

— EST. 1967 —
GETINGE
— STORKÖK —

USER'S MANUAL



*QUALITY & ERGONOMICS
-WITH NO COMPROMISES*



USER'S MANUAL M5

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1 Introduction

Congratulations on your choice of a tilting kettle from Getinge Storkök!

We recommend that you take the time to read this user's manual carefully, to ensure many years of trouble-free use.



2 Training

When purchasing a tilting kettle with stirrer, in addition to the technical inspection at start-up, proper training is always included. A specialist can visit your kitchen and cook food with you and your colleagues so that you get a good understanding of all the possibilities a tilting kettle from Getinge Storkök can provide, enabling you to utilize its full potential. Contact your distributor or Getinge Storkök on +46 (0)35-17 99 90 to book an appointment!



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3 Function and performance

3.1 Boiling / Browning

The tilting kettle M5 uses dual power control steps and advanced temperature measurement with a high level of precision. This results in very fast heating at full power and then a consistent temperature that can be maintained as only part of the power is utilized. If cold ingredients are put into the kettle, the control system reacts immediately and activates full power to restore the temperature as quickly as possible. The water level of the steam jacket is monitored and adjusted automatically within the specifications of the tilting kettle.

The tilting kettle can be set to control the jacket temperature (the temperature of the steam jacket, all versions) or the core temperature (the temperature of the food, version Bas+ and Maxi).

It is also possible to set the time at which the kettle should start boiling or browning and for how long. When the set time has elapsed, the kettle automatically switches to holding mode.

See chapter 5.7 for information about how the function is controlled via the control panel.

3.2 Cooling

The Midi and Maxi versions of the tilting kettle are supplied with a fully automatic, electronically controlled, cooling function that uses ordinary cold water to cool down the tilting kettle's steam jacket, perfect for cooling the contents of the tilting kettle before putting them in cold storage. The precise temperature measurement and electronic control saves about 30% of water relative to traditional systems.

The tilting kettle can be set to control the jacket temperature (the temperature of the steam jacket, Midi, Maxi) or the core temperature (the temperature of the food, Maxi).

See chapter 5.11 for information about how the function is controlled via the control panel.

3.3 Water filling

The tilting kettle has an electronic water filling function as standard. Water filling is controlled by a flow sensor that senses the amount of water passing through the tilting kettle's filling nozzle, which means that it is easy to fill the vessel with the right amount of water. The tilting kettle's control system remembers how many liters the vessel has been filled with, this memory is automatically reset when the kettle has been emptied when fully tilted.

See chapter 5.8 for information about how the function is controlled via the control panel.



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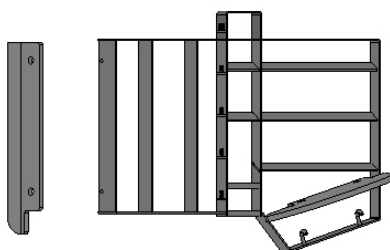
3.4 Stirring

The tilting kettle's stirring function has 6 pre-set programs, the speed can be set to between 5 and 155 rpm (revolutions per minute) in increments of 5 rpm. The stirrer is controlled by a frequency converter that can supply full power to the engine even at low speeds. The stirrer can handle a wide variety from very gentle stirring for preventing proteins from coagulating to high-speed stirring for whipping cream, for example.

See chapter 5.9 and chapter 5.10 for information about how the function is controlled via the control panel.

3.4.1 Stirring tool

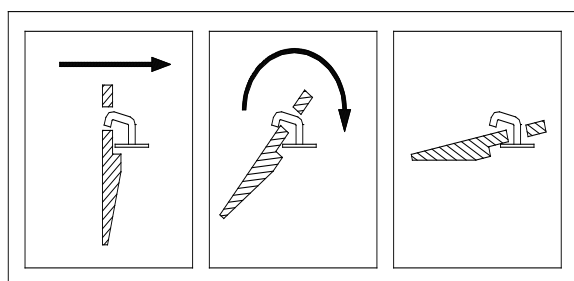
The M5 tilting kettle's stirring tool is designed to facilitate handling and cleaning as much as possible. The stirring tool can be washed in a commercial dishwasher, or a regular dishwasher.



3.4.1.1 Mounting scrapers

The stirring tool's scrapers should be mounted so that the scraper's chamfer rests against the wall of the tilting kettle.

1. Hold the scraper at right angles to the stirring tool.
2. Turn the scraper 90 degrees so that the fastening hooks are threaded through the scraper's holes.
3. Now the scraper is attached correctly as long the stirring tool is mounted in the tilting kettle.





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3.5 Ergonomics and aids

The M5 tilting kettle is designed with the user's working environment in mind. There are also a variety of accessories that have been developed to make using the tilting kettle easier and to make kitchen work more effective.

3.5.1 Automatic cleaning

The cleaning tool ACT is an accessory for the tilting kettle from Getinge Storkök, which quickly and efficiently cleans the kettle using the bottom stirrer's engine. The cleaning tablet ACTab (art.no 900.00) is specially designed for this application.

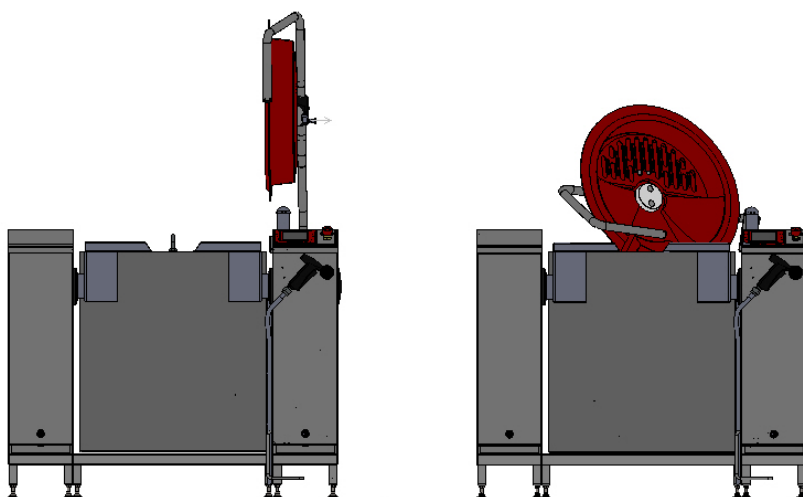
On the M5 tilting kettle, the cleaning process is controlled using 3 pre-set programs optimized for different levels of cleaning directly from the tilting kettle's control panel (see chapter 5.12). After the cleaning program is done tilt the kettle fully and make sure to manually rinse around the stirring shaft.

3.5.1.1 Mounting the cleaning tool

Mount the cleaning tool ACT by pushing it down over the stirring shaft until the pin snaps into the stirring shaft. To remove the cleaning tool just pull the pin and lift the tool upwards.

3.5.2 The lid of the tilting kettle

To facilitate cleaning of the lid, it is designed to be rotated and folded into the vessel. Pull the pin on the lid shaft and rotate the lid.

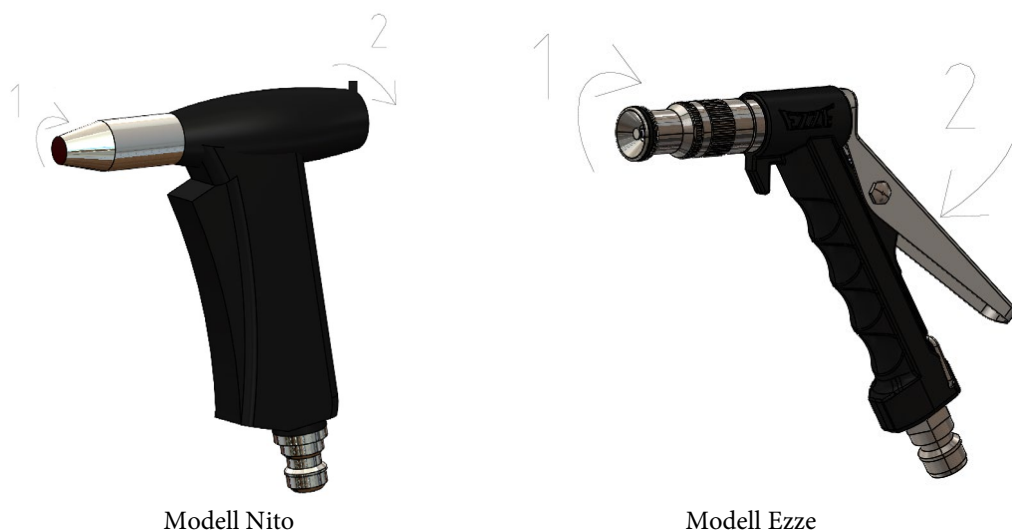




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3.5.3 Spray gun (Optional)

The tilting kettle can be equipped with a spray gun with a mixer. The mixer controls the temperature of the water (cold water against blue side and hot water against the red side). Lift the mixer handle to allow water to the spray gun, after use close the handle of the mixer. You can set both flow control (1) and water pressure (2) of the spray gun.



Modell Nito

Modell Ezze

3.5.4 Measuring rod (Optional)

The measuring rod indicates the volume (liters) in the kettle. Don't use the stirrer tool or cleaning tool when the measuring rod is mounted. It's ok to close the lid. The measuring rod can be washed in a dish washer.

3.5.5 Strainer plate (Optional)

Mount the strainer plate in the lip of the vessel (make sure it's evenly on both sides) by lifting the in the handle(s). Tilt the kettle to filter the content. The strainer plate can be washed in a dish washer.

3.5.6 Emptying plate (Optional)

Mount the emptying plate in the lip of the vessel (make sure it's evenly on both sides) by lifting the in the handle(s). By tilting the kettle, the output stream of the content will be concentrated. The emptying plate can be washed in a dish washer.




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3.5.7 Container cradle and side table

This tool is hung on the lip of the kettle. A container is placed on the cradle's table and the food can be emptied into the container by tilting the kettle. Follow the instructions below.

The cradle can also be used as a table for storing milk packages by rotating the cradle's table upside down.

 Follow the instructions below:

! The cradle must not be used with a mobile kettle.

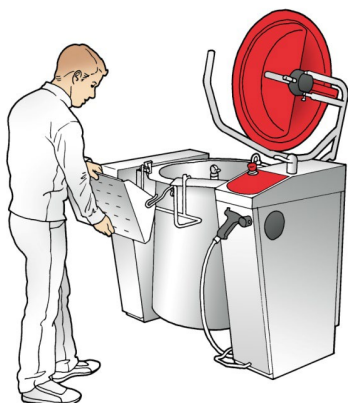
! The side table is not intended for containers or other open containers since they may slide off if the kettle is tilted. Maximum load 20kg.

! Do not leave the cradle or side table unattended with heavy or hot objects on them.

! As the cradle consists of two articulated parts, there is a risk fingers getting trapped when maneuvering the cradle.



The cradle's console is hung on the lip of the kettle.



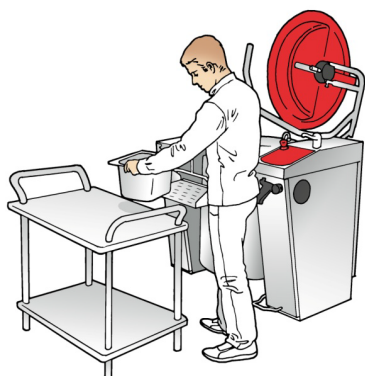
The cradle is hung from the upper bracket of the console and follows the kettle's tipping motion.



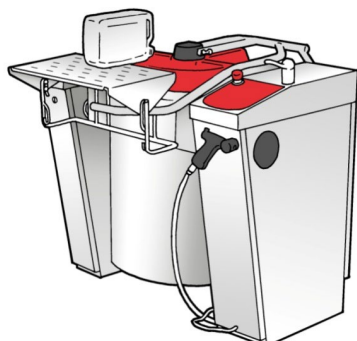
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It is also possible to empty the kettle completely. No ladles or scoops are needed.



The container follows the kettle's movements up and down, which reduces the need for heavy lifting.



Lift off the cradle from the console and turn it 180 degrees. Lower it so that the table's hook attaches to the two brackets of the console. Now, the cradle can be used as a shelf.



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3.5.8 Foot pedal (Optional)

To be able to have both hands free when operating the stirrer, tilting and/or water fill, the kettle can be equipped with a foot pedal.

The foot pedal is intended to be used together with the control panel buttons. Press one or more of the buttons. Press the foot pedal down. The foot pedal will now keep the selected functions active as long as the foot pedal is pressed down.



3.5.9 Energy

A kettle from Getinge Storkök AB is very energy efficient with up to 95% efficiency (by the EFCEM's standard "Energy Efficiency Standard for boiling pans").

As a user there are some points to cook food energy efficient. Don't boil on unnecessary high temperature, don't keep the food warm excessive long and keep the lid on the vessel.

3.6 Computer network

All kettles of model M5 are equipped with a network connection (TCP/IP port) and contains a web server. This means that the kettle can be connected to the facility's computer network. This makes it possible to go to the kettle using a standard web browser.

The kettle contains a website where information on processes and status is available. The amount of information on the website depends on the options made by the customer. See chapter 3.6.1.

The network connection also makes it possible to automatically update the date and time for the kettle. See chapter 3.6.2.

By default, the kettle is set to automatically be assigned an IP address. This requires a network with a server that can automatically assign IP addresses. Contact an IT technician if you experience problems connecting the kettle, see instructions in chapter 5.16.2.



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3.6.1 Using the website

Go to your kettle by ...

- Opening your browser.
- Enter, `http://<host name>` in the address bar. To find the kettle's host name, follow the instruction in chapter 5.16.2.
- The kettles are delivered with the host name `GSAB<kettle production number>`. A kettle with production number 10034 has the host name `GSAB10034`. To go to this kettle enter `http://GSAB10034` in the browser's address bar.



- Now you have landed on the kettle's home page. We recommend you add it to your favorites in order not to have to enter the host name every time you go there in the future.

3.6.1.1 Settings

This part of the home page is intended for service engineers and is therefore password protected (Username: admin, Password: 9110). This is where you can set and read parameters in the list of parameters. You can also see which buttons, relays and input ports are active. Relays and ports are arranged in tables, see 6.13.1 and 6.13.2.

3.6.1.2 Energy metering with e-log™ (Optional)

To help the user reduce energy consumption, Getinge Storkök has developed a tool (accessory), e-log™. The e-log™ saves information about the energy consumed for each process. It can also sum up energy consumed for a number of processes in order to see the energy consumed for a certain period, E.g. for over a month or a year.

Select "Energy" on the kettle's home page.



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3.6.1.3 HACCP support with gs-doc™ (Optional)

To facilitate the HACCP process in the kitchen, the gs-doc™ feature saves temperature charts on the kettle's home page. The gs-doc™ feature saves temperature information from the kettle's core temperature sensor. Thus, this requires that the kettle is equipped with a core temperature sensor (version Maxi).

! Note that a satisfactory mixing of the food is required for a correct temperature chart. Viscous food generally requires more mixing than liquids.

Each process contains information about the user who ran the process and the food that was cooked. The HACCP feature requires that users are added to the user list on the home page and that dishes are added to the recipe list. The HACCP feature must also be activated in the kettle. When the HACCP feature is activated, the kettle will ask which user is operating the kettle and which dish is being cooked.

3.6.1.3.1 Adding user

- On the home page, select "HACCP"
- Select "User list"
- Add user.

3.6.1.3.2 Adding recipe

- On the home page, select "HACCP"
- Select "Recipe list".
- Add dish.

3.6.1.3.3 Activating the HACCP feature on the kettle

See chapter 5.16.

3.6.2 Automatic update of date and time

To always be certain that the kettle's date and time are correct, you can let this information be updated automatically against a server that you know has the correct time. The feature is activated from the kettle's control panel. This is also where you enter the IP address of the server that you know has the correct time. See chapter 5.16.2 for instructions on how to do this.



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4 Care instructions

4.1 Be careful with salts



The kettle is made from high-quality stainless acid-proof steel EN1.4404/1.4435/1.4436, which are very stable and robust materials. But you should always be careful when handling salts. Salt left undissolved at the bottom of the vessel may lead to damage to the metal, so-called “pitting”. Always add salt when the water is boiling to avoid any damage.

We recommend leaving the kettle tilted for some time following final clean-up so that no concentrations from evaporated water are left creating stains at the bottom of the vessel. Use a cloth to wipe the vessel to avoid stains.

4.2 Cleaning

The kettle is made entirely from stainless steel and is designed to facilitate cleaning with smooth surfaces and a minimum of joints and visible fittings.

4.2.1 General

We recommend that kettles equipped with a stirrer uses the washing up tool ACT, see chapter 4.2.3, for fast and efficient cleaning. When the washing up tool is not available, soaking the kettle is a common pre-treatment before cleaning. Naturally, this facilitates cleaning as the warm water is given time to dissolve the dirt, but you should keep in mind that the water and energy consumption for this is very high.

We recommend washing stirrers and scrapers in a dishwasher.

The control pillar houses the kettle's control equipment, which is sensitive to moisture. If possible, use a moist cloth and hand wash detergent. Rinse carefully using a very low-pressure waterjet.

! Never use a high-pressure cleaner when cleaning the kettle or surfaces adjacent to the kettle. If a high-pressure cleaner is used on the equipment, the supplier is not liable for any defects and the warranty is voided.

! Never use a steel scraper when cleaning the kettle

! Never use steel wool or soap-impregnated pads when cleaning the kettle

4.2.2 Detergent

As the entire kettle is manufactured using stable and robust materials, this need not be considered when choosing detergent. For manual cleaning, we recommend using a hand wash detergent with good grease-cutting properties. However, when using the cleaning tool, ACT for cleaning the vessel, hand-wash detergents cannot be used! Instead, use the ACTab detergent tablet. ACTabs are included with the cleaning tool. They can also be ordered from your distributor. Always rinse carefully after cleaning!



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4.2.3 Cleaning tools

In general, you should always choose cleaning tools that do not scratch the stainless-steel material since scratches will impair cleaning efforts in the future and creates grooves where dirt may accumulate. Avoid stainless-steel balls.

Steel wool or soap impregnated pads must never be used as it contaminates the stainless material and lead to corrosion.

A cleaning tool (ACT) is recommended for cleaning the vessel (see chapter 3.5.1).

Plastic brushes, plastic scrapers and kitchen sponges are appropriate and recommended for cleaning the vessel and lid. A kitchen sponge and a clean moist cloth are recommended for cleaning the support pillars/stand.

4.2.4 High-pressure cleaner



Kettles cannot be cleaned using a high-pressure cleaner as there is a risk of contamination between the stand and the vessel (see SS-EN 13886:2005), i.e. that dirt and micro-organisms are moved from stand to vessel. The equipment is also damaged by the ingress of water when using high-pressure cleaners.

4.3 Monthly procedure

4.3.1 Date / Time

It is very important that the date and time are correctly set on the kettle in order for the delayed start (see chapter 3.1) to work correctly. The correct time is also required for the temperature charts to display correct information (see chapter 3.6.1.3). Therefore, we recommend checking and setting date and time (see chapter 5.16) in the kettle once per month unless this update is done automatically (see chapter 3.6.2).

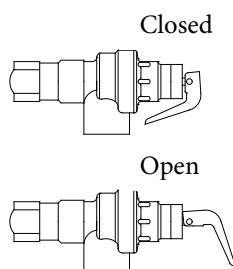
4.4 Weekly procedure

4.4.1 Check the safety valve

Check that the pressure gauge on the kettle's control panel is not damaged and indicates 1 bar overpressure at 120°C. Check the operation of the safety valve by opening it a little when the kettle is under pressure (Boiling 120°C) and let out some steam. Close the safety valve again. The safety valve is located on the back of the kettle.

! Avoid burns

! Use safety gloves when checking the safety valve

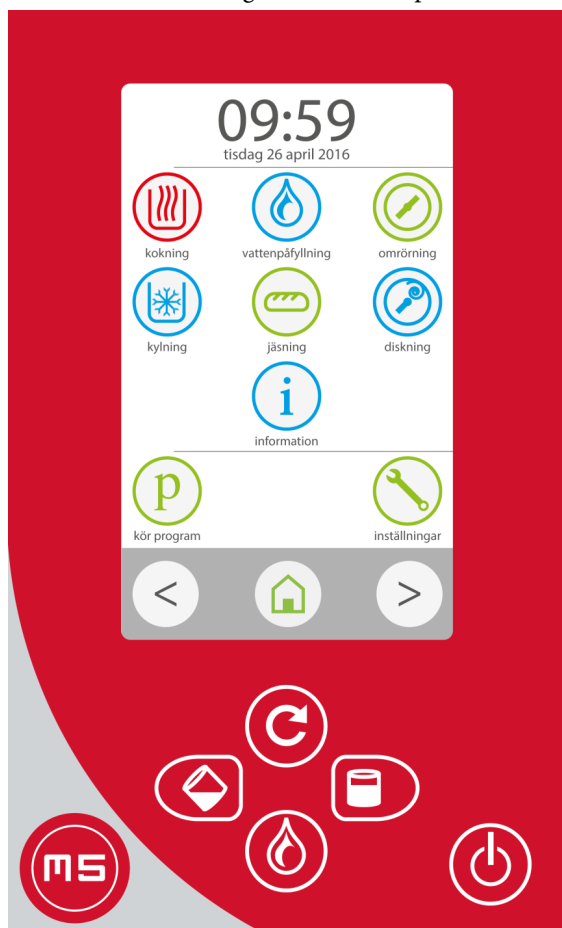




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5 Maneuvering the kettle

Below, is a description of how to control all functions on the M5 model Maxi kettle. Each function has a separate button on the control panel and a chapter in the description below. For models with fewer functions, some buttons will be missing, and those chapters can be skipped.



5.1 On / Off



This button starts the kettle and turns it off. The kettle's disconnecter must be activated and the emergency pushbutton must be in the operating position (fully extended).



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5.2 Tilt



This button is used for emptying the kettle. To prevent spills, the kettle re-tilts automatically (ART) when the button is released. The time for re-tilting the kettle can be set manually, see chapter 5.16. A shorter push won't activate the ART. Once the kettle is fully tilted the tilting is stopped. NB! Tilting is only allowed the lid is in open position. Only active as long as the button is pressed.

5.3 Re-tilt



Re-tilts the kettle. The kettle stops the motion once in the home position. Only active as long as the button is pressed.

5.4 Arrow buttons



These buttons are used for toggling between functions. This may be more effective than starting new functions from the home page.

5.5 Home button



This button brings you back to the kettle's home page.



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5.6 Info button



This button sets the screen to a viewing mode containing information about the ongoing process.

5.7 Boiling / Browning



Boil/brown with options for delayed start, timer and core temperature control.

The temperature is set to 110°C by default. This is an appropriate temperature for boiling. Higher temperatures are appropriate for browning food. For that reason, the kettle switches the text from BOIL to BROWN when the temperature is set higher than 110°C.

5.7.1 Boil / Brown with timer



The kettle will boil /brown for the set time. Then it will switch to holding mode to keep the food warm (85°C). Set the desired time and press start.

5.7.2 Boil / Brown with delayed start



The kettle will start boiling / browning at the set time. Set the desired start time, timer if required and temperature, and press start.



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5.7.3 Boil / Brown with core temp

food temperature

The kettle will control food temperature instead of steam jacket temperature. Note that a correct mixing of the food is required for a good outcome.

If the kettle is most frequently operated with core temperature control and you want to avoid having to set it separately every time you boil/brown, you can set the “Core temperature when boiling” as default setting. See chapter 5.16.

5.8 Water filling



Set the desired amount of water and start filling. The amount of water always originates from previously filled volume (accumulated volume). The water amount meter is being reset when the vessel has been fully tilted. It's not possible to fill the vessel with more water than the net volume of the kettle (to avoid overflow).

5.8.1 Manual water filling



Press the requisite button on the panel. Water can be filled no matter the position of the kettle or the lid.



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5.9 Stirring with lid closed



The stirrer can be set to run at an rpm of between 5 and 155. There are six different programs to choose from.

Program	Description	Areas of use
1	Stirring in a clockwise direction. Continuous operation, 5 - 155 rpm.	Mixing sauces, soups or porridge. This program is preferable in order to obtain a correct core temperature measurement when the tilting kettle contains viscous media.
2	Stirring while switching direction. 10 - 4 - 10 seconds, 5 - 80 rpm. (run - paus - run)	Mixing meat sauce and cold sauces.
3	Stirring while switching direction. 4 - 2 - 4 seconds, 5 - 80 rpm (run - paus - run)	Used to turn boiled potatoes into mashed potatoes, then switch to program 6 for fluffy mash. Used for mixing raw minced meat, approximately 30% of the kettle's volume. Can also be used for mixing roux, liquids with thickening agents and pancake batter.
4	Like program 3, but the stirrer has a slower acceleration.	Gentle stirring for meat stews, goulash, sausage stroganoff and sauces.
5	Stirring while switching direction. 10 - 60 - 10 seconds, 5 - 80 rpm. (run - paus - run)	Gentle stirring for meat stews, goulash, sausage Stroganoff and sauces and for cooking pasta. Used for browning minced meat. Also used for keeping sauces and other dishes warm to prevent coagulation of proteins (skin on the product).
6	Stirring in an anticlockwise direction. Continuous operation, 5 - 155 rpm.	Used for whipping cream or egg whites for meringues. Also used for making fluffy mashed potatoes.



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5.9.1 Stirring program



Sets the desired program. For alternatives see section 5.9.

5.9.2 Speed



Sets the desired rpm. The stirrer starts when the rpm is no longer zero. To stop the stirrer push Stop.

5.9.3 Stirring with timer



The kettle will be active for the time set. Set the desired time, select a program and speed.

5.9.4 Stirring with delayed start



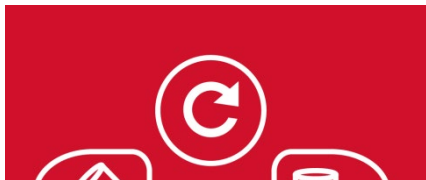
The kettle will start the stirrer at the set time. Set the desired start time, timer if required, and program select and speed.

The speed is limited to 40 rpm when this function is used.



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5.10 Stirring with lid open



Press the requisite button on the panel. The stirrer is set to program 1 and a speed of 20 RPM.

5.11 Cooling



Cooling with optional core temperature control.

The stirrer must be running when cooling.

When the cooling program stops the steam jacket empties to the floor drain.

5.11.1 Cooling with core temp



The kettle will control food temperature instead of steam jacket temperature. Note that a correct mixing of the food is required for a good outcome.

If the kettle is most frequently operated with core temperature control and you want to avoid having to set it separately every time you cool food, you can set the “Core temperature when cooling” as default. See chapter 5.16.



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5.12 Cleaning



This function requires a cleaning tool (ACT).

There are three different programs to choose from.

Use the ACTab detergent tablet, specifically developed for kettles from Gefinge Storkök.

! After cleaning, it is essential that the area around the stirring shaft (on which the cleaning tool is mounted) is cleaned manually. This is because the cleaning tool cannot reach and clean the center of the kettle. Rinse carefully, ensuring that all residual detergent is removed from the vessel.

5.13 Fermentation



Provides the dough with a somewhat higher ambient temperature, speeding up the proving process. Set the desired temperature and press start.

5.14 Run program



Select this option to run pre-set programs. Select a program from the list and press start.

5.15 Sous Vide



To be used with Sous vide baskets. Fill the vessel with about 75% water. Set the temperature. For best result start the stirrer (maximum 20 rpm). NB! Don't tilt the kettle with the sous vide baskets mounted! When the sous vide program stops the steam jacket empties to the floor drain.



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5.16 Settings



This chapter describes the different settings for the kettle.

Function	Chapter	Description
Date & Time	4.3.1	Sets the kettle's date and time. Also sets an alarm feature such as an egg watch.
Programming	5.16.1	See the Programming sub menu
Automatic re-tilting		Sets the time for how long the kettle will re-tilt after tilting. (0-3000ms, default is 500ms).
<input type="checkbox"/> HACCP	3.6.1.3	Activates the kettle's HACCP function. If HACCP is activated, the operator will select a user from a list before starting a process. The process data in gs-doc™ will be stamped with this user's name to provide traceability for the process.
<input type="checkbox"/> Core temperature when boiling	5.7.3	Sets the core temperature sensor as the default sensor in the Boil menu. Only on the Bas+, Maxi and Maxi IWC kettles. Food temperature must be ticked when the user wants to start a boiling process. The user must have the option of unticking that box and use the jacket sensor instead.
Service Menu	5.16.3	See the Service Menu sub menu
Error log	6.14	Lists the number of events for each error code (error codes in plain text) with the option of resetting each counter.
Operating time	6.4	A clock that tracks the number of hours the kettle has been boiling. After 550h it is time for Service. After Service, the technician resets the clock.
System information		Shows information about the software on the I/O card and display unit.
Network	5.16.2	See the Network sub menu



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5.16.1 Programming

5.16.1.1 Creating programs

The programs are structured as program steps in a run list. When a program is started, the program steps will be run from the beginning of the list to the end of the list in a sequence.

- Add a program step to the run list.
- Add the function(s) to be run in the program step as well as the time during which the program step is to be active before the kettle continues to the next step. If no time is set, the program step will continue until the user chooses to stop the program.
- Continue to add the desired number of program steps.
- We recommend that a program step that contains cooling also contains stirring. We recommend that no time is set for a program that contains cooling.

5.16.1.2 Edit program

- Select the program to be edited.
- Edit the program by adding or removing program steps in the run list.

5.16.1.3 Remove program

- Select the program to be removed.

5.16.2 Network

Menu	Description
<input type="checkbox"/> Automatic IP address	Let the IP address be assigned by a DHCP server
IP address	Manually assign an IP address to the kettle
Netmask	Sets the kettle's netmask
Standard gateway	IP address to the facility's gateway
DNS server address	IP address to the facility's DNS server
<input type="checkbox"/> Synchronise time automatically	Let the server send the correct time to the kettle
Time synchronisation server address	IP address to the server that provides the time
Host name	Assign a host name to the kettle, which can be used to go to the kettle instead of entering an IP address.



USER'S MANUAL M5

5.16.3 Service Menu



Settings in this menu should only be changed by technicians familiar with the product. Incorrect use may damage the product and subject users to danger. Particularly critical parameters and functions are highlighted in red in the table.

Menu	Description
Parameters	See the List of Parameters sub menu
Pressure test	Contactors or the magnet valve (steam) activate when the menu choice is pressed and held.
Bottom draining	Drains the jacket water (only Midi/Maxi)
Test inlets and outlets	Gives the option of forcing output relays and see the status for ports on the I/O-card.
Temperature log	Provides information about minimum and maximum readings for temperature sensors with the option of resetting each sensor
Statistics log	Shows the number of trips for output relays and digital ports on the I/O-card.
Phone number	The option of adding a phone number to a service company. The phone number is shown together with information about Service.



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5.16.3.1 List of parameters

Parameter	Description
Reset all parameters	Sets all parameters to their default values.
Language	Set the kettle's language.
Kettle type	Set type, Mini, Bas, Midi, Maxi, Maxi with IWC.
Kettle size	Set the kettle's volume.
Motor type	Select motor.
Voltage	The option of selecting a 400V or 230V three-phase system.
Frequency inverter	Select model of frequency converter.
Send parameters to frequency inverter	Sends parameters to frequency converter.
Maximum boiling temperature	The option of setting the maximum temperature of the jacket below 120°C
Keep-warm temperature	Sets the temperature that the kettle controls for after a timed boiling has ended.
Boiling time base value	Sets a boiling time that will be a default value when the user chooses a function button for boiling.
Temperature limit timer	When the kettle reaches this temperature, a buzzer sounds for a couple of seconds.
Calibrate sensors	The option of calibrating jacket sensor, core temp sensor and flow sensor.
<input type="checkbox"/> Buzzer	The option of turning off the buzzer.
<input type="checkbox"/> Rotation monitor	The option of turning off the rotation monitor.
<input type="checkbox"/> Motor temperature monitoring	Deactivate or activate the motor temperature monitor.

Parameter	Description
Tolerance RPM	Sets the permitted discrepancy between set and measured speed that is accepted before tripping the stirrer error code.
<input type="checkbox"/> Stir for cooling	The option of removing the requirement that the stirrer must be running when cooling.
Start temperature for IWC	Temperature of the jacket water before the kettle runs emptying process one.
Emptying time 1	The time the kettle takes to empty the jacket to the floor drain after freshwater cooling.
Emptying time 2	The time the kettle takes to empty the jacket to the IWC cooling tank.
Cleaning time offset	The option of increasing the cleaning time.
Cleaning volume offset	The option of increasing the amount of water in the cleaning programs.
<input type="checkbox"/> Loose lid	The effect card cannot sense the limit switch status for the lid.
<input type="checkbox"/> IP66	Turned on for industrial kettles. Entails e.g. a larger motor size for 300-liter kettles.
Replenish jacket	Sets the time from when the jacket water has passed the level electrode until the kettle's jacket stops replenishing.
<input type="checkbox"/> Core temperature when cooling	Sets the core temperature sensor as default when cooling. The user will have the option of unticking the food temperature in the cooling menu.
Load firmware from SD card	Software is loaded from SD card.
<input type="checkbox"/> Expo mode	Ticked when the kettle is to be presented at an expo. The electronics ignore level-electrode and no contactors or magnet valves activates.
<input type="checkbox"/> External steam generator	Turn on if the kettle is connected to direct steam.
<input type="checkbox"/> Base+	Activate when the model is Bas+. Kettle type must be "Bas".
<input type="checkbox"/> Sous Vide	Activate Sous-Vide function (only for Maxi version).



USER'S MANUAL M5

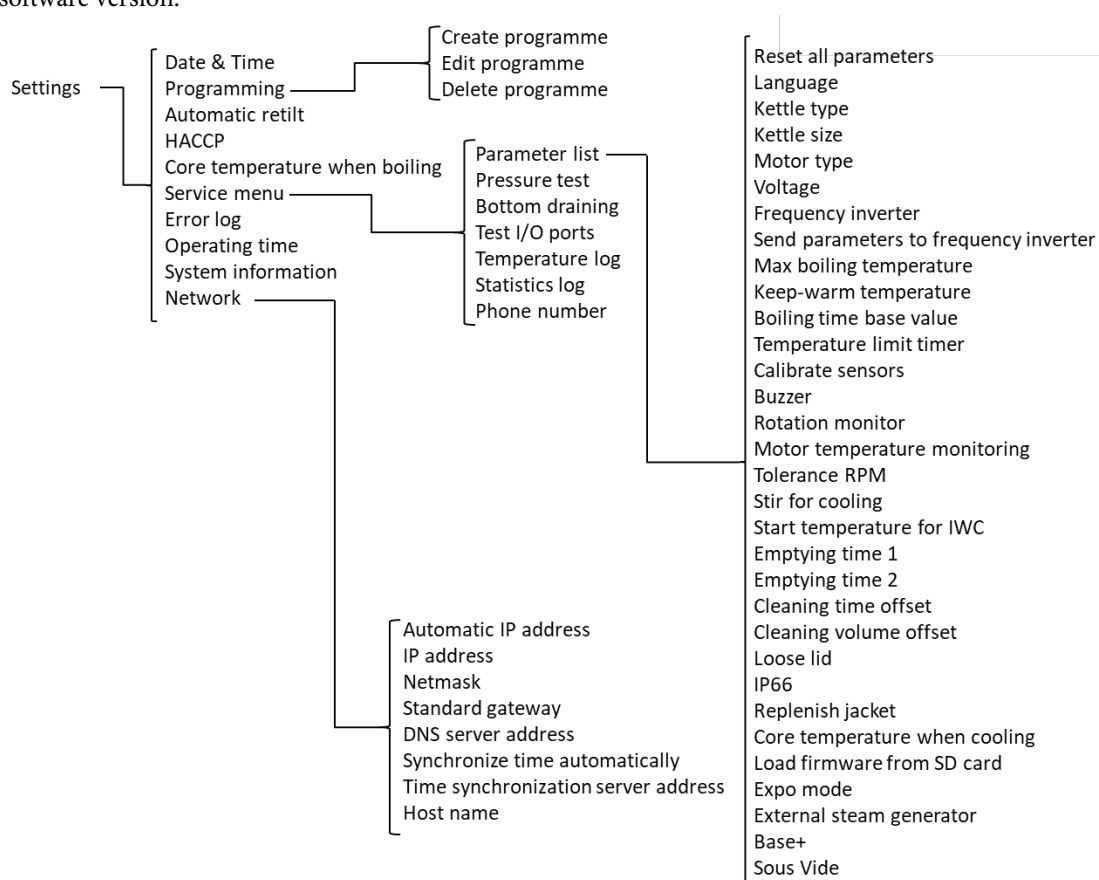
6 Service

Always use original parts.

The service company must be trained on the product. For service companies see www.gsab.nu for further information.

6.1 Menu system

The menu system structure under the button “Settings” is shown below. The table may vary depending on software version.





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6.2 Checking pressure vessel

All class A and B kettles are subject to a first check in accordance with AFS 2017:3, chapter 5 section 3.

Subsequently, the kettles shall be checked regularly in accordance with AFS 2017:3, chapter 5 section 4.

The kettles are divided into the below classes as per AFS 2017:3, chapter 4 section 9 for electrically heated kettles and chapter 4 section 10 for kettles connected to direct steam.

Volume	Direct steam	Electric heating
50L–100L	No checking required	Class B
150L–300L	Class B	Class A


Table 1

In accordance with AFS 2017:3, appendix 1, the kettles shall be checked every two years. The extent of the check depends on the class of the kettle.

Always check the local restrictions and guidelines regarding pressure vessels if the above is applicable or not.

6.3 Pressure test

During pressure testing, it must be checked that the safety valve trips at approximately 1.2 Bar. Under the service menu, there is an aid for forcing the effect contactors to the heating elements.

 → Service menu (code 9110) → Pressure test

Pressure testing is facilitated if you begin by bringing the jacket to operating pressure by starting boiling.





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6.4 Time for service

When the boiling function has run for 550 hours, the following service message is displayed on the screen: "Time for Service".

The following maintenance measures shall be performed:



- Check the kettle's position to ensure it is level. The kettle's position can be adjusted using the lower limit switch located in the kettle's pillar.
- Check that the lid closes tight against the vessel. If that is not the case, the pillars are not straight and must be adjusted. As a last resort, the lid should be adjusted. Note that the wiring inside lid tubes can be damaged if you try to adjust the lid tube.
- Check the kettle's position when fully tilted. The kettle's position can be adjusted using the upper limit switch located in the kettle's pillar.
- Check the stirrer's seal (Art.no. 651.10) springs back by pressing it inward and releasing. If this happens slowly, the seal must be cleaned externally with a sponge and if this does not remedy the problem, use some light force to make it spring back. NB! Do not remove the stirrer's seal for cleaning! If this doesn't work the seal needs to be replaced.
- Remove the cover under the vessel and check the level electrode for automatic replenishing of the kettle's steam jacket. Replace the level electrode if worn. Use fiber-washer and tighten it.
- Check that the drive unit (motor+gearbox) do not leak oil.
- Lubricate the bearing housing for the stirrer. A grease nipple is located behind the motor's gearbox on the left-hand side. Keep adding grease until new grease seeps out from the bearing housing. NB! Only use grease supplied from Getinge Storkök! Art.no 651.50.
- Rinse the filter if the kettle is equipped with cooling (located before the bottom drain valve).
- Lubricate the bearings between the vessel's dowels and the kettle's pillars. Grease nipples are accessibly located behind the front covers of the pillars. Art.no 610.01
- Check to ensure that no water has penetrated the kettle's pillars, as this may damage the kettle's controls. Inspect the sealings in the front and rear covers.
- Check that the water installations in the kettle's pillar are sealed.
- Reset the service message by setting Operating time to zero. Settings  → Operating time → Reset (use code 9110).

A service company can add their own number to the kettle. The phone number will be displayed when TIME FOR SERVICE occurs. Settings  → Service menu → Phone number.





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6.5 Update software/replace CPU

1. If the kettle is connected to a computer network: Select Settings  → “Network” and note all network settings.
2. Read out current values. Select Settings  → Service menu (code: 9110) → Parameter list
 - Kettle type: Mini Bas Midi Maxi Maxi IWC
 - Kettle size: 50L 75L 100L 150L 200L 300L 400L
 - Frequency converter: PowerFlex 4 PowerFlex 4M
 - Calibrate sensors and write down the difference between raw value and calibrated value for the steam jacket and core temp sensor. Δt jacket temp _____ Δt core temp _____
 - Cleaning time (offset): _____
 - Cleaning volume (offset): _____
 - Other settings only if the kettle is IWC, external steam, IP66 or connected to an electrical grid 230V.
3. Make sure the kettle is turned off with the On/Off-button.
4. Open back panel and remove the SD card mounted at the bottom right corner of the kettle's CPU card.
5. (If necessary, change the CPU card, switch of the main switch first!)
6. *In case where you've received an update by email:* copy the six files that the software consists of to the root library of the SD card, replace existing files.
7. Insert the new SD card onto the CPU card.
8. Update the flash memory of the CPU card: Main switch on. The kettle must be turned off with the On/Off button.



Hold down the tilt and re-tilt buttons and press the On/Off-button at the same time.

<u>Shown on the menu</u>	<u>Description</u>
Update Display board -	Update display
Update Mainboard	Update CPU
Update Both	Update display and CPU

Step down  with water filling and up  with the stirrer button.

→ Select option with re-tilt-button, the update begins.

When the display goes out, wait at least five seconds before restarting with the On/Off-button. It will turn itself off again to load parameters. Repeat this until normal menu is presented. (During the update it might show error – please ignore this)

9. Make the first setting the intended language:
First page after startup → “Inställningar”  → “Service meny” (code:9110) → “Parameterlista”
→ “Språk” (select language).
10. Update the parameters according to notes from section 2 above.
11. Select Settings  → Date & Time. Adjust to current.
12. Update any network settings by using the notes from section 1.
Turn off the kettle on the main switch and wait at least 30 seconds before restarting.

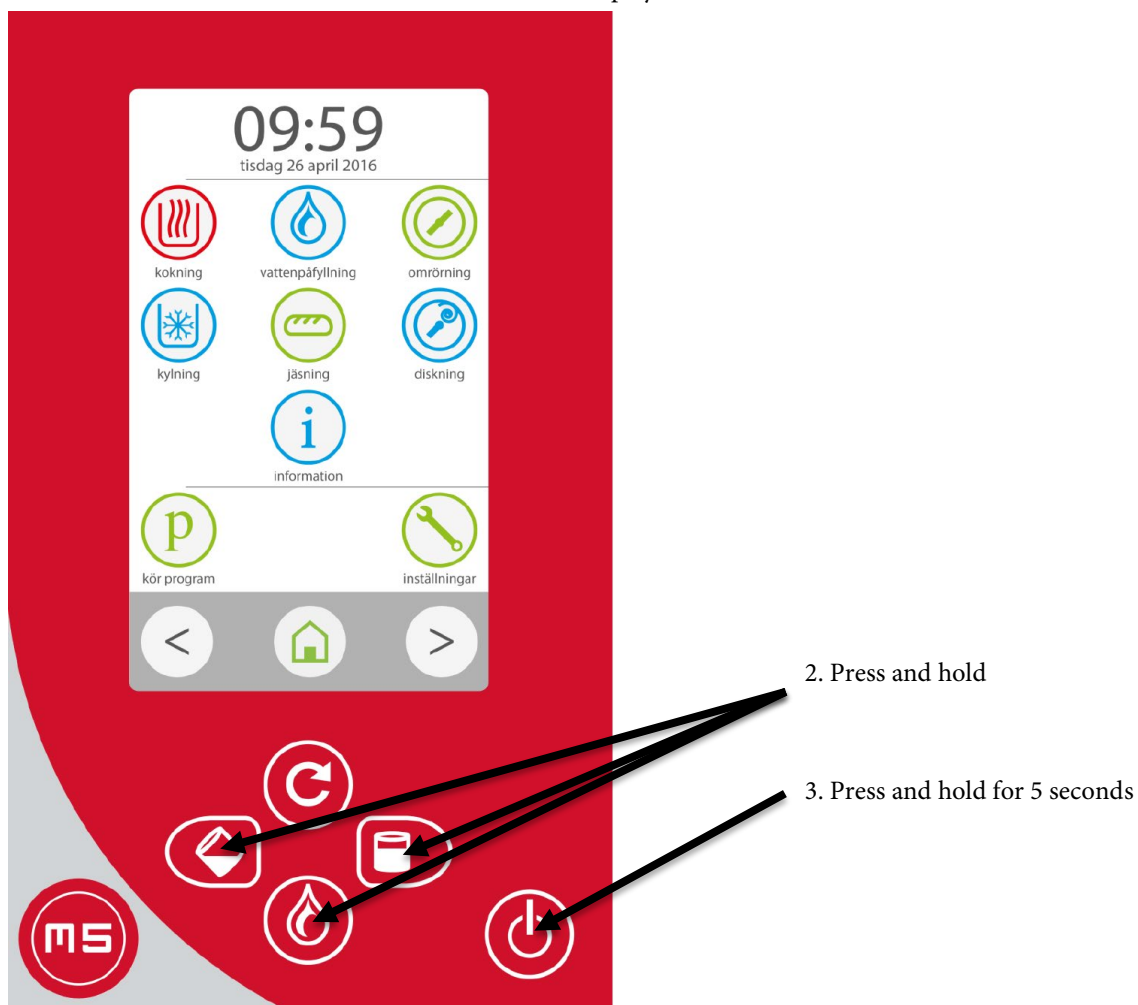


USER'S MANUAL M5

6.6 Calibrate touch display

To calibrate the touch on the display, do the following steps:

1. Turn the kettle off, use the on/off button.
2. Press and hold both tilt buttons and the water fill button, keep them pressed and continue to step 3.
3. Press and hold the on/off button for 5 seconds – release all buttons.
4. Calibration screen shows. Do the following steps on the display:
 - Press anywhere on the display.
 - Press upper left corner on the mark.
 - Press upper right corner on the mark.
 - Press lower right corner on the mark.
 - Press lower left corner on the mark.
5. Turn the display off using on/off button.
6. Restart the kettle and check the function of the touch display.

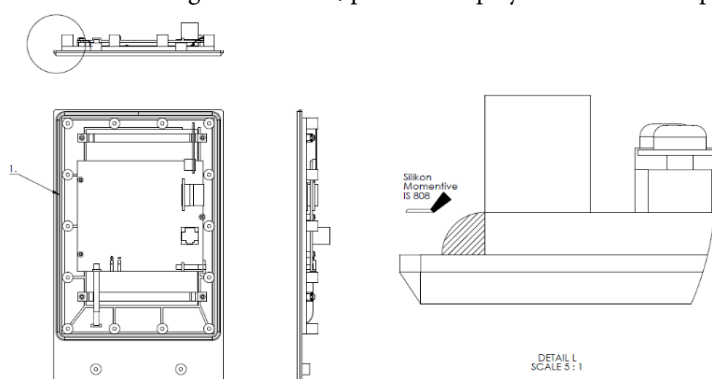




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6.7 Replace display-unit

1. Turn off the main switch on the back of the kettle.
2. *If the kettle is equipped with a shower gun:* Turn off the incoming water or turn off the ball valves on the feed hoses to the mixer, then loosen the hoses completely to facilitate dismantling. Also dismantle the copper pipe that goes to the pressure gauge (be careful: O-ring).
3. Loosen the cable for communication and the earth-cable under the display. *For model with lighting in lid* loosen cable to the led lamp, connected to the top of the display card. Remove the contact block for the emergency stop.
4. Loosen screws that hold the top panel at the back of the kettle, lift the cover up to the back edge, and then slide the cover towards the operator's side before it can be lifted straight up.
5. Remove the back cover plate and the two screws at the lower edge holding the display to the panel plate cover.
6. Remove the existing display and remove the residue from the silicone joint on the panel plate with the appropriate agent/scrapper.
7. Get the new display from its ESD bag. **NB! Be careful when handling!**
8. Place a silicone joint around the entire frame, see illustration below and then place the display in the panel plate.
9. Put the cover plate back on and the two screws at the lower edge.
10. Connect the earth cable and cable for communication, for model with LED-lighting in lid reconnect cable to led lamp.
11. Place the top panel back and screw the hoses back to the mixer and the pipe to the pressure gauge. Make sure they are in the back against the separator plate, to avoid hooking in when tilting.
12. **Make sure that the emergency stop contact block is connected to the emergency stop button.**
13. Carefully remove the protective film from the new display.
14. Turn on the water and make sure it doesn't leak. Then turn on the main switch.
15. If nothing else is stated, perform display and CPU card updates as stated in chapter 6.5



Place a silicone joint around the edge of the frame. Remove excessive silicone.



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6.8 Replace frequency converter


Cut the power on the main switch and wait 3 minutes until the frequency converter has discharged. Remove the protective cover at the back of the pillar and replace the broken frequency converter with the new one. The yellow jumper must always be removed on the new frequency converter (between no. 1 & 11). Connect according to previous connection. Put back the protective cover and turn the main switch back on.

If it is not the same model of frequency converter that is currently installed, contact Getinge Storkök for instructions.

After switching, the frequency converter must be programmed. This is done by the display of the kettle:

The parameters are stored in the kettle's CPU card and sent over to the frequency converter.

Select: Settings  → Service menu (code 9110) → Parameter list → "Send parameters to frequency converter".

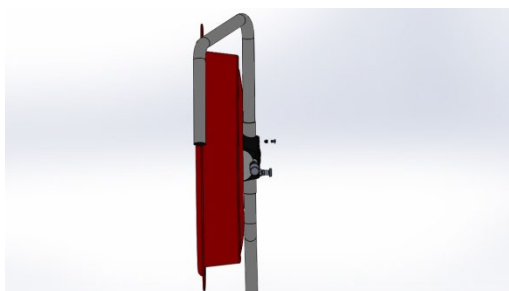
Exit the service menu on the  home button.

Mount the stirrer tool and fill the kettle with 5 liters of water. Then test run the stirring on program 1 (clockwise) and 6 (counterclockwise). Check at 20 and 155 RPM that the agitator rotates at the set speed. Also try lifting the lid and making sure that the stirring stops as intended.

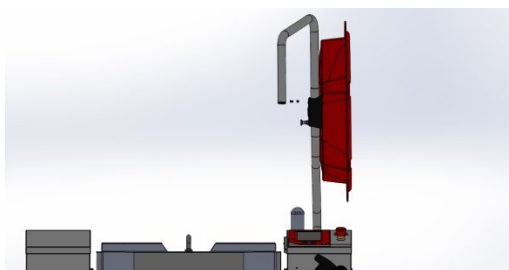
6.9 Replace LED light in lid

Alternations may apply depending on revision of lid-handle.

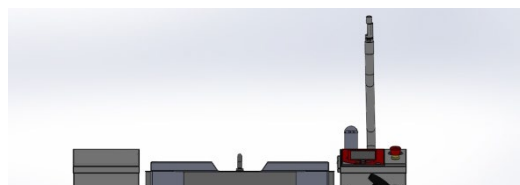
1. Remove the set screw.



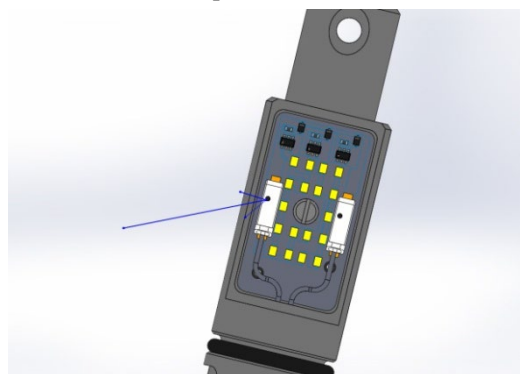
2. Turn the lid 180° and remove the next set screw.



3. Pull off the lid



4. Remove screw and LED card. Insert a fine metal wire into the contact's holes, marked with an arrow, and pull out the wire.





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6.10 Calibrate sensors

⌚ → Service Menu (code 9110) → Parameters → Calibrate sensors.

6.10.1 Calibrate flow sensor

Use a vessel/container of known volume, at least two liters of volume to obtain a more precise value. Hold the vessel under the ejector during the calibration.

1. Tilt the kettle fully to reset values. Then tip back.
2. Select Settings ⌚ → Service menu (code: 9110) → Parameter list → Calibrate sensors.
3. Set the desired volume to calibrate against (hold a vessel of known volume under the ejector).
4. Fill the set volume using the manual water replenishment button ⌚
5. (NOTE: Do not release the button after you start pressing). When volume is reached cancel water filling by releasing the button.
6. Get off the menu. Calibration is now complete.
7. Tip the kettle fully, tip back, then top up a quantity that can be checked.

6.11 Change water quantity when cleaning

If you find that the kettle discharges water during cleaning, you can try to reduce the amount of water filled in the cleaning programs.

Settings ⌚ → Service menu (code 9110) → Parameter list → Cleaning volume offset

6.12 Bottom draining

6.12.1 Models with cooling (Midi, Maxi)

Settings ⌚ → Service menu (code 9110) → Bottom draining.

6.12.2 Models without cooling (Bas, Mini)


- Tilt kettle.
- Remove the bottom plate and unscrew the R15 plug.
- Re-tilt kettle.
- Open the safety valve to let air into the steam jacket.



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6.13 Test input/output

The activity of the electronic inlets and outlets can be shown on the kettle's display. This is to facilitate any trouble shooting.

Settings  → Service menu → Test I/O ports

6.13.1 Digital ports

The output ports are shown on the kettle's display and are arranged as follows.

Digital output port	Description
1	Stirrer (contactor)
2	Heating element1 (Alt. Steam valve for steam kettles)
3	Heating element2 (Alt. Steam valve for steam kettles)
4	Fill jacket
5	Fill kettle
6	Cooling valve
7	Bottom valve
8	Circulation pump cooling
9	Return refrigerant
10	Feed refrigerant
11	Compressed air
12	Cooling active
13	Run indication (Potential free)
14	Auxiliary (Potential free)
15	Tilting return
16	Tilting
17	Led-light lid



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6.13.2 Digital input ports

The input ports are shown on the kettle's display and are arranged as follows.

Digital input ports	Description
1	Lid open
2	Kettle not tilted
3	Overheating
4	Jacket level (dark when level is OK)
5	Kettle fully tilted
6	Steam leak refrigerant
7	Alert cooling tank
8	Cooling active
9	Foot pedal
10	Information from frequency converter
11	Auxiliary
12	Auxiliary
13	Rotation monitor sensor

6.13.3 Analogue input ports

The input ports are shown on the kettle's display and are arranged as follows.

Analogue ports
PT-100 Core temperature
PT-100 Jacket temperature
PT-100 Motor temperature



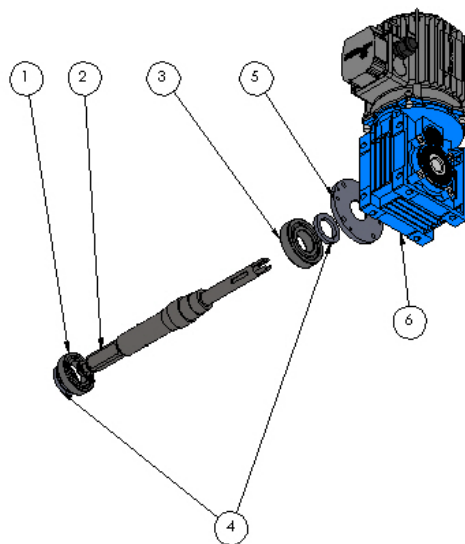
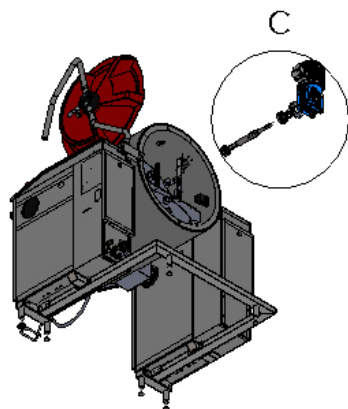
USER'S MANUAL M5

6.14 Alerts

This chapter describes the alerts that may be tripped on a model M5 kettle.

Alert code	Alert	Description	Action
E001	"Jacket temp sensor short circuit"	The circuit for the Pt-100 sensor in the kettle's steam jacket has short-circuited.	Contact a service technician.
E002	"Jacket temp sensor open circuit"	The circuit for the Pt-100 sensor in the kettle's steam jacket has stopped working.	Contact a service technician.
E003	"Core temp sensor short circuit"	The circuit for the Pt-100 sensor for core temperature has short-circuited.	Contact a service technician.
E004	"Core temp sensor open circuit"	The circuit for the Pt-100 sensor for core temperature has stopped working.	Contact a service technician.
E005	"Overheating"	The overheat protection for the kettle's heating elements have tripped.	Contact a service technician.
E006	"Stirrer overspeed"	The rotation monitor that monitors the kettle's stirring motor has tripped	Reset error. If repetitive: contact a service technician.
E007	"Motor overheating"	The temperature in the stirring motor is too high. >135°C.	Contact a service technician.
E008	"Cooling tank alarm"	Cooling media level too low.	Contact a service technician.
E009	"Leakage of refrigerants"	IWC pipe temperature too high, which indicates steam leak through the IWC valve.	Contact a service technician.
E010	"Fault frequency inverter"	The frequency converter is alerting or malfunctioning.	Cycle main power. Contact a service technician.
E011	"Error jacket filling"	No level in the steam jacket has been registered for 10 minutes.	Check water connection. Contact a service technician.

7 Spare parts

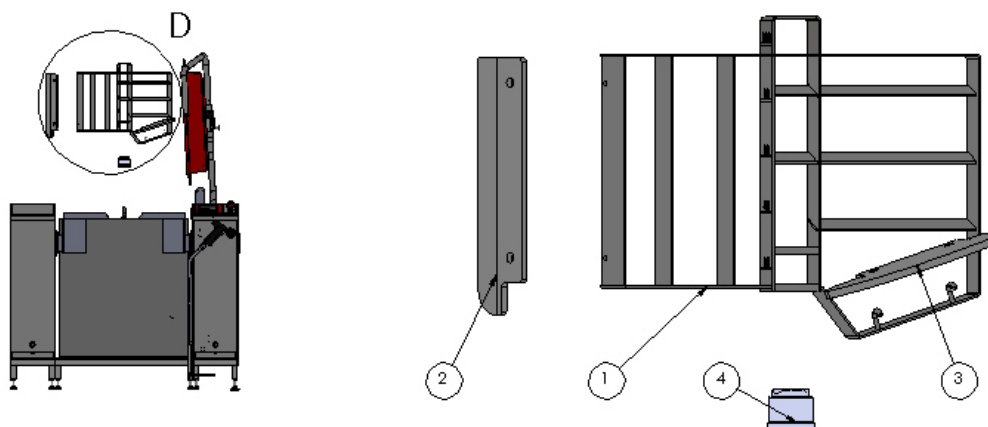


DETAIL C
SCALE 1 : 5

Pos.	Product no.	Designation
1	651.11	Grooved ball bearing 6007 SS
2a	1003.80	Stirring shaft 50L M5
2b	1003.81	Stirring shaft 75L M5
2c	1003.82	Stirring shaft 100L M5
2d	1003.83	Stirring shaft 150-300L M5
2e	1003.84	Stirring shaft 400L M5
3	651.12	Grooved ball bearing 6207 SS
4	650.14	Radial seal inner
5	901.42	Bearing housing base M4, M5
6a	652.38	Stirring motor 50L M5
6b	652.39	Stirring motor 75L M5
6c	652.40	Stirring motor 100L M5
6d	652.41	Stirring motor 150L M5
6e	652.42	Stirring motor 200L M5
6f	652.43	Stirring motor 300L M5
6g	652.45	Stirring motor 400L M5



USER'S MANUAL M5

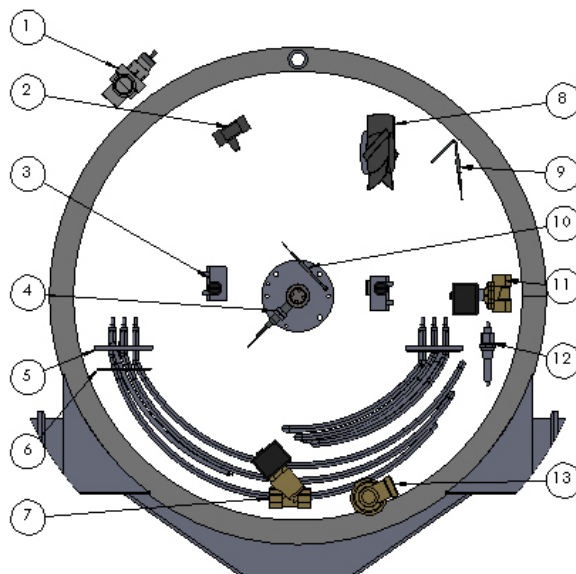
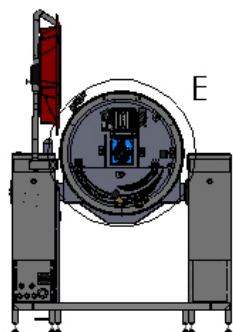


DETAIL D
SCALE 1 : 5

Pos.	Product no.	Designation
1a	1003.85	Stirring tool 50l M5
1b	1003.86	Stirring tool 75l M5
1c	1003.87	Stirring tool 100l M5
1d	1003.88	Stirring tool 150l M5
1e	1003.89	Stirring tool 200l M5
1f	1003.90	Stirring tool 300l M5
1g	1003.91	Stirring tool 400l M5
2a	652.30	Side scraper 50l M4, M5
2b	652.31	Side scraper 75l M4, M5
2c	652.32	Side scraper 100l M4, M5
2d	652.33	Side scraper 150l M4, M5
2e	652.34	Side scraper 200l M4, M5
2f	652.35	Side scraper 300l M4, M5
2g	652.36	Side scraper 400l M4, M5
3a	652.26	Bottom scraper 50l M4, M5
3b	652.27	Bottom scraper 100l M4, M5
3c	652.28	Bottom scraper 150l-200l M4, M5
3d	652.29	Bottom scraper 300l-400l M4, M5
4	651.10	Mechanical seal stirring shaft M3, M4, M5



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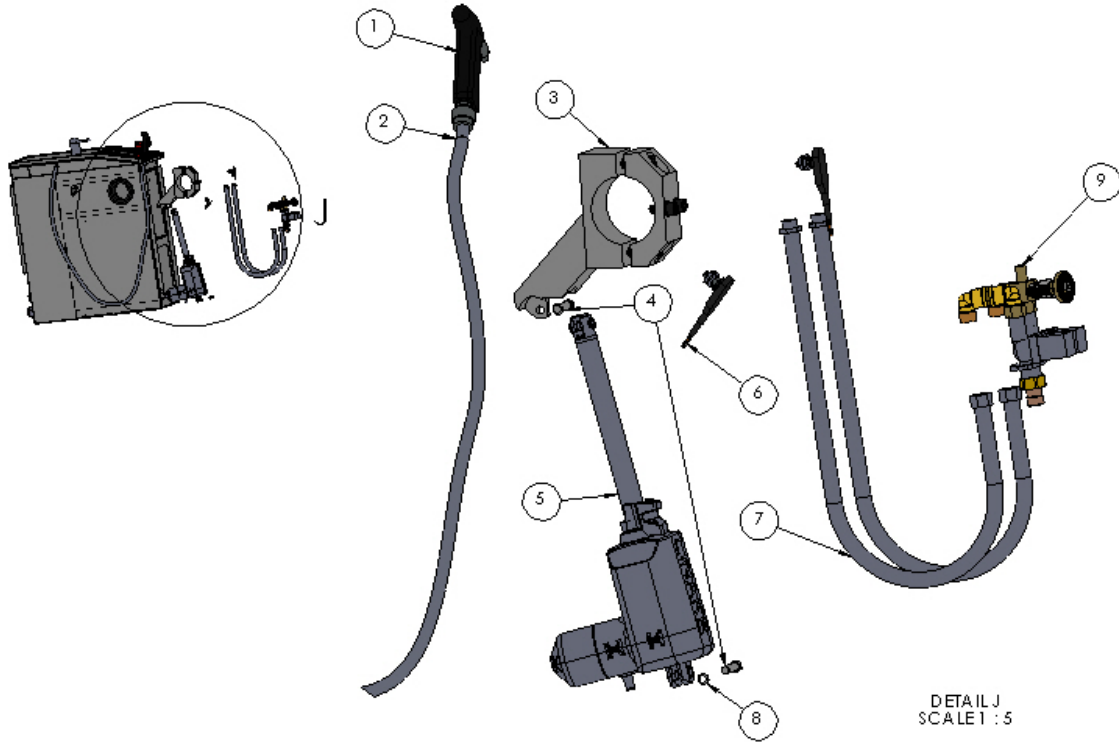


DETAIL E
SCALE 1 : 5

Pos.	Product no.	Designation
1	670.17	Safety valve R20 1.2 Bar
2	682.88	Flow sensor M5
3	680.04	Protection against overheating 270°C
4	680.31-2	Inductive sensor for monitoring rotation
5a	680.10	Heating element 7.5kW 230/400V
5b	680.11	Heating element 10kW 230/400V
5c	680.12	Heating element 15kW 230/400V
5d	680.13	Heating element 20kW 230/400V
5e	682.11	Heating element 7.5kW 254/440V
5f	682.13	Heating element 15kW 254/440V
6	670.04	Heating element gasket
7	670.81	Magnet valve for bottom draining 1/2"
8	680.94-2	Axial fan 230V for stirring motor
9	682.08	Pt-100 class A two-wire conductor diameter 2.5 mm
10a	682.08	Pt-100 class A two-wire conductor diameter 2.5 mm
10b	682.09	Pt-100 class A two-wire conductor diameter 2.5 mm +50, only i-version with extended bearing housing
11	670.75	Magnet valve for cooling 1/2"
12	670.07	Level electrode 1/4" 50-400L
13	670.05	Steam trap 1/2" E



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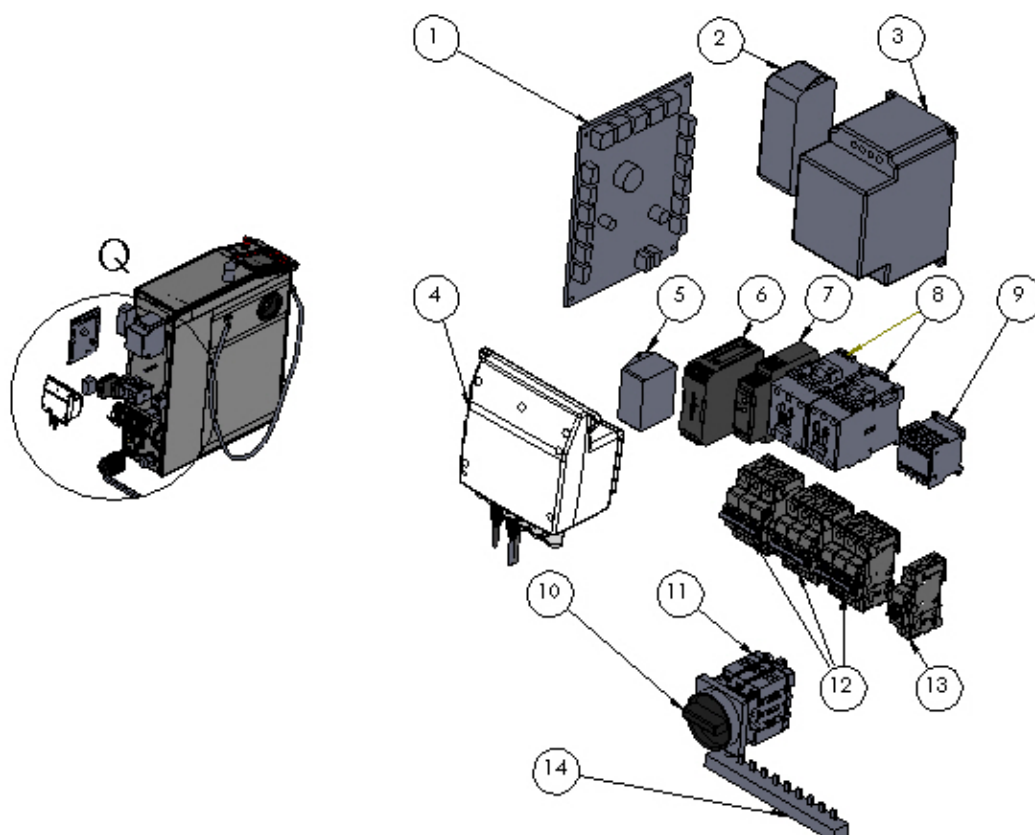


DETAIL J
SCALE 1 : 5

Pos.	Product no.	Designation
1	670.49	Spray gun without lock
1	670.49-2	Spray gun Ezze
2	670.26	Spray gun hose
3a	1002.43	Lifting yoke Hi M5
3b	1002.44	Lifting yoke M5
4	1001.98	Clevis pin actuator M5
5a	685.03	Actuator LA34 10 000N (400mm tilt height 50-200L)
5b	685.04	Actuator LA34 10 000N spline (400mm tilt height 300-400L)
5c	685.05	Actuator LA34 10 000N (600mm tilt height 50-200L)
5d	685.06	Actuator LA34 10 000N Hi spline (400mm tilt height 300-400L)
5e	685.15	Actuator LA34 10 000N foot (BL 50-200L)
5f	685.16	Actuator LA34 10 000N foot spline (BL 300L)
6	682.51	Micro switch IP66
7	670.24	Pressure hose jacket/vessel 800mm
8	1001.99	Split pin for clevis pin M5
9	672.08	Valve package complete M5



USER'S MANUAL M5

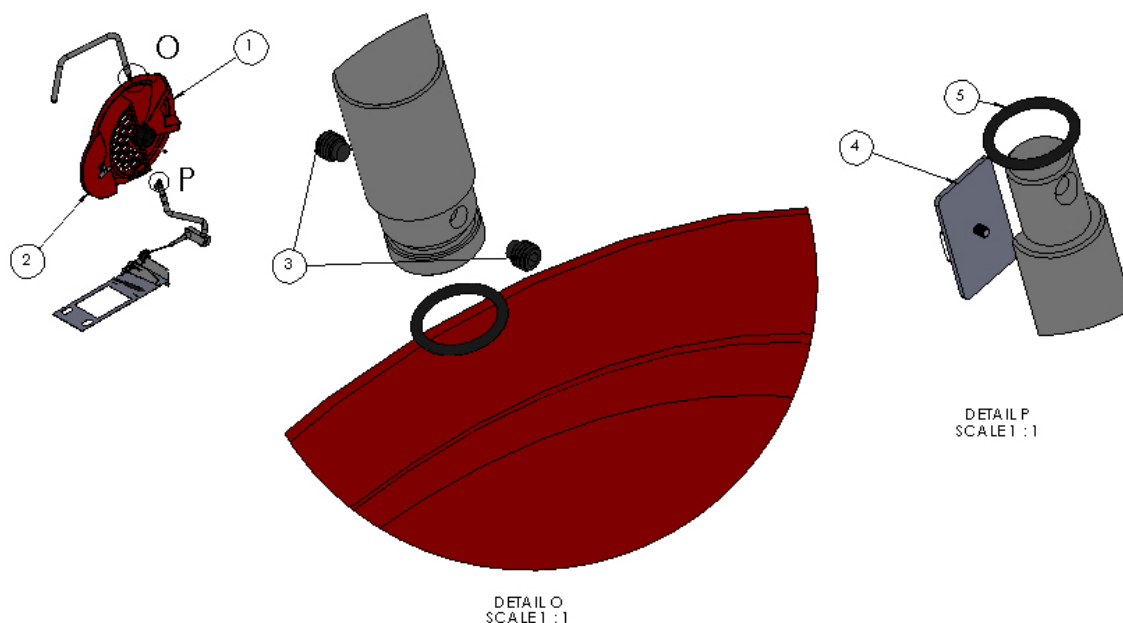


Pos.	Product no.	Designation
1	684.26	CPU card M5
2	681.99	Filter for GFCI operation 16A
3a	681.76	Frequency converter 0.75kW M4, M5 PF4M 50-75L
3b	681.77	Frequency converter 1.5kW M4, M5 PF4M 100-200L
3c	681.78	Frequency converter 2.2kW M4, M5 PF4M 300L
3d	681.79	Frequency converter 3.7kW M4, M5 PF4M 400L
3e	681.91	Frequency converter 0.75kW M4 230V (Norway 230V three-phase)
3f	681.92	Frequency converter 1.5kW M4, M5 230V (Norway 230V three-phase)
3g	681.93	Frequency converter 2.2kW M4, M5 230V (Norway 230V three-phase)
3h	682.12	Frequency converter 3,7kW M4, M5 230V (Norway 230V three-phase)
4a	685.08	Switch box CB9 IP54
4b	685.10	Switch box CB9 IP66 (i-version)
5	680.76	EMC filter
6	684.07-2	Power supply 230V M4/M5
7	682.57-2	Level relay 230V M4, M5
8a	680.21	Contactore C09 32A, 230/400VAC
8b	680.22	Contactore C16 35A, 230/400VAC

Pos.	Product no.	Designation
8c	680.23	Contactore C30 65A, 230/400VAC
8d	680.38	Contactore C37 65A 230/400VAC
8e	680.64	Contactore C43 85A 230/400VAC
8f	680.65	Contactore C60 100A 230/400VAC
9a	680.68	Mini contactore 5A 230/400VAC
9b	681.85	Contactore mini 9A 230/400VAC (>300L 230V Norway)
10	680.37	Handle for primary circuit-breaker complete.
11a	682.81	Primary circuit breaker 32A 50/75 Liter M5
11b	682.82	Primary circuit breaker 40A 100 Liter M5
11c	682.83	Primary circuit breaker 63A 150/200 Liter M5
11d	682.84	Primary circuit breaker 80A 300 Liter M5
11e	682.85	Primary circuit breaker 100A 400 Liter M5
12a	682.25	Miniature circuit breaker three-pole 10A
12b	682.26	Miniature circuit breaker three-pole 16A
12c	682.27	Miniature circuit breaker three-pole 20A
12d	682.28	Miniature circuit breaker three-pole 32A
12e	682.29	Miniature circuit breaker three-pole 40A
12f	682.30	Miniature circuit breaker three-pole 63A
13	682.24	Miniature circuit breaker single pole 10A
14	682.32	Busbar three-pole pin



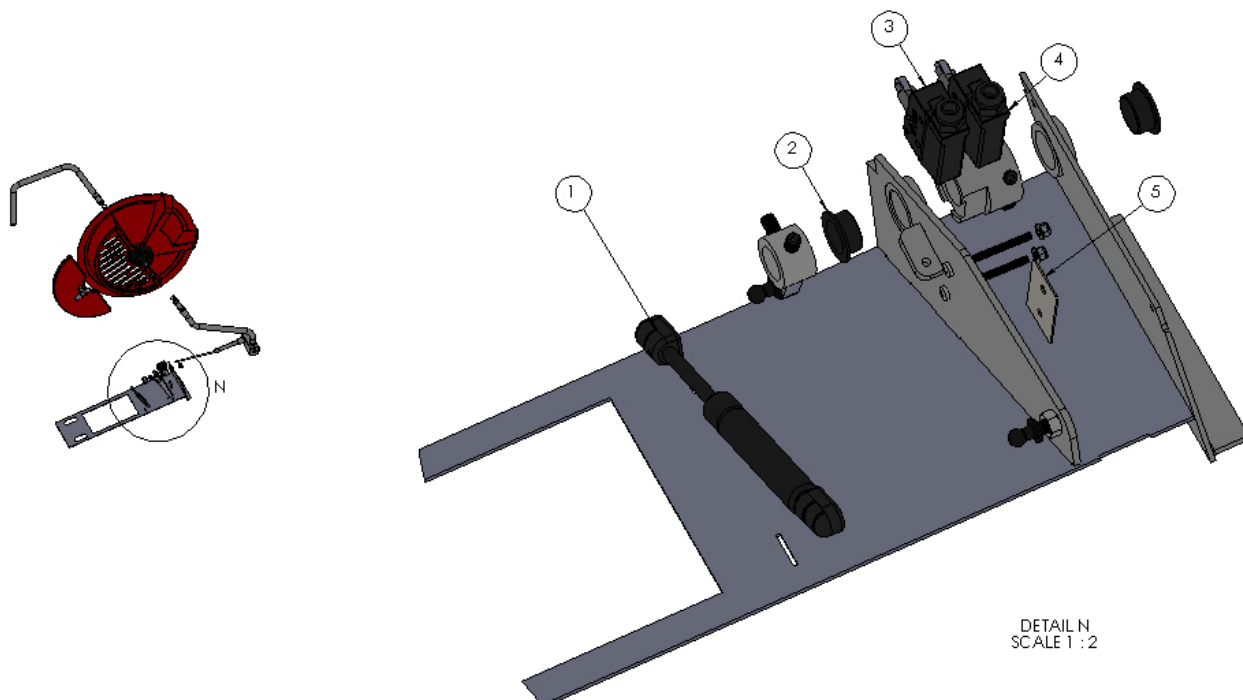
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Pos.	Product no.	Designation
1a	1003.70	Plastic cover 50-75L M5
1b	1003.71	Plastic cover 100L M5
1c	1003.72	Plastic cover 150-200L M5
1d	1003.73	Plastic cover 300-400L M5
1e	1003.74	Plastic cover 50-75L Mini M5
1f	1003.75	Plastic cover 100L Mini M5
1g	1003.76	Plastic cover 150-200 L Mini M5
1h	1003.77	Plastic cover 300L-400L Mini M5
2a	661.12	Plastic lid for inspection complete 50l-75l M5
2b	661.13	Plastic lid for inspection complete 100l M5
2c	661.14	Plastic lid for inspection complete 150l-200l M5
2d	661.15	Plastic lid for inspection complete 300l-400l M5
3	700.86	Set screw M8x8 A2 ISO4028
4	1003.67	Getinge LED card 3000K
5	1003.61	O-ring gasket 22.2x3 EPDM 70



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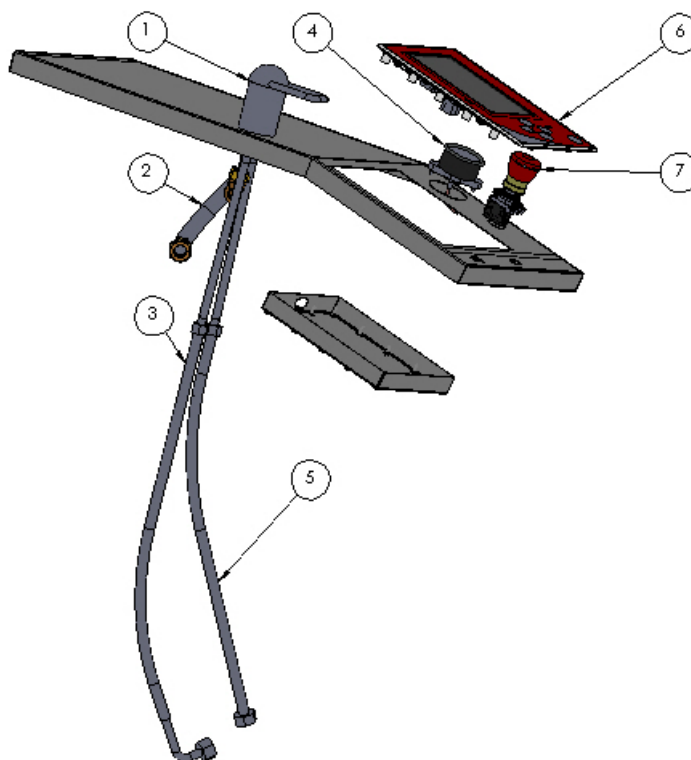


DETAIL N
SCALE 1 : 2

Pos.	Product no.	Designation
1a	660.69A	Air spring 450N 50-100L for lid
1b	660.70A	Air spring 700N 150-400L for lid
2	660.68	Bearing for lid shaft
3	682.86	Limit switch for lid M5
4	682.87	Protective cover limit switch for lid M5
5	1004.71	Spacer washer limit switch for lid M5



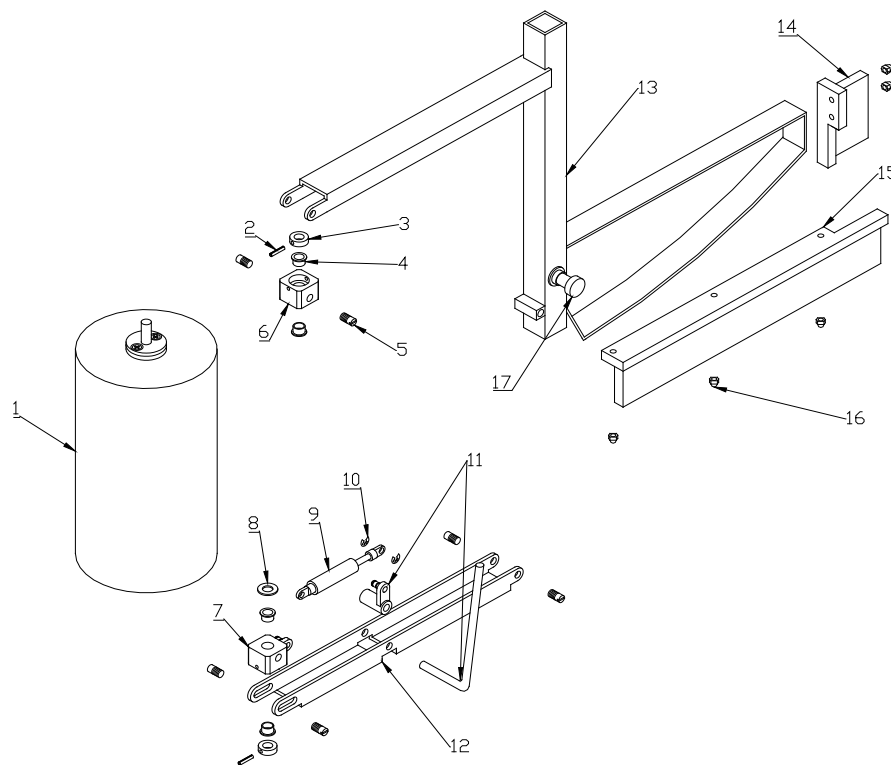
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Pos.	Product no.	Designation
1	670.37	Handle mixer FMM for shower gun M5
1b	671.83	Control cartridge "FM" for 670.37
2	672.13	Connect. hose 15X15 R/R300
3	672.03	Reinforced hose FC1/2"x clamp 10mm-500
4	670.11	Pressure gauge Master/GS/M2/M3/M4/M5
5	672.02	Reinforced hose F1/2"x clamp 10mm-500
6a	684.22	Display card M5 Bas-Maxi
6b	684.21	Display card M5 Mini
7	683.76	Emergency stop 40mm incl. 1 contact block self-monitoring



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Pos.	Product no.	Designation
1a	691.62	Brush roller 50L
1b	691.63	Brush roller 75L
1c	691.64	Brush roller 100L
1d	691.65	Brush roller 150L
1e	691.66	Brush roller 200L
1f	691.67	Brush roller 300L
1g	692.19	Brush roller 400L
2	700.39	Tension pin 3x18
3	691.06	Lock washer ACT M4/M5
4	661.10	Sleeve bearing M4/M5
5	700.40	Screw M8x16 threaded for ACT
6	691.08A	Bearing housing for rotating brush upper
7	691.28	Bearing housing for rotating brush lower
8	730.02	Washer M10
9	691.51-3	Gas spring ACT M4, M5
10	690.65	Retaining ring RSM5
11	691.68	Lever complete

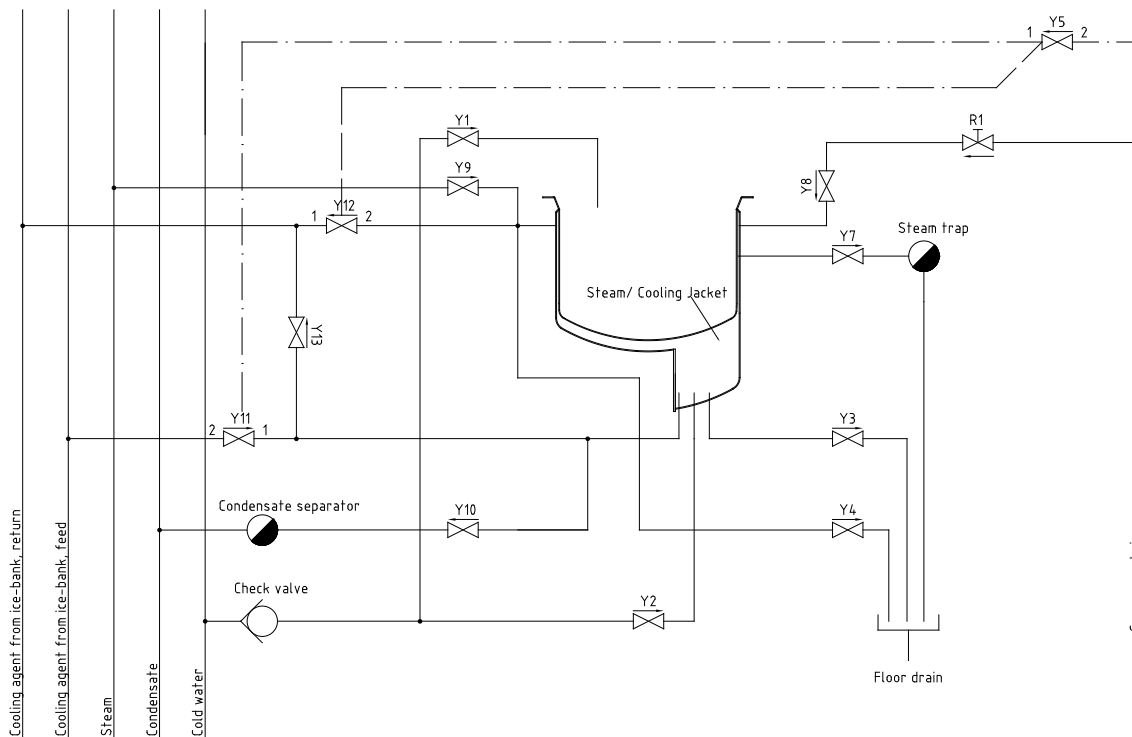
Pos.	Product no.	Designation
12a	691.11	Channel lower 50-75 L
12b	691.13	Channel lower 100 L
12c	691.15	Channel lower 150-200 L
12d	691.17	Channel lower 300-400 L
13a	691.56	Frame ACT M5 50L
13b	691.57	Frame ACT M5 75L
13c	691.58	Frame ACT M5 100L
13d	691.59	Frame ACT M5 150L
13e	691.60	Frame ACT M5 200L
13f	691.61	Frame ACT M5 300L
13g	692.18	Frame ACT M5 400L
14	690.21	Side brush ACT
15a	690.60	Bottom brush 50-75L
15b	690.61	Bottom brush 100L
15c	690.62	Bottom brush 150-200 L
15d	690.63	Bottom brush 300-400 L
16	720.01	Domed nut
17	1003.95	Indexing plunger cleaning tool M5



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8 Flow chart

The flow chart below describes a steam-heated kettle that is connected to an external cooling system. Other types of kettles contain fewer components and constitute subsets of the flow chart. Chapter 8.1 to chapter 8.6 describe the components that are part of the different types of kettles.



8.1 Electrically heated kettle without cooling (Mini, Bas)

Pos.	Description	Comments
Check valve	Check valve	
Steam trap	Steam trap	Type E
Y1	Magnet valve	Filling vessel
Y2	Magnet valve	Filling steam jacket

8.2 Electrically heated kettle with cooling (Midi, Maxi)

Pos.	Description	Comments
Check valve	Check valve	
Steam trap	Steam trap	Type E
Y1	Magnet valve	Filling vessel
Y2	Magnet valve	Filling steam jacket
Y3	Magnet valve	Bottom draining steam jacket
Y4	Magnet valve	Overflow steam jacket



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8.3 Electrically heated kettle with external cooling (IWC)

Pos.	Description	Comments
Check valve	Check valve	
Steam trap	Steam trap	Type E
R1	Control valve	Adjusted to 1 Bar
Y1	Magnet valve	Filling vessel
Y2	Magnet valve	Filling steam jacket
Y3	Magnet valve	Bottom draining steam jacket
Y4	Magnet valve	Overflow steam jacket
Y5	Pilot valve	The knob should be in position "0"
Y11	Remote valve	Inflow external cooling medium
Y12	Remote valve	Return external cooling medium
Y13	Magnet valve	Bypass valve for IWC evacuation 2
Y7	Magnet valve	Air vent shut-off
Y8	Magnet valve	Compressed air emptying steam jacket

8.4 Steam-heated kettle without cooling (Mini, Bas)

Pos.	Description	Comments
Check valve	Check valve	
Condensate separator	Condensate separator	
Steam trap	Steam trap	
Y1	Magnet valve	Filling vessel
Y9	Magnet valve	Inflow steam

8.5 Steam-heated kettle with cooling (Midi, Maxi)

Pos.	Description	Comments
Check valve	Check valve	
Condensate separator	Condensate separator	
Steam trap	Steam trap	
Y1	Magnet valve	Filling vessel
Y2	Magnet valve	Filling steam jacket
Y3	Magnet valve	Bottom draining steam jacket
Y4	Magnet valve	Overflow steam jacket
Y9	Magnet valve	Inflow steam
Y10	Magnet valve	Condensation return circuit

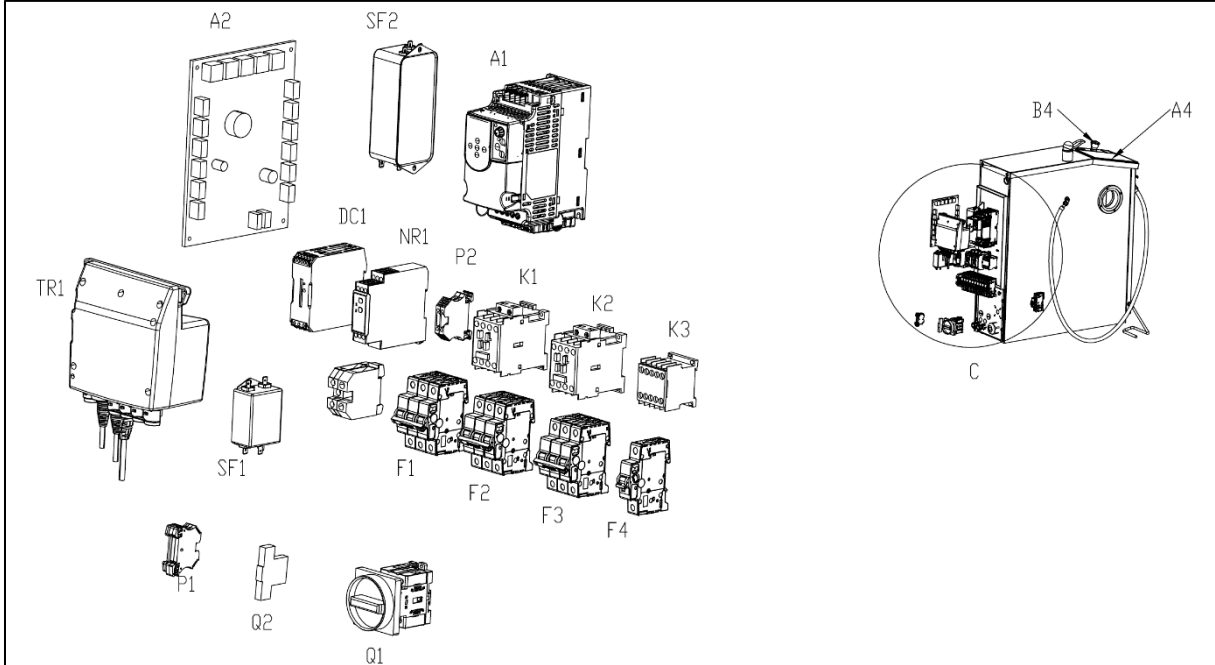
8.6 Steam-heated kettle with external cooling (IWC)

Pos.	Description	Comments
Check valve	Check valve	
Condensate separator	Condensate separator	
Steam trap	Steam trap	
R1	Control valve	Adjusted to 1 Bar
Y1	Magnet valve	Filling vessel
Y2	Magnet valve	Filling steam jacket
Y3	Magnet valve	Bottom draining steam jacket
Y4	Magnet valve	Overflow steam jacket
Y5	Pilot valve	The knob should be in position "0"
Y11	Remote valve	Inflow external cooling medium
Y12	Remote-controlled valve	Return external cooling medium
Y13	Magnet valve	Bypass valve for IWC evacuation 2
Y7	Magnet valve	Air vent shut-off
Y8	Magnet valve	Compressed air emptying steam jacket
Y9	Magnet valve	Inflow steam
Y10	Magnet valve	Condensation return circuit

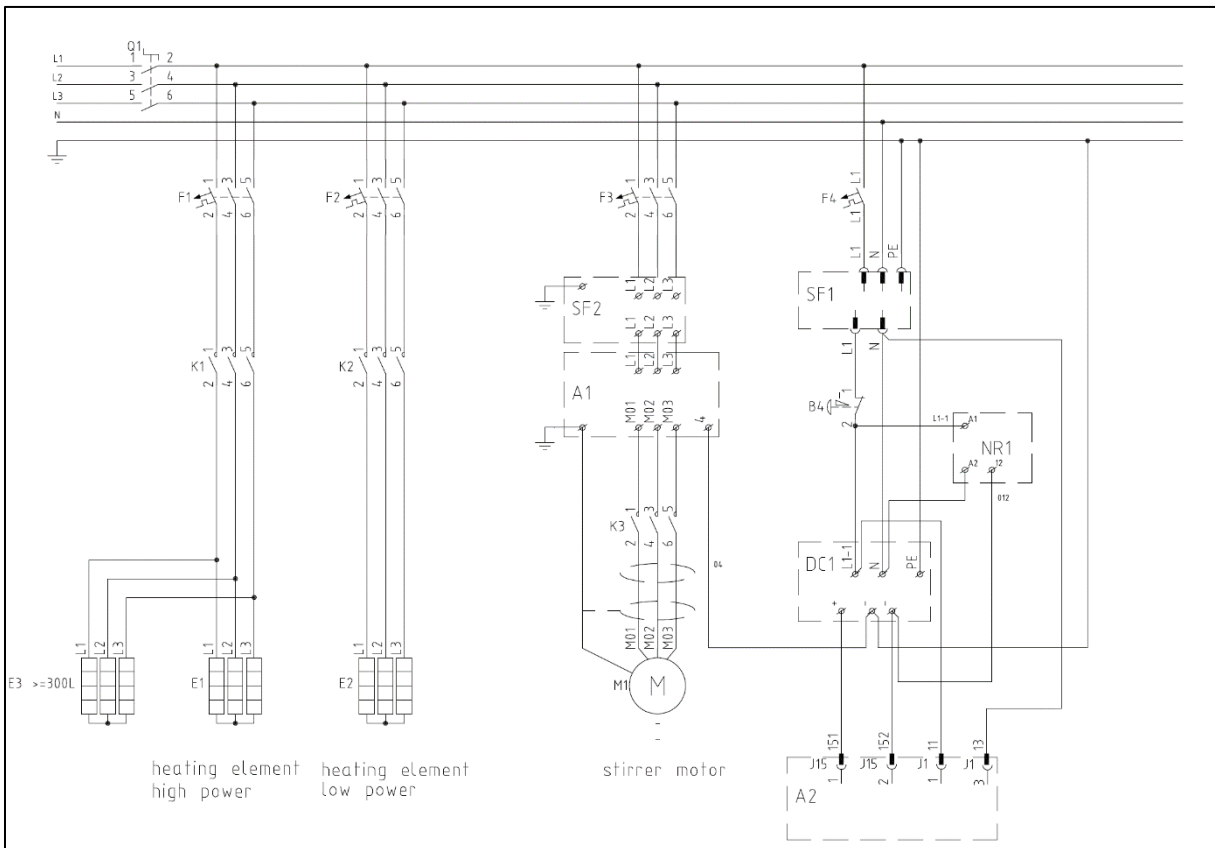


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9 Wiring diagram



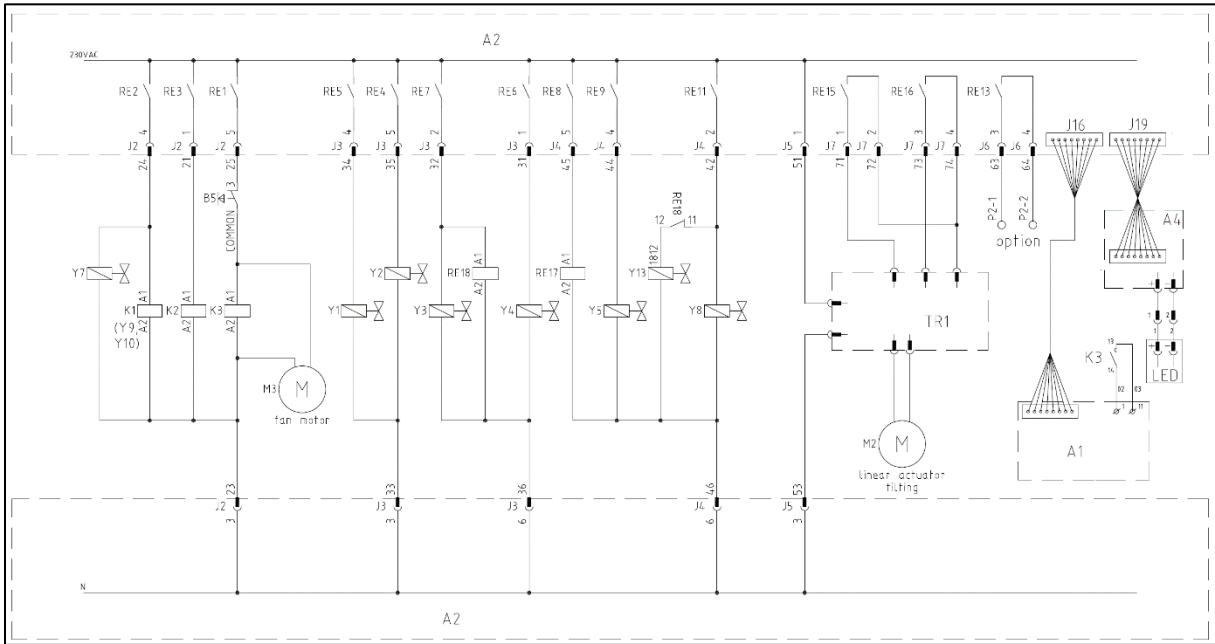
Page 1. Component view



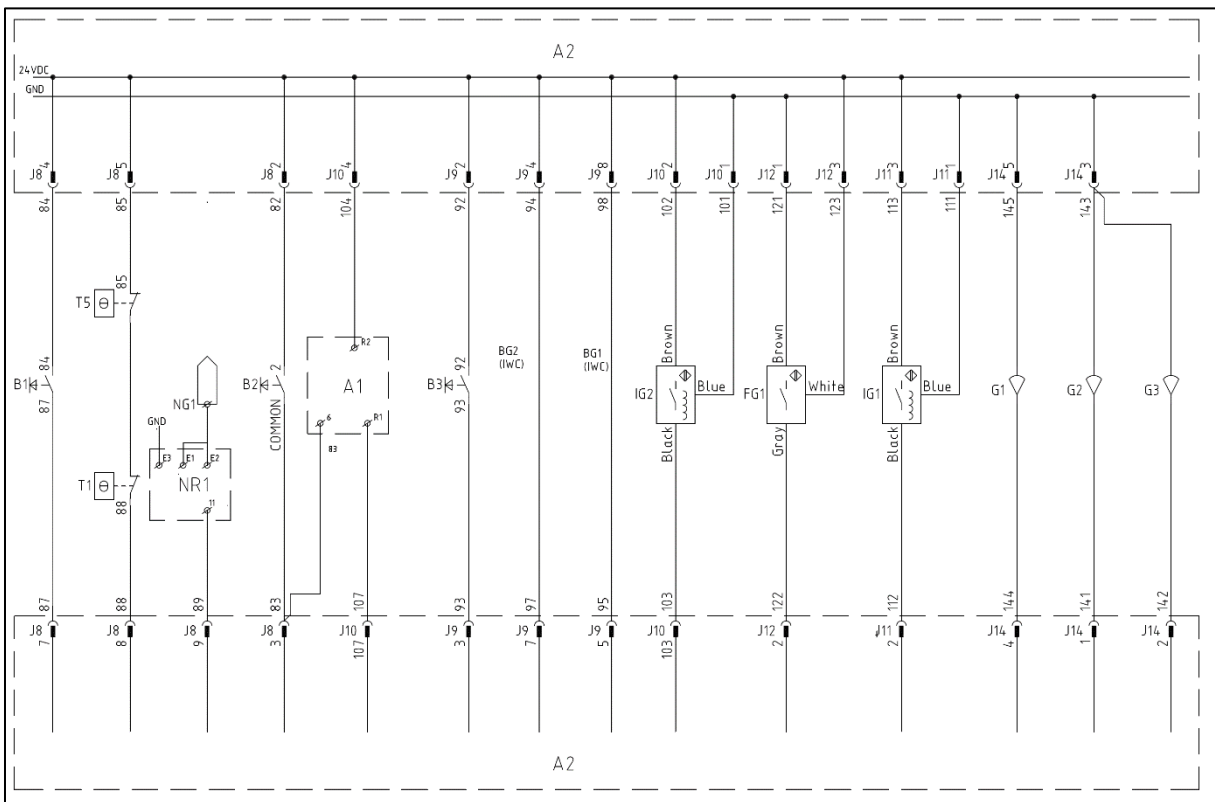
Page 2. Main diagram



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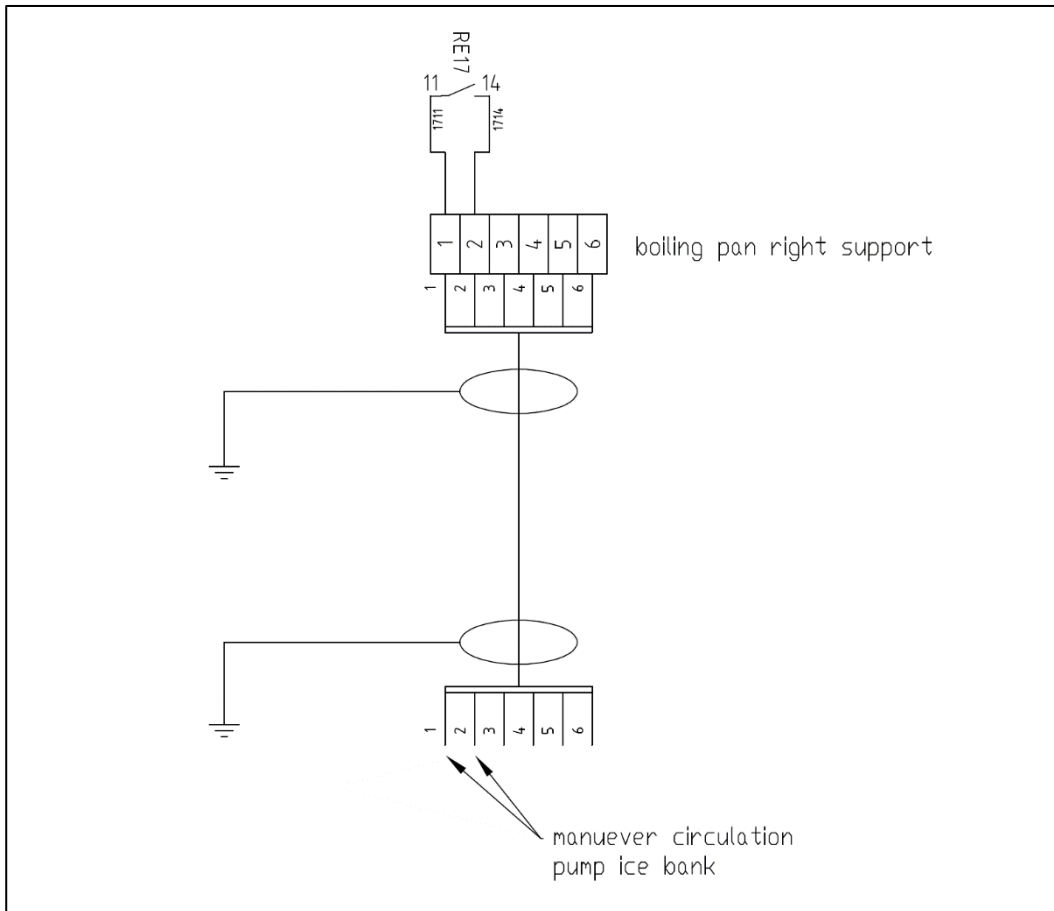
Page 3. Main board A2 outputs



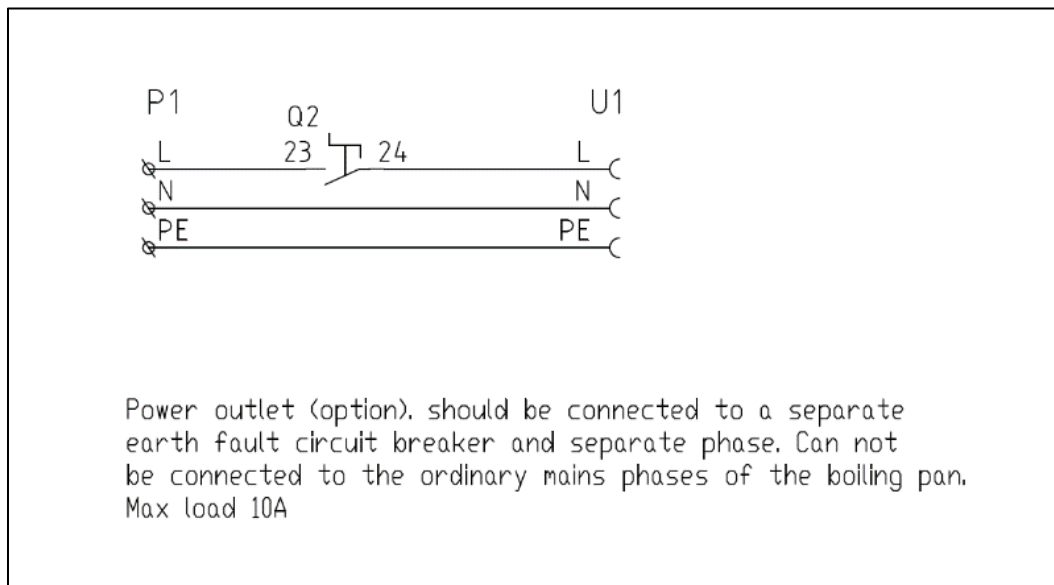
Page 4. Main board A2 inputs



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Page 5. IWC interface



Page 6. Power outlet



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Pos.	I/O	Description	Page	Art.no	Comments	Type of kettle/info
A2		CPU	1-4	684.26		All
A4		Display card	1.3	684.21 684.22	Mini Bas-Maxi	All
B1	I-2	Limit switch	4	682.51	Vessel re-tilted	All
B2	I-1	Limit switch	4	682.86	Lid	All
B3	I-5	Limit switch	4	682.51	Vessel fully tilted	All
B4		Emergency shut down	1,2	683.76	Self-monitoring	All
Y1	O-5	Electromagnetic coil	3	680.16	Filling vessel	
Y2	O-4	Electromagnetic coil	3	680.16	Filling steam jacket (for steam-heated kettles; Midi, Maxi, IWC)	
F4		Miniature circuit breaker	1.2	682.24	Control breaker	
DC1		Power supply	1.2	684.07-2	24V DC	
FG1		Flow sensor	4	682.88	Filling vessel	
G1		Pt-100 temperature sensor	4	682.08	Steam jacket	
M2		Linear actuator	3	685.03 685.04 685.05 685.06 685.15 685.16	400mm height 50-200L 400mm height 300-400L (2 pcs) 600mm height 50-200L 600mm height 300-400L (2 pcs) BL 600mm height 50-200L BL 600mm height 300L (2 pcs)	Tilting ($\leq 300L \rightarrow 2$ pcs)
NG1	I-4	Level electrode	4	670.07	Water level steam jacket	
NR1	I-4	Level relay 230VAC	1,2,4	682.57-2	5VAC feed level electrode	
Q1		Primary circuit breaker	1.2	682.81 680.34 682.83 682.84 682.85	50-75L 100L 150-200L 300L 400L	50-75L=32A, 100L=40A, 150-200=63A, 300L=80A, 400L=100A (400V) (Steam-heated all sizes=32A)
Q2		Circuit breaker	1,6	681.98		For power outlet (option)
SF1		Filter	1.2	680.76		
TR1		Transformer	1.3	685.08 685.10	IP54 (standard kettle) IP66 (i-version)	Actuator switch box ($\leq 300L \rightarrow 2$ pcs + diode cable 685.09 x 2)
E1	O-2	Heating element	2	680.10 680.11 680.12 680.13	50-75L=7.5 kW, 100L=15kW, 100L mobile =10kW, 300-400L=15kW, 150-200L=20kW	50-75L=7.5 kW, 100L=15kW, 100L mobile=10kW, 300-400L=15kW, 150-200L=20kW
E2	O-3	Heating element	2	(see E1)	50-100L=7.5 kW, 150L=10kW, 200L=15kW, 300-400L=20kW	50-100L=7.5 kW, 150L=10kW, 200L=15kW, 300-400L=20kW
E3	O-2	Heating element	2	(see E1)		300L=10kW, 400L=15kW
T1, T5	I-3	Protection against overheating	4	680.04		
F1		Miniature circuit breaker	1.2	682.25 682.26 682.27 682.28 682.29 682.30	50-75L=16A, 100L=32A, 100L mobile=20A, 150-300L=40A, 400L=63A (400V)	50-75L=16A, 100L=32A, 150-300L=40A, 400L=63A (400V)
F2		Miniature circuit breaker	1.2	(see F1)	50-100L=16A, 150L=20A, 200L=32A, 300-400L=40A (400V)	



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Pos.	I/O	Description	Page	Art.no	Comments	Type of kettle/info
K1	O-2	Contacteur	1-3	680.21 680.22 680.23 680.38 680.64 680.65	C09 - 32A (400V) C16 - 35A (400V) C30 - 65A (400V) C37 - 50A (400V) C43 - 85A (400V) C60 - 100A (400V)	50-75L=32A, 100L=35A, 150- 400L=65A (400V)
K2	O-3	Contacteur	1-3	(see K1)	50-400L=32A (400V)	50-150L=32A (400V) 200L=35A (400V) 300-400L= 65A (400V)
F3		Automatic circuit breaker	1.2	682.25	10A (400V)	Stirrer (Bas, Midi, Maxi)
G3		Pt-100 temperature sensor	4	(built in)	Stirring motor	
A1		Frequency converter	1-4	681.76 681.77 681.78 681.79	50L-75L = 0.75 kW 100L-200L = 1.5 kW 300L = 2.2 kW 400L = 3.7 kW (400V)	
IG1	I-13	Inductive sensor	4	680.31-2	Rotation monitor stirring motor	
B5		Limit switch	3	682.86	Lid 230V	
K3	O-1	Contacteur	1-3	681.85	50-300L=5A, 400L=9A (230V)	
M1		Motor	2		Stirrer	
M3	O-1	Motor fan	3	680.94-2	Stirring motor cooling	
SF2		Filter	1.2	681.99	EMI Noise filter for frequency converter	
Y3	O-7	Electromagnetic coil	3	670.81	Bottom draining steam jacket	Cooling (Midi, Maxi)
Y4	O-6	Electromagnetic coil	3	670.75	Overflow steam jacket	Cooling (Midi, Maxi)
G2		Pt-100 temperature sensor	4	682.08 682.09	Vessel (core temperature sensor) As above for I-version (+50mm)	Bas+, Maxi, Maxi IWC
IG2	I-9	Inductive sensor	4	684.30	Foot pedal	Equipped with foot pedal
LED	O-17	LED card	3	1003.67	Lighting lid	Bas-Maxi
Y9	O-2	Electromagnetic coil	3		Steam	Steam heated
Y10	O-2	Electromagnetic coil	3		Condensate (only Midi, Maxi, IWC)	
Y13	O-9	Electromagnetic coil	3		Bypass valve for IWC evacuation 2	IWC (external cooling)
Y5	O-10	Electromagnetic coil	3		Pilot valve for IWC valves	IWC (external cooling)
Y7	O-2	Electromagnetic coil	3		Air vent shut-off	IWC (external cooling)
Y8	O-11	Electromagnetic coil	3		Compressed air steam jacket	IWC (external cooling)
RE17	O-12	Relay	3,5		Maneuver circulating pump ice bank	IWC (external cooling)
RE18	O-11	Relay	3		Maneuver bypass valve IWC	IWC (external cooling)
BG1	I-7	Yoke	4		Alert IWC tank	IWC (external cooling)
BG2	I-6	Yoke	4		Steam leak alert	IWC (external cooling)
P1		Connection	1,6		Power outlet	Option
U1		Power outlet	6		Power outlet	Option
P2	O-13	Connection	1,3		Potential-free relay	Option

Page 7. Component list



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10 Installation

10.1 Introduction

Read these installation instructions carefully before installing the kettle. It is very important to the functionality of the kettle, to user safety and vital to the longevity of the kettle that it is assembled and installed correctly.

Check that all accessories specified on the dispatch note are included in the delivery.

10.2 Packaging

All kettles from Getinge Storkök are delivered on a pallet that can be moved using a standard pallet truck. Other packaging on the pallet is bolted down.

Remove the protective packaging from the pallet, inspect the kettles for damage in transit and disassemble the kettle's covers.

The kettle is attached to the pallet with four anchor plates, which will later be used for assembly and need to be put aside. Disassemble and save the anchor plates.

! When the anchor plates have been disassembled from the pallet, the kettle is no longer attached to anything.

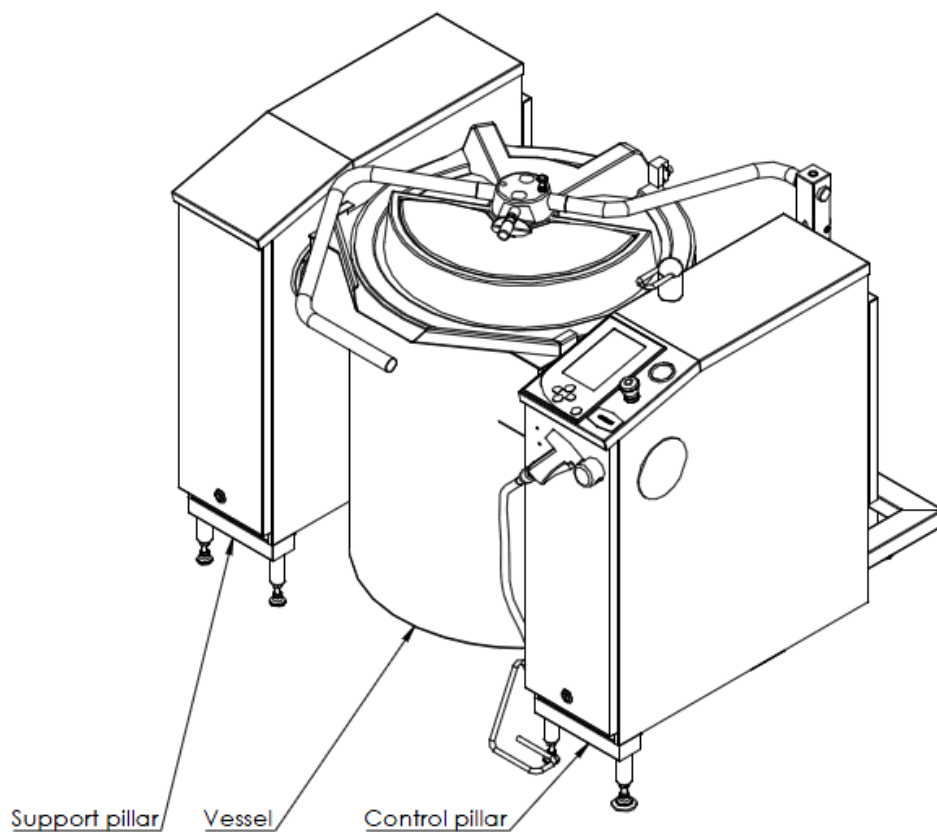
! A free-standing kettle is unstable.

! Be careful when handling the kettle, there is a risk it will topple and cause injury.

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10.3 Lifting

The kettle is lifted off the pallet with a pallet truck or equivalent under the kettle. Protect the underside of the vessel by using i.e. pieces of wood between the forks and the underside of the kettle.



! On 50- 200-liter kettles, the support pillar is not attached to the vessel.

! On 300- and 400-liter kettles, both the control pillar and the support pillar can move freely forward.

! Be careful when lifting the kettle to prevent the pillars from falling off, risking personal injury or damage to the kettle.



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10.4 Assembly

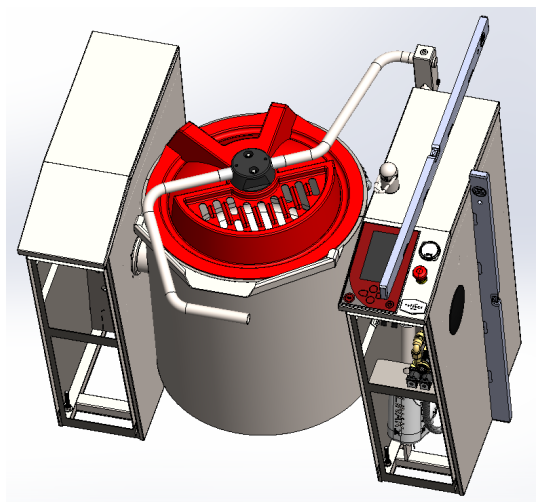
! For 300- and 400-liters kettles delivered without support pillars, the electric connections must be connected to the secondary actuator before voltage is applied to the kettle.

10.4.1 Bolted pillar

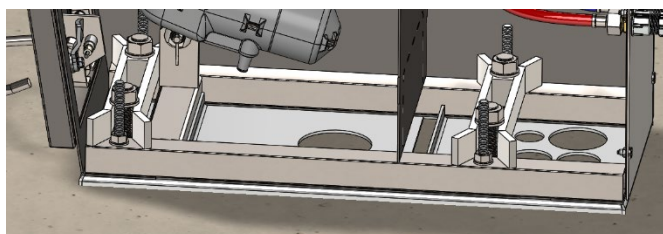
Put the kettle in its designated place. Unless the drawing indicates otherwise, the kettle must be placed so that the floor drain is located in between the two pillars and the short side of the drain is in line with the front edge of the pillar frames. Make sure that the pillars are in **line** with each other and that they are **level**. Also make sure that the kettle is level, if necessary, adjust the **adjusting screws** located at the four corners of the pillar frame.

If the floor is uneven on installation without a fixture plate, the kettle's position will change when the pillars are fixed to the floor. This will need to be adjusted using the adjusting screws until the pillars are level and in line.

Check that there is no play between the pillar's slide bearing and the vessel's dowel. Finally, check that the kettle's lid is centered over the vessel. If not, make additional adjustments primarily on the control pillar.



Now, the kettle must be fixed to the floor using the anchor plates. If there is a fixture plate, use the bolts sticking up from the floor. A fixture plate should be used for all kettles larger than 100 liters. If a fixture plate is not used, you can use an attachment such as self-grouting nails and threaded rods with a minimum size of M16 stainless steel that are inserted **at least** 100 mm into the floor.

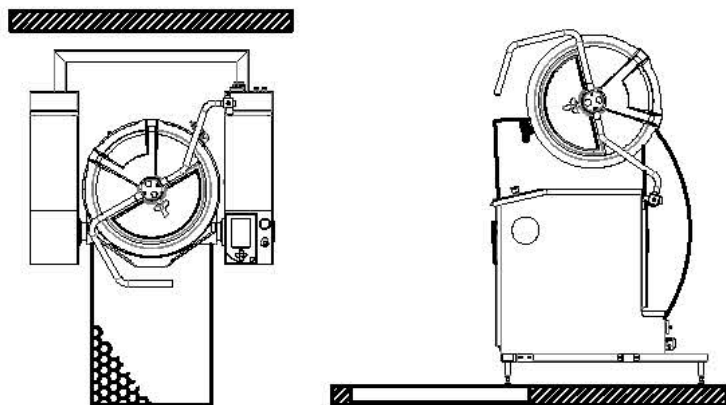


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10.4.2 Pillars with feet

For kettles where stands are delivered separately, you start by putting the stand in place and ensuring it is level. For a stand for multiple kettles, the entire stand is put into place and level before the kettles are installed.

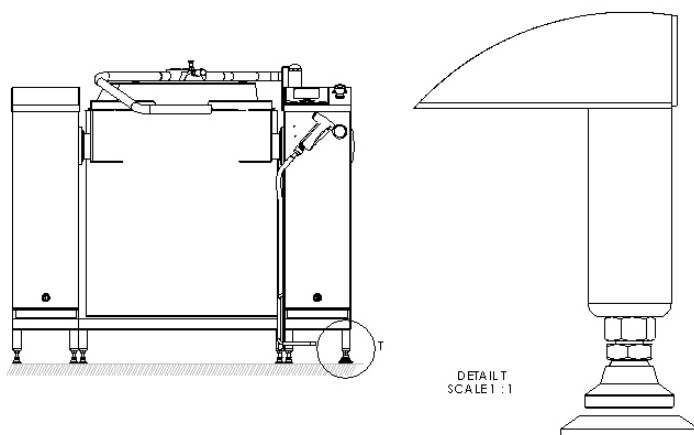
The front edge of the stand is placed 140mm in front of the back edge of the floor drain.



Ensure the kettle is level by adjusting the feet. A kettle has six feet. Adjust four of these. When the kettle is level, the remaining pair of legs are fixed to the floor.

Check that the lid is centered over the vessel.

When the kettles are in place and level, the cups are glued to the floor. Raise one foot at a time by rotating it, glue the cup to the floor and lower the foot into the cup.





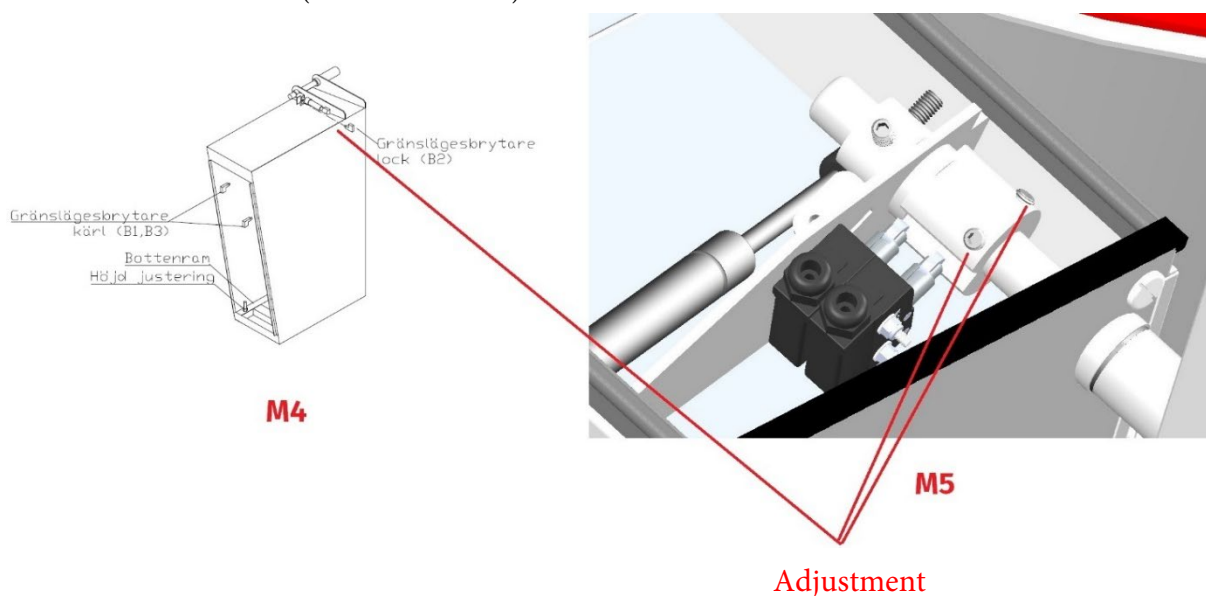
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10.5 Adjustments

When power and water has been connected to the kettle, the position of the vessel is adjusted to ensure it is level when it is tilted back fully, use the vessel's limit switch (B1) for this. Also adjust the limit switch (B2) for the lid, so that it trips when the lid is opened by about 3 centimeters measured from the front edge of the vessel. If the limit switch (B3) "kettle fully tilted" is tripped when it is fully tilted, this must also be adjusted.

If the kettle was delivered without support pillars, lubricated the bearings between the vessel's dowels and the kettle's pillars. Grease nipples are accessibly located behind the front covers of the pillars.

NB! Check that the stroke is the same for the actuators. It can be adjusted on the yoke's M12 bolt. Only applies to models with dual actuators (300- and 400-liters).

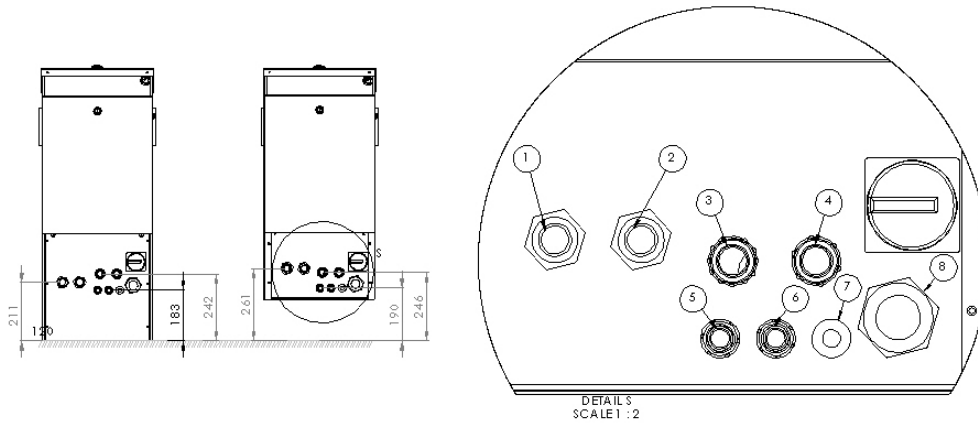


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10.6 Connections rear assembly

This chapter only applies to kettles with rear assembly.

10.6.1 Sizes 50-300L



Pos.	Connection	Comment
1	IWC in	IWC kettles
2	IWC out	IWC kettles
3	Condensate	Steam kettles
4	Steam	Steam kettles
5	Hot water	
6	Cold water	
7	Network	
8	Electricity	



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10.7 Connecting kettles with direct steam

In instances when the kettle is connected to an existing steam system, the steam must comply with the following requirements.

- The steam must be free from dirt and condensation.
- The steam must not be superheated.

The steam must be supplied at the following pressure and flow.

Size	Connection	Steam pressure (overpressure)	Flow
400L	20	1.5 Bar	85 kg/h
300L	20	1.5 Bar	65 kg/h
200L	20	1.5 Bar	42 kg/h
150L	20	1.5 Bar	28 kg/h
100L	15	1.5 Bar	24 kg/h
50/75L	15	1.5 Bar	15 kg/h

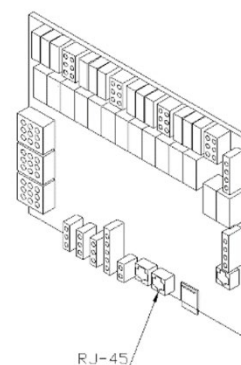
10.8 Connecting IWC kettles to an external cooling system

In instances when the kettle is connected to an external cooling system, the refrigerant must comply with the following requirements.

- Refrigerants must be supplied to the kettle at a maximum pressure of 1 Bar.
- Only ice water systems are allowed.

10.9 Connecting to computer network

To connect the kettle to the computer network, connect the RJ-45 cable to the kettle's CPU card.



10.10 Commissioning

! To activate the warranty, a completed test report MUST be sent to Getinge Storkök upon completing commissioning.

Digital commissioning: www.gsab.nu/kommisionering



Scan QR-code for active link