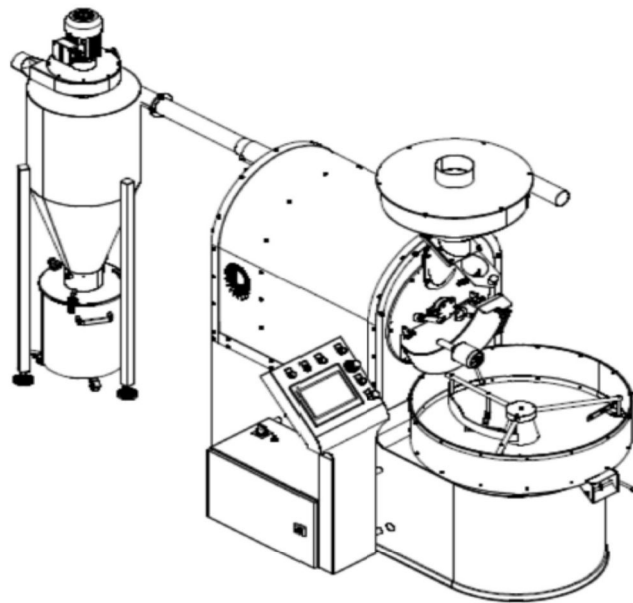




SR 5 Coffee roasting line

Operation Manual



CERTIFICATE OF MANUFACTURE CONFORMITY



Coffed Private Limited Company, ul. Ceramiczna 28, 64-920 Piła PL

hereby confirms that the:

Coffee roasting line:

Type: SR5

is in conformity with the following European directives and standards::

- Machinery directive **MD 2006/42/EC**,
- Electromagnetic compatibility directive **EMC 2004/108/EC**
- Gas appliance directive **GAD 2009/142/EC**

What is equivalent with fulfilling the following standards:

1. PN – EN ISO12100
2. PN – EN 349:1999
3. PN – EN 60204-1
4. PN-EN 125:2013

And that it has been manufactured according to the technical documentation stored by Coffed
Piła, Poland February 13th, 2018r.

.....
(Damian Elcessor – Coffed Private Limited owner)

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GENERAL INFORMATION

Information about the operation manual

This manual is an integral part of the equipment and it needs to be stored in the place where the equipment is being used. The persons installing, providing maintenance, cleaning or using the equipment should have constant access to the manual. The manual should be used by qualified personnel only. The knowledge of and compliance with all safety and operating instructions is essential for safe and proper operation of the equipment. In addition, when using the equipment all the local regulations regarding health and safety precautions should be observed.

Liability and warranty

Personal injury or property damage liabilities and warranty claims are void if they occur as a result of:

- misuse of the equipment
- wrong installation, commissioning, start-up, maintenance or handling of the equipment
- use of the equipment with damaged or faulty functioning of the protective and safety appliances
- not abiding to the precautions in the manual
- making unauthorized changes (including construction changes) in the equipment
- installing additional parts that have not been tested and authorized by Coffed
- making changes in the gas burner that modify the burner manufacturers - set creation of the flame
- insufficient control of the elements, that can wear
- unprofessional repairs
- using the equipment despite being faulty
- using inappropriate fuel
- defects of the power cords that are not a part of the equipment
- using parts that are not original parts supplied by Coffed

Safety precautions while operating the equipment

The data referring to the safety of operation are in relation to European Union legislation that was in effect at the date of the equipment's production. If the equipment is used in industrial conditions, the user is obliged to check the accordance of the recommended safety measures with the current regulations and to comply to the newest rules.

If the equipment is used outside the European Union, the user should abide to the health and safety regulations of the place where the equipment is installed. The specific environmental guidelines also need to be respected.

Warning!

- **The equipment is not designed to be used by persons (including children) with manual, sensory or mental limitations and by persons without the necessary experience and knowledge.**
- **The equipment can be used by the above-mentioned persons only under supervision of a qualified and trained person that is responsible for their safety, and has given them all the necessary guidelines how to use the equipment.**
- **Children need to be under strict supervision, to ensure that they are not playing with the equipment**
- **This manual needs to be carefully stored. In an event of sharing the machine with other people, the manual needs also to be shared.**
- **All of the users must abide to the rules and information included in this manual and also to the occupational health and safety regulations.**
- **The equipment is designed to be used in closed spaces only.**

Intended use

The equipment is working safely only when it is used for its designed purpose.




The SR5 coffee roasting line is designed for coffee roasting only and it is forbidden to use it to process other products. During the roasting process green coffee beans are roasted, the final product are roasted coffee beans.

Warning!

- Using the equipment to process products other than green coffee beans is prohibited and it will be recognized as using the equipment not for its designed purpose.
- Using the equipment not for its designed purpose excludes all the liability claims against the equipment manufacturer.
- The user is solely responsible for the damages and injuries that occurred during the use of the equipment not for its designed purpose.

1.1 Hazard indication symbols on the machine

The following symbols are located on the device in the places where the hazard can occur:

No	Symbol	Description
1		High voltage – it is prohibited to open the marked door without disconnecting the machine from electricity.
2		Hot surface – it is prohibited to touch the marked surface, when the machine is working and immediately after switching off the machine.
3		Automatic start – extreme caution is advised, as the marked elements might start to move without prior warning.

INSTALLATION AND COMMISSIONING

2.1. General characteristics of the equipment

The SR5 coffee roasting line has the following parameters:

Efficiency:	up to 20kg of green coffee per hour
Roasting time:	8 – 20 min per batch
Batch size:	4 - 5kg of green coffee

The line needs gas, electric and compressed air supplies in order to work properly, the requirements for the lines:

Fuel:	LPG/G-50 natural gas
Gas pressure:	50 – 80mbar

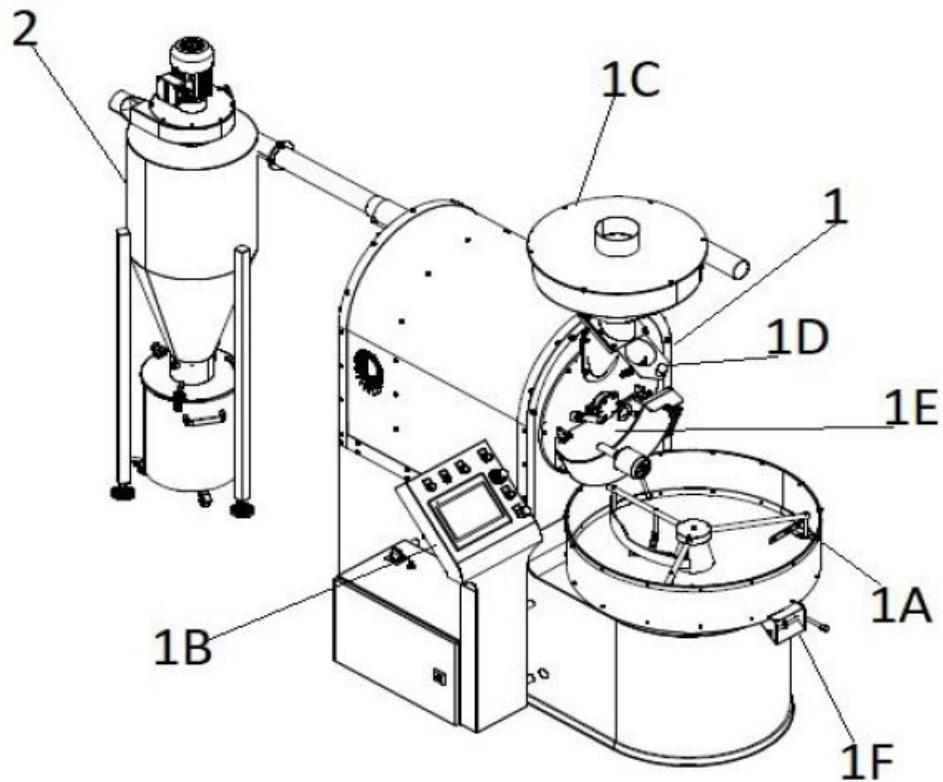
Gas line diameter:	½ inch
Gas consumption:	0,3 kg/roast batch
Electric voltage:	230V single phase, 50Hz (L1, N, PE)
Maximum power consumption:	12A
Exhaust chimney diameter:	6mm
Total weight:	380kg
Space required:	12 m²
Air pressure:	6-8 mbar
Air pressure line diameter:	8mm
Ceiling height:	2,7m

2.2 Technical description

The SR5 coffee roasting line consists of the following elements:

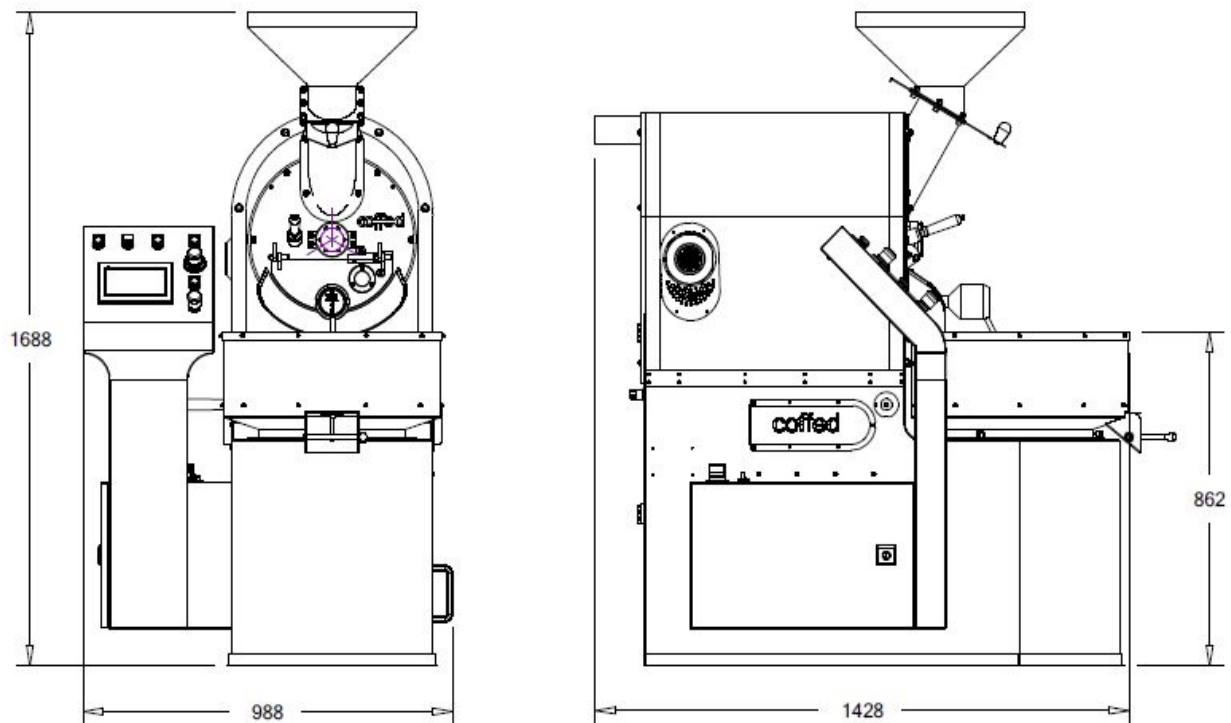
Roaster

1A. Cooling bin (integrated with the roaster) 1B. Steering panel 1C. Green coffee hopper
1D. Inlet flap 1E. Drum door 1F. Cooling bin flap
2. Chaff cyclone



Pic.1 SR5 coffee roasting line general overview

2.2.1 Roaster with cooling bin



Pic.2 Roaster with cooling bin overview

This is the main part of the SR5 coffee roasting line. Green (raw) coffee is processed inside of the roaster. The beans are poured into a metal drum revolving above a gas burner and heated to a certain temperature (ca. 200°C). In the result of the process roasted coffee beans are produced (the main product), a significant amount of coffee chaff is also released and drawn out of the drum through the exhaust system.

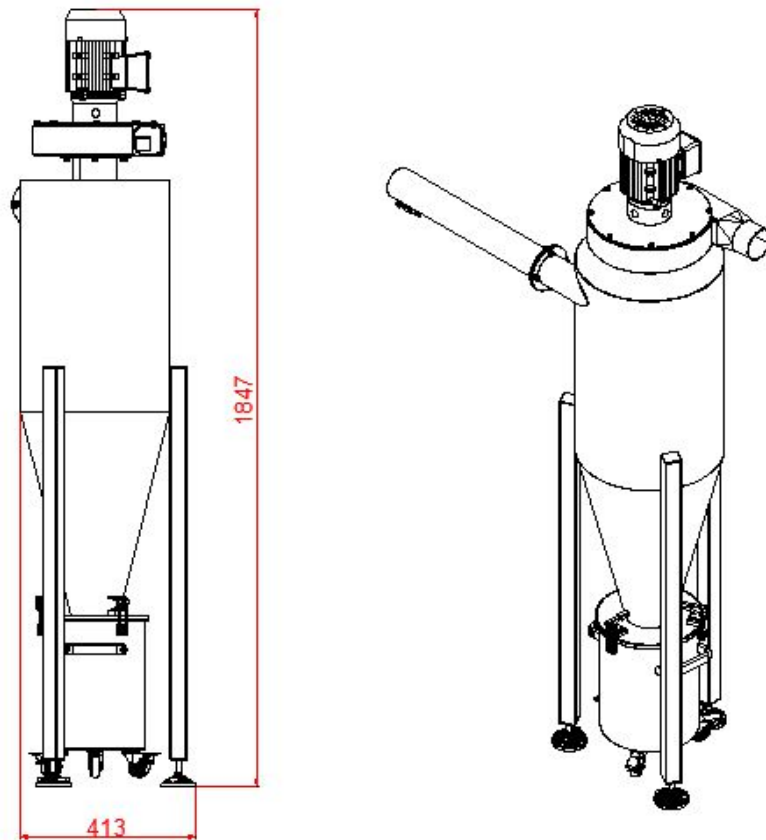
All the media connections (electricity, gas, compressed air) are located at the back of the roaster. The media need to be connected before starting to work with the machine.

The integrated cooling bin is used to rapidly cool down the coffee immediately after finishing the roasting process. The cooling bin is equipped with a separate fan to suck out the hot air and stirring arms, that ensure the coffee is evenly cooled.

Measurements:

Height:	1658mm
Width:	810mm
Length:	1428mm
Weight:	330kg

Chaff cyclone



Pic.6 Chaff cyclone overview

The chaff cyclone which is connected with the roaster's exhaust system, separates the chaff from the exhaust fumes and collects it into a wheeled bin underneath it. The chaff can be then disposed of, and the fumes are directed into the chimney duct.

Measurements:

Height:

1847mm

Width:

413mm

Commissioning and connecting to the installations

The commissioning of the SR5 coffee roasting line usually takes place at the customer's premises, after COFFED technicians install and assemble the line. The coffee for the commissioning needs to be supplied by the final user, unless stated otherwise in the purchase agreement. The commissioning test encompasses a mechanic test (that checks all the mechanical parts and their controls) and a technological test. The technological test covers roasting one batch of green coffee under production conditions.

Electrical installation

The SR5 coffee roasting line is equipped with a five-wire main power cable (three phases, neutral and ground). The voltage is 400V, 50Hz,
If the local regulations require electric measurements to be made, they need to be performed by authorized personnel with the necessary qualifications.

Gas installation

In order for the SR5 coffee roasting line to work properly, LPG or natural gas source needs to be connected. The gas train diameter is ½ inch.

Exhaust installation

The final user is obliged to connect the SR5 coffee roasting line to an exhaust installation according to the guidelines provided by the line's manufacturer. An additional COx detector needs to be installed if the local regulations require that. The chimney diameter is 123mm.

Warning:

Place, where roaster will be placed, should be supplied in air ventilation. For safety reason, place should be also equipped in carbon dioxide sensor.

Start-up

After all the above media (points 2.3.1. – 2.3.4. are connected) the SR5 coffee roasting line can be started. The main power switch is located on the left back side of the machine (when facing it).



Pic. 7 Main power switch



Pic.8. Main power switch location

Drum gap setup

The delivered machine has the drum gap set up for roasting coffee.

A wrench used for setting up the gap between the drum and the front cast iron mold is delivered with the roaster (turning it right widens the gap, turning it left closes it). When the roaster is cold, and green coffee is poured into the drum, particles smaller than 2mm may fall underneath it. This should stop after the roaster is warmed up.

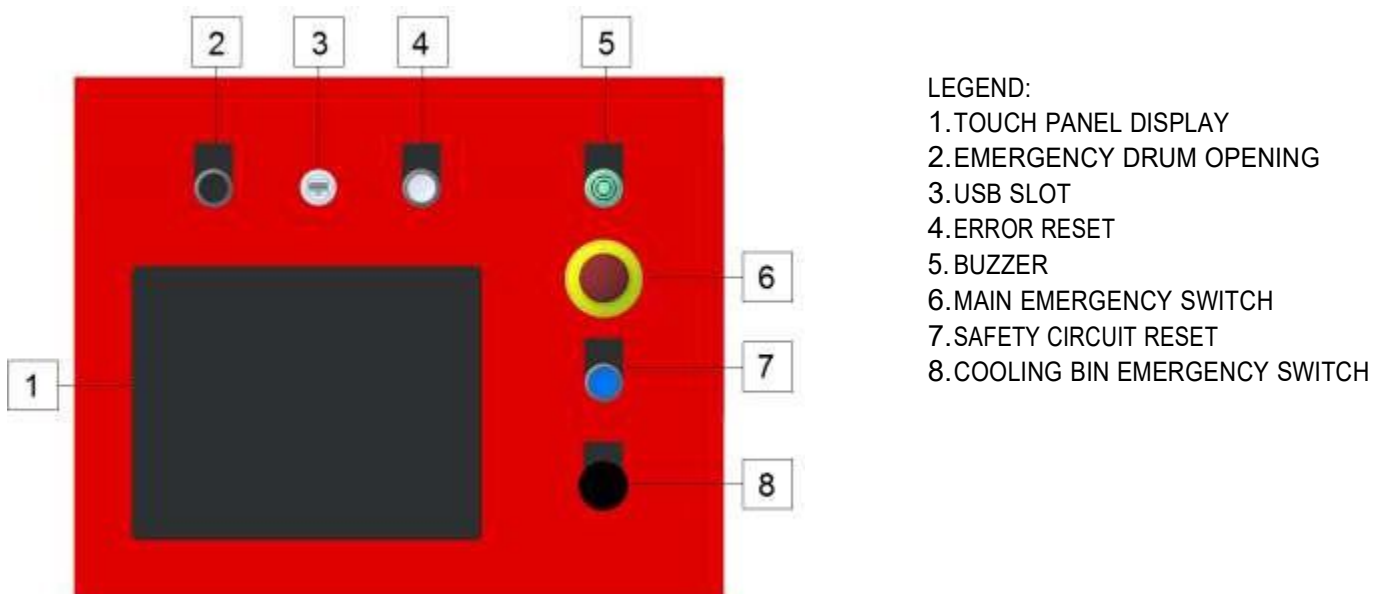
Warning!

The gap should not be smaller than 2mm when the roaster is cold, as it may result in damaging the transmission.

WORKFLOW DESCRIPTION

Control panel screens

The SR5 coffee roasting line is controlled via a control panel (pic.3). All of the control elements are located on the console (pic. 9). The functions and information regarding the operation and workflow of the machine are displayed on the 10 inch touch panel display using respective screens.



Pic.3 Console

Operator's password screen




Pic.10 Operator's password screen

Operator's password screen is visible after turning ON machine. The operator needs to put 4 digit password to enable roaster. Standard password is: **1234**. Password should not be given to unauthorized personnel.

Start screen



Pic.13 Start screen

The manufacturer's details, name, type and serial number of the machine are visible on the start screen. The number of workhours is displayed by the  icon – it is the number of hours when the burner of the machine was working.

Eight buttons are visible on the right side of the screen. Their functions are the same for all of the screens, on which they are displayed:



– go to the start screen



– go to the roasting screen



– go to the roast charts screen



– go to the recipe selection and edition screen



– go to the service screen



– go to the faults and errors screen



– start roasting in automatic mode



– stop roasting in automatic mode (hold for one second)












Roasting screen



Pic.14 Roasting screen

The roasting screen allows the operator to control all the functions of the SR5 coffee roasting line in order to do the coffee roasting process. The displayed information include the status of the burner, motors, flaps and the work mode (manual automatic). The full roasting process can be carried out using this screen only.

The displayed information:

No.	Icon	Description / function
1.		Roasting mode selection. When the slider -  is at the  side, then the machine works in manual mode, when it is on the  side, the machine works in automatic mode
2.		Drum revolutions per minute (range 35-52)
3.		Screenshot saved into the memory (a flash drive needs to be inserted into the slot on the console)
4.		Current date and hour
5.		Current roasting mode
6.		Last roast time
7.		Chaff bin emptying mode
8.		Cooling bin arms revolutions per minute (range 7-12)

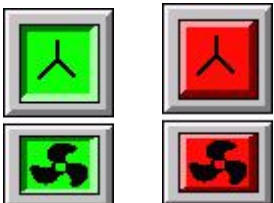

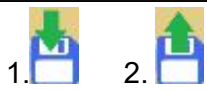

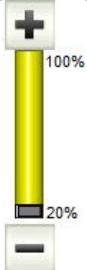






9.		<p>Colling bin arms on/off</p> <p>Cooling fan on/off</p>
10.		Drum door open/closed
11.		<p>1. Save the current roast into the flash memory</p> <p>2. Roasting from the selected recipe/profile</p>
12.		Burner power (range 20%-100%)
13.		Burner power controls
14.		Burner on/off
15.		Drum and exhaust fan on/off
16.		Exhaust fan power (range 60%-100%)
17.		Coffee temperature inside the drum (°C)
18.		Current roast time (mm:ss)
19.		Exhaust fumes temperature (°C)


Table.1 Roaster controls functions list


The screenshot displays the 'POWER' screen of an Omron HMI. At the top left, a 'KEEP' button is visible. The main title is '- TRENDS -'. To the right of the title, several status indicators are shown: 'RoR=' (green), '°C/min' (green), 'Coffee=' (green), '0.0 °C' (green), 'Blower power=' (blue), '0.0 °C' (blue), and '0 %' (blue). Below these, a clock shows '0m 0s'. The central area is a large grid for a trend graph. The vertical axis (y-axis) represents temperature in °C, with labels at 0°C, 60°C, 120°C, 180°C, 240°C, and 300°C. The horizontal axis (x-axis) represents time in minutes, with labels from 0 to 19. A green line is plotted at the 0°C level. On the right side of the screen, there is a vertical column of icons and buttons. From top to bottom, these include: a house icon, a red fire alarm icon, a green line graph icon, a coffee cup icon, a person with a gear icon, a red 'START' button, and a red 'STOP' button. Above the 'START' and 'STOP' buttons are two buttons with '+' and '-' signs and a percentage symbol. Above those are two buttons with 'CRACK 1' and 'CRACK 2' labels, each with a red arrow and '0: 0' values. Above those are two buttons with a camera icon and a fan icon. At the very top right, there are two buttons with '0%' and '0%' labels.

This screen enables to monitor the different parameters of the roasting process. The following data about the current roast is displayed in relation to the time that has passed since putting the green coffee into the drum:

Table.2 Roast chart parameters list

The following buttons, that allow to control the roasting proces are also on this screen

No.	Icon	Description / function
1.		Pressing this button for the first time, allows to indicate the start of the “first crack” phase on the chart, pressing it for the second time indicates the end of this phase.

2.		<p>Pressing this button for the first time, allows to indicate the start of the “second crack” phase on the chart, pressing it for the second time indicates the end of this phase.</p>
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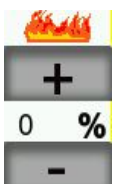
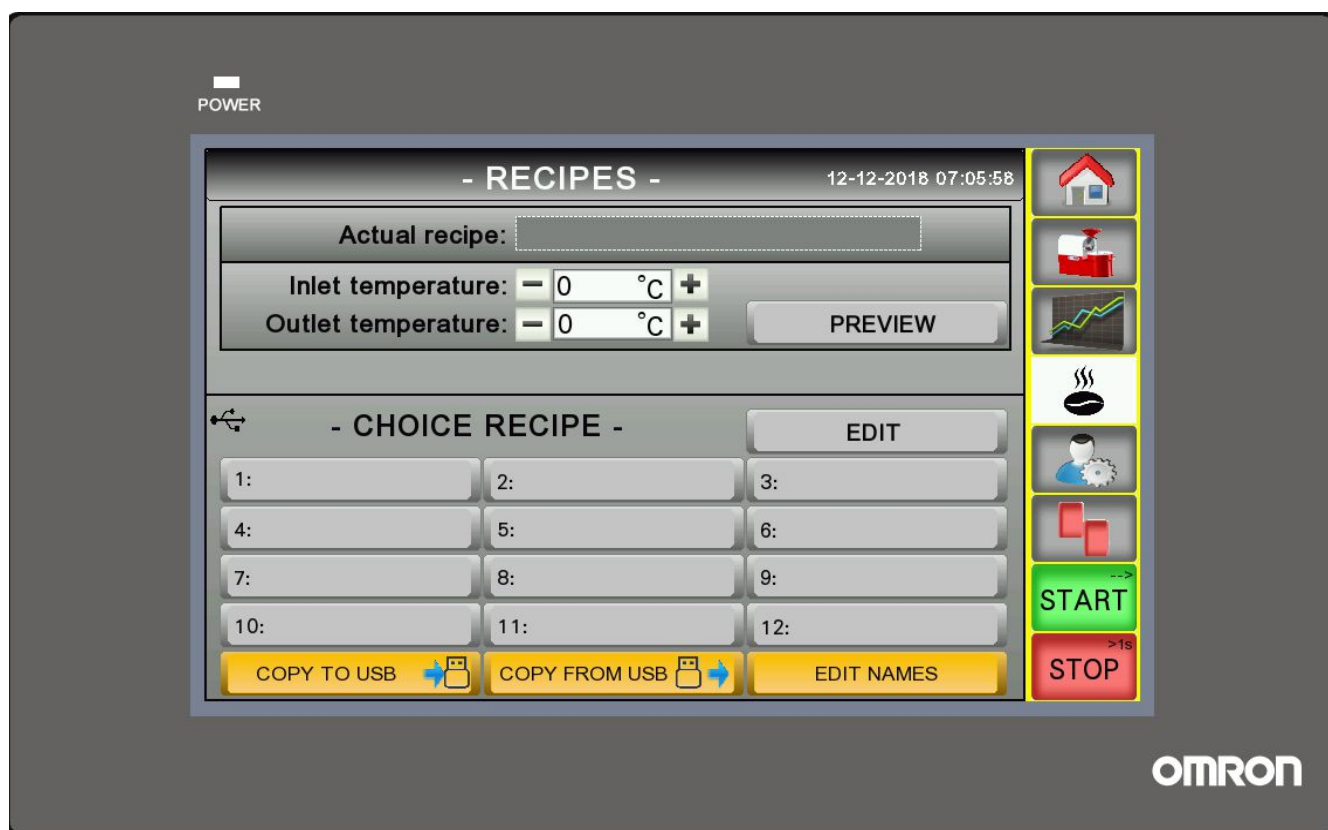
3.		Burner power controls: Pressing the „+“ increases the power by 5%, pressing the „-“ decreases it by 5%
4.		Exhaust fan power controls: Pressing the „+“ increases the power by 5%, pressing the „-“ decreases it by 5%

Table 3. Roast chart screen buttons list

Recipe selection and edition screen



Pic.16 Recipe selection screen

The recipe selection screen allows the operator to select and view one of the previously saved recipes for the automatic roasting mode. The recipes are saved on the flash drive that needs to be connected to the control panel. The following buttons are on the screen:






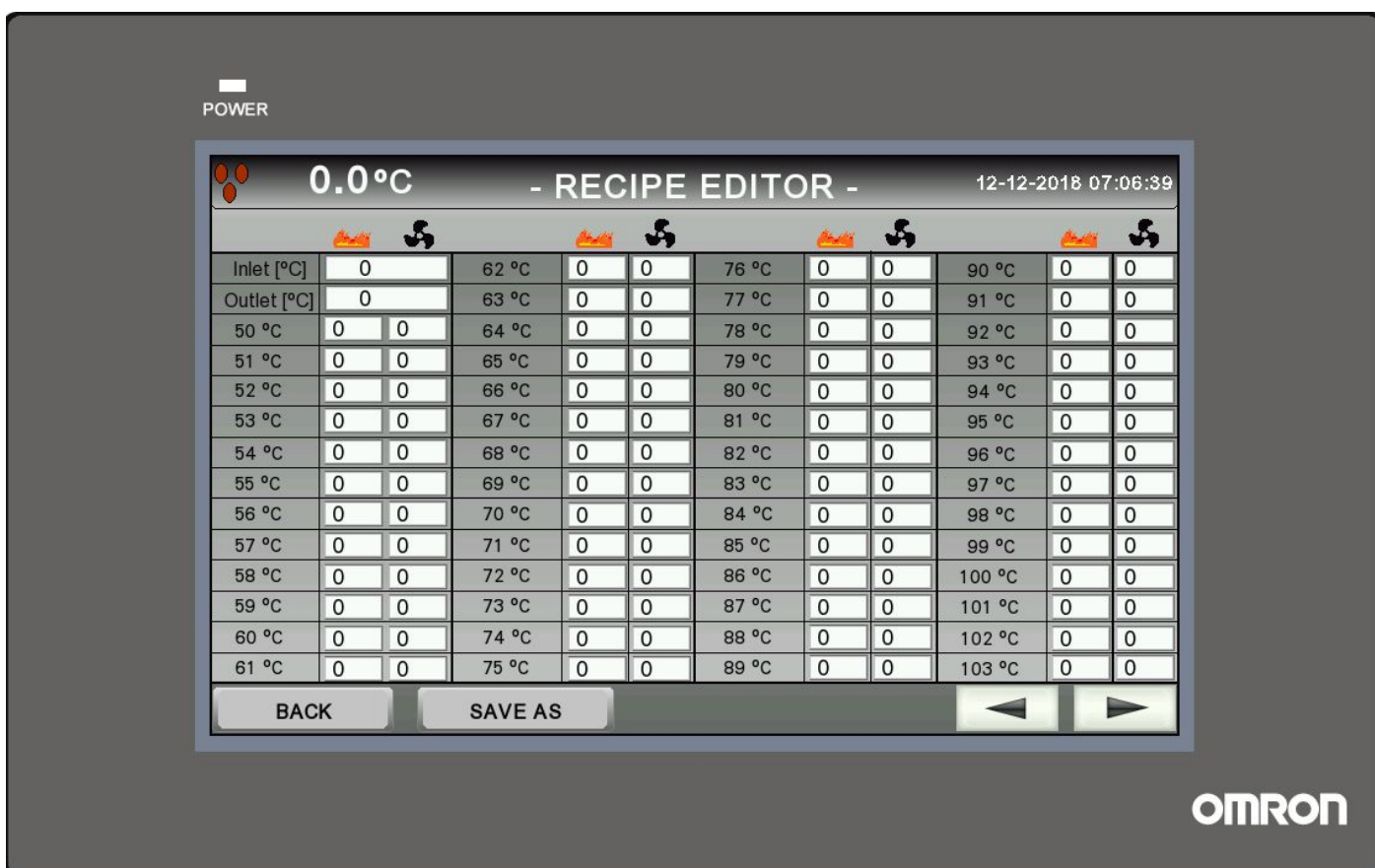
No.	Icon	Description / function
1.		View the current recipe
2.		Edit the selected recipe
3.		Save the recipes from the PLC to the flash drive
4.		Load the recipes from the flash drive to the PLC
5.		Edit the names of the recipes

Table 4. List of the recipe selection screen

Current recipe preview

Pressing the  opens the recipe preview screens



Pic.17 Recipe preview screen 1

The screenshot shows the 'RECIPE EDITOR' interface. At the top, it displays '0°C', the title '- RECIPE EDITOR -', and the timestamp '10-02-2017 13:07:29'. Below the title bar is a grid of temperature points. Each point consists of a temperature value (e.g., 216 °C) and two input fields for values (both currently set to 0). To the right of the grid is a summary section with the text 'From 0 °C to 0 °C = 0 0' and a 'SAVE' button. At the bottom are 'BACK' and 'SAVE AS' buttons. A red arrow points to the 'SAVE AS' button.

216 °C	0	0	230 °C	0	0	244 °C	0	0
217 °C	0	0	231 °C	0	0	245 °C	0	0
218 °C	0	0	232 °C	0	0	246 °C	0	0
219 °C	0	0	233 °C	0	0	247 °C	0	0
220 °C	0	0	234 °C	0	0	248 °C	0	0
221 °C	0	0	235 °C	0	0	249 °C	0	0
222 °C	0	0	236 °C	0	0			
223 °C	0	0	237 °C	0	0			
224 °C	0	0	238 °C	0	0			
225 °C	0	0	239 °C	0	0			
226 °C	0	0	240 °C	0	0			
227 °C	0	0	241 °C	0	0			
228 °C	0	0	242 °C	0	0			
229 °C	0	0	243 °C	0	0			

Pic.20 Recipe preview screen

The   allow the operator to switch between the screens

BACK

– opens the recipe selection screen

SAVE AS

– saves the recipe under a selected name

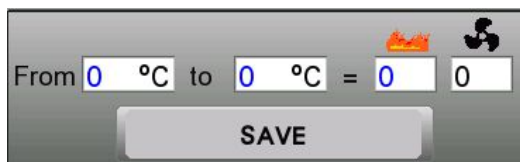
The screenshot shows the 'RECIPE EDITOR' interface for saving a recipe. It features 12 input fields arranged in a 4x3 grid, labeled 1 through 12. The first field contains the text '1:Receptura 1'. Below the grid is a yellow 'EDIT NAMES' button. At the bottom left is a 'BACK' button. The timestamp '10-02-2017 13:07:34' is in the top right corner.

1:Receptura 1	2:	3:
4:	5:	6:
7:	8:	9:
10:	11:	12:




Pic.21 Recipe saving screen

In order to change the power of the burner and exhaust fan for the selected temperature the operator needs to press the appropriate field and enter the requested value.

The Collective edition field, that is located on the Recipe preview screen 4 helps to speed up making of the changes.

The image shows a graphical user interface for a 'Collective edition field'. It features a horizontal layout with the text 'From' followed by a numeric input field containing '0', then '°C', followed by 'to', another numeric input field containing '0', then '°C', an equals sign, a third numeric input field containing '0', and a fourth numeric input field containing '0'. Above the third and fourth input fields are icons: a flame icon for the burner and a fan icon for the exhaust fan. Below the entire row of inputs is a wide, light-gray button labeled 'SAVE'.

Pic.22 Collective edition field

The Collective edition field allows the operator to make changes in the recipe in the selected range of temperatures. First the operator needs to input the range of the temperatures in which the changes should be made, than the desired values of the burner power  and the exhaust fan power  need to be input in the fields under the mentioned symbols. After that, the  button needs to be pressed in order to save the changes.

Recipe edition

After pressing the Edit button on the Recipe selection screen, the Recipe editor start screen will open

The image shows the 'Recipe editor start screen'. At the top, it has a title bar with '- RECIPE EDITOR -' on the left and a timestamp '10-02-2017 13:07:34' on the right. Below the title bar is a grid of 12 input fields arranged in 4 rows and 3 columns. The first field in the first row is labeled '1:Receptura 1'. The other fields are labeled '2:', '3:', '4:', '5:', '6:', '7:', '8:', '9:', '10:', '11:', and '12:'. Below the grid is a yellow button labeled 'EDIT NAMES'. At the bottom left of the screen is a gray button labeled 'BACK'.

Pic.23 Recipe editor start screen

- RECIPE EDITOR - 10-02-2017 13:07:37

Inlet [°C]	0	62 °C	0	0	76 °C	0	0	90 °C	0	0	
Outlet [°C]	0	63 °C	0	0	77 °C	0	0	91 °C	0	0	
50 °C	0	0	64 °C	0	0	78 °C	0	0	92 °C	0	0
51 °C	0	0	65 °C	0	0	79 °C	0	0	93 °C	0	0
52 °C	0	0	66 °C	0	0	80 °C	0	0	94 °C	0	0
53 °C	0	0	67 °C	0	0	81 °C	0	0	95 °C	0	0
54 °C	0	0	68 °C	0	0	82 °C	0	0	96 °C	0	0
55 °C	0	0	69 °C	0	0	83 °C	0	0	97 °C	0	0
56 °C	0	0	70 °C	0	0	84 °C	0	0	98 °C	0	0
57 °C	0	0	71 °C	0	0	85 °C	0	0	99 °C	0	0
58 °C	0	0	72 °C	0	0	86 °C	0	0	100 °C	0	0
59 °C	0	0	73 °C	0	0	87 °C	0	0	101 °C	0	0
60 °C	0	0	74 °C	0	0	88 °C	0	0	102 °C	0	0
61 °C	0	0	75 °C	0	0	89 °C	0	0	103 °C	0	0

BACK

➔

Pic.24 Recipe edition screen 1

- RECIPE EDITOR - 10-02-2017 13:07:39

104 °C	0	0	118 °C	0	0	132 °C	0	0	146 °C	0	0
105 °C	0	0	119 °C	0	0	133 °C	0	0	147 °C	0	0
106 °C	0	0	120 °C	0	0	134 °C	0	0	148 °C	0	0
107 °C	0	0	121 °C	0	0	135 °C	0	0	149 °C	0	0
108 °C	0	0	122 °C	0	0	136 °C	0	0	150 °C	0	0
109 °C	0	0	123 °C	0	0	137 °C	0	0	151 °C	0	0
110 °C	0	0	124 °C	0	0	138 °C	0	0	152 °C	0	0
111 °C	0	0	125 °C	0	0	139 °C	0	0	153 °C	0	0
112 °C	0	0	126 °C	0	0	140 °C	0	0	154 °C	0	0
113 °C	0	0	127 °C	0	0	141 °C	0	0	155 °C	0	0
114 °C	0	0	128 °C	0	0	142 °C	0	0	156 °C	0	0
115 °C	0	0	129 °C	0	0	143 °C	0	0	157 °C	0	0
116 °C	0	0	130 °C	0	0	144 °C	0	0	158 °C	0	0
117 °C	0	0	131 °C	0	0	145 °C	0	0	159 °C	0	0

BACK

⬅ ➔

Pic.25 Recipe edition screen 2

- RECIPE EDITOR - 10-02-2017 13:07:42

160 °C	0	0		174 °C	0	0		188 °C	0	0		202 °C	0	0	
161 °C	0	0		175 °C	0	0		189 °C	0	0		203 °C	0	0	
162 °C	0	0		176 °C	0	0		190 °C	0	0		204 °C	0	0	
163 °C	0	0		177 °C	0	0		191 °C	0	0		205 °C	0	0	
164 °C	0	0		178 °C	0	0		192 °C	0	0		206 °C	0	0	
165 °C	0	0		179 °C	0	0		193 °C	0	0		207 °C	0	0	
166 °C	0	0		180 °C	0	0		194 °C	0	0		208 °C	0	0	
167 °C	0	0		181 °C	0	0		195 °C	0	0		209 °C	0	0	
168 °C	0	0		182 °C	0	0		196 °C	0	0		210 °C	0	0	
169 °C	0	0		183 °C	0	0		197 °C	0	0		211 °C	0	0	
170 °C	0	0		184 °C	0	0		198 °C	0	0		212 °C	0	0	
171 °C	0	0		185 °C	0	0		199 °C	0	0		213 °C	0	0	
172 °C	0	0		186 °C	0	0		200 °C	0	0		214 °C	0	0	
173 °C	0	0		187 °C	0	0		201 °C	0	0		215 °C	0	0	

BACK

Pic.26 Recipe edition screen 3

- RECIPE EDITOR - 10-02-2017 13:07:44

216 °C	0	0		230 °C	0	0		244 °C	0	0	
217 °C	0	0		231 °C	0	0		245 °C	0	0	
218 °C	0	0		232 °C	0	0		246 °C	0	0	
219 °C	0	0		233 °C	0	0		247 °C	0	0	
220 °C	0	0		234 °C	0	0		248 °C	0	0	
221 °C	0	0		235 °C	0	0		249 °C	0	0	
222 °C	0	0		236 °C	0	0					
223 °C	0	0		237 °C	0	0					
224 °C	0	0		238 °C	0	0					
225 °C	0	0		239 °C	0	0					
226 °C	0	0		240 °C	0	0					
227 °C	0	0		241 °C	0	0					
228 °C	0	0		242 °C	0	0					
229 °C	0	0		243 °C	0	0					

BACK

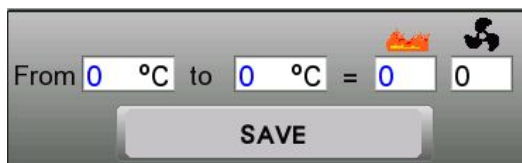
From °C to °C =

SAVE

Pic.27 Recipe edition screen 4




In order to change the power of the burner and exhaust fan for the selected temperature the operator needs to press the appropriate field and enter the requested value.

The Collective edition field, that is located on the Recipe preview screen 4 helps to speed up making of the changes.

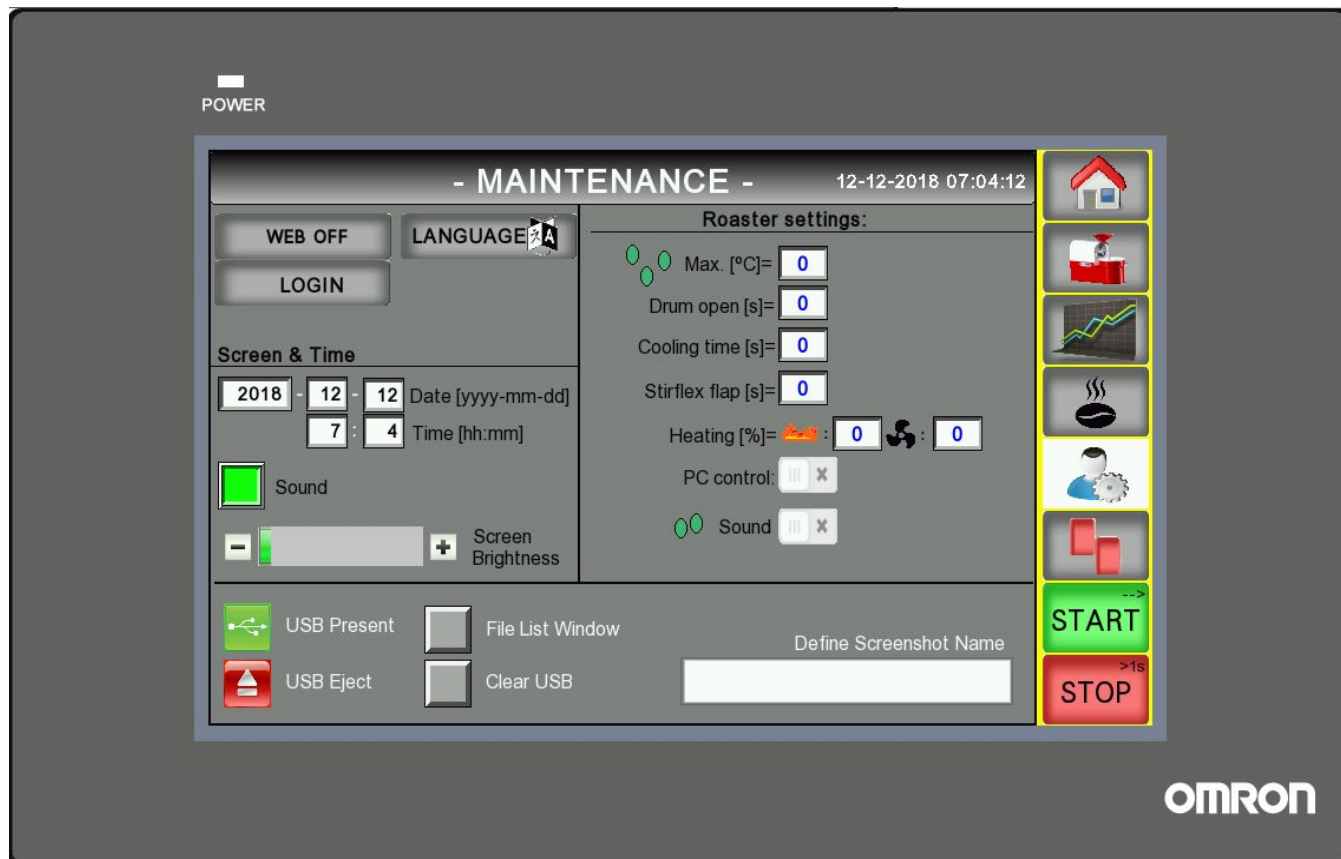


The image shows a 'Collective edition field' interface. It consists of a horizontal row of input fields. The first field is labeled 'From' and contains the value '0'. The second field is labeled '°C' and contains the value '0'. The third field is labeled 'to' and contains the value '0'. The fourth field is labeled '°C' and contains the value '0'. The fifth field is labeled '=' and contains the value '0'. The sixth field is labeled '0'. Above the '0' in the sixth field is a small icon of a flame. Above the '0' in the seventh field is a small icon of a fan. Below the input fields is a large button labeled 'SAVE'.

Pic.28 Collective edition field

The Collective edition field allows the operator to make changes in the recipe in the selected range of temperatures. First the operator needs to input the range of the temperatures in which the changes should be made, than the desired values of the burner power  and the exhaust fan power  need to be input in the fields under the mentioned symbols. After that, the  button needs to be pressed in order to save the changes.









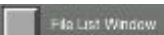

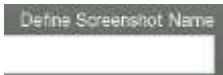
Maintenance screen



The image shows the 'Maintenance' screen. At the top, there is a 'POWER' indicator and a 'WEB OFF' button. Below this is a 'LANGUAGE' button. The main area is divided into several sections. On the left, there is a 'Screen & Time' section with date and time input fields (2018-12-12, 7:4). Below this is a 'Sound' section with a volume slider and a 'Screen Brightness' section with a brightness slider. On the right, there is a 'Roaster settings' section with various parameters: Max. [°C]=0, Drum open [s]=0, Cooling time [s]=0, Stirflex flap [s]=0, Heating [%]=0, PC control: [X], and Sound [X]. At the bottom, there is a 'USB Present' section with a 'USB Eject' button and a 'File List Window' section with a 'Clear USB' button. On the far right, there is a vertical toolbar with icons for home, settings, graph, coffee, user, and a 'START' button. At the bottom right, there is a 'STOP' button. The 'OMRON' logo is visible in the bottom right corner.

Pic.29 Maintenance screen

The maintenance screen allows the operator to use the following functions:

No.	Icon	Description / function
1.		
2.		Language selection (pic. 30)
3.		Service mode, not available to the user (only available for the authorized service)
4.		Change time and date by pressing the selected field and inputting the data
5.		Sound – switch the sound signal on/off
6.		Screen brightness slider – allows to change the backlight power
7.		USB active/USB inactive – informs about the activity of the connected flash drive
8.		Remove USB – allows to safely disconnect the flash drive
9.		File list window – shows the list of the files on the flash drive
10.		Clear USB – deletes all of the files on the flash drive
11.		Define screenshot name – allows the screenshot name change and input

The following roaster settings can be edited on the Maintenance screen:

Max – the coffee temperature at which the burner switches off automatically in order to prevent the coffee beans from burning (max 250°C)

Drum open - the amount of time that the drum door will remain open in automatic mode

Cooling time – the amount of time in which coffee will be cooled down on the cooling bin before opening the agitator flap and releasing the coffee into the destoner in automatic mode

Faults and errors screen



Pic..31 Faults and errors screen

The Faults and errors screen shows messages related with faults and errors, that cause the SR5 coffee roasting line to work incorrectly. On the screen there are the following buttons:




- reset the message after the fault or error has been removed



- go to the previous message



- go to the next message

Code	Message	Solution
F00	Emergency stop!	Check the emergency switch. Press the safety circuit reset button
F01	Drum not rotating!	Check the 4M1 motor.
F02	Temperature too high! Check monitoring relays.	<p>Check the 10A1 relay.</p>  <p>In the event of the surpassing the exhaust fumes temperature, the relay needs to be reset by the indicated button</p>
F03	Cooling bin/stirflex stop switch active!	Check the emergency switch on the cooling bin.
F04	External stop active!	Check the external appliances
F05	Burner failure!	Check the 11F1 fuse.
F07	Stirflex emergency stop!	Check the stirflex emergency stop on the control panel.
F10	Temperature coffee or exhaust too high!	Check the temperature monitoring relays.
F12	Exhaust blower failure!	Check the 5U1 inverter and the 5F1 fuse.
F13	Cooling motor failure!	Check the 7U1 inverter and the 7F1 fuse.
F14	Main motor failure!	Check the 4U1 inverter and the 4F1 fuse.
F15	Agitator motor failure!	Check the 6U1 inverter and the 6F1 fuse.





F24	"Escape" active!	Press the error reset button on the control panel
F25	Inverter fault.	Check the 4U1, 5U1, 6U1, 7U1 inverters

Table 4. List of faults and errors

Manual roasting mode

The SR5 coffee roasting line is operated using the the control panel. All the control elements are located on the Console (Pic.9).

The following steps need to be undertaken in order to produce roasted coffee in manual mode:

1. Switch on the power by turning the main power switch into the "I" position.
2. Switch the roaster's drum and exhaust fan by pressing the  button.
3. Start the burner by pressing the  button.
4. Heat up the roaster to the desired temperature of ca. 200 °C – the temperature of the drum is showed on the roasting screen. In order to speed up this process, the exhaust fan speed needs to be lowered.
5. Weigh the desired amount of green coffee (2-5kg) and pour it into top hopper (the hopper needs to be closed).
6. When the temperature inside of the drum reaches the desired level open inlet flap and release the green coffee into the roaster's drum.
7. Roast the coffee, the speed of the process is related with the burner power, drum speed and the exhaust fan speed – adjust them accordingly. The target temperature of the coffee should be ca. 180-215 °C depending on the green coffee beans type and the desired color level/taste of the coffee. During the roasting phase the next batch of green coffee can be already transported to the top hopper (as in points 5- 6).
8. When the coffee is close to the desired roast outcome, switch the cooling bin arms and fan on by pressing the  button.
9. Dump the coffee into the cooling bin by pressing the  button.
10. The cooling of the coffee takes up ca. 5 minutes. During the cooling phase the next batch can be put inside of the roaster's drum to be roasted (as in points 7-8).
11. Prepare a container and release the roasted coffee.

4. SERVICE AND MAINTENANCE

The following service and maintenance steps need to be undertaken, in order to ensure a fault free workflow of the SR5 coffee roasting line.

Every 80 hours

Checking the transmission elements
Checking if the flaps and other moving elements are working properly
Cleaning and greasing the moving elements

Every 160 hours

Checking that the emergency stop buttons work properly
Controlling the temperature indication elements
Checking and cleaning the green coffee loader
Visual control of the electrical cabinet

Installation check

Activities performed by persons with the required qualifications and if the regulations do not specify exactly the time period, not less often than once a year

Electrical installation - checking the short circuit loop and insulation resistance of the power cord

Gas installation - checking the gas system's tightness and correct functioning of the flame control and ignition system

Lubrication of moving parts

Main bearing should be greased with special temperature resistant grease. After removing the front cover of the bearing the operator should grease the bearing and then put the cover back in its place.

Greases that should be used: HT2 - STATOIL (up to: 230st.C)

WARNING:

It is very important to remember about cleaning chaff cyclone container, placed under the cyclone. Cleaning should be made after 5-7 batches of roasted coffee (depends on quality of coffee beans). Burner chamber is supposed to be cleaned – operator getting access to this place by sliding the side latches with COFFED logo or customer logo. Place under drum is supposed to catch coffee particles, which fall into gap between drum and front body. In case of roasting broken coffee beans or very small coffee beans, this place should be cleaned more often. Cleaning lower body, under cooling bin should be done by sliding right side latch and collecting pollutions. Cleaning burner filter should be done by blowing compressed air. In cleaned, low-pollinated, places it should be done once per 3 month. In industrial halls, where pollination is higher, this should be done once per month.

All things connected with cleaning machine should be customized to amount of roasted coffee and working hours.

TROUBLESHOOTING

The SR5 coffee roasting line will not work due to the emergency switch being pressed, a defect or inappropriate regulation.

The machine has stopped

The safety devices included are two EMERGENCY STOP buttons and a MAIN SWITCH. Each of them allows the machine to be shut down at any time during operation.

If the machine has stopped, check if the EMERGENCY STOP button has not been pressed or that the power supply has not been interrupted.

Stopping of one of the motors and / or lack of response to the control system

After determining which motor has stopped or cannot be switched on, check the safety devices. They are located in the electrical cabinet.

Check whether any of the overcurrent switches (Q) and / or the thermal triggers have tripped. If you have not noticed any problems with the above mentioned electrical devices, check the control system and diagnose the cause of the fault.

WARNING!

All work carried out on components powered by 400V AC must be performed by a qualified person.

The burner does not ignite

Check if the gas flows into the system and then whether the ignition system is working properly or not.

The burner flame keeps fading

This can be a sign of gas interruptions, insufficient pressure or malfunction of the flame control system. First check the gas supply of the burner.

Perceptible gas smell

As soon as the personnel handling the appliance smells the gas, immediately switch off the appliance with a main switch and ventilate the room. In the event that these actions do not work, close the main gas valve on the power supply of the device and call the person having the required authority and equipment to check the gas system tightness.

Abnormal sounds in the mechanical system

Determine where the sounds come from during operation, and then check that there are no malfunctions requiring immediate intervention.

REPAIRS

Before any interference in the device, turn off the power. Repairs should be carried out by personnel of the appropriate knowledge and, if required authorisations. When replacing used items, new parts must be used. It is permissible to use alternatives of other manufacturers, where they are identical parts in principle of operation and dimensions.

WARNING!

It is unacceptable to perform any modifications on the SR5 coffee roasting line.

Any modification of the device will result in the loss of warranty and liability of Coffed Private Limited Company.

DISPOSAL AND NEUTRALIZATION

At the end of its service life, the old appliance must be disposed of in accordance with the applicable national regulations. We recommend contacting a specialist company or contacting the disposal unit in the municipality.

WARNING!

To prevent possible misuse and related hazards, ensure that the SR5 coffee roasting line can be used again before disposal. To do this, disconnect the device from the power supply and cut off the power cord.

TIP!

When disposing of the device, follow the appropriate national or regional regulations