Calibration for weight adjustments

The machine's weight calibration device can only be calibrated when the machine has been stopped. This is not usually necessary, but it can be necessary if the weight the dough pieces are different from the set weight.

17 – Production completed

When the set number of dough pieces has been made, the divider can:

- stop
- stop and give a warning signal
- keep operating
- keep operating and give a warning signal

The active selection is highlighted with a yellow background.

18 – Number of measuring chambers

Touch the desired number to set the number of measuring chambers. The active selection is highlighted with a yellow background.

This field will only be shown if the number of measuring chambers is set to 2/4 on the Service page.



Recipe overview page

This page shows all kept recipes. Touch the arrows to navigate up or down in the list.

19 – Edit a recipe

Show a recipe by touching the square to the far left. Touch the pen to navigate to the Recipe editing page.

20 – Use a recipe

Use a recipe by pressing the square to the far left. Touch the check mark to confirm.

21 – Error indication: Incorrect number of chambers

Can be set by one of the these procedures:

- Examine that the correct recipe has been uploaded.
- Examin on the Recipe editing page that the correct adjustments have been set for the recipe.
- Examin that the correct number of chambers have been set on the Adjustment page.



Important!

Do not set a recipe when the machine is in operation.



Recipe editing page

22 – Article number

Touch the pen to make changes in the field.

23 – Article name

Touch the pen to make changes in the field.
Maximum 10 characters.

24 – Nominal dough weight (grams)

Touch the pen to make changes in the field.
Article names can not be longer than 10 characters.

25 – Measure piston stroke length

Adjust the weight of the dough pieces by touching the pen and change the value.
The value can be set from 230 to 1885 in 2-pocket mode, from 140 to 1150 in 3-pocket mode, and from 96 to 780 in 4-pocket mode.
This agrees with a stroke length from 14 to 115 mm. The weight received agrees with the type of dough. Examine the weight of the dough pieces and change the value if necessary.

26 – Speed (bread for each hour)

Adjust the speed of the divider by touching the pen and change the value. The value can be set from 1500 to 3000 in 2-pocket mode, to 4500 in 3-pocket mode, and to 6000 in 4-pocket mode.

27 – Conveyor belt speed

Adjust the speed of the conveyor belt by touching the pen and changing the value.
-2 means that the conveyor belt moves 2% slower compared to the divider. The value can be set between -20 and 20.

28 – Number to produce (pieces)

Set the number of dough pieces to make by touching the pen and type in a value.

29 – Number of measuring chambers

Touch the desired number to set the number of measuring chambers. The active selection is highlighted with a yellow background.

30 – Product group

Touch the pen to make changes in the field.
Maximum 10 characters.

31 – Remarks

Touch the pen to make changes in the field.
Maximum 10 characters.

32 – Make a new recipe

Makes a new item in the recipe database. All data on this page will be removed.

33 – Save changes

Changes to the current recipe are saved and the display reverts to the Recipe overview page.

34 – Get data from the machine

Recipe data from the machine's control system show on the display.

- Save as a new recipe. Touch "Make a new recipe" (32), thereafter "Get data from the machine" (34), followed by "Save changes" (33).
- Replace the current recipe. Touch "Get data from the machine" (34) followed by "Save changes" (33).

35 – Delete a recipe

To prevent unintentional deletions, the button must be touched for at least two seconds. The display reverts to the Recipe overview page.



Warning page

The divider has a number of built-in warning functions. If a warning occurs, the machine stops automatically to prevent damage, and the Warning page icon will be highlighted with a red background colour.

Warnings are highlighted in red. For more data, touch the Service page icon followed by the Log page icon. When a solution has been found, the system will be automatically reset and the divider can be started with the start button on the Operation page.

Warning	Procedure
Emergency stop circuit released	Remedy the issue that caused the emergency stop.
The emergency stop button has been pushed	Pull up the emergency stop button. Push the start button to start the machine.
The hopper protective circuit has been tripped	Examine the hopper protective circuit. Push Reset to automatically reset the divider.
Oil tank empty	Replenish oil. Push the start button to start the machine.
The central cover operator side is open	Close the protective cover. Push the RESET button and then the start button to start.
The central cover drive side is open	Close the protective cover. Push the RESET button and then the start button to start.
The side cover operator side is open	Close the protective cover. Push the RESET button and then the start button to start.
The top cover on the dough chamber is open	Close the protective cover. Push the RESET button and then the start button to start.
The top cover on the measuring chamber is open	Close the protective cover. Push the RESET button and then the start button to start.
Low air pressure	Examine the pressure. Push Reset to automatically reset the divider. If the error remains, call a technician.
High torque main motor	Check/empty the dough chamber. Restart. If the error remains, call a technician.
Fuse tripped	Call a technician.
Error in the main motor frequency converter	Call a technician.
Error in the feeding belt frequency converter	Call a technician.
Error in the servomotor for weight adjustment	Call a technician.

Warnings that can show in the operator display.



Service page

36 – Number of cycles

Shows the number of operation cycles carried out by the divider.

37 – Total time (HOURS:MINUTES)

Shows the total number of production hours carried out by the divider.

38 – Number of cycles since reset

Shows the number of operation cycles carried out by the divider since reset.

39 – Time since reset (HOURS:MINUTES)

Shows the number of production hours carried out by the divider since reset.

40 – Reset

Touch the button to reset the number of operation cycles and number of production hours.

41 – Language

Change language by touching the pen and select a different flag.

42 – Measure piston stroke length

Adjust the weight of the dough pieces by touching the pen and change the value. The value can be set from 230 to 1885 in 2-pocket mode, from 140 to 1150 in 3-pocket mode, and from 96 to 780 in 4-pocket mode. This agrees with a stroke length from 14 to 115 mm. The weight received agrees with the type of dough. Examine the weight of the dough pieces and change the value if necessary.

43 – Speed (bread for each hour)

Adjust the speed of the divider by touching the pen and change the value. The value can be set from 1500 to 3000 in 2-pocket mode, to 4500 in 3-pocket mode, and to 6000 in 4-pocket mode.

44 – Conveyor belt speed

Adjust the speed of the conveyor belt by touching the pen and changing the value. -2 means that the conveyor belt moves 2% slower compared to the divider. The value can be set between -20 and 20.

45 – Number of measuring chambers

Touch the desired number to set which measuring piston package the divider has (factory set). The active selection is highlighted with a yellow background. If changed, the machine must be fitted with a new measuring piston package.

46 – Lock the Adjustment page

The active selection is highlighted with a yellow background.

47 – Lock the Recipe editing page

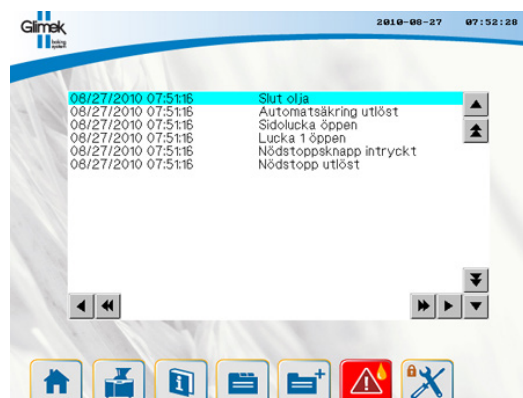
The active selection is highlighted with a yellow background.



Log page

The Log page displays the 100 most recent alarms and warnings.

Touch the arrows to navigate up or down in the list.



Log page.



Warnings

If a warning signal sounds the Warning page icon is highlighted with a yellow background colour. If the machine is turned off before the warning signal has been reset the warning signal will continue to sound when the machines is started again.

These warnings can show:

- **Bread production completed**

A warning signal sounds when the bread production is completed. The warning signal can be turned off by the Reset-button on the Warning page.

- **Low oil level**

A warning signal sounds when the oil level is low. The machine continues to operate and oil can be refilled during operation. When the oil tank is refilled the warning signal stops. When the oil tank is empty, the machine stops.



Warning.



SLIP HAZARD!

Immediately clean up leakage.



Lubricate the hopper using a brush.

First start



Important!

Before the first start, examine that the machine has been correctly installed referring to the section before.

Lubricate the hopper using a brush.



WARNING!

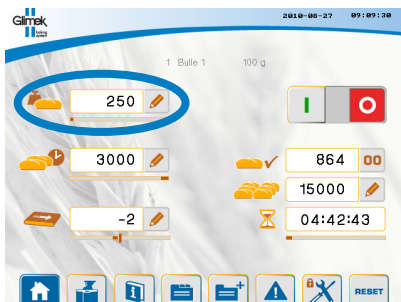
Look out for the knife.



SLIP HAZARD!

Immediately clean up leakage.

Start the machine and put approximately 10-15 kg of dough in the hopper. Let the dough go through the machine until the machine no longer makes the dough dirty.



Set the dough weight in the the operator display.

Set the dough weight

Adjust the machine refering to the section before. Put dough in the hopper and start the machine. Put through a number of dough pieces in order to make the weight stable. Stop the machine and examine the weight. Do same the procedure again, making adjustments until the dough weight is correct. Make continuous examinations during production to make sure that the weight of the dough pieces stays correct. Make adjustments in the menus on the operator display if necessary.



WARNING!

Look out for the knife.

Only use the provided dough scraper in the hopper.



Stop the divider using the operator display.



Cut the power supply using the primary power switch.

Maintenance



Important!

Stop the machine using the stop button on the operator display. The machine will then go to maintenance mode. If the machine is stopped using the emergency stop, it will not go to maintenance mode.



WARNING!

Cut the power supply using the primary power switch found on the outside of the electric cabinet. At the same time, air is removed from the pneumatic system.



Important!

Clean the divider using a sponge and lukewarm water. Dough deposits that are difficult to remove can be removed using a plastic scraper or the dough scraper. Do not use the cleaning scraper or any other metal tools on Teflon-coated surfaces.

Frequency	Maintenance and examinations
Daily	Clean:
	Dough chamber
	Dough knife
	Suction piston
	Collecting tray
	Oil reservoir
	Measuring chamber
	Measuring pistons
	Scraper
	Collecting drawer
	Conveyor belts
If necessary	Examine the function of the conveyor belts
	Refill oil
Each month	Remove condensed water from the accumulator tank
Each third month	Clean and lubricate chains
	Examine the tension of the driving motor chains
After 3000 machine hours or at least each six months	Examine the oil in the driving motor
Each third year	Change the oil in the driving motor

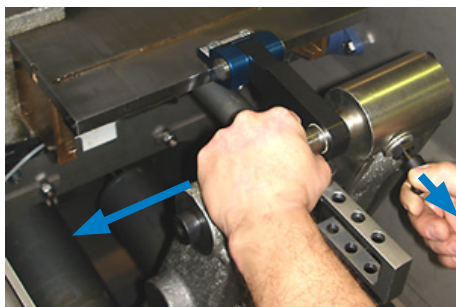
Maintenance schedule.



Clean the dough chamber side

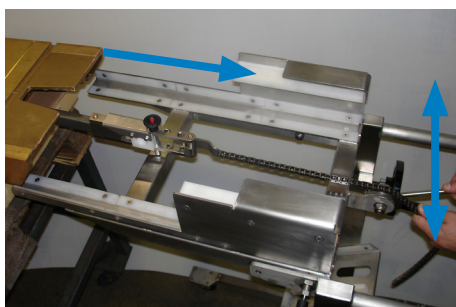
Open the covers to the dough chamber.

Open up the dough chamber.



Loosen the dough knife from the lever.

Release the dough knife by pulling out the spring locking pin in the lever and pulling out the released axle. In the same manner, loosen the suction piston from its lever. Push down the levers to make space for the service cart.



Put the dough knife and the suction piston on the service cart.

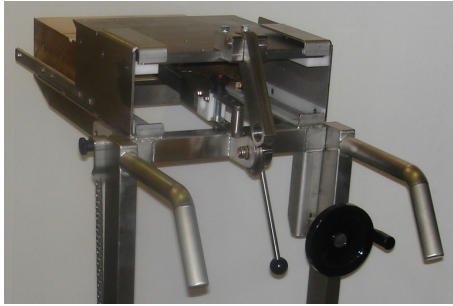
Move the service cart to the dough chamber and adjust the height 1-5 mm below the dough chamber. Pull out the dough knife and the suction piston, helped by the chain, and put them on the service cart. When necessary, clean the lubricating holes in the dough knife. Thereafter, place it in the proper compartment on the service cart.



Clean the dough chamber.

Clean the dough chamber using a sponge and lukewarm water and dry with paper. It is important to also clean the upper part of the dough chamber. Dough deposits that are difficult to remove can be removed using the cleaning scraper or a scrub sponge.

Open the lower cover on the side of the dough chamber with the key given. Pull out and clean the collecting tray.



Dough knife and suction piston on the service cart.

The dough knife and the suction piston can ideally be cleaned on the service cart, together with the measuring pistons. Lubricate the dough knife and the suction piston after cleansing and re-install them in the dough chamber.



SLIP HAZARD!

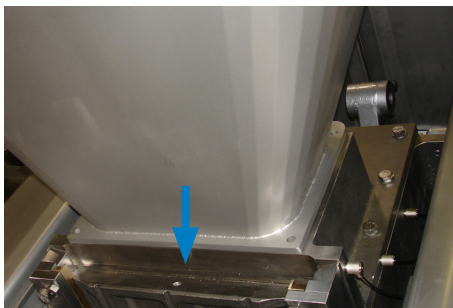
Immediately clean up spillage.



Open up the measuring chamber.

Clean the measuring chamber side

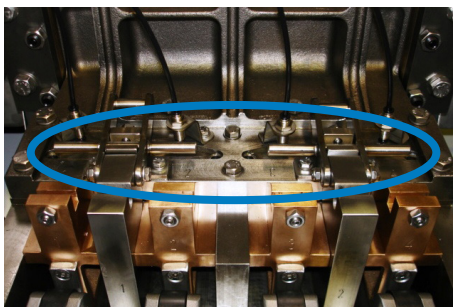
Open the covers to the measuring chamber.



Clean the oil reservoir on the measuring chamber.



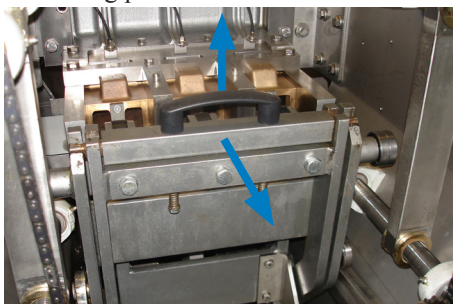
Cleansing the lubrication system in the measuring chamber makes sure that the sliding surfaces of the measuring chamber are duly lubricated. Failure to clean can cause an uneven oil supply, which can affect the weighing precision of the divider.



Clean the lubrication holes for the measuring pistons.

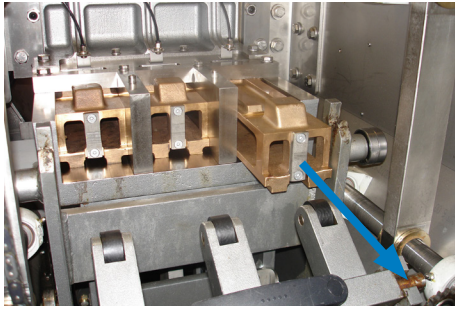
Remove dough remaining from the oil reservoir. Pull the top cover to you to access the oil reservoir.

Clean the lubrication holes for the measuring pistons by blowing clean with compressed air.

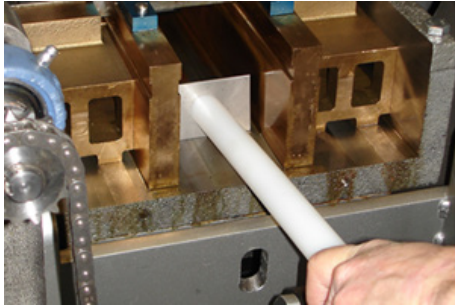


Fold away the pusher cradle.

Hold the handle on the pusher cradle, lift it, and extend it outwards.



Put the measuring pistons on the service cart.



Clean the measuring chamber.

Pull out the measuring pistons from the measuring chamber and place them in the proper compartments on the service cart.



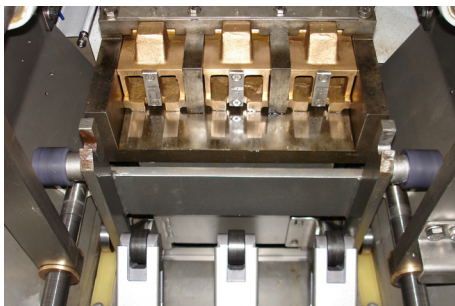
SLIP HAZARD!

Immediately clean up spillage.

Clean the measuring chamber using a sponge and lukewarm water and dry with paper. Dough deposits that are difficult to remove can be removed using the cleaning scraper or a scrub sponge.

Clean the scraping knife in the measuring chamber using paper. Clean the collecting drawer.

The measuring pistons can ideally be cleaned on the service cart, together with the dough knife and the suction piston. Lubricate the measuring pistons and the walls after cleansing and re-install them in the measuring chamber.

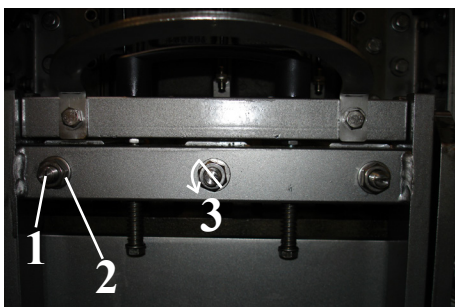


3-Chamber

Ability to individually set the measuring piston stroke to achieve better dough weight accuracy. Done in following way:

The measuring piston has a default setting from the factory with the same length of stroke of each piston.

The adjustment is made on the chamber having the lowest weight. Note the position that the adjusting screw (1) is placed, or hold the adjusting screw (1) with a screwdriver while loosening the nut (2).

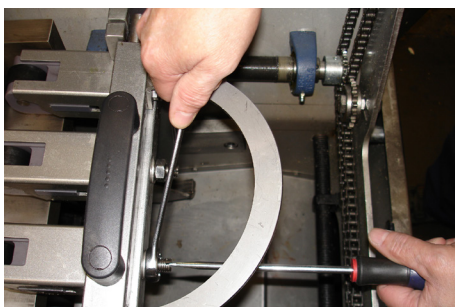


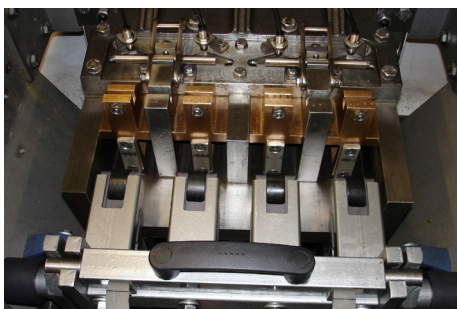
IMPORTANT! The set screw may only be rotated counterclockwise. See Arrow (3).

Then turn the adjusting screw with a screwdriver counterclockwise.

1 turn - 360 degrees gives 1.75 mm increase in piston stroke.

Dough weight about 10 grams - 240 ° counterclockwise. After adjustment tighten the nut.

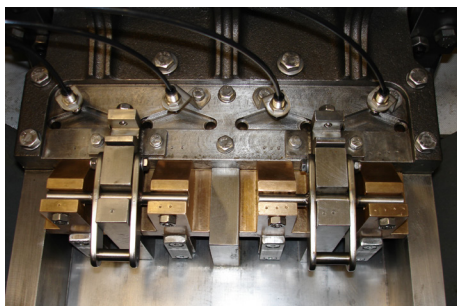




4-chamber

For 4-chamber operation, it is possible to individually set the measuring piston stroke to achieve better dough weight accuracy. See settings for 3-chamber.

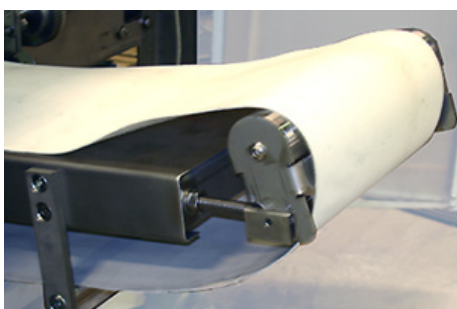
Dough weight about 10 grams - 360 ° counterclockwise.



2-4-chamber

When switching between 2-4-chamber operation is not recommended to use separate adjustments on the measuring pistons.

This may damage the conversion mechanism.



Clean the belts.

Clean conveyor belts

Bend up the tension roller, quick release, on the conveyor belt so that the belt goes loose. Clean using a plastic scraper and a soft brush. Examine the tension roller and clean it, if necessary. It is important that it is clean from dough deposits. Also clean the internal conveyor belt using a plastic scraper and a soft brush. Last, put the tension roller, quick release, back in position so that the belt tightens again.



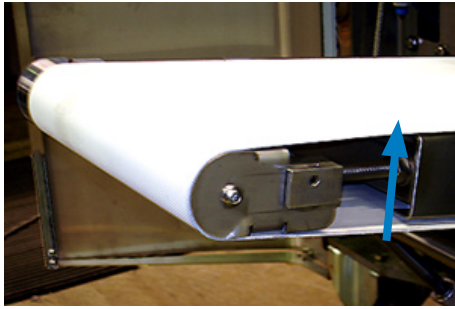
WARNING!

After the daily cleaning of the machine, make sure that all safety devices are in position and that no foreign objects are left in the machine.



Important!

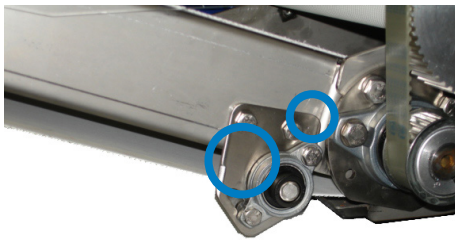
Start the machine through the operator display. Let it operate for a few minutes so that all components are lubricated in an efficient manner. Stop the machine using the operator display.



Adjust the tension of the belts.

Examine the function of the conveyor belts

If the belt has changed its position, the tension of the belt must be adjusted. Adjust by tightening or loosening the nuts on the tension bars. The tension must be equal on the two sides so that the belt travels straight.



Adjust the axis at the driving roller.

If the belt has changed its position on the driving roller, the axis can be angled to straighten the belt. Loosen the screws and angle the axis. Tighten the screws when the axis is in the desired position.



Refill oil.

Refill oil



Important!

Use an applicable divider oil, Dovidol or equivalent. Use a funnel to prevent leakage.

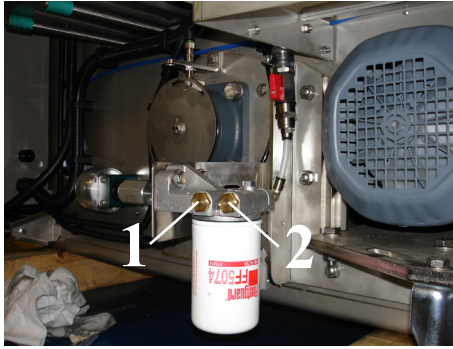


SLIP HAZARD!

Immediately clean up spillage.

A warning signal sounds when the oil level is low. The machine continues to operate and oil can be refilled during operation. When the oil tank is empty, the machine stops. Refill oil in the tank.

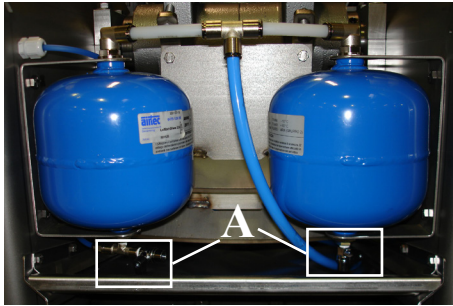
Some combinations of oil and dough can cause a coating in the machine. If so, a different type of oil must be used.



Check if the filter is clogged and needs to be changed:

Loosen the screw (1) and see if oil runs out. If no oil comes, loosen screw (2) and see if oil comes out from the container.

When changing the filter, check if the oil tank needs to be cleaned internally. This is done by loosening the large cover on the tank.

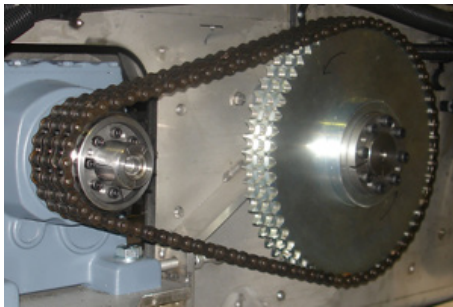


Remove condensed water from the accumulator tanks

One time a month, condensed water must be removed from the accumulator tank. Turn the tap to empty the tank.

A = Tap for draining condensation water

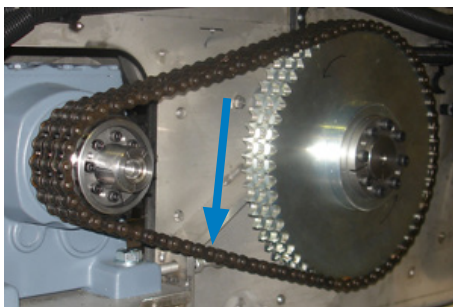
Remove condensed water from the accumulator tanks.



Clean and lubricate chains

The chains on the machine must be lubricated each third month. Clean the chains with a rigid brush, lubricate them thereafter with a food approved oil, such as Klüber PARALIQ P 40 or equivalent.

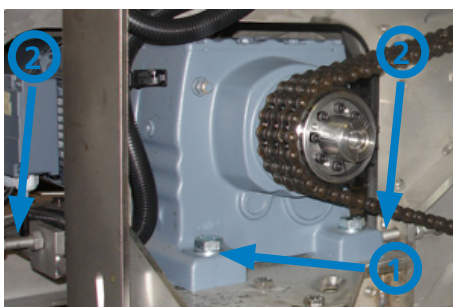
Clean and lubricate chains.



Examine the tension of the driving motor chains.

The tension of the driving motor chains must be examined each third month. The chain must not slack by more than 7 mm.

Examine the tension of the driving motor chains



Adjust the chain tension by first loosening the four screws (1) on the motor. Thereafter, adjust the chain tension with the two set screws (2) at the rear and front edges of the motor. Tighten the set screws in the position.

Adjust the tension of the driving motor chains.

Examine the oil level of the driving motor



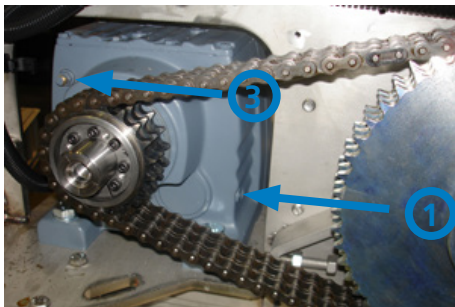
WARNING!

Cut the power supply using the primary power switch on the outside of the electric cabinet.



SLIP HAZARD!

Immediately clean up spillage.



Examine the oil level of the driving motor.

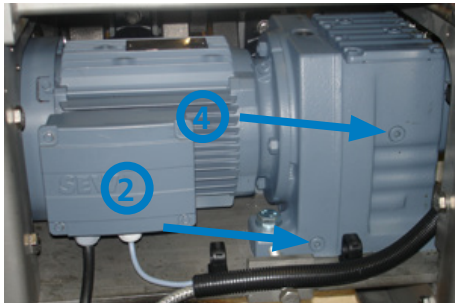
The oil level must be examined after 3000 machine hours or at least each six months.

Remove the oil level plug (1), examine the level and adjust it if necessary, reattach the oil level plug.



Important!

Oil must always be changed in a gear that is warm from use, as cold and viscous oil makes the drainage more difficult.



Change the oil in the driving motor.

Change the oil in the driving motor each third year.

Put a vessel below the drainage plug (2). Remove the oil level plug (1), the aeration screw (3) and the oil drainage plug (4). Drain all oil. Put the oil drainage plug back and refill new oil, LoadWay EP 220 or equivalent, through the aeration hole. The quantity must agree with the data on the rating plate. Examine the oil level plug. Put the oil level plug and the aeration screw back in place.

Get the machine out of operation



Important!

Stop the machine using the stop button on the operator display. The machine will then go to maintenance mode. If the machine is stopped using the emergency stop, it will not go to maintenance mode.

Clean the divider referring to the instructions for daily cleaning in the maintenance section. Lubricate the dough knife, the suction piston, the measuring pistons, and the internal walls after cleansing and re-install them in the dough chamber and in the measuring chamber.



WARNING!

Cut the power supply using the primary power switch found on the outside of the electric cabinet. At the same time, air is removed from the pneumatic system.



Important!

Lubricate the parts using a non-vegetable oil adjusted for keeping of the machine, such as Statoil Medicway 68 or equivalent.

Seal the machine against external impact and keep it in a dry and closed space.



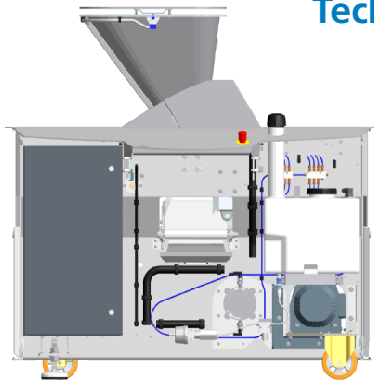
Important!

Clean the divider using a sponge and lukewarm water. Dough deposits that are difficult to remove can be removed using a plastic scraper or the dough scraper. Do not use the cleaning scraper or any other metal tools on Teflon-coated surfaces.

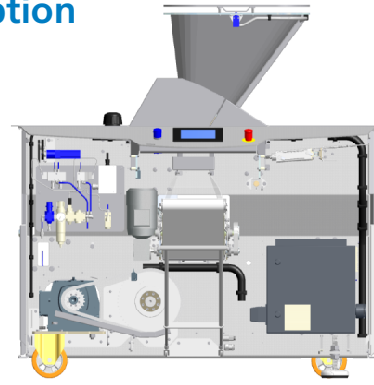
Waste management

When a machine, parts of a machine, or the packaging are discarded, local rules and regulations must be complied with. Specifications of the material in the parts can be given by the supplier.

Technical Description



The divider seen from the rear, without side covers.



The divider seen from the front, without side covers.

A gear drive motor and transmission chains drive the divider's weighing system, and a frequency operated worm gear motor and timing belts drive the conveyor belts. The speed of the divider and the conveyor belt is controlled through the operator display.

The movement of the suction piston is caused by the left lever, which is driven by the crankshaft, through an air cylinder. The power transmission through the air cylinder operates as a spring system with an adjustable operating pressure. The length of the piston rod can be adjusted for different dough weight areas.

The dough knife, which makes continuous full strokes, gets its movement from the right lever. The lever gets its movement from the crankshaft through a different air cylinder, with a connected safety valve that stops the lever movement if the resistance is too large.

When the machine must be cleaned, the pneumatic system is de-aired and the two levers can be folded away. The up and down movement of the measuring chamber is given from the crankshaft, through a piston rod. The stroke length can not be adjusted.

The up movement of the measuring pistons is given when the dough fills the measuring chambers. The stroke length is limited by the weight adjustment mechanism dollies.

Adjustments are made through the operator display. Changes can be done during operation. The position of the mechanism is equilaterally changed with the servomotor.

The emptying movement of the measuring pistons is given from the pusher cradle, through the pusher arms and the up and down movements of the measuring chambers.

The adjustment between different numbers of measuring pistons occur through the operator display and manually in the measuring chamber.

A pneumatically driven scraper knife scrapes off the weighed dough pieces onto the inner belt.

The electric cabinet on the machine front contains a buzzer. If a warning signal sounds the Warning page icon is highlighted with a yellow background colour.

The machine can be stopped on the operator display before cleaning. The machine will then go to maintenance mode. If the machine is stopped using the emergency stop, it will not go to maintenance mode. All parts that are necessary to clean regularly are easy to remove and put back.

Sensors

The machine's crankshaft has an indication disc and two sensors. The upper sensor moves the scraping of the machine and the lower sensor moves the cleaning mode.



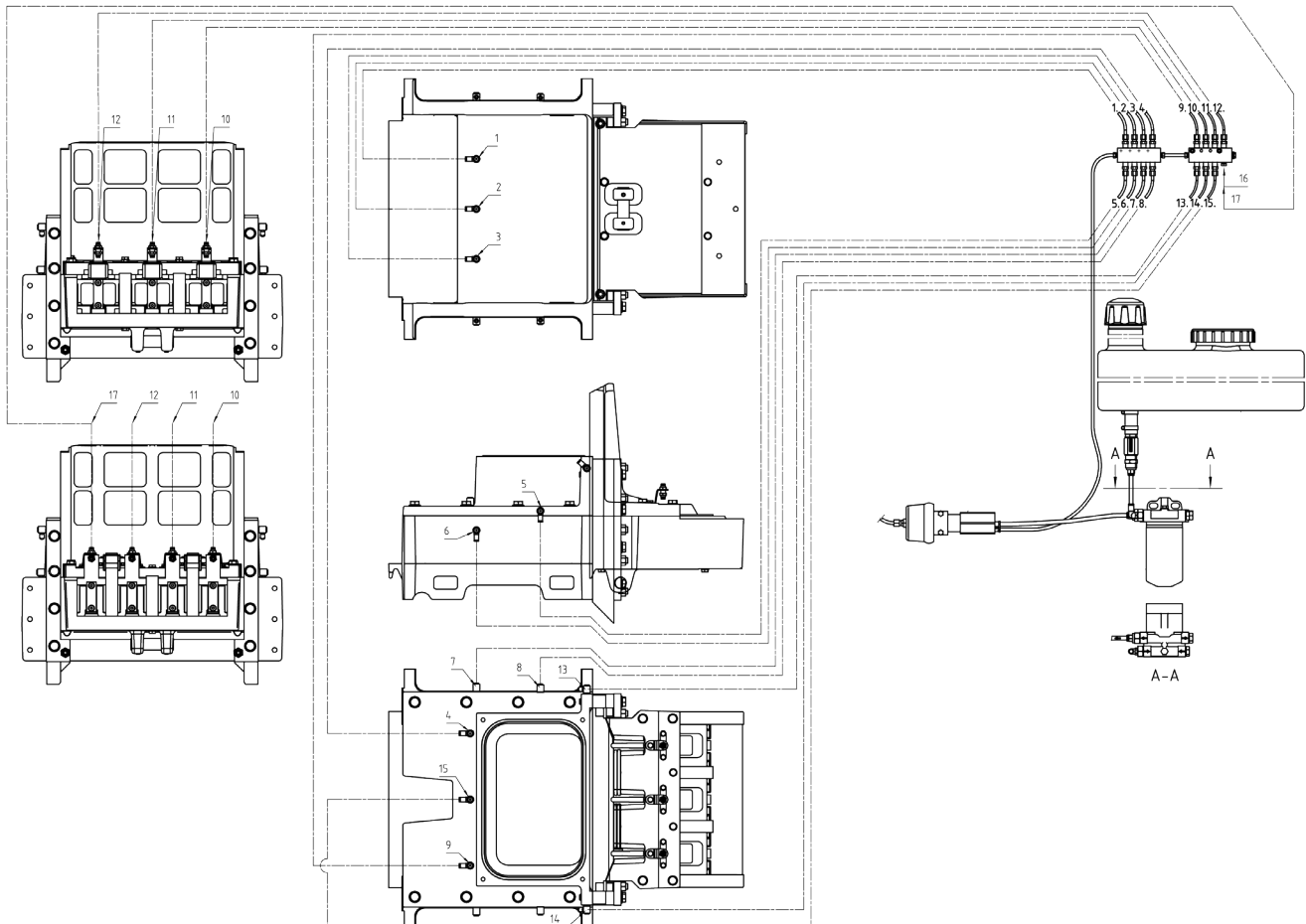
Important!

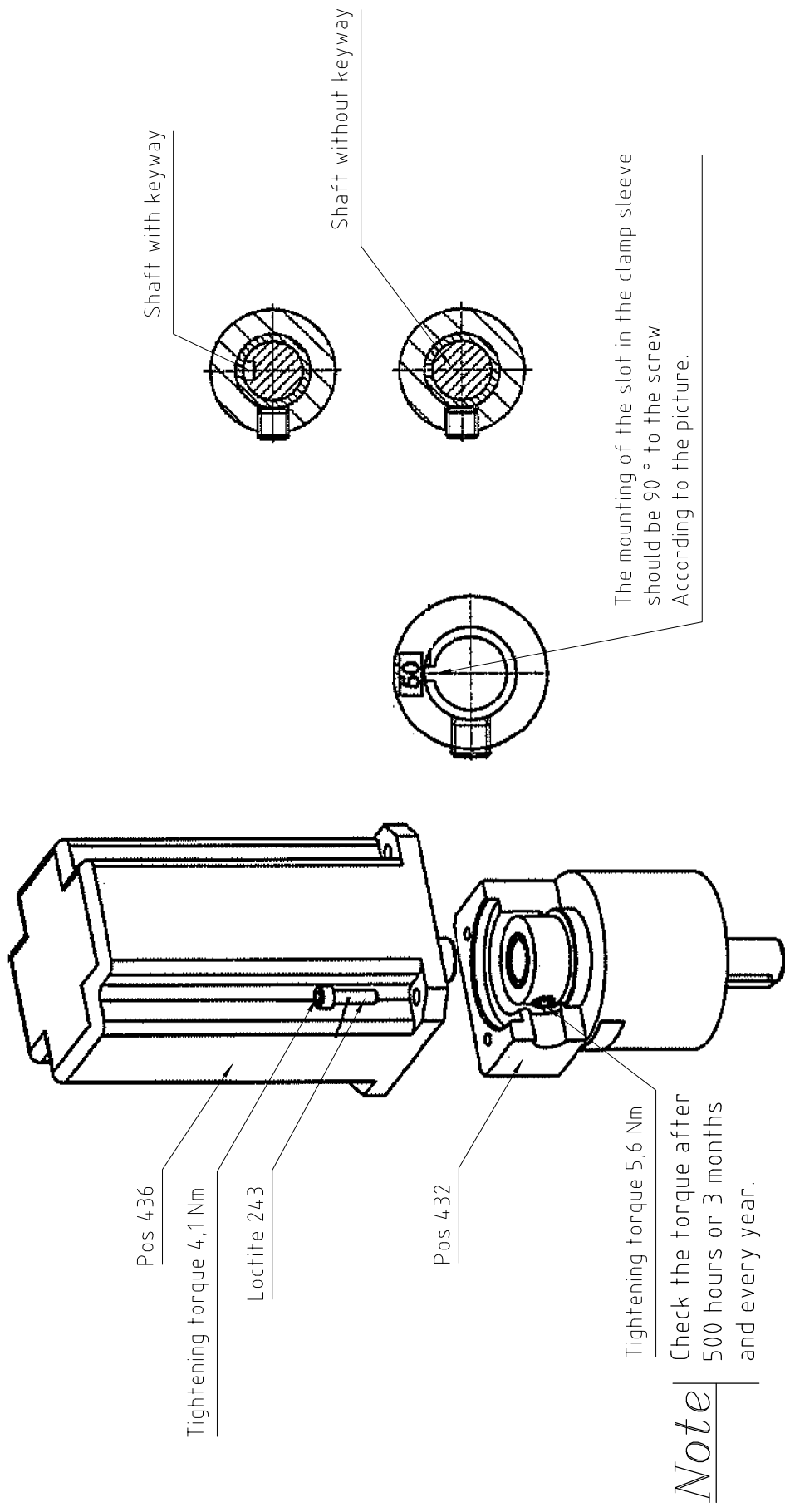
The indicator is factory set and must not be changed.

Oil dosing devices

Those of the machine's parts that come in contact with the dough are lubricated with vegetable oil from an oil pump that gets the oil from the oil tank. The machine's lubrication points receive an individually given quantity of oil from the oil dosing devices.

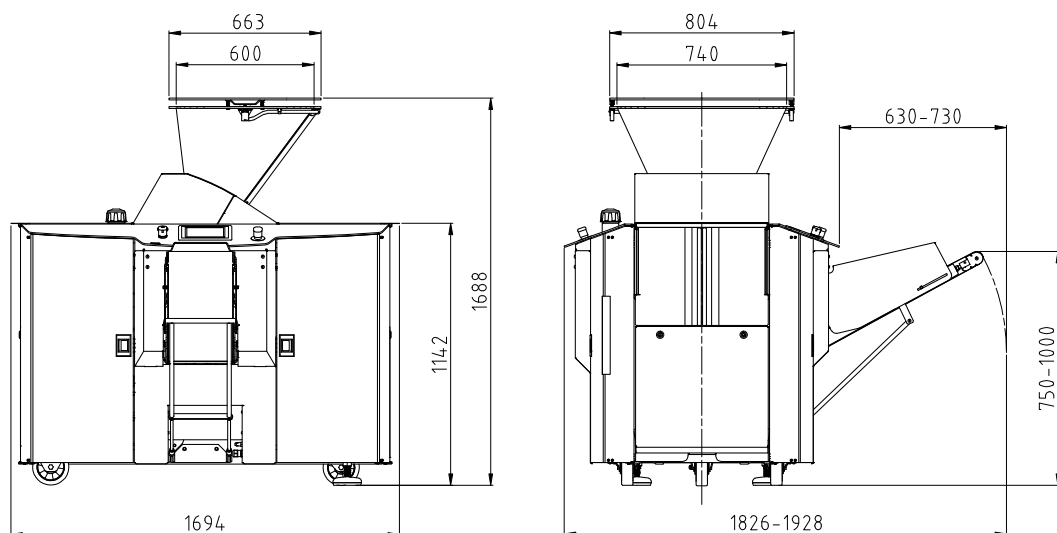
The number of cycles between lubrication is adjusted through the operator display.





Installation of planetary gear(Pos 432) on the servo motor(Pos 436)

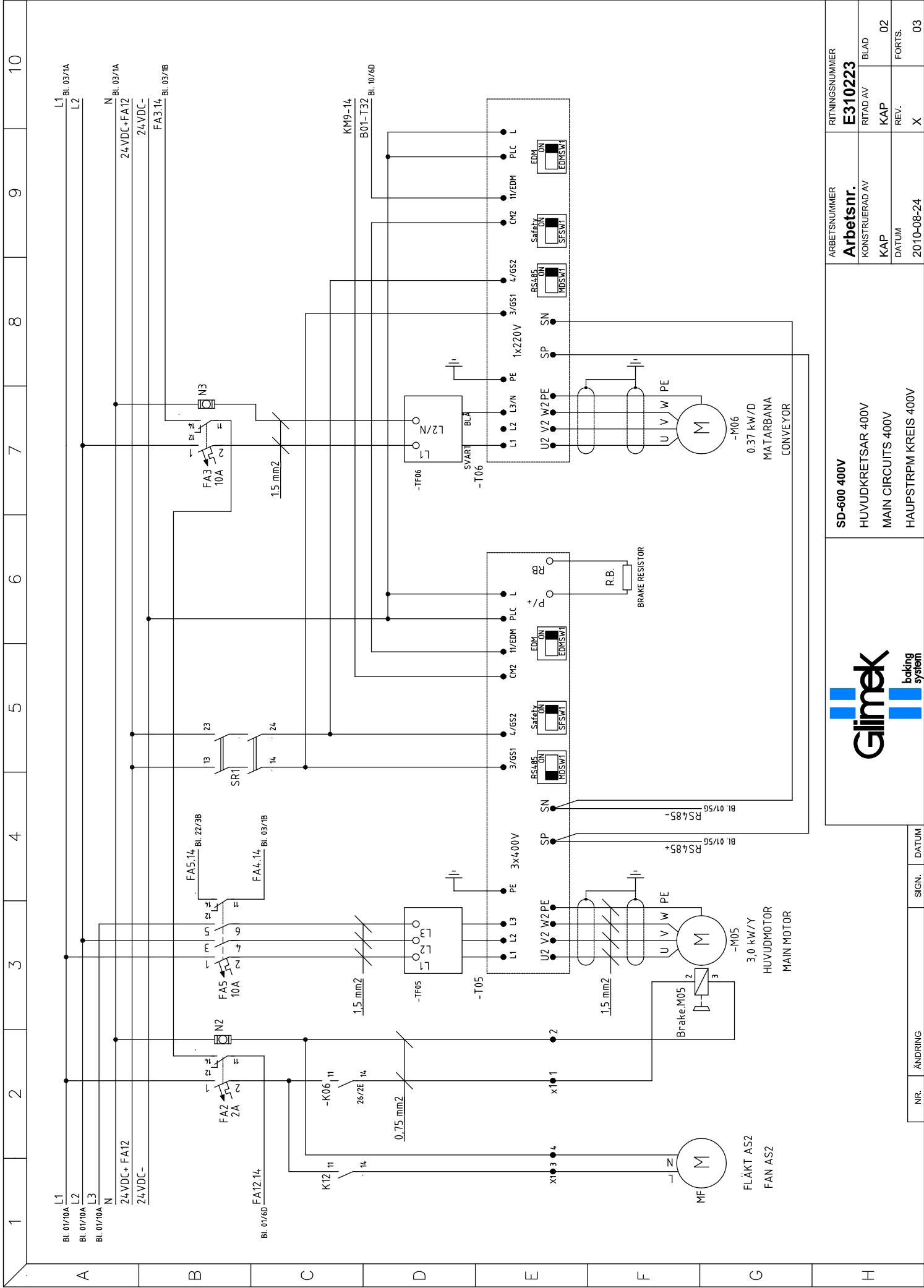
Technical data	
Capacity range	
2-pocket	1000–3000 dough pieces/hour
3-pocket	1500–4500 dough pieces/hour
4-pocket	2000–6000 dough pieces/hour
Weight range	
2-pocket	250–1700 gram
3-pocket	150–1000 gram
4-pocket	100–700 gram
Power supply	3,5 kW
Electric power	3-phase AC
Compressed air	Minimum 6 bar
Weight, net	approx 1100 kg
Weight, gross (carton+pallet)	approx 1175 kg



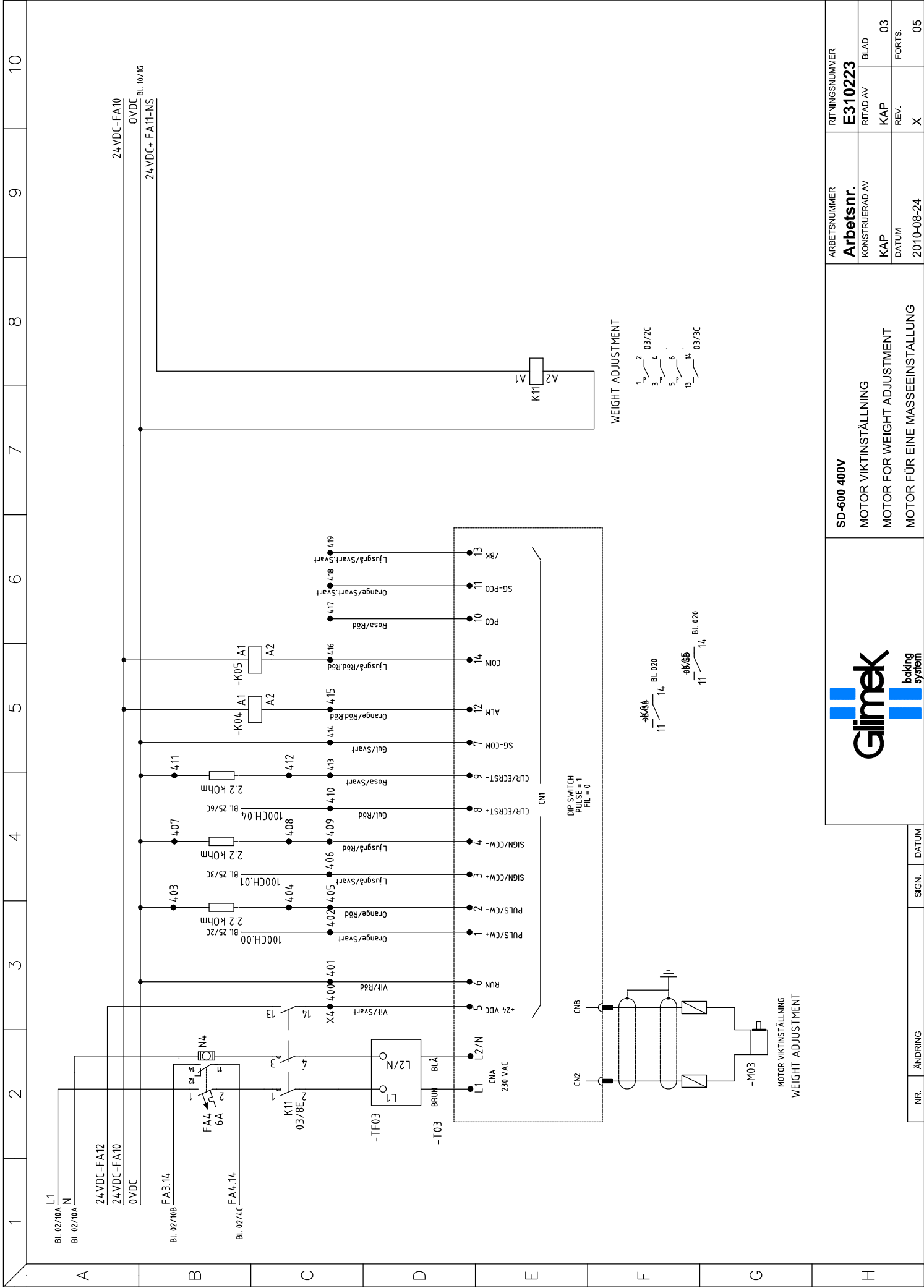
Recommended lubricants	
Dough divider oil Recommended min. oil viscosity for good lubrication 75 cSt at 20 ° C	Castrol Dovidol Sonneveld 5 Sonneveld 30
Chains	Klüber PARALIQ P 40
Driving motor	Statoil LoadWay EP 220
Inventory Storage	Statoil MedicWay 68

	Name	Oil	Additive	Viscosity		"Resistance oxidation"	Comment	Contact
				Dynamic [mPas]	Kinematic [cSt]			
Bakels	Dovidol	Vegetable	Emulsifier	68 (20°C)	75 (20°C)			http://www.bakels.com/agents.cfm
Dübör	Schneidöl SG-Öl	Vegetable	Lecithin and natural antioxidant agents	60-90 (20°C)		> 5 h		http://www.dueboer.ch/en/dueboer-world-wide
Dübör	Schneidöl SG-Öl S	Vegetable	Lecithin and antioxidant agents	60-90 (20°C)		> 8 h		http://www.dueboer.ch/en/dueboer-world-wide
Sonneveld	Division 40	Vegetable (rapeseed)	Lecithin	95 (20°C)			Machines older than 8 years (dependng on condition)	http://www.sonneveld.com/en/sonneveld/contact_us/agents1
Sonneveld	Division 20	Vegetable (rapeseed)	Vegetable wax	75 (20°C)			Machines older than 2-3 years (dependng on condition)	http://www.sonneveld.com/en/sonneveld/contact_us/agents1
Sonneveld	Division 30	Vegetable (sunflower, rapeseed)	-	75 (20°C)			High quality oil (New machines)	http://www.sonneveld.com/en/sonneveld/contact_us/agents1
Sonneveld	Division 5	Vegetable (rapeseed)	-	75 (20°C)			Universal oil (New machines)	http://www.sonneveld.com/en/sonneveld/contact_us/agents1
Statoil	MedicWay 32	Mineral	-	ca 103 (15°C)	85 (20°C)			http://www.statoillubricants.com/mar/lu/svg03611.nsf/fs/contact-statoil-lubricants
Statoil	MedicWay 68	Mineral	-	68 (40°C)	200 (20°C)			http://www.statoillubricants.com/mar/lu/svg03611.nsf/fs/contact-statoil-lubricants
Zeelandia	Ovam 25	Vegetable	Lecithin	56-62 (25°C)		High		http://www.zeelandia.com/worldwide
Zeelandia	Ovam 40	Vegetable	Lecithin	60-70 (25°C)		Very high		http://www.zeelandia.com/worldwide
Zeelandia	Ovam 500	Mineral	-	23-28 (25°C)				http://www.zeelandia.com/worldwide
Zeelandia	Ovam 1000	Mineral	-	50-65 (25°C)				http://www.zeelandia.com/worldwide
Zeelandia	Ovam 1500	Mineral	-	120-150 (25°C)		Extremely high		http://www.zeelandia.com/worldwide

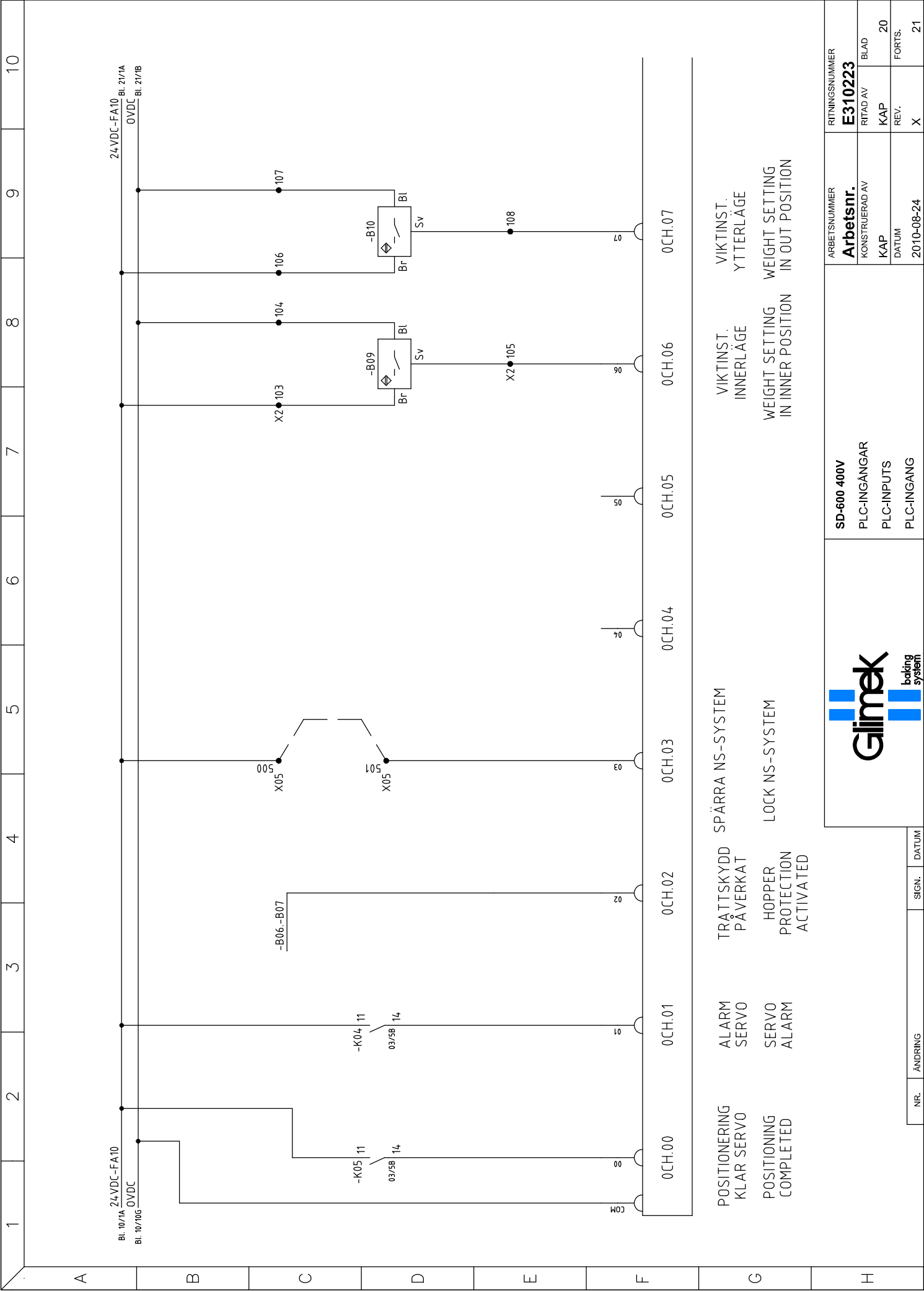
Accessories	
Customised hopper	On request
Non-stick coating of hopper 100L	Interior of the dough hopper 100L non-stick to assure a smooth infeed of the dough
Flour duster, mechanical	Flour duster on the first conveyor, mechanical
Oiling of belt	Oiling device for oiling on the outfeed conveyor
Extended length on outfeed conveyor 200-900 mm	Extended length of the conveyor in 100 mm interval
Special belt	Special customised belt on one or both conveyors on request



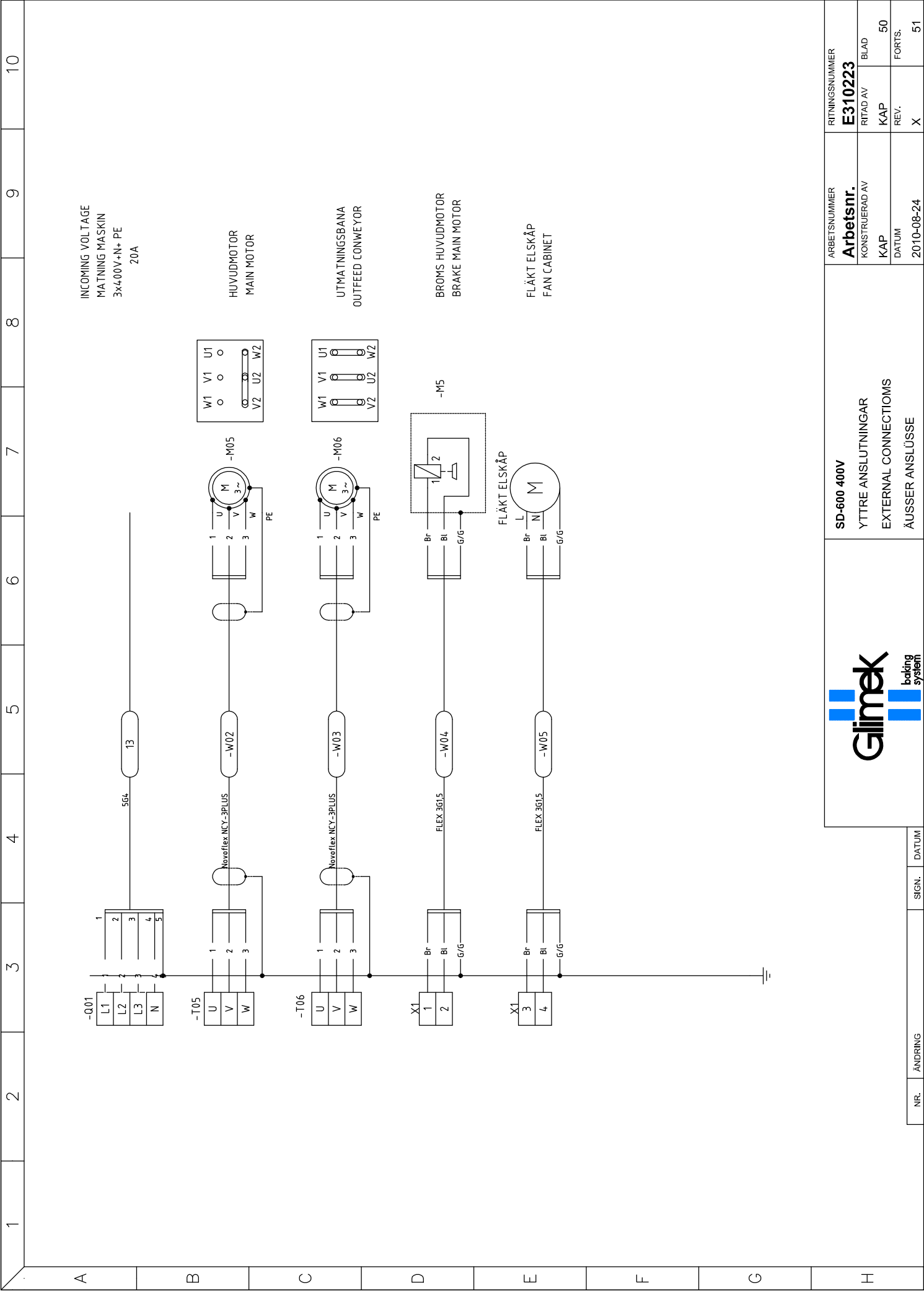
SD-600 400V		ARBETSNUMMER	RITINGSNUMMER
HUVUDKRETSAR 400V		Arbetsnr.	E310223
MAIN CIRCUITS 400V		KONSTRUERAD AV	RITAD AV
HAUPSTRPM KREIS 400V		KAP	KAP
		DATUM	REV.
		2010-08-24	02
			FORTS.
			03



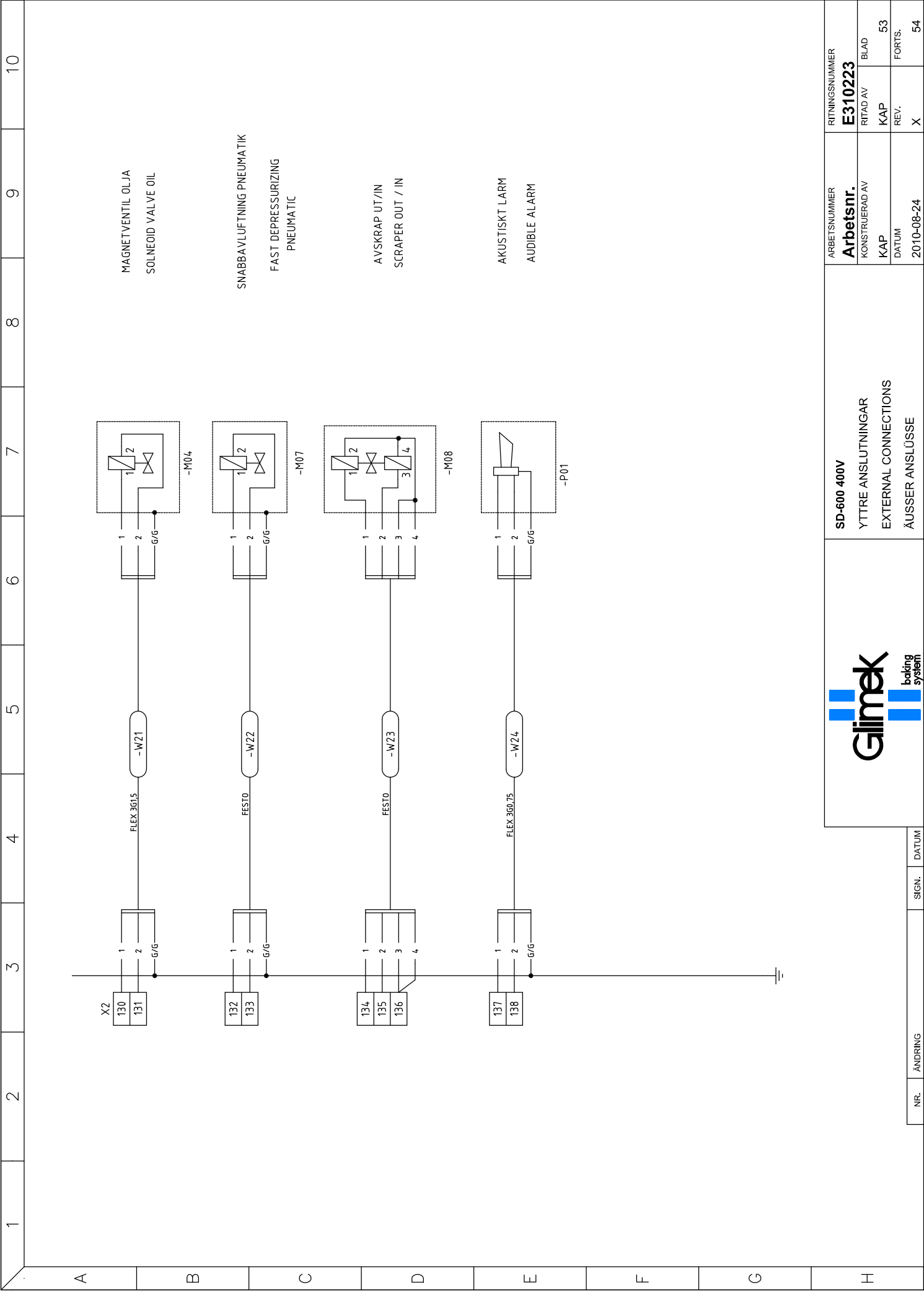
	1	2	3	4	5	6	7	8	9	10
A	MODBUS									
B										
C										
D										
E										
F										
G										
H	SD-600 400V MODBUS MODBUS MODBUS ARBETSNUMMER Arbetsnr. KONSTRUERAD AV KAP DATUM 2010-08-24 RITINGSNUMMER E310223 RITAD AV KAP REV. X BLAD 05 FORTS. 10									
			NR.		ÄNDRING		SIGN.		DATUM	



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SD-600 400V
YTRE ANSLUTNINGAR
EXTERNAL CONNECTIONS
ÄUSSER ANSLÜSSE

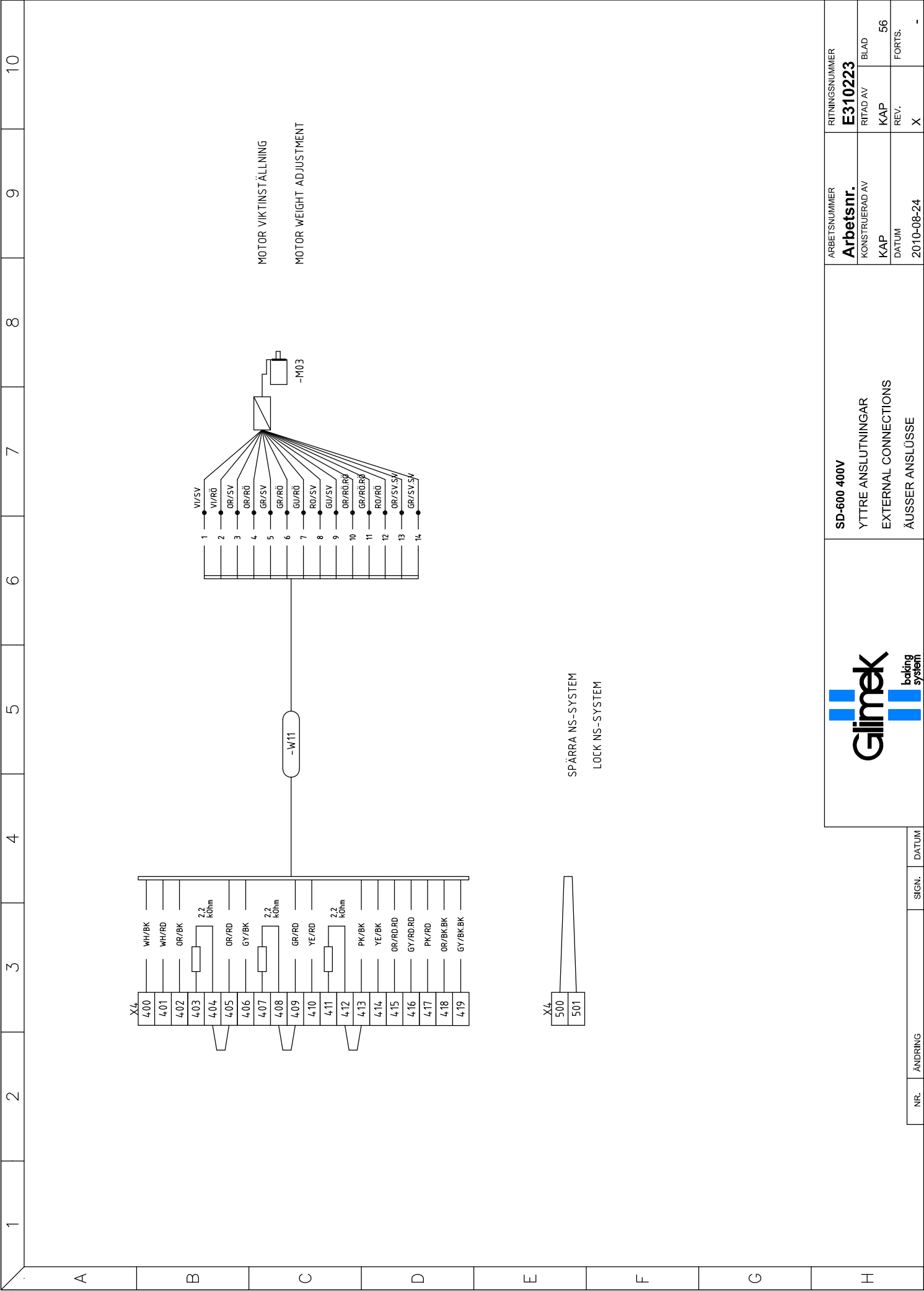
ARBETSNUMMER
Arbetsnr.
KONSTRUERAD AV
KAP
DATUM
2010-08-24

RITINGSNUMMER
E310223
RITAD AV
KAP
REV.
X
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FORTS.
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A				X3 324 325 326 327 328 329 1 2 3 4 5 6 FLEX 560.5 -W34 1 2 3 4 11 12 21 22 33 34 ϕ LUCKA KNIV HATCH FOR KNIFE																			
B				X3 330 331 332 333 334 335 1 2 3 4 5 6 FLEX 560.5 -W35 1 2 3 4 11 12 21 22 33 34 ϕ MITTSKYDD BANA MIDDLE COVER CONVEYOR																			
C				X3 336 337 338 339 340 341 1 2 3 4 5 6 FLEX 560.5 -W36 1 2 3 4 11 12 21 22 33 34 ϕ MITTSKYDD MIDDLE COVER																			
D				X3 342 343 344 345 346 347 1 2 3 4 5 6 FLEX 560.5 -W37 1 2 3 4 11 12 21 22 33 34 ϕ TRATTTSKYDD HOPPER																			
E				X3 348 349 350 351 352 353 1 2 3 4 5 6 FLEX 560.5 -W38 1 2 3 4 11 12 21 22 33 34 ϕ TRATTTSKYDD HOPPER																			
F				X3 348 349 350 351 352 353 1 2 3 4 5 6 FLEX 560.5 -W38 1 2 3 4 11 12 21 22 33 34 ϕ TRATTTSKYDD HOPPER																			
G				X3 348 349 350 351 352 353 1 2 3 4 5 6 FLEX 560.5 -W38 1 2 3 4 11 12 21 22 33 34 ϕ TRATTTSKYDD HOPPER																			
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				SD-600 400V YTRE ANSLUTNINGAR EXTERNAL CONNECTIONS ÄUSSER ANSLÜSSE				ARBETSNUMMER Arbetsnr. KONSTRUERAD AV KAP DATUM 2010-08-24				RITINGSNUMMER E310223 RITAD AV KAP REV. X				BLAD 55 FORTS. 56							

MITTSKYDD BANA
MIDDLE COVER
CONVEYOR



T05 [3G3MX2-A4030-PRG43234413]

Description: E310223.

Index	Description	Value	Drive Value	Default	Range	Units	Hex Address	start Pow
A001	Frequency Reference Selection 1	3: Modbus	---	1	0 to 10		1200	☐
A002	RUN Command Selection 1	3: Modbus	---	1	1 to 4		1201	☐
A004	Maximum Frequency 1	60.0	---	50.0	50.0 to 400.0	Hz	1203	☐
A044	Control Method 1	3: SLV (sensorless ve	---	0	0 to 3		123D	☐
B001	Retry Selection	4: Restarting with activ	---	0	0 to 4		1300	☐
B008	Overvoltage/Overcurrent Restart Selection	4: Restarting with activ	---	0	0 to 4		1308	☐
B010	Overvoltage/Overcurrent Restart Count Selectio	1	---	3	1 to 3	Time(s)	130A	☐
B012	Electronic Thermal Level 1	6.49	---	7.20	1.44 to 7.20	A	130C	☐
B090	Usage Rate of Regenerative Braking	10.0	---	0.0	0.0 to 10.0	%	135C	☐
B091	Stop Selection	1: Free-run stop	---	0	0 to 1		135D	☐
B095	Regenerative Braking Selection	1: Enabling [disabling	---	0	0 to 2		1361	☐
C003	Multi-function Input [3] Selection	77: GS1 (GS1 input)	---	12	0 to 255		1402	☐
C004	Multi-function Input [4] Selection	78: GS2 (GS2 input)	---	18	0 to 255		1403	☐
C013	Multi-function Input Terminal [3] Operation Selec	1: NC	---	0	0 to 1		140C	☐
C014	Multi-function Input Terminal [4] Operation Selec	1: NC	---	0	0 to 1		140D	☐
C021	Multi-function Output Terminal [1]EDM Selecti	62: EDM (STO (Safe	---	0	0 to 255		1414	☐
C055	Overtorque/undertorque level (Forward Power R	95	---	100	0 to 200	%	143A	☐
C058	Overtorque/undertorque level (Forward Regener	95	---	100	0 to 200	%	143D	☐
C071	Communication Speed Selection	10: 115200 bps	---	5	3 to 10		144A	☒
C074	Communication Parity Selection	1: Even parity	---	0	0 to 2		144D	☒
C076	Operation Selection on Communication Error	4: Decelerating and st	---	2	0 to 4		144F	☐

Index	Description	Value	Drive Value	Default	Range	Units	Hex Address	start Pow
F001	Output frequency setting	19.00	---	0.00	0.00 to 60.00	Hz	0000	☐
F002	Acceleration Time Setting 1	3.00	---	10.00	0.01 to 3600.	Sec	1102	☐
F003	Deceleration Time Setting 1	0.50	---	10.00	0.01 to 3600.	Sec	1104	☐

T06 [3G3MX2-A2/B004-PRG43234413]

Description: E310223.

C072 has to be set manual before download.

Index	Description	Value	Drive Value	Default	Range	Units	Hex Address	start Pow
A001	Frequency Reference Selection 1	3: Modbus	---	1	0 to 10		1200	☐
A002	RUN Command Selection 1	3: Modbus	---	1	1 to 4		1201	☐
A004	Maximum Frequency 1	60.0	---	50.0	50.0 to 400.0	Hz	1203	☐
B001	Retry Selection	4: Restarting with activ	---	0	0 to 4		1300	☐
B008	Overvoltage/Overcurrent Restart Selection	4: Restarting with activ	---	0	0 to 4		1308	☐
B010	Overvoltage/Overcurrent Restart Count Selectio	1	---	3	1 to 3	Time(s)	130A	☐
B012	Electronic Thermal Level 1	1.44	---	3.00	0.60 to 3.00	A	130C	☐
B091	Stop Selection	1: Free-run stop	---	0	0 to 1		135D	☐
C003	Multi-function Input [3] Selection	77: GS1 (GS1 input)	---	12	0 to 255		1402	☐
C004	Multi-function Input [4] Selection	78: GS2 (GS2 input)	---	18	0 to 255		1403	☐
C013	Multi-function Input Terminal [3] Operation Selec	1: NC	---	0	0 to 1		140C	☐
C014	Multi-function Input Terminal [4] Operation Selec	1: NC	---	0	0 to 1		140D	☐
C021	Multi-function Output Terminal [11]EDM Selecti	62: EDM (STO (Safe	---	0	0 to 255		1414	☐
C071	Communication Speed Selection	10: 115200 bps	---	5	3 to 10		144A	☒
C072	Communication Station No. Selection	2	---	1	1 to 247		144B	☐
C074	Communication Parity Selection	1: Even parity	---	0	0 to 2		144D	☒
C076	Operation Selection on Communication Error	4: Decelerating and st	---	2	0 to 4		144F	☐
F001	Output frequency setting	19.00	---	0.00	0.00 to 60.00	Hz	0000	☐
F002	Acceleration Time Setting 1	3.00	---	10.00	0.01 to 3600.	Sec	1102	☐
F003	Deceleration Time Setting 1	3.00	---	10.00	0.01 to 3600.	Sec	1104	☐

User name and password to the SD-600 operator display



There are four different user names and associated passwords.

User name	Password	Unlocks
admin	s9en	Service page, Recipe editing page and Adjustment page
super	lar7	Recipe editing page and Adjustment page
recipe	ke3t	Recipe editing page
settings	4arl	Adjustment page

The Service page, the Recipe editing page and Adjustment page can be set to be unlocked as default.

Cut out this page and keep in a safe place for future reference.



EC Declaration of Conformity

TRANSLATION

Sveba-Dahlen AB
SE-513 82 Fristad, Sweden

in accordance with the following Directives:

2006/42/EC	The Machinery Directive
2006/95/EC	The Low Voltage Directive
2004/108/EC	The Electromagnetic Compatibility Directive

hereby declare that:

Generic denomination	Bakery machine
Function	Dough Divider
Model	SD-180, SD-300, SD-600

is in conformity with the applicable requirements of the following documents:

ISO 12100:2010
Safety of machinery. General principles for design. Risk assessment and risk reduction

EN 60204-1:2006+A1:2009
Safety of machinery. Electrical equipment of machines. General requirements

EN 12042:2005
Food processing machinery. Automatic dividers. Safety and hygiene requirements

I hereby declare that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications and is in accordance with the requirements of the Directives.

Signed by:

Name	Anders Rietz
Position	MD
Done at	Fristad
On	2012-08-07



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