O N Y X &
O N Y X *Pro*

USER MANUAL

EXPOBAR®

CONTENT

CONTENT

ONYX & ONYX *Pro*

Rev. #	Date	TSB#	Description
01	April 12, 2017	None	First draft released for technical review.
02	May 25, 2017	None	Tech review comments addressed, content edited.
03	Aug. 04, 2017	None	Update machine dimensions. Add compliance code information.
04	Feb. 20, 2019	None	Add "Water filter requirements" section.
05			
06			
07			
08			
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10			

Explanation of descriptions

There are five different levels of notification intensity within this manual, as identified by the signal words DANGER, WARNING, IMPORTANT, NOTE and PRO TIP. The level of risk and importance of the notification is determined by the following definitions. Always observe the warnings to ensure safety and prevent potential injury and product damage.

Important:

Alerts against unsafe practices. Observe *Important* notifications to ensure food safety, prevent possible minor personal injury, or damage to the machine.

WARNING:

Indicates a potentially hazardous situation which, if the *WARNING* is ignored, could result in serious injury or even death.

DANGER:

INDICATES AN IMMINENTLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, WILL LIKELY RESULT IN SERIOUS INJURY AND EVEN DEATH.

Note:

Gives additional information which may be helpful during the operation, routine maintenance, and cleaning of the machine.

Pro Tip:

Gives helpful hints and suggestions from the manufacturer that take the guesswork out of choosing settings and care intervals.

Introduction

Thank you for choosing an ONYX espresso machine. We hope you enjoy it !

- Please read this user manual carefully before using the machine.
- This manual contains important instructions regarding safe intended use of the machine.

- Do not discard this manual, it will be useful for future reference. If damaged or lost, request a new copy from the manufacturer/distributor.

General instructions

- Machine installation and certain maintenance operations should only be performed by qualified service personnel.
- All safety instructions and warnings contained in this manual should be observed at all times to ensure safe installation, use, and maintenance.
- Do not attempt to remove covers or safety shields to access the interior of this machine or make repairs. Repairs should be made by an authorised technician or service centre.
- Owners are liable for ensuring that users have been properly trained to operate the machine and understand the potential risks involved.
- The owner or installer will be liable for all non-authorised modification of the machine.
- Non-authorised alteration or modification

of the machine will immediately void the manufacturer's warranty.
- This manual references the machine at the time of sale. The commercial availability of subsequent versions including modifications, upgrades or adaptations does not oblige the manufacturer to apply any changes to this machine, nor is it obliged to update the documentation supplied.
- The manufacturer reserves the right to withdraw currently available manuals whenever deemed appropriate and reasonable.
- Periodically, some updates and changes may be required for this machine. In this event, a technician will be responsible for ensuring the change is made in accord with manufacturer's specifications.

Warnings

Note: The manufacturer is not liable for damage to persons or property resulting from failure to follow the instructions and warnings listed below when installing and using this machine.

- Install the machine in a horizontal position and away from heat sources and flammable objects.
- This machine should only be installed on a water-resistant work surface that is capable of adequately supporting the machine's weight.
- Place the machine in a location accessible only to personnel trained to operate it.
- Keep all hazardous packaging materials, such as plastic bags, styrofoam, and staples, out of reach of children.
- Plug the machine into a properly installed, earth grounded electrical outlet with line voltage that matches the specifications for the machine.
- Ensure that the power supply voltage does not fluctuate by more than 6%.
- Position the power cable so that users cannot

trip over it. Keep the power cable away from sharp edges and heat sources.
- Children should never be allowed to play with the machine.
- This appliance is not suitable for installation in an area where a pressure washer may be used.
- Do not use the machine outdoors, where it would be exposed to severe weather or extreme temperatures..
- If the power cable is damaged, it may only be replaced by the manufacturer or its approved service technician.
- Do not remove or disable any of the mechanical, electrical, or thermal protection safety equipment.

Warnings (continued)

- In case of emergency, (e.g., the machine catches fire or becomes unusually hot or noisy), disconnect the power immediately and turn off the water supply.
- If the machine is not going to be used for an extended period of time, disconnect the power. When disconnecting the power, pull the plug rather than the cable.
- When packed for storage, store the machine in a dry place with an ambient temperature above 5°C. Boxes may be stacked up to three units high of the same model. Do not place other heavy items on top of the box.
- If the machine is likely to be exposed to temperatures below 0°C during handling and transport, make sure that service personnel empty the boiler and water system. (The machine's boiler and water system is empty when delivered from the factory.)
- To ensure fault-free machine operation, only use manufacturer-approved replacement parts and accessories.

Precautions

- Before performing maintenance and/or moving the machine, disconnect the machine from the power supply and wait for it to cool down.
- Do not place any liquids on the machine.
- This appliance must not be cleaned with a pressure washer.
- Never immerse the machine, plug or power cable in water, as there is a risk of electric shock.
- Do not touch the machine's hot surfaces or dispensing equipment.
- Do not touch the machine if your hands or feet are wet.
- Do not operate the machine if any part except the dispensing equipment is wet.
- Place the machine out of reach of children.
- This appliance can be used by children from age 8 and above and persons with reduced physical, sensory, or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.
- Children shall not play with the appliance.
- Cleaning and user maintenance shall not be made by children without supervision.
- Do not use the machine if the power cable or plug is damaged, or the machine has been dropped. Contact a service technician for repairs or to ensure that it is safe for use.
- Do not block the vents with rags or other objects.
- Do not insert foreign objects into the vents.
- Check the drain regularly to make sure that waste water is emptying properly.

Intended use

- The coffee machine has been designed and manufactured to make espresso coffee and other hot drinks (e.g., steaming and frothing milk). Do not use it for any other purpose.
- The machine is intended to be used by trained personnel for preparing foodstuffs.
- This machine is not intended for use in industrial kitchens, domestic kitchens, or similar locations.
- The manufacturer will not be held liable for damage to persons or property due to incorrect, improper or negligent use by nonprofessional personnel.
- The A-weighted sound pressure level is below 70 dB.
- To ensure optimal performance, install the machine in a location where these parameters will not be exceeded:
  - Maximum permissible inlet water pressure: 0.6 MPa (6 Bar)
  - Minimum permissible inlet water pressure: 0.2 MPa (2 Bar)
  - Maximum inlet water temperature: 40°C
  - Ambient temperature is between +10°C (min.) and +40°C (max.).

Packaging

- The machine is shipped in a custom-designed carton which utilizes model-specific polystyrene cushions to protect it from damage.
- The machine's carton features standardized handling symbols to explain proper shipping and storage methods.
- The machine must remain in a horizontal position during the transport. Do not store or handle the machine except on its feet.
- During transport protect the carton and machine from impact drops, crushing, shocks, moisture and exposure to extreme temperature.

Delivery inspection

- Upon receipt and delivery ensure that the machine is in the exact condition described in the enclosed documentation, and that all accessories are included. Missing items should be reported to the manufacturer or dealer immediately.
- Damage caused during transport should be reported to the shipping agent and the machine's distributor immediately.
- Packaging materials are potentially dangerous and should be kept away from children.
- The carton and all packing materials are recyclable and should be returned to a recycling center for disposal.

MACHINE STORAGE AND DISPOSAL

Long-term storage requirements

Before storage or a month or more be sure to:

- Perform all weekly and periodic cleaning procedures described in this manual.
- Disconnect and roll up the power cord (this should be performed by a qualified person).
- Disconnect the machine's water inlet hose from the domestic water supply and drain the boilers (this should be performed by a qualified person).
- Clean the drip tray and exterior of the machine to remove any coffee or other residue.
- Cover / re-pack the machine in its original carton and store it in a dry place where it will not be exposed to extreme temperatures or humidity.
- When returning the machine to service after long-term storage, perform all weekly and periodic cleaning procedures and reconnect the water and power supplies (this should be performed by a qualified person) before use.

Machine disposal requirements

If the machine ever needs to be scrapped and disposed of be sure to:
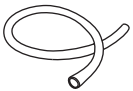
- Disconnect and roll up the power cord (this should be performed by a qualified person).
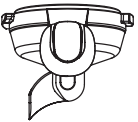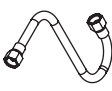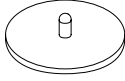- Disconnect the machine's water inlet hose from the domestic water supply and drain the boilers (this should be performed by a qualified person).
- Pack up and ship/deliver the machine to a certified recycling center.

ONYX 2GR MINI machine data

ONYX 2GR MINI	
Compliance codes:	EBED-C32B-12AO (Standard) EBED-C32B-22AO (Take Away)
Temperature control system:	Pressure switch
Dispensing control system:	Individual group programming capability
Steam wand:	1 unit
Turbo steamer:	Not available
Hot water outlet:	1 unit
Boiler system:	1 steam boiler
Boiler operating pressure:	0.8 to 1.2 bar
Steam boiler operating volume:	6L
Power rating:	220-240V 1N~ 2800W 50-60 Hz
Water connection:	3/8" Internal thread
Height, width, depth:	520, 490, 585mm
Machine weight:	47kg
Ambient noise:	< 70 db

ONYX 2GR MINI accessories

MODEL	2-spouts portafilter	1-spout portafilter	55-cm inlet hose	Blind gasket	Drainage tube (150 cm)
ONYX 2GR MINI	1 unit	1 unit	1 unit	1 unit	1 unit

ONYX 2GR MINI front view

Drink Keypads

Steam Knob

Hot Water Knob

Brewing Group

Power Switch

Brewing Group

Steam Wand

Hot Water Tap

Steam Manometer

Heating Lamp

Drip Tray

ONYX 2GR MINI external dimensions

C

A

B

D
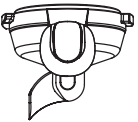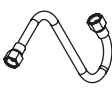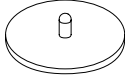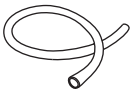
Dimension	Length
A	490mm
B	585mm
C	520mm
D	75mm

ONYX 2GR MINI+ machine data

ONYX 2GR MINI+	
Compliance codes:	EBED-C82B-12AO (Standard) EBED-C82B-22AO (Take Away)
Temperature control system:	Pressure switch
Dispensing control system:	Individual group programming capability
Steam wand:	2 units
Turbo steamer:	not available
Hot water outlet:	1 unit
Boiler system:	1 steam boiler
Boiler operating pressure:	0.8 to 1.2 bar
Steam boiler operating volume:	6L
Power rating:	220-240V 1N~ 2800W 50-60 Hz
Water connection:	3/8" Internal thread
Height, width, depth:	520, 490, 585mm
Machine weight:	48kg
Ambient noise:	< 70 db

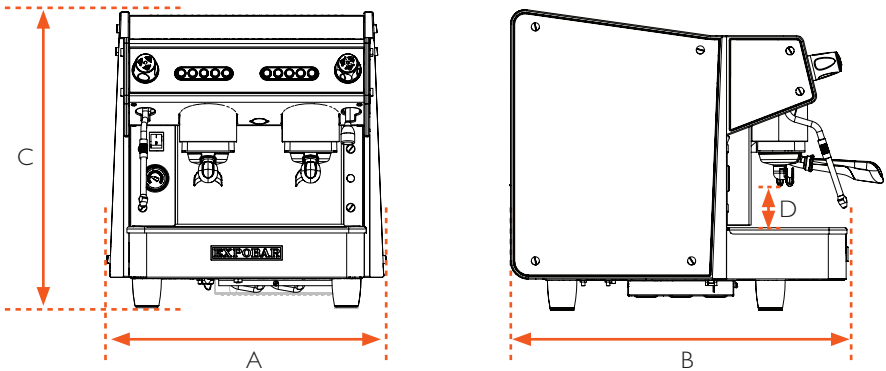## ONYX 2GR MINI+ accessories

MODEL	2-spouts portafilter	1-spout portafilter	55-cm inlet hose	Blind gasket	Drainage tube (150 cm)
ONYX 2GR MINI+	1 unit	1 unit	1 unit	1 unit	1 unit

ONYX 2GR MINI+ front view

Drink Keypads

Steam Knob

Brewing Group

Power Switch

Steam Wand

Steam Manometer

Drip Tray

Steam Knob

Brewing Group

Steam Wand

Heating Lamp

Hot Water Tap

EXPOBAR

ONYX 2GR MINI+ external dimensions

C

A

D

B
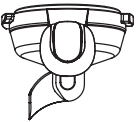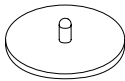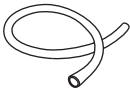
Dimension	Length
A	490mm
B	585mm
C	520mm
D	75mm

ONYX 2GR machine data

ONYX 2GR	
Compliance codes:	EBEE-D41B-12AO (Standard) EBEE-D41B-22AO (Take Away)
Temperature control system:	PID control
Dispensing control system:	Display control + individual group programming capability
Steam wand:	2 unit
Turbo steamer:	not available
Hot water outlet:	1 unit
Boiler system:	1 steam boiler
Boiler operating pressure:	0.8 to 1.2 bar
Steam boiler operating volume:	11.5L
Power rating:	220-240V 1N~ 3350W 50-60 Hz
Water connection:	3/8" Internal thread
Height, width, depth:	520, 720, 585mm
Machine weight:	67kg
Ambient noise:	< 70 db

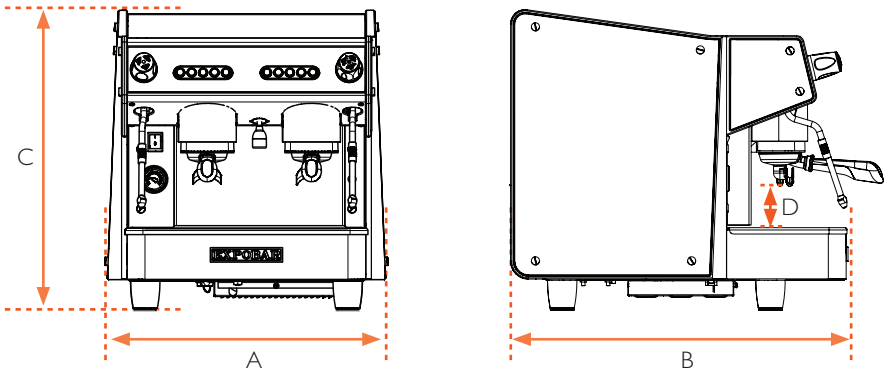## ONYX 2GR accessories

MODEL	2-spouts portafilter	1-spout portafilter	55-cm inlet hose	Blind gasket	Drainage tube (150 cm)
ONYX 2GR	2 unit	1 unit	1 unit	1 unit	1 unit

ONYX 2GR front view

Display

Steam Knob

Hot Water Knob

Hot Water Tap

Steam Wand

Drip Tray

Drink Keypads

Steam Knob

Steam Wand

Power Switch

Heating Lamp

Brewing Group

EXPOBAR
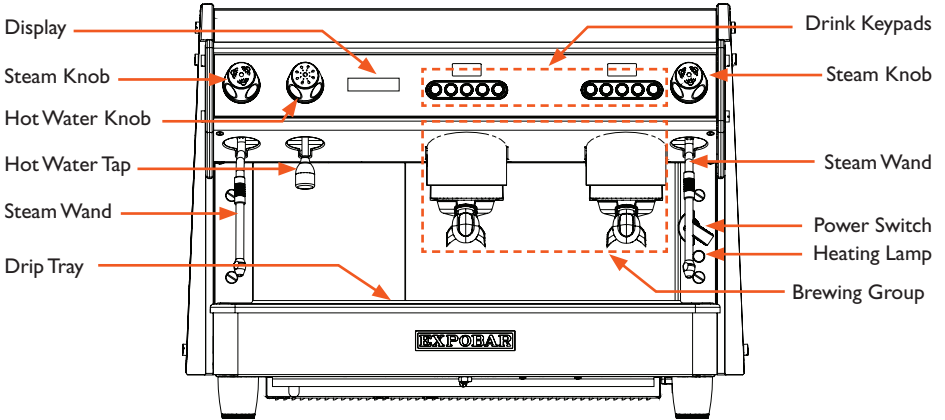
ONYX 2GR external dimensions

C

A

D

B

EXPOBAR
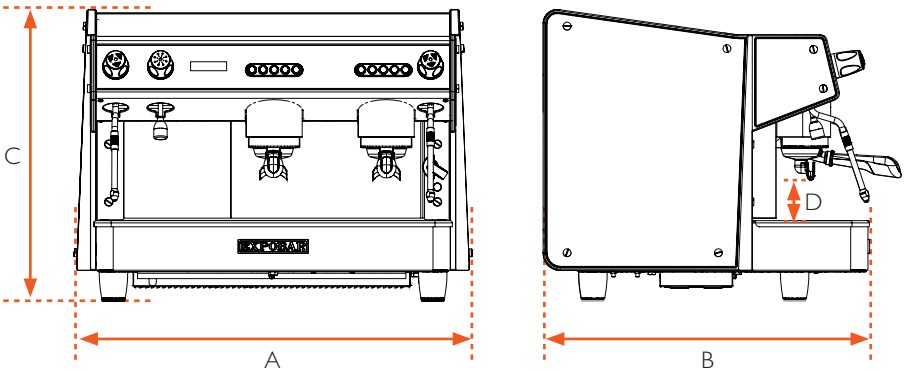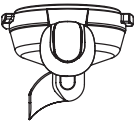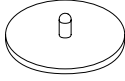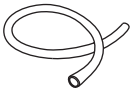
Dimension	Length
A	720mm
B	585mm
C	520mm
D	75mm

ONYX 3GR machine data

ONYX 3GR	
Compliance codes:	ECGF-H41B-12AO (Standard) ECGF-H41B-22AO (Take Away)
Temperature control system:	PID control
Dispensing control system:	Display control + individual group programming capability
Steam wand:	2 units
Turbo steamer:	not available
Hot water outlet:	1 unit
Boiler system:	1 steam boiler
Boiler operating pressure:	0.8 to 1.2 bar
Steam boiler operating volume:	17.5L
Power rating:	380-415V 3N~ 6350W 50-60 Hz
Water connection:	3/8" Internal thread
Height, width, depth:	520, 1000, 585mm
Machine weight:	95kg
Ambient noise:	< 70 db

ONYX 3GR accessories

MODEL	2-spout portafilter	1-spout portafilter	55-cm inlet hose	Blind gasket	Drainage tube (150 cm)
ONYX 3GR	3 unit	1 unit	1 unit	1 unit	1 unit

ONYX 3GR front view

Display
Steam Knob
Hot Water Knob
Hot Water Tap
Steam Wand
Drip Tray

Drink Keypads
Steam Knob
Steam Wand
Brewing Group
Power Switch
Heating Lamp
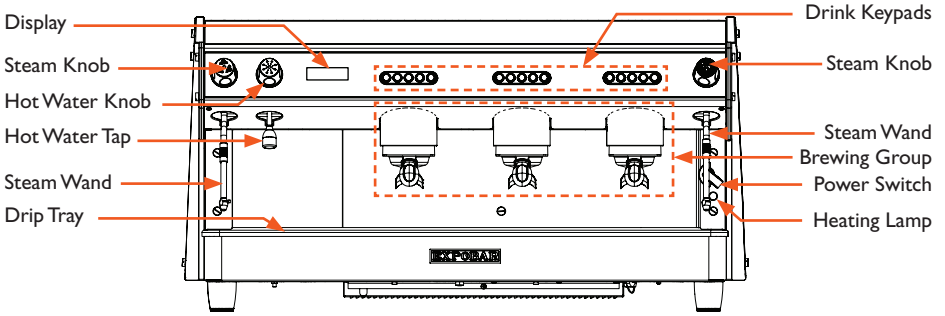
ONYX 3GR external dimensions

C

A

B

D
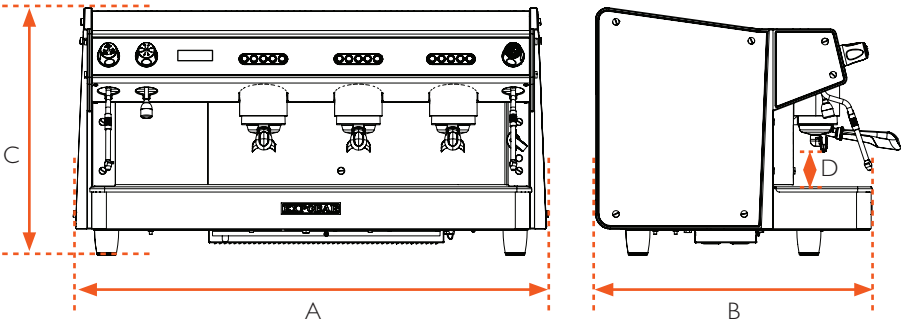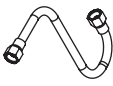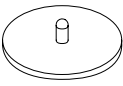
Dimension	Length
A	1000mm
B	585mm
C	520mm
D	75mm

ONYX *Pro* 2GR machine data

ONYX *Pro* 2GR	
Compliance codes:	EFEE-D41B-22AO (Take Away, non-Turbo Steamer, 240V) EFEE-D61B-22AO (Take Away, Turbo Steamer-equipped, 240V) EFGE-G61B-12AO (Standard, non-Turbo Steamer) EFGE-G41B-22AO (Take Away, non-Turbo Steamer) EFGE-G41B-12AO (Standard, Turbo Steamer-equipped) EFGE-G61B-22AO (Take Away, Turbo Steamer-equipped)
Temperature control system:	PID control
Dispensing control system:	Touchscreen control + individual group programming capability
Steam wand:	2 units
Turbo steamer:	optional
Hot water outlet:	1 unit
Boiler system:	1 steam boiler + 2 group boilers
Boiler operating pressure:	0.8 to 1.2 bar
Steam boiler operating volume:	11.5L
Group boiler volume:	1.5L
Power rating:	220-240V 1N~ 3350W 50-60 Hz (non-Turbo Steamer) 220-240V 1N~ 3350W 50-60 Hz (Turbo Steamer-equipped) 380-415V 3N~ 4840W 50-60 Hz (non-Turbo Steamer) 380-415V 3N~ 4860W 50-60 Hz (Turbo Steamer-equipped)
Water connection:	3/8" Internal thread
Height, width, depth:	520, 720, 585mm
Machine weight:	70kg
Ambient noise:	< 70 db

ONYX *Pro* 2GR accessories

MODEL	2-spout portafilter	1-spout portafilter	55-cm inlet hose	Blind gasket	Drainage tube (150 cm)
ONYX *Pro* 2GR	2 unit	1 unit	1 unit	1 unit	1 unit

ONYX *Pro* 2GR front view

Group Temperature Displays

Display

Steam Knob /
Turbo Steamer
Knob - optional

Hot Water Tap

Steam Wand /
Turbo Steamer -
optional, not shown

Drip Tray

Drink Keypads

Steam Knob

Steam Wand

Power Switch

Heating Lamp

Brewing Group

Cup Tray
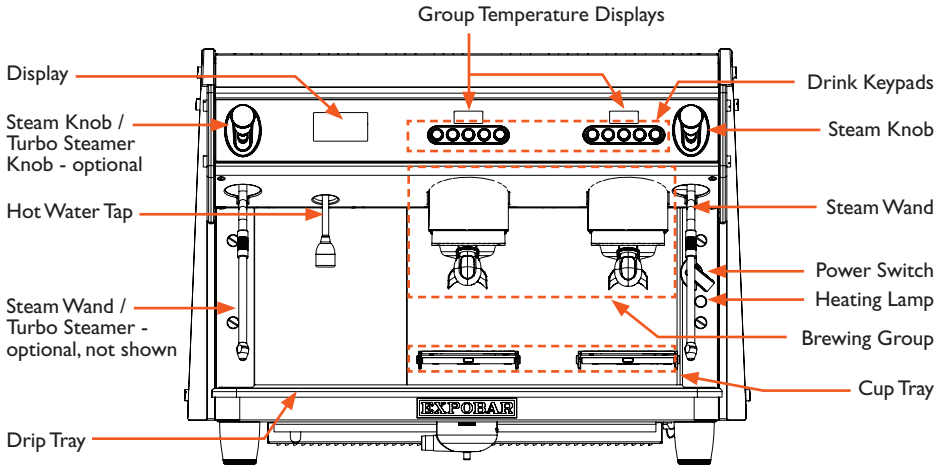
ONYX *Pro* 2GR external dimensions

C

A

D   E

B
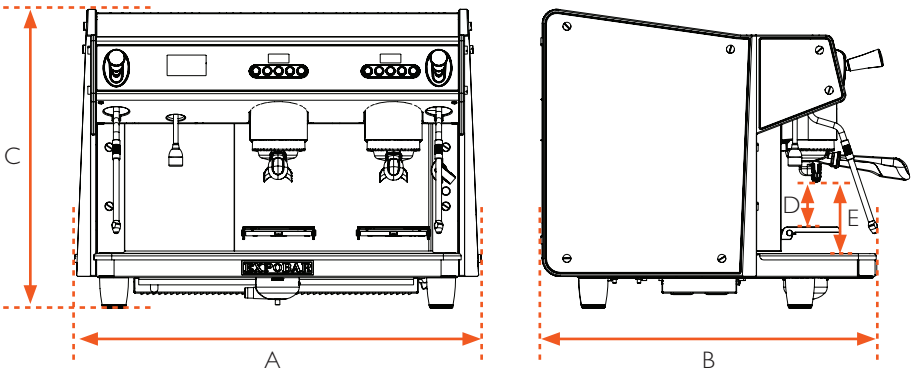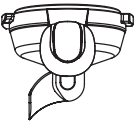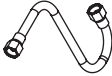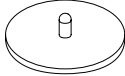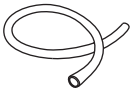
Dimension	Length
A	720mm
B	585mm
C	520mm
D	78mm
E	125mm

ONYX *Pro* 3GR machine data

ONYX *Pro* 3GR	
Compliance code:	EGGF-H61B-12AO (Standard, non-Turbo Steamer) EGGF-H41B-22AO (Take Away, non-Turbo Steamer) EGGF-H41B-12AO (Standard, Turbo Steamer-equipped) EGGF-H61B-22AO (Take Away, Turbo Steamer-equipped)
Temperature control system:	PID control
Dispensing control system:	Touchscreen control + individual group programming capability
Steam wand:	2 units
Turbo steamer:	optional
Hot water outlet:	1 unit
Boiler system:	1 steam boiler + 3 group boilers
Boiler operating pressure:	0.8 to 1.2 bar
Steam boiler operating volume:	17.5L
Group boiler volume:	1.5L
Power rating:	380-415V 3N~ 6420W 50-60 Hz (non-Turbo Steamer) 380-415V 3N~ 6440W 50-60 Hz (Turbo Steamer-equipped)
Water connection:	3/8" Internal thread
Height, width, depth:	520, 1000, 585mm
Machine weight:	95kg
Ambient noise:	< 70 db

ONYX *Pro* 3GR accessories

MODEL	2-spout portafilter	1-spout portafilter	55-cm inlet hose	Blind gasket	Drainage tube (150 cm)
ONYX *Pro* 3GR	3 unit	1 unit	1 unit	1 unit	1 unit

ONYX *Pro* 3GR front view

Group Temperature Displays

Display

Steam Knob /
Turbo Steamer
Knob - optional

Hot Water Tap

Steam Wand /
Turbo Steamer -
optional, not shown

Drip Tray

Drink Keypads

Steam Knob

Steam Wand

Brewing Group

Power Switch

Heating Lamp

Cup Tray
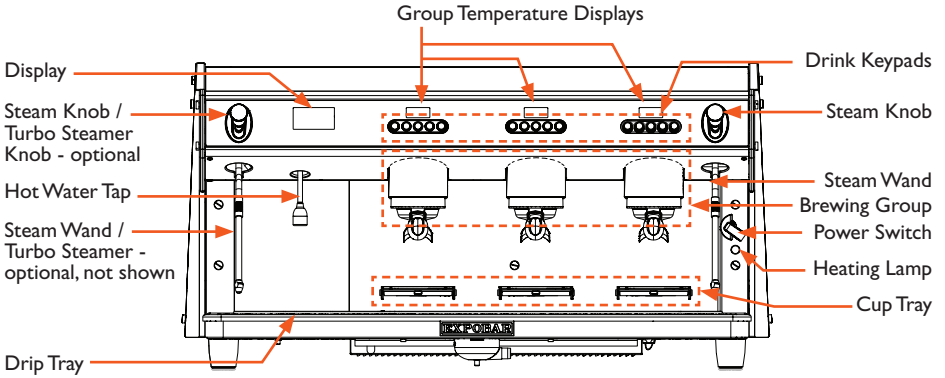
ONYX *Pro* 3GR external dimensions
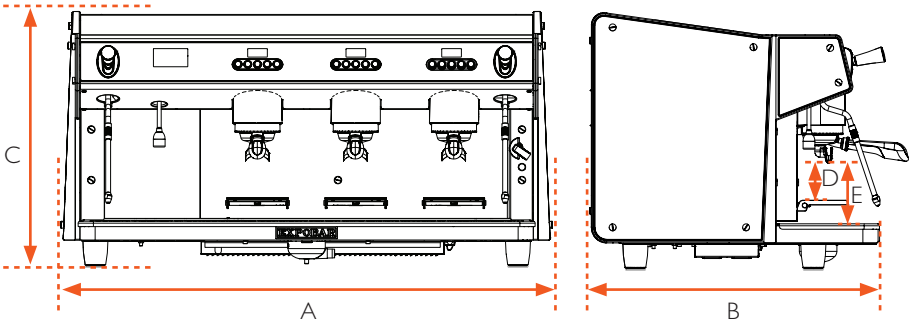
Dimension	Length
A	1000mm
B	585mm
C	520mm
D	78mm
E	125mm

Machine controls

ONYX is controlled by a combination of manual control knobs and push buttons at each brewing group for dispensing, combined with a digital display to provide user feedback during operation and programming. Control functions are explained below.

| 1 Short Espresso | 1 Long Espresso | 2 Short Espressos | 2 Long Espressos | Continuous Dispensing |

(One set of buttons per group)

Digital display

Hot Water Tap

Steam Knob

Steam Knob
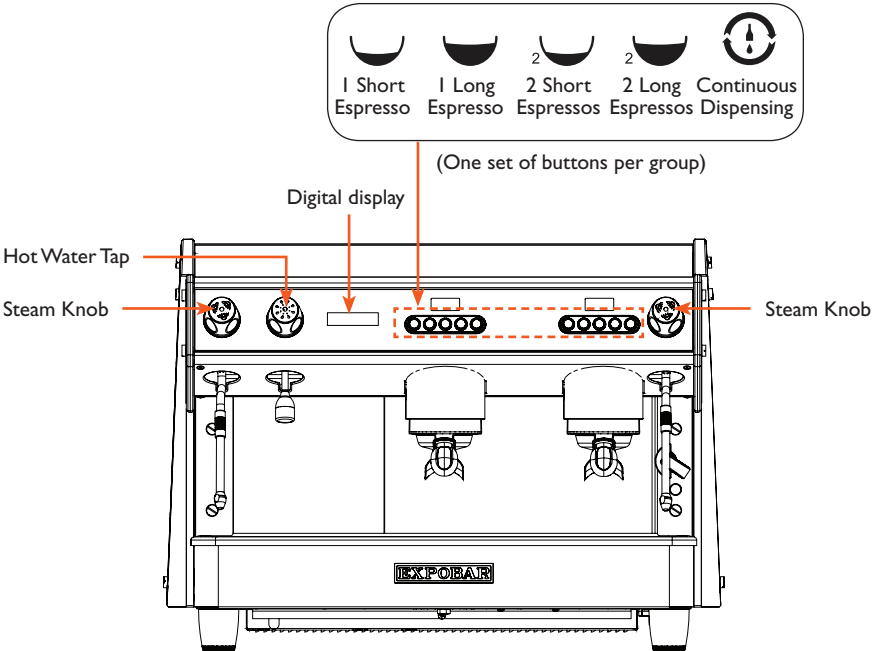
Digital display

ONYX features an LCD digital display for monitoring machine status.

96°C   08:47

SELECT DOSES
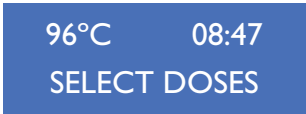
Machine controls

ONYX *Pro* is controlled by a capacitive interface LED touchscreen to provide user feedback during operation, monitoring machine status and performing user programming and machine adjustments, customization and cleaning along with push buttons at each brewing group for dispensing. Control functions are explained below.

✅ *Pro Tip:*

All group buttons are fully adjustable via the user programming. See the Dose Programming section for more details.

Short Espresso   Medium Espresso   Long Espresso   Quick flush   Hot water dispensing

(One set of buttons per group)

Touchscreen

Steam Knob
(Turbo Steamer
Knob - optional)

Steam Knob
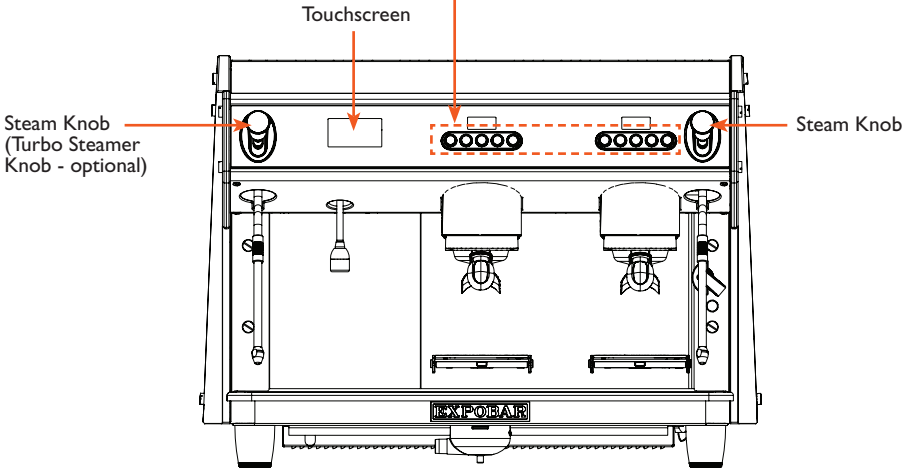
Touchscreen

ONYX *Pro* features a capacitive interface LED touchscreen for monitoring machine status and performing user programming and machine adjustments, customization and cleaning.

08:47
TUE   EXPOBAR   🔧

MAX
MIN   118 C   GR1 96 C   GR2 97 C   GR3 OFF

ℹ️ *Note:*

See the Onyx Pro User Programming section for instructions related to programming and customizing the machine's settings via the touchscreen.

Machine positioning

MIN. 30 cm

MIN. 10 cm

↑ Install within 0-3° horizontal.
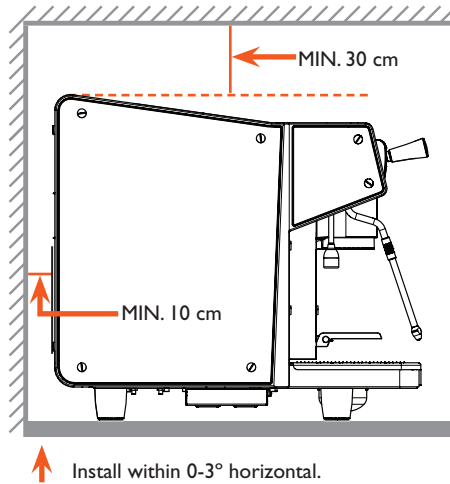
1. Installing the machine in the service area must be performed by a qualified person. As the machine may be quite heavy, at least two strong, capable individuals are recommend to work together to lift and position the machine. Consult the Technical Specifications page for the specific machine model being installed for machine weight and dimensions details. Contact a service technician to do this task if you are not confident about performing the steps below.

2. Position the machine on a level, sturdy, and water-resistant surface approximately 110cm above floor level for ease of access and usage.

3. Adjust the feet to ensure that it dispenses coffee evenly to all cups.

4. Ensure enough free space is available above (>30cm) and behind (>10cm) the machine to ensure easy cleaning and maintenance and adequate ventilation.

⚠️ *Important:*

Leave an air gap of at least 30cm above the machine and 10cm behind it to ensure adequate ventilation. The machine must be installed within 3° of horizontally level front-to-back and side-to-side to ensure proper hydraulic function and drainage. Confirm with a spirit level or digital angle gauge.

Do not install the machine if the machine or installation surface it is wet. Allow it to dry completely and ask a service technician to ensure that none of the electrical components have been affected.

Drain connection checklist

Flexible drain tube   Drain cup
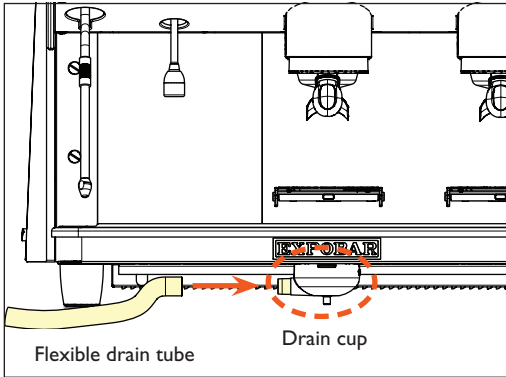
1. Connect one end of the flexible drain tube to the drain cup outlet. (It is located under the drip tray and grill. Contact a service technician to do this task you are unsure how to access this area of the machine.)

2. Connect the other end of the drain tube to the domestic plumbing drainage system in the service area.

3. Replace/reinstall the drip tray and grill.

✅ *Pro Tip:*
Ensure that the drainage tube is not twisted and that it is below the level of the drain cup to prevent trapping water and other residue in the tube which could mold or produce bad smells.

Water filtration checklist

Domestic water supply

Machine
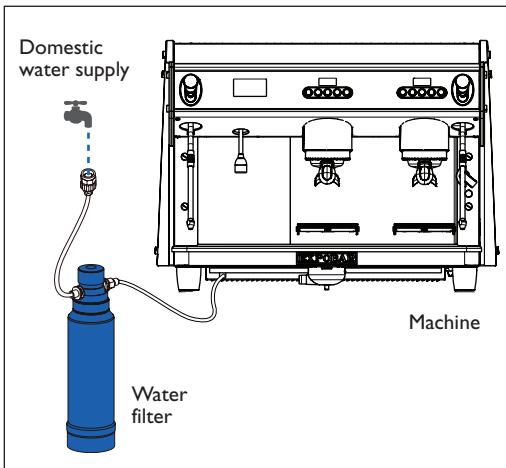
Water filter

1. Ensure that a water filtration device or system is installed in-line in the domestic water supply ahead the machine to prevent contamination inside the machine's hydraulic system. Contact a service technician to do this task if you are not confident about performing the steps below.

2. Open the water tap and allow the filter to fill (if new/previously unused). Then the machine's steam boiler will begin to fill. Check carefully around the service area for leaks or drips. If leaks/drips are detected turn off the tap immediately and check/tighten any leaking fittings.

✅ *Pro Tip:*
Always maintain the water filtration device or system in accordance with the manufacture's specifications. Failure to routinely maintain the filtration device or system will result in limescale build-up inside the machine's hydraulic system which will eventually result in machine failure.

Water filter requirements

Only use safe drinking water with a hardness rating between 5°fH and 8°fH (French hardness degrees). If the hardness value is below this limit, corrosion of hydraulic components is likely. If the value is higher, lime-scaling inside the boiler will occur. In both cases, the proper function of the machine and quality and taste of the coffee will be negatively affected.

If drinking water is not within the ratings shown above, a water filter must be installed inline ahead of the espresso machine. Failure to install a water filter will result in voiding of the warranty and any damage resulting from limescale buildup will be the responsibility of the owner.

Water connection checklist

1. Connecting the machine to the domestic water supply must be performed by a qualified person. Contact a service technician to do this task you are not confident about performing the steps below.

2. Purge at least 20 liters of water from the domestic water supply before connecting the machine to it to flush out any debris that may be in the plumbing system that would otherwise accumulate inside the boilers.

3. The domestic plumbing system should be fitted with a brass 3/8" NPT male pipe fitting and an in-line shut-off valve. Connect the 180cm water inlet hose included with the machine to the domestic water supply and tighten the line fittings with a wrench to 15 ft. lbs. / 20N-m.

4. If necessary, connect the machine to a water softener to reduce water hardness using the flexible 55cm hose included in the accessory box.

⚠️ *Important:*
    Only use the hoses supplied with the machine. Never reuse damaged hoses.

Boiler pressure and temperature information

Boiler pressure is directly controlled by water temperature. The steam boiler's optimal temperature operating range is from 116-120°C for milk steaming and brewing results. (The factory default temperature setting is 119°C.)

✅ *Pro Tip:*
Significantly exceeding this operating range will result in excessive steam, high energy usage, unexpected emergency machine shutdown due to safety valve activation and possibly premature machine failure. Setting the temperature too low will resulting poor coffee extraction, slow group boiler heating, and low/no steam.

Relationship between boiler pressure and temperature

°C

| 125 |
| 120 |
| 115 |
| 110 |

0.7   0.8   0.9   1   1.1   1.2   BAR

☐ Optimal operating pressure and temperature
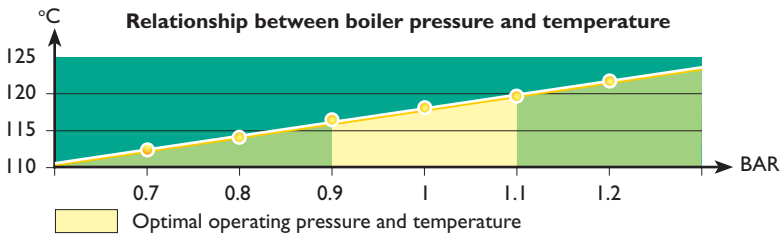
Machine handling tips
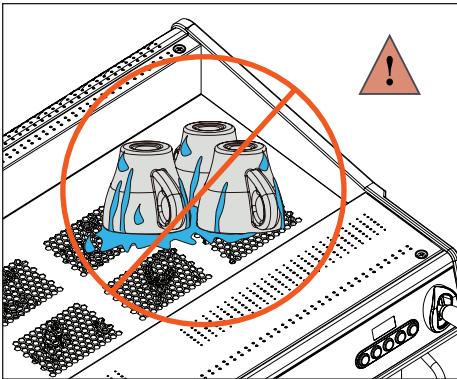
⚠ *WARNING!*
Allowing water to drip into the machine can cause mechanical and electrical damage.

Do not place wet cups directly on the cup shelf. Always thoroughly dry any cups before storing them on the warming shelf.

Electrical connection checklist
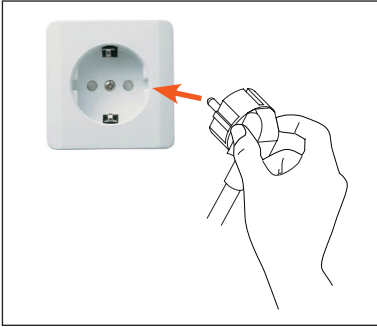
⚠ DANGER!

If the mains cable or plug is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid **SERIOUS INJURY OR DEATH!**

⚠ *Important:*

The manufacturer will not be held liable for damage to persons, animals or property resulting from incorrect installation of the coffee machine.

1. The machine should only be connected to the power supply by qualified personnel. The following safety instructions should be obeyed at all times.

2. Ensure that the electrical requirements stated on the TECHNICAL SPECIFICATIONS and on the ratings plate located under the drip tray inside the machine match the specifications of the power supply.

3. Ensure that the domestic electrical supply where the machine is being installed is rated for and able to provide the power required by the machine. Insufficient power supply, wiring, grounding, or insulation can result in overheating and possibility of fire.

4. The coffee machine must be connected to an earth grounded electrical outlet that complies with the regulations in force in the country of installation.

5. Ensure that a circuit breaker engineered for the power consumption of the machine is installed to protect the electrical supply, as specified on the ratings plate located under the drip tray.

6. Never connect the machine to the power supply via extension cords, plug adapters, or shared outlets.

Machine: 230Vac Ph+N

Supply cable
- Blue — NEUTRAL
- Brown — PHASE
- Yellow/Green — ⏚

Machine: 400Vac 3Ph+N

Supply cable
- Blue — NEUTRAL
- Brown — PHASE
- Grey — PHASE
- Black — PHASE
- Yellow/Green — ⏚

INSTALLATION AND START UP
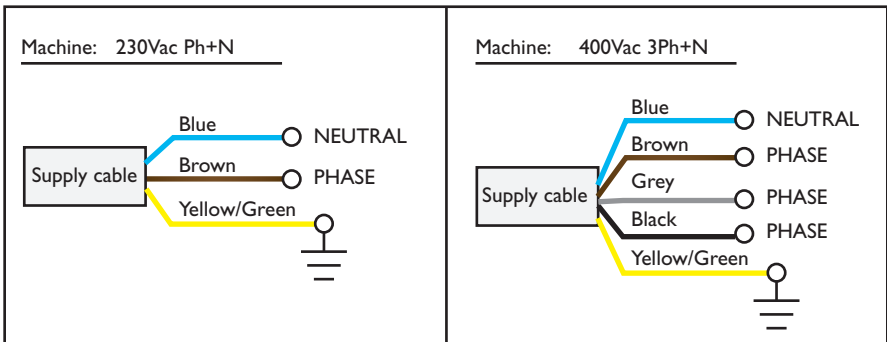
Initial starting procedure

Steam knob

Power switch
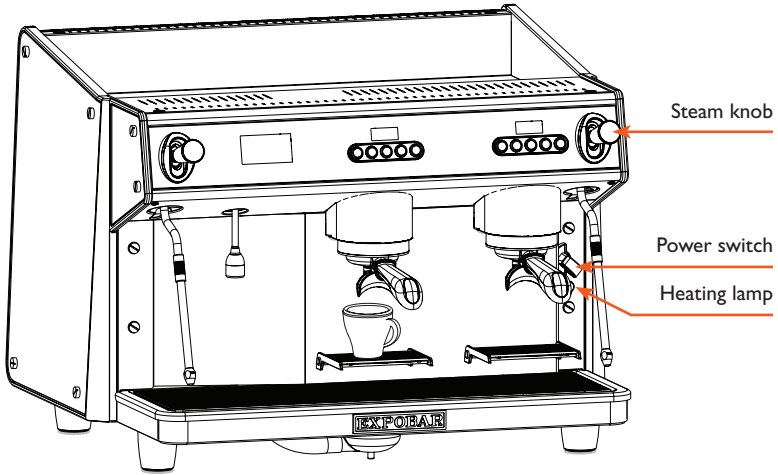
Heating lamp

Before using the machine be sure to:

1. Ensure the machine's domestic water supply is opened at the tap.

2. Turn on the main power switch and wait a few minutes for the boiler to heat up.

3. Confirm that the heating lamp is lit up while the boiler is heating. When the lamp switches off automatically the machine has reached operating temperature.

4. Press a drink button on the keypad to bleed air out of the group boilers and to ensure they are working (repeat for each group).

5. Open the steam knobs/taps to ensure they are working.

The machine is now ready to use.

The portafilter set

Filter basket locking spring

Filter basket

Portafilter spring slot

Single espresso portafilter and filter basket (7g)

Double espresso portafilter and filter basket (14g)
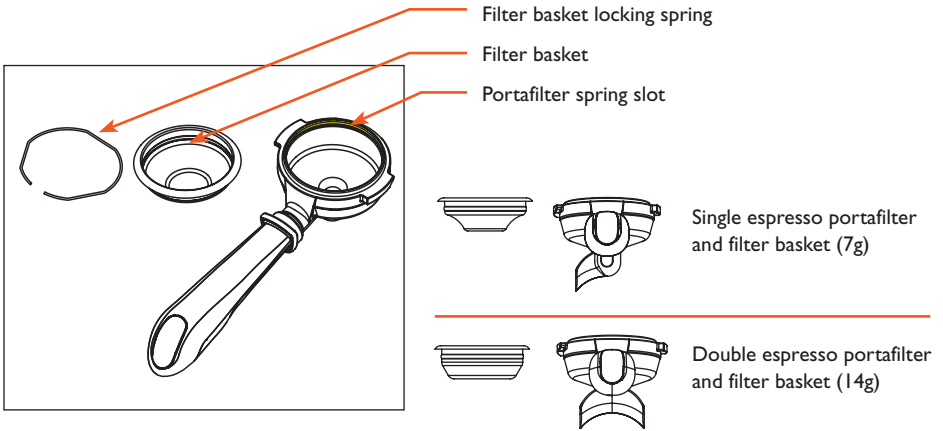
Inserting the portafilter in the group
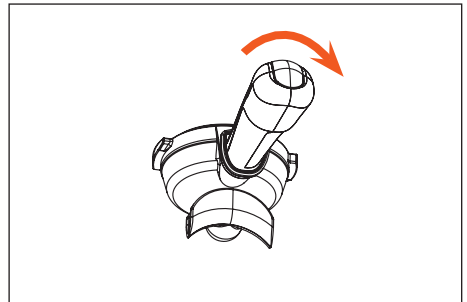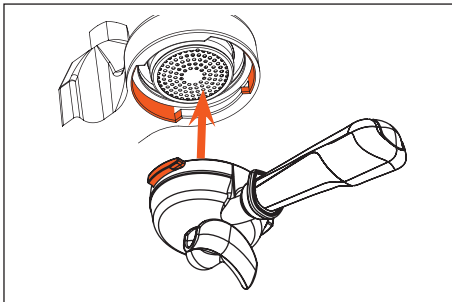
■ Align the portafilter's two flanges with the two slots in the group housing.

■ Insert the portafilter and rotate it counterclockwise until the handle is approximately perpendicular to the face of the coffee machine.

Portafilter is not fully inserted.

Installed correctly.

Group gasket is worn out and needs to be replaced.
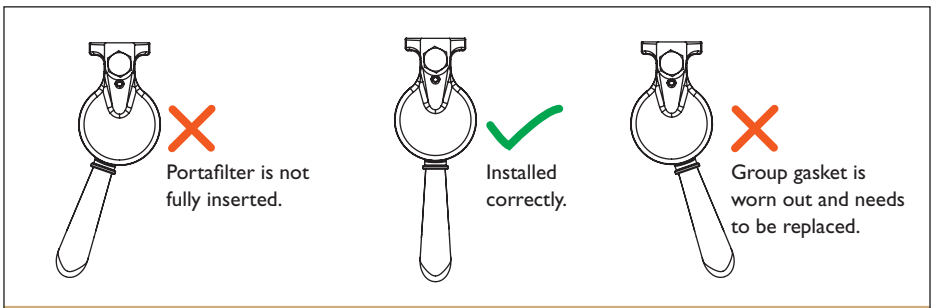
Espresso brewing
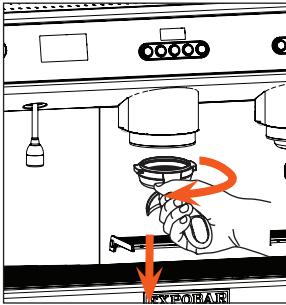
1. Unlock and remove the portafilter from the group head.
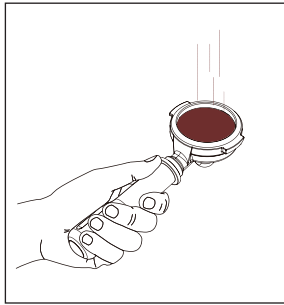
2. Fill the filter basket with espresso-grind coffee (approx. 7g for single or 14g for a double espresso).
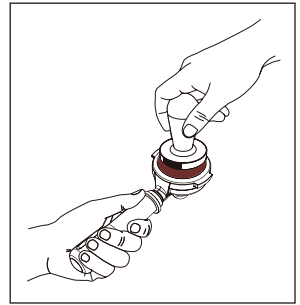
3. Press the coffee with the coffee tamper.
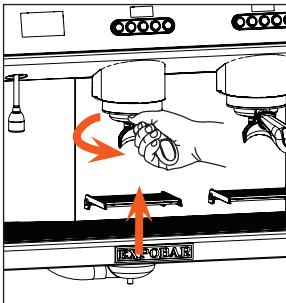
4. Insert the filled portafilter into the group head and lock it into the correct position.
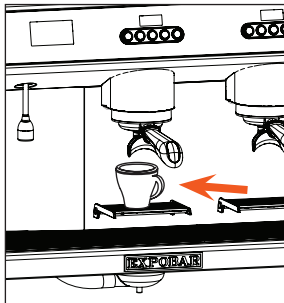
5. Place the cup(s) under the portafilter outlet(s).
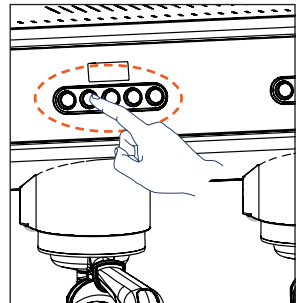
6. Select the desired option from the drink buttons.

⚠️ *WARNING!*

Never try to open the portafilter while the machine is in operation! The pressurised hot water could cause scalding or serious injury. After dispensing has finished, wait at least 3 seconds before removing the portafilter.

✅ *Pro Tip:*

When not in use store the portafilter inserted in the group to keep it warm. This is important to maintain optimal brewing temperature while the espresso is dispensing.

Steaming and frothing milk
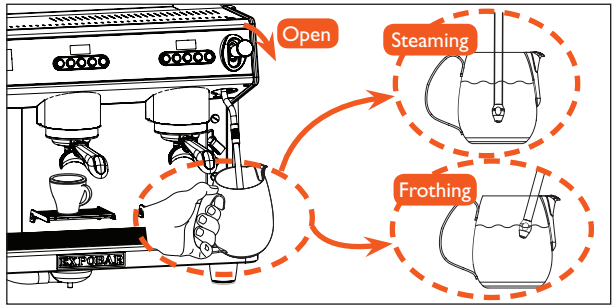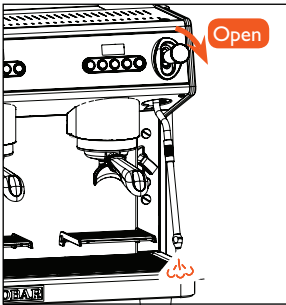
1. Place the steam wand over the drip tray and open the steam knob/handle for a few seconds to allow condensed water to be ejected. Close the steam knob/handle when only steam is coming out.

2. Immerse the steam wand into the milk, making sure the wand tip is submerged. Open the steam knob/handle again to begin steaming or frothing the milk. Always keep the tip of the steam wand submerged in the milk while steaming!

WARNING!

Do not remove the pitcher or allow the steam wand to extend out of the milk while steaming/frothing, it may cause serious burns and injuries.
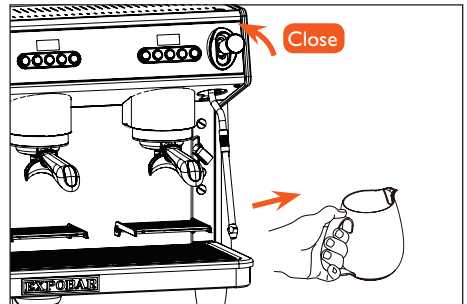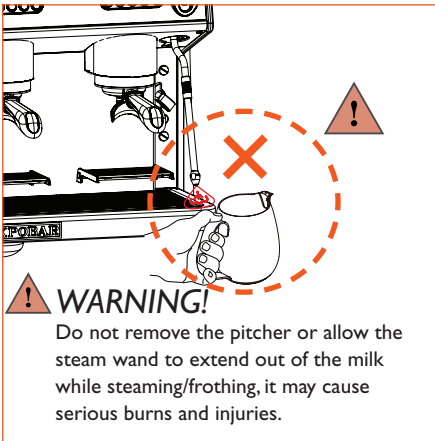
4. Once the milk reaches the desired temperature, close the knob/handle and wait for the steaming to stop, then remove the pitcher.
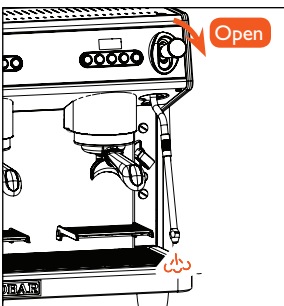
5. After steaming/frothing is finished, position the steam wand over the drip tray and open the steam knob/handle again for a few seconds to purge any milk remaining in the wand. Then wipe down the outside of the steam wand with a damp cloth to prevent nozzle blockage and to keep it clean.

Steaming milk with the Turbo Steamer - ONYX *Pro*
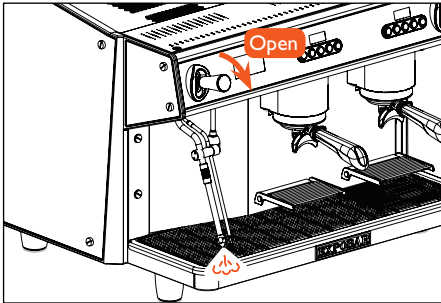
1. Place the Turbo steam wand over the drip tray and open the steam handle for a few seconds to allow condensed water to be ejected. Close the steam handle when only steam comes out.
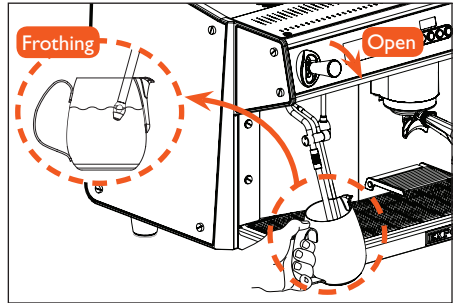
2. Immerse the Turbo steam wand into the milk, making sure the wand tip is submerged. Open the Turbo steam handle again to begin steaming or frothing the milk. Always keep the tip of the Turbo steam wand submerged in the milk while steaming!
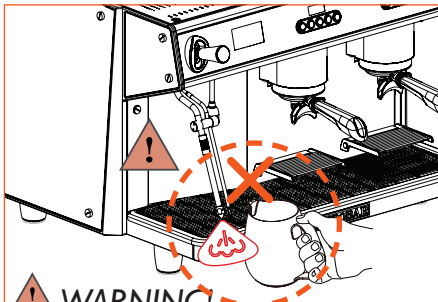
⚠️ *WARNING!*
Do not remove the pitcher or allow the steam wand to extend out of the milk while steaming/frothing, it may cause serious burns and injuries.
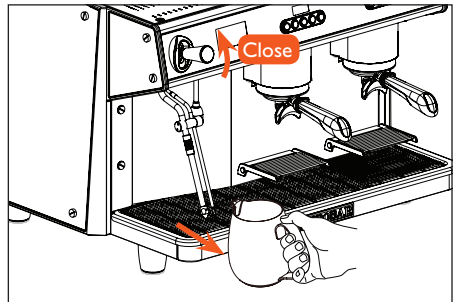
4. When the froth begins to form, place the milk container on the drip tray with the Turbo steamer positioned as needed to continue to froth. The Turbo steamer will stop automatically when the programmed milk temperature is reached. The pitcher can then be removed.
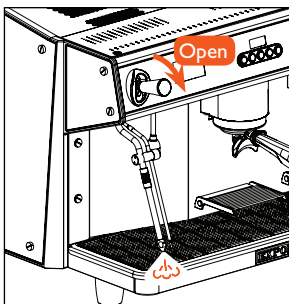
5. After steaming is finished, position the steam wand over the drip tray and open the steam knob/handle again for a few seconds to purge any milk remaining in the wand. Then wipe down the outside of the Turbo steam wand and temperature probe with a damp cloth to prevent nozzle blockage and to keep everything clean.

Dispensing hot water
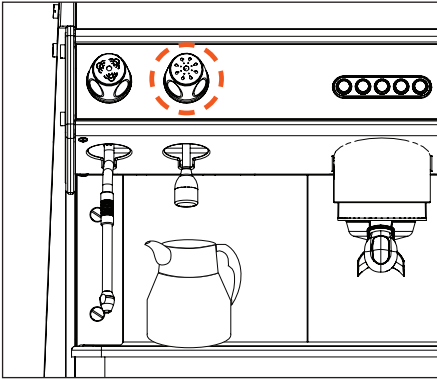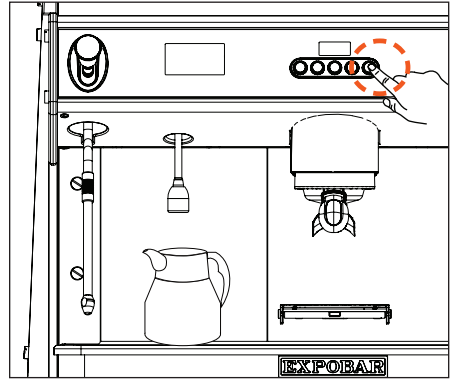
ONYX   ONYX Pro

⚠️ *WARNING!*

Never place hands and fingers directly under the hot water outlet during dispensing to avoid scalding or serious burns.

1. Place a pitcher (or other heat resistant vessel) under the hot water outlet.

2. Open the tap or press the hot water button to begin dispensing.

3. When the desired amount of hot water is dispensed, close the tap or press the hot water button again to stop dispensing. (For ONYX Pro the dispensing will stop automatically after the programmed dispensing time is reached, or after 30 seconds - whichever is shorter).

Cleaning reminders

- To keep the machine looking and working like new, always follow all the cleaning and care instructions provided in this manual.

- For safety always turn the machine off at the main power switch when cleaning the exterior surfaces.

- All exterior surfaces should be cleaned with a damp, lint-free cloth that will not scratch the machine, glass surfaces can be cleaned with a streak-free glass cleaner and a dry cloth.

- Do not use aggressive cleaning detergents, solvents or degreasers. These may damage the plastic and rubber parts, and will leave unwanted residue.

Daily cleaning

At the end of each working day be sure to:

1. Position the steam wand over the drip tray and open the steam lever for one minute to fully flush the wand. Repeat for each steam wand.

2. Place a container under the water outlet and activate the hot water dispensing for a total of 20 seconds to fully flush the tap.

3. Run the Daily flushing cycle for each brewing group. See Daily flushing section for details.

4. Clean the external surfaces of the machine, paying special attention to the glass and stainless steel parts to remove any coffee residue and smudges and fingerprints.

Weekly cleaning

Once per week be sure to:

1. Clean the drain cup by slowly pouring one liter of warm water into it to dissolve and remove any build-up of coffee residue that often accumulates inside the drain cup and tube.

2. Clean the dip tray and the stainless steel insert grid under running water with a brush.

3. Clean the steam wand and the water tap. Be sure that the nozzles are not clogged or partially blocked with milk or other residue. If it's necessary to remove them for cleaning, be careful not to deform or damage any of the components during removal.

4. Run the Weekly cleaning for each brewing group. See Weekly cleaning with espresso machine detergent section for details.

Daily flushing - ONYX
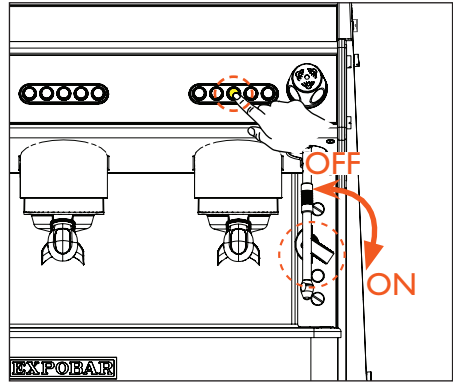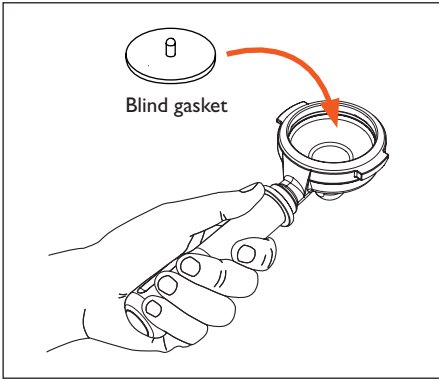
Blind gasket

OFF

ON

EXPOBAR

1. Place the blind gasket in the emptied portafilter, then lock the portafilter into the brewing group.

2. Turn off the machine at the main switch, then press and hold the group's middle button (2 Short Espressos) then turn the machine back on at the main switch. Automatic cleaning will start and lasts about one minute.

Blind gasket

3. After cleaning, remember to remove the blind gasket and store it in a safe place for the next usage.

⚠️ **WARNING!**
DO NOT OPEN THE GROUP OR REMOVE THE PORTAFILTER UNTIL THE CLEANING HAS FINISHED! THIS WILL RELEASE STEAM AND HOT WATER WHICH COULD RESULT IN BURNS.

✅ *Pro Tip:*
Run the flushing cycle for each group at the end of each day to prevent coffee residue drying and building up inside the brewing groups.

Daily flushing - ONYX *Pro*
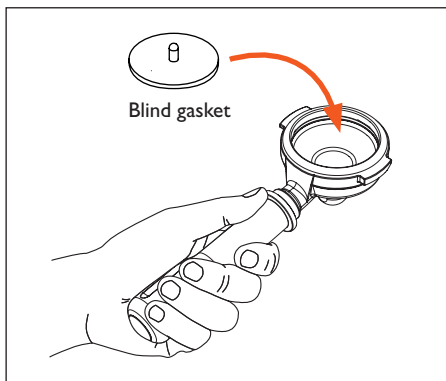
Blind gasket

1. Place the blind gasket in the emptied portafilter, then lock the portafilter into the brewing group.

2. Enter the user programming and select the automatic cleaning cycle on the touchscreen. Automatic cleaning will start and lasts about 45 seconds.

Blind gasket

3. After cleaning, remember to remove the blind gasket and store it in a safe place for the next usage.

⚠️ *WARNING!*
DO NOT OPEN THE GROUP OR REMOVE THE PORTAFILTER UNTIL THE CLEANING HAS FINISHED! THIS WILL RELEASE STEAM AND HOT WATER WHICH COULD RESULT IN BURNS.

✅ *Pro Tip:*
Run the flushing cycle for each group at the end of each day to prevent coffee residue drying and building up inside the brewing groups.

Weekly cleaning with espresso machine detergent - ONYX

Blind gasket

1. Place the blind gasket in the emptied portafilter.

Professional espresso machine detergent
Part no: 1104162

2. Add 7-10g of espresso machine detergent to the portafilter, then lock the portafilter into the brewing group.

OFF

ON

EXPOBAR

3. Turn off the machine at the main switch, then press and hold the group's middle button (2 Short Espressos) then turn the machine back on at the main switch. Automatic cleaning will start and lasts about one minute.

Blind gasket

4. After cleaning, with detergent, the group needs to be flushed. So run the Automatic cleaning cycle two more times to flush out any remaining detergent. Repeat for each group, then remove the blind gasket and store it in a safe place for the next usage.

⚠️ *WARNING!*
Do not open the group or remove the portafilter until the cleaning has finished! This will release steam and hot water which could result in burns.

✅ *Pro Tip:*
Run the cleaning cycle for each group at the end of each week to thoroughly clean the group head, shower plate and portafilter to ensure great coffee taste.

Weekly cleaning with espresso machine detergent - ONYX *Pro*
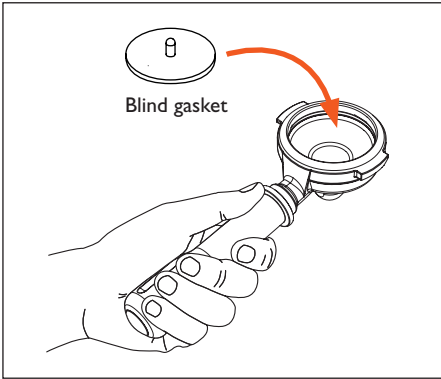
1. Place the blind gasket in the emptied portafilter.

Professional espresso cleaning detergent
Part no: 1104162

2. Add 7-10g of espresso machine detergent to the portafilter, then lock the portafilter into the brewing group.

3. Enter the User Programming and select the Automatic cleaning cycle on the touchscreen. Automatic cleaning will start and lasts about 45 seconds.

4. After cleaning, with detergent, the group needs to be flushed. So run the Automatic cleaning cycle two more times to flush out any remaining detergent. Repeat for each group, then remove the blind gasket and store it in a safe place for the next usage.

⚠️ *WARNING!*
Do not open the group or remove the portafilter until the cleaning has finished! This will release steam and hot water which could result in burns.

✅ *Pro Tip:*
Run the cleaning cycle for each group at the end of each week to thoroughly clean the group head, shower plate and portafilter to ensure great coffee taste.

User programming menu features

The machine is equipped a programmable interface that allows users to set or adjust the following features and parameters with guidance from the digital display. The following items can be viewed or adjusted via the left-side brewer bank's buttons:

• Dose settings for each brewing button.

• Clock settings (adjust current time and date).

• Counters (number of coffees dispensed).

Adjusting dose programming

Use the following steps to program the espresso brew dosages for each brewing group and drink button (each button can be programmed for a different dosing volume if desired):

1. Place a portafilter filled with fresh ground espresso into the brewing group and an empty cup under the outlet prior to starting the dose programming.

2. Press the Continuous Brewing Button for 8 seconds until the display shows Doses Programming.
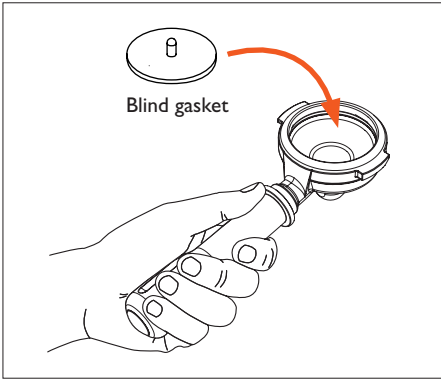
3. Within 30 seconds press the drink button to be reprogrammed. Within a few seconds espresso will begin dispensing.

4. Allow the espresso to dispense until the desired drink volume is reached, then press the drink button that is being reprogrammed again to stop the flow. This dosage volume will now be stored as the default for that drink button.

5. Repeat Steps 1-4 for all drink buttons to be reprogrammed.

i *Note:*

Programming any of the options on the left-side brewer bank's buttons automatically programs the dispensing volumes for the corresponding button on all of the other groups. This only applies to the left-side brewer buttons. Programming other drink buttons only modifies the option selected. So we programming doses for each group, always program the left-side brewer buttons first, then program the other group(s).

i *Note:*

For safety and water conservation, all brewing settings have a maximum dispensing time of 5 minutes.

Setting the time and day

Use the following steps to set the time and day displayed by the machine:

1. Enter the dose programming menu. The display will show Doses Programming.

2. Long press the Continuous Dispensing button again for two seconds until the display shows Clock Adjust.

3. Press the 2 Short Espressos button to access the time and day settings.

4. To adjust the hours, minutes and day of the week use the 1 Short Espresso and 1 Long Espresso buttons to scroll the flashing field up or down.

5. When the flashing field is set to the desired input press the 2 Short Espressos button to proceed to the next field.

6. When all fields are set as desired, press the Continuous Dispensing button to proceed to the next programmable input, Auto ON/OFF, or continue pressing it until the user programming menu is exited.

i ### Note:

The user programming menu is only accessed via the left-side brewer bank's buttons.

Setting the Auto On/Off times

Use the following steps to set the automatic power on and heat up/power down and cool off times for each day used the machine:

1. Enter the dose programming menu. The display will show Doses Programming.

2. Long press the Continuous Dispensing button again for two seconds until the display shows Clock Adjust.

3. Press the 2 Short Espressos button several times to proceed to the Auto On/Off setting. The currently programmed setting will be displayed, use the 1 Short Espresso and 1 Long Espresso buttons to scroll the flashing field up or down.

4. To adjust the Auto On settings use the 1 Short Espresso and 1 Long Espresso buttons to scroll the flashing field up or down.

5. When the flashing field is set to the desired input press the 2 Short Espressos button to proceed to the next field. Repeat this step for each day's Auto On and Auto Off times.

6. When all fields are set as desired, press the Continuous Dispensing button to proceed to the next programmable input - Counters - or continue pressing it until the user programming menu is exited.

i ### Note:

For any day(s) of the week that the machine will not be routinely used, simply program the Auto On/Off setting time as --.-- and the machine will interpret it as disabled for that day.

✔ ### Pro Tip:

The Auto On/Off function is useful for programming the machine to be warmed up and ready before the first barista arrives at the start of each day, and saves a lot of energy by making sure the machine shuts down automatically at the end of each day even if the main switch is still turned on.

View the dispensing counters

Use the following steps to view the running counters for service and total and running number of coffees that have been dispensed by the machine:

1. Enter the dose programming menu. The display will show Doses Programming.

2. Long press the Continuous Dispensing button again for two seconds until the display shows Clock Adjust along with the currently programmed time and day and the hour will be flashing.

3. Press the Continuous Dispensing button again to proceed to the Counters function.

4. Then press the 2 Short Espressos button to scroll through and review the counters. The first set of counters will be the current counters (including Liters, Service, Coffees, Teas) and then displaying the number of drinks dispensed by each brewing group.

5. To exit the user programming menu continue pressing the Continuous Dispensing button until the machine returns to normal operation.

Pro Tip:

The counters can be useful for calculating the number of coffees dispensed over a day, week or month, which is helpful in calculating business expenses, when machine service is needed, and other important machine related information.

Activating automatic cleaning

The machine has an automatic cleaning function (useful for daily flushing and weekly cleaning) which can be activated as follows:

1. Turn the machine off at the main power switch.

2. Press and hold the 2 Short Espressos button while turning the main switch back on. Hold the button for a few seconds until the machine starts the cleaning cycle. The display will show "Cleaning". The cleaning cycle lasts for about one minute.

3. Repeat for each brewing group.

WARNING!

The cleaning water is very hot! Do not place fingers or hands under the group, open the group, or remove the portafilter until the cleaning cycle has finished to avoid scalding or burns!

Note:

When using this function to perform the weekly cleaning with espresso machine detergent no water will flow from the group. It is important to perform two or three more clearings without detergent afterward for each group to ensure all detergent has been flushed out of the group.

Activating/deactivating standby (energy saver) mode

The machine has a standby (energy saver) function which can be activated/deactivated as follows:

Activating Standby-

• Press and hold the Continuous Dispensing button then press the 2 Short Espressos button. The display will show Standby.

Deactivating Standby-

• Press the 2 Short Espresso button. The machine will exit Standby mode and begin to return to normal operating.

✅ *Pro Tip:*
Standby mode reduces the steam and group boiler temperatures to 60ºC. This function is recommended during low usage times during the work day since it will reduce energy usage but still allows the machine to heat back up to normal operating temperature with just a few minutes when needed.

User programming menu features

The machine is equipped a programmable touchscreen interface that allows users to set or adjust the following features and parameters with guidance from the digital display. The following items can be viewed or adjusted via the left-side brewer bank's buttons:

- Dose settings for each brewing button.
- ECO settings (activate and deactivate energy saving mode).
- Clock settings (adjust current time and date).
- Power off/on (without using the main switch).
- Adjust preinfusion settings.
- Run the cleaning cycle.
- Adjust the steam and group boiler temperatures.
- Counters (volume of water cycled, service intervals, and number of coffees dispensed, etc.).

Entering and exiting the user programming menu

To enter the user programming menu simply press and hold the Settings button (wrench icon located at the top-right corner of the touchscreen) for six seconds.

Access Settings menu
(Long press for six seconds to access the programming menu.)

Dose Programming · ECO Mode · Exit · Preinfusion · Automatic Cleaning · Exit

Time & Date · Power On / Off · Next Menu · Boiler Temperatures · Counters · Previous Menu
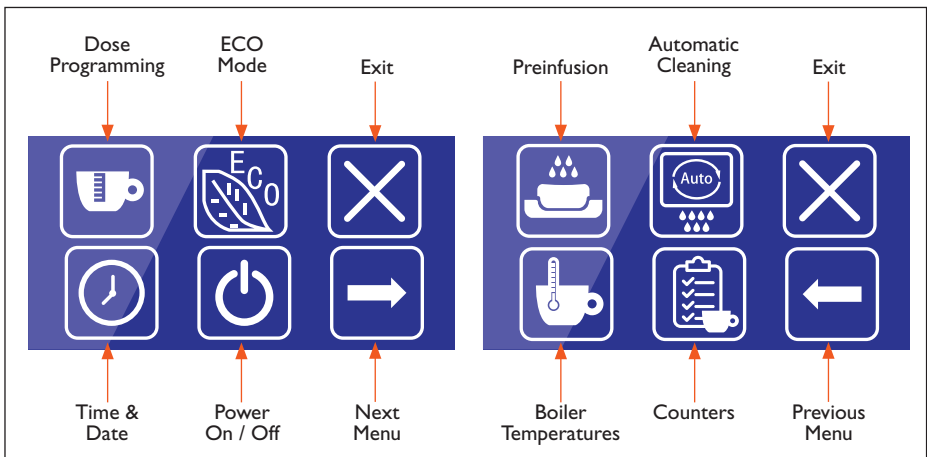
Powering the machine OFF/ON from the touchscreen

To power the machine down at the end of a use period without using the main switch do the following:

1. Press the Settings button for six seconds until the user programming menu appears on the touchscreen.

2. Press the Power button, the touchscreen with illuminate red to indicate that the machine is powered off. To turn the machine back on, simply press the Power button again while the touchscreen is illuminated in red.

Adjusting dose programming

Use the following steps to program the espresso brew dosages for each brewing group and drink button (each button can be programmed for a different dosing time if desired):

1. Press the Settings button for six seconds until the user programming menu appears on the touchscreen.

2. Press the Dose Programming button, then press the drink button to be programmed on each brewing group.

3. Use the **+** and **-** buttons to adjust the dosing volume to the desired amount, repeat for each drink button.

4. Then press the Exit button to confirm the volumes and exit.

i   *Note:*
Programming any of the options on the left-side brewer bank's buttons automatically programs the dispensing volumes for the corresponding button on all of the other groups. This only applies to the left-side brewer buttons. Programming other drink buttons only modifies the option selected. So we programming doses for each group, always program the left-side brewer buttons first, then program the other group(s).

i   *Note:*
For safety and water conservation, all brewing settings have a maximum dispensing time of 5 minutes.

Activating/deactivating ECO mode

The machine has a standby (energy saver) function which can be activated/deactivated as follows:

Use the following steps to activate or deactivate the ECO mode:

1. Press the Settings button for six seconds until the user programming menu appears on the touchscreen.
2. Press the ECO button, then use the **+** and **-** buttons to activate or deactivate the function then press the ✔ button to save the setting and return to the user programming menu.

Pro Tip:
ECO mode reduces the steam and group boiler temperatures to 60°C. This function is recommended during low usage times during the work day since it will reduce energy usage but still allows the machine to heat back up to normal operating temperature with just a few minutes when needed.
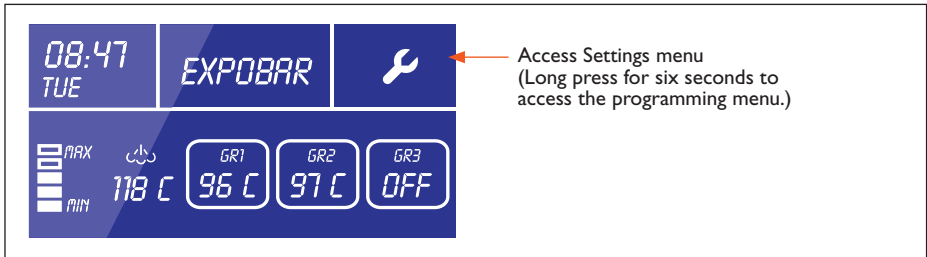
Activating automatic cleaning

Use the following steps to activate the cleaning cycle for the brewing groups:

1. Press the Settings button for six seconds until the user programming menu appears on the touchscreen.
2. Press the Automatic Cleaning button and wait for the cycle to finish (daily cleaning takes approximately one minute, weekly cleaning with detergent for each group takes approximately four minutes: one minute for cleaning plus three minutes for the three required additional cleaning flushes). For weekly cleaning with detergent repeat this step for each group.

WARNING!
THE CLEANING WATER IS VERY HOT! DO NOT PLACE FINGERS OR HANDS UNDER THE GROUP, OPEN THE GROUP OR REMOVE THE PORTAFILTER UNTIL THE CLEANING CYCLE HAS FINISHED TO AVOID SCALDING OR BURNS! WAIT 3-4 SECONDS AFTER DISPENSING HAS FINISHED BEFORE REMOVING THE PORTAFILTER TO ALLOW PRESSURE TO RELEASE.

Important:
When using this function to perform the weekly cleaning with espresso machine detergent no water will flow from the group when the portafilter with blind gasket is installed, however hot water will still flow from the other groups, so the cleaning with detergent must be repeated separately for each group. It is important to perform two or three more clearings without detergent afterward for each group to ensure all detergent has been flushed out of the group.

Pro Tip:
Optionally, as a time saving step, weekly cleaning with detergent can be done on all groups simultaneously if extra blind gaskets are purchased for use with the extra groups. Ask your distributor about purchasing extra gaskets if desired.

Setting the time, day and auto on/off functions

Adjust the time, day of the week, and automatic daily power on/off times as follows:

1. Press the Settings button for six seconds until the user programming menu appears on the touchscreen.

2. Press the Clock button, then use the **+** and **-** buttons to set the current hour then press the ✔ button to save the setting and adjust the current minute then use the **+** , **-** and ✔ buttons to finish adjusting the time and current day of the week.

3. After the time is set use the **+** , **-** and ✔ buttons to set the Open/Close Time to Automatic, then use the **+** , **-** and ✔ buttons to set the start/finish work times each day according to your preferred work schedule. (If this function is not needed at all during the week, simply set the Open/Close Time to OFF.)

i *Note:*

For any day(s) that the machine will not be used, simply program the time as Auto On/Off setting as --.-- which the machine will interpret as always off.

✔ *Pro Tip:*

The Auto On/Off function is useful for programming the machine to be warmed up and ready before the first barista arrives at the start of each day, and saves a lot of energy by making sure the machine is shut down automatically at the end of each day.

Adjusting the steam and group boiler temperatures

The main steam boiler and individual group boiler temperatures can be individually adjusted to offer customized brewing and milk steaming/frothing.

Adjust the steam and group boilers as follows:

1. Press the Settings button for six seconds until the user programming menu appears on the touchscreen.

2. Press the Temperature button, then use the **+** and **-** buttons to set the steam boiler operating temperature then press the ✔ button to save the setting. Then use the **+** , **-** and ✔ buttons to adjust the temperature of each group boiler.

✔ *Pro Tip:*

Depending on the types/profiles of coffee typically brewed, it may be useful to set each group at a different temperature to ensure the very best flavour for each espresso.

View the dispensing counters

Use the following steps to view the running counters for service and total and running number of coffees, teas, flushes and service by group and for the entire machine:

1. Press the Settings button for six seconds until the user programming menu appears on the touchscreen.
2. Press the Counters button, then use the **+** and **-** buttons to scroll through the counters.

✅ Pro Tip:

The counters can be useful for calculating the number of coffees dispensed over a day, week or month, which is helpful in calculating business expenses, when machine service is needed, and other important machine related information.

Activating/deactivating preinfusion

The machine has the option of using automatic preinfusion during all espresso brews. This function can be activated/deactivated as follows:

1. Press the Settings button for six seconds until the user programming menu appears on the touchscreen.
2. Press the Preinfusion button, then use the **+** and **-** buttons to adjust the preinfusion time for all drink buttons.

✅ Pro Tip:

Preinfusion is a useful feature for many roasts of coffee that need just a little more time to "develop" during brewing. Preinfusion moistens the espresso in the portafilter for about one second, then releases pressure for two seconds before begging the normal brew. To decide if preinfusion is best for your specific coffee roast, it is recommended to do a taste comparison with and without preinfusion, then set up your machine according to what tastes best to you.

Display messages and alarms

To alert users that routine service of the machine is due or against a situation that could possibly cause damage to the machine, ONYX has the following alerts programmed into its software:

Flow meter Gr. X	**Fault in flow meter X / Flow fault detected in counter X**
	If the electronic control panel does not receive a pulse from the flow meter (coffee too fine or flow meter fault) within 5 seconds of pressing one of the espresso buttons, the light for the dose selected will start to flash. To disable it, press the dose button again.

Time-out alarm Boiler filling up	**Check that the machine is receiving water.**
	If boiler filling time exceeds the programmed time (2 minutes), all of the drink buttons lights will flash and the machine will be disabled. To re-enable it, turn the machine off and on again at the power switch.

Probe unconnect	**Temperature sensor fault**
	If the temperature sensor is not sending a signal, it may be disconnected or broken. Contact a service technician for repair.

Service 999999999	**Service the machine.**
	To disable the alarm and reset the counter: Turn off the machine. Simultaneously press and hold the 1 Short Espresso and 1 Long Espresso buttons. Turn on the machine.

Change filter 999999999	**Regenerate the filter.**
	To disable the alarm and reset the counter: Turn off the machine. Simultaneously press and hold the 2 Short Espressos and 2 Long Espressos buttons. Turn on the machine.

Machine faults

Problem	Possible cause	Solution
The machine does not start up when turned on	The plug is not correctly inserted into the power socket	Check that the plug is correctly inserted and that the power socket is operational.
	The circuit breaker and/or differential are disconnected.	Check that they are connected.
	The cable and/or plug are damaged.	Call service personnel to replace them.
The steam wand does not dispense steam	The steam wand is clogged with dried milk.	Clean the wand and, if necessary, remove the nozzle and unclog it using a pin or needle.
Water is found underneath the machine	The drainage tube is blocked with used grounds/rubbish.	Clean the drainage tube.

Brewing faults

Problem	Possible cause	Solution
Coffee dispensing is too fast:	The coffee grind is too coarse.	Switch to a finer grind of espresso.
Coffee dispensing is too slow:	The coffee grind is too fine.	Switch to a coarser grind of espresso.

Limescale faults

Problem	Possible cause	Solution
Coffee dispensing temperature is too cold:	Heat-exchanger outlet pipes are clogged with limescale.	Turn of the machine at the switch and contact a technician to make needed repairs.
Brewing groups do not dispensing water:	Water system is clogged with limescale.	Turn of the machine at the switch and contact a technician to make needed repairs.

Notes:

For the warranty to be valid the conditions for maintenance must have been followed according to our instructions, proper precaution has been made and warranty claim been issued without delay.

The affected equipment may not be used during awaiting service if there is any risk that the damage or defect would worsen.

The warranty will not cover consumption supplies such as glassware, normal maintenance such as cleaning of filters, contaminations in water, lime, incorrect voltages, pressure or adjustment of water amounts.

The warranty will not cover damages of defects caused by incorrect handling and operation of the appliance.

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