

INSTALLATION, USE, MAINTENANCE

# Concerto

Espresso  
2 Espresso

**EN**

English



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**N&W GLOBAL VENDING S.p.A.**  
ad unico socio

Sede legale: Via Roma 24  
24030 Valbrembo (BG) Italia

Telefono +39 035 606111  
Fax +39 035 606463  
www.nwglobalvending.com

Cap. Soc. € 41.138.297,00 i.v.  
Reg. Impr. BG, Cod. Fisc. e P. IVA: 05035600963  
Reg. Produttori A.E.E.: IT08020000001054

Valbrembo, 01/01/2012

**DICHIARAZIONE DI CONFORMITA'  
DECLARATION OF CONFORMITY  
DÉCLARATION DE CONFORMITÉ  
KONFORMITÄTSERKLÄRUNG  
DECLARACIÓN DE CONFORMIDAD  
DECLARAÇÃO DE CONFORMIDADE  
VERKLARING VAN OVEREENSTEMMING**



**Italiano** Si dichiara che la macchina, descritta nella targhetta di identificazione, è conforme alle disposizioni legislative delle Direttive Europee elencate a lato e successive modifiche ed integrazioni.

**English** The machine described in the identification plate conforms to the legislative directions of the European directives listed at side and further amendments and integrations

**Français** La machine décrite sur la plaquette d'identification est conforme aux dispositions légales des directives européennes énoncées ci-contre et modifications et intégrations successives

**Deutsch** Das auf dem Typenschild beschriebene Gerät entspricht den rechts aufgeführten gesetzlichen Europäischen Richtlinien, sowie anschließenden Änderungen und Ergänzungen

**Español** Se declara que la máquina, descrita en la etiqueta de identificación, cumple con las disposiciones legislativas de las Directrices Europeas listadas al margen y de sus sucesivas modificaciones e integraciones

**Português** Declara-se que a máquina, descrita na placa de identificação está conforme as disposições legislativas das Diretrizes Europeias elencadas aqui ao lado e sucessivas modificações e integrações

**Nederlands** De machine beschreven op het identificatieplaatje is conform de wetsbepalingen van de Europese Richtlijnen die hiernaast vermeld worden en latere amendementen en aanvullingen

**Italiano** Le norme armonizzate o le specifiche tecniche (designazioni) che sono state applicate in accordo con le regole della buona arte in materia di sicurezza in vigore nella UE sono:

**English** The harmonised standards or technical specifications (designations) which comply with good engineering practice in safety matters in force within the EU have been applied are:

**Français** Les normes harmonisées ou les spécifications techniques (désignations) qui ont été appliquées conformément aux règles de la bonne pratique en matière de sécurité en vigueur dans l'UE sont :

**Deutsch** Die harmonisierten Standards oder technischen Spezifikationen (Bestimmungen), die den Regeln der Kunst hinsichtlich den in der EU geltenden Sicherheitsnormen entsprechen, sind:

**Español** Las normas armonizadas o las especificaciones técnicas (designaciones) que han sido aplicadas de acuerdo con las reglas de la buena práctica en materia de seguridad vigentes en la UE son:

**Português** As normas harmonizadas ou as especificações técnicas (designações) que foram aplicadas de acordo com boas regras de engenharia em matéria de segurança em vigor na UE são:

**Nederlands** De geharmoniseerde normen of technische specificaties (aanwijzingen) die toegepast werden volgens de in de EU van kracht zijnde eisen van goed vakmanschap inzake veiligheid zijn de volgende:

**Targhetta di identificazione  
Identification label**

Direttive europee European directives	Sostituita da Repealed by
2006/42/EC	
73/23/EC + 93/68/CE	2006/95/CE
89/336/EC + 92/31/CE + 93/68/CE	2004/108/EC
90/128/EC	2002/72/CE
80/590/EEC and 89/109/EEC	EC 1935/2004
EC 10/2011	
2002/96/EC	

Norme armonizzate / Specifiche tecniche	Harmonised standards Technical specifications
EN 60335-1:2002 + A1:2004 + A11:2004 + A12:2006 + A2:2006+ A13:2008	
EN 60335-2-75:2004 + A1:2005 + A11:2006 + A2:2008 + A12:2010	
EN 62233:2008	
EN 55014-1: 2006 + A1: 2009	
EN 55014-2: 1997 + A1: 2001 + A2: 2008	
EN 61000-3-2: 2006 + A1: 2009 + A2: 2009	
EN 61000-3-3: 2008	
EN 61000-4-2: 2009	
EN 61000-4-3: 2006 + A1: 2008	
EN 61000-4-4: 2004	
EN 61000-4-5: 2006	
EN 61000-4-6: 2009	
EN 61000-4-11: 2004	

Il fascicolo tecnico è costituito presso:

The technical file is compiled at:

**N&W GLOBAL VENDING S.p.A.**

ANDREA ZOCCHI

C.E.O

## Declaration of conformity

The declaration of conformity with the European Directives and Standards provided for by the laws in force is supplied by the first page of this manual, which is an integral part of the machine.

**CE** It is declared that the machine described by the identification plate is in compliance with the provisions of the European Directives, its subsequent amendments and integrations as well as with the harmonised standards or technical specifications (designations) applied in compliance with the safety rules of good practice enforced in the EU and listed on the same page.

## Warnings

### FOR INSTALLATION

**The installation and any subsequent maintenance operation shall be carried out by the personnel skilled and trained on the utilisation of the machine according to the rules in force.**

The machine is sold without any payment system. As a consequence, only the installer will be liable for any damage that may be caused to the machine or to things and persons by an incorrect installation of the payment system.

**The intactness of the machine and its compliance with the standards of relevant installations must be checked by skilled personnel at least once a year.**

Package materials must be disposed of in observance of the environment.

### FOR USE

The machine can be used by children and by people having reduced physical, sensorial or mental skills under the supervision of people responsible for their safety or specifically trained on the use of the machine. Children shall be prevented from playing with the machine by the people in charge of their supervision.

### FOR THE ENVIRONMENT

Some tricks will help you to protect the environment:

- use biodegradable products to clean the machine;
- properly dispose of all the packages of the products used to fill and clean the machine;
- power off the machine during inactivity for energy saving.

### FOR SCRAPPING



The symbol shows that the machine can not be disposed of as common waste, but it must be disposed of as it is established by the 2002/96/CE (Waste Electrical and Electronics Equipments - WEEE) European Directive and by the national laws arising out of it in order to prevent any negative consequence for environment and human health.

The differentiated collection of the machine at the end of its life is organised and managed by the manufacturer. For the correct disposal of the machine contact the sales point where you have purchased the machine or our after-sales service.

The unlawful disposal of the machine implies the application of the administrative sanctions provided for by the rules in force.

### Attention!

If the machine is equipped with a cooling system, the cooling unit contains HFC-R134a fluoridised greenhouse effect gas ruled by the Kyoto protocol, the total heating potential of which is equal to 1300.



THE INTERNATIONAL CERTIFICATION NETWORK

# CERTIFICATE

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VIA DEL CHIOSO 13 - 24030 MOZZO (BG)

VIA DELEDDA 16 - 24030 MAPELLO (BG)

VIA SALVO D'ACQUISTO 7/9 - 24050 GRASSOBBIO (BG)

*for the following field of activities*

*Design and manufacturing of electronical and electromechanical vending machines*

*Refer to quality manual for details of applications to ISO 9001:2008 requirements*

*has implemented and maintains a*

## **Quality Management System**

*which fulfills the requirements of the following standard*

**ISO 9001:2008**

Issued on: 2010 - 04 - 27

*Registration Number:*

**IT - 12979**



*René Wasmer*

*President of IQNET*



*Gianrenzo Prati*

*President of CISQ*

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*for the following field of activities*

*Design, production and sales of vending machine*

*has implemented and maintains a*

## **Environmental Management System**

*which fulfills the requirements of the following standard*

**ISO 14001:2004**

Issued on: 2011 - 06 - 27

Expiry date: 2013 - 05 - 14

*Registration Number:*

**IT - 8753**



Michael Drechsel

*President of IQNET*



Gianrenzo Prati

*President of CISQ*

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# English

## SUMMARY

	PAGE		PAGE
DECLARATION OF CONFORMITY			
WARNING			
<b>FOREWORD</b>	<b>2</b>	<b>LOADER MENU</b>	<b>26</b>
IDENTIFYING THE MACHINE AND THE CHARACTERISTICS	2	STATISTICS	26
IN CASE OF FAILURE	2	INDIVIDUAL PRICE	27
TRANSPORT AND STORAGE	2	MANAGEMENT OF THE COIN BOX TUBES	27
POSITIONING OF THE VENDING MACHINE	3	BOILER TEMPERATURE	27
VARIABLE COMBINATION LOCKS	5	TEST	27
		EVA DTS	28
<b>CLEANING AND LOADING</b>	<b>6</b>	<b>ENGINEER MENU</b>	<b>28</b>
DOOR SWITCH	6	PAYMENT SYSTEMS	29
CLEANING AND SANITIZATION	6	PRICES	32
<b>CONTROLS AND INFORMATION</b>	<b>7</b>	DOSES	33
LOADING	7	DA CONFIGURATION	35
GLASSES LOADING	8	TEST	41
CLEANING	8	STATISTICS	42
		COMMUNICATION	44
<b>INSTALLATION</b>	<b>12</b>	FAULTS	45
DOOR SWITCH	12	<b>MAINTENANCE</b>	<b>48</b>
<b>ASSEMBLY</b>	<b>12</b>	GENERALITIES	48
WATER SUPPLY	14	ESPRESSO UNIT MAINTENANCE	48
ELECTRICAL CONNECTION	15	<b>PERIODICAL OPERATIONS</b>	<b>49</b>
<b>FIRST START-UP</b>	<b>16</b>	SANITIZATION	50
		PRODUCTS CONTAINERS	51
<b>OPERATION</b>	<b>18</b>	<b>BOARDS FUNCTION</b>	<b>52</b>
ESPRESSO UNIT	19	CONFIGURATION OF ELECTRONIC BOARDS	52
COFFEE GRINDER	20	ACTIVATIONS BOARD	53
INSTANT DRINKS DISPENSING	23	CPU BOARD	54
		BOILER CONTROL BOARD	55
<b>PROGRAMMING</b>	<b>24</b>	POWER CONTROLLER CARD	55
<b>OPERATION IN NORMAL USER STATUS</b>	<b>24</b>	BOILER MAINTENANCE	55
		BOILER THERMAL PROTECTION	56
<b>NAVIGATION</b>	<b>25</b>	FAN REPLACEMENT	56
ENTERING THE PROGRAMMING MODE	25	<b>APPENDIX</b>	<b>57</b>



## Foreword

**The technical documentation forms an integral part of the equipment and must therefore accompany any movement or transfer of ownership in order to allow further consultations by the operators.**

Before installing and using the equipment you need to scrupulously read and understand the contents of the documentation, as it provides important information related to installation safety, to the utilisation standards and to the maintenance operations.

**The manual is divided into three chapters.**

The **first chapter** describes the loading and ordinary cleaning operations to be performed in the areas of the machine which can be accessed through just the use of the door opening key, without the need of using other tools.

The **second chapter** contains the instructions related to a correct installation and the information required to make the best use of the machine.

The **third chapter** describes the maintenance operations which require the use of tools for accessing potentially dangerous areas.

**The operations described in the second and third chapter shall be carried out only by personnel with specific knowledge of the operation of the machine both from the point of view of electrical safety and of hygiene.**

## IDENTIFYING THE MACHINE AND THE CHARACTERISTICS

Each machine is identified by means of a specific serial number which can be read from the plate placed inside the machine on the right side.

The plate is the only machine identification recognised by the manufacturer and sets out all the data which enables the manufacturer to provide, promptly and safely, technical information of any kind and facilitate the management of spare parts.

## IN CASE OF FAILURE

In most of the cases technical problems can be solved by means of small interventions; we therefore suggest to read this manual carefully before contacting the manufacturer.

In case of anomalies or malfunctioning which cannot be solved, please contact:

N&W GLOBAL VENDING S. p. A.  
Via Roma 24  
24030 Valbrembo  
Italy - Tel. +39 035606111

## TRANSPORT AND STORAGE

In order to avoid causing damage to the machine, the loading and unloading manoeuvres must be performed with particular care.

It is possible to lift the machine with a motorised or manual forklift, by positioning the fork underneath the machine and on the side which is clearly indicated by the sign on the cardboard packaging.

**Instead, the following should be avoided:**

- Overturning the vending machine;
- Dragging the vending machine with ropes or similar;
- Lifting the vending machine with lateral grips;
- Lifting the vending machine with straps or ropes
- Shaking the vending machine and/or the packaging.

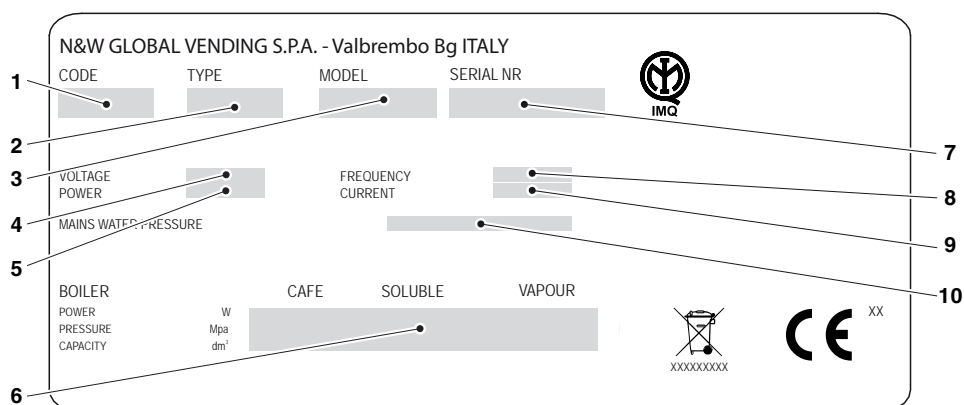
The storage environment needs to be dry and of a temperature between 0 and 40 °C.

If the original packaging is used, it is possible, if necessary, to overlay 2 machines

It is important to keep the machine in the vertical position indicated by the arrows on the packaging.

Fig. 1

- 1- Product code
- 2- Type
- 3- Model
- 4- Work voltage
- 5- Power absorbed
- 6- Boilers data
- 7- Serial No.
- 8- Frequency
- 9- Current
- 10- Characteristics of the water mains





## POSITIONING OF THE VENDING MACHINE

The machine is not suitable for outside installations, it needs to be installed inside dry premises, with temperature between 2° C and 32° C and it cannot be installed in environments in which jets of water are used for cleaning (i.e.: large kitchens, etc.).

The machine shall be positioned next to a wall and in such a way that the back of it is at a minimum distance of 4 cm from the wall in order to allow regular ventilation. The machine shall not be covered with cloths or similar.

The machine shall be positioned so that the maximum inclination does not exceed 2°.

If needed, level it out using the appropriate adjustable feet provided with the machine.

## TECHNICAL CHARACTERISTICS

Height	mm	1700
Upright top panel height	mm	2030
Width	mm	600
Width with open door	mm	1200
Depth	mm	740
Depth with open door	mm	1250
Weight without packaging	kg	125

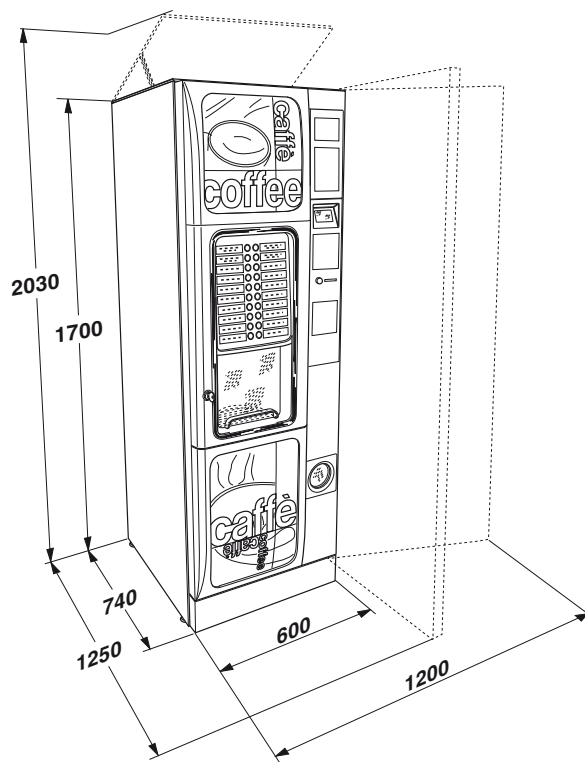


Fig. 2

Power supply voltage	V~	230-240
Power supply frequency	Hz	50
Installed power	W	1850

### PAYMENT SYSTEM

The machine is supplied with electrical arrangement for systems with protocol Executive, BDV, MDB and for monitoring 24 Vdc validators.

Apart from the coin box housing, there is space for the optional installation of the most common payment systems.

### SALES PRICES

A different price can be programmed for each selection; The standard setting foresees the same sales price for all selections.

## CASH TILL FOR COINS

In Sheet Metal. Cover and lock available as accessories.

## WATER SUPPLY

Water supply from mains with water pressure between 0.05 and 0.85 Mpa (0.5 and 8.5 Bar).

The machine's software is arranged for controlling the water supply from an internal tank (optional kit which can be placed in the service cabinet).

## POSSIBLE SETTINGS

**Espresso:** granulometry; coffee dose and water volumetric  
**Instant:** coffee doses, timed instant and water .  
**Temperature:** can be adjusted via software.

## ENABLE SIGNALS

- Presence of cups
- Presence of water
- Presence of coffee
- Position of the coffee unit
- Liquid waste container
- The operating temperature is reached

## SAFETIES

- door switch
- boiler safety thermostat with manual reset
- air-break float jamming
- anti-flooding solenoid valve
- full liquid waste container float
- boiler probes interruption/short circuit control
- time protection of:
  - Pump
  - Coffee unit gear motor
  - Coffee dispensing
  - Grinder
  - Column shift motor
- thermal protection of:
  - Ingredient motors
  - Coffee unit gear motor
  - Coffee release electromagnet
  - Pump
  - Mixer motors
  - Grinder motor
- protection with fuse
  - Board and coin box power supply transformer (Primary and secondary)

## CONTAINERS CAPACITY

The machine can be fitted with different combinations of containers of a different type for dispensing different types of products.

Coffee beans	Kg.	3.2
or	Kg.	2.1+2.1
Stirrer	N-	450
Glasses	N-	490

For the instant products, depending on the models, the machine can be fitted with containers with a capacity of 2.5, 4 or 6 l.

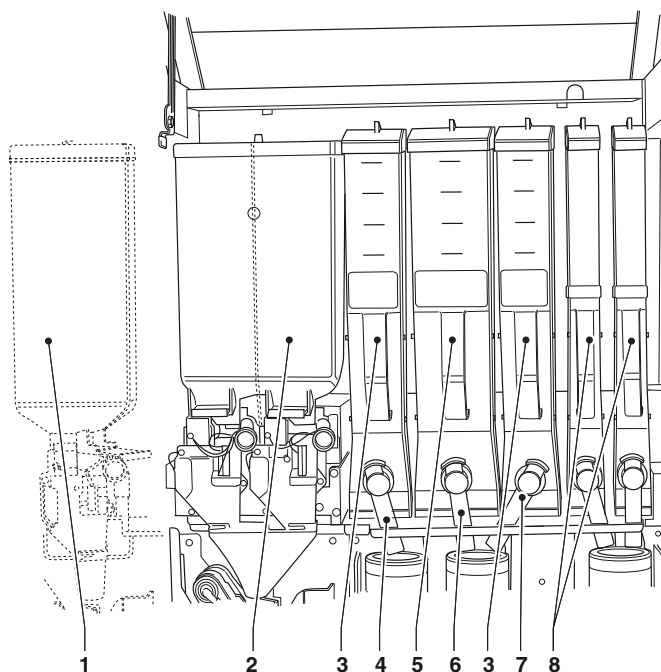


Fig. 3

- 1- Single container for coffee beans (alternatively)
- 2- Double container for coffee beans (alternatively)
- 3- Container 4.5 l
- 4- Right nozzle
- 5- Container 6 l
- 6- Central nozzle
- 7- Left nozzle
- 8- Container 2.5 l

The indicative product quantity is summarised in the following table

Container dimension	2.5 l	4.5 l	6 l
Instant coffee Kg	0.6	1.0	1.3
Milk Kg	0.7	1.2	1.7
Chocolate Kg	1.7	3.2	4.5
Sugar Kg	2.0	3.5	5.0
Lemon tea Kg	2.0	3.5	5.0
Soup Kg	1.4	2.5	3.5

The real quantity can differ from the one indicated because of the different specific weight of the various products.

## POWER CONSUMPTION

The power consumption of the machine depends on many factors, including the temperature and ventilation of the environment where the machine is located, the temperature of the inlet water, the boiler temperature, etc.

A measurement at a room temperature of 22 °C was carried out and the following power consumption was detected:

Reaching temperature	Wh	36.87
24h standby:	Wh	1,320.00

The power consumption calculated on the above-mentioned average data shall be deemed as purely indicative.

## ACCESSORIES

The machine can be fitted with a wide range of accessories in order to vary its performances:

The installation kits are supplied with installation and test instructions, which shall be scrupulously followed in order to maintain the safety of the machine.

**The installation and the subsequent test operations shall be performed by qualified personnel, with specific knowledge of the operation of the machine both from the point of view of electrical safety and of hygiene.**

## VARIABLE COMBINATION LOCKS

Some models are supplied with variable combination locks.

The lock has a silver-coloured key with the standard combination to be used for normal opening and closing operations.

It is possible to customise the locks using a kit, available as an accessory, which allows the lock combination to be changed.

The kit is composed of a change key (black) for changing the standard combination and of change keys (gold) and use keys (silver) for changing and using the new combinations.

Change and use key packs with other combinations can be supplied on request.

Furthermore, other use key (silver) packs can be requested specifying the combination printed on the keys. Usually the use key (silver) is the only one used, whereas the combination change keys (gold) may be kept as spare keys.

**Avoid using the change keys for normal opening as this could damage the lock.**

## To change the combination:

- Open the door of the machine to avoid forcing rotation;
- Lightly lubricate using a spray inside the lock;
- Insert the current change key (black) and turn it to the change position (reference notch at 120°);
- Extract the current change key and insert the change key (gold) with the new combination;
- Turn to the closing position (0°) and extract the change key.

The lock has now assumed the new combination.

**The keys of the old combination can no longer be used for the new combination.**

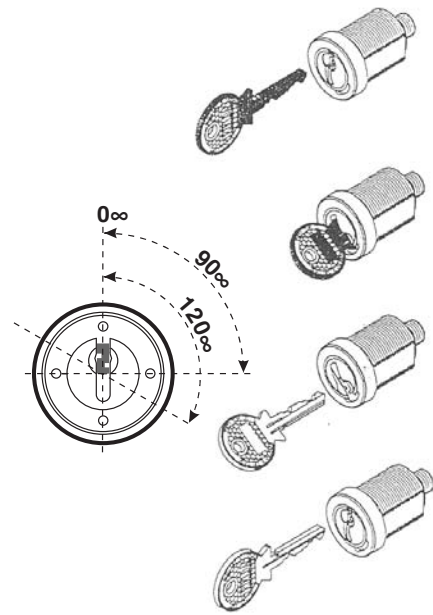


Fig. 4

## Chapter 1

# Cleaning and loading

The machine is not suitable for outside installations, it needs to be installed inside dry premises, with temperature between 2° and 32° C and it cannot be installed in environments in which jets of water are used for cleaning (i.e.: large kitchens, etc.).

### DOOR SWITCH

When the door is opened, a switch removes the voltage from the electrical system of the machine to allow the operations, described below, of loading and ordinary cleaning, to be carried out in full safety.

**All the operations which require voltage with the door open shall be EXCLUSIVELY performed by qualified personnel who has been informed of the specific risks deriving from such a situation.**

### CLEANING AND SANITIZATION

In accordance with current health and safety regulations, the operator of a vending machine is responsible for the hygiene of the materials which are in contact with food products; the operator shall therefore carry out maintenance interventions on the machine so as to prevent the formation of bacteria.

**When the machine is installed, the hydraulic circuits and the parts in contact with the food products need to be sterilised in order to eliminate any bacteria which could have formed during storage.**

It is recommended that sterilising products also be used when cleaning the surfaces which are not directly in contact with the food products. Some parts of the machine can be damaged by aggressive detergents.

The manufacturer shall not be held responsible for any damage caused by the non-observance of the above or by the use of aggressive or toxic chemical products.

**Always switch off the machine before starting maintenance operations which require the disassembling of components.**

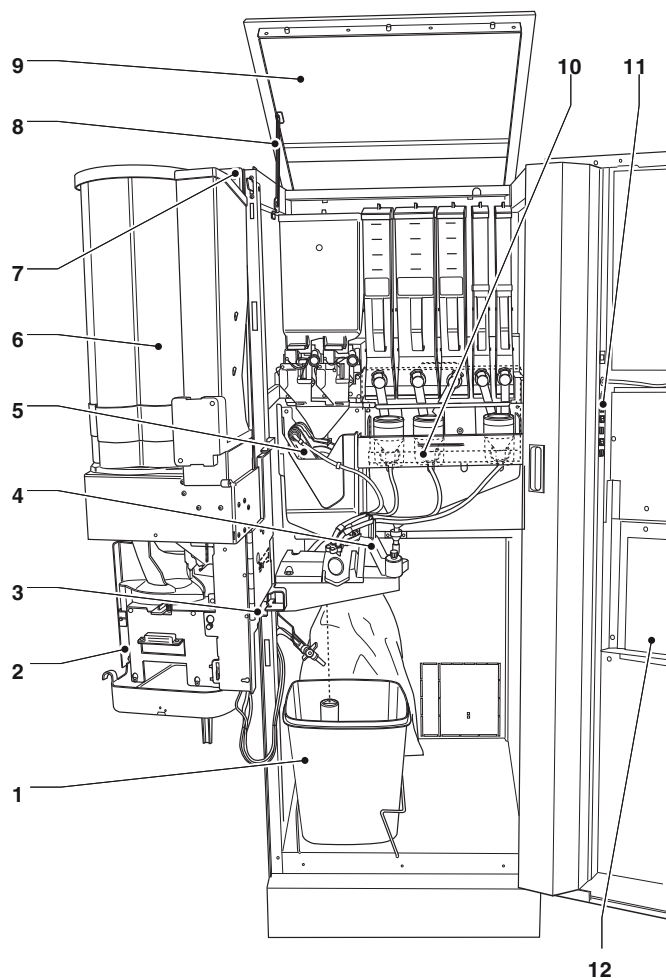


Fig. 5

- 1- Full waste bucket
- 2- Dispensing unit
- 3- Door switch
- 4- Mobile nozzles
- 5- Infuser unit
- 6- Cup dispenser
- 7- Stirrer dispenser
- 8- Upper panel locking device
- 9- Upper panel
- 10- Mixer
- 11- Service buttons
- 12- Pickup compartment door

### USE OF HOT DRINKS VENDING MACHINES IN OPEN CONTAINERS

(i.e. Plastic cups, ceramic cups, mugs)

The vending machines in open containers shall be used exclusively for the sale and distribution of drinks which are produced by:

- Infusion of products such as coffee and tea;
- Reconstitution of soluble or freeze dried products;

These products shall be declared by the producer as "suitable for vending machines" in open containers.

**The products dispensed need to be consumed immediately. The products can in no case be kept and/or packaged for subsequent consumption.**

Any other use is considered improper and therefore potentially dangerous.

## CONTROLS AND INFORMATION

The controls and the information to the user are on the external side of the door (see Fig. 6).

The plates with the menu and the instructions are supplied together with the machine and they shall be inserted when the machine is installed.

Inside the machine, on the right of the coin box unit, are the Programming button, which provides access to the functions of the machine, and the service buttons.

### LEVEL OF NOISE

The weighted continuous equivalent sound pressure level is less than 70 dB.

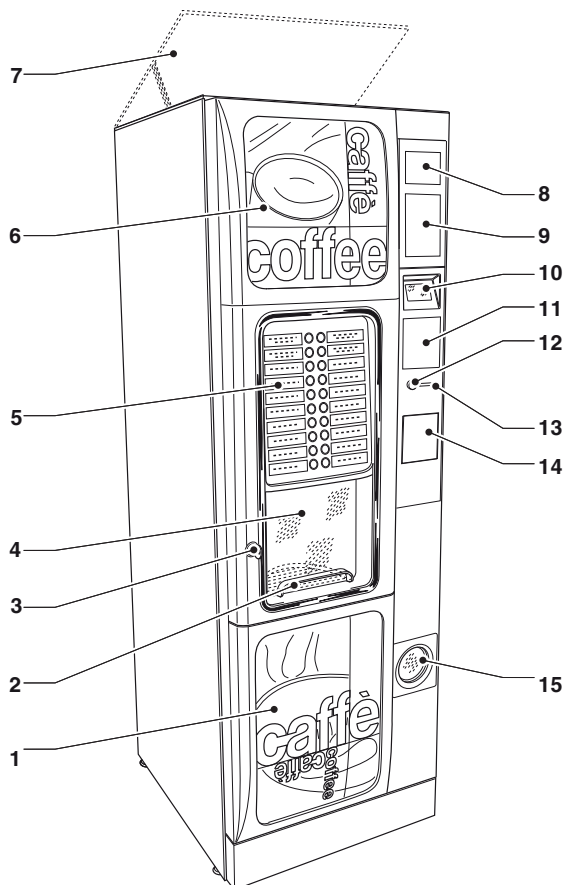


Fig. 6

- 1- Customizable panel
- 2- Braked door (optional)
- 3- Lock
- 4- Dispensing unit
- 5- Selections menu
- 6- Customizable panel
- 7- Openable upper panel
- 8- Advertising space / Logo
- 9- Space for notes acceptor
- 10- Display
- 11- Advertising space or cashless systems
- 12- Coin recovery button
- 13- Introduction of coins
- 14- Space for instructions label / numerics keypad
- 15- Coin recovery

## LOADING

### COFFEE BEANS

Lift the machine upper panel.

Fill it with coffee beans (1.2 kg max), checking that the damper is completely open (see Fig. 7).

### SUGAR AND INSTANT PRODUCTS

Each container has an adhesive label which specifies the type of product.

After lifting the corresponding cover, introduce the products to be dispensed into the containers being careful not to compress them.

Make sure that the products do not contain lumps.

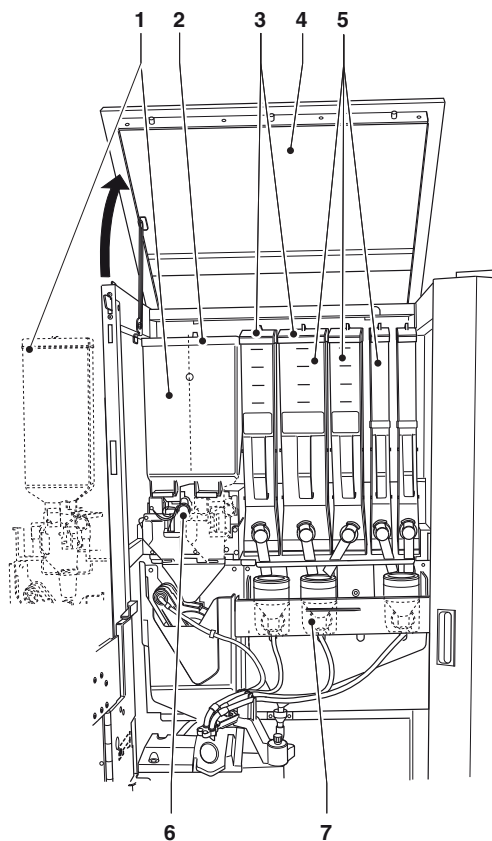


Fig. 7

- 1- Container for coffee beans (alternatively)
- 2- Coffee container cover
- 3- Instant container cover
- 4- Upper openable panel
- 5- Instant coffee containers
- 6- Grinding adjustment knob
- 7- Mixer



## LOADING CUP

For the first charge (cup dispenser is completely empty), proceed as follows:

- disconnect the device;
- rotate the bracket to the outside, acting on the stationary mounting;
- remove the cover from the glasses turret;
- Load the columns with cups, excluding the one related to the dispensing hole;
- power the device; the first column loaded with glasses will position itself automatically on the distribution hole;
- load the empty column;
- release one or more cups with the proper button and reposition the cover on the glasses tower.

The shelf of the cup dispenser has a double hinge that improves accessibility to the cup dispenser, in particular when the equipment is installed in the battery

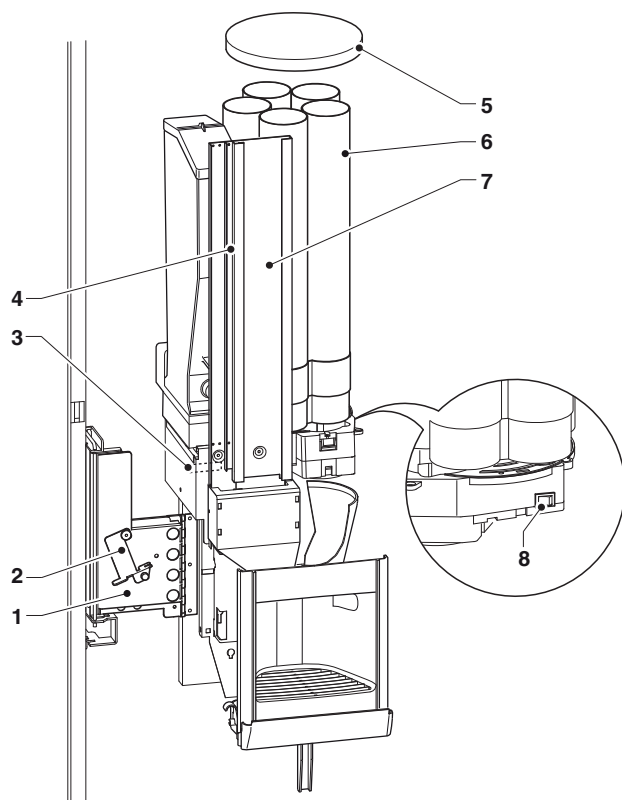


Fig. 8

- 1- Swivel bracket
- 2- Pivot release lever
- 3- Shelf positioning magnet
- 4- Stirrer adjustable guide
- 5- Cover
- 6- Cup dispenser
- 7- Stirrer dispenser
- 8- Glasses release button

## CLEANING

### COLOURS CODE

In order to facilitate the cleaning operations, the parts that need to be regularly cleaned and sterilised are identified in blue.

Use the parts in green to disassemble the parts in blue and perform the cleaning and sanitization operations. Only some of the parts related to the espresso infuser unit do not follow this rule as they are made of a specific material.

### SANITIZATION OF THE MIXERS AND OF THE FOOD PRODUCTS CIRCUITS

When the machine is installed and at least on a weekly basis, or more frequently depending on the use of the machine and of the quality of the inlet water, it is necessary to carry out an accurate sanitization of the mixers and of the instant drinks dispensing pipes in order to ensure the hygiene of the distributed products.

**Jets of water are to be absolutely avoided for cleaning.**

The parts that need to be cleaned are:

- Powder funnels, mixers and instant drinks dispensing pipes;
- Pipes and dispensing nozzles;
- Dispensing unit.

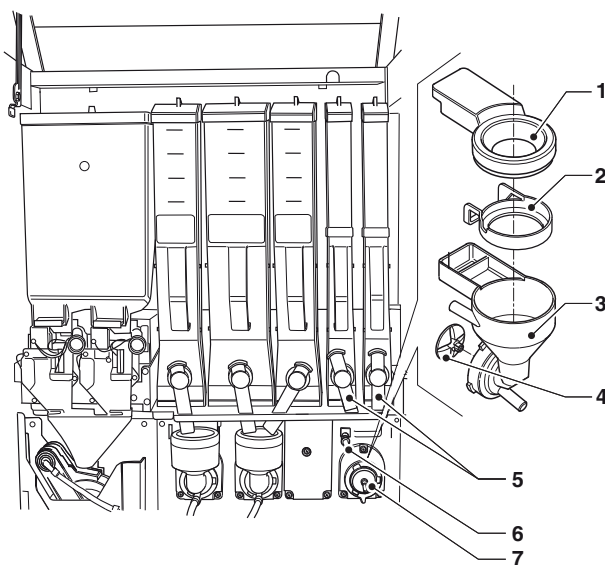


Fig. 9

- 1- Powder funnel
- 2- Splashguard ring
- 3- Water conveyor
- 4- Mixer fan
- 5- Powder nozzle
- 6- Inlet nozzle
- 7- Mixer fixing flange

- Open the cover of the mixer dispensing cell and lift the powder nozzles up to the end stop;
- Remove (see Fig. 9) the powder funnels, the water conveyors, the powder deposit funnels and the mixer fans from the mixers;
- The fans can be removed by simply applying a light traction to let them free (see Fig. 10);

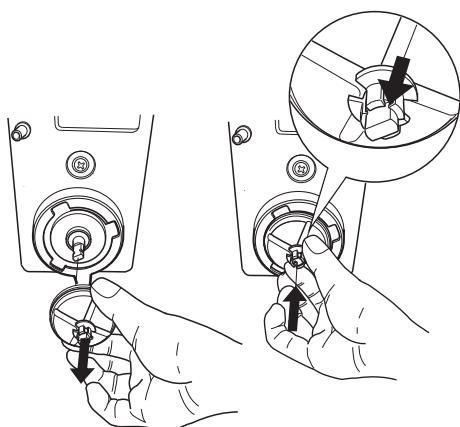


Fig. 10

- Wash all the components with sterilising products (follow the dosage indicated by the manufacturer), being careful to mechanically remove the visible residues using brushes if necessary;

The sanitization is performed by means of sterilising products.

- Dip the parts for approx. 20 minutes in a recipient containing the previously prepared sterilising solution;
- Reinstall the conveyors and the water funnels;
- Reinstall the powder deposit drawers and the powder funnels after having carefully rinsed and dried them.

**After installing the components it is however necessary:**

- Wash the mixer and add a few drops of the sterilising solution into the various funnels.
- Once the sanitization has been performed, rinse the components well in order to remove any possible residue of the solution used.

**All the operations which require the machine to be under voltage shall ONLY be performed by qualified personnel who has been informed of the specific risks deriving from such a situation.**

## ESPRESSO UNIT

Each time the vending machine is loaded, or at least every week, it is good practice to clean the external parts of the coffee unit from any coffee residue and particularly in the areas of the coffee funnel, of the filters and of the scrapers

It is good practice to periodically remove the cover of the infuser unit and the coffee funnel (see fig. 11). Wash and carefully dry the disassembled parts.

**Warning!**

**It is essential to reinstall the cover before restarting the machine (see Fig. 11).**

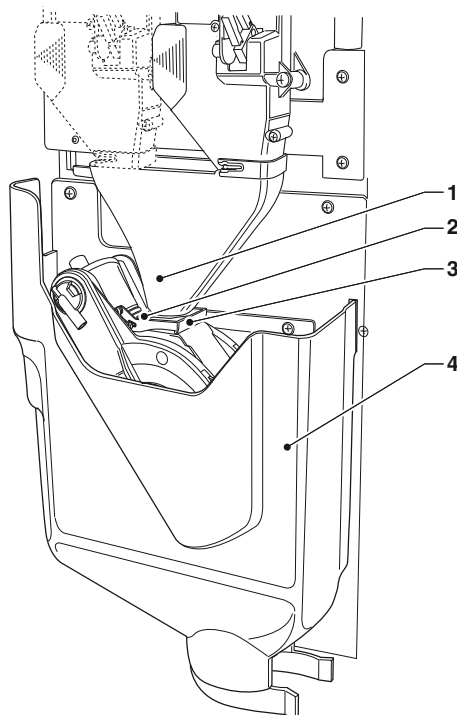


Fig. 11

- 1- Coffee funnel
- 2- Filters
- 3- Scrapers
- 4- Unit cover



## SUGAR RELEASE

For the models of vending machine which dispense the sugar directly into the cup, it is necessary to periodically clean the sugar release device with hot water operating as follows:

- raise the flexible lever to release the nozzle
- pull out the dispensing nozzle
- pull out the sugar slide
- wash and carefully dry
- after cleaning, everything following the reverse order.

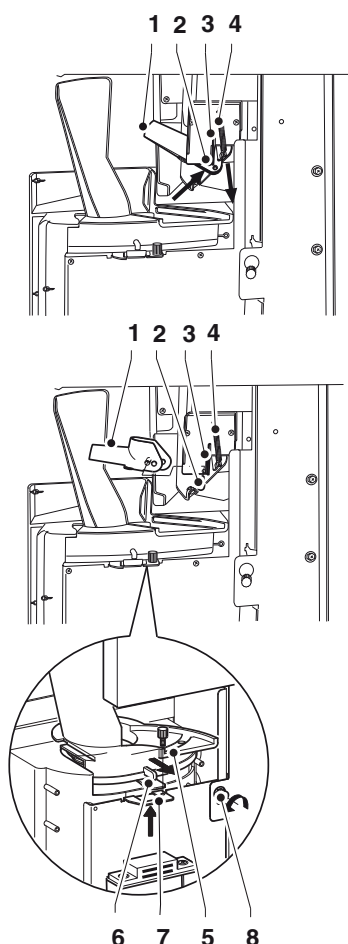


Fig. 12

- 1- Sugar dispensing nozzle
- 2- Pin
- 3- Flexible lever
- 4- Return spring
- 5- Glasses slide
- 6- Glasses slide release lever
- 7- Slide positioning hook
- 8- Slide's saw tooth screw

## DISPENSING UNIT

When cleaning the dispensing unit, it is recommended to remove it from the machine.

- Remove the saw tooth screws which block the unit;
- Unfasten the unit by acting on the fixing fins;
- Wash with a solution of neutral detergent, being particularly careful with the covers of the cup sensor and of the unit lighting LEDs.

Wash with a solution of neutral detergent, being particularly careful with the covers of the cup sensor and of the unit lighting LEDs.

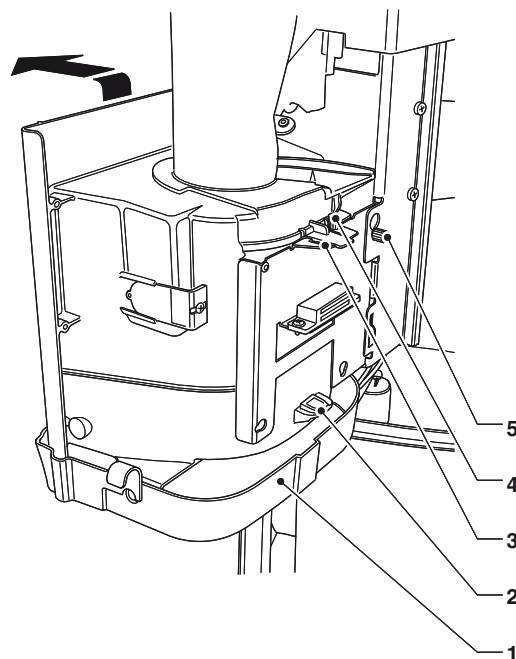


Fig. 13

- 1- Dispensing unit tank
- 2- Dispensing unit grid hook
- 3- Glasses slide's locking flap
- 4- Glasses slide's saw tooth screw
- 5- Cutter for fixing dispensing unit group

Please note To clean the single grid, remove the dispensing unit tank and then, acting on the rear hook, remove the grid.

## MIXERS CONDUITS

Periodically, the funnels and the support surface of the containers must be cleaned of any residual dust using a small vacuum cleaner or a brush.

Surfaces can be cleaned with a damp cloth.

## CLEANING OF THE WATER SUPPLY TANK (Optional)

For the machines which use the water tank, it is necessary to carry out, at least on a weekly basis, the sanitization of the tank by using the sterilising products used for the mixers.

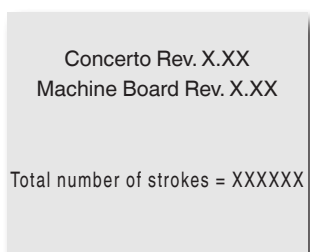
## START-UP

Every time the machine is connected to the power supply, the display will show the image

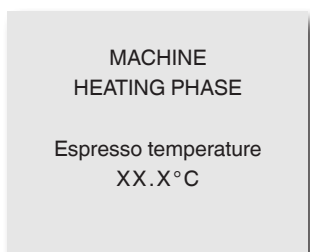


after that, the vending machine software version number is displayed together with the software review of the machine board.

It is possible to programme the machine for displaying, for a few seconds, the number of dispensed items (total number of strokes)



After that, the boiler is checked and the heating cycle is started



At the end of the heating cycle, after a few seconds, the display shows the message with the invitation to select the drink and the lighting of the machine is activated.



## SERVICE SUSPENSION

If, for any reason, the vending machine remains off for a period longer than the expiry dates of the products, it is necessary to:

- Completely empty the containers and wash them carefully with the sterilising products used for the mixers.
- Completely empty the grinder-doser by dispensing coffee until the notification that the machine is empty.
- Completely empty the boiler and the air-break by loosening the screw on the corresponding pipe.

## Chapter 2 Installation

The installation and the subsequent maintenance operations shall be carried out with the **machine connected to the power supply** and therefore by specialised personnel, trained for the use of the machine who has been informed of the specific risks deriving from such a situation.

When the door is open, voltage is given to the machine by inserting the appropriate key (see Fig. 14).

The door can be closed only after extracting the yellow key from the door switch and the top of the machine has been lowered.

**The machine shall be installed in dry premises, with a temperature between 2° and 32° C.**

**When the machine is installed, the hydraulic circuits and the parts in contact with the food products need to be sterilised in order to eliminate any bacteria which could have formed during storage.**

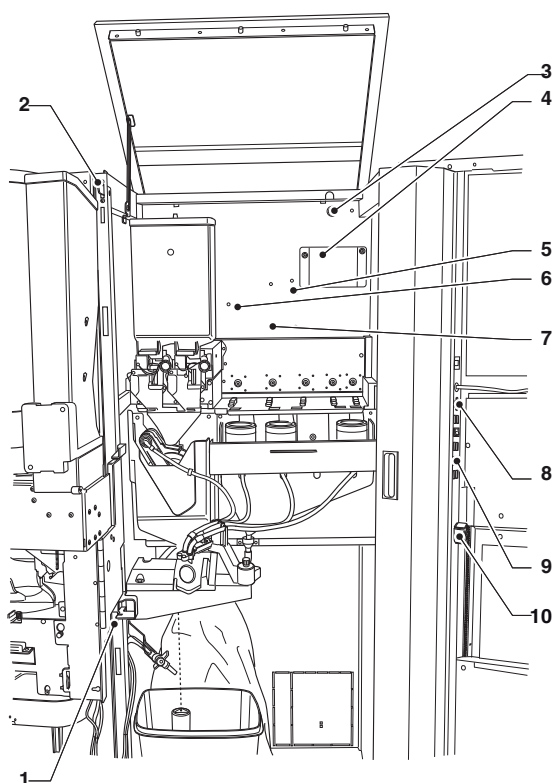


Fig. 14

- 1- Door switch
- 2- Upper panel closure control device
- 3- Mains fuse
- 4- Panel fuses access door
- 5- led
- 6- led
- 7- led
- 8- Serial connector
- 9- Programming input button
- 10- Motor opening door

## DOOR SWITCH

When the door is opened, a microswitch removes the voltage from the electrical system of the machine.

When the door is open, voltage is given to the machine by inserting the appropriate key (see Fig. 14).

**With the door open, there is no access to live-parts. Inside the machine, only those parts which are protected by covers and which are highlighted with a label "disconnect voltage before removing the cover" remain live.**

**Before removing these covers it is necessary to disconnect the power supply cable from the mains.**

The door can be closed only after removing the key from the door switch, lowering the upper panel of the machine and closing the opening of the coffee container so that the closure control devices are enabled.

## ASSEMBLY

### UNPACKING THE VENDING MACHINE

After removing the packaging, verify the integrity of the machine.

In case of doubt, do not use the machine.

**The packaging materials (plastic bags, expanded polystyrene, nails, etc.) shall be kept out of the reach of children as they are a potential source of danger.**

The packaging materials need to be disposed of in authorised places. Recycling materials shall be given to specialised recycling companies.

### Important!!

The machine shall be positioned so that the maximum inclination does not exceed 2°.

If needed, level it out using the appropriate adjustable feet (see Fig. 15) provided with the machine.

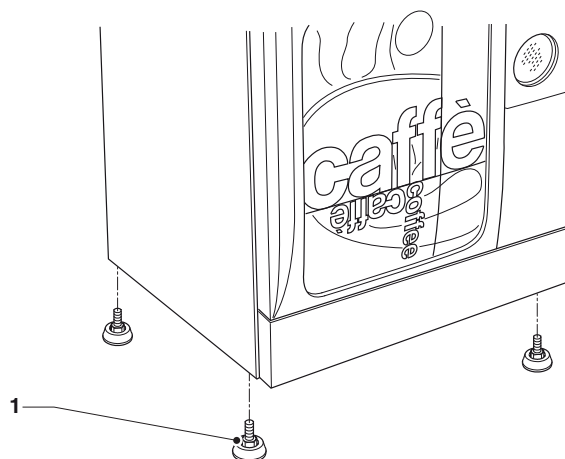


Fig. 15

- 1- Adjustable foot

## INSERTING THE PLATES

Remove the fixing screw and remove the cover.  
The plates need to be inserted into the appropriate slots (see Fig. 16).

Based on the models, some buttons could be disabled (see doses-selections table).

The machine is supplied with self-adhesive plates which shall be attached to the products containers based on layout (see doses-selections table)

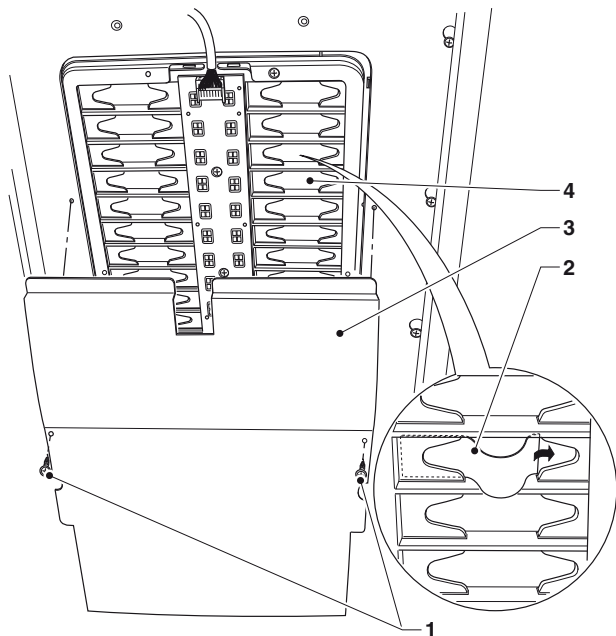


Fig. 16

- 1- Keyboard cover fixing screws
- 2- Flexible plate
- 3- Keyboard cover
- 4- Plates support

insert instructions or advertising labels on the user interface.

In the absence of the numeric keypad apply the cover (supplied)

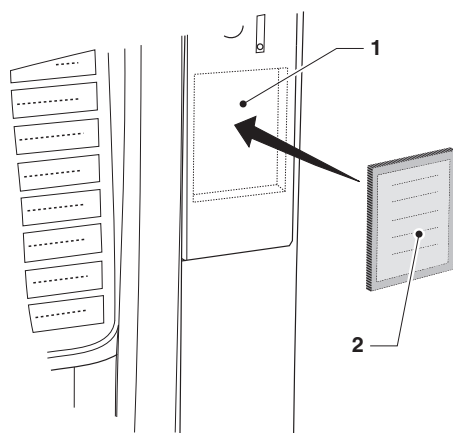


Fig. 17

- 1- Space for instructions label / numerics keypad
- 2- Cover with instructions label

## PAYMENT SYSTEM

**The machine is sold without a payment system, therefore whoever performs the installation of it bears the responsibility for any damage to the machine or to objects and people deriving from the wrong installation of the payment system.**

The validator can be installed directly into the machine. Ensure that the programming of the related parameters is correct.

The “cashless” systems can be placed into the machine; other payment systems such as “change giver” shall be physically placed inside the support cabinet or in the lateral module (optional).

The use of payment systems such as “change givers” and/or “cashless” is possible only using the appropriate connection kits.

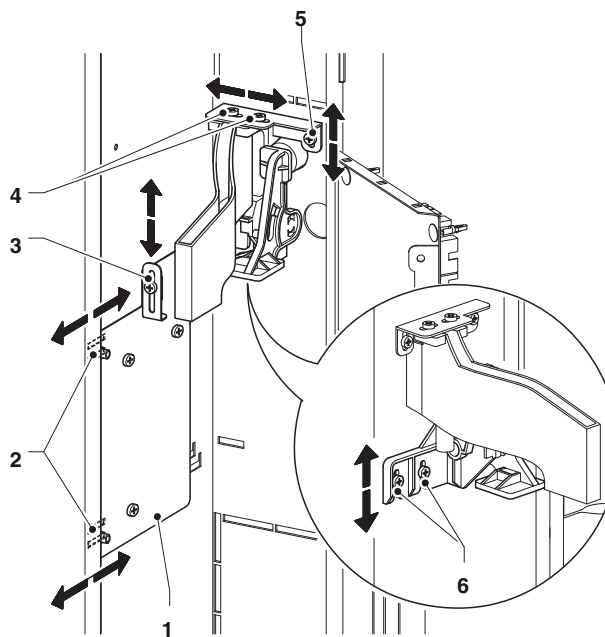


Fig. 18

- 1- Coin box support
- 2- Coin box adjustment
- 3- Coin box fixing bracket
- 4- Coins slide adjustment
- 5- Coins slide vertical adjustment
- 6- Coin recovery button adjustment

## WATER SUPPLY

The water used by the vending machine is drinking water, taking into account the regulations in force where the machine is installed.

The machine should be connected to the drinking water mains with water pressure between 0.05 and 0.85 MPa (0.5-8.5 bar).

Let the water come out from the mains until it is clear and free from dirt.

Connect the water mains to the  $\frac{3}{4}$ " connection of the water inlet solenoid valve (see Fig. 18) with a pipe having minimum internal diameter of 6 mm (also available as a kit), suitable for supporting the mains pressure and of a type suitable for food products.

**Installing a tap on the water system outside the machine, in an accessible position, is recommended.**

**To connect the machine to the water mains use only one set of new gaskets and hoses. Do not reuse the material that may exist.**

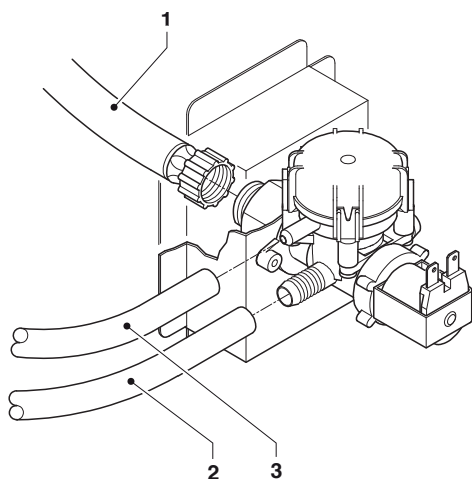


Fig. 18

- 1- Inlet tube  $\frac{3}{4}$ "
- 2- Inlet tube
- 3- Too full tube

## ANTI-FLOODING DEVICE

The water inlet solenoid valve (see Fig. 18) is equipped with an anti-flooding device which allows the mechanical blocking of the input of water following a malfunction of the solenoid valve or of the control system of the level of water in the boiler.

For restoring the normal operations, do as follows:

- empty the water contained in the anti-flooding pipe;
- close the water mains tap outside the machine;
- loosen the connection which fixes the input pipe of the solenoid valve for lowering the residual water pressure and tighten it again (see Fig. 18);
- open the tap and apply voltage to the machine.

## DESCALER

The machine is supplied without descaler.

In the event that the machine is connected to very hard water, it is necessary to install a descaler.

Use descalers with a capacity which is adequate to the actual use of the machine.

In case the machine uses a water tank, it is possible to use appropriate filtering cartridges.

The cartridges will need to be replaced periodically depending on the water quality and the indications given by the manufacturer.

The descalers, also available as an accessory, need to be periodically regenerated or replaced according to the manufacturer's instructions.

## ELECTRICAL CONNECTION

The machine requires a single phase voltage of 230 V~ and it is protected by a 15 A fuse.

For the connection, make sure that the plates data correspond to the mains data, and in particular:

- the value of the voltage shall be within the recommended limits;
- the general switch shall have suitable characteristics for supporting the maximum load requested and it shall ensure an omnipolar switch-off with a switch-contact gap of at least 3 mm.

**The switch, the socket and the plug shall be placed in an accessible position.**

The electrical safety of the machine is ensured only when the machine is correctly connected to an efficient earthing system, as foreseen by the current safety regulations.

**It is necessary to verify this fundamental safety requirement and, in case of doubt, request an accurate check of the system by qualified personnel.**

The power supply cable has a non-separable plug. The replacement of the connection cable (see fig. 19) shall be carried out only by qualified personnel and using only cables of the type HO5 RN - F or HO5 V V-F or H07 RN-F 3x1-1.5 mm<sup>2</sup> cross section.

**The use of adapters, multiple plugs and/or extension cables is forbidden.**

**THE MANUFACTURER SHALL NOT BE HELD RESPONSIBLE FOR ANY DAMAGE CAUSED BY THE NON-OBSERVANCE OF THE ABOVE-MENTIONED PRECAUTIONS.**

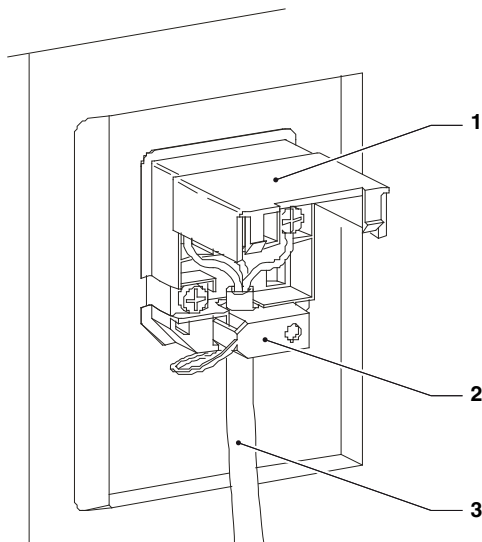


Fig. 19

- 1- Lifiable cover
- 2- Lead fixing terminal
- 3- Mains lead

## FIRST START-UP

At the first start-up of the machine, it is necessary to fill the hydraulic circuit (installation).

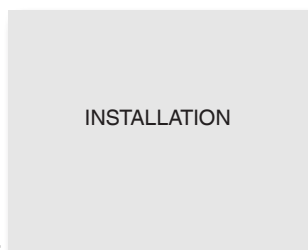
The installing procedure varies depending on whether the machine obtains its water supply from a tank or a mains.

### WATER SUPPLY FROM TANK

- Upon start-up; the water pump is activated for 10 seconds  
The display shows the message "water empty"
- Enter the "Engineer" programming mode and use the special function "Manual installation" of the "Test" menu.  
The machine performs an installation cycle
- When the installation cycle terminates, reset the fault message "empty water"

### WATER SUPPLY FROM MAINS

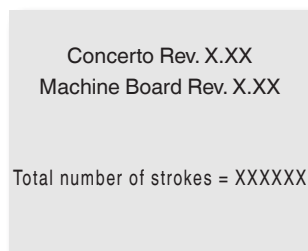
- Upon start-up, the mains solenoid valve is opened automatically until the air-break is filled.
- The solenoid valve of the boiler opens to release the air in the boiler and the hydraulic circuit.
- During the entire cycle, the display will show



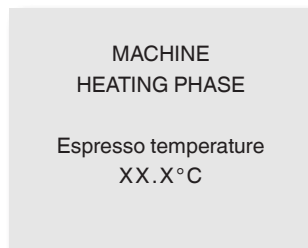
**N.B.:** In case of a lack of water during the installation cycle, the machine will stop to wait for water.

If substantial water pockets form in the hydraulic circuit, then the hydraulic circuit must be filled using the special "manual installation" function

At the end of the installation cycle the display shows this message:



After the initial checks, the boiler heating cycle is started.



At the end of the heating cycle, after a few seconds, the display shows the message inviting the user to select the drink and the keyboard lighting is activated.



## **FIRST SANITIZATION OF THE MIXERS AND OF THE FOOD PRODUCT CIRCUITS**

When the machine is installed it is necessary to carry out an accurate sanitization of the mixers, of the instant drinks dispensing pipes and of the internal tank in order to ensure the hygiene of the distributed products.

### **Jets of water are to be absolutely avoided for cleaning.**

The sanitization is performed by means of sterilising products.

Wash the mixers and add a few drops of sterilising solution. Once the sanitization has been performed, rinse the mixers well for removing any possible residue of the solution used.

For letting water inside the mixers, use the button “mixer wash”; if necessary, enable it from the menu (see paragraph on the dispenser's parameters)

### **Important!**

### **The machine is equipped with an automatic washing system for the mixers with relative hydraulic circuit and the infuser unit.**

If the use of the machine is subject to idle periods (week-ends, etc.), even for less than two days, it is good practice to enable the automatic washing functions (before beginning to use the DA for example) (see “Engineer menu - Configuration - Mixer wash and Infuser unit wash”)

## **INSTALLATION IN SERIES**

The machine control system is arranged for connection in series with other vending machines, by using appropriate kits.

This connection permits the use of one payment and remote connection system only (GSM) for several machines. In case of installation in series, the machine can be configured as “Master”, therefore assuming control of the second machine, or as “Slave”, therefore leaving the control to the other machine.

# OPERATION

## CUP SENSOR

Some of the models are equipped with a cup sensor which detects the presence of objects between the reflector and the sensor.

In order for the sensor to work correctly, the beamer and the reflector in front of it need to be kept clean.

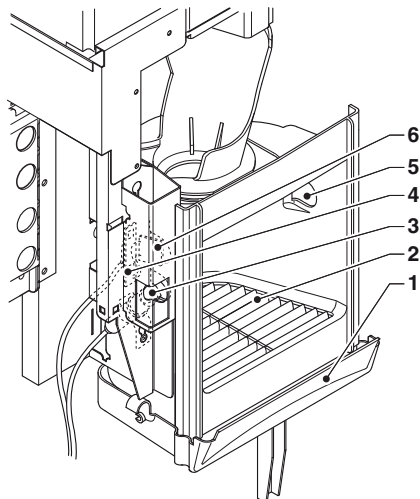


Fig. 20

- 1- Dispensing unit container
- 2- Grid
- 3- Cup sensor
- 4- Board
- 5- Glass cover for reflector
- 6- Unit lighting LED

## DISPENSING UNIT LIGHTING

Some of the models are equipped with LEDs for the dispensing unit lighting.

The LEDs switch on when the drink is being dispensed and remain on for a few seconds after the end of the dispensing.

## BUTTON LEDs

The selections menu has LEDs.

During the heating or energy saving phases the LEDs are off.

During normal operation, the LEDs are lit;

After asking a selection, the required selection button flashes and the other buttons are not illuminated.

## ESPRESSO UNIT

After each start-up of the machine, the coffee unit performs a full rotation before performing the normal cycle in order to ensure that the device is positioned in the initial position.

### COFFEE DISPENSING CYCLE

If a coffee-based selection is requested, the grinder is activated until the coffee doser chamber is full.

When the doser is full, the coffee dose is released into the infusion chamber which is located vertically inside the coffee unit (see Fig. 20-1).

The gear motor engaged on the pinion (6) lets the cranks (5) rotate, which cause the infusion chamber (1) to rotate by 30° (Fig. 22, Item 7).

The upper piston (1) aligns itself with the infusion chamber (Fig. 22 -7) and descends inside it. The position where the piston stops for the infusion will depend on the quantity of ground coffee in the chamber.

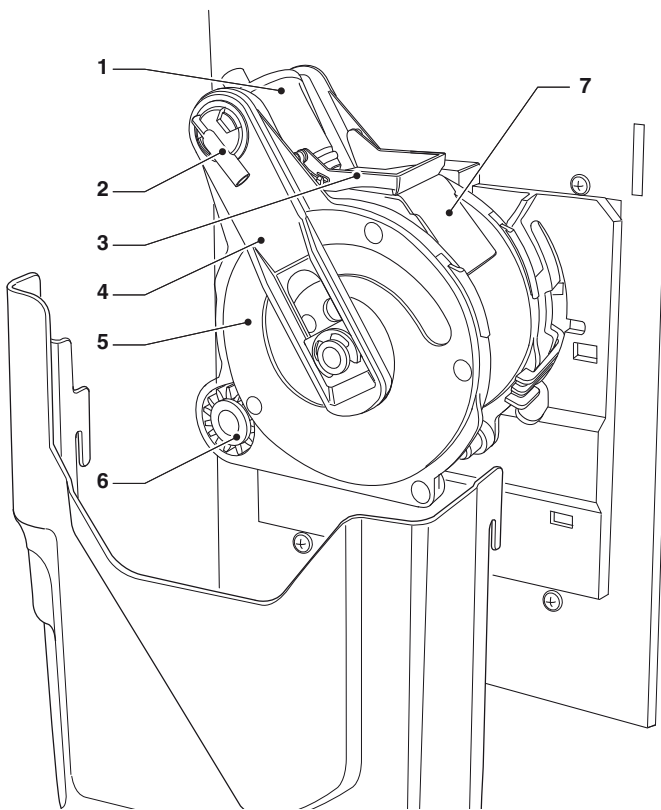


Fig. 21

- 1- Upper piston
- 2- Coffee outlet nozzle
- 3- Scraper
- 4- Rods
- 5- Cranks
- 6- Pinion
- 7- Used coffee slide

At the end of the coffee dispensing phase, the upper piston goes down in order to mechanically squeeze the coffee pod, facilitating the expulsion of excess water through the 3rd route of the dispensing solenoid valve. At the end of the cycle the gear motor is activated in the opposite direction, lifting the upper piston and rotating the infusion chamber towards the emptying side, on the opposite side of the dispensing side; the lower piston (8) rises.

Once the emptying position is reached, the gear motor inverts its rotation direction again, bringing the infusion chamber back to the idle position.

The scraper (3) holds the coffee pod and lets it fall, while the lower piston (8) returns to the idle position.

### VOLUME OF THE INFUSION CHAMBER

The coffee unit can operate with coffee doses between 5.5 and 8.5 g.

The upper piston positions itself automatically.

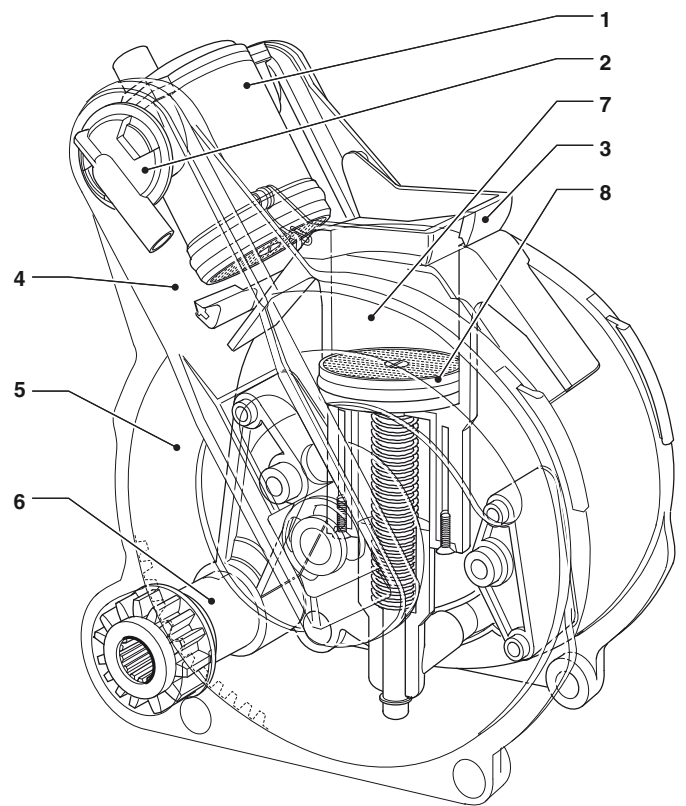


Fig. 22

- 1- Upper piston
- 2- Coffee outlet nozzle
- 3- Scraper
- 4- Rods
- 5- Cranks
- 6- Pinion
- 7- Infusion chamber
- 8- Lower piston

## CHECKS AND SETTINGS

To obtain the best results for each product used, we recommend the following checks:

- The coffee pod shall be slightly compressed and moist.
- Granulometry of ground coffee.  
Grammage of ground coffee.
- Dispensing temperature.
- Dose of water.

## COFFEE GRINDER

On the appliance, according to the model, can be mounted one or two grinders.

Only one of the two grinders can be (optionally) equipped with a device for automatic adjustment of the grind.

The operations described in this section refer to a single grinder.

### COFFEE GRAMMAGE ADJUSTMENT

**The dose adjustment lever can be positioned on one of the 6 reference notches, taking into consideration that:**

- if the lever is lifted the dose increases:
- if the lever is lowered the dose decreases:
- each notch varies the dose by approx. 0.25 g.

**Furthermore, by fully rotating the lever upwards, it is possible to release the tooth from the notch on the dose adjustment device (see Fig. 23)**

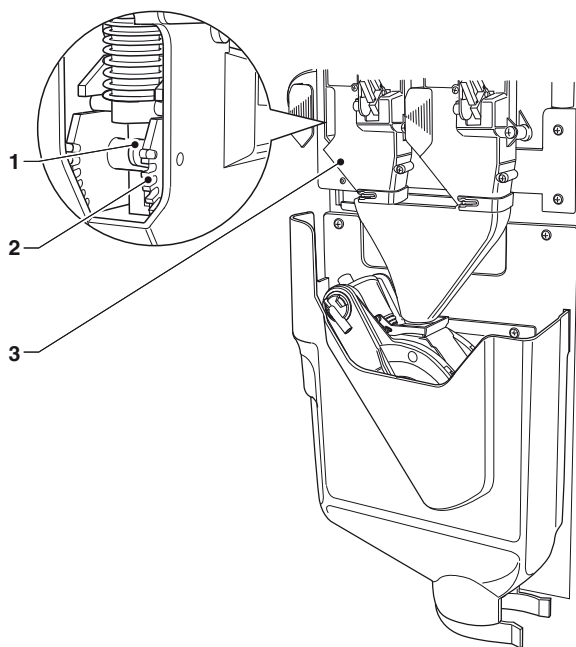


Fig. 23

- 1- Dose adjustment lever
- 2- Reference notches
- 3- Coffee doser

**Reposition it differently to vary the average adjustment as:**

- Low 6 g.  $\pm$  0.5
- Average 7 g.  $\pm$  0.5
- High 8 g.  $\pm$  0.5

For collecting the dose it will be sufficient to remove the coffee unit and use the appropriate function of the "test" menu in "engineer" mode (see relevant paragraph).

### MANUAL GRINDING SETTING

If the grinding grade needs to be changed, adjust it using the relevant knob on the grinder (Fig. 23), and more precisely:

- rotate anti-clockwise for obtaining a larger grinding;
- rotate the knob clockwise to obtain finer grinding.

It is good practice to change the grinding grade when the coffee grinding motor is working.

**NB: after varying the grinding grade, it is necessary to carry out at least 2 selections for checking the new ground coffee granulometry:**

The finer the grinding grade, the longer the dispensing time will be and vice versa.

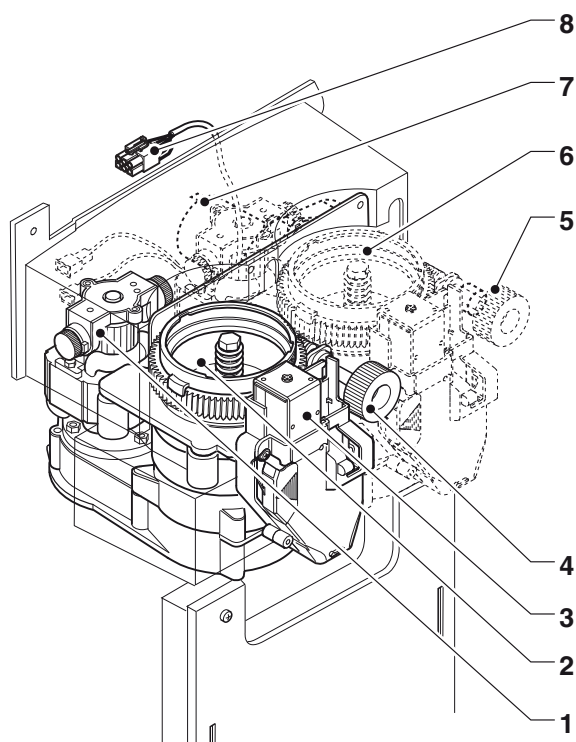


Fig. 24

- 1- Grinder motor
- 2- Grinder
- 3- Coffee release electromagnet
- 4- knob
- 5- Grinding regulation
- 6- Second grinder (optional)
- 7- Grinding adjustment knob (alternatively)
- 8- Automatic grinding adjustment motor (alternatively)
- 9- Grinders connector

## AUTOMATIC GRINDING SETTING

On one of grinders can be fitted a device that automatically regulates the distance between the blades, and therefore the grinding, by default or optionally.

The device for automatic adjustment of the blades (Figure 23) allows for the quality of the dispensed beverage to stay constant, by compensating for variations due to the product, the environment and wearing of the blades.

### REFERENCE SELECTION

To properly monitor the parameters of the automatic adjustment of the grinding (grinding time and infusion time), the machine makes a selection as a reference for the implementation of automated devices.

The device monitors the infusion time required (software programmable) for the delivery of a quantity of water corresponding to a (fixed) number of pulses of the flow meter (cdv) is actually be achieved, otherwise the degree of grinding varies acting on the bi-directional motor that controls the distance between the blades.

When, from the programming menu, you choose to intervene on the grinder, the LED of the selection set as a reference lights up.

Based on this selection, and on those with comparable doses, the infusion time and the time to grind the coffee dose will be measured, so subsequent measurements will be made on this selection.

The change of the grinding is due to the variation of the infusion time required; the grinders are placed closer to one another gradually (finer grain), to avoid compressing the coffee.

**Please Note: To check for sure the new infusion time, keep in mind that the effect of the automatic adjustment of the grind, is seen after a few selections.**

After the adjustment has been stabilized, you should also check the amount of ground coffee that can undergo small variations.

### AUTOMATIC SETTING LOCK

For whatever reason it should prove necessary, it is possible to stop the operation of the automatic adjustment. The grinders are stopped at the distance they have when the automatic adjustment is stopped.

## BLADES WEAR CONTROL

The control function of the blades gives a warning message of "Worn blades" when the machine is turned on, when the grinding time increases too much compared to the grinding time of when the blades were new.

The replacement of the blades, the saved average grinding time will be reset with the special menu.

### SOFTWARE ADJUSTMENT OF THE GRINDING

If for any reason, such as maintenance on the blades, major changes in the distance are required, you can set the desired changed value manually via software.

This value is expressed as 1/6 of a turn of blade-holder ring.

for increasing grain size (larger grinding), the automatic adjustment takes place in a single operation; for decreasing the grain size (finer grind) the automatic adjustment takes place with the coffee grinder engine running.

**Warning! If the variation is large, the dispensing chamber is filled, the coffee is dropped. It 's better to intercept it to prevent clogging of the infuser.**

## **CALIBRATION**

### **REFERENCE SELECTION**

The reference selection LED lights up when you select the grinder on which you intends to intervene.

The selection is determined by default and you cannot change it.

### **COFFEE DOSE**

The maximum coffee dose used by the infuser group is 9 grams.

The dose adjustment should be made first, by acting manually on the coffee dispenser lever.

### **WATER DOSE**

The type of selection determines the amount of water to be delivered in terms of volumetric meter pulses (cdv).

After setting the value of water on the selection of reference, the machine will ask you to enter the infusion time.

### **INFUSION TIME**

The degree of the grinding has a direct effect, if the coffee and water doses are the same, on the time of infusion.

By changing this value, the system of automatic adjustment of the grinding, acts to align the actual time with that required.

During normal operation, continuous monitoring of this time allows the optimum degree of grinding.

## **OTHER SELECTIONS**

The selected layout defines the dose of a given selection. For selections of reference, the infusion time is a non-changeable value and is linked to the selection of reference.

### **WATER DOSE**

The amount of water (expressed in cdv) to be dispensed on each selection can be defined via software. Coffee dose and infusion time are those defined for the selection of reference.

### **COFFEE DOSE COMBINATION**

Even though this combination can be changed, the choice to do so should be made very carefully since it has a substantial effect on the quality of the dispensed drink.

## INSTANT DRINKS DISPENSING

The dispensing cycles of the various selections are studied for obtaining the best result in terms of productivity and quality of the drinks.

The instant drinks are dispensed following a recipe in which the ingredients (max 4) are identified with a number and the product name and described by the water and product quantities and the dispensing and mixing times.

These values are programmable via software with appropriate functions.

Even the dispensing order of the individual ingredients within a recipe is programmable.

The powder for chocolate-based selections is dispensed intermittently, whereas the powder for coffee-based selections is dispensed before the water.

**-Warning !!!**

**Make sure that the mixer is rinsed correctly without leaving any powder residue.**

## PRESELECTIONS

Based on the layout that has been set on the machine, it is possible to have different preselections; the preselections foreseen for each layout are described in the doses-selections table (layout selections) supplied with the machine.

## DOSERS CALIBRATION

For the correct conversion of the amounts of the product dose it is possible to set the value of the rate of each of the dosers in g/sec for calculating the grams to be dispensed.

## ADJUSTMENT OF THE WATER TEMPERATURE

The temperature of the boiler is controlled by the software:

Default condition:

-99.6° C for the espresso boiler

and it can be adjusted directly from the menu.

## VARIATION OF THE SETTING FOR INSTANT PRODUCTS

The grammage of the instant products, the dose of water and the temperature are controlled directly by the micro-processor.

The variation of these values is therefore performed through the programming procedures.



## Notes on Programming

The electronic control unit of the machine controls the use of many functions.

The programme of the machine contains a description of all the foreseen functions, including those which, for the specific configuration of the model (layout), are not used. The machine is supplied together with:

- Selections layout, which contains the selections foreseen for the specific model
- Flow chart of the programming menu.

Described below is a summary of the main functions which are useful for managing the operation of the machine, not necessarily in the order in which they are displayed in the menu.

The software version can be updated using the appropriate systems (PC, Giga, UpKey, etc.)

The display messages which show the operation in progress are steady-on, while any action requested of the user flashes.

The status of the machine can be in three different modes.

Depending on the status in which the machine is, the buttons of the keyboard assume different functions.

### NORMAL USER

- Machine start-up (door closure) with the execution of the foreseen checks.
- Operations that can be done with the door closed.
- Dispensing selection and messages to the user.

### LOADER MENU

- Detection of statistical data and execution of simple checks on the operation and on the dispensed items.

### ENGINEER MENU

- Programming of the settings and of the performances of the machine.

## OPERATION IN NORMAL USER STATUS

During the normal operation, the display shows the message to the user and the invitation to select the drink.



The preselection (for example Sugar) can be different depending on the layout and on the choices made during programming.

Use, for example, the keys "Sugar -" and "Sugar +" for adjusting the quantity of sugar in the drink

If the machine has a payment module, inserting coins or a payment system, the available credit is displayed



When a selection is requested, if the credit is not enough the display will show in sequence the price of the selection, the available credit and the residual amount to be inserted.

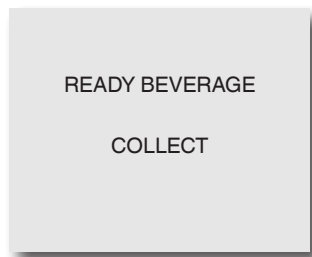
When the drink is being dispensed, an animation is shown which indicates the stage of preparation of the drink and only the related LED flashes.



In the event that an anomaly is detected by the control system, an error message will be given, indicating the type of problem:



At the end of the dispensing phase, the display shows the following message for a few seconds:



## NAVIGATION

### ENTERING THE PROGRAMMING MODE

The programming menu can be entered by switching the machine on with the door open, acting on the door switch.

For entering the programming mode press the button "programming access" inside the door of the machine: The machine status changes to "loader menu", use the key ⬅ for switching from the "loader menu" to the "engineer menu" and vice versa.

The interaction between system and operator is through:

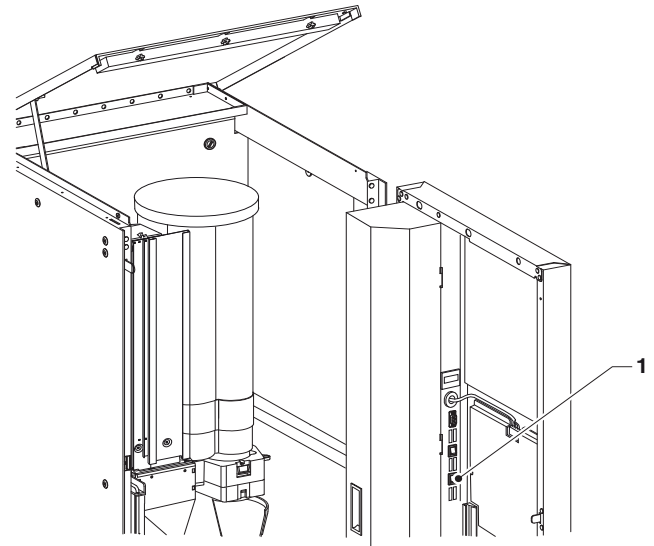


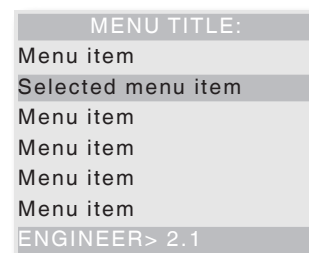
Fig. 25

1- Programming input button

### DISPLAY

8 rows display which shows the messages to the users or the items of the menu.

The programming menu is represented as follows:



#### MENU TITLE:

if requested, this is shown on the first row, followed by the available menu items.

#### Selected menu item

The item of the menu where the cursor is positioned

#### ENGINEER> 2.1

This shows the current active menu (Loader or Engineer) followed by the numerical position of the function on which the cursor is positioned (i.e. 2.1)

### KEYBOARD

With the machine in "Loader" or "Engineer" mode, the selection keyboard assumes the functions:

#### NAVIGATION KEYS ↓ AND ↑ :

These keys allow you to navigate between the items of the menu (functions).

Within a function, they allow you to vary, where requested, the logical status of data (ON/OFF), or enter/modify alphanumeric values.

#### CONFIRMATION KEY ↵:

This allows you to switch from a menu to a submenu or to confirm the data shown on display.

#### EXIT KEY ←:

This allows you to return from a submenu to the menu of higher level, or to cancel the function.

It also allows you to switch from the "Engineer" to the "Loader" mode and vice versa.

#### KEYS FOR NUMERIC VALUES

When the control software requests the input of a password, the keyboard assumes the numeric values shown in the figure.

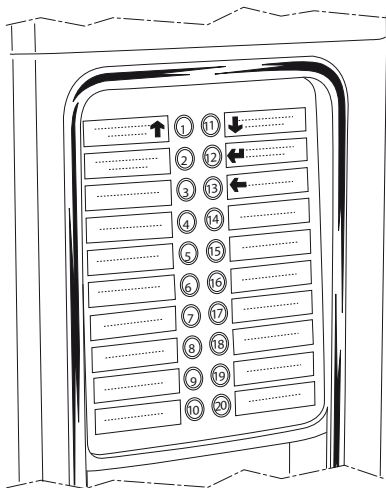


Fig. 26

## LOADER MENU

When the programming button located inside the door is pressed once, the machine goes into "loader menu" mode.

The display shows the first item of the "Loader" menu with the available operations.

The last row of the display contains the menu and the number, which allow you to identify the current level.

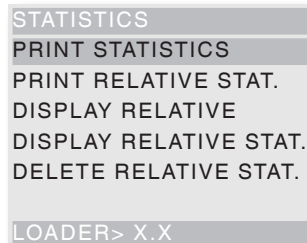
By pressing the confirmation key ↵ you can access the menu.

By pressing the exit key ← you go back to the previous menu.

The keys ↑ and ↓ allow you to navigate through the items of the menu:

## STATISTICS

All the data related to the operation of the machine is stored both in total counters and in relative counters, which can be reset without losing the total data.



### PRINTING

This function allows you to print the stored data related to the operation of the machine

By connecting an RS232 serial printer with a baud rate of 9600, 8 data bits, parity of None and 1 stop bit to the serial port on the button board, it's possible to print all the statistics and in particular:

#### TOTAL



- 1 - selections counter;
- 2 - bands counter;
- 3 - discounts counter;
- 4 - faults counter;
- 5 - coin box data.

#### RELATIVE

- 1 - selections counter;
- 2 - bands counter;
- 3 - discounts counter;
- 4 - faults counter;
- 5 - coin box data.

The printout also shows the code of the machine, the date and the software version.

The printout can be obtained as follows:

- From the printing function press the key  the display shows "Confirm?";
- connect the printer;
- press the confirmation key  for printing

## DISPLAY

This function allows you to display in a sequence the same statistics data that can be obtained with the print-out.

Press the confirmation key  for displaying the data in a sequence of the:

### TOTAL COUNTERS

- 1 - selections counter;
- 2 - bands counter;
- 3 - discounts counter;
- 4 - faults counter;
- 5 - coin box data.


### RELATIVE COUNTERS


- 1 - selections counter;
- 2 - bands counter;
- 3 - discounts counter;
- 4 - faults counter;
- 5 - coin box data

## CANCELLATION

The relative counter statistics can be reset globally, for all types of data, or selectively for:

- selections
- discounts
- faults
- coin box data

By pressing the confirmation key  the display will show the flashing message: "Confirm?"

Press the confirmation key  for resetting the statistics, during the operation the display shows the message "Execution" and the statistics are reset.

---

## INDIVIDUAL PRICE

---

The machine can manage up to 4 different prices for each selection, which can be active depending on the time band that has been set (standard or promotional) and/or on the payment system used.

Through this function it is possible to vary the sales price for each selection, selecting among the available price bands.


---

## MANAGEMENT OF THE COIN BOX TUBES

---

**This function is active only if the payment system that has been set allows you to perform this operation.**

By entering into this function it is possible to manually load or empty the coin box tubes.

By confirming the loading operation, the display shows "Credit : —" which is the amount of money in the tubes available for being returned; if you introduce the coin in the validator, the display will increase the amount of money in the tubes which is available for being returned. By confirming the emptying operation, it is possible to establish on which of the tubes to intervene. Every time the confirmation key is pressed , a coin is ejected from the active tube

---

## BOILER TEMPERATURE

---

This function allows you to read, directly in °C, the temperature detected in the boiler.

---

## TEST

---

For complete or partial dispensing tests, each button (or combination of keys, depending on the models) activates the corresponding selection (see doses-selections table).

**N.B. For the espresso-based selections, with the partial dispensing of powder and water only the additions are dispensed; if the selection does not foresee additions, the display will show "Selection Disabled"**

The possible test dispensing are:

- Complete dispensing
- Dispensing of only water
- Dispensing of only powder
- Dispensing without accessories (without cup, stirrer and sugar)
- Dispensing of only accessories (only cup, stirrer and sugar)

## EVA DTS

EVA DTS communication protocol (European Vending Associations Data Transfer System) allows the communication with statistics acquisition devices.

### CONNECTION

By activating this function, the machine waits for the connection with a statistics activation device EVA DTS.

### ALERT COUNTERS RESET

This function is used to reset all the counters which manage the “product running out” alerts.

Press the key  to reset.

### PARTIAL RESET

This function allows you to reset the counter which manages the “product running out” alert of a single product.


Press the key  to reset.

## ENGINEER MENU

Below is an explanation of the main software functions which manage the operation of the machine, grouped by logic of use and not necessarily in the order in which they are displayed in the menu.

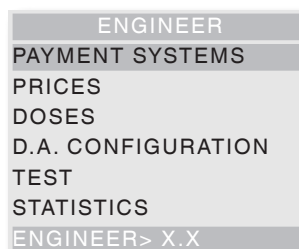
The software version can be updated using the appropriate systems (PC, Giga, UpKey, etc.)





For more information and details please refer to the doses table supplied with the machine, taking into account the software version of the machine.

By pressing the key  from the “Loader” mode, the machine goes into “Engineer menu” mode.


The display shows the first item of the “Engineer” menu with the available operations.

The last row of the display contains the menu and the number, which allow you to identify the current level.



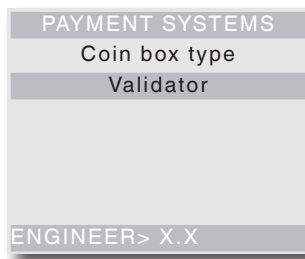
- By pressing the confirmation key  you can access the menu.
- By pressing the exit key  you go back to the previous menu.
- The keys  and  allow you to navigate through the items of the menu:

### Notes:

If you want to go back to the Loader mode, press the key  from any first level function.

## PAYMENT SYSTEMS

It is possible to decide which of the protocols for the expected payment systems to enable and manage the related functions.



The communication protocols for the expected payment systems are:

- Validators
- Executive
- BDV
- MDB

Some of the parameters, which are common among several payment systems, keep the set value even if the system type is changed.

If necessary, they can be modified from the menus of the payment systems.

### VALIDATOR

#### IMMEDIATE CHANGE


Usually the amount related to a selection is cashed in after the machine sends the signal "Selection made". By enabling this function, which is disabled by default, the payment signal is sent at the beginning of the dispensing.

Setting this parameter is compulsory.

#### DECIMAL POINT

Pressing the confirmation key  displays the position of the decimal point, in particular:

- 0 decimal point disabled
- 1 XXX.X (one decimal place)
- 2 XX.XX (two decimal places)
- 3 X.XXX (three decimal places)

By pressing the confirmation key , these values flash and they can be modified.

#### LINE/VALUE ASSOCIATION

When the display is positioned on the function "LINE-VALUE ASSOC." (line programming) of the "programming" menu, it is possible to vary the value of the 6 coins lines, from A to F, of the validator.

#### OVERPAY

It is possible to decide whether to cash in or leave the user any credit exceeding the amount of the selection.

## EXECUTIVE

### VERSION

For the Executive system, you must choose from among the following payment systems:

- Standard
- Price holding
- Price holding price display (UKEY)

### IMMEDIATE CHANGE

Usually the amount related to a selection is cashed in after the machine sends the signal "Selection made". By enabling this function, which is disabled by default, the payment signal is sent at the beginning of the dispensing.

Setting this parameter is compulsory.

### BDV

The BDV protocol menus allow you to define the following functions.

### IMMEDIATE CHANGE

Usually the amount related to a selection is cashed in after the machine sends the signal "Selection made". By enabling this function, which is disabled by default, the payment signal is sent at the beginning of the dispensing.

Setting this parameter is compulsory.

### TYPE OF SALE

This allows you to set the operating mode for multiple or single dispensing. With multiple dispensing, the change is not automatically returned at the end of one dispensing, but it remains available for further dispensing. When the coins return button is pressed, the remaining credit will be returned if its value is less than the maximum change value.

### CHANGE REFUSAL

This allows the enabling/disabling of the return of the credit (escrow) if no dispensing was made.

If enabled, this function allows the coins to be returned even if the first dispensing has not occurred.

But if a dispensing failed for any reason, if requested, the change will be returned.

### MAXIMUM CREDIT

This function allows you to define the maximum credit for the introduced coins which is accepted.

## MAXIMUM CHANGE

It is possible to set a limit to the total amount of the change that the coin box will pay when the change return button is pressed or after a single dispensing. Any credit exceeding the programmed amount with this function will be cashed in.

## ACCEPTED COINS

It is possible to define which coins among those recognised by the validator shall be accepted. In relation to the coin/value correspondence, the label on the coin box shall be checked, which shows the position of the coins.

## REFUSED COINS

This allows you to program the refusal of coins if the condition “exact amount” is met. In relation to the coin/value correspondence, the label on the coin box shall be checked, which shows the position of the coins.

## “EXACT AMOUNT” VALUE

This data defines the combination of empty tubes which puts the coin box in the condition of “exact amount”. The possible combinations of empty tubes are shown below. For simplicity reasons the combination is described with reference to the tubes A, B and C, where tube A receives the lower value coins and tube C the higher value coins.

0	=	A or (B and C)
1	=	A and B and C
2	=	only A and B
3	=	A and (B or C)
4	=	only A
5	=	only A or B (default)
6	=	A or B or C
7	=	only A or B
8	=	only A or C
9	=	only B and C
10	=	only B
11	=	only B or C
12	=	only C

## DISPENSING BUTTONS

This function allows you to enable or not the buttons on the coin box for removing the coins from the coin box tubes.

## C.P.C. PERIPHERAL

It communicates to the coin box if some peripherals have been installed or removed from the serial connection (C.P.C. type peripherals - the default verification unit is always enabled).

## TUBES MINIMUM LEVEL

This allows the user to be notified with the message “Insert exact amount”, adding a number of coins between 0 and 15 to the programmed number of coins for determining the full status of the tubes.

## VMC FREE SALE

Most of the payment systems with BDV protocol manage the free sale function. Nevertheless, there are payment systems which do not have this function. In this case, having to dispense some selections free of charge, it is necessary to enable the VMC free sale (vending machine control, enabled by default) and set the price of these selections to zero.


## MDB

The MDB protocol menus allow you to define the following functions.


## IMMEDIATE CHANGE

Usually the amount related to a selection is cashed in after the machine sends the signal “Selection made”. By enabling this function, which is disabled by default, the payment signal is sent at the beginning of the dispensing. Setting this parameter is compulsory.

## DECIMAL POINT

Pressing the confirmation key  displays the position of the decimal point, in particular:

0	decimal point disabled
1	XXX.X (one decimal place)
2	XX.XX (two decimal places)
3	X.XXX (three decimal places)

By pressing the confirmation key , these values flash and they can be modified. Setting this parameter is compulsory.

## TYPE OF DISPENSING

This allows you to set the operating mode for multiple or single dispensing. With multiple dispensing, the change is not automatically returned at the end of one dispensing, but the credit remains available for further dispensing. When the coins return button is pressed (if the function is enabled), the remaining credit will be returned up to the maximum change value.



## **OBLIGATION TO BUY**

This allows the enabling/disabling of the coins return button before dispensing a product.

- ON: the change is returned after a product has been selected
- OFF: the change is returned immediately when the coins return key is pressed (the machine works as change machine)

## **MAXIMUM CREDIT**

This function allows you to define the maximum credit for the introduced coins which is accepted.

## **MAXIMUM CHANGE**

It is possible to set a limit to the total amount of the change that the coin box will pay when the change return button is pressed or after a single dispensing. Any credit exceeding the programmed amount with this function will be cashed in.

Accepted coins

It is possible to define which coins among those recognised by the validator shall be accepted when the coin return tubes are full.

In relation to the coin/value correspondence, the configuration of the coin box needs to be checked

## **ACCEPTED COINS**

It is possible to define which coins among those recognised by the validator shall be accepted when the coin return tubes are full.

In relation to the coin/value correspondence, the configuration of the coin box needs to be checked

## **COINS RETURNED**

It is possible to define which coins among those available in the tubes shall be used for giving the change. This parameter is only active with coin boxes which do not automatically manage the choice of the tube to be used (Auto changer payout).

In relation to the coin/value correspondence, the configuration of the coin box needs to be checked

## **ACCEPTED BANKNOTES**

It is possible to define which banknotes among those recognised by the reader shall be accepted.

In relation to the banknote/value correspondence, the configuration of the reader needs to be checked

## **ACCEPTANCE BELOW LEVEL**

It is possible to define which coins among those recognised by the validator shall be accepted when the machine is in "exact amount" condition.

In relation to the coin/value correspondence, the configuration of the coin box needs to be checked

## **BANKNOTES ACCEPTANCE BELOW LEVEL**

It is possible to define which banknotes among those recognised by the reader shall be accepted when the machine is in "exact amount" condition.

In relation to the banknote/value correspondence, the configuration of the reader needs to be checked

## **CASHLESS PRIVATE**

For safeguarding the users privacy this function allows the display of the string "-----" instead of the credit of the cashless system.

## **OVERPAY**

It is possible to decide whether to cash in or leave the user any credit exceeding the amount of the selection.

## **CASH-SALE MANAGEMENT**

This function allows the recording of the cash transactions as if they were made through a cashless system. The available values are:

- 0 standard operation: the cash transactions are recorded as such
- 1 forced switch to cashless 1: the cash transactions are recorded as transactions performed by the first cashless system
- 2 forced switch to cashless 2: the cash transactions are recorded as transactions performed by the second cashless system

## **PARALLEL DEVICE**

This function allows you to enable the presence of a parallel validator or banknotes reader which is used to recharge the keys.

## EXACT CHANGE EQUATION

This allows you to choose among 12 different control algorithms in order to enable the machine to return the change at the end of a selection.

Each algorithm verifies a set of conditions, such as for example the amount of coins in the tubes or the status (empty or full) of the tubes which will be used by the coin box to return the change.

If one of these conditions is not satisfied, the machine will not be capable of giving the change: in this case the display will show the message "No change given"

## CASHLESS MAXIMUM CREDIT

This function allows you to set the maximum credit that a key/cashless card can have in order to be accepted by the system. If the key has a greater value, it will be refused.

The value that has been set shall always be greater than or equal to the value set under the function "Revalue Maximum cash"; in case it is modified and is lower, it will automatically be set to the same value of the "Revalue Maximum cash".

Cashless maximum recharge

The function allows you to set the maximum credit that can be charged on a key or card system.

## CASHLESS MAXIMUM RECHARGE

The function allows you to set the maximum credit that can be charged on a key or card system.

## TUBES MINIMUM LEVEL

This allows you to set the number of coins between 0 and 15 for determining the full status of the tubes and the notification to the user "insert exact amount"

## BANKNOTES READER FUNCTION (BILL REVALUE)

This function allows you to enable the banknotes reader exclusively for recharging the credit on the cashless system (key or card)

## ACCEPTANCE OF INDEFINITE CREDIT

This function allows you to accept or not the cashless payment systems (key or card) in case the credit of the cashless system is not defined.

## USER GROUPS

This function allows you to associate a price list (list 1, list 2 and list 3) to user groups (from 1 to 5).

By default, all the user groups are associated to list 1.

## PRICES

From this menu it is possible to set the prices individually (for each selection) or globally (the same price for all the selections) and define the intervals of the promotional band.

The machine can manage up to 4 different prices for each selection, which can be active depending on the time band that has been set (standard or promotional) and/or on the payment system used.



The prices are grouped in 4 lists and can be programmed (from 0 to 65,535), for each of the 4 lists, both globally with the same price for all the selections and individually for each selection.

The price of each selection can be varied also directly from the keyboard.

In the event that most of the products are sold at the same price it is more convenient to program the price globally and then change the price of the selections which have a different sales price.

## BDV, EXECUTIVE, VALIDATORS

With these systems, apart from the standard price list, it is possible to manage a promotional price list if the time band is enabled by means of the appropriate function. The selections will be dispensed at the price of the promotional list, during the programmed time intervals.

## MDB

With these systems it is possible to establish whether to use the 4 price lists at the same time or to use two bands alternatively depending on the time band that has been set.

If the time band is not used, apart from the standard price list it is possible to manage three further price lists depending on the type of cashless support used (key 1-3).

If the time band is used, the selections will be dispensed, for the cashless system, at a price which is different from the standard price; during the time intervals which have been programmed, the selections will be dispensed with two different promotional prices for the standard list and for the cashless system.

## PROMOTIONAL TIME BAND

Four time intervals can be programmed for sales at different prices.

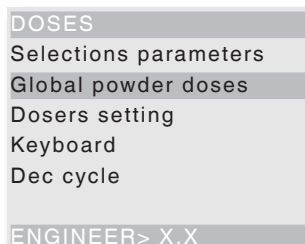
The intervals can be set by the hour (from 00 to 23) and by the minute (from 00 to 59).

To disable the time band, set the date, start and end times of the band to 0.

The reference time is given by an internal clock which can be adjusted from the configuration menu of the machine (see the "DA Configuration" paragraph).

## DOSES

This group of functions allows you to define all the variables which contribute to the preparation of the drink



### SELECTION PARAMETERS

By confirming this function, you can access the submenus for managing the parameters; the first option is the choice of the selection which you would like to change.

By pressing a key on the keyboard, the corresponding parameters will be displayed, which will be different if the key is a selection or a preselection.

### SET COMPOSITION

This group of functions allows you to modify the doses and the parameters in relation to water and powder of the chosen drink.

By confirming this function, the list of ingredients (powder/s and water) of the drink is shown, listed in the order in which the water dose is dispensed (see doses table).

A drink can be composed of a maximum of 4 ingredients (powder/s and water).

Each dose of water can be matched to more than one powder.

The dispensing of water can be controlled through the following parameters:

## MIXER

### Mixing mode

It is possible, for each selection, to set the mixing duration of each dose of water which forms the selection.

The duration can be set in two different modes:

#### - absolute

which means independent from the solenoid valve opening time.

The value of the mixing duration is set in terms of relative volumetric counter pulses (CDV)

- ,

which means based on the difference, positive or negative, with respect to the time of closure of the solenoid valve.

E.g.: if the value is 0, the mixing will stop exactly at the time of closure of the solenoid valve.

The value of the mixing duration is always stated in tenths of second.

### MIXING SPEED (LOW / MEDIUM / HIGH)

The mixing speed can be defined as a function of the desired presentation of the product.

### MIXING TIME

It is possible to define, within a single product, for how long the mixer shall be active after the closure of the solenoid valve.

### WATER DOSES

The dispensing of water can be controlled through the following parameters:

#### EVENT START (0 - 3)

The Event start function is used to define the dispensing sequence of the ingredients.

Among the ingredients described in the recipe, the identification number of the first ingredient to be dispensed (start 0) will be indicated as the beginning of dispensing (start) of the next ingredient.

For example, if the "Cappuccino with chocolate" recipe includes:

- Ingredient 1 Milk

- Ingredient 2 Coffee

- Ingredient 3 Chocolate

the dispensing sequence of the ingredients is:

1° -Ingredient 1 Milk (start 0)

2° -Ingredient 2 Coffee (start 1)

3° -Ingredient 3 Chocolate (start 2)

To change the presentation of the drink, placing the milk on top for example, the dispensing sequence of the ingredients could be:

1° -Ingredient 3 Chocolate (start 0)

2° -Ingredient 2 Coffee (start 3)

3° -Ingredient 1 Milk (start 2)

## DELAY

It is possible to set (in hundredths of a second) the delay of the water with respect to the previous event.

## DOSE IN CC

It is possible to set, directly in cc, the quantity of water desired for each ingredient.

## DOSE IN CDV

It is possible to set, directly in cdv (fan pulses), the quantity of water desired for the ingredient.

## EXTRACTION PRESSURE

This function is used to adjust the pressure exerted on the pod in the infusion chamber.

**Changing this parameter can modify the presentation and quality of the dispensed drink.**

This function allows you to choose among the following profiles:

- Low
- Medium
- High

## PRE-INFUSION

This function allows you to determine the pre-infusion parameters:

- the quantity of water (in cdv)
- the pre-infusion time (in tenths of a second) before the infusion occurs.

## POD SQUEEZING

The squeezing is carried out by the upper piston which, by mechanically compressing the pod, favours the expulsion of the water from the pod before discharging it into the solid waste container.

- ON: squeezing of the pod enabled
- OFF: the pod is not squeezed.

## POWDER DOSES

The dispensing of powders can be controlled through the following parameters:

### DOSE IN GRAMS

It is possible to set, directly in grams, the desired quantity of powder for each ingredient in the drink.

### RATE IN G/SEC.

It is possible to set the working speed of the ingredient motors for defining the rate in g/sec.

This value is used to calculate the time necessary to dispense the dose in grams.

### DECAFFEINATED CYCLE OR STEPPED DISPENSING

With this function it is possible to decide, for each selection based on instant coffee in relation to the "global" setting, whether the powder shall be dispensed with the decaffeinated cycle or in steps.

- DECAFFEINATED CYCLE: with this parameter, the powder is dispensed (suggested for instant coffee) before the water, for improving the presentation of the drink:
- IN STEPS: with this parameter the powder is dispensed in steps (which can be set from 1 to 5) at the same time of the water.

## DRIP

For each selection it is possible to define the waiting time (programmable from 0 to 2000 hundredths of a second) from the end of dispensing to the closure of the shifting system in order to give the tubes time to empty.

## STATUS OF SELECTION

For each selection key it is possible to define whether it shall be enabled or not.

## ACCESSORIES

For each of the accessories:

- |                    |                |
|--------------------|----------------|
| - sugar            | ON/OFF         |
| - stirrer          | ON/OFF         |
| - cup              | ON/OFF         |
| - sugar in the cup | (amount in g.) |

it is possible to decide whether it has to be added or not to a selection.

## COMPLETE SELECTION TEST

With this function it is possible to obtain for each selection, with the door open and without inserting the amount, the dispensing of:




- complete selection
- only water
- only powder
- without accessories (cup, sugar and stirrer)
- only accessories

## PRODUCT CODE

This function can be used to assign a 16-character (alphanumeric) identification code to each selection for statistical processing.

## GLOBAL POWDER DOSES

With this function it is possible to adjust at the same time the powder dose of each ingredient motor related to several selections.

Use the keys  and  to scroll all the powders, press the confirmation key  for setting the grams of chosen powder.

## SOLENOIDS FLOW

Although present in the programming menu, this function is not active

## DOSERS SETTING

For the correct conversion of the amounts of the product dose it is possible to set the value of the rate of each of the dosers in g/sec for calculating the grams to be dispensed.

## KEYBOARD

### KEY <---> SELECTION

With this function it is possible to vary the order of the selections associated with the keyboard defined by the layout that has been set.

The display will show, in a sequence, the list of the foreseen selections and by pressing the destination key, the match is stored.

### VERIFICATION NO. OF SELECTION

This allows you to verify the selection number matched to a key.

## WITHOUT SUGAR

With this function it is possible to set all the selections as "without sugar".

## DECAFFEINATED CYCLE

This function acts on the selections based on instant coffee. The selections are identified in the layout as unmodifiable.

By enabling this function in all the selections based on instant coffee (if present) the powder is dispensed before the water

For each selection based on instant coffee it is however possible to change this parameter individually.

---

## DA CONFIGURATION

---

This group of functions controls all the parameters related to the operation of the machine.




### DATE AND TIME SETTING

This function allows you to set the current date and time. This data item is used by the machine for managing the time bands and statistics.

In the absence of power supply the machine maintains the set date and time by means of a buffer battery.

### BOILER TEMPERATURE

This function allows you to set the working temperature, in °C, of the boiler.

From this function, press the confirmation key , the temperature value flashes and it can be modified with the keys  and .

## DB MANAGEMENT



This group of functions allows you to manage the operational database of the machine

### INITIALIZATION

This function shall be used in case of error of the data in the memory or if the software is replaced.

All the statistical data, with the exception of the general electronic counter, will be reset.

When the display is in the "Initialization" function, it is possible to initialize the machine by resetting all the default data.

When the confirmation key  is pressed, the display will show the message "Confirm?". If the confirmation key  is pressed again, some parameters will be requested such as:

- **COUNTRY:** it being understood as type of basic doses for the various selections  
(i.e. IT coffee = 60 cc - FR coffee = 106 cc).  
The "countries" vary depending on the models.
- **LAY OUT:** for each model and type of doses, there are a certain number of Buttons-Selections combinations amongst which it is possible to choose (the combinations for each layout are indicated in the doses-selections table supplied with the machine).
- **TANK:** it defines whether the water supply is:  
0 - from the mains  
1 - from an internal tank

By confirming the options, the message "Execution" is displayed for a few seconds.

### SAVE DB CUSTOM

Allows you to save a copy of the current configuration of the device (backup) on an external storage device before making customizations.

### RESTORE DB CUSTOM

This allows you to restore the customized configuration of the machine which was previously saved with the function "Save custom DB".

In case the factory settings need to be restored, it is necessary to initialize the machine.

### SAVE DB COPY

Allows you to save a copy of the current configuration of the device (backup) on the CPU board memory before making customizations.

## DISPLAY

This group of functions controls all the parameters related to the display.

### LANGUAGE



It is possible to choose the language, among those foreseen by the software, used for the messages shown on the display.


### PROMOTIONAL MESSAGE


#### ENABLING THE PROMOTIONAL MESSAGE

This function allows you to enable the display of the promotional message which has been set

#### SETTING THE PROMOTIONAL MESSAGE

The message of 5 rows of 16 characters can be composed by using the keys  and  for scrolling the available characters.

By pressing the confirmation key  the first character that can be modified flashes.

The message is stored by pressing the key .

### PROMOTIONAL IMAGE

This allows you to enable/disable the promotional image shown on the display in normal user mode:

- **ON:** in normal user mode the message "Select drink" is alternated, every 3 seconds, with the promotional image
- **OFF:** in normal user mode, only the message "Select drink" is shown

### CONTRAST SETTING

This function allows you to adjust the contrast of the display from a minimum of 5% to a maximum of 99% (default).

### MONEY SYMBOL

This function allows you to enable, when the credit is displayed, the symbol of the currency that has been set (€, \$ or £)



## MENU MANAGEMENT

### PASSWORD

This is a 5-digit numerical code which is requested for displaying all the functions of the menu.

By default, the value of this code is set to 00000

From this group of functions it is possible to enable and set the password.

### ENABLING THE LOADER MENU

With this function it is possible to make visible or not the loader first level menu.

Using the keys **↑** and **↓**, you can scroll through the items of the first-level loader menu; the key **↵** can be used to modify the status of the chosen menu (ON/OFF).

### ADVANCED MENU

Allows you to enable or disable the function of requiring a password to view all the "advanced" functions of the Technician Menu when entering the programming mode; the password prompt is disabled by default.

## ESPRESSO UNIT

### PRE-GRINDING

This function allows you to enable or disable the grinding of the coffee dose for the subsequent selection. This allows you to decrease the preparation time of a coffee solution.

By default, this function is disabled.

### ESPRESSO BOOST

By enabling this function it is possible to heat the hydraulic circuit and the espresso unit before an infusion of espresso.

In the event that no espresso-based selections are made for a long time, a small quantity of warm water is dispensed before the release of the coffee dose.

### ESPRESSO UNIT POSITION

**This is available only on double espresso models.**

With this function you can set the position of the group while the dose of ground coffee is being delivered.

The regulation occurs through the Keys **↑** and **↓**

### GRINDER SHUTDOWN

A sensor detects the effective rotation of the grinder during the grinding time.

In the event of a blockage (due to foreign bodies, etc.) the grinder is shutdown and the espresso-based selections are disabled.

This option can be used to enable/disable the check of the grinder rotation.



## ADJUSTING THE BLADES

On grinders where the automatic adjustment device is mounted, with this group of functions you can test the parameters of the automatic adjustment of the distance between the blades and enable or disable the function. In particular, you can choose on which grinder, identified by a number, to intervene. After the selection, the selection of reference LEDs related to that grinder light up.

### AUTOMATIC SETTING ENABLING

For each grinder you can decide whether to leave the automatic adjustment device on or off.

### AUTOMATIC SETTING PARAMETERS

For each selection of reference, the following should be programmed:

- The water dose (expressed as volumetric meter pulses -cdv-)
- The infusion time (expressed in sec.)
- If necessary, the manual adjustment of the distance between the blades; every variation is roughly one sixth of a turn of the adjustment ring. Positive values reduce the grain size (finer grind), negative values increase it (larger grind).

### NEW BLADES

This function clears the stored times of the wearing of the blades; in particular the average initial time of grinding, stored during the first selections, which is used to determine when the blades are worn out (grinding time 50% higher than the initial time).

### GRINDERS TEST

This function should be used after replacing the blades, or, possibly, the grinder.

The test should be carried out without coffee.

- Confirming the test, the blades rotate and are made to touch;
- The machine will stop, waiting for confirmation;
- Confirming once again, the blades are placed apart by turning the blade-holder ring a few turns;
- The machine will stop, waiting for confirmation;
- introducing the coffee and delivering some selections of reference, the grinding will stabilize automatically

## WASH

### ENABLING THE WASH BUTTON

This function can be used to enable the mixer wash button.

Usually this button is disabled.

### AUTOMATIC MIXER WASH

It is possible to set the time for the automatic wash of the mixers installed.

By setting the time to 24:00, the function is disabled (default setting).

### AUTOMATIC UNIT WASH

This function allows you to set the daily automatic wash (rotation and dispensing of water) of the espresso unit by setting the time when to perform the wash.

By setting the time to 24:00, the function is disabled (default setting).

### INSTANT DRINKS BOOST

If this function is enabled and no dispensing was made in the last 3 minutes in the milk or instant coffee mixers, a small quantity of hot water is dispensed before the short instant coffee, macchiato instant coffee and espresso macchiato selections.

### MIXER COOLING

If the machine is equipped with a cold unit, the function is enabled.

If no dispensing was made within the last 3 minutes in the mixers of the cold drinks, a small quantity of cold water is dispensed before the syrup-based selections.

## ACCESSORIES

### TANK

This function allows you to define whether the vending machine water supply is through the mains or internal tanks:

- 0: water supply from the mains;
- 1: internal tank;

### PHOTOCELL

For the models equipped with “cup sensor” composed of a photocell which detects the presence of an object in the dispensing unit.

With the function enabled, if an object is detected in the dispensing area, the cup is not released and the display will show the message “Without cup”.

It is furthermore possible to define whether, after two attempts for releasing a cup without a detection of objects by the photocell in the dispensing area, the fault shall block the machine or shall leave it operational for the use with cup.

The lamp of the dispensing unit is controlled by the cup sensor. If the cup remains inserted, when the next selection request is made, the message “remove the cup” will be shown.

### JUG FACILITIES

Some of the models, equipped with an appropriate key, can dispense a number (programmable from 1 to 9, 5 as default) of selections without cup to fill in a jug.

## CUP ADJUSTMENT TIME

This function allows you to determine the time of delay of the rotation stop of the cup dispenser for compensating the possible inertia due to the type of cup.

## ENERGY SAVING

In order to save energy when the machine is not used, it is possible to choose among the following energy saving options:

### ENERGY SAVING:

with this option it is possible, in the time intervals which are set with the function “Energy Saving Parameters”, to suspend the service of the vending machine and switch off or not the boiler.

The selections are not available for the whole duration of the Energy Saving period.

- **Sleep mode:** with this option, after 15 minutes of inactivity of the vending machine, the LEDs of the door switch off and the temperature of the boiler decreases to approx. 70 °C. When any selection button is pressed, the machine restarts the normal operations and as soon as the operational temperature is reached, the selections become available again.

- **Soft Energy Saving:** with this option it is possible to switch off the lighting LEDs of the keyboard during the time intervals set by the function “Energy Saving Parameters” while the boiler continues to work normally. When any selection button is pressed, the lighting of the keyboard is reactivated and the machine immediately restarts the normal operations.

## ENERGY SAVING PARAMETERS

With this function it is possible to set up to 4 time bands during which the energy saving profiles will switch on

## **LED D.A. OUT OF SERVICE**

It is possible to define whether the lighting LEDs shall be switched on or not when the machine is out of service and the “Energy saving” mode is on .

## **SET DISPENSING MAINTENANCE**

With this function it is possible to establish how many dispensing tests can be made at each door opening. By default, the value is set to 0 and there are no limitations on the dispensing tests.

## **MASTER SLAVE**

The machine control system is arranged for the connection in series with other vending machines.

### **SETTINGS**

This function allows you to set the hierarchies of the master / slave1 / slave2 relationships between the connected machines.

This machine can be configured as “Master”, therefore assuming control of the second machine or as “Slave”, therefore leaving the control to the other machine.

Furthermore, the numbers of the selections will be set, with two digits (XX) or three digits (0XX; 9XX)

By default, the master/slave function is not enabled.

### **SLAVE PRICE HOLDING**

In case the Executive payment system is set in “Price Holding” mode, with this function it is possible to set the same mode also in the software of the slave machine.

### **RETURN VIRTUAL PRICE**

If the payment system is set with BDV and/or Executive protocol and for combined or virtual selections (whose relative menus are on the slave machines), with this option it is possible to establish whether to keep (OFF) or not (ON) the partial amount, in case the second selection/dispensing should fail.

### **RESET MINISLAVE**

With this function it is possible to reset all the settings related to the master/slave function on the slave machine.

## **MONITOR SLAVE**

With this function it is possible to scroll all the information related to a possibly connected slave machine.

By switching on the “slave” machine with the display on this function, the display will show in sequence the information of the slave related to:

- Software version
- Type of slave (XX, 0XX, 9XX)
- Presence of the photocells for dispensing detection
- Number of trays and drawers
- Presence of a device blocking the opening of the collection area
- Temperature detected by the internal probe.

To exit the function it is necessary to switch off the “master” machine.

## **DISPLAY SLAVE INFORMATION**

With this function it is possible to display the instant temperature of the possibly connected “slave” machine.

## **DA SERIAL NUMBER**

This function makes it possible to vary the eight-digit numerical code which identifies the machine (00000000 as default).

## **PROGRAMMING OF THE OPERATOR CODE**

This function makes it possible to vary the six-digit numerical code which identifies the machine groups manager (000000 as default).

## **LOCATION CODE**

This function makes it possible to vary the eight-digit numerical code which identifies the place where the machine is located (00000000 as default).

## **INSTALLATION DATE**

This function makes it possible to set the current date of the system as the installation date.

The date is printed when the statistics are extracted.

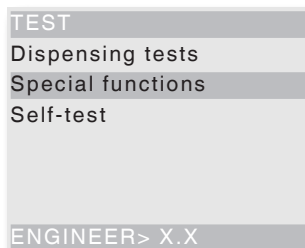
## MANAGEMENT OF THE EXTRACTOR

Makes it possible to enable or disable the operation of the fan extracting instant powder residue and/or steam during the preparation of instant drinks.

- ON extractor fan in continuous operation
- OFF extractor fan in operation only during the preparation of the drink and for the 30 subsequent seconds.

## TEST

This group of functions allows you to perform tests on the main components of the machine.



### DISPENSING TESTS

With this function it is possible to obtain for each selection, with the door open and without inserting the amount, the dispensing of:

- complete selection: beverage and accessories (cup, scoop, sugar)
- only water
- only powder
- without accessories
- only accessories

### SPECIAL FUNCTIONS

The special functions allow you to:

- Operate the infuser unit
- Release a coffee dose
- Open a solenoid valve for letting the air enter in case the boiler is emptied for maintenance
- Perform the filling of the hydraulic circuit (installation)
- Perform the movement (rotation) of the espresso unit
- Perform the movement (rotation) of the espresso unit whilst the piston is pressing down.
- Wash the infuser unit.

## ADJUSTING THE BLADES

On the grinder where the automatic adjustment device is mounted, with this group of functions you can test the parameters of the automatic adjustment of the distance between the blades and enable or disable the function. In particular, you can choose on which grinder, identified by a number, to intervene. After the selection, the selection of reference LEDs related to that grinder light up.

### AUTOMATIC SETTING ENABLING

For each grinder you can decide whether to leave the automatic adjustment device on or off.

### AUTOMATIC SETTING PARAMETERS

For each selection of reference, the following should be programmed:

- The water dose (expressed as volumetric meter pulses -cdv-)
- The infusion time (expressed in sec.)
- If necessary, the manual adjustment of the distance between the blades; every variation is roughly one sixth of a turn of the adjustment ring. Positive values reduce the grain size (finer grind), negative values increase it (larger grind).

### NEW BLADES

This function clears the stored times of the wearing of the blades; in particular the average initial time of grinding, stored during the first selections, which is used to determine when the blades are worn out (grinding time 50% higher than the initial time).

### GRINDERS TEST

This function should be used after replacing the blades, or, possibly, the grinder.

The test should be carried out without coffee.

- Confirming the test, the blades rotate and are made to touch;
- the machine will stop, waiting for confirmation;
- Confirming once again, the blades are placed apart by turning the blade-holder ring a few turns;
- the machine will stop, waiting for confirmation;
- introducing the coffee and delivering some selections of reference, the grinding will stabilize automatically

## AUTOTEST

This function allows you to verify, in semi-automatic mode, the operation of the main components of the machine. By pressing the confirmation key, the flashing message "AUTOTEST" will be displayed.

It is possible to abandon each operation and go to the next one by pressing the exit key; instead, by confirming with the confirmation key, the autotest cycle starts. Some of the controls are automatic, while others require the controlled component to be manually operated.

The verified components are:

- Activation of ingredient motors for 2 seconds
- Activation of mixer motors for 2 seconds at different speeds
- Release of a cup
- Release of a stirrer
- Rotation of the infuser unit
- Control of the washing button
- Motion control of mobile nozzles.
- Full liquid waste; the machine remains in standby until the full liquid waste microswitch is operated manually
- Door lighting test; check that the keyboard lighting is working
- Switch on the dispensing unit lighting (if present)
- Keyboard check; the machine displays the number of the button that shall be pushed and it indicates the latter also by switching on the corresponding LED and it remains in standby for the actuation before switching to the next key
- Check that the boiler temperature probe is working
- Check that the buzzer is working
- Check that the coin box (if present) is working

## STATISTICS

The data related to the operation of the machine are stored both in total counters and in relative counters, which can be reset without losing the total data.

### ELECTRONIC COUNTER

#### DISPLAY ELECTRONIC COUNTER

An electronic counter memorizes in an aggregate mode all the items dispensed from the last reset.

#### RESET ELECTRONIC COUNTER

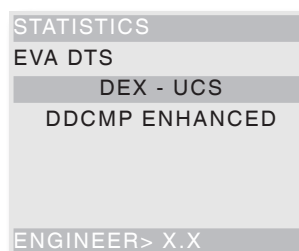
The electronic counter can be reset.

#### DISPLAY NUMBER OF STROKES AT START-UP

With this function it is possible to enable or disable the display of the total number of items dispensed from the last reset of statistics, during the machine start-up phase.

### EVA DTS

EVA DTS communication protocol (European Vending Associations Data Transfer System) foresees two codes for identifying the machine and recognising the data transfer terminal:



```
STATISTICS
EVA DTS
  DEX - UCS
    DDCMP ENHANCED
ENGINEER > X.X
```

### COMMUNICATION PROTOCOL

From this function it is possible to decide which communication protocol to use for the communication with the data acquisition device.

The available communication protocols are:

#### DDCMP ENHANCED

with the following configurable parameters:

- **Pass code:** this is an alphanumeric code (0-9; A-F) of four digits which must be equal to the one of the data transfer terminal for permitting its identification.  
Default setting: 0000
- **Security code:** this is an alphanumeric code for mutual recognition between machine and EVA DTS terminal.  
Default setting: 0000
- **End of transmission:** if enabled, it is capable of recognising the end of transmission signal which is sent with the last packet and of interrupting the data transmission.

## DEX/UCS

for this protocol there are no configurable parameters:

### DATA TRANSMISSION

This function allows you to select which communication interface to use for data transmission. The available interfaces are:

- "Serial RS232" and "IrDA kit": for the communication with serial or infrared data acquisition devices.
- "Telemetry" for communications with data acquisition and transmission devices.

### TYPE

Select which communication speed to use between:

- "ENHANCED", the communication speed is automatically adjusted to the speed of the slowest device
- "FIXED", the communication speed is fixed to the speed set with the Baudrate function


### BAUDRATE (TRANSMISSION SPEED)

This allows you to choose the communication speed of transmissions (only if "EVA DTS type" is set with "fixed"). Default setting: 2400bps.

### CONNECTION

By activating this function, the machine waits for the connection with a data acquisition device EVA DTS.


### DISPLAY OF GENERAL STATISTICS


By pressing the confirmation key  the stored data is displayed in sequence:

- 1 - single selection counter;
- 2 - bands counter;
- 3 - discounts counter;
- 4 - faults counter;
- 5 - coin box data.


### RESETTING OF GENERAL STATISTICS

The statistics can be reset, for the relative counters, in a global mode (all types of data) or in a selective mode, for:

- selections
- discounts-overpays
- faults
- coin box data
- By pressing the confirmation key  the flashing confirmation message "Confirm?" is displayed

By pressing the confirmation key  the message "Execution" is displayed for a few seconds and the statistics are reset.

### DISPLAY OF RELATIVE STATISTICS


By pressing the confirmation key  the stored data is displayed in sequence:


- 1 - single selection counter;
- 2 - bands counter;
- 3 - discounts counter;
- 4 - faults counter;
- 5 - coin box data.

### RESETTING THE RELATIVE STATISTICS

The statistics can be reset, for the relative counters, in a global mode (all types of data) or in a selective mode, for:

- selections
- discounts-overpays
- faults
- coin box data

By pressing the confirmation key  the flashing confirmation request "Confirm?" is displayed.

By pressing the confirmation key  the message "Execution" is displayed for a few seconds and the statistics are reset.

### BDV AUDIT PROTOCOL

The data related to the coin box are the indication in real value of:

- Aud 1 Money in the tubes  
money which is in the coin box tubes at that point in time
- Aud 2 Money to the tubes  
Money sent towards the coin box tubes
- Aud 3 Money in the cash till  
Money sent to the cash till for coins
- Aud 4 Return of change  
Total of money returned
- Aud 5 Money distributed  
Total of money which is manually distributed
- Aud 6 Surplus  
Money in surplus. Amounts overpaid by the client, which have not been returned (in the event that there is no availability of money for the change)
- Aud 7 Total sales  
Total value of sales
- Aud 8 Exact change  
Value of sales in "no change given" condition
- Aud 9 Mixed dispensing  
Total value of the dispensed items which were paid for in a different way, for example also through other types of payment (C.P.C., token)
- Aud 10 Manual load  
Money inserted in the coin box through the manual loading function



## MDB AUDIT PROTOCOL



- Aud 1 Money in the tubes  
money which is in the coin box tubes at that point in time
- Aud 2 Money to the tubes  
Money sent towards the coin box tubes
- Aud 3 Money in the cash till  
Money sent to the cash till for coins
- Aud 4 Return of change  
Total of money returned
- Aud 5 Surplus  
Money in surplus. Amounts overpaid by the client, which have not been returned (in the event that there is no availability of money for the change)
- Aud 6 Emptying the tubes  
Value of the coins returned in the "tubes management" function
- Aud 7 Loading the tubes  
Value of the coins cashed in the manual loading function.
- Aud 8 Cash sales  
Value of total sales made in cash (coins + banknotes)
- Aud 9 Banknotes collected  
Value of the banknotes that have been collected
- Aud 10 Recharge key  
Value of the money charged on the key
- Aud 11 Key sales  
Value of the money collected through dispensed items paid by key
- Aud 12 Money dispensed manually  
Value of the coins dispensed manually through the distribution button on the coin box.

## PRINTING

By connecting an RS232 serial printer with a baud rate of 9600, 8 data bits, parity of None and 1 stop bit to the serial connector on the button board, it's possible to print all the statistics described in the paragraphs "display general statistics" and "display relative statistics"; the printout also shows the code of the machine, the date and the software version.

Printing the statistics can be performed in a relative or total mode.

To connect the printer follow these steps:

- press the printing confirmation key  and the confirmation request "Confirm?" is displayed;
- connect the printer before confirming;
- by pressing the confirmation key  printing will start.

## COMMUNICATION

This menu contains the communication functions of the machine through UpKey and GSM (Global system for mobile communications).



## UP-KEY

### SETUP MANAGEMENT

#### UPKEY -> DISPENSER

This function, after having inserted the upkey in the appropriate slot on the CPU board, allows you to select the setup file of the list which will appear on the display; if you then press the confirmation key, the chosen setup file will be loaded into the machine.

#### DISPENSER ->UPKEY

This function, after having inserted the upkey in the appropriate slot on the CPU board, allows you to save on the Upkey a setup file with the configuration present at that point in time on the machine.

It is necessary to specify the name that you want to give to the file (i.e. SOLIS000.STP)

#### DELETE

With this function it is possible to delete the setup files one by one from the inserted Upkey

#### DELETE ALL

With this function it is possible to delete all the setup files from the inserted Upkey.



## UPKEY STATISTICS MANAGEMENT

### DISPENSER ->UPKEY

By confirming this function after having inserted the Upkey in the appropriate slot on the CPU card, you can save a statistics file on the Upkey with all the statistical data which are stored in the machine, specifying the name you want to give to the file (i.e. SOLIS000.STA)

### DELETE

With this function it is possible to delete one by one the statistics files from the upkey

### DELETE ALL

With this function it is possible to delete all the statistics files from the inserted Upkey

### SELECTION D.A.

Uniquely identifies the devices that feature a "slave" function (they send data to a "master" device via a modem).

The number 0 identifies the "master" device

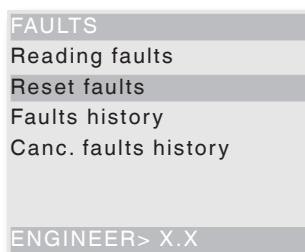
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## FAULTS

The machine has a number of sensors for keeping the various functional groups under control.

When an anomaly is detected, the display of the machine will show the type of fault and the machine (or part of it) is put out of service.

The detected faults are memorized in appropriate counters; the faults managed by the software can be in relation to functional groups which are not present on the specific model; they are however listed when the menu is scrolled.



### READING EXISTING FAULTS

With this function it is possible to display the existing faults

Press the confirmation key **↵** to display the existing faults.

If there are no existing faults, by pressing the confirmation key **↵** the message "End of faults" will be displayed.

The following faults are controlled:

### EMPTY WATER

The machine will stop working if the microswitch of the air-break notifies the lack of water following the opening of the water inlet solenoid valve.

It is possible to try to restore the service of the machine by requesting a drink for a maximum of 3 attempts.

If the internal tank water supply system is installed in the machine, the pump will switch off.

### FULL WASTE

The espresso-based selections are disabled when the number of used pods set in the menu is reached .

### AIR-BREAK

The machine will stop working if, after 10 selections, the microswitch has never notified the lack of water.

### EMPTY CUP

When the empty cup microswitch opens, the column shift motor is activated; if after a full rotation the microswitch does not close, the machine is put out of service. If the machine is equipped with a cup sensor (optional), the machine displays the message "without cup". By means of the appropriate function it is possible to define whether the fault shall block the machine or leave it available for sale with mug.

### MOBILE NOZZLES

The mobile nozzles have not reached the position of delivery.

The device is taken out of service.

### VOLUMETRIC COUNTER (FAN)

No counting of the volumetric counter (fan) within a maximum time.

### MACHINE BOARD

Lack of communication between CPU board and machine board.

## **COIN MECH**

The machine will stop working if it receives a pulse longer than 2 sec. on a validator line or if the communication with the serial coin box does not occur for longer than 30 (Executive protocol) or 75 (BDV protocol) seconds.

## **COFFEE RELEASE**

If after releasing the dose of ground coffee the micro-switch of the doser detects presence of coffee in the doser chamber, the coffee-based selections are disabled.

## **COFFEE UNIT -UNIT FAULT MICROSWITCH-**

All the faults related to the coffee unit are controlled by a "unit position" control microswitch.

The control microswitch is activated by the coffee unit gear motor cam.

This fault signals that during the movement of the infuser unit the control microswitch is not activated within a set time limit.

It is possible that this fault is combined with another positioning fault of the coffee unit

## **COFFEE UNIT -UNIT FAULT START-**

The gear motor is not capable of bringing the coffee unit from the idle position to the infusion position.

## **COFFEE UNIT -UNIT FAULT INFUSER-**

The control microswitch indicates that the coffee unit is not in the infusion position

## **COFFEE UNIT -UNIT FAULT DISPENSING-**

During the infusion phase, the control microswitch indicates the movement of the espresso unit.

## **COFFEE UNIT -UNIT FAULT DISCHARGE-**

At the end of the infusion the control microswitch indicates that the coffee unit is not in the "used pod discharge" position.

## **COFFEE UNIT -UNIT FAULT IDLE-**

The control microswitch indicates that the infuser unit did not go back to the idle position at the end of the discharge of the pod.

## **EMPTY COFFEE**

If the dose of ground coffee in the doser is not reached within 15 seconds, the fault "empty coffee" is recorded.

## **RAM DATA**

One or more areas of the RAM memory contain altered data which was corrected with the default values.

The machine continues to work, but it is preferable to proceed with the initialization as soon as possible.

## **ESPRESSO BOILER**

The machine will stop working if after 10 minutes of heating from start-up or from last selection the water in the boiler has not reached the temperature.

## **CUP RELEASE**

If the cup sensor photocell is installed, after three unsuccessful attempts to release a cup the display will show the message "Without cup". By means of the appropriate function it is possible to define whether the fault shall block the machine or leave it available for sale with mug.

## **FAULTY DOSER (DOSER 1 - 9 FAULT)**

If the current absorption of an ingredient motor is not between the range of default values, all the selections in which the doser is involved are disabled.

## **FAULTY MIXER (WHIPPER 1 - 6 FAULT)**

If the current absorption of a mixer motor is not between the range of default values, all the selections in which that mixer is involved are disabled.

## **SHORT CIRCUIT MOSFET**

If a control device for the DC motors on the activations board (mosfet) remains active, the machine will signal a fault.

## **SHORT CIRCUIT**

If the software detects a short circuit in one of the DC motors connected to the activations board, this fault will be displayed. It is possible that at the same time of this, a fault is also detected on one of the DC motors.

## **SUGAR/STIRRERS FAULT**

If the current absorption of the DC motor is not in the default range, this fault is displayed. It is possible to dispense drinks without sugar.

## **WATER FAULT**

The water fault is declared during the standby mode of the D.A. if the water inlet solenoid valve is activated for a total time longer than 20 sec.

If there is a water fault it is possible to manually restore the service by pressing a key on the control panel. The water inlet solenoid valve is powered for a maximum time of 20 sec.; if the level is not reached the solenoid valve closes and the water fault is signalled again.

It is necessary to wait 30 minutes before performing 2 further restore attempts.

At the 4th attempt, the solenoid valve is disabled permanently (at this point it is necessary to switch off/on the d.a. for obtaining 3 further attempts or resetting the fault from the programming menu).

## **COLD UNIT PRESSURE SWITCH**

Only for models with cold unit.

The cold selections are disabled if the pressure switch at the input of the circuit detects empty water.

## **COLD UNIT COMPRESSOR**

Only for models with cold unit.

This indicates that the cold unit compressor is not working properly

## **EMPTY SYRUP 1 AND 2**

Only for models with cold unit.

The syrup used in the selections is finished.

The selections based on the finished syrup are disabled.

## **EMPTY CARBONATOR**

Only for models with cold unit.

The level control device detects that the carbonator is empty: the cold selections are set out of service.

## **COLD UNIT BOARD**

Only for models with cold unit.

This signals the malfunctioning of the cold unit control board.

## **FAULTS RESET**

By confirming this function all the faults are reset.

## **FAULTS HISTORY**

It is possible to display the last 16 faults, from the most recent one to the oldest one, scrolling with the keys **↑** and **↓**; the corresponding date and time of intervention are also displayed and whether the fault is still active or not (ON / OFF), similar to the data contained in the data audit EVA DTS.

## **RESETTING THE FAULTS HISTORY**

By confirming the function, all the faults present in the "Faults history" list are reset.

## Chapter 3 Maintenance

**The integrity of the machine and compliance of the corresponding systems with the regulations shall be verified, at least once a year, by qualified personnel.**

**Always switch off the machine before starting maintenance operations which require the disassembling of components.**

**The operations described below shall be carried out only by personnel with specific knowledge of the operation of the machine both from the point of view of electrical safety and of hygiene.**

### GENERALITIES

In order to ensure its correct operation, the machine shall be subject to periodical maintenance.

Listed below are the operations to be carried out and the related expiry dates; they are, obviously, indicative because they depend on the conditions of use (i.e. water hardness, environment humidity and temperature, type of product used, etc.).

The operations described in this chapter do not include all the maintenance interventions.

More complex interventions (i.e. descaling of the boiler) shall be carried out by an engineer with specific knowledge of the vending machine.

In order to avoid risks of oxidation or of chemical aggressions in general, the painted surfaces and the surfaces in stainless steel need to be kept cleaned by using neutral detergents (avoid solvents).

**Jets of water are to be absolutely avoided for washing the machine.**

### ESPRESSO UNIT MAINTENANCE

Every 10,000 dispensed items or, however, every 6 months, a small maintenance intervention on the coffee unit is required for optimising its operation.

For performing the maintenance operations it is necessary to remove the unit by following these steps:

- Disconnect the coffee outlet nozzle (2) from the unit by rotating it by 90° from the rod (4) and pulling it outside.
- Act the unit end stop lever (8) rotating it until the horizontal position.
- Extract the coffee unit.

#### DISASSEMBLE/REPLACEMENT OF THE FILTER AND UPPER SEAL

In order to disassemble or replace the filter and the upper seal, follow these steps:

- Unscrew the key (6) fixing lateral screw (5) of the upper piston.
- Rotate the upper piston (1) upwards.
- Remove and replace the upper seal (7).
- Unscrew the upper filter (9) so that it can be removed and replaced.

#### DISASSEMBLING/REPLACEMENT OF THE FILTER AND LOWER SEAL

In order to disassemble or replace the filter and the lower seal, follow these steps:

- Manually bring the unit to the discharge position with the lower piston (12).
- Unscrew the central fixing screw for removing the filter (10).
- Press on the end of the piston stem guide (14) for obtaining an extra run of the lower piston (12).
- Pull with a small screwdriver for sliding the lower piston (12) out from the piston stem (14) being careful not to damage the piston or the sealing elements
- Remove and replace the lower seal (13).
-

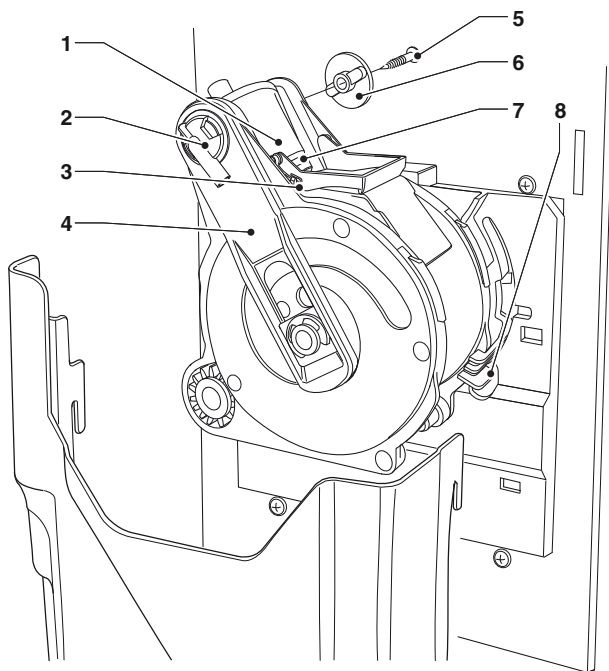
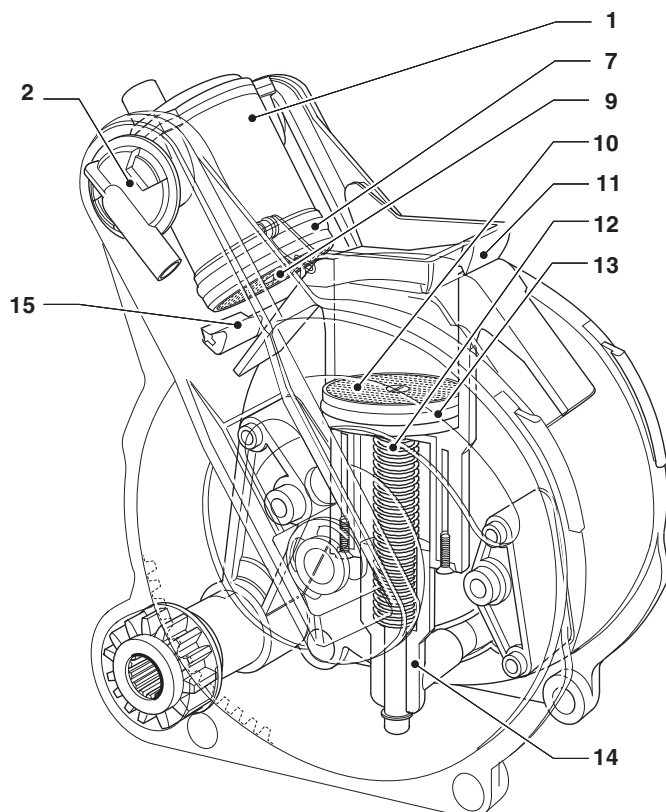


Fig. 27

- 1- Upper piston
- 2- Coffee outlet nozzle
- 3- Lower scraper
- 4- Rod
- 5- Lateral screw
- 6- Key
- 7- Upper seal
- 8- Unit end stop lever
- 9- Upper filter
- 10- Lower filter
- 11- Lower scraper
- 12- Lower piston
- 13- Lower seal
- 14- Piston stem guide
- 15- Upper scraper
- 16- Unit cover



## PERIODICAL OPERATIONS

At least every year, or more frequently depending on the use of the machine and the quality of the water used, it is necessary to clean and sterilise the entire circuit and the parts which are in contact with the food products

## SANITIZATION

- all the components which are in contact with the food products, including the tubes, shall be removed from the machine and disassembled in all their parts;
- all the residues and visible films shall be mechanically removed using brushes if necessary;
- the components shall be kept into a sterilising solution for at least 20 minutes;

the internal surfaces of the machine need to be cleaned with the same sterilising solution;

- rinse well and reassemble the components.

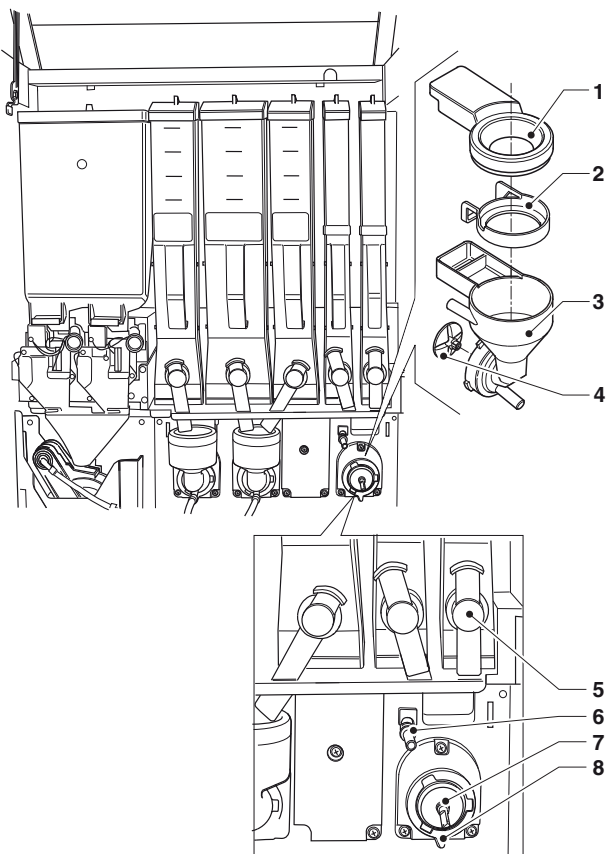


Fig. 28

- 1- Powder funnel
- 2- Splashguard ring
- 3- Water conveyor
- 4- Mixer fan
- 5- Powder nozzle
- 6- Water inlet nozzle
- 7- Stuffing box seal
- 8- Mixer fixing flange

**Before restarting the machine, the sterilising operations need to be carried out again with the components installed, as described in the chapter “Sanitization of the mixers and of the food products circuits”**

## CONDUITS AND MIXERS

Periodically, apart from the external parts of the mixers which need to be cleaned of any powder residue, particularly in the funnel area, the parts of the mixer which are in contact with the drink should also be sterilised.

**Absolutely do not use jets of water for cleaning.**

The parts that need to be cleaned are:

- Powder funnels, mixers and instant drinks dispensing pipes;
- Pipes and dispensing nozzles;
- Dispensing unit.

Open the cover of the mixer dispensing cell and lift the powder nozzles up to the end stop.

- Remove (see fig. 28) the powder funnels, the water conveyors, the powder deposit funnels and the mixer motor fans from the mixers;
- the fans can be removed by simply pulling gently to free them (see Fig. 28);

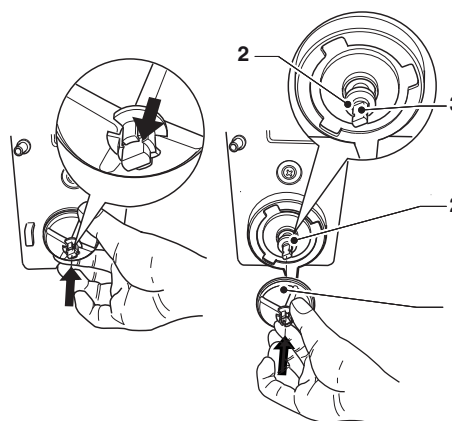


Fig. 29

- 1- Fan
- 2- Stuffing box seal
- 3- Shaft discharge

- Verify that the stuffing box lip seal is not broken and has not lost elasticity; for inserting it, place the seal just beyond the shaft discharge.  
By inserting the fan completely, the stuffing box seal will assume the correct position (see Fig. 28).
- Wash all the components with sterilising products (follow the dosage indicated by the manufacturer), being careful to mechanically remove the visible residues using brushes if necessary.

The sanitization is performed by means of sterilising products.

- Dip the parts for approx. 20 minutes in a recipient containing the previously prepared sterilising solution.
- Reinstall the conveyors and the water funnels.
- Reinstall the powder deposit drawers and the powder funnels after having carefully rinsed and dried them.
- When reassembling the fans make sure to insert them completely until they click.

**After installing the components it is however necessary:**

- To wash the mixer and add a few drops of the sterilising solution into the various funnels.
- Once the sanitization has been performed, rinse the components well in order to remove any possible residue of the solution used.

## PRODUCTS CONTAINERS

- Remove the containers from the machine;
- remove the product outlet nozzles and take the augers off from the back of the container;
- clean all the components with a solution of hot water and sterilising products and dry them carefully.

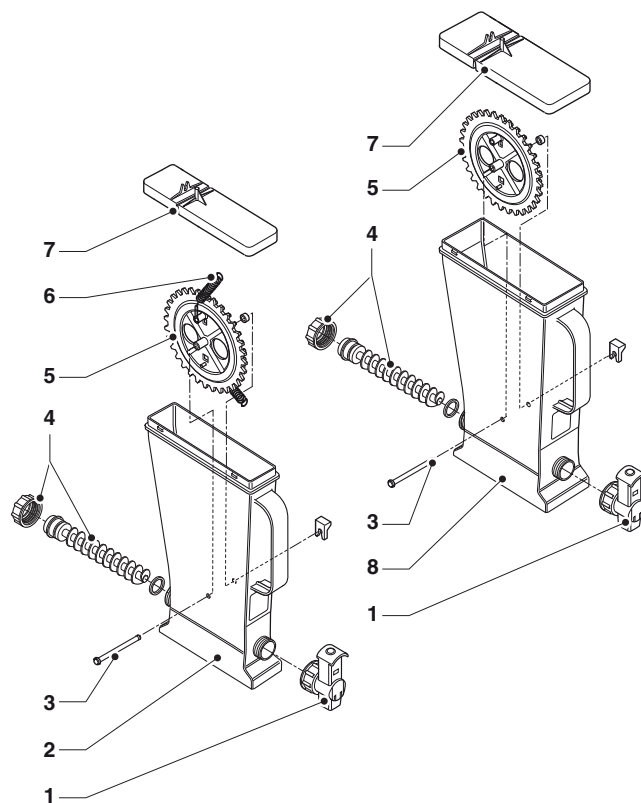


Fig. 30

- 1- Powder nozzle
- 2- Container 2.5 liters
- 3- Pin for wheel
- 4- Auger
- 5- Sprocket
- 6- Scraper
- 7- Container covers
- 8- Container 4.5 liters



# BOARDS FUNCTION

## CONFIGURATION OF ELECTRONIC BOARDS

The electronic boards are designed to be used on several models of machines.

In case of replacement, or in order to change the performance of the machine, it will be necessary to verify the configuration of the boards and load the adequate software.

The boards are accessible by removing the cover of the electrical panel or the door cover.

### POWER SUPPLY AND FUSES

The fuse on the power supply network is accessible without removing the cover (see Fig. 32).

The transformer which provides voltage to the boards and the corresponding protection fuses are accessible by removing the containers and moving away the door after loosening a screw

**Important!!!**

**The covers need to be removed after disconnecting the machine from the power supply.**

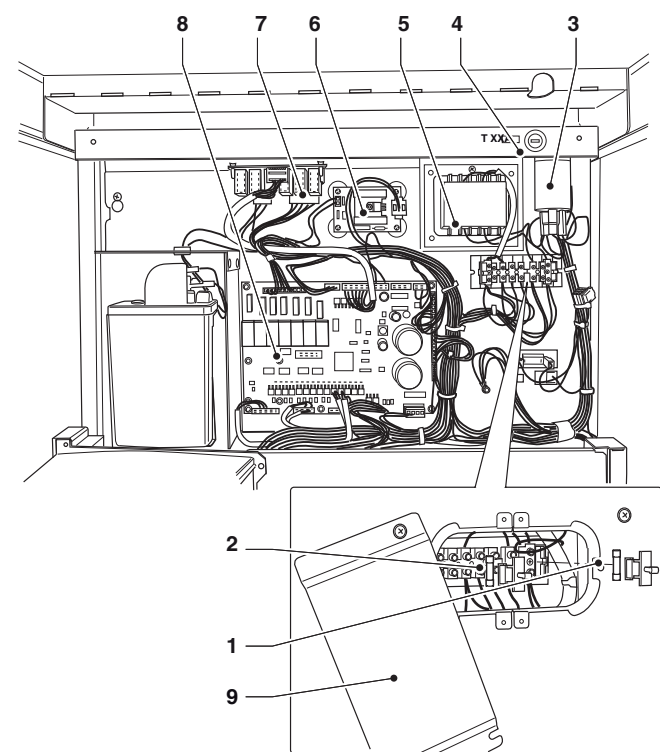


Fig. 31

- 1- Transformer primary fuses
- 2- Transformer secondary fuses
- 3- Anti-noise filter
- 4- Mains fuse
- 5- Transformer
- 6- Boiler control board
- 7- Relay Card (if present)
- 8- Activations board
- 9- Fuses access door

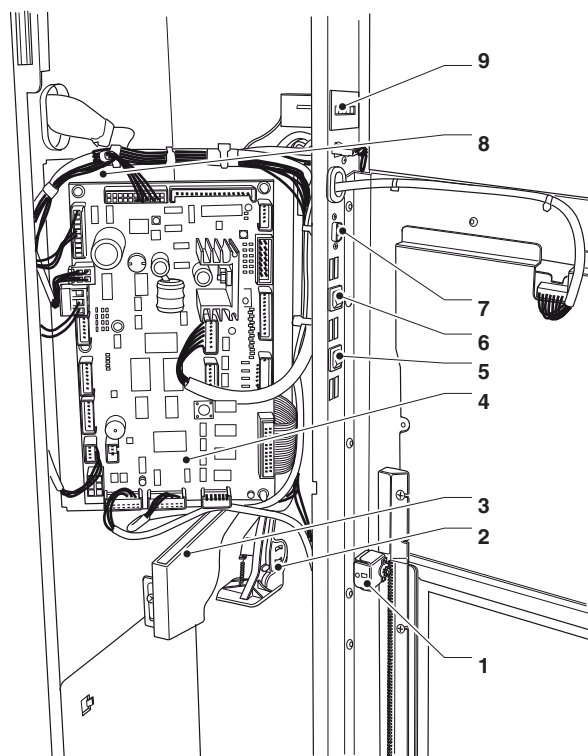


Fig. 32

- 1- Door closing slow motion
- 2- Selector opening lever
- 3- Coins slide
- 4- CPU board
- 5- "Programming" button
- 6- Mixer wash button
- 7- RS232 connector
- 8- Opening card support
- 9- Mechanical strokes counter

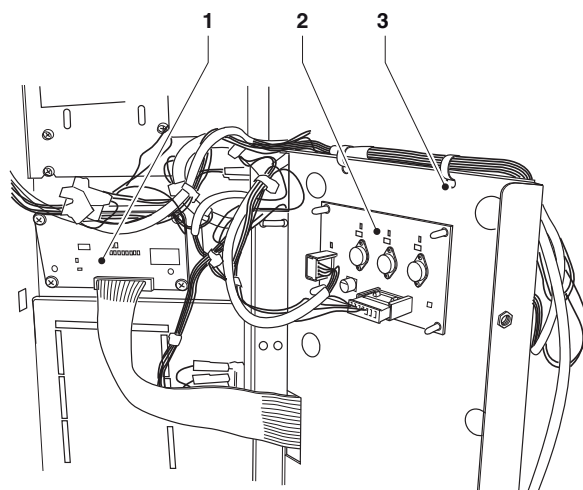


Fig. 33

- 1- Graphic dD
- 2- LED power supply board
- 3- Opening card support

## ACTIVATIONS BOARD

This board (see Fig. 35) activates, through relays, the equipment working with 230 V~ and the DC motors directly. It manages the signals originating from the cams and/or microswitches on the various equipment. Furthermore, it controls the boiler management board. The board works with 24 Vac for the electronic parts and the payment systems.

The board management software is loaded directly, (through RS232) on the microprocessor.

- The green LED 6 (23) flashes during the normal operation of the board;
- The yellow LED 7 (25) indicates the presence of 5 Vdc.
- The red LED 8 (12) is on during the board reset
- The red LED 4 (17) indicates the operating status of the espresso boiler resistance.
- The red LED 5 (18) **not used** on these models, indicates the operating status of the instant drinks boiler resistance.
- The green LED 1 (26) indicates the pulses of the volumetric counter.
- The green LED 2 (1) indicates the presence of 34Vdc.
- The green LED 3 (4) indicates the presence of regulated 34Vdc.

## RELAY FUNCTION (SEE THE WIRING DIAGRAM)

RELAY		USER
RL1	=	EEA
RL2	=	MAC
RL3	=	MSB
RL4	=	MSCB
RL5	=	Not used
RL6	=	PM
RL7	=	ESC

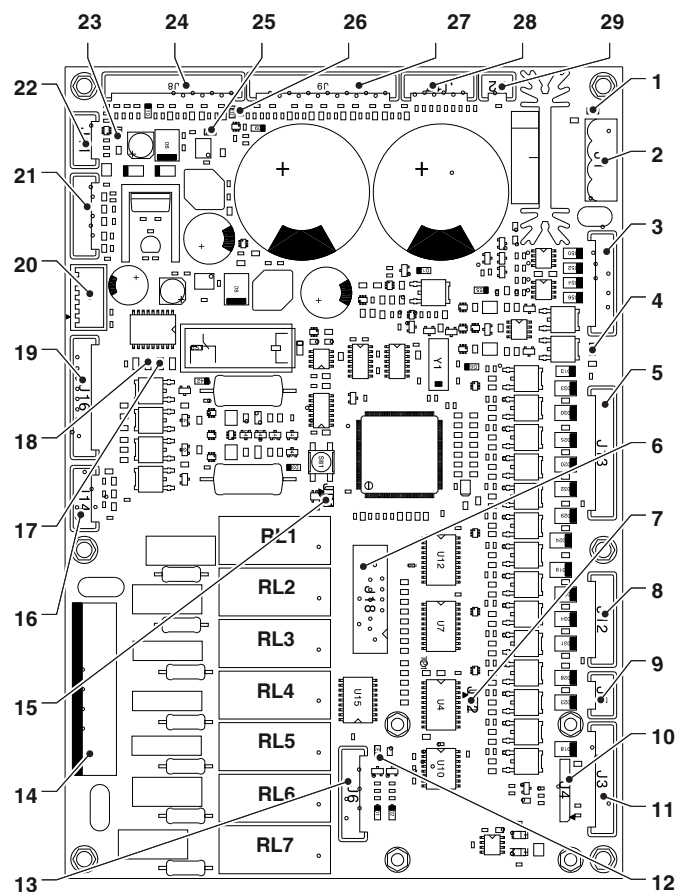


Fig. 34

- 1- LED 2
- 2- Power supply 24 Vac
- 3- Actuators in DC
- 4- LED 3
- 5- Solenoid valve - mixer motors (EV-MF)
- 6- Not installed
- 7- JP2 Closed Jumper CAN
- 8- Ingredient motors MD
- 9- CAN BUS
- 10- Not used
- 11- To the CPU board
- 12- LED 8
- 13- Board programming
- 14- Actuators 230V
- 15- JP1 closed
- 16- Motor Z4000
- 17- LED 4
- 18- LED 5
- 19- To the relay Card (if present)
- 20- CPU power supply
- 21- Not used
- 22- Safety microswitch
- 23- LED 6
- 24- Input
- 25- LED 7
- 26- LED 1
- 27- Input
- 28- Probe and activation of boiler board
- 29- Not used

## CPU BOARD

The CPU board (Central Process Unit) manages all intended users for maximum configuration and manages the incoming signals from a keyboard, payment system and manages the activations card.

The LEDs, during the operation, give the following indications:

- the green LED (26) flashes during the normal operation of the CPU board;
- the yellow LED (28) is on in the presence of 5 Vdc;
- the red LED (27) is on when there is, for any reason, a reset of the software.

## SOFTWARE UPDATE

The machine is equipped with Flash EPROM which can be rewritten.

By means of an appropriate programme and a suitable system (PC or PDA) it is possible to rewrite the management software of the machine without replacing the EPROMs.

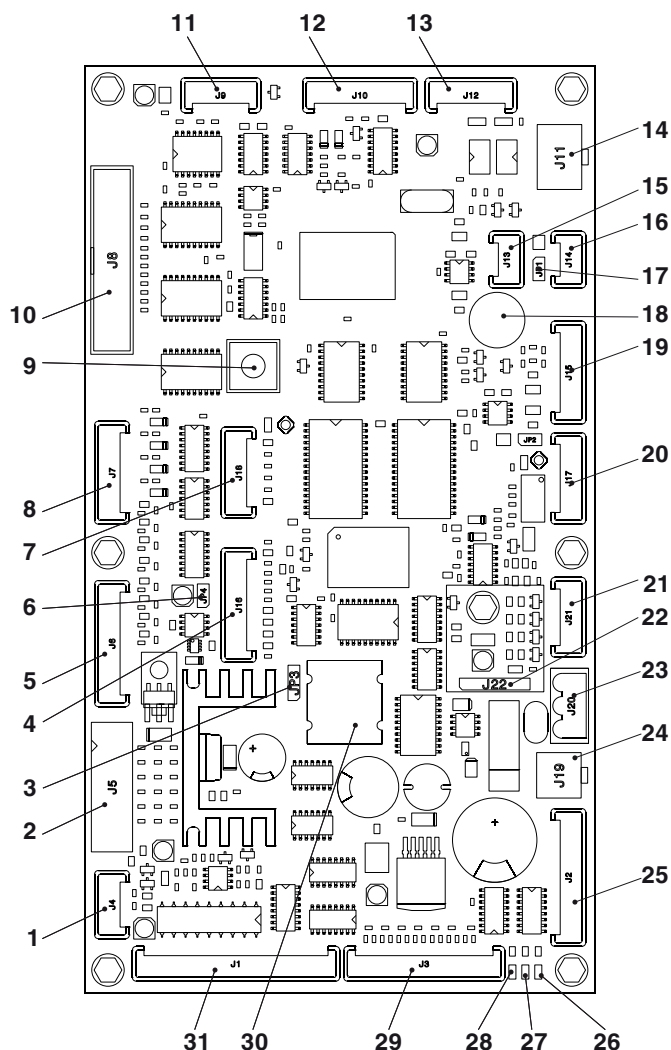


Fig. 35

- 1- Micro door (optional)
- 2- Validators
- 3- Battery bridge (2-3)
- 4- To the buttons/LED board
- 5- Not used
- 6- Jumper JP4 WDI (Closed)
- 7- Up-key
- 8- Numeric selection keyboard (optional)
- 9- Programming input button
- 10- Graphic display
- 11- Numeric selection keyboard
- 12- Serial RS232
- 13- EXE/BDV Payments
- 14- MDB Payments
- 15- Can-Bus
- 16- Can-Bus
- 17- Jumper Can-Bus JP1 (Closed)
- 18- Buzzer
- 19- Not used
- 20- Not used
- 21- Not used
- 22- RAM data expansion (optional)
- 23- Power supply 34Vdc
- 24- Door lighting connection
- 25- Strokes counter
- 26- DL3 "RUN" green LED
- 27- DL2 "RESET" red LED
- 28- DL1 "+5V" Yellow LED
- 29- To external programming and washing button
- 30- Battery
- 31- Not used

## BOILER CONTROL BOARD

The board controls the intervention of the espresso boiler resistance.

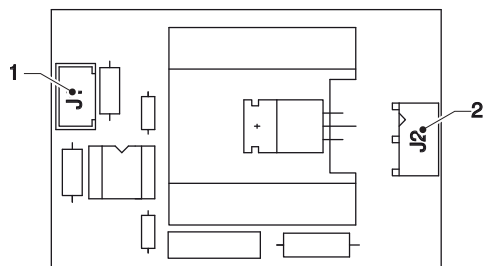


Fig. 36

- 1- J1 To the activations board
- 2- J2 To the boiler resistance

## POWER CONTROLLER CARD

The power controller card provides direct current to the LEDs.

The card provides constant lighting of the aesthetics panels.

The card is positioned at the bottom of the coin box.

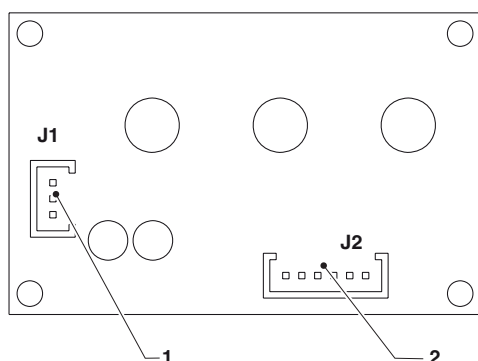


Fig. 37

- 1- To the CPU board
- 2- To LEDs

## BOILER MAINTENANCE

Depending on the mains water hardness and on the number of selections made, a descaling of the boiler could be required.

### Warning!

The boiler is sealed (cannot be open); therefore, the scaling operation must be performed only by qualified service personnel. using liquid descaling products. To perform the descaling it is necessary to disassemble the boiler from the apparatus.

**For descaling only use non-toxic and non-aggressive biodegradable products.**

Rinse well before reassembling the components.

When reassembling, make sure that:

- the electrical connections (terminals, faston, etc...) are perfectly dry and well connected
- the safety thermostats and the thermostat with capillary are properly positioned and connected.
- the hydraulic connections are correct.

## BOILER THERMAL PROTECTION

The espresso boiler has 2 contact safety thermostats (klixon), which deactivates the boiler resistance in case the temperature of the water exceeds the safety temperature (125°C).

An additional thermostat with capillary will stop the power supply when the boiler reaches a temperature of 130° C without the presence of water (dry).

In case of intervention of one or more thermostats, the system shall be restored manually with the proper button, after having eliminated the cause of the fault.

To restore the dry functioning protection thermostat remove the protective cover of the reset button and press the button itself, then replace the cover.

### Important!

In case of intervention of one or more safety devices it is necessary to replace the boiler temperature probe and seals of the fittings on the boiler itself, as they might be potentially damaged irreversibly.

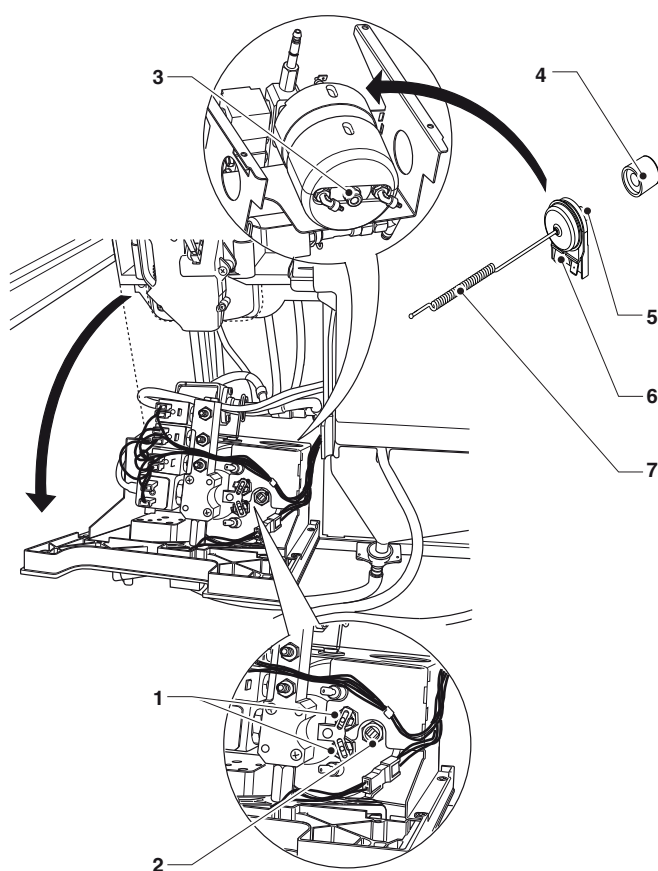


Fig. 38

- 1- Espresso Boiler Thermostats
- 2- Boiler temperature probe
- 3- Coupling for thermostat capillary
- 4- Knob
- 5- Thermostat with capillary reset button
- 6- Thermostat with capillary
- 7- Capillary

## FAN REPLACEMENT

Access to the vapor suction fan occurs from the inside of the unit.

If for any reason it becomes necessary to intervene on the fan, remove the soluble containers from the device and remove the appropriate cover

### Important!

**The covers need to be removed after disconnecting the machine from the power supply.**

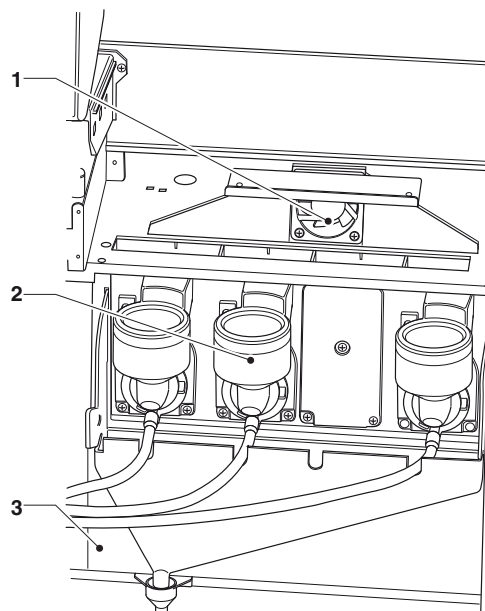


Fig. 39

- 1- Vapor suction fan
- 2- Solubles mixer
- 3- Solubles mixer cover

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**NAVIGATION MENU**

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**HYDRAULIC CIRCUIT**

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**WIRING DIAGRAM**

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## NAVIGATION MODE

The machine can work in 3 different operating modes:

- **Normal user;**
- **Loader menu;**
- **Engineer menu.**

For entering the programming menu you need to press the programming button.

The machine goes into Loader Menu mode.

By pressing the key  you can switch from the "Loader Menu" to the "Engineer Menu" and vice versa.

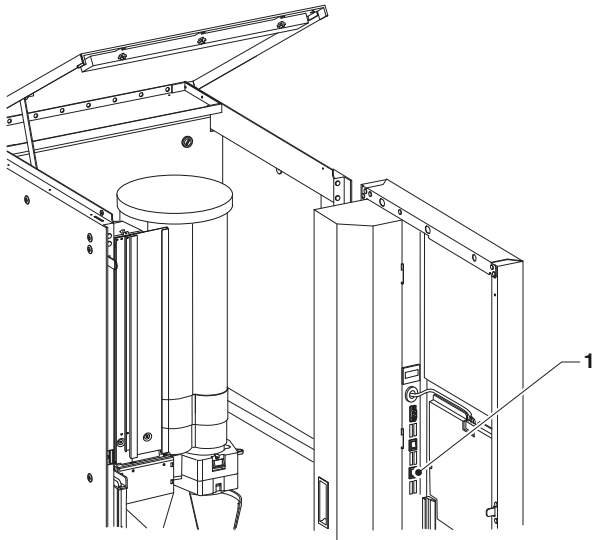




Fig. 1

1- Programming input button


## ENTERING THE PROGRAMMING MODE

If you want to move inside the menus use the keys shown in the figure:


### NAVIGATION KEYS UP AND DOWN

Through the navigation keys  and  it is possible to move from one item of the programming menus to the next which are at the same level and modify the status (ON/OFF) or the alphanumeric values of the functions

### CONFIRMATION KEY / SEND




Through the confirmation/send key  it is possible to switch to the immediately lower-level menu or to confirm a data item which has just been entered or modified.

### EXIT KEY

By pressing the exit key  it is possible to go back to the upper level or exit from a function modification field. When you have reached the highest level of the Menu, by pressing this key again you can switch from the Engineer Menu to the Loader Menu and vice versa.

## INSERTING THE ALPHANUMERIC VALUES

When the management software requests the insertion of alphanumeric characters, the keys assume the following functions:

- The confirmation key  allows you to modify / enter the first character, confirm it and then go on to the next one.
- the keys  and  allow you to scroll the available characters.

## PASSWORD INPUT WITH CLOSED DOOR

The password input with closed door allows to perform the operation associated with the entered password. By means of the password input with closed door it is possible to:

- Wash the mixer
- Wash the infuser unit
- Reset the waste counter

To enter the password with closed door, proceed as follows:

- Press and hold key no. 4 for two seconds.
- The management software asks for the input of a password and the keyboard adopts the numerical values shown in the figure below.  
The machine remains in standby for a few seconds for the input of the password (5 digits) which allows you to perform the operation associated with the entered password.

These passwords can be defined in the Engineer Menu. By default, all the passwords are disabled.

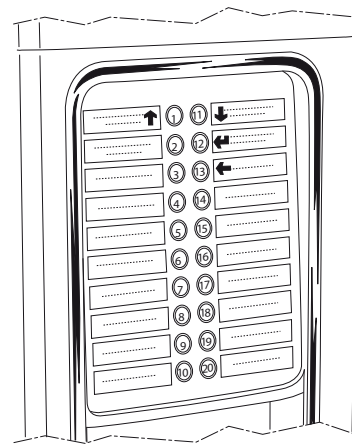
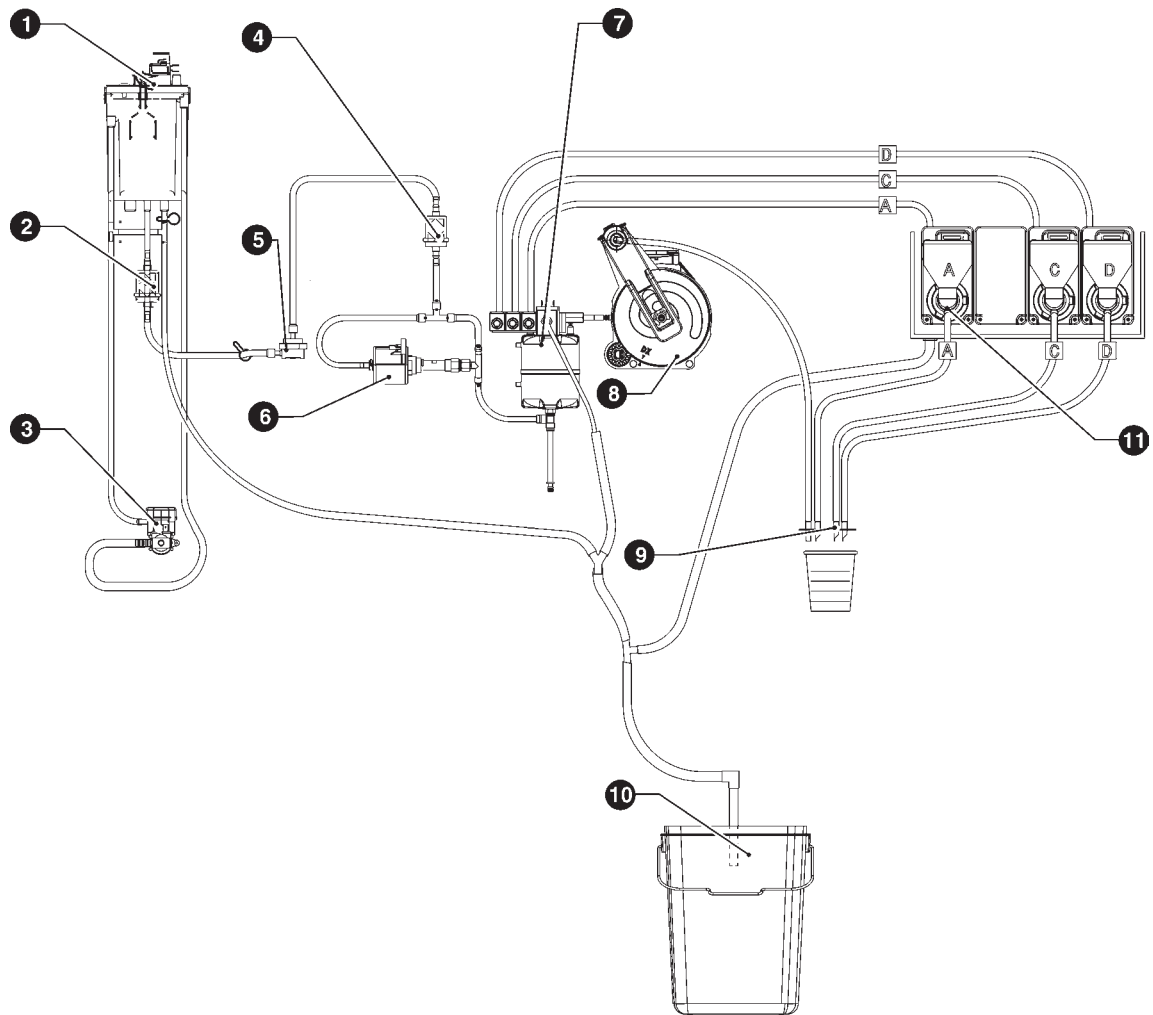


Fig. 2

Function of the selection buttons in programming mode



# HYDRAULIC CIRCUIT

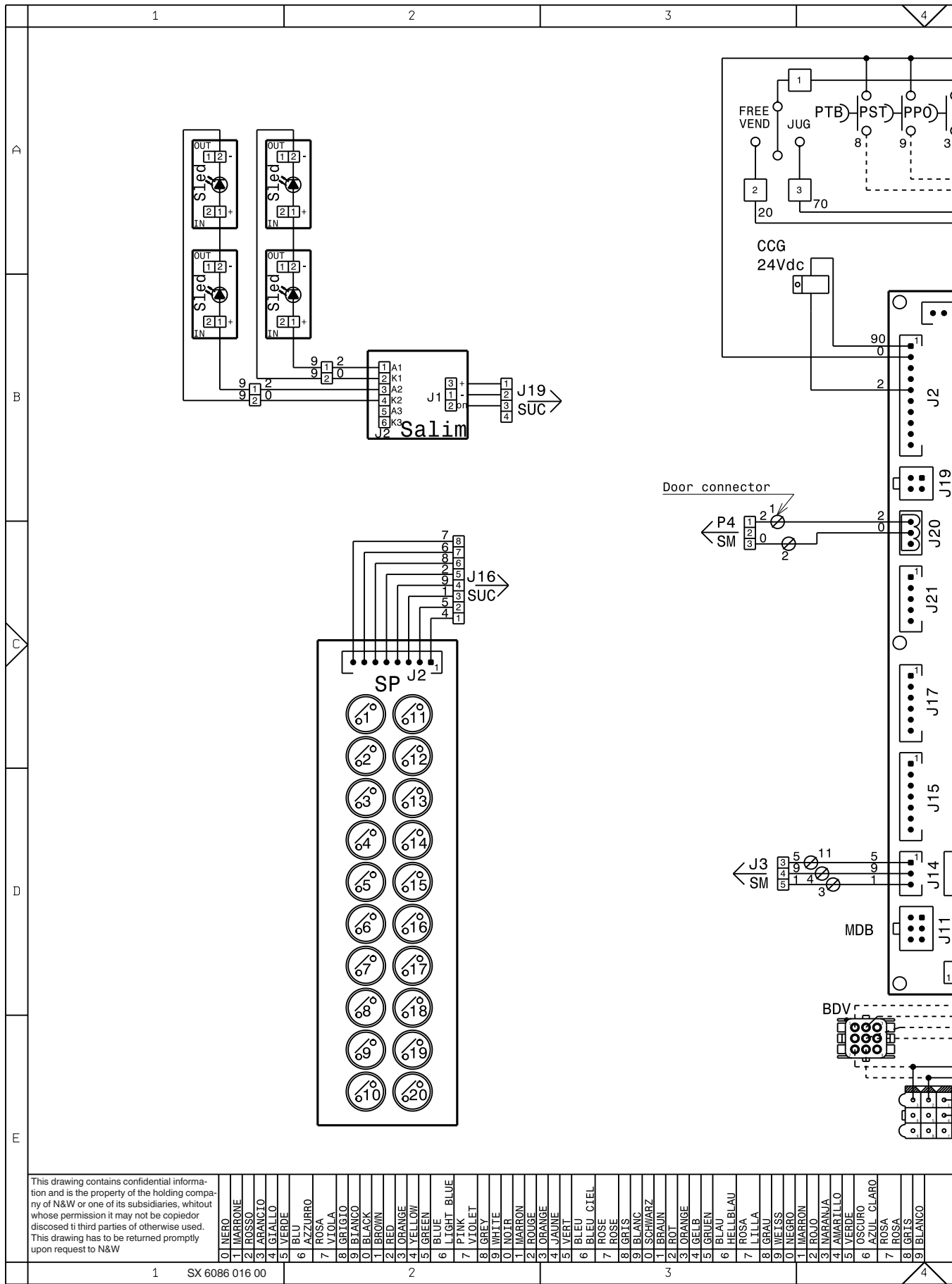


- 1- Air-break
- 2- Mechanical filter
- 3- Water inlet solenoid valve
- 4- Stabilizer filter
- 5- Volumetric counter
- 6- Vibration pump

- 7- Boiler and dispensing solenoids
- 8- Coffee unit
- 9- Dispensing nozzles
- 10- Liquid waste container
- 11- Instant drinks mixers



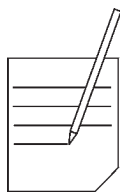




BDV BDV COIN MECH CONNECTOR  
 CCG GENERAL COUNTER  
 DOOR DOOR CONNECTOR  
 EX EXECUTIVE COIN MECH CONNECTORS  
 FREE FREE VEND SWITCH

JUG JUG FACILITIES SWITCH  
 LCD LIQUID CRYSTAL DISPLAY  
 MDB MDB COIN MECH CONNECTOR  
 PIP PROGRAMMING BUTTON  
 PL WASHING BUTTON





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[illegible]

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