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## **Safety instructions and danger warnings**

### **General**

The manufacturer accepts no liability whatsoever for damage or injury resulting from a failure to (strictly) observe the safety instructions contained in this document or resulting from negligence during the installation, use or maintenance of the machine specified on the front cover of this document or of any related accessories.

Additional safety instructions may be required, depending on the specific working conditions required for the accessories used. Please contact your dealer if you think there may be any potential danger in using the machine.

**The full responsibility for observing the local safety instructions and regulations always rests with the user of the machine.**

### **Instructions for use**

- Each person working with the machine should know the contents of this document and carefully follow the instructions contained. The management must instruct the personnel on the basis of this document and take all the instructions and recommendations into account.
- Never change the order in which activities must be carried out.
- Always keep this document near the machine.

### **Icons and instructions on the machine (if present)**

- Icons, warnings and instructions attached to the machine form part of the safety provisions. They must not be covered or removed and they must be present and remain legible throughout the life of the machine. Any icon, warning or instruction that becomes illegible must be repaired or replaced immediately.

### **Users**

- The machine may only be used by properly trained and authorized persons. Temporary staff and persons undergoing training may only use the machine under the supervision and responsibility of authorized users.

### **Proper use<sup>1</sup>**

The machine is exclusively designed for delivering coffee and hot water. Any other or further use is not in conformity with the purpose. The manufacturer does not accept any liability for damage or injury resulting from this. The machine meets the current standards and guidelines. Use the machine only if it is in perfect technical condition and only for the proper purpose as described above.

### **Technical specifications**

The specifications given in this document may not be modified.

### **Modifications**

Modification of (parts of) the machine is not allowed.

## Installation

- The maximum acceptable ambient temperature with which a good operation can be guaranteed is 40°C.
- Consider damage caused by freezing. Never place the machine in rooms in which the temperature can drop below 0°C. After all, with normal use there will always be water in the machine.
- Do not turn over the machine, move it upright.
- Never install the machine in places where water is sprayed or sprinkled.
- Never install the machine in front of entrances, exits or passageways intended for emergency services.
- Place the machine on a sufficiently solid, flat surface close to a water connection, water discharge and an earthed electrical power outlet.
- Leave sufficient space at the back and front of the machine for maintenance and repair purposes.
- Connect the machine to a readily accessible, manually operated water tap, so that the water supply can easily be turned off.
- Connect the machine to the electrical supply in such a way that the connection of all phases and neutral can be easily disconnected. The minimum distance between the disconnected contacts have to amount 3 mm at least.
- Ensure that the machine is correctly earthed.
- Always observe local rules and standards when installing this machine.

## Use

- Inspect the machine before use and check for damages.
- Protect the machine against water and moisture. Do not allow the machine to become wet by spraying and never submerge the machine in water.
- Keep the operating controls free from dirt and grease.
- Never use sharp objects to operate the push buttons.
- Note that during use some parts of the machine become very hot.
- Disconnect the electrical supply and the water supply when the machine will not be used for long periods. Clean the machine following the instructions in chapter 5.. Discharge the water (§ 4.1.6).

## Maintenance and repairing failures







### TIP

- In this document a clear distinction is made between **maintenance activities** that can be carried out by the daily user and activities which are exclusively reserved for users with limited authority (operator) and especially trained users with more extensive authority (principal).
- **Repair** and maintenance activities not included in this document are always reserved to service mechanics.
- If the mains lead is visibly damaged, it has to be replaced by a qualified service technician.
- Observe the given maintenance intervals. Overdue maintenance can lead to high repair costs and may cause guarantee claims to become invalid.
- Do not carry out any maintenance activities concerning the machine before having it protected against unintentional coming into operation. In such cases disconnect the electrical supply.
- Never leave the machine during maintenance activities.
- For cleansing the machine only use the cleansing agent and descaler recommended by the manufacturer.
- Always wear suitable facial protection and gloves while working with cleansing and descaling materials. Wash your hands after using these materials.
- Prevent damage of the machine caused by spilled descaler solution. Remove spilled solution as quickly as possible and follow the previously mentioned safety instructions.

## **Safety devices present**

The machine is default provided with the following safety devices:

- **ON/OFF switch (P.)**  
With the ON/OFF switch the supply of the **electrical current** is switched on and off. The supply **voltage** – also in the OFF position – is never switched off. In practice this switch functions as the main switch for switching the machine on and off.
- **SELECTION keys (G. – J.)**  
With the SELECTION keys the coffee-making process is started.
- **STOP key (K.)**  
With the STOP key the coffee-making process is stopped.  
When the machine is re-started after having been stopped, the coffee-making process begins again.
- **Thermal protection against boiling dry**  
A temperature contact in both the coffee-making and the hot water system makes sure that the power is interrupted as soon as the boiler temperature exceeds the boiling point by several tens of degrees Celsius.
- **Overflow protection (coffee-making system)**  
A water meter measures the quantity of water required by each coffee-making system. If the electrically-operated water tap is opened while the water meter is not generating pulses or if this water tap is closed while the water meter is generating pulses, the coffee-making system will be switched off displaying the message:  
**ERR** +  +  on the display, see § 8.4.
- **Overflow safety device (hot water system)**  
As soon as the hot water system becomes overloaded, the water is discharged through the overflow pipe. Therefore the hot water system is switched off, displaying the message:  
**ERR** +  +  on the display, see § 8.4.

## **Machines and the environment**

### **Packaging material**

The main components of the packaging material for transport and protection of the machine are the following:

- Corrugated board
- Polystyrene elements

Generally, the packaging material can be returned through your dealer after installation of the machine. If this is not possible, ask your local authority refuse department how you can dispose of the materials.

### **Disposal of the machine**

Machines that you wish to dispose of can usually after consultation be returned to your dealer. If this is not possible, inquire with your local authority about the possibilities for re-use or environmentally-friendly processing of the materials. All plastic parts have been clearly coded for this purpose. The printed-circuit board in the machine and the components connected to this should be consigned to electrical or electronic refuse.

# 1. INTRODUCTION

## 1.1 A quick look at the machine

### 1.1.1 General description

The B5HW–20HW is a coffee–making machine developed for the professional user which delivers coffee and hot water.

All functions of the machine are fully computer–controlled. For this the machine is standard provided with a programming unit on the hot water column with which **properly trained, authorized users** can change various settings after having entered a safety code (hot water temperature, rate of flow, saving temperature, etc.), can read the counters or can activate and programme the built–in descaling functions. Once programmed and set in conformity with the specific wishes and requirements, the machine can be operated easily with the help of the operating keys and the display on the column.



#### **TIP**

– The position numbers used in this document refer to the figures in the fold–out.




### 1.1.2 Main components



The machine consists of the following main components:




- A. hot water flow column with connecting cable (without plug)
- B. filling opening descaling solution for the coffee–making system
- C. hot water boiler with cover
- D. spray head
- E. filling opening for descaling solution hot water boiler
- F. operating panel
- G. selection key amount 1 / programming key
- H. selection key amount 2 / programming key
- I. selection key amount 3 / programming key
- J. selection key amount 4 / programming key
- K. stop key
- L. activating key HW–system / confirmation key
- M. selection key↓ for decreasing the set units
- N. selection key↑ for increasing the set units
- O. display
- P. ON/OFF switch coffee–making and hot water system, with indicator lamp
- Q. socket
- R. hot water discharge tap
- S. overflow pipe (drain)
- T. filter unit consisting of:
  - U. spray cover
  - V. filter cone (optional)
  - W. filter pan
- X. shackle disc with mixer pipe
- Y. coffee container with cable and plug
- Z. gauge glass with gauge glass holder
- AA. ON/OFF switch heating coffee container with indicator lamp
- AB. coffee discharge tap
- AC. tray
- AD. drip–tray




## 1.1.3 Use of the keys

In the users' menu the keys (G.–J.) are used as selection keys for selecting the required amount of coffee.

In the programming menu these keys are used for selecting a certain setting option. Key (K.) is the stop key. With this a selected function can be stopped and/or interrupted. In the programming menu the stop key is also used for returning to a higher menu. When the symbol  appears in the display, the stop key may be used. In the users' menu the key (L.) is used to activate the hot water system. Above this key a singing teakettle appears in the display . In the programming menu and with the preset time settings (timer) key (L.) functions as the confirmation key. The enter key  appears in the display (O.) when a confirmation is required.

The keys (M.) and (N.) are selection keys used for decreasing or increasing the value to be set. In the programming menu these keys are used to browse through the various settings (programming turret).

The symbol  in the users' menu indicates that preset time settings can be selected. For this press both selection keys (M.) and (N.).

When the symbol  appears in the menu, the setting can be reset by pressing both selection keys (M.) and (N.).

## 1.2 Brief description of operation

The machine is connected with the mains lead and the separately enclosed water connecting hose (fig.2) to the electricity and water supply systems respectively. The electrically operated tap controls the water supply to the coffee-making system and the hot water system. With the on/off switch (P.) the machine is switched on.

### TIP

- The operations described in these instructions for use are illustrated with the help of the B10HW with the standard factory settings.



Fig. 2 Water connecting hose

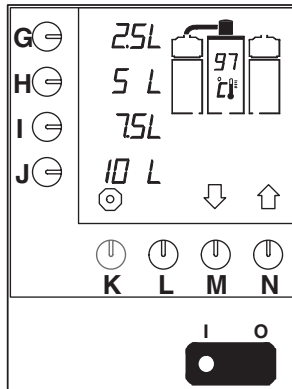


Fig. 3 Operating panel coffee-making and hot water system

## 1.2.1 Coffee-making system

The machine is provided with a coffee-making system operated through the operating panel (fig.3 ). After the filter unit fitted with filter cone (if available), paper filter and ground coffee (T.) has been placed on the container, the coffee-making system is switched on with one of the selection keys (G.–J.). The value belonging to the selected selection key is indicated on the display (O.). The coffee making has started.

The water required is heated in a continuous flow system and then poured over the ground coffee in the filter pan via a spray head. Subsequently, the coffee coming from the filter is collected in the coffee container (Y.) indicating the level in the container through the gauge glass (Z.). The heating element mounted in the coffee container keeps the coffee at the right temperature.

With the help of the coffee discharge tap (AB.) the coffee is then tapped.

The coffee-making system has an automatic descaling signal. This is indicated on the display (fig.4 ). In this way the system can be descaled at the desired time by **properly trained, authorized users.**

The control system makes it possible to keep an accurate record of the amount of water used. These day or total countings can be read through the limited programming menu, § 7.2.

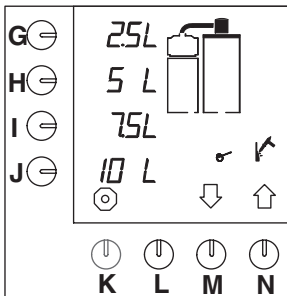


Fig. 4 Display with descaling signal coffee-making system

## 1.2.2 Hot water system

The machine has a hot water system that is also programmed through the operating panel. After having activated the key for the hot water system (L.) the system is switched on and the display indicates (fig.3) the (rising) water temperature. The hot water boiler (C.) is filled with water up to the maximum level and the water is warmed up by the heating elements in the boiler to the optimum preset temperature (and kept at this temperature), during which the heating elements operate alternatively together or separately. This optimum temperature is by the control programme itself carefully determined and fixed, based on the specific boiling point of the water at the spot. During the installation of the machine it calibrates itself with respect to this boiling point (§ 3.2.2.1).

With the help of the discharge tap (R.) the hot water is then discharged.

The water in the boiler is automatically topped-up through the electrically operated tap, so that the water level in the boiler is maintained as far as possible and over-filling is prevented.

The hot water system is provided with an automatic descaling signal. This is indicated on the display (fig.5 ). This way the system can be descaled at the desired time by properly trained and authorized users.

The control system makes it possible to keep an accurate record of the amount of water used. These (day or total) counts can be read through the limited programming menu, § 7.2.

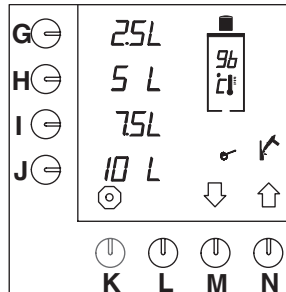


Fig. 5 Display with descaling signal hot water system

## 2.3 Water system

Water hardness	: min. 5 °dH (0,9 mmol/l)
Min. water pressure (supply)	: 50 kPa (0,5 bar)
Max. water pressure (supply)	: 1000 kPa (10 bar)
Flow-rate	: 5,5 l/min
Conductivity	: $\geq 100 \mu$ Siemens/cm

Model	Number of elements in HW-tank	Volume hot water tank	Buffer capacity hot water	Hour capacity hot water
B5 HW	2	5,0l	2,2l	ca. 22 l
	5			ca. 55 l
B10 HW	2	5,7l	2,9l	ca. 22 l
	5			ca. 55 l
B20 HW	2	7,0l	4,2l	ca. 22 l
	5			ca. 55 l

Table 3 Water values B HW

## 2.4 Environmental conditions

In view of danger of freezing the machine may never be placed in rooms where the temperature can fall below 0°C.

With a maximum allowed environmental temperature of 40°C a good operation of the machine is guaranteed.

## 2.5 Recommended cleaning and descaling materials

Cleaning material	: CLEANER
Descaler	: RENEGITE



### **CAUTION!**

- Before use first read the instructions on the packing.

See chapter 9. for ordering cleaner and descaler.

## 2.6 Recommended coffee and filter paper

For this machine the use of normal grind is recommended. Use the amount of ground coffee indicated at the coffee calculator (§ 4.1.4) dependent on your preference.

Exclusively use the provided Bravilor Bonamat® filter paper or filter paper of the same quality. See chapter 9. for ordering consumable goods.



## 3.2 Installation



### CAUTION!

- Do not overlook the risk of freezing. Never place the machine in rooms in which the temperature can drop below 0°C.
- Never install the machine in front of entrances, exits or passageways intended for emergency services.
- Place the machine on a flat, sufficiently solid surface close to a water connection and an earthed electrical power outlet. Leave sufficient space at the back and front of the machine for maintenance and repair purposes.

### 3.2.1 Connection to the water and electrical system

- Connect the machine to a readily accessible manually operated tap, so that the water supply can easily be turned off.



### WARNING

- Δ Power supply voltages vary from one country to another. Ensure that the machine is suitable for connecting to the local power supply. Details on the required supply voltage and frequency can be found on the identification plate.
- Connect the machine to the electrical supply in such a way that the power can easily be disconnected.
- Ensure that the machine is correctly earthed.
- Never connect the machine to a power supply where heavy loads resulting from switching on other machines may cause variations in voltage.

### 3.2.2 Initial use



### TIP

- With initial use the machine makes use of the default factory settings. These settings can, if desired, later be changed **by properly trained authorised users** (§ 7.3).
- With initial use the coffee-making and hot water system is exclusively flushed with water; no coffee is made.

### 3.2.2.1 Activating and flushing the HW system

### WARNING

- Δ While going through the "Automatic Boiling Point Determination Programme" steam comes out of the hot water cover (C.). Do not touch the cover during this programme at the risk of burning.



- Switch the ON/OFF switch (P.) on.
  - The indicator lamp in the switch lights up.

The boiler is filled and the "Automatic Boiling Point Determination Programme" (duration: about 30 minutes) is activated. This calibration programme determines the boiling point of water at the place where the machine is actually used. The boiling point partly depends on the local atmospheric pressure and at sea level this will be approximately 100 °C, whereas at a height of 2,000 m the boiling point will be as low as about 97 °C. This boiling point will be given on the display (fig. 6 ). The system will itself determine the optimum temperature based on the measured boiling point; this is always approximately 4°C below the boiling point. The water temperature will be displayed after pressing the activating key (L.).

### TIP

- Pour hot water (ca. 70 °C) into the kettle till maximal 6,5 cm under the rim of the kettle. This will shorten the time of the automatic boiling point determination programme till about 15 minutes.
  - Press the activating key (L.) for the hot water system.
    - Figure 6 appears on the display.
  - Tap through the hot water tap (R.) about 2 litres of water.
- The hot water system is now ready for use (§ 4.).



### TIP

- **Only if the maximum water temperature (97 °C, at sea level) has been set** (§ 7.3.6.1) every 10 minutes the water in the boiler will be warmed up with about 2 °C *extra* in order to get a better hot-water quality (in particular for making tea). We call this automatic boiling point approach. Due to this it may happen that during daily use sometimes the boiling point is reached, causing steam to escape from the hot-water cover (C.).



- If the water temperature has been set below the maximum (97 °C, at sea level) (§ 7.3.6.1) the above no longer applies.

## WARNING

- △ Do not touch the cover during the automatic boiling point approach at the risk of burning.

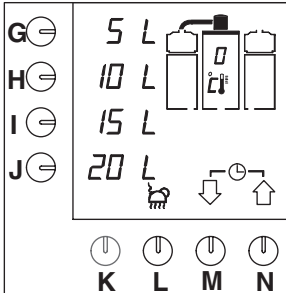


Fig. 6 Activating the HW system

## 3.2.2.2 Flushing the coffee-making system

- Place the filter unit (T.) on the coffee container (Y.).
- Turn the spray head (D.) above the hole in the cover (U.) of the filter unit (T.).
- Switch the ON/OFF switch (P.) on.
  - The indicator lamp in the switch lights up. The default options appear in the display (fig. 7).
- Push the selection key for amount 2 (H.).
  - A signal sounds. The coffee-making process is started. The selected amount flashes in the display.



As soon as the hot water supply through the spray head has stopped, the filter pan in the display starts flashing. This means that the dripping-on time has started. (Only when the dripping-on time is set). The dripping-on time is standard set to 2 minutes. After the dripping-on time has terminated, a signal sounds (3 short beeps) indicating that the coffee-making process has finished.

- Tap the water through the coffee tap (AB.).
- Turn the spray head above the filter unit of the other container.
- Repeat the above steps for the other coffee container.

After that the coffee-making system is ready for use (chapter 4.)

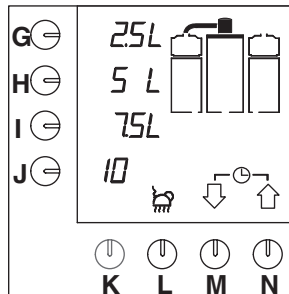


Fig. 7 Display with the default options

## 4. DAILY USE

While the machine is in use, the factory default settings may appear to be incorrect or insufficient for the circumstances under which the machine is used. These settings can be changed – **by properly trained and authorized users** – in conformity with the instructions in § 7.3.

The present chapter (4.) only describes therefore the normal, daily use of the machine by users with limited authority: making and tapping coffee. Maintenance activities for the daily user are described in § 5.1. Periodic maintenance activities for users with limited authority are described in § 5.2.

### 4.1 Operation



#### **CAUTION!**

- Inspect the machine before use and check for damages.
- Protect the machine against water and moisture. Do not allow the machine to become wet by spraying and never submerge it in water.
- Keep the operating controls free from dirt and grease.
- Never use sharp objects to operate the push buttons.
- Note that during use some parts of the machine become very hot.
- When the machine is not to be used for a long period, disconnect it from the electrical supply and shut off the water supply.

#### 4.1.1 Making coffee

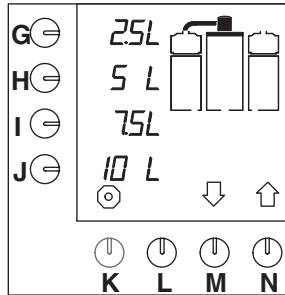


Fig. 8 Starting screen

- Switch the ON/OFF switch (P.) to ON.
  - The indicator lamp in the switch lights up. The default options appear in the display (fig.8).
- Check whether the coffee container (Y.) is empty. Discharge this, if necessary, through the coffee tap (AB.).
- Place the filter paper in the filter cone (V.) (if available) or in the filterpan (W) and add the required amount of ground coffee. For the recommended ground filter coffee and filter paper (quality and quantity), see § 2.6).
- Place the spray cover (U.) on the filter pan (W.).
- Place the shackle disc with mixer pipe (X.) and the filter unit (T.) on the coffee container.
- Select the desired amount of coffee by pressing one of the selection keys (G.–J.).
  - The selected amount flashes on the display.

#### **TIP**

- If the selection keys do not include the desired amount, then with the help of key (M.)↓ or (N.)↑ another amount can be selected. Subsequently press selection key (J.). A signal sounds and the coffee-making process has started.
- Make sure that the container and the spray head are in the right position.
  - If not, the part concerned starts flashing on the display and the coffee making is blocked.
- Put the part in the right position and the blockade is lifted.



- A signal sounds for confirmation.
- As soon as the coffee container has been filled, the filter pan flashes on the display for the dripping-on time (fig.9).
- After the dripping-on time a signal sounds (3 short beeps) indicating that the filter pan can be removed.
- Place the cover on the container.
- The coffee can now be tapped.

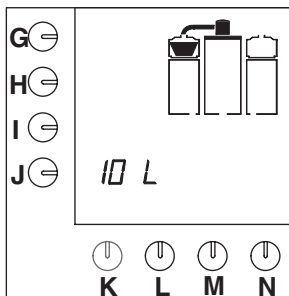


Fig. 9 Dripping-on time



### TIP

- During the coffee-making process the filter unit of the other coffee container can directly be made ready for a next coffee-making cycle.
  - Wait until the coffee-making cycle for the first container has been finished.
  - When the dripping-on time starts, the spray head can be placed in the right position above the other filter unit.
  - Repeat the above procedure for making coffee.
- The coffee-making process can at all times be stopped by pressing the STOP key (K.). After this the coffee can be tapped or an amount can be selected again. In the second case keep in mind that there is already coffee in the container.

## 4.1.2 Tapping the coffee

- Place a cup or jug under the coffee tap (AB.) and pull the handle forward.

### TIP

- The tap can be locked in the open position by pushing it fully backwards against the spring pressure.



## 4.1.3 Pre-programmed settings

- Making coffee at pre-programmed times is possible (§ 7.1 and § 7.2).

## 4.1.4 Coffee calculator

By simultaneously pressing the stop key (K.) and one of the pre-selection keys (G.-J.) it can be read how many grams of ground coffee must be used for the selected number of litres of coffee (or other programmed unit). Also when for once another number of litres is set, the programme calculates the required amount of ground coffee.