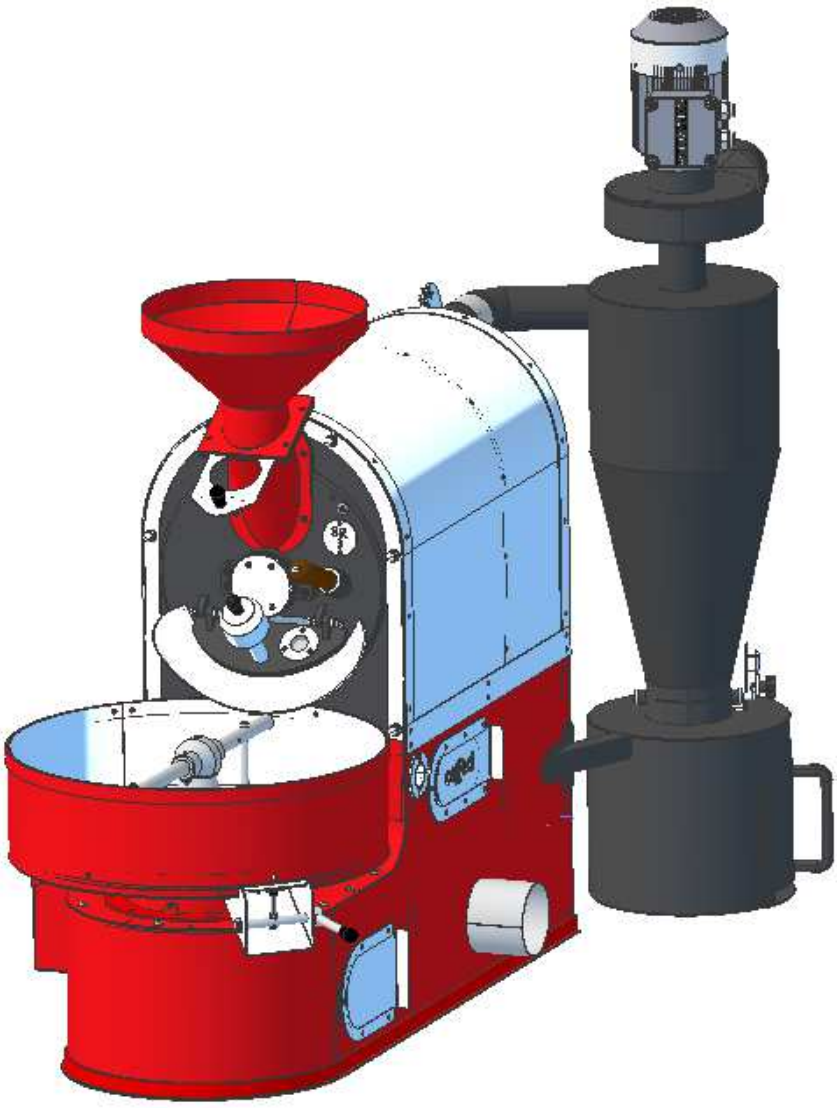
coffed

SR 3 Coffee Roaster

Operation Manual



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CERTIFICATE OF MANUFACTURE CONFORMITY

SR3

Coffed BDH, ul. Ceramiczna 28, 64-920 Piła PL

hereby confirms that the
Coffee Roaster
Type: SR 3

is in conformity with the following European directives and standards :

- machinery directive **MD 2006/42/WE**,
- low voltage directive **LVD 2006/95/WE**,
- electromagnetic compatibility directive **EMC 2004/108/WE**
- gas appliance directive **GAD 2009/142/WE**

What is equivalent with fulfilling the following standards:

1. PN – EN ISO 12100

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 BDH

Piła, Poland,5 January 2018r.

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(Damian Elcessor – Coffed BDH owner)

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1. General Information

1.1 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.

1.2 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

1.3 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 people (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.

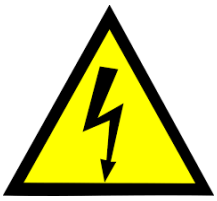
1.4 Intended use

The equipment is working safely only when it is used for its designed purpose.
The SR3 coffee roaster 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.

1.5 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.

2. INSTALLATION AND COMMISSIONING

2.1. General characteristics of the equipment

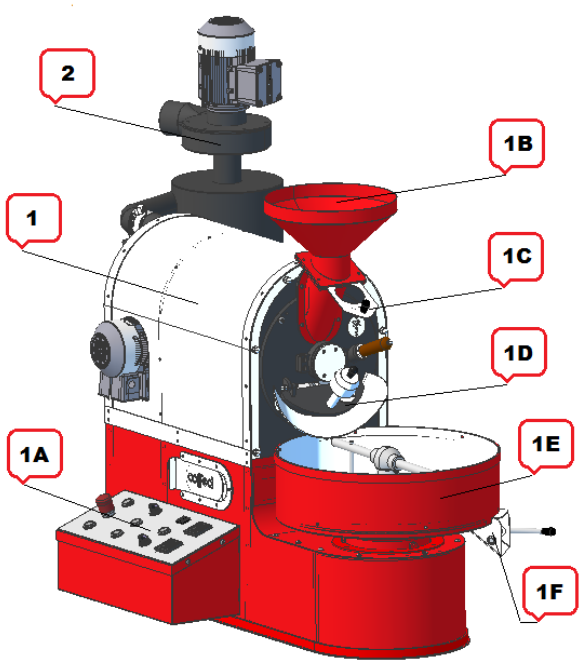
The SR3 coffee roasting line has the following parameters:

Efficiency:	**up to 12kg of green coffee per hour**
Roasting time :	**8 - 20 min per batch**
Batch size:	**1 - 3kg green coffee per batch**

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:	**37 – 80mbar**
Gas line diameter:	**½ inch**
Gas consumption:	**0,2 kg/batch**
Electric voltage:	**230V, 50Hz (L1, N, PE)**
Maximum power consumption:	**9A**
Exhaust chimney diameter:	**80 mm**
Total weight:	**180kg**
Space required:	**5,0 m^2**
Recommended celling height:	**200cm**

2.2 Technical description



The SR3 coffee roaster consists of the following elements:

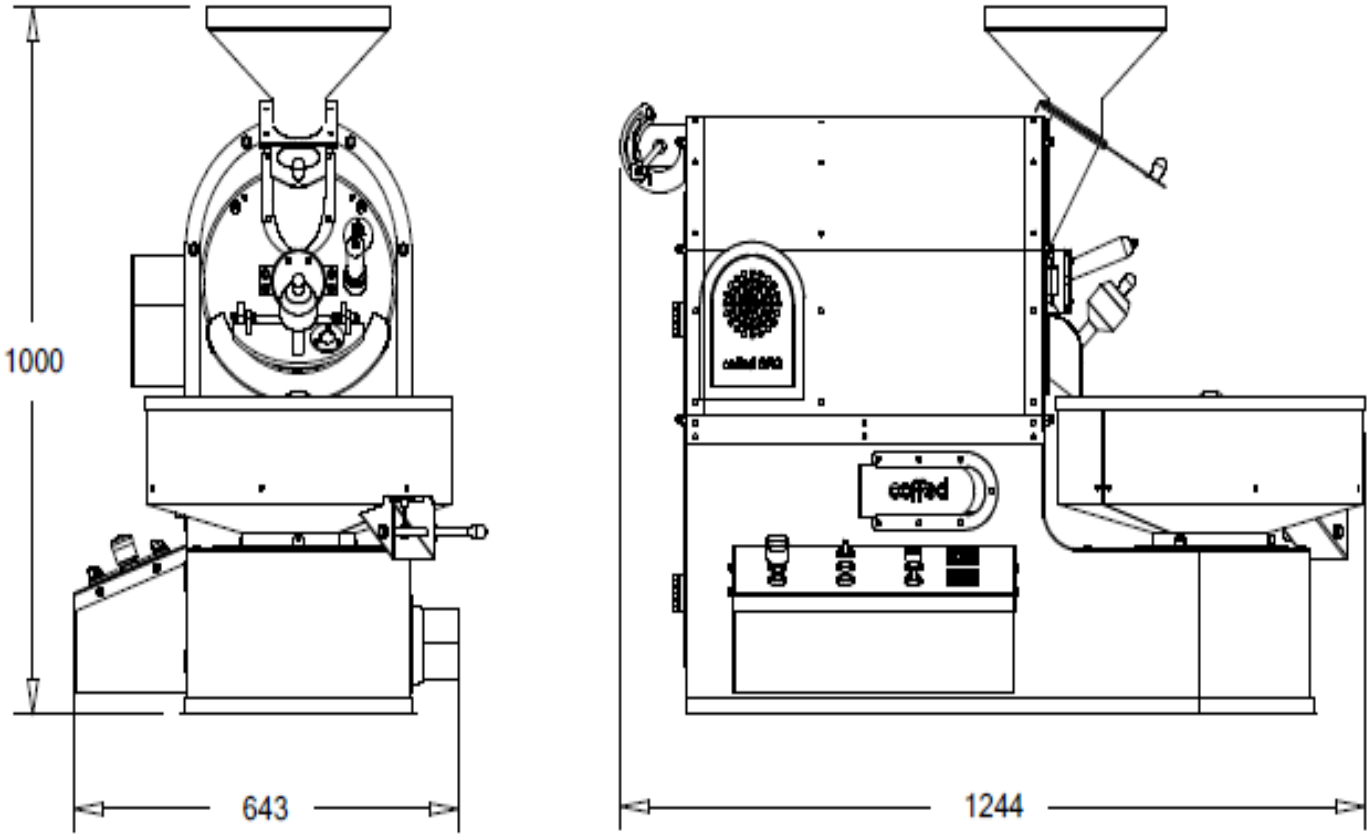
1. Roaster

1A. Control Panel 1B. Green coffee hopper 1C. Inlet Flap

1D. Droom door 1E. Cooling bin (integrated) 1F. Cooling bin Flap

2.Chaff cyclone

2.2.1 Roaster with cooling bin and control panel



Pic.2 Roaster with cooling bin and control panel overview

This is the main part of the SR3 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^{o}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.

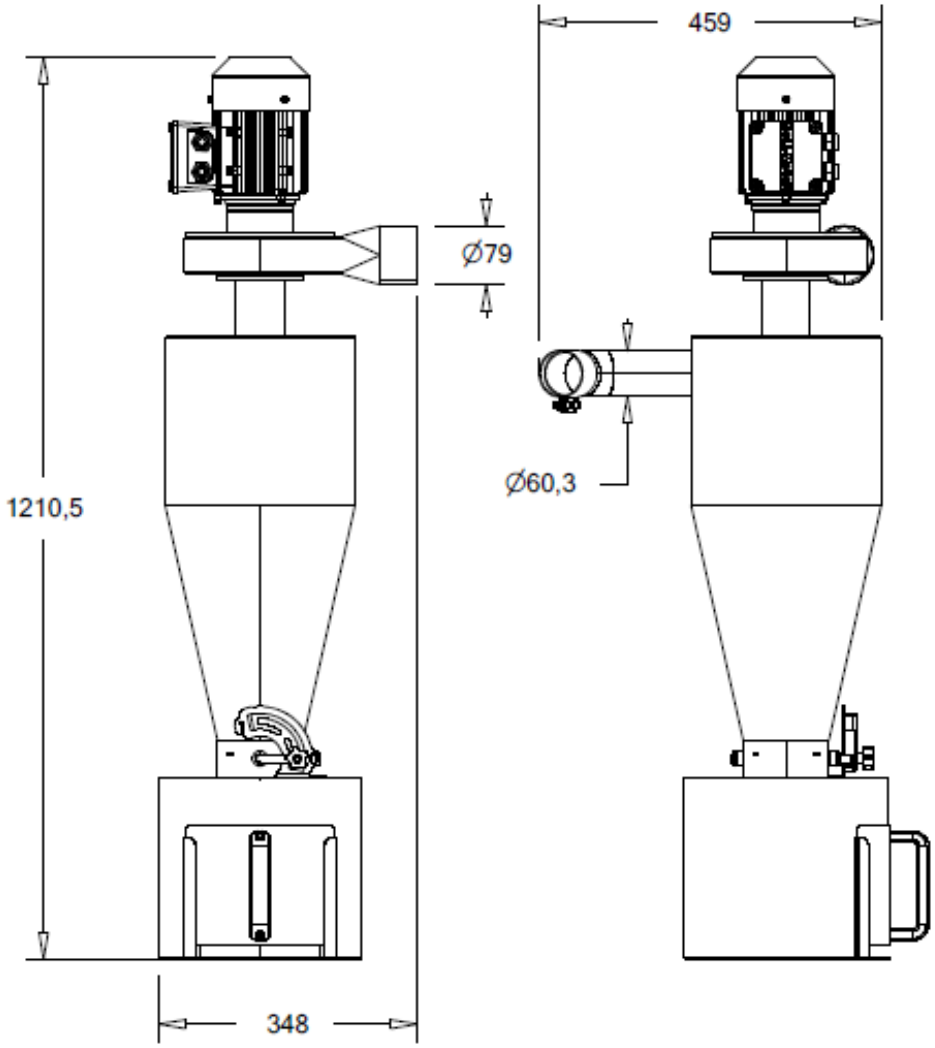
All the media connections (electricity, gas) are located at the back of the roaster. The media need to be connected before starting to work with the machine.

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.

The control panel is equipped with buttons, knobs and temperature regulators, that enable the operator to control all the functions of the roaster.

Measurements:
Height: 1000mm
Width: 643mm
Length: 1244mm
Weight: 150kg

2.2.2. Chaff cyclone



Pic.3 Chaff cyclone

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: 1210,5mm
Width: 338mm
Length: 359mm
Weight: 30kg

2.3. Commissioning and connecting to the installations

The commissioning of the SR3 coffee roaster line usually takes place at the customer's premises, after COFFED technicians install and assemble the machine. 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.

2.3.1. Electrical installation

The SR3 coffee roaster is equipped with a three-wire main power cable (L1, N, PE). The voltage is 230V, 50Hz,
If the local regulations require electric measurements to be made, they need to be performed by authorized personnel with the necessary qualifications.

2.3.2. Gas installation

In order for the SR3 coffee roaster to work properly, LPG or natural gas source needs to be connected. The gas train diameter is ½ inch.

2.3.3. Exhaust installation

The final user is obliged to connect the SR3 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 79mm.

2.3.4. Start-up

After all the above media (points 2.3.1. – 2.3.4. are connected) the SR3 coffee roaster can be started. The main power switch is located on the back of the roaster near the control panel.

2.3.5. 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 plate of the roaster 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.

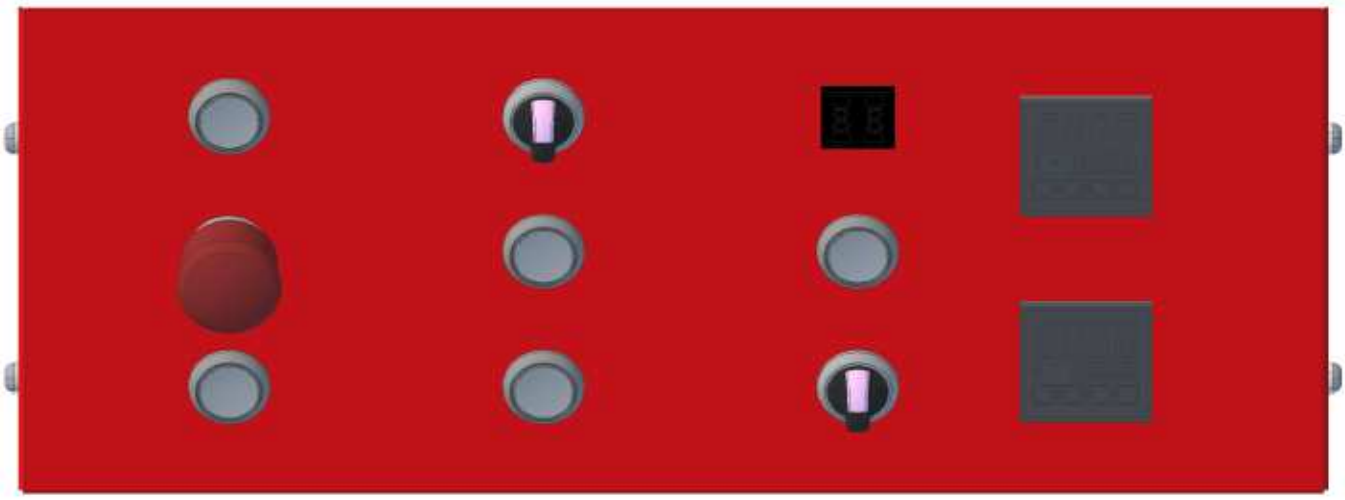
Warning!

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

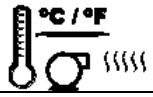
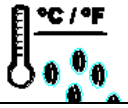
3. WORKFLOW DESCRIPTION

3.1. Control panel

The SR3 coffee roaster is controlled via a control panel. All of the control elements are located on the console (pic. 4). The functions are operated via respective buttons and knobs. The temperatures inside the roaster are displayed on the respective regulators.



Pic.4 Control panel overview

No	Pictogram	Description
1		Exhaust air temperature
2		Coffee temperature. There is a possibility to set a temperature that will turn on a buzzer
3		Main emergency switch
4		Burner Power
5		Cooling Fan On/off
6		Error

7		Steering On/off
8		Burner error reset
9		Cooling bin on/off
10		Burner on/off
11		Cooling arms on/off

Pic. 4 Control panel overview

3.2. Roasting coffee

The SR3 coffee roaster is operated using the the control panel.
All the control elements are located on the Console.
The following steps need to be undertaken in order to produce roasted coffee:

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 button “8”
3. Start burner by pressing button ”9”.
4. Heat up the roaster to the desired temperature of ca. 200 ºC – the temperature of the drum is showed on the temperature regulator.
5. Weigh the desired amount of green coffee (1-3kg) and pour it into the green coffee hopper (1B) (the inlet flap (1C) needs to be closed).
6. When the temperature inside of the drum reaches the desired level open the inlet flap (1C) 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, adjust it accordingly using the controls “4”. The target temperature of the coffee should be ca. 180-200 ºC depending on the green coffee beans type and the desired color level/taste of the coffee.
8. Turning on cooling bin and arms with button ”5” and ”11”.
9. Dump the coffee into the cooling bin (1E) by opening the drum door (1D)..
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 6-8)
12. To release the coffee from the cooling bin open the cooling bin flap (1F) so the coffee can be moved into a previously container (i.e. bucket, box, bag).

4. SERVICE AND MAINTENANCE

Checking every 80 hours

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

Checking every 160 hours

- Checking that the emergency stop buttons work properly
- Controlling the temperature indication elements
- 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.

5. TROUBLESHOOTING

The SR3 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 an 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 the overcurrent switches 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!

WARNING! All work carried out on components powered by 230V DC 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.

6. 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 authorizations. 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 SR3 coffee roaster.
Any modification of the device will result in the loss of warranty and liability of Coffed BDH.

7. 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 SR3 coffee roaster cannot 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.