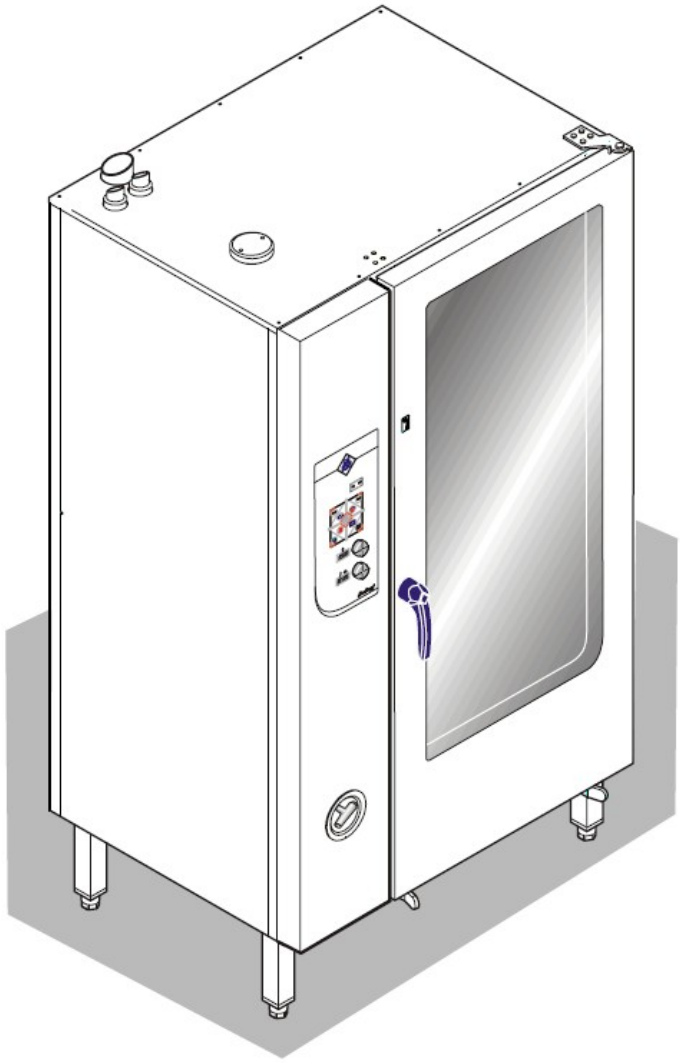
# Service manual

# Electric & Gas *Classic*Combi™

UL & CE Version



| Model | Serial-No. / date | |
|---|---|---|
| | From | Up to |
| *Classic**Combi***™ 615 | 07020766 / June 2007 | |
| *Classic**Combi***™ 620 | 07020584 / June 2007 | |
| *Classic**Combi***™ 115 | 07020584 / June 2007 | |
| *Classic**Combi***™ 120 | 07020584 / June 2007 | |
| *Classic**Combi***™ 215 | 07020584 / June 2007 | |
| *Classic**Combi***™ 220 | 07020584 / June 2007 | |

2010/02//23 SEV/KA

# Overview of the error messages

| Error message | Description |
|---|---|
| Err 1 | Error core temperature probe |
| Err 2 | Error chamber probe 1 |
| Err 3 | Error chamber probe 2 |
| Err 4 | Core temperature probe not calibrated |
| Err 5 | Error drain probe |
| Err 7 | Error reference probe on board defect |
| Err 8 | Risk of ice |
| Err 9 | Overtemperature cooking chamber |
| Err 10 | Overtemperature electronic |
| Err 11 | Electronic too hot |
| Err 20 | Core temp. replace not possible |
| Err 30* | No fan 1 |
| Err 31* | Fan runs |
| Err 32* | No fan 2 |
| Err 33* | Fan direction wrong |
| Err 36* | Jumper setting at frequency controller wrong |
| Err 40 | Not authorized access |
| Err 66** | No water |
| Err 71* | No gas 1 |
| Err 710* | No gas 2 |
| Err 72* | No gas fan 1 |
| Err 720* | No gas fan 1 |
| Err 73* | General gas fault 1 |
| Err 730* | General gas fault 2 |
| Err 74* | No flame 1 |
| Err 740* | No flame 2 |
| Err 101*** | Battery empty |
| Err 120 | 12 Volt ground error |
| Err 121 | UREF0. Ground error at probe or pcb |
| SHO | Demo mode |
| -n- | Emergency program |
| -c- | Carry out unit configuration in the service area |

*= Only at Gas units
**= Only at units with WaveClean
***= Only at units with gas and communication pcb

# Contents

# Preposition

The documentation may address the ovens as 6.x, 10.x and 20.x.
These represent the size of the units in regards as the number of rails.

Henny Penny is using the following model numbers
615
620
115
120
215
220

These are equivalent to the following
6.1 (61) – 615
6.2 (62) – 620
10.1 (101) – 115
10.2 (102) – 120
20.1 (201) – 215
20.2 (202) – 220

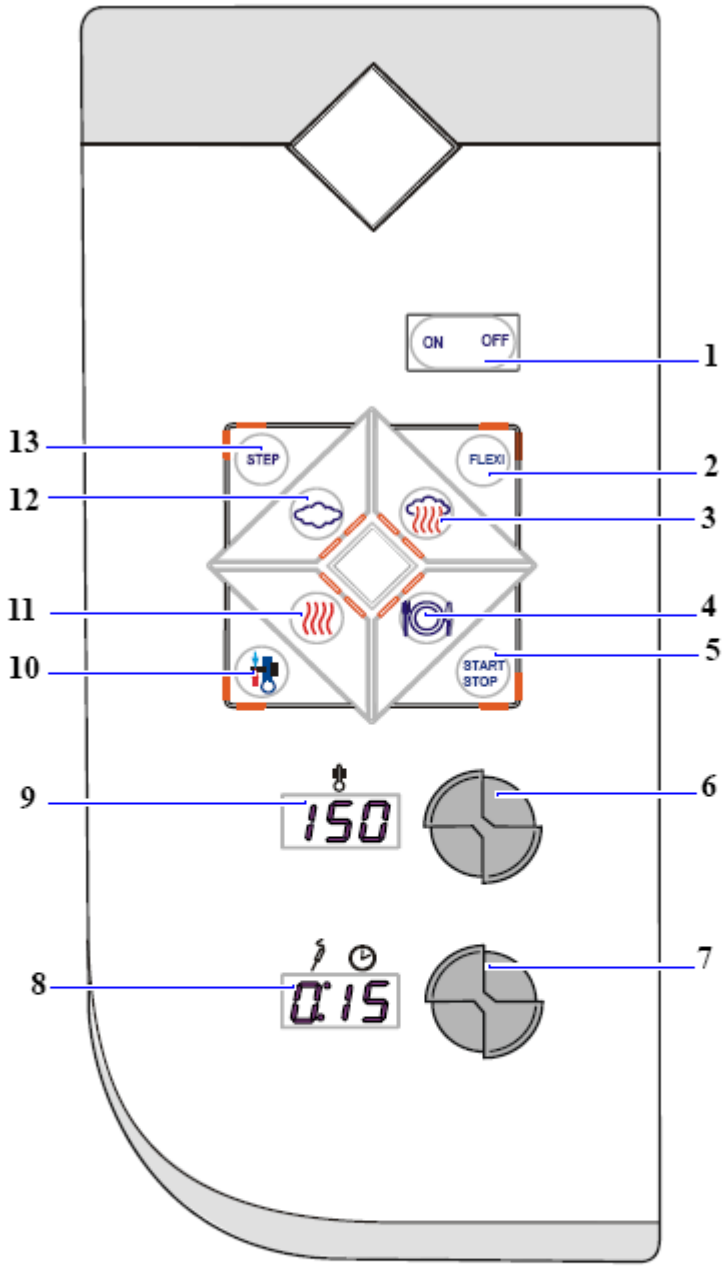
DynaSteam =AST (AdvanceSteamTechnology)
AutoChef = SmartMenu
CombiPilot = CombiDial

# Overview of the technical features & options *Classic*Combi™

| Technical feature | *Classic*Combi™ Electric | *Classic*Combi™ Gas |
|---|---|---|
| Contactor controlled fan motor | **X** | |
| Frequency controlled fan motor | | **X** |
| Three-phase motor without fan speed-sensor | **X** | |
| Frequency controlled motor with fan speed sensor | | **X** |
| Gas- and communication pcb | **Option** | **X** |
| Manual cleaning program | **Only if unit is not equipped with WaveClean option** | **Only if unit is not equipped with WaveClean option** |
| Automatic cleaning system WaveClean (two pumps, trap) | **Option** | **Option** |
| DynaSteam steaming unit | **X** | **X** |
| Pressure switch at the DynaSteam steaming unit | **Only at option WaveClean** | **Only at option WaveClean** |
| Four point core temp. probe | **Option** | **Option** |
| Tube shower integrated | **Option** | **Option** |
| DryTronic (Fresh air pipe with lift magnet) | **Option** | **Option** |
| Back ventilated chamber door | **X** | **X** |
| Triple glazed camber door | **Option** | **Option** |

This overview exclusively contains equipment/additional functions relevant for the service
Reserved for changes

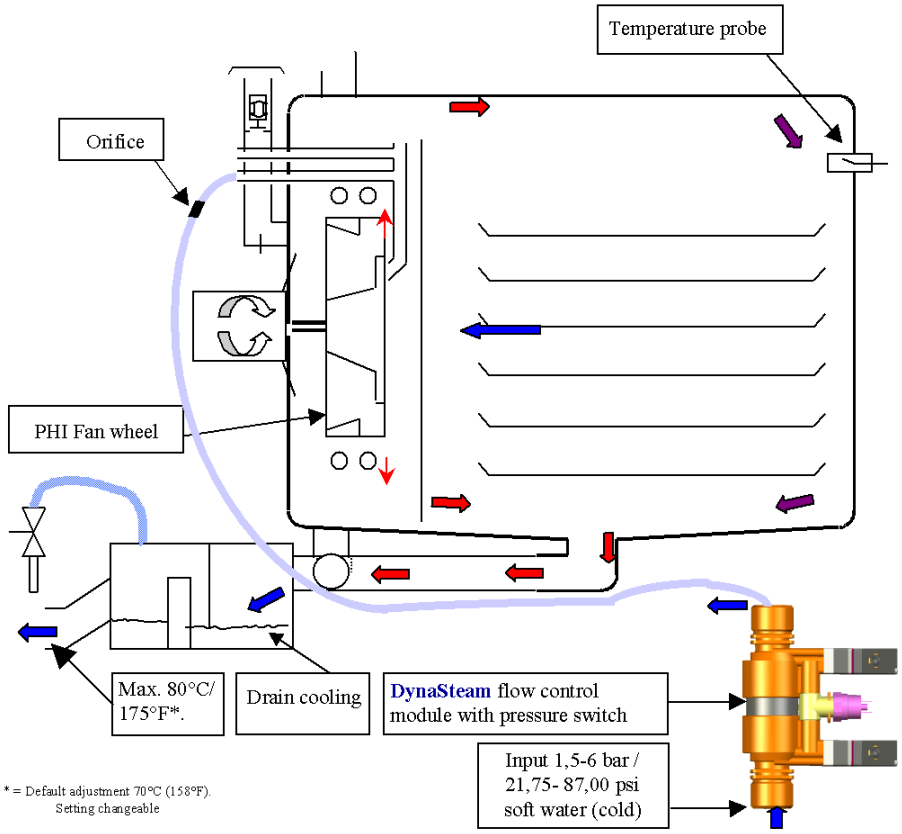
# Classic**Combi™ display and console**



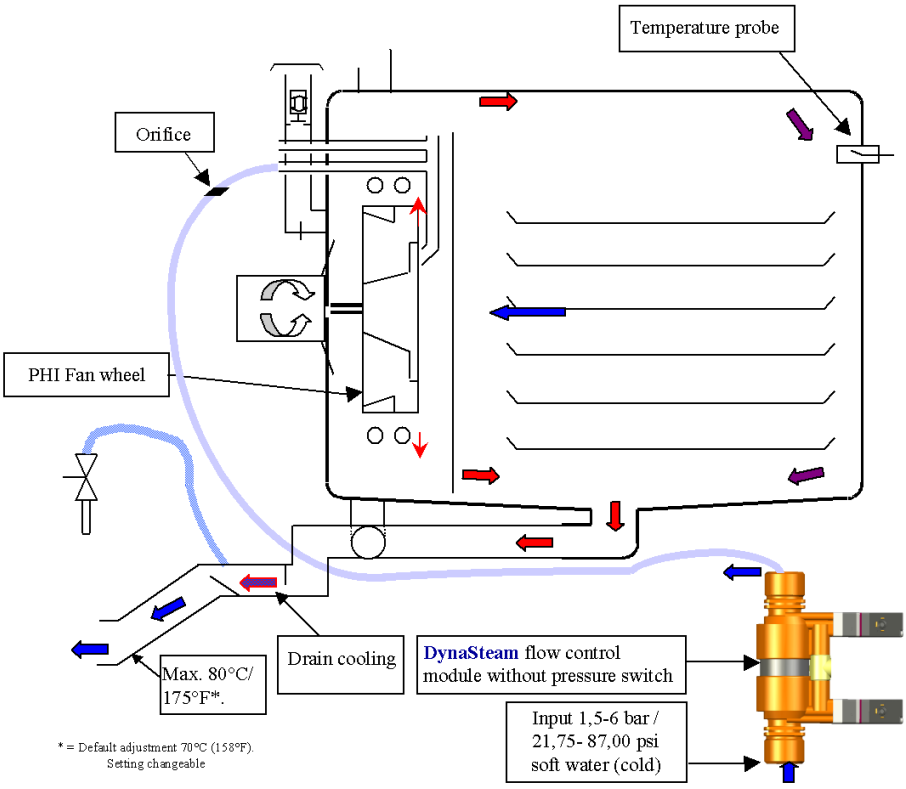

1 ON/OFF button
2 "FLEXI" button with LED
3 "Combination of Moist & Dry Heat" button with LED
4 "Rethermalization" button with LED
5 "START/STOP" button with LED
6 Adjustment dial for top display
7 Adjustment dial for bottom-display
8 Bottom display for probe temperature and time
9 Top display for temperature
10 "Preheat" button with LED
11 "Dry Heat" button with LED
12 "Moist Heat" button with LED
13 "STEP" button with LED

# Functional diagram of the DynaSteam technology

## With automatic cleaning system WaveClean




## Without automatic cleaning system WaveClean




The graphics shows units with the optional DryTronic system (Fresh air pipe with lift magnet).

### DynaSteam Features

- The pcb controls the DynaSteam unit which is responsible for the amount of injected water. The incoming water flow pressure must be between 1,5 (21,75 psi) and 6 bar (87,00 psi). The pressure switch controls the availability and the pressure of water (Only at units with WaveClean).
- The water runs now through a hose to the water supply pipe located in the chamber. Inside the hose is an orifice to stabilize the pulsed water flow from the DynaSteam unit.
- The water supply pipe injects the water on an centrifuge at the PHI fan wheel. The heating elements surround the fan wheel heats it up. The water gets to steam now and by the speed of the fan wheel tiny drops are flung against the chamber. Surplus water runs into the drain.
- During heat up and after opening / closing the door during operation the steaming unit increases the amount of water to speed up the steam production (controlled by the electronic).
- At a temperature of more than 107°C (225°F) the steaming unit decreases the amount of water (electronic controlled).

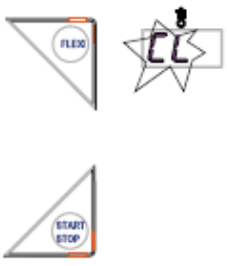
Average water consumption during permanently steaming:

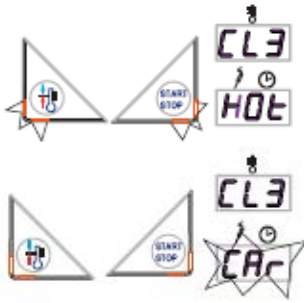
| unit / type | 6.23 | 6.1 | 6.2 | 10.1 | 10.2 | 20.1 | 20.2 |
|---|---|---|---|---|---|---|---|
| steam water volume in ml/h | 7500 | 16000 | 21000 | 18000 | 24000 | 18000<br>18000 | 24000<br>24000 |

## The automatic cleaning system WaveClean

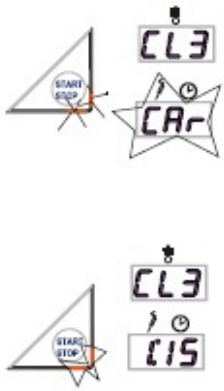
Option

**Selecting cleaning level and starting WaveClean**

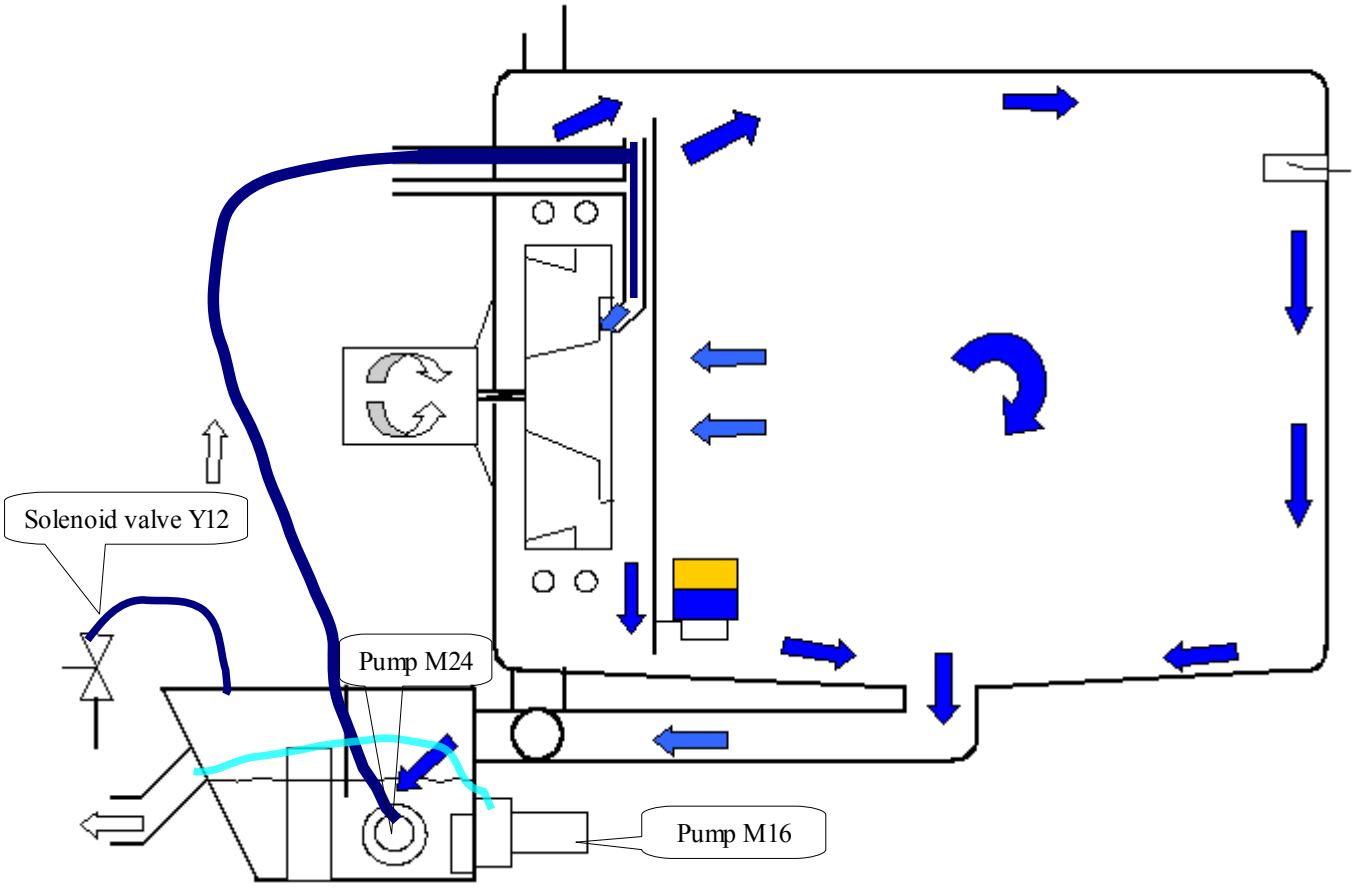
| | |
|---|---|
|  | ➢ Press the "FLEXI" button after switching on the Combisteamer or when a cooking process is complete.<br>➢ The upper display shows CL.<br>➢ The bottom display remains dark.<br>➢ Press the START/STOP button.<br>➢ CL 1 is displayed in the top display for the first WaveClean cleaning stage |
|  | Select the cleaning stage with the adjustment knob:<br>CL 1 -> WaveClean, short : approx. 1,0 Std.<br>CL2 ->WaveClean, normal: approx. 2,0 Std.<br>CL3 -> WaveClean, extra: approx. 3,0 Std. |
| Staring WaveClean | Press the "START/STOP" button after selecting the |

| | |
|---|---|
|  | cleaning stage. If the cooking chamber is too hot when starting occurs, it is cooled down first (see "Cooking chamber too hot").<br>If the cooking chamber is at the starting temperature, cooling is skipped and insertion of the cartridges is continued (see "Inserting cartridge"). |
| Chamber to hot<br>  | WaveClean does not start until the cooking chamber temperature is 50 °C or below.<br>If the temperature in the cooking chamber is over 50 °C, it is automatically cooled.<br>• Hot appears in the upper display.<br>• Preheat and Start/Stop button flashing.<br>The signal is sounded briefly when the start temperature is reached.<br>• Preheat and Start/Stop button are off<br>• CAr flashes in the bottom display. |
| Insert cartridge<br>  | The flashing information CAr in the bottom display prompts the insertion of the cartridge. |

*Continuation Description WaveClean II*

| | |
|---|---|
|  | Close the door again::<br>➢ The START/STOP button illuminates and the Combisteamer is ready for operation (standby).<br>➢ The upper display shows the cleaning stage<br>➢ The bottom display shows CAr flashing<br>Start WaveClean by pressing the START/STOP button:<br>➢ The START/STOP button flashes<br>➢ The upper display shows the cleaning stage, e.g. CL3.<br>➢ The bottom display shows the remaining cleaningtime (countdown) |

**Schematic diagram example 6.x / 10.x**



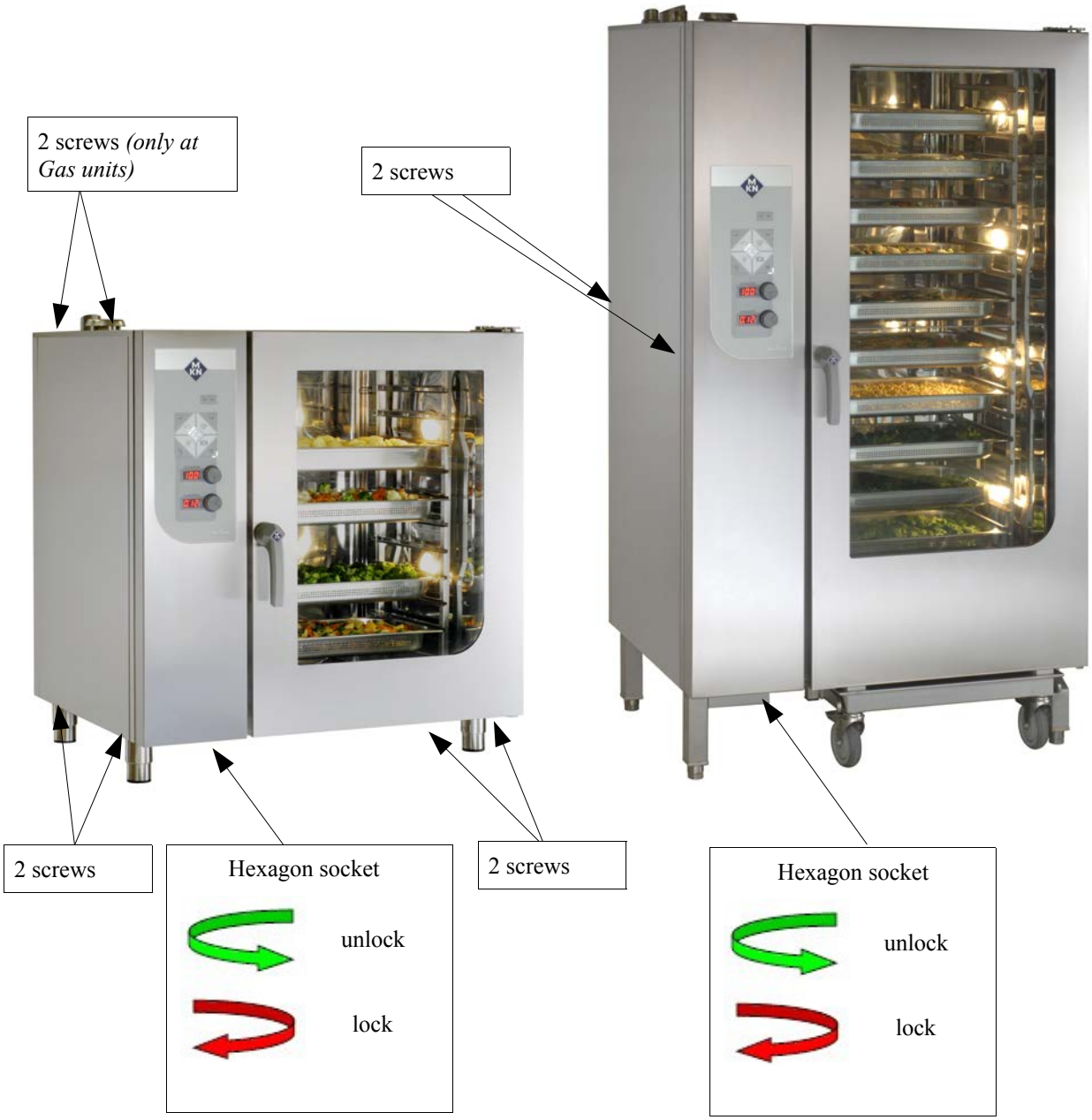
*Continuation Description WaveClean II*

**Step by step description**

| Step | Description |
|---|---|
| 01 | - Depending on exit temperature the chamber cooling down to 55°C (131°F) |
| 02 | - Cleaning of the siphon by water exchange. The pump M24 pumps out the water from the siphon. The siphon gets filled with water about the solenoid valve Y12. This process recurs repeatedly. This process serves for cleaning the siphon. |
| 03 | - Double pre-cleaning of the chamber by changing the water radically above pump M16. |
| 04 | - Cleaning starts after a time of 6 minutes. The chamber heated at the same time . The cleaner activates at a temperature of 70°C (158°F). A cancellation of the cleaning process is not possible in this phase! |
| 05 | - Execution of cleaning. The fan runs in right/left direction. The pump M16 permanently changes the water radically. The running time depends on the chosen cleaning program. |
| 06 | - Cleaning of the siphon by water exchange. The pump M24 pumps out the water from the siphon. The siphon gets filled with water about the solenoid valve Y12. The process recurs repeatedly. This process serves for cleaning the siphon. Fresh water is changed radically over the pump M16 to rinse the chamber. The fan runs in right/left direction. |
| 07 | - The chamber heats up to 92°C (198°F). The rinse wax layer smelting now. The rinse granulate falls into the chamber now. A cancellation of the cleaning process is not possible in this phase! |
| 08 | - The rinsing program starts. The fan runs in right/left direction. The pump M16 permanently changes the water radically. The running time depends on the chosen cleaning program. |
| 09 | - Cleaning of the siphon by water exchange. The pump M24 pumps out the water from the siphon. The siphon gets filled with water about the solenoid valve Y12. This process recurs repeatedly. This process serves for cleaning the siphon. Fresh water is changed radically over the pump M16 to rinse the chamber. The fan runs in right/left direction. |
| 10 | - The oven starts in steam mode for four minutes to prepare final rinsing. After this the final rinsing starts. |
| 11 | - The chamber dried with hot air for 10 minutes. Thereby the chamber heats up to 105°C (221°F).<br>*When cleaning with "short-program" this step is skipped.* |
| 12 | - The device turns off itself now. Cleaning is finished. |

**Note:**
During cleaning approx. 3 litres of water are led through the soft water assembly group to rinse out possible cleaner delays.
At an interruption of the power supply the cleaning process stopped automatically. A cancellation program which rinses out the cooking chamber is started with a duration of 12 minutes.
This program is carried out also at a manual cancellation.
An entry is written down in the diagnostic memory.

# How to open the Front Panel and the Side Walls 6.x – 20.x




**Removing side walls:**
After dismounting of the two (four) screws, the respective side wall can be removed.
➢At the gas units (6.x, 10.x) are two additional screws on top of the left side wall.
➢The 20.x freestanding unit has additional screws in the center area of each side wall.

**Opening the Front Panel::**
The Front Panel will be unlocked by turning the hexagon socket (size 5) clockwise. Lift up the Front Panel careful and open it.

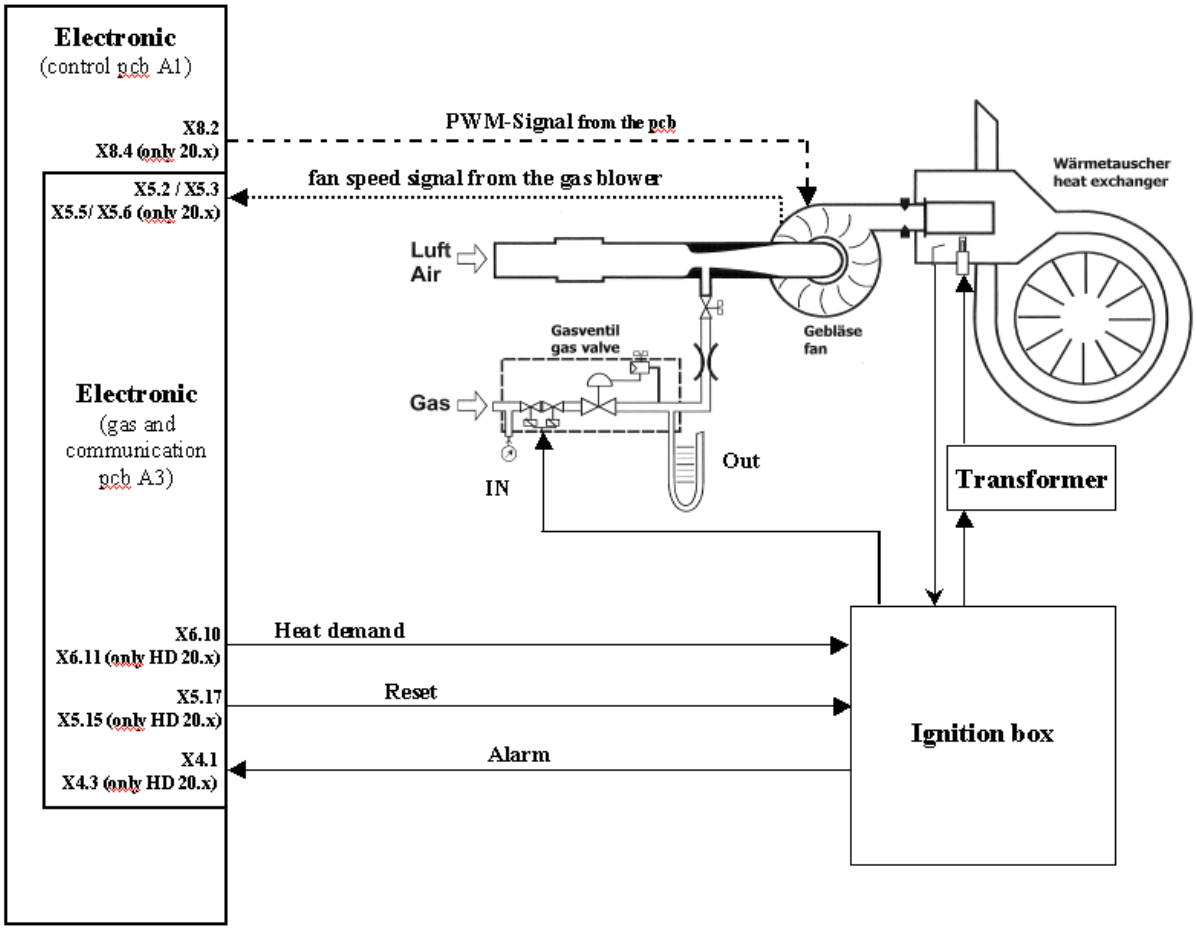
# Gas technology

## Basics of the gas technology

Operation of the gas burner:

- The electronic (pcb) gives a heat demand (relay K14 and K15) to the burner control.
- The electronic (pcb) regulates the speed of the gas fan and supervises these.
- The complete igniting process is handled by the burner control.
- At a failure of the flame signal from the burner control to the electronic the appliance is nevertheless ready for use. There is an electrical failure of the signal which safety-related is quite safe as long as no alarm is reported. (The burner control has recognized the flame (In this case there is "just"an error to transmit information to the electronic The burner control itself has already detected the flame).

Functional diagram



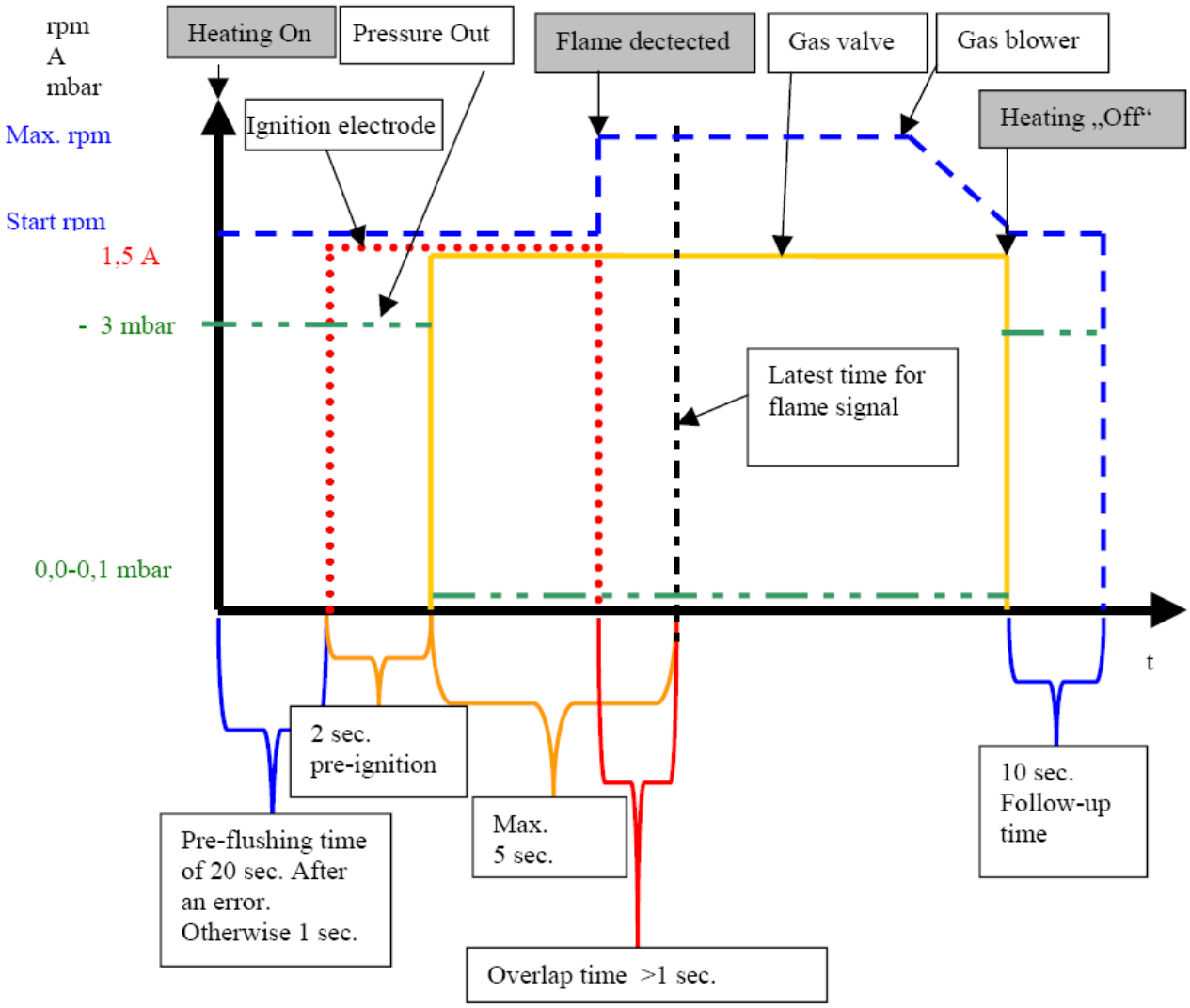



**Diagram of the temporal sequence of a heating process**

The gas fan
The gas fan promotes the air-/ gas mixture into the burner. The promoting volume and the performance are dependent on the speed of the gas fan. This is steered and supervised by the electronic. The speed only can be changed in a defined speed window which is dependent on the kind of gas and unit size. The speed window is basis of the equipment admittance and may not be changed. This regulation ensures that the gas fan speed works independently of outer influences (temperature and supply voltage).
Fan speed control:
The gas fan is / are controlled by a PWM signal (pulse width modulation) from the electronic A2, terminal X8.2 (6.x, 10.x, lower chamber at 20.x) and terminal X8.4 (upper chamber at unit size 20.x). Without PWM signal and with available supply voltage the gas fan runs for safety reasons with full speed. The gas fan transmit the fan speed to the electronic A3, terminal X5.2 (6.x, 10.x, 20.x lower chamber) and terminal X5.5 (only 20.x upper chamber) as a re-registration. The gas blower is regulated on set rotation speed by a software regulator. This can be checked with the help of the configuration menu (service menu).
A speed fluctuation up to 50 rpm is normal.

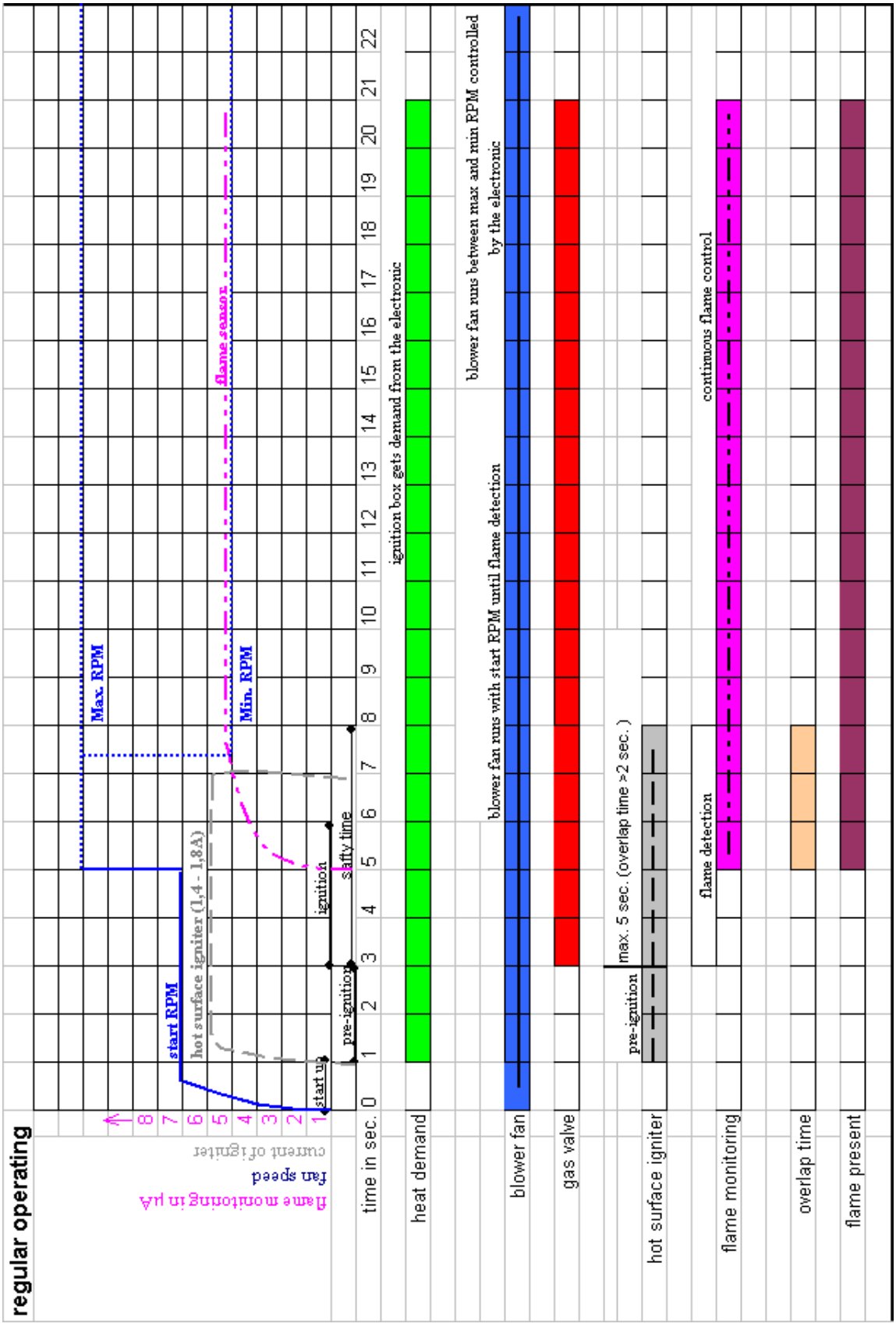
The ignition electrode
The ignition electrode serves to ignite the gas/air mixture and is supplied by a separate transformer

The flame control
The flame control induces an ionization current (approx. 5 µA) after the igniting process and passes this to the burner control. If this confirmation is not available, the error message Err 11 (no gas) appears and a reset of the burner control is necessary.

The overlap-time
A sufficient overlap-time is important to ensure for a safety ignition process. This time can be controlled in the generally measurement mask.
When heating request of the temperature regulator is available, the display changes from G0 to G1. At first F0 is still shown because there is no flame detected. At latest after 7 seconds F1 must be shown on display, otherwise appears the error message Err 11 (no gas).
If the "flame OK" signal is permanently not available the unit goes into an emergency program, because there is no safety risks represents.
In this case F0 does not change to F1 into the measurement mask, even though the flame is present (The unit heats up). There is only a risk / error, if within the heat demand (active operating) the "flame OK signal" changes repeatedly from F1 to F0.

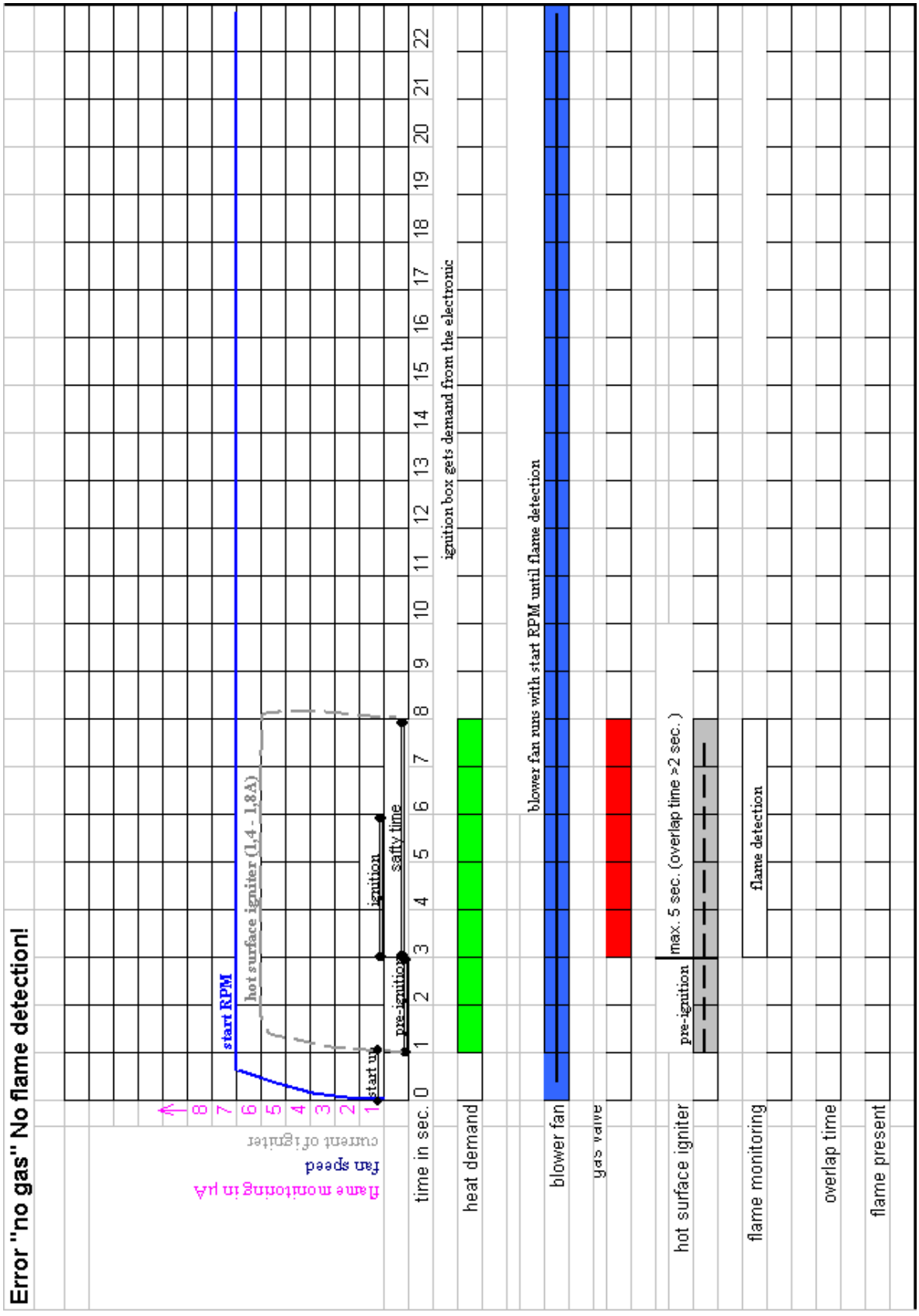
# Diagram of the heating process „regular operating“

All gas units



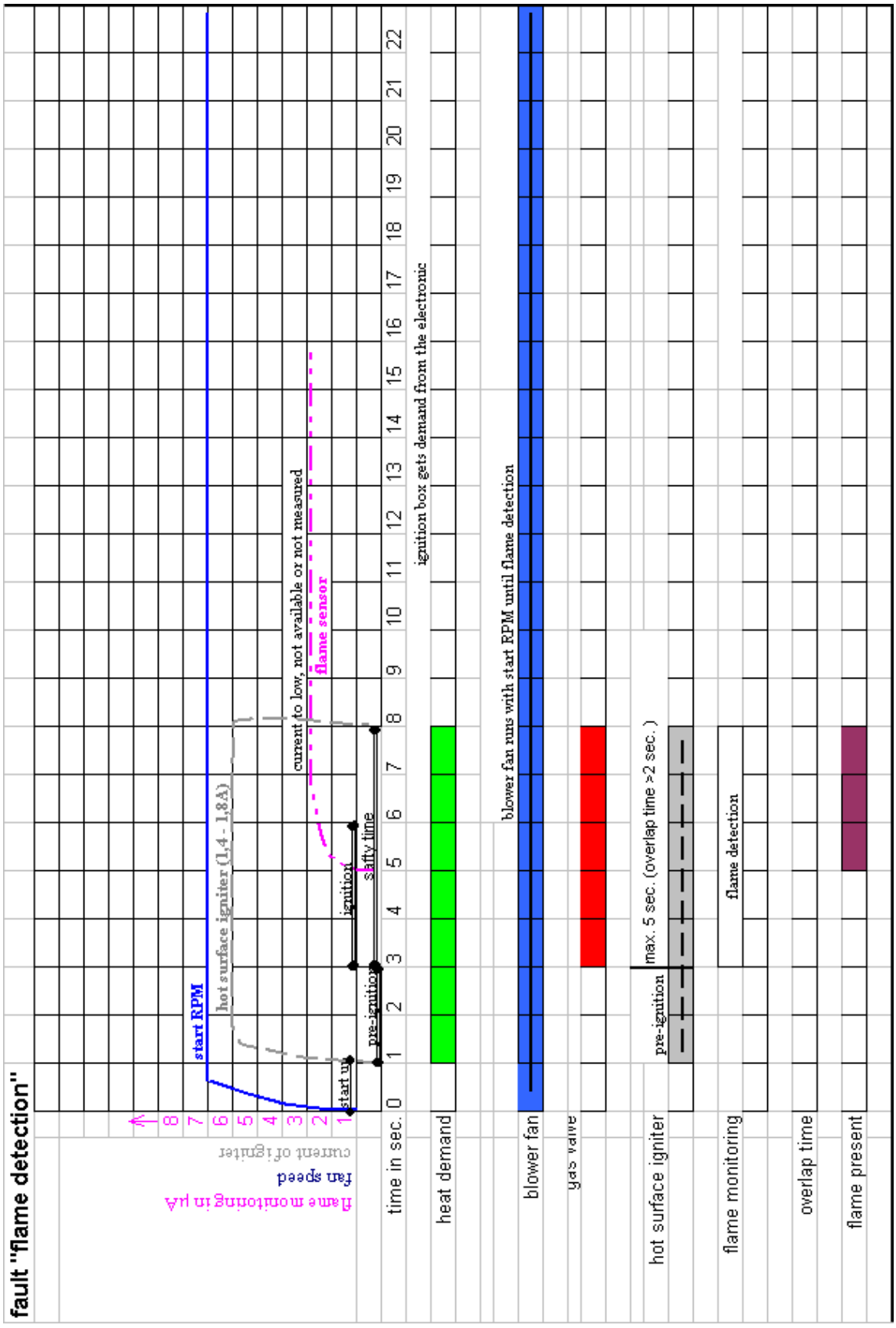
# Diagram of the heating process „no gas present“

All Gas units



# Diagram of the heating process „gas present, no flame detection“

All Gas units



# $CO_2$ value calibration

6.x–20.x Gas

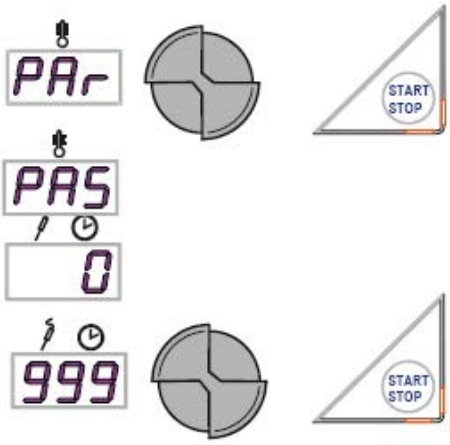
**Basics**
Definition of CO2 (carbon dioxide) and CO (carbon monoxide):

Carbon dioxide is a colourless and odourless gas and supplies a chemical union made of carbon and oxygen. Carbon dioxide arises at the burning of substances containing carbon (gasses) if enough oxygen is available. At an oxygen deficiency CO (carbon monoxide) arises. CO is a color- and odourless, poisonous gas which can lead to death!

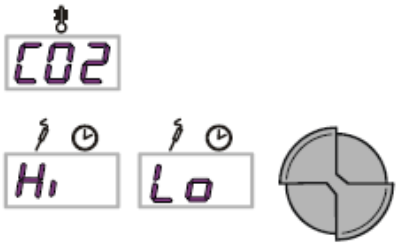
**$CO_2$ value calibration**
Caution: This adjustment is crucial for the safe operation of the appliance. After leak testing, the CO2 content of the exhaust gas requires calibration and the CO content is to be checked.

**Select $CO_2$ value calibration menu**


- Switch the unit with the ON/OFF Button on.
- Press the Flexi Button.
- The upper display shows the first menu CL or CLE.




- Choose Par (Parameter) with the upper knob and press the Start/Stop button.
- The upper display shows PAS (Password).
- The lower display shows 0 .
- Enter password 999 with the lower knob and press the Start/Stop button.




- CO2 upper display.
- The lower display shows a flashing Hi and at two chamber units Hi1 for the upper chamber (20.x).
- It is possible to switch with the lower knob between high power (Hi, Hi1, Hi2) and low power (Lo, Lo1, Lo2 ).

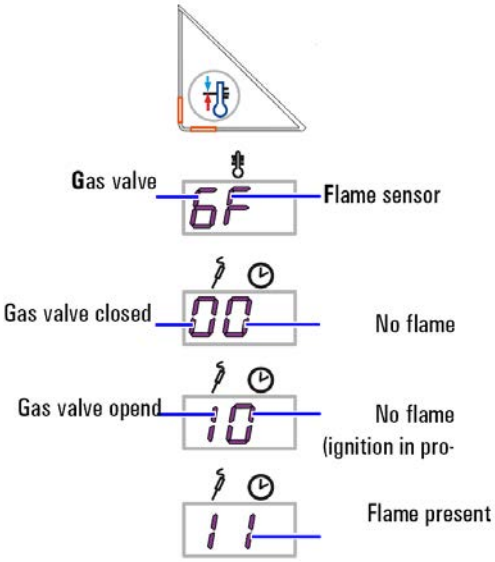
Note for two chamber units::
Hi1 / Lo 1 = 20.x, upper chamber (burner)
Hi2 / Lo 2 = 20.x, lower chamber (burner)

## Start the CO2 calibration


The C02 has first to be measured at high power. After selecting H 1, H 11, H 12 press the START/STOP button.

- The LED of the START/STOP-button flahes.
- The upper display shows C02 .
- In the lower display H 1, H 11 or H 12 flashes.

## Burner status




After starting the CO2-calibration the preheat button has to be pressed.

- At one chamber units (6.x, 10.x) 6F is displayed in the upper display and on two chamber units (20.x) 6F or 6F2 is displayed. 6F 1 represents the upper chamber and 6F2 represents the lower chamber. The two chambers are calibrated separately.
- For an error free starting procedure 00, 10, 11 is displayed in the lower display. 0 = not present or active, 1 = present or active. The digit below the 9 and F (or F 1, F2) represents its status. Indicating first no operation, then gas valved opened and within 6 seconds the flame has to be sensored otherwise the procedure is stopped with error Err 7 1.

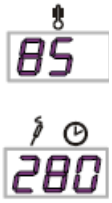
## Error during start procedure


If the flame was not detected within 6 secondes after the gas valve was opened the procedure is stopped and the error Err 7 1 is displayed. Please check that an external gas valve is opened. If a unit is started for the first time this error occurs serval times until the air in the gas pipe is flushed out.

- In the upper display Err (Error) flashes.
- In the lower display the error code is displayed. In this case 7 1.
- The step button flashes.
- Press the step button to confirm the error and restart the procedure by pressing the "Start/Stop" button.

*Continuation CO2 calibration*

**Cooking chamber temperature**



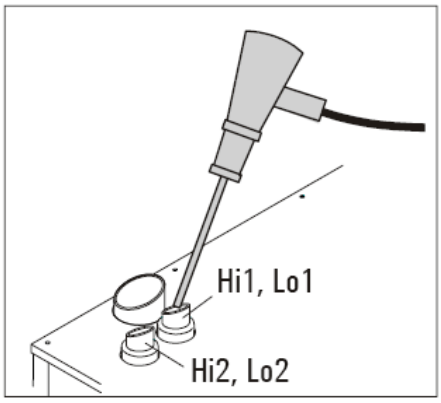

After the burner has ignited (lower display shows 11) press the preheating button to show the cooking chamber temperature.

- The upper display shows the actual cooking chamber temperature e. g. **85** (°C/°F).
- The lower display shows the rpms of the gas blower divided by 10 e.g. **280** for 2800 rpm.

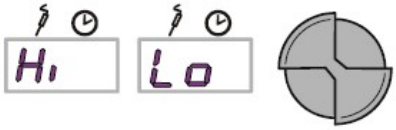
**$CO_2$ measurement**

If the cooking chamber has a approximate temperature of 150°C and the rpm show the values according to the table check the CO2 value.


| Fan speed in rpm for high (Hi) power and low power (Lo) | | |
|---|---|---|
| Model | Hi, Hi1, Hi2 | Lo, Lo1, Lo2 |
| 6.1 | 5050 | 4800 |
| 6.2 | 6700 | 5300 |
| 10.1 | 5050 | 2800 |
| 10.2 | 6700 | 2800 |
| 20.1 | 5050 | 2800 |
| 20.2 | 6700 | 2800 |




Place the CO2 probe into the exhaust pipe. For correct measurement do not place the probe during the ignition process. Be sure to place the probe into the correct pipe for two chamber models. The C02 value has to be within the range according to the table. Take care that the cooking chamber temperature does not exceed 200°C. If the temperature reaches 250°C the procedure is automatically stopped.







| $CO_2$-content at max./min power | | |
|---|---|---|
| | At max. power (Hi, Hi1, Hi2) | At low power (Lo, Lo1, Lo2) |
| Natural gas | 8,6-9,6 % | 0,5-1 % lower as at maximum power (Hi, Hi1, Hi2) |
| Propane | 10,0-11,0 % | |
| Butane | 11,7-12,7 % | |

After measuring the CO2 value at maximum power switch the units to low power (Lo, Lo 1; Lo2).

The upper display shows CO2.

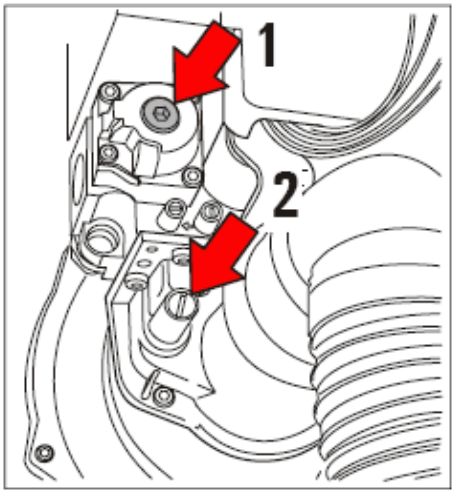
Turn the lower knob to Lo, Lo 1 or Lo2 and press the FLEXI button to activate the low power mode. If the FLEXI button is not pressed within 5 seconds the prior mode is still active.

The lower displays shows Lo, Lo 1 or Lo2.
The rpm´s of the gas blower shows the values according to the rpm table.

The CO2 content at low power has to be 0,5-1% lower than at high power. This is for a safe operation of the appliance crucial. The CO content has to be always lower than 100 ppm (Except during the ignition phase), otherwise the appliance is not allowed to operate. On the two chamber models the chambers are calibrated separately and can be toggled by turning the lower knob until the desired chamber and power is displayed. Then press the FLEXI button for confirmation.

The upper chamber is active when Hi 1 or Lo 1 is displayed and the lower chamber is active when Hi 2 or Lo2 is displayed. Be sure to have the CO2 probe in the correct exhaust pipe.

Changing lower power $CO_2$ values




If the measured value differs from the values given in the table, the CO2 content must be adjusted to match the values given in the restrictor table. The unit was designed in that way that the CO2 values at high power are automatically within the range. If this is not the case the installed orifice is wrong or the caloric heat value of the gas is not normal. With the adjustment screw [1] the CO2 for high power can be influenced.
Unscrew the cap [1] on the gas valve and adjust the CO2 content using the adjustment screw (white plastic) behind it during low power operation. Refit the metal cab after calibration is finished.
If the low power CO2 value has been changed, the CO2 values at high power has to be checked again.
If the CO2 content at high power is too high or too low please check that the correct orifice is installed. The CO2 content at high power can be reduced by using the adjustment screw [2]. It has to be turned inwards to reduce the CO2 at high power.

# Gas orifices and fan speeds CSA

## Gas orifice and fan speeds

09. February 2009

## Orifice de gaz et vitesse ventilateur à gaz

SN ≥ 09020158

HENNY PENNY® Global Foodservice Solutions

CSA

Valid for Combisteamer GSC/GCC/ valable pour de fours mixtes GSC/GCC CSA Version

Gas orifice/orifice de gaz in/en mm/100 and /air baffle/déflecteur d'air in en mm/10

| Unit size<br>taille de l'appareil | Orifice<br>Natural Gas<br>gaz naturel | Orifice<br>LP Gas Propane<br>Gaz propane liquéfié | | Orifice<br>air baffle<br>déflecteur d'air | |
|---|---|---|---|---|---|
| | Gas A | Gas E | | Orifice size | Part No. |
| 615 | 680 | 470 | | 200 | 855224 |
| 115 | 590 | 420 | | 220 | 855254 |
| 215 | 590 | 420 | | 220 | 855254 |
| 620 | 600 | 470 | | 300 | 855234 |
| 120 | 580 | 420 | | 280 | 855229 |
| 220 | 580 | 420 | | 280 | 855229 |

| Speed gas fan / vitesse ventilateur à gaz in/en rpm | | | | Orifice size | Part No. |
|---|---|---|---|---|---|
| | Max | Start | Min | 680 | 201195 |
| 615 | 5050 | 5000 | 4800 | 600 | 201190 |
| 115 | 5050 | 4000 | 2800 | 590 | 201229 |
| 215 | 5050 | 4000 | 2800 | 580 | 201230 |
| 620 | 6700 | 5000 | 4800 | 470 | 201189 |
| 120 | 6700 | 4000 | 2800 | 420 | 201185 |
| 220 | 6700 | 4000 | 2800 | | |

| CO2 [%] | at max. gas fan speed / power<br>à la vitesse maximum | at min. gas fan speed / power<br>à la vitesse minimum |
|---|---|---|
| Natural gas<br>gaz naturel | 8,6 - 9,6% | 0,5-1% lower as maximum setting<br>0,5-1% moins qu'au maximum |
| liquid gas propane<br>Propane liquéfié | 10,0 - 11,0% | 0,5-1% lower as maximum setting<br>0,5-1% moins qu'au maximum |
| liguid gas butane<br>butane liquéfié | 11,7 - 12,7% | 0,5-1% lower as maximum setting<br>0,5-1% moins qu'au maximum |

After a gas type conversion, the new gas type has to be marked permamanently visible on the unit.

Après conversion en un autre type de gaz, il faut marquer visiblement le nouveau type de gaz sur l'appareil.

Caution, the gas supply shall be shut off prior to disconnecting the elctrical power, before proceeding with the conversion

Attention. Avant d´effectuer la conversion, couper d´abord l´alimentation en gaz, ensuite couper l´alimentation électrique

| WARNING | AVERTISSEMENT |
|---|---|
| This conversion kit shall be installed by a qualified service agency in accordance with the manufacturer's instructions and all applicable codes and requirements of the authority having jurisdiction.<br>If the information in these instructions is not followed exactly, a fire, an explosion or production of carbon monoxide may result causing property damage, personal injury or loss of life.<br>The qualified service agency is responsible for the proper installation of this kit.<br>The installation is not proper and complete until the operation of the converted appliance is checked as specified in the manufacturer's instructions supplied with the kit. | Cette trousse de conversion doit être instalée par un service d'entretien qualifié, selon les instructions du fabricant et selon toutes les exigences et tous les codes pertinents de l'autorité compétente.<br>Assurez-vous de bien suivre les instructions dans cette notice pour réduire au minimum le risque d'incendie, d'explosion ou la production de monoxyde de carbone pouvant causer des dommages matériels, des blessures ou la mort.<br>Le service d'entretien qualifié est responsable de l'installation de cette trousse.<br>L'installation n'est pas adéquate ni complète tant que le bon fonctionnement de l'appareil convertit n'a pas été vérifié selon les instructions du fabricant fournies avec la trousse. |

# Gas orifices and fan speeds CE

## Gasblenden und Gasgebläsedrehzahlen
## Gas orifice and fan speeds
## Orifice de gaz et vitesse ventilateur à gaz

22. Januar 2009

SN ≥ 09020158

HENNY PENNY ®
Global Foodservice Solutions

**Gültig für Combidämpfer GSC / Valid for Combisteamer GSC, valable pour de fours mixtes GSC**
**Gasblenden/Gas orifice/orifice de gaz in/en mm/100 and und et Restriktionsflansch/air baffle/déflecteur d'air in en mm/10**

| Gerätegröße<br>unit size<br>taille de l'appareil | Erdgas<br>Natural Gas LL<br>gaz naturel | Erdgas<br>Natural Gas H<br>gaz naturel | Flüssiggas<br>LP Gas B/P<br>gaz combustible liquéfié | | Restriktionsflansch<br>air baffle<br>déflecteur d'air | |
|---|---|---|---|---|---|---|
| | G25 | G20, NG174, NGN | G30/31, FL50, BP29, PX275 | | Blendengröße<br>Orifice size | Teile Nr.<br>Part No. |
| 6.1 | 720 | 650 | 470 | | 200 | 855224 |
| 10.1 | 650 | 565 | 420 | | 220 | 855254 |
| 20.1 | 650 | 565 | 420 | | 220 | 855254 |
| 6.2 | 680 | 600 | 460 | | 300 | 855234 |
| 10.2 | 630 | 565 | 420 | | 280 | 855229 |
| 20.2 | 630 | 565 | 420 | | 280 | 855229 |

| Drehzahl Gasgebläse / speed gas fan / vitesse ventilateur à gaz in/en rpm | | | | Blendengröße<br>Orifice size | Teile Nr.<br>Part No. |
|---|---|---|---|---|---|
| | Max | Start | Min | 720 | 201191 |
| 6.1 | 5050 | 5000 | 4800 | 680 | 201195 |
| 10.1 | 5050 | 4000 | 2800 | 650 | 201188 |
| 20.1 | 5050 | 4000 | 2800 | 630 | 201187 |
| 6.2 | 6700 | 5000 | 4800 | 600 | 201190 |
| 10.2 | 6700 | 4000 | 2800 | 565 | 201186 |
| 20.2 | 6700 | 4000 | 2800 | 470 | 201189 |
| | | | | 460 | 201194 |
| | | | | 420 | 201185 |

| CO2 [%] | bei max. Leistung,<br>at max. gas fan speed | bei min. Leistung,<br>at min. gas fan speed |
|---|---|---|
| Erdgas, Natural Gas<br>gaz naturel | 8,6 - 9,6% | 0,5-1% niedriger als bei max. /lower as maximum setting<br>0,5-1% moins qu'au maximum |
| Flüssiggas Propan<br>Propane liquéfié | 10,0 - 11,0% | 0,5-1% niedriger als bei max. /lower as maximum setting<br>0,5-1% moins qu'au maximum |
| Flüssiggas Butan | 11,7 - 12,7% | 0,5-1% niedriger als bei max. /lower as maximum setting<br>0,5-1% moins qu'au maximum |

Nach Umbau auf eine andere Gasart ist die eingestellte Gasart auf dem Gerät dauerhaft sichtbar zu vermerken

After a gas type conversion, the new gas type has to be marked permamanently visible on the unit.

Après conversion en un autre type de gaz, il faut marquer visiblement le nouveau type de gaz sur l'appareil.

Achtung, vor dem Umbau auf eine andere Gasart, soll die Gaszufuhr und die Spannungsversorgung unterbrochen werden

Caution, the gas supply shall be shut off prior to disconnecting the elctrical power, before proceeding with the conversion

Attention. Avant d'effectuer la conversion, couper d'abord l'alimentation en gaz, ensuite couper l'alimentation électrique

| WARNUNG | WARNING | AVERTISSEMENT |
|---|---|---|
| Dieser Umrüstsatz darf nur von einem authorisierten Fachmann durchgeführt werden.<br>Die durchführende Person ist verantwortlich für die korrekte Durchführung des Umbaus.<br>Bei einer mangelhaften Durchführung des Umbaus besteht Explosionsgefahr oder Erstickungsgefahr durch Kohlenmonoxid. | This conversion kit shall be installed by a qualified service agency in accordance with the manufacturer's instructions and all applicable codes and requirements of the authority having jurisdiction.<br>If the information in these instructions is not followed exactly, a fire, an explosion or production of carbon monoxide may result causing property damage, personal injury or loss of life.<br>The qualified service agency is responsible for the proper installation of this kit.<br>The installation is not proper and complete until the operation of the converted appliance is checked as specified in the manufacturer's insturctions supplied with the kit. | Cette trousse de conversion doit être instalée par un service d'entretien qualifié, selon les instructions du fabricant et selon toutes les exigences et tous les codes pertinents de l'autorité compétente.<br>Assurez-vous de bien suivre les instructions dans cette notice pour réduire au minimum le risque d'incendie, d'explosion ou la production de monoxyde de carbone pouvant causer des dommages matériels, des blessures ou la mort.<br>Le service d'entretien qualifié est responsable de l'installation de cette trousse.<br>L'installation n'est pas adéquate ni complète tant que le bon fonctionnement de l'appareil convertit n'a pas été vérifié selon les instructions du fabricant fournies avec la trousse. |

# Internal gas supply check

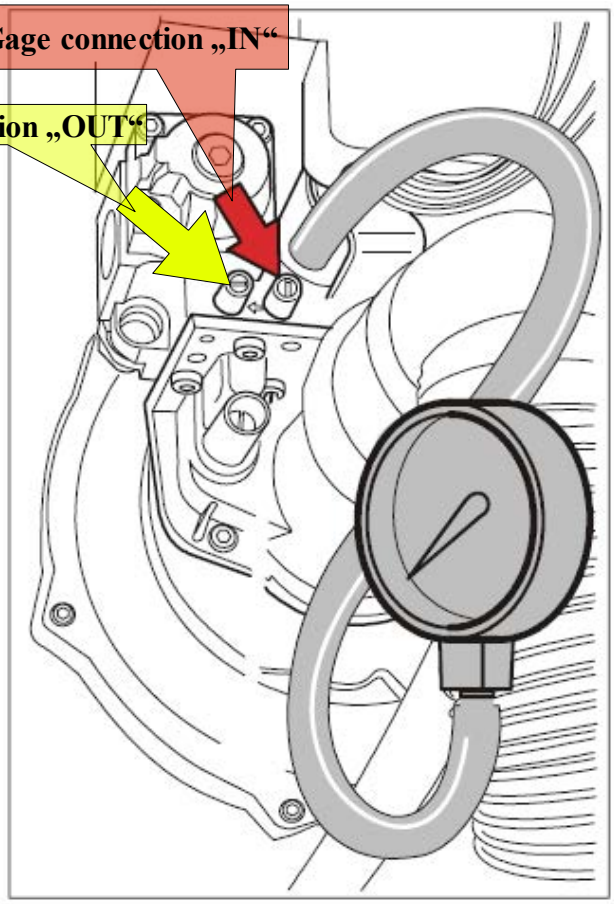
6.x– 20.x

**Leakage test**
Prior to checking the connection pressure, all connection points both outside and inside the appliance must be checked for leaks according to the technical regulations governing gas installations (TRGI) (using a gas detector or leak spray).

**Use only TGRI-approved, foam forming agents! Do not spray leak spray onto the wires of the ignition electronics!**

**Internal gas supply check of the gas blower**

- Close the on site gas valve.
- Disconnect the unit from the power supply (remove fuses or pull the connection-plug)
- Unscrew the two screws which are located down on the left to remove the left side panel.
- Unscrew the sealing screw from the pressure measurement connection on the gas valve **„OUT“** and connect a manometer. The manometer used should be accurate to at least 0.1 mbar.
- Open the on site gas valve and connect power supply.
- Start up the appliance.
- If the gas blower runs on start speed and the gas valve is still closed, a negative pressure of approx. 3 mbar must be there. The gas blower blast air and the Venturi becomes a negative pressure.
- After opening of the gas valve the negative pressure breaks in. A small negative pressure of approx.. < 0,5 mbar persists.




- After measuring the pressure and with the shut-off valve still closed, refit the sealing screw in the pressure measuring point and check for leaks.

# Check-up of the connection pressure (operating pressure)

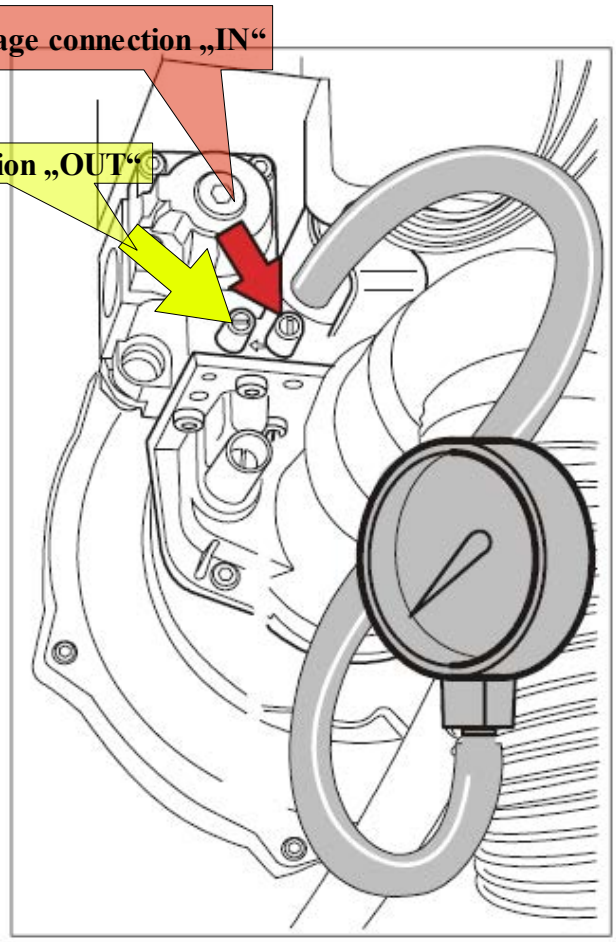
6.x–20.x

**Leak test**
Prior to checking the connection pressure, all connection points both outside and inside the appliance must be checked for leaks according to the technical regulations governing gas installations (TRGI) (using a gas detector or leak spray).

**Use only TGRI-approved, foam forming agents! Do not spray leak spray onto the wires of the ignition electronics!**

**Checking the connection pressure**

- Close the on site gas valve.
- Disconnect the unit from the power supply (remove fuses or pull the connection-plug)
- Unscrew the two screws which are located down on the left to remove the left side panel.
- Unscrew the sealing screw from the pressure measurement connection on the gas valve **„IN“** and connect a manometer. The manometer used should be accurate to at least 0.1 mbar.
- Open the on site gas valve and connect power supply.
- Start-up the appliance.
- Measure the connection pressure and compare it to the table below.
- After measuring the pressure and with the shut-off valve still closed, refit the sealing screw in the pressure measuring point and check for leaks.



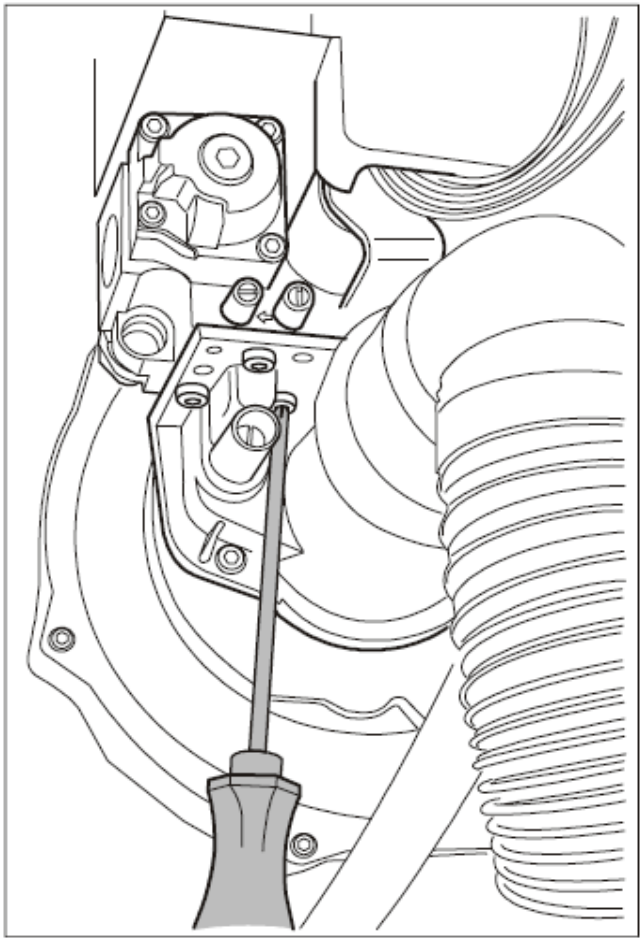

| Type of gas<br>Nominal connection pressure | Measured<br>connection pressure |
|---|---|
| Natural Gas E, LL (20 mbar) | 15,0 – 25,0 mbar |
| Liquid gas B, P (50 mbar) | 15,0 – 57,5 mbar |

# Rearrangement of the gas type

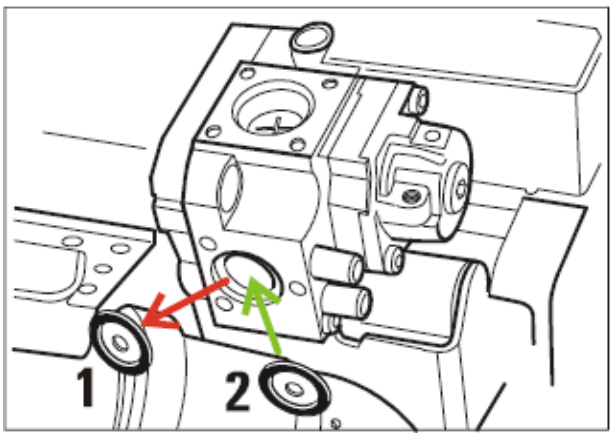
6.x–20.x

To convert to another gas type, the burner restrictor must be changed. The restrictors with a restrictor table are stored in a plastic bag behind the left side wall.

- Close the on site gas valve.
- Disconnect the unit from the power supply (remove fuses or pull the connection-plug)
- Unscrew the two screws which are located down on the left to remove the left side panel.
- Unscrew the three screws of the gas valve.
- Remove gas valve.
- Remove gas restrictor with the seal [1]



- Select a restrictor with the help of the table and refit it by using an **undamaged** seal. [2].
- Set up and mount the gas valve.
- Open the on site gas valve.
- Switch on the power supply
- After the conversion continue with **leak testing**, **checking of the connection pressure** and **calibration of the CO2/CO-values.**



# Adjustment of the cooking chamber door for 6.x up to 20.x

The door should be adjusted so that it is easy to close but is still impermeable. This can be achieved by adjusting the hinges and fastening blocks. To assist in this the hinges should be adjusted so that the seal edge touches the door, when it is open wide enough so that the seal can just be seen between the operating console and the seal on the hinge side. It is important that the seal touches the door uniformly over its full height; to achieve this both hinges can be adjusted.

The door must be level; otherwise proper locking of the door cannot be guaranteed (alignment of blocks and locking lever).The upper edge of the door must run parallel to the appliance cover.

After loosening the counter nut, the fastening blocks can be turned in or out. After correction tighten the counter nut and check closure, if necessary adjust again. Make sure that the fastening blocks are level.

Note:
On stand appliances the lock pulls the door to within approx.4mm of the seal (from April 2005).
On the appliances which open to the right make sure that the gap between the operating console and the door is not too big (adjustment of hinge) otherwise the dry reed contact for the door may not be able to function properly.

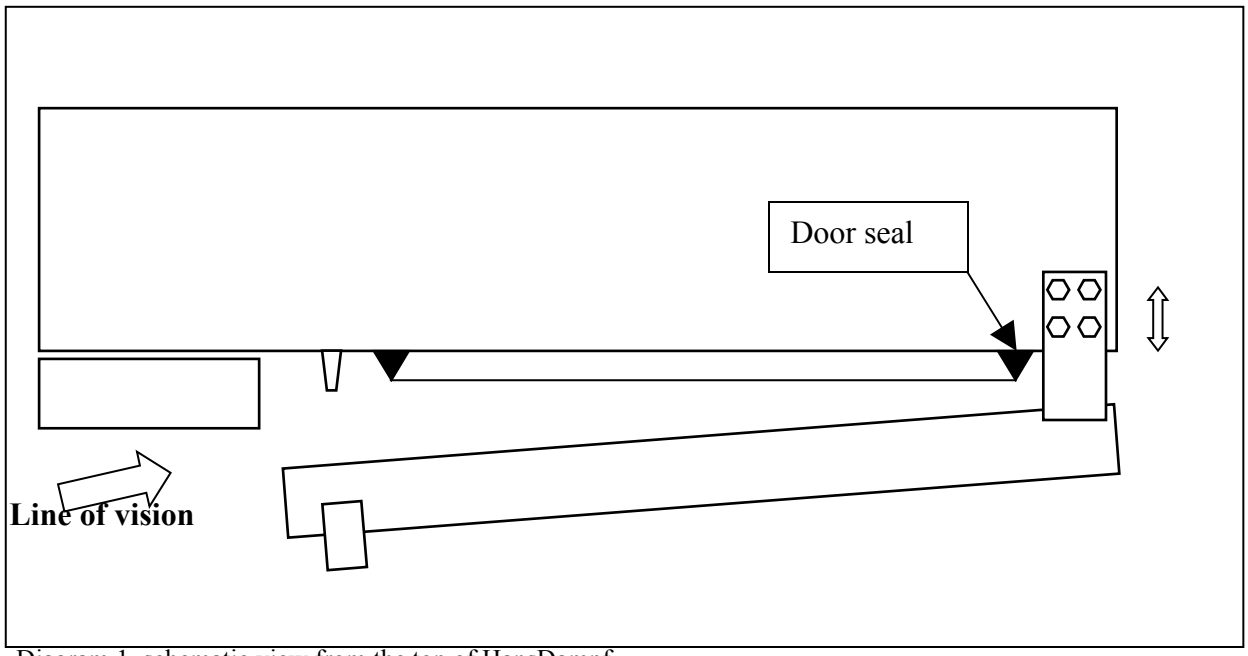
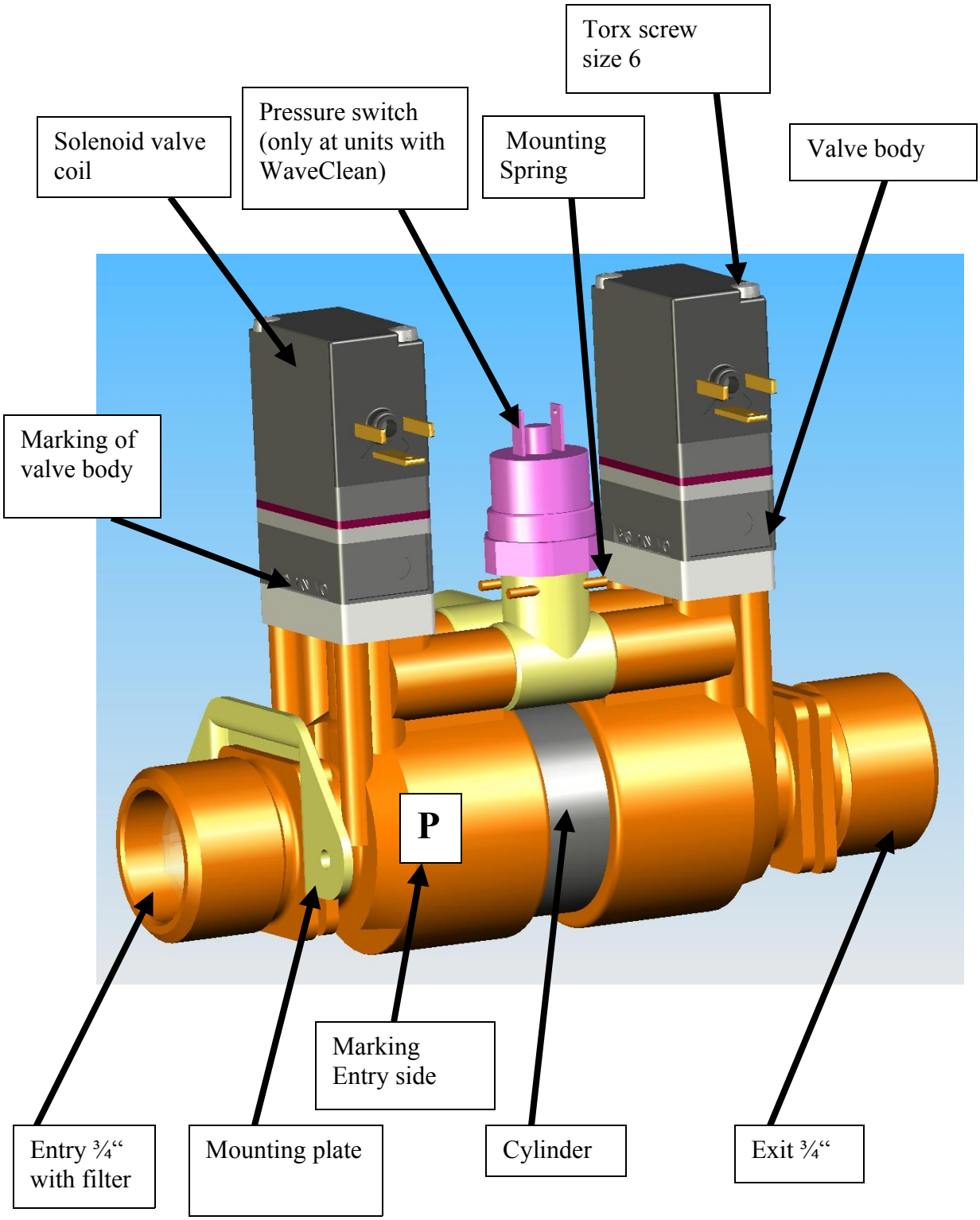



Diagram 1. schematic view from the top of HansDampf

# DynaSteam unit documentation



## Description

The unit is a volumetric proportion system for liquid substances. The unit produces a constant flow rate , independent from the incoming water pressure . The flowrate only depends on the frequency applied to the solenoids. The unit can have a water pressure switch* to detect water pressure. The software of the machine determines the flow rate by adapting the frequency on the solenoids. A calibration is not needed nor possible. This technology has been engineered and patents applied by MKN.

## Function

The unit consists of a cylinder with a double sided piston. The incoming water pressure drives the piston to one or the other side, depending which valve is active. The piston drives a specific volume of water to the outlet. Directly before the water enters the cooking chamber there is a orifice mounted inside the tube and held with a clamp. Do not operate the unit without that orifice.
Due to the transparent cylinder the piston (seals) can be seen in motion.
The solenoids are supplied with 24 V DC.
The pressure switch* is set for a pressure of 1 bar (14.5 psi). Operation of the unit is guaranteed up to 6 bar (87 psi)entry pressure. Higher entry pressure requires a pressure reducing valve in front of the unit.

Technical data
Normal Pressure Range: 1.5 – 6 bar (21.8 – 87 psi)
burst pressure: >20 bar (>290 psi)
Maximum flow rate: 28l/h
Volume of cylinder: 7ml
Electrical supply: 12-24V DC

## Functioning Test

This setting starts a unit functioning test. In the service menu „water calibration", a defined volume flow of water is emitted. The authorised volume is shown in the display, the actual flow must be determined by a measuring jug. To increase the water volume for a better measurement, this procedure may be repeated several times.
The actual flow may deviate of the authorised flow by +/- 8% (e.g. for an authorised volume of 140ml, the minimum and maximum volumes are 129ml and 150ml respectively.
The Summary information mask indicates the power supply of the unit by the signs B1 (energized) And B0 (not energized).
Dual chamber units incorporate two units, which are parallel energized.
Tip:
During the cooking process, the volume flow cannot be determined because it frequently changes during the process.
At delivery of the combisteamer the water system is empty. This may warrant more time until water reaches the cooking chamber. During this time, multiple calibration cycles may be initiated.

*= Only at units with automatic cleaning system WaveClean

## Functional Troubles

Notice:
This unit allows the replacement of the pressure switch, the filter and the solenoid valves. Any further dismantling is not allowed (possible water damage, guarantee). After each replacement, a water proof test is obligatory.

Replacement Of Solenoid Valves

Shut off water supply. Release pressure in the entry lines. Unscrew the solenoid valves.
Pay attention to the three O-rings mounted to the valve body. Take apart the valve body and clean the valve socket and openings. Carefully clean the valve membrane of sediments. Reassemble the valve unit (it fits only in easily the correct way). Check the correct location of the three O-rings. The valve unit must be assembled with the script heading towards the entry opening. Mount the valve body with a torque of 0.6 +/- 0.1Nm. Assemble the solenoid with the electric connector at the side of the decal P with a torque of 0.1 – 0.2Nm. Connect the electric supply to the solenoid valve. Mixing up the electrical valve connections is without consequences. Open the water supply and check the unit water proof.

Fault Indication Err 66 (no water)*

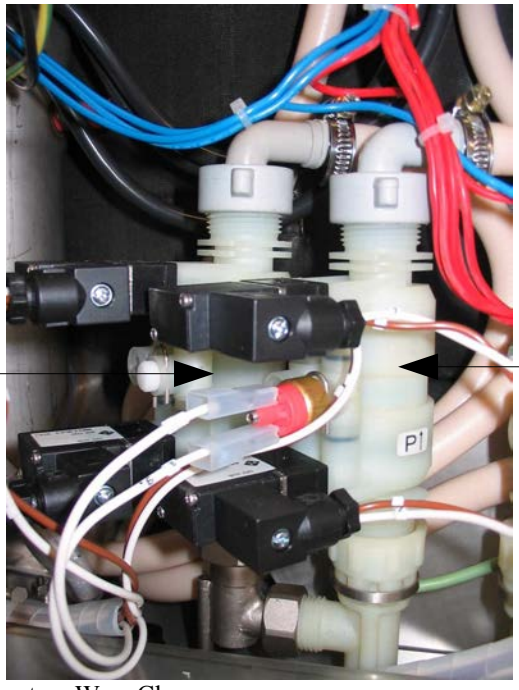
Units with a pressure switch display the fault Err 66 (no water) in case the pressure switch is still open. Check entry water pressure. Check electrical connections. The pressure switch opens at 1bar.The switch point is adjusted by the inner hexagonal nut incorporated in the pressure switch.

## Replacement Of Pressure Switch*

Shut off water supply. Release pressure in the entry line. Depending of type, disassemble metering unit. Turn the pressure switch to allow access to the mounting spring. Remove mounting spring with a small screw driver. Now the pressure switch can be removed. Lightly lubricate the O-ring of the replacement switch and insert it into the socket. Reconnect the mounting spring by pushing slightly on the pressure switch. The open side of the mounting spring points toward the entry side of the unit. The mounting spring must be completely inserted. Reconnect electric power and reassemble the metering unit if necessary. Open the water supply and test water proof.

**Installation location 20.x with WaveClean:**

DynaSteam unit without pressure switch (Order- No. #203831) responsible for the lower chamber.

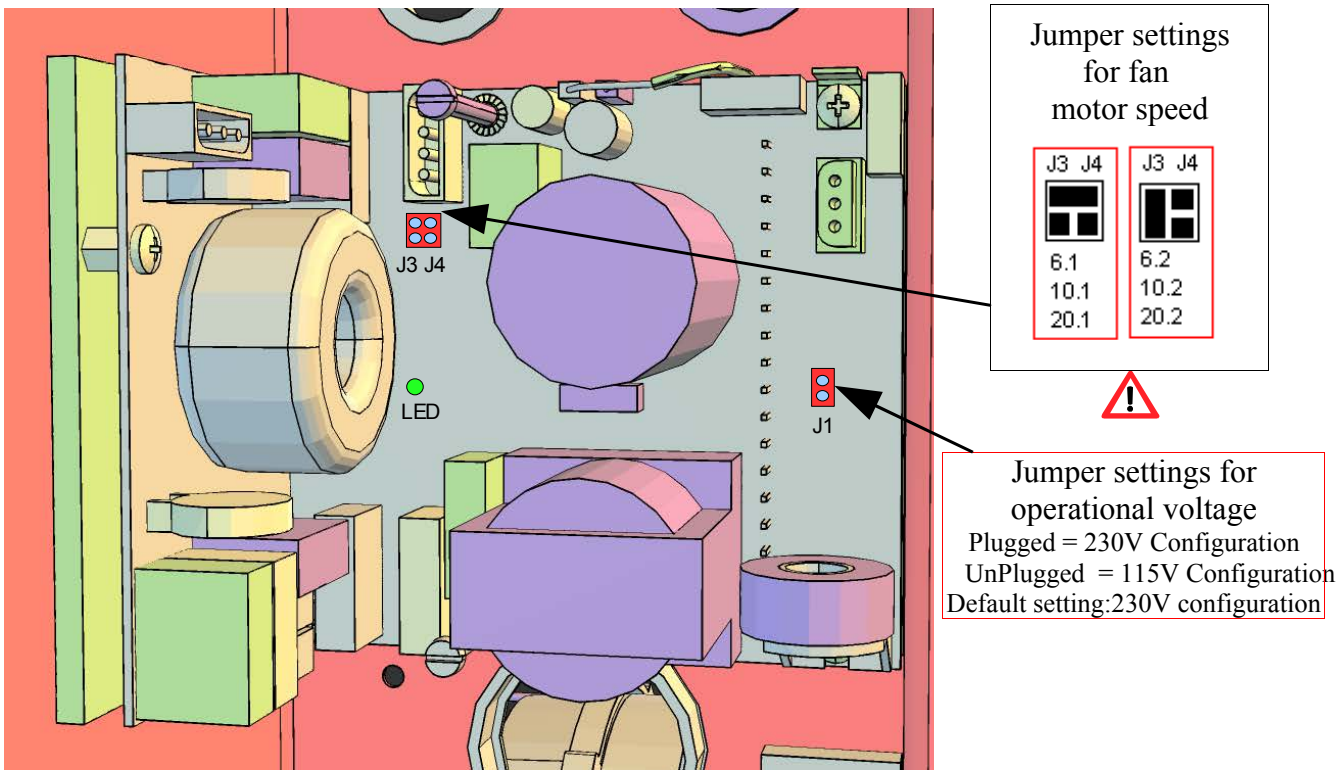



DynaSteam unit with pressure switch (Order- No. #203832) responsible for the upper chamber.

*= Only at units with automatic cleaning system WaveClean

# Description of the frequency controller

Only valid for Gas units




Sample on a 1-phase (90Veff – 264Veff) controller

## Installation instructions

Disconnect the unit from the power and gas supply. Wait at least 3 minutes until the capacitors on the controller have unloaded themselves!

The frequency converter is fitted with a wide range input.
The input voltage can be configured with the link plug (Jumper) J1
Input voltage at the mains terminal inlet can be measured according to the following Jumper status.
To be measured are:
J1 Plugged: Area 200V-240V (-10%, +15%) **Despatch status!!!**
J1 Open : Area 100V-120V (-10%, +15%)
The voltage (live) phase L must be led through the Ferrite core before the mains terminal in the cable harness, to avoid EMC-interferences in the appliance.

For the appliance sizes 6.1, 10.1 and 20.1 the Jumper J3 is not plugged (**open, despatch status**).
Therefore the Jumper must be plugged between J3 and J4 (horizontally). The fan runs max..
1500 rpm´s.
In the appliance sizes 6.2, 10.2 and 20.2 the Jumper J3 must be plugged (left Jumper vertically). The fan runs max. 1800 rpm`s

Continuation frequency controller description

## Functional test

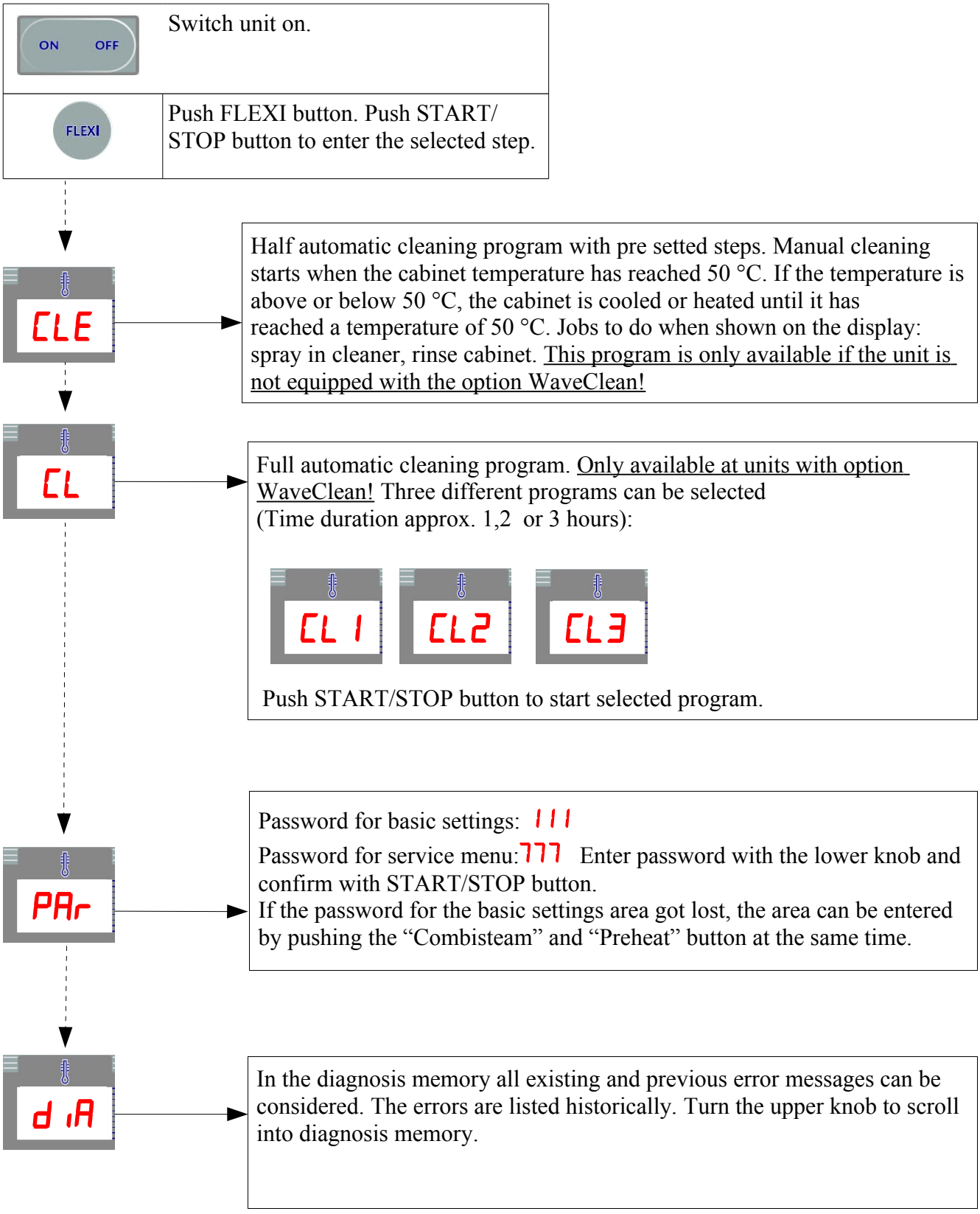
The three control lines on the control connection terminal are wired according to the following table, whereby status „1“ means 230V. This can be measured and compared to ”N”.

| D2 | D1 | D0 | Function |
|---|---|---|---|
| 0 | 0 | 0 | Fan motor is not running |
| 0 | 1 | 0 | Right direction |
| 0 | 0 | 1 | Left direction |

The output voltage on the motor outlet terminal is 230V 60Hz when in use.
When turned on, this function can also be controlled with the green LED which is on the controller.

| LED status | Description | Steps to take. |
|---|---|---|
| On | Frequency converter is working perfectly | - |
| Off | Frequency converter is not working | Control input voltage if necessary replace frequency converter. |
| 3 flashes/period | Overheating of frequency converter. | Test fan function, if necessary replace frequency converter. |
| 6 flashes /period | Short circuit in motor | Test motor, replace if necessary. |
| 7 flashes/period | Frequency converter does not start | Jumper J1 is configured incorrectly. |

# The main menu (Password overview & Diagnosis memory)



# Service menu *Classic*Combi™

The service menu is for configuration and Problem analysis for electrical components. Not all procedures have to be done. It has to be done completely when the control pcb is being replaced.

To enter the Service menu do the following:

| | | |
|---|---|---|
| 1. |  | Switch the unit on |
| 2. |  | Press Flexi Button and choose with the upper knob PAr (parameter)  |
| 3. |  | Press Start/ Stop- Button and on the lower displays shows 000 .  |
| 4. | Enter Password 777 with the lower knob  | |
| 5. |  | Press Start/ Stop- Button SOF (Software) is shown on the lower display  |
| | Now in lower display the configuration steps are displayed in the lower display, with the knob you can choose the wanted step | |
| 6. |  | By pressing the Start/ Stop- Button the step (test) is started |

**How to save changes:**

If changes are to be saved the FLEXI Button has to be pressed when the procedures are displayed. „Sto“ is shown in the Display (Store) to indicate that the changes have been saved. After saving the main menu is presented.

Saving the parameters is very important otherwise changed values are not stored and the machine might not be operable.

**Overview of the service procedures (Configuration menu):**

| Display | Description | Function |
|---|---|---|
| SOF | Softwarestatus. | Check the software status |
| bdS | Button and display test | Button can be checked individually LED´s, knob test |
| rEL | Relay test | Every relay can be tested individually and counter information |
| UCF | Unit configuration | Machine data is entered here. Obligatory step if pcb is replaced |
| CLE | WaveClean™ Test (Option) | Test program for the automatic cleaning system Wave Clean. Step is only displayed if WaveClean is activated (UCF) |
| FAn | Fan test | The blower can be tested. |
| CO2 | $CO^2$ - calibration | Only if gas powered (UCF). *Also see CO2 calibration same procedure as password 999.* |
| H2O | Water test | Test of the DynaSteam system |
| drA | Drain test | Test of drain probe, water connection and drain valve |
| 100 | 100°C calibration | Calibration procedure for chamber temperature and core temperature probe |
| -H2 | Water drain | Procedure empties the machine from water if pressurized air is connected to both water connectors |
| ECL | Erase error memory | |
| HCL | Erase HACCP – memory | |
| PCn | Print counters | All relays have counters and also overall cooking time is beeing printed |

## Detailed description of the procedures

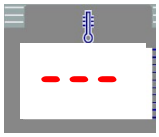
### SOF Software - Status

The software status shows the installed software version of the applications software and booter software. The version of the application software is responsible for the functions of the machine.

| Button | Function | Display | |
|---|---|---|---|
|  | shows booter-version |  | Procedure software status |
|  | back to the configuration menu | | |
| | |  | Software version |

## bd5 button and display test

With this procedure the button with the according LED´s, knobs and displays are tested.

| Button | Function | Display | |
|---|---|---|---|
| START STOP | Start test |  | |
| STEP | Back to the configuration menu | | |
| | |  | |

The test is started with START/STOP. Alle LED`S are lit, the buttons function is deactivated. 888 and all decimal point (dots) are displayed. The functions of the buttons are deactivated.

Test of the knobs and displays:
By turning the knob the values change in the display.
By turning the knob to the left ⟶ the value is decreased.
By turning the knob to the right ⟶ the value is increased

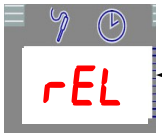
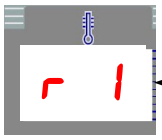
Button and LED test
By pressing the button the corresponding LED´s are switched of.


If all buttons have been pressed the procedure is marked as „done“.
In the upper display bd5. is shown with a dot behind 5. Indication the procedure has been done.


Now the buttons have there original function. The procedure can be done again by pressing the START/STOP button.
If one button is not operated, the test can be finalised by pressing the Start/Stop Button for at least 3 seconds.

## rEL Relay test

In this test the relays of the pcb are being activated or changed. Some relays are on the optional gas and communication pcb. When the START/STOP button is being pressed, the relay counter is shown in the upper display divided by 100.

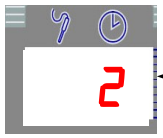
| Button | Function | Display | |
|---|---|---|---|
| START STOP | Start the procedure |  | Relay test |
| STEP | Back to the configuration menu |  | Chosen relay |

| Relay no. | Relay name | Description if START/STOP is pressed. |
|---|---|---|
| r 1 | **Main contactor K1** | The relay energizes via X9.2 the main contactor K1. If the Start/stop button is pressed the relay is switched off! (Normally on) |
| r 2 | **Fan on/off or D0 signal for frequency controller** | Electric version (Contactor controlled fan):<br>The relay energizes via X9.3 the fan motor. Between is relay K4 (Entry X9.7, responsible for the direction). The fan runs in left direction.<br>Gas version (Frequency inverter controlled fan):<br>The signal D0 (120-230V) from X9.3 goes into the entry D0 of the controller. The fan runs in left direction. |
| r 4 | **Fan left /right** | This is a potential free relay which switched the fan contactor K4 via X9.6 (n.o.) alternatively via X9.5 (min.). The supply power comes from relay 2. The fan does not run!<br>(No power from relay 2). |
| r 8 | **Air flap (option)** | The relay energizes via X10.4 the lifting solenoid in the fresh air pipe. The valve opens if activated. |
| r 10 | **DynaSteam** | Activation of the DynaSteam steaming unit, via X8 (24V) . This is a short cut proof, on board solid state relay. The relay works together with relay 11 and in this procedure every second the relay is activated for on second to produce a water flow. In two chamber units (20.x) two DynaSteam units are connected parallel. |
| r 11 | **DynaSteam** | See above |
| r 12 | **Drain solenoid** | The relay energizes via X9.8 the drain solenoid valve. |
| r 13 | **Buzzer** | The relay energizes via X10.2 the buzzer H13. |
| r 14 | **Gas on 1**<br>(Only gas version) | Ignition controller N10 via X4.4 The glow plug R10 is activated. |

| Relay no. | Relay name | Description if START/STOP is pressed. |
|---|---|---|
| r 15 | **Gas on 2** (Only gas version) | Ignition controller N20 via X4.9 The glow plug R20 is activated. |
| r 16 | **WaveClean pump** (option) | The relay energizes via X10.5 the pump M16. The water of the siphon is being pumped into the cooking chamber (Can be dirty!) **Caution! Only do the procedure when the cooking chamber is cold! The chamber could be damaged.** |
| r20 | **LOA B or D1 of the frequency controller gas versions** | Electric version:<br>Possibility of connecting an Energy optimisation system to the unit (X2, connector B)<br>Gas version:<br>Entry D1 of the frequency controller is driven via X9.4 with (120-230V). The fan runs in right direction. |
| r21 | **Gas Reset 2** (Only gas) | Reset signal from X4.3 to ignition box N20 |
| r22 | **Gas Reset 1** (Only gas) | Reset signal from X4.2 to ignition box N10 |
| r23 | **Reserve relay** | If the reserve relay is not used the LED on the Flexi button is lit. |
| r24 | **Siphon Pump** (option) | The relay energizes via X10.6 the pump M24. Water is being pumped out of the siphon into the drain. |

## UCF Unit configuration

**These steps have to be done if the pcb has been replaced!**

| Button | Function | Display | |
|---|---|---|---|
| START STOP | Toggle between Parameter and value of parameter |  | Parameter |
| STEP | Back to the configuration | | |
| | |  | Value of parameter |

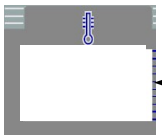
The upper knop is for choosing the parameter
The lower knob is for changing the value of the chosen parameter

| Parameter-No. | Function | Values | Comment |
|---|---|---|---|
| 2 | Unit size | 61 / 11 / 62 / 12 / 21 / 22 / 63 | 61 = 6.1<br>11 = 10.1<br>62= 6.2<br>12 =10.2<br>21 = 20.1<br>22 =20.2<br>63 = 6.23 = 6 2/3 |
| 1 | Heating power source | EL / GAS | El = Electric<br>Gas =Gas |
| 140<br>141<br>142 | Serial no. (8 columns) | 000 - 099<br>000 - 999 /<br>000 - 999 | 140: 1 – 2 column<br>141: 3 – 5 column<br>142: 6 – 8 column |
| 170 | WaveClean ™ | oFF / on | Off= deactivated (default)<br>on= activated |
| 246 | Core temperature probe | no / - 1- / -4- | No = no probe (option)<br>1 = single probe<br>4 = 4 measuring spots (option) |
| 266 | Fan controller type | C2 / FI | C2= contactor<br>FI= frequency inverter |
| 398 | DryTronic | 0 / 1 | Fresh air pipe<br>0= deactivated<br>1= activated |
| 406 | Ext. Hood control | oFF / on | Off = deactivated (standard)<br>Om = Ext. hood control activated |

## CLE WaveClean™ Test (Option, only if parameter 170 is set to „on“ in UCF)

With this test the WaveClean System can be tested for leakage and operation (Cartridges will not dissolve!)

Funktionstasten:

| Button | Function | Display | |
|---|---|---|---|
| START STOP | Start WaveClean test |  | WaveClean Test |
| STEP | Back to the configuration menu |  | |

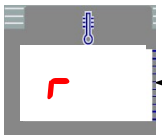
After the Start/Stop button is pressed the procedure starts. The siphon is emptied by the pump M24. Afterwards the siphon is filled with the drain valve Y12. This procedure is done twice. Afterwards the pump M16 and the fan motor M1 /M2 (20.x models) is switched on. The water of the siphon is pumped on the rotating fan wheel. The procedure can be stopped at any time with the start/stop button. **Afterwards the siphon is emptied and filled twice automatically.**
Use this procedure to test for leakage and operation of the pumps.

## FAn Fan test

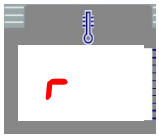
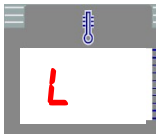
This test both operating modes of the fan (left and right direction). The direction of the fan is determined by tracing the direction of the fan wheel inside the cooking chamber. If the fan wheel is turning clockwise it is turning in right direction if anticlockwise in left direction.

Additional information for electric models: If the axis of the fan motor is turning into the direction of the arrow which is printed on the fan motor, the fan wheel is turning in right direction (direction for steaming mode for electric versions).

Buttons:

| Button | Function | Display | |
|---|---|---|---|
| START STOP | Start of the procedure |  | Fan test |
| STEP | Back to the configuration menu | | |
| FLEXI | Activation of other fan mode |  | Active mode |

With the lower knob the direction (mode) is selected

| | |
|---|---|
|  Right direction |  Left direction |

## C02 Gas $CO_2$ calibration (only for gas versions)

See $CO_2$ calibration *(identical with procedure password „999“)*

## H20 DynaSteam water test

With this procedure the DynaSteam steaming unit can be checked. The test is started with the Start/Stop button.
Now 140 ml of water are being pushed into the cooking chamber (At two chamber models in each chamber)
A deviation of +- 10 ml is normal. With the lower knob the water amount can be changed in 7 ml steps.

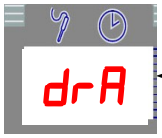
Notice. If the test being done the first time a higher deviation can occur. Please repeat the procedure for better results.

Buttons:

| Button | Function | Display | |
|---|---|---|---|
| START STOP | Start of the procedure |  | Water test |
| STEP | Back to the configuration menu |  | Water amount in ml |

# drA Drain test

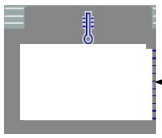
Buttons

| Taste | Funktion | Display | |
|---|---|---|---|
| START STOP | Start of drain cooling test |  | Drain test |
| STEP | Back to the configuration menu | | |
| | Manual drain cooling on/off |  | Drain temperature |

In the lower display the actual drain temperature is displayed. By pressing the Start/stop button the test is started. If the preheat button is pressed the drain solenoid is activated and the temperature should drop (drain temperature only drops if the cooling water is significantly colder then the temperature measured in the siphon).

## 100 100°C and core temperature calibration

Buttons:

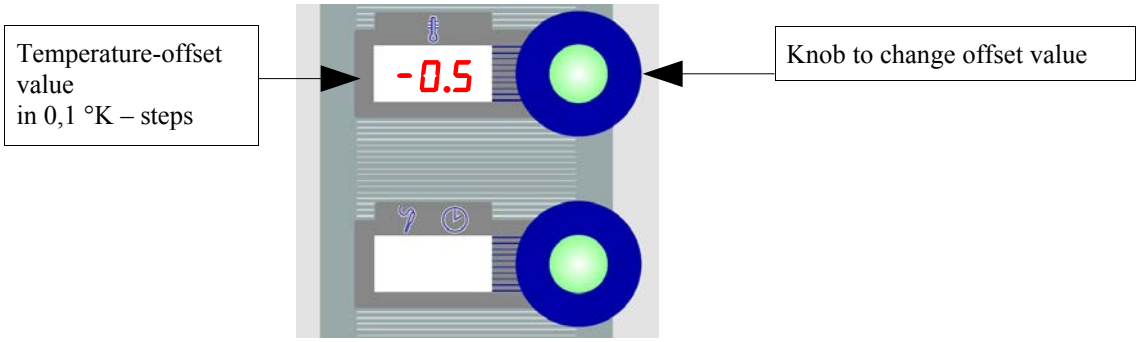
| Button | Function | Display | |
|---|---|---|---|
| START STOP | Start of temperature calibration |  | 100°C + CT calibration |
| STEP | Back to the configuration menu | | |
| | Toggle between:<br>Electric version:<br>Offset / chamber temperature/ heating power in %<br>Gas version:<br>Offset / chamber temperature/ Gas fan rpm´s |  | |

Notice: The core temperature and external reference probe must be placed in the centre of the cooking chamber. The probes have to be pointed upwards to prevent water droplet discharge on the probes. We recommend using a grid for probe placement.

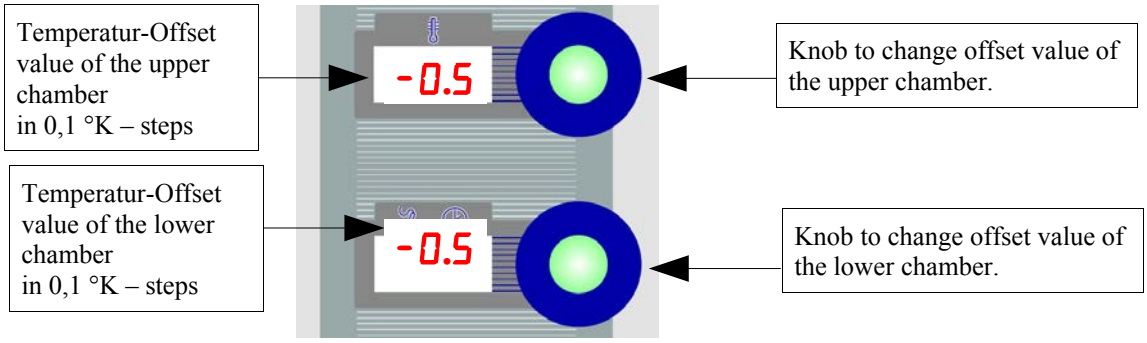
*Calibration procedure*

**Following values are displayed:**

**On one chamber units *(6.x / 10.x):***




***On two chamber units (20.x):***




**Procedure**

**At on and two chamber models:**
By pressing the Start/stop button the procedure is started. Before the offset values can be adjusted the unit has to be in a thermal steady state which requires at a minimum 30 minutes. If the cooking chamber temperature is 100°C (± 1°C) and the external reference probe shows a temperature between 99°C und 99,5°C the unit is calibrated correctly. The offset values should be changed in that way that an external probe reads between 99°C and 99,5°C.

**Notice!** After every single offset value change 10 minutes have to pass until the next offset value change can be done. Only do this calibration if you are sure that the external probe/thermometer is very precise.

If the actual chamber temperature has 100°C +-0,5°C the core temperature probe is automatically calibrated. If the procedure is sopped without the chamber being in this temperature range a error code

*Calibration procedure*

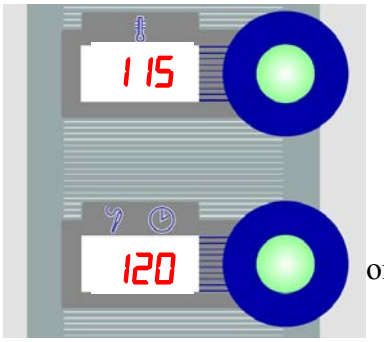
**Only for two chamber models (20.x):**

For the calibration procedure both chambers should be separated by placing a pan in the middle of the trolley. The two chamber models have two independent temperature regulators which interact with each other since the chamber is not completely separated. For this reason two external reference probes have to be placed in the center of each chamber. The core temperature probe can be placed in any chamber. During the calibration procedure it should be checked that both chambers contribute about the same amount of energy (tandem bicycle effect).

is displayed to show that the core temperature has not been calibrated. The error code is: Err 4.
Confirm the error code with the Start/Stop button.
Pressing the Start/ Stop button terminates the calibration procedure.

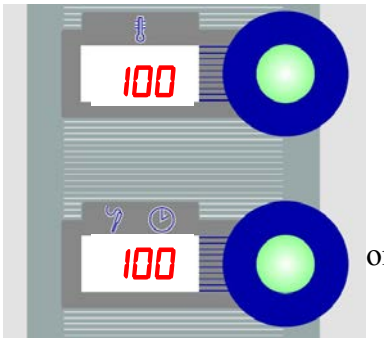
The button  allows a switchover between displayed functions.

After the first time the chamber temperatures appears.



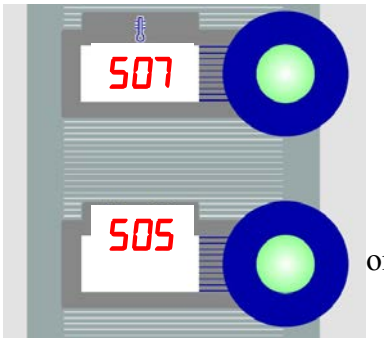

only at two chamber units (20.x)

After pressing the preheat button one more time the PWM (heat demand) value appears (0% -100%).




only at two chamber units (20.x)

After pressing the preheat button one more time the fan speed of the gas blower is shown *(Only at Gas-units)*



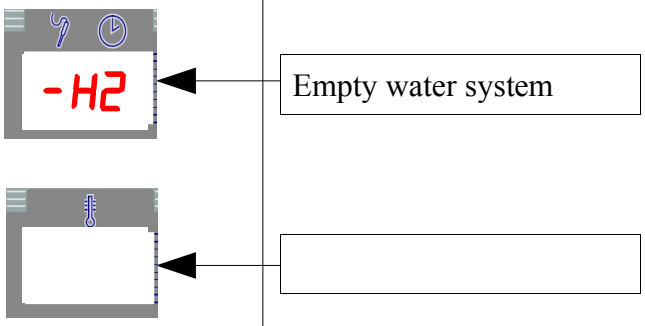

only at two chamber units (20.x)

The gas blower speed is shown divided by 10, i.e. at 5050 1/min is shown 505 on the display.

## -H2 Emptying the water system

With this procedure the remaining water in the combi can be discharged. The water connectors have to be connected to pressurized air up to a maximum pressure of 6 bars. By doing this procedure ice damage can be prohibited if the unit is stored at temperatures below 0°C.

Buttons:

| Button | Function | Display | |
|---|---|---|---|
| START STOP | Start/ Stop of the procedure |  | Empty water system |
| STEP | Back to the configuration menu | | |

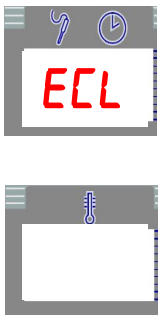
To start the procedure the start/stop button has to be pressed for 3 seconds. The procedure can be stopped by pressing the start/stop button.

⚠ Start the procedure only with the cooking chamber temperature below 130°C.

## ECL Delete error- memory

This procedure deletes the errors which are stored in the diagnosis memory. It is not designed to erase actual error codes. These are always canceled by pressing the Start/Stop button. To keep a history of all errors we recommend not to erase the diagnosis memory. If the memory is full, automatically the oldest errors are erased.

Buttons:

| Button | Function | Display |
|---|---|---|
| START STOP | Press for 3 sec. to delete memory |  |
| STEP | Back to the configuration menu | |

After the errors have been erased when ECL is displayed.

## HCL Delete HACCP-memory

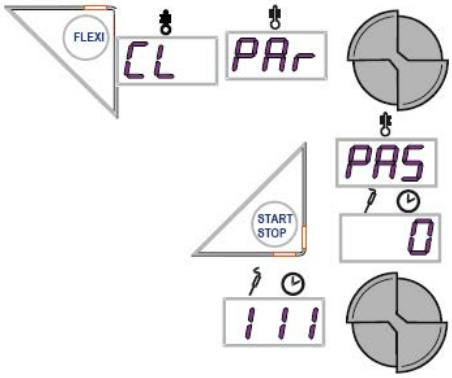
Buttons:

## Save changes

## Leave configuration menu without saving changes

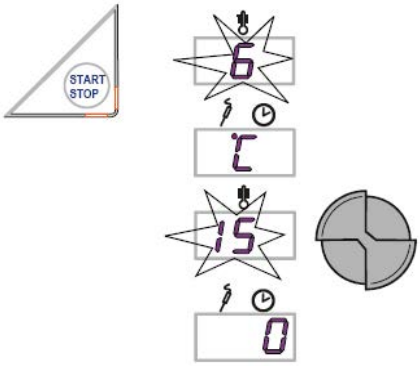
# Settings area (basic settings)

The Combisteamer software is set to standard parameters on delivery. These standard parameters can be changed individually within defined limits.
To enter the settings area the following steps have to be carried out:



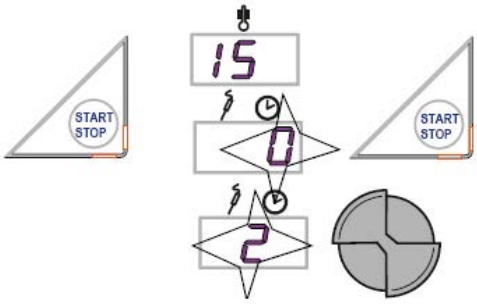

**Calling up setting menu**

- Press the "FLEXI" button while the appliance is switched on.
- The top display shows a flashing CL or CLE.
- Select the "Par" menu item with the upper adjustment knob and confirm by pressing the START/STOP button.
- The top display shows PAS for password.
- The bottom display shows 0.
- Set the password 111 in the bottom display with the adjustment bottom knob.



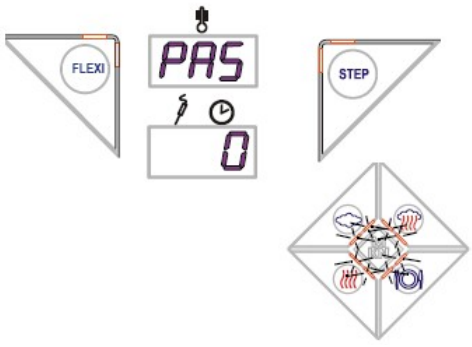

**Selecting parameters**

- Press the "START/STOP" button after entering the password.
- The top display shows the first parameter flashing.
- The bottom display shows the parameter value.
- Select the parameter with the top adjustment knob.
- The top display shows the selected parameter flashing.
- The bottom display shows the parameter value.




**Changing parameters**

- Press the "START/STOP" button after selecting the parameter.
- The top display shows the selected parameter.
- The bottom display shows the preset parameter value flashing.
- Select the value from the parameter list with the bottom adjustment knob.
- Press the "START/STOP" button to change another parameter.




**Save parameter(s) changes**

Save the changed parameter(s) by pressing the "FLEXI" button.

- PAS appears in the top display.
- 0 appears in the bottom display.
- Exit the setting area by pressing the "STEP" button.
- The four cooking mode buttons illuminate, and the Combisteamer is in switch-on mode once again.

Parameter list

| No. | Description | Setting range | Function |
|---|---|---|---|
| 000 | Time/ Date (Option) | Time / Date | Adjustment of time an date |
| 006 | Temperature reading in | C , F<br>(C default) | Adjustment of temperature reading in °C / °F |
| 082 | Preheat factor | 0 – 30<br>( 15 % default) | Preheat factor if using the preheat function. The factor will added to the selected temperature (example: 100°C adjusted = preheating up to 115°C). This happens under consideration of the maximum temperature values |
| 032 | Time delay fan | OFF / On<br>(OFF default) | When On, the fan runs during the time delay to cool the oven chamber with a block of ice in the bottom drawer. For this purpose, place the perforated container in the closed container, fill with approximately 4 litres of water and allow to freeze. Insert the ice block into the perforated container at the lowest level. This allows a temperature of 57°F to be maintained for up to 6 hours. (Contact service technician) |
| 024 | Cooling water (drain cooling) | Lo / Std / Hi<br>(Std default) | Setting Lo : Less water consumption but higher drain temperature and more steam from the exhaust pipe.<br>Setting Hi : More water consumption but lower drain temperature and less steam from the exhaust pipe. |
| 083 | Time ext. hood ( in seconds | 0 – 600 | Time where the external condensation hood runs to maximum performance after the chamber door was opened. |
| 084 | Time of signal (in seconds) | 0 – 180<br>(20 default) | Time of the buzzer at the end of a program. 0= buzzer off. |
| 015 | Altidude | 0 = 0 – 500 m<br>1 = 501 – 1000 m<br>2 = 1001 – 1500 m<br>3 = > 1501 m<br>(0 default) | Altitude adjustment (above sea level). |

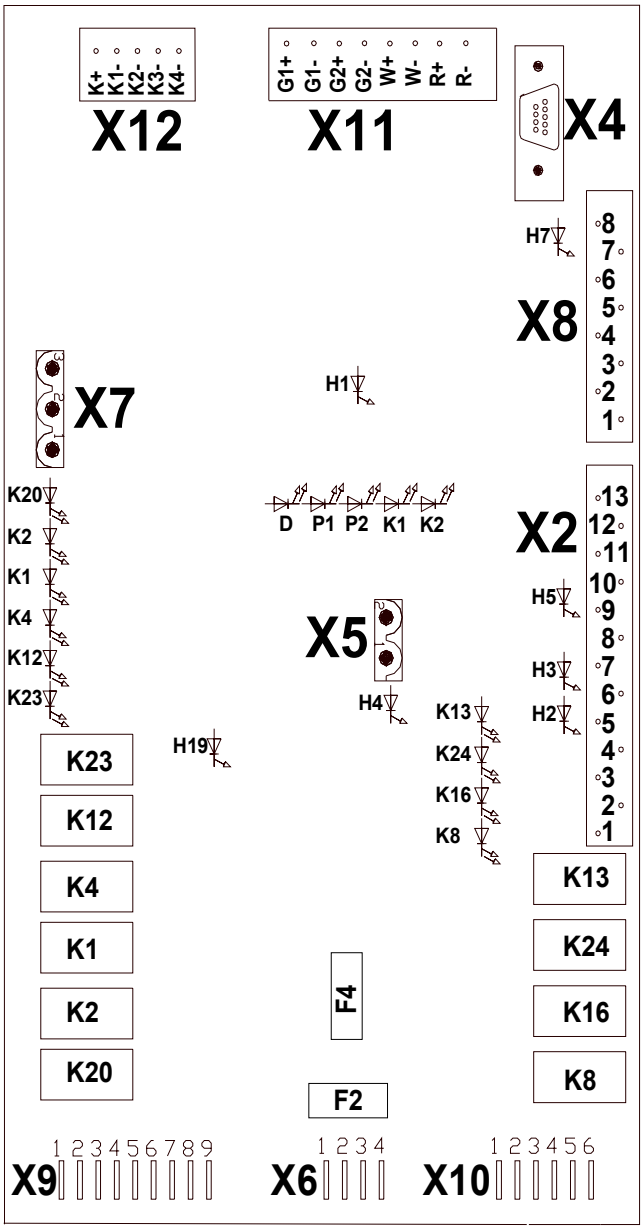
*Continuation parameter list*

| No. | Description | Setting range | Function |
|---|---|---|---|
| 096 | Password | 000 – 500<br>( 111 default) | Individual passwords can be set up in this here. |
| 225 | Scroll direction | 0 / 1<br>( 1 default) | The direction for navigation in the adjustment areas can be adjusted.<br>0 = Invers<br>1 = Normal |
| 235 | Temp. Steam | 30 – 130<br>( 100 default) | The default temperatures can be individually set up for the cooking process within the limits shown here. |
| 236 | Temp. Combi | 30 – 250<br>(130 default) | |
| 237 | Temp. Convection | 30 – 300<br>( 180 default) | |
| 238 | Temp. Regeneration | 30 – 180<br>( 120 default) | |
| 395 | Switch-on Display | 0 – 4<br>(0 default) | Preselection of the mode which is announced automatically after switching on.<br>0=all four cooking modes (no preselection)<br>1=Steam<br>2=Combisteam<br>3= Convection<br>4=Regeneration |

# Layout of the control pcb Silver2 (Electric-Version)

UL-Version

Control pcb A2




| | | | | |
|---|---|---|---|---|
| Flash LED H7 | 1 | 0 | 1 | 0 |
| Reset LED H1 | 1 | 0 | 0 | 1 |
| | Booter activ | No Software | Booter activ | No Software |
| If the flash LED flashes equally (in 1-Hz-time), the processor runs | | | | |
| If the flash LED has a higher flash frequency, reset the electronic | | | | |

**X2**

| No. | description | LED on board |
|---|---|---|
| 1 | Door contact switch S1 (24V Output) | |
| 2 | Door contact switch S1 (Input) | H2 |
| 3 | Pressure switch B10* (24V Output) | |
| 4 | Pressure switch B10* (Input) | H3 |
| 5 | - | |
| 6 | - | |
| 7 | - | |
| 8 | - | |
| 9 | - | |
| 10 | - | |
| 11 | - | |
| 12 | - | |
| 13 | - | |

**X5:**

| No. | description |
|---|---|
| 1 | Power supply for electronic 21 Volt (Phase) |
| 2 | Power supply for electronic 21 Volt (Neutral) |

**X6:**

| No. | description | LED on board |
|---|---|---|
| 1 | - | |
| 2 | - | |
| 3 | LOA C (230V) for energy optimisation system | H4 |
| 4 | Neutral | |

* = Option
H7 = Flash LED
H1 = Reset LED
F2 = 6,3A slow-blow
F4 = 6,3A slow blow

**X7:**

| No. | description |
|---|---|
| 1 | 24 V Power supply for buzzer H13 via X10.3 |
| 2 | Not in use |
| 3 | Power supply for butter H13 (ground) |

*Continuation layout of the control pcb Silver2*

| No. | description | LED on board |
|---|---|---|
| 1 | Solid state relay V1<br>Solid state relay V2 | P1 (LED "On" = Solid state relay energized) |
| 2 | Solid state relay V1<br>Solid state relay V2 | P1 (LED "On" = Solid state relay energized) |
| 3 | Solid state relay V3 (only at 20.x)<br>Solid state relay V4 (only at 20.x) | P2 (LED "On" = Solid state relay energized) |
| 4 | Solid state relay V3 (only at 20.x)<br>Solid state relay V4 (only at 20.x) | P2 (LED "On" = Solid state relay energized) |
| 5 | Output signal DynaSteam unit Y10 / Y20(only 20.x) | K1 / K2 |
| 6 | Output signal DynaSteam unit Y10 / Y20(only 20.x) | K1 / K2 |
| 7 | Output signal DynaSteam unit Y11 / Y21(only 20.x) | K1 / K2 |
| 8 | Output signal DynaSteam unit Y11 / Y21(only 20.x) | K1 / K2 |

**X9:**

| No. | Description | Fuse on board |
|---|---|---|
| 1 | 230 Volt supply | |
| 2 | Output to maincontactor K1 | F4 |
| 3 | Bridge to X9.7 (Output) | F4 |
| 4 | Output LOA B Energy optimisation system | F4 |
| 5 | Output to contactor K4.1 / K4.3(only 20.x) | F4 |
| 6 | Output to contacor K4.2 / K4.4(only 20.x) | F4 |
| 7 | Bridge to X9.3 (Input) | F4 |
| 8 | Output to solenoid valve Y12 | F4 |
| 9 | - | |

**X10:**

| No. | Description | Fuse on board |
|---|---|---|
| 1 | 230 Volt supply | - |
| 2 | Output to buzzer H13 | - |
| 3 | 24 Volt input for buzzer H13 | - |
| 4 | Output to rectifier V8 / lift magnetY8* | F2 |
| 5 | Output to pump M16* | F2 |
| 6 | Output to pump M24* | F2 |

**X11:**

| No. | Description |
|---|---|
| G1+ | Chamber probe B2 (*black*) |
| G1- | Chamber probe B2 (*brown*) |
| G2+ | Chamber probe B3 (only at 20.x) (*black*) |
| G2- | Chamber probe B3 (only at 20.x) (*brown*) |
| W+ | Drain probe B4 (*white*) |
| W- | Drain probe B4 (*green*) |
| R+ | - |
| R- | - |

**X12:**

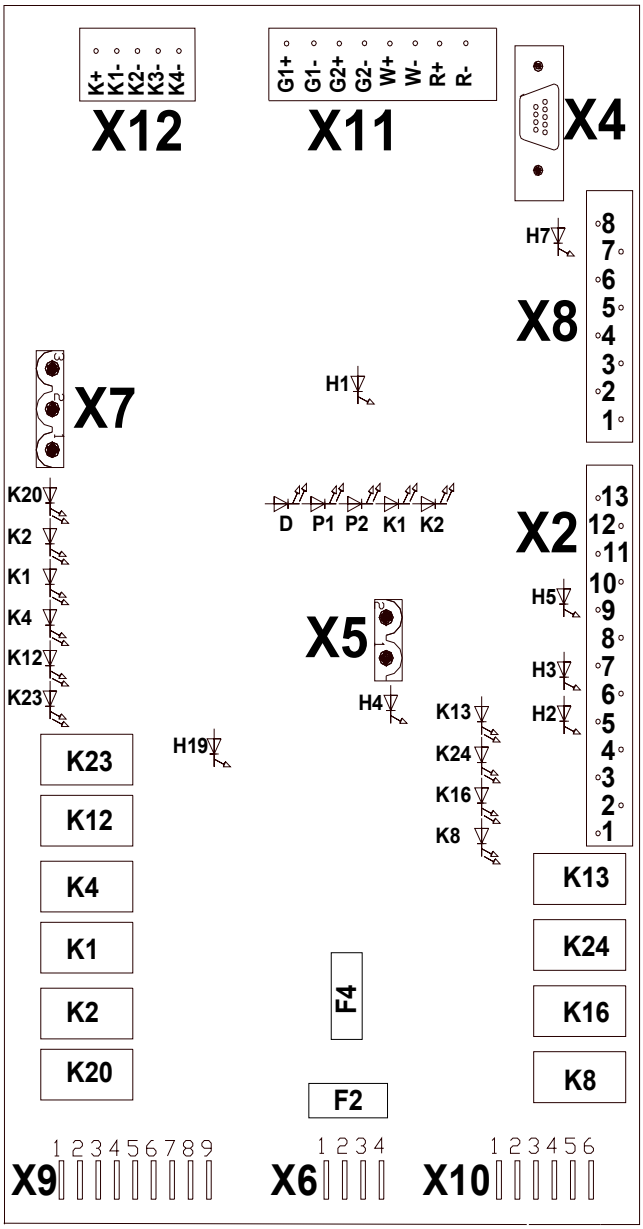
| No. | Description |
|---|---|
| K+ | Core temp probe (meat probe) B1 (*white*) |
| K1- | Core temp probe (meat probe) B1 (*green / red*) |
| K2- | Core temp probe (meat probe) B1* (*green / blue*) |
| K3- | Core temp probe (meat probe) B1* (*green / yellow*) |
| K4- | Core temp probe (meat probe) B1* (*green / red*) |

* = Option

# Layout of the control pcb Silver2 (Electric-Version)

CE-Version

Control pcb A2




| | | | | |
|---|---|---|---|---|
| Flash LED H7 | 1 | 0 | 1 | 0 |
| Reset LED H1 | 1 | 0 | 0 | 1 |
| | Booter activ | No Software | Booter activ | No Software |
| If the flash LED flashes equally (in 1-Hz-time), the processor runs | | | | |
| If the flash LED has a higher flash frequency, reset the electronic | | | | |

**X2**

| No. | description | LED on board |
|---|---|---|
| 1 | Door contact switch S1 (24V Output) | |
| 2 | Door contact switch S1 (Input) | H2 |
| 3 | Pressure switch B10* (24V Output) | |
| 4 | Pressure switch B10* (Input) | H3 |
| 5 | - | |
| 6 | - | |
| 7 | - | |
| 8 | - | |
| 9 | - | |
| 10 | - | |
| 11 | - | |
| 12 | - | |
| 13 | - | |

**X5:**

| No. | description |
|---|---|
| 1 | Power supply for electronic 21 Volt (Phase) |
| 2 | Power supply for electronic 21 Volt (Neutral) |

**X6:**

| No. | description | LED on board |
|---|---|---|
| 1 | - | |
| 2 | - | |
| 3 | LOA C (230V) for energy optimisation system | H4 |
| 4 | Neutral | |

* = Option
H7 = Flash LED
H1 = Reset LED
F2 = 6,3A slow-blow
F4 = 6,3A slow blow

**X7:**

| No. | description |
|---|---|
| 1 | Not in use |
| 2 | Not in use |
| 3 | Not in use |

*Continuation layout of the control pcb Silver2*

| No. | description | LED on board |
|---|---|---|
| 1 | Solid state relay V1<br>Solid state relay V2 | P1 (LED "On" = Solid state relay energized) |
| 2 | Solid state relay V1<br>Solid state relay V2 | P1 (LED "On" = Solid state relay energized) |
| 3 | Solid state relay V3 (only at 20.x)<br>Solid state relay V4 (only at 20.x) | P2 (LED "On" = Solid state relay energized) |
| 4 | Solid state relay V3 (only at 20.x)<br>Solid state relay V4 (only at 20.x) | P2 (LED "On" = Solid state relay energized) |
| 5 | Output signal DynaSteam unit Y10 / Y20(only 20.x) | K1 / K2 |
| 6 | Output signal DynaSteam unit Y10 / Y20(only 20.x) | K1 / K2 |
| 7 | Output signal DynaSteam unit Y11 / Y21(only 20.x) | K1 / K2 |
| 8 | Output signal DynaSteam unit Y11 / Y21(only 20.x) | K1 / K2 |

**X9:**

| No. | Description | Fuse on board |
|---|---|---|
| 1 | 230 Volt supply | |
| 2 | Output to maincontactor K1 | F4 |
| 3 | Bridge to X9.7 (Output) | F4 |
| 4 | Output LOA B Energy optimisation system | F4 |
| 5 | Output to contactor K4.1 / K4.3(only 20.x) | F4 |
| 6 | Output to contacor K4.2 / K4.4(only 20.x) | F4 |
| 7 | Bridge to X9.3 (Input) | F4 |
| 8 | Output to solenoid valve Y12 | F4 |
| 9 | - | |

**X10:**

| No. | Description | Fuse on board |
|---|---|---|
| 1 | 230 Volt supply | - |
| 2 | Output to buzzer H13 | - |
| 3 | 230 Volt input for buzzer H13 | - |
| 4 | Output to rectifier V8 / lift magnetY8* | F2 |
| 5 | Output to pump M16* | F2 |
| 6 | Output to pump M24* | F2 |

**X11:**

| No. | Description |
|---|---|
| G1+ | Chamber probe B2 (*black*) |
| G1- | Chamber probe B2 (*brown*) |
| G2+ | Chamber probe B3 (only at 20.x) (*black*) |
| G2- | Chamber probe B3 (only at 20.x) (*brown*) |
| W+ | Drain probe B4 (*white*) |
| W- | Drain probe B4 (*green*) |
| R+ | - |
| R- | - |

**X12:**

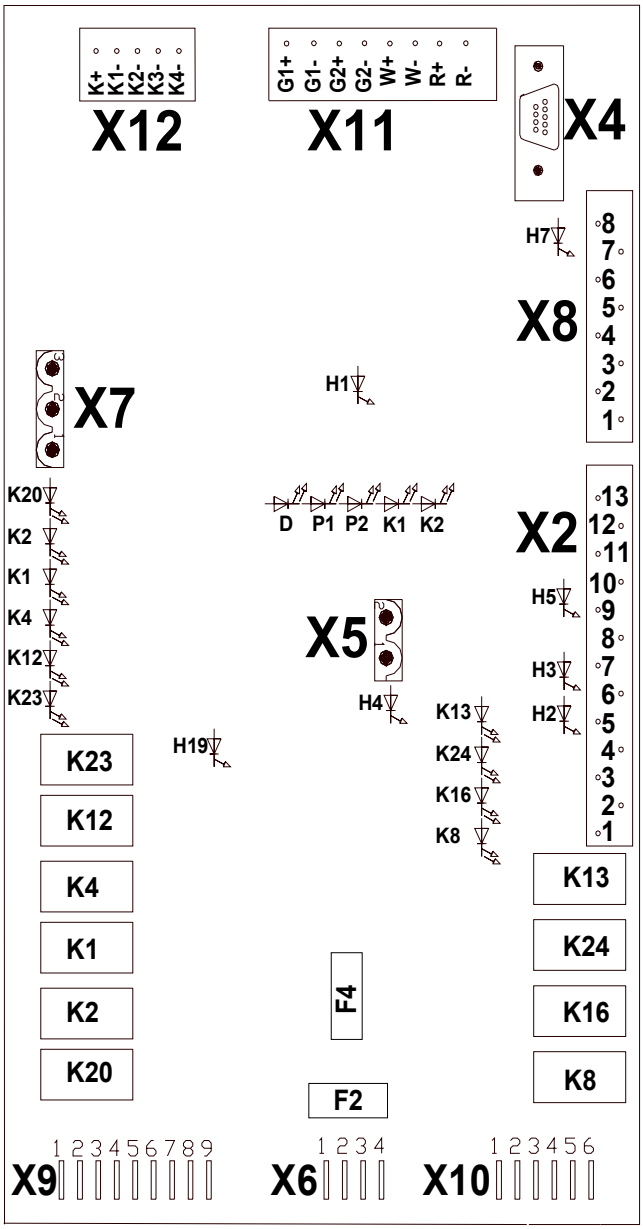
| No. | Description |
|---|---|
| K+ | Core temp probe (meat probe) B1 (*white*) |
| K1- | Core temp probe (meat probe) B1 (*green / red*) |
| K2- | Core temp probe (meat probe) B1* (*green / blue*) |
| K3- | Core temp probe (meat probe) B1* (*green / yellow*) |
| K4- | Core temp probe (meat probe) B1* (*green / red*) |

* = Option

# Layout of the control pcb Silver2 (Gas-Version)

UL-Version

ontrol pcb A2




| | | | | |
|---|---|---|---|---|
| Flash LED H7 | 1 | 0 | 1 | 0 |
| Reset LED H1 | 1 | 0 | 0 | 1 |
| | Booter activ | No Software | Booter activ | No Software |
| If the flash LED flashes equally (in 1-Hz-time), the processor runs | | | | |
| If the flash LED has a higher flash frequency, reset the electronic | | | | |

**X2**

| No. | Description | LED on board |
|---|---|---|
| 1 | Door contact switch S1 (24V Output) | |
| 2 | Door contact switch S1 (Input) | H2 |
| 3 | Pressure switch B10* (24V Output) | |
| 4 | Pressure switch B10* (Input) | H3 |
| 5 | Speed control fan motor M1 | |
| 6 | Speed control fan motor M1 | |
| 7 | Speed control fan motor M1 | |
| 8 | Speed control fan motor M2 (Only at 20.x) | |
| 9 | Speed control fan motor M2 (Only at 20.x) | |
| 10 | Speed control fan motor M2 (Only at 20.x) | |
| 11 | - | |
| 12 | - | |
| 13 | - | |

**X5:**

| No. | Description |
|---|---|
| 1 | Power supply for electronic 21 Volt (Phase) |
| 2 | Power supply for electronic 21 Volt (Neutral) |

**X6:**

| No. | Description |
|---|---|
| 1 | Not in use |
| 2 | Not in use |
| 3 | Not in use |
| 4 | Not in use |

* = Option
H7 = Flash LED
H1 = Reset LED
F2 = 6,3A slow-blow
F4 = 6,3A slow-blow

**X7:**

| No. | Description |
|---|---|
| 1 | 24 V Power supply for buzzer H13 via X10.3 |
| 2 | Not in use |
| 3 | Power supply for butter H13 (ground) |

*Continuation layout of the control pcb Silver2*

**X8:**

| No. | Description | Fuse on board |
|---|---|---|
| 1 | 230 Volt supply | - |
| 2 | Output to buzzer H13 | - |
| 3 | 24 Volt input for buzzer H13 | - |
| 4 | Output to rectifier V8 / lift magnetY8* | F2 |
| 5 | Output to pump M16* | F2 |
| 6 | Output to pump M24* | F2 |

**X11:**

| No. | Description |
|---|---|
| G1+ | Chamber probe B2 (*black*) |
| G1- | Chamber probe B2 (*brown*) |
| G2+ | Chamber probe B3 (only at 20.x) (*black*) |
| G2- | Chamber probe B3 (only at 20.x) (*brown*) |
| W+ | Drain probe B4 (*white*) |
| W- | Drain probe B4 (*green*) |
| R+ | - |
| R- | - |

**X12:**

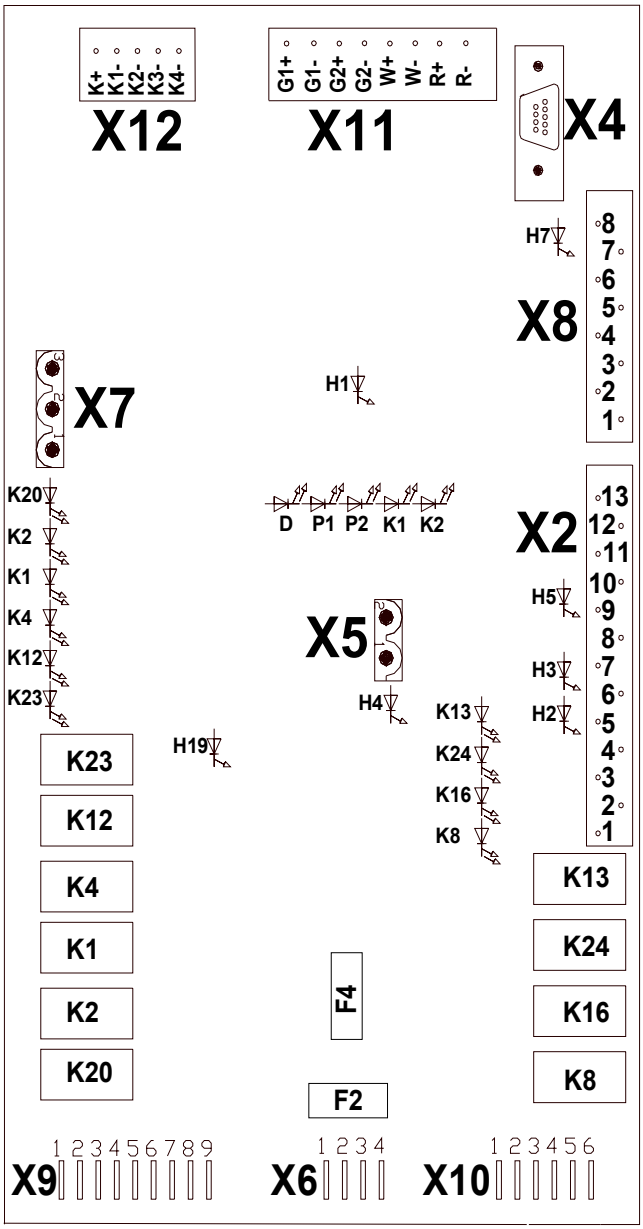
| No. | Description |
|---|---|
| K+ | Core temp probe (meat probe) B1 (*white*) |
| K1- | Core temp probe (meat probe) B1 (*green / red*) |
| K2- | Core temp probe (meat probe) B1* (*green / blue*) |
| K3- | Core temp probe (meat probe) B1* (*green / yellow*) |
| K4- | Core temp probe (meat probe) B1* (*green / red*) |

* = Option

# Layout of the control pcb Silver2 (Gas-Version)

CE-Version

ontrol pcb A2




| | | | | |
|---|---|---|---|---|
| Flash LED H7 | 1 | 0 | 1 | 0 |
| Reset LED H1 | 1 | 0 | 0 | 1 |
| | Booter activ | No Software | Booter activ | No Software |
| If the flash LED flashes equally (in 1-Hz-time), the processor runs | | | | |
| If the flash LED has a higher flash frequency, reset the electronic | | | | |

**X2**

| No. | Description | LED on board |
|---|---|---|
| 1 | Door contact switch S1 (24V Output) | |
| 2 | Door contact switch S1 (Input) | H2 |
| 3 | Pressure switch B10* (24V Output) | |
| 4 | Pressure switch B10* (Input) | H3 |
| 5 | Speed control fan motor M1 | |
| 6 | Speed control fan motor M1 | |
| 7 | Speed control fan motor M1 | |
| 8 | Speed control fan motor M2 (Only at 20.x) | |
| 9 | Speed control fan motor M2 (Only at 20.x) | |
| 10 | Speed control fan motor M2 (Only at 20.x) | |
| 11 | - | |
| 12 | - | |
| 13 | - | |

**X5:**

| No. | Description |
|---|---|
| 1 | Power supply for electronic 21 Volt (Phase) |
| 2 | Power supply for electronic 21 Volt (Neutral) |

**X6:**

| No. | Description |
|---|---|
| 1 | Not in use |
| 2 | Not in use |
| 3 | Not in use |
| 4 | Not in use |

* = Option
H7 = Flash LED
H1 = Reset LED
F2 = 6,3A slow-blow
F4 = 6,3A slow-blow

**X7:**

| No. | Description |
|---|---|
| 1 | Not in use |
| 2 | Not in use |
| 3 | Not in use |

*Continuation layout of the control pcb Silver2*

**X8:**

| No. | Description | LED on board |
|---|---|---|
| 1 | - | |
| 2 | Demand to gas blower U10 (rpm signal) | P1 |
| 3 | - | |
| 4 | Demand to gas blower (rpm signal) (only at 20.x) | P2 |
| 5 | Output signal DynaSteam unit Y10 / Y20(only 20.x) | K1 / K2 |
| 6 | Output signal DynaSteam unit Y10 / Y20(only 20.x) | K1 / K2 |
| 7 | Output signal DynaSteam unit Y11 / Y21(only 20.x) | K1 / K2 |
| 8 | Output signal DynaSteam unit Y11 / Y21(only 20.x) | K1 / K2 |

**X9:**

| No. | Description | Fuse on board |
|---|---|---|
| 1 | 230 Volt supply | |
| 2 | Output to maincontactor K1 | F4 |
| 3 | Output to frequency controller , line D0 | F4 |
| 4 | Output to frequency controller , line D1 | F4 |
| 5 | - | |
| 6 | - | |
| 7 | - | |
| 8 | Output to solenoid valve Y12 | F4 |
| 9 | - | |

**X10:**

| No. | Description | Fuse on board |
|---|---|---|
| 1 | 230 Volt supply | - |
| 2 | Output to buzzer H13 | - |
| 3 | 230 Volt input for buzzer H13 | - |
| 4 | Output to rectifier V8 / lift magnetY8* | F2 |
| 5 | Output to pump M16* | F2 |
| 6 | Output to pump M24* | F2 |

**X11:**

| No. | Description |
|---|---|
| G1+ | Chamber probe B2 (*black*) |
| G1- | Chamber probe B2 (*brown*) |
| G2+ | Chamber probe B3 (only at 20.x) (*black*) |
| G2- | Chamber probe B3 (only at 20.x) (*brown*) |
| W+ | Drain probe B4 (*white*) |
| W- | Drain probe B4 (*green*) |
| R+ | - |
| R- | - |

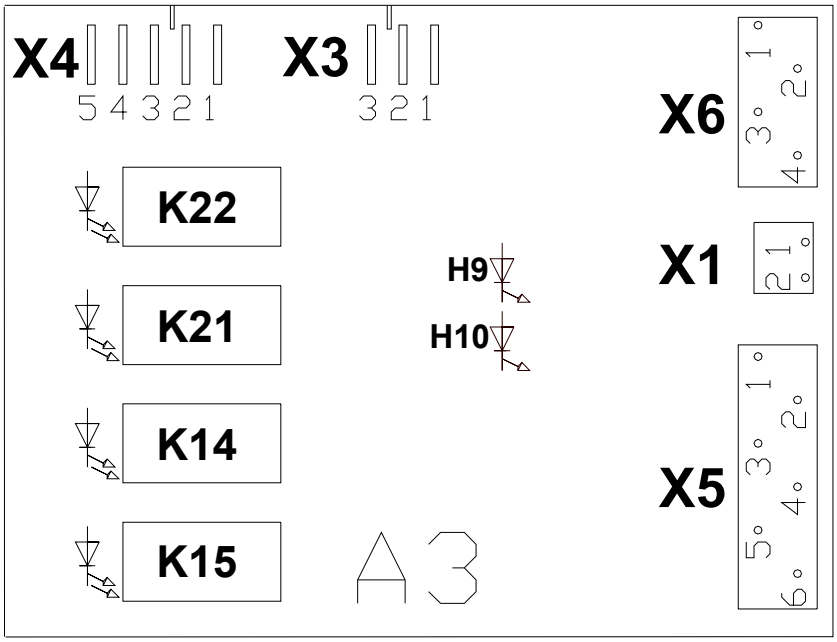
**X12:**

| No. | Description |
|---|---|
| K+ | Core temp probe (meat probe) B1 (*white*) |
| K1- | Core temp probe (meat probe) B1 (*green / red*) |
| K2- | Core temp probe (meat probe) B1* (*green / blue*) |
| K3- | Core temp probe (meat probe) B1* (*green / yellow*) |
| K4- | Core temp probe (meat probe) B1* (*green / red*) |

* = Option

# Layout of the gas- und communication pcb Silver 2

Gas- and communication pcb A3




**X5:**

| No. | Description |
|---|---|
| 1 | - |
| 2 | Speed control gas fan 1 from U10 X5.2 |
| 3 | Speed control gas fan 1 from U10 X5.3 |
| 4 | - |
| 5 | Speed control gas fan 2 from U20 X5.2 (only 20.x) |
| 6 | Speed control gas fan 2 from U20 X5.3 (only 20.x) |

**X6:**

| No. | Description |
|---|---|
| 1 | Flame control 1from N10 X1.1 |
| 2 | Flame control 1 from N10 X1.2 |
| 3 | Flame control 2 from N20 X1.1 (only HD20.x) |
| 4 | Flame control 2 from N20 X1.2 |

**X1:**

| No. | Description |
|---|---|
| 1 | Network connection |
| 2 | Network connection |

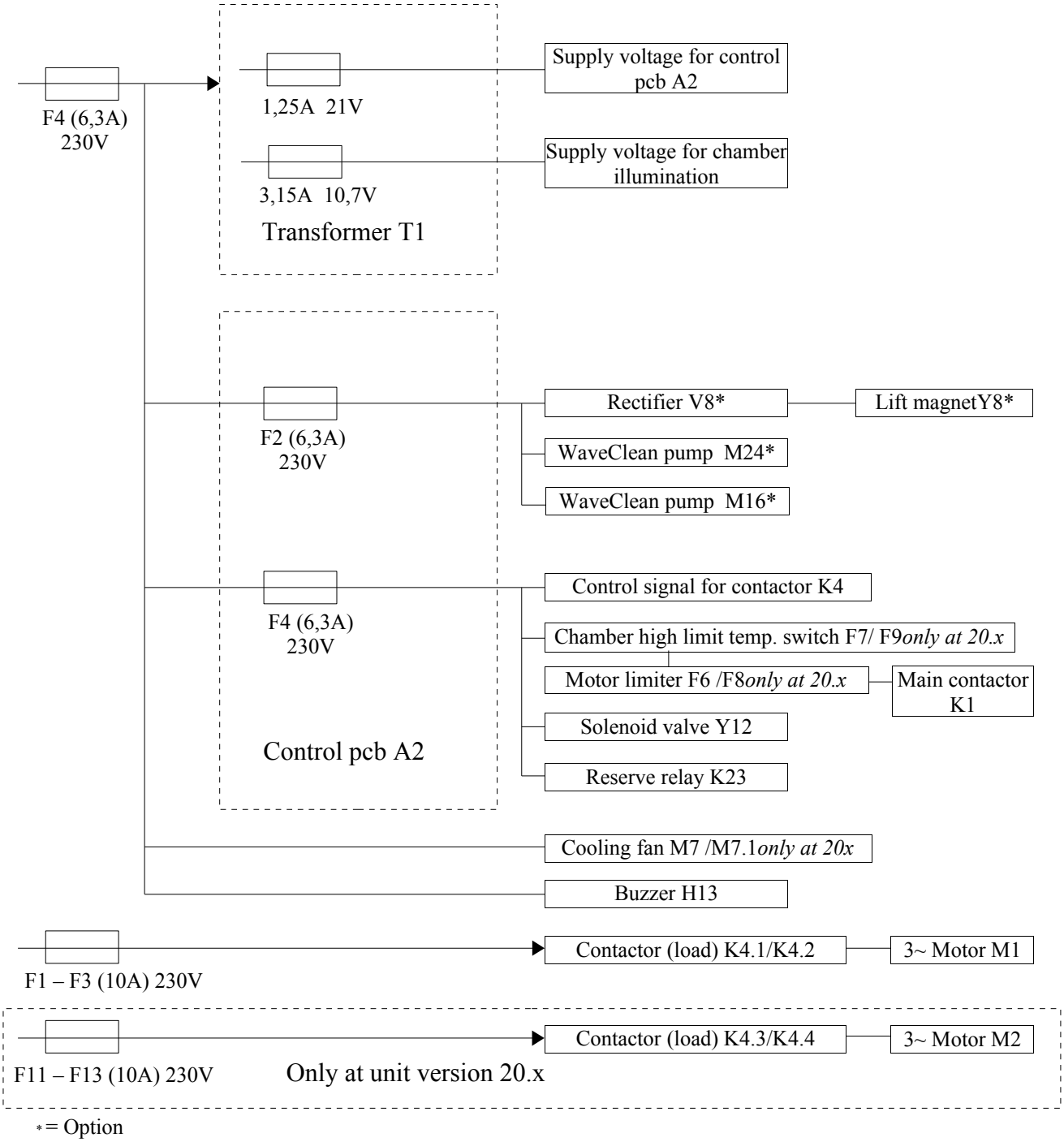
**X3:**

| No. | Description | LED on board |
|---|---|---|
| 1 | Neutral (N) | |
| 2 | Input „Error no gas 1“ from N10 X1.5 | H9 |
| 3 | Input „Error no gas 2“ from N20 X1.5 (only 20.x) | H10 |

**X4:**

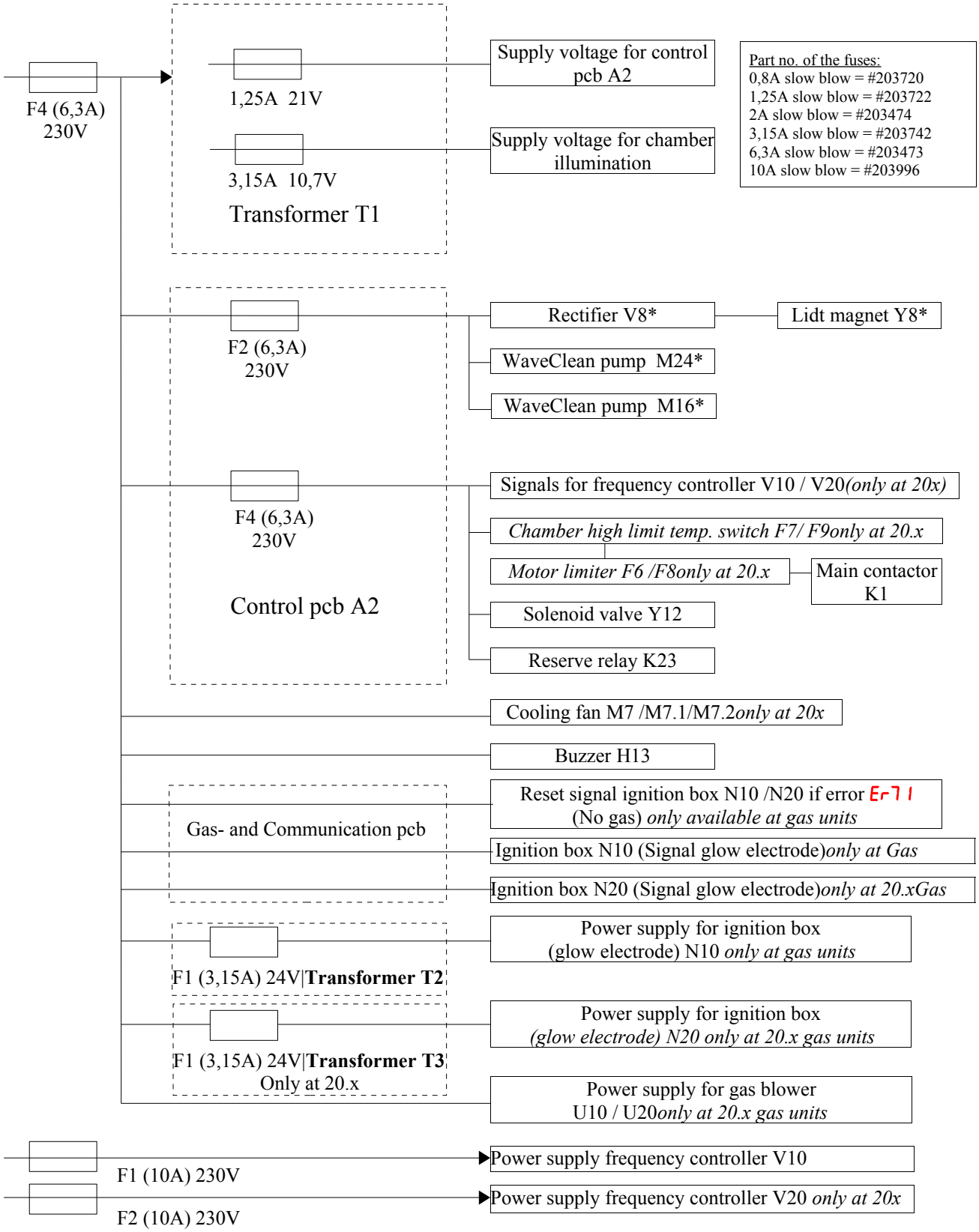
| No. | Description |
|---|---|
| 1 | 230 Volt supply |
| 2 | Output „Gas reset 1“ to N10 X1.11 |
| 3 | Output „Gas reset 2“ to N20 X1.11 (only 20.x) |
| 4 | Output „Gas ignition 1 to N10 X1.10 |
| 5 | Output „Gas ignition 2 to N20 X1.10 (only 20.x) |

# Fuse protection schematic for CE Electric units



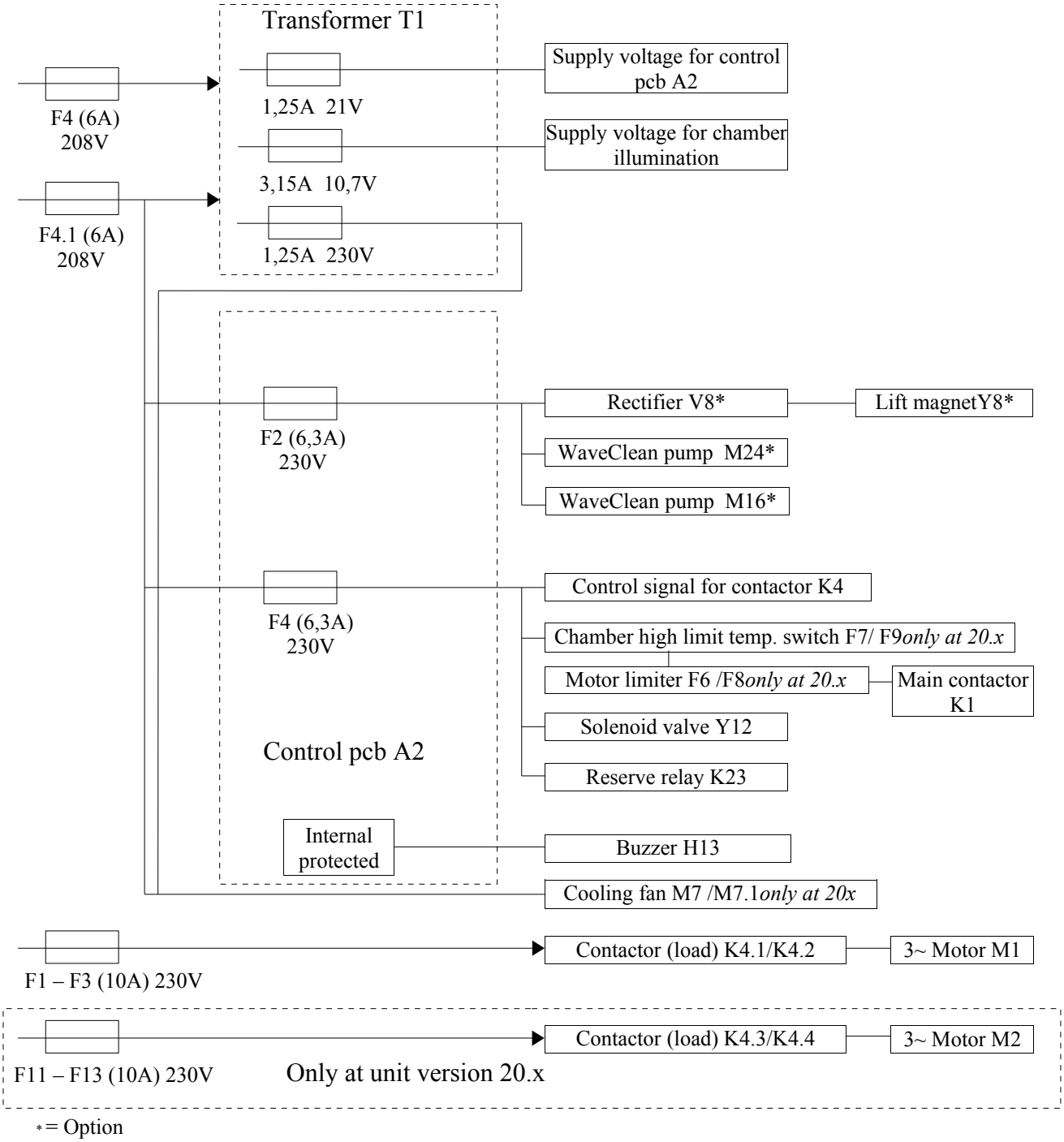

Part no. of fuses:
0,8A slow blow = #203720
1,25A slow blow = #203722
6,3A slow blow = #203473
10A slow blow = #203996

# Fuse protection schematic for CE Gas units



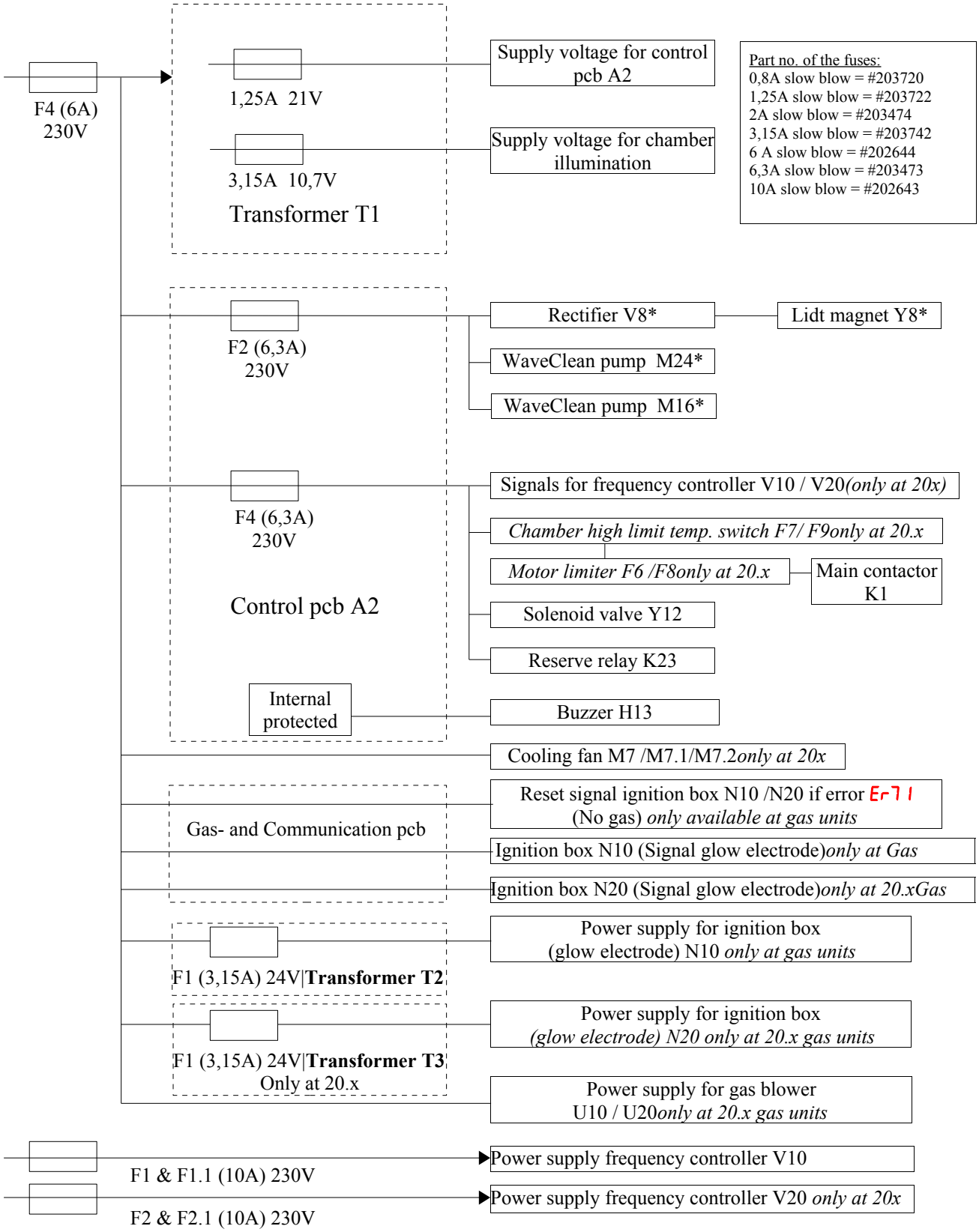

* = Option

# Fuse protection schematic UL Electric-Units (208V)




Part no. of fuses:
0,8A slow blow = #203720
1,25A slow blow = #203722
6 A slow blow = #202644
6,3A slow blow = #203473
10A slow blow = #202643

# Fuse protection schematic for UL Gas-Units (120V)




* = Option

# Rewiring and reprogramming manual at use of the reserve relay K 23

**The power board is equipped with a reserve relay which can be covered at a relay failure. This concerns only closing contacts these are not potential-free. The assignment happens in the relay test of the service menu. It is to proceed as follows:**

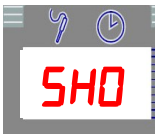
- Identifying and select faulty relay by using the relay test in the service menu.
- Assigning the reserve relay by pressing the **FLEXI-button** .
  After the reserve relay was assigned with the **FLEXI-button**, the **FLEXI-LED** must be on.
- Leaving the relay test by pressing the **STEP-button**.
- Press the **FLEXI-button** to save changes. StO (Store) appears on the upper display.
- Leaving service menu by pressing the **STEP-button**.
- Rewire in accordance with table.

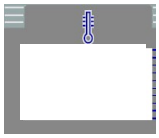
**Please, after the cable became rewired in accordance with table, write on it !!**

| Terminal connection on control pcb | Contact type | Protected by / potential-free | Actor name | Actor | Comments / rewiring instructions |
|---|---|---|---|---|---|
| X9.1 | Input | | 230V input at F4 | | Protection by F4 control board |
| X9.2 | N. O. | F4 | Main contactor K1 | K1 | Rewire cable from X9.2 to X9.9 and assign reserve relay. |
| X9.3 | N. O. | F4 | Fan On/off (Electric-units) Input frequency controller D0 (Gas-units) | K2 | Rewire cable from X9.3 to X9.9 and assign reserve relay. |
| X9.4 | N. O. | F4 | LOA B (Electric-units) nput frequency controller D1 (Gas-units) | K20 | Rewire cable from X9.4 to X9.9 and assign reserve relay. |
| X9.5 | N. C. | Potential-free | Contactor K4 (only Electric-units | K4 | Not possible for reserve relay assignment |
| X9.6 | N. O. | | | | |
| X9.7 | Input | | | | |
| X9.8 | N. O. | F4 | Solenoid valve drain cooling | K12 | Rewire cable from X9.8 to X9.9 and assign reserve relay. |
| X9.9 | N. O. | F4 | **Reserve relay** | K23 | - |
| X10.1 | Input | F2 | 230V input at F2 | | Protection by F2 control board |
| X10.2 | N. O. | Potential-free | Buzzer H13 | K9 | Not possible for reserve relay assignment |
| X10.3 | Input | | | | |
| X10.4 | N. O. | F2 | Lift magnet (option) | K8 | Rewire cable from X10.4 to X9.9 and assign reserve relay. |
| X10.5 | N. O. | F2 | WaveClean pump (option) | K16 | Rewire cable from X10.5 to X9.9 and assign reserve relay. |
| X10.6 | N. O. | F2 | Siphon pump (trap pump) (option) | K24 | Rewire cable from X10.6 to X9.9 and assign reserve relay. |

*Continuation rewiring and reprogramming the reserve relay*

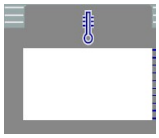
# How to activate and disable the demo mode



**Aktive Demo mode (Displays after switching the unit on)**
**(SHO = Show-Mode)**

Aktivate / disable demo mode:

| | | | |
|---|---|---|---|
| 1. |   | Switch the unit on | |
| 2. |   | Press Flexi Button and choose with the upper knob PAr (parameter) |   |
| 3. |   | Press Start/ Stop- Button and on the lower displays shows 000 . |   |
| 4. | Enter Password 888 with the lower knob | |   |
| 5a |   | **Enable demo mode:** Press Start/ Stop- Button. SHO appears on the upper display. The unit is in the demo mode |   |
| 6a |   | **Disable demo mode:** Press Start/ Stop- Button. SHO appears not anymore. All LED´s from the 4 operation modes are on. The demo mode is disabled. |  |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